

Client **EMC Technologies Pty**

## CALIBRATION CERTIFICATE

Object(s) **ET3DV6 - SN:1377**

Calibration procedure(s) **QA CAL-01.v2  
Calibration procedure for dosimetric E-field probes**

Calibration date: **September 19, 2003**

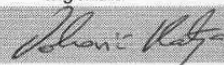
Condition of the calibrated item **In Tolerance (according to the specific calibration document)**

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

| Model Type                        | ID #           | Cal Date (Calibrated by, Certificate No.) | Scheduled Calibration  |
|-----------------------------------|----------------|-------------------------------------------|------------------------|
| Power meter EPM E4419B            | GB41293874     | 2-Apr-03 (METAS, No 252-0250)             | Apr-04                 |
| Power sensor E4412A               | MY41495277     | 2-Apr-03 (METAS, No 252-0250)             | Apr-04                 |
| Reference 20 dB Attenuator        | SN: 5086 (20b) | 3-Apr-03 (METAS No. 251-0340)             | Apr-04                 |
| Fluke Process Calibrator Type 702 | SN: 6295803    | 8-Sep-03 (Sintrel SCS No. E-030020)       | Sep-04                 |
| Power sensor HP 8481A             | MY41092180     | 18-Sep-02 (Agilent, No. 20020918)         | In house check: Oct 03 |
| RF generator HP 8684C             | US3642U01700   | 4-Aug-99 (SPEAG, in house check Aug-02)   | In house check: Aug-05 |
| Network Analyzer HP 8753E         | US37390585     | 18-Oct-01 (Agilent, No. 24BR1033101)      | In house check: Oct 03 |

|                |               |                     |                                                                                       |
|----------------|---------------|---------------------|---------------------------------------------------------------------------------------|
|                | Name          | Function            | Signature                                                                             |
| Calibrated by: | Katja Pokovic | Laboratory Director |  |
| Approved by:   | Fin Bomholt   | R&D Director        |  |

Date issued: September 20, 2003

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

# Probe ET3DV6

## SN:1377

|                   |                    |
|-------------------|--------------------|
| Manufactured:     | August 16, 1999    |
| Last calibration: | September 6, 2002  |
| Recalibrated:     | September 19, 2003 |

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

**DASY - Parameters of Probe: ET3DV6 SN:1377****Sensitivity in Free Space****Diode Compression**

|       |                                                 |       |           |    |
|-------|-------------------------------------------------|-------|-----------|----|
| NormX | <b>1.78</b> $\mu\text{V}/(\text{V}/\text{m})^2$ | DCP X | <b>92</b> | mV |
| NormY | <b>1.81</b> $\mu\text{V}/(\text{V}/\text{m})^2$ | DCP Y | <b>92</b> | mV |
| NormZ | <b>1.87</b> $\mu\text{V}/(\text{V}/\text{m})^2$ | DCP Z | <b>92</b> | mV |

**Sensitivity in Tissue Simulating Liquid**

Head 900 MHz  $\epsilon_r = 41.5 \pm 5\%$   $\sigma = 0.97 \pm 5\%$  mho/m

Valid for f=800-1000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

|         |                              |                  |             |
|---------|------------------------------|------------------|-------------|
| ConvF X | <b>6.2</b> $\pm 9.5\%$ (k=2) | Boundary effect: |             |
| ConvF Y | <b>6.2</b> $\pm 9.5\%$ (k=2) | Alpha            | <b>0.30</b> |
| ConvF Z | <b>6.2</b> $\pm 9.5\%$ (k=2) | Depth            | <b>3.18</b> |

Head 1800 MHz  $\epsilon_r = 40.0 \pm 5\%$   $\sigma = 1.40 \pm 5\%$  mho/m

Valid for f=1710-1910 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

|         |                              |                  |             |
|---------|------------------------------|------------------|-------------|
| ConvF X | <b>5.1</b> $\pm 9.5\%$ (k=2) | Boundary effect: |             |
| ConvF Y | <b>5.1</b> $\pm 9.5\%$ (k=2) | Alpha            | <b>0.46</b> |
| ConvF Z | <b>5.1</b> $\pm 9.5\%$ (k=2) | Depth            | <b>2.70</b> |

**Boundary Effect**

Head 900 MHz Typical SAR gradient: 5 % per mm

|                       |                              |      |      |
|-----------------------|------------------------------|------|------|
| Probe Tip to Boundary |                              | 1 mm | 2 mm |
| SAR <sub>be</sub> [%] | Without Correction Algorithm | 10.8 | 6.6  |
| SAR <sub>be</sub> [%] | With Correction Algorithm    | 0.5  | 0.6  |

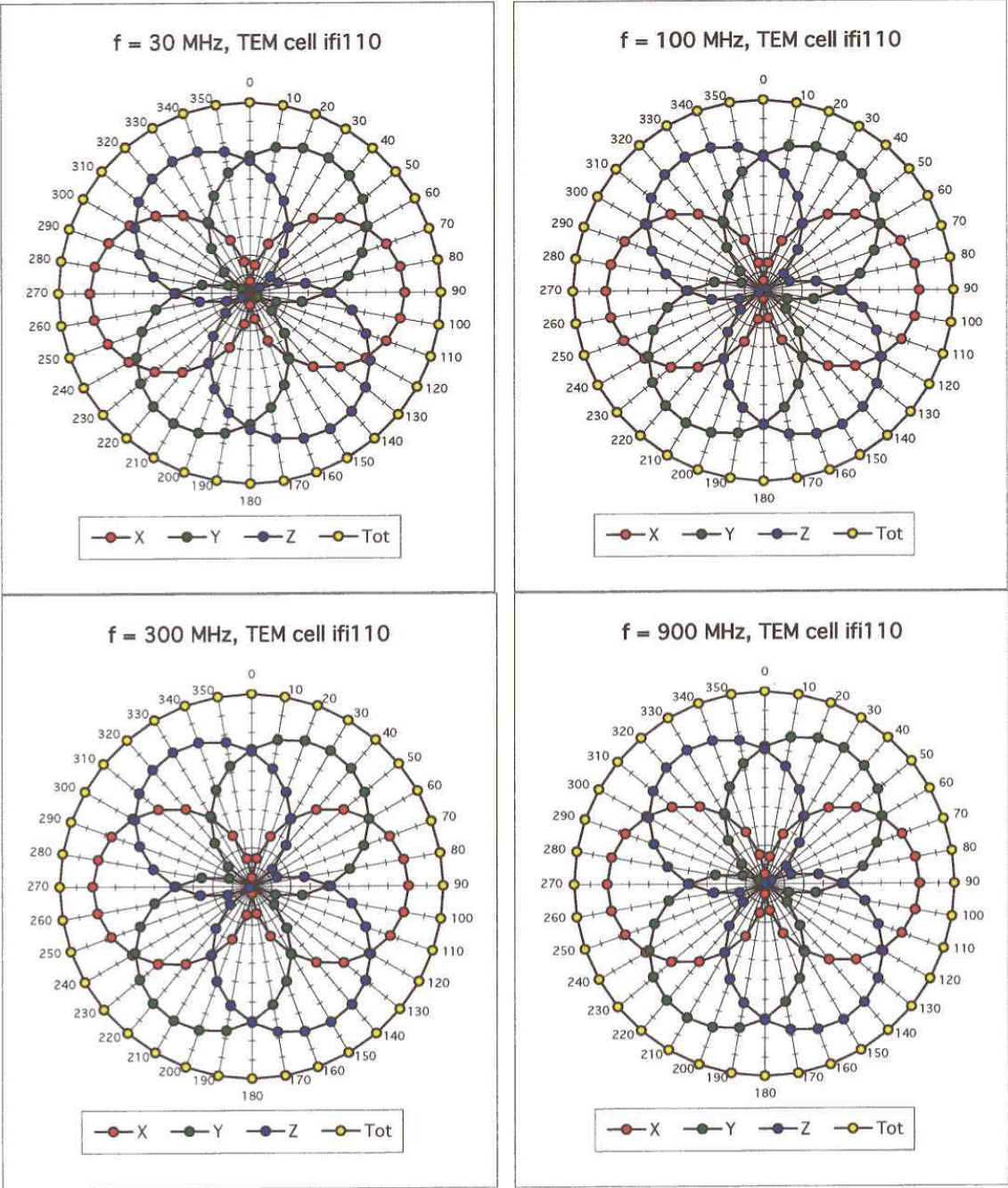
Head 1800 MHz Typical SAR gradient: 10 % per mm

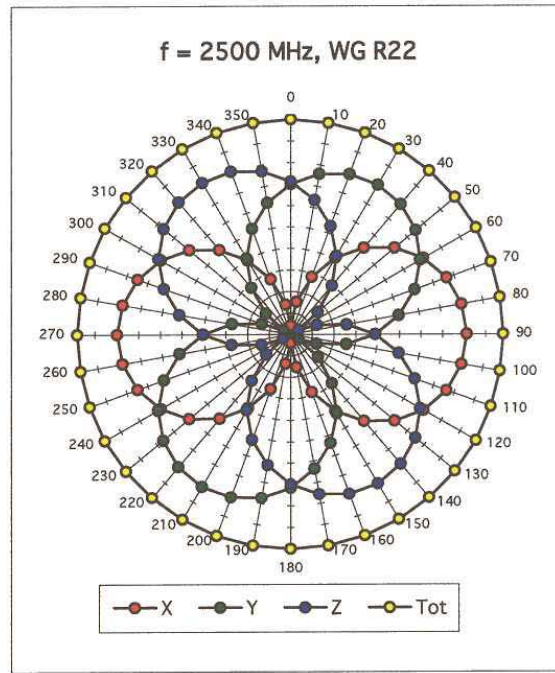
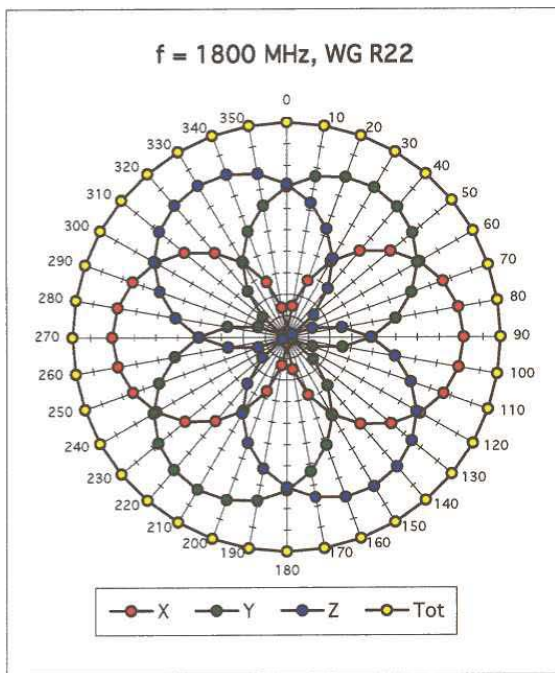
|                       |                              |      |      |
|-----------------------|------------------------------|------|------|
| Probe Tip to Boundary |                              | 1 mm | 2 mm |
| SAR <sub>be</sub> [%] | Without Correction Algorithm | 12.9 | 9.0  |
| SAR <sub>be</sub> [%] | With Correction Algorithm    | 0.3  | 0.2  |

**Sensor Offset**

|                            |                                 |    |
|----------------------------|---------------------------------|----|
| Probe Tip to Sensor Center | <b>2.7</b>                      | mm |
| Optical Surface Detection  | <b>1.3 <math>\pm</math> 0.2</b> | mm |

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





### Isotropy Error ( $\phi$ ), $\theta = 0^\circ$

