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| Shahriar Ninad | July 03-27, 2007 | RTS-0665-0706-25 | L6ARBR40 | GW |

APPENDIX D: PROBE & DIPOLE CALIBRATION DATA

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|----------------------------|---|--|------------|----|
| Author Data Shahriar Ninad | Dates of Test | | | GW |

Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstresse 43, 8004 Zurich, Switzerland





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Client RIM

Certificate No: ET3-1642_Jan07

| Object | ET3DV6 - SN:1 | 642 | |
|---|---|--|---|
| Calibration procedure(s) | QA CAL-01.v5 Calibration prod | sedure for dosimetric E-field probes | 14.510.4 |
| Calibration date: | January 15, 200 | 07 | |
| Condition of the calibrated item | In Tolerance | | |
| All calibrations have been condu | cted in the closed laborat | lory facility: environment temperature (22 ± 3)°C and | d humidity < 70%. |
| | | | |
| Primary Standards | ID# | Cal Date (Calibrated by, Certificate No.) | Scheduled Calibration |
| Primary Standards Power meter E4419B | ID# GB41293874 | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) | Apr-07 |
| Primary Standards Power meter E4419B Power sensor E4412A | ID# GB41293874 MY41495277 | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) | Apr-07 Apr-07 |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A | ID # GB41293874 MY41495277 MY41498087 | Cal Date (Calibrated by, Cartificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) | Apr-07 Apr-07 Apr-07 |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 c8 Altenuator | ID # GB41293874 MY41495277 MY41498087 SN: S5054 (3c) | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 10-Aug-06 (METAS, No. 251-00557) 10-Aug-06 (METAS, No. 217-00592) | Apr-07 Apr-07 Apr-07 Aug-07 |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 cB Attenuator Reference 20 dB Attenuator | ID# GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 10-Aug-08 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 251-00558) | Apr-07 Apr-07 Apr-07 Aug-07 Apr-07 |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 cB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator | ID # GB41293874 MY41495277 MY41498087 SN: \$5054 (3c) SN: \$5086 (20b) SN: \$5129 (30b) | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-08 (METAS, No. 251-00557) 10-Aug-08 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 251-00559) 10-Aug-06 (METAS, No. 217-00593) | Apr-07 Apr-07 Apr-07 Aug-07 Apr-07 Aug-07 |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 cB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference Probe ES30V2 | ID# GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 10-Aug-08 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 251-00558) | Apr-07 Apr-07 Apr-07 Aug-07 Apr-07 |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 cB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference Probe ES30V2 DAE4 | ID # GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 3013 SN: 654 | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 10-Aug-06 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 217-00598) 10-Aug-06 (METAS, No. 217-00593) 4-Jan-07 (SPEAG, No. ES3-3013_Jan07) 21-Jun-06 (SPEAG, No. DAE4-854_Jun08) | Apr-07 Apr-07 Apr-07 Aug-07 Apr-07 Aug-07 Jan-08 Jun-07 |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference Probe ES30V2 DAE4 Secondary Standards | ID # GB41293874 MY41495277 MY41498087 SN: \$5054 (3c) SN: \$5086 (20b) SN: \$5129 (30b) SN: 3013 SN: 654 | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 10-Aug-08 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 217-00593) 4-Jan-07 (SPEAG, No. ES3-3013, Jan07) 21-Jun-06 (SPEAG, No. DAE4-654_Jun08) Check Date (in house) | Apr-07 Apr-07 Apr-07 Aug-07 Aug-07 Aug-07 Jan-08 Jun-07 Scheduled Check |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 cB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference Probe ES30V2 DAE4 Secondary Standards RF generator HP 8648C | ID # GB41293874 MY41495277 MY41498087 SN: \$5054 (3c) SN: \$5086 (20b) SN: \$5129 (30b) SN: 3013 SN: 654 ID # US3642U01700 | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-08 (METAS, No. 251-00557) 5-Apr-08 (METAS, No. 251-00557) 10-Aug-08 (METAS, No. 251-00552) 4-Apr-06 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 217-00593) 4-Jan-07 (SPEAG, No. E93-3013, Jan07) 21-Jun-06 (SPEAG, No. DAE4-654_Jun08) Check Date (in house) 4-Aug-99 (SPEAG, in house check Nov-05) | Apr-07 Apr-07 Apr-07 Aug-07 Aug-07 Aug-07 Jan-08 Jun-07 Scheduled Check In house check: Nov-07 |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference Probe ES30V2 DAE4 Secondary Standards RF generator HP 8648C | ID # GB41293874 MY41495277 MY41498087 SN: \$5054 (3c) SN: \$5086 (20b) SN: \$5129 (30b) SN: 3013 SN: 654 | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 10-Aug-08 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 217-00593) 4-Jan-07 (SPEAG, No. ES3-3013, Jan07) 21-Jun-06 (SPEAG, No. DAE4-654_Jun08) Check Date (in house) | Apr-07 Apr-07 Apr-07 Aug-07 Aug-07 Aug-07 Jan-08 Jun-07 Scheduled Check |
| Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 cB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference Probe ES30V2 DAE4 Secondary Standards RF generator HP 8648C Network Analyzer HP 8753E | ID # GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 3013 SN: 654 ID # US3542U01700 US37390585 Name | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-08 (METAS, No. 251-00557) 5-Apr-08 (METAS, No. 251-00557) 10-Aug-08 (METAS, No. 251-00552) 4-Apr-06 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 217-00593) 4-Jan-07 (SPEAG, No. E93-3013, Jan07) 21-Jun-06 (SPEAG, No. DAE4-654_Jun08) Check Date (in house) 4-Aug-99 (SPEAG, in house check Nov-05) | Apr-07 Apr-07 Apr-07 Aug-07 Aug-07 Aug-07 Jan-08 Jun-07 Scheduled Check In house check: Nov-07 |
| Calibration Equipment used (M& Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference Probe ES3DV2 DAE4 Secondary Standards RF generator HP 8648C Network Analyzer HP 8753E | ID # GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 3513 SN: 654 ID # US3642U01700 US37390585 | Cal Date (Calibrated by, Certificate No.) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 5-Apr-06 (METAS, No. 251-00557) 10-Aug-06 (METAS, No. 251-00559) 4-Apr-06 (METAS, No. 217-00592) 4-Apr-06 (METAS, No. 251-00558) 10-Aug-06 (METAS, No. 217-00593) 4-Jan-07 (SPEAG, No. 237-00593) 4-Jan-07 (SPEAG, No. DAE4-654_Jun/06) Check Date (in house) 4-Aug-99 (SPEAG, in house check Nov-05) 18-Oct-01 (SPEAG, in house check Oct-06) | Apr-07 Apr-07 Apr-07 Apr-07 Aug-07 Aug-07 Jan-08 Jun-07 Scheduled Check In house check: Nov-07 In house check; Oct-07 |

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| Shahriar Ninad | July 03-27, 2007 | RTS-0665-0706-25 | L6ARBR40 | GW |

Calibration Laboratory of Schmid & Partner

Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





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S Swiss Calibration Service

Accreditation No.: SCS 108

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Glossary:

TSL tissue simulating liquid NORMx,y.z sensitivity in free space

ConF sensitivity in TSL / NORMx,y,z
DCP diode compression point
Polarization φ rotation around probe axis

Polarization 9 9 rotation around an axis that is in the plane normal to probe axis (at

measurement center), i.e., 9 = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001

Methods Applied and Interpretation of Parameters:

- NORMx,y,z: Assessed for E-field polarization 9 = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,y,z * frequency_response (see Frequency Response Chart). This
 linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of
 the frequency response is included in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required,

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|--------------------------------|-------------|--|

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January 15, 2007

Probe ET3DV6

SN:1642

Manufactured: November 7, 2001 Last calibrated: January 19, 2006 Recalibrated: January 15, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

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ET3DV6 SN:1642 January 15, 2007

DASY - Parameters of Probe: ET3DV6 SN:1642

| Sensitivity in Free Space ^A | | Diode C | ompression ^B | |
|--|--------------|-----------------|-------------------------|-------|
| NormX | 1.69 ± 10.1% | $\mu V/(V/m)^2$ | DCP X | 94 mV |
| Namel | 4 00 40 40 | \ ///\ //m \2 | DODY | 001/ |

NormY 1.86 \pm 10.1% μ V/(V/m)² DCP Y 96 mV NormZ 1.62 \pm 10.1% μ V/(V/m)² DCP Z 95 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL 900 MHz Typical SAR gradient: 5 % per mm

| Sensor Cente | r to Phantom Surface Distance | 3.7 mm | 4.7 mm |
|-----------------------|-------------------------------|--------|--------|
| SAR _{be} [%] | Without Correction Algorithm | 5.5 | 2.5 |
| SAR _{bo} [%] | With Correction Algorithm | 0.3 | 0.2 |

TSL 1810 MHz Typical SAR gradient: 10 % per mm

| Sensor Cente | er to Phantom Surface Distance | 3.7 mm | 4.7 mm |
|-----------------------|--------------------------------|--------|--------|
| SAR _{be} [%] | Without Correction Algorithm | 12.3 | 8.1 |
| SAR _{be} [%] | With Correction Algorithm | 0.6 | 0.3 |

Sensor Offset

Probe Tip to Sensor Center 2.7 mm

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%.

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^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Page 8).

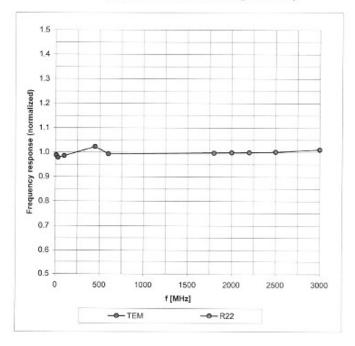
⁸ Numerical linearization parameter; uncertainty not required.

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January 15, 2007

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

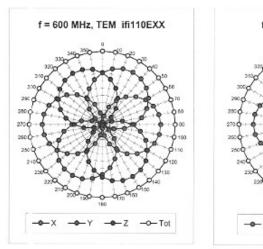
Certificate No: ET3-1642_Jan07

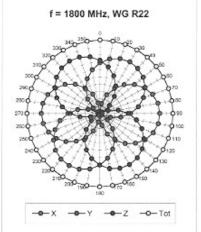
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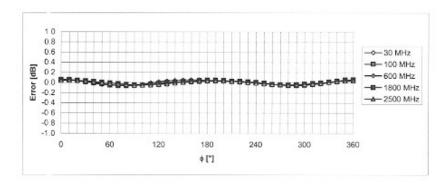
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Receiving Pattern (6), 9 = 0°







Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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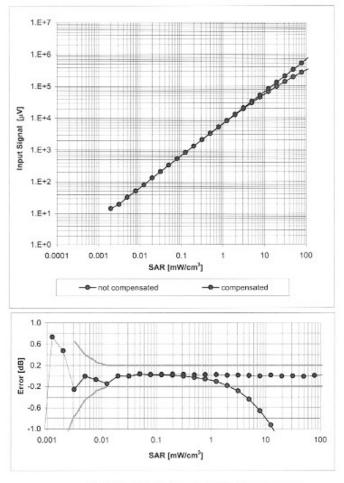
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January 15, 2007

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)



Uncertainty of Linearity Assessment: ± 0.6% (k=2)

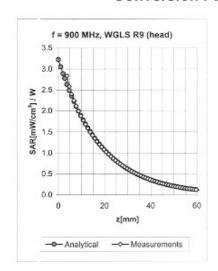
Certificate No: ET3-1642_Jan07

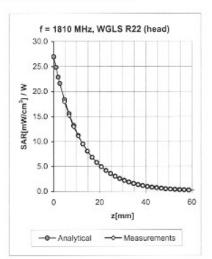
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January 15, 2007

Conversion Factor Assessment





| f [MHz] | Validity [MHz] ^C | TSL | Permittivity | Conductivity | Alpha | Depth | ConvF Uncertainty |
|---------|-----------------------------|------|--------------|----------------|-------|-------|--------------------|
| 900 | ± 50 / ± 100 | Head | 41.5 ± 5% | $0.97 \pm 5\%$ | 0.31 | 2.70 | 6.41 ± 11.0% (k=2) |
| 1810 | ± 50 / ± 100 | Head | 40.0 ± 5% | 1.40 ± 5% | 0.56 | 2.48 | 5.28 ± 11.0% (k=2) |
| 2000 | | | | | | | |
| 900 | ± 50 / ± 100 | Body | 55.0 ± 5% | 1.05 ± 5% | 0.33 | 2.72 | 6.16 ± 11.0% (k=2) |
| 1810 | ±50/±100 | Body | 53.3 ± 5% | $1.52 \pm 5\%$ | 0.65 | 2.61 | 4.78 ± 11.0% (k=2) |

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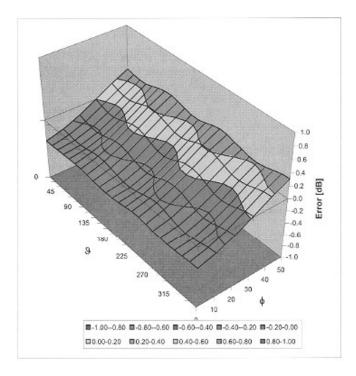
^C The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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January 15, 2007

Deviation from Isotropy in HSL

Error (¢, ३), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





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S Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Multilateral Agreement for the recognition of calibration certificates

Client RIM

Certificate No: EX3-3548_Jan07

CALIBRATION CERTIFICATE EX3DV4 - SN:3548 Object QA CAL-01.v5 and QA CAL-14.v3 Calibration procedure(s) Calibration procedure for dosimetric E-field probes Calibration date: January 19, 2007 In Tolerance Condition of the calibrated item This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate. All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%. Calibration Equipment used (M&TE critical for calibration) Primary Star dards ID# Call Date (Calibrated by, Cortificate No.) Scheduled Calibration Apr-07 Power meter E4419B 5-Apr-06 (METAS, No. 251-00557) MY41495277 5-Apr-06 (METAS, No. 251-00557) Apr-07 Power sensor E4412A Power sensor E4412A MY41498087 5-Apr-06 (METAS, No. 251-00557) Apr-07 Reference 3 dB Attenuator SN: S5054 (3c) 10-Aug-06 (METAS, No. 217-00592) Aug-07 Reference 20 dB Attenuator SN: 55086 (20b) 4-Apr-06 (METAS, No. 251-00558) Apr-07 Reference 30 dB Attenuator SN: S5129 (30b) 10-Aug-06 (METAS, No. 217-00593) Aug-07 Reference Frobe ES3DV2 SN: 3013 4-Jan-07 (SPEAG, No. ES3-3013_Jan07) Jan-08 21-Jun-06 (SPEAG, No. DAE4-654_Jun06) DAE4 SN: 654 Jun-07 Secondary Standards Check Date (in house) Scheduled Check RF general or HP 8648C US3642U01700 4-Aug-99 (SPEAG, in house check Nov-05) In house check: Nov-07 Network Analyzer HP 8753E US37390585 18-Oct-01 (SPEAG, in house check Oct-06) In house check: Oct-07 Technical Manager Calibrated by: Katja Pokovio Approved by: Quality Manager Issued: January 19, 2007 This calibration certificate shall not be reproduced except in full without written approval of the laboratory

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





S Schweizerischer Kalibrierdienst Service suisse d'étalonnage

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S Swiss Calibration Service

Accreditation No.: SCS 108

Accredited by the Swiss Federal Office of Metrology and Accreditation The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL tissue simulating liquid
NORMx,y,z sensitivity in free space
ConF sensitivity in TSL / NORMx,y,z
DCP diode compression point
Polarization φ rotation around probe axis

Polarization 9 9 rotation around an axis that is in the plane normal to probe axis (at

measurement center), i.e., 9 = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

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- b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001

Methods Applied and Interpretation of Parameters:

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- NORM(f)x,y,z = NORMx,y,z * frequency_response (see Frequency Response Chart). This
 linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of
 the frequency response is included in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

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Probe EX3DV4

SN:3548

Manufactured:

November 16, 2004

Last calibrated:

December 12, 2005

Recalibrated:

January 19, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

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DASY - Parameters of Probe: EX3DV4 SN:3548

| Sensitivity in Free Space ^A | Diode Compression |
|--|-------------------|
| Sensitivity in Free Space | Diode compressio |

| NormX | 0.340 ± 10.1% | μV/(V/m) ^e | DCP X | 92 mV |
|-------|---------------|-----------------------|-------|-------|
| NormY | 0.430 ± 10.1% | $\mu V/(V/m)^2$ | DCP Y | 93 mV |
| NormZ | 0.460 ± 10.1% | $\mu V/(V/m)^2$ | DCP Z | 90 mV |

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL 2450 MHz Typical SAR gradient: 12 % per mm

| Sensor Cente | r to Phantom Surface Distance | 2.0 mm | 3.0 mm |
|-----------------------|-------------------------------|--------|--------|
| SAR _{be} [%] | Without Correction Algorithm | 4.5 | 2.1 |
| SAR _{be} [%] | With Correction Algorithm | 0.3 | 0.6 |

TSL 5200 MHz Typical SAR gradient: 26 % per mm

| Sensor Cente | r to Phantom Surface Distance | 2.0 mm | 3.0 mm |
|-----------------------|-------------------------------|--------|--------|
| SAR _{be} [%] | Without Correction Algorithm | 2.7 | 0.5 |
| SAR _{be} [%] | With Correction Algorithm | 0.0 | 0.0 |

Sensor Offset

Probe Tip to Sensor Center

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%.

1.0 mm

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⁵ The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Page 8).

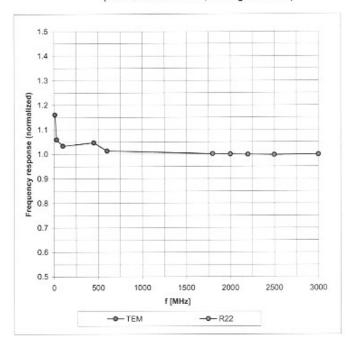
⁸ Numerical linearization parameter: uncertainty not required.

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Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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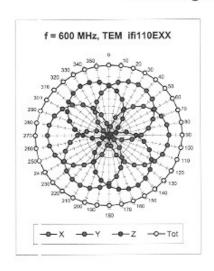
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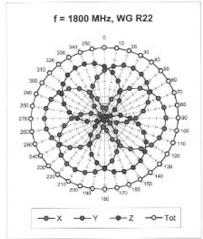
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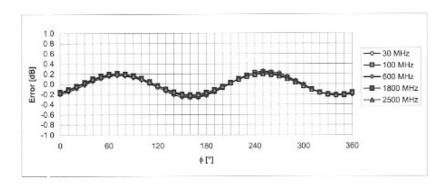
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Receiving Pattern (6), 9 = 0°







Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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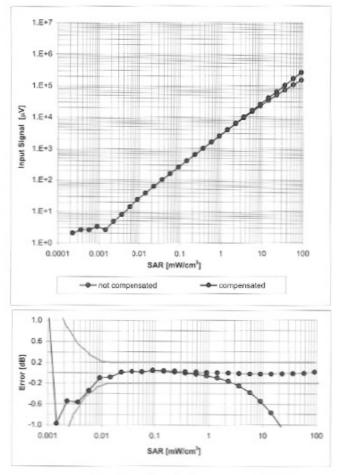
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Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)



Uncertainty of Linearity Assessment: ± 0.6% (k=2)

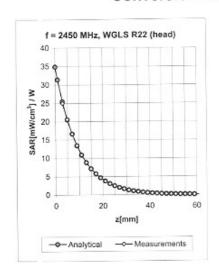
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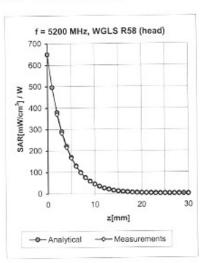
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Conversion Factor Assessment





| f [MHz] | Validity [MHz] ^C | alidity [MHz] ^C TSL | Permittivity Conductivity | Conductivity | Alpha | Depth | ConvF Uncertainty | |
|---------|-----------------------------|--------------------------------|---------------------------|----------------|-------|-------|--------------------|--|
| 900 | ±50/±100 | Head | 41.5 ± 5% | 0.97 ± 5% | 0.60 | 0.90 | 9.00 ± 11.0% (k=2) | |
| 1810 | ± 50 / ± 100 | Head | 40.0 ± 5% | 1.40 ± 5% | 0.25 | 1.00 | 7.69 ± 11.0% (k=2) | |
| 2450 | ±50/±100 | Head | 39.2 ± 5% | $1.80 \pm 5\%$ | 0.46 | 1.00 | 7.07 ± 11.8% (k=2) | |
| 4950 | ±50/±100 | Head | 36.3 ± 5% | $4.40\pm5\%$ | 0.32 | 1.60 | 5.69 ± 13.1% (k=2) | |
| 5200 | ±50/±100 | Head | 36.0 ± 5% | 4.66 ± 5% | 0.35 | 1.60 | 5.28 ± 13.1% (k=2) | |
| 5500 | ±50/±100 | Head | 35.6 ± 5% | $4.96 \pm 5\%$ | 0.35 | 1.60 | 5.15 ± 13.1% (k=2) | |
| 5800 | ± 50 / ± 100 | Head | 35.3 ± 5% | 5.27 ± 5% | 0.33 | 1.60 | 4.92 ± 13.1% (k=2) | |
| 2450 | ±50/±100 | Body | 52.7 ± 5% | 1.95 ± 5% | 0.48 | 1.00 | 7.13 ± 11.8% (k=2) | |
| 4950 | ± 50 / ± 100 | Body | 49.4 ± 5% | 5.01 ± 5% | 0.42 | 1.65 | 4.93 ± 13.1% (k=2) | |
| 5200 | ± 50 / ± 100 | Body | 49.0 ± 5% | $5.30\pm5\%$ | 0.38 | 1.65 | 4.72 ± 13.1% (k=2) | |
| 5500 | ±50/±100 | Body | 48.6 ± 5% | $5.65 \pm 5\%$ | 0.35 | 1.68 | 4.51 ± 13.1% (k=2) | |
| 5800 | ± 50 / ± 100 | Body | $48.2\pm5\%$ | 6.00 ± 5% | 0.32 | 1.70 | 4.79 ± 13.1% (k=2) | |
| | | | | | | | | |

^o The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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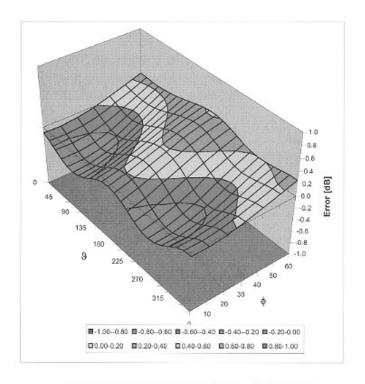
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Deviation from Isotropy in HSL

Error (¢, 3), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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