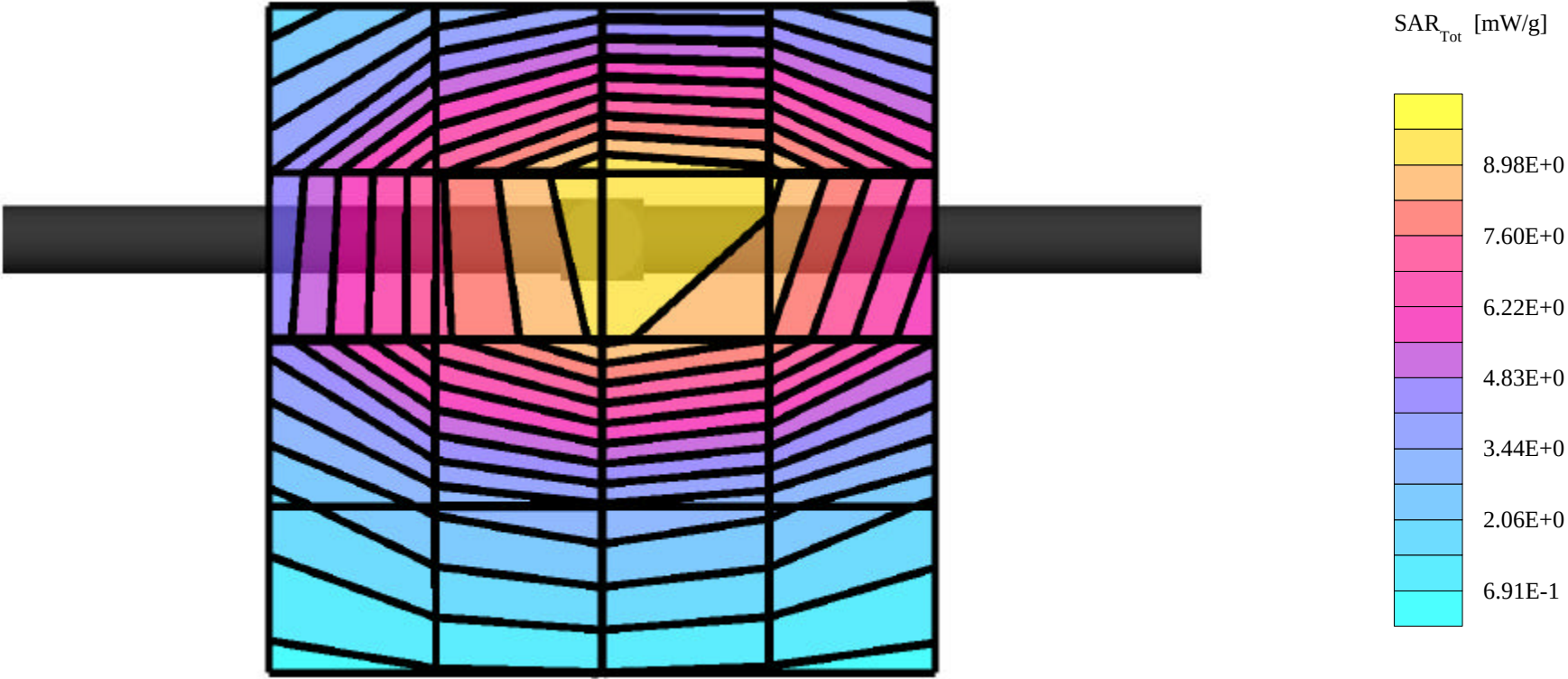


APPENDIX B - DIPOLE VALIDATION

Dipole 1800 MHz

SAM Phantom; Flat Section; Position: (90°,90°)
Probe: ET3DV6 - SN1590; ConvF(5.78,5.78,5.78); Crest factor: 1.0
1800 MHz Brain: $\sigma = 1.40$ mho/m $\epsilon_r = 39.5$ $\rho = 1.00$ g/cm³
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Cube 5x5x7 Powerdrift: 0.01 dB
SAR (1g): 9.62 mW/g, SAR (10g): 4.87 mW/g

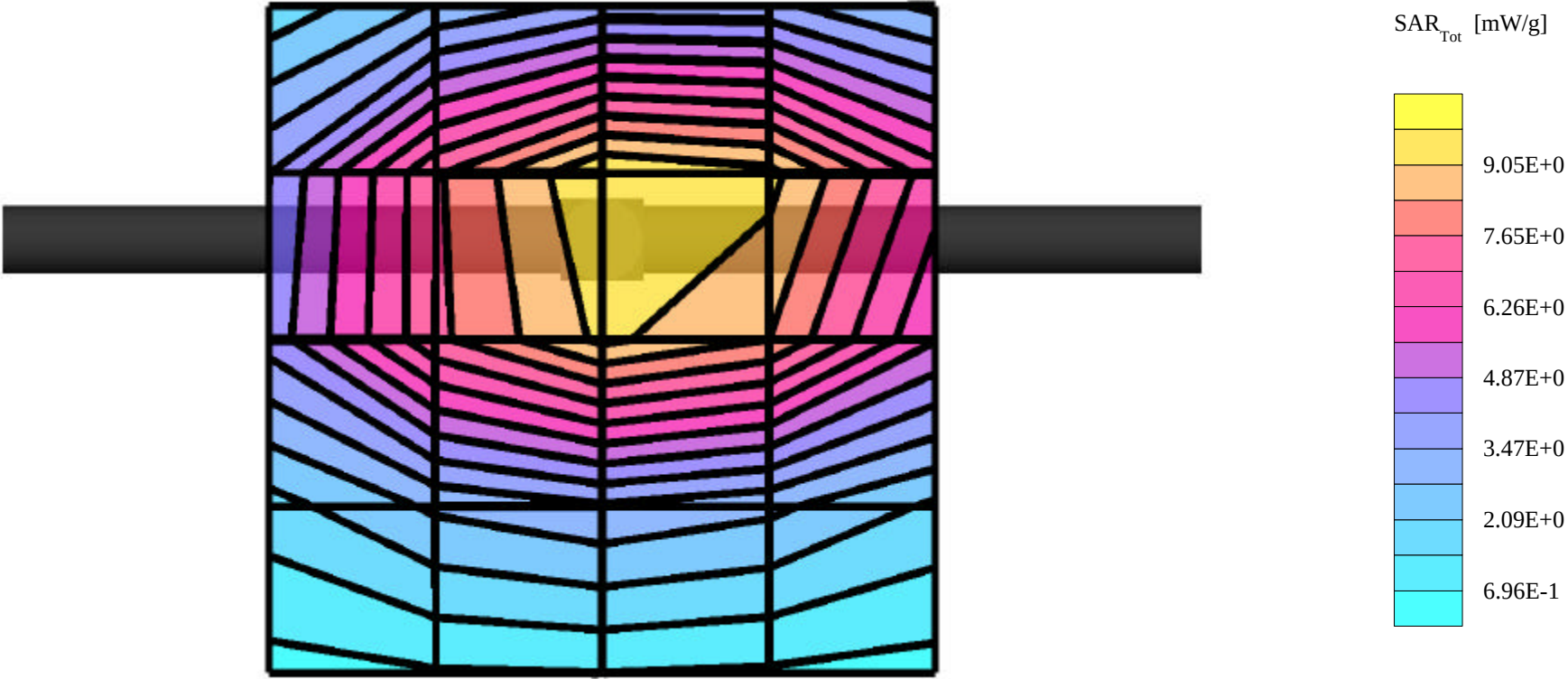
1800MHz Dipole Validation
Validation Date: January 4, 2002
Conducted Power: 250 mW



Dipole 1800 MHz

SAM Phantom; Flat Section; Position: (90°,90°)
Probe: ET3DV6 - SN1590; ConvF(5.78,5.78,5.78); Crest factor: 1.0
1800 MHz Brain: $\sigma = 1.40$ mho/m $\epsilon_r = 39.4$ $\rho = 1.00$ g/cm³
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Cube 5x5x7 Powerdrift: 0.03 dB
SAR (1g): 9.69 mW/g, SAR (10g): 4.90 mW/g

1800MHz Dipole Validation
Validation Date: January 7, 2002
Conducted Power: 250 mW



Validation Dipole D1800V2 SN:247, d = 10 mm

Frequency: 1800 MHz; Antenna Input Power: 250 [mW]

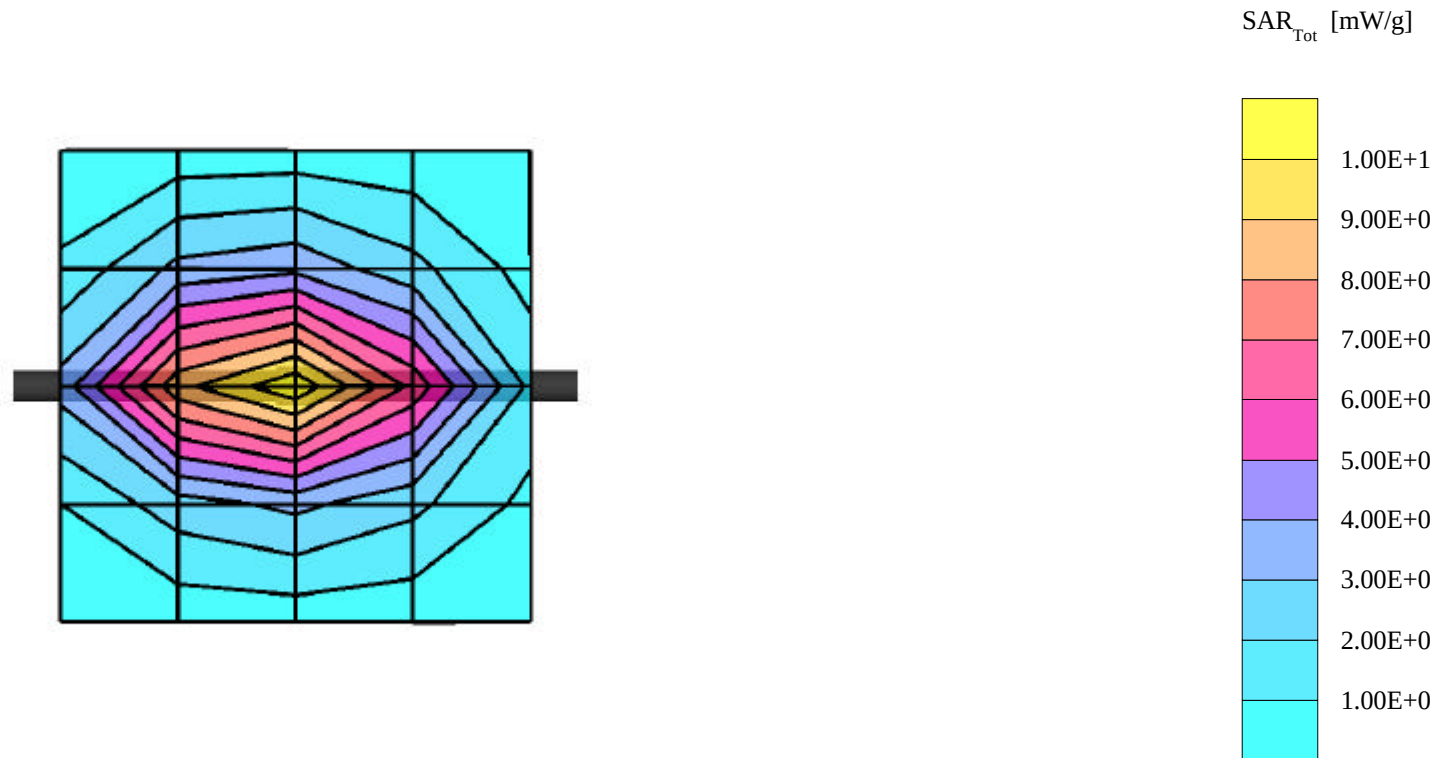
Generic Twin Phantom; Flat Section; Grid Spacing: Dx = 15.0, Dy = 15.0, Dz = 10.0

Probe: ET3DV6 - SN1507; ConvF(5.57,5.57,5.57); Crest factor: 1.0; IEEE1528 1800 MHz : $\sigma = 1.36$ mho/m $\epsilon_r = 40.0$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 18.2 mW/g ± 0.04 dB, SAR (1g): 9.66 mW/g ± 0.03 dB, SAR (10g): 5.02 mW/g ± 0.03 dB, (Worst-case extrapolation)

Penetration depth: 8.2 (7.6, 9.4) [mm]

Powerdrift: -0.01 dB



APPENDIX C - PROBE CALIBRATION

Probe ET3DV6

SN:1590

Manufactured:	March 19, 2001
Calibrated:	March 26, 2001

Calibrated for System DASY3

DASY3 - Parameters of Probe: ET3DV6 SN:1590

Sensitivity in Free Space

NormX	1.77 $\mu\text{V}/(\text{V}/\text{m})^2$
NormY	1.91 $\mu\text{V}/(\text{V}/\text{m})^2$
NormZ	1.67 $\mu\text{V}/(\text{V}/\text{m})^2$

Diode Compression

DCP X	100 mV
DCP Y	100 mV
DCP Z	100 mV

Sensitivity in Tissue Simulating Liquid

Head **450 MHz** $\epsilon_r = 43.5 \pm 5\%$ $s = 0.87 \pm 10\% \text{ mho/m}$

ConvF X	7.36 extrapolated	Boundary effect:	
ConvF Y	7.36 extrapolated	Alpha	0.29
ConvF Z	7.36 extrapolated	Depth	2.72

Head **900 MHz** $\epsilon_r = 42 \pm 5\%$ $s = 0.97 \pm 10\% \text{ mho/m}$

ConvF X	6.83 $\pm 7\%$ (k=2)	Boundary effect:	
ConvF Y	6.83 $\pm 7\%$ (k=2)	Alpha	0.37
ConvF Z	6.83 $\pm 7\%$ (k=2)	Depth	2.48

Head **1500 MHz** $\epsilon_r = 40.4 \pm 5\%$ $s = 1.23 \pm 10\% \text{ mho/m}$

ConvF X	6.13 interpolated	Boundary effect:	
ConvF Y	6.13 interpolated	Alpha	0.47
ConvF Z	6.13 interpolated	Depth	2.17

Head **1800 MHz** $\epsilon_r = 40 \pm 5\%$ $s = 1.40 \pm 10\% \text{ mho/m}$

ConvF X	5.78 $\pm 7\%$ (k=2)	Boundary effect:	
ConvF Y	5.78 $\pm 7\%$ (k=2)	Alpha	0.53
ConvF Z	5.78 $\pm 7\%$ (k=2)	Depth	2.01

Sensor Offset

Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	1.2 $\pm$ 0.2	mm

ET3DV6 SN:1590

DASY3 - Parameters of Probe: ET3DV6 SN: 1590

Body **450 MHz** $\epsilon_r = 56.7 \pm 5\%$ $\sigma = 0.94 \pm 10\% \text{ mho/m}$

ConvF X **7.23** extrapolated

ConvF Y **7.23** extrapolated

ConvF Z **7.23** extrapolated

Body **900 MHz** $\epsilon_r = 55.0 \pm 5\%$ $\sigma = 1.05 \pm 10\% \text{ mho/m}$

ConvF X **6.61** $\pm 7\%$ (k=2)

ConvF Y **6.61** $\pm 7\%$ (k=2)

ConvF Z **6.61** $\pm 7\%$ (k=2)

Body **1500 MHz** $\epsilon_r = 54.0 \pm 5\%$ $\sigma = 1.30 \pm 10\% \text{ mho/m}$

ConvF X **5.78** interpolated

ConvF Y **5.78** interpolated

ConvF Z **5.78** interpolated

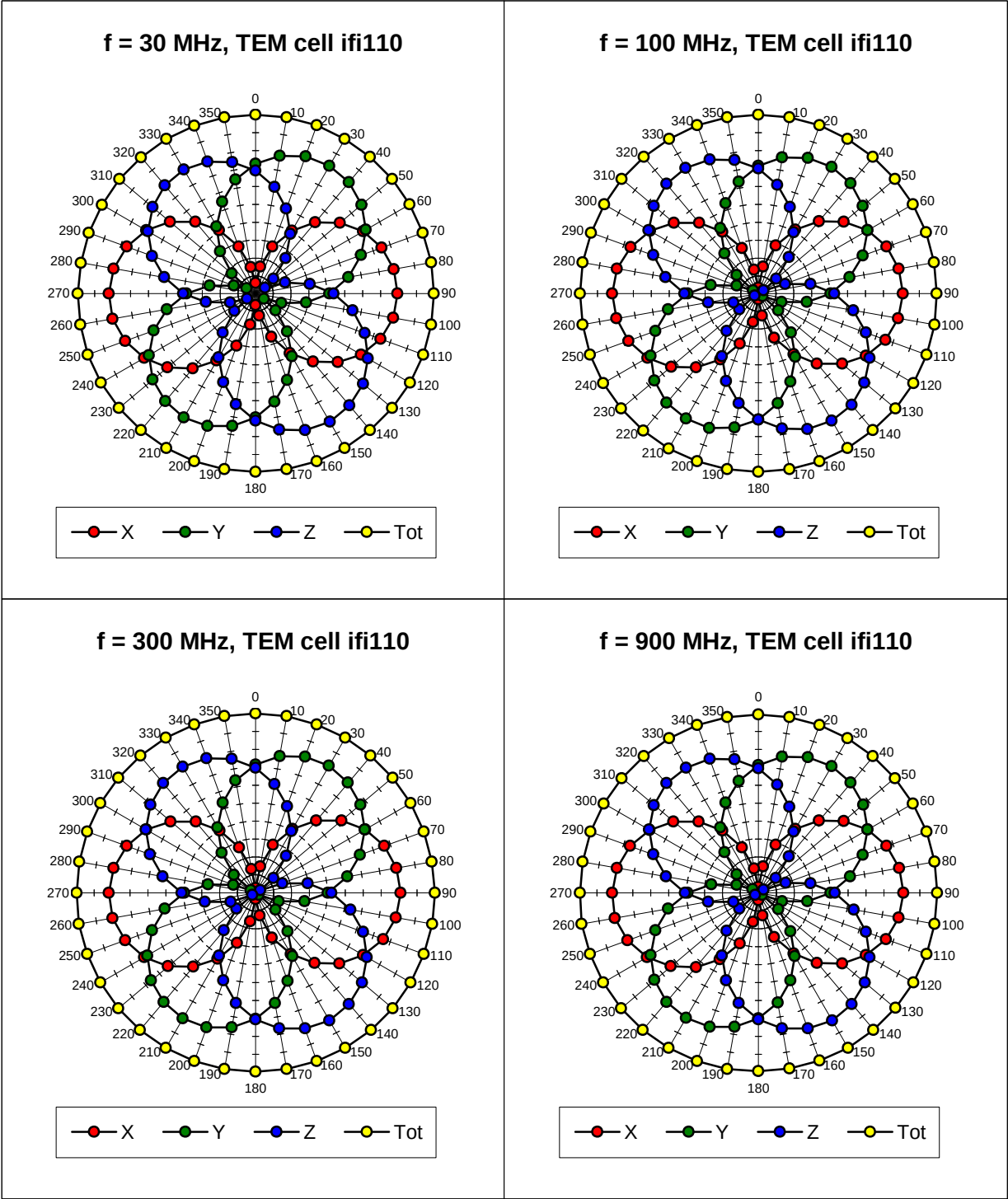
Body **1800 MHz** $\epsilon_r = 53.3 \pm 5\%$ $\sigma = 1.52 \pm 10\% \text{ mho/m}$

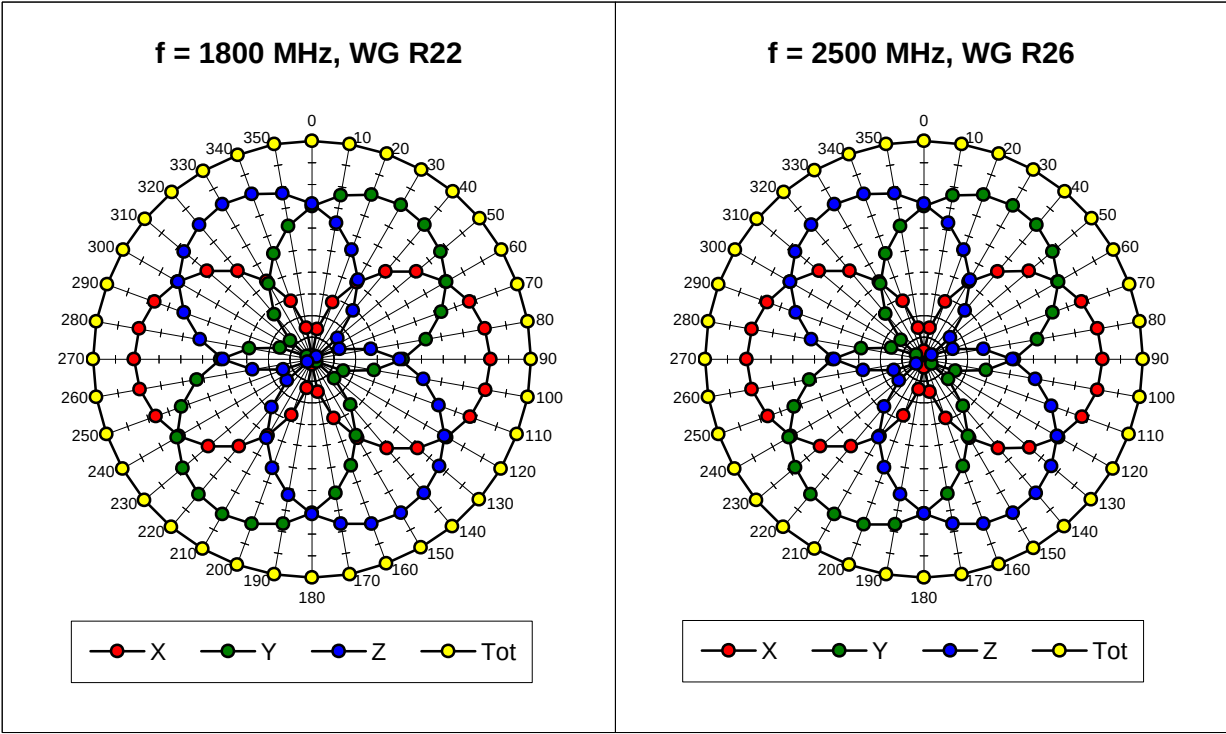
ConvF X **5.36** $\pm 7\%$ (k=2)

ConvF Y **5.36** $\pm 7\%$ (k=2)

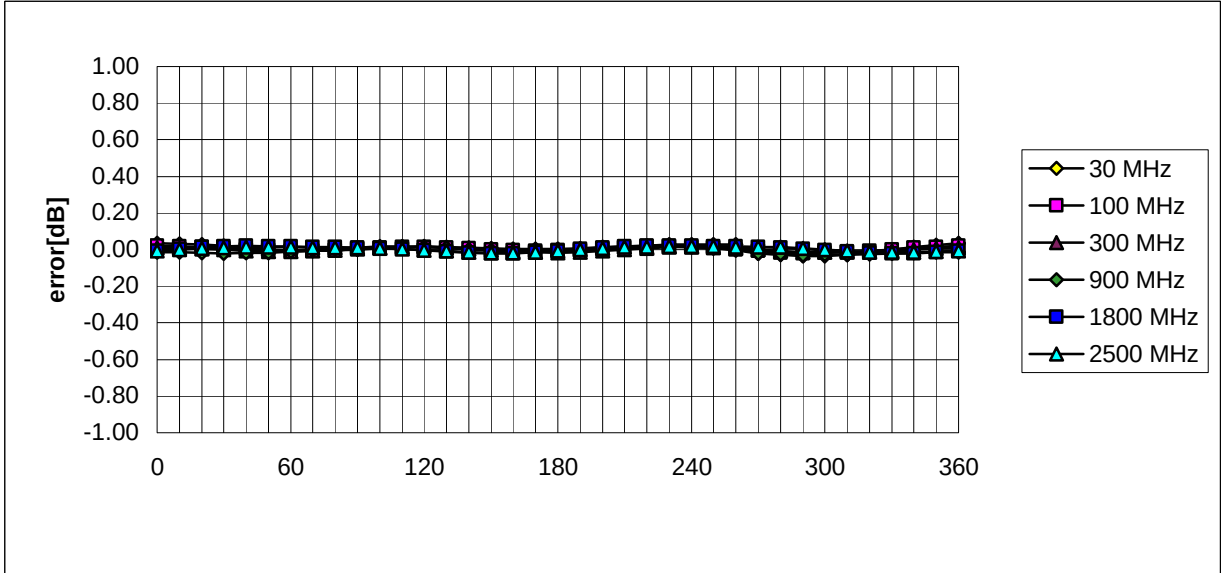
ConvF Z **5.36** $\pm 7\%$ (k=2)

Receiving Pattern (f) , q = 0°



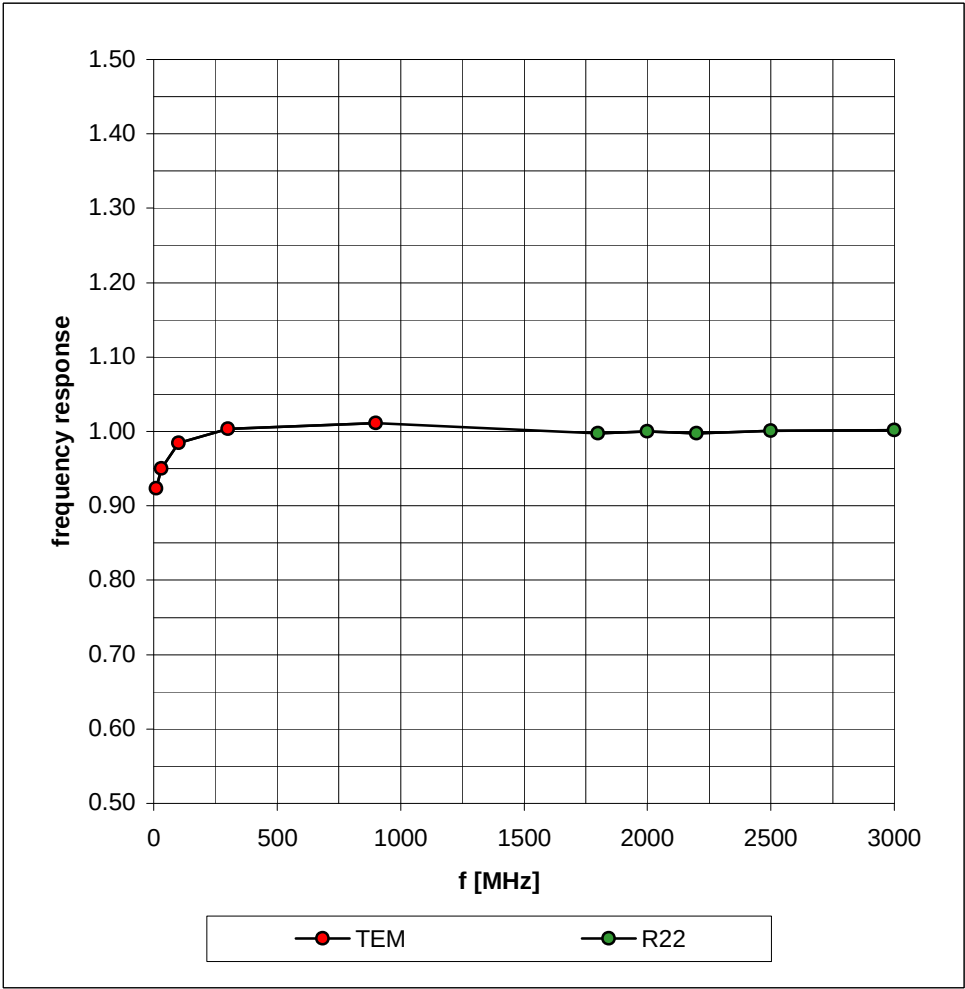


Isotropy Error (f), q = 0°

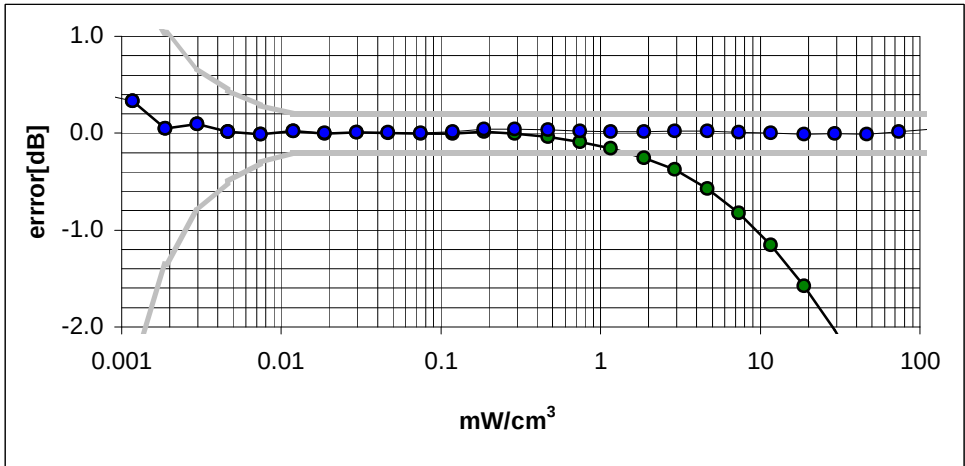
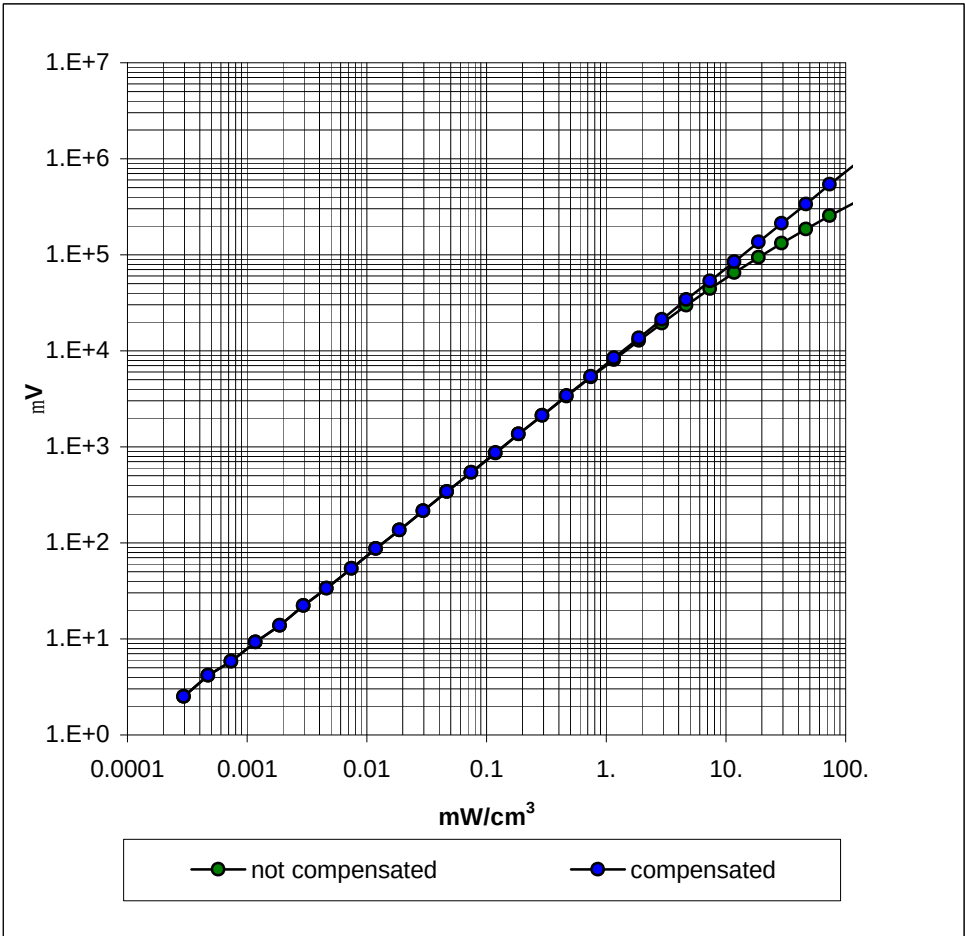


Frequency Response of E-Field

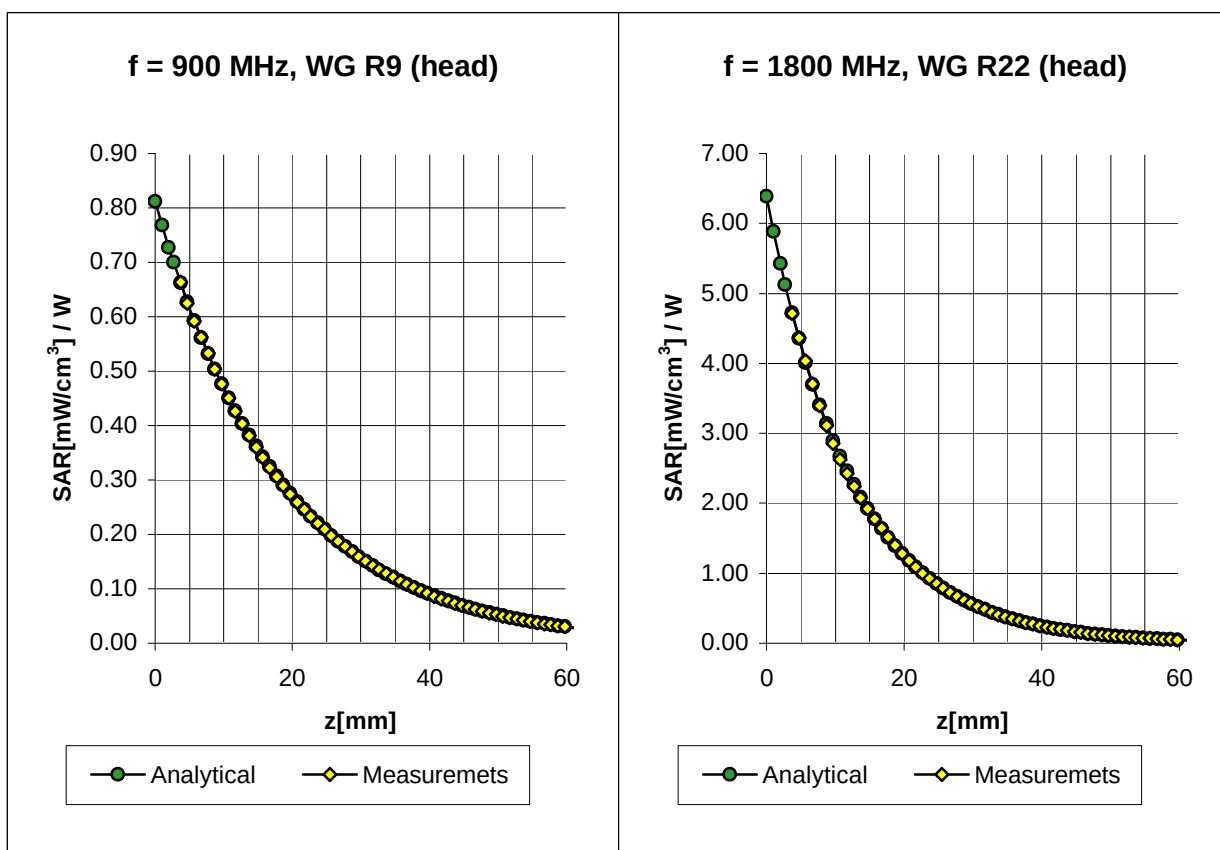
(TEM-Cell:ifi110, Waveguide R22)



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



Conversion Factor Assessment



ET3DV6 SN:1590

Deviation from Isotropy in HSL

Error (q, f), $f = 900 \text{ MHz}$

