



February 5, 2002

Supplement to SAR Test Report for Motorola portable cellular phone (FCC ID IHDT56BJ1).

Motorola Personal Communications Sector Product Safety Laboratory
Libertyville, Illinois

1. Summary of FCC request for additional information

There was a request for additional information regarding Motorola's SAR Test Report for Motorola portable cellular phone (FCC ID IHDT56BJ1) dated February 5, 2002. The requested information may be summarized as follows:

1. Please submit old and new cal. certificates for probe SN 1501

Appendix 1

Probe Calibration Certificate

Schmid & Partner Engineering AG

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

Calibration Certificate

Dosimetric E-Field Probe

Type:

ET30V4

Serial Number:

1501

Place of Calibration:

Zurich

Date of Calibration:

October 25, 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:

M. Slosser-Morvan

Approved by:

Volker Klotz

Engineering AG

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

Probe ET3DV6

SN:1501

Manufactured:	October 24, 1999
Remade:	October 11, 2001
Recalibrated:	October 25, 2001

Calibrated for System DASYS

ET3DV6 SN:1501

DASY3 - Parameters of Probe: ET3DV6 SN:1501

Sensitivity in Free Space

NormX 1.71 $\mu\text{V}/(\text{V}/\text{m})^2$
NormY 1.55 $\mu\text{V}/(\text{V}/\text{m})^2$
NormZ 2.32 $\mu\text{V}/(\text{V}/\text{m})^2$

Diode Compression

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

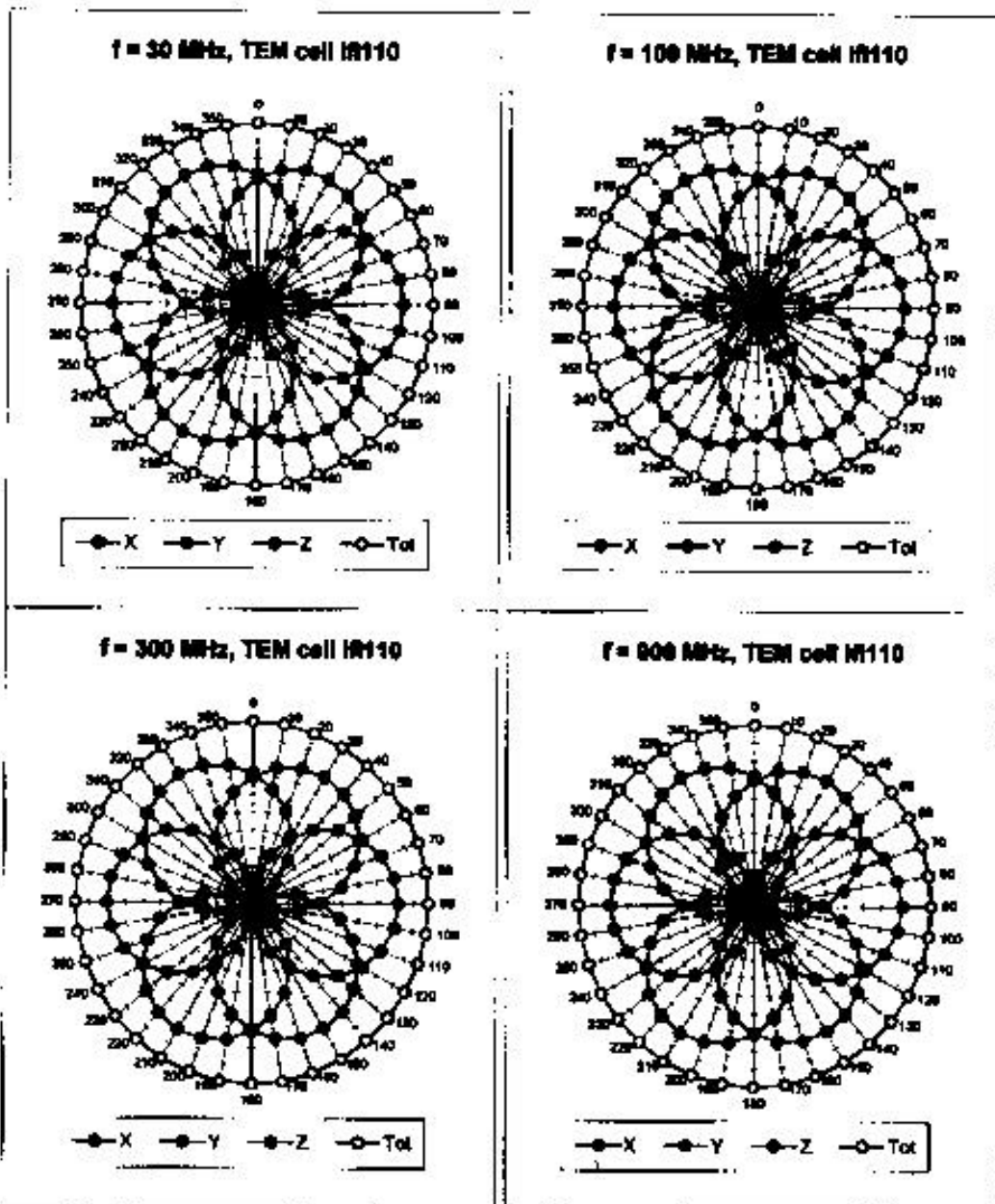
Sensitivity in Tissue Simulating Liquid

Head	450 MHz	$\epsilon_r = 43.5 \pm 5\%$	$\sigma = 0.87 \pm 10\% \text{ mho}/\text{m}$
ConvF X	7.04	extrapolated	Boundary effect:
ConvF Y	7.04	extrapolated	Alpha 0.46
ConvF Z	7.04	extrapolated	Depth 2.03
Head	900 - 1000 MHz	$\epsilon_r = 39.0 - 43.5$	$\sigma = 0.80 - 1.10 \text{ mho}/\text{m}$
ConvF X	6.53	$\pm 9.5\% (k=2)$	Boundary effect:
ConvF Y	6.53	$\pm 9.5\% (k=2)$	Alpha 0.49
ConvF Z	6.53	$\pm 9.5\% (k=2)$	Depth 2.07
Head	1600 MHz	$\epsilon_r = 40.4 \pm 6\%$	$\sigma = 1.23 \pm 10\% \text{ mho}/\text{m}$
ConvF X	5.86	interpolated	Boundary effect:
ConvF Y	5.86	interpolated	Alpha 0.52
ConvF Z	5.86	interpolated	Depth 2.13
Head	1700 - 1910 MHz	$\epsilon_r = 38.6 - 41.0$	$\sigma = 1.20 - 1.66 \text{ mho}/\text{m}$
ConvF X	5.52	$\pm 9.5\% (k=2)$	Boundary effect:
ConvF Y	5.52	$\pm 9.5\% (k=2)$	Alpha 0.64
ConvF Z	5.52	$\pm 9.5\% (k=2)$	Depth 2.16

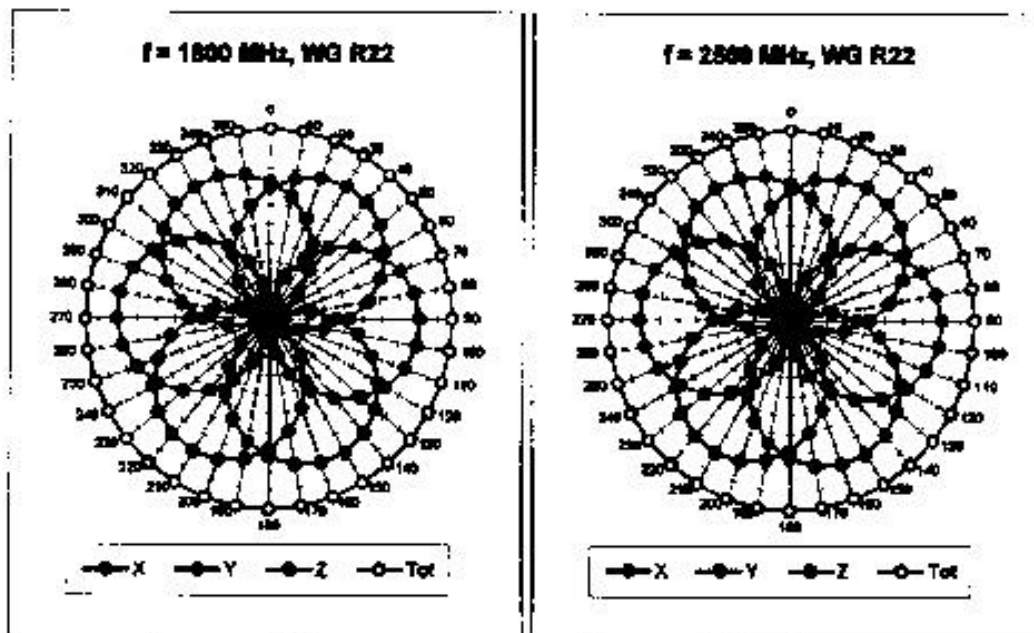
Sensor Offset

Probe Tip to Sensor Center 2.7 mm
Optical Surface Detection 1.1 ± 0.2 mm

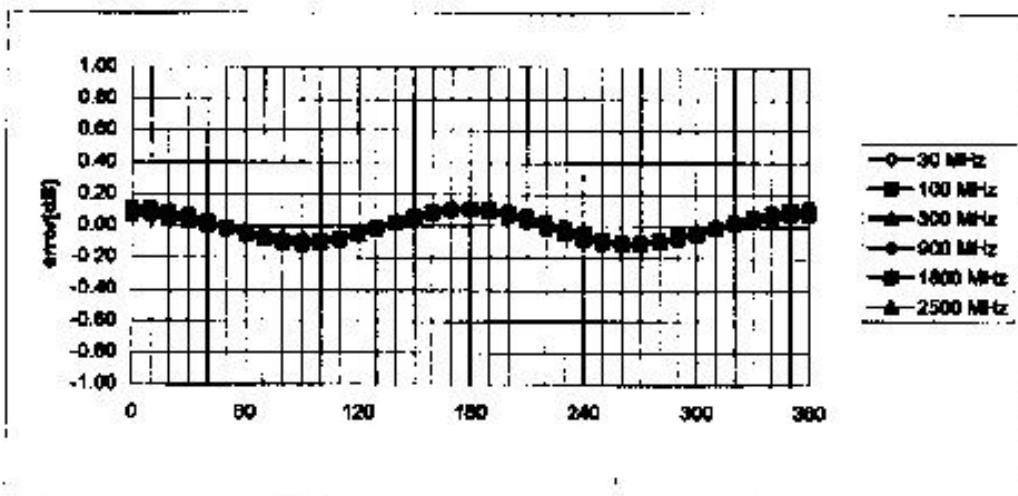
Receiving Pattern (ϕ), $\theta = 0^\circ$



ET3DV6 SN:1601

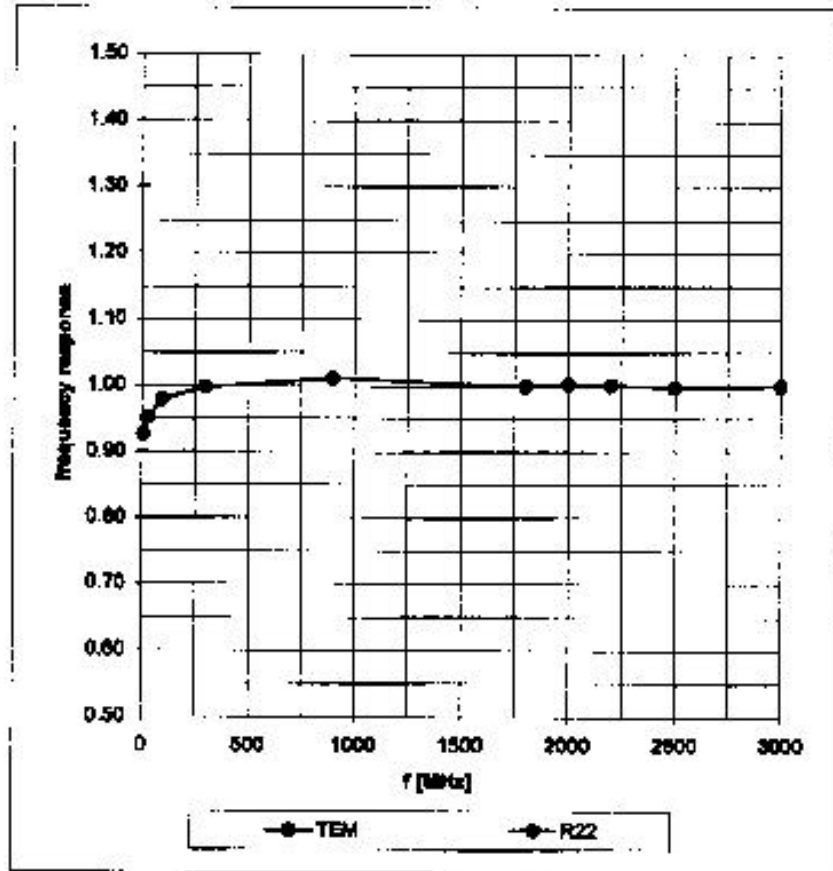


Isotropy Error (ϕ), $\theta = 0^\circ$

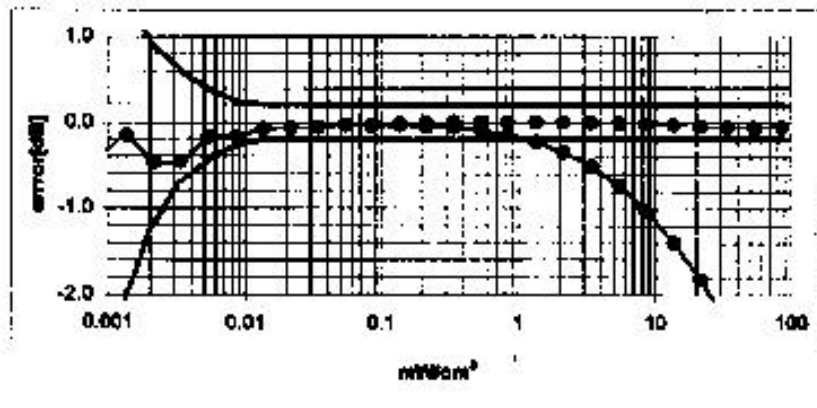
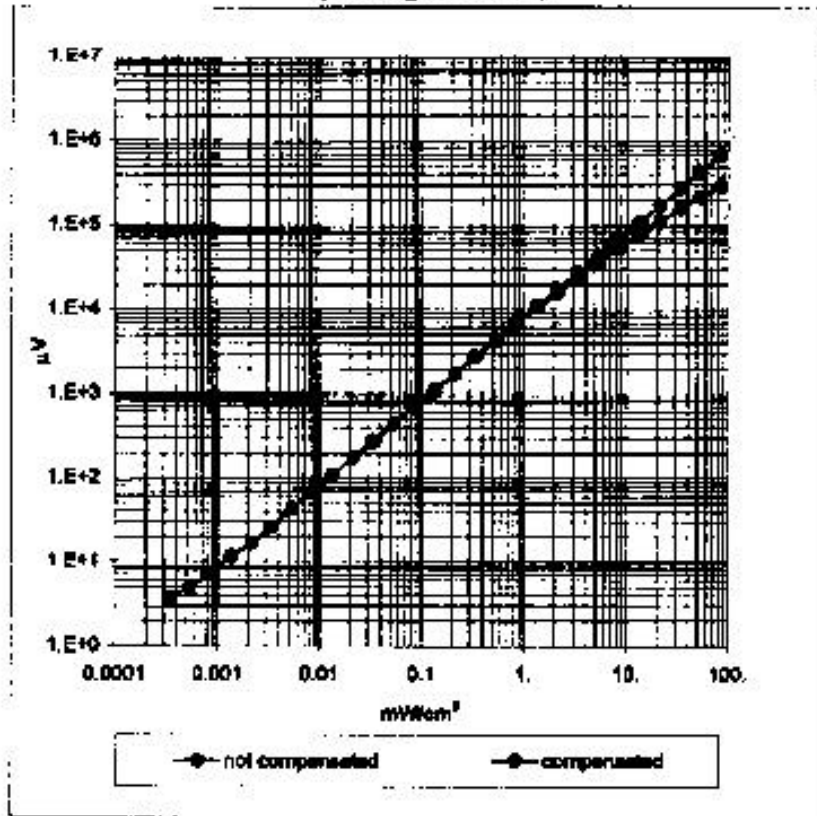


Frequency Response of E-Field

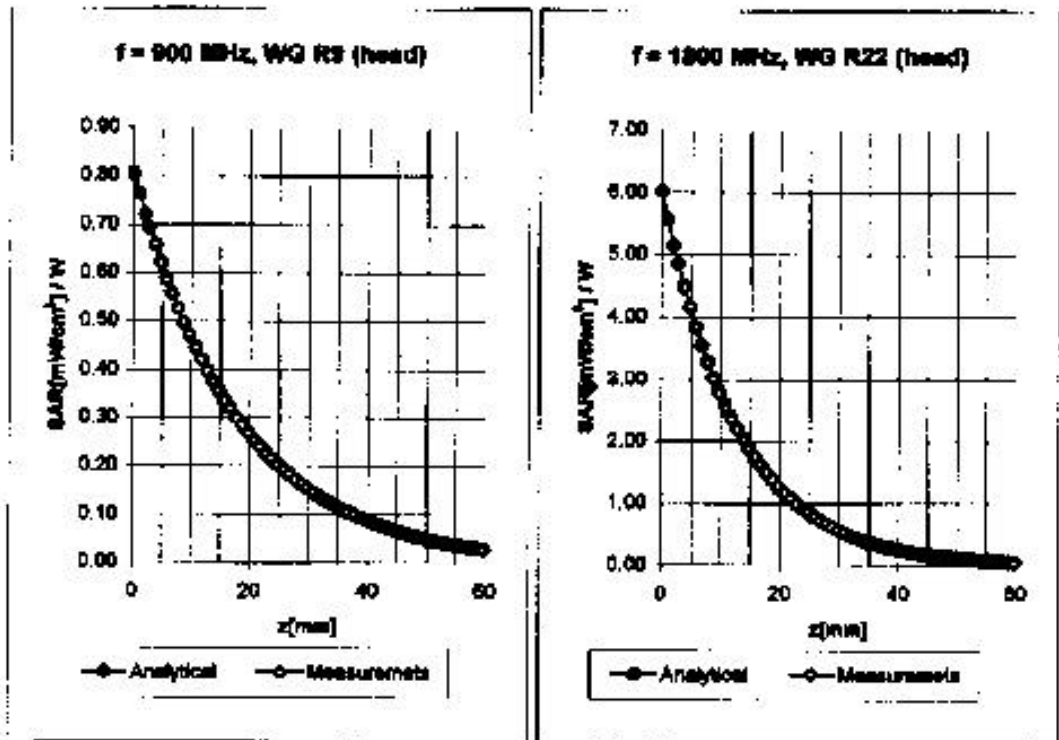
(TEM-Cell:if110, Waveguide R22)



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



Conversion Factor Assessment



Head 900 - 1000 MHz $\epsilon_r = 39.0 - 43.5$ $\sigma = 0.88 - 1.10$ mho/m

ConvF X $6.53 \pm 9.5\%$ (k=2)

ConvF Y $6.53 \pm 9.5\%$ (k=2)

ConvF Z $6.53 \pm 9.5\%$ (k=2)

Boundary effect:

Alpha 0.49

Depth 2.07

Head 1700 - 1910 MHz $\epsilon_r = 39.8 - 41.0$ $\sigma = 1.28 - 1.66$ mho/m

ConvF X $5.52 \pm 9.5\%$ (k=2)

ConvF Y $5.52 \pm 9.5\%$ (k=2)

ConvF Z $5.52 \pm 9.5\%$ (k=2)

Boundary effect:

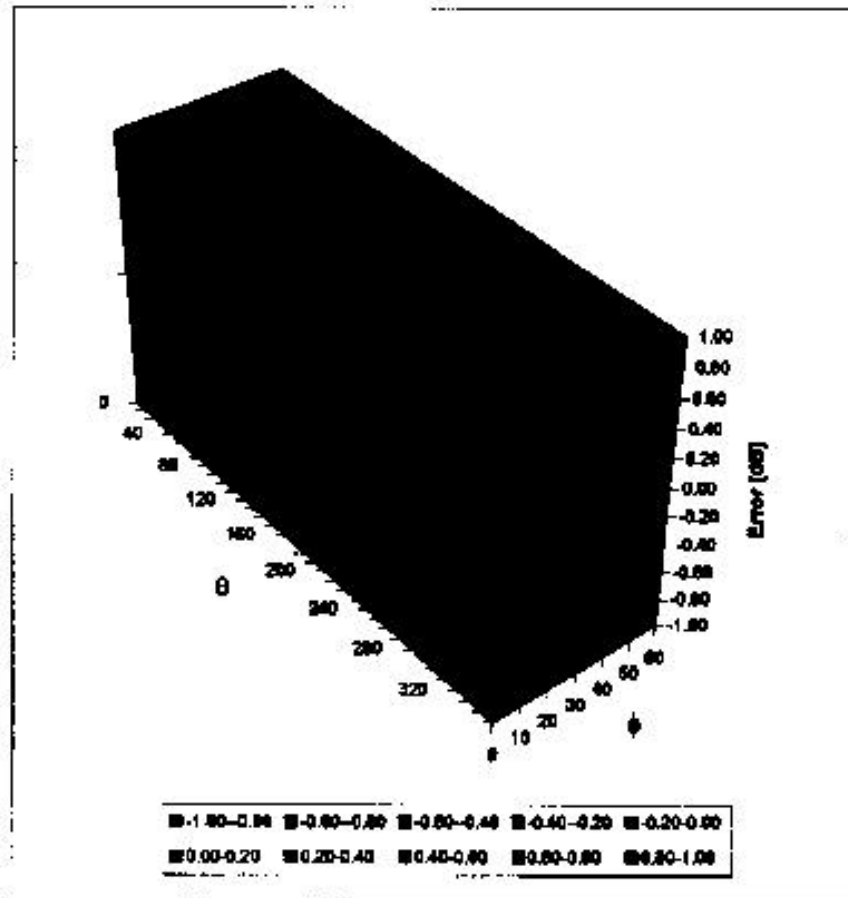
Alpha 0.54

Depth 2.18

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Deviation from Isotropy in HSL

Error (θ, ϕ), $f = 900$ MHz



Schmid & Partner Engineering AG

Ziegelhausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 248 97 00, Fax +41 1 248 97 79

Additional Conversion Factors for Dosimetric E-Field Probe

Type:

ET3DV6

Serial Number:

1501

Place of Assessment:

Zurich

Date of Assessment:

November 14, 2001

Probe Calibration Date:

October 25, 2001

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:

Andreas Kutz

Dosimetric E-Field Probe ET3DV6 SN:1501

Conversion factor (± standard deviation)

835 MHz	ConvF	6.6 ± 8%	$\epsilon_r = 41.5$ $\sigma = 0.90 \text{ mho/m}$ (head tissue)
1950 MHz	ConvF	5.3 ± 8%	$\epsilon_r = 40.0$ $\sigma = 1.40 \text{ mho/m}$ (head tissue)
835 MHz	ConvF	6.4 ± 8%	$\epsilon_r = 55.2$ $\sigma = 0.97 \text{ mho/m}$ (body tissue)
900 MHz	ConvF	6.3 ± 8%	$\epsilon_r = 55.0$ $\sigma = 1.05 \text{ mho/m}$ (body tissue)
1800 MHz	ConvF	5.1 ± 8%	$\epsilon_r = 53.3$ $\sigma = 1.53 \text{ mho/m}$ (body tissue)
1950 MHz	ConvF	4.8 ± 8%	$\epsilon_r = 53.3$ $\sigma = 1.53 \text{ mho/m}$ (body tissue)