

7 APPENDIX B - E-FIELD PROBE CALIBRATION DATA

[X] See Separate Attachment

[] See Below

Calibration Certificate

Dosimetric E-Field Probe

Type:

ET3DV5

Serial Number:

1333

Place of Calibration:

Zurich

Date of Calibration:

April 10, 2000

Calibration Interval:

12 months

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:

Oliver Kasper

Approved by:

C. E. J.

Probe ET3DV5

SN:1333

Manufactured:	December 20, 1997
Last calibration:	March 18, 1999
Recalibrated:	April 10, 2000

Calibrated for System DASY3

DASY3 - Parameters of Probe: ET3DV5 SN:1333**Sensitivity in Free Space****Diode Compression**

NormX	2.39 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	100 mV
NormY	2.36 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	100 mV
NormZ	2.34 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	100 mV

Sensitivity in Tissue Simulating Liquid

Brain **450 MHz** $\epsilon_r = 48 \pm 5\%$ $\sigma = 0.50 \pm 10\% \text{ mho/m}$

ConvF X	6.03 extrapolated	Boundary effect:	
ConvF Y	6.03 extrapolated	Alpha	0.13
ConvF Z	6.03 extrapolated	Depth	3.57

Brain **900 MHz** $\epsilon_r = 42.5 \pm 5\%$ $\sigma = 0.86 \pm 10\% \text{ mho/m}$

ConvF X	5.70 $\pm 7\%$ (k=2)	Boundary effect:	
ConvF Y	5.70 $\pm 7\%$ (k=2)	Alpha	0.34
ConvF Z	5.70 $\pm 7\%$ (k=2)	Depth	3.00

Brain **1500 MHz** $\epsilon_r = 41 \pm 5\%$ $\sigma = 1.32 \pm 10\% \text{ mho/m}$

ConvF X	5.25 interpolated	Boundary effect:	
ConvF Y	5.25 interpolated	Alpha	0.61
ConvF Z	5.25 interpolated	Depth	2.23

Brain **1800 MHz** $\epsilon_r = 41 \pm 5\%$ $\sigma = 1.69 \pm 10\% \text{ mho/m}$

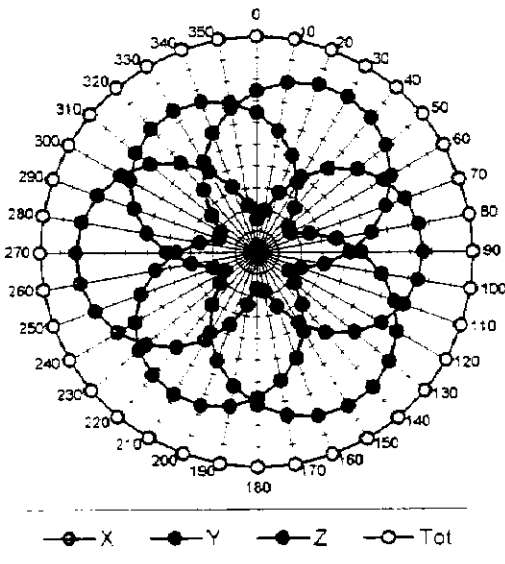
ConvF X	5.03 $\pm 7\%$ (k=2)	Boundary effect:	
ConvF Y	5.03 $\pm 7\%$ (k=2)	Alpha	0.74
ConvF Z	5.03 $\pm 7\%$ (k=2)	Depth	1.35

Sensor Offset

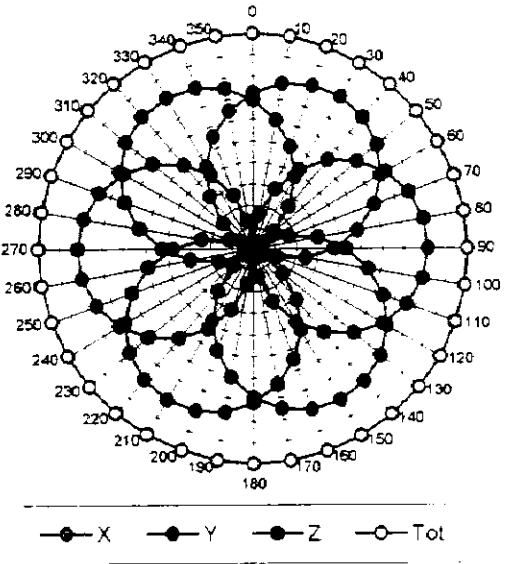
Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	1.9 $\pm$ 0.2	mm

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

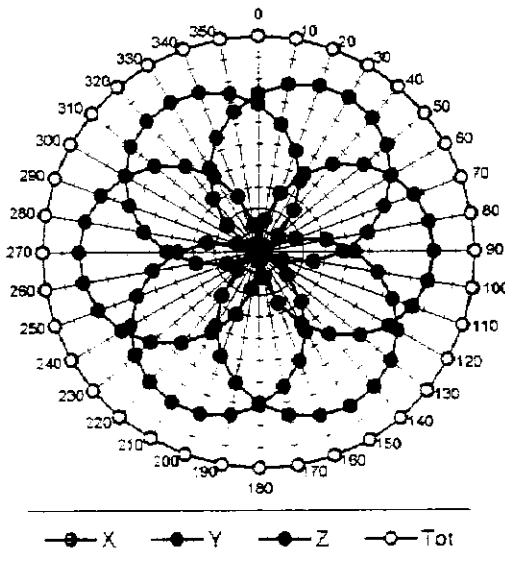
$f = 30 \text{ MHz}$, TEM cell ifi110



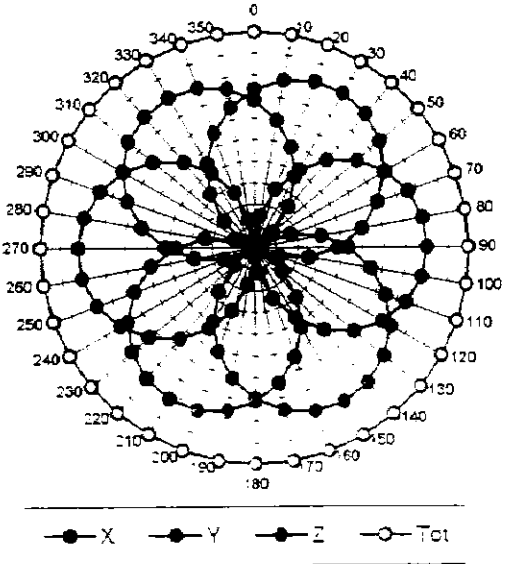
$f = 100 \text{ MHz}$, TEM cell ifi110



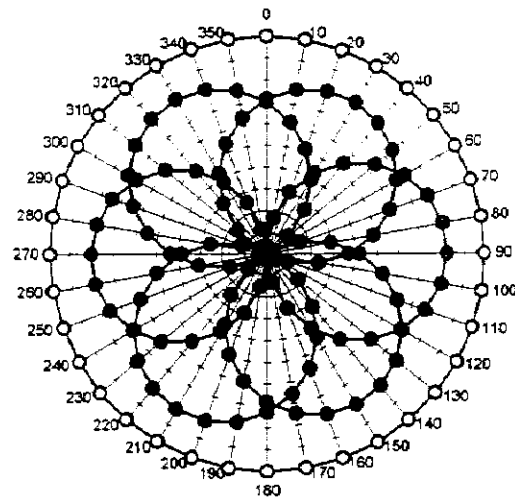
$f = 300 \text{ MHz}$, TEM cell ifi110



$f = 900 \text{ MHz}$, TEM cell ifi110

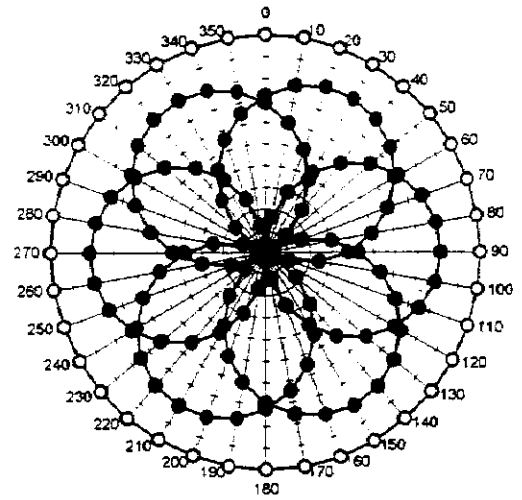


f = 1800 MHz, WG R22



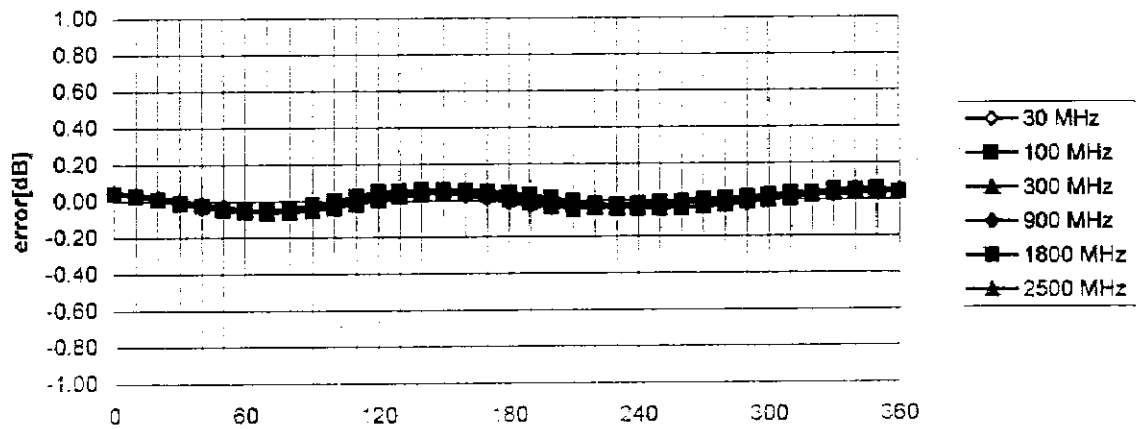
—●— X —●— Y —●— Z —○— Tot

f = 2500 MHz, WG R26



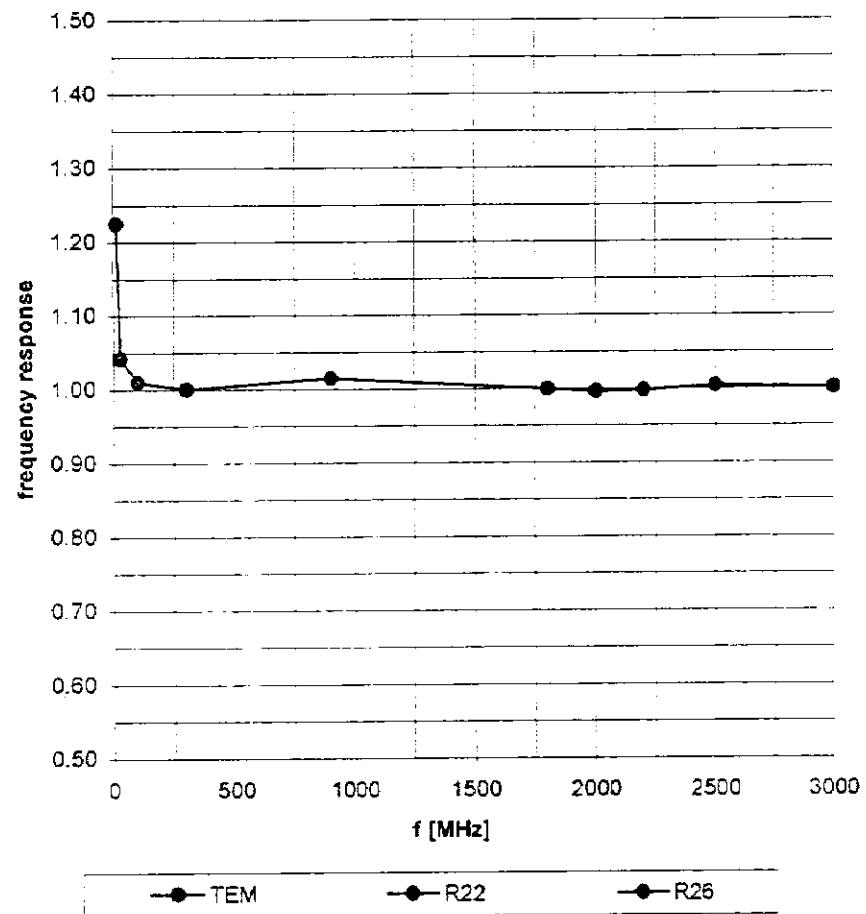
—●— X —●— Y —●— Z —○— Tot

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

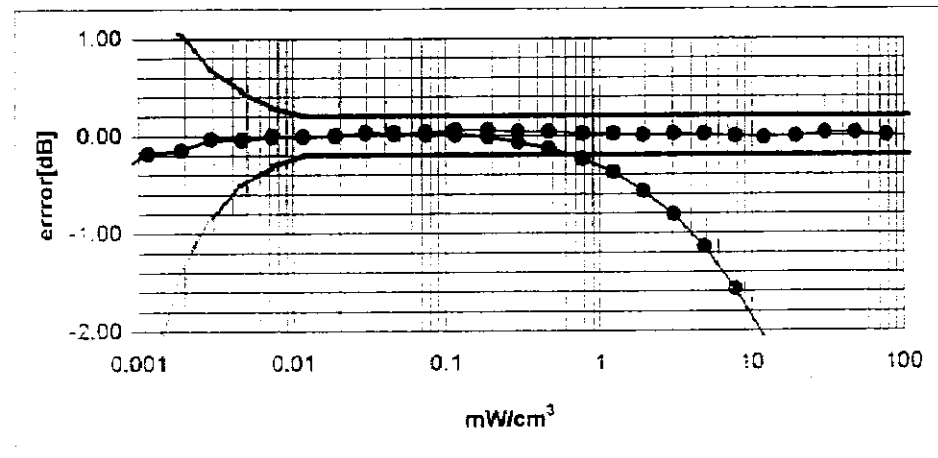
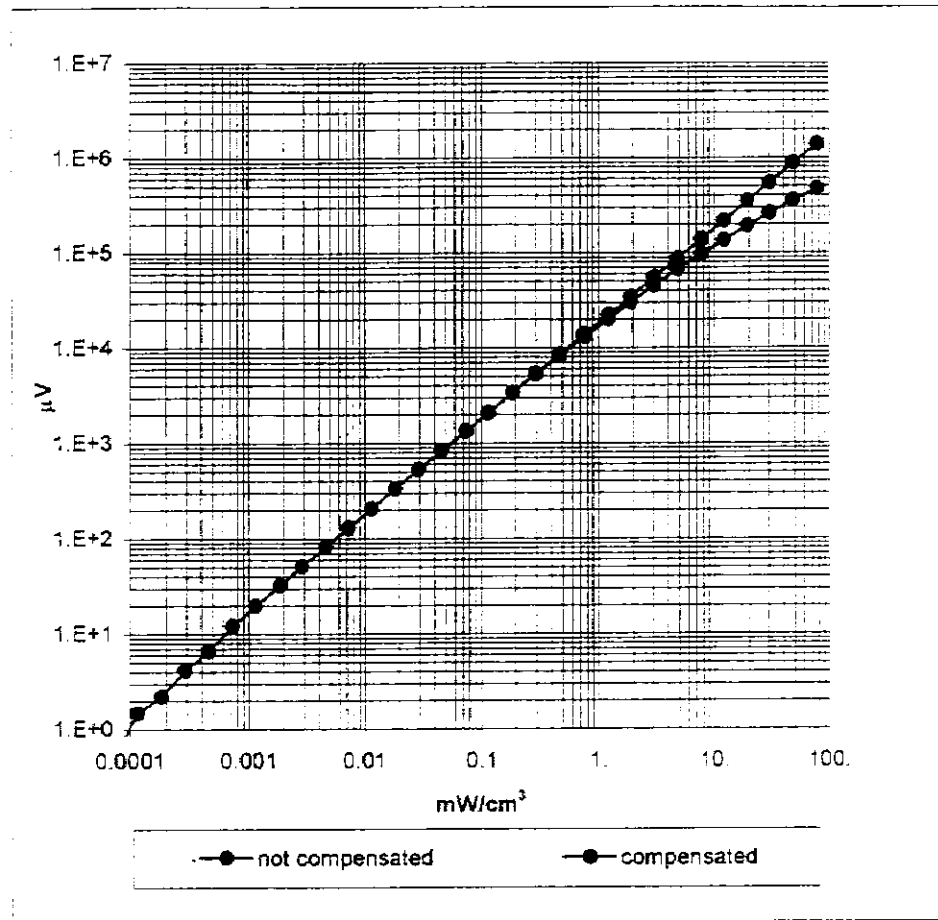


Frequency Response of E-Field

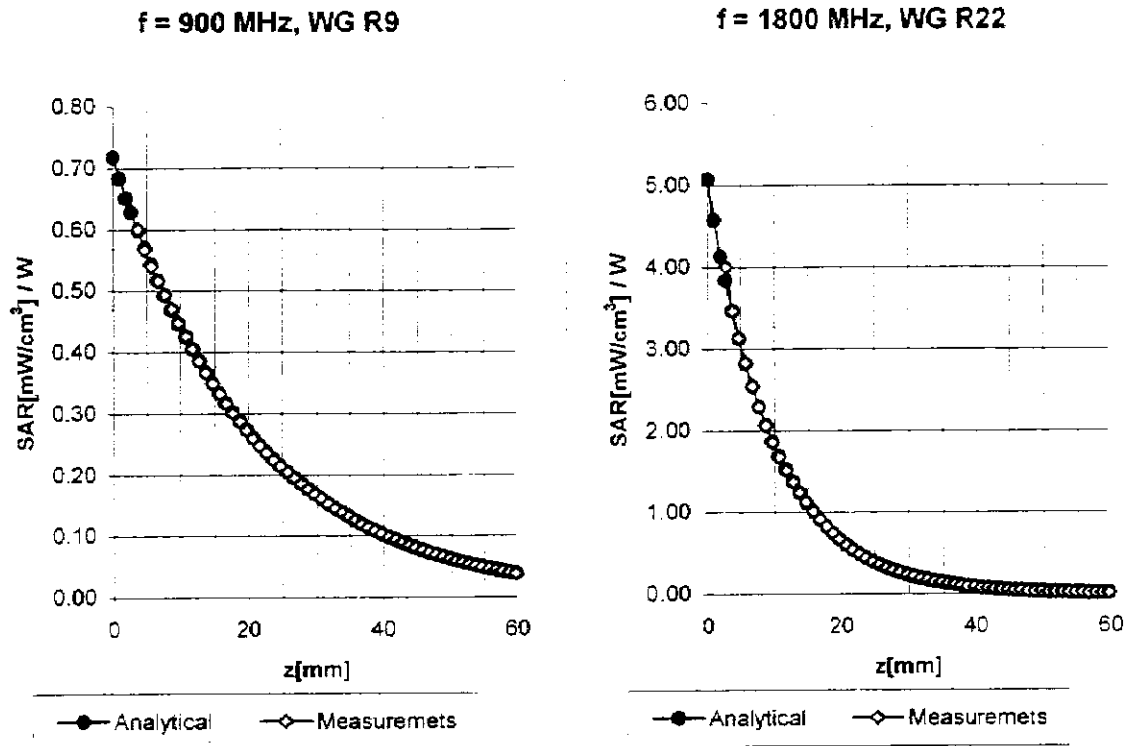
(TEM-Cell:ifi110, Waveguide R22, R26)



Dynamic Range $f(\text{SAR}_{\text{brain}})$ (TEM-Cell:ifi110)



Conversion Factor Assessment



Receiving Pattern (ϕ)

(in brain tissue, z = 5 mm)

