

## **APPENDIX A: SAR TEST DATA**

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:4.15  
Medium: 835 Muscle; Medium parameters used (interpolated):  
 $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: GSM-GPRS850, Lap position, LCD Flip, Mid.ch, 2x slots, Main Ant**

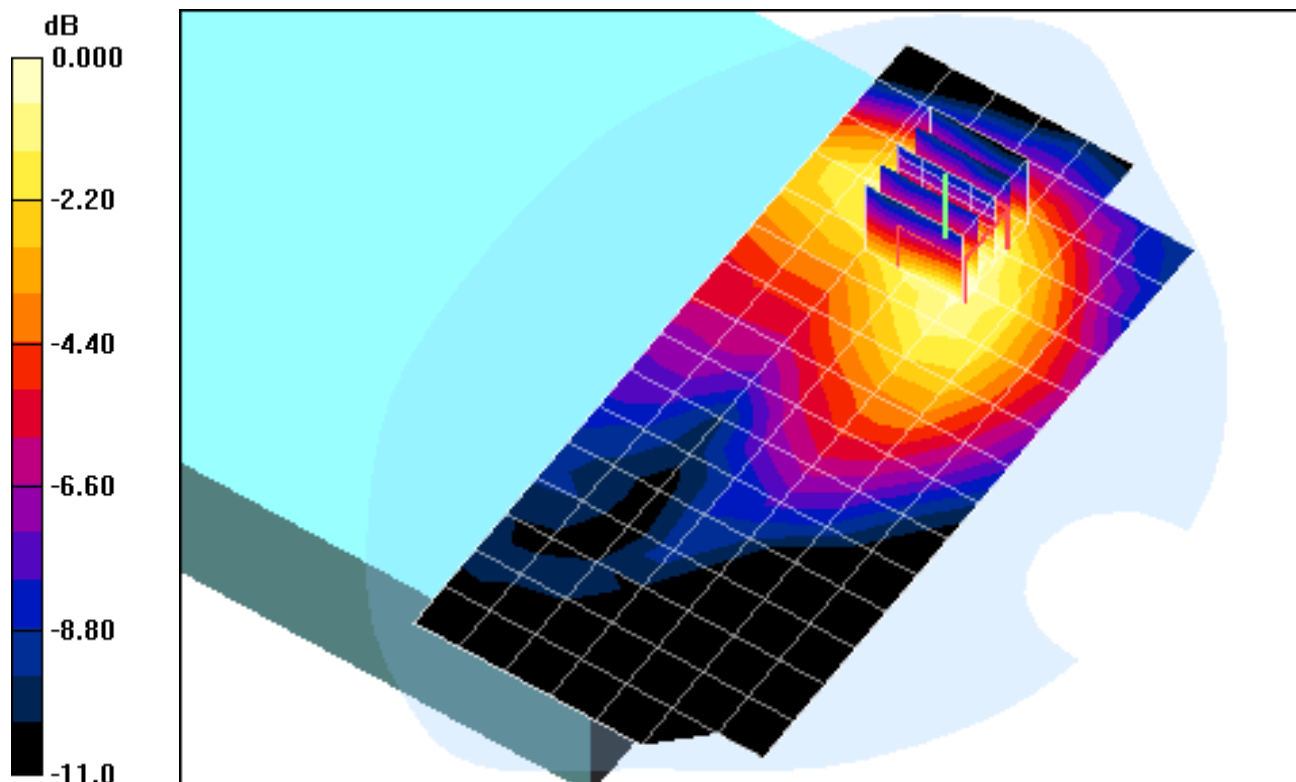
**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 9.61 V/m;

Peak SAR (extrapolated) = 0.123 W/kg

**SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.055 mW/g**



0 dB = 0.095mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:4.15  
Medium: 835 Muscle; Medium parameters used (interpolated):  
 $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: GSM-GPRS850, Edge Bottom position, LCD Flip, Mid.ch, 2x Slots, Main Ant**

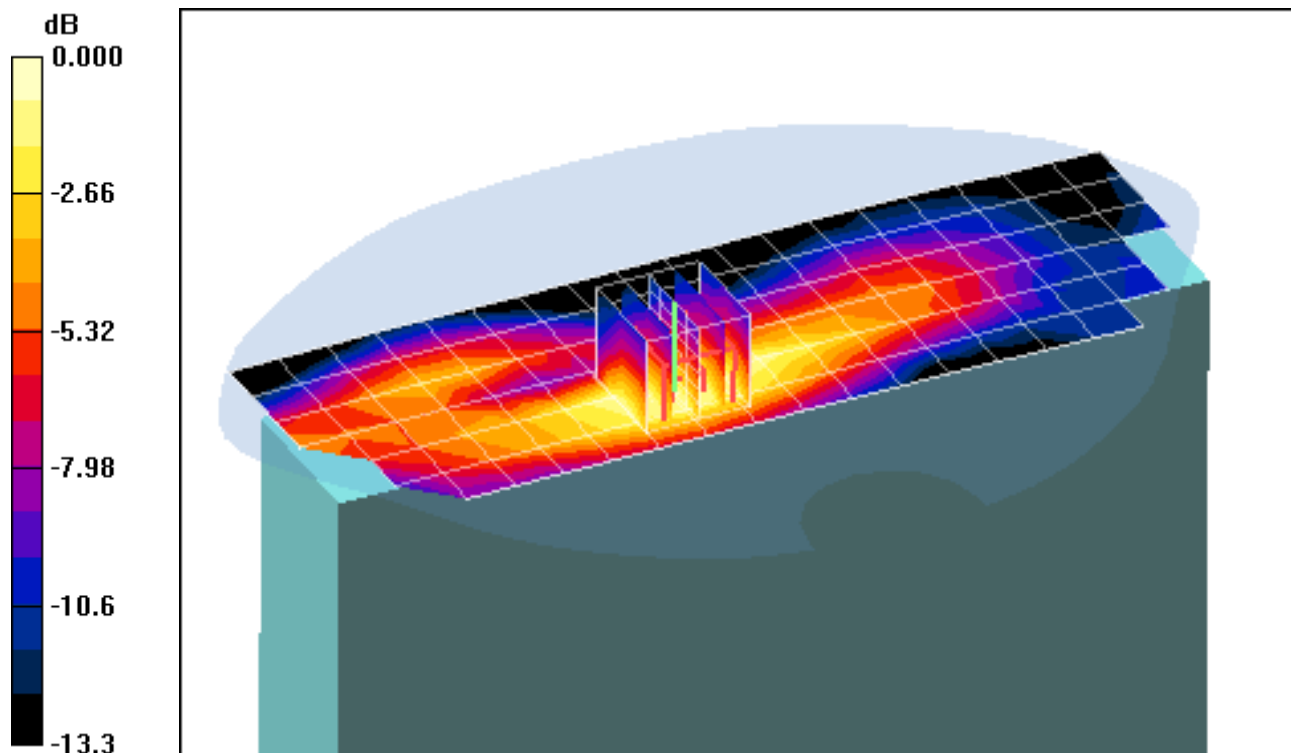
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 9.53 V/m

Peak SAR (extrapolated) = 0.128 W/kg

**SAR(1 g) = 0.079 mW/g; SAR(10 g) = 0.049 mW/g**



0 dB = 0.093mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:4.15  
Medium: 835 Muscle; Medium parameters used (interpolated):  
 $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: GSM-GPRS850, Edge Top position, LCD Flip, Mid.ch, 2x Slots, Main Ant**

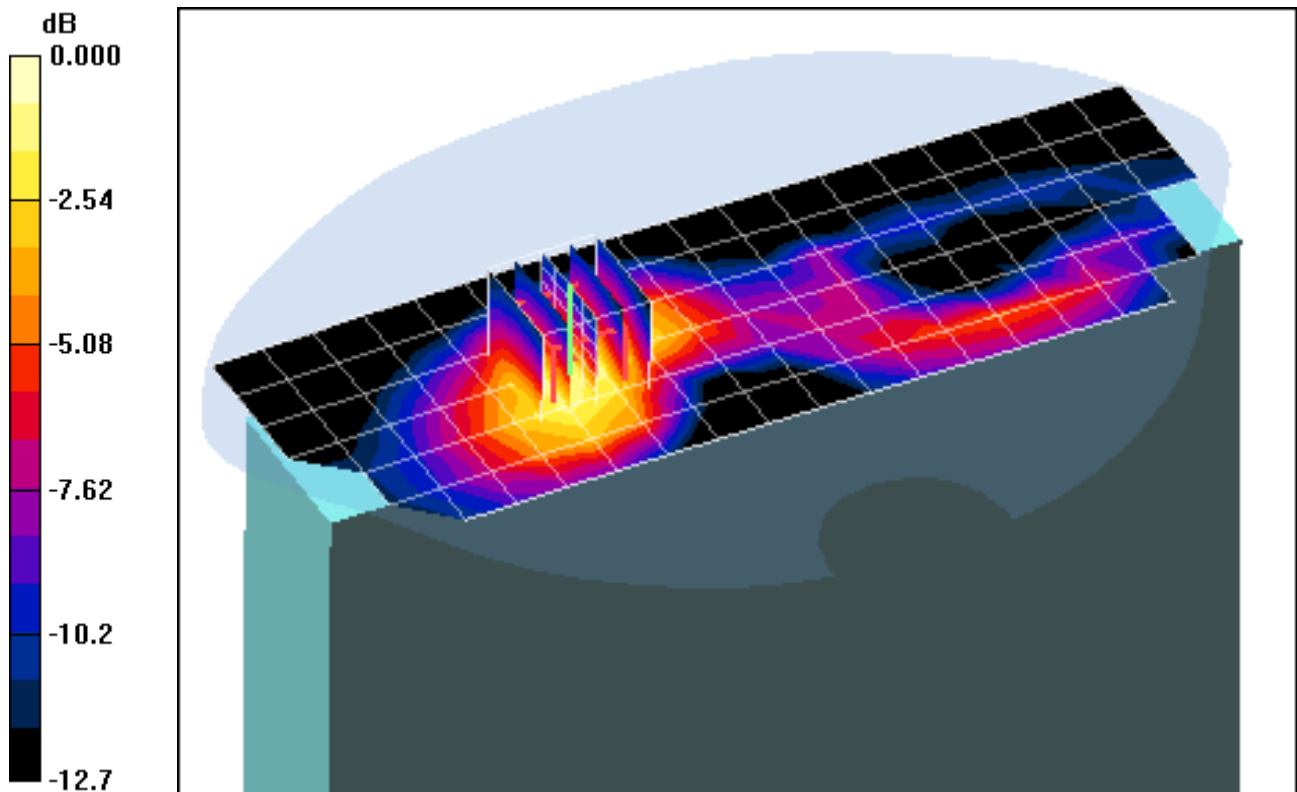
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 18.5 V/m

Peak SAR (extrapolated) = 0.478 W/kg

**SAR(1 g) = 0.302 mW/g; SAR(10 g) = 0.185 mW/g**



0 dB = 0.367mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:4.15  
Medium: 1900 Muscle; Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: GSM-GPRS1900, Lap position, LCD Flip, Mid.ch, 2x slots, Main Ant**

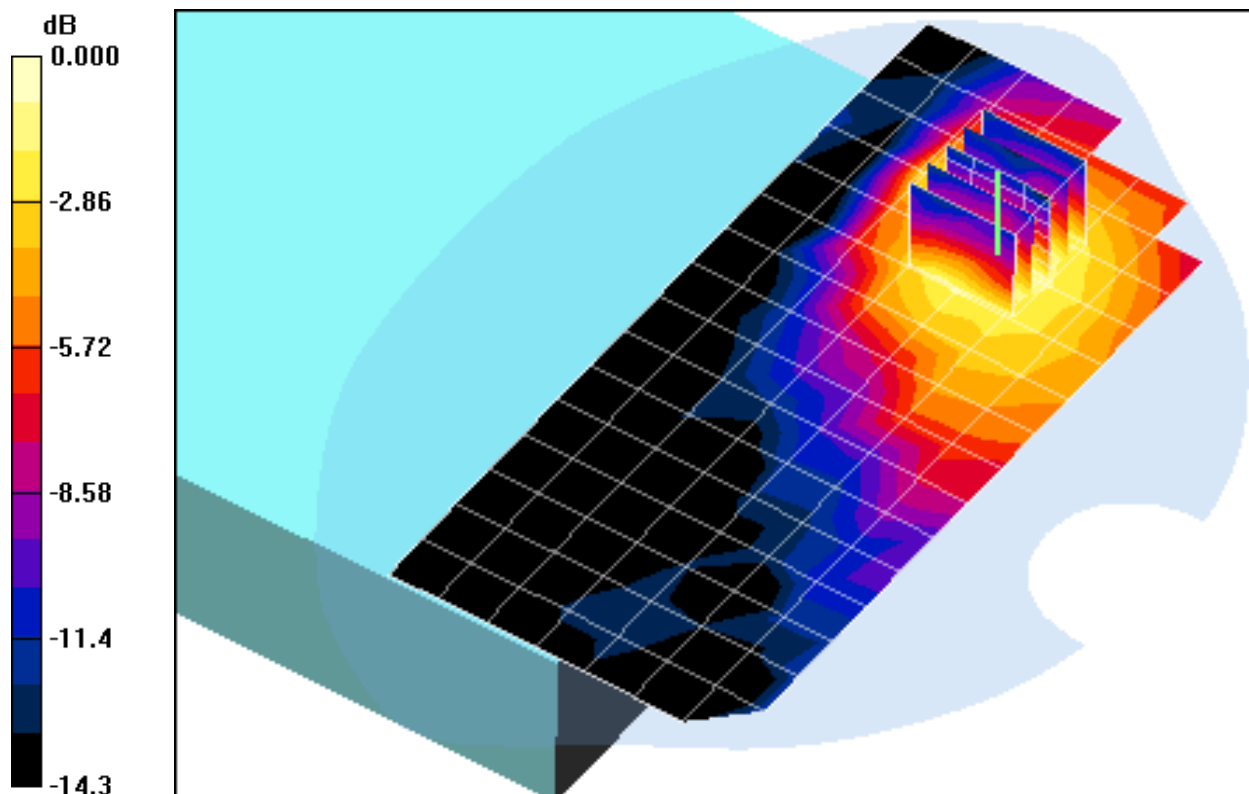
**Area Scan (8x17x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

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

Reference Value = 7.92 V/m

Peak SAR (extrapolated) = 0.145 W/kg

**SAR(1 g) = 0.084 mW/g; SAR(10 g) = 0.050 mW/g**



0 dB = 0.097mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:4.15  
Medium: 1900 Muscle; Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: GSM-GPRS1900, Edge Bottom position, LCD Flip, Mid.ch, 2x Slots, Main Ant**

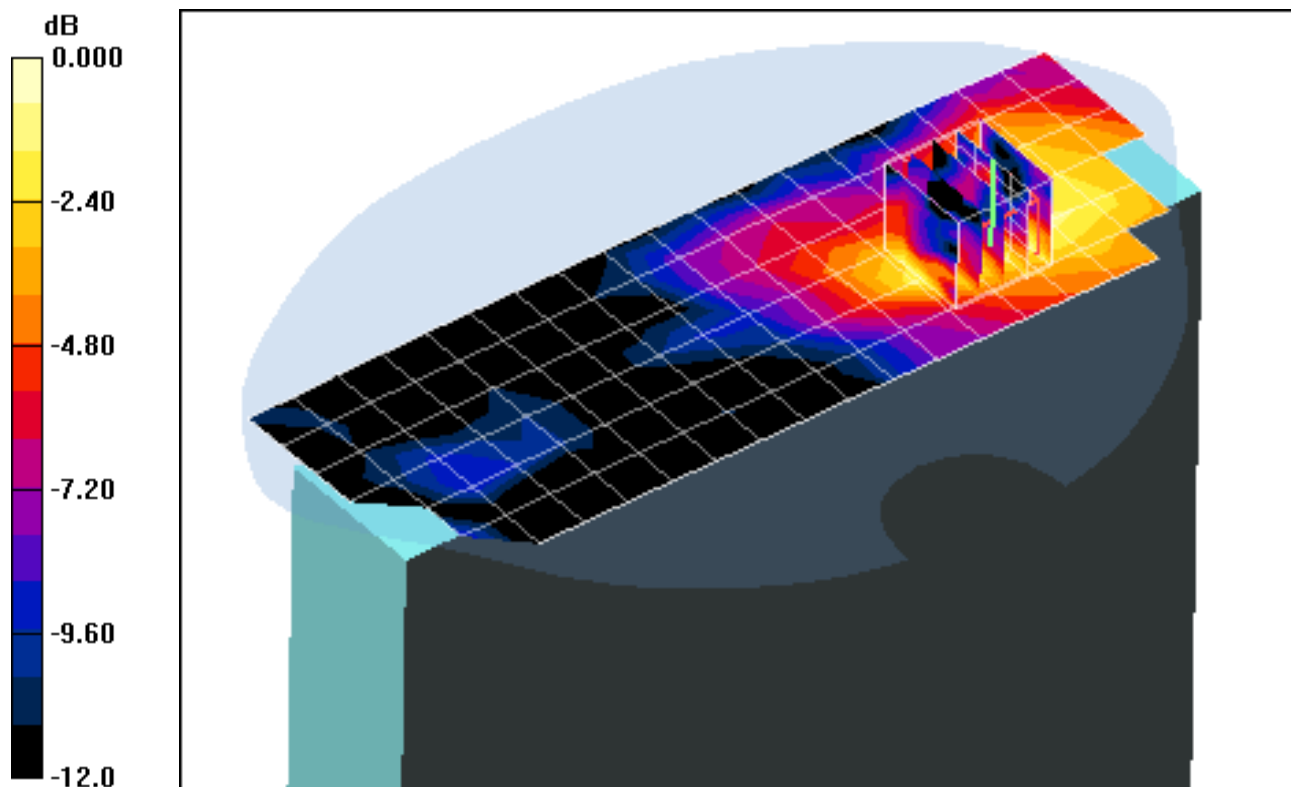
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 4.23 V/m

Peak SAR (extrapolated) = 0.047 W/kg

**SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.016 mW/g**



0 dB = 0.036mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and Bluetooth  
Serial: 9JKSA00026**

Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:4.15

Medium: 1900 Muscle; Medium parameters used:

$f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: GSM-GPRS1900, Edge Top position, LCD Flip, Mid.ch, 2x Slots, Main Ant**

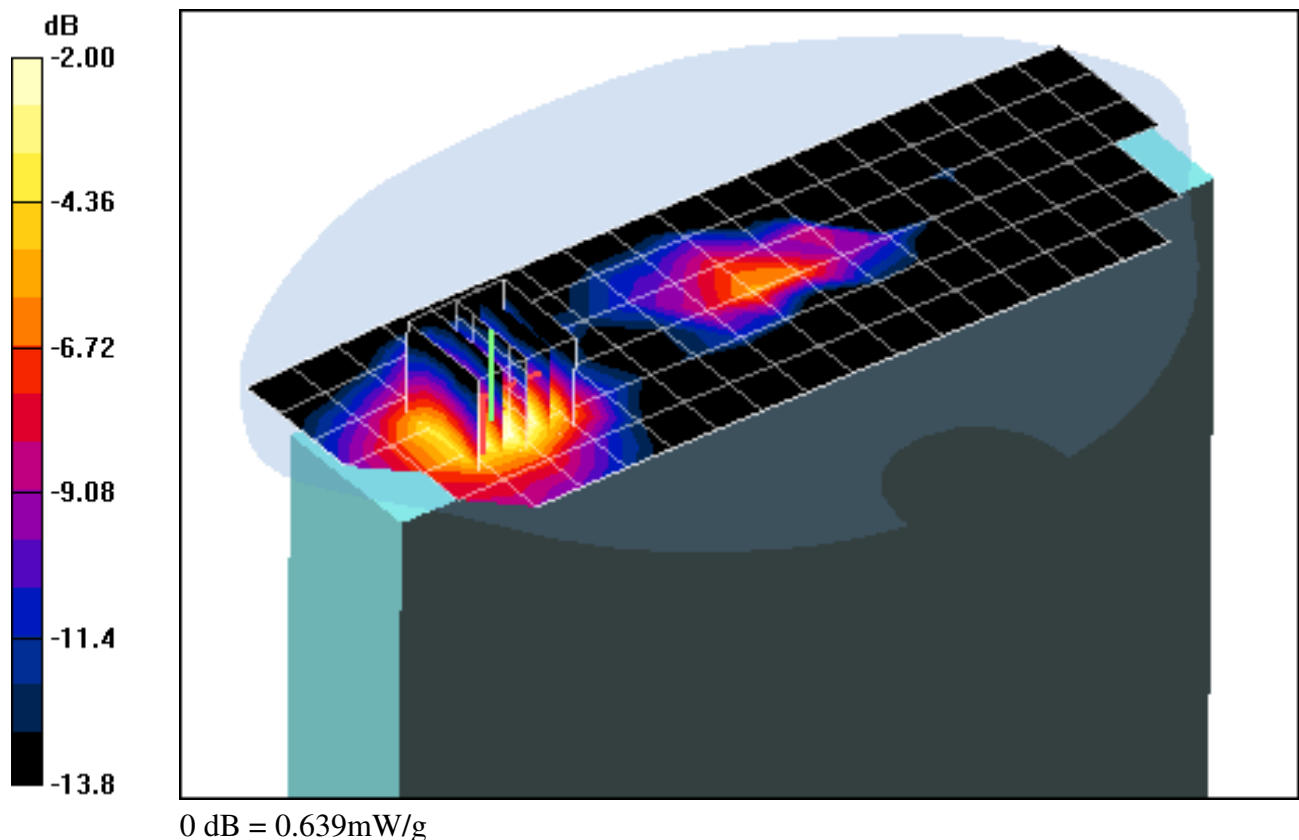
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 18.5 V/m

Peak SAR (extrapolated) = 0.962 W/kg

SAR(1 g) = 0.501 mW/g; SAR(10 g) = 0.260 mW/g



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
Medium: 835 Muscle; Medium parameters used (interpolated):  
 $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

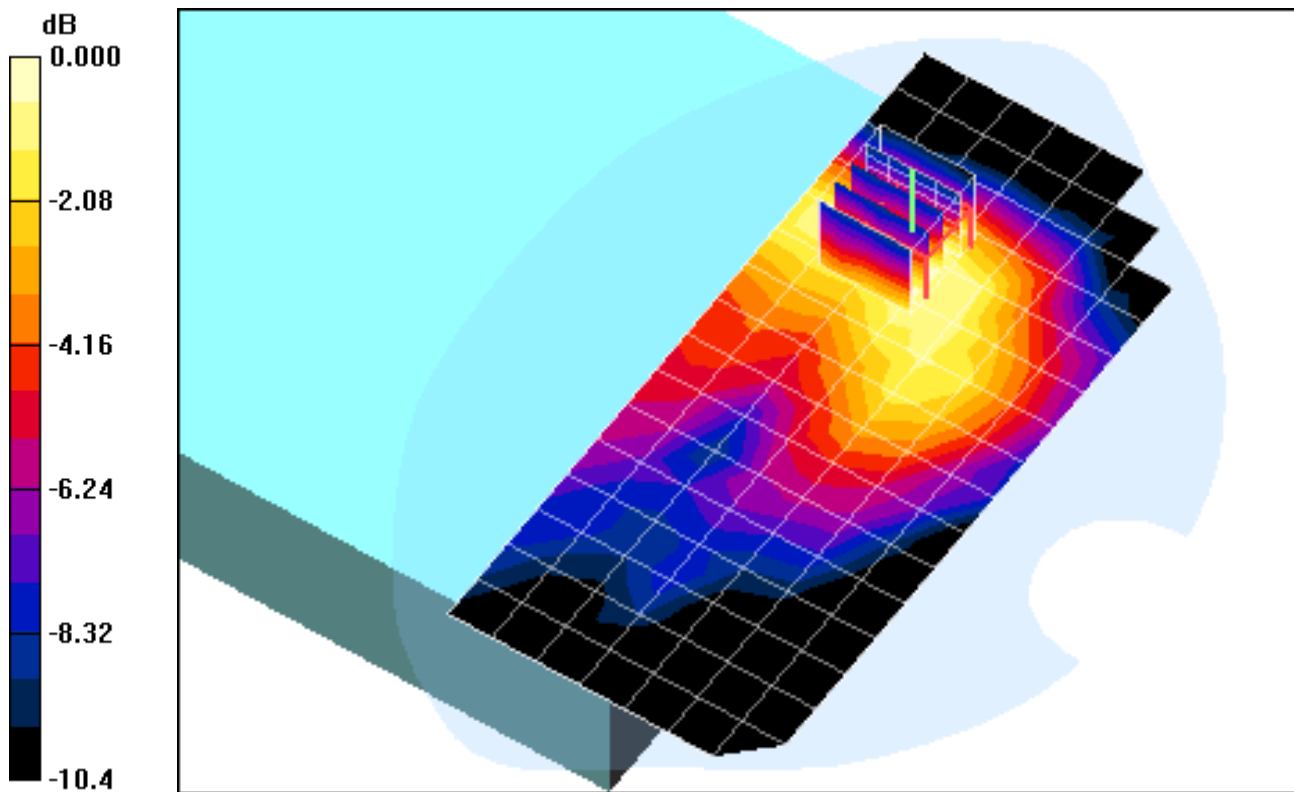
**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan 2 (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.24 V/m

Peak SAR (extrapolated) = 0.123 W/kg

**SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.053 mW/g**



0 dB = 0.094mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
Medium: 835 Muscle; Medium parameters used (interpolated):  
 $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

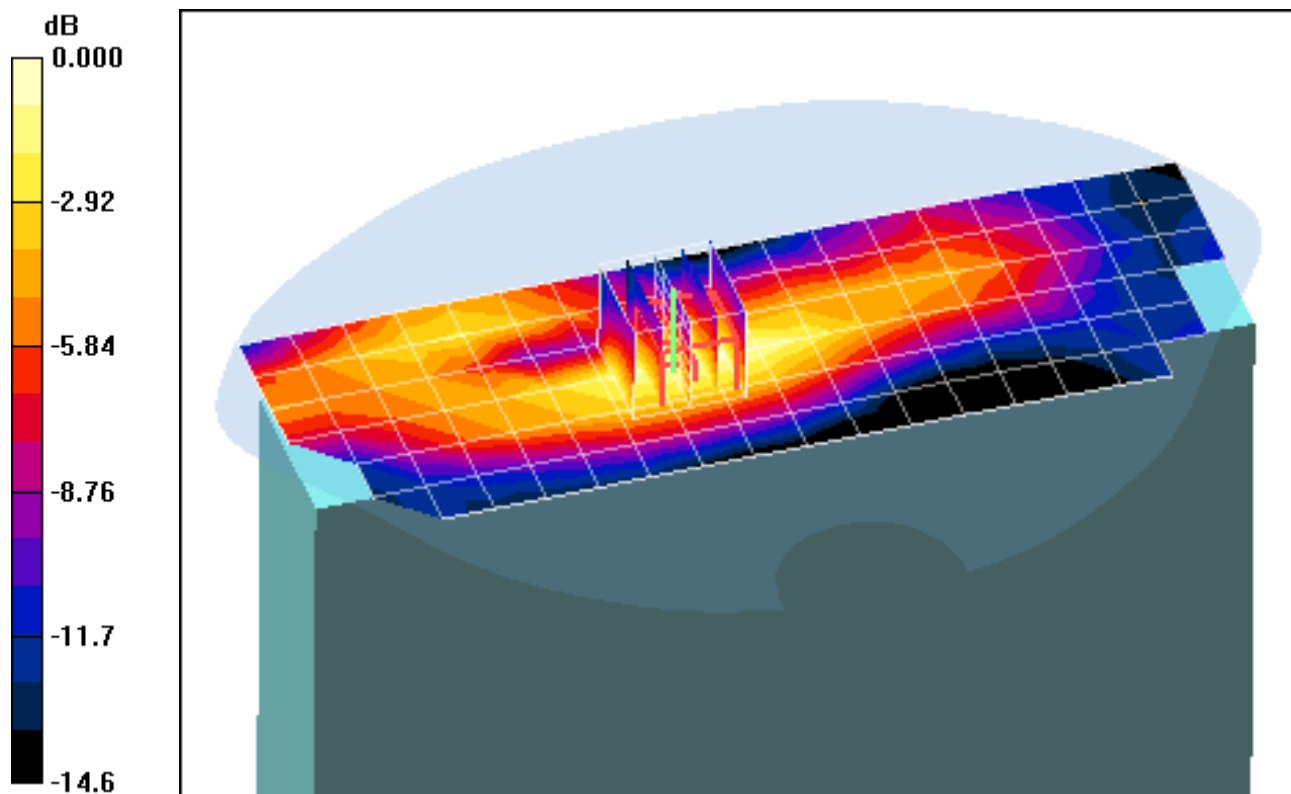
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 10.2 V/m

Peak SAR (extrapolated) = 0.143 W/kg

**SAR(1 g) = 0.086 mW/g; SAR(10 g) = 0.052 mW/g**



0 dB = 0.108mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
Medium: 835 Muscle; Medium parameters used (interpolated):  
 $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

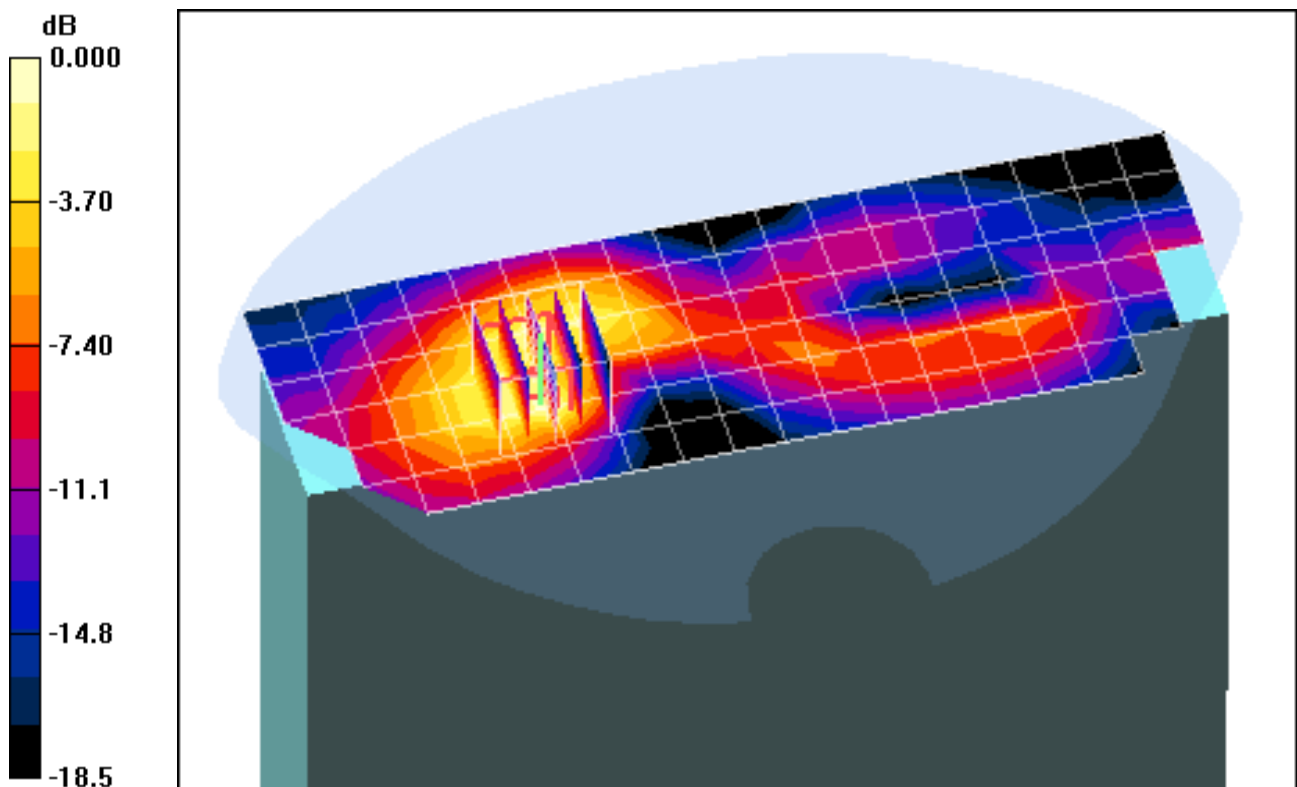
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 19.4 V/m

Peak SAR (extrapolated) = 0.669 W/kg

**SAR(1 g) = 0.318 mW/g; SAR(10 g) = 0.180 mW/g**



0 dB = 0.435mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
Medium: 835 Muscle; Medium parameters used (interpolated):  
 $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

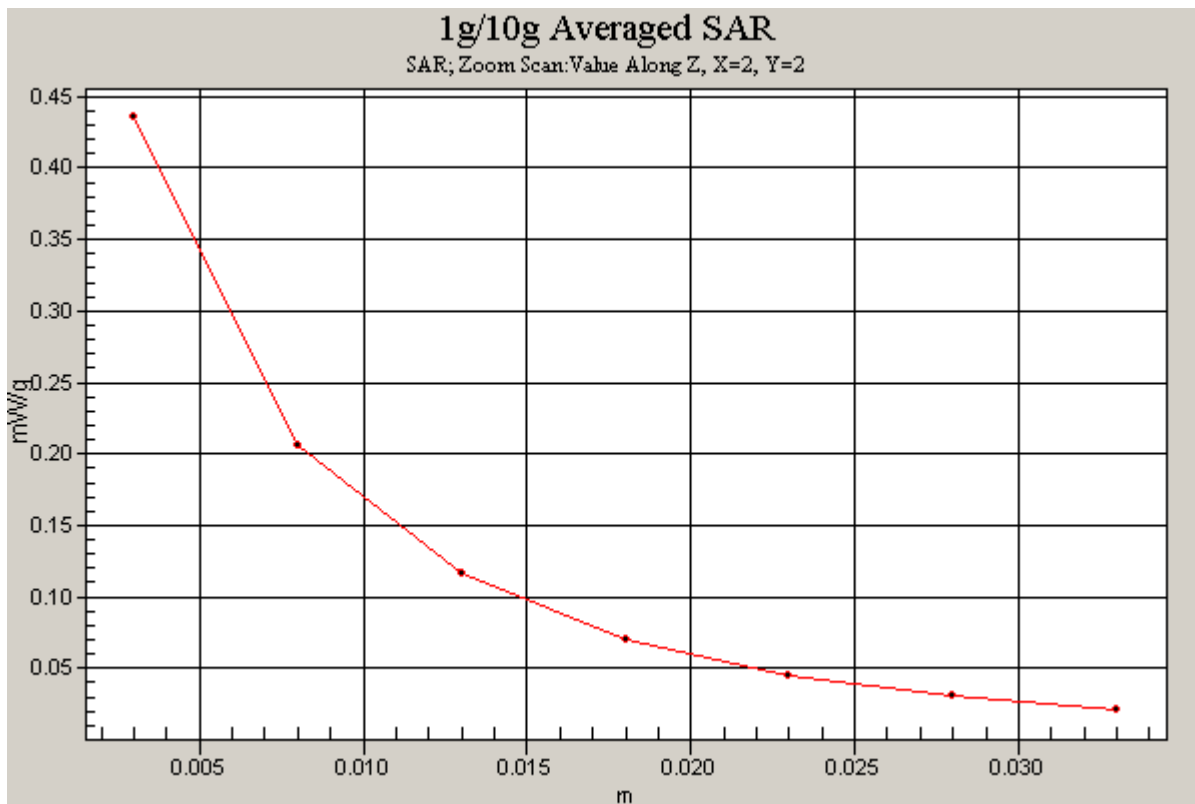
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 19.4 V/m

Peak SAR (extrapolated) = 0.669 W/kg

**SAR(1 g) = 0.318 mW/g; SAR(10 g) = 0.180 mW/g**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

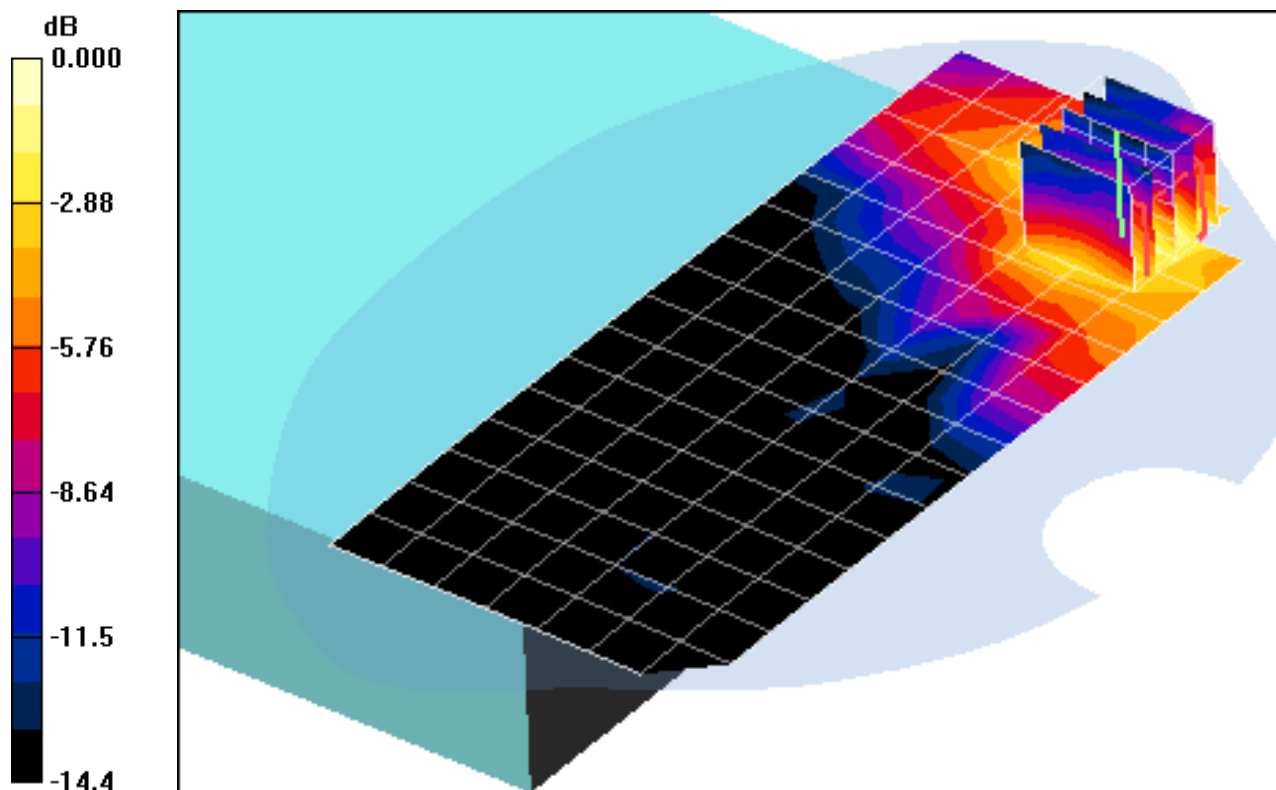
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Muscle; Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

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

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

**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9.54 V/m  
Peak SAR (extrapolated) = 0.204 W/kg  
**SAR(1 g) = 0.123 mW/g; SAR(10 g) = 0.072 mW/g**



0 dB = 0.148mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

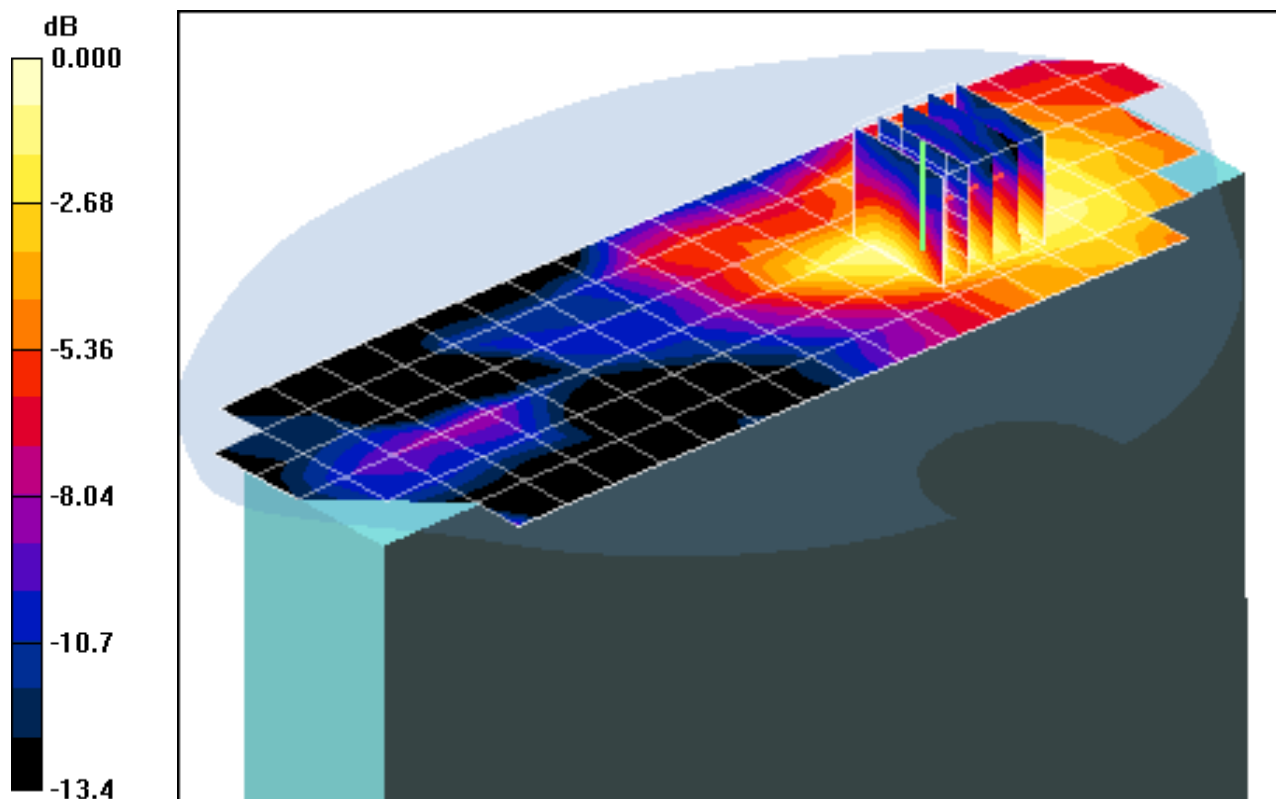
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Muscle; Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

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

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

**Area Scan (7x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 5.66 V/m  
Peak SAR (extrapolated) = 0.079 W/kg  
**SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.029 mW/g**



0 dB = 0.058mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

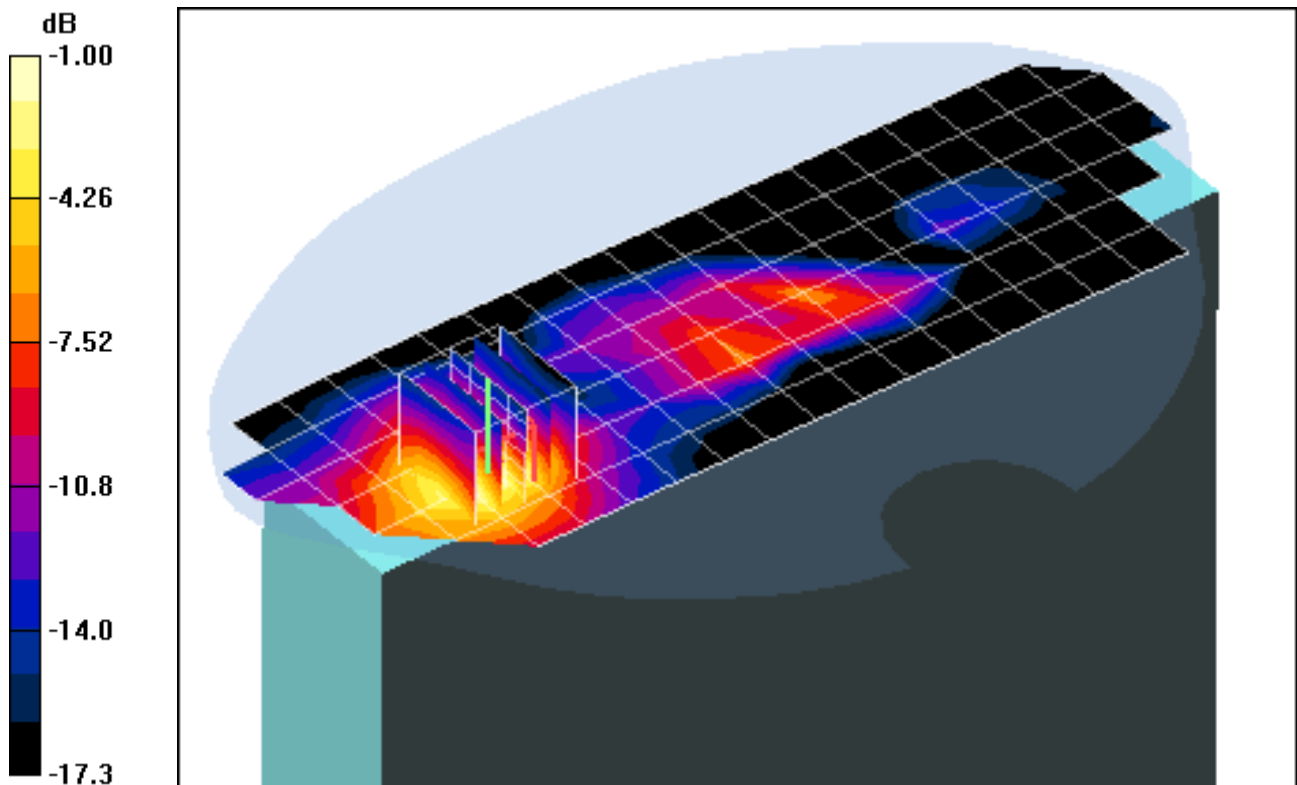
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Muscle; Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

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

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

**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 21.9 V/m  
Peak SAR (extrapolated) = 1.35 W/kg  
**SAR(1 g) = 0.689 mW/g; SAR(10 g) = 0.357 mW/g**



0 dB = 0.902mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

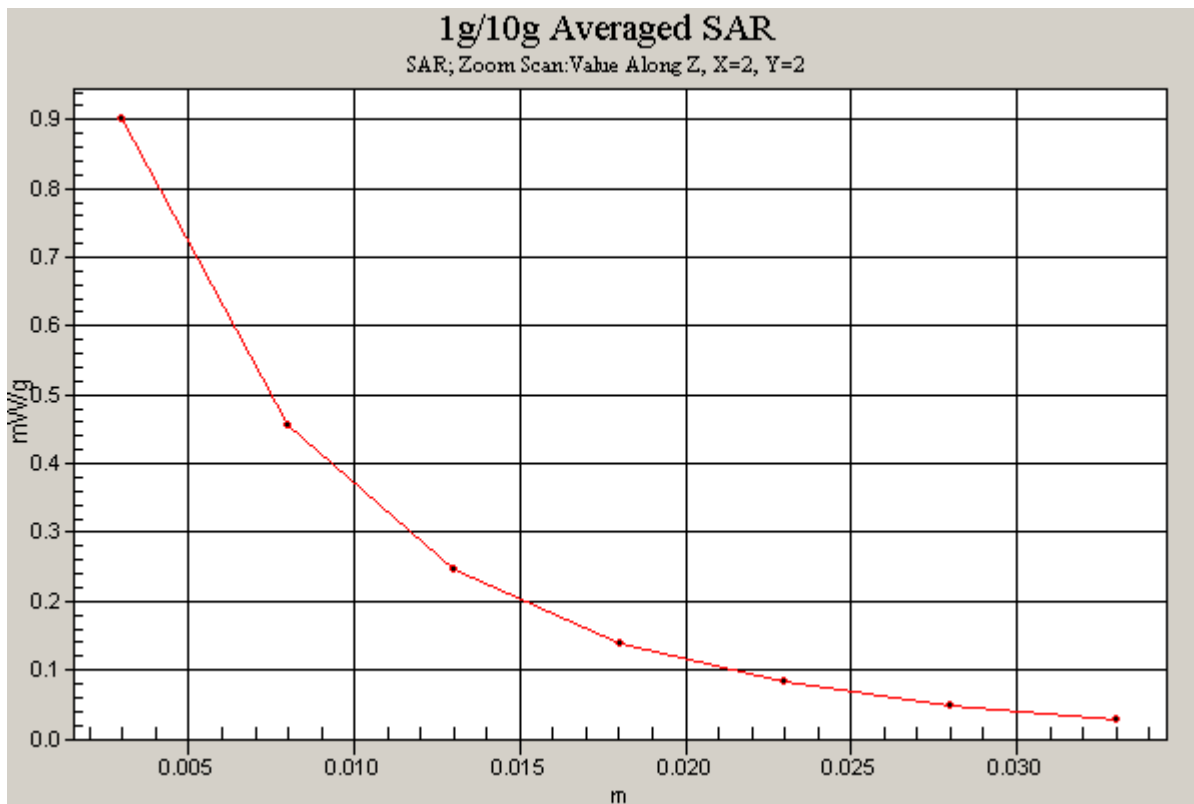
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Muscle; Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

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

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

**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 21.9 V/m  
Peak SAR (extrapolated) = 1.35 W/kg  
**SAR(1 g) = 0.689 mW/g; SAR(10 g) = 0.357 mW/g**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1  
Medium: 835 Muscle; Medium parameters used (interpolated):  
 $f = 836.52 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: Cellular CDMA 850, Lap position, LCD Flip, Mid.ch, Main Ant**

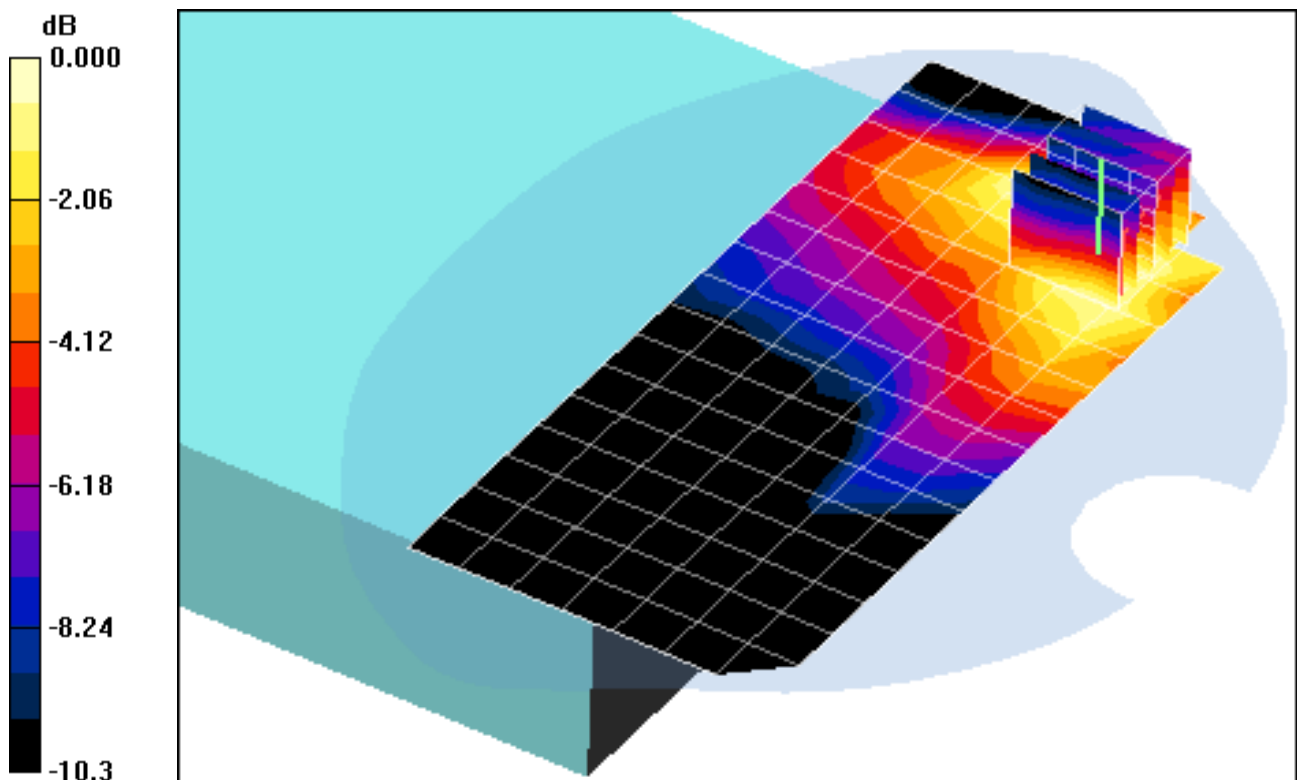
**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 9.28 V/m

Peak SAR (extrapolated) = 0.111 W/kg

**SAR(1 g) = 0.073 mW/g; SAR(10 g) = 0.049 mW/g**



0 dB = 0.085mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

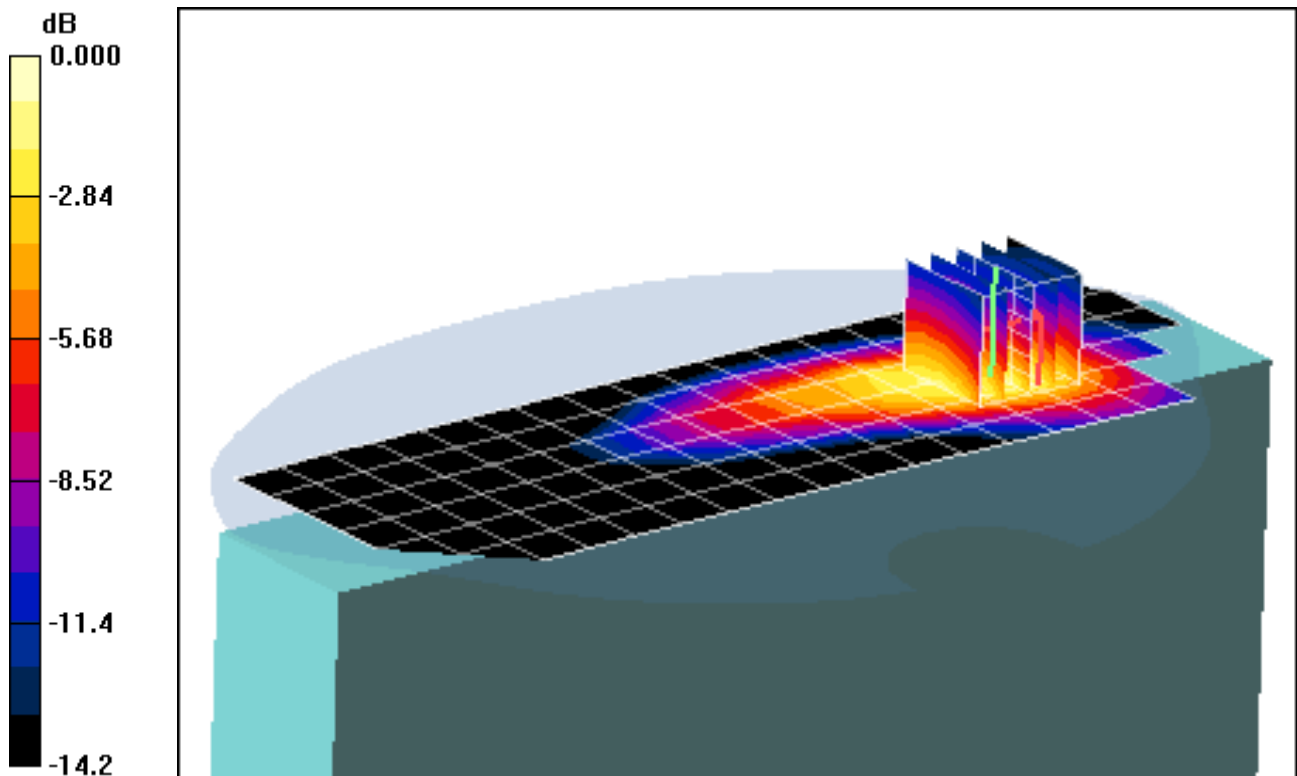
Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1  
Medium: 835 Muscle Medium parameters used (interpolated):  
 $f = 836.52 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section, Space: 0.0 cm

Test Date: 04-07-2003; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

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

**Mode: Cellular CDMA, Edge Bottom Position, LCD Flip, Mid.ch, Main Ant**

**Area Scan (7x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 10.3 V/m;  
Peak SAR (extrapolated) = 0.143 W/kg  
**SAR(1 g) = 0.086 mW/g; SAR(10 g) = 0.051 mW/g**



0 dB = 0.426mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1  
Medium: 835 Muscle; Medium parameters used (interpolated):  
 $f = 836.52 \text{ MHz}$ ;  $\sigma = 0.991 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

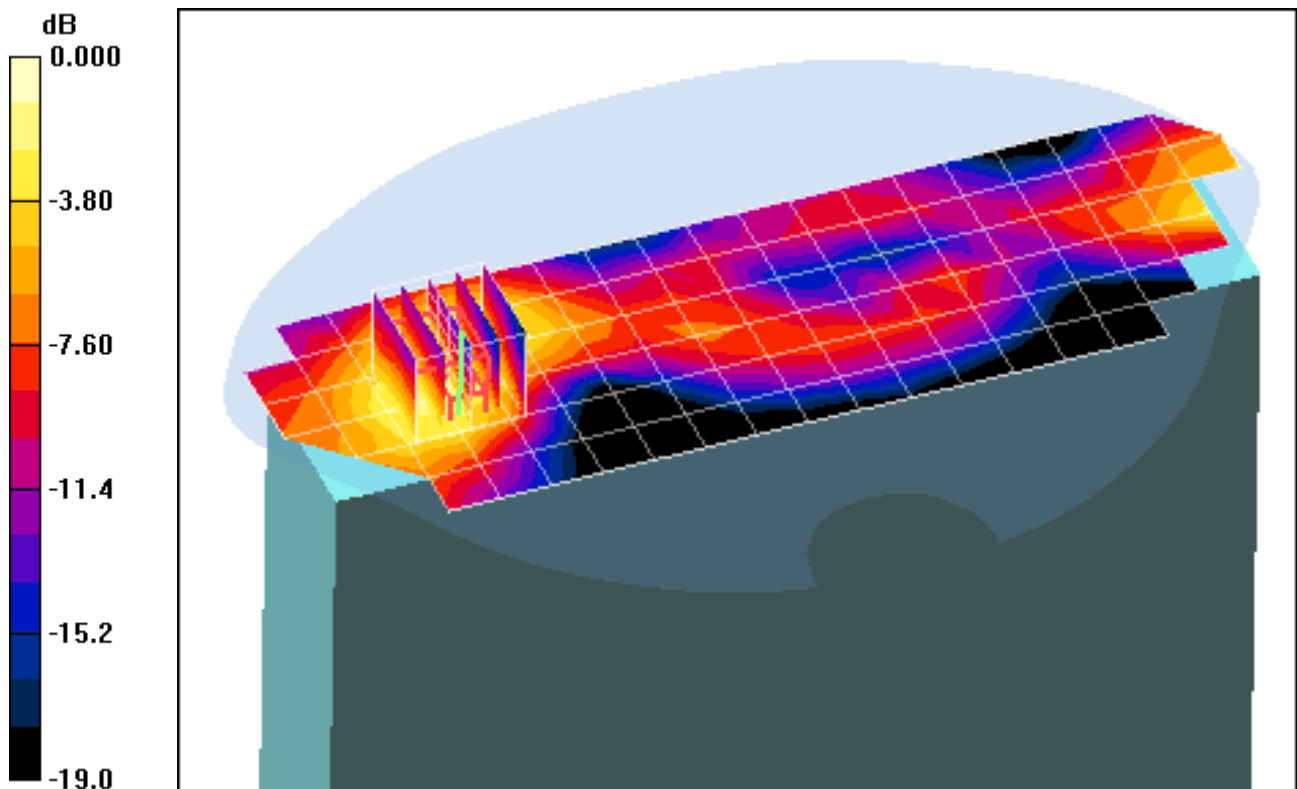
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan 2 2 (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.2 V/m

Peak SAR (extrapolated) = 0.532 W/kg

**SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.134 mW/g**



0 dB = 0.317mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

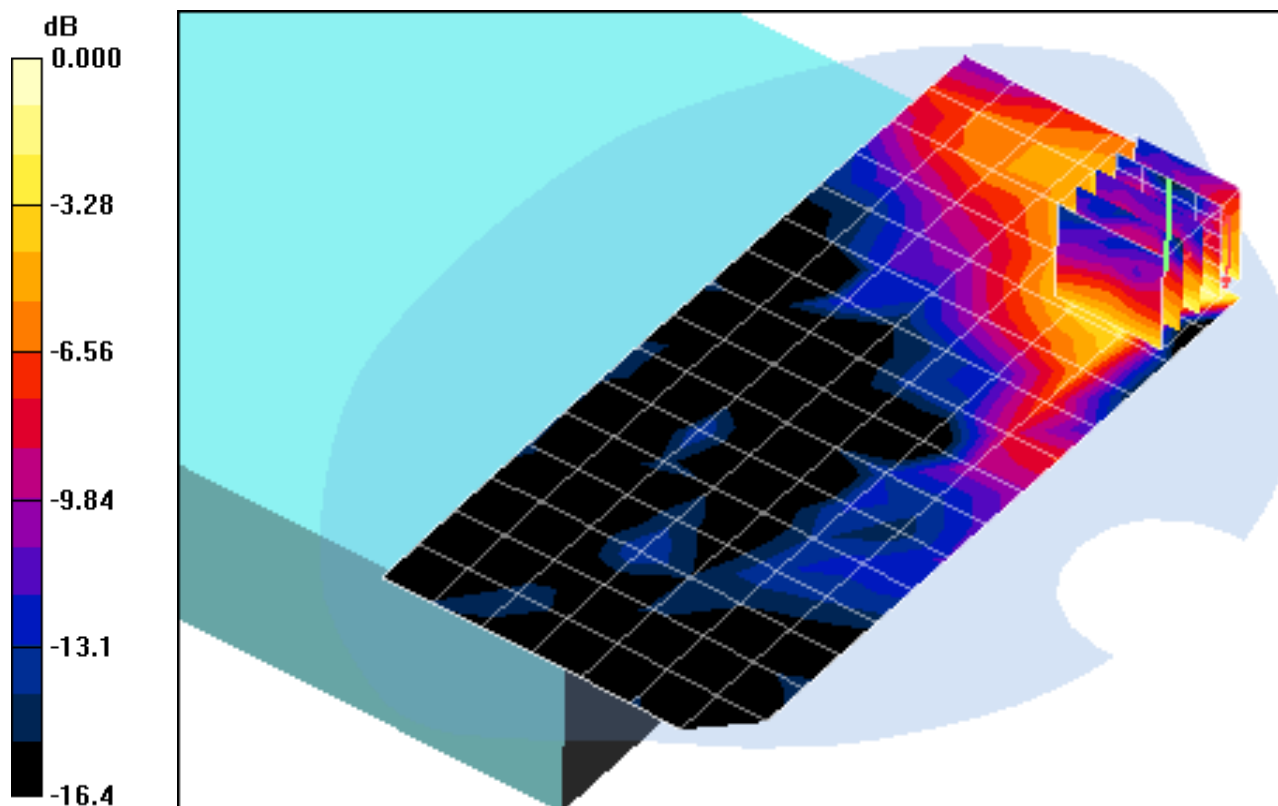
Communication System: PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Muscle; Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

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

**Mode: PCS CDMA 1900, Lap position, LCD Flip, Mid.ch, Main Ant**

**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 8.31 V/m  
Peak SAR (extrapolated) = 0.165 W/kg  
**SAR(1 g) = 0.089 mW/g; SAR(10 g) = 0.050 mW/g**



0 dB = 0.110mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

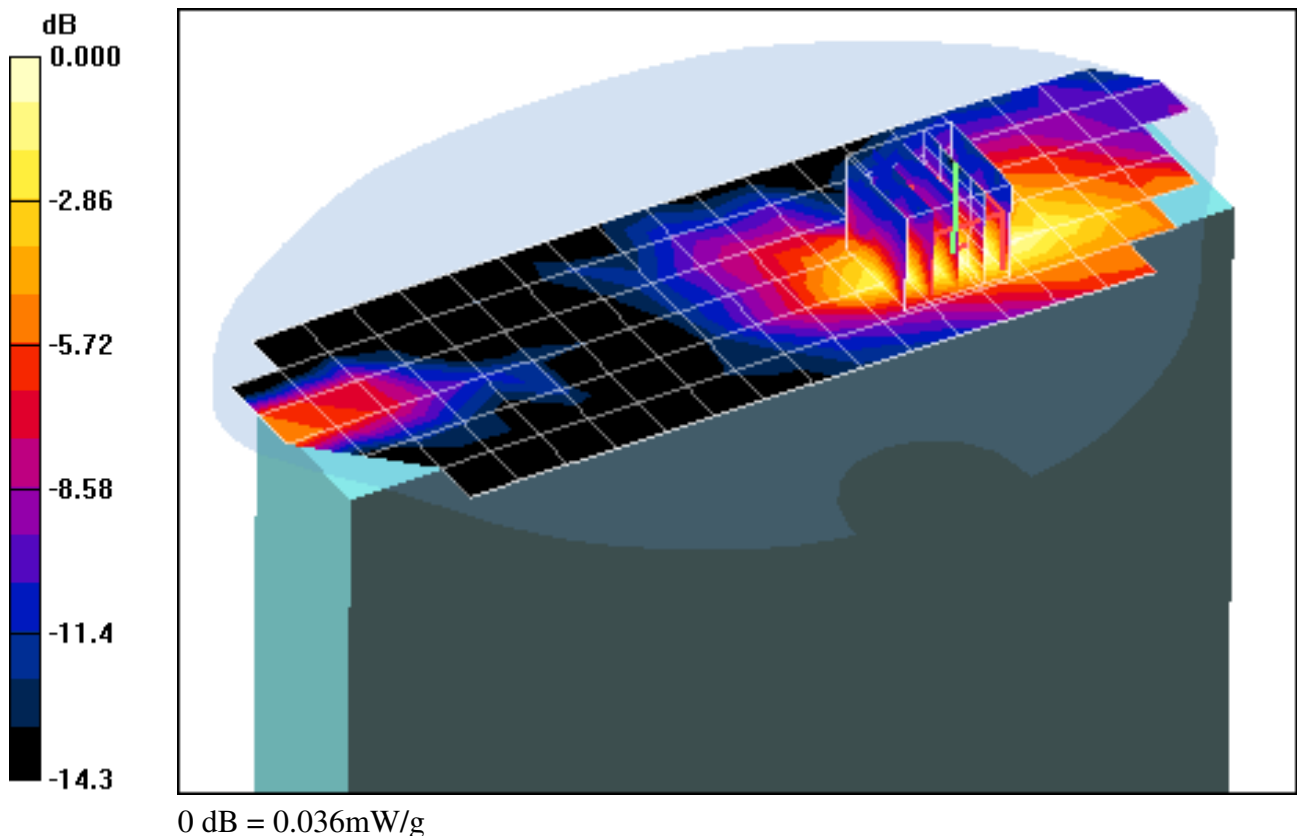
Communication System: PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Muscle; Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

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

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

**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.88 V/m  
Peak SAR (extrapolated) = 0.053 W/kg  
**SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.016 mW/g**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

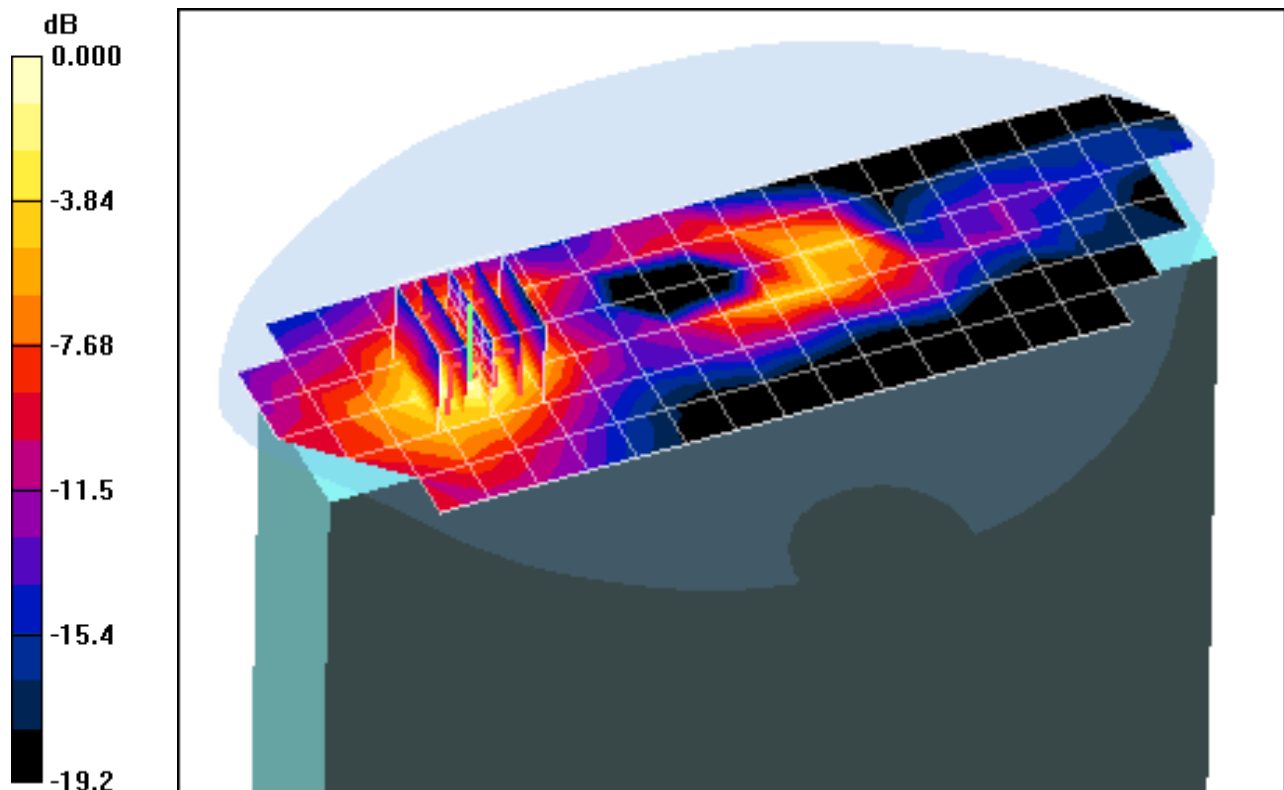
Communication System: PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Muscle; Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

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

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

**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 19.4 V/m  
Peak SAR (extrapolated) = 0.915 W/kg  
**SAR(1 g) = 0.443 mW/g; SAR(10 g) = 0.226 mW/g**



0 dB = 0.572mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

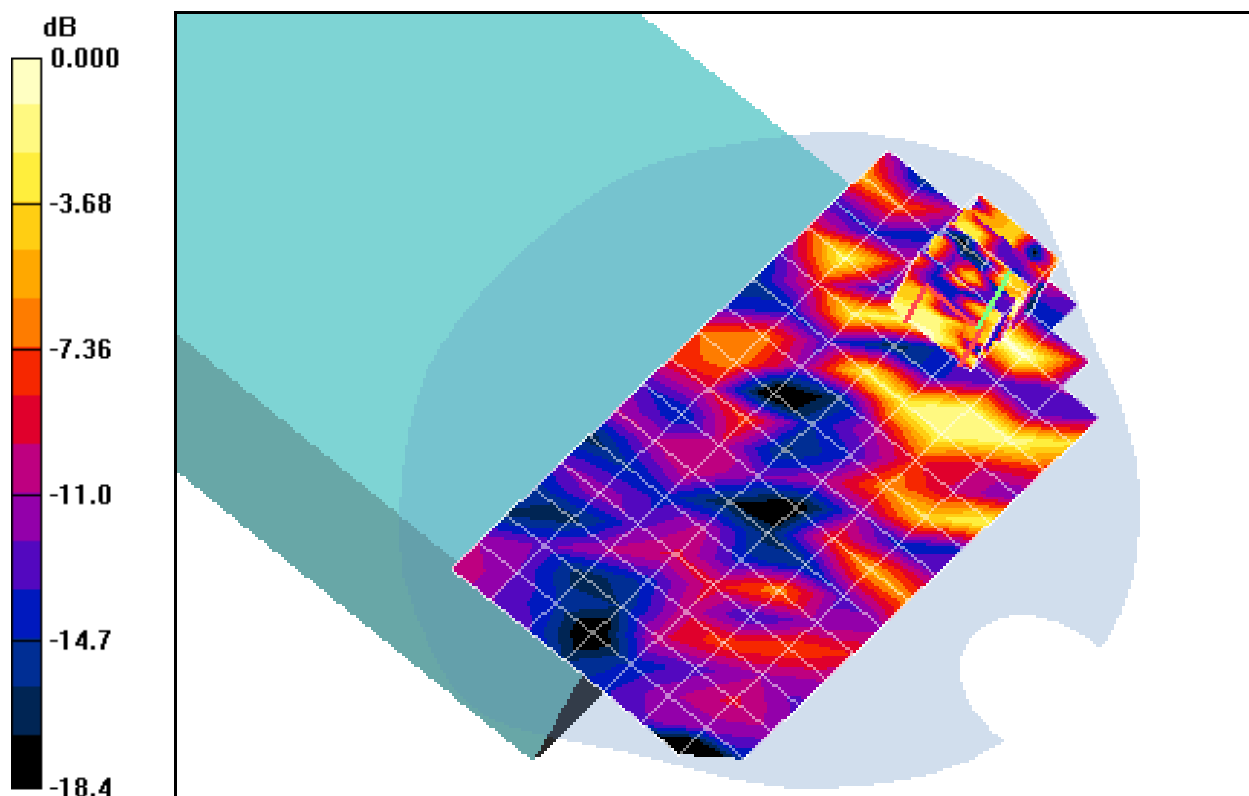
Communication System: IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114  
Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.39 V/m  
Peak SAR (extrapolated) = 0.317 W/kg  
**SAR(1 g) = 0.0615 mW/g; SAR(10 g) = 0.0250 mW/g**



0 dB = 0.092mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

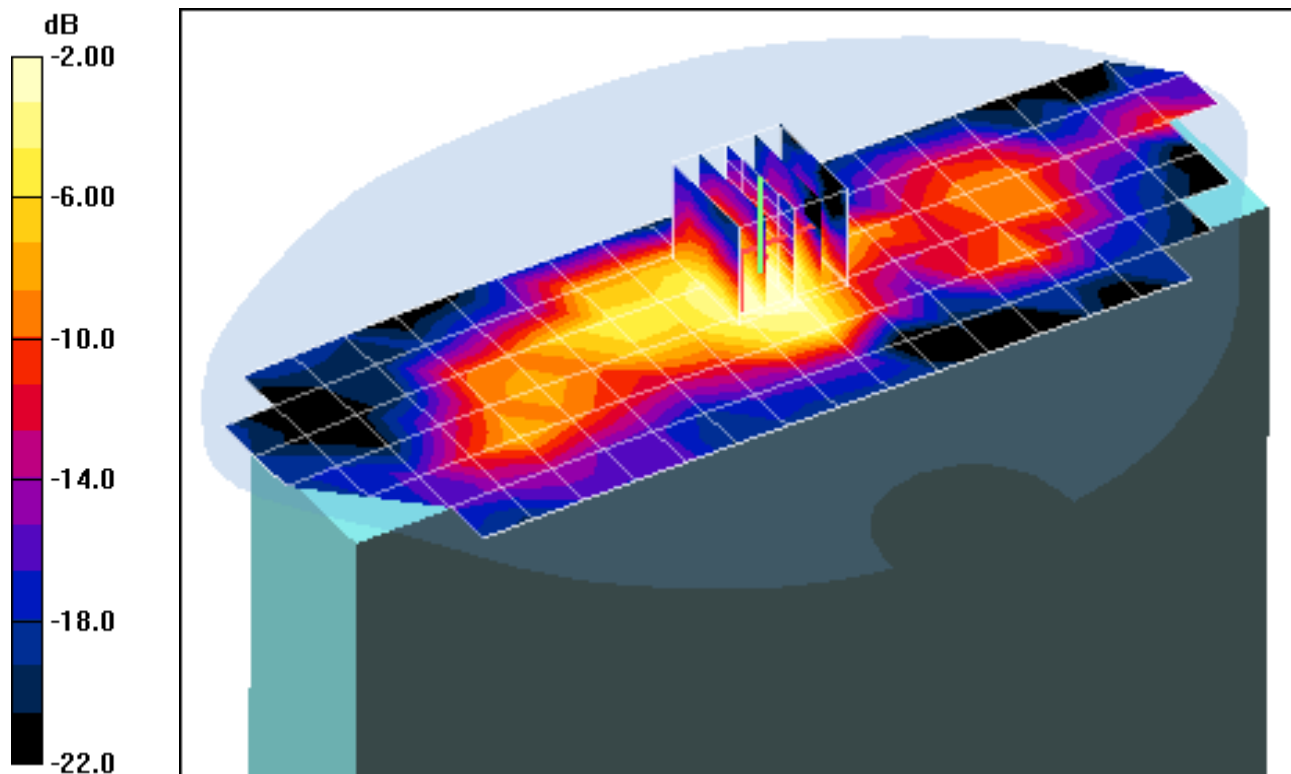
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 8.95 V/m

Peak SAR (extrapolated) = 0.205 W/kg

**SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.050 mW/g**



0 dB = 0.136mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

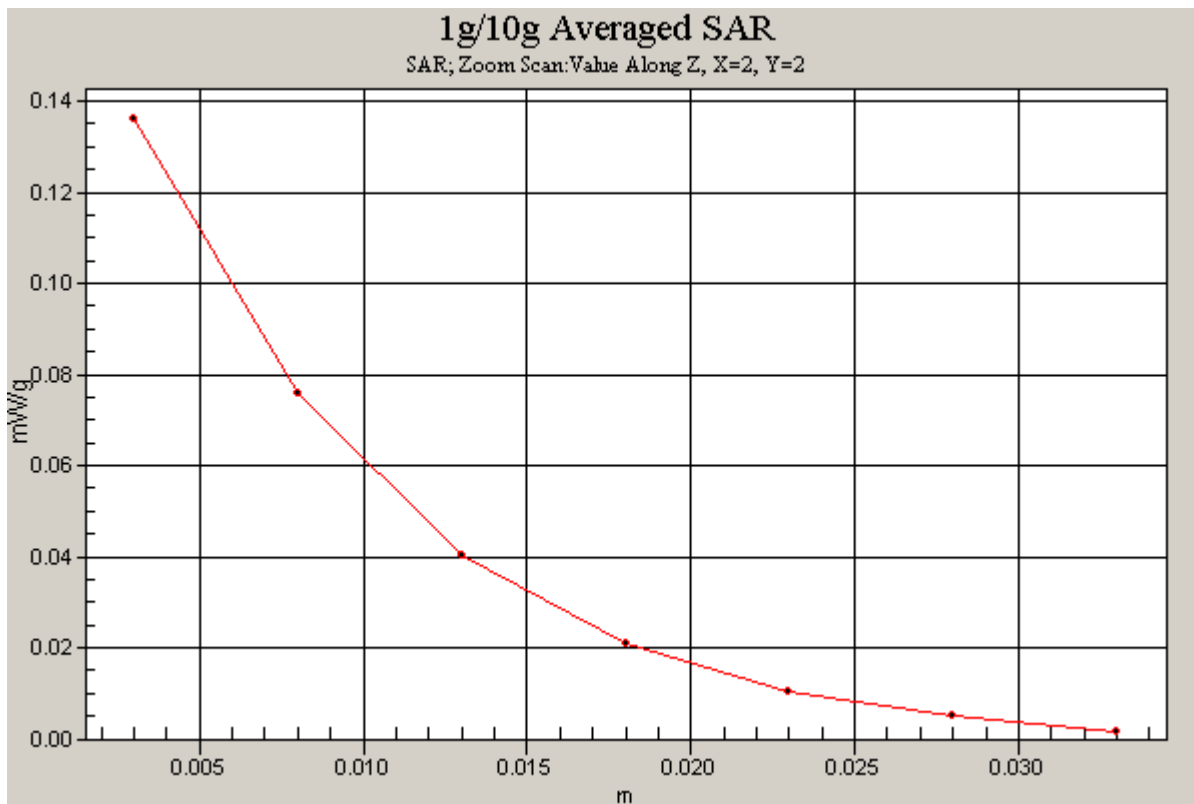
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 8.95 V/m

Peak SAR (extrapolated) = 0.205 W/kg

**SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.050 mW/g**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

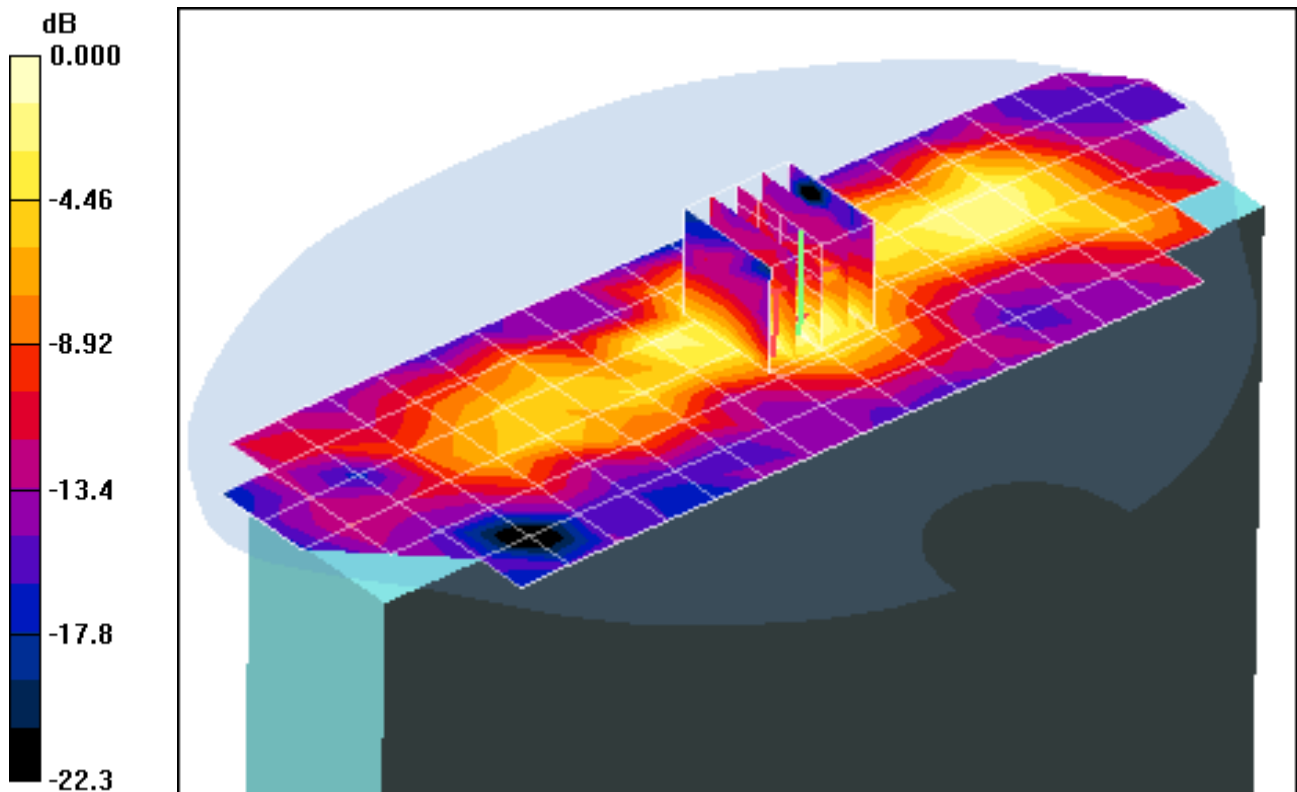
**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 5.19 V/m

Peak SAR (extrapolated) = 0.070 W/kg

**SAR(1 g) = 0.0375 mW/g; SAR(10 g) = 0.0200 mW/g**



0 dB = 0.049mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11g; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11b, Lap position, LCD Flip, Mid.ch, 6 Mbps, Tx Chain B**

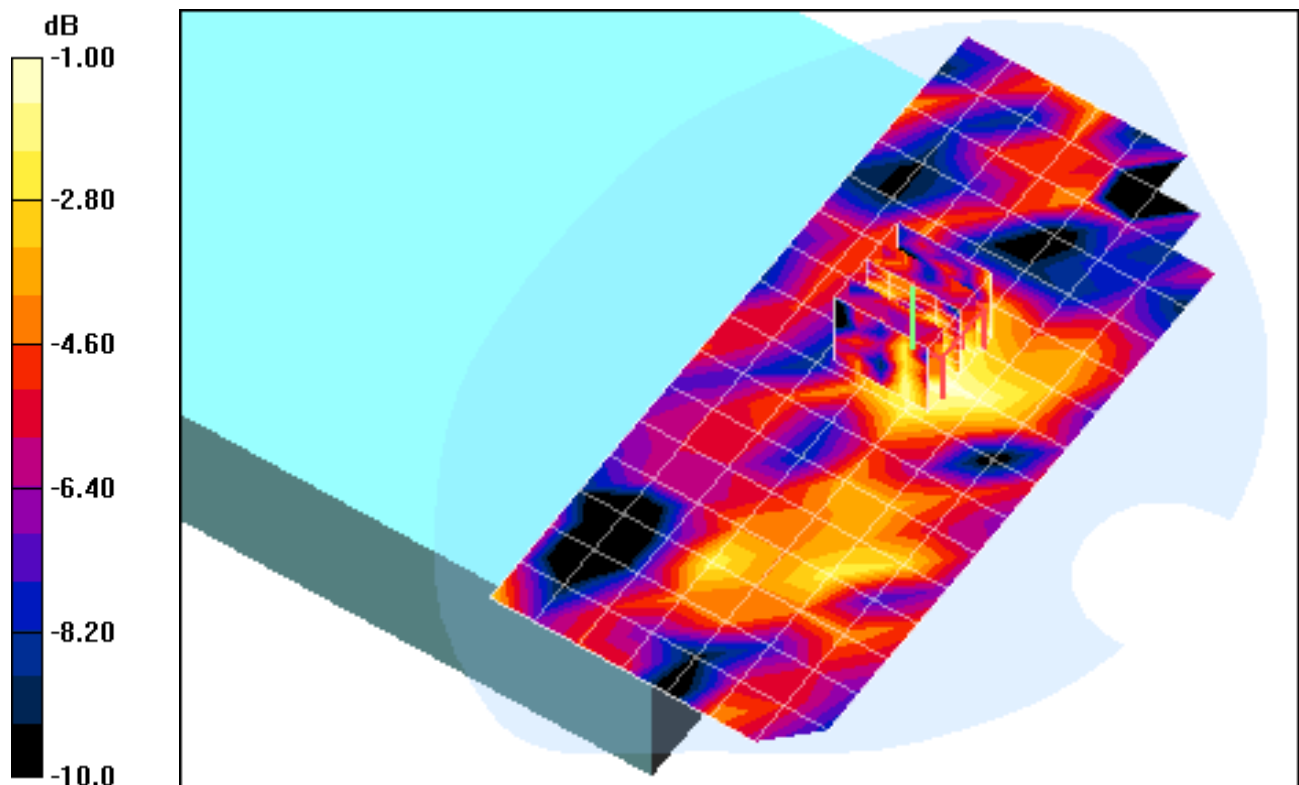
**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 2.11 V/m

Peak SAR (extrapolated) = 0.022 W/kg

**SAR(1 g) = 0.0121 mW/g; SAR(10 g) = 0.00668 mW/g**



0 dB = 0.015mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

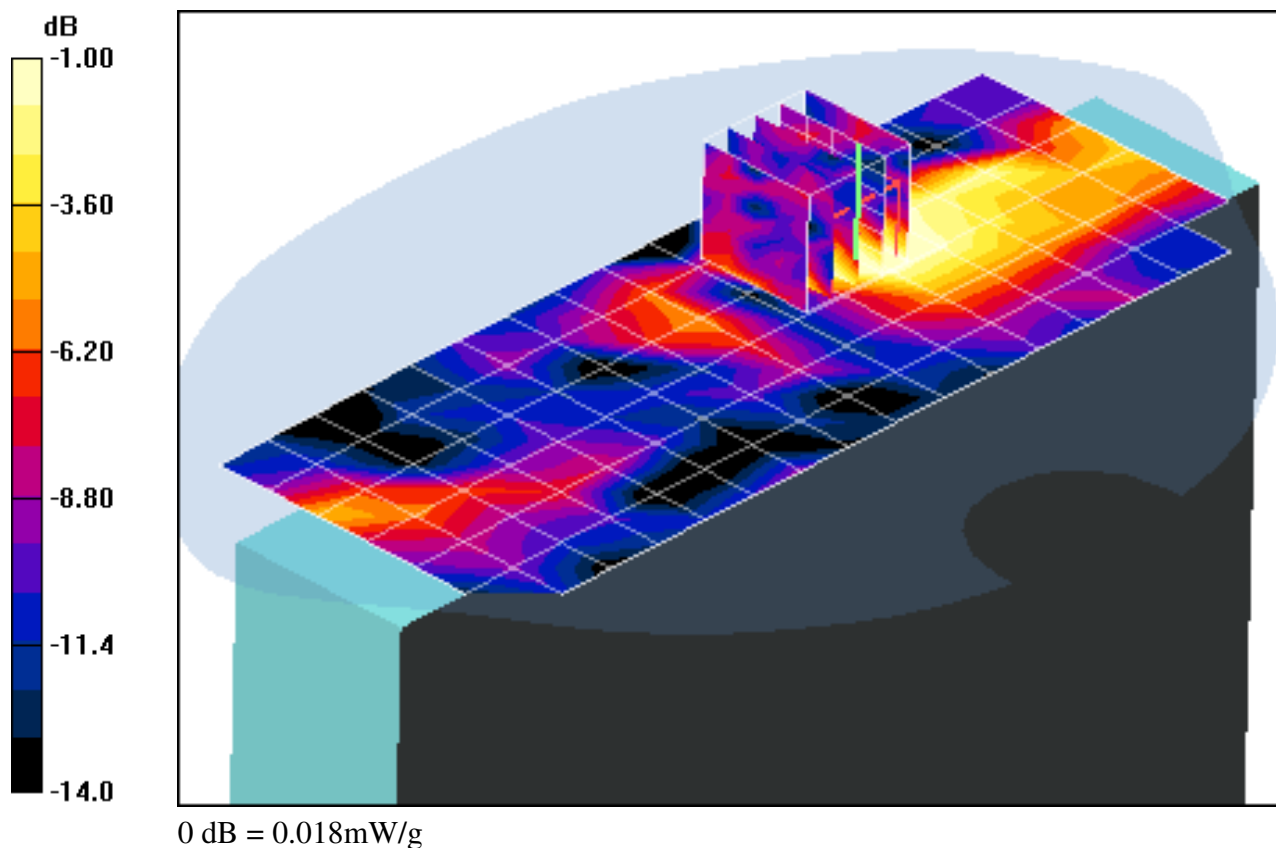
Communication System: IEEE 802.11g; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

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

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

**Area Scan (7x17x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 2.77 V/m  
Peak SAR (extrapolated) = 0.031 W/kg  
**SAR(1 g) = 0.0147 mW/g; SAR(10 g) = 0.00707 mW/g**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11g; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11g, Edge Top position, LCD Flip, Mid.ch, 6 Mbps, Tx chain B**

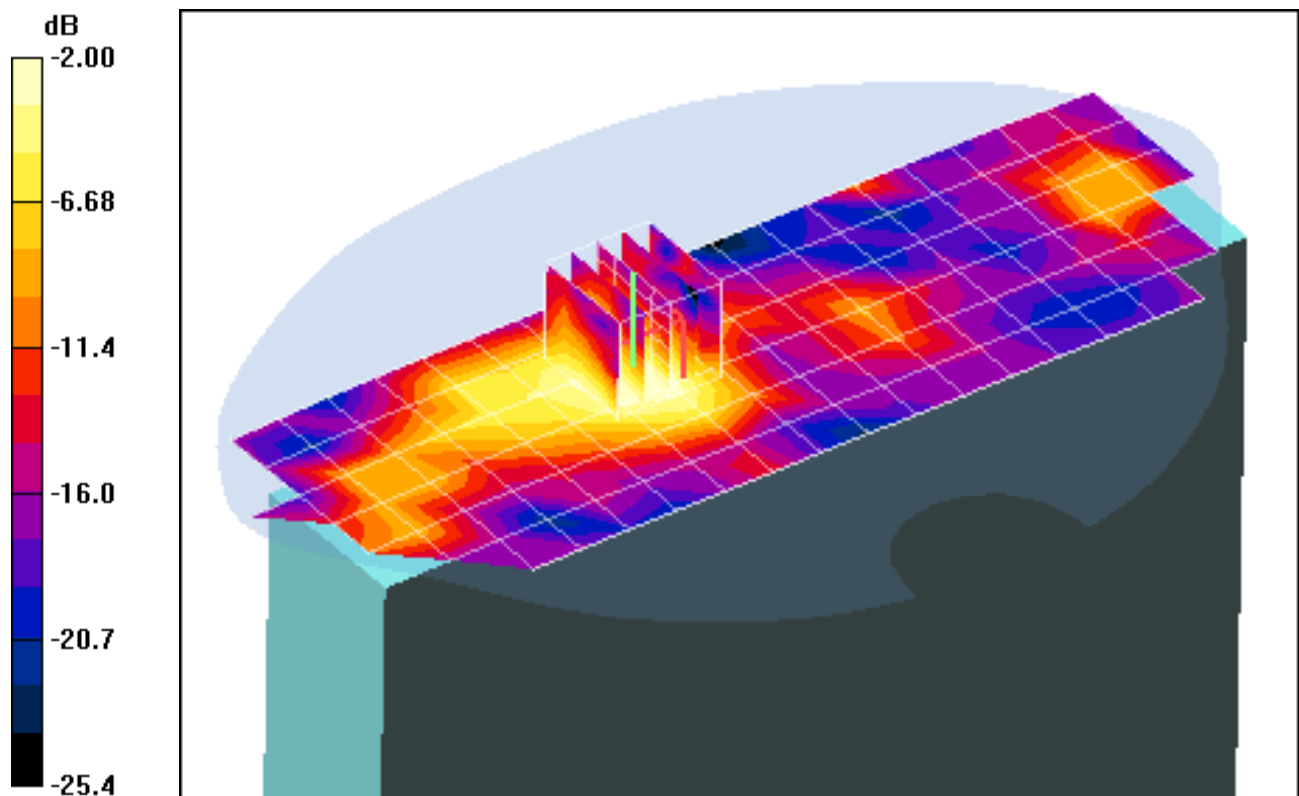
**Area Scan (7x21x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 7.33 V/m

Peak SAR (extrapolated) = 0.152 W/kg

**SAR(1 g) = 0.0764 mW/g; SAR(10 g) = 0.0370 mW/g**



0 dB = 0.097mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

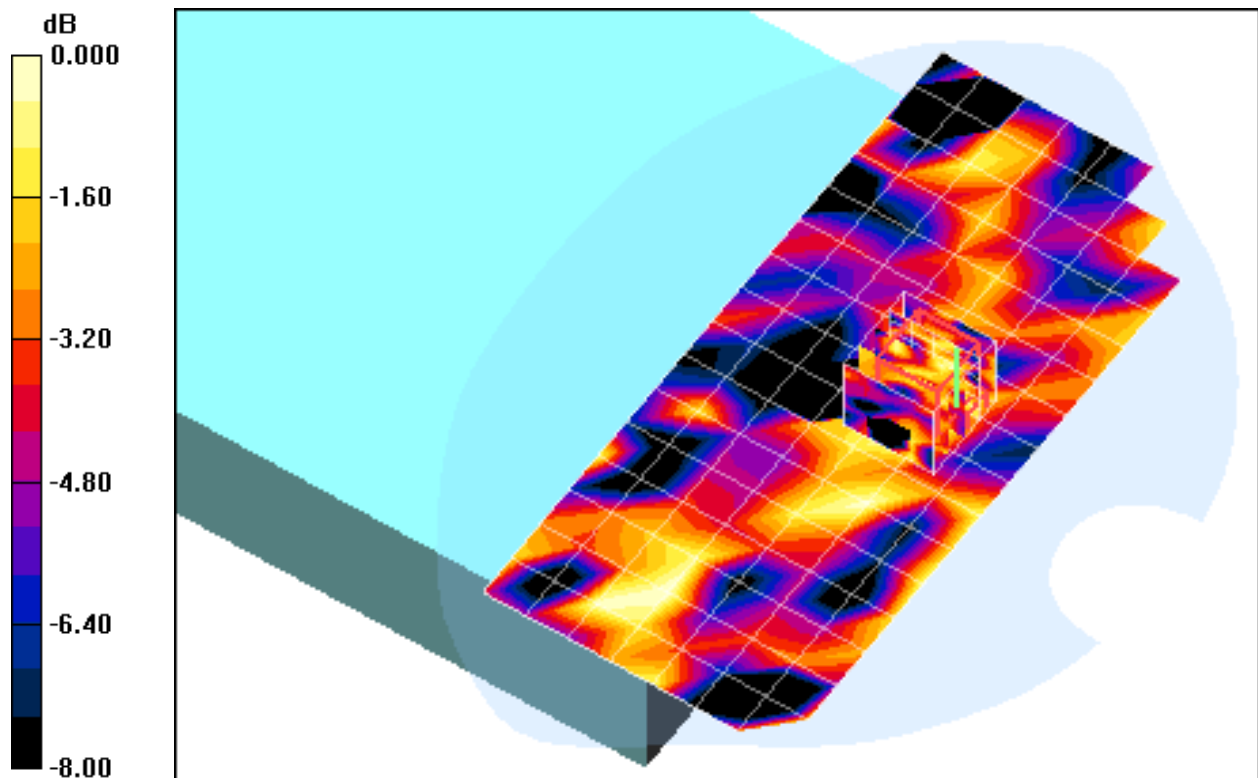
Communication System: IEEE 802.11n; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

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

**Mode: WLAN 802.11n, Lap position, LCD Flip, Mid.ch,  
13.5 Mbps, Tx Chain B**

**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 1.86 V/m  
Peak SAR (extrapolated) = 0.020 W/kg  
**SAR(1 g) = 0.0105 mW/g; SAR(10 g) = 0.0057 mW/g**



0 dB = 0.007mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

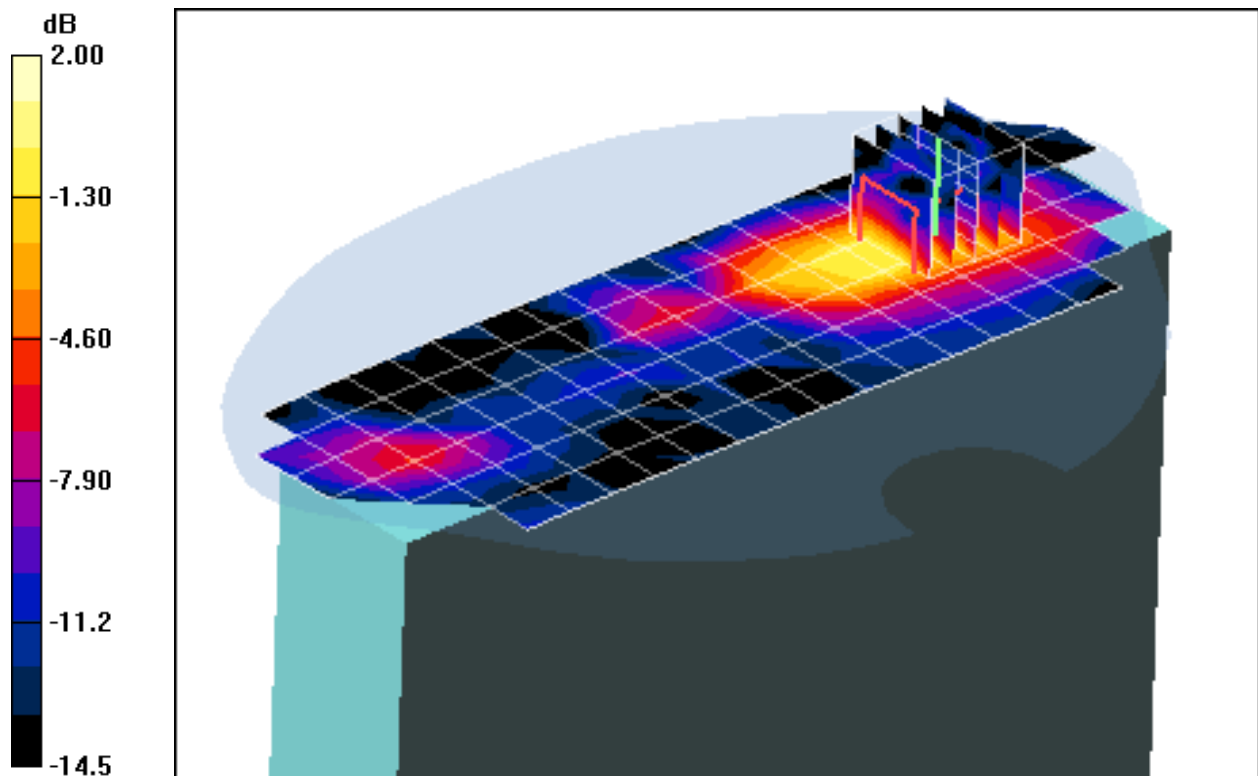
Communication System: IEEE 802.11n; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

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

**Mode: WLAN 802.11n, Edge Bottom position, LCD Flip, Mid.ch,  
13.5 Mbps, Tx chain B**

**Area Scan (7x20x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 3.38 V/m  
Peak SAR (extrapolated) = 0.081 W/kg  
**SAR(1 g) = 0.0211 mW/g; SAR(10 g) = 0.0110 mW/g**



0 dB = 0.027mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

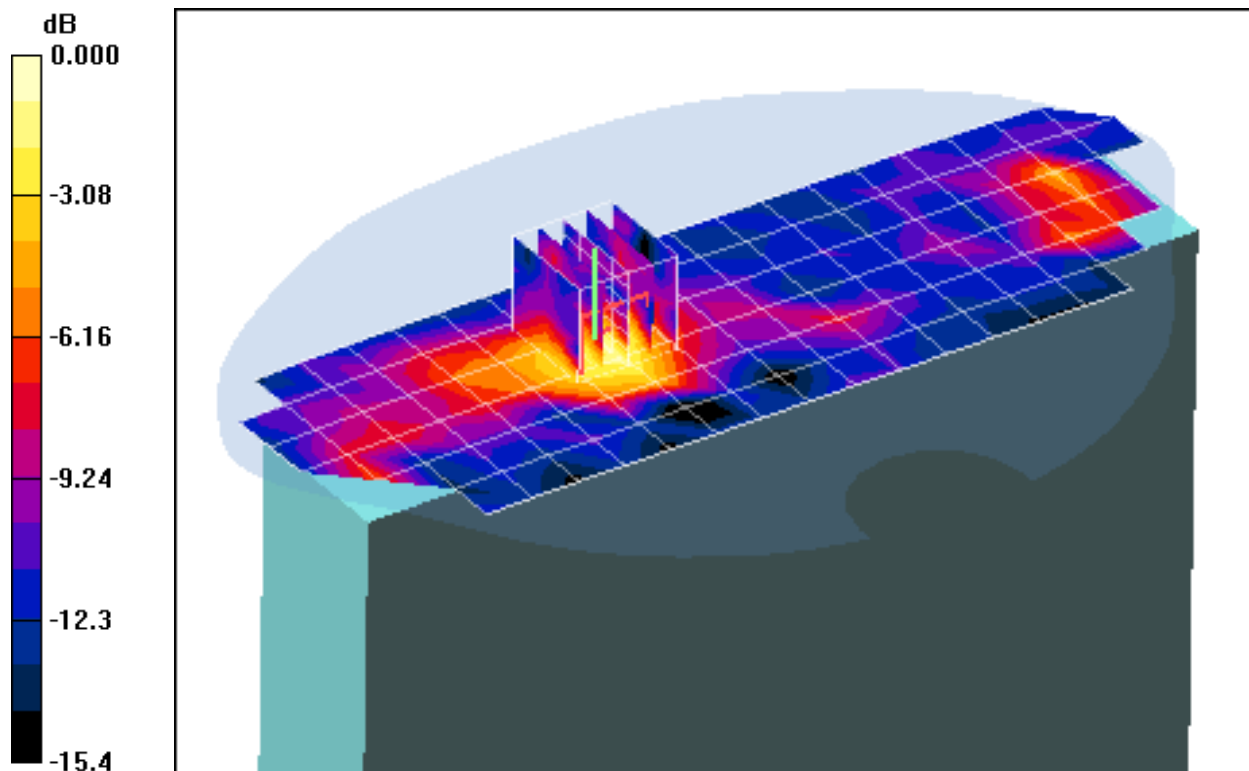
Communication System: IEEE 802.11n; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle; Medium parameters used (interpolated):  
 $f = 2437 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

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

**Mode: WLAN 802.11n, Edge Top position, LCD Flip, Mid ch,  
62'Mbps, Tx chain A**

**Area Scan (7x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 4.74 V/m  
Peak SAR (extrapolated) = 0.073 W/kg  
**SAR(1 g) = 0.0352 mW/g; SAR(10 g) = 0.0180 mW/g**



0 dB = 0.027mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.2GHz Band; Frequency: 5220 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5220 \text{ MHz}$ ;  $\sigma = 5.49 \text{ mho/m}$ ;  $\epsilon_r = 48.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-29-2010; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11a, Lap position, LCD Flip, Ch. 4: , ; Mbps, Tx Chain A**

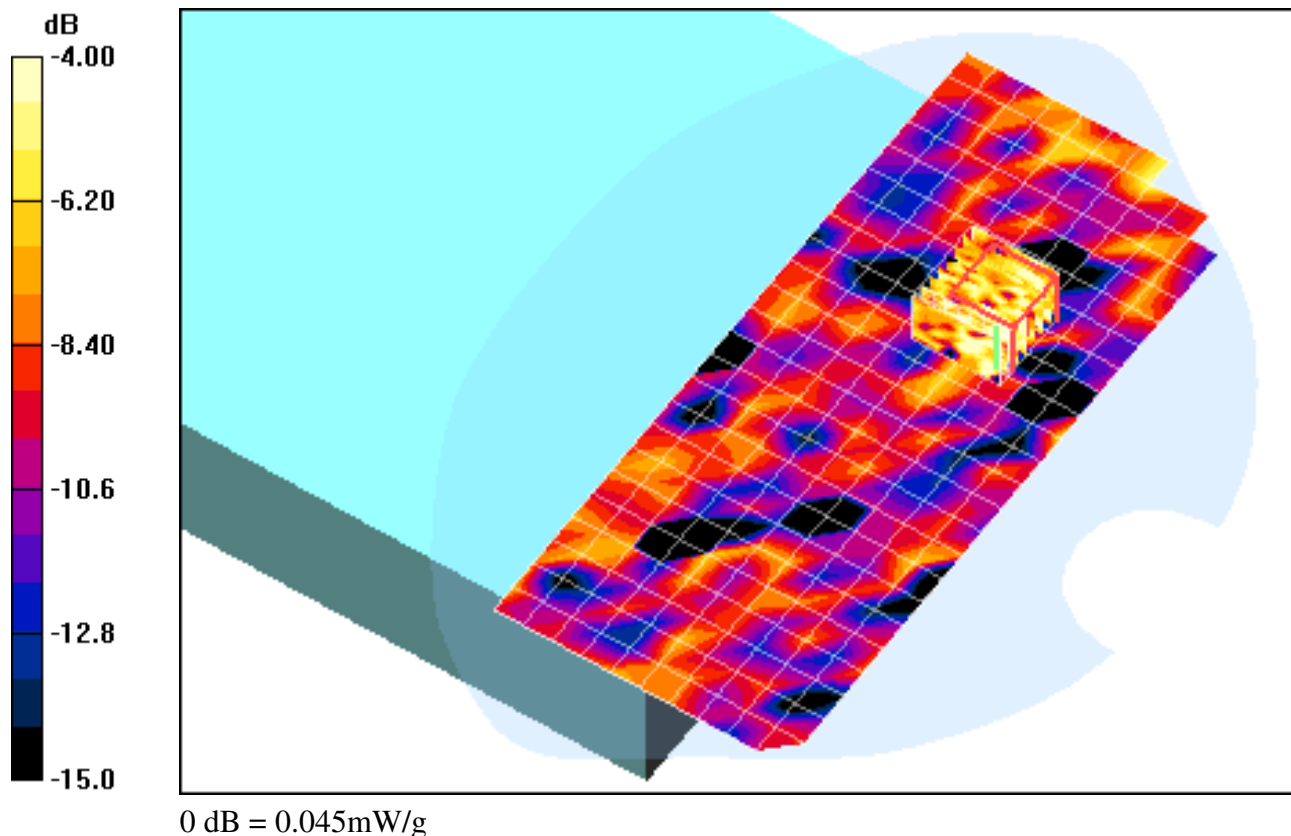
**Area Scan (11x25x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.44 V/m

Peak SAR (extrapolated) = 0.047 W/kg

**SAR(1 g) = 0.0268 mW/g; SAR(10 g) = 0.0110 mW/g**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.2GHz Band; Frequency: 5220 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5220 \text{ MHz}$ ;  $\sigma = 5.46 \text{ mho/m}$ ;  $\epsilon_r = 48.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-29-2010; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

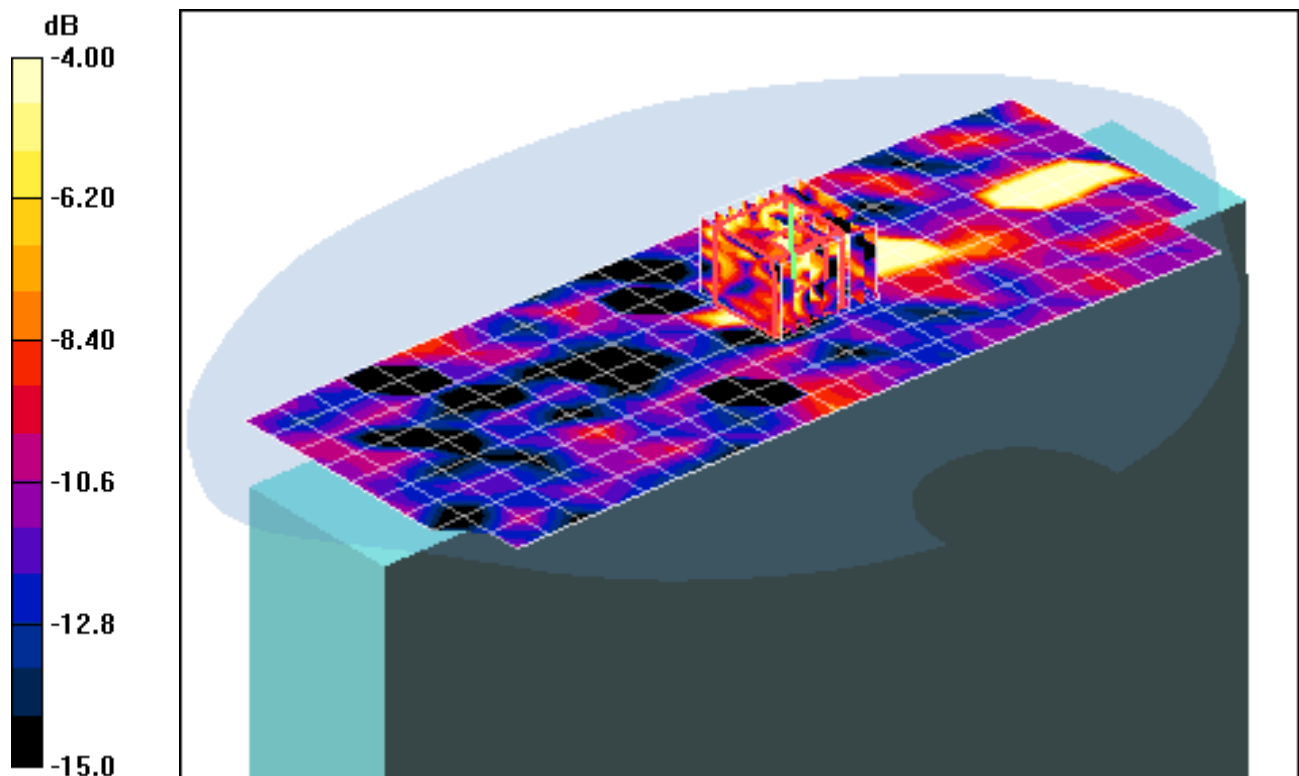
**Area Scan (10x25x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.309 V/m

Peak SAR (extrapolated) = 0.034 W/kg

**SAR(1 g) = 0.0118 mW/g; SAR(10 g) = 0.0038 mW/g**



0 dB = 0.026mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.2GHz Band; Frequency: 5220 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5220 \text{ MHz}$ ;  $\sigma = 5.46 \text{ mho/m}$ ;  $\epsilon_r = 48.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-29-2010; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

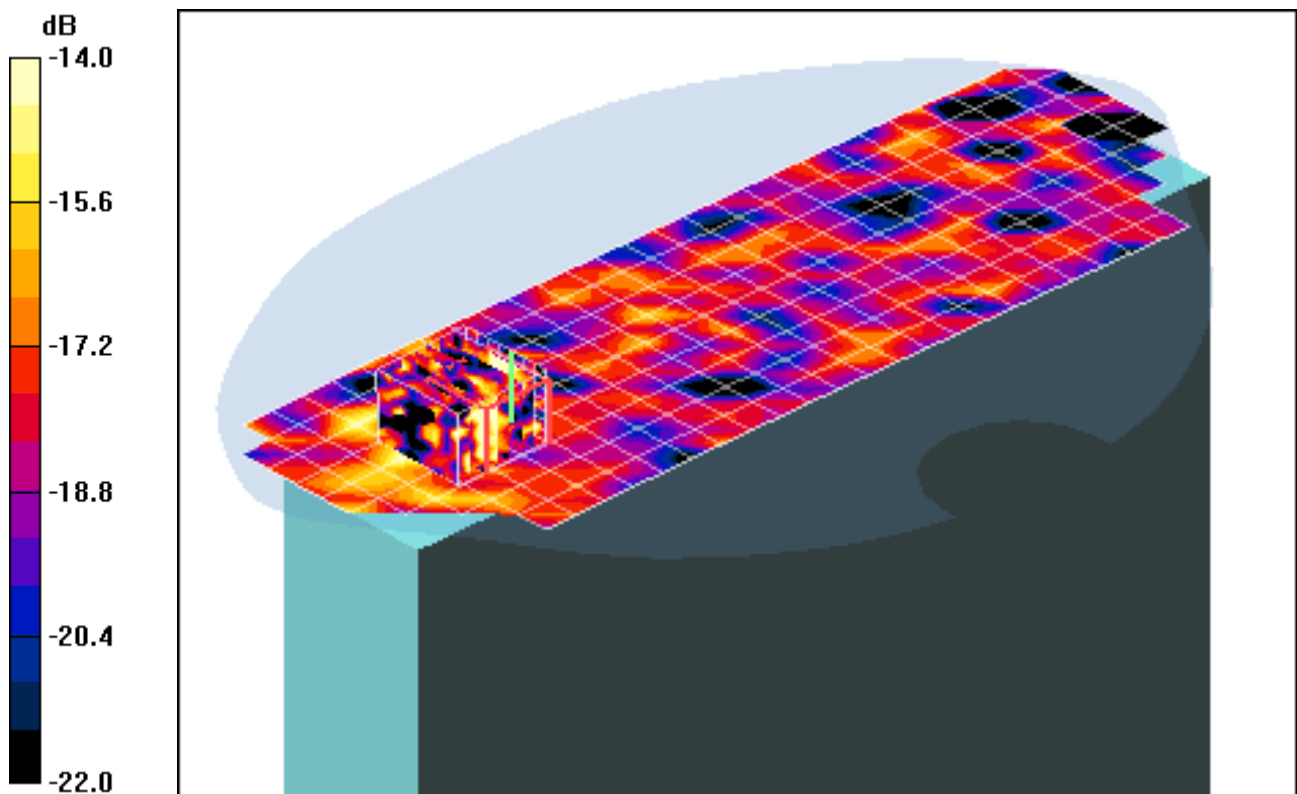
**Area Scan (10x29x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 2.59 V/m

Peak SAR (extrapolated) = 0.048 W/kg

**SAR(1 g) = 0.0202 mW/g; SAR(10 g) = 0.0096 mW/g**



0 dB = 0.043mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.3GHz Band; Frequency: 5300 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5300 \text{ MHz}$ ;  $\sigma = 5.58 \text{ mho/m}$ ;  $\epsilon_r = 48.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-29-2010; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN3550; ConvF(3.52, 3.52, 3.52); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

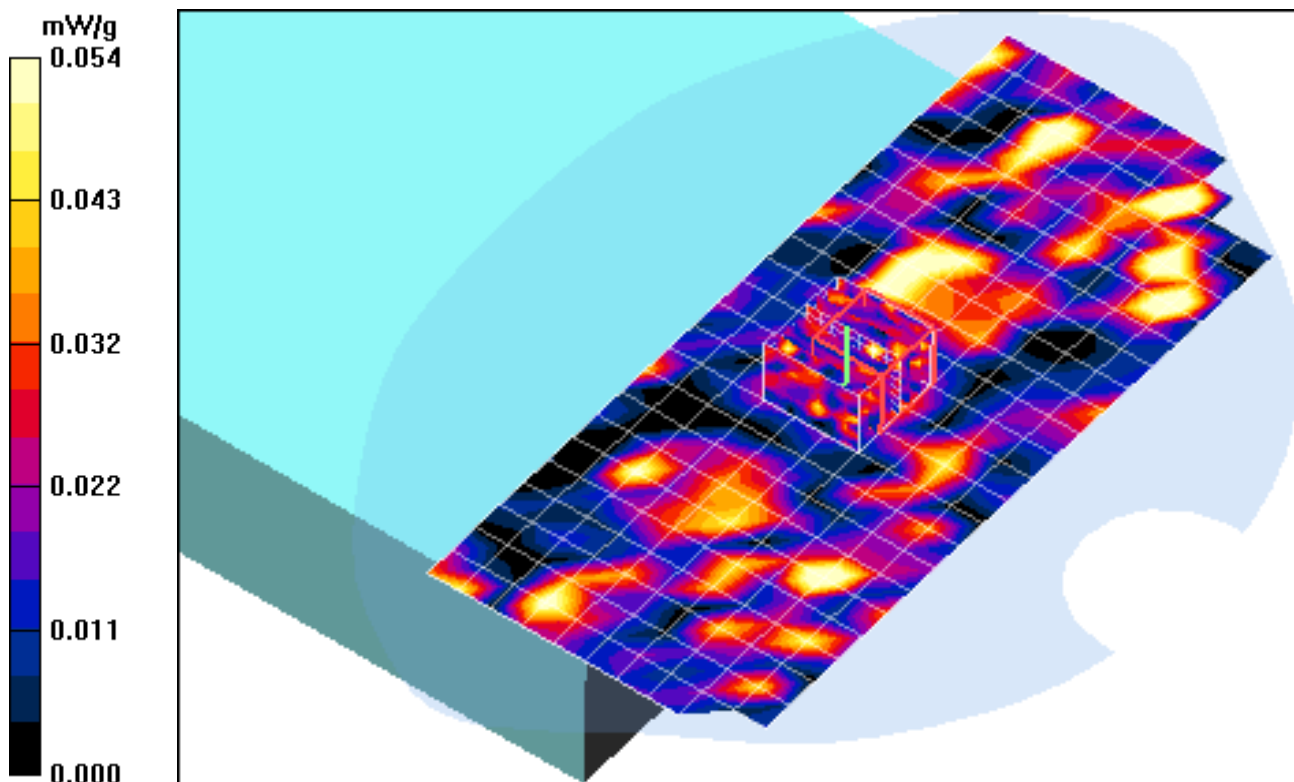
**Area Scan (11x25x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.44 V/m

Peak SAR (extrapolated) = 0.049 W/kg

**SAR(1 g) = 0.0319 mW/g; SAR(10 g) = 0.0218 mW/g**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.3GHz Band; Frequency: 5300 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5300 \text{ MHz}$ ;  $\sigma = 5.58 \text{ mho/m}$ ;  $\epsilon_r = 48.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-29-2010; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN3550; ConvF(3.52, 3.52, 3.52); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11 a, Edge Bottom Position, LCD Flip, Ch.60, 12 Mbps, Tx Chain B**

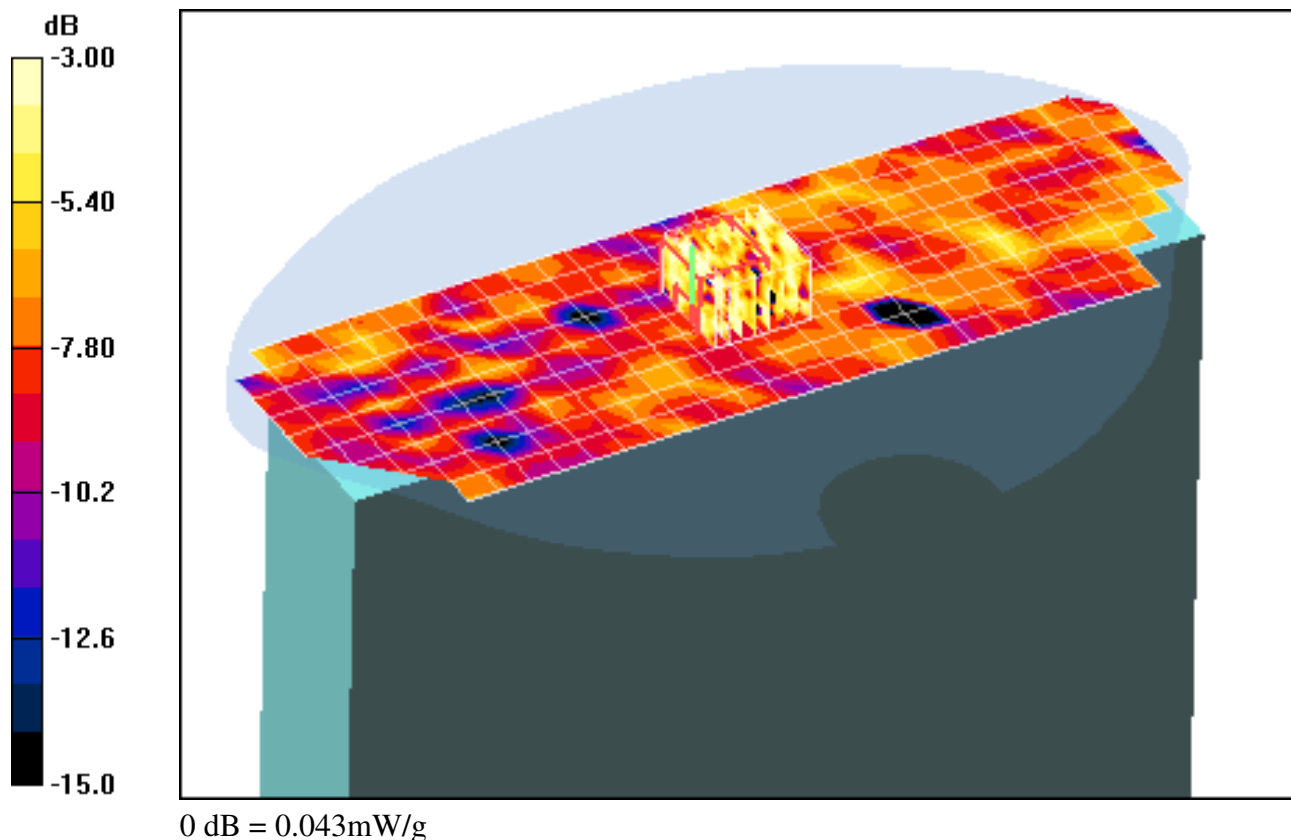
**Area Scan (10x29x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.282 V/m

Peak SAR (extrapolated) = 0.080 W/kg

**SAR(1 g) = 0.0262 mW/g; SAR(10 g) = 0.0117 mW/g**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.3GHz Band; Frequency: 5300 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5300 \text{ MHz}$ ;  $\sigma = 5.58 \text{ mho/m}$ ;  $\epsilon_r = 48.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-29-2010; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN3550; ConvF(3.52, 3.52, 3.52); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11 a, Edge Top Position, LCD Flip, Ch.60, 8Mbps, Tx Chain A**

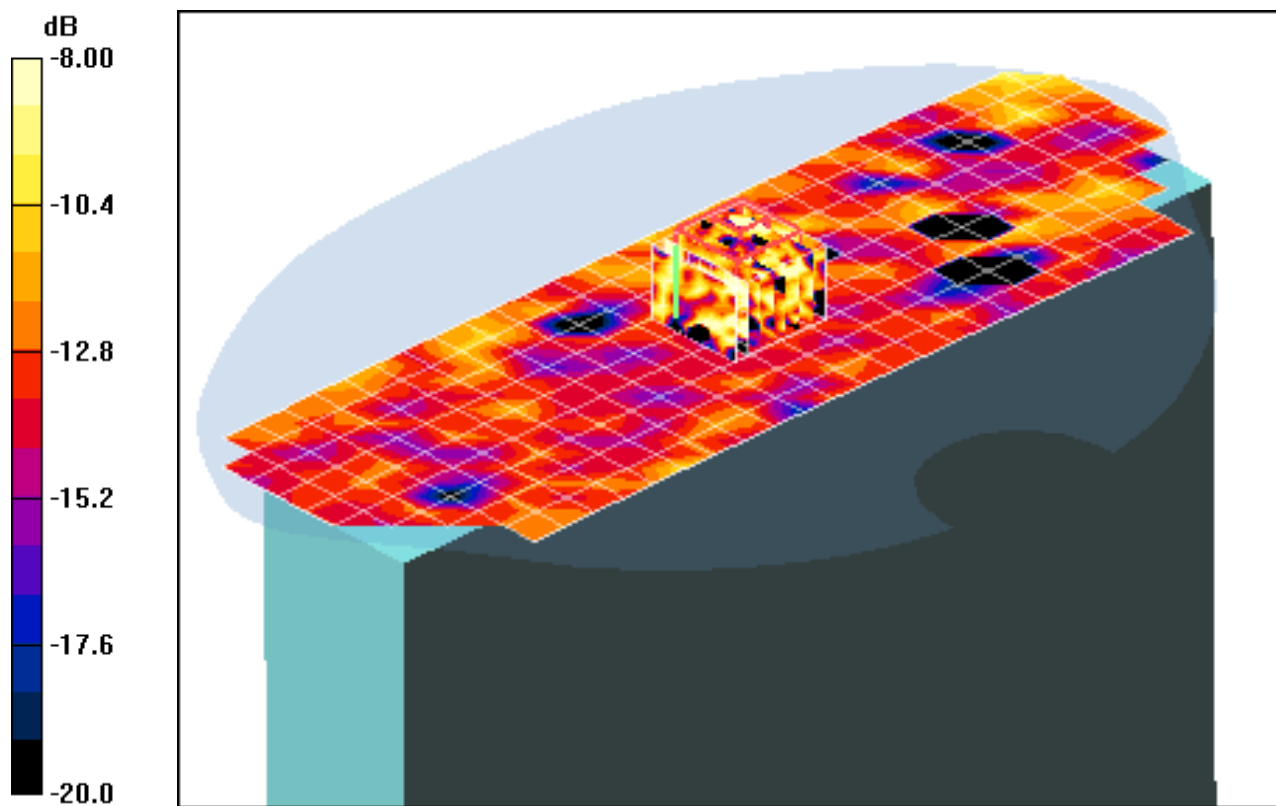
**Area Scan (10x29x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.45 V/m

Peak SAR (extrapolated) = 0.089 W/kg

**SAR(1 g) = 0.0440 mW/g; SAR(10 g) = 0.0162 mW/g**



0 dB = 0.096mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.5GHz Band; Frequency: 5540 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5840 \text{ MHz}$ ;  $\sigma = 6.06 \text{ mho/m}$ ;  $\epsilon_r = 48.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-30-2010; Ambient Temp: 23.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(3.25, 3.25, 3.25); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11a, Lap position, LCD Flip, Ch.148, 8 Mbps, Tx Chain A**

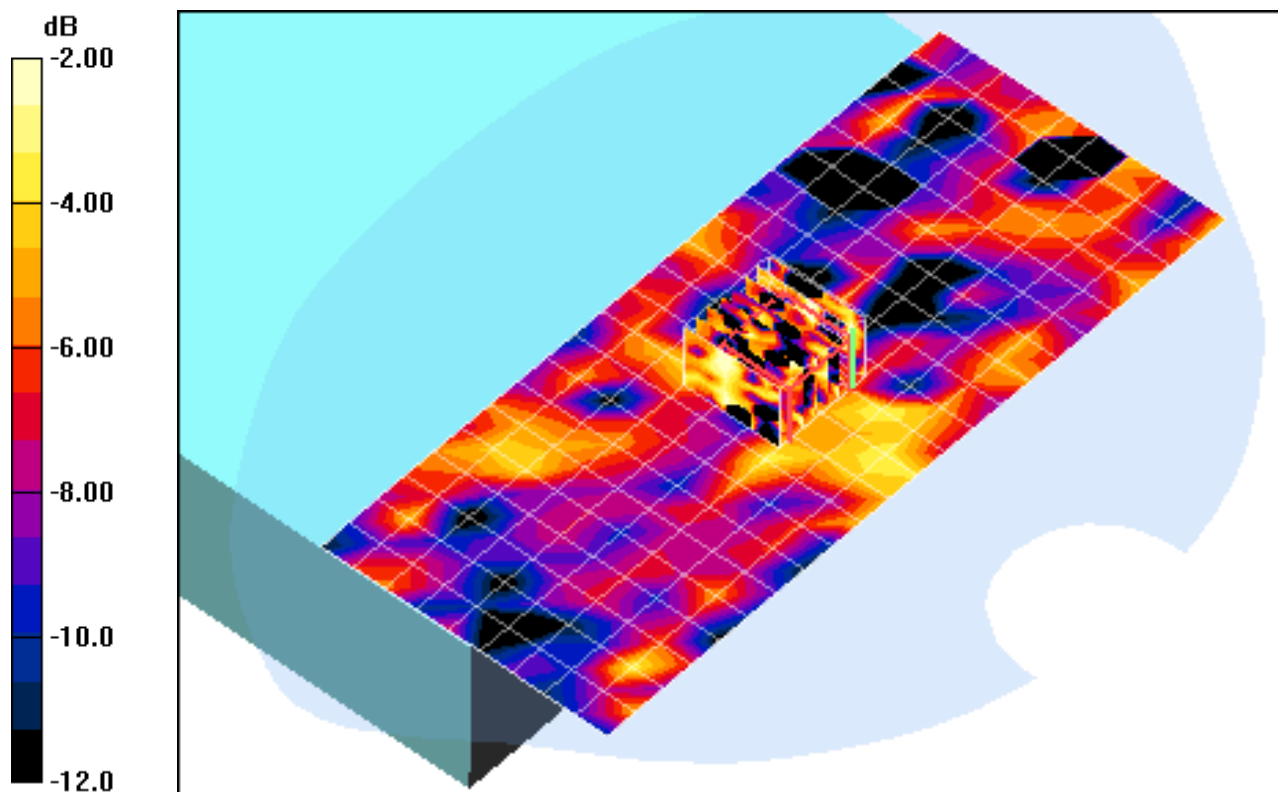
**Area Scan (10x23x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.72 V/m

Peak SAR (extrapolated) = 0.066 W/kg

**SAR(1 g) = 0.0383 mW/g; SAR(10 g) = 0.024 mW/g**



0 dB = 0.050mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.5GHz Band; Frequency: 5540 MHz;Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5540 \text{ MHz}$ ;  $\sigma = 5.92 \text{ mho/m}$ ;  $\epsilon_r = 48.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-30-2010; Ambient Temp: 23.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(3.25, 3.25, 3.25); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11a, Edge Bottom position, LCD Flip, Ch.108, 6 Mbps, Tx chain B**

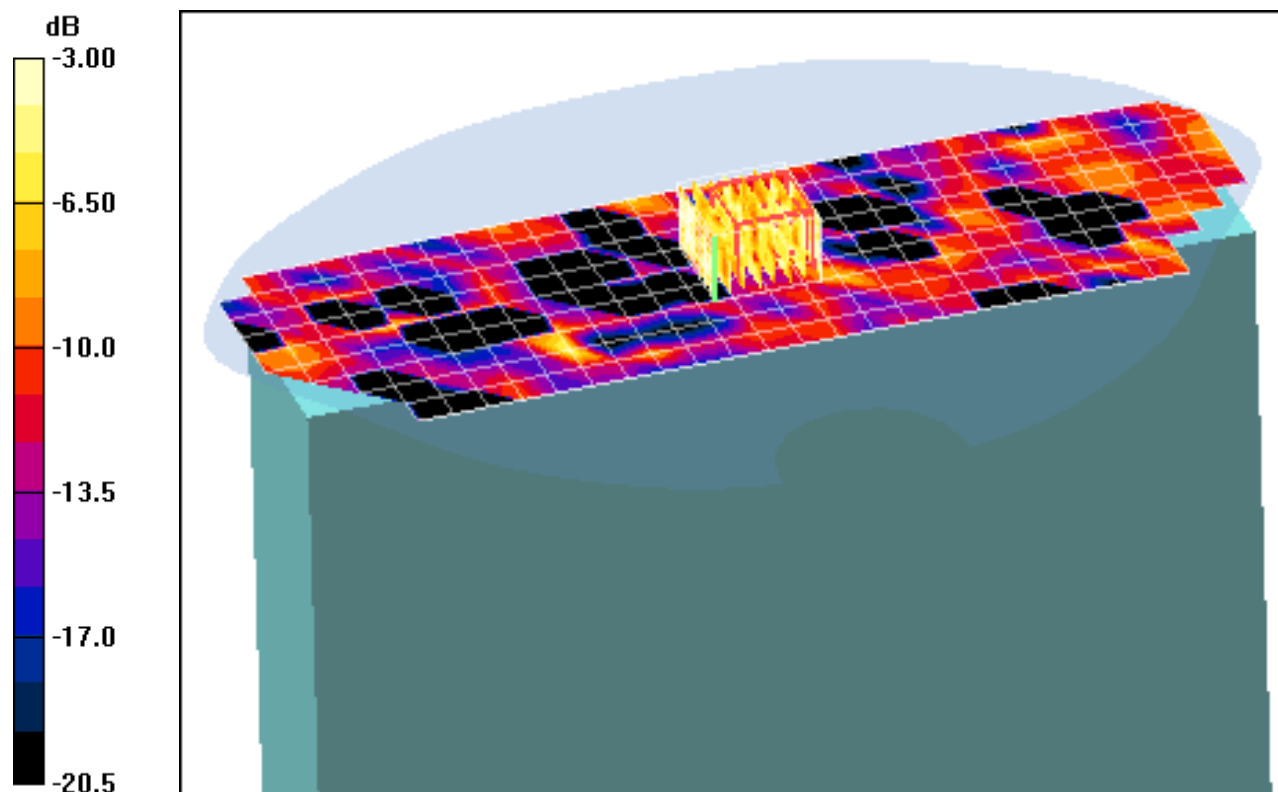
**Area Scan (10x31x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.166 V/m

Peak SAR (extrapolated) = 0.060 W/kg

**SAR(1 g) = 0.0331 mW/g; SAR(10 g) = 0.0174 mW/g**



0 dB = 0.059mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.5GHz Band; Frequency: 5540 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5840 \text{ MHz}$ ;  $\sigma = 8028 \text{ mho/m}$ ;  $\epsilon_r = 48.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-30-2010; Ambient Temp: 23.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(3.25, 3.25, 3.25); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11a, Edge Top position, LCD Flip, Ch.148, 8 Mbps, Tx chain A**

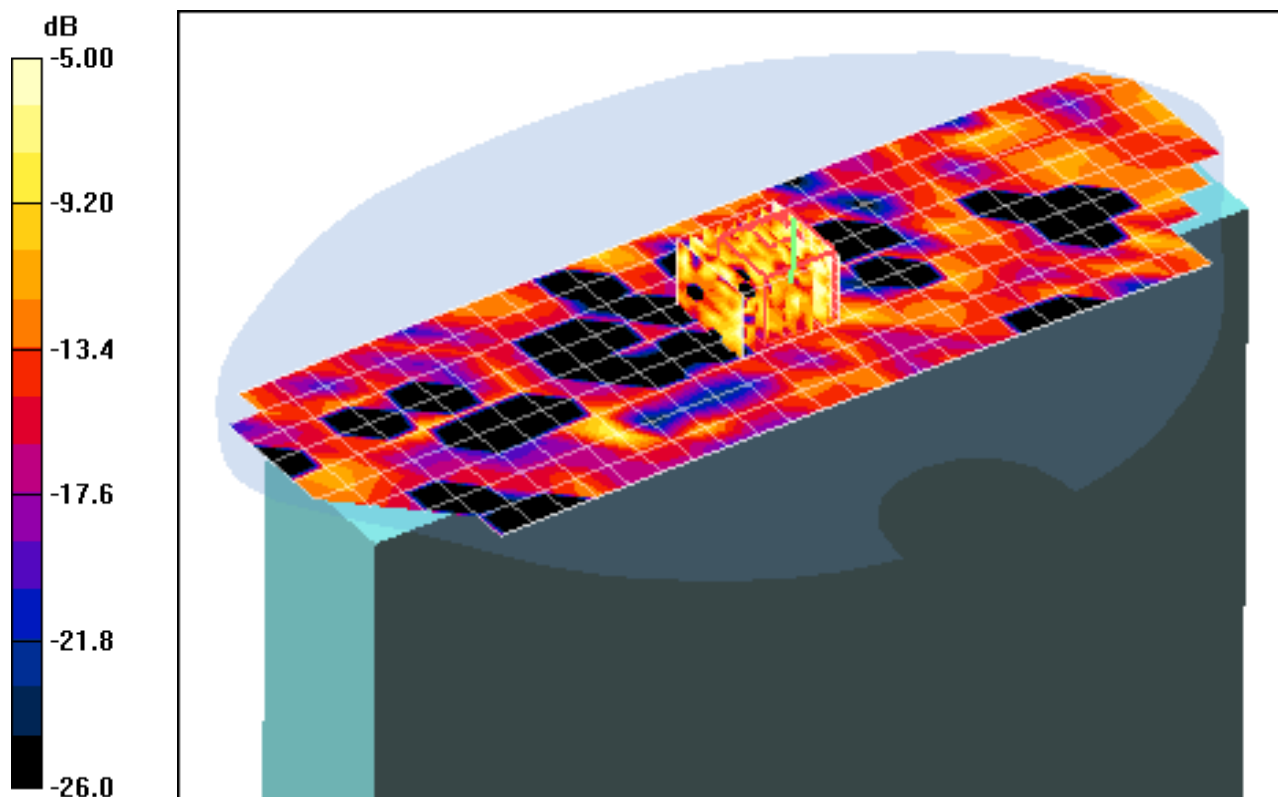
**Area Scan (10x31x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.106 V/m

Peak SAR (extrapolated) = 0.047 W/kg

**SAR(1 g) = 0.0315 mW/g; SAR(10 g) = 0.0184 mW/g**



0 dB = 0.047mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.8GHz Band; Frequency: 5825 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 59: 5 \text{ MHz}$ ;  $\sigma = 6.49 \text{ mho/m}$ ;  $\epsilon_r = 47.;$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-31-2010; Ambient Temp: 23.9° C; Tissue Temp: 22.5° C

Probe: EX3DV4 - SN3550; ConvF(3.25, 3.25, 3.25); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11a, Lap position, LCD Flip, Ch.379, ; Mbps, Tx Chain A**

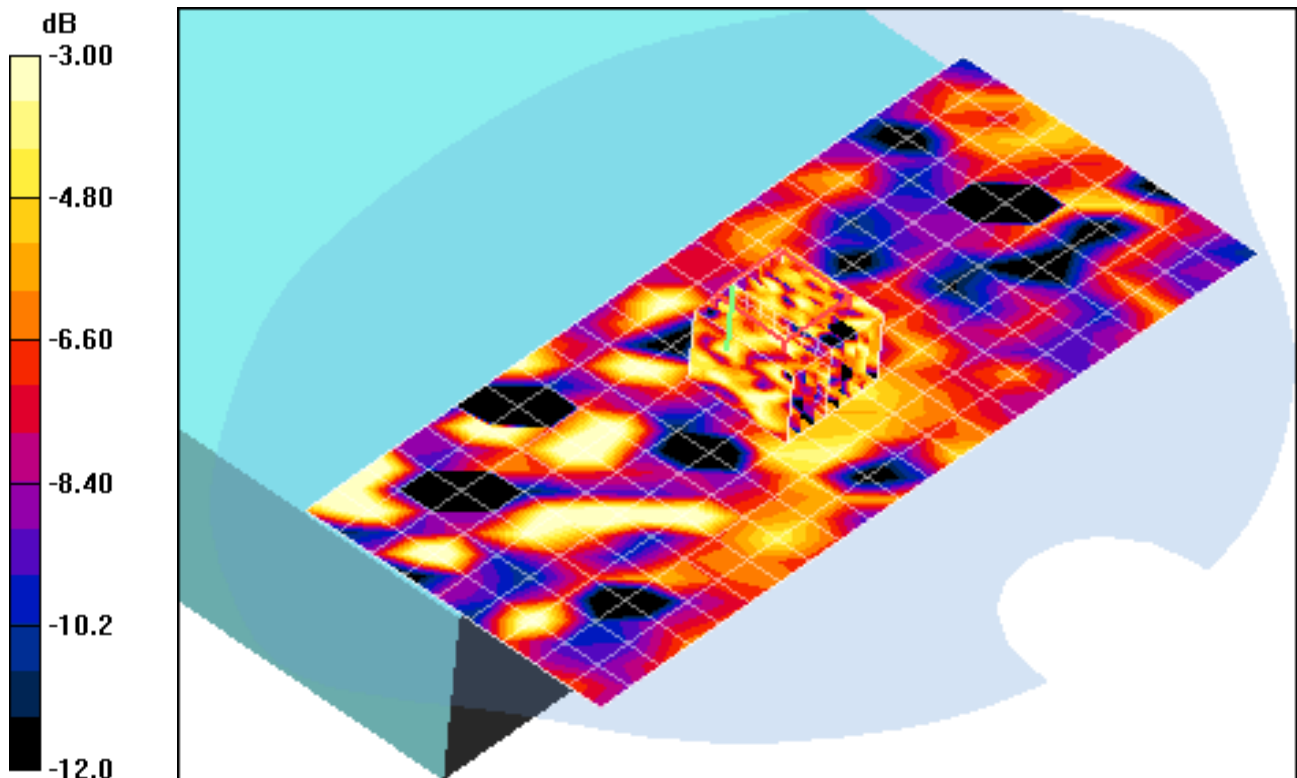
**Area Scan (10x23x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 3.26 V/m

Peak SAR (extrapolated) = 0.084 W/kg

**SAR(1 g) = 0.0406 mW/g; SAR(10 g) = 0.0220 mW/g**



0 dB = 0.068mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.8GHz Band; Frequency: 5825 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5985 \text{ MHz}$ ;  $\sigma = 6.49 \text{ mho/m}$ ;  $\epsilon_r = 47.$ ; ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-31-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(3.3, 3.3, 3.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11a, Edge Bottom position, LCD Flip, Ch. 379, ; Mbps, Tx chain A**

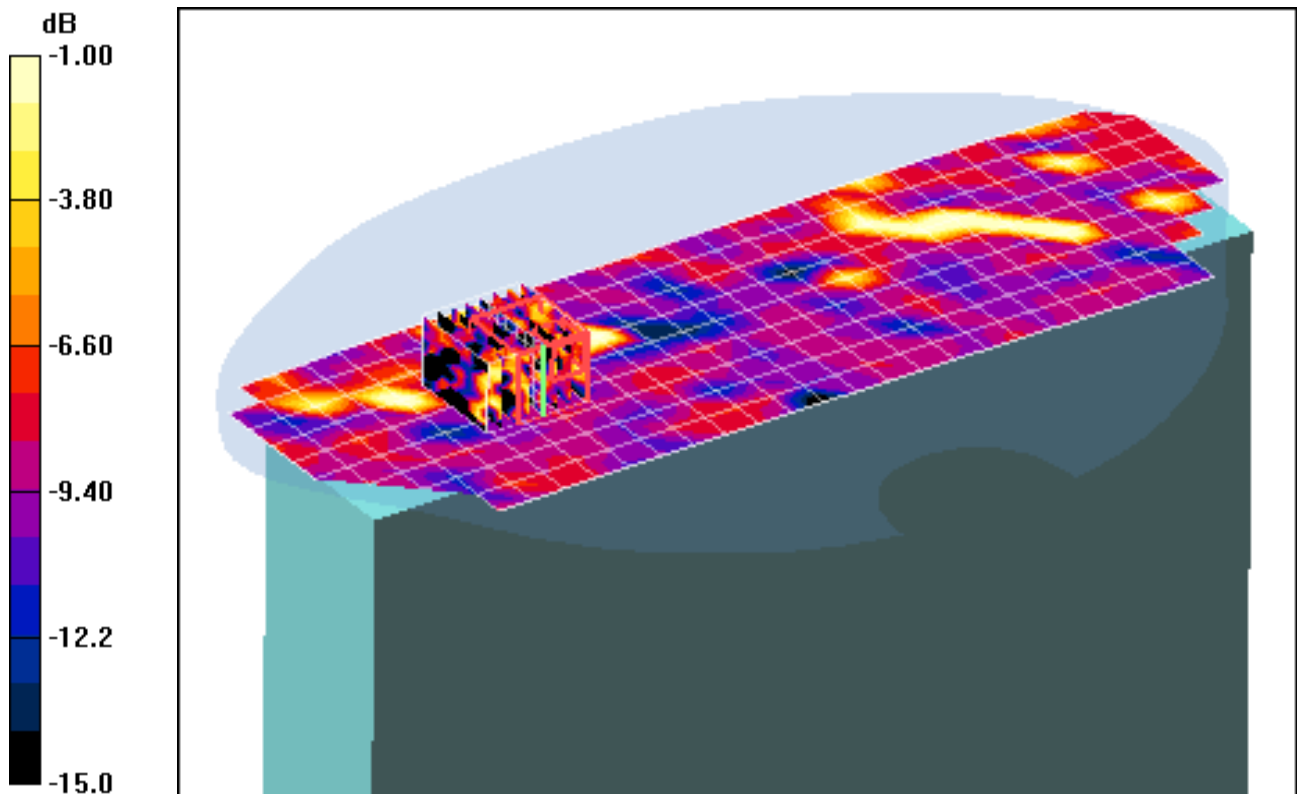
**Area Scan (10x29x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8) Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.69 V/m

Peak SAR (extrapolated) = 0.121 W/kg

**SAR(1 g) = 0.0965 mW/g; SAR(10 g) = 0.0322 mW/g**



0 dB = 0.103mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN  
Serial: 9JKSA00026**

Communication System: IEEE 802.11a 5.8GHz Band; Frequency: 5825 MHz; Duty Cycle: 1:1  
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):  
 $f = 5825 \text{ MHz}$ ;  $\sigma = 6.49 \text{ mho/m}$ ;  $\epsilon_r = 47.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-31-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(3.3, 3.3, 3.3); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: WLAN 802.11a, Tablet Top position, LCD Flip, Ch. 379, ; Mbps, Tx chain A**

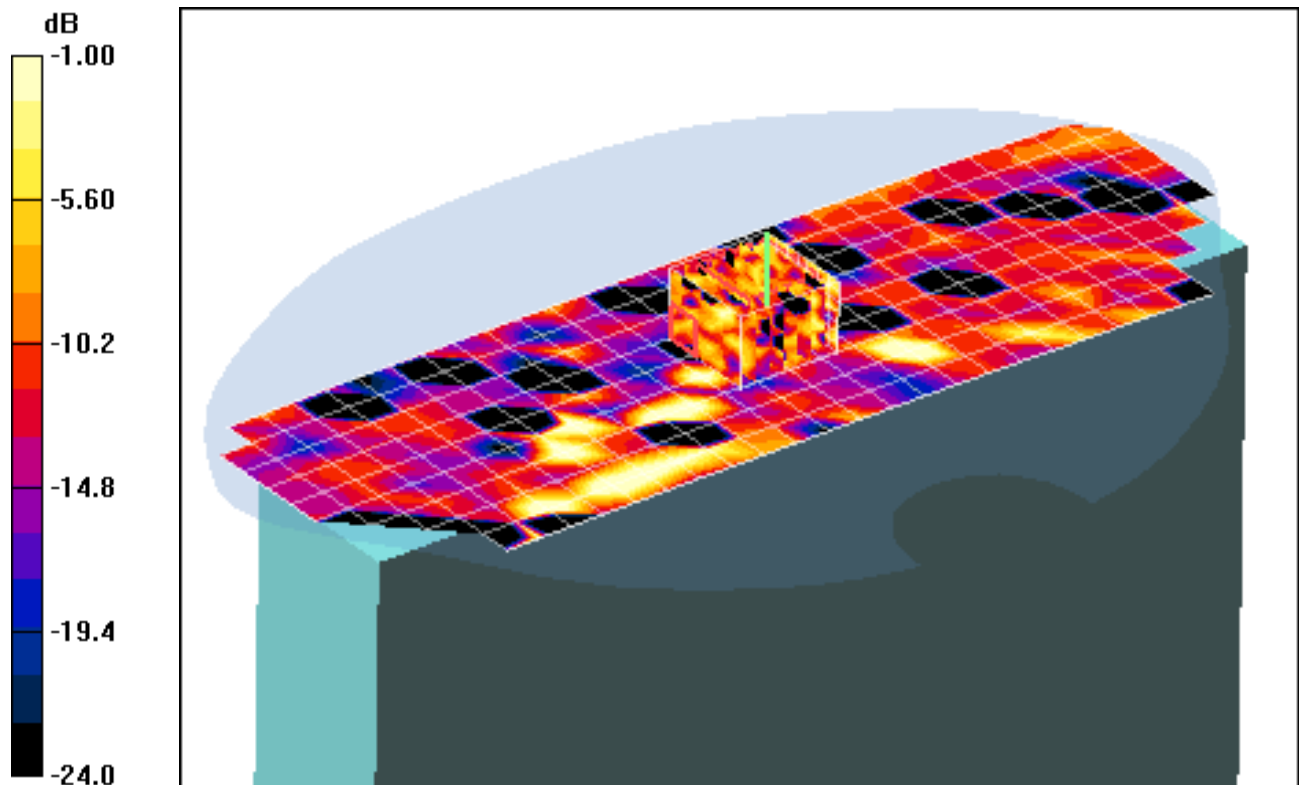
**Area Scan (10x29x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 1.73 V/m

Peak SAR (extrapolated) = 0.056 W/kg

**SAR(1 g) = 0.0196 mW/g; SAR(10 g) = 0.0102 mW/g**



0 dB = 0.036mW/g

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: 5500 Muscle; Medium parameters used (interpolated):

$f = 5500 \text{ MHz}$ ;  $\sigma = 5.87 \text{ mho/m}$ ;  $\epsilon_r = 46.8$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-31-2010; Ambient Temp: 23.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(3.25, 3.25, 3.25); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## 5500MHz 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

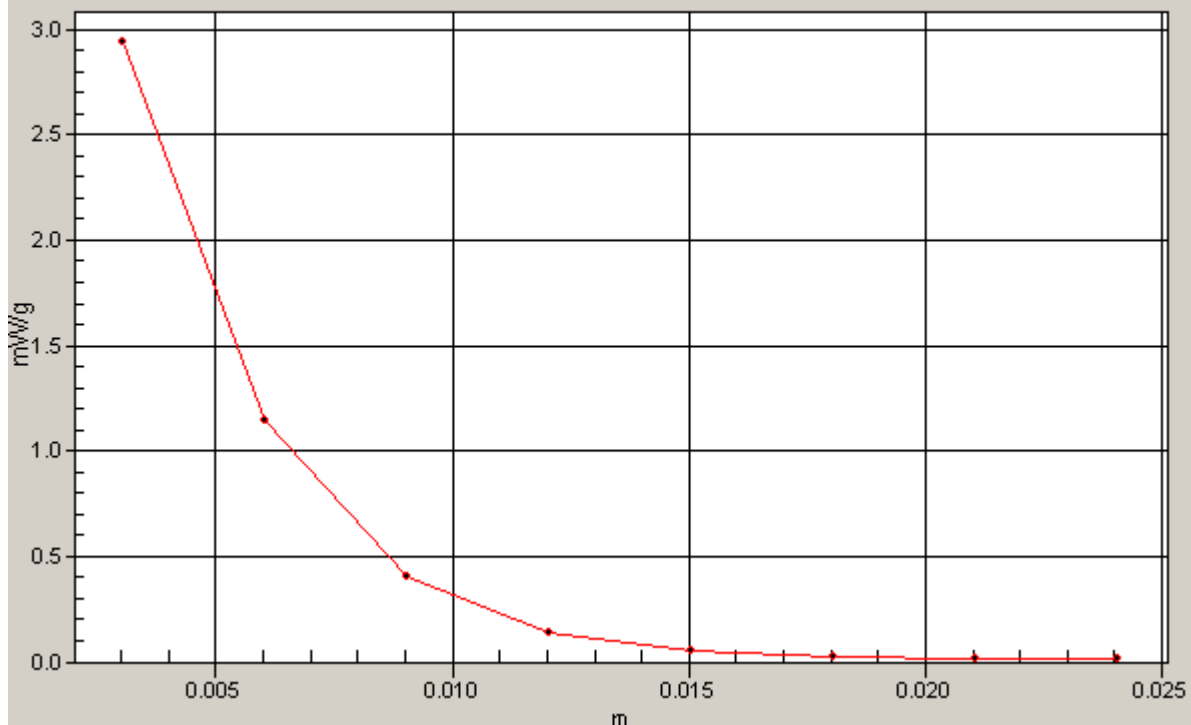
Input Power = 14 dBm (25mW)

**SAR(1 g) = 1.91 mW/g; SAR(10 g) = 0.530 mW/g**

Deviation = -6.37 %

**1g/10g Averaged SAR**

SAR; Zoom Scan: Value Along Z, X=4, Y=3



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN;  
Serial: 9JKSA00026**

Communication System: Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle Medium parameters used (interpolated):  
 $f = 2441 \text{ MHz}$ ;  $\sigma = 1.91 \text{ mho/m}$ ;  $\epsilon_r = 50.5$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

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

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

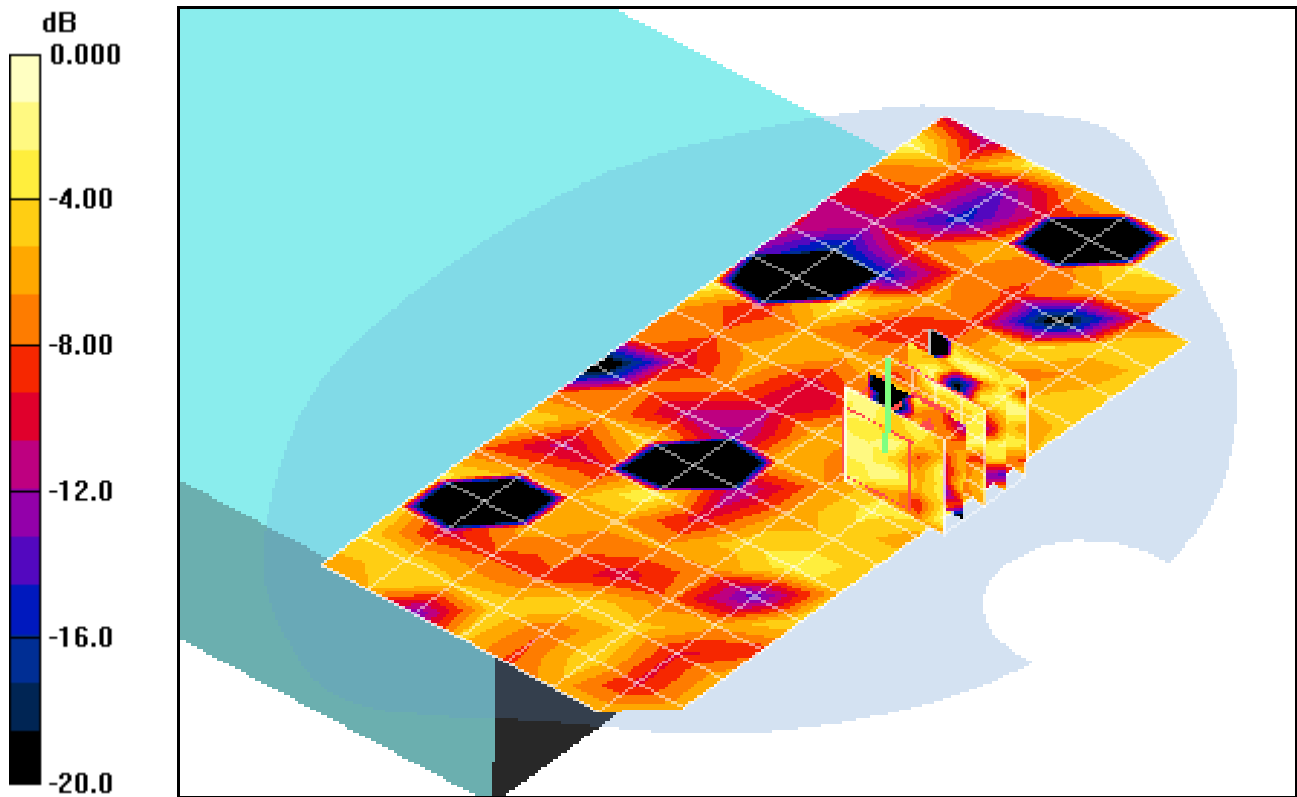
**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 0.652 V/m

Peak SAR (extrapolated) = 0.009 W/kg

**SAR(1 g) = 0.000161 mW/g; SAR(10 g) = 3.14e-005 mW/g**



0 dB = 0.009mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN;  
Serial: 9JKSA00026**

Communication System: Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle Medium parameters used (interpolated):  
 $f = 2441 \text{ MHz}$ ;  $\sigma = 1.91 \text{ mho/m}$ ;  $\epsilon_r = 50.5$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 0.0 cm

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

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

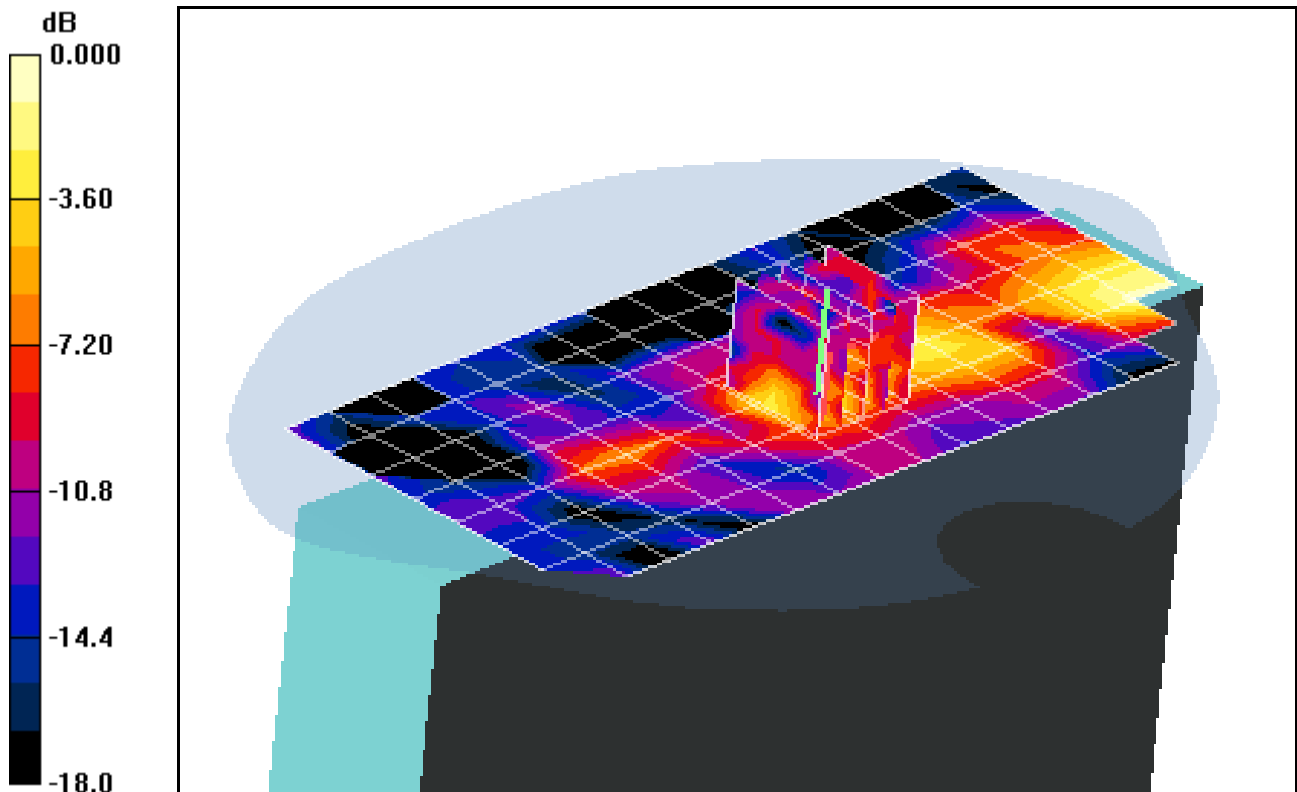
**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 5.04 V/m;

Peak SAR (extrapolated) = 0.105 W/kg

**SAR(1 g) = 0.050 mW/g; SAR(10 g) = 0.021 mW/g**



0 dB = 0.058mW/g

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: CF-19; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN;  
Serial: 9JKSA00026**

Communication System: Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1  
Medium: 2450 Muscle Medium parameters used (interpolated):  
 $f = 2441$  MHz;  $\sigma = 1.91$  mho/m;  $\epsilon_r = 50.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 0.0 cm

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

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn649; Calibrated: 1/22/2010  
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

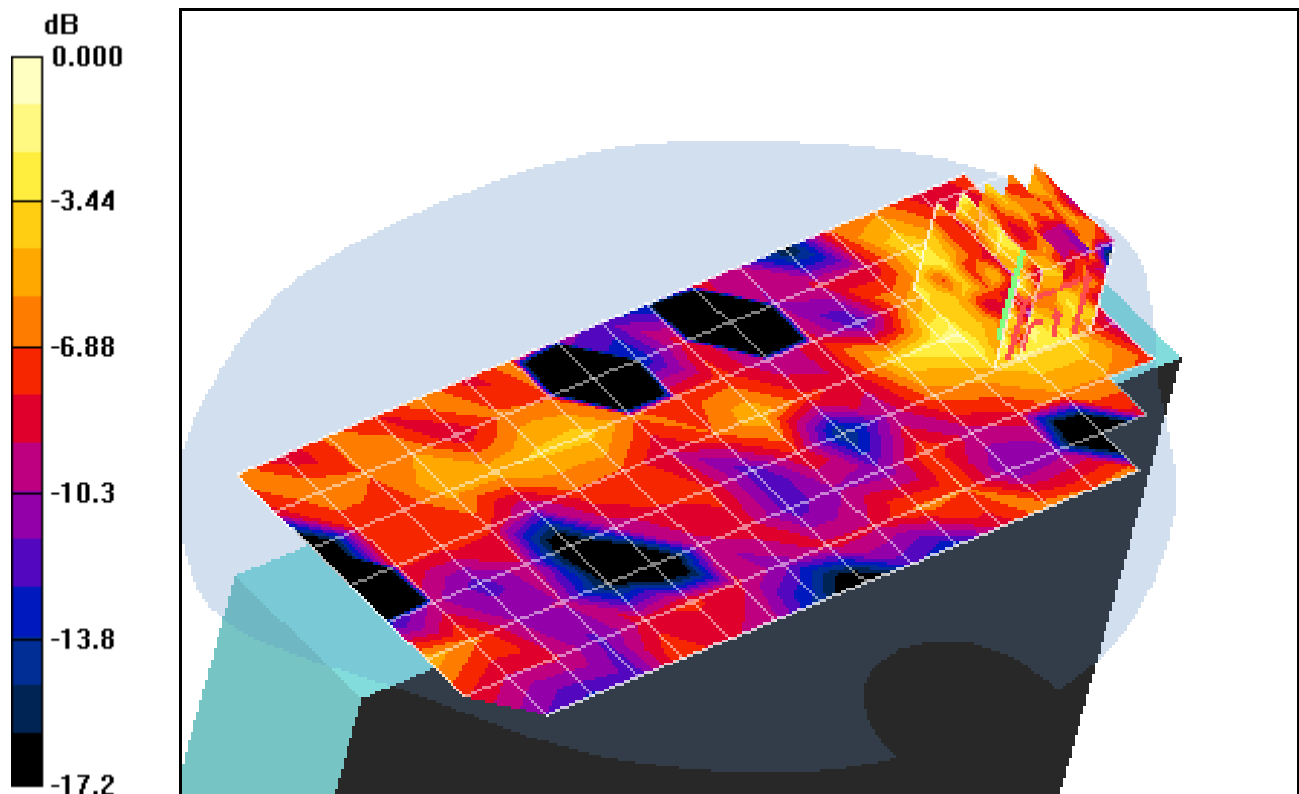
**Area Scan (8x17x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan 2 (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0.973 V/m;

Peak SAR (extrapolated) = 0.044 W/kg

**SAR(1 g) = 0.00977 mW/g; SAR(10 g) = 0.00433 mW/g**



0 dB = 0.020mW/g

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Muscle Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 1.92 \text{ mho/m}$ ;  $\epsilon_r = 50.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

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

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## 2450MHz System Verification

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

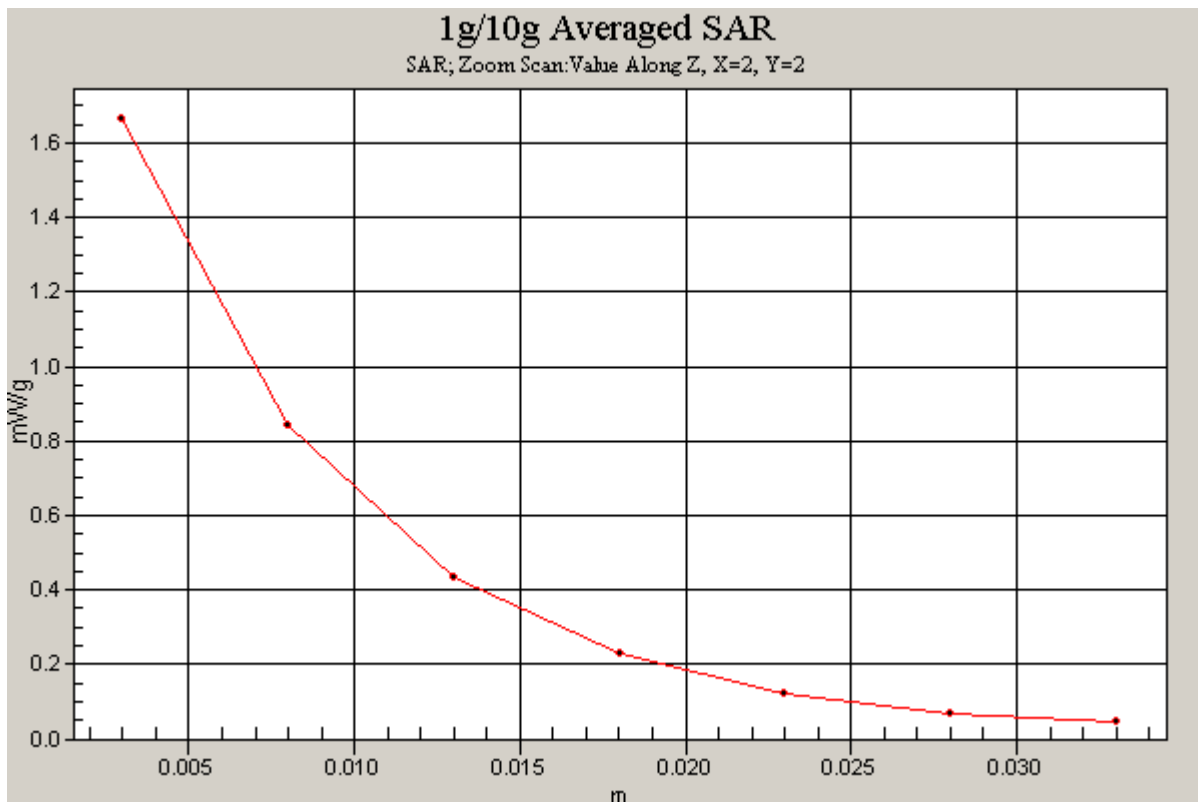
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 14 dBm (25mW)

**SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.594 mW/g**

Maximum value of SAR (measured) = 1.67 mW/g

Deviation = 0.39%



## **APPENDIX B: DIPOLE VALIDATION**

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Muscle Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 1.92 \text{ mho/m}$ ;  $\epsilon_r = 50.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

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

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## 2450MHz System Verification

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

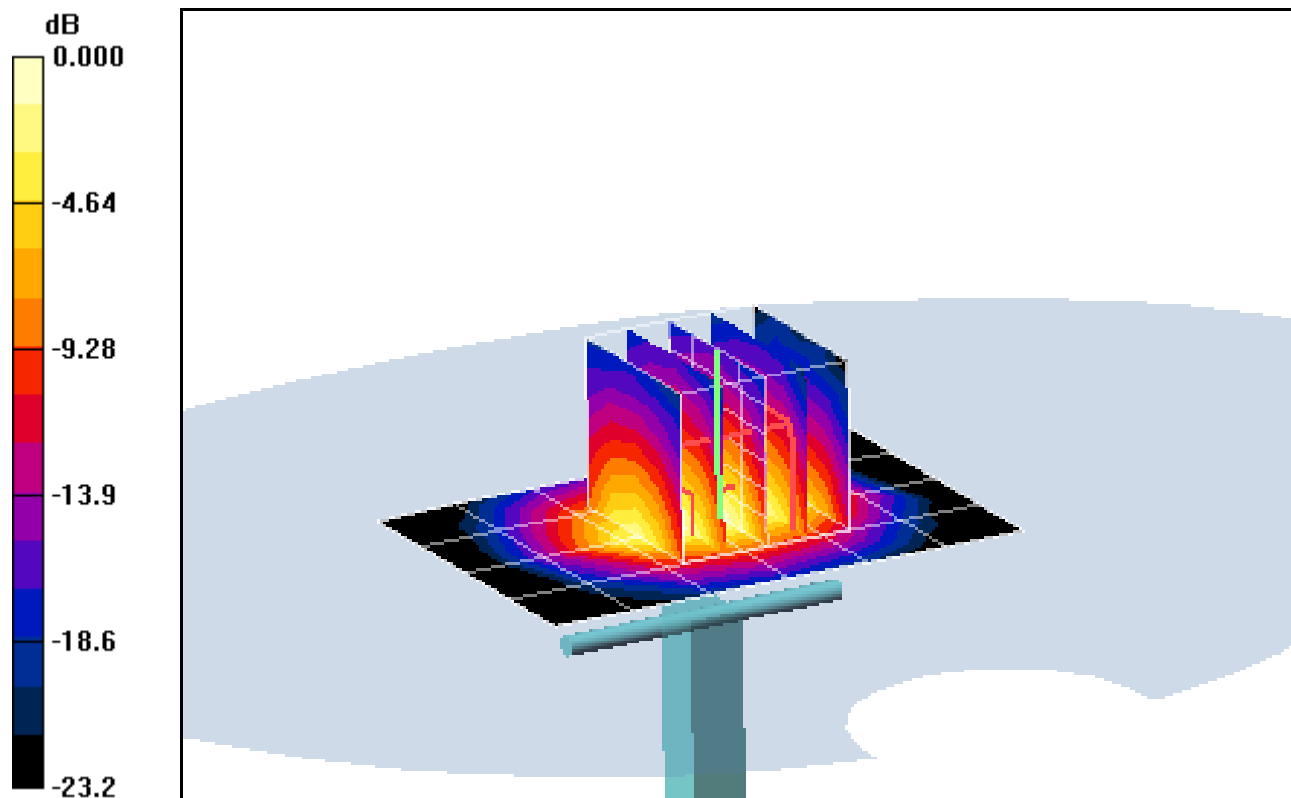
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 14 dBm (25mW)

**SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.594 mW/g**

Maximum value of SAR (measured) = 1.67 mW/g

Deviation = 0.39%



0 dB = 1.67mW/g

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Muscle; Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 1.96 \text{ mho/m}$ ;  $\epsilon_r = 52.3$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-22-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## 2450MHz System Verification

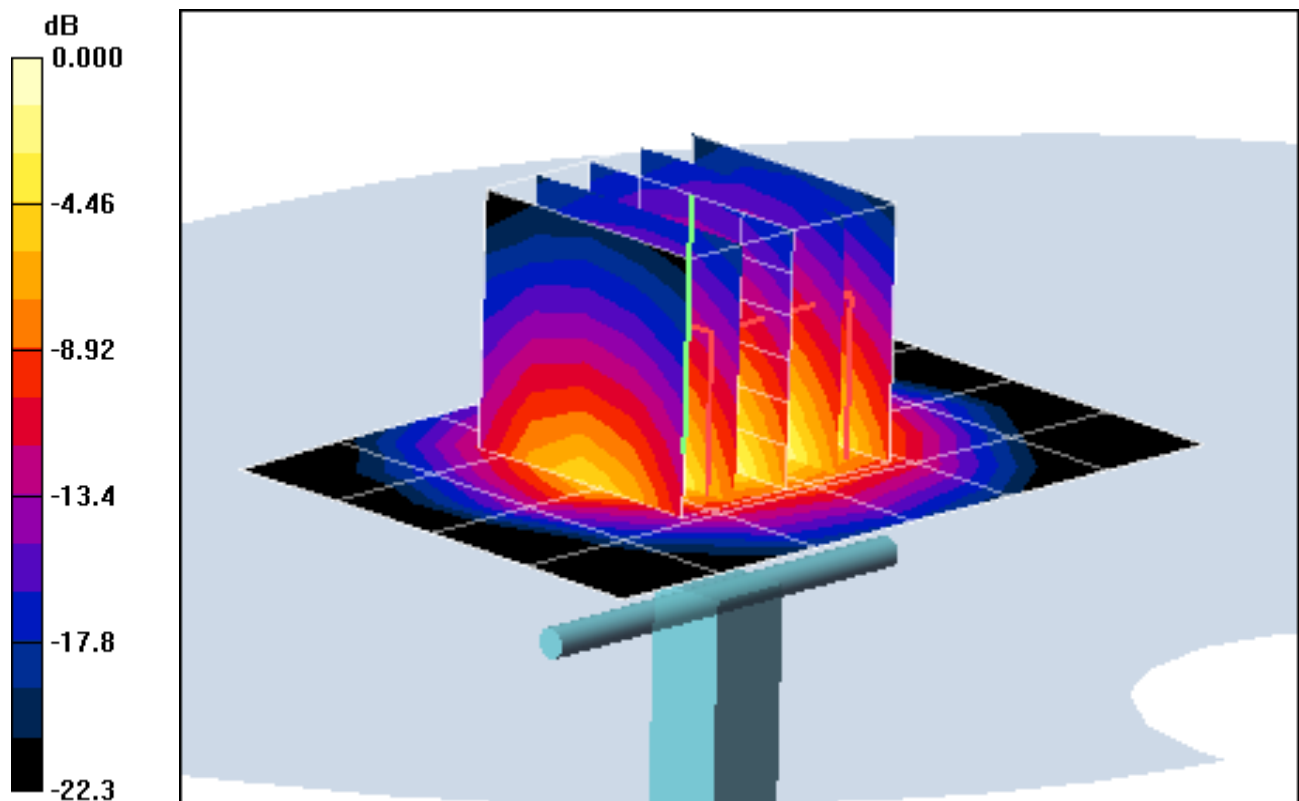
**Area Scan (5x7x1):** Measurement grid: dx=15mm, dy=15mm

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

Input Power = 14 dBm (25mW)

**SAR(1 g) = 1.34 mW/g; SAR(10 g) = 0.621 mW/g**

Deviation = 4.28%



0 dB = 1.71mW/g

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: 5200 Muscle; Medium parameters used (interpolated):

$f = 5200 \text{ MHz}$ ;  $\sigma = 5.44 \text{ mho/m}$ ;  $\epsilon_r = 48.8$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-29-2010; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## 5200MHz System Verification

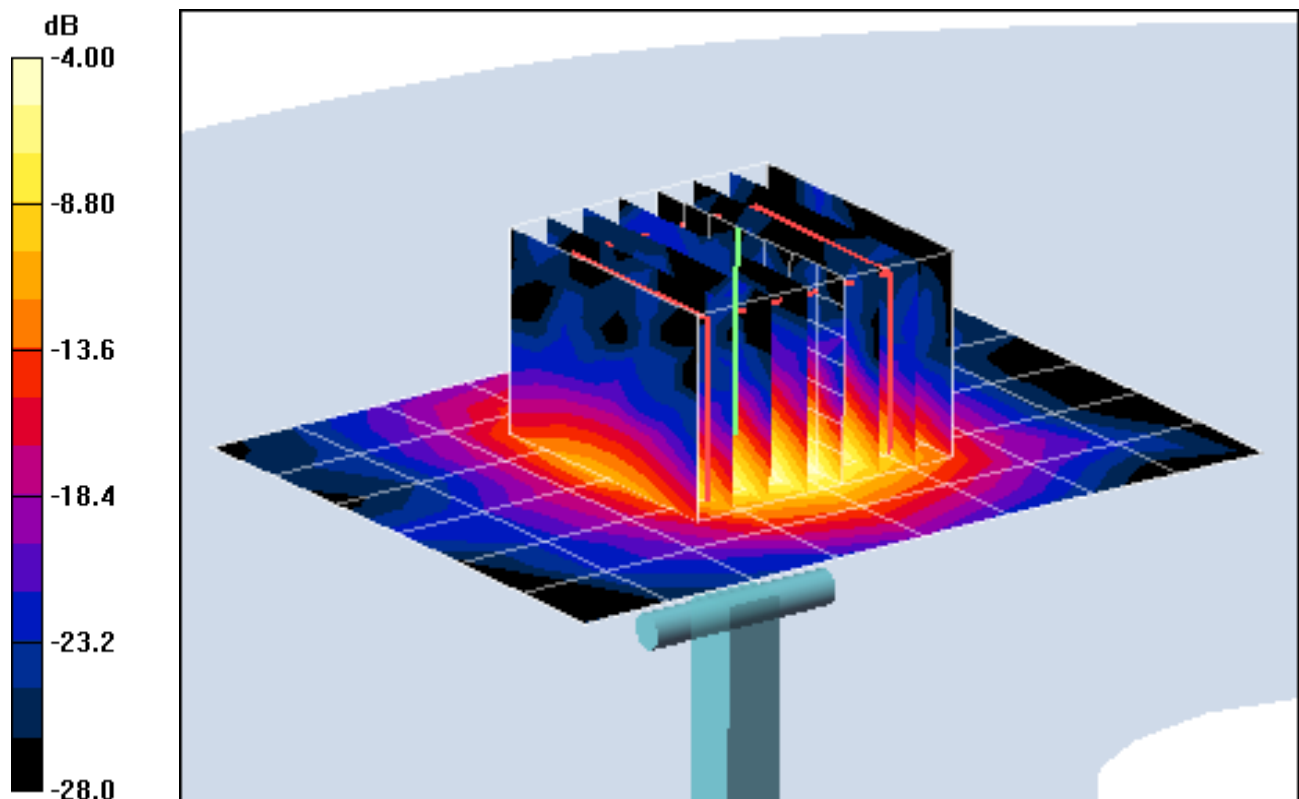
**Area Scan (7x9x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Input Power = 14 dBm (25mW)

**SAR(1 g) = 1.91 mW/g; SAR(10 g) = 0.529 mW/g**

Deviation = -3.41 %



0 dB = 2.75mW/g

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: 5500 Muscle; Medium parameters used (interpolated):

$f = 5500 \text{ MHz}$ ;  $\sigma = 5.87 \text{ mho/m}$ ;  $\epsilon_r = 46.8$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-30-2010; Ambient Temp: 23.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(3.25, 3.25, 3.25); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## 5500MHz System Verification

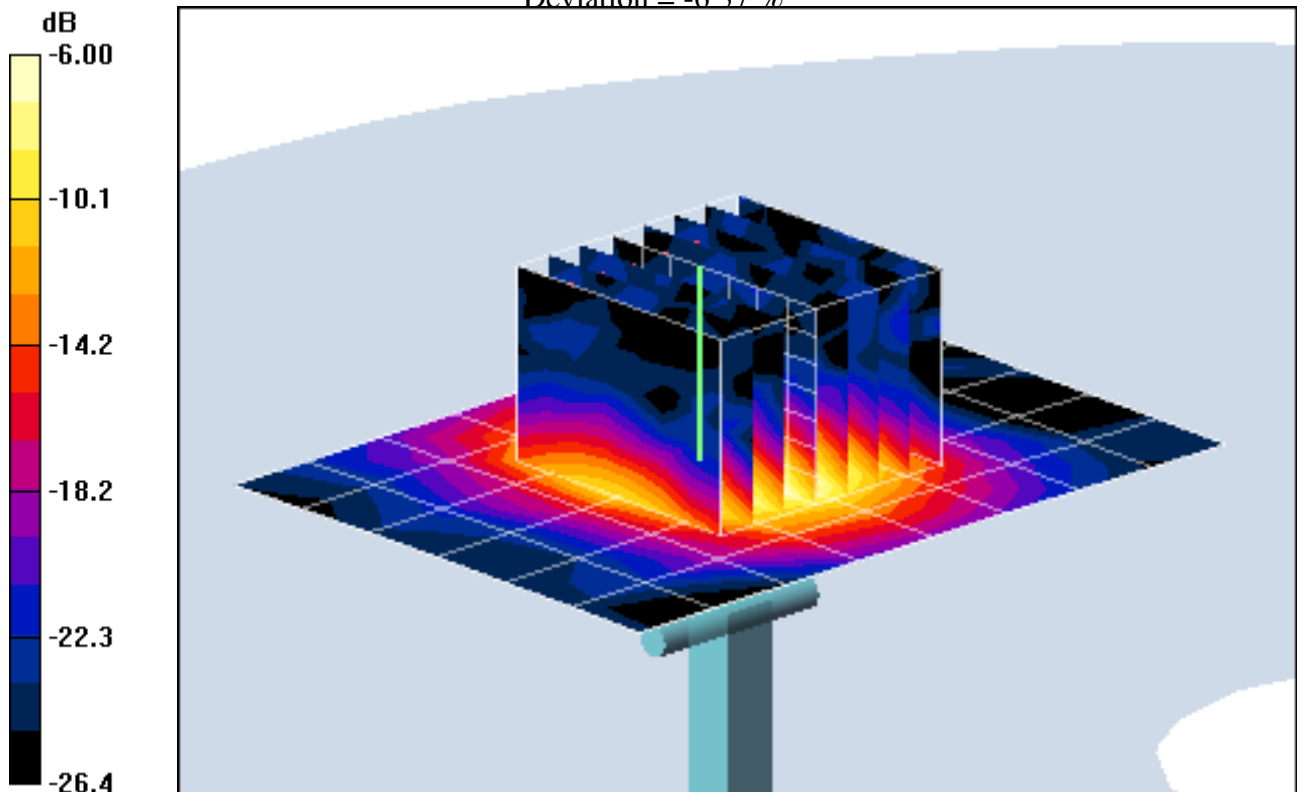
**Area Scan (7x9x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Input Power = 14 dBm (25mW)

**SAR(1 g) = 1.91 mW/g; SAR(10 g) = 0.530 mW/g**

Deviation = -6.37 %



0 dB = 2.94mW/g

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: 5800 Muscle; Medium parameters used (interpolated):

$f = 5800 \text{ MHz}$ ;  $\sigma = 6.28 \text{ mho/m}$ ;  $\epsilon_r = 47.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-31-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(3.3, 3.3, 3.3); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## 5800MHz System Verification

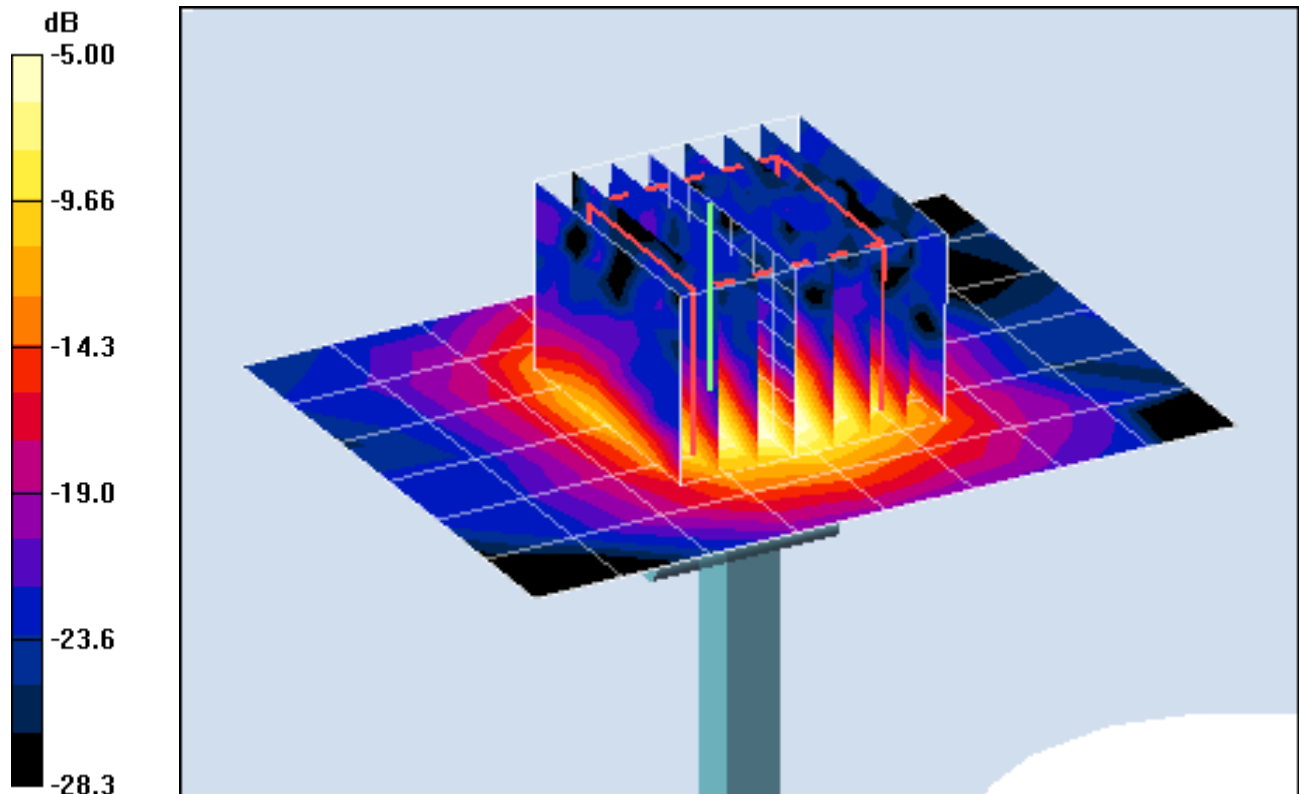
**Area Scan 2 (7x9x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x8)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Input Power = 14 dBm (25mW)

**SAR(1 g) = 1.67 mW/g; SAR(10 g) = 0.455 mW/g**

Deviation = -6.70 %



0 dB = 2.47mW/g

# PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1900 Muscle; Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$ ;  $\sigma = 1.54 \text{ mho/m}$ ;  $\epsilon_r = 51.9$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-05-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## 1900MHz System Verification

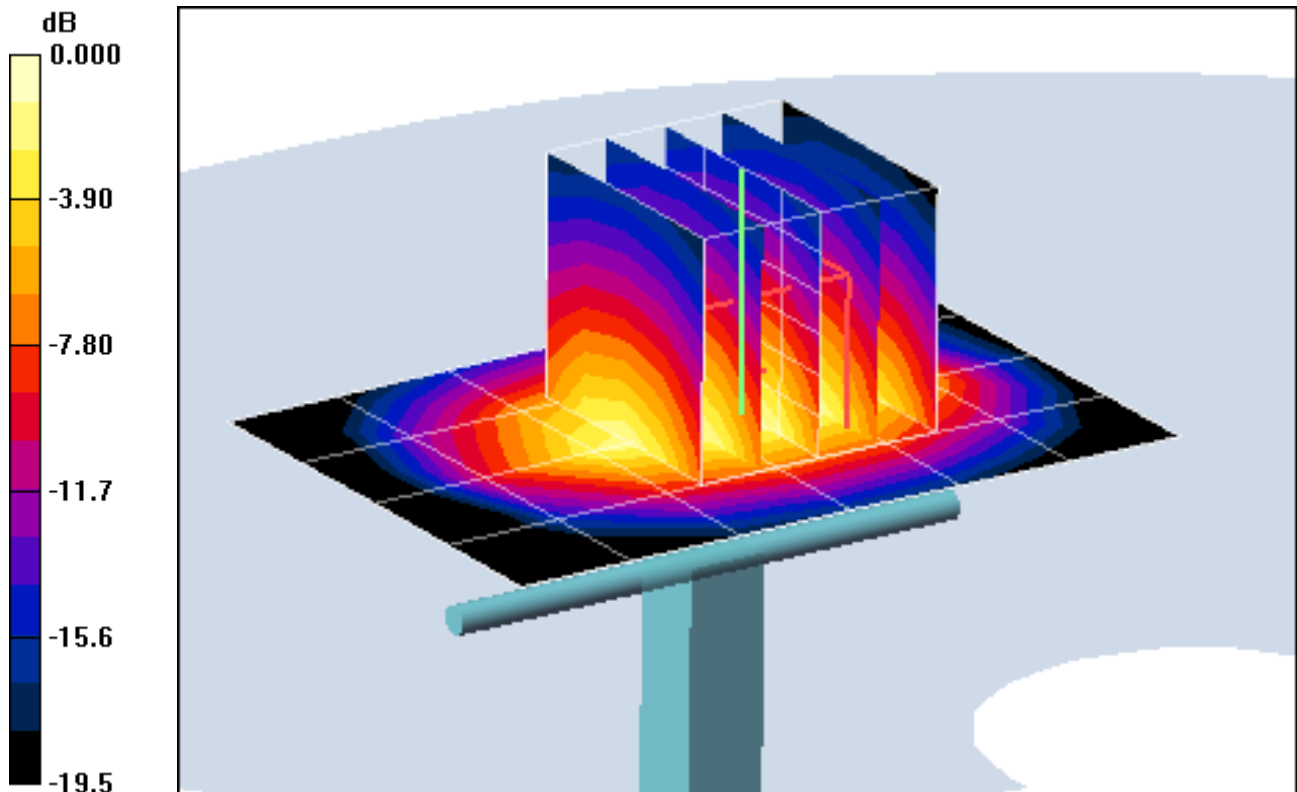
**Area Scan (5x7x1):** Measurement grid: dx=15mm, dy=15mm

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

Input Power = 16.0 dBm (40mW)

**SAR(1 g) = 1.73 mW/g; SAR(10 g) = 0.874 mW/g**

Deviation = 6.79 %



0 dB = 2.22mW/g

# PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 835 Muscle; Medium parameters used:

$f = 835 \text{ MHz}$ ;  $\sigma = 0.99 \text{ mho/m}$ ;  $\epsilon_r = 54.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-07-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 1/22/2010

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## 835MHz System Verification

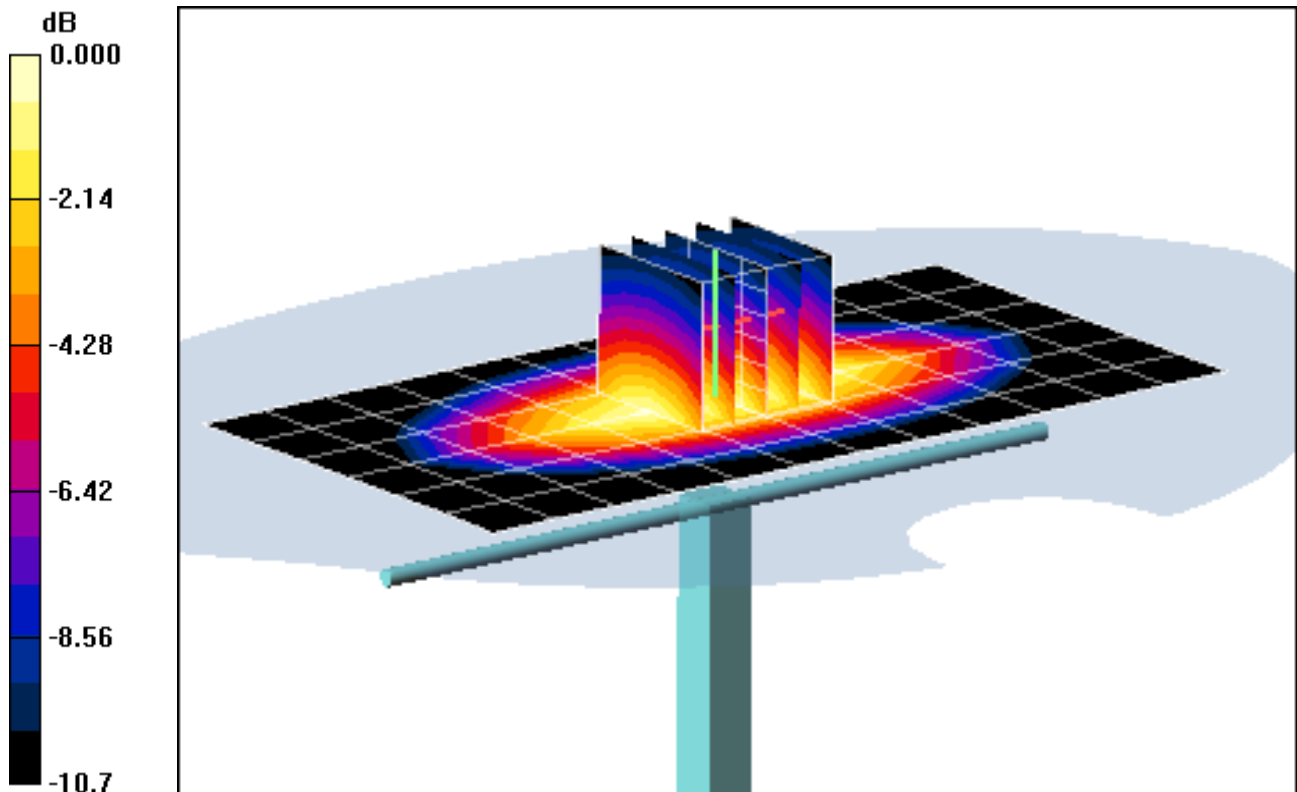
**Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20 dBm (100mW)

**SAR(1 g) = 0.962 mW/g; SAR(10 g) = 0.627 mW/g**

Deviation = -2.04 %



0 dB = 1.13mW/g

## **APPENDIX C: PROBE CALIBRATION**



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

Accreditation No.: **SCS 108**

Client **PC Test**

Certificate No: **EX3-3550\_Jan10**

**CALIBRATION CERTIFICATE**

Object **EX3DV4 - SN:3550**

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

Calibration date: **January 26, 2010**

*✓*  
*1/26/10*

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41498087	1-Apr-09 (No. 217-01030)	Apr-10
Reference 3 dB Attenuator	SN: S5054 (3c)	31-Mar-09 (No. 217-01026)	Mar-10
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-09 (No. 217-01028)	Mar-10
Reference 30 dB Attenuator	SN: S5129 (30b)	31-Mar-09 (No. 217-01027)	Mar-10
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	29-Sep-09 (No. DAE4-660_Sep09)	Sep-10
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct10

Calibrated by:	Name <b>Katja Pokovic</b>	Function <b>Technical Manager</b>	Signature 
Approved by:	Name <b>Fin Bornholt</b>	Function <b>R&amp;D Director</b>	Signature 

Issued: January 26, 2010

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



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

Accreditation No.: **SCS 108**

### Glossary:

TSL	tissue simulating liquid
NORM <sub>x,y,z</sub>	sensitivity in free space
ConvF	sensitivity in TSL / NORM <sub>x,y,z</sub>
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization $\varphi$	$\varphi$ 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
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

### Methods Applied and Interpretation of Parameters:

- NORM<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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; VR<sub>x,y,z</sub>; A, B, C** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  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
Last calibrated:	January 21, 2009
Recalibrated:	January 26, 2010

Calibrated for DASYS Systems

(Note: non-compatible with DASYS2 system!)

**DASY - Parameters of Probe: EX3DV4 SN:3550****Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup>	0.48	0.47	0.48	± 10.1%
DCP (mV) <sup>B</sup>	92.9	88.4	91.4	

**Modulation Calibration Parameters**

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

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

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

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

<sup>E</sup> Uncertainty is determined using the maximum deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY - Parameters of Probe: EX3DV4 SN:3550

### Calibration Parameter Determined in Head Tissue Simulating Media

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

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

## DASY - Parameters of Probe: EX3DV4 SN:3550

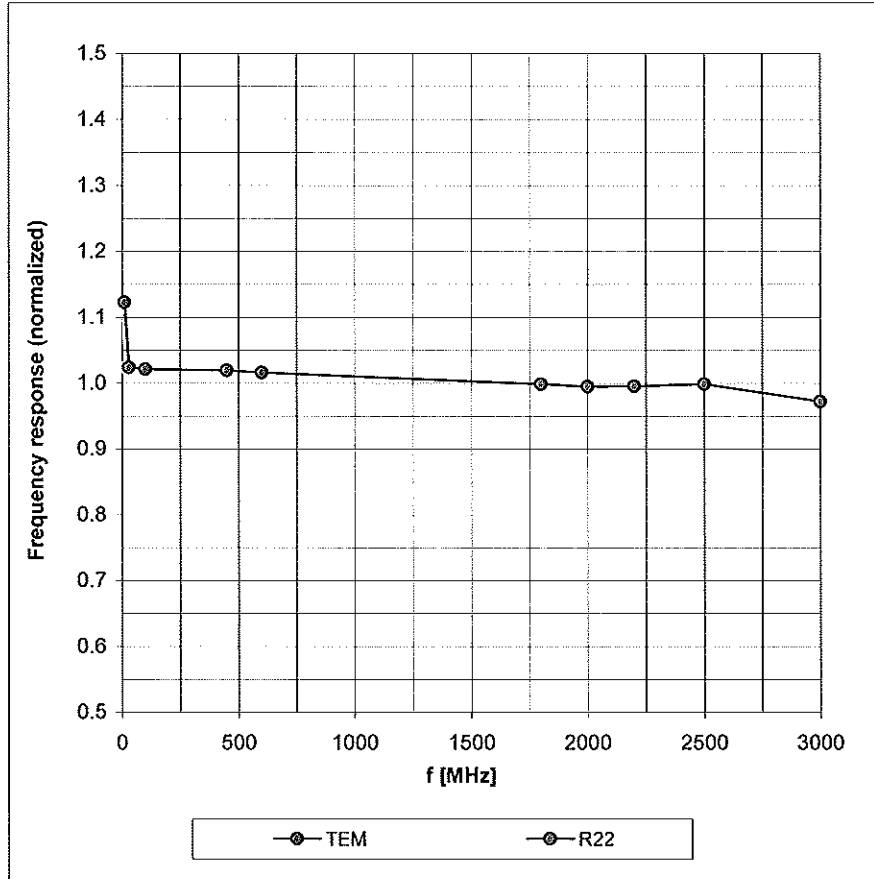
### Calibration Parameter Determined in Body Tissue Simulating Media

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

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

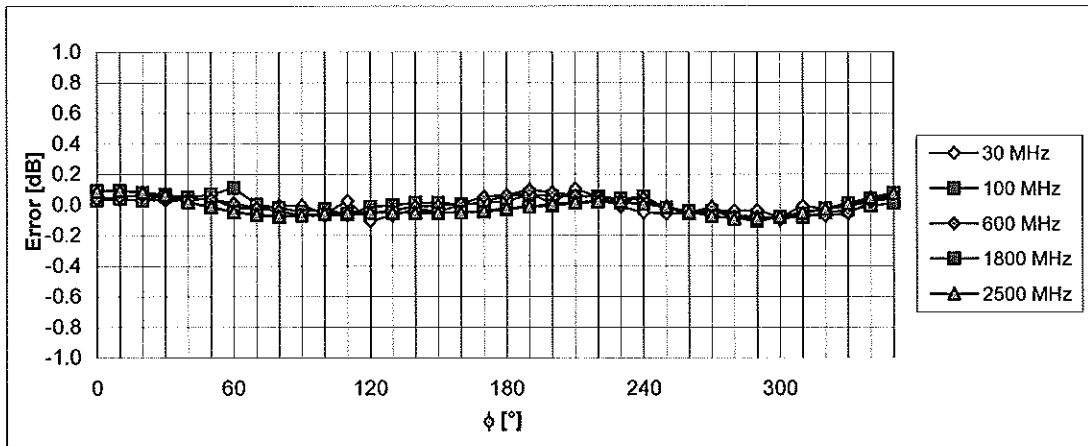
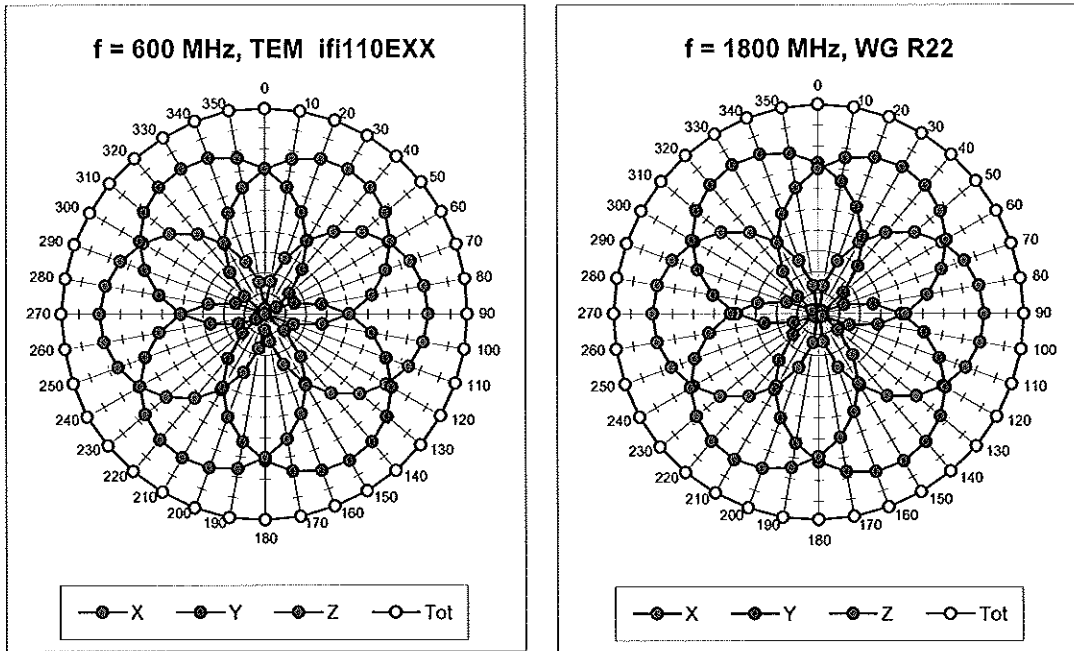
# Frequency Response of E-Field

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



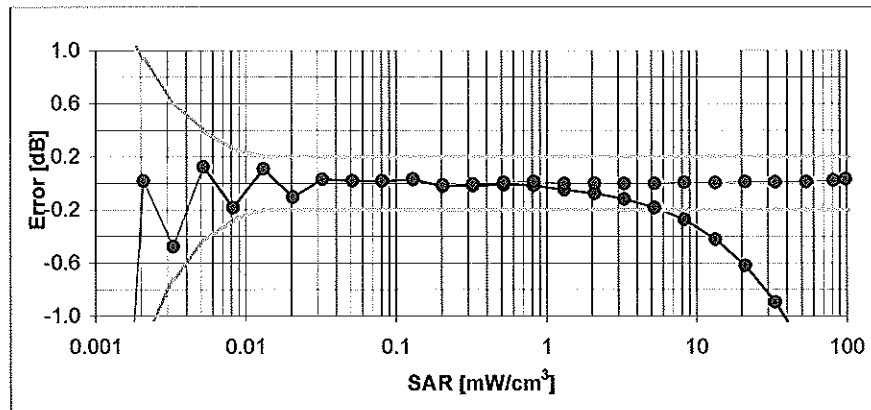
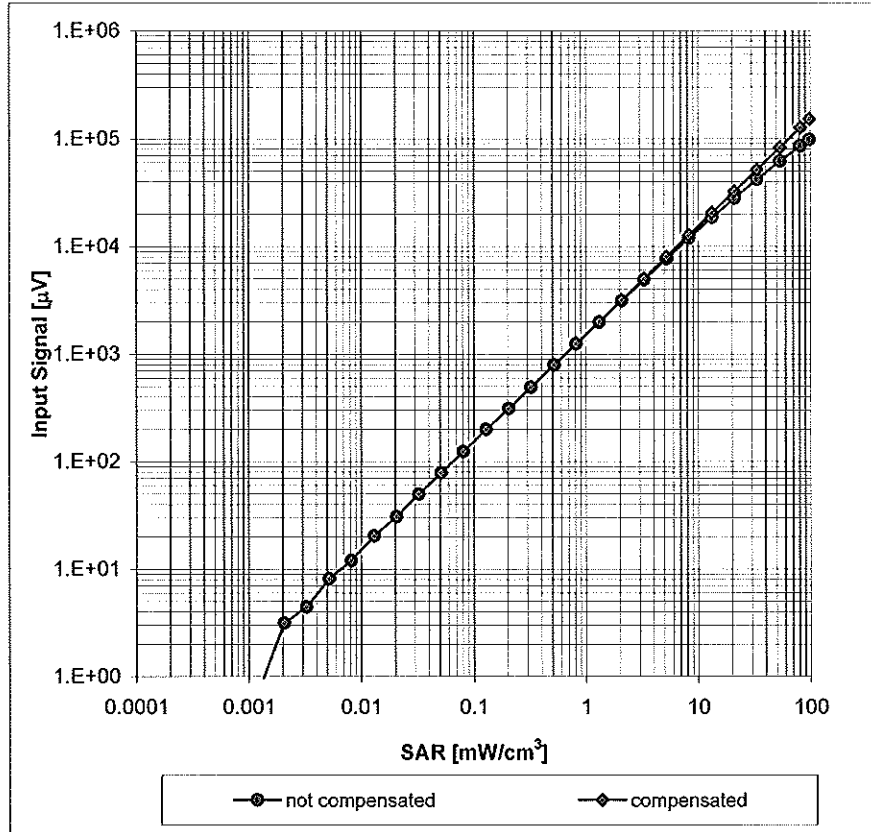
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  (k=2)

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



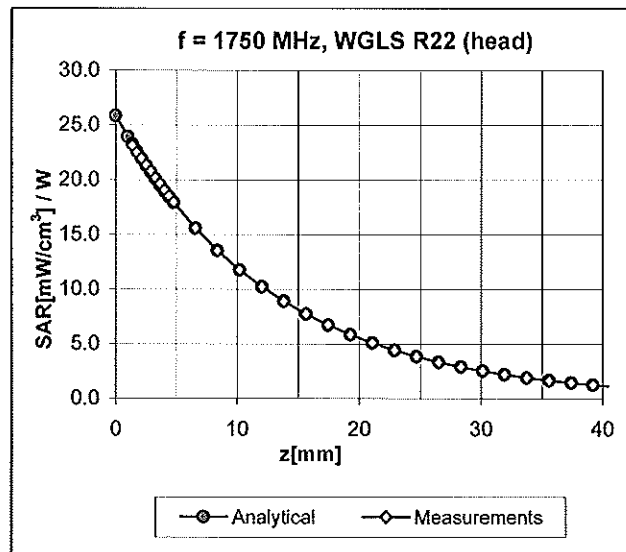
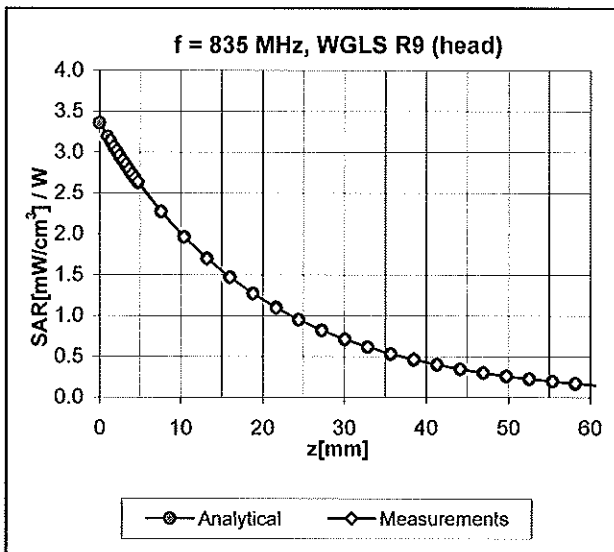
Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

### Dynamic Range f(SAR<sub>head</sub>) (Waveguide R22, f = 1800 MHz)



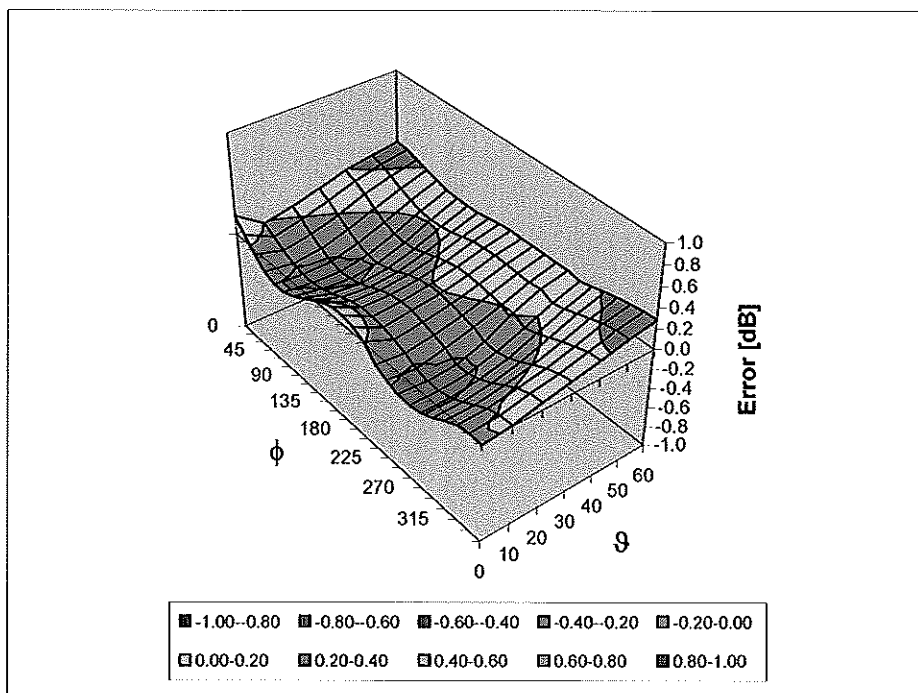
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

### Conversion Factor Assessment



### Deviation from Isotropy in HSL

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



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

## Other Probe Parameters

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



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **PC Test**

Certificate No: **D835V2-4d047\_Jan09**

## CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d047**

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

Calibration date: **January 19, 2009**

Condition of the calibrated item **In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

Calibrated by: **Jeton Kastrati**      **Laboratory Technician**

Approved by: **Katja Pokovic**      **Technical Manager**

Issued: January 20, 2009

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



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

### Glossary:

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

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

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

### Additional Documentation:

- d) DASY4/5 System Handbook

### Methods Applied and Interpretation of Parameters:

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

## Measurement Conditions

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

<b>DASY Version</b>	DASY5	V5.0
<b>Extrapolation</b>	Advanced Extrapolation	
<b>Phantom</b>	Modular Flat Phantom V4.9	
<b>Distance Dipole Center - TSL</b>	15 mm	with Spacer
<b>Zoom Scan Resolution</b>	dx, dy, dz = 5 mm	
<b>Frequency</b>	835 MHz ± 1 MHz	

## Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
<b>Nominal Head TSL parameters</b>	22.0 °C	41.5	0.90 mho/m
<b>Measured Head TSL parameters</b>	(22.0 ± 0.2) °C	41.3 ± 6 %	0.91 mho/m ± 6 %
<b>Head TSL temperature during test</b>	(21.5 ± 0.2) °C	----	----

## SAR result with Head TSL

<b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b>	Condition	
SAR measured	250 mW input power	2.45 mW / g
SAR normalized	normalized to 1W	9.80 mW / g
SAR for nominal Head TSL parameters <sup>1</sup>	normalized to 1W	<b>9.70 mW / g ± 17.0 % (k=2)</b>

<b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b>	condition	
SAR measured	250 mW input power	1.61 mW / g
SAR normalized	normalized to 1W	6.44 mW / g
SAR for nominal Head TSL parameters <sup>1</sup>	normalized to 1W	<b>6.39 mW / g ± 16.5 % (k=2)</b>

<sup>1</sup> Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

## Appendix

### Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.9 $\Omega$ -3.7 j $\Omega$
Return Loss	- 28.4 dB

### Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.8 $\Omega$ -5.5 j $\Omega$
Return Loss	- 23.7 dB

### General Antenna Parameters and Design

Electrical Delay (one direction)	1.386 ns
----------------------------------	----------

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

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

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

### Additional EUT Data

Manufactured by	SPEAG
Manufactured on	August 16, 2006

## Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.5 ± 6 %	1.00 mho/m ± 6 %
Body TSL temperature during test	(21.5 ± 0.2) °C	----	----

## SAR result with Body TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.53 mW / g
SAR normalized	normalized to 1W	10.1 mW / g
SAR for nominal Body TSL parameters <sup>2</sup>	normalized to 1W	<b>9.82 mW / g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.67 mW / g
SAR normalized	normalized to 1W	6.68 mW / g
SAR for nominal Body TSL parameters <sup>2</sup>	normalized to 1W	<b>6.54 mW / g ± 16.5 % (k=2)</b>

<sup>2</sup> Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

# DASY5 Validation Report for Head TSL

Date/Time: 19.01.2009 11:45:19

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: HSL 900 MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 41.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

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

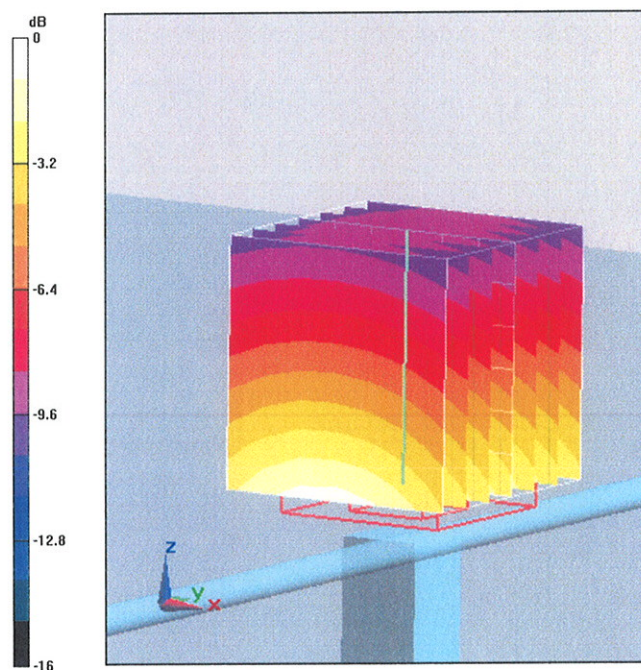
**Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 56.4 V/m; Power Drift = -0.00691 dB

Peak SAR (extrapolated) = 3.61 W/kg

**SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.61 mW/g**

Maximum value of SAR (measured) = 2.77 mW/g



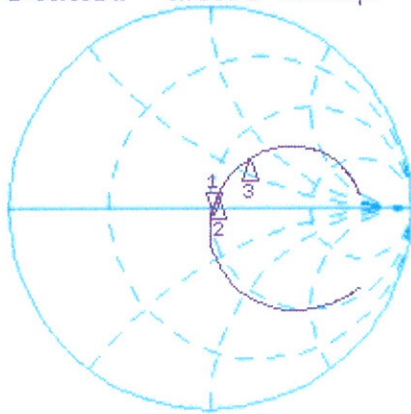
0 dB = 2.77mW/g

# Impedance Measurement Plot for Head TSL

19 Jan 2009 10:48:17

CH1 S11 1 U FS 1: 50.852  $\Omega$  -3.7266  $\Omega$  51.148 pF 835.000 000 MHz

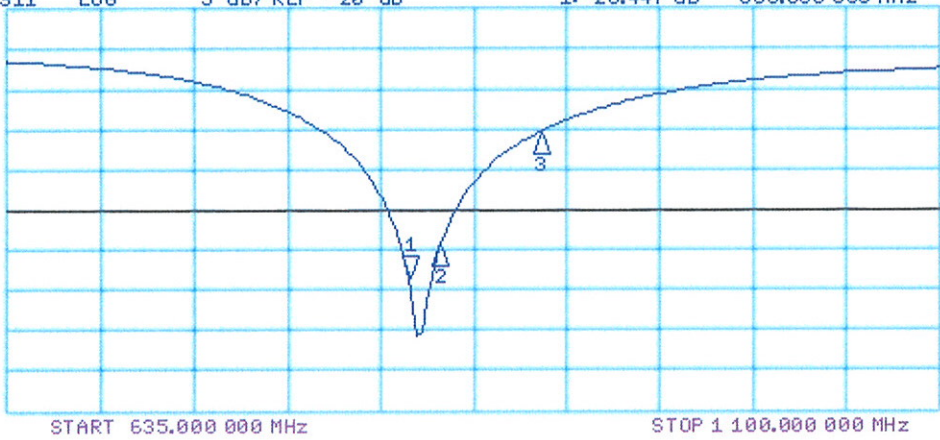
\*  
De l  
Cor  
Avg  
15  
↑



CH1 Markers  
2: 53.711  $\Omega$   
4.9805  $\Omega$   
850.000 MHz  
3: 63.910  $\Omega$   
32.488  $\Omega$   
900.000 MHz

CH2 S11 LOG 5 dB/REF -20 dB 1:-28.447 dB 835.000 000 MHz

Cor  
Avg  
15  
↑



CH2 Markers  
2:-24.508 dB  
850.000 MHz  
3:-10.504 dB  
900.000 MHz

START 635.000 000 MHz STOP 1 100.000 000 MHz

# DASY5 Validation Report for Body TSL

Date/Time: 12.01.2009 12:18:12

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: MSL900

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 1 \text{ mho/m}$ ;  $\epsilon_r = 53.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

## DASY5 Configuration:

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

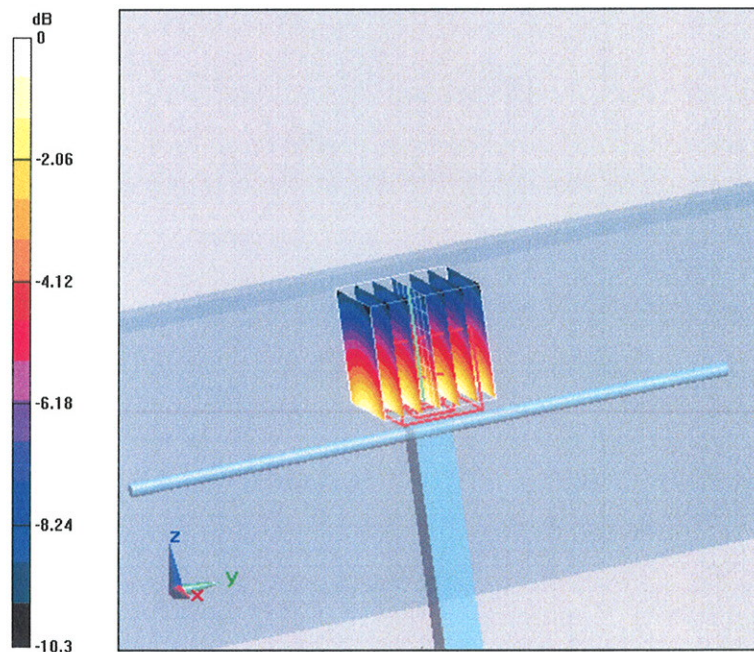
**Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 54.5 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 3.65 W/kg

**SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.67 mW/g**

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



0 dB = 2.82mW/g