

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3935

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.50	0.53	0.49	$\pm 10.1 \%$
DCP (mV) ^B	102.3	105.6	105.3	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	161.5	$\pm 3.5 \%$
		Y	0.0	0.0	1.0		171.2	
		Z	0.0	0.0	1.0		164.2	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of Norm X,Y,Z do not affect the E^2 -field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	41.9	0.89	10.72	10.72	10.72	0.17	2.02	± 12.0 %
835	41.5	0.90	10.15	10.15	10.15	0.19	1.59	± 12.0 %
900	41.5	0.97	9.95	9.95	9.95	0.18	1.61	± 12.0 %
1450	40.5	1.20	8.52	8.52	8.52	0.13	2.35	± 12.0 %
1750	40.1	1.37	8.69	8.69	8.69	0.36	0.80	± 12.0 %
1900	40.0	1.40	8.37	8.37	8.37	0.39	0.80	± 12.0 %
2000	40.0	1.40	8.30	8.30	8.30	0.26	1.00	± 12.0 %
2300	39.5	1.67	7.96	7.96	7.96	0.38	0.80	± 12.0 %
2450	39.2	1.80	7.49	7.49	7.49	0.38	0.84	± 12.0 %
2600	39.0	1.96	7.26	7.26	7.26	0.34	0.90	± 12.0 %
3500	37.9	2.91	7.15	7.15	7.15	0.34	1.17	± 13.1 %
5250	35.9	4.71	5.11	5.11	5.11	0.35	1.80	± 13.1 %
5600	35.5	5.07	4.44	4.44	4.44	0.50	1.80	± 13.1 %
5750	35.4	5.22	4.37	4.37	4.37	0.50	1.80	± 13.1 %

^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	55.5	0.96	10.59	10.59	10.59	0.21	1.37	± 12.0 %
835	55.2	0.97	10.30	10.30	10.30	0.26	1.20	± 12.0 %
1750	53.4	1.49	8.24	8.24	8.24	0.42	0.80	± 12.0 %
1900	53.3	1.52	7.99	7.99	7.99	0.40	0.80	± 12.0 %
2300	52.9	1.81	7.72	7.72	7.72	0.43	0.80	± 12.0 %
2450	52.7	1.95	7.55	7.55	7.55	0.39	0.80	± 12.0 %
2600	52.5	2.16	7.37	7.37	7.37	0.29	0.80	± 12.0 %
3500	51.3	3.31	6.88	6.88	6.88	0.36	1.16	± 13.1 %
5250	48.9	5.36	4.35	4.35	4.35	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.68	3.68	3.68	0.60	1.90	± 13.1 %
5750	48.3	5.94	3.81	3.81	3.81	0.60	1.90	± 13.1 %

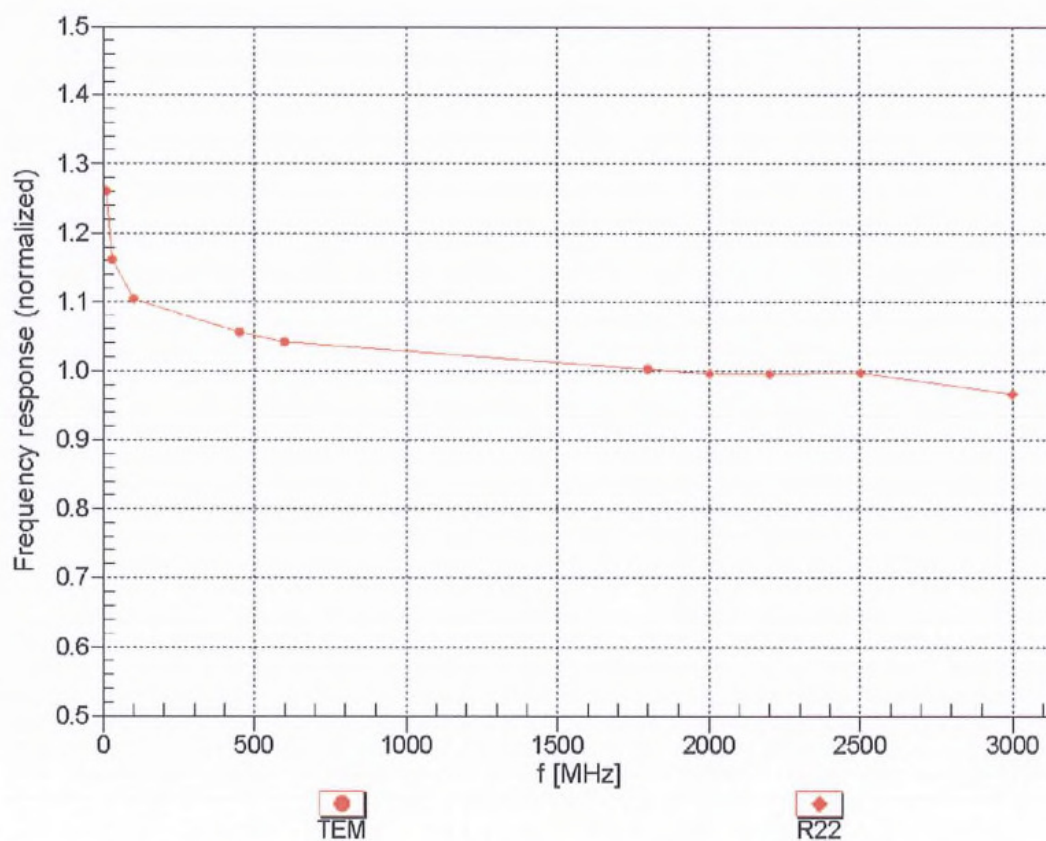
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Frequency Response of E-Field

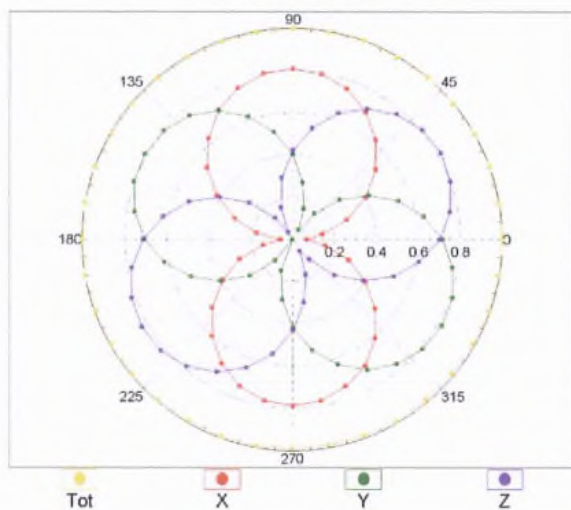
(TEM-Cell:ifi110 EXX, Waveguide: R22)



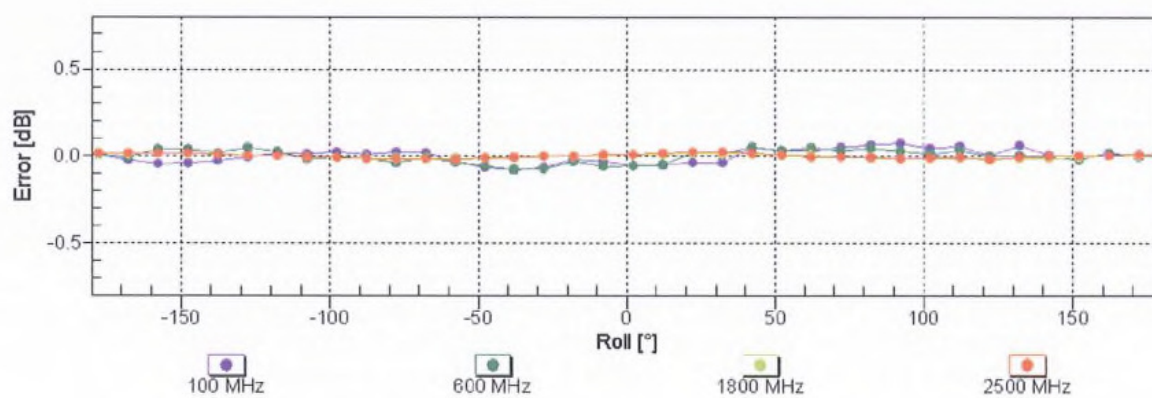
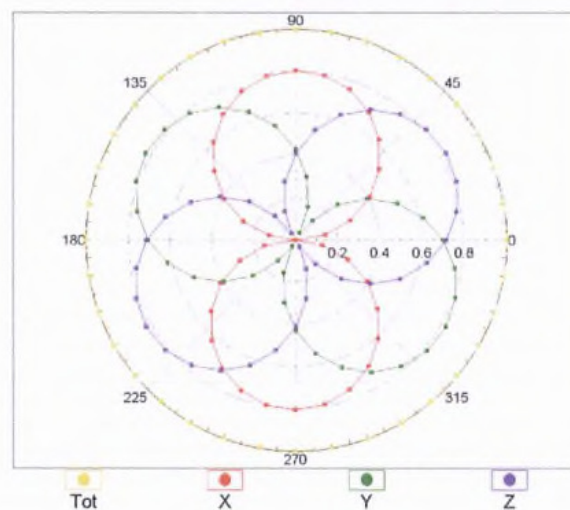
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

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

$f=600$ MHz, TEM

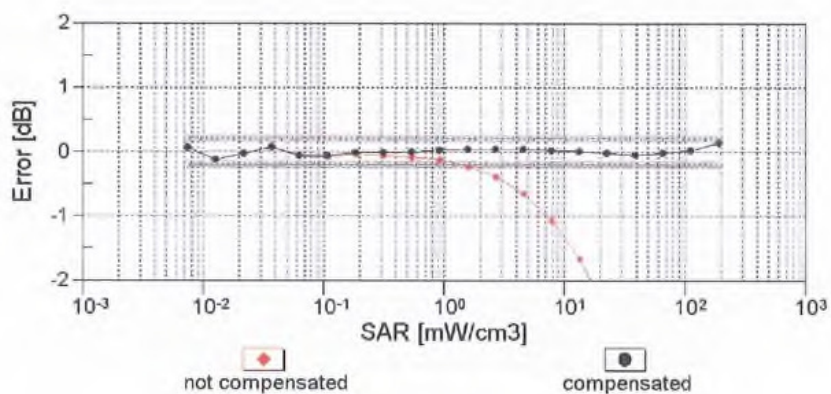
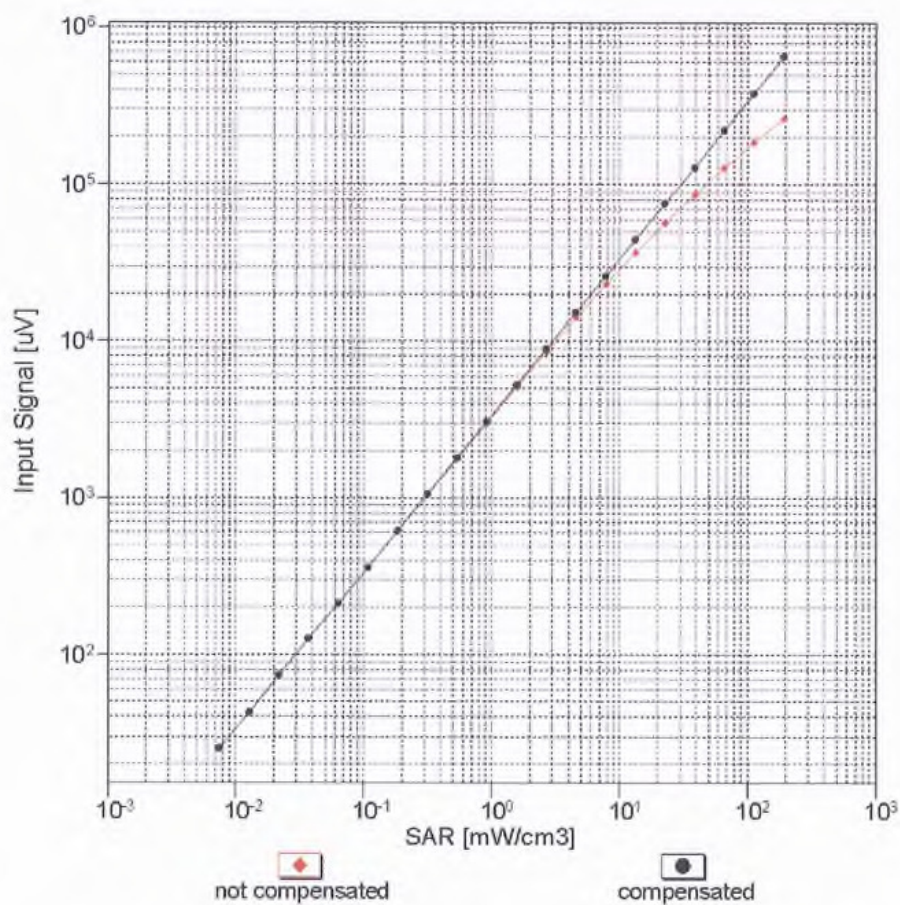


$f=1800$ MHz, R22



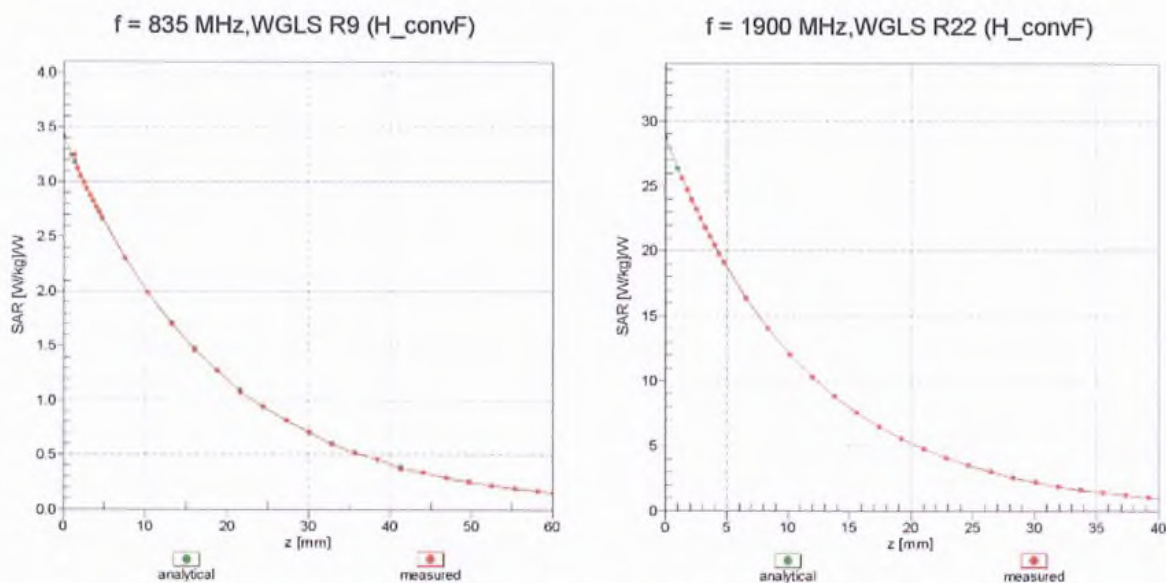
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f_{\text{eval}} = 1900 \text{ MHz}$)



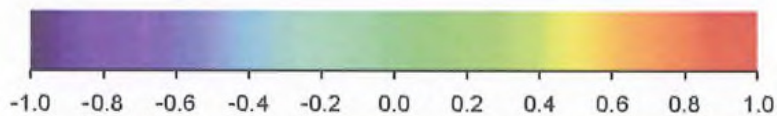
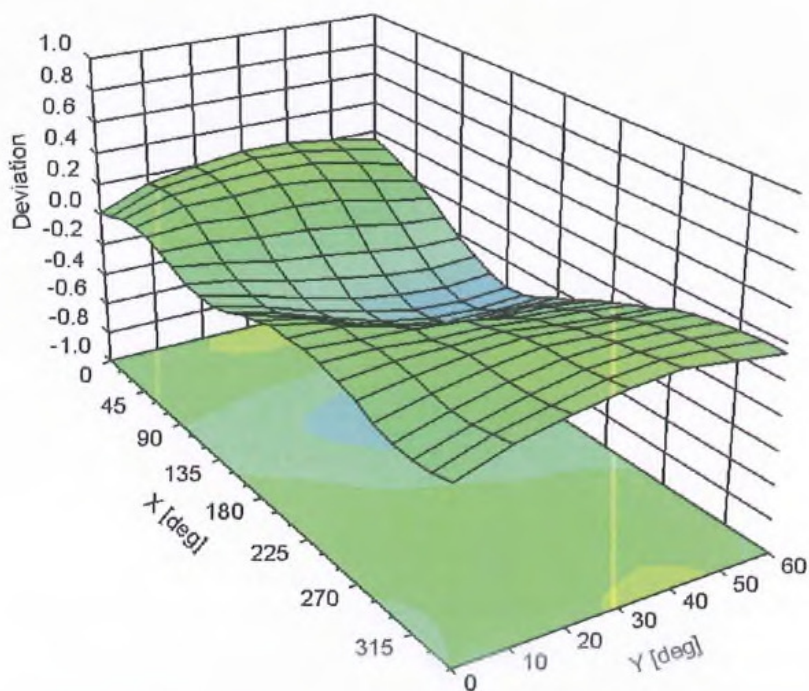
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

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Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	42.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm