

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Right Section

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Right Touch, Slide In, Ch.661, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

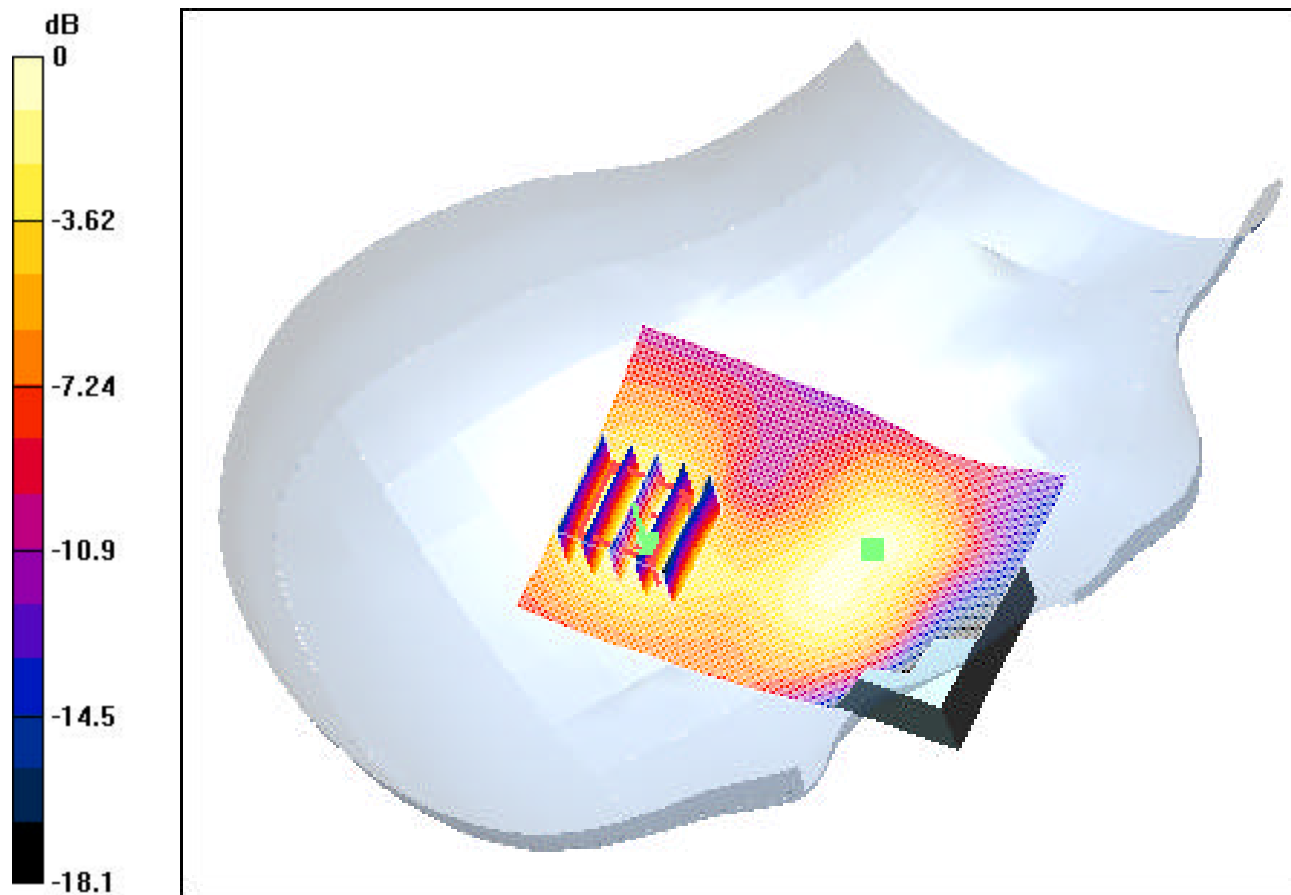
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.2 V/m

Maximum value of SAR (measured) = 0.208 mW/g

Peak SAR (extrapolated) = 0.282 W/kg

SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.096 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Right Section

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Right Tilt, Slide In, Ch.661, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

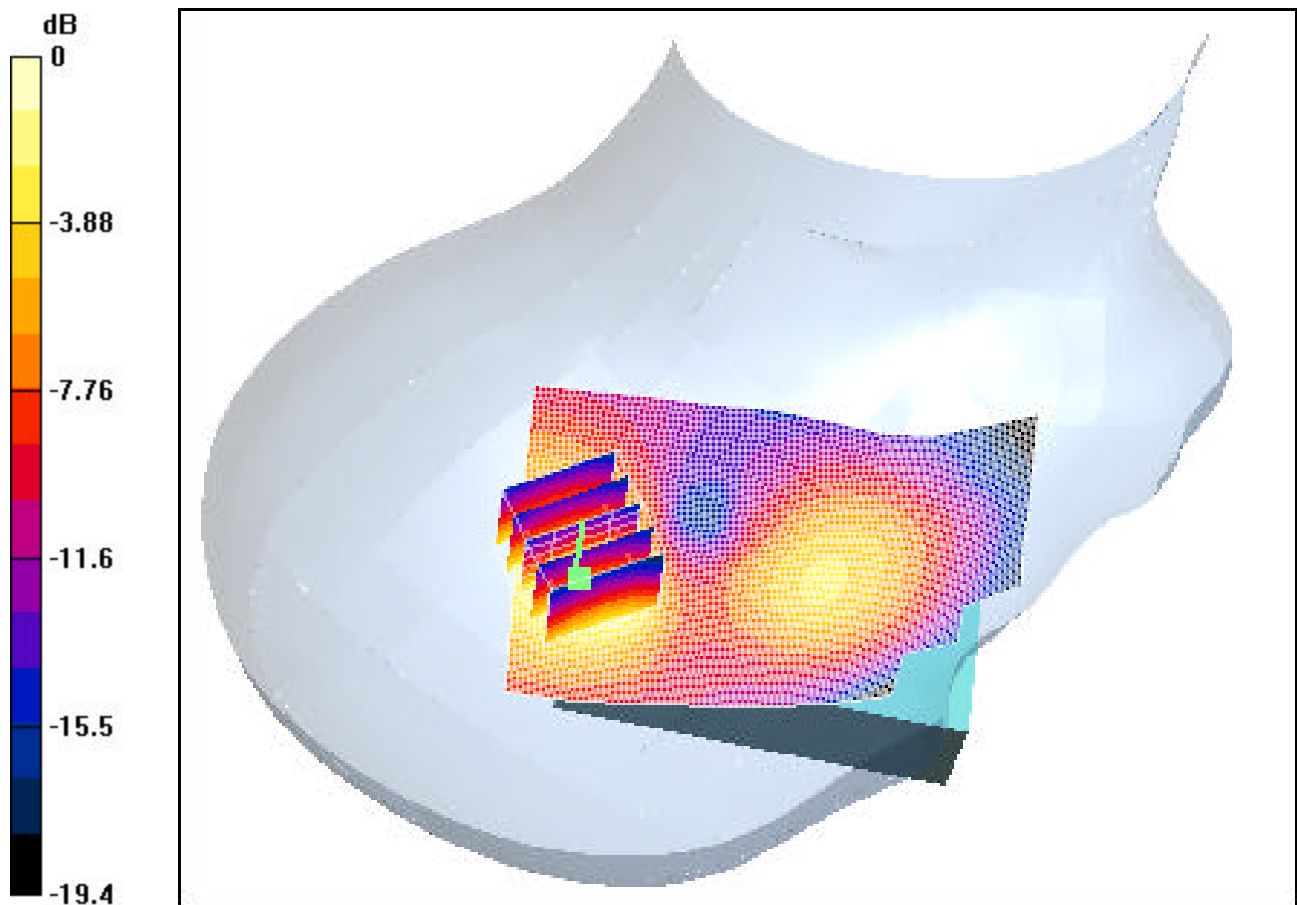
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.68 V/m

Maximum value of SAR (measured) = 0.243 mW/g

Peak SAR (extrapolated) = 0.327 W/kg

SAR(1 g) = 0.200 mW/g; SAR(10 g) = 0.112 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Left Section

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Left Touch, Slide In, Ch.512, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

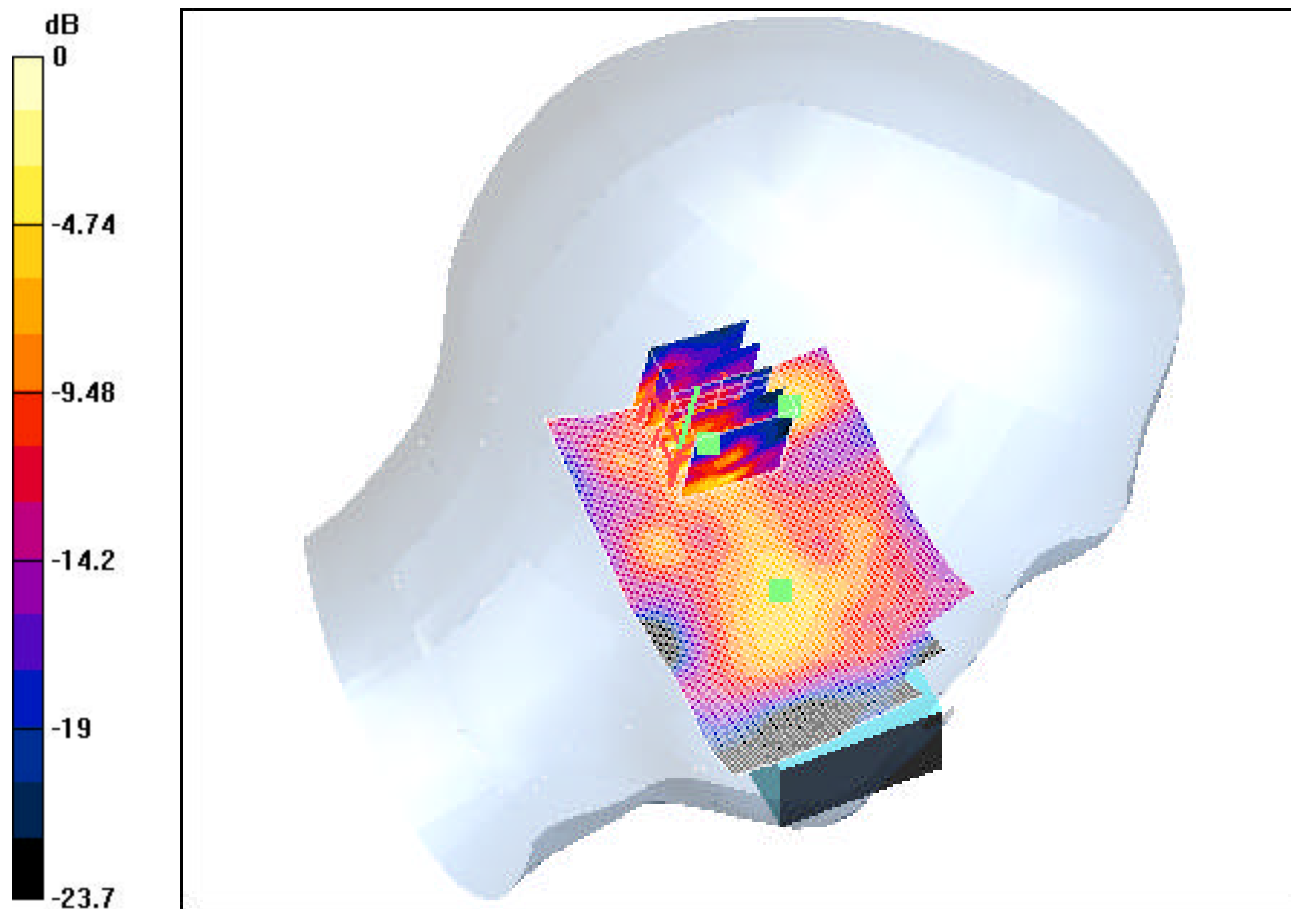
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.43 V/m

Maximum value of SAR (measured) = 0.119 mW/g

Peak SAR (extrapolated) = 2.66 W/kg

SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.046 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Left Section

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Left Tilt, Slide In, Ch.810, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

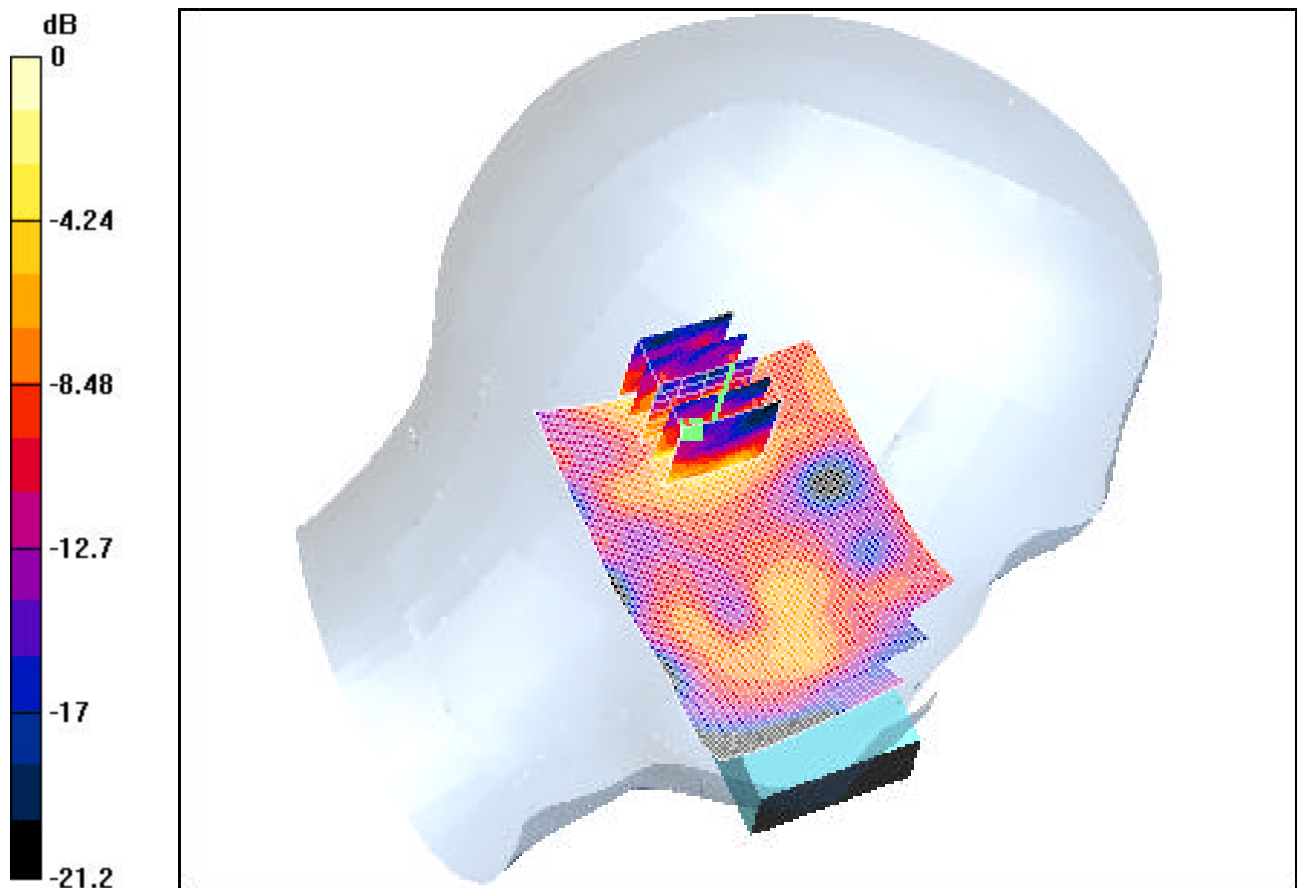
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.8 V/m

Maximum value of SAR (measured) = 0.095 mW/g

Peak SAR (extrapolated) = 0.272 W/kg

SAR(1 g) = 0.057 mW/g; SAR(10 g) = 0.028 mW/g



0 dB = 0.095mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Right Section

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Right Touch, Slide Out, Ch.661, Standard Battery

Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

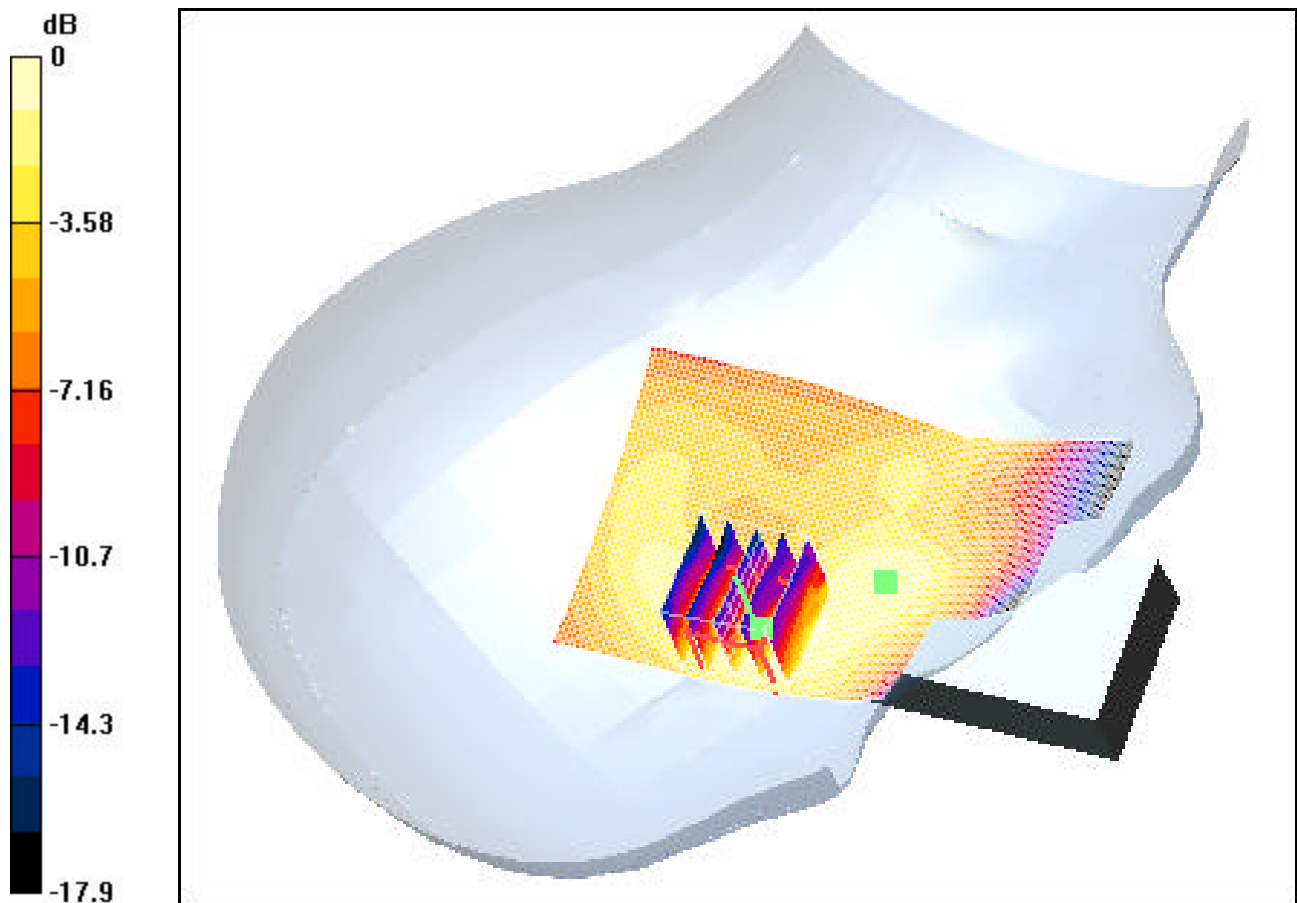
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.01 V/m

Maximum value of SAR (measured) = 0.070 mW/g

Peak SAR (extrapolated) = 0.105 W/kg

SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.030 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Right Section

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Right Tilt, Slide Out, Ch.661, Standard Battery

Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

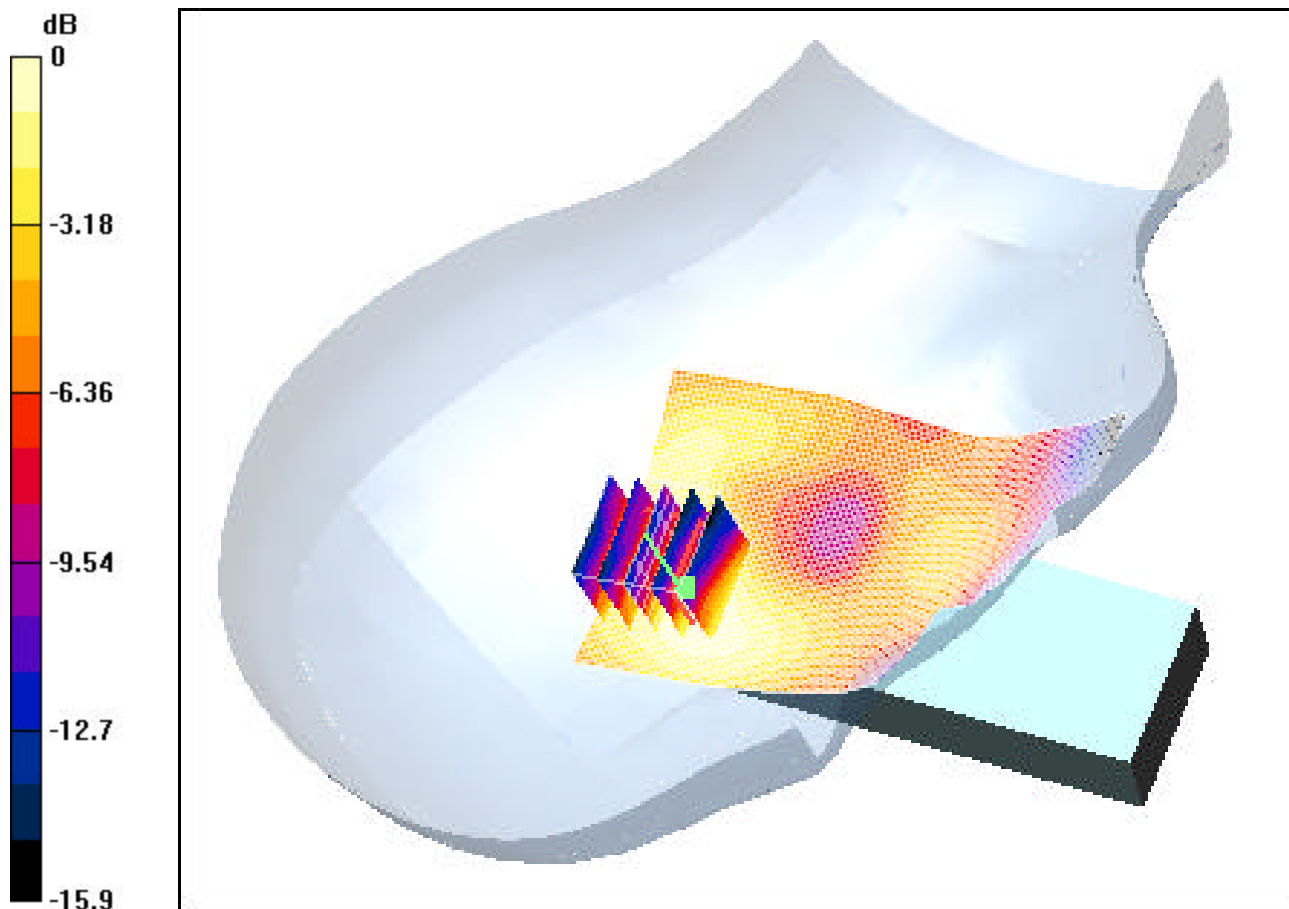
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.92 V/m

Maximum value of SAR (measured) = 0.036 mW/g

Peak SAR (extrapolated) = 0.060 W/kg

SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.018 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Left Section

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Left Touch, Slide Out, Ch.661, Standard Battery

Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

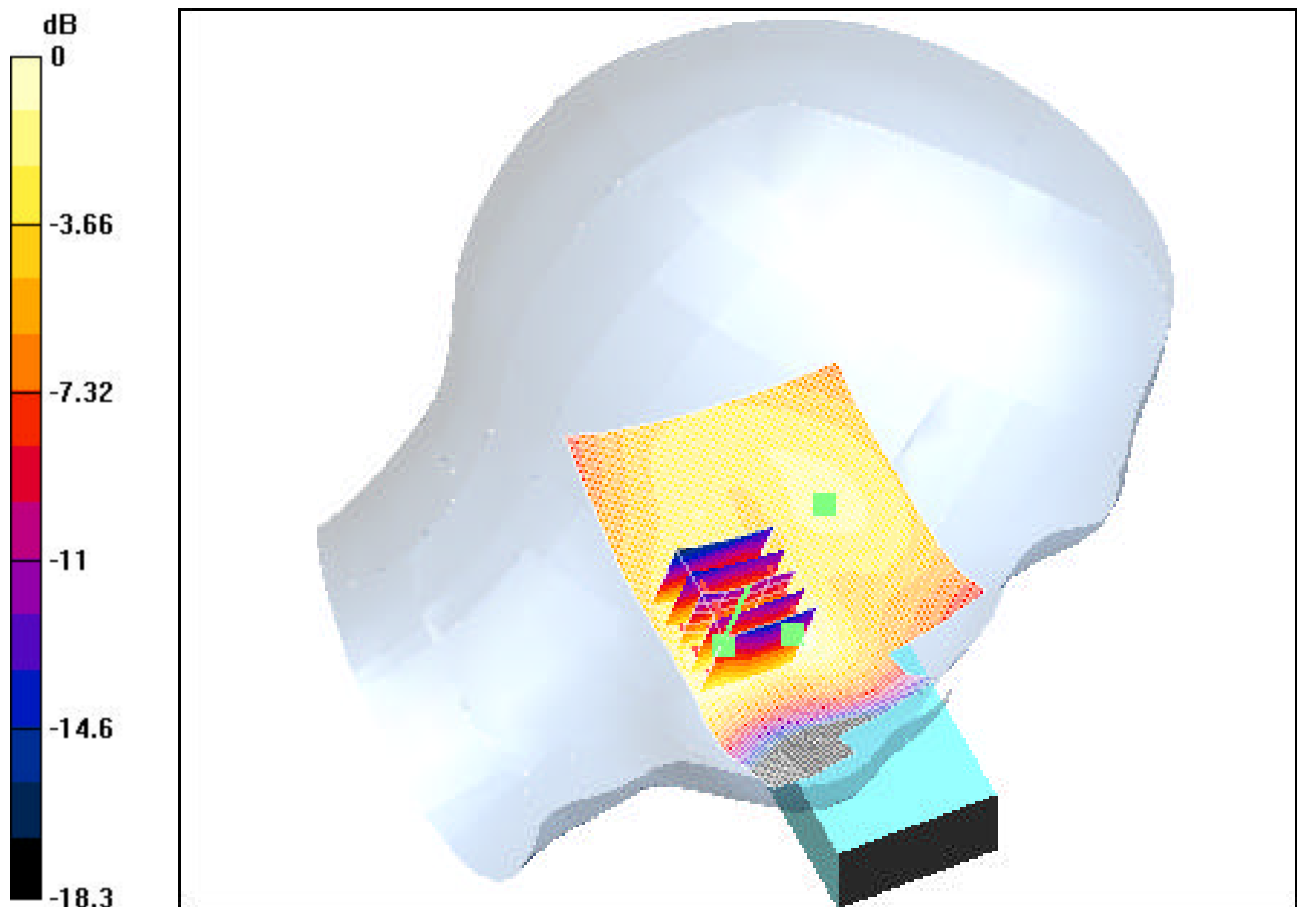
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.13 V/m

Maximum value of SAR (measured) = 0.071 mW/g

Peak SAR (extrapolated) = 0.092 W/kg

SAR(1 g) = 0.061 mW/g; SAR(10 g) = 0.037 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Left Section

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Left Tilt, Slide Out, Ch.661, Standard Battery

Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

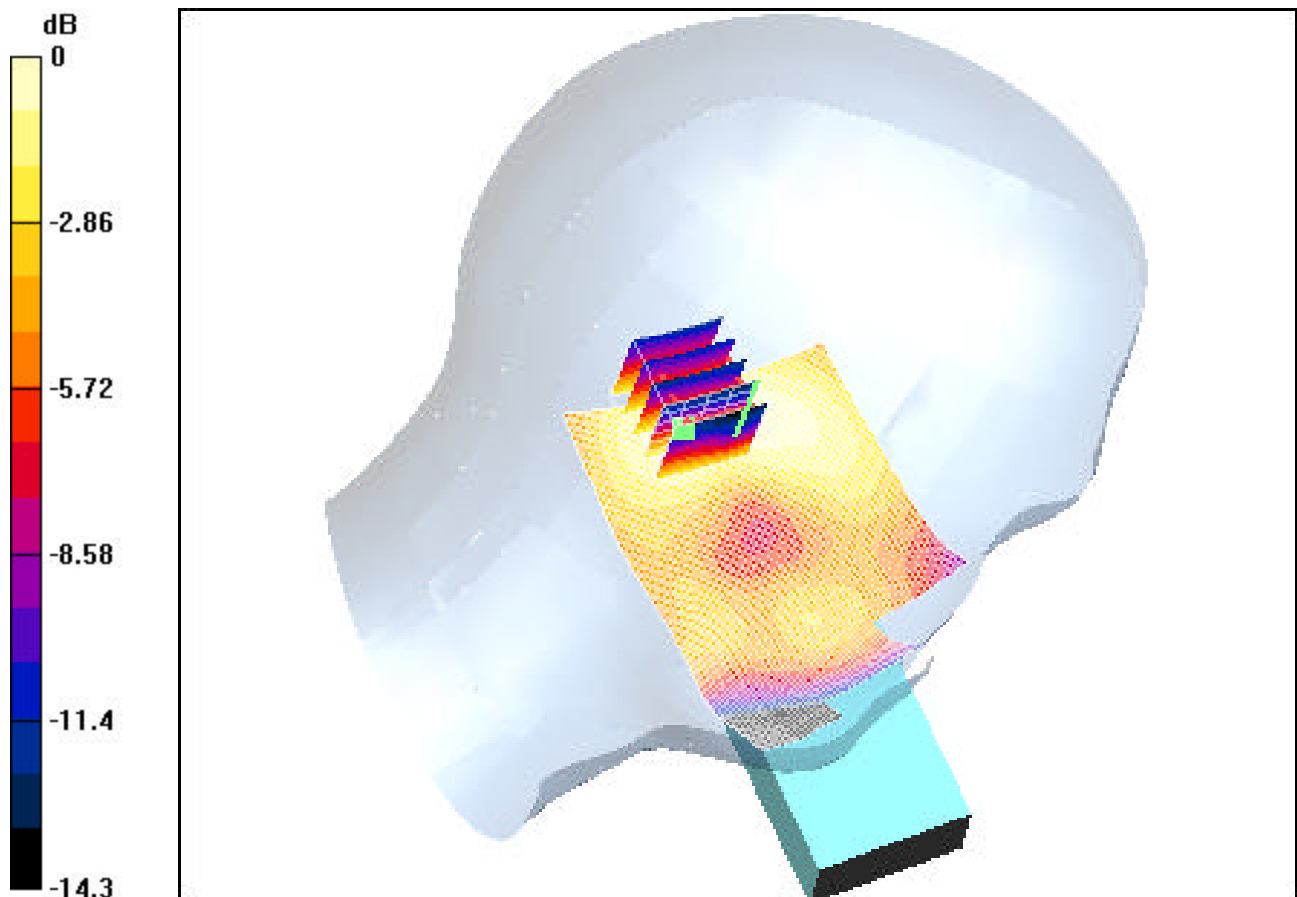
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.01 V/m

Maximum value of SAR (measured) = 0.037 mW/g

Peak SAR (extrapolated) = 0.051 W/kg

SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.020 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

Communication System: PCS GSM GPRS; Frequency: 1880 MHz; Duty Cycle: 1:4

Medium: 1900 Muscle ($\sigma = 1.57$ mho/m, $\epsilon_r = 52.40$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

Test Date: 07-19-2004; Ambient Temp: 23.9°C; Tissue Temp: 21.5°C

Probe: ES3DV2 - SN3022; ConvF(4.5, 4.5, 4.5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Body, 1.5cm.Space, Slide In, Ch.661

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

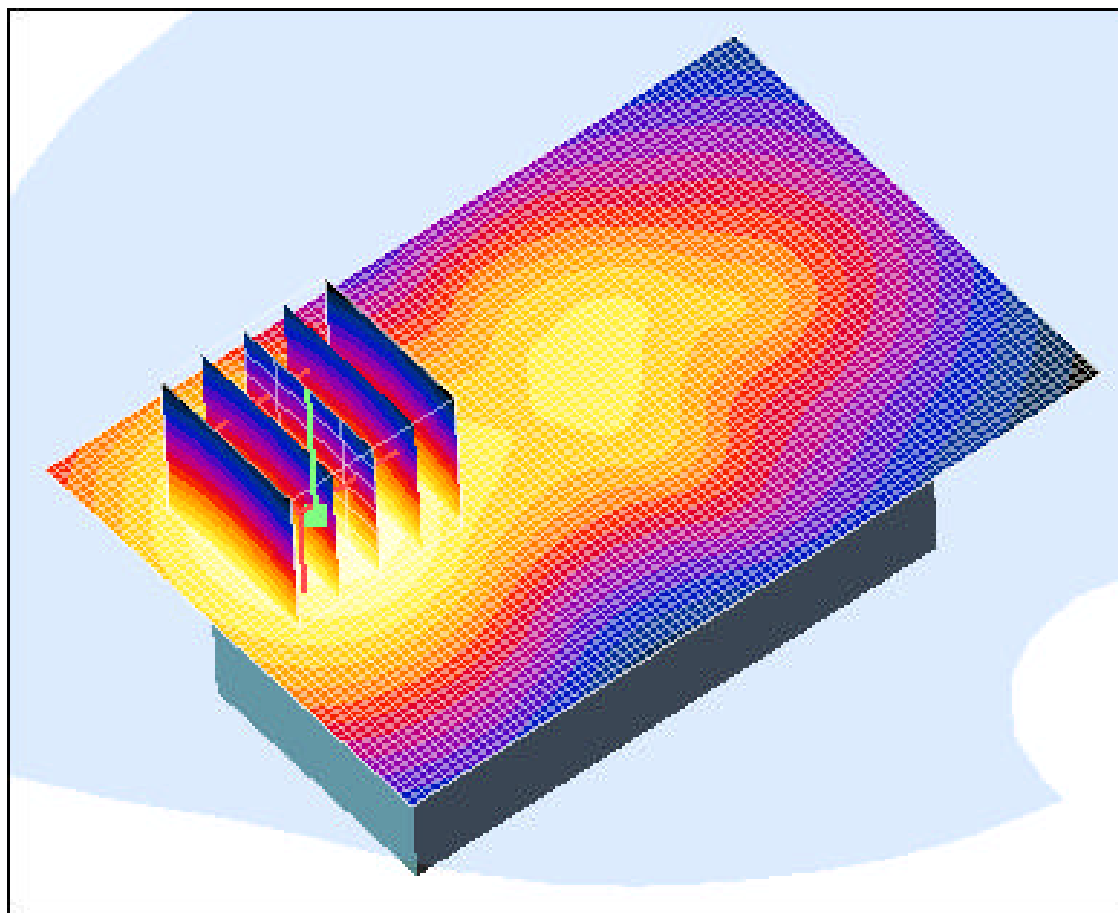
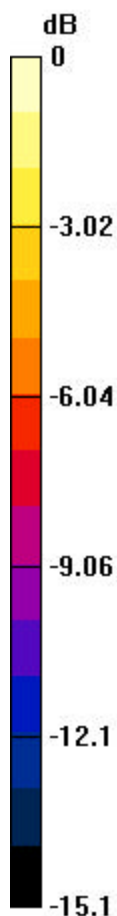
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.7 V/m

Maximum value of SAR (measured) = 0.621 mW/g

Peak SAR (extrapolated) = 0.801 W/kg

SAR(1 g) = 0.522 mW/g; SAR(10 g) = 0.321 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

Communication System: PCS GSM GPRS; Frequency: 1880 MHz; Duty Cycle: 1:4

Medium: 1900 Muscle ($\sigma = 1.57$ mho/m, $\epsilon_r = 52.40$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

Test Date: 07-19-2004; Ambient Temp: 23.9°C; Tissue Temp: 21.5°C

Probe: ES3DV2 - SN3022; ConvF(4.5, 4.5, 4.5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Body, 1.5cm.Space, Slide Out, Ch.661

Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

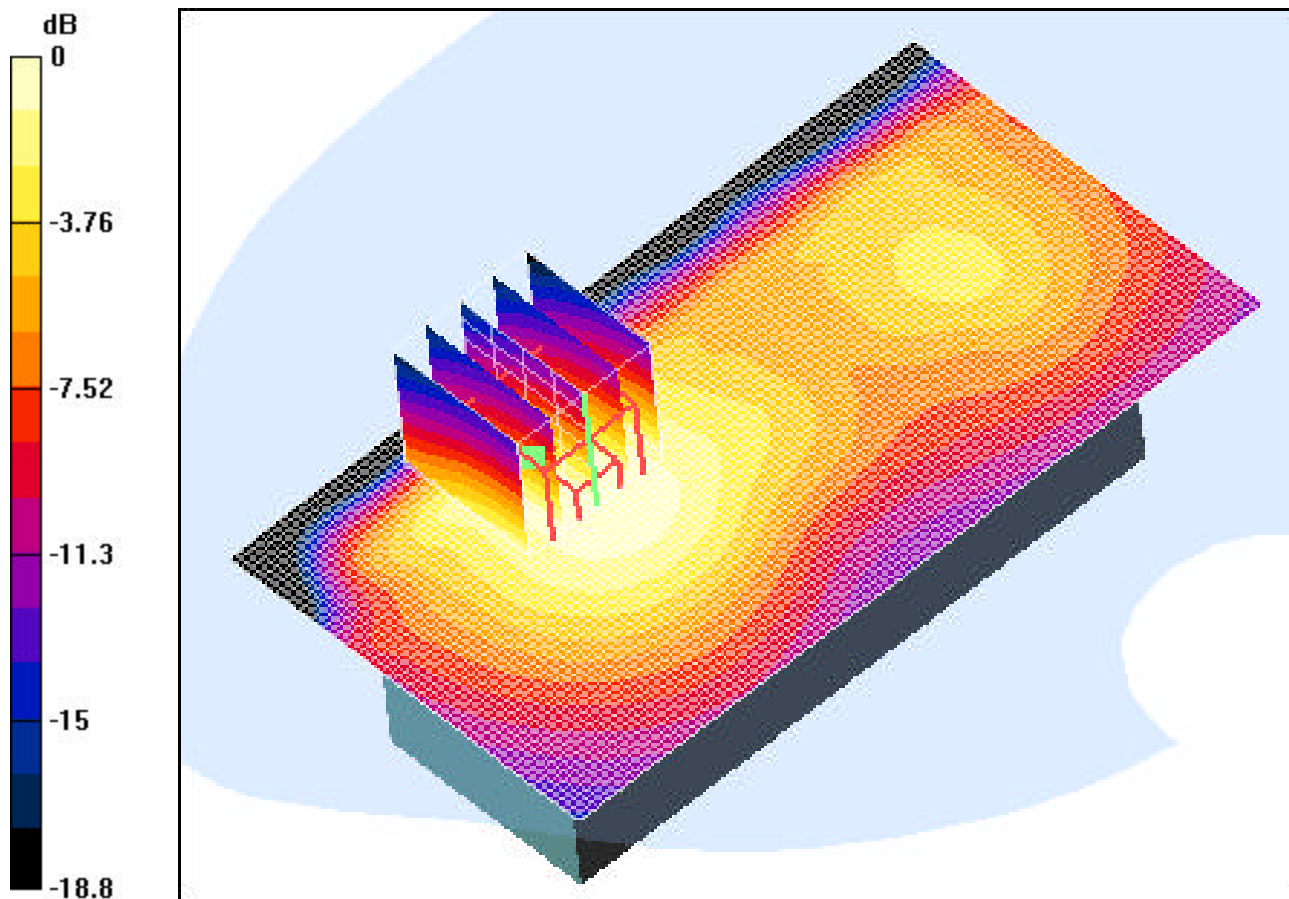
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.14 V/m

Maximum value of SAR (measured) = 0.467 mW/g

Peak SAR (extrapolated) = 0.599 W/kg

SAR(1 g) = 0.386 mW/g; SAR(10 g) = 0.219 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Right Section

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Right Tilt, Slide In, Ch.661, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

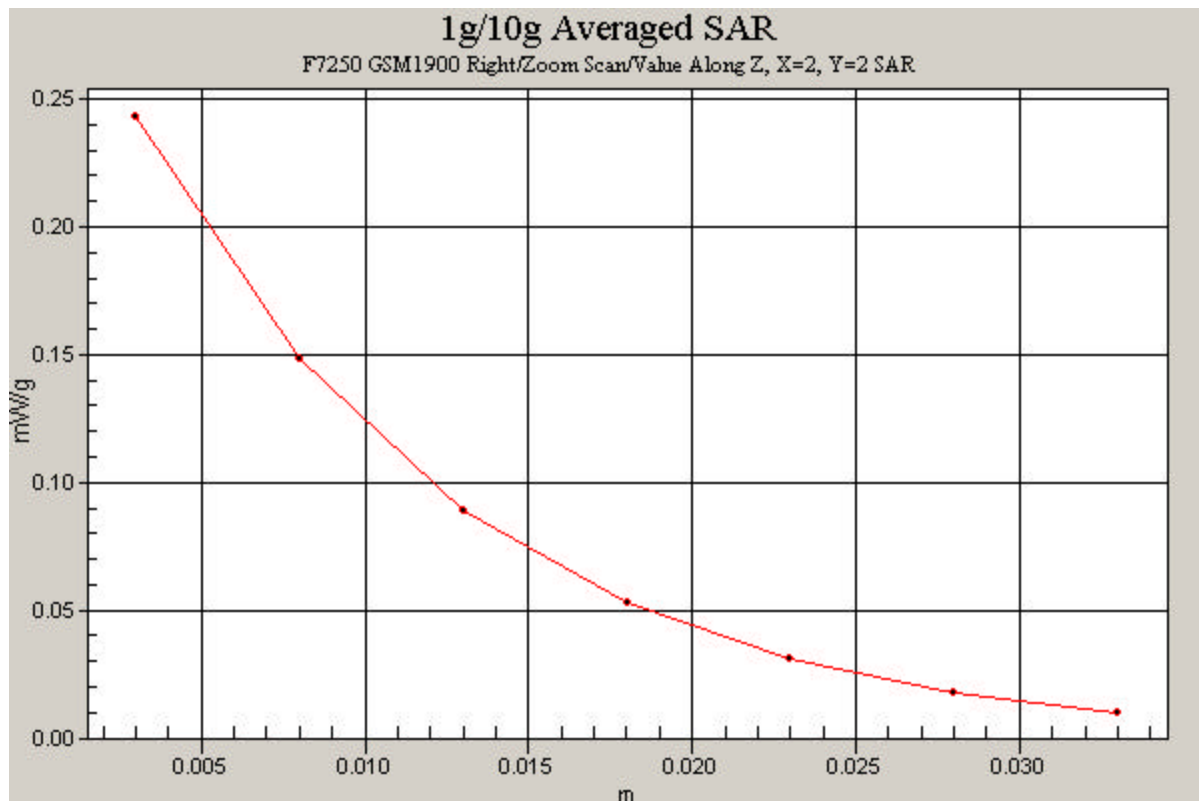
Zoom Scan (5x5x7)Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.68 V/m

Maximum value of SAR (measured) = 0.243 mW/g

Peak SAR (extrapolated) = 0.327 W/kg

SAR(1 g) = 0.200 mW/g; SAR(10 g) = 0.112 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: F7250; Type: LG PCS GSM Phone; Serial: 11

Communication System: PCS GSM GPRS; Frequency: 1880 MHz; Duty Cycle: 1:4

Medium: 1900 Muscle ($\sigma = 1.57$ mho/m, $\epsilon_r = 52.40$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

Test Date: 07-19-2004; Ambient Temp: 23.9°C; Tissue Temp: 21.5°C

Probe: ES3DV2 - SN3022; ConvF(4.5, 4.5, 4.5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Body, 1.5cm.Space, Slide In, Ch.661

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

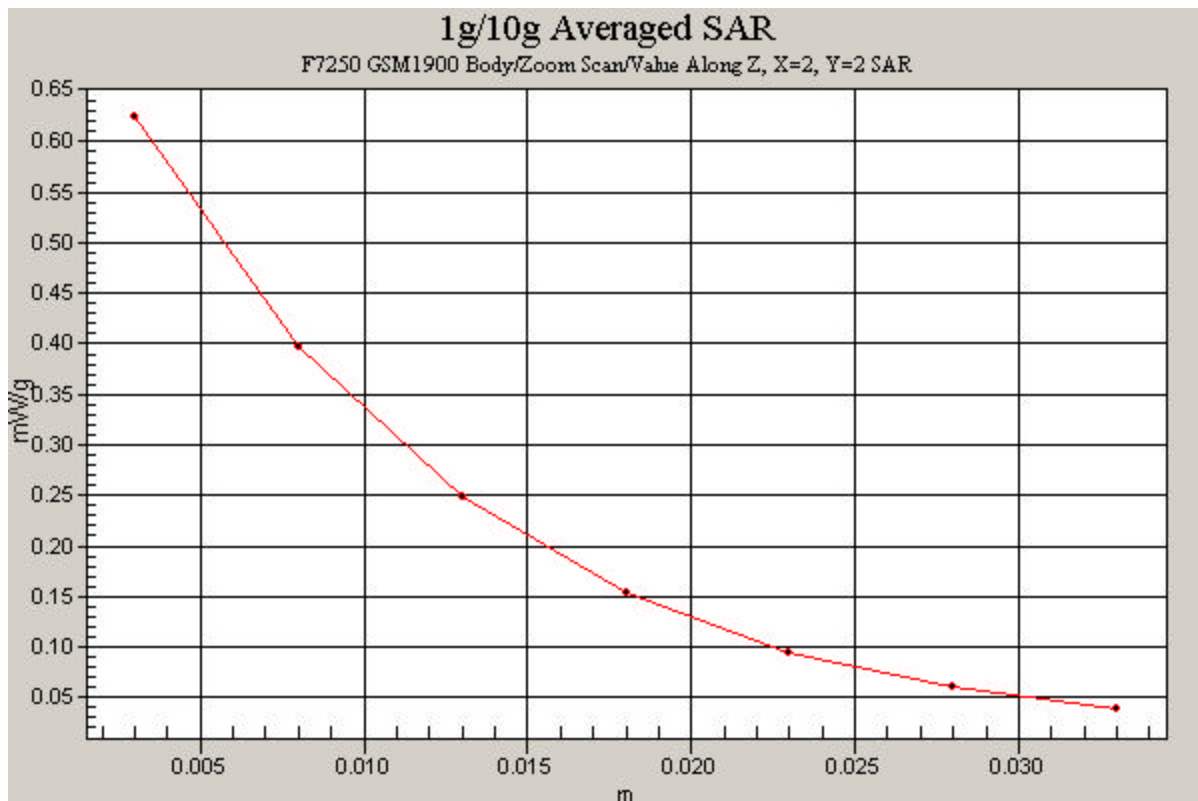
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.7 V/m

Maximum value of SAR (measured) = 0.621 mW/g

Peak SAR (extrapolated) = 0.801 W/kg

SAR(1 g) = 0.522 mW/g; SAR(10 g) = 0.321 mW/g



APPENDIX B: DIPOLE VALIDATION

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1900 Brain ($\sigma = 1.37$ mho/m, $\epsilon_r = 39.60$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-16-2004; Ambient Temp: 23.8°C; Tissue Temp: 21.3°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

1900 MHz Dipole Validation

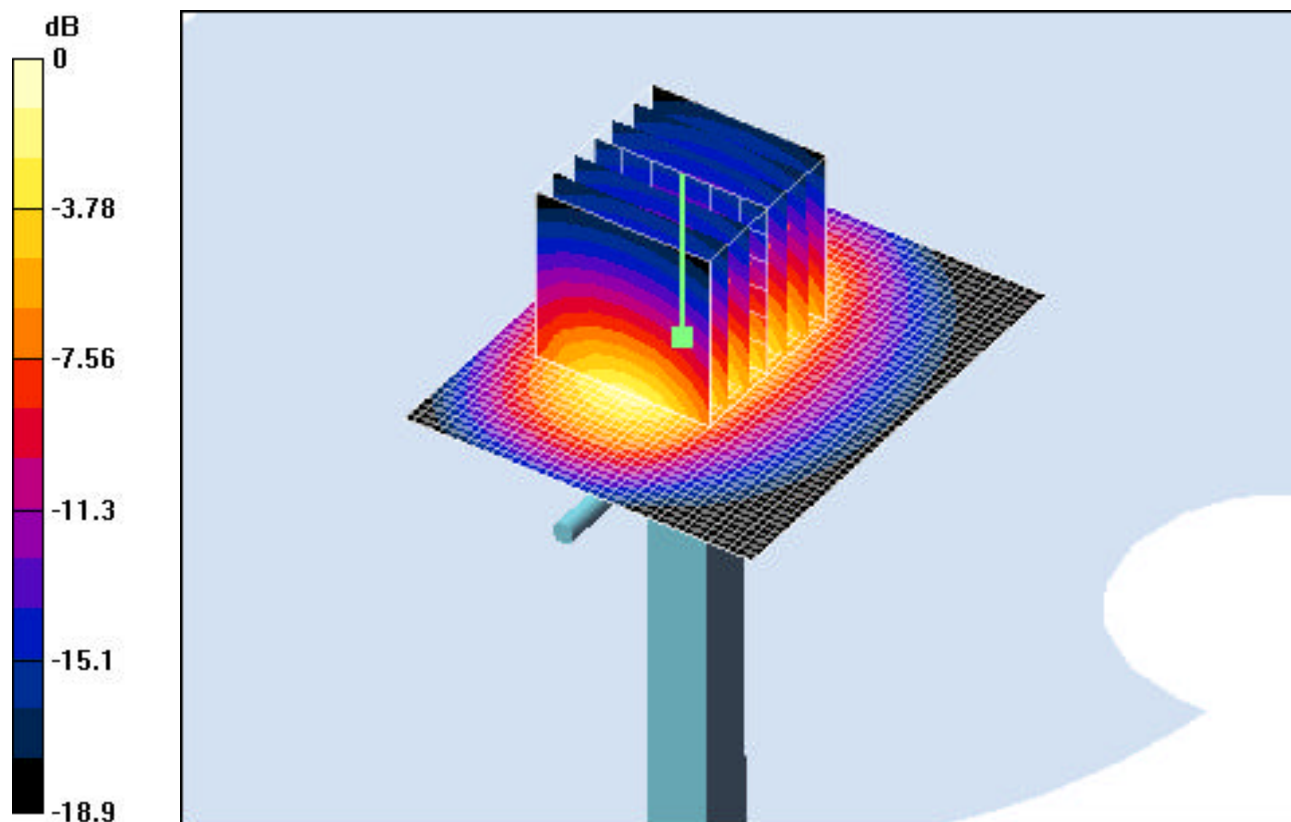
Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.84 mW/g; SAR(10 g) = 1.93 mW/g

Target SAR(1g) = 3.97 mW/g; Deviation = -3.274 %



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1900 Brain ($\sigma = 1.41$ mho/m, $\epsilon_r = 39.01$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-19-2004; Ambient Temp: 23.9°C; Tissue Temp: 21.5°C

Probe: ES3DV2 - SN3022; ConvF(5, 5, 5); Calibrated: 9/23/2003

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 1/6/2004

Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

1900 MHz Dipole Validation

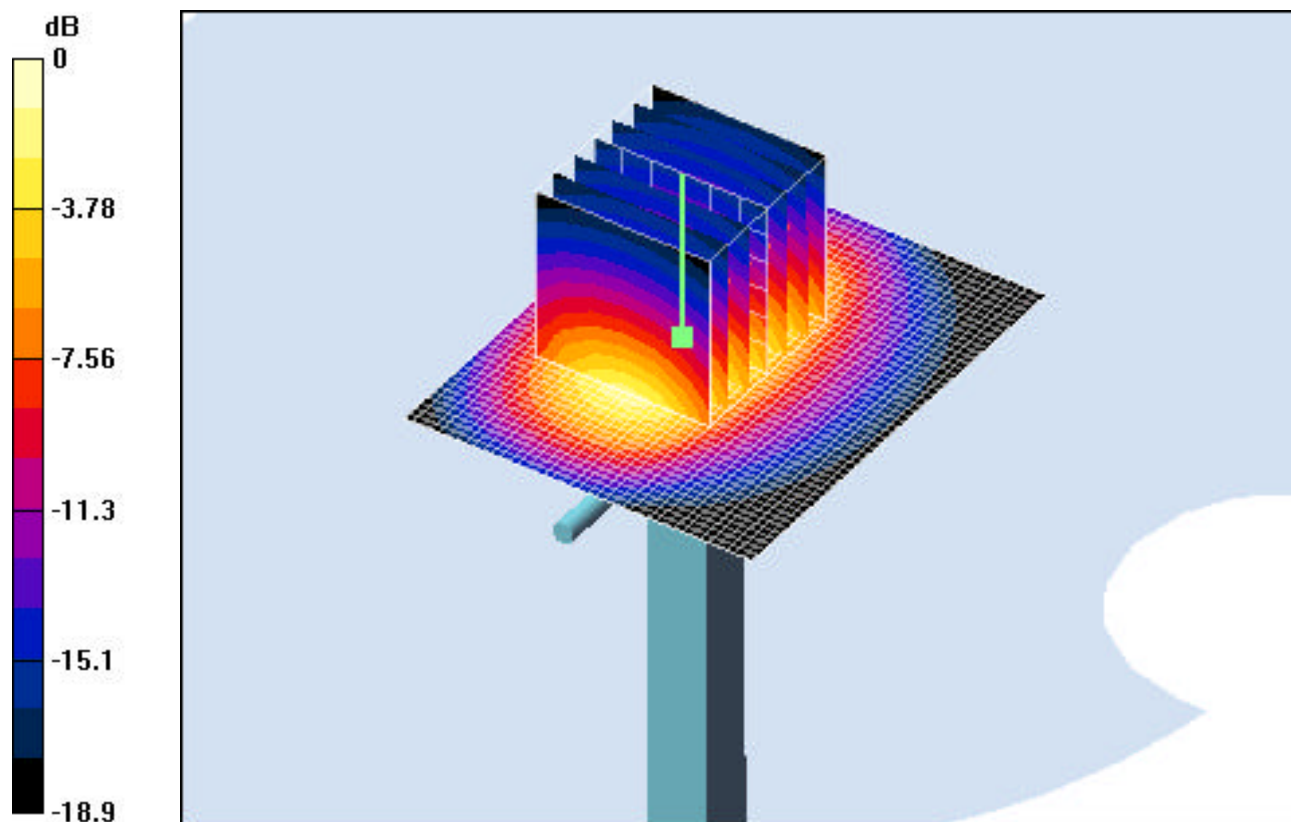
Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.87 mW/g; SAR(10 g) = 1.95 mW/g

Target SAR(1g) = 3.97 mW/g; Deviation = -2.518 %



APPENDIX C: PROBE CALIBRATION

Client

PC Test

CALIBRATION CERTIFICATE

Object(s)

ES3DV2 - SN 3022

Calibration procedure(s)

QA CAL-01 v2
Calibration procedure for dosimetric E-field probes

Calibration date:

September 23, 2003

Condition of the calibrated item

In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E4419B	GB41293874	2-Apr-03 (METAS, No 252-0250)	Apr-04
Power sensor E4412A	MY41495277	2-Apr-03 (METAS, No 252-0250)	Apr-04
Reference 20 dB Attenuator	SN: 5086 (20b)	3-Apr-03 (METAS No. 251-0340)	Apr-04
Fluke Process Calibrator Type 702	SN: 6295803	8-Sep-03 (Sintrel SCS No. E-030020)	Sep-04
Power sensor HP 8481A	MY41092180	18-Sep-02 (Agilent, No. 20020918)	In house check: Oct 03
RF generator HP 8684C	US3642U01700	4-Aug-99 (SPEAG, in house check Aug-02)	In house check: Aug-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (Agilent, No. 24BR1033101)	In house check: Oct 03

Calibrated by:

Name

Katja Pokovic

Function

Laboratory Director

Signature

Approved by:

Niels Kuster

Quality Manager

Date issued: October 5, 2003

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

Probe ES3DV2

SN:3022

Manufactured:	April 15, 2003
Last calibration:	September 23, 2003

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ES3DV2 SN:3022

Sensitivity in Free Space

Diode Compression

NormX	1.00 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	95	mV
NormY	1.04 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	95	mV
NormZ	0.98 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	95	mV

Sensitivity in Tissue Simulating Liquid

Head **900 MHz** $\epsilon_r = 41.5 \pm 5\%$ $\sigma = 0.97 \pm 5\% \text{ mho/m}$
 Valid for f=800-1000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	6.1 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	6.1 $\pm 9.5\%$ (k=2)	Alpha	0.32
ConvF Z	6.1 $\pm 9.5\%$ (k=2)	Depth	1.65

Head **1800 MHz** $\epsilon_r = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\% \text{ mho/m}$
 Valid for f=1710-1910 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	5.0 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	5.0 $\pm 9.5\%$ (k=2)	Alpha	0.25
ConvF Z	5.0 $\pm 9.5\%$ (k=2)	Depth	2.30

Boundary Effect

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

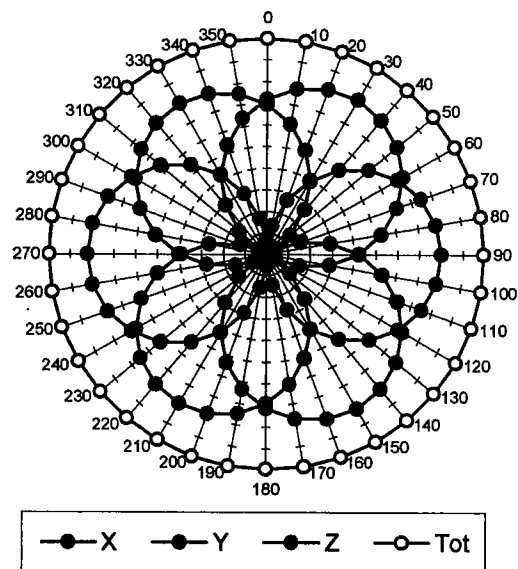
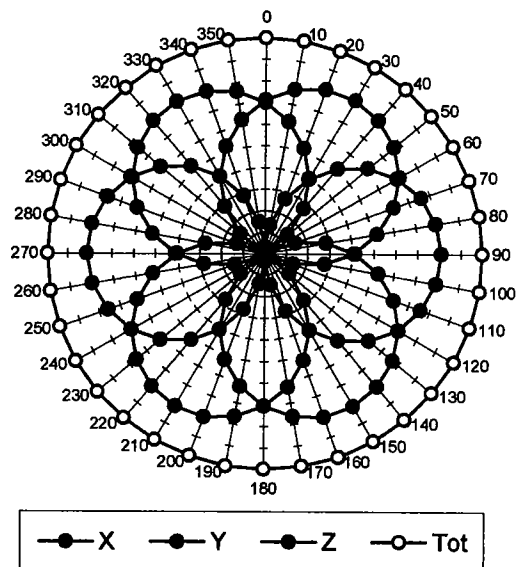
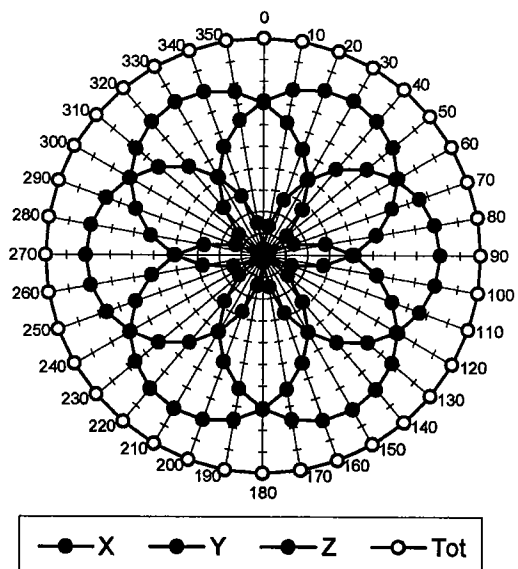
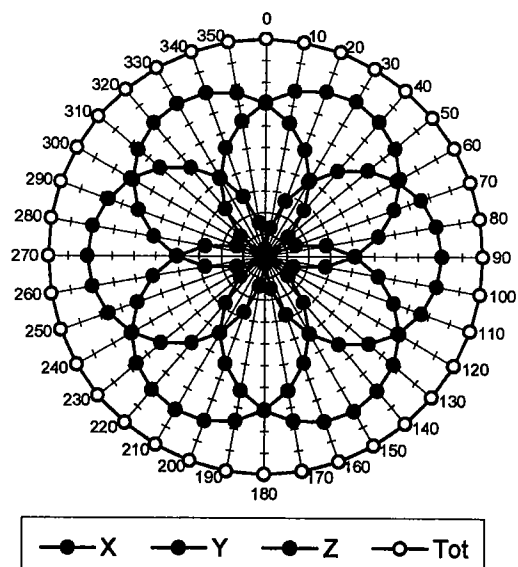
Probe Tip to Boundary		1 mm	2 mm
SAR _{be} [%] Without Correction Algorithm		5.5	2.5
SAR _{be} [%] With Correction Algorithm		0.1	0.4

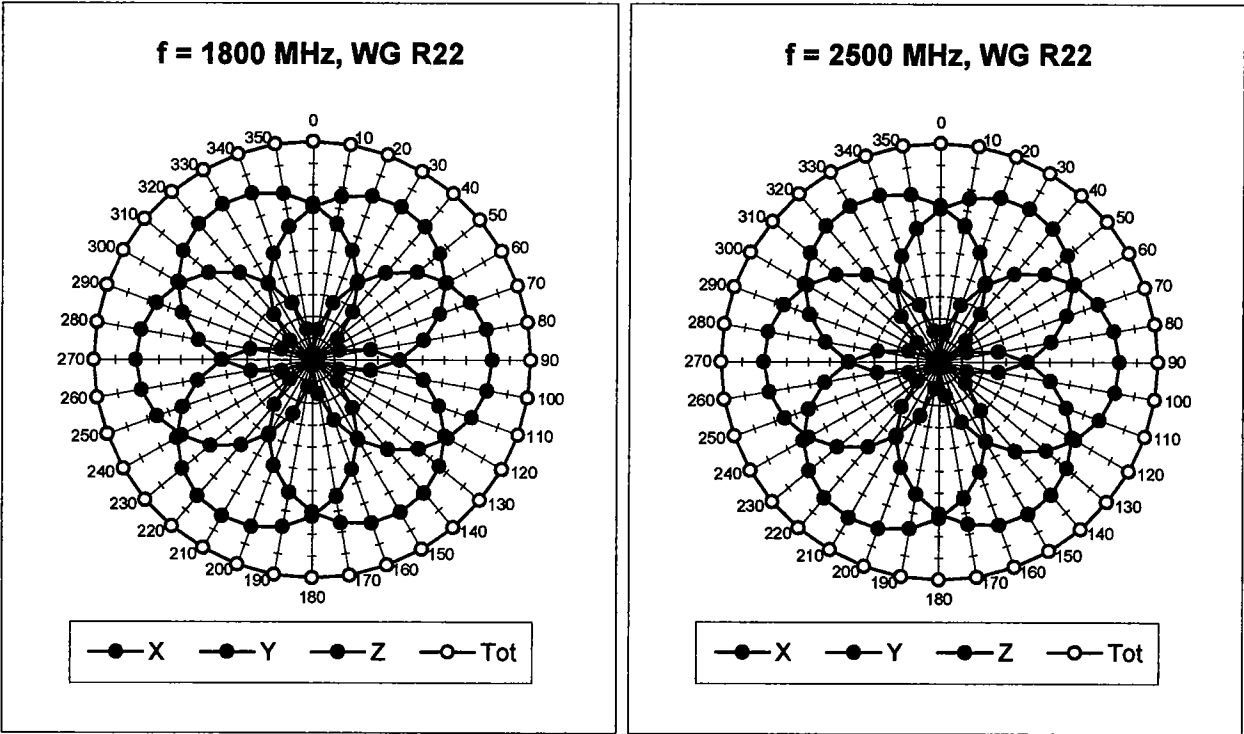
Head **1800 MHz** Typical SAR gradient: 10 % per mm

Probe Tip to Boundary		1 mm	2 mm
SAR _{be} [%] Without Correction Algorithm		7.1	4.4
SAR _{be} [%] With Correction Algorithm		0.0	0.1

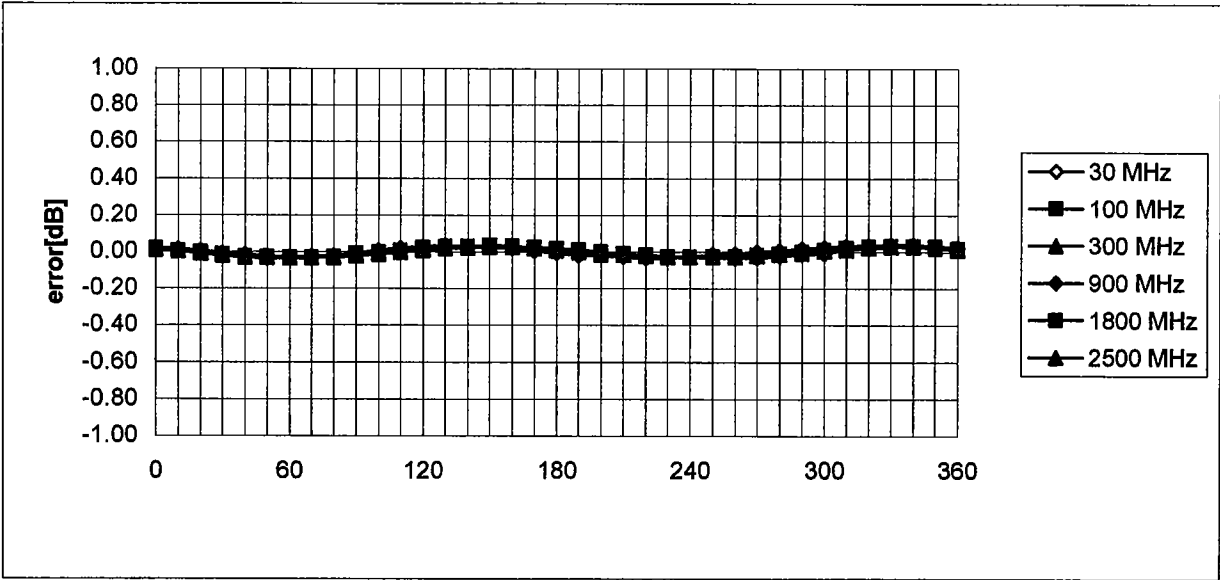
Sensor Offset

Probe Tip to Sensor Center	2.0	mm
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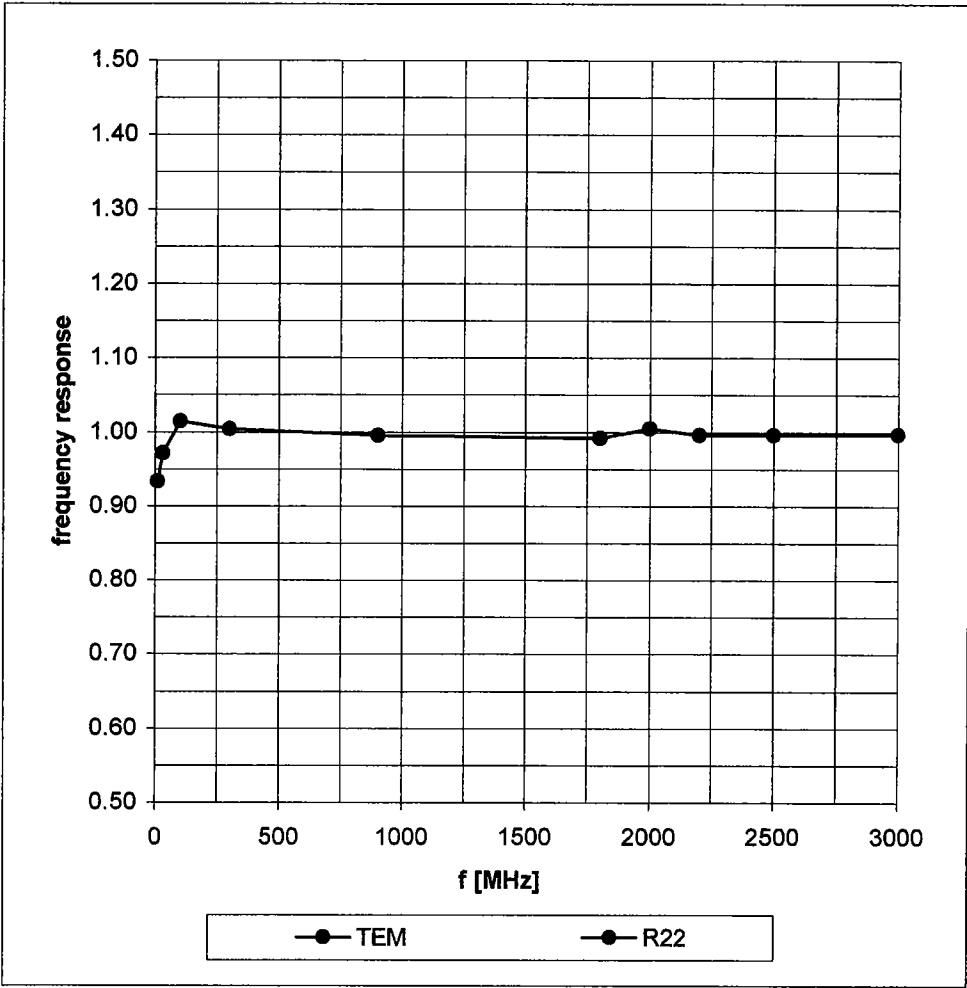
Receiving Pattern (ϕ , $\theta = 0^\circ$)**f = 30 MHz, TEM cell ifi110****f = 100 MHz, TEM cell ifi110****f = 300 MHz, TEM cell ifi110****f = 900 MHz, TEM cell ifi110**



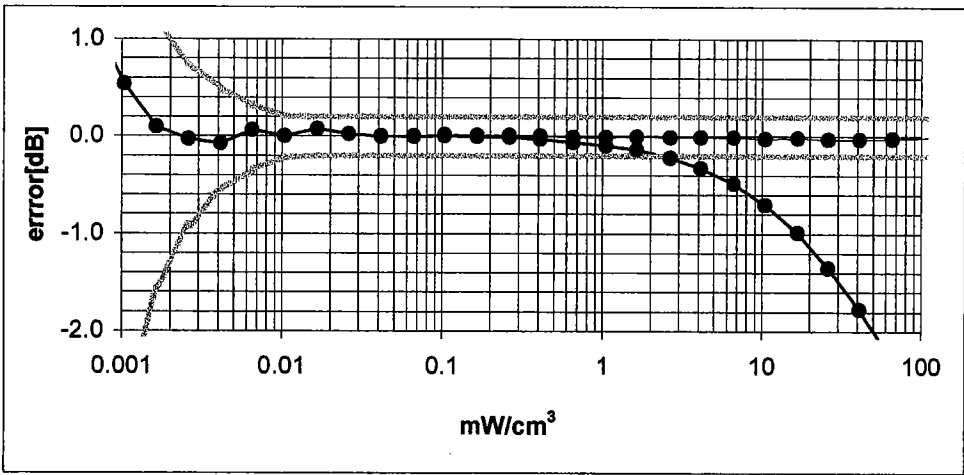
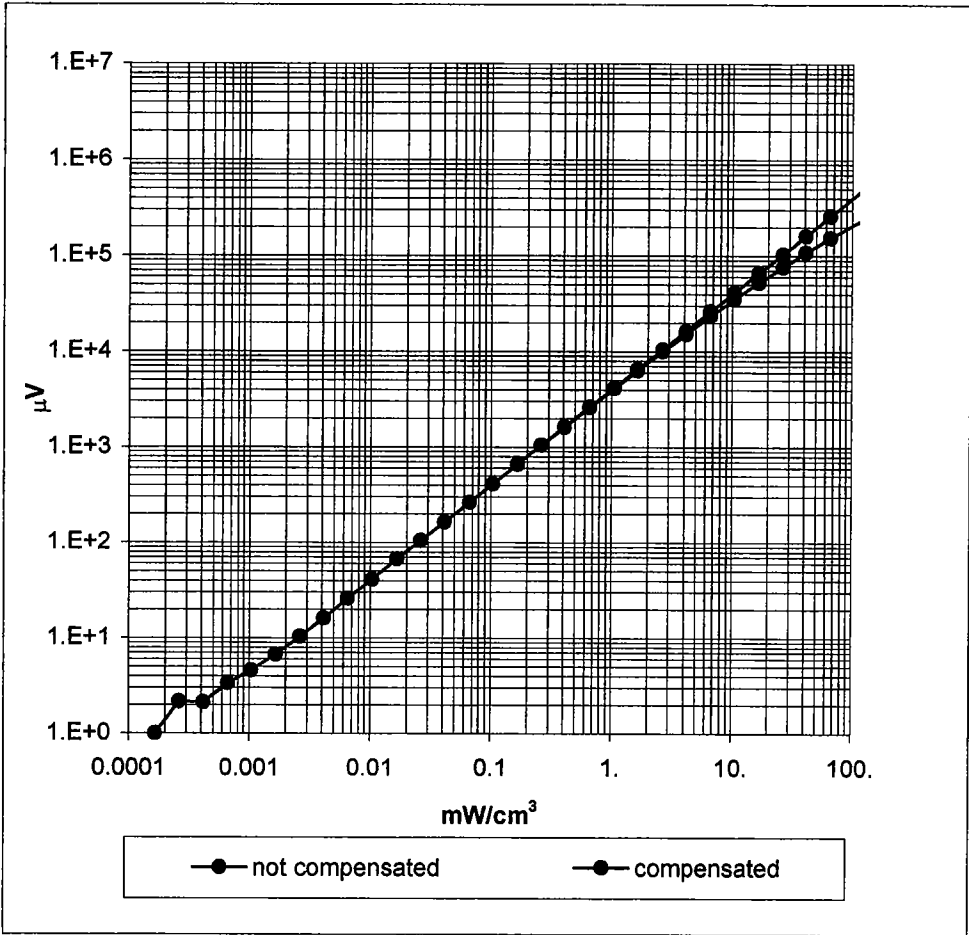
Isotropy Error (ϕ), $\theta = 0^\circ$



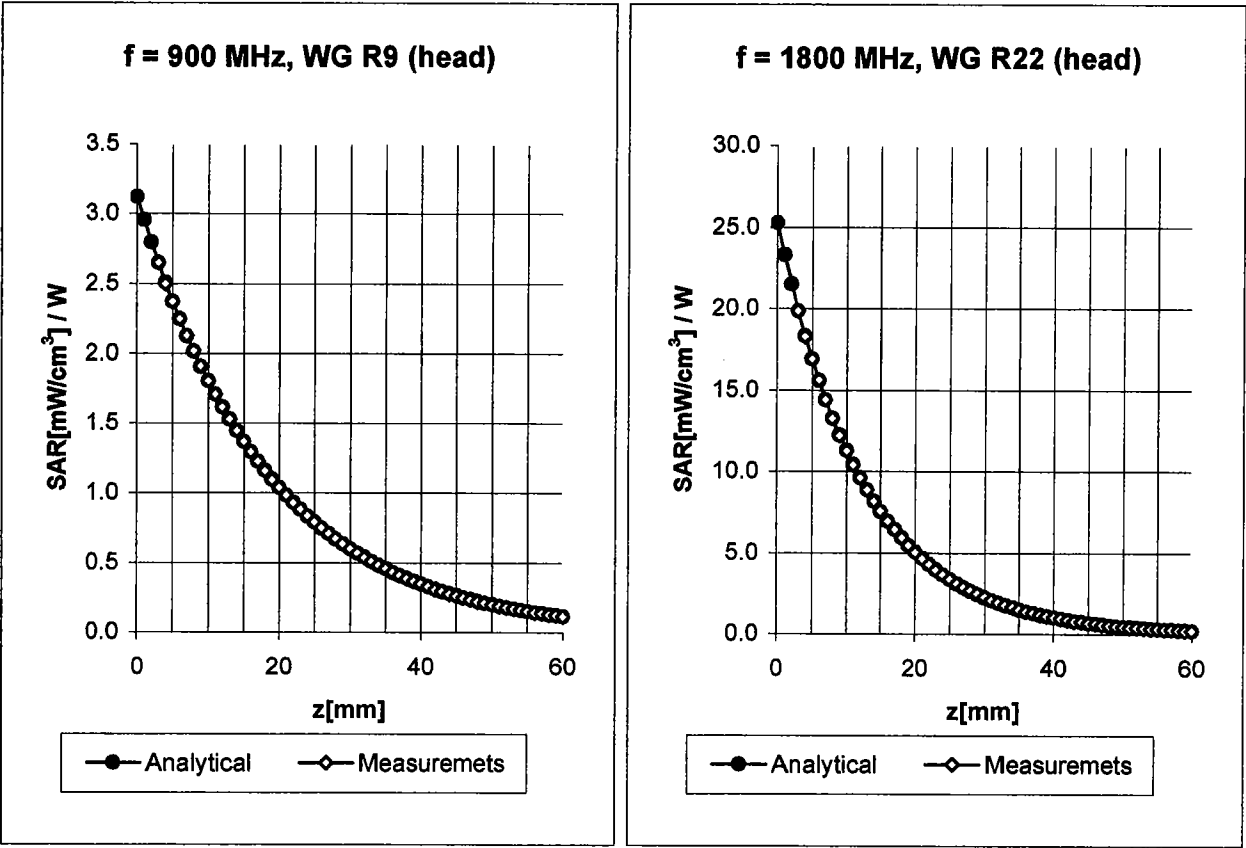
Frequency Response of E-Field
(TEM-Cell:ifi110, Waveguide R22)



Dynamic Range f(SAR_{brain})
(Waveguide R22)



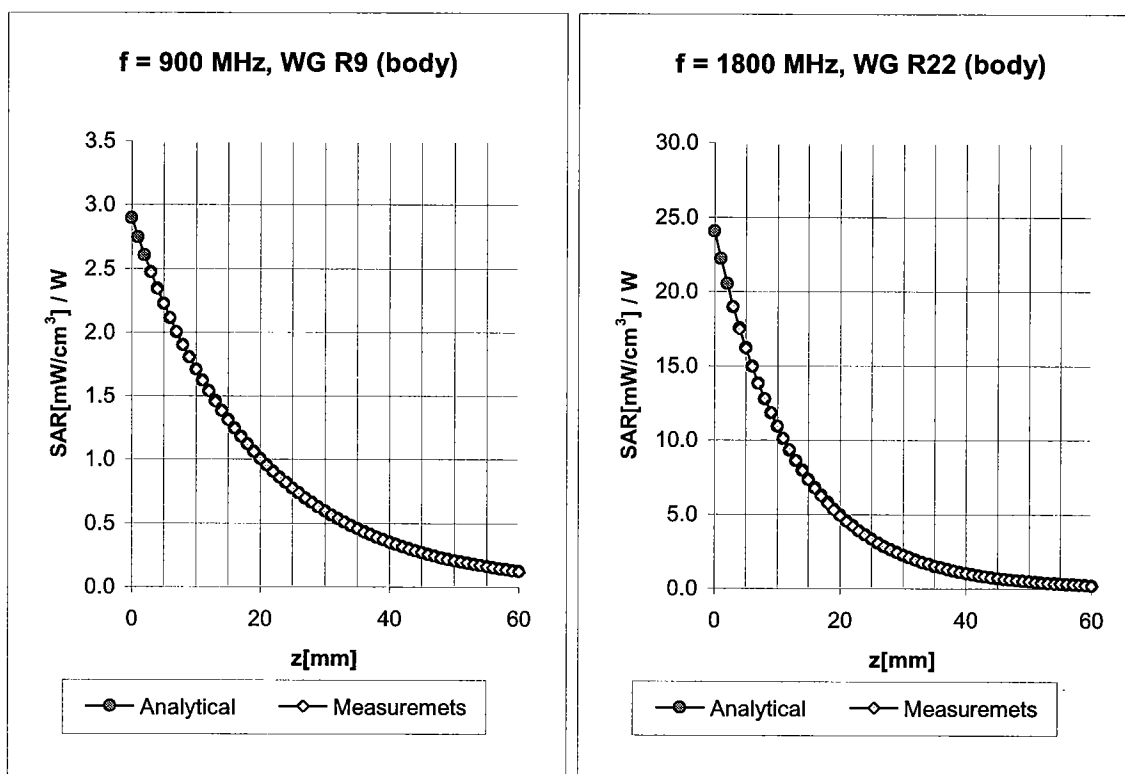
Conversion Factor Assessment



Head	900 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.97 \pm 5\% \text{ mho/m}$
Valid for f=800-1000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X			
ConvF X	6.1 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	6.1 $\pm 9.5\%$ (k=2)	Alpha	0.32
ConvF Z	6.1 $\pm 9.5\%$ (k=2)	Depth	1.65

Head	1800 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\% \text{ mho/m}$
Valid for f=1710-1910 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X			
ConvF X	5.0 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	5.0 $\pm 9.5\%$ (k=2)	Alpha	0.25
ConvF Z	5.0 $\pm 9.5\%$ (k=2)	Depth	2.30

Conversion Factor Assessment



Body **900 MHz** $\epsilon_r = 55.0 \pm 5\%$ $\sigma = 1.05 \pm 5\% \text{ mho/m}$

Valid for f=800-1000 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C

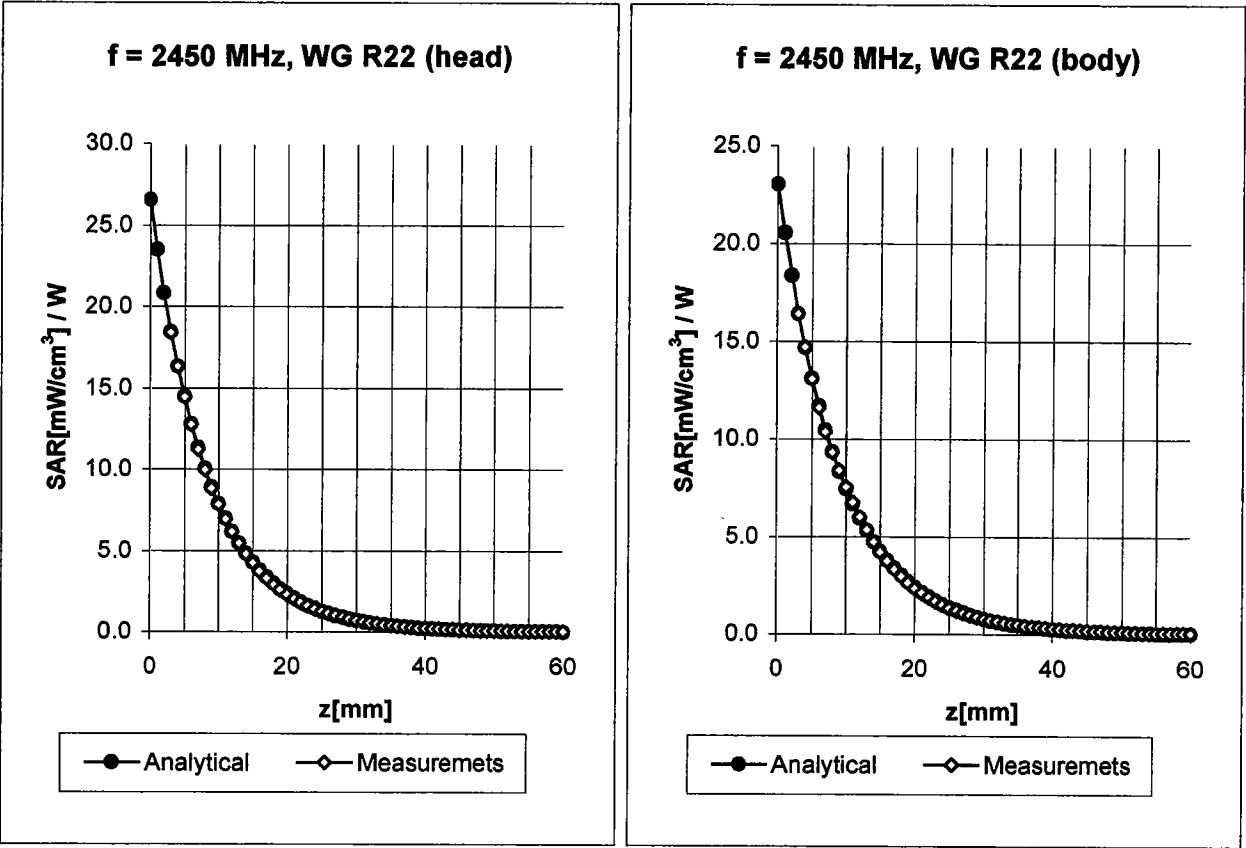
ConvF X	6.0 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	6.0 $\pm 9.5\%$ (k=2)	Alpha	0.38
ConvF Z	6.0 $\pm 9.5\%$ (k=2)	Depth	1.47

Body **1800 MHz** $\epsilon_r = 53.3 \pm 5\%$ $\sigma = 1.52 \pm 5\% \text{ mho/m}$

Valid for f=1710-1910 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C

ConvF X	4.5 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	4.5 $\pm 9.5\%$ (k=2)	Alpha	0.22
ConvF Z	4.5 $\pm 9.5\%$ (k=2)	Depth	3.42

Conversion Factor Assessment



Head 2450 MHz $\epsilon_r = 39.2 \pm 5\%$ $\sigma = 1.80 \pm 5\%$ mho/m

Valid for f=2400-2500 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

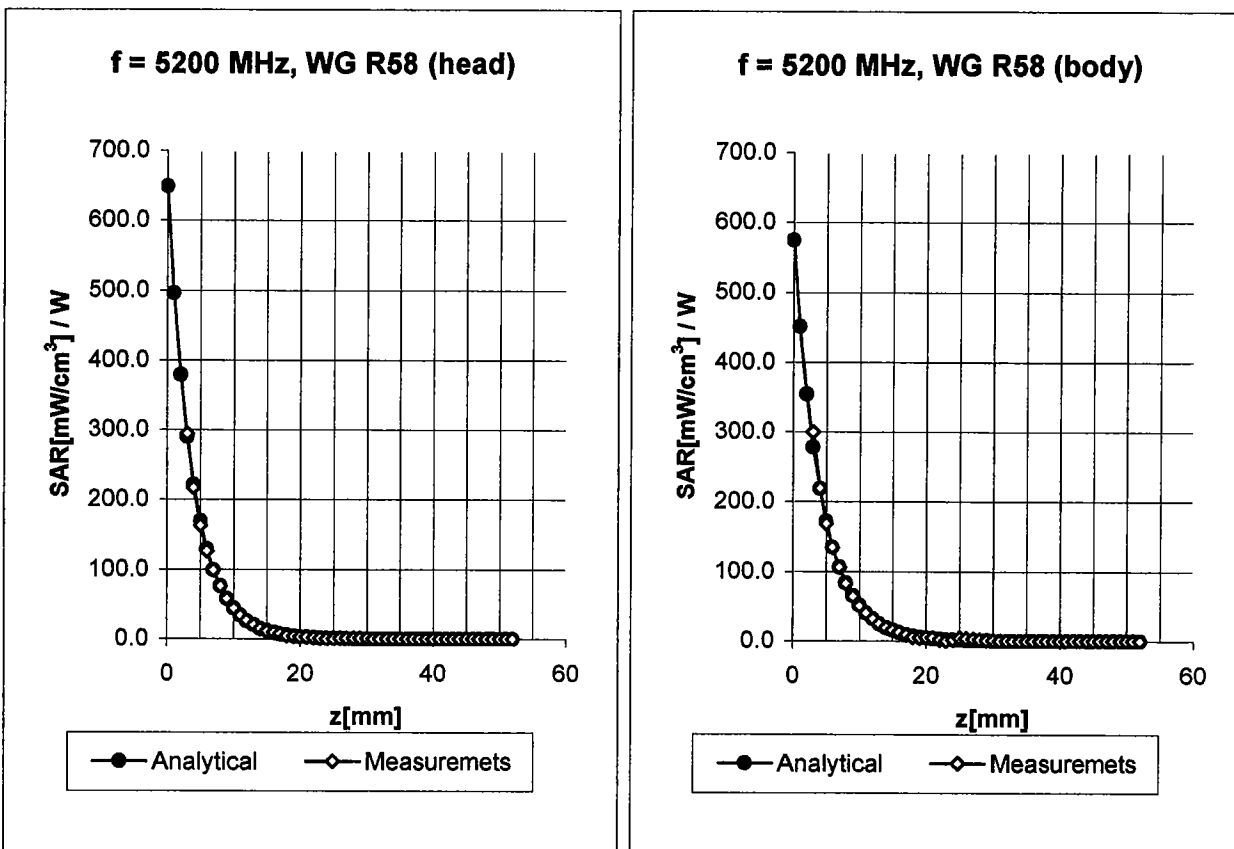
ConvF X	4.5 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	4.5 $\pm 9.5\%$ (k=2)	Alpha 0.42
ConvF Z	4.5 $\pm 9.5\%$ (k=2)	Depth 1.56

Body 2450 MHz $\epsilon_r = 52.7 \pm 5\%$ $\sigma = 1.95 \pm 5\%$ mho/m

Valid for f=2400-2500 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C

ConvF X	4.2 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	4.2 $\pm 9.5\%$ (k=2)	Alpha 0.42
ConvF Z	4.2 $\pm 9.5\%$ (k=2)	Depth 1.65

Conversion Factor Assessment



Head **5200 MHz** $\epsilon_r = 36.0 \pm 5\%$ $\sigma = 4.66 \pm 5\% \text{ mho/m}$

Valid for f=4940-5460 MHz with Head Tissue Simulating Liquid according to OET65-SuppC

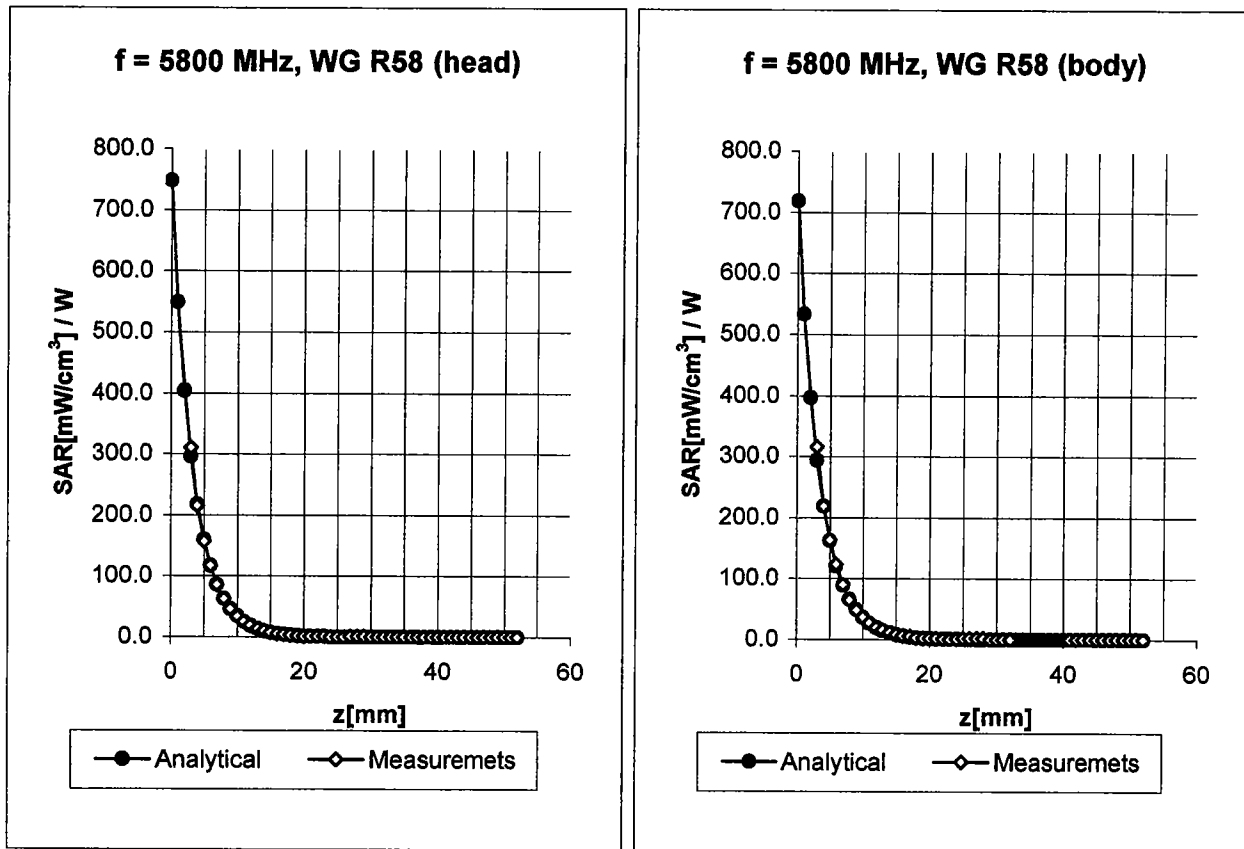
ConvF X	2.60 $\pm 16.6\%$ (k=2)	Boundary effect:	
ConvF Y	2.60 $\pm 16.6\%$ (k=2)	Alpha	0.93
ConvF Z	2.60 $\pm 16.6\%$ (k=2)	Depth	1.50

Body **5200 MHz** $\epsilon_r = 49.0 \pm 5\%$ $\sigma = 5.30 \pm 5\% \text{ mho/m}$

Valid for f=4940-5460 MHz with Body Tissue Simulating Liquid according to OET65-SuppC

ConvF X	1.80 $\pm 16.6\%$ (k=2)	Boundary effect:	
ConvF Y	1.80 $\pm 16.6\%$ (k=2)	Alpha	1.05
ConvF Z	1.80 $\pm 16.6\%$ (k=2)	Depth	1.60

Conversion Factor Assessment



Head **5800 MHz** $\epsilon_r = 35.3 \pm 5\%$ $\sigma = 5.27 \pm 5\%$ mho/m

Valid for f=5510-6090 MHz with Head Tissue Simulating Liquid according to OET65-SuppC

ConvF X	2.15 $\pm 16.6\%$ (k=2)	Boundary effect:	
ConvF Y	2.15 $\pm 16.6\%$ (k=2)	Alpha	1.04
ConvF Z	2.15 $\pm 16.6\%$ (k=2)	Depth	1.50

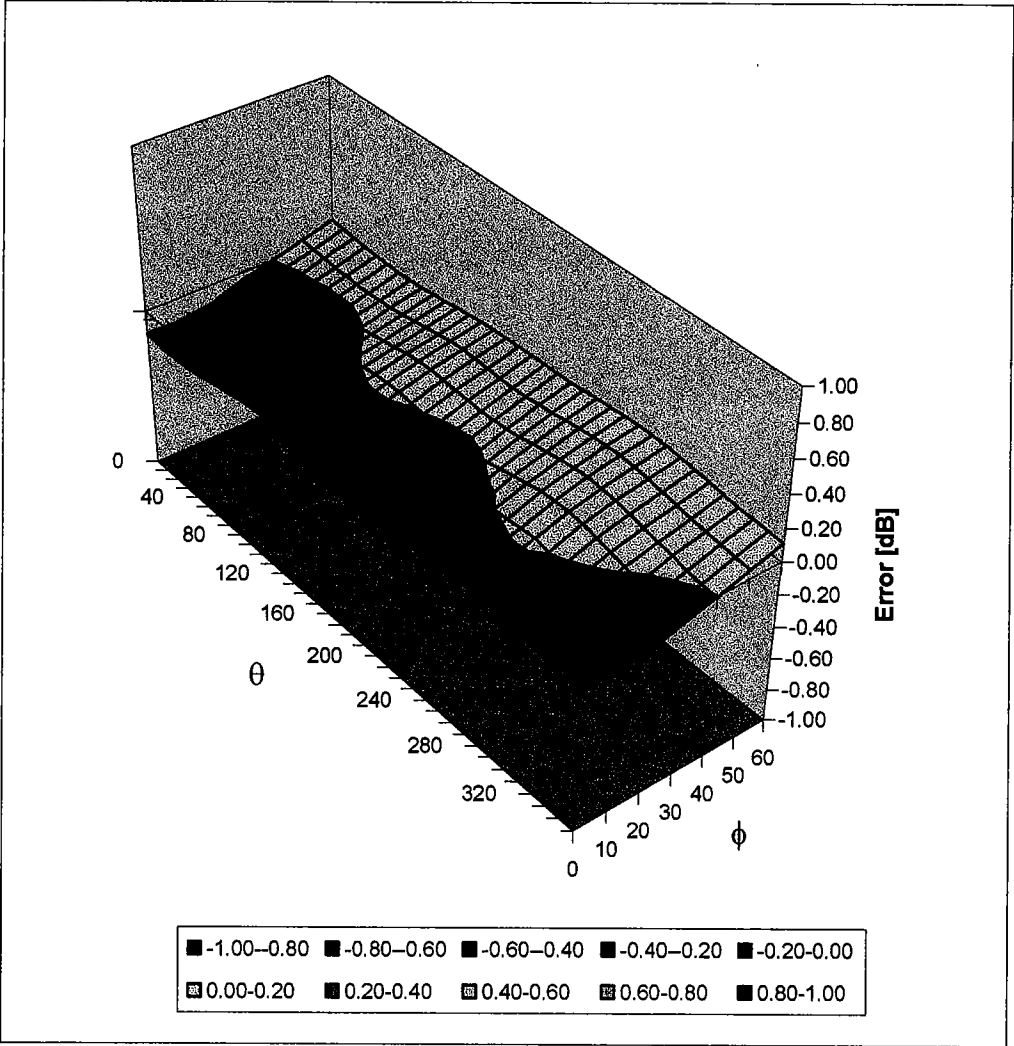
Body **5800 MHz** $\epsilon_r = 48.2 \pm 5\%$ $\sigma = 6.0 \pm 5\%$ mho/m

Valid for f=5510-6090 MHz with Body Tissue Simulating Liquid according to OET65-SuppC

ConvF X	1.57 $\pm 16.6\%$ (k=2)	Boundary effect:	
ConvF Y	1.57 $\pm 16.6\%$ (k=2)	Alpha	1.15
ConvF Z	1.57 $\pm 16.6\%$ (k=2)	Depth	1.70

Deviation from Isotropy in HSL

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



Additional Conversion Factors

for Dosimetric E-Field Probe

Type:

ES3DV2

Serial Number:

3022

Place of Assessment:

Zurich

Date of Assessment:

December 3, 2003

Probe Calibration Date:

September 23, 2003

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 900 MHz or at 1800 MHz.

Assessed by:

Dosimetric E-Field Probe ES3DV2 SN:3022

Conversion factor ($\pm$ standard deviation)

1950 MHz ConvF **$4.7 \pm 9.5\%$**

$\epsilon = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\% \text{ mho/m}$ (head tissue)

1950 MHz ConvF **$4.3 \pm 9.5\%$**

$\epsilon = 53.3 \pm 5\%$ $\sigma = 1.52 \pm 5\% \text{ mho/m}$ (body tissue)

Additional Conversion Factors

for Dosimetric E-Field Probe

Type:

ES3DV2

Serial Number:

3022

Place of Assessment:

Zurich

Date of Assessment:

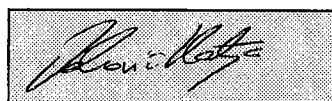
October 3, 2003

Probe Calibration Date:

September 23, 2003

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 900 MHz or at 1800 MHz.

Assessed by:



Dosimetric E-Field Probe ES3DV2 SN:3022

Conversion factor ($\pm$ standard deviation)

150 MHz	ConvF	$8.5 \pm 8\%$	$\epsilon_r = 52.3 \pm 5\%$ $\sigma = 0.76 \pm 5\% \text{ mho/m}$ (head tissue)
150 MHz	ConvF	$8.0 \pm 8\%$	$\epsilon_r = 61.9 \pm 5\%$ $\sigma = 0.80 \pm 5\% \text{ mho/m}$ (body tissue)
450 MHz	ConvF	$7.1 \pm 8\%$	$\epsilon_r = 43.5 \pm 5\%$ $\sigma = 0.87 \pm 5\% \text{ mho/m}$ (head tissue)
450 MHz	ConvF	$7.2 \pm 8\%$	$\epsilon_r = 56.7 \pm 5\%$ $\sigma = 0.94 \pm 5\% \text{ mho/m}$ (body tissue)

Additional Conversion Factors

for Dosimetric E-Field Probe

Type:

ES3DV2

Serial Number:

3022

Place of Assessment:

Zurich

Date of Assessment:

November 28, 2003

Probe Calibration Date:

September 23, 2003

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 900 MHz or at 1800 MHz.

Assessed by:

Dosimetric E-Field Probe ES3DV2 SN:3022

Conversion factor ($\pm$ standard deviation)

1600 MHz ConvF **$5.2 \pm 8\%$**

$\epsilon = 40.3 \pm 5\%$ $\sigma = 1.29 \pm 5\% \text{ mho/m}$ (head tissue)

1600 MHz ConvF **$4.9 \pm 8\%$**

$\epsilon = 53.8 \pm 5\%$ $\sigma = 1.40 \pm 5\% \text{ mho/m}$ (body tissue)

Additional Conversion Factors

for Dosimetric E-Field Probe

Type:

ES3DV2

Serial Number:

3022

Place of Assessment:

Zurich

Date of Assessment:

December 9, 2003

Probe Calibration Date:

September 23, 2003

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 900 MHz or at 1800 MHz.

Assessed by:

Dosimetric E-Field Probe ES3DV2 SN:3022

Conversion factor ($\pm$ standard deviation)

2140 MHz ConvF **$4.5 \pm 8\%$**

$\epsilon = 39.8 \pm 5\%$ $\sigma = 1.49 \pm 5\% \text{ mho/m}$ (brain tissue)
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