



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
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 E-mail: cttl@chinattl.com http://www.caict.ac.cn

DASY/EASY – Parameters of Probe: EX3DV4 – SN:3767

Basic Calibration Parameters

| | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|--|----------|----------|----------|-----------|
| Norm($\mu\text{V}/(\text{V}/\text{m})^2$) ^A | 0.56 | 0.58 | 0.49 | ±10.0% |
| DCP(mV) ^B | 102.3 | 101.4 | 103.7 | |

Modulation Calibration Parameters

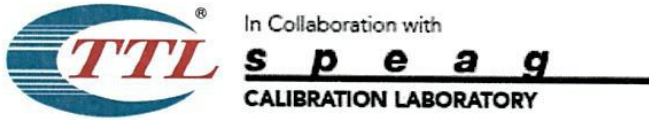
| UID | Communication System Name | | A dB | B dB $\sqrt{\mu\text{V}}$ | C | D dB | VR mV | Unc ^E (k=2) |
|-----|---------------------------|---|------|---------------------------|-----|------|-------|------------------------|
| 0 | CW | X | 0.0 | 0.0 | 1.0 | 0.00 | 175.8 | ±2.5% |
| | | Y | 0.0 | 0.0 | 1.0 | | 178.3 | |
| | | Z | 0.0 | 0.0 | 1.0 | | 163.0 | |

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 E²-field uncertainty inside TSL (see Page 5).

^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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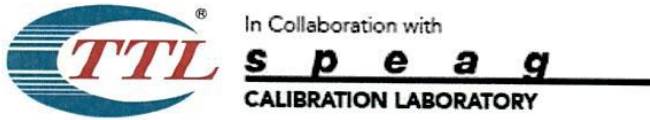
Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz] ^C | Relative Permittivity ^F | Conductivity (S/m) ^F | ConvF X | ConvF Y | ConvF Z | Alpha ^G | Depth ^G (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 750 | 41.9 | 0.89 | 9.80 | 9.80 | 9.80 | 0.15 | 1.31 | ± 12.1% |
| 835 | 41.5 | 0.90 | 9.47 | 9.47 | 9.47 | 0.13 | 1.49 | ± 12.1% |
| 900 | 41.5 | 0.97 | 9.41 | 9.41 | 9.41 | 0.18 | 1.25 | ± 12.1% |
| 1450 | 40.5 | 1.20 | 8.49 | 8.49 | 8.49 | 0.11 | 1.41 | ± 12.1% |
| 1750 | 40.1 | 1.37 | 8.24 | 8.24 | 8.24 | 0.29 | 0.89 | ± 12.1% |
| 1900 | 40.0 | 1.40 | 7.97 | 7.97 | 7.97 | 0.30 | 0.94 | ± 12.1% |
| 2000 | 40.0 | 1.40 | 8.05 | 8.05 | 8.05 | 0.23 | 1.18 | ± 12.1% |
| 2300 | 39.5 | 1.67 | 7.81 | 7.81 | 7.81 | 0.63 | 0.66 | ± 12.1% |
| 2450 | 39.2 | 1.80 | 7.61 | 7.61 | 7.61 | 0.64 | 0.65 | ± 12.1% |
| 2600 | 39.0 | 1.96 | 7.35 | 7.35 | 7.35 | 0.57 | 0.73 | ± 12.1% |
| 3300 | 38.2 | 2.71 | 7.15 | 7.15 | 7.15 | 0.41 | 0.94 | ± 13.3% |
| 3500 | 37.9 | 2.91 | 6.90 | 6.90 | 6.90 | 0.41 | 0.99 | ± 13.3% |
| 3700 | 37.7 | 3.12 | 6.55 | 6.55 | 6.55 | 0.40 | 1.02 | ± 13.3% |
| 3900 | 37.5 | 3.32 | 6.52 | 6.52 | 6.52 | 0.35 | 1.35 | ± 13.3% |
| 4100 | 37.2 | 3.53 | 6.50 | 6.50 | 6.50 | 0.35 | 1.25 | ± 13.3% |
| 4400 | 36.9 | 3.84 | 6.33 | 6.33 | 6.33 | 0.35 | 1.35 | ± 13.3% |
| 4600 | 36.7 | 4.04 | 6.15 | 6.15 | 6.15 | 0.45 | 1.25 | ± 13.3% |
| 4800 | 36.4 | 4.25 | 6.08 | 6.08 | 6.08 | 0.40 | 1.40 | ± 13.3% |
| 4950 | 36.3 | 4.40 | 5.81 | 5.81 | 5.81 | 0.40 | 1.42 | ± 13.3% |
| 5200 | 36.0 | 4.66 | 5.46 | 5.46 | 5.46 | 0.45 | 1.30 | ± 13.3% |
| 5300 | 35.9 | 4.76 | 5.20 | 5.20 | 5.20 | 0.50 | 1.22 | ± 13.3% |
| 5500 | 35.6 | 4.96 | 4.96 | 4.96 | 4.96 | 0.45 | 1.30 | ± 13.3% |
| 5600 | 35.5 | 5.07 | 4.80 | 4.80 | 4.80 | 0.50 | 1.30 | ± 13.3% |
| 5800 | 35.3 | 5.27 | 4.81 | 4.81 | 4.81 | 0.55 | 1.20 | ± 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.

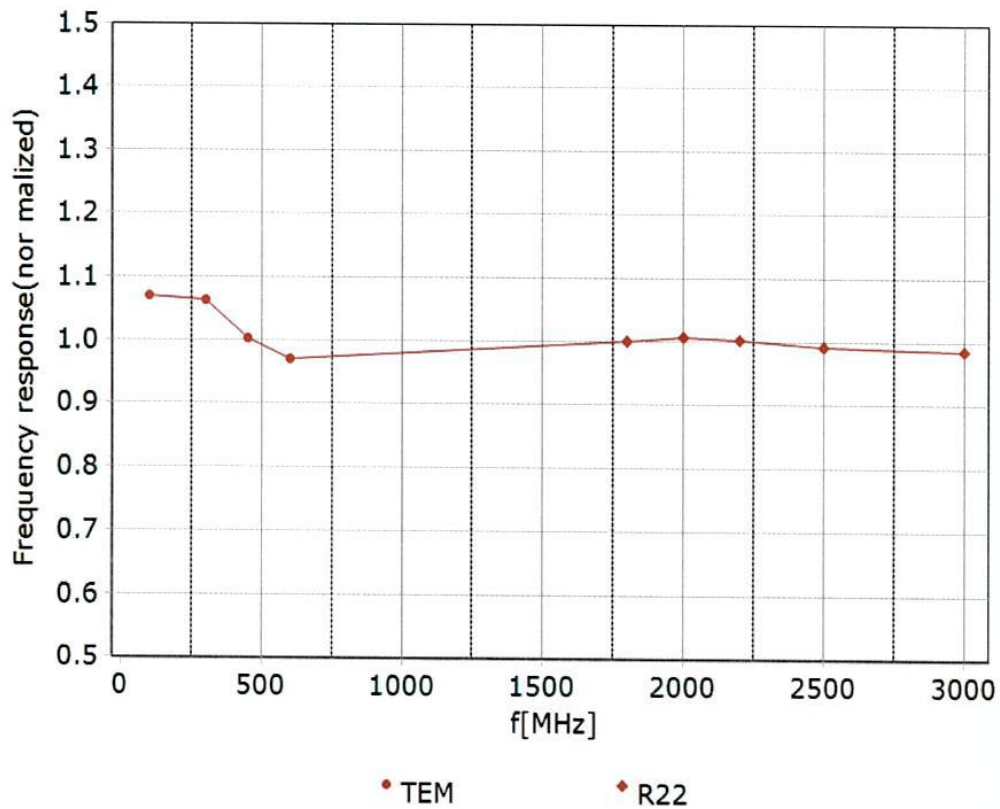
^F At frequency below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty 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: $\pm 7.4\%$ ($k=2$)

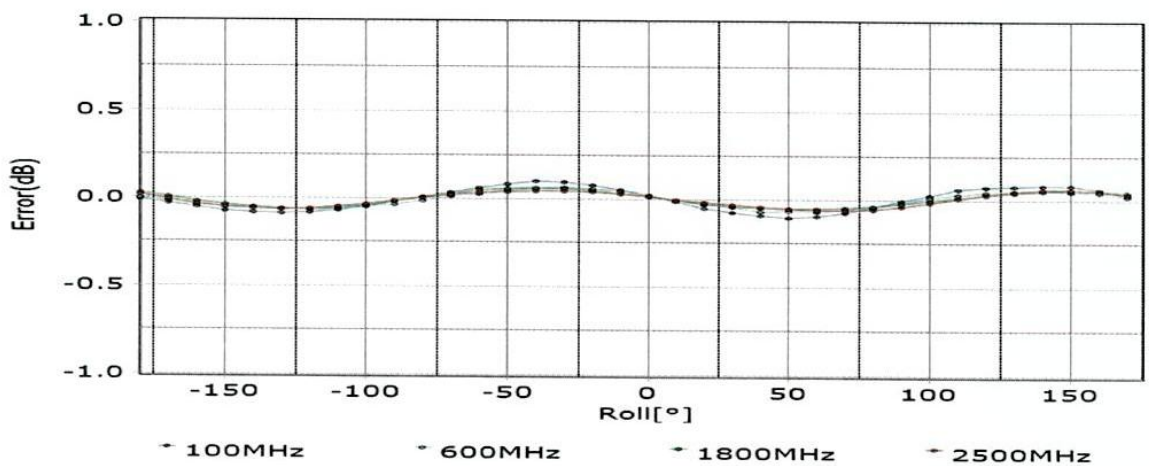
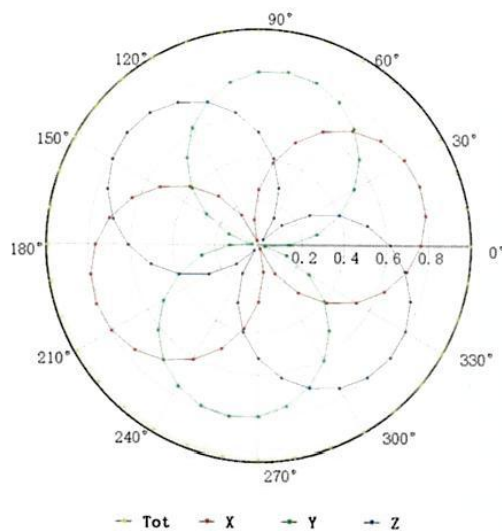
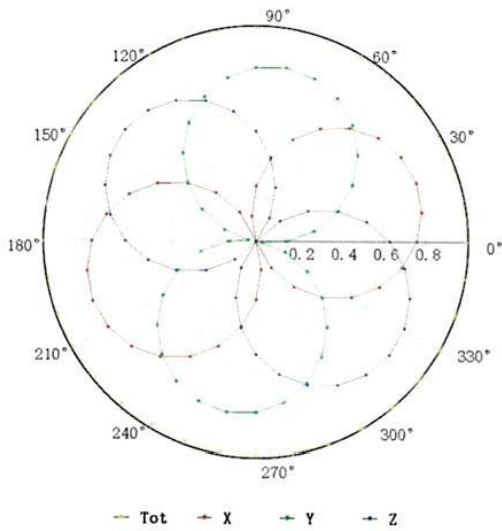


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Receiving Pattern (Φ), $\theta=0^\circ$

f=600 MHz, TEM

f=1800 MHz, R22

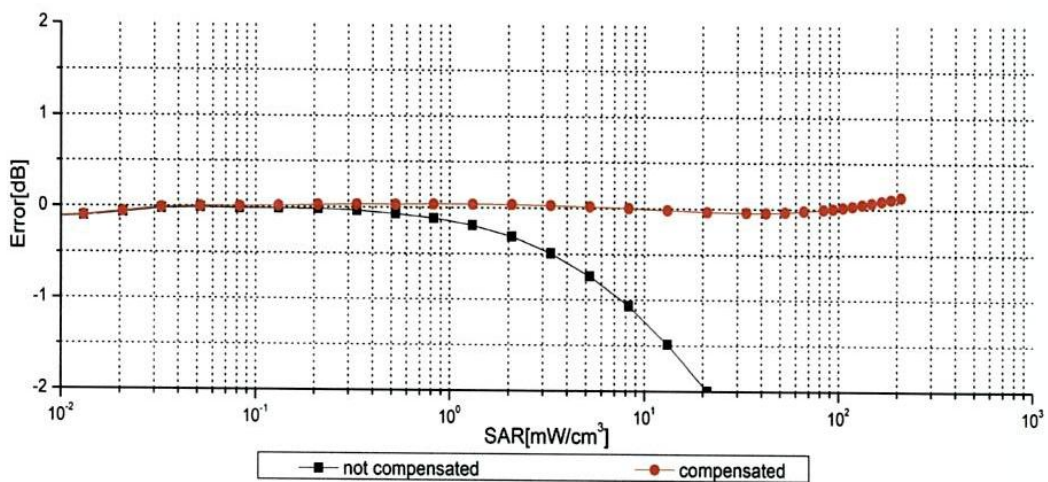
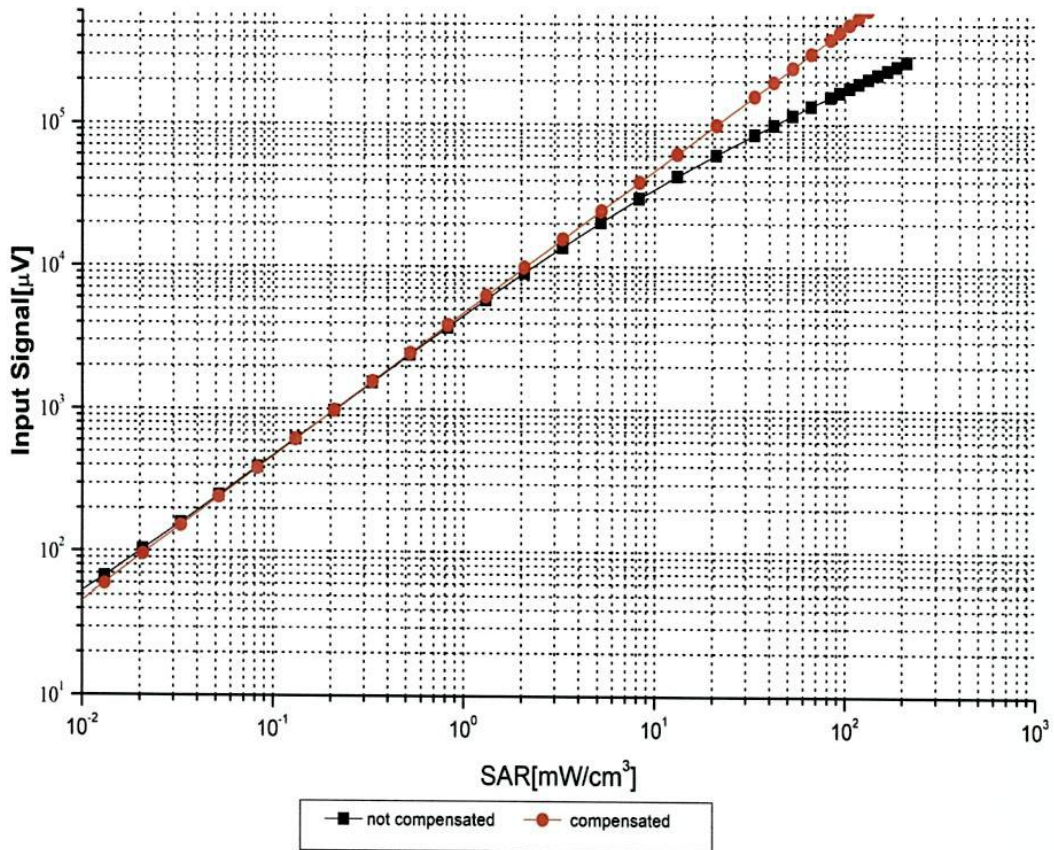


Uncertainty of Axial Isotropy Assessment: $\pm 1.2\%$ ($k=2$)

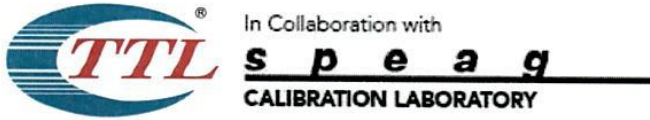


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Dynamic Range f(SAR_{head}) (TEM cell, f = 900 MHz)



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

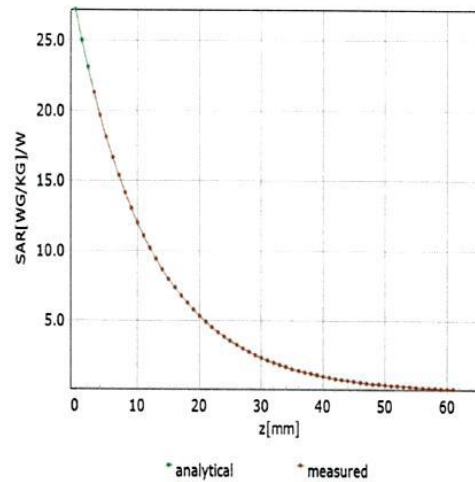
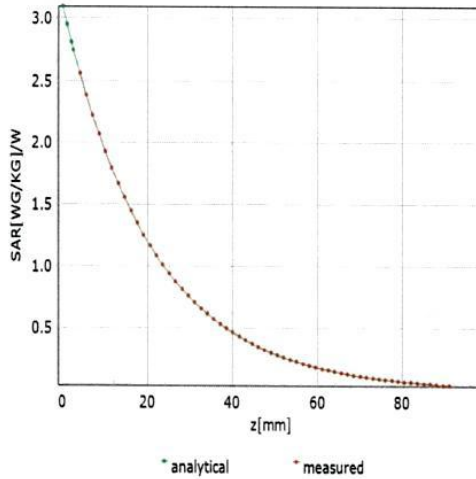


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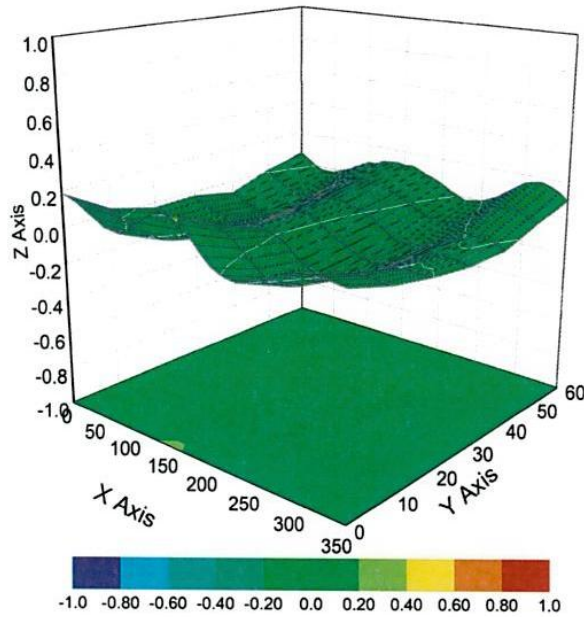
Conversion Factor Assessment

f=750 MHz, WGLS R9(H_convF)

f=1750 MHz, WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: $\pm 3.2\%$ ($k=2$)



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Other Probe Parameters

| | |
|--|-------------------|
| Sensor Arrangement | Triangular |
| Connector Angle (°) | 145.7 |
| 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 |