In Collaboration with
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CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
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E-mail: cttl@chinattl.com Http://www.chinattl.cn

DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3753

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm(μV/(V/m)^2)^A	0.47	0.30	0.46	±10.0%
DCP(mV)^B	101.4	107.2	104.5	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	185.8	±2.0%
		Y	0.0	0.0	1.0		141.4	
		Z	0.0	0.0	1.0		182.6	

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 Page 5 and Page 6).
^{B} Numerical linearization parameter: uncertainty not required.
^{E} Uncertainly 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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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3753

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)	Unct. (k=2)
750	41.9	0.89	9.42	9.42	9.42	0.30	0.90	±12.1%
835	41.5	0.90	9.13	9.13	9.13	0.12	1.48	±12.1%
900	41.5	0.97	9.20	9.20	9.20	0.15	1.42	±12.1%
1750	40.1	1.37	8.16	8.16	8.16	0.21	1.12	±12.1%
1900	40.0	1.40	7.79	7.79	7.79	0.21	1.15	±12.1%
2000	40.0	1.40	7.80	7.80	7.80	0.19	1.18	±12.1%
2450	39.2	1.80	7.28	7.28	7.28	0.51	0.77	±12.1%
2600	39.0	1.96	7.20	7.20	7.20	0.61	0.68	±12.1%
3500	37.9	2.91	7.02	7.02	7.02	0.56	0.85	±13.3%
5250	35.9	4.71	5.25	5.25	5.25	0.45	1.20	±13.3%
5600	35.5	5.07	4.75	4.75	4.75	0.45	1.30	±13.3%
5750	35.4	5.22	4.76	4.76	4.76	0.45	1.30	±13.3%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of 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 frequency 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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3753

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)	Unct. (k=2)
750	55.5	0.96	9.43	9.43	9.43	0.30	0.90	±12.1%
835	55.2	0.97	9.21	9.21	9.21	0.17	1.39	±12.1%
900	55.0	1.05	9.23	9.23	9.23	0.21	1.16	±12.1%
1750	53.4	1.49	7.87	7.87	7.87	0.20	1.19	±12.1%
1900	53.3	1.52	7.58	7.58	7.58	0.17	1.32	±12.1%
2000	53.3	1.52	7.60	7.60	7.60	0.17	1.41	±12.1%
2450	52.7	1.95	7.27	7.27	7.27	0.28	1.46	±12.1%
2600	52.5	2.16	7.14	7.14	7.14	0.31	1.26	±12.1%
3500	51.3	3.31	6.46	6.46	6.46	0.65	0.88	±13.3%
5250	48.9	5.36	4.87	4.87	4.87	0.55	1.20	±13.3%
5600	48.5	5.77	4.27	4.27	4.27	0.55	1.30	±13.3%
5750	48.3	5.94	4.52	4.52	4.52	0.55	1.60	±13.3%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of 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 frequency 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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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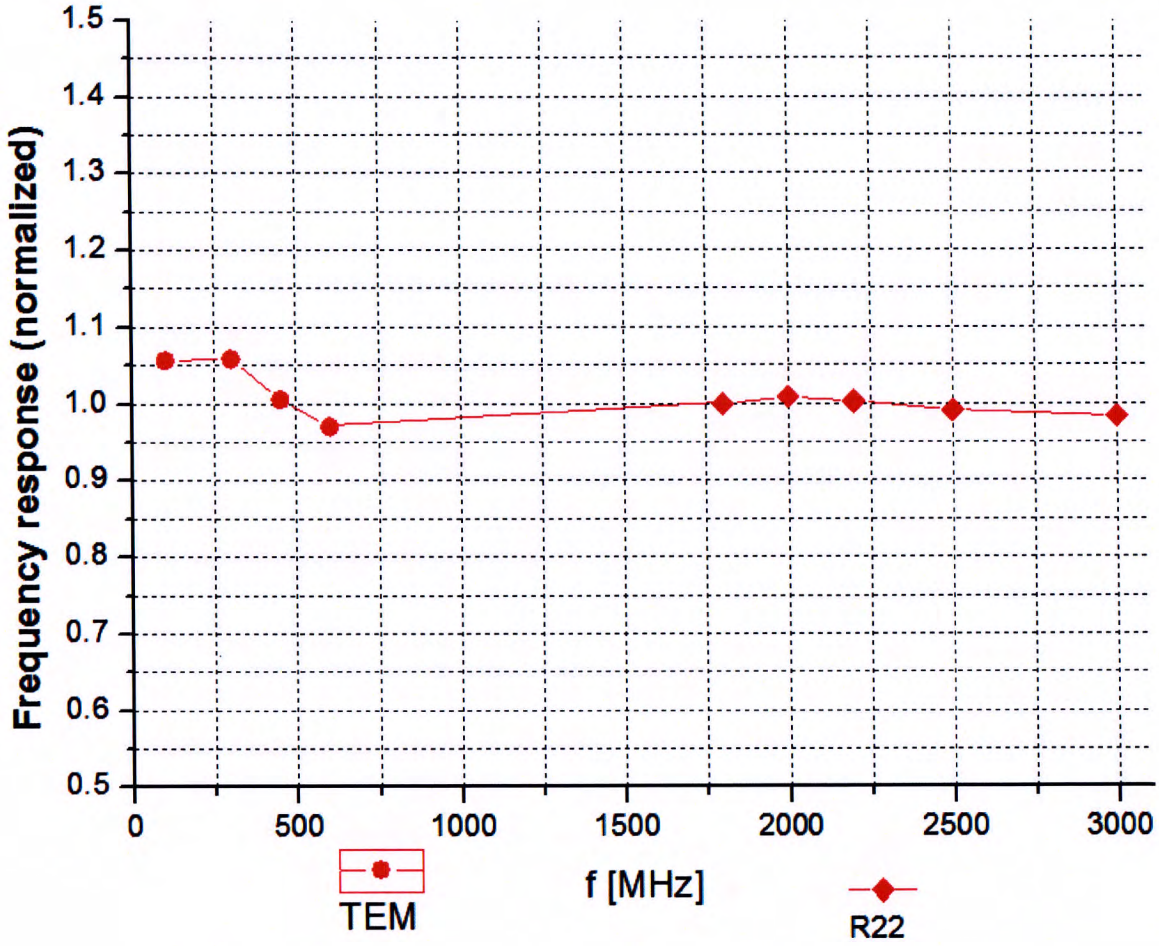
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.4% (k=2)

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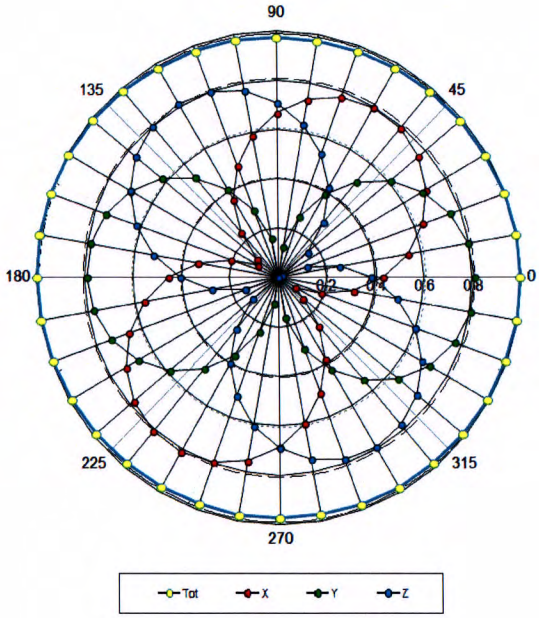
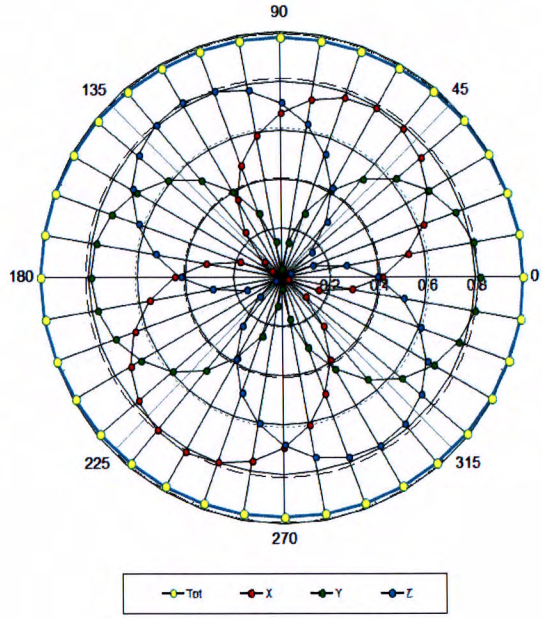
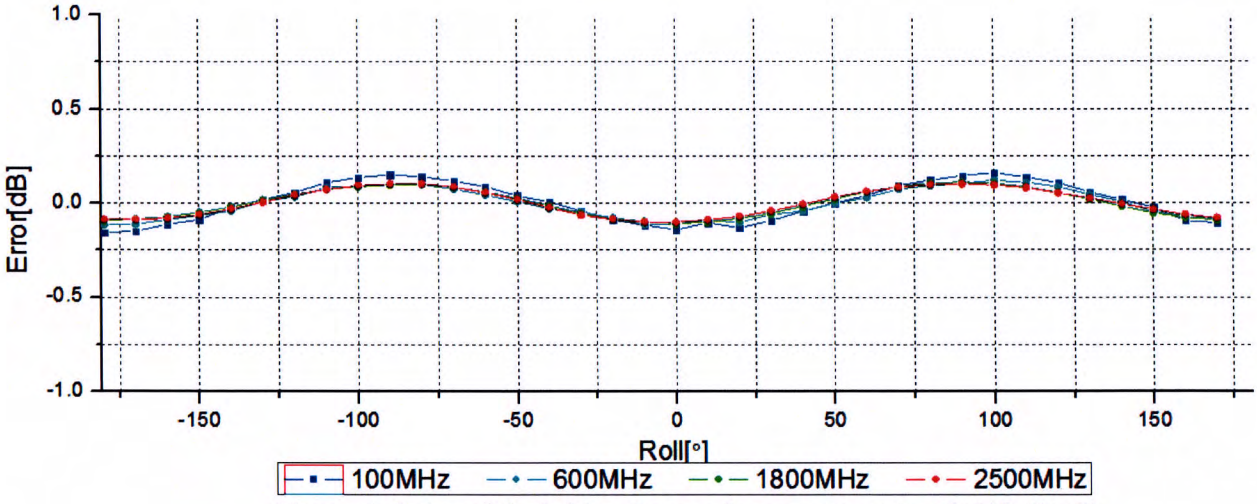
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22





Uncertainty of Axial Isotropy Assessment: ±1.2% (k=2)

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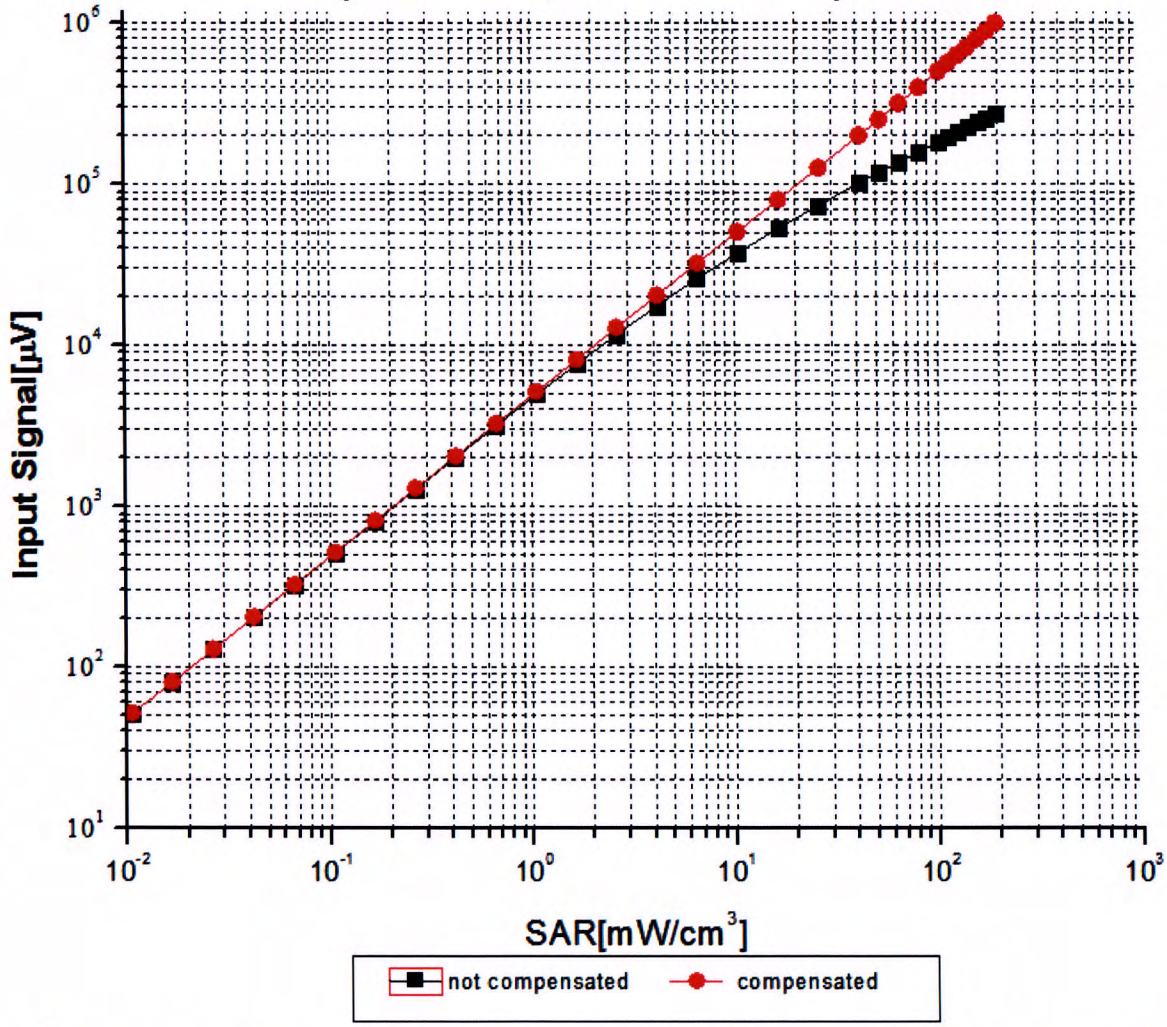
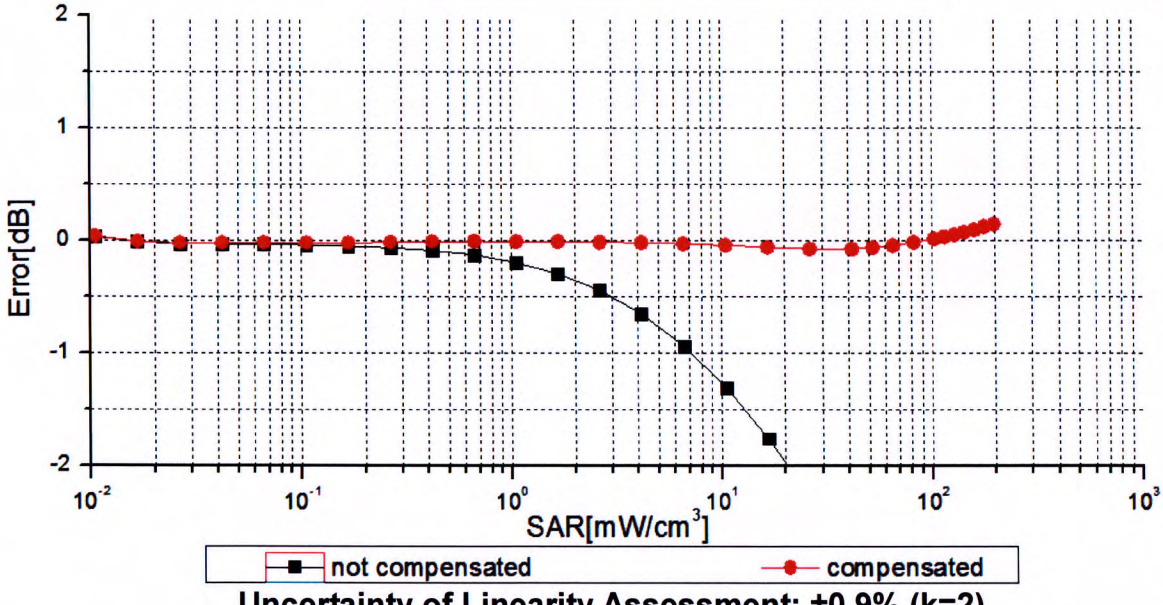
Dynamic Range f(SAR_{head})
(TEM cell, f = 900 MHz)





Uncertainty of Linearity Assessment: ±0.9% (k=2)

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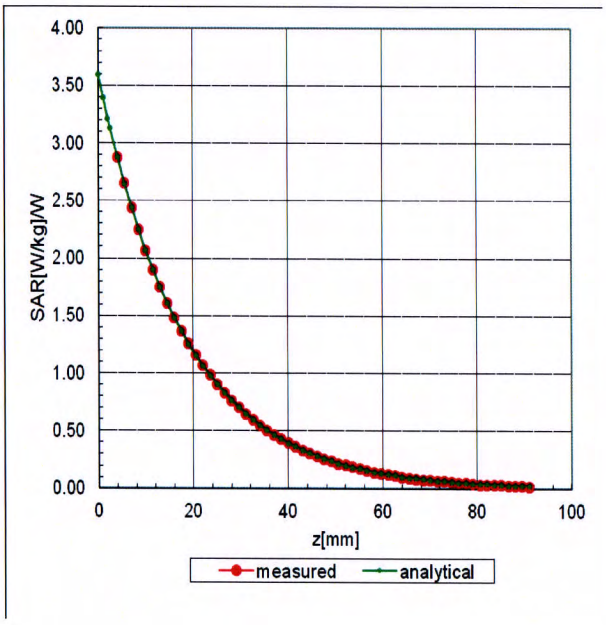
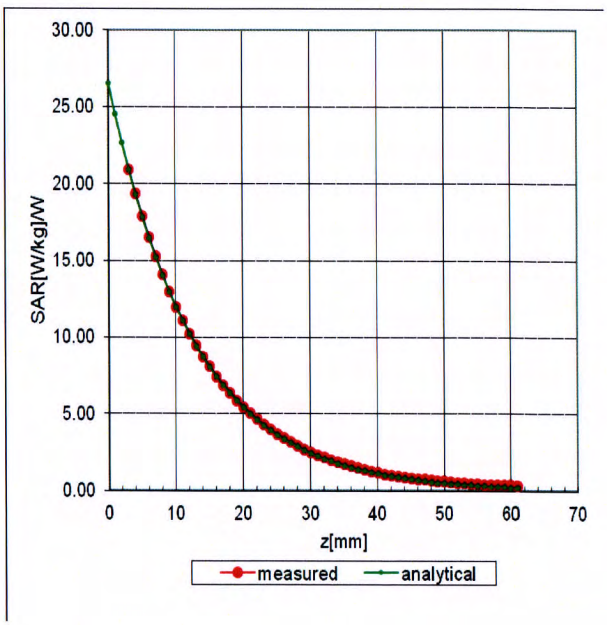
Conversion Factor Assessment

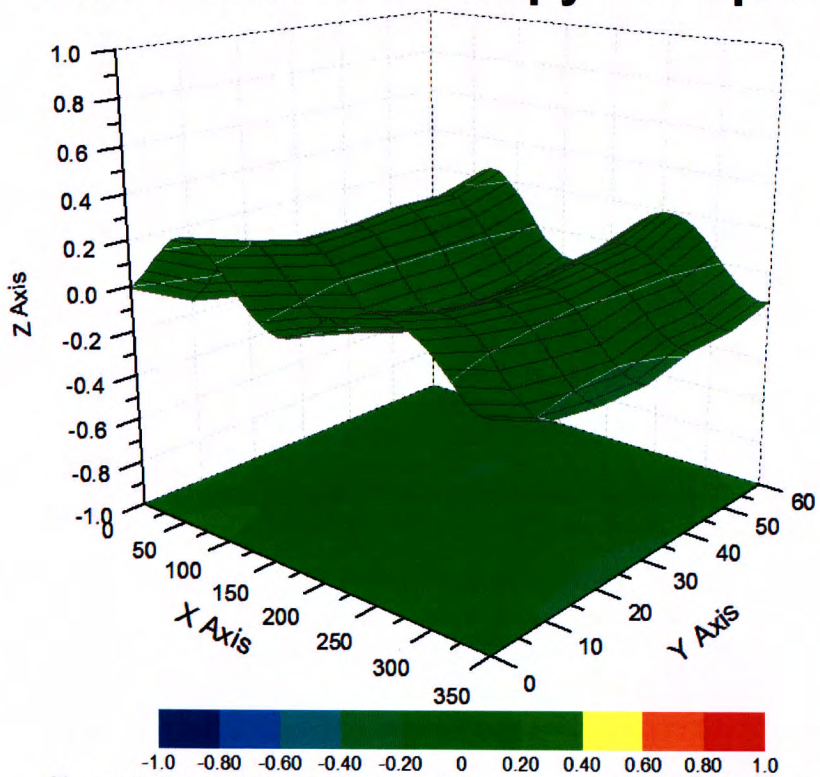
f=900 MHz, WGLS R9(H_convF)



f=1750 MHz, WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (K=2)

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Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	36.9
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm