

Company Kyocera Wireless Corp.	Document No.	
KWC-7135 SAR REPORT	Issue No:	Date June 2002
FCC ID OVFKWC-7135	Page Number 25	

APPENDIX C: PROBE CALIBRATION CERTIFICATE

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:

1618

Place of Calibration:

Zurich

Date of Calibration:

February 21, 2002

Calibration Interval:

12 months

asset#
039926

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 Kappeler

Approved by:

[Signature]

Probe ET3DV6

SN:1618

Manufactured:	January 25, 2002
Last calibration:	February 21, 2002

Calibrated for System DASY3

DASY3 - Parameters of Probe: ET3DV6 SN:1618**Sensitivity in Free Space****Diode Compression**

NormX	1.80 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	97	mV
NormY	1.75 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	97	mV
NormZ	1.88 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	97	mV

Sensitivity in Tissue Simulating Liquid

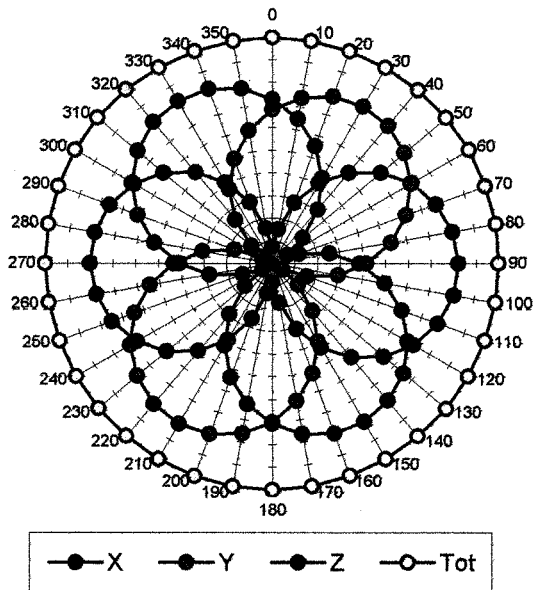
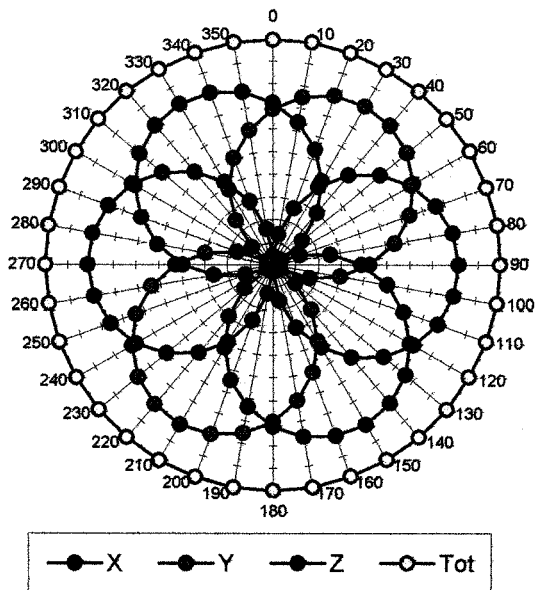
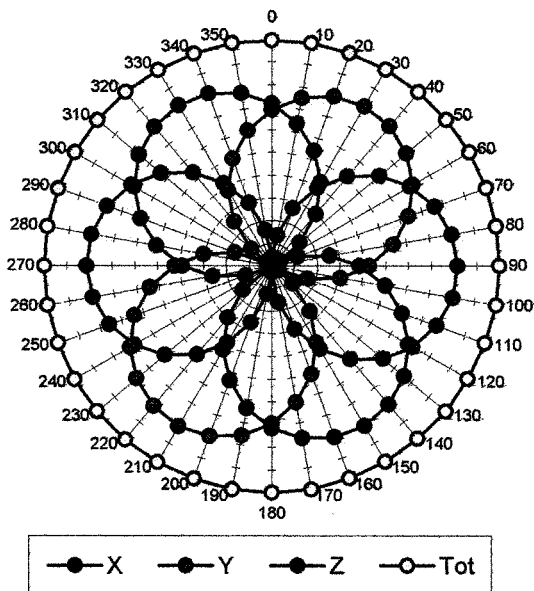
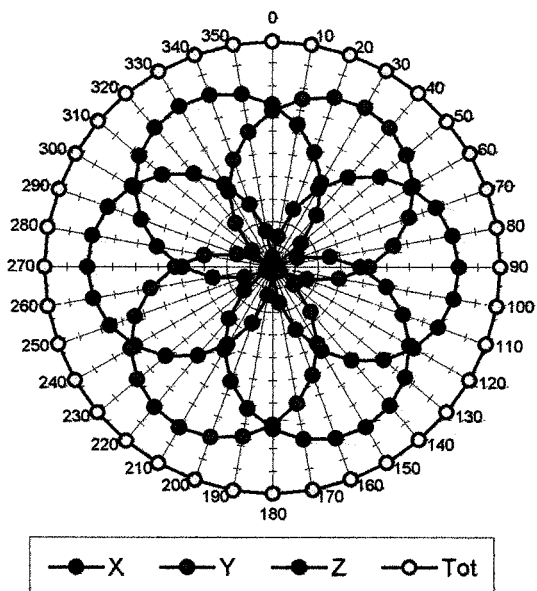
Head	900 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.97 \pm 5\%$ mho/m
Head	835 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.90 \pm 5\%$ mho/m
ConvF X	6.8 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	6.8 $\pm 9.5\%$ (k=2)	Alpha	0.32
ConvF Z	6.8 $\pm 9.5\%$ (k=2)	Depth	2.69
Head	1800 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\%$ mho/m
Head	1900 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\%$ mho/m
ConvF X	5.3 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	5.3 $\pm 9.5\%$ (k=2)	Alpha	0.45
ConvF Z	5.3 $\pm 9.5\%$ (k=2)	Depth	2.37

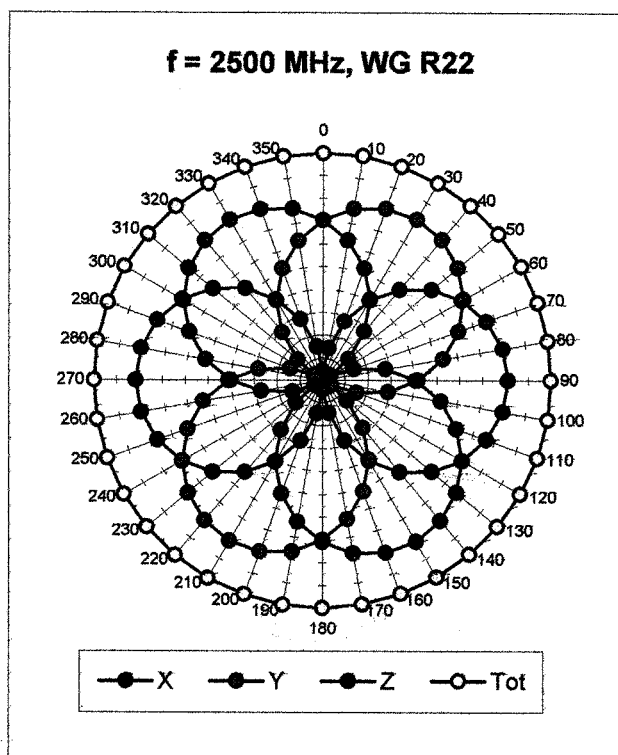
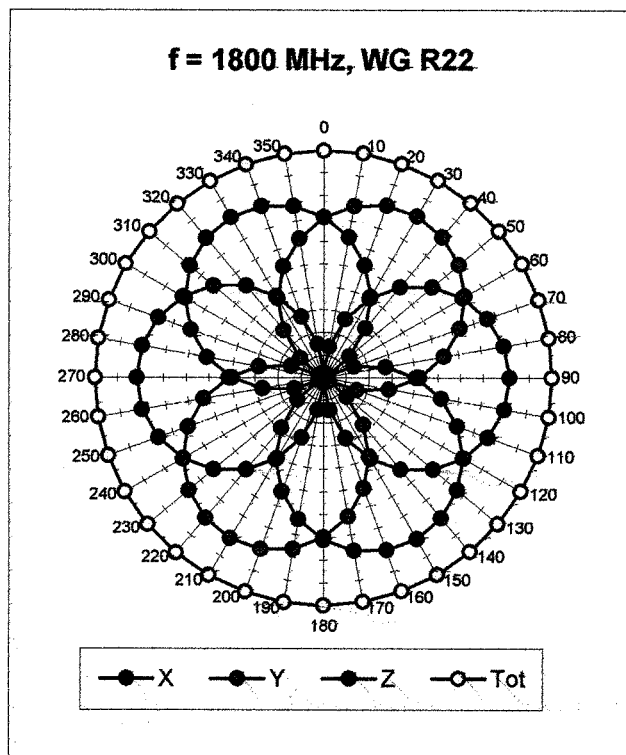
Boundary Effect

Head	900 MHz	Typical SAR gradient: 5 % per mm	
Probe Tip to Boundary		1 mm	2 mm
SAR _{be} [%] Without Correction Algorithm		9.3	5.4
SAR _{be} [%] With Correction Algorithm		0.3	0.5
Head	1800 MHz	Typical SAR gradient: 10 % per mm	
Probe Tip to Boundary		1 mm	2 mm
SAR _{be} [%] Without Correction Algorithm		10.2	6.7
SAR _{be} [%] With Correction Algorithm		0.2	0.2

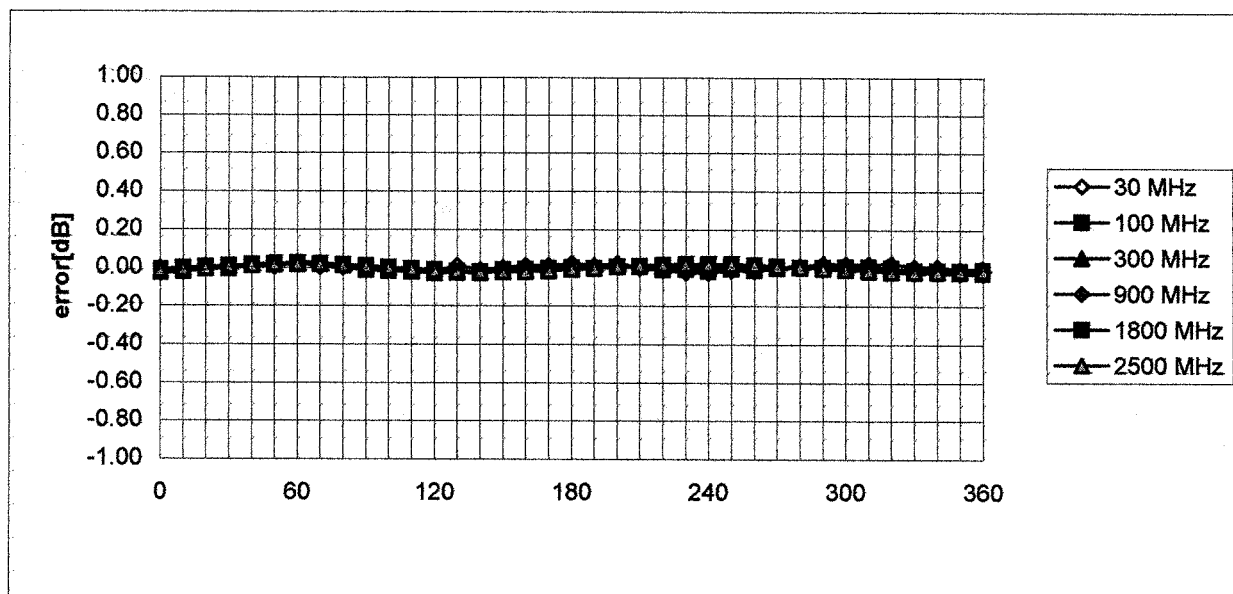
Sensor Offset

Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	1.3 $\pm$ 0.2	mm

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**

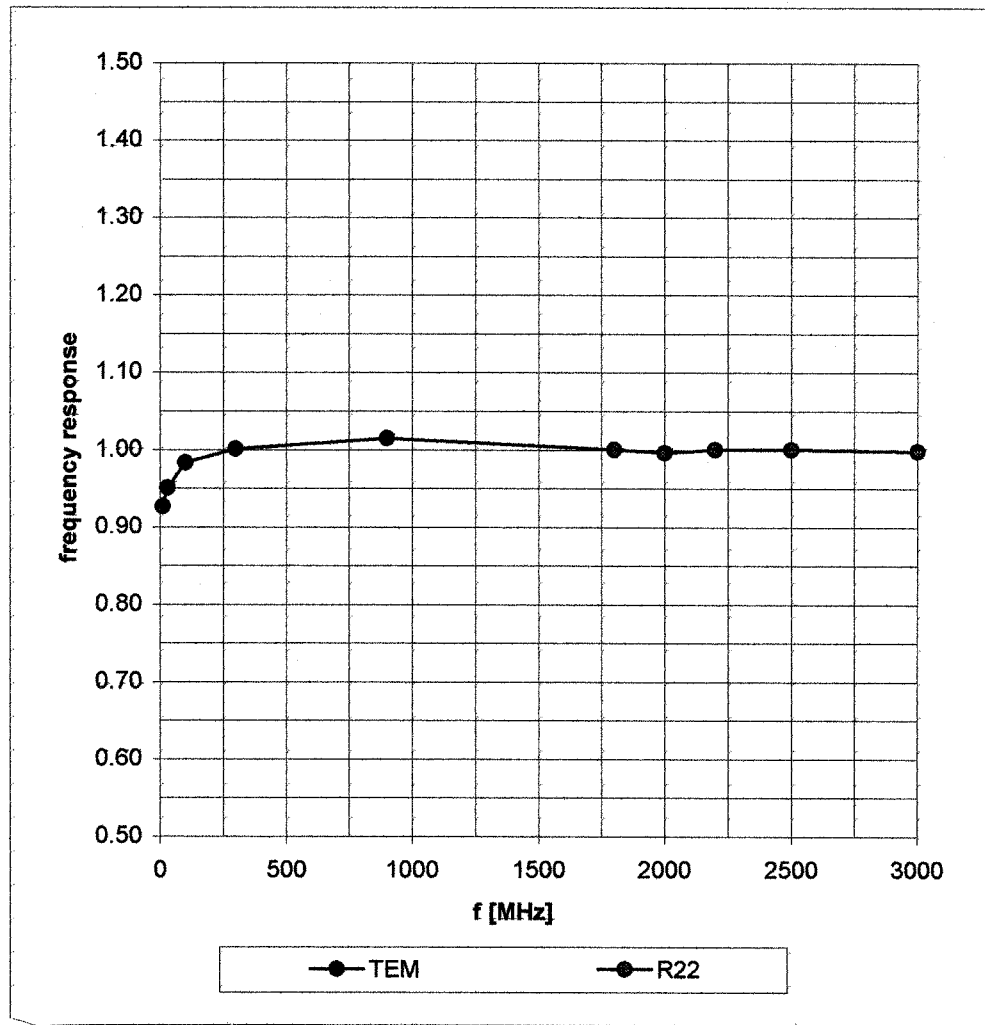


Isotropy Error (ϕ), $\theta = 0^\circ$

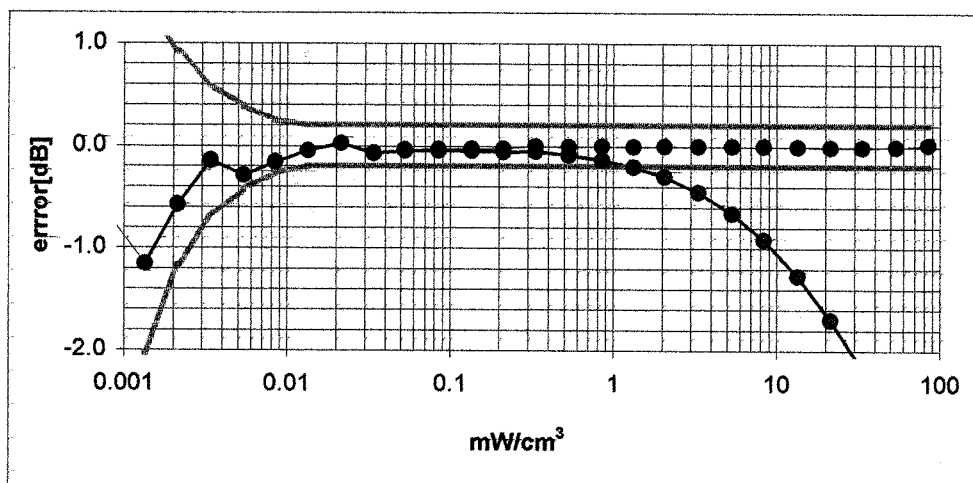
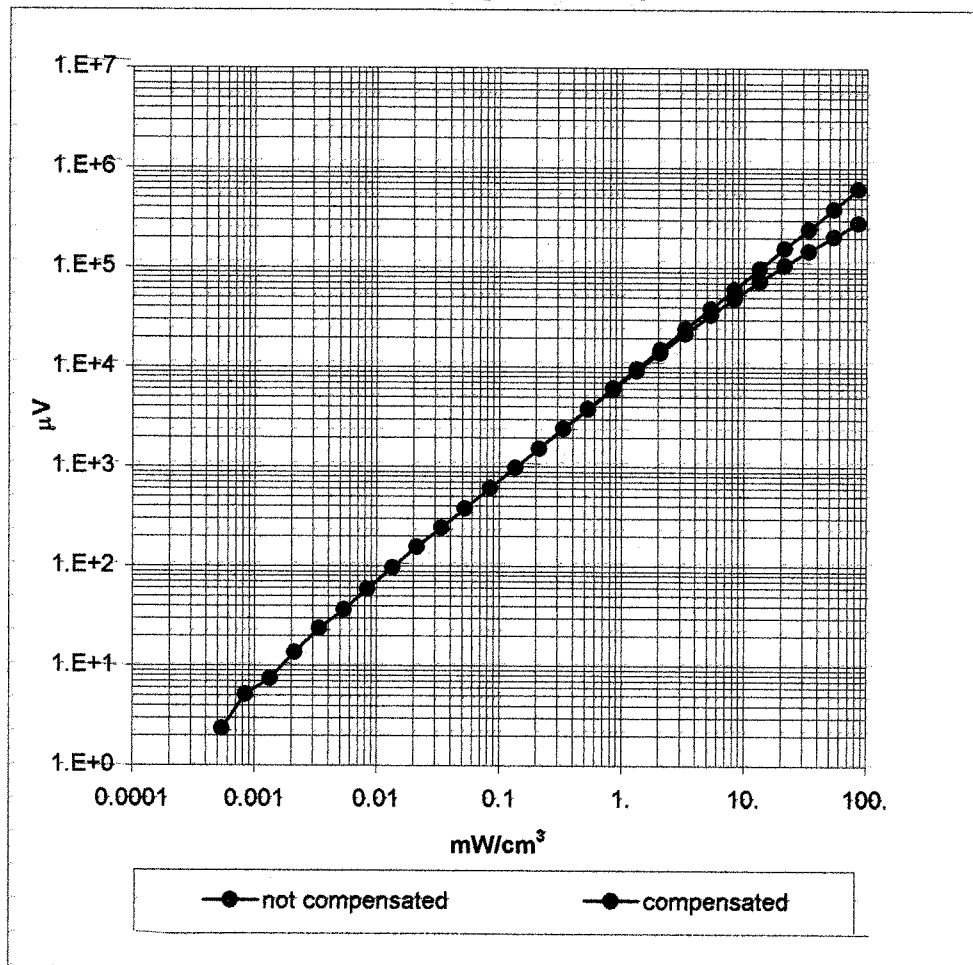


Frequency Response of E-Field

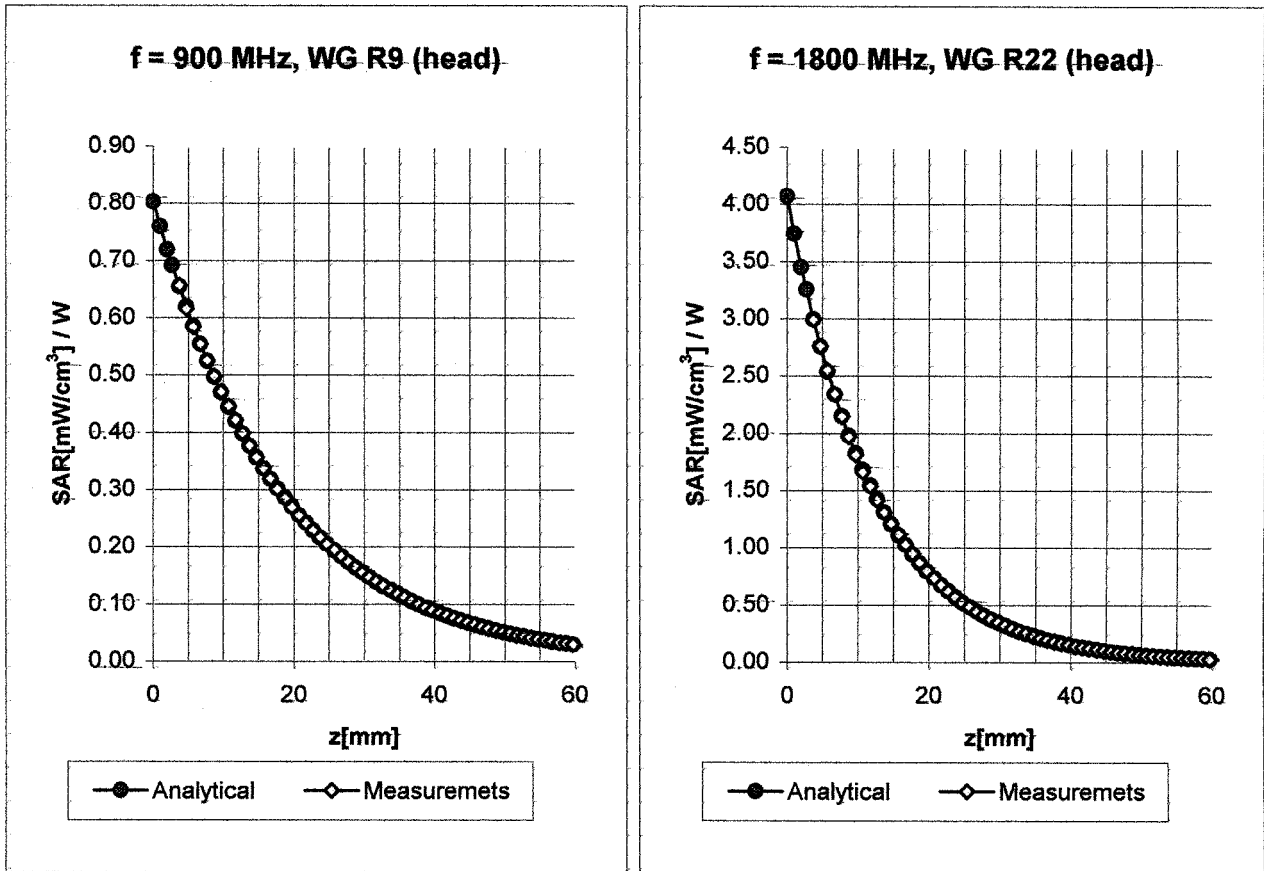
(TEM-Cell:ifi110, Waveguide R22)



Dynamic Range $f(\text{SAR}_{\text{brain}})$ (Waveguide R22)



Conversion Factor Assessment



Head	900 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.97 \pm 5\%$ mho/m
Head	835 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.90 \pm 5\%$ mho/m
	ConvF X	6.8 $\pm 9.5\%$ (k=2)	Boundary effect:
	ConvF Y	6.8 $\pm 9.5\%$ (k=2)	Alpha 0.32
	ConvF Z	6.8 $\pm 9.5\%$ (k=2)	Depth 2.69
Head	1800 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\%$ mho/m
Head	1900 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\%$ mho/m
	ConvF X	5.3 $\pm 9.5\%$ (k=2)	Boundary effect:
	ConvF Y	5.3 $\pm 9.5\%$ (k=2)	Alpha 0.45
	ConvF Z	5.3 $\pm 9.5\%$ (k=2)	Depth 2.37

Deviation from Isotropy in HSL

Error (θ, ϕ), $f = 900$ MHz

