Schmid & Partner
Engineering AG

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Calibration Certificate

Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1377**
Place of Calibration:	**Zurich**
Date of Calibration:	**September 6, 2002**
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:	
Approved by:	

Probe ET3DV6

SN:1377

Manufactured:	August 16, 1999
Last calibration:	June 29, 2001
Recalibrated:	September 6, 2002

Calibrated for System DASY3

DASY3 - Parameters of Probe: ET3DV6 SN:1377

Sensitivity in Free Space

NormX	**1.75**	$\mu V/(V/m)^2$
NormY	**1.81**	$\mu V/(V/m)^2$
NormZ	**1.86**	$\mu V/(V/m)^2$

Diode Compression

DCP X	**94**	mV
DCP Y	**94**	mV
DCP Z	**94**	mV

Sensitivity in Tissue Simulating Liquid

Head **900 MHz** e_r **= 41.5 ± 5%** s **= 0.97 ± 5% mho/m**
Head **835 MHz** e_r **= 41.5 ± 5%** s **= 0.90 ± 5% mho/m**

ConvF X	**6.3** ± 9.5% (k=2)	Boundary effect:	
ConvF Y	**6.3** ± 9.5% (k=2)	Alpha	**0.44**
ConvF Z	**6.3** ± 9.5% (k=2)	Depth	**2.15**

Head **1800 MHz** e_r **= 40.0 ± 5%** s **= 1.40 ± 5% mho/m**
Head **1900 MHz** e_r **= 40.0 ± 5%** s **= 1.40 ± 5% mho/m**

ConvF X	**5.2** ± 9.5% (k=2)	Boundary effect:	
ConvF Y	**5.2** ± 9.5% (k=2)	Alpha	**0.49**
ConvF Z	**5.2** ± 9.5% (k=2)	Depth	**2.45**

Boundary Effect

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

Probe Tip to Boundary		**1 mm**	**2 mm**
SAR_{be} [%]	Without Correction Algorithm	8.8	4.8
SAR_{be} [%]	With Correction Algorithm	0.2	0.4

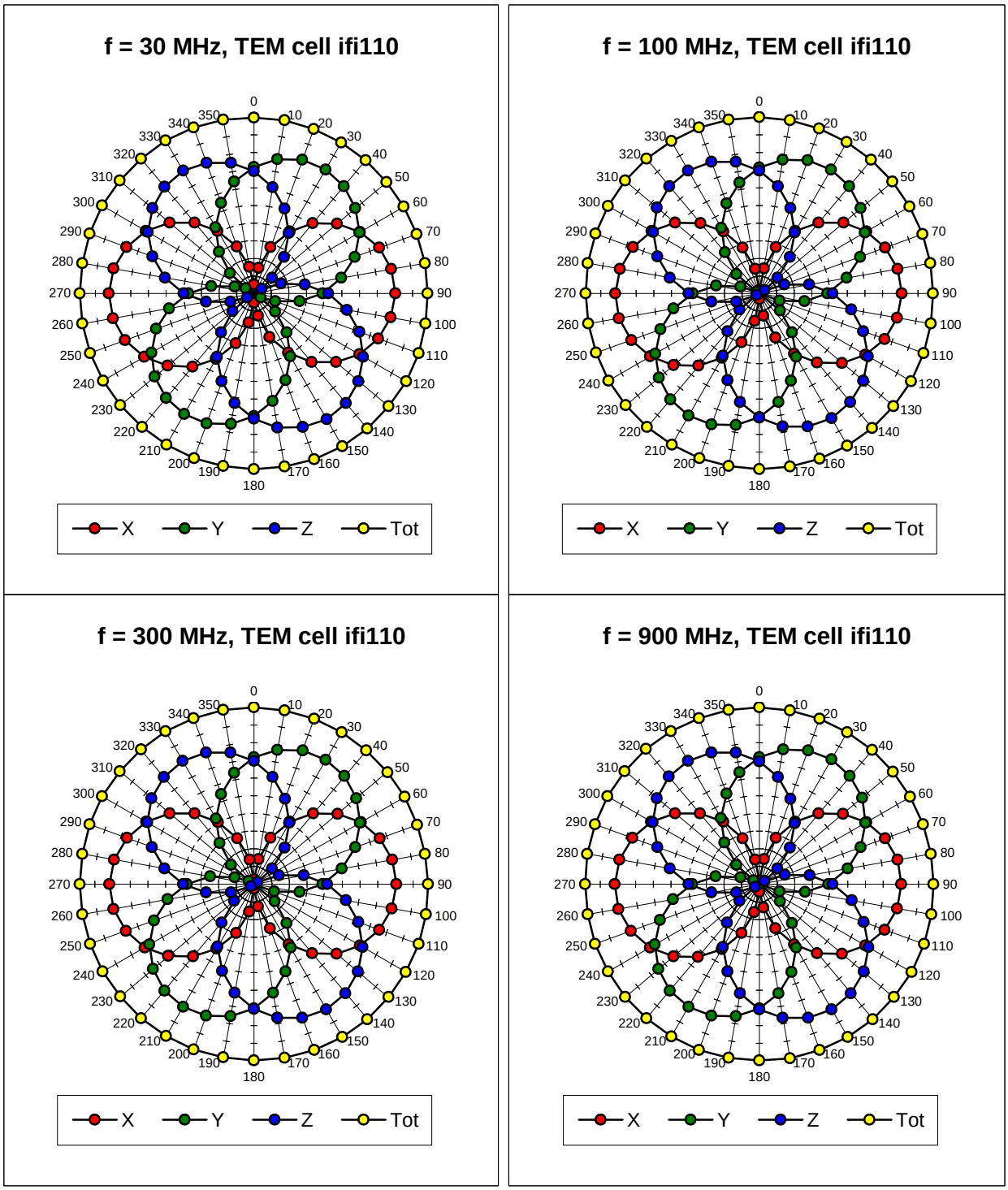
Head **1800 MHz** **Typical SAR gradient: 10 % per mm**

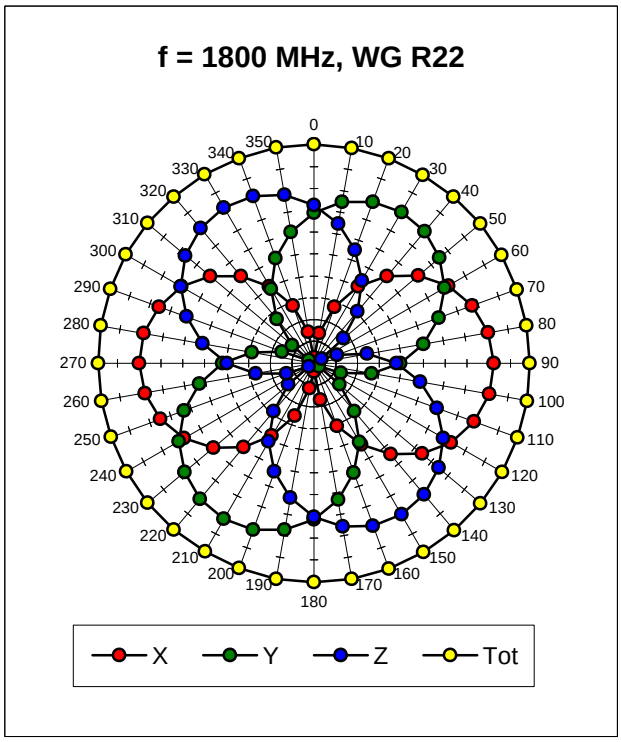
Probe Tip to Boundary		**1 mm**	**2 mm**
SAR_{be} [%]	Without Correction Algorithm	12.0	7.9
SAR_{be} [%]	With Correction Algorithm	0.2	0.2

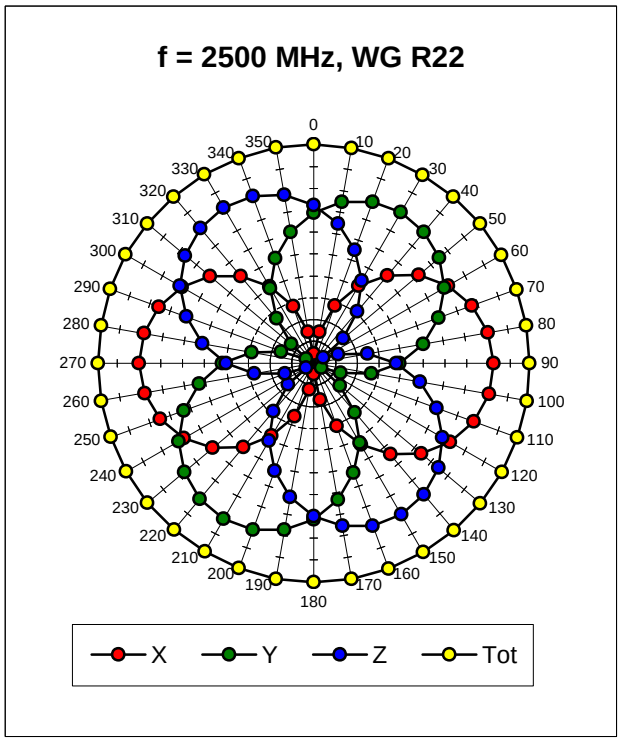
Sensor Offset

Probe Tip to Sensor Center	**2.7**	mm
Optical Surface Detection	**1.3 ± 0.2**	mm

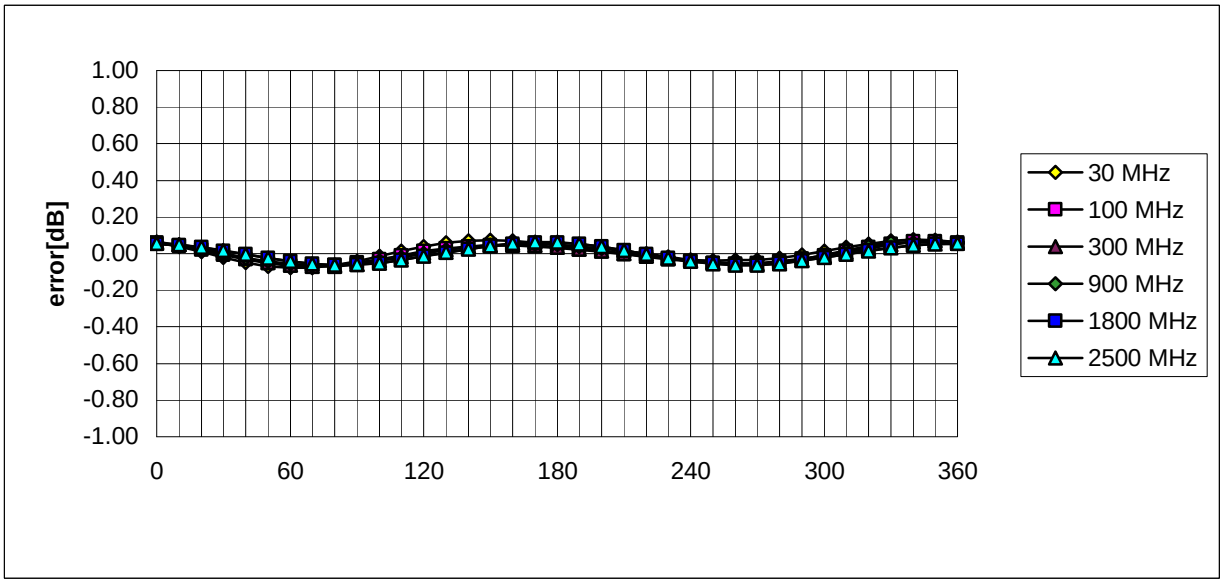
Receiving Pattern (f), q = 0°





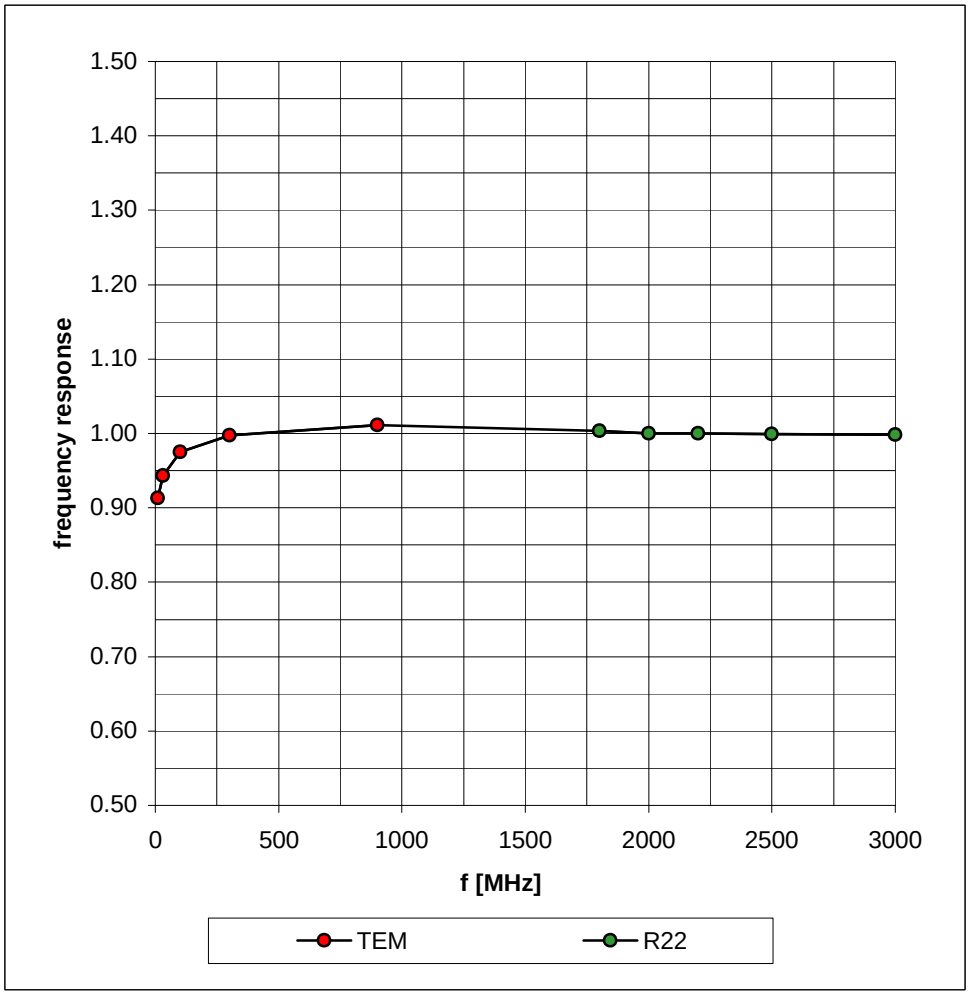


Isotropy Error (f), q = 0°



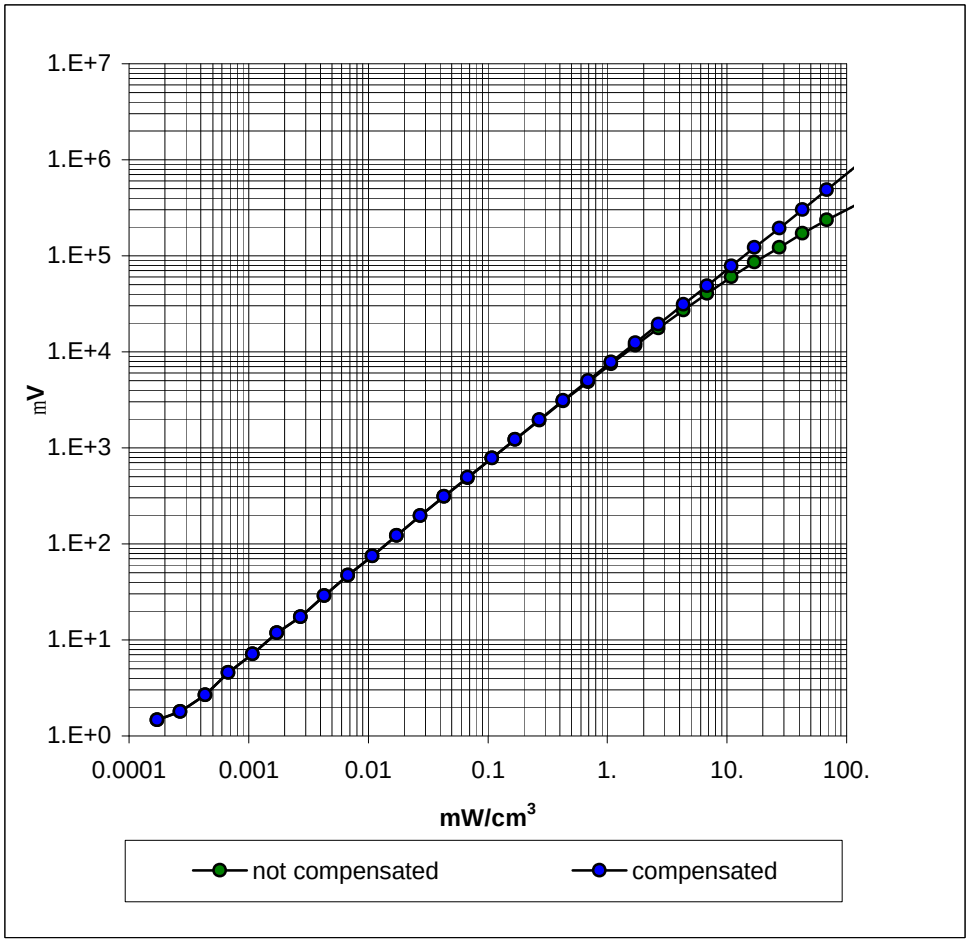
Frequency Response of E-Field

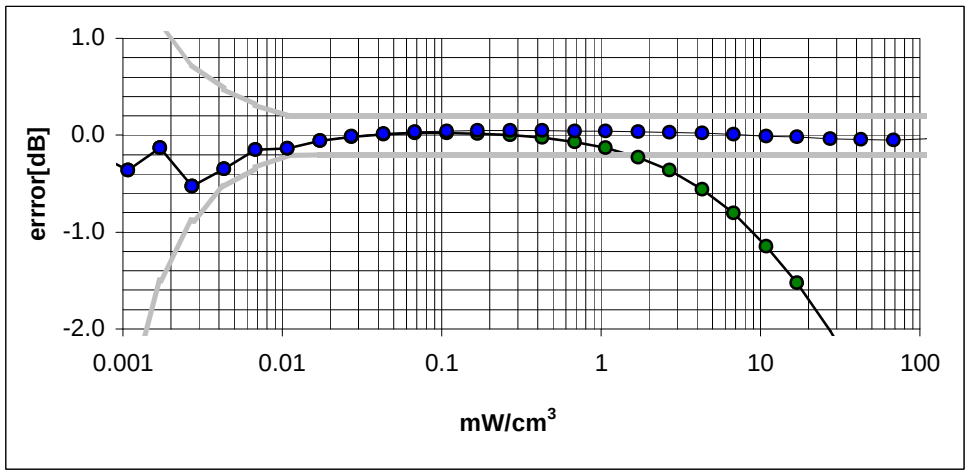
(TEM-Cell:ifi110, Waveguide R22)



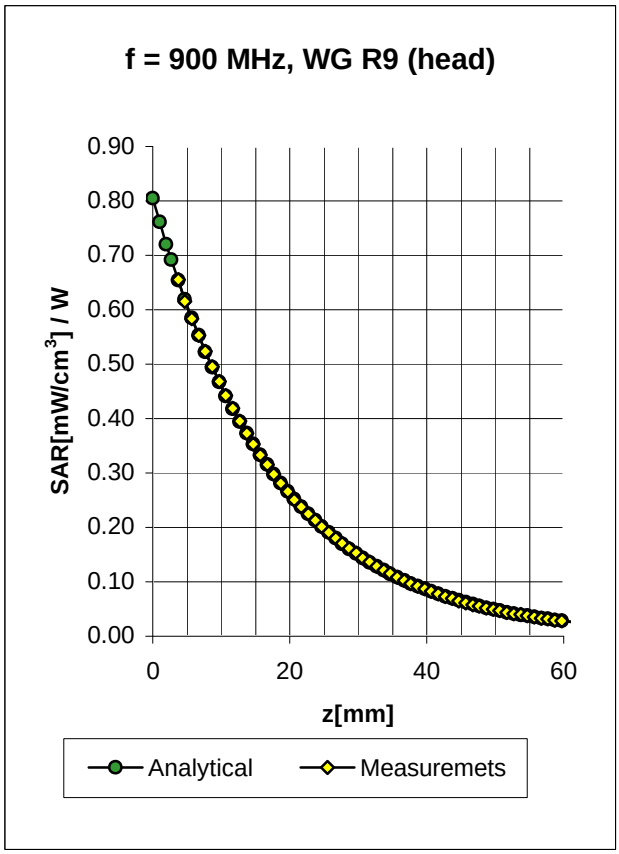
Dynamic Range f(SAR_{brain})

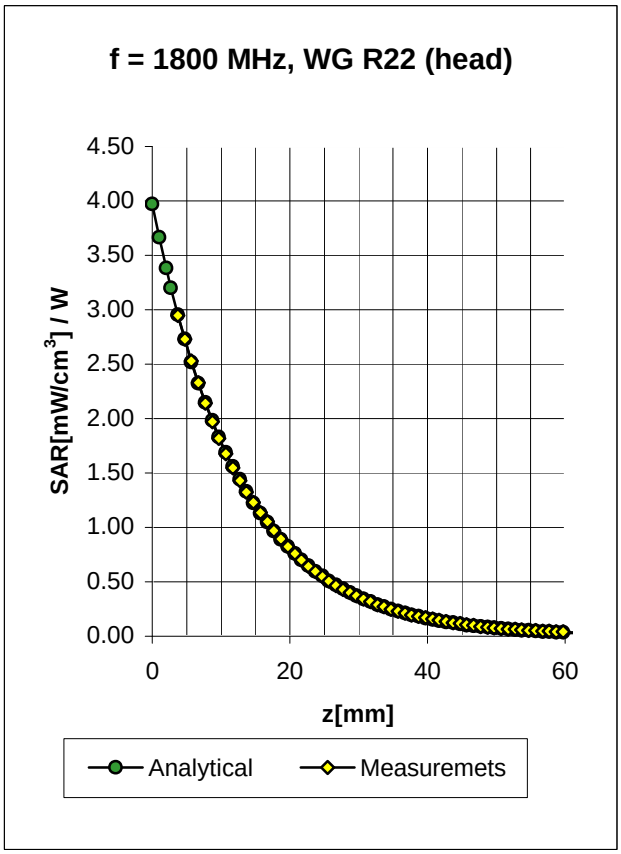
(Waveguide R22)





Conversion Factor Assessment



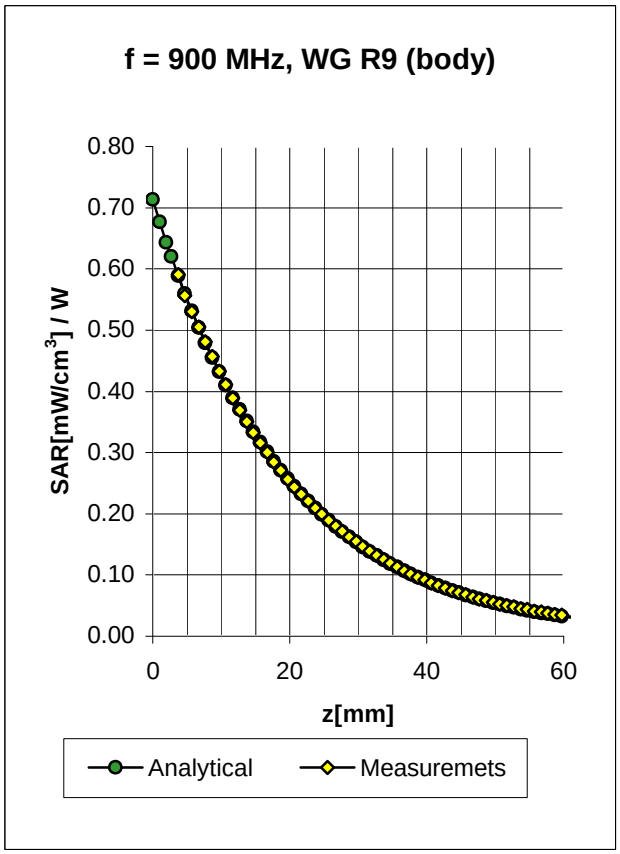


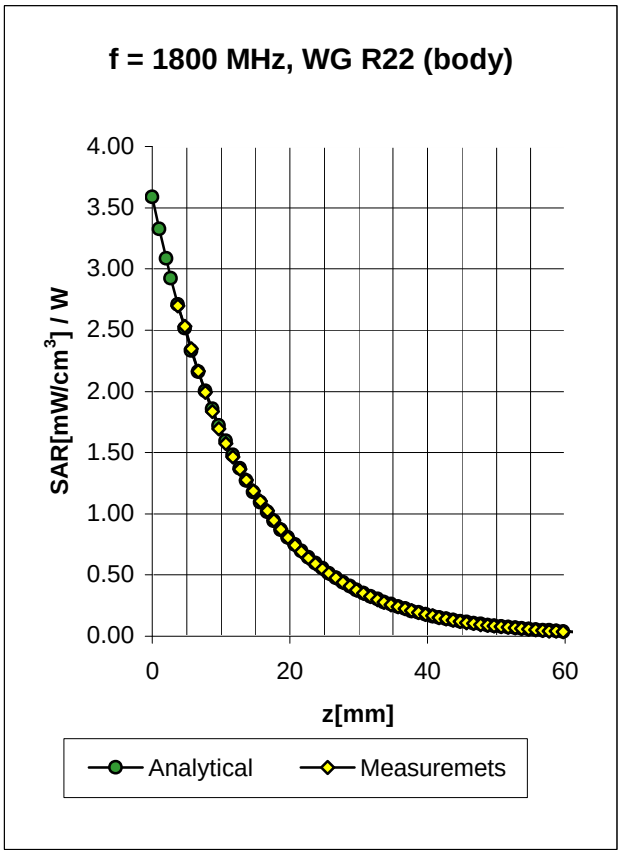
Head	**900 MHz**	e_r **= 41.5 ± 5%**	s **= 0.97 ± 5% mho/m**	
Head	**835 MHz**	e_r **= 41.5 ± 5%**	s **= 0.90 ± 5% mho/m**	
	ConvF X	**6.3** ± 9.5% (k=2)	Boundary effect:	
	ConvF Y	**6.3** ± 9.5% (k=2)	Alpha	**0.44**
	ConvF Z	**6.3** ± 9.5% (k=2)	Depth	**2.15**

Head	**1800 MHz**	e_r **= 40.0 ± 5%**	s **= 1.40 ± 5% mho/m**	
Head	**1900 MHz**	e_r **= 40.0 ± 5%**	s **= 1.40 ± 5% mho/m**	
	ConvF X	**5.2** ± 9.5% (k=2)	Boundary effect:	
	ConvF Y	**5.2** ± 9.5% (k=2)	Alpha	**0.49**
	ConvF Z	**5.2** ± 9.5% (k=2)	Depth	**2.45**

ET3DV6 SN:1377 **September 6, 2002**

Conversion Factor Assessment



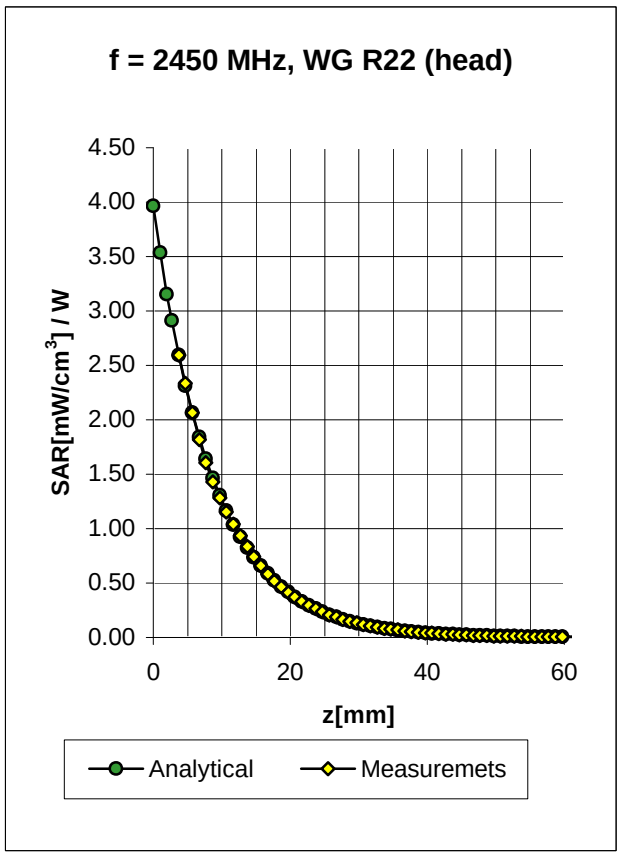


Body	**900 MHz**		e_r **= 55.0 ± 5%**	s **= 1.05 ± 5% mho/m**	
Body	**835 MHz**		e_r **= 55.2 ± 5%**	s **= 0.97 ± 5% mho/m**	
	ConvF X	**6.2** ± 9.5% (k=2)		Boundary effect:	
	ConvF Y	**6.2** ± 9.5% (k=2)		Alpha	**0.36**
	ConvF Z	**6.2** ± 9.5% (k=2)		Depth	**2.61**

Body	**1800 MHz**		e_r **= 53.3 ± 5%**	s **= 1.52 ± 5% mho/m**	
Body	**1900 MHz**		e_r **= 53.3 ± 5%**	s **= 1.52 ± 5% mho/m**	
	ConvF X	**4.9** ± 9.5% (k=2)		Boundary effect:	
	ConvF Y	**4.9** ± 9.5% (k=2)		Alpha	**0.59**
	ConvF Z	**4.9** ± 9.5% (k=2)		Depth	**2.34**

ET3DV6 SN:1377 **September 6, 2002**

Conversion Factor Assessment



2450	**Head**	**MHz**	e_r **= 39.2 ± 5%**	s **= 1.80 ± 5% mho/m**

ConvF X	**4.7**	± 8.9% (k=2)	Boundary effect:	
ConvF Y	**4.7**	± 8.9% (k=2)	Alpha	**1.00**
ConvF Z	**4.7**	± 8.9% (k=2)	Depth	**1.71**

ET3DV6 SN:1377 **September 6, 2002**

Deviation from Isotropy in HSL

Error (q, f), f = 900 MHz