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## DASY/EASY – Parameters of Probe: EX3DV4 – SN:3805

### Basic Calibration Parameters

|                                      | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|--------------------------------------|----------|----------|----------|-----------|
| Norm( $\mu V/(V/m)^2$ ) <sup>A</sup> | 0.49     | 0.63     | 0.45     | ±10.0%    |
| DCP(mV) <sup>B</sup>                 | 101.4    | 97.7     | 101.4    |           |

### Modulation Calibration Parameters

| UID | Communication System Name |   | A<br>dB | B<br>dB $\sqrt{\mu V}$ | C   | D<br>dB | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-----|---------------------------|---|---------|------------------------|-----|---------|----------|---------------------------|
| 0   | CW                        | X | 0.0     | 0.0                    | 1.0 | 0.00    | 169.0    | ±2.5%                     |
|     |                           | Y | 0.0     | 0.0                    | 1.0 |         | 189.9    |                           |
|     |                           | Z | 0.0     | 0.0                    | 1.0 |         | 155.5    |                           |

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%.

<sup>A</sup> The uncertainties of Norm X, Y, Z do not affect the  $E^2$ -field uncertainty inside TSL (see Page 4).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> 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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## DASY/EASY – Parameters of Probe: EX3DV4 – SN:3805

### Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz] <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 750                  | 41.9                               | 0.89                            | 9.66    | 9.66    | 9.66    | 0.14               | 1.30                    | ±12.7%      |
| 835                  | 41.5                               | 0.90                            | 9.26    | 9.26    | 9.26    | 0.13               | 1.43                    | ±12.7%      |
| 1750                 | 40.1                               | 1.37                            | 8.16    | 8.16    | 8.16    | 0.23               | 1.09                    | ±12.7%      |
| 1900                 | 40.0                               | 1.40                            | 7.85    | 7.85    | 7.85    | 0.24               | 1.04                    | ±12.7%      |
| 2000                 | 40.0                               | 1.40                            | 7.83    | 7.83    | 7.83    | 0.22               | 1.13                    | ±12.7%      |
| 2300                 | 39.5                               | 1.67                            | 7.66    | 7.66    | 7.66    | 0.40               | 0.87                    | ±12.7%      |
| 2450                 | 39.2                               | 1.80                            | 7.42    | 7.42    | 7.42    | 0.36               | 0.94                    | ±12.7%      |
| 2600                 | 39.0                               | 1.96                            | 7.17    | 7.17    | 7.17    | 0.39               | 0.97                    | ±12.7%      |
| 3300                 | 38.2                               | 2.71                            | 7.01    | 7.01    | 7.01    | 0.47               | 0.90                    | ±13.9%      |
| 3500                 | 37.9                               | 2.91                            | 6.87    | 6.87    | 6.87    | 0.45               | 1.02                    | ±13.9%      |
| 3700                 | 37.7                               | 3.12                            | 6.65    | 6.65    | 6.65    | 0.35               | 1.25                    | ±13.9%      |
| 3900                 | 37.5                               | 3.32                            | 6.60    | 6.60    | 6.60    | 0.40               | 1.25                    | ±13.9%      |
| 4100                 | 37.2                               | 3.53                            | 6.54    | 6.54    | 6.54    | 0.40               | 1.15                    | ±13.9%      |
| 4200                 | 37.1                               | 3.63                            | 6.45    | 6.45    | 6.45    | 0.35               | 1.35                    | ±13.9%      |
| 4400                 | 36.9                               | 3.84                            | 6.36    | 6.36    | 6.36    | 0.40               | 1.25                    | ±13.9%      |
| 4600                 | 36.7                               | 4.04                            | 6.26    | 6.26    | 6.26    | 0.40               | 1.30                    | ±13.9%      |
| 4800                 | 36.4                               | 4.25                            | 6.20    | 6.20    | 6.20    | 0.40               | 1.38                    | ±13.9%      |
| 4950                 | 36.3                               | 4.40                            | 5.95    | 5.95    | 5.95    | 0.40               | 1.40                    | ±13.9%      |
| 5250                 | 35.9                               | 4.71                            | 5.38    | 5.38    | 5.38    | 0.40               | 1.50                    | ±13.9%      |
| 5600                 | 35.5                               | 5.07                            | 4.75    | 4.75    | 4.75    | 0.50               | 1.30                    | ±13.9%      |
| 5750                 | 35.4                               | 5.22                            | 4.88    | 4.88    | 4.88    | 0.45               | 1.40                    | ±13.9%      |

<sup>C</sup> 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.

<sup>F</sup> At frequency up to 6 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.



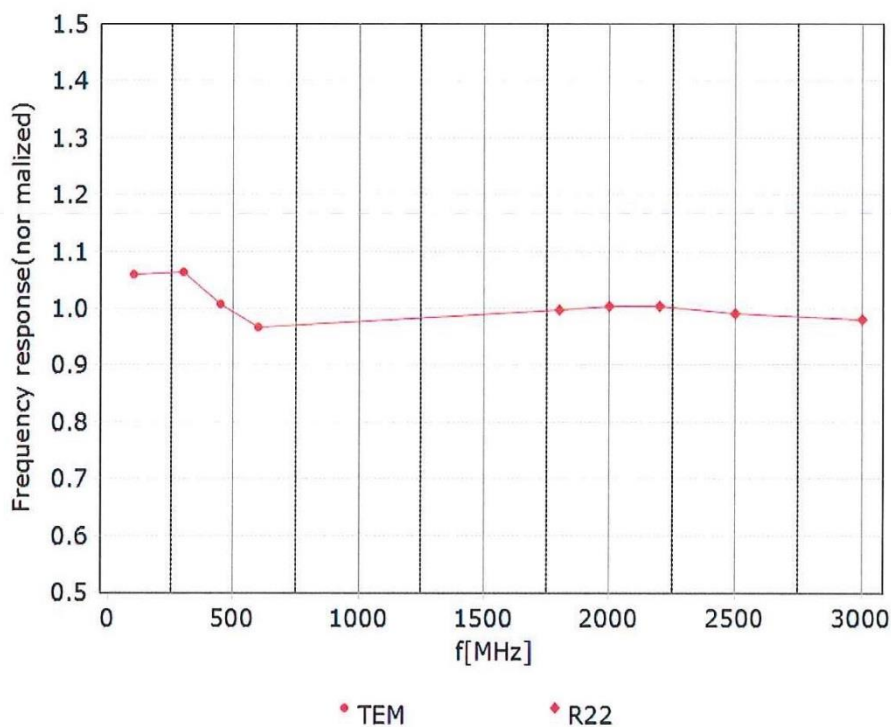


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## Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



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





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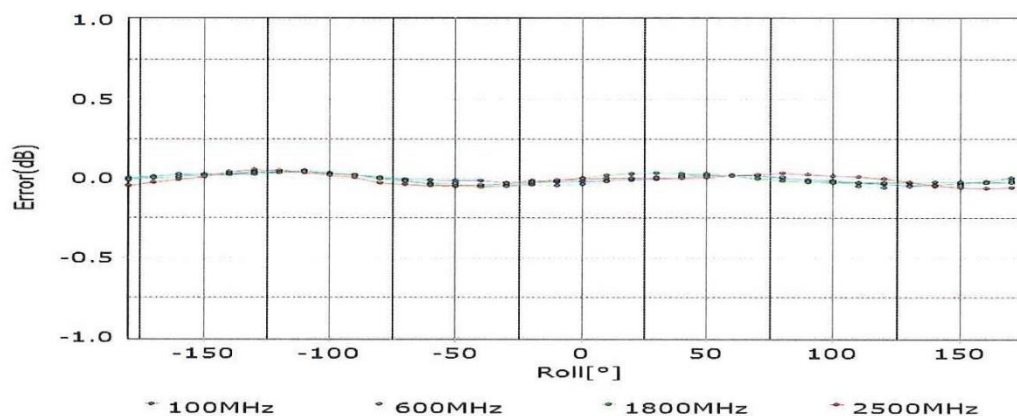
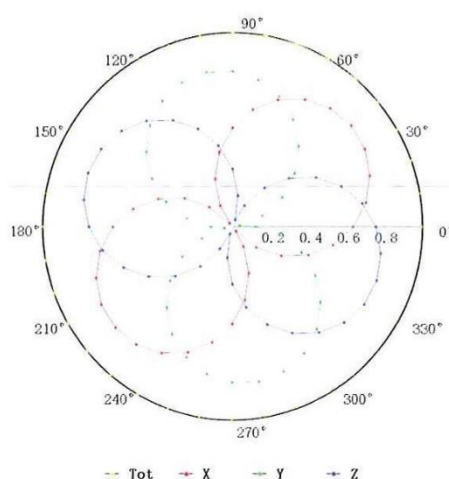
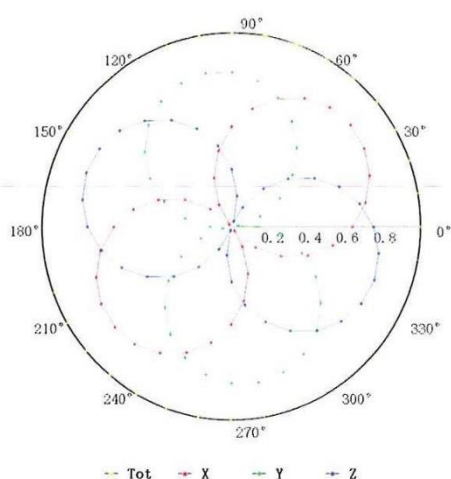
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## Receiving Pattern ( $\Phi$ ), $\theta=0^\circ$

**f=600 MHz, TEM**

**f=1800 MHz, R22**



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

Certificate No:24J02Z80102

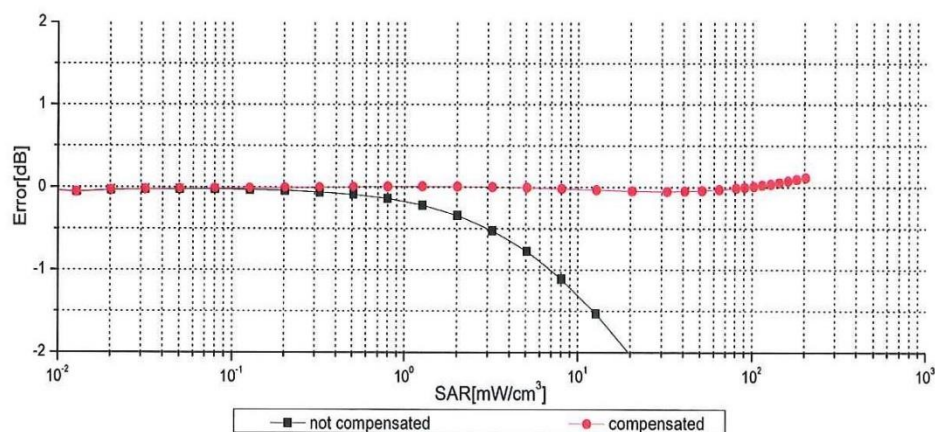
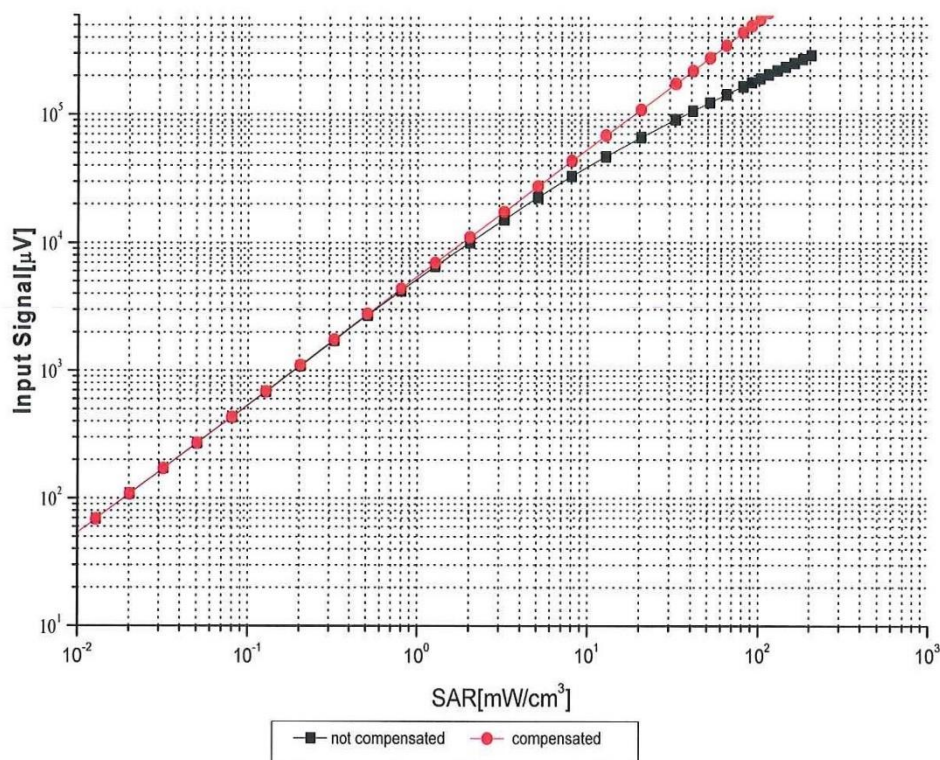
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### Dynamic Range f(SAR<sub>head</sub>) (TEM cell, f = 900 MHz)



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

Certificate No:24J02Z80102

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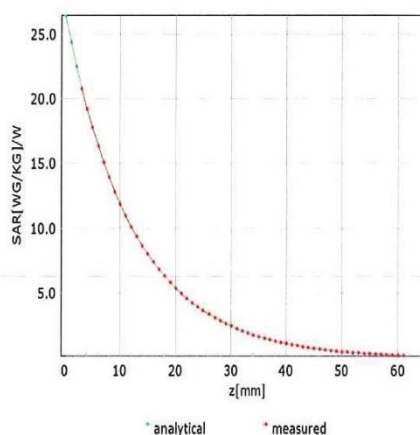
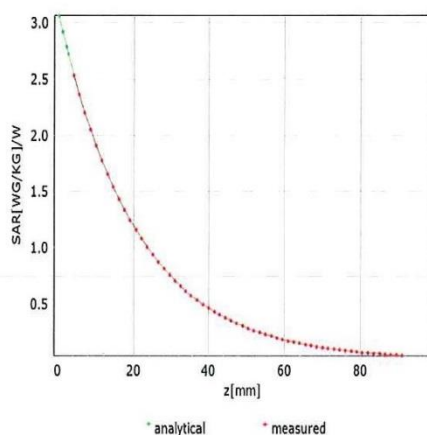


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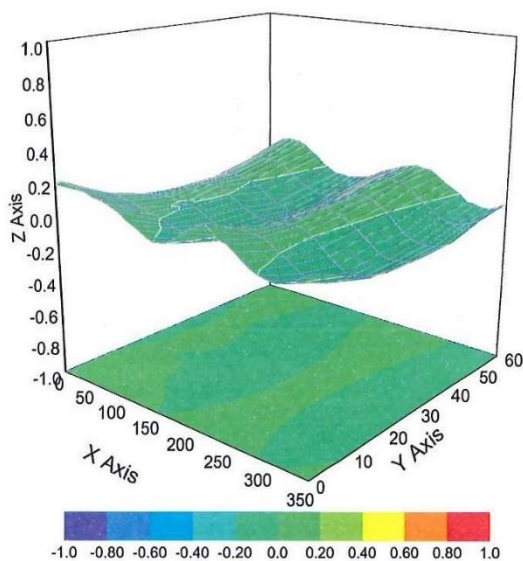
## Conversion Factor Assessment

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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## DASY/EASY – Parameters of Probe: EX3DV4 – SN:3805

### Other Probe Parameters

|                                               |            |
|-----------------------------------------------|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle (°)                           | 127.3      |
| 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      |





## APPENDIX D: PHOTOGRAPHS

- |                                          |
|------------------------------------------|
| 1. SAR measurement System                |
| 2. Photographs of Tissue Simulate Liquid |
| 3. Photographs of EUT test position      |
| 4. EUT Constructional Details            |



## 1. SAR measurement System





## 2. Photographs of Tissue Simulate Liquid

| Photo 1: Tissue Simulant Liquid for Head 2450                                     | N/A |
|-----------------------------------------------------------------------------------|-----|
|  |     |



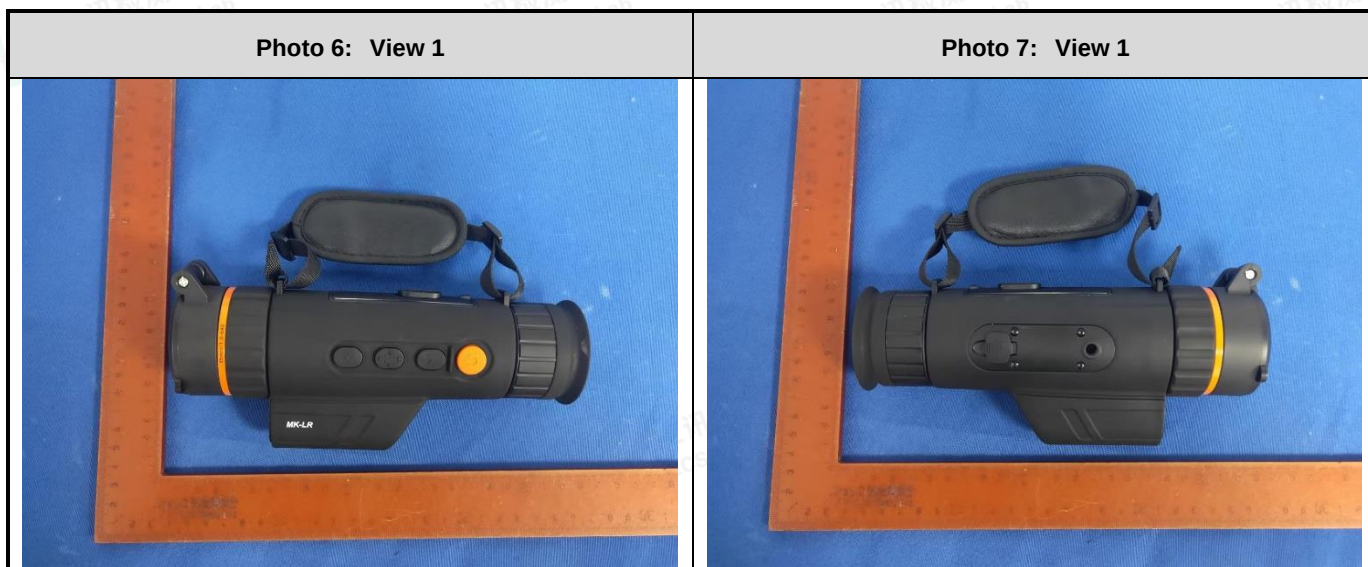


### 3. Photographs of EUT test position

|                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Photo 2: Front side(0mm)                                                            | Photo 3: Rear side(0mm)                                                              |
|    |    |
| Photo 4: Left side(0mm)                                                             | Photo 5: Right side(0mm)                                                             |
|   |   |
| Top side(0mm)                                                                       | Bottom side(0mm)                                                                     |
|  |  |



## 4. EUT Constructional Details



.....The End of Test Report.....

