

APPENDIX A – SAR TEST PLOTS

12/26/01

GMRS-1500XTM

SAM TP1019 Phantom; Flat Section; Position: (90°,90°); Frequency: 450 MHz

Probe: ET3DV6 - SN1608; ConvF(7.13,7.13,7.13); Crest factor: 1.0; Brain 450 MHz: $\sigma = 0.84$ mho/m $\epsilon_r = 45.2$ $\rho = 1.00$ g/cm³

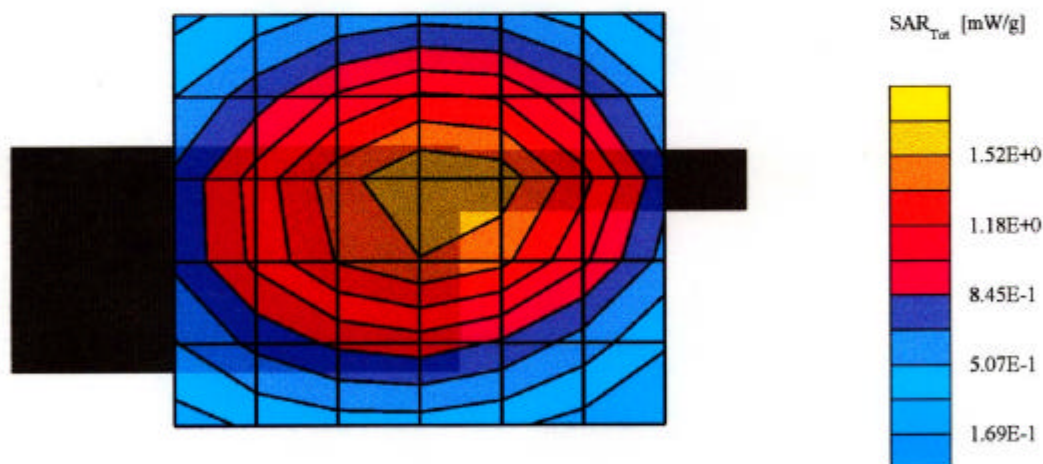
Cube 5x5x7: SAR (1g): 1.62 mW/g, SAR (10g): 1.16 mW/g, (Worst-case extrapolation)

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.20 dB

Comment : Face- Held

Channel: 1 (462.5625MHz)



HYUNDAI C-Tech Co., Ltd.

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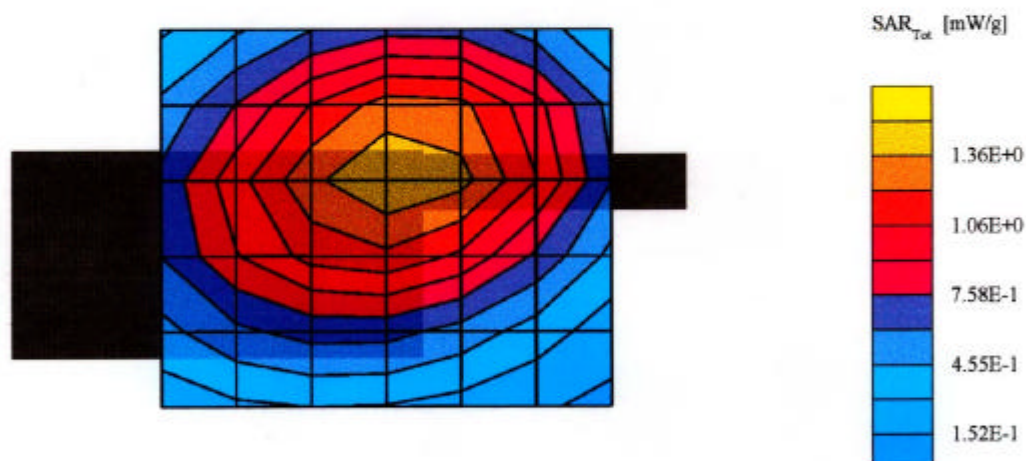
Cube 5x5x7: SAR (1g): 1.43 mW/g, SAR (10g): 1.02 mW/g, (Worst-case extrapolation)

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.29 dB

Comment : Face- Held

Channel: 10 (462.6750MHz)



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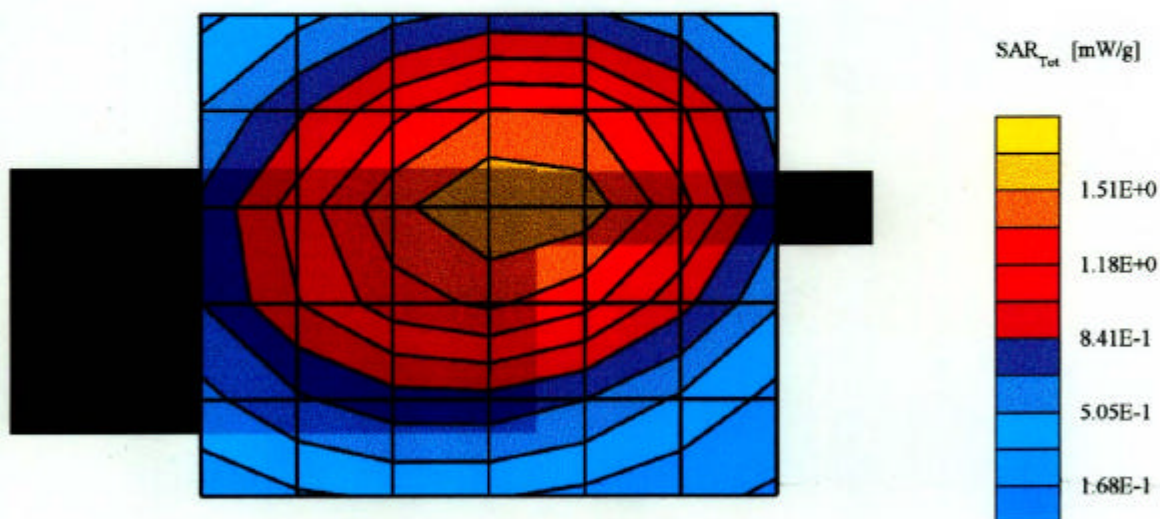
Cube 5x5x7; SAR (1g): 1.61 mW/g, SAR (10g): 1.16 mW/g, (Worst-case extrapolation)

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.17 dB

Comment : Face- Held

Channel: 15 (462.7250MHz)



HYUNDAI C-Tech Co., Ltd.

01/02/02

GMRS-1500XTM

SAM TP1019 Phantom; Flat Section; Position: (90°,90°); Frequency: 450 MHz

Probe: ET3DV6 - SN1608; ConvF(7.13,7.13,7.13); Crest factor: 1.0; Muscle 450 MHz: $\sigma = 0.90$ mho/m $\epsilon_r = 58.5$ $\rho = 1.00$ g/cm³

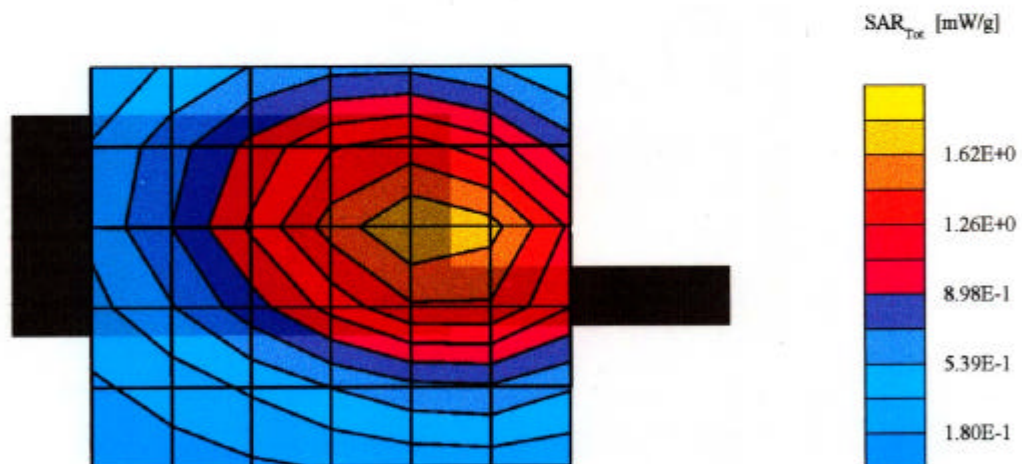
Cube 5x5x7: SAR (1g): 1.71 mW/g, SAR (10g): 1.23 mW/g, (Worst-case extrapolation)

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.18 dB

Comment : Body- Worn

Channel: 1 (462.5625MHz)



HYUNDAI C-Tech Co., Ltd.

01/02/02

GMRS-1500XTM

SAM TP1019 Phantom; Flat Section; Position: (90°, 90°); Frequency: 450 MHz

Probe: ET3DV6 - SN1608; ConvF(7.13, 7.13, 7.13); Crest factor: 1.0; Muscle 450 MHz: $\sigma = 0.90$ mho/m $\epsilon_r = 58.5$ $\rho = 1.00$ g/cm³

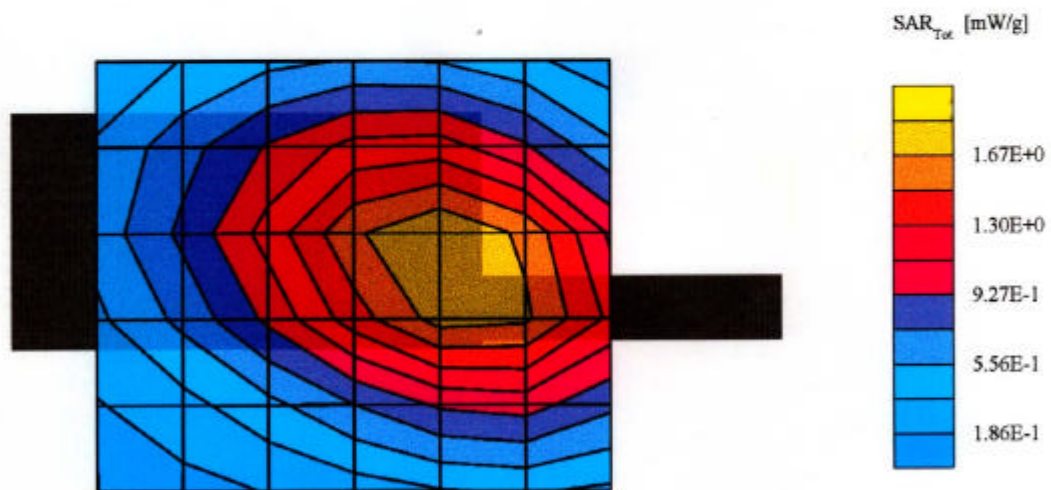
Cube 5x5x7: SAR (1g): 1.81 mW/g, SAR (10g): 1.29 mW/g, (Worst-case extrapolation)

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.16 dB

Comment : Body- Worn

Channel: 10 (462.6750MHz)



HYUNDAI C-Tech Co., Ltd.

01/02/02

GMRS-1500XTM

SAM TP1019 Phantom; Flat Section; Position: (90°, 90°); Frequency: 450 MHz

Probe: ET3DV6 - SN1608; ConvF(7.13, 7.13, 7.13); Crest factor: 1.0; Muscle 450 MHz: $\sigma = 0.90$ mho/m $\epsilon_r = 58.5$ $\rho = 1.00$ g/cm³

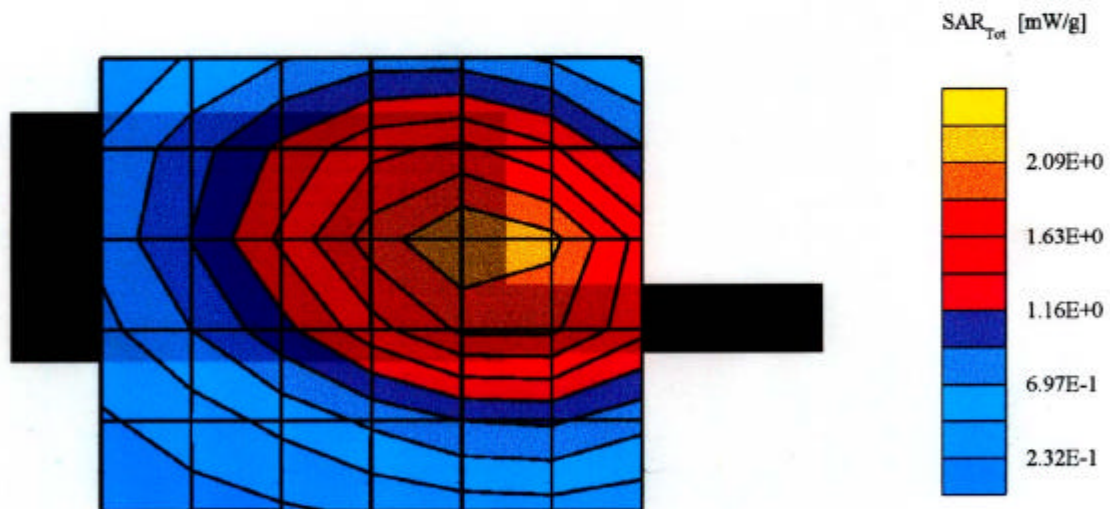
Cube 5x5x7: SAR (1g): 2.18 mW/g, SAR (10g): 1.57 mW/g, (Worst-case extrapolation)

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.26 dB

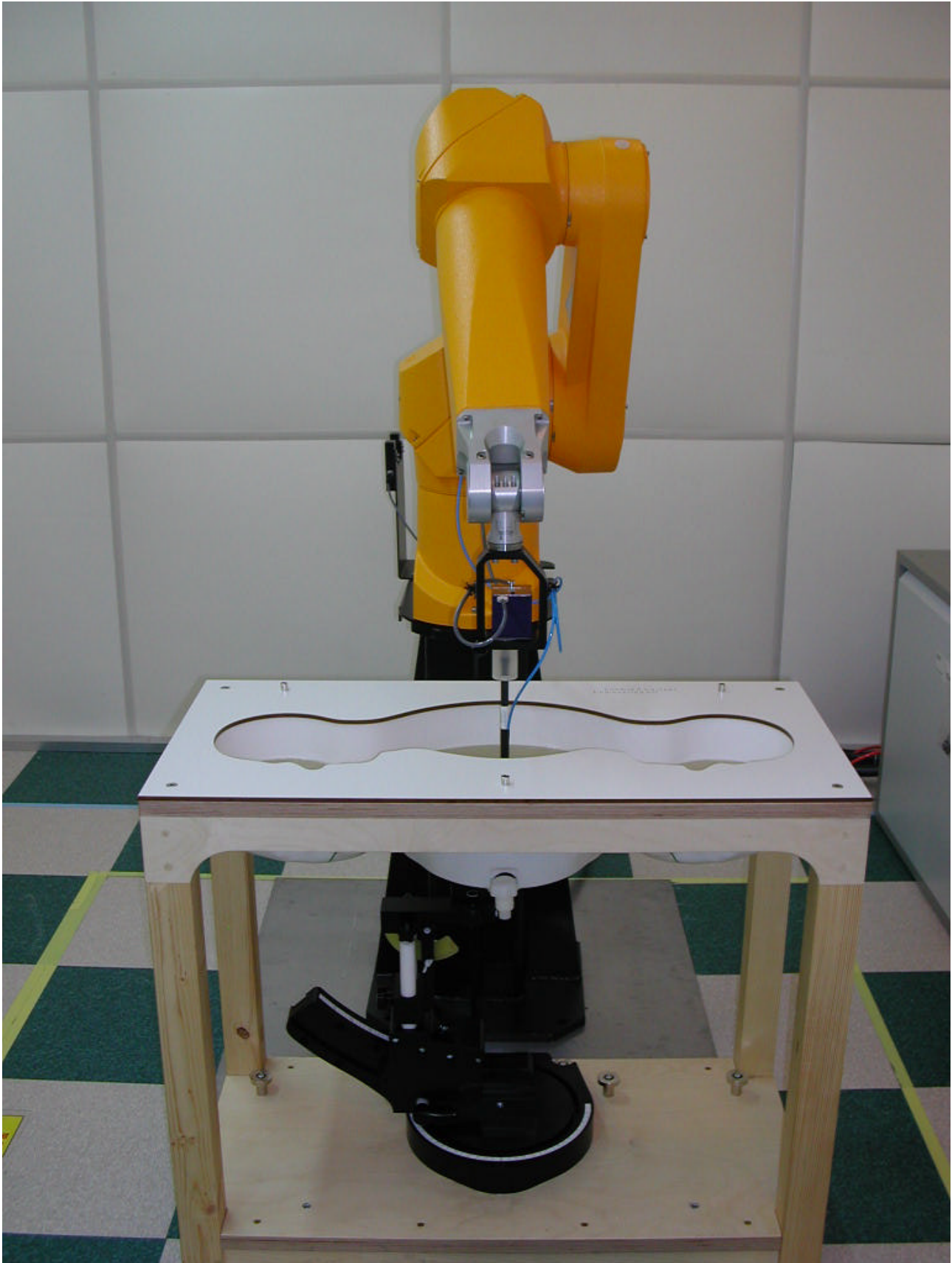
Comment : Body- Worn

Channel: 15 (462.7250MHz)

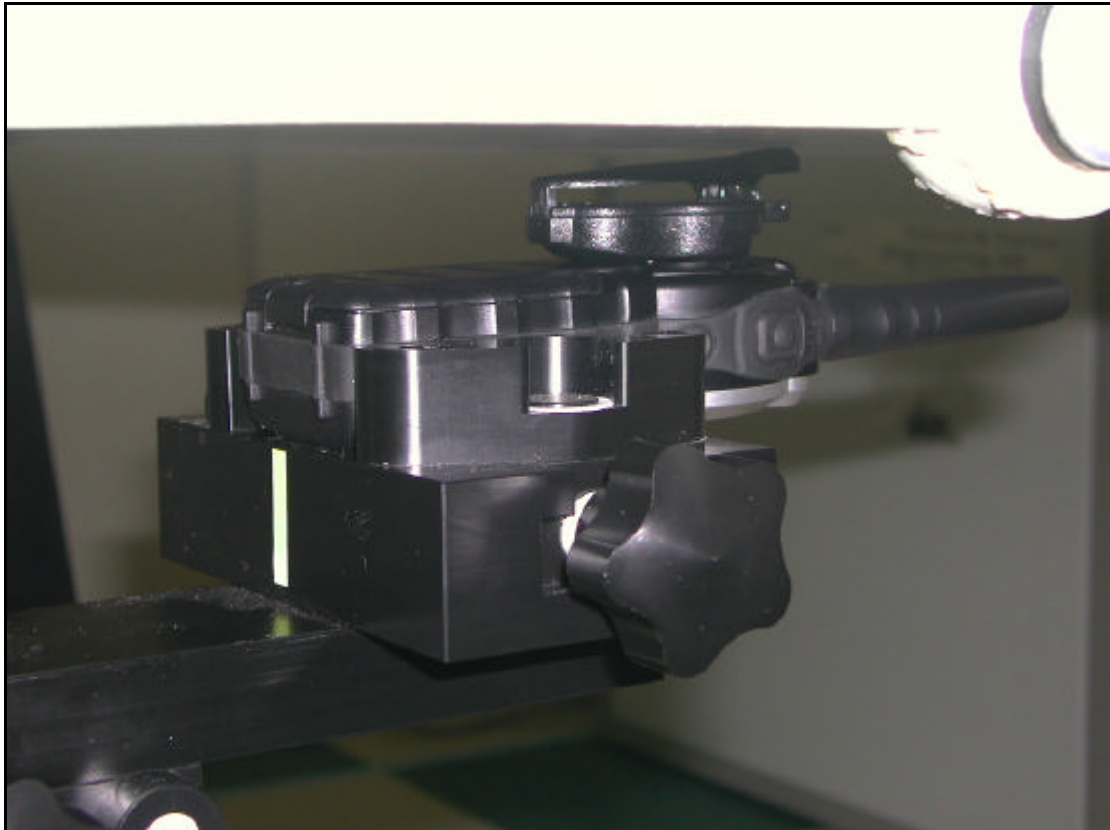
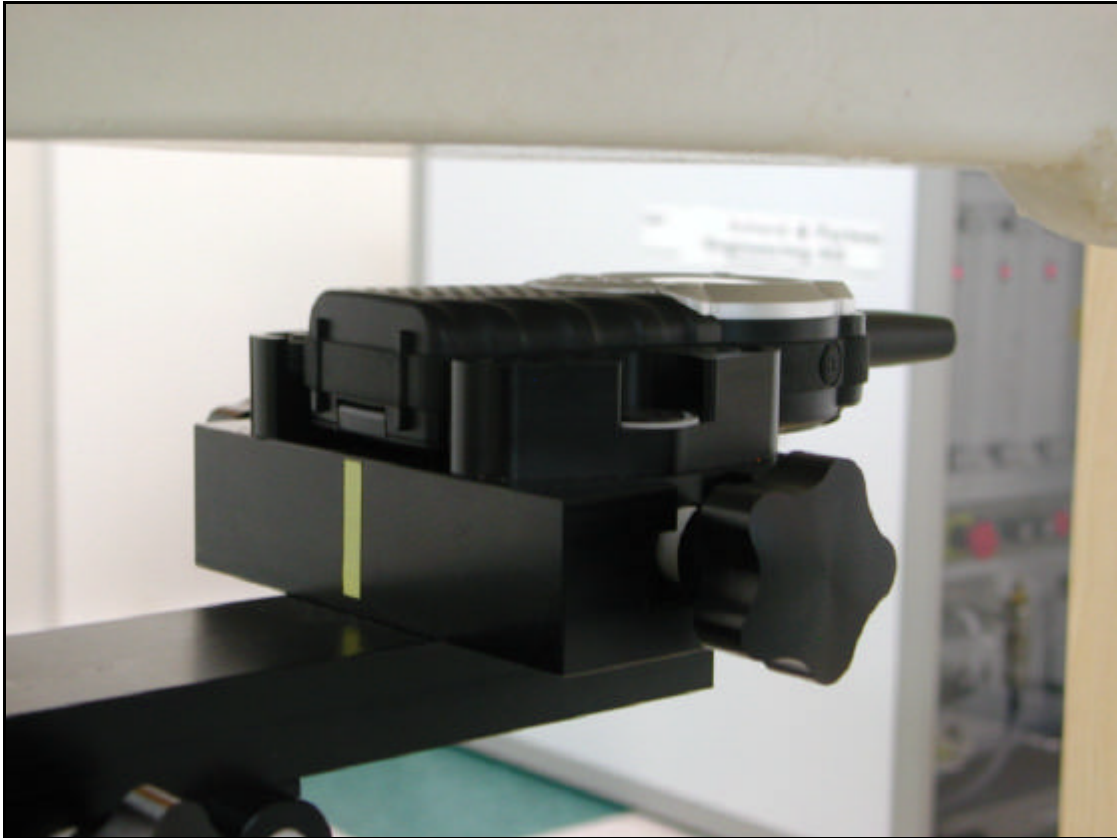


HYUNDAI C-Tech Co., Ltd.

APPENDIX B – EUT TEST SETUP PHOTOGRAPHS







APPENDIX C – EUT PROFILE PHOTOGRAPHS





APPENDIX D – DIPOLE VALIDATION PLOTS

Dipole 835 MHz

SAM TP1019; Flat

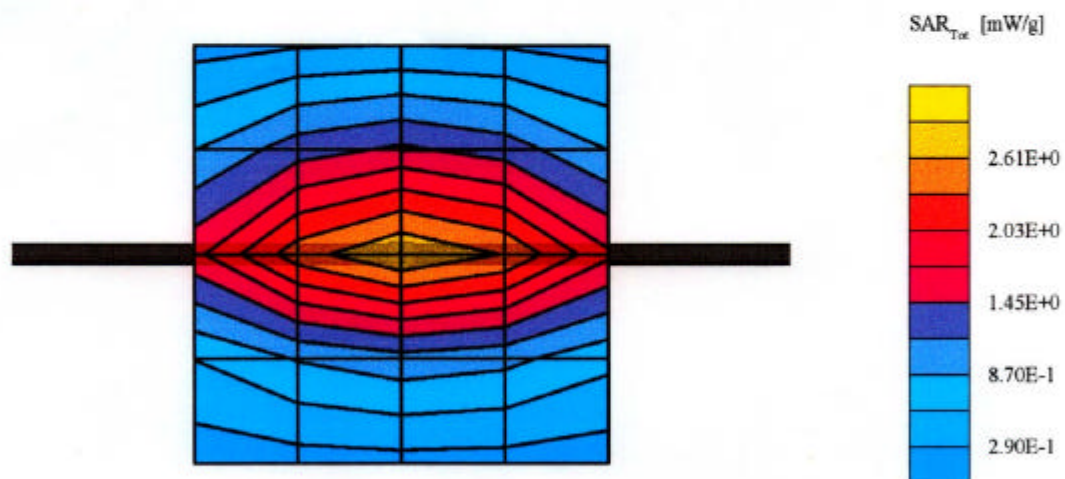
Probe: ET3DV6 - SN1608; ConvF(6.62,6.62,6.62); Crest factor: 1.0; Head 835 MHz: $\sigma = 0.88 \text{ mho/m}$, $\epsilon_r = 40.0$, $\rho = 1.00 \text{ g/cm}^3$
Cubes (2): Peak: $4.44 \text{ mW/g} \pm 0.03 \text{ dB}$, SAR (1g): $2.76 \text{ mW/g} \pm 0.02 \text{ dB}$, SAR (10g): $1.75 \text{ mW/g} \pm 0.01 \text{ dB}$, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.5) [mm]

Powerdrift: 0.01 dB

Peak: $4.44 \text{ mW/g} \pm 0.03 \text{ dB}$

Comment :



Hyundai C-Tech Co.,Ltd.

APPENDIX E – PROBE CALIBRATION DATA

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:

1608

Place of Calibration:

Zurich

Date of Calibration:

August 10, 2001

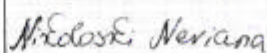
Calibration Interval:

12 months

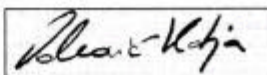
Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

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:



**Schmid & Partner
Engineering AG**

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

Probe ET3DV6

SN:1608

Manufactured:	July 27, 2001
Calibrated:	August 10, 2001

Calibrated for System DASY3

ET3DV6 SN:1608

DASY3 - Parameters of Probe: ET3DV6 SN:1608

Sensitivity in Free Space

NormX	1.70 $\mu\text{V}/(\text{V}/\text{m})^2$
NormY	1.51 $\mu\text{V}/(\text{V}/\text{m})^2$
NormZ	1.79 $\mu\text{V}/(\text{V}/\text{m})^2$

Diode Compression

DCP X	97 mV
DCP Y	97 mV
DCP Z	97 mV

Sensitivity in Tissue Simulating Liquid

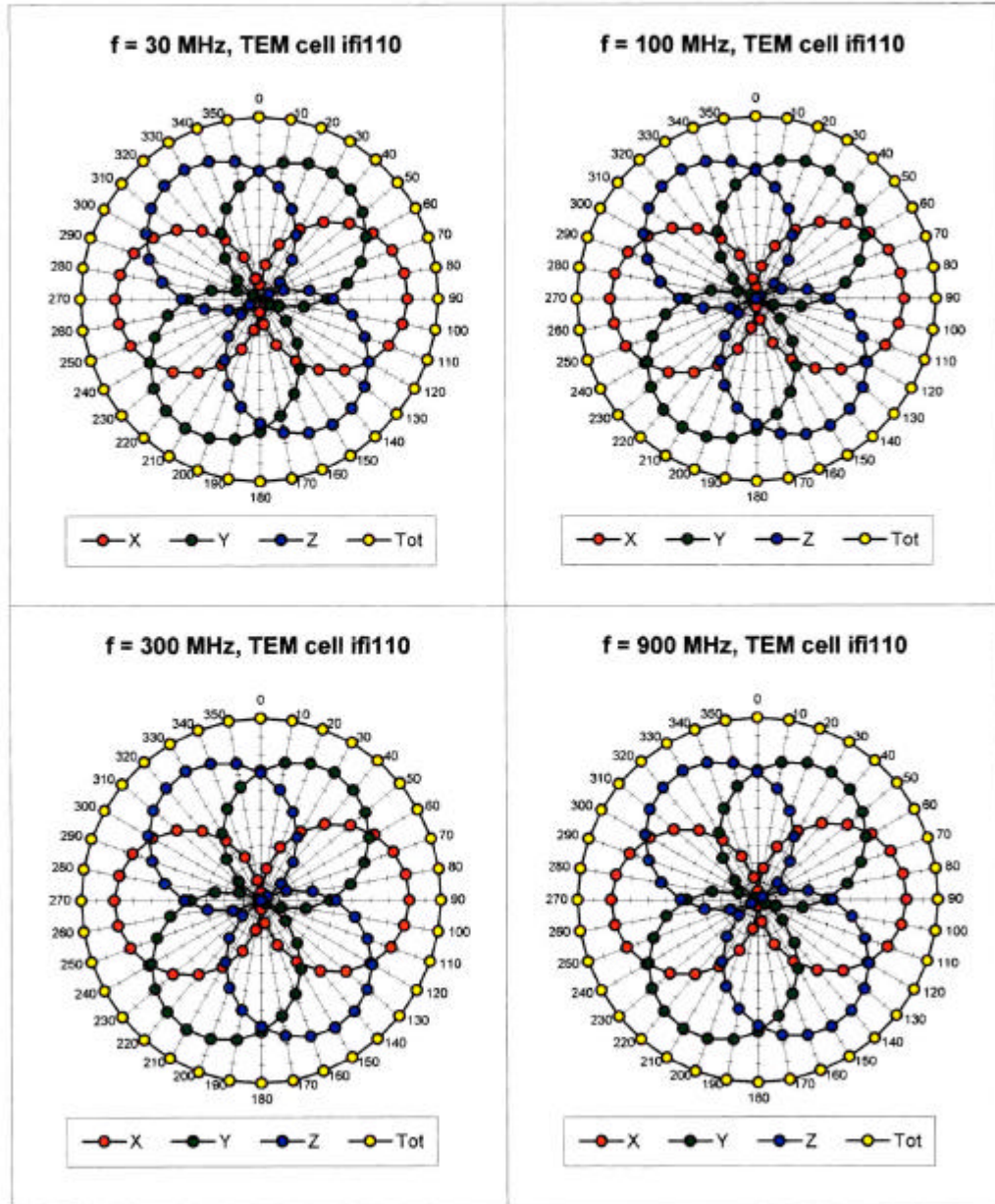
Head	450 MHz	$\epsilon_r = 43.5 \pm 5\%$	$\sigma = 0.87 \pm 10\%$ mho/m
ConvF X	7.13 extrapolated	Boundary effect:	
ConvF Y	7.13 extrapolated	Alpha	0.21
ConvF Z	7.13 extrapolated	Depth	3.07
Head	900 MHz	$\epsilon_r = 42 \pm 5\%$	$\sigma = 0.97 \pm 10\%$ mho/m
ConvF X	6.62 $\pm 7\%$ (k=2)	Boundary effect:	
ConvF Y	6.62 $\pm 7\%$ (k=2)	Alpha	0.29
ConvF Z	6.62 $\pm 7\%$ (k=2)	Depth	2.81
Head	1500 MHz	$\epsilon_r = 40.4 \pm 5\%$	$\sigma = 1.23 \pm 10\%$ mho/m
ConvF X	5.94 interpolated	Boundary effect:	
ConvF Y	5.94 interpolated	Alpha	0.41
ConvF Z	5.94 interpolated	Depth	2.46
Head	1800 MHz	$\epsilon_r = 40 \pm 5\%$	$\sigma = 1.40 \pm 10\%$ mho/m
ConvF X	5.60 $\pm 7\%$ (k=2)	Boundary effect:	
ConvF Y	5.60 $\pm 7\%$ (k=2)	Alpha	0.46
ConvF Z	5.60 $\pm 7\%$ (k=2)	Depth	2.29

Sensor Offset

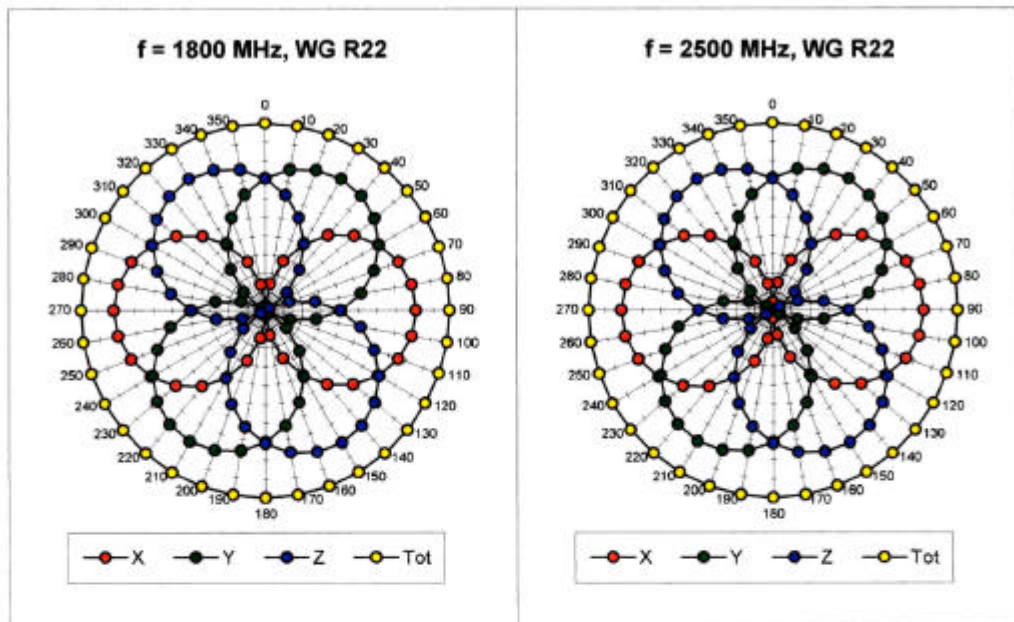
Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	1.4 $\pm$ 0.2	mm

ET3DV6 SN:1608

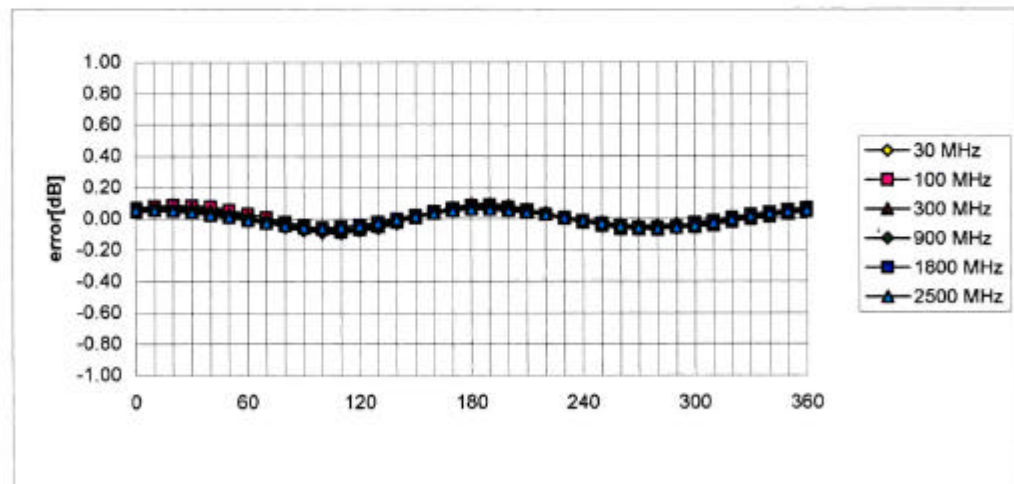
Receiving Pattern (ϕ), $\theta = 0^\circ$



ET3DV6 SN:1608



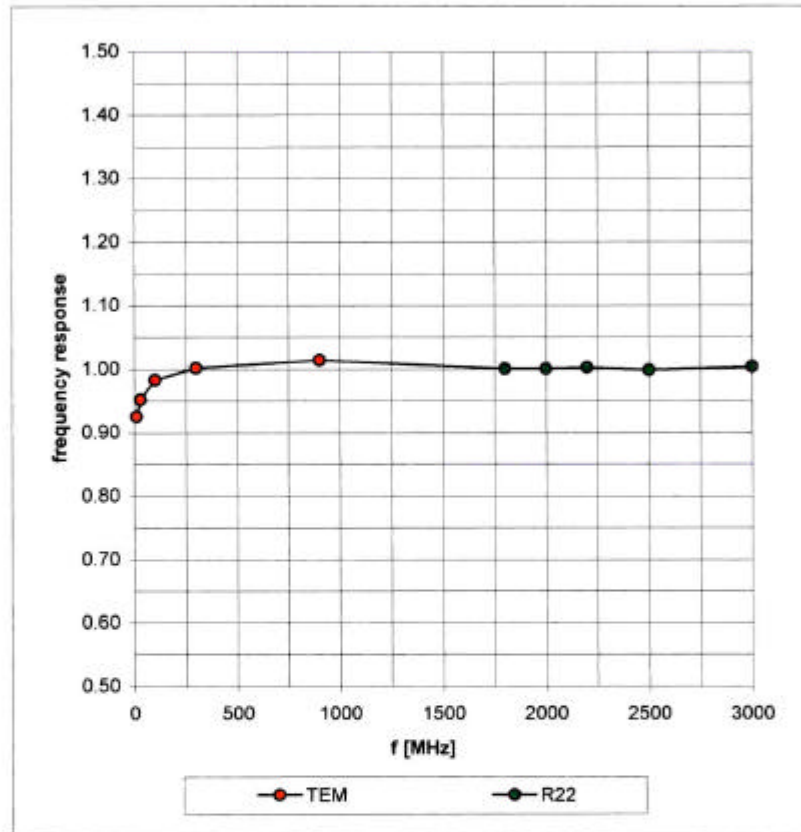
Isotropy Error (ϕ), $\theta = 0^\circ$



ET3DV6 SN:1608

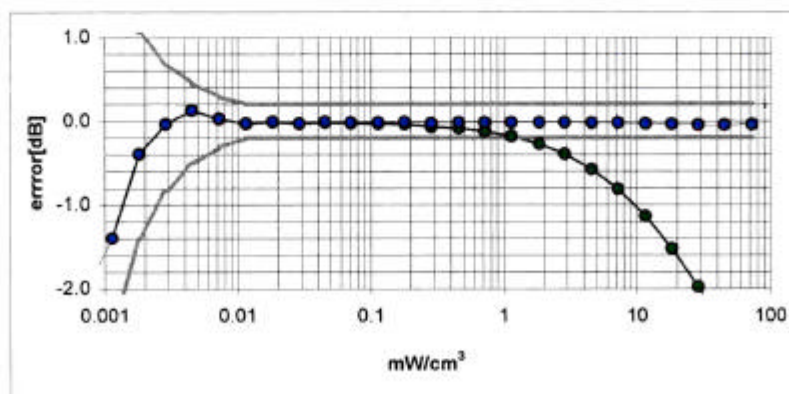
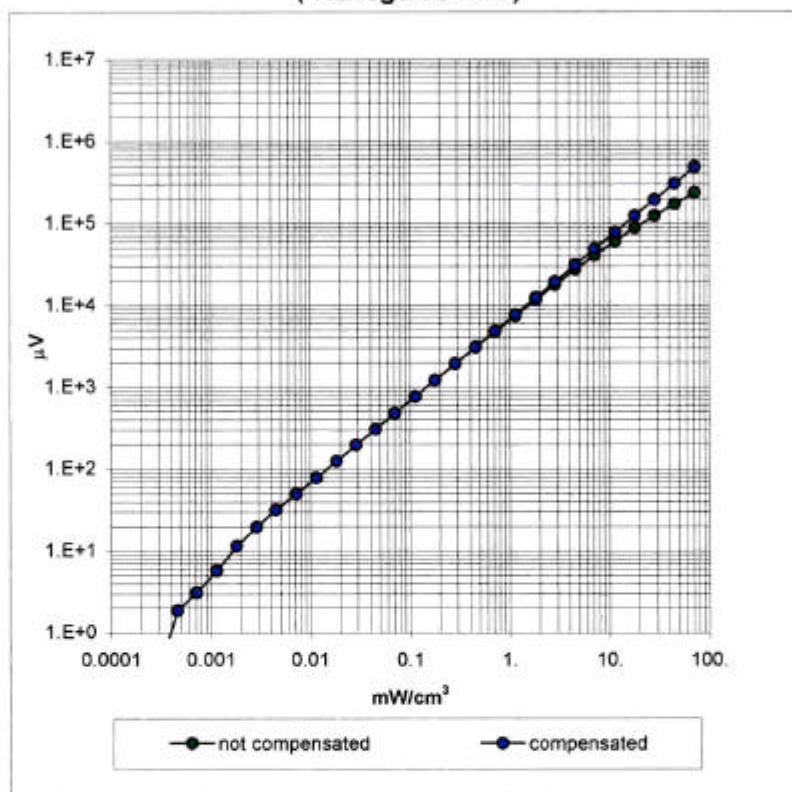
Frequency Response of E-Field

(TEM-Cell:ifi110, Waveguide R22)



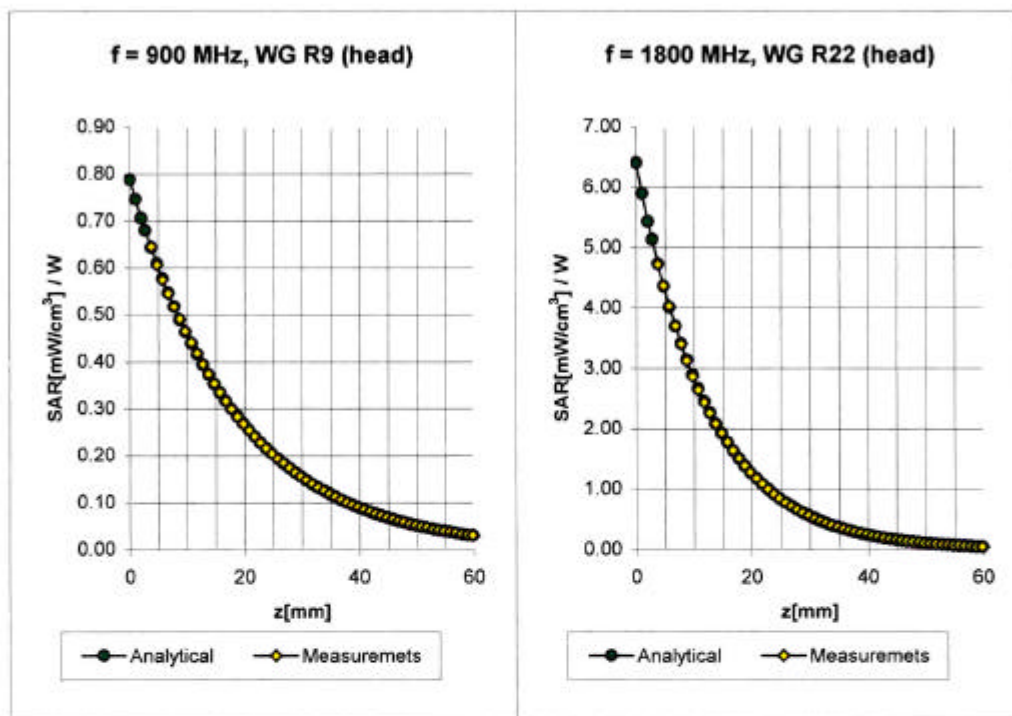
ET3DV6 SN:1608

Dynamic Range f(SAR_{brain}) (Waveguide R22)



ET3DV6 SN:1608

Conversion Factor Assessment



Head	900 MHz	$\epsilon_r = 42 \pm 5\%$	$\sigma = 0.97 \pm 10\% \text{ mho/m}$
ConvF X	6.62 $\pm 7\%$ (k=2)	Boundary effect:	
ConvF Y	6.62 $\pm 7\%$ (k=2)	Alpha	0.29
ConvF Z	6.62 $\pm 7\%$ (k=2)	Depth	2.81
Head	1800 MHz	$\epsilon_r = 40 \pm 5\%$	$\sigma = 1.40 \pm 10\% \text{ mho/m}$
ConvF X	5.60 $\pm 7\%$ (k=2)	Boundary effect:	
ConvF Y	5.60 $\pm 7\%$ (k=2)	Alpha	0.46
ConvF Z	5.60 $\pm 7\%$ (k=2)	Depth	2.29

ET3DV6 SN:1608

Deviation from Isotropy in HSL

Error (θ, ϕ), $f = 900$ MHz
