Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Calibration Certificate

Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1660**
Place of Calibration:	**Zurich**
Date of Calibration:	**January 10, 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:	Nikolova Neviana
Approved by:	Sudiić Katya

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Probe ET3DV6

SN:1660

Manufactured: December 14, 2001
Last calibration: January 10, 2002

Calibrated for System DASY3

DASY3 - Parameters of Probe: ET3DV6 SN:1660

Sensitivity in Free Space

Diode Compression

NormX	**1.94** $\mu V/(V/m)^2$		DCP X	**98**	mV
NormY	**1.73** $\mu V/(V/m)^2$		DCP Y	**98**	mV
NormZ	**1.62** $\mu V/(V/m)^2$		DCP Z	**98**	mV

Sensitivity in Tissue Simulating Liquid

Head **800 - 1000 MHz** ε_r **= 39.0 - 43.5** σ **= 0.80 - 1.10 mho/m**

ConvF X	**6.8** ± 9.5% (k=2)	Boundary effect:	
ConvF Y	**6.8** ± 9.5% (k=2)	Alpha	**0.54**
ConvF Z	**6.8** ± 9.5% (k=2)	Depth	**1.86**

Head **1700 - 1910 MHz** ε_r **= 39.5 - 41.0** σ **= 1.20 - 1.55 mho/m**

ConvF X	**5.4** ± 9.5% (k=2)	Boundary effect:	
ConvF Y	**5.4** ± 9.5% (k=2)	Alpha	**0.51**
ConvF Z	**5.4** ± 9.5% (k=2)	Depth	**2.31**

Boundary Effect

Head **800 - 1000 MHz** **Typical SAR gradient: 5 % per mm**

Probe Tip to Boundary		**1 mm**	**2 mm**
SAR_{be} [%]	Without Correction Algorithm	8.1	4.2
SAR_{be} [%]	With Correction Algorithm	0.1	0.3

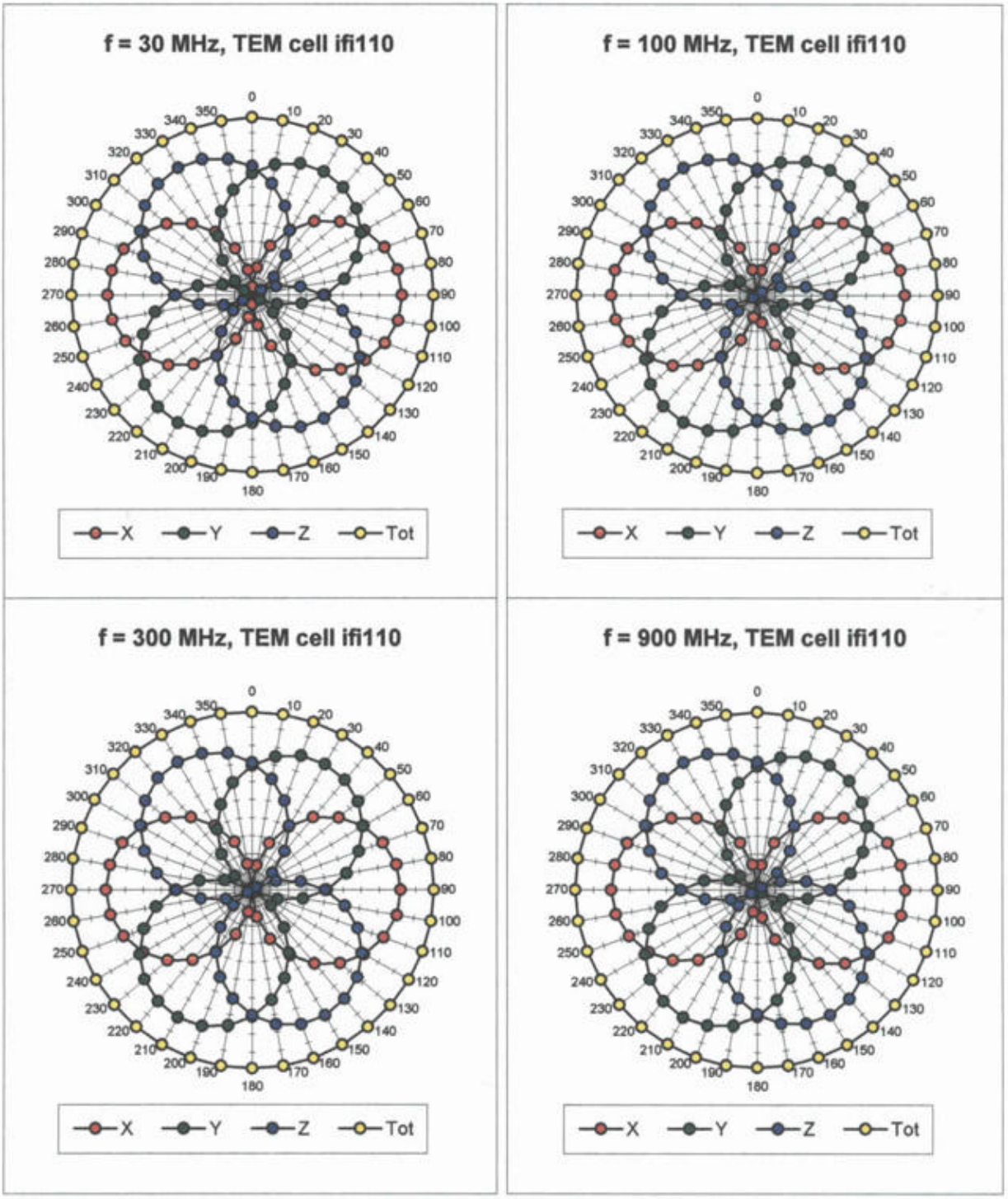
Head **1700 - 1910 MHz** **Typical SAR gradient: 10 % per mm**

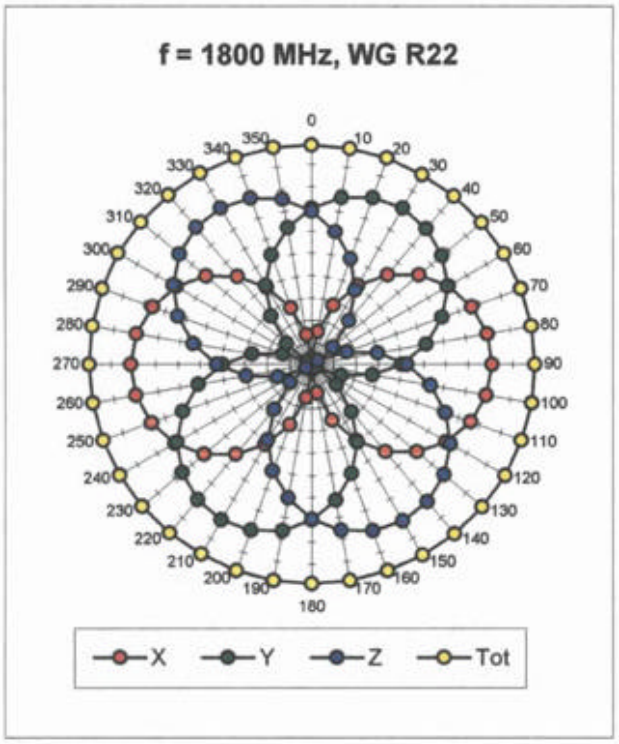
Probe Tip to Boundary		**1 mm**	**2 mm**
SAR_{be} [%]	Without Correction Algorithm	11.2	7.5
SAR_{be} [%]	With Correction Algorithm	0.2	0.3

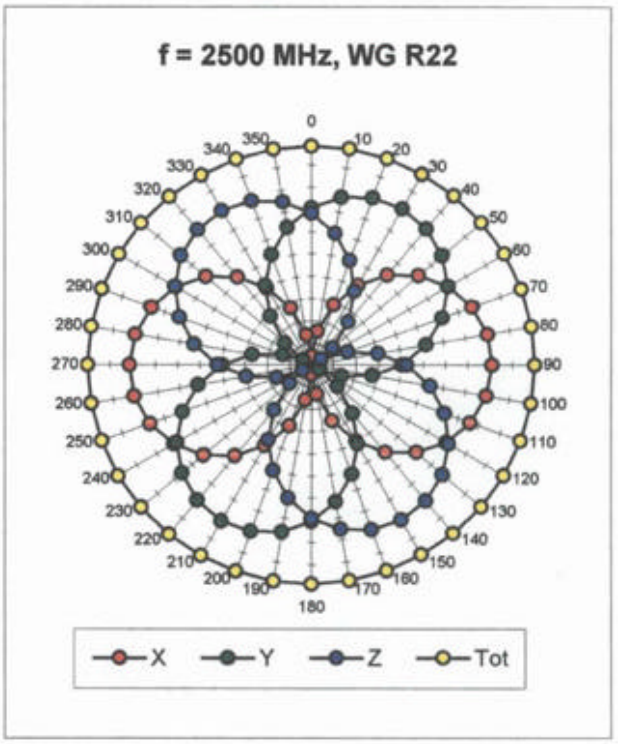
Sensor Offset

Probe Tip to Sensor Center	**2.7**	mm
Optical Surface Detection	**1.6 ± 0.2**	mm

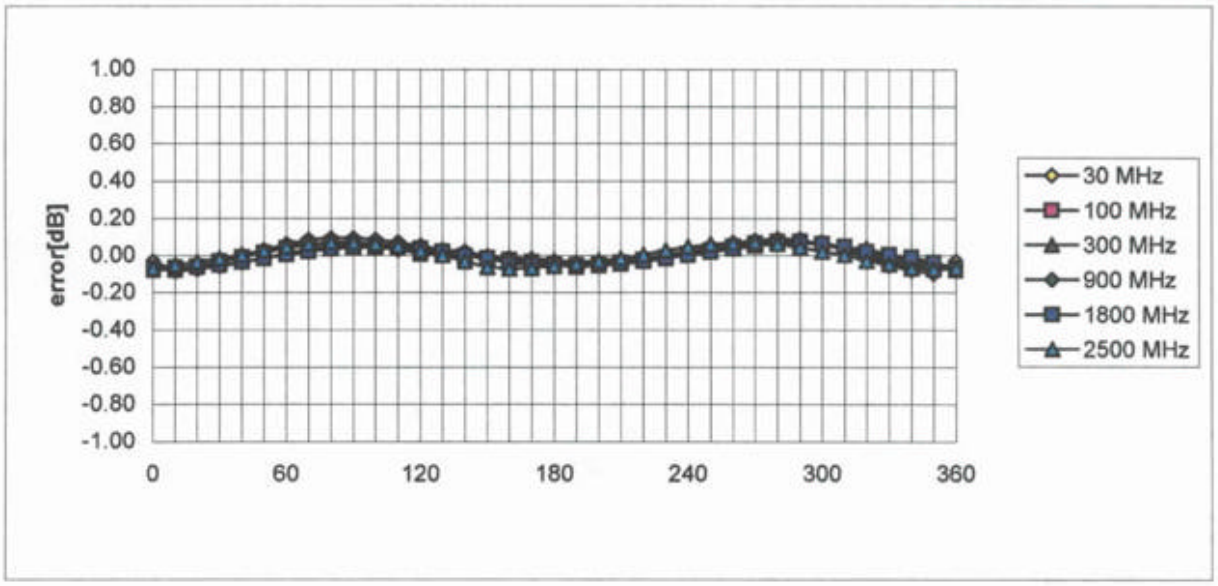
Receiving Pattern (ϕ), θ = 0°





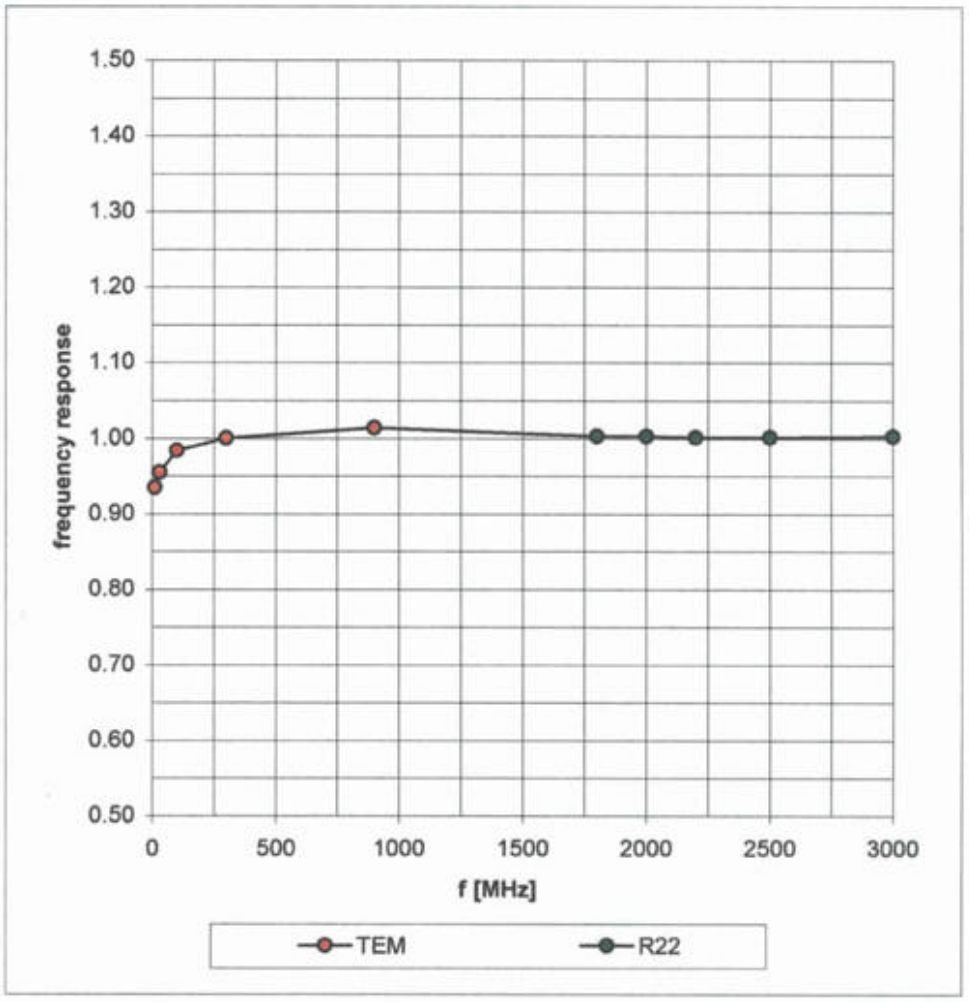


Isotropy Error (ϕ), θ = 0°

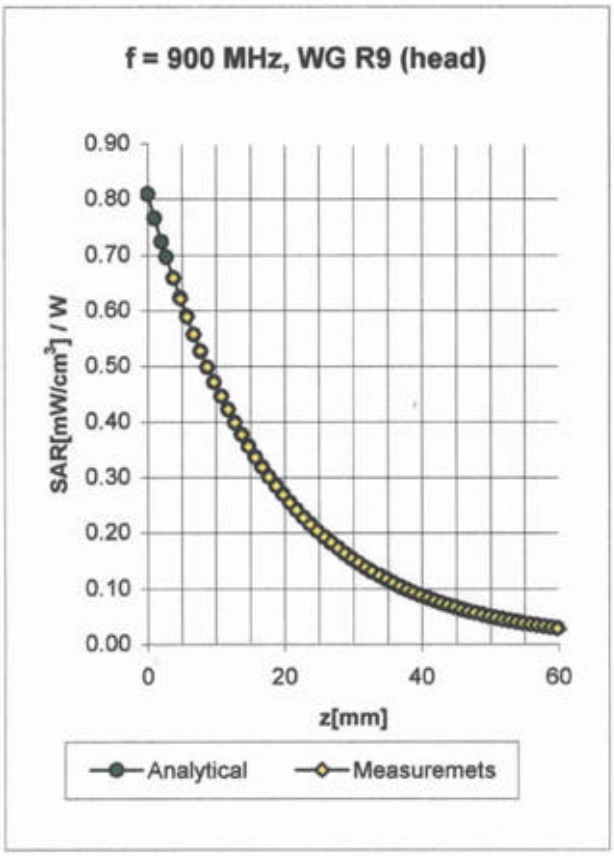


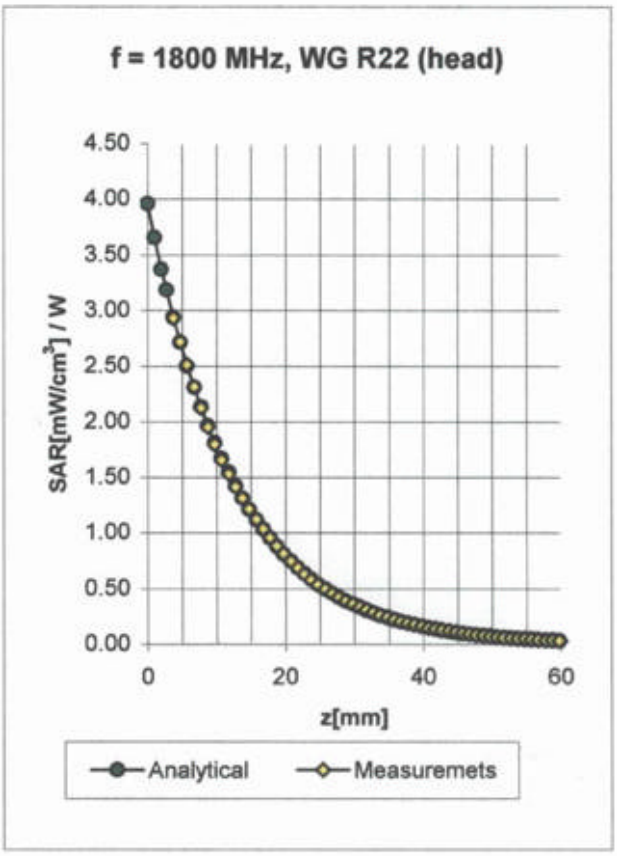
Frequency Response of E-Field

(TEM-Cell:ifi110, Waveguide R22)



Conversion Factor Assessment





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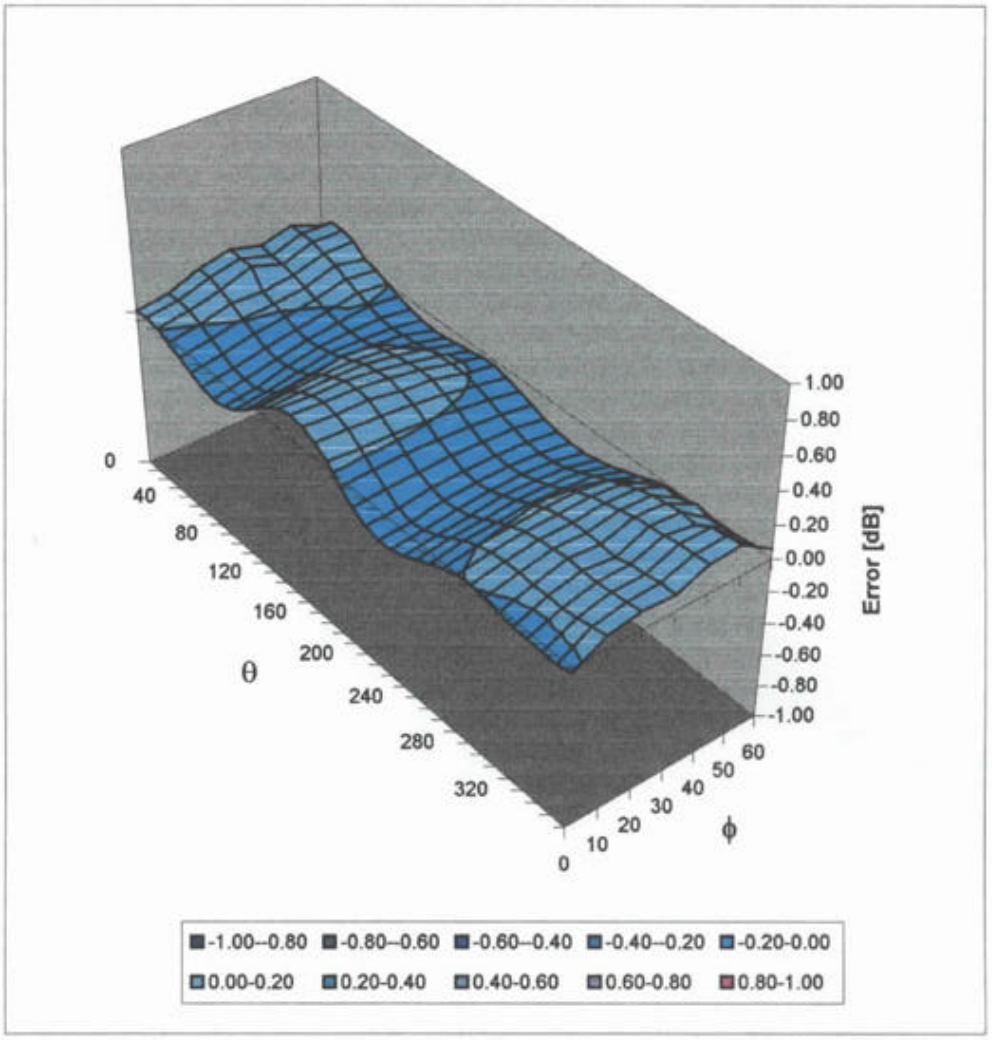
Deviation from Isotropy in HSL

Error (θ,ϕ), f = 900 MHz



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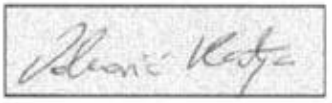
Additional Conversion Factors

for Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1660**
Place of Assessment:	**Zurich**
Date of Assessment:	**May 6, 2002**
Probe Calibration Date:	**January 10, 2002**

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 ET3DV6 SN:1660

Conversion factor (± standard deviation)

835 MHz	ConvF	**6.9 ± 8%**	ε_r = **41.5** σ = **0.90 mho/m** (head tissue)
835 MHz	ConvF	**6.7 ± 8%**	ε_r = **55.2** σ = **0.97 mho/m** (body tissue)
1900 MHz	ConvF	**5.2 ± 8%**	ε_r = **40.0** σ = **1.40 mho/m** (head tissue)
1900 MHz	ConvF	**4.8 ± 8%**	ε_r = **53.3** σ = **1.52 mho/m** (body tissue)