

DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7369

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	10.12	10.12	10.12	0.13	1.38	± 12.1%
835	41.5	0.90	9.76	9.76	9.76	0.13	1.48	± 12.1%
900	41.5	0.97	9.81	9.81	9.81	0.14	1.29	± 12.1%
1450	40.5	1.20	8.81	8.81	8.81	0.09	1.61	± 12.1%
1750	40.1	1.37	8.50	8.50	8.50	0.22	1.07	± 12.1%
1900	40.0	1.40	8.13	8.13	8.13	0.24	1.01	± 12.1%
2000	40.0	1.40	8.14	8.14	8.14	0.24	1.07	± 12.1%
2300	39.5	1.67	7.82	7.82	7.82	0.55	0.70	± 12.1%
2450	39.2	1.80	7.65	7.65	7.65	0.53	0.73	± 12.1%
2600	39.0	1.96	7.34	7.34	7.34	0.66	0.66	± 12.1%
5200	36.0	4.66	5.40	5.40	5.40	0.40	1.80	± 13.3%
5300	35.9	4.76	5.13	5.13	5.13	0.40	1.80	± 13.3%
5500	35.6	4.96	4.95	4.95	4.95	0.40	1.65	± 13.3%
5600	35.5	5.07	4.81	4.81	4.81	0.45	1.70	± 13.3%
5800	35.3	5.27	4.88	4.88	4.88	0.45	1.65	± 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.



In Collaboration with

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7369

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	10.31	10.31	10.31	0.40	0.80	± 12.1%
835	55.2	0.97	9.86	9.86	9.86	0.18	1.41	± 12.1%
900	55.0	1.05	9.88	9.88	9.88	0.23	1.18	± 12.1%
1750	53.4	1.49	8.14	8.14	8.14	0.19	1.17	± 12.1%
1900	53.3	1.52	7.83	7.83	7.83	0.20	1.16	± 12.1%
2300	52.9	1.81	7.85	7.85	7.85	0.46	0.85	± 12.1%
2450	52.7	1.95	7.75	7.75	7.75	0.57	0.75	± 12.1%
2600	52.5	2.16	7.45	7.45	7.45	0.66	0.69	± 12.1%
5200	49.0	5.30	4.73	4.73	4.73	0.45	1.55	± 13.3%
5300	48.9	5.42	4.58	4.58	4.58	0.50	1.50	± 13.3%
5500	48.6	5.65	4.18	4.18	4.18	0.50	1.80	± 13.3%
5600	48.5	5.77	4.06	4.06	4.06	0.50	1.80	± 13.3%
5800	48.2	6.00	4.10	4.10	4.10	0.50	1.75	± 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.

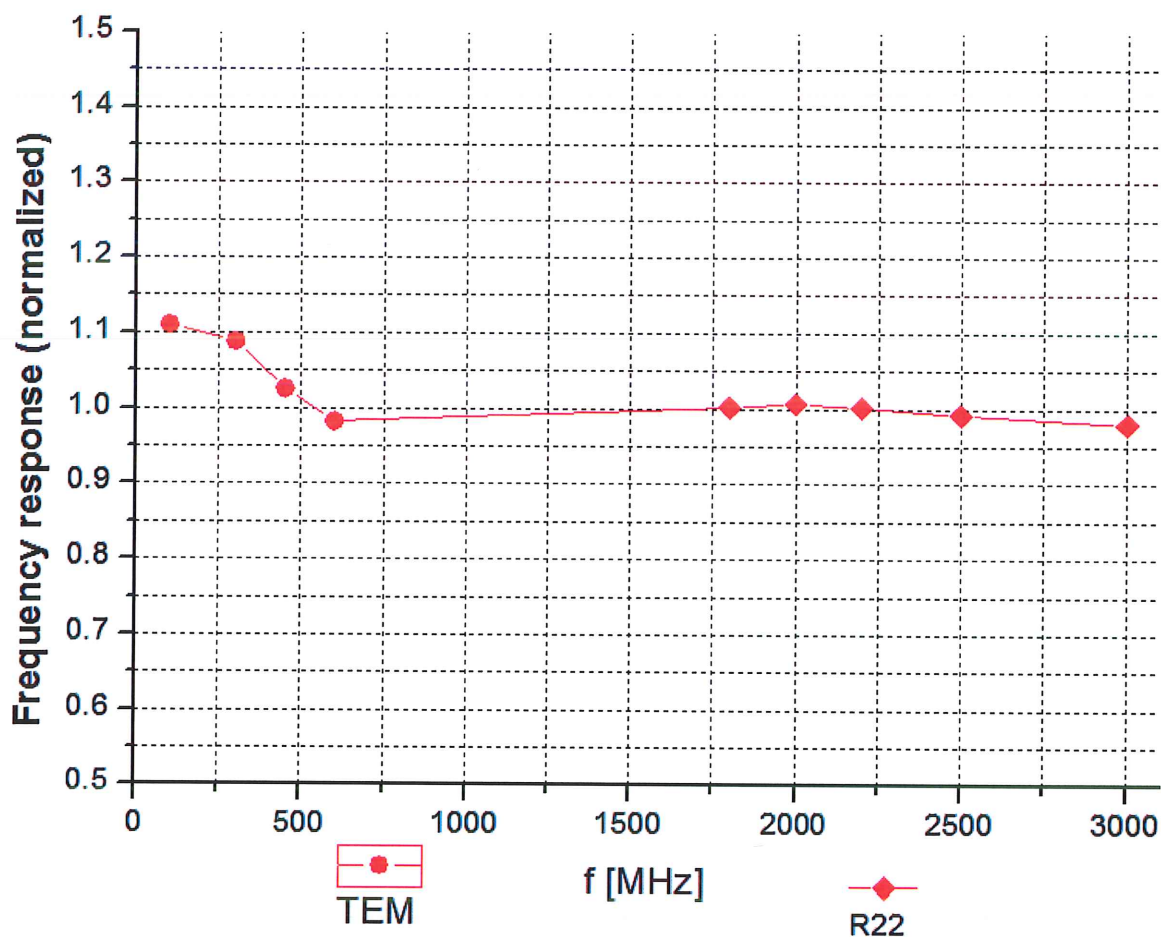
^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from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



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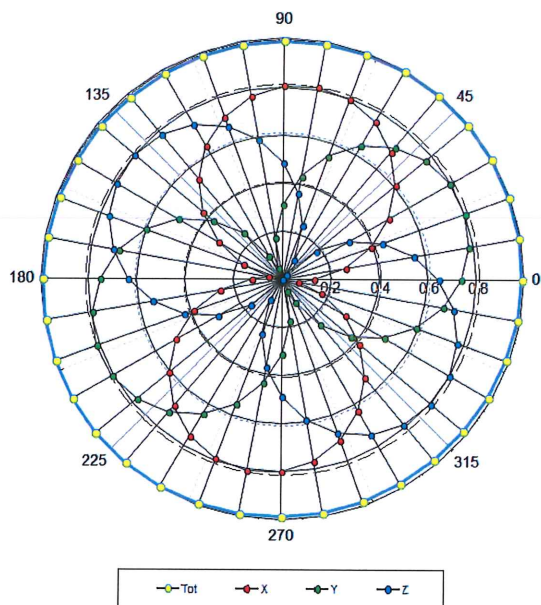
Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



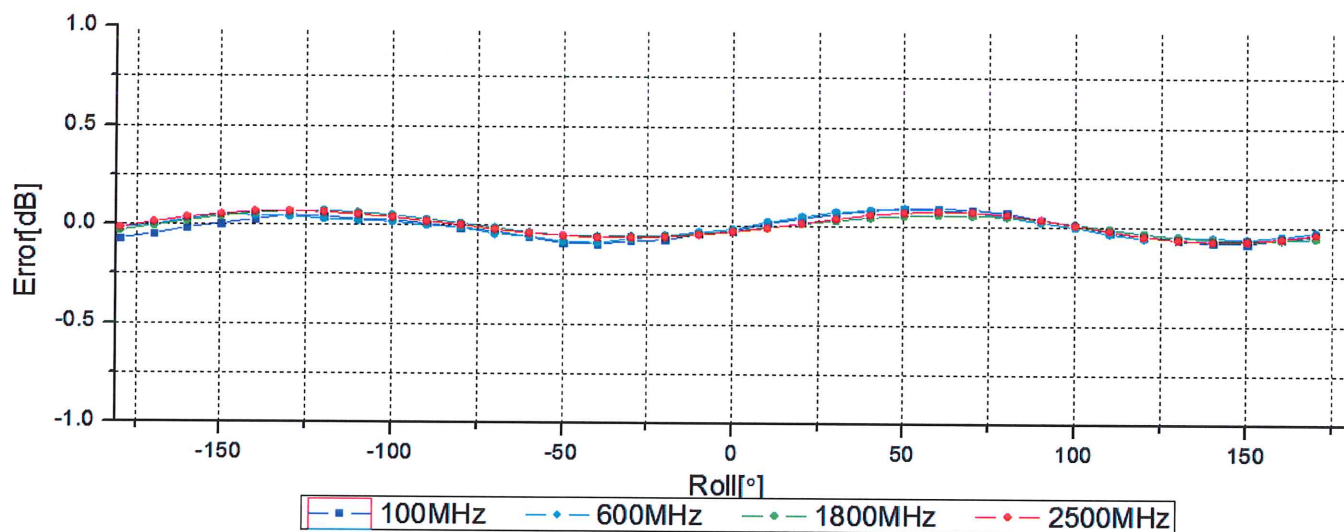
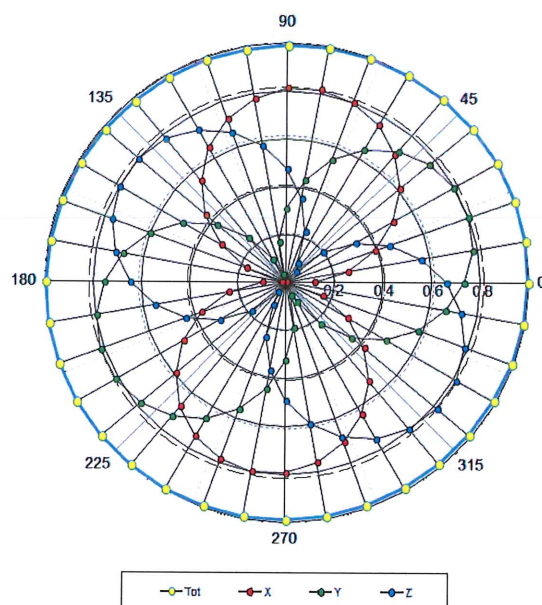
Uncertainty of Frequency Response of E-field: $\pm 7.4\%$ (k=2)

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

f=600 MHz, TEM



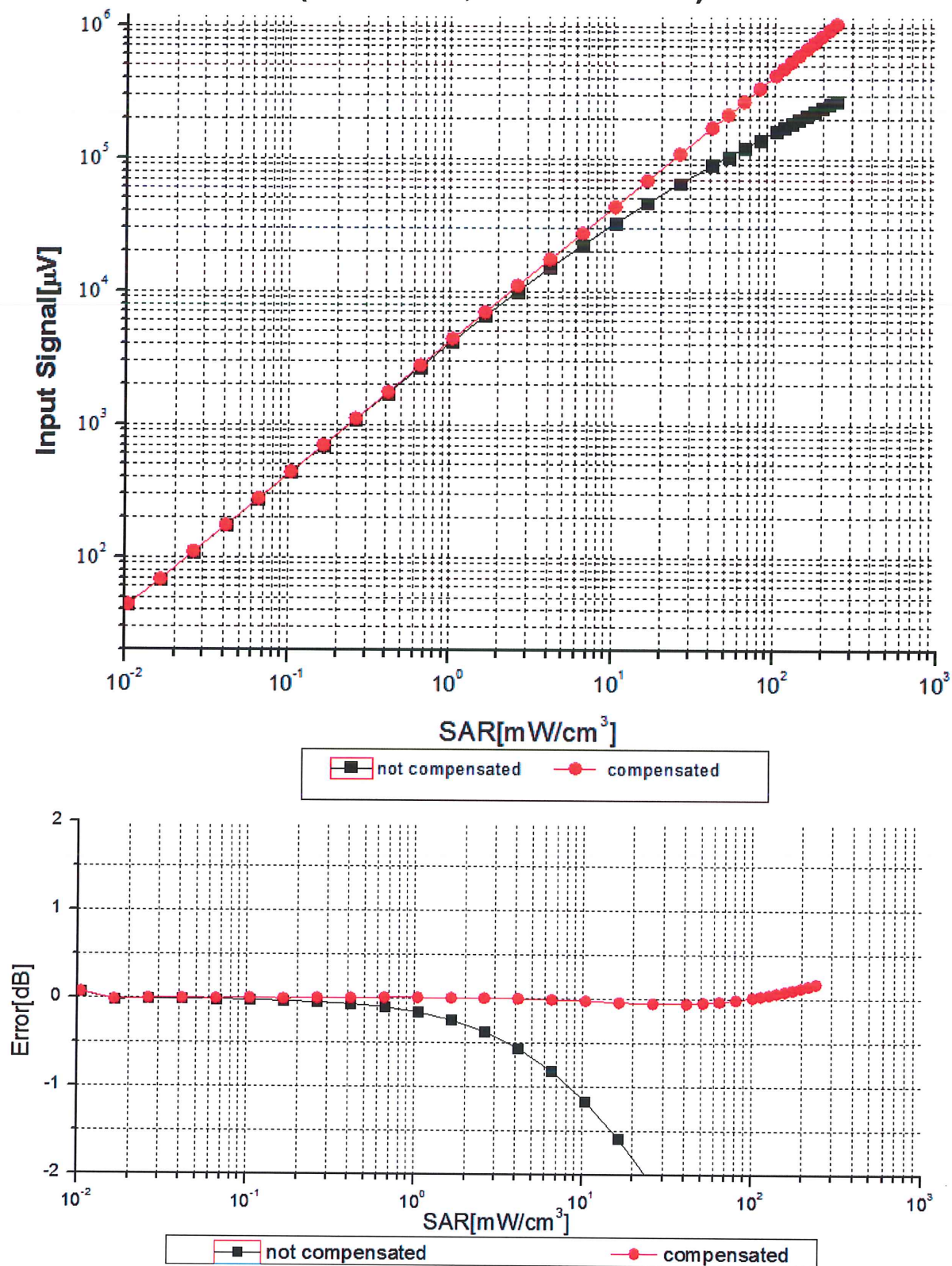
f=1800 MHz, R22



Uncertainty of Axial Isotropy Assessment: $\pm 1.2\%$ ($k=2$)



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

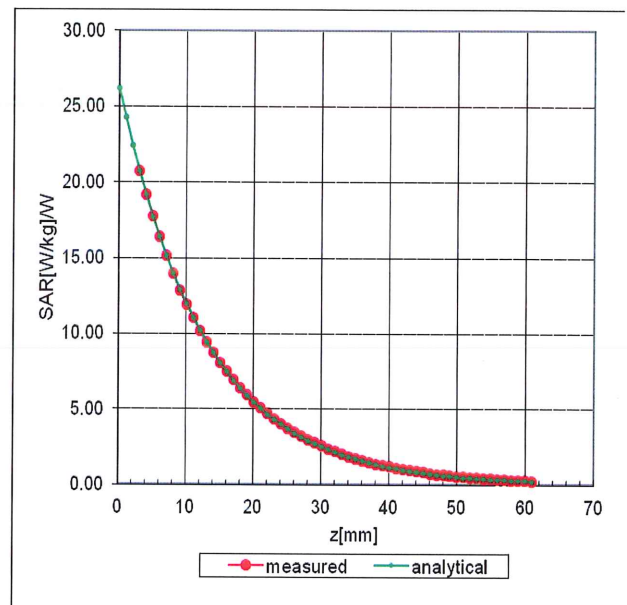
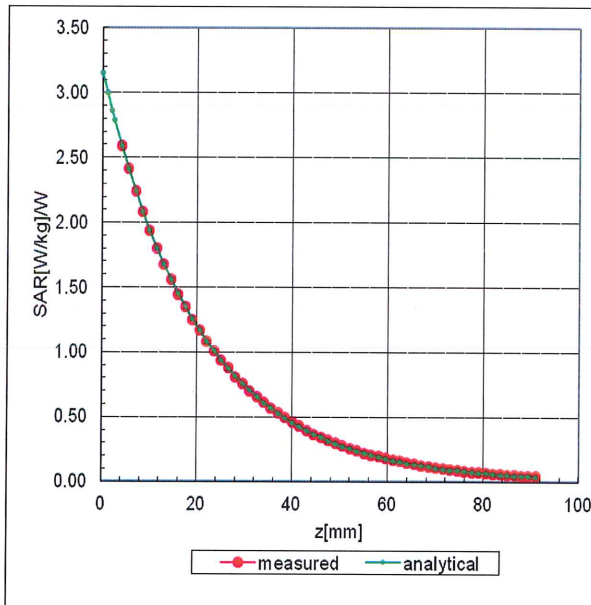


Uncertainty of Linearity Assessment: $\pm 0.9\%$ ($k=2$)

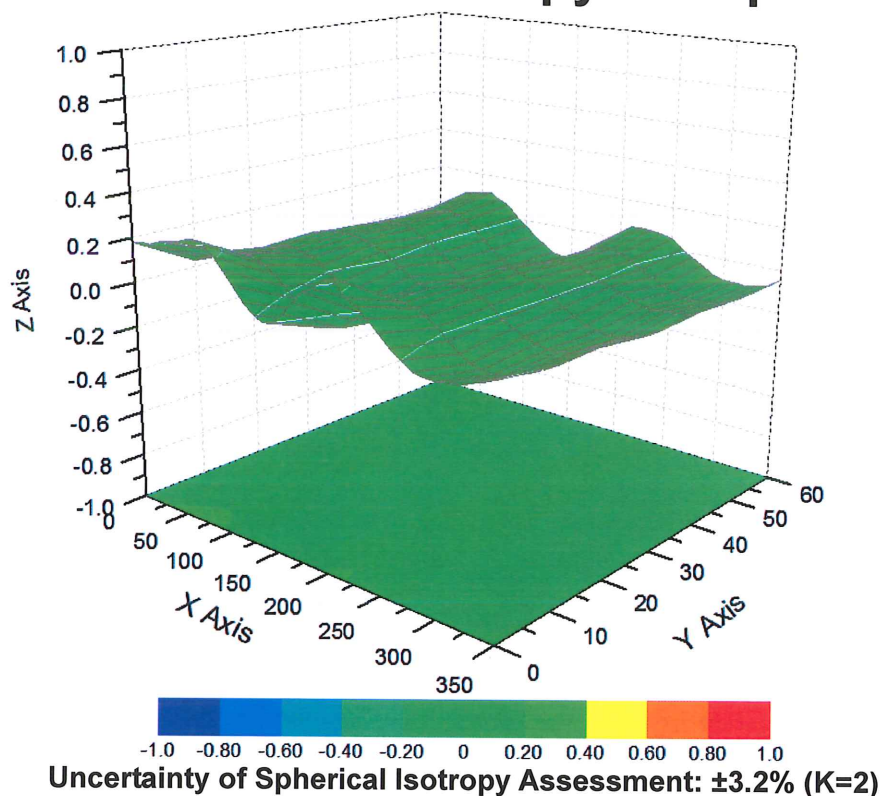
Conversion Factor Assessment

f=750 MHz, WGLS R9(H_convF)

f=1750 MHz, WGLS R22(H_convF)



Deviation from Isotropy in Liquid





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Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	63.2
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