
Appendix for the Report
Dosimetric Assessment of the
Panasonic KX-TG4500
(FCC ID: ACJPCCUKKX-TG4500)

According to the FCC Requirements

Calibration Data

January 26, 2006
IMST GmbH
Carl-Friedrich-Gauß-Str. 2
D-47475 Kamp-Lintfort

Customer
RTX Telecom A/S
Stroemmen 6
DK-9400 Norresundby

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Client **IMST**

CALIBRATION CERTIFICATE																																							
Object(s)	D5GHzV2 - SN:1028																																						
Calibration procedure(s)	QA CAL-05.v2 Calibration procedure for dipole validation kits																																						
Calibration date:	July 16, 2005																																						
Condition of the calibrated item	In Tolerance (according to the specific calibration document)																																						
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Model Type</th> <th>ID #</th> <th>Cal Date (Calibrated by, Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter E4419B</td> <td>GB41293874</td> <td>3-May-05 (METAS, No. 251-00466)</td> <td>May-06</td> </tr> <tr> <td>Power sensor E4412A</td> <td>MY41495277</td> <td>3-May-05 (METAS, No. 251-00466)</td> <td>May-06</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: S5086 (20b)</td> <td>3-May-05 (METAS, No. 251-00467)</td> <td>May-06</td> </tr> <tr> <td>Reference Probe EX3DV4</td> <td>SN: 3503</td> <td>19-Mar-05 (SPEAG, No. EX3-3503_Mar05)</td> <td>Mar-06</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>7-Jan-05 (SPEAG, No. DAE4-601_Jan05)</td> <td>Jan-06</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>MY41092180</td> <td>18-Sep-02 (SPEAG, in house check Oct-03)</td> <td>In house check: Oct 05</td> </tr> <tr> <td>RF generator R&S SMT06</td> <td>100058</td> <td>4-Aug-99 (SPEAG, in house check Aug-02)</td> <td>In house check: Aug-05</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585</td> <td>18-Oct-01 (SPEAG, in house check Nov-04)</td> <td>In house check: Nov 05</td> </tr> </tbody> </table>				Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration	Power meter E4419B	GB41293874	3-May-05 (METAS, No. 251-00466)	May-06	Power sensor E4412A	MY41495277	3-May-05 (METAS, No. 251-00466)	May-06	Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-05 (METAS, No. 251-00467)	May-06	Reference Probe EX3DV4	SN: 3503	19-Mar-05 (SPEAG, No. EX3-3503_Mar05)	Mar-06	DAE4	SN: 601	7-Jan-05 (SPEAG, No. DAE4-601_Jan05)	Jan-06	Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct-03)	In house check: Oct 05	RF generator R&S SMT06	100058	4-Aug-99 (SPEAG, in house check Aug-02)	In house check: Aug-05	Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-04)	In house check: Nov 05
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	Name	Function	Signature																																				
Calibrated by:	Katja Pokovic	Laboratory Director																																					
Approved by:	Niels Kuster	Quality Manager																																					
Issued: July 18, 2005																																							
<p>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.</p>																																							

DASY

Dipole Validation Kit

Type: D5GHzV2

Serial: 1028

Manufactured: July 9, 2004
Calibrated: July 16, 2005

1. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with **head simulating solution** of the following electrical parameters:

Frequency:	5200 MHz	
Relative Dielectricity	35.6	± 5%
Conductivity	4.53 mho/m	± 5%

Frequency:	5800 MHz	
Relative Dielectricity	34.6	± 5%
Conductivity	5.09 mho/m	± 5%

The DASY4 System with a dosimetric E-field probe EX3DV4 - SN:3503 was used for the measurements. The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from dipole center to the solution surface. Lossless spacer was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. Special 8x8x8 fine cube was chosen for cube integration (dx=dy=4.3mm, dz=3mm). Distance between probe sensors and phantom surface was set to 2.0 mm. The dipole input power (forward power) was 250 mW ± 3 %. The results are normalized to 1W input power.

2. SAR Measurement with DASY System

Standard SAR-measurements were performed according to the measurement conditions described in section 1. The results (see figures supplied) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values measured at **5200 MHz (Head Tissue)** with the dosimetric probe EX3DV4 SN:3503 and applying the advanced extrapolation are:

averaged over 1 cm ³ (1 g) of tissue:	79.2 mW/g ± 20.3 % (k=2)¹
averaged over 10 cm ³ (10 g) of tissue:	22.2 mW/g ± 19.8 % (k=2)¹

The resulting averaged SAR-values measured at **5800 MHz (Head Tissue)** with the dosimetric probe EX3DV4 SN:3503 and applying the advanced extrapolation are:

averaged over 1 cm ³ (1 g) of tissue:	77.2 mW/g ± 20.3 % (k=2)²
averaged over 10 cm ³ (10 g) of tissue:	21.6 mW/g ± 19.8 % (k=2)²

¹ Target dipole values determined by FDTD (feedpoint impedance set to 50 Ohm). The values are SAR_1g=76.5 mW/g, SAR_10g=21.6 mW/g and SAR_peak=310.3 mW/g.

² Target dipole values determined by FDTD (feedpoint impedance set to 50 Ohm). The values are SAR_1g=78.0 mW/g, SAR_10g=21.9 mW/g and SAR_peak=340.9 mW/g.

3. Dipole Transformation Parameters

The impedance was measured at the SMA-connector with a network analyzer and numerically transformed to the dipole feedpoint (please refer to the graphics attached to this document). The transformation parameters from the SMA-connector to the dipole feedpoint are:

Electrical delay:	1.197 ns	(one direction)
Transmission factor:	0.984	(voltage transmission, one direction)

4. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with **body simulating solution** of the following electrical parameters:

Frequency:	5200 MHz	
Relative Dielectricity	48.6	± 5%
Conductivity	5.17 mho/m	± 5%
Frequency:	5800 MHz	
Relative Dielectricity	47.4	± 5%
Conductivity	5.95 mho/m	± 5%

The DASY4 System with a dosimetric E-field probe EX3DV4 - SN:3503 was used for the measurements. The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from dipole center to the solution surface. Lossless spacer was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 10mm was aligned with the dipole. The 8x8x8 fine cube was chosen for cube integration (dx=dy=4.3mm, dz=3mm). Distance between probe sensors and phantom surface was set to 2.0 mm. The dipole input power (forward power) was 250 mW ± 3 %. The results are normalized to 1W input power.

5. SAR Measurement with DASY System

Standard SAR-measurements were performed according to the measurement conditions described in section 4. The results (see figures supplied) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values measured at **5200 MHz (Body Tissue)** with the dosimetric probe EX3DV4 SN:3503 and applying the advanced extrapolation are:

averaged over 1 cm ³ (1 g) of tissue:	72.8 mW/g ± 20.3 % (k=2)³
averaged over 10 cm ³ (10 g) of tissue:	20.6 mW/g ± 19.8 % (k=2)³

³ Target dipole values determined by FDTD (feedpoint impedance set to 50 Ohm). The values are SAR_1g=71.8 mW/g, SAR_10g=20.1 mW/g and SAR_peak=284.7 mW/g.

The resulting averaged SAR-values measured at **5800 MHz (Body Tissue)** with the dosimetric probe EX3DV4 SN:3503 and applying the advanced extrapolation are:

averaged over 1 cm³ (1 g) of tissue: **69.6 mW/g ± 20.3 % (k=2)⁴**

averaged over 10 cm³ (10 g) of tissue: **19.4 mW/g ± 19.8 % (k=2)⁴**

6. Handling

Do not apply excessive force to the dipole arms, because they might bend. Bending of the dipole arms stresses the soldered connections near the feedpoint leading to a damage of the dipole.

7. Design

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

Small end caps have been added to the dipole arms in order to increase frequency bandwidth at the position as explained in Sections 1 and 4.

8. Power Test

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

⁴ Target dipole values determined by FDTD (feedpoint impedance set to 50 Ohm). The values are SAR_{1g}=74.1 mW/g, SAR_{10g}=20.5 mW/g and SAR_{peak}=324.7 mW/g.

DASY4 Validation Report for Head TSL

Date/Time: 16.07.2005 18:11:03

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1028

Communication System: CW-5GHz; Frequency: 5200 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: HSL 5800 MHz;

Medium parameters used: $f = 5200$ MHz; $\sigma = 4.53$ mho/m; $\epsilon_r = 35.6$; $\rho = 1000$ kg/m³ Mediumparameters used: $f = 5800$ MHz; $\sigma = 5.09$ mho/m; $\epsilon_r = 34.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.56, 5.56, 5.56)ConvF(4.95, 4.95, 4.95); Calibrated: 19.03.2005
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 149

d=10mm, Pin=250mW, f=5800 MHz/Zoom Scan (8x8x8), dist=2mm (8x8x8)/Cube 0:**Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm**

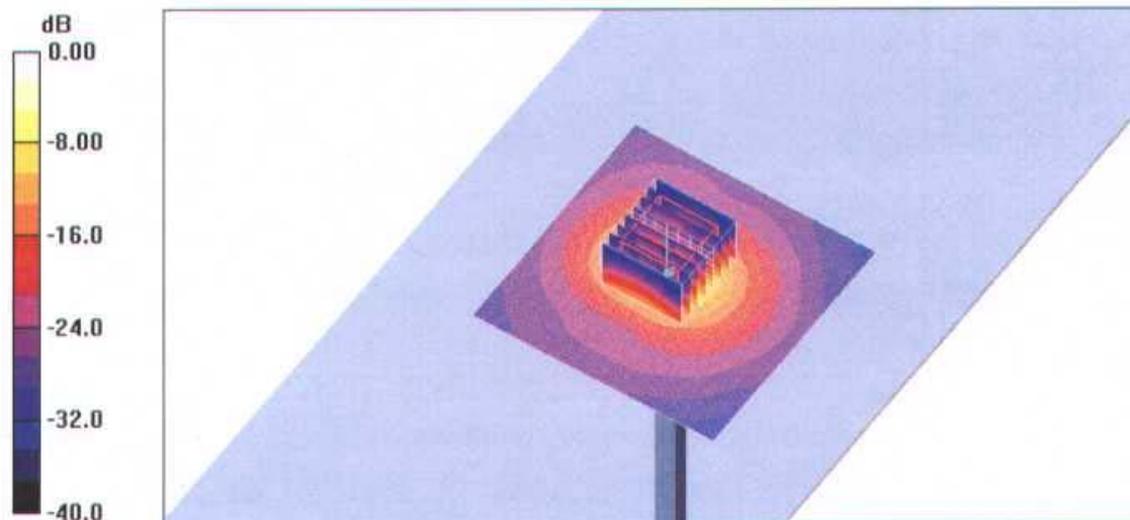
Reference Value = 67.1 V/m; Power Drift = 0.082 dB

Peak SAR (extrapolated) = 81.6 W/kg

SAR(1 g) = 19.3 mW/g; SAR(10 g) = 5.39 mW/g**d=10mm, Pin=250mW, f=5200 MHz 2/Zoom Scan (8x8x8), dist=2mm (8x8x8)/Cube 0:****Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm**

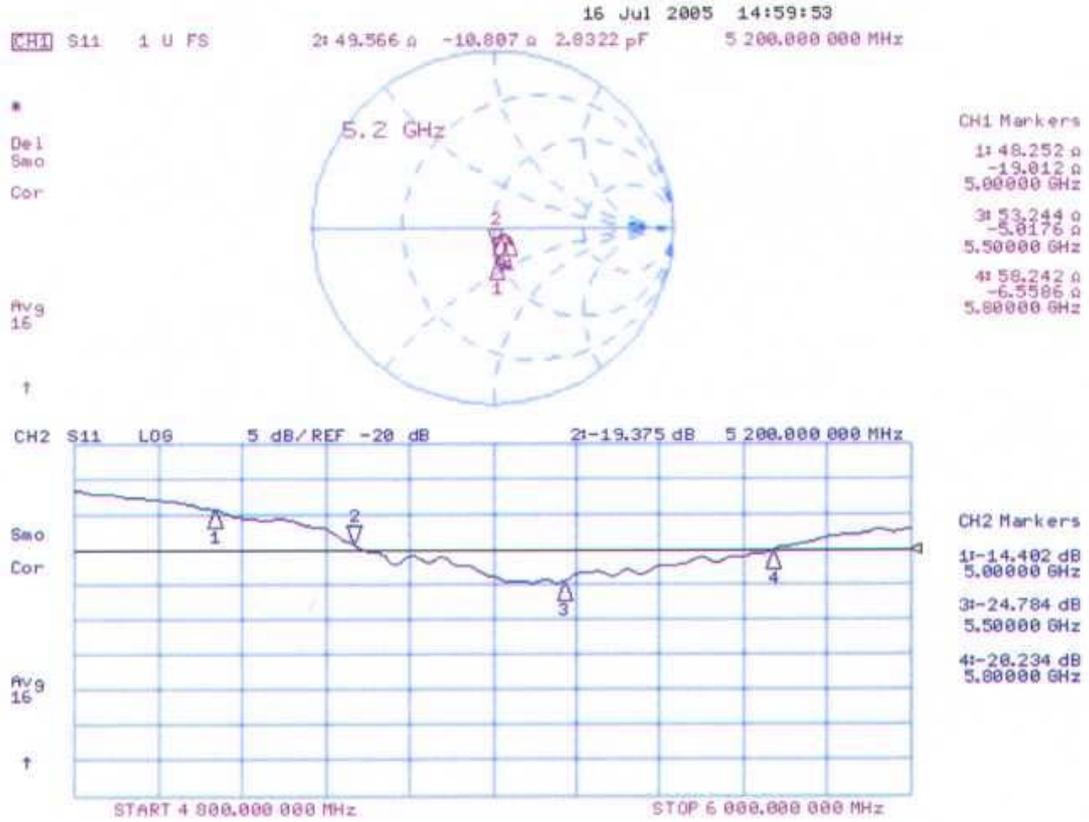
Reference Value = 71.9 V/m; Power Drift = 0.107 dB

Peak SAR (extrapolated) = 75.9 W/kg

SAR(1 g) = 19.8 mW/g; SAR(10 g) = 5.54 mW/g

0 dB = 38.5mW/g

Impedance Measurement Plot for Head TSL



DASY4 Validation Report for Body TSL

Date/Time: 16.07.2005 20:08:52

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1028

Communication System: CW-5GHz; Frequency: 5200 MHz; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: MSL 5800 MHz;

Medium parameters used: $f = 5200$ MHz; $\sigma = 5.17$ mho/m; $\epsilon_r = 48.6$; $\rho = 1000$ kg/m³ Mediumparameters used: $f = 5800$ MHz; $\sigma = 5.95$ mho/m; $\epsilon_r = 47.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.18, 5.18, 5.18)ConvF(4.69, 4.69, 4.69); Calibrated: 19.03.2005
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 149

d=10mm, Pin=250mW, f=5800 MHz/Zoom Scan (8x8x8), dist=2mm (8x8x8)/Cube 0:**Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm**

Reference Value = 67.6 V/m; Power Drift = 0.050 dB

Peak SAR (extrapolated) = 70.3 W/kg

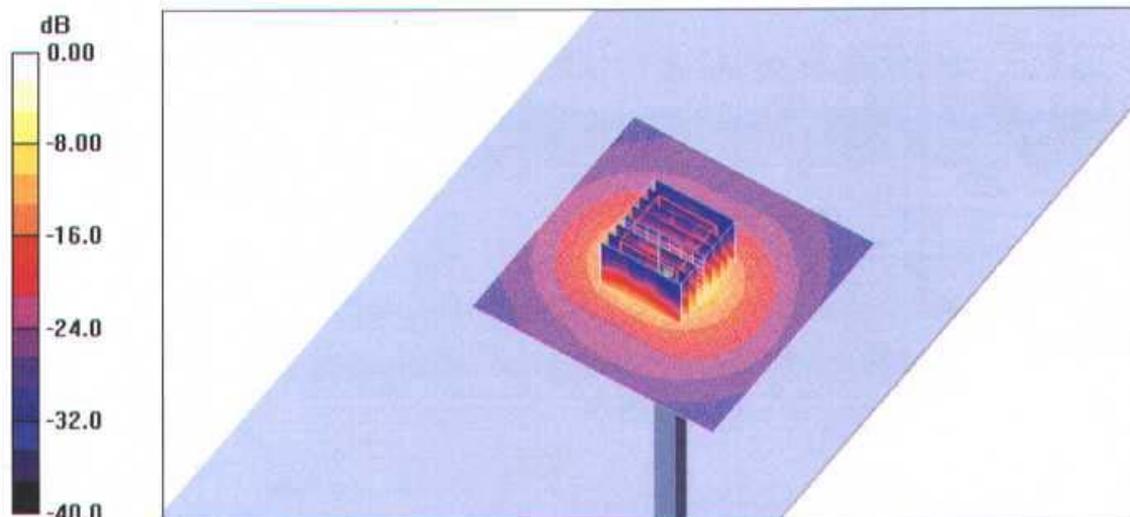
SAR(1 g) = 17.4 mW/g; SAR(10 g) = 4.86 mW/g

d=10mm, Pin=250mW, f=5200 MHz 2/Zoom Scan (8x8x8), dist=2mm (8x8x8)/Cube 0:**Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm**

Reference Value = 76.1 V/m; Power Drift = 0.018 dB

Peak SAR (extrapolated) = 62.9 W/kg

SAR(1 g) = 18.2 mW/g; SAR(10 g) = 5.15 mW/g



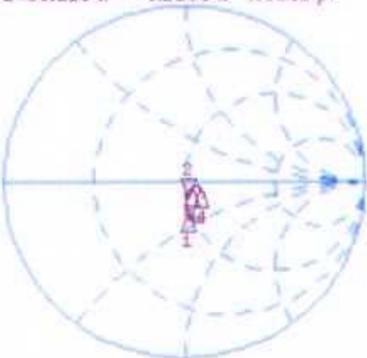
0 dB = 35.1mW/g

Impedance Measurement Plot for Body TSL

16 Jul 2005 15:00:24
CH1 S11 1 U FS 2: 50.213 Ω -9.2188 Ω 3.3201 pF 5 200.000 000 MHz

Del
Smo
Cor

Avg
9



CH1 Markers
1: 47.717 Ω
-17.430 Ω
5.00000 GHz
3: 53.131 Ω
-3.7148 Ω
5.50000 GHz
4: 59.598 Ω
-5.0195 Ω
5.00000 GHz

CH2 S11 LOG 5 dB/REF -20 dB 2: -20.799 dB 5 200.000 000 MHz

Smo
Cor

Avg
9



CH2 Markers
1: -15.048 dB
5.00000 GHz
3: -26.551 dB
5.50000 GHz
4: -20.006 dB
5.00000 GHz



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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**

Client **IMST**

Certificate No: **EX3-3536_Sep05**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3536**

Calibration procedure(s) **QA CAL-01.v5, QA CAL-12.v4 and QA CAL-14.v2
Calibration procedure for dosimetric E-field probes**

Calibration date: **September 23, 2005**

Condition of the calibrated item **In Tolerance**

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 Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	3-May-05 (METAS, No. 251-00466)	May-06
Power sensor E4412A	MY41495277	3-May-05 (METAS, No. 251-00466)	May-06
Power sensor E4412A	MY41498087	3-May-05 (METAS, No. 251-00466)	May-06
Reference 3 dB Attenuator	SN: S5054 (3c)	11-Aug-05 (METAS, No. 251-00499)	Aug-06
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-05 (METAS, No. 251-00467)	May-06
Reference 30 dB Attenuator	SN: S5129 (30b)	11-Aug-05 (METAS, No. 251-00500)	Aug-06
Reference Probe ES3DV2	SN: 3013	7-Jan-05 (SPEAG, No. ES3-3013_Jan05)	Jan-06
DAE4	SN: 654	29-Nov-04 (SPEAG, No. DAE4-654_Nov04)	Nov-05
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-04)	In house check: Nov-05

	Name	Function	Signature
Calibrated by:	Nico Vatterli	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 23, 2005

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- 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
- 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:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below *ConvF*).
- NORM(f)_{x,y,z}** = NORM_{x,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*.
- DCP_{x,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 $f \leq 800$ 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 NORM_{x,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.

Probe EX3DV4

SN:3536

Manufactured:	April 30, 2004
Last calibrated:	August 27, 2004
Recalibrated:	September 23, 2005

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV4 SN:3536

Sensitivity in Free Space^A

NormX	0.434 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$
NormY	0.451 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$
NormZ	0.368 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$

Diode Compression^B

DCP X	93 mV
DCP Y	93 mV
DCP Z	93 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
SAR _{be} [%]	Without Correction Algorithm	2.9	0.9
SAR _{be} [%]	With Correction Algorithm	0.1	0.2

TSL **1750 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
SAR _{be} [%]	Without Correction Algorithm	4.1	2.3
SAR _{be} [%]	With Correction Algorithm	0.8	0.7

Sensor Offset

Probe Tip to Sensor Center **1.0 mm**

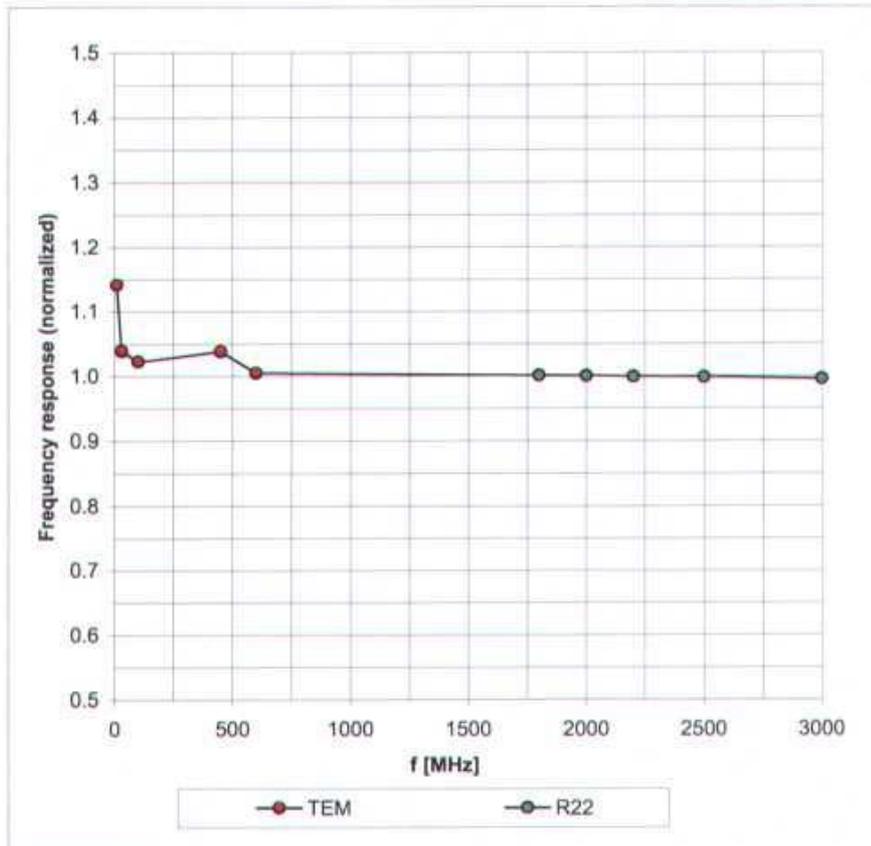
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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

^B Numerical linearization parameter: uncertainty not required.

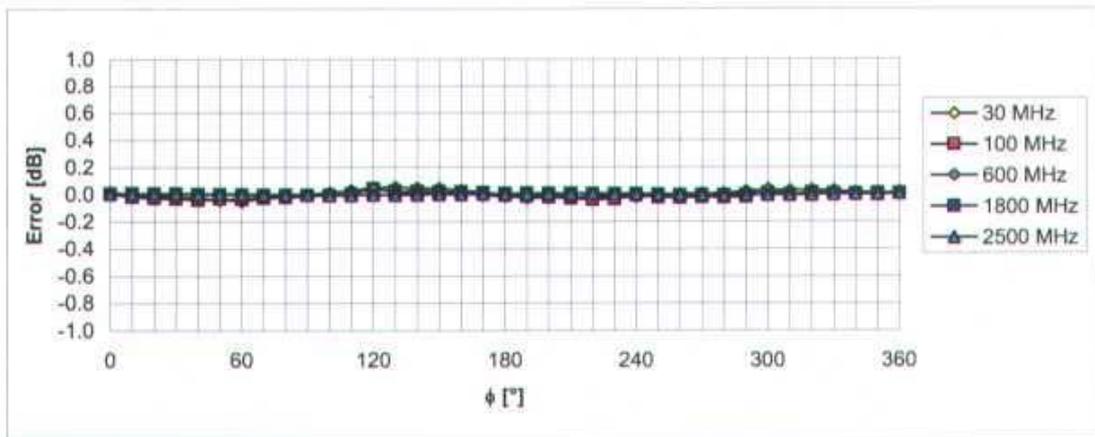
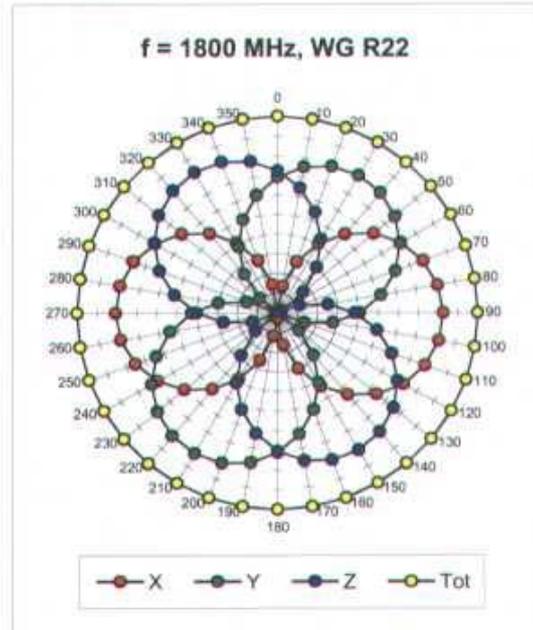
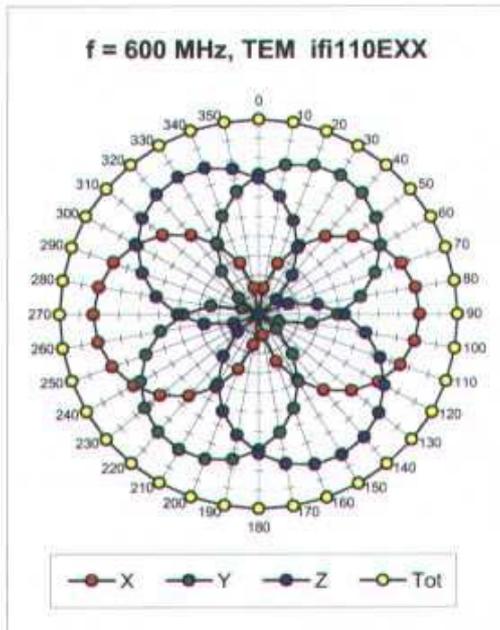
Frequency Response of E-Field

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



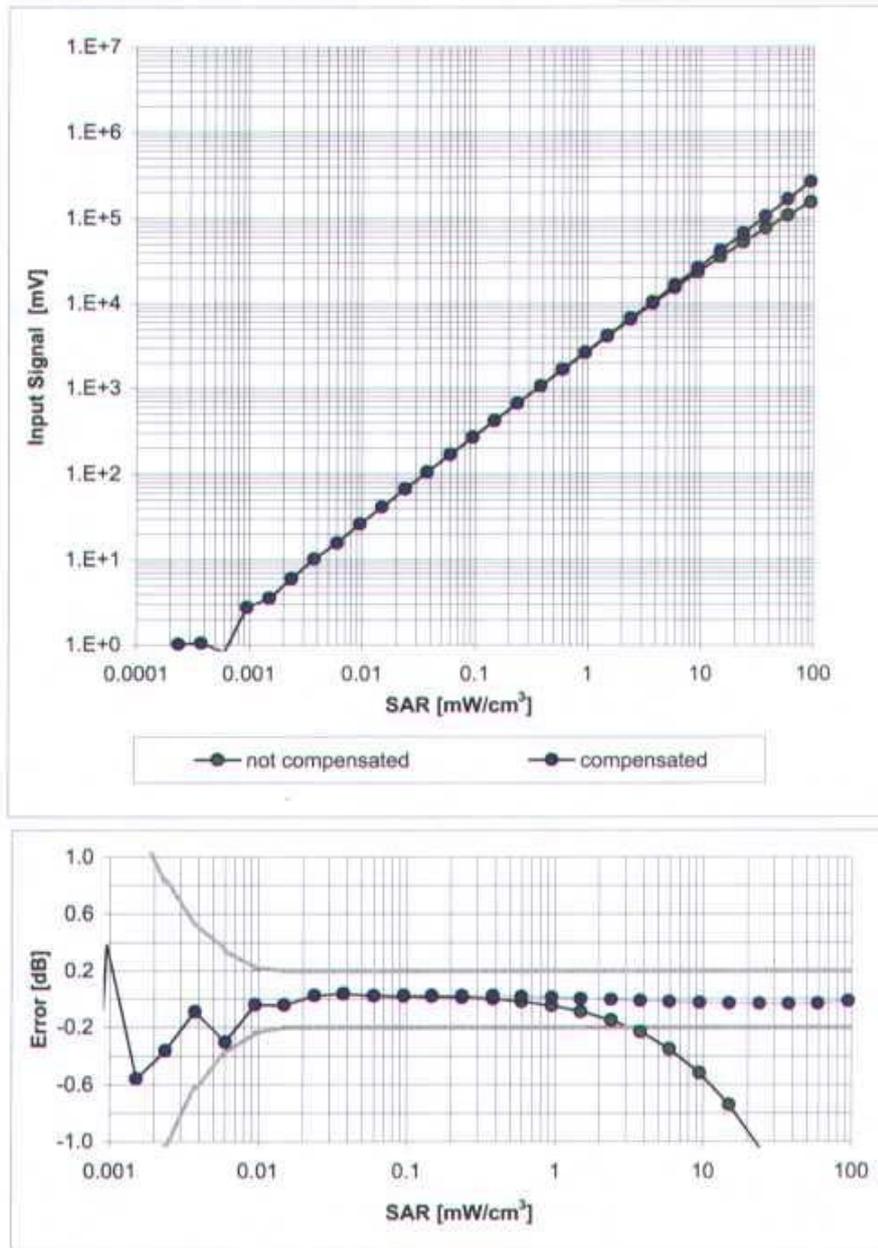
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Receiving Pattern (ϕ), $\vartheta = 0^\circ$



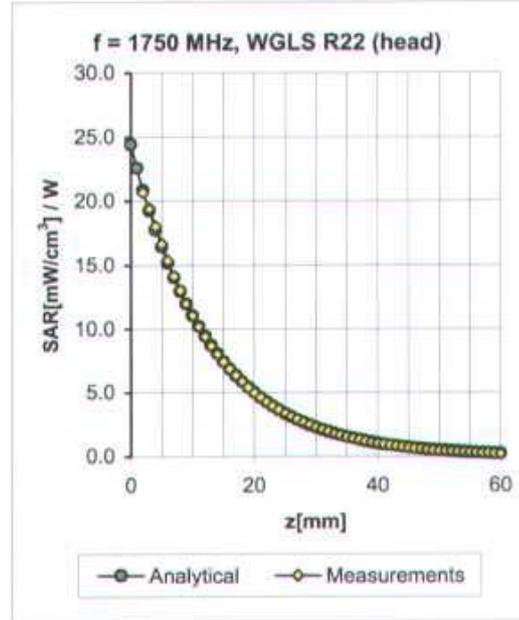
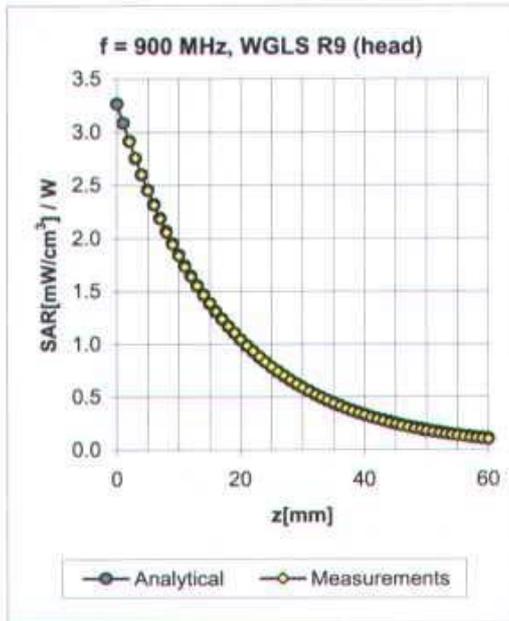
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (Waveguide R22, $f = 1800 \text{ MHz}$)



Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment

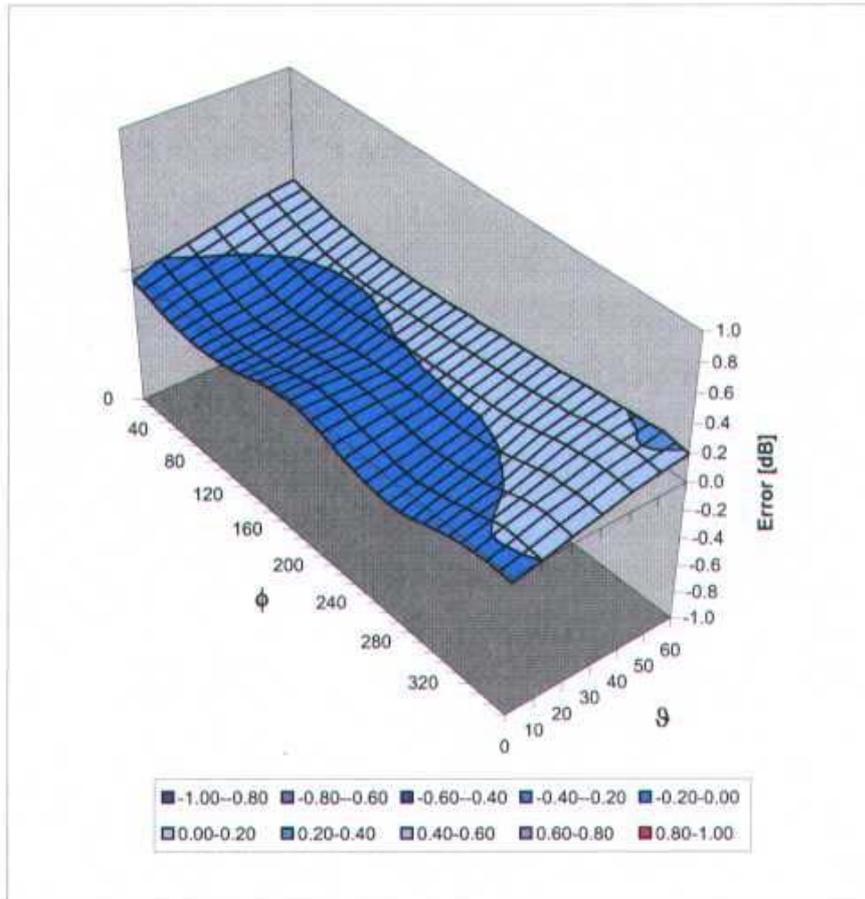


f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
450	± 50 / ± 100	Head	43.5 ± 5%	0.87 ± 5%	0.01	0.33	9.80 ± 13.3% (k=2)
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.77	0.57	9.72 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.63	0.65	9.37 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.43	0.90	8.28 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.47	0.90	8.25 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.49	0.81	7.97 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.53	0.72	7.63 ± 11.8% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.02	0.43	10.33 ± 13.3% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.70	0.65	9.74 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.81	0.59	9.49 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.44	1.09	7.94 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.39	1.12	7.84 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.43	0.99	7.67 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.62	0.65	7.58 ± 11.8% (k=2)

^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.

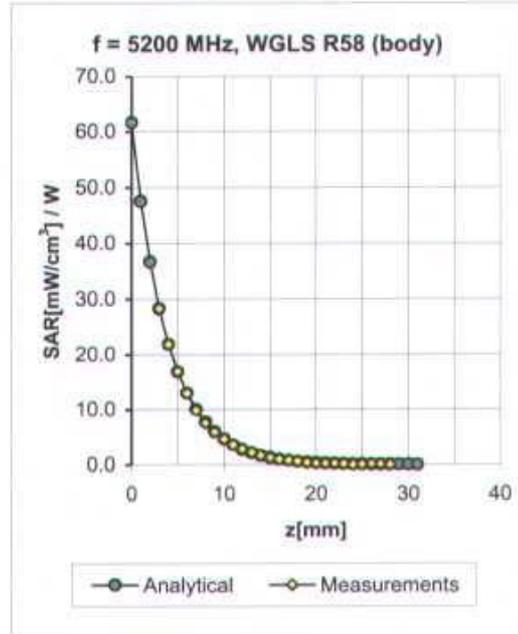
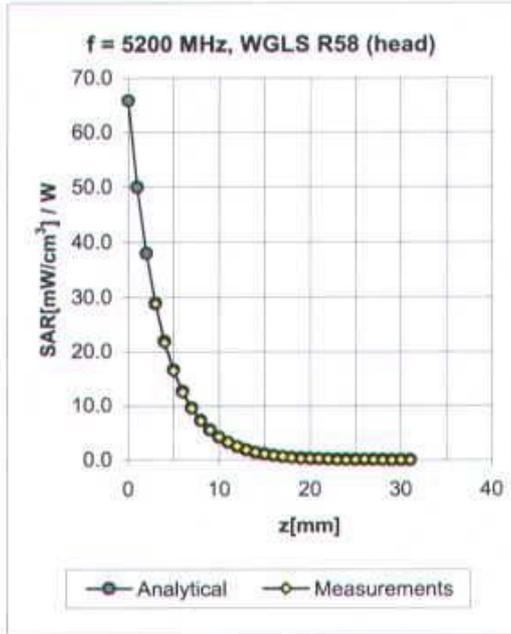
Deviation from Isotropy in HSL

Error (ϕ , θ), $f = 900$ MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

Appendix^D



f [MHz] ^D	Validity [MHz]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
3500	± 50	Head	37.9 ± 5%	2.91 ± 5%	0.48	0.92	7.14	± 13.6% (k=2)
5200	± 50	Head	36.0 ± 5%	4.76 ± 5%	0.50	1.13	5.42	± 13.6% (k=2)
5800	± 50	Head	35.3 ± 5%	5.27 ± 5%	0.56	0.97	4.73	± 13.6% (k=2)
3500	± 50	Body	51.3 ± 5%	3.31 ± 5%	0.44	1.08	6.71	± 13.6% (k=2)
5200	± 50	Body	49.0 ± 5%	5.30 ± 5%	0.49	1.63	4.98	± 13.6% (k=2)
5800	± 50	Body	48.2 ± 5%	6.00 ± 5%	0.53	1.29	4.56	± 13.6% (k=2)

^D Accreditation for ConvF assessment above 3000 MHz is currently applied for. Accreditation is expected in spring 2005.