

Schmid & Partner Engineering AG

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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:

Volker Karger

Approved by:

C. Epp

**Schmid & Partner
Engineering AG**

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Probe ET3DV5

SN:1333

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

Calibrated for System DASY3

ET3DV5 SN:1333

DASY3 - Parameters of Probe: ET3DV5 SN:1333

Sensitivity in Free Space

NormX	2.39 $\mu\text{V}/(\text{V}/\text{m})^2$
NormY	2.36 $\mu\text{V}/(\text{V}/\text{m})^2$
NormZ	2.34 $\mu\text{V}/(\text{V}/\text{m})^2$

Diode Compression

DCP X	100 mV
DCP Y	100 mV
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
ConvF Y	6.03 extrapolated
ConvF Z	6.03 extrapolated

Boundary effect:	
Alpha	0.13
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)
ConvF Y	5.70 $\pm 7\%$ (k=2)
ConvF Z	5.70 $\pm 7\%$ (k=2)

Boundary effect:	
Alpha	0.34
Depth	3.00

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

ConvF X	5.25 interpolated
ConvF Y	5.25 interpolated
ConvF Z	5.25 interpolated

Boundary effect:	
Alpha	0.61
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)
ConvF Y	5.03 $\pm 7\%$ (k=2)
ConvF Z	5.03 $\pm 7\%$ (k=2)

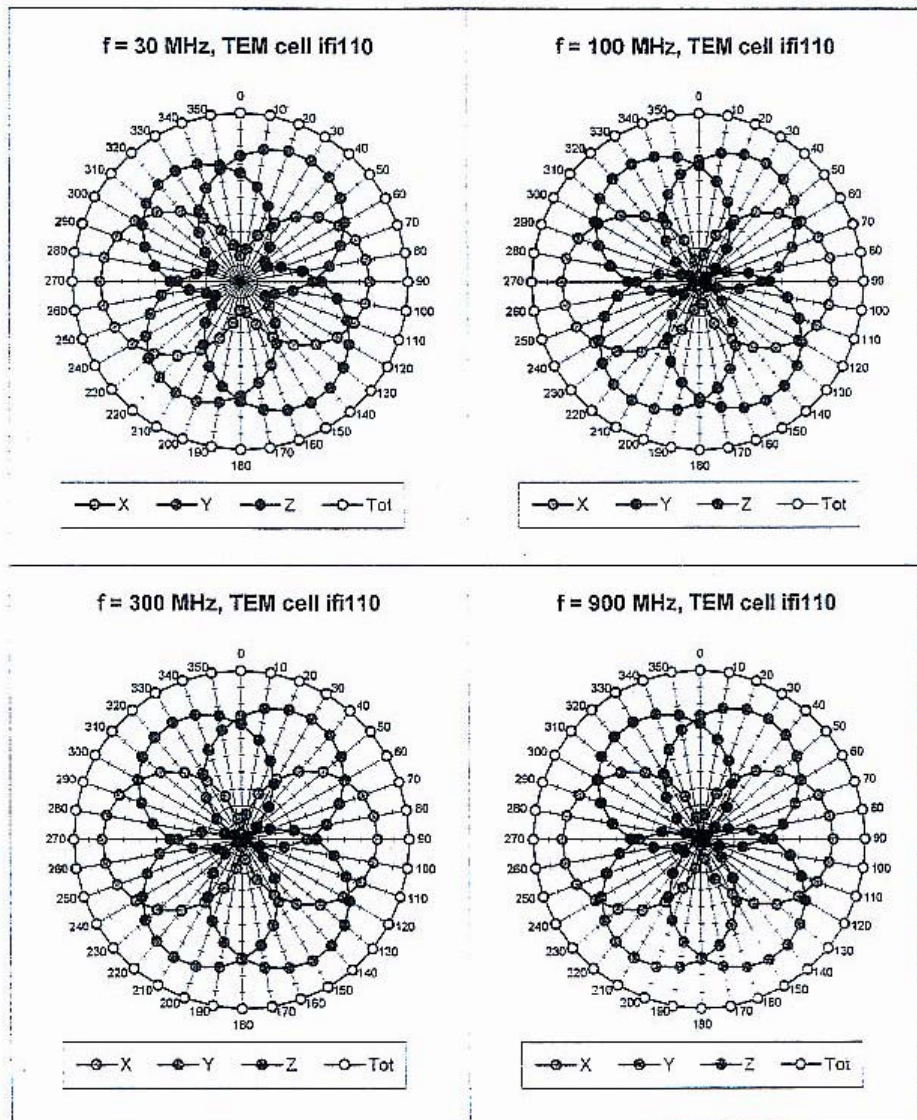
Boundary effect:	
Alpha	0.74
Depth	1.85

Sensor Offset

Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	1.9 ± 0.2	mm

ET3DV5 SN:1333

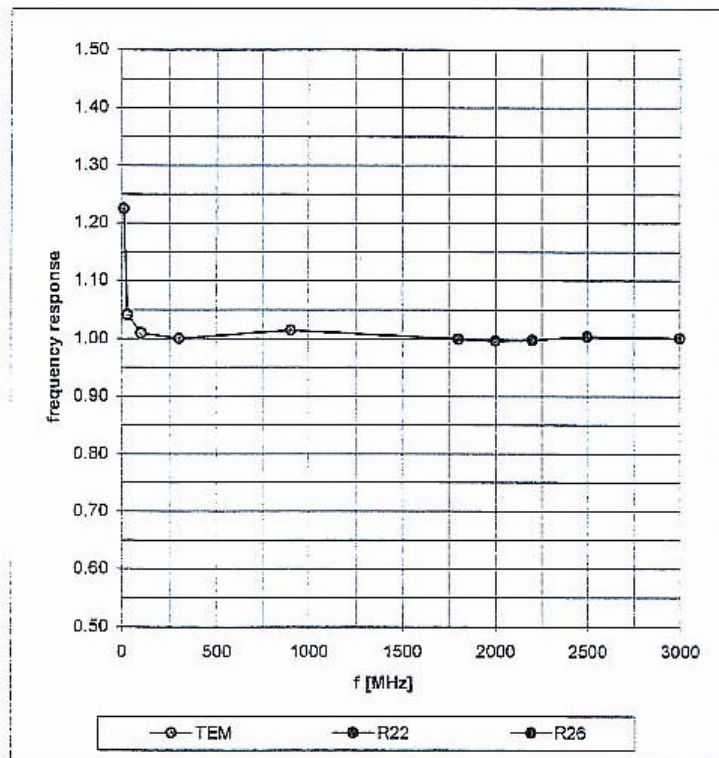
Receiving Pattern (ϕ), $\theta = 0^\circ$



ET3DV5 SN:1333

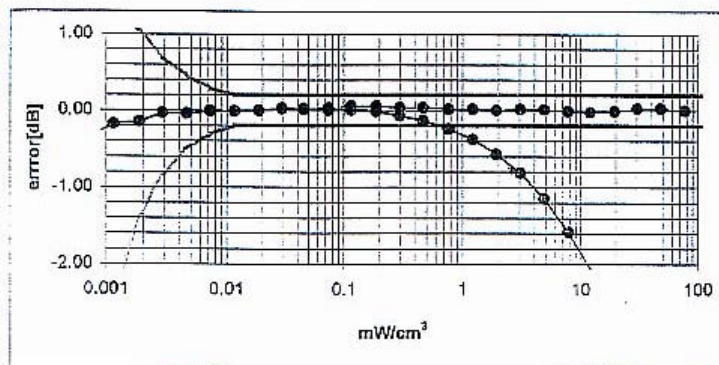
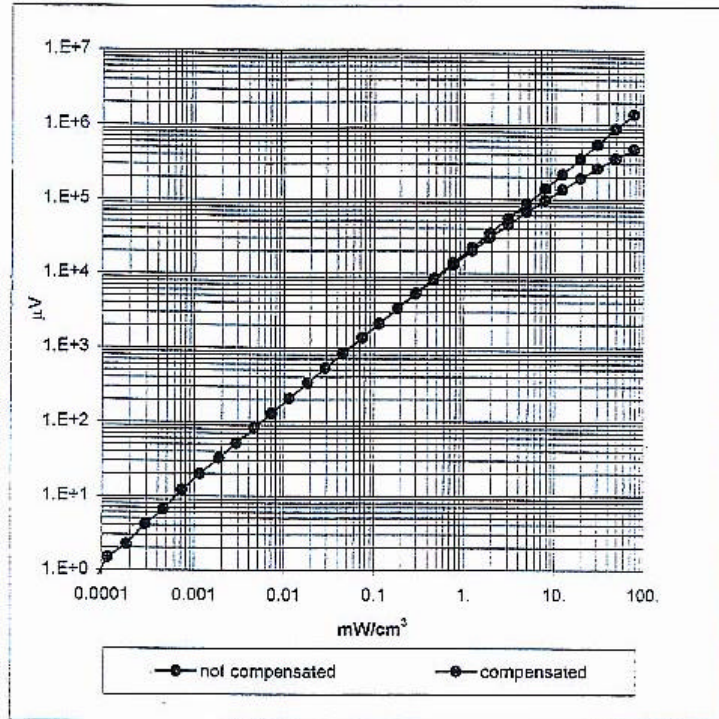
Frequency Response of E-Field

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



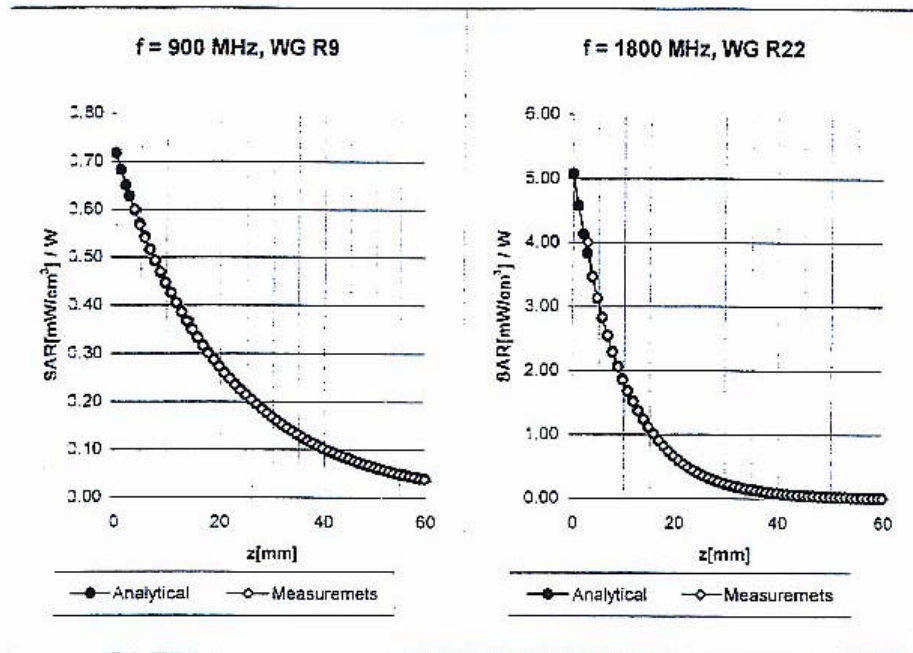
ET3DV5 SN:1333

Dynamic Range f(SAR_{brain})
(TEM-Cell:ifi110)



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Conversion Factor Assessment



Receiving Pattern (ϕ) (in brain tissue, z = 5 mm)

