

# Probe ET3DV6

SN: 1560

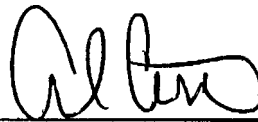
Manufactured:  
Calibrated:

December 1, 2000  
February 20, 2002

Calibrated for System DASY3

PCTEST Calibration Laboratory

Approved By:



Alfred Cirwithian  
Vice President Engineering

## ET3DV6 SN:1560

### DASY3 - Parameters of Probe: ET3DV6 SN:1560

#### Sensitivity in Free Space

|       |                                                 |
|-------|-------------------------------------------------|
| NormX | <b>1.48</b> $\mu\text{V}/(\text{V}/\text{m})^2$ |
| NormY | <b>1.51</b> $\mu\text{V}/(\text{V}/\text{m})^2$ |
| NormZ | <b>1.43</b> $\mu\text{V}/(\text{V}/\text{m})^2$ |

#### Diode Compression

|       |              |
|-------|--------------|
| DCP X | <b>98</b> mV |
| DCP Y | <b>98</b> mV |
| DCP Z | <b>98</b> mV |

#### Sensitivity in Tissue Simulating Liquid

**Head**                      **835 MHz Brain**                       $\epsilon_r = 41.5 \pm 5\%$                        $s = 0.90 \pm 5\% \text{ mho/m}$

|         |             |                  |             |
|---------|-------------|------------------|-------------|
| ConvF X | <b>6.78</b> | Boundary effect: |             |
| ConvF Y | <b>6.78</b> | Alpha            | <b>0.30</b> |
| ConvF Z | <b>6.78</b> | Depth            | <b>2.90</b> |

**Body**                      **835 MHz Muscle**                       $\epsilon_r = 56.2 \pm 5\%$                        $s = 0.95 \pm 5\% \text{ mho/m}$

|         |                             |                  |             |
|---------|-----------------------------|------------------|-------------|
| ConvF X | <b>6.52</b> $\pm 7\%$ (k=2) | Boundary effect: |             |
| ConvF Y | <b>6.52</b> $\pm 7\%$ (k=2) | Alpha            | <b>0.30</b> |
| ConvF Z | <b>6.52</b> $\pm 7\%$ (k=2) | Depth            | <b>2.90</b> |

**Head**                      **1900 MHz Brain**                       $\epsilon_r = 40.0 \pm 5\%$                        $s = 1.40 \pm 5\% \text{ mho/m}$

|         |             |                  |             |
|---------|-------------|------------------|-------------|
| ConvF X | <b>5.16</b> | Boundary effect: |             |
| ConvF Y | <b>5.16</b> | Alpha            | <b>0.48</b> |
| ConvF Z | <b>5.16</b> | Depth            | <b>2.40</b> |

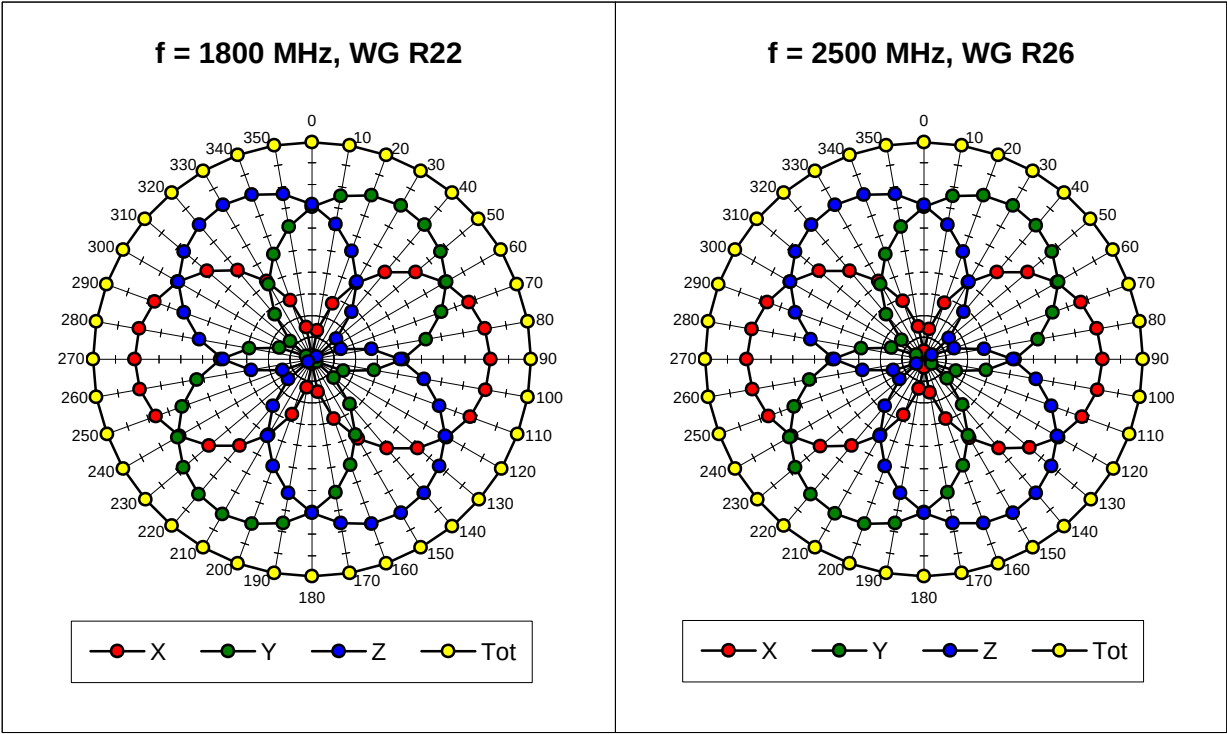
**Body**                      **1900 MHz Muscle**                       $\epsilon_r = 54.2 \pm 5\%$                        $s = 1.50 \pm 5\% \text{ mho/m}$

|         |                             |                  |             |
|---------|-----------------------------|------------------|-------------|
| ConvF X | <b>4.70</b> $\pm 7\%$ (k=2) | Boundary effect: |             |
| ConvF Y | <b>4.70</b> $\pm 7\%$ (k=2) | Alpha            | <b>0.48</b> |
| ConvF Z | <b>4.70</b> $\pm 7\%$ (k=2) | Depth            | <b>2.40</b> |

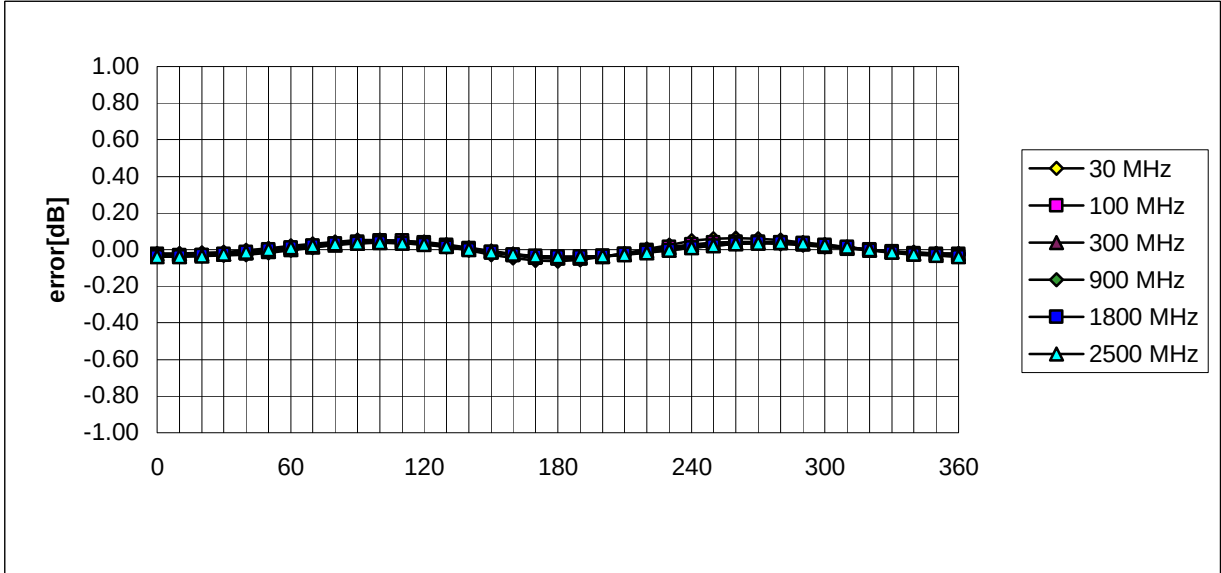
#### Sensor Offset

|                            |                                 |    |
|----------------------------|---------------------------------|----|
| Probe Tip to Sensor Center | <b>2.7</b>                      | mm |
| Optical Surface Detection  | <b>2.0 <math>\pm</math> 0.2</b> | mm |

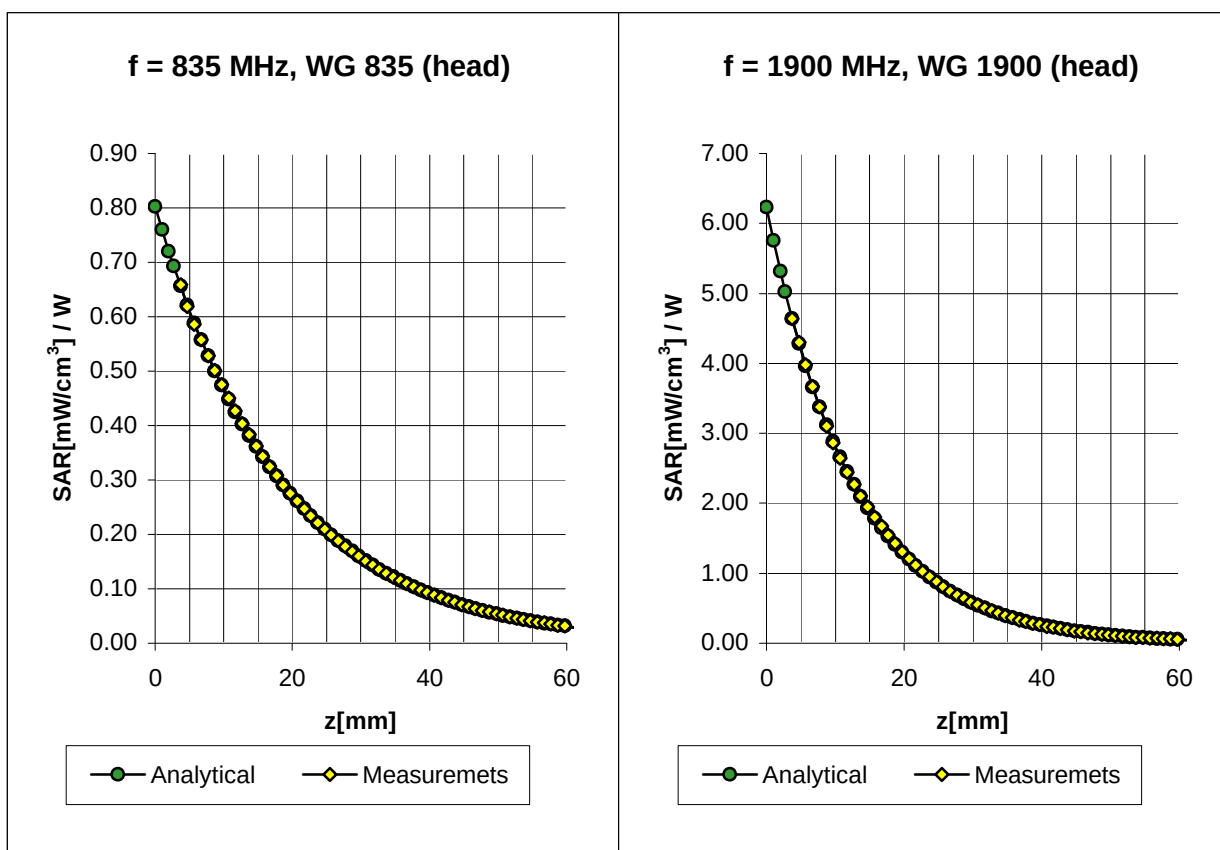
ET3DV6 SN:1560



Isotropy Error ( f ), q = 0°



# Conversion Factor Assessment



|      |                |                             |                                  |
|------|----------------|-----------------------------|----------------------------------|
| Head | 835 MHz Brain  | $\epsilon_r = 42 \pm 5\%$   | $s = 0.90 \pm 5\% \text{ mho/m}$ |
|      | ConvF X        | <b>6.78</b> $\pm 7\%$ (k=2) | Boundary effect:                 |
|      | ConvF Y        | <b>6.78</b> $\pm 7\%$ (k=2) | Alpha <b>0.30</b>                |
|      | ConvF Z        | <b>6.78</b> $\pm 7\%$ (k=2) | Depth <b>2.90</b>                |
| Head | 1900 MHz Brain | $\epsilon_r = 40 \pm 5\%$   | $s = 1.40 \pm 5\% \text{ mho/m}$ |
|      | ConvF X        | <b>5.16</b> $\pm 7\%$ (k=2) | Boundary effect:                 |
|      | ConvF Y        | <b>5.16</b> $\pm 7\%$ (k=2) | Alpha <b>0.48</b>                |
|      | ConvF Z        | <b>5.16</b> $\pm 7\%$ (k=2) | Depth <b>2.40</b>                |

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# Schmid & Partner Engineering AG

Zughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

## Certificate of conformity / First Article Inspection

|                       |                                                                          |
|-----------------------|--------------------------------------------------------------------------|
| Item                  | SAM Twin Phantom V4.0                                                    |
| Type No               | QD 000 P40 BA                                                            |
| Series No             | TP-1002 and higher                                                       |
| Manufacturer / Origin | Untersee Composites<br>Hauptstr. 69<br>CH-8559 Fruthwilen<br>Switzerland |

### Tests

The series production process used allows the limitation to test of first articles.  
Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

| Test                 | Requirement                                                                             | Details                                                              | Units tested                |
|----------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------|
| Shape                | Compliance with the geometry according to the CAD model.                                | IT'IS CAD File (*)                                                   | First article, Samples      |
| Material thickness   | Compliant with the requirements according to the standards                              | 2mm +/- 0.2mm in specific areas                                      | First article, Samples      |
| Material parameters  | Dielectric parameters for required frequencies                                          | 200 MHz – 3 GHz<br>Relative permittivity < 5<br>Loss tangent < 0.05. | Material sample<br>TP 104-5 |
| Material resistivity | The material has been tested to be compatible with the liquids defined in the standards | Liquid type HSL 1800 and others according to the standard.           | Pre-series, First article   |

### Standards

- [1] CENELEC EN 50361
- [2] IEEE P1528-200x draft 6.5
- [3] IEC PT 62209 draft 0.9
- (\*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

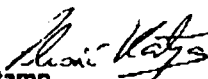
### Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date

18.11.2001

Signature / Stamp



**Schmid & Partner  
Engineering AG**



Zughausstrasse 43, CH-8004 Zurich  
Tel. +41 1 245 97 00, Fax +41 1 245 97 79