300MHz SYSTEM VALIDATION DIPOLE

Type:	**300MHz Validation Dipole**
Serial Number:	**135**
Place of Calibration:	**Celltech Research Inc.**
Date of Calibration:	**October 15, 2002**

Celltech Research Inc. hereby certifies that this device has been calibrated on the date indicated above.

Calibrated by: 

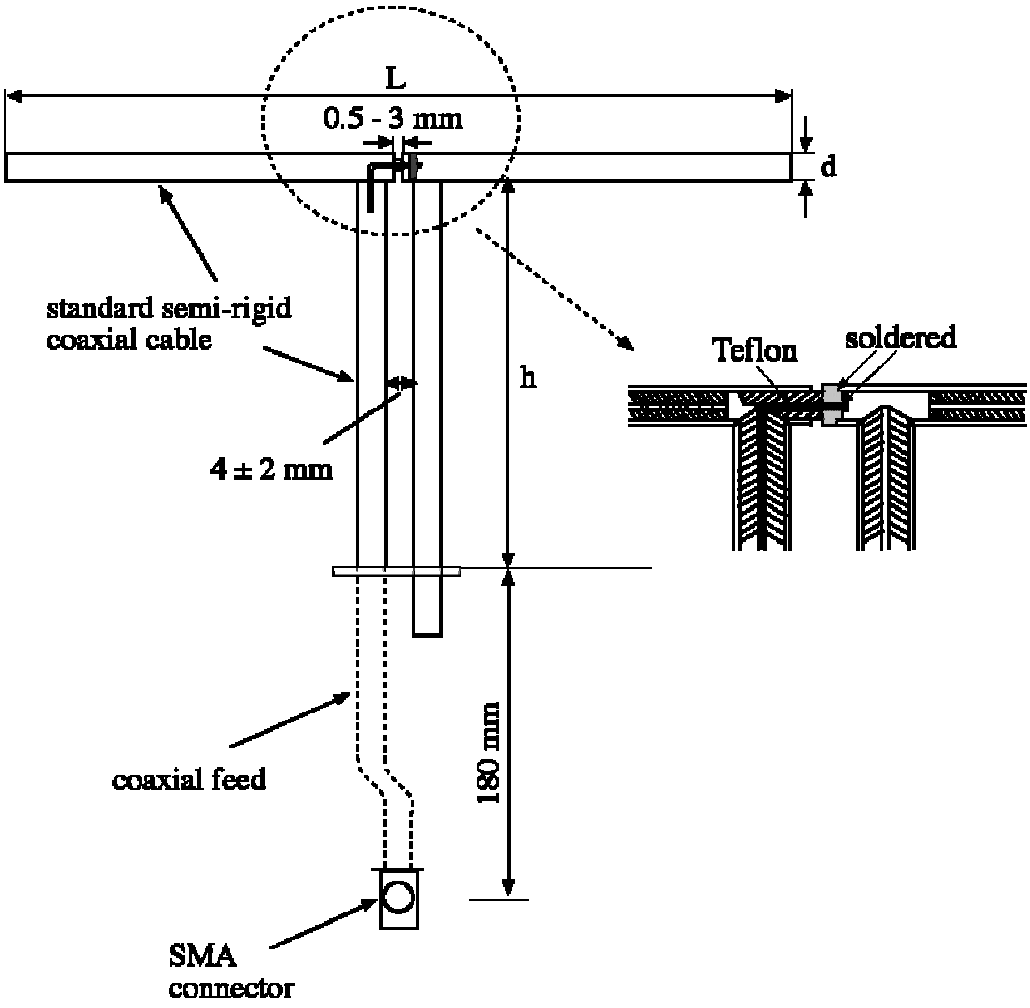
Approved by: 

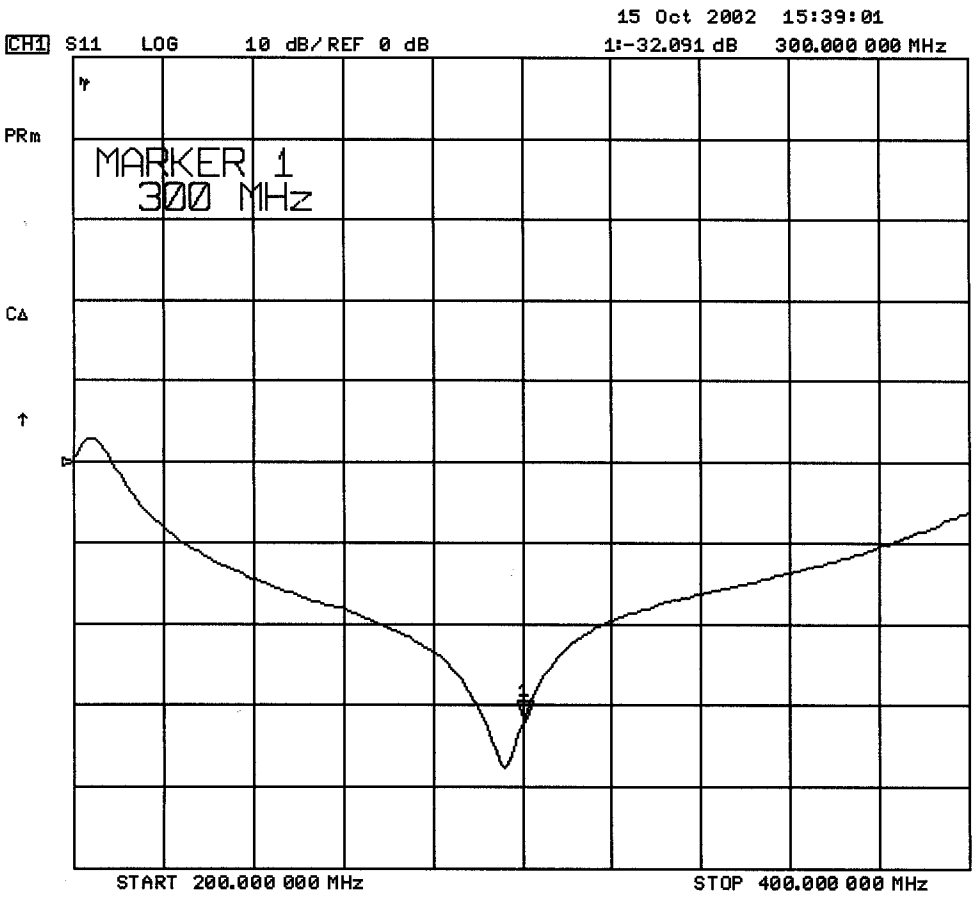
Celltech Research Inc. 1955 Moss Court, Kelowna, B.C. Canada V1Y 9L3
Tel. 250-448-7047 • Fax. 250-448-7046 • e-mail: info@celltechlabs.com
www.celltechlabs.com

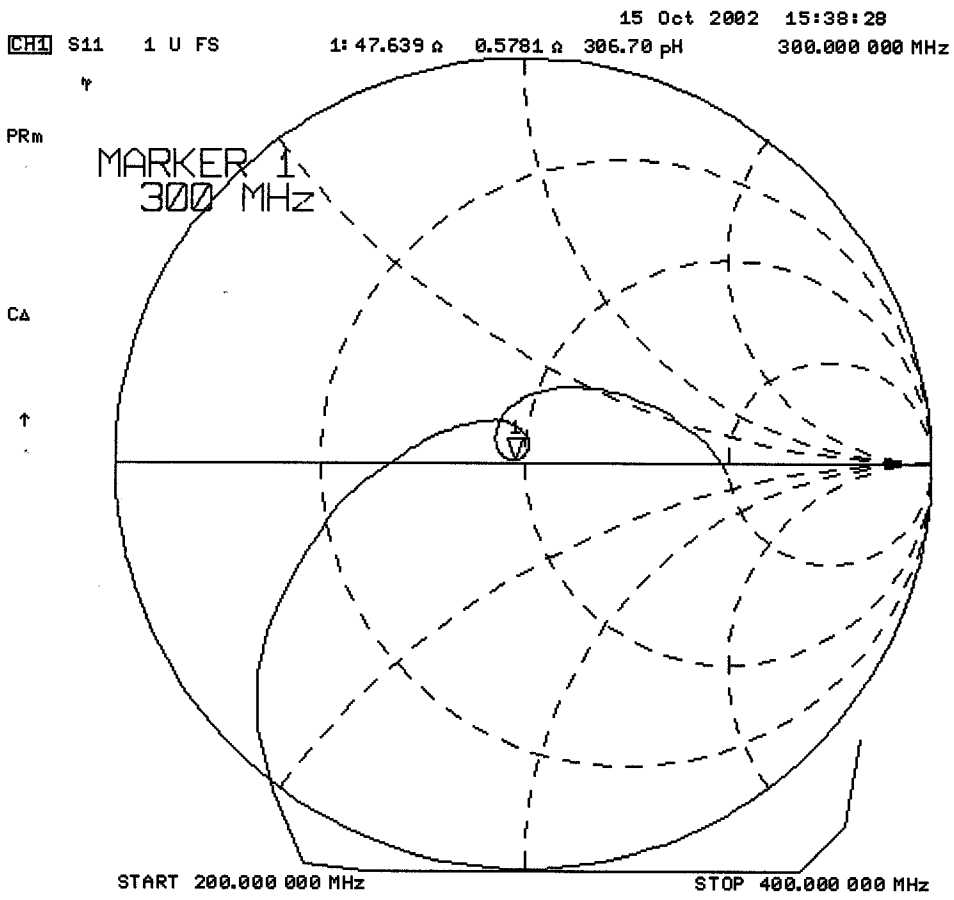
1. Dipole Construction & Electrical Characteristics

The validation dipole was constructed in accordance with the IEEE Std "Recommended Practice for Determining the Spatial-Peak Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques". The electrical properties were measured using an HP 8753E Network Analyzer. The network analyzer was calibrated to the validation dipole N-type connector feed point using an HP85032E Type N calibration kit. The dipole was placed parallel to a planar phantom at a separation distance of 15.0mm from the simulating fluid using a loss-less dielectric spacer. The measured input impedance is:

Feed point impedance at 300MHz	Re{Z} = 47.639Ω
	Im{Z} = 0.5781Ω
Return Loss at 300MHz	-32.091dB




15 Oct 2002 15:39:01
CH1 S11 LOG 10 dB/ REF 0 dB
1:-32.091 dB 300.000 000 MHz
PRm
MARKER 1
300 MHz
CA
START 200.000 000 MHz
STOP 400.000 000 MHz


15 Oct 2002 15:38:28
CH1 S11 1 U FS
1: 47.639 Ω 0.5781 Ω 306.70 pH
300.000 000 MHz
PRm
MARKER 1
300 MHz
CA
START 200.000 000 MHz
STOP 400.000 000 MHz

Validation Dipole Dimensions

Frequency (MHz)	L (mm)	h (mm)	d (mm)
300	420.0	250.0	6.2
450	288.0	167.0	6.2
835	161.0	89.8	3.6
900	149.0	83.3	3.6
1450	89.1	51.7	3.6
1800	72.0	41.7	3.6
1900	68.0	39.5	3.6
2000	64.5	37.5	3.6
2450	51.8	30.6	3.6
3000	41.5	25.0	3.6

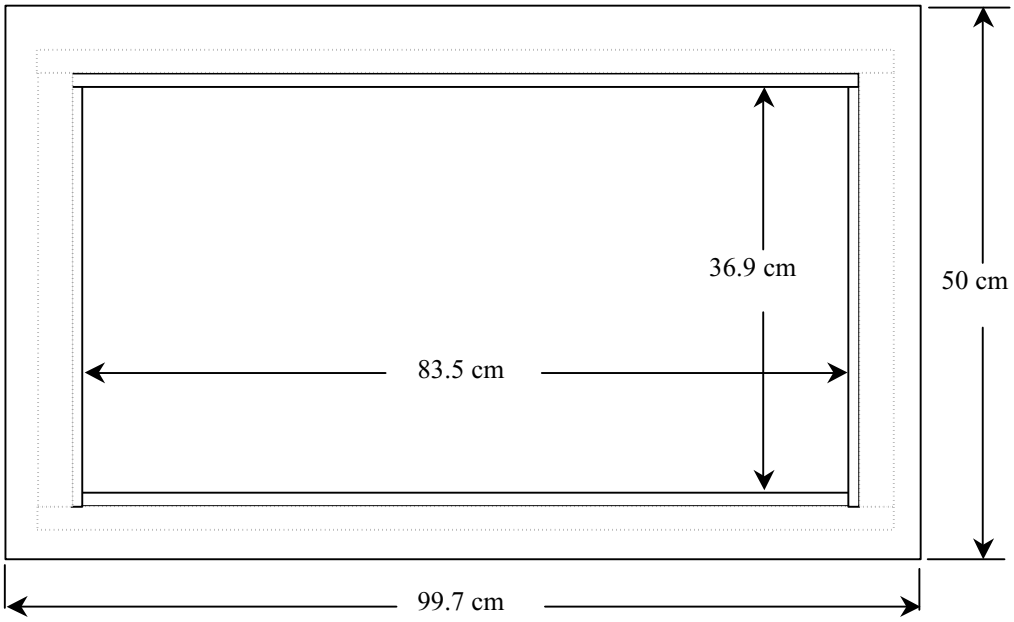
2. Validation Phantom

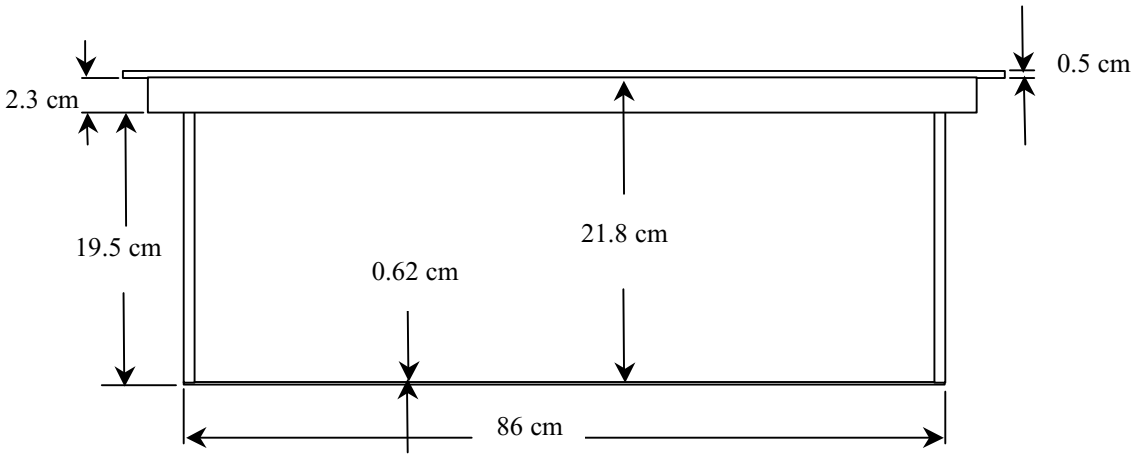
The validation phantom was constructed using relatively low-loss tangent Plexiglas material. The dimensions of the phantom are as follows:

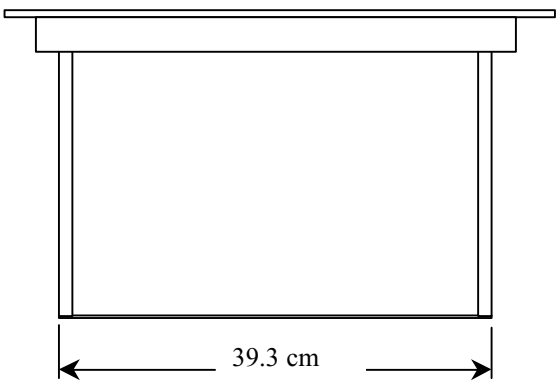
Length: 83.5 cm
Width: 36.9 cm
Height: 21.8 cm

The bottom of the phantom is constructed of 6.2 ± 0.1mm Plexiglas.

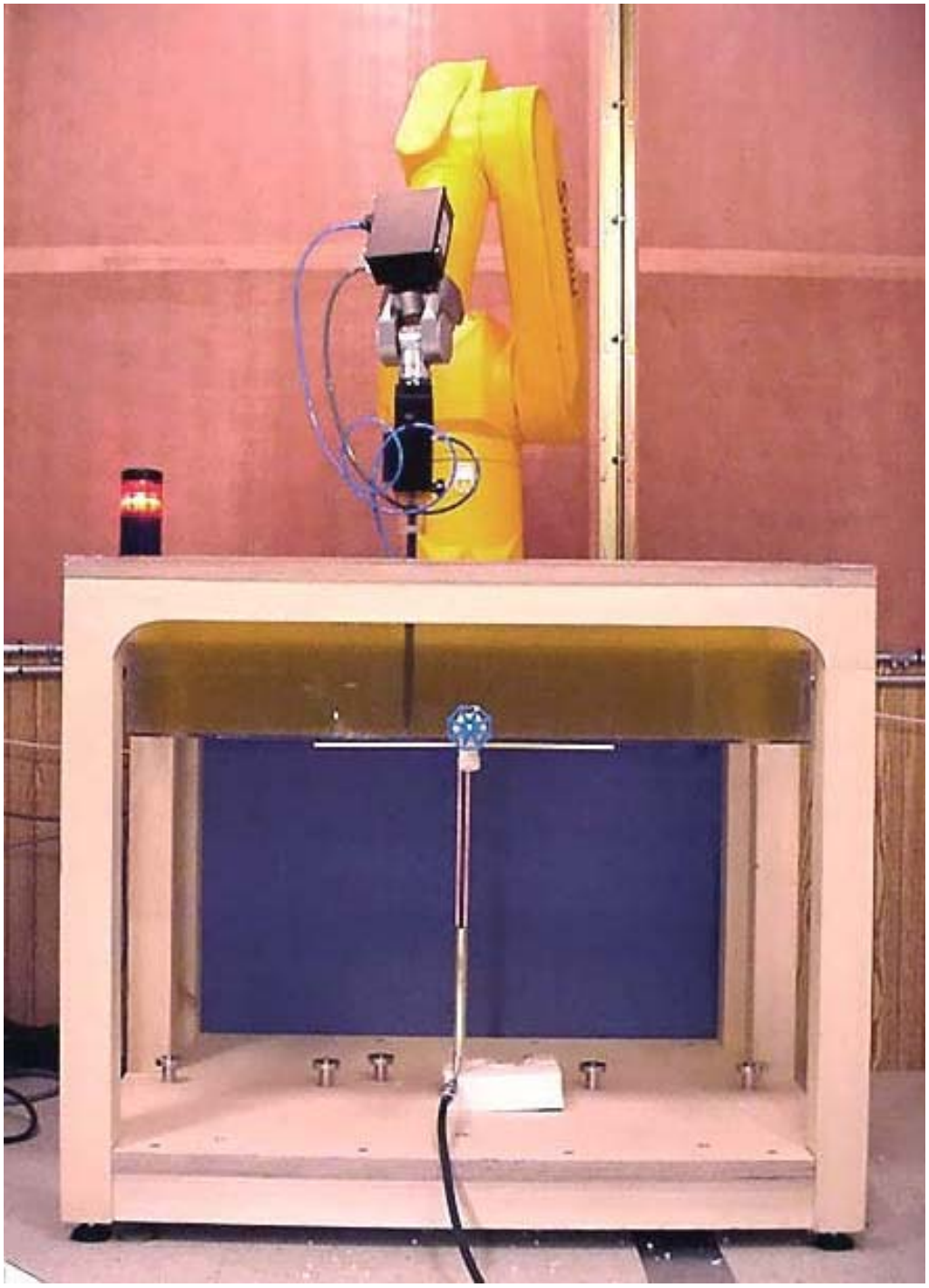
Dimensions of Plexiglas Planar Phantom







300MHz System Validation Setup



300MHz System Validation Setup

3. Measurement Conditions

The planar phantom was filled with brain simulating tissue having the following electrical parameters at 300MHz:

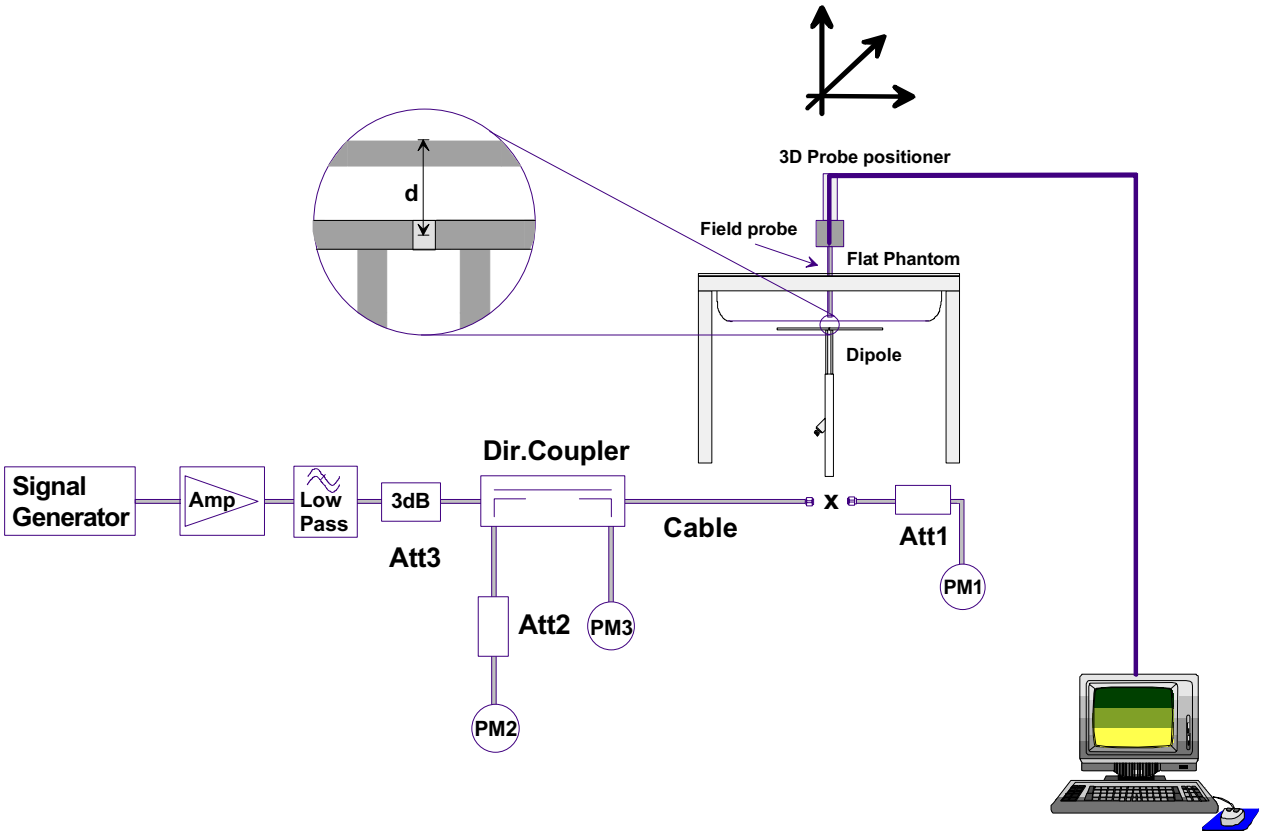
Relative Permittivity:	45.3
Conductivity:	0.90 mho/m
Ambient Temperature:	23.3°C
Fluid Temperature:	23.0°C
Fluid Depth:	≥ 15cm

The 300MHz simulating tissue consists of the following ingredients:

Ingredient	Percentage by weight
Water	37.56%
Sugar	55.32%
Salt	5.95%
HEC	0.98%
Dowicil 75	0.19%
300MHz Target Dielectric Parameters at 22°C	ε_r = 45.3 σ = 0.87 S/m

4. SAR Measurement

The SAR measurement was performed with the E-field probe in mechanical detection mode only. The setup and determination of the forward power into the dipole was performed using the following procedures.



First the power meter PM1 (including attenuator Att1) is connected to the cable to measure the forward power at the location of the dipole connector (X). The signal generator is adjusted for the desired forward power at the dipole connector (taking into account the attenuation of Att1) as read by power meter PM2. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2. If the signal generator does not allow adjustment in 0.01dB steps, the remaining difference at PM2 must be taken into consideration. PM3 records the reflected power from the dipole to ensure that the value is not changed from the previous value. The reflected power should be 20dB below the forward power.

Ten SAR measurements were performed in order to achieve repeatability and to establish an average target value.

Validation Dipole SAR Test Results

Validation Measurement	SAR @ 0.25W Input averaged over 1g	SAR @ 1W Input averaged over 1g	SAR @ 0.25W Input averaged over 10g	SAR @ 1W Input averaged over 10g	Peak SAR @ 0.25W Input
Test 1	0.755	3.02	0.496	1.98	1.21
Test 2	0.757	3.03	0.497	1.99	1.22
Test 3	0.750	3.00	0.493	1.97	1.21
Test 4	0.763	3.05	0.500	2.00	1.23
Test 5	0.769	3.08	0.505	2.02	1.24
Test 6	0.755	3.02	0.496	1.98	1.21
Test 7	0.718	2.87	0.472	1.89	1.16
Test 8	0.730	2.92	0.479	1.92	1.18
Test 9	0.717	2.87	0.471	1.88	1.15
Test10	0.726	2.90	0.477	1.91	1.17
Average Value	0.744	2.98	0.488	1.95	1.20

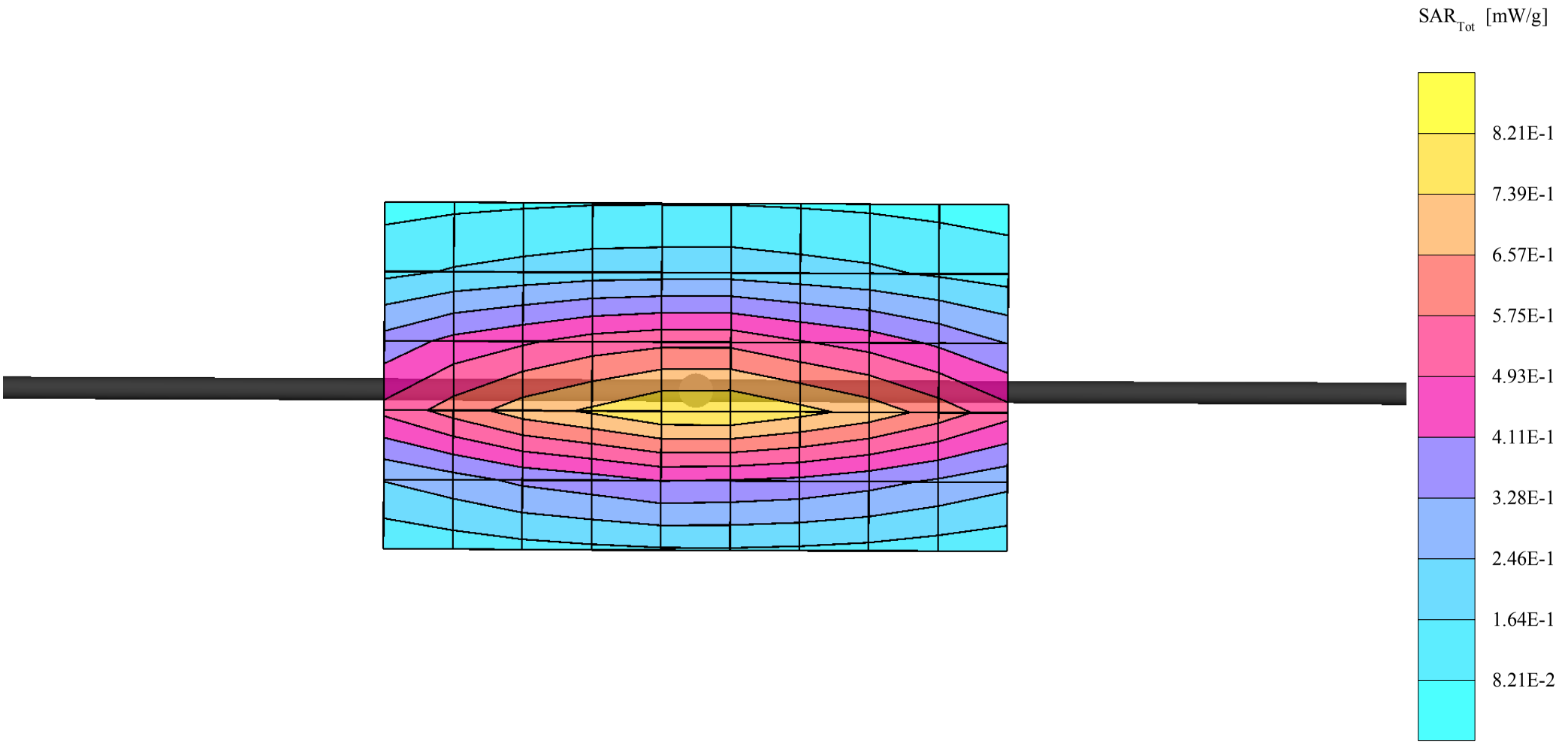
The results have been normalized to 1W (forward power) into the dipole.

Averaged over 1cm (1g) of tissue: 2.98 mW/g

Averaged over 10cm (10g) of tissue: 1.95 mW/g

Dipole 300 MHz

Frequency: 300 MHz; Conducted Input Power: 250 [mW]
Large Planar Phantom; Planar Section
Probe: ET3DV6 - SN1387; ConvF(8.00,8.00,8.00); Crest factor: 1.0; 300 MHz Brain: $\sigma = 0.90$ mho/m $\varepsilon_r = 45.3$ $\rho = 1.00$ g/cm^3
Cubes (10): Peak: 1.20 mW/g ± 0.16 dB, SAR (1g): 0.744 mW/g ± 0.15 dB, SAR (10g): 0.488 mW/g ± 0.15 dB, (Worst-case extrapolation)
Penetration depth: 12.3 (10.4, 14.7) [mm]; Powerdrift: 0.01 dB; Ambient Temp.: 23.3°C; Fluid Temp.: 23.0°C
Calibration Date: October 15, 2002



300MHz System Validation

Measured Fluid Dielectric Parameters (Brain)

October 15, 2002

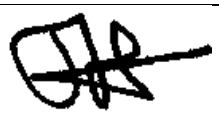
Frequency	e'	e''
200.000000 MHz	49.2984	73.0807
210.000000 MHz	48.7479	70.3637
220.000000 MHz	48.4051	67.9145
230.000000 MHz	47.9112	65.6173
240.000000 MHz	47.3854	63.6189
250.000000 MHz	47.0619	61.6629
260.000000 MHz	46.6549	60.0248
270.000000 MHz	46.2913	58.4424
280.000000 MHz	45.9411	56.9567
290.000000 MHz	45.6495	55.4516
300.000000 MHz	45.3231	54.0358
310.000000 MHz	44.9246	52.8278
320.000000 MHz	44.6796	51.6396
330.000000 MHz	44.3563	50.4677
340.000000 MHz	44.0723	49.4102
350.000000 MHz	43.7189	48.3852
360.000000 MHz	43.4393	47.4561
370.000000 MHz	43.2292	46.5343
380.000000 MHz	43.0035	45.6962
390.000000 MHz	42.7120	44.8767
400.000000 MHz	42.5081	44.1512

450MHz SYSTEM VALIDATION DIPOLE

Type:	**450MHz Validation Dipole**
Serial Number:	**136**
Place of Calibration:	**Celltech Research Inc.**
Date of Calibration:	**October 17, 2002**

Celltech Research Inc. hereby certifies that this device has been calibrated on the date indicated above.

Calibrated by: 

Approved by: 

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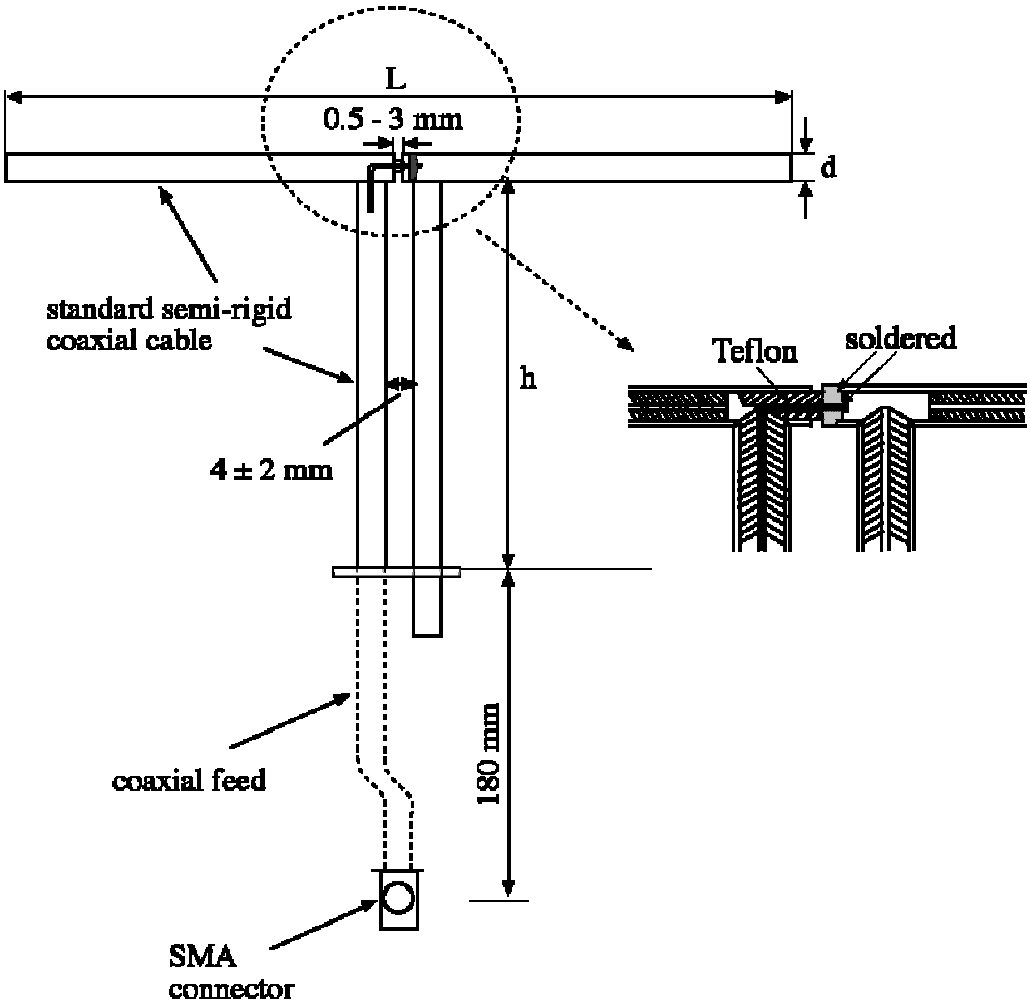
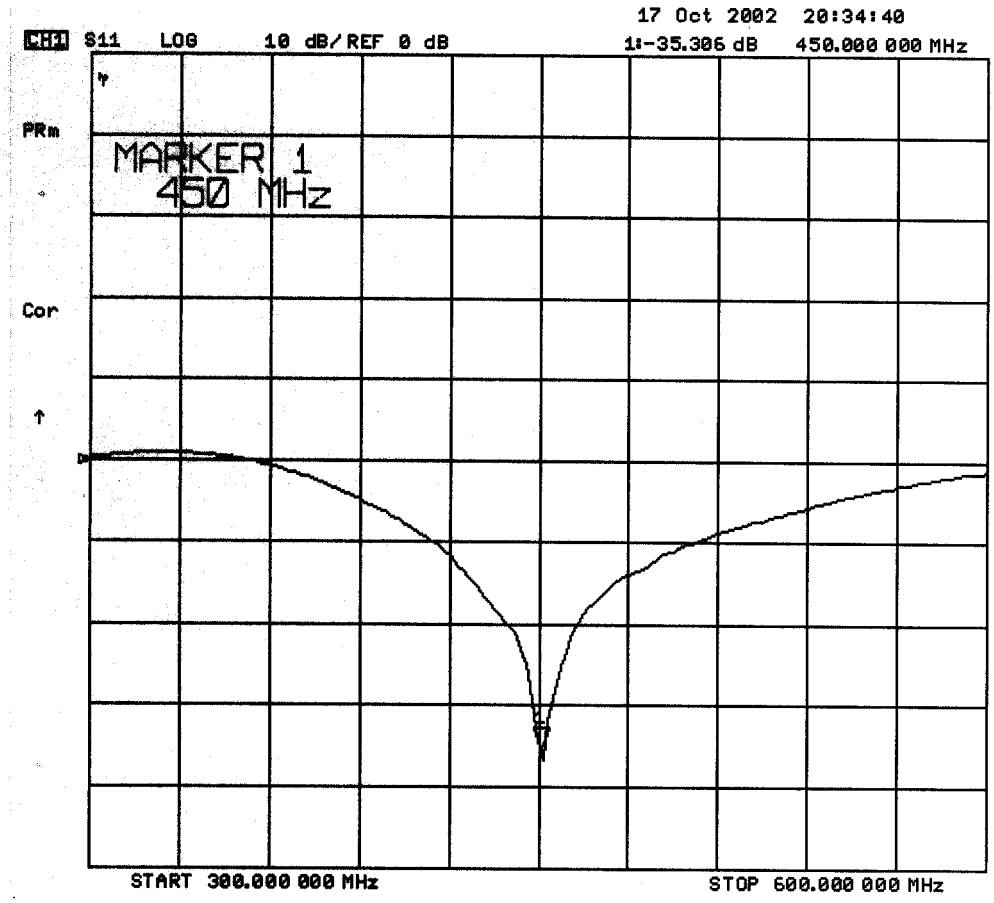
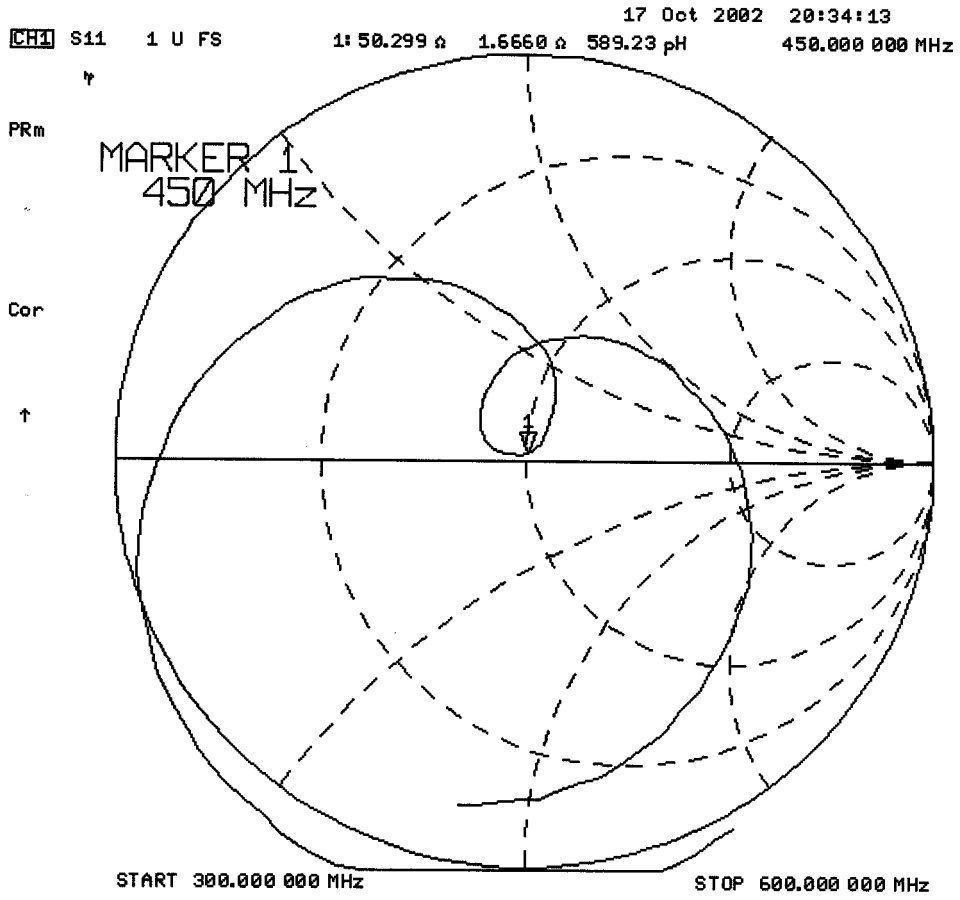
1. Dipole Construction & Electrical Characteristics

The validation dipole was constructed in accordance with the IEEE Std "Recommended Practice for Determining the Spatial-Peak Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques". The electrical properties were measured using an HP 8753E Network Analyzer. The network analyzer was calibrated to the validation dipole N-type connector feed point using an HP85032E Type N calibration kit. The dipole was placed parallel to a planar phantom at a separation distance of 15.0mm from the simulating fluid using a loss-less dielectric spacer. The measured input impedance is:

Feed point impedance at 450MHz	Re{Z} = 50.299Ω
	Im{Z} = 1.6660Ω
Return Loss at 450MHz	-35.306dB




17 Oct 2002 20:34:40
CH1 S11 LOG 10 dB/ REF 0 dB
1:-35.306 dB 450.000 000 MHz
PRm
MARKER 1
450 MHz
Cor
START 300.000 000 MHz
STOP 600.000 000 MHz


17 Oct 2002 20:34:13
CH1 S11 1 U FS
1: 50.299 Ω 1.6660 Ω 589.23 pH
450.000 000 MHz
PRm
MARKER 1
450 MHz
Cor
START 300.000 000 MHz
STOP 600.000 000 MHz

Validation Dipole Dimensions

Frequency (MHz)	L (mm)	h (mm)	d (mm)
300	420.0	250.0	6.2
450	288.0	167.0	6.2
835	161.0	89.8	3.6
900	149.0	83.3	3.6
1450	89.1	51.7	3.6
1800	72.0	41.7	3.6
1900	68.0	39.5	3.6
2000	64.5	37.5	3.6
2450	51.8	30.6	3.6
3000	41.5	25.0	3.6

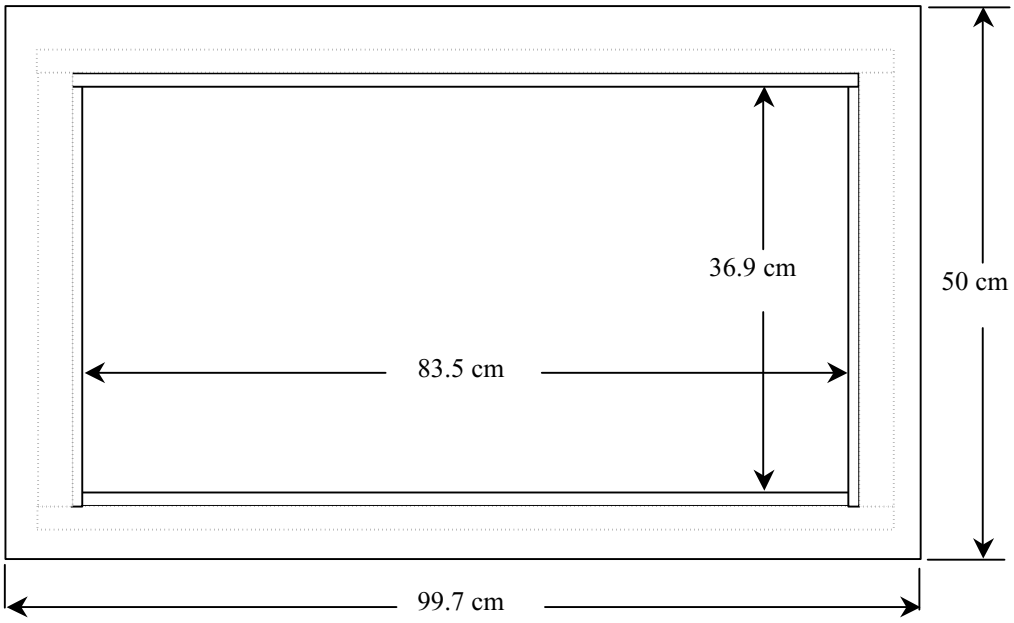
2. Validation Phantom

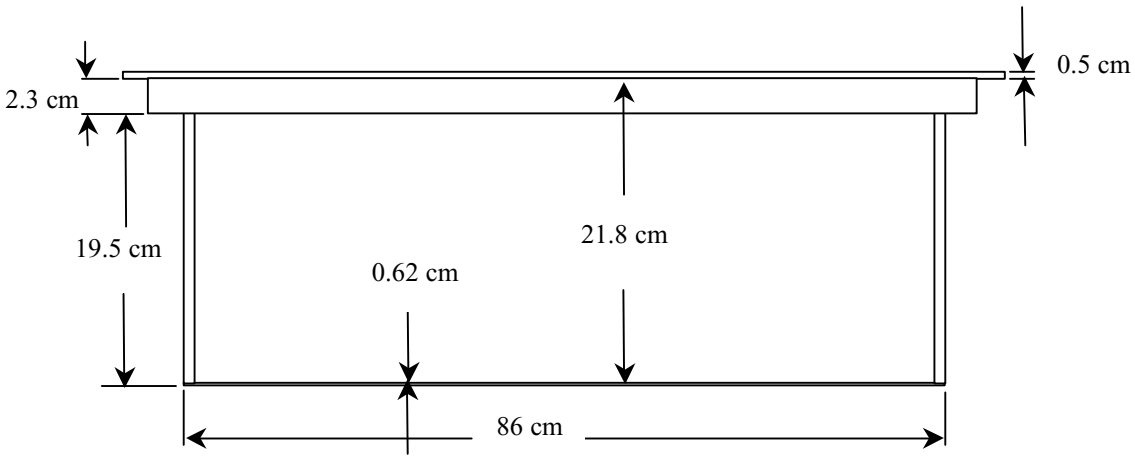
The validation phantom was constructed using relatively low-loss tangent Plexiglas material. The dimensions of the phantom are as follows:

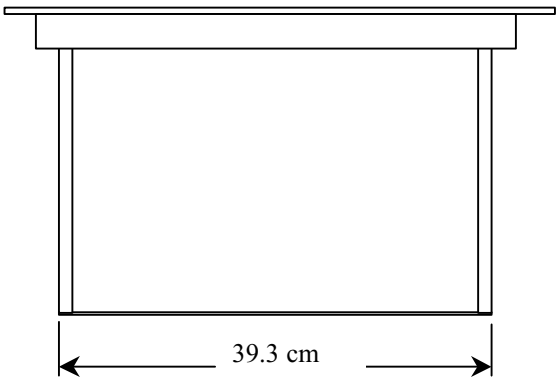
Length: 83.5 cm
Width: 36.9 cm
Height: 21.8 cm

The bottom of the phantom is constructed of 6.2 ± 0.1mm Plexiglas.

Dimensions of Plexiglas Planar Phantom







450MHz System Validation Setup

450MHz System Validation Setup

3. Measurement Conditions

The planar phantom was filled with brain simulating tissue having the following electrical parameters at 450MHz:

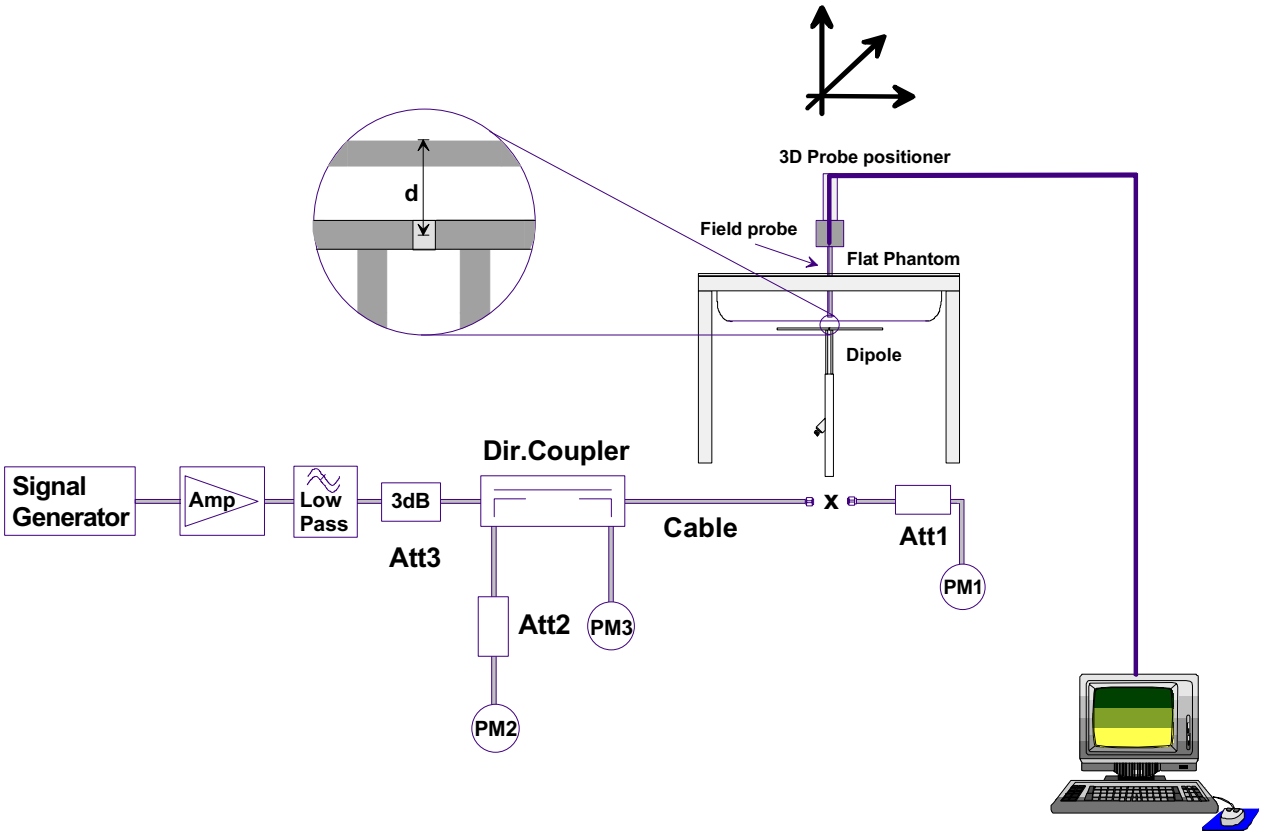
Relative Permittivity:	44.1
Conductivity:	0.88 mho/m
Ambient Temperature:	23.3 °C
Fluid Temperature:	22.2 °C
Fluid Depth:	≥ 15.0 cm

The 450MHz simulating tissue consists of the following ingredients:

Ingredient	Percentage by weight
Water	38.56%
Sugar	56.32%
Salt	3.95%
HEC	0.98%
Dowicil 75	0.19%
Target Dielectric Parameters at 22°C	ε_r = 43.5 σ = 0.87 S/m

4. SAR Measurement

The SAR measurement was performed with the E-field probe in mechanical detection mode only. The setup and determination of the forward power into the dipole was performed using the following procedures.



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Ten SAR measurements were performed in order to achieve repeatability and to establish an average target value.

Validation Dipole SAR Test Results

Validation Measurement	SAR @ 0.25W Input averaged over 1g	SAR @ 1W Input averaged over 1g	SAR @ 0.25W Input averaged over 10g	SAR @ 1W Input averaged over 10g	Peak SAR @ 0.25W Input
Test 1	1.32	5.28	0.887	3.55	2.20
Test 2	1.26	5.04	0.856	3.42	2.09
Test 3	1.38	5.52	0.931	3.72	2.30
Test 4	1.36	5.44	0.917	3.67	2.27
Test 5	1.37	5.48	0.922	3.69	2.28
Test 6	1.33	5.32	0.896	3.58	2.22
Test 7	1.34	5.36	0.902	3.61	2.24
Test 8	1.33	5.32	0.895	3.58	2.21
Test 9	1.39	5.56	0.931	3.72	2.31
Test10	1.36	5.44	0.917	3.67	2.27
Average Value	1.34	5.38	0.905	3.62	2.24

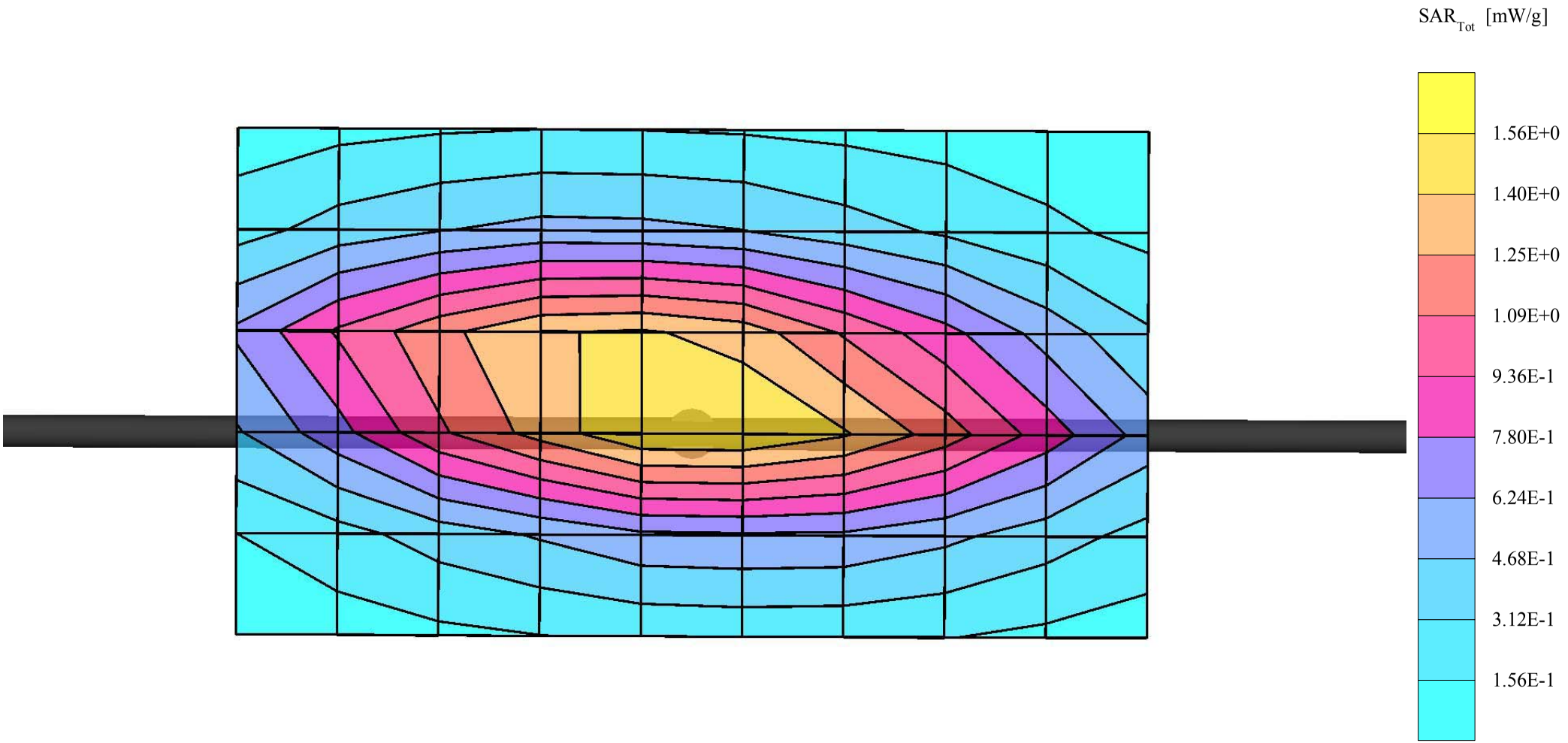
The results have been normalized to 1W (forward power) into the dipole.

Averaged over 1cm (1g) of tissue: 5.38 mW/g

Averaged over 10cm (10g) of tissue: 3.62 mW/g

Dipole 450MHz, d = 15 mm

Frequency: 450 MHz; Antenna Input Power: 250 [mW]
Large Planar Phantom; Planar Section
Probe: ET3DV6 - SN1387; ConvF(7.30,7.30,7.30); Crest factor: 1.0; 450 MHz Brain: σ = 0.88 mho/m ε_r = 44.1 ρ = 1.00 g/cm^3
Cube 5x5x7: Peak: 2.24 mW/g, SAR (1g): 1.34 mW/g, SAR (10g): 0.905 mW/g, (Worst-case extrapolation)
Penetration depth: 12.0 (10.5, 14.0) [mm]; Powerdrift: 0.01 dB; Ambient Temp.: 23.3°C; Fluid Temp.: 22.2°C
Calibration Date: October 17, 2002



450MHz System Validation

Measured Fluid Dielectric Parameters (Brain)

October 17, 2002

Frequency	e'	e''
350.000000 MHz	46.6334	40.6323
360.000000 MHz	46.3629	40.0034
370.000000 MHz	46.1498	39.3672
380.000000 MHz	45.8833	38.6723
390.000000 MHz	45.5947	38.0484
400.000000 MHz	45.3226	37.4538
410.000000 MHz	45.0977	36.9636
420.000000 MHz	44.8241	36.4841
430.000000 MHz	44.5839	35.9541
440.000000 MHz	44.3183	35.5098
450.000000 MHz	44.0572	35.0854
460.000000 MHz	43.8600	34.7069
470.000000 MHz	43.6544	34.3371
480.000000 MHz	43.4507	33.9296
490.000000 MHz	43.2880	33.5147
500.000000 MHz	43.0921	33.1731
510.000000 MHz	42.8781	32.7813
520.000000 MHz	42.6765	32.4193
530.000000 MHz	42.5864	32.1000
540.000000 MHz	42.4644	31.7180
550.000000 MHz	42.3042	31.4503

APPENDIX D - PROBE CALIBRATION

Schmid & Partner
Engineering AG

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

Calibration Certificate

Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1590**
Place of Calibration:	**Zurich**
Date of Calibration:	**April 26, 2002**
Calibration Interval:	**12 months**

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:	
Approved by:	

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Telephone +41 1 245 97 00, Fax +41 1 245 97 79

Probe ET3DV6

SN:1590

Manufactured:	March 19, 2001
Last calibration:	March 26, 2001
Recalibrated:	April 26, 2002

Calibrated for System DASY3

DASY3 - Parameters of Probe: ET3DV6 SN:1590

Sensitivity in Free Space

Diode Compression

NormX	**1.77**	$\mu V/(V/m)^2$	DCP X	**95**	mV
NormY	**1.92**	$\mu V/(V/m)^2$	DCP Y	**95**	mV
NormZ	**1.66**	$\mu V/(V/m)^2$	DCP Z	**95**	mV

Sensitivity in Tissue Simulating Liquid

Head **900 MHz** ε_r **= 41.5 ± 5%** σ **= 0.97 ± 5% mho/m**
Head **835 MHz** ε_r **= 41.5 ± 5%** σ **= 0.90 ± 5% mho/m**

ConvF X	**6.8**	± 9.5% (k=2)	Boundary effect:	
ConvF Y	**6.8**	± 9.5% (k=2)	Alpha	**0.65**
ConvF Z	**6.8**	± 9.5% (k=2)	Depth	**1.62**

Head **1800 MHz** ε_r **= 40.0 ± 5%** σ **= 1.40 ± 5% mho/m**
Head **1900 MHz** ε_r **= 40.0 ± 5%** σ **= 1.40 ± 5% mho/m**

ConvF X	**5.5**	± 9.5% (k=2)	Boundary effect:	
ConvF Y	**5.5**	± 9.5% (k=2)	Alpha	**0.41**
ConvF Z	**5.5**	± 9.5% (k=2)	Depth	**2.61**

Boundary Effect

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

Probe Tip to Boundary		**1 mm**	**2 mm**
SAR_{be} [%]	Without Correction Algorithm	7.2	3.7
SAR_{be} [%]	With Correction Algorithm	0.0	0.0

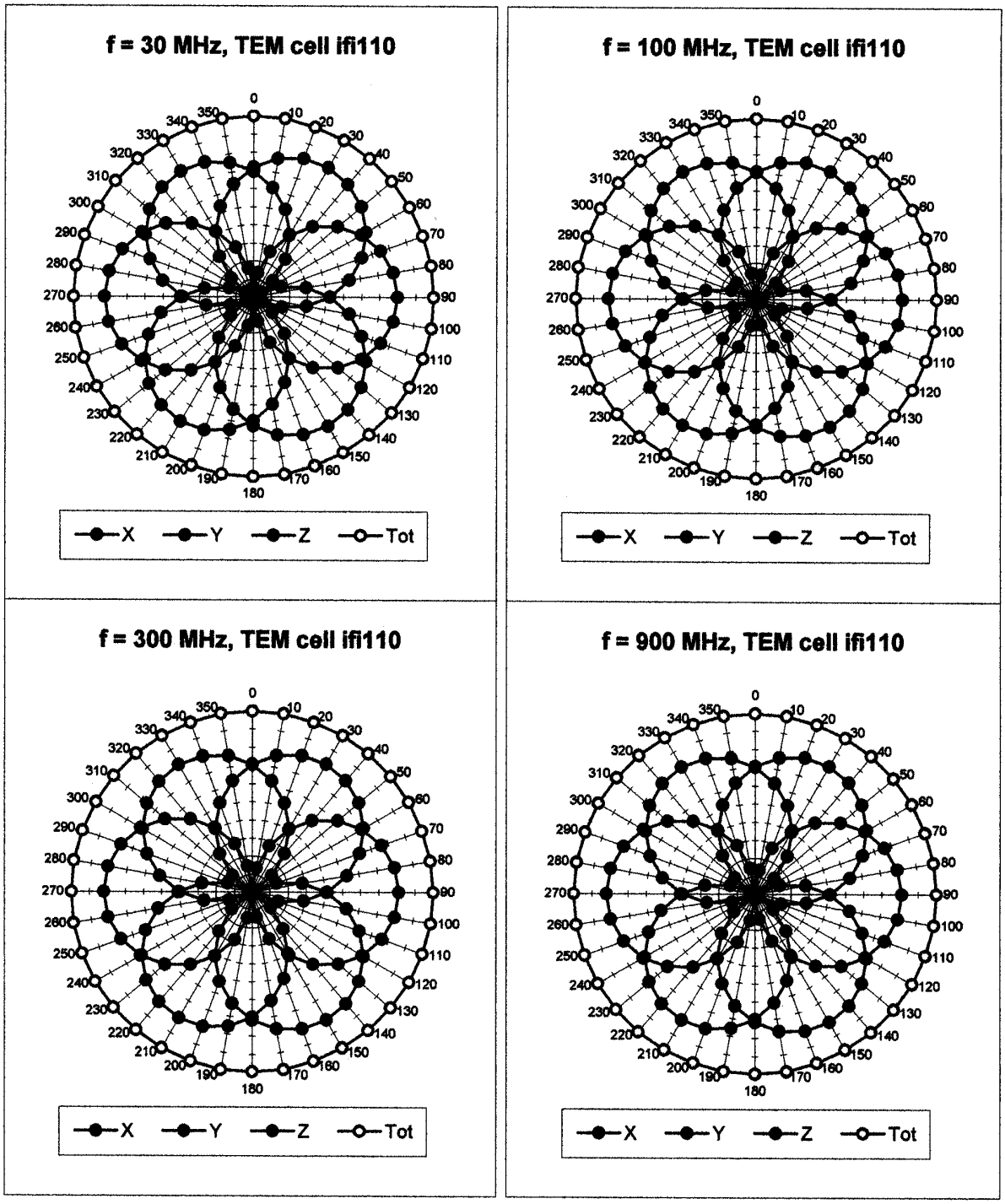
Head **1800 MHz** **Typical SAR gradient: 10 % per mm**

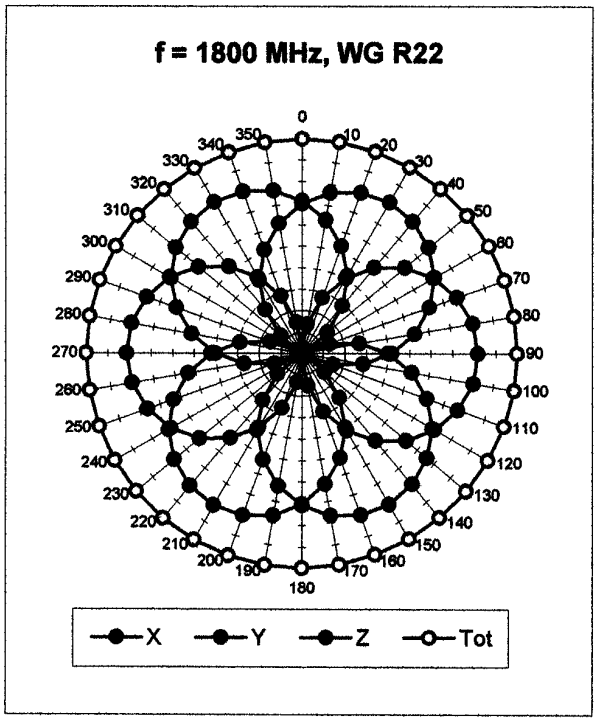
Probe Tip to Boundary		**1 mm**	**2 mm**
SAR_{be} [%]	Without Correction Algorithm	11.0	7.5
SAR_{be} [%]	With Correction Algorithm	0.1	0.2

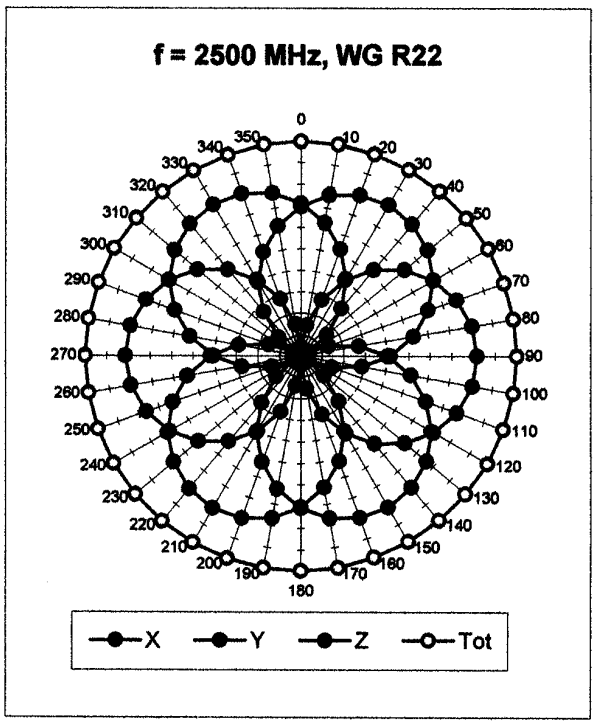
Sensor Offset

Probe Tip to Sensor Center	**2.7**	mm
Optical Surface Detection	**1.2 ± 0.2**	mm

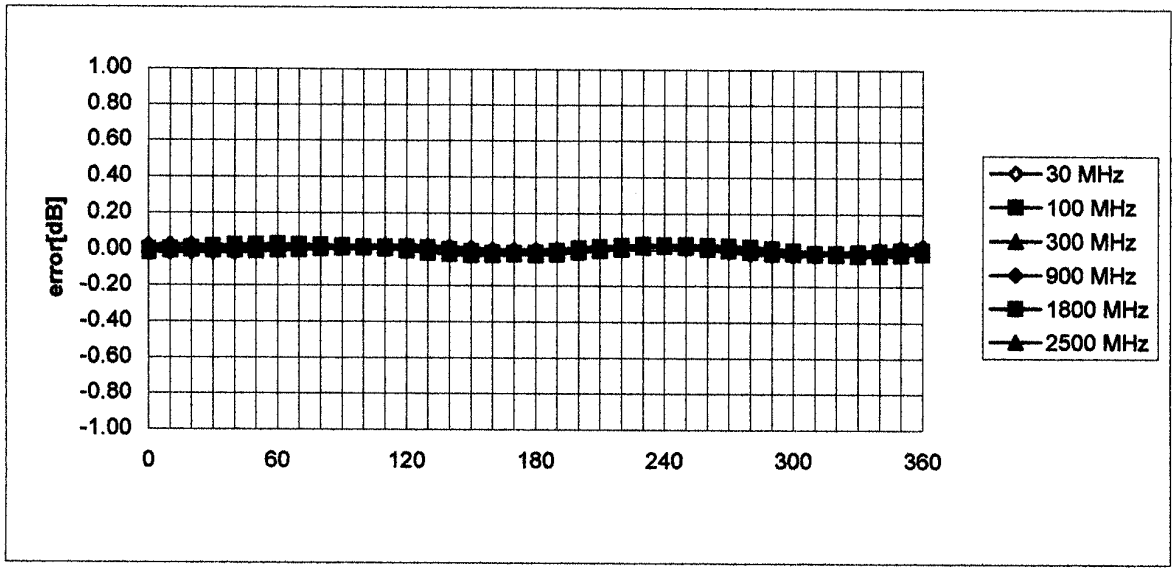
Receiving Pattern (ϕ), θ = 0°





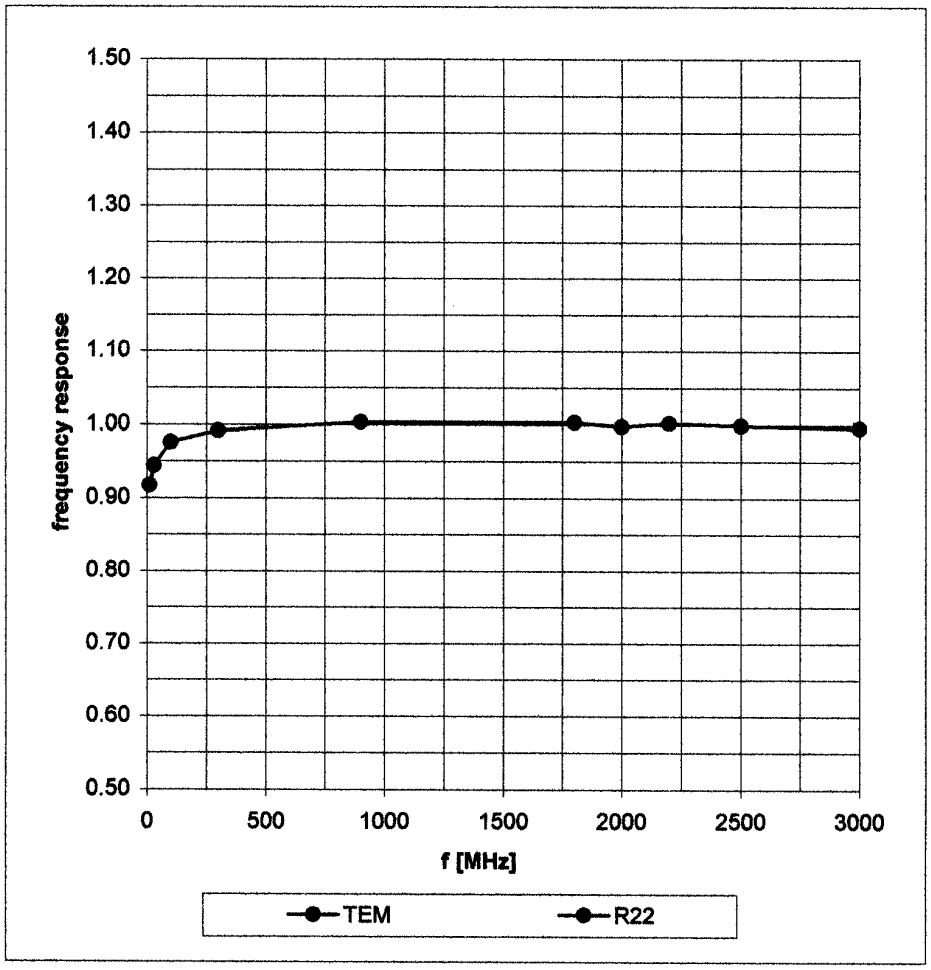


Isotropy Error (ϕ), θ = 0°



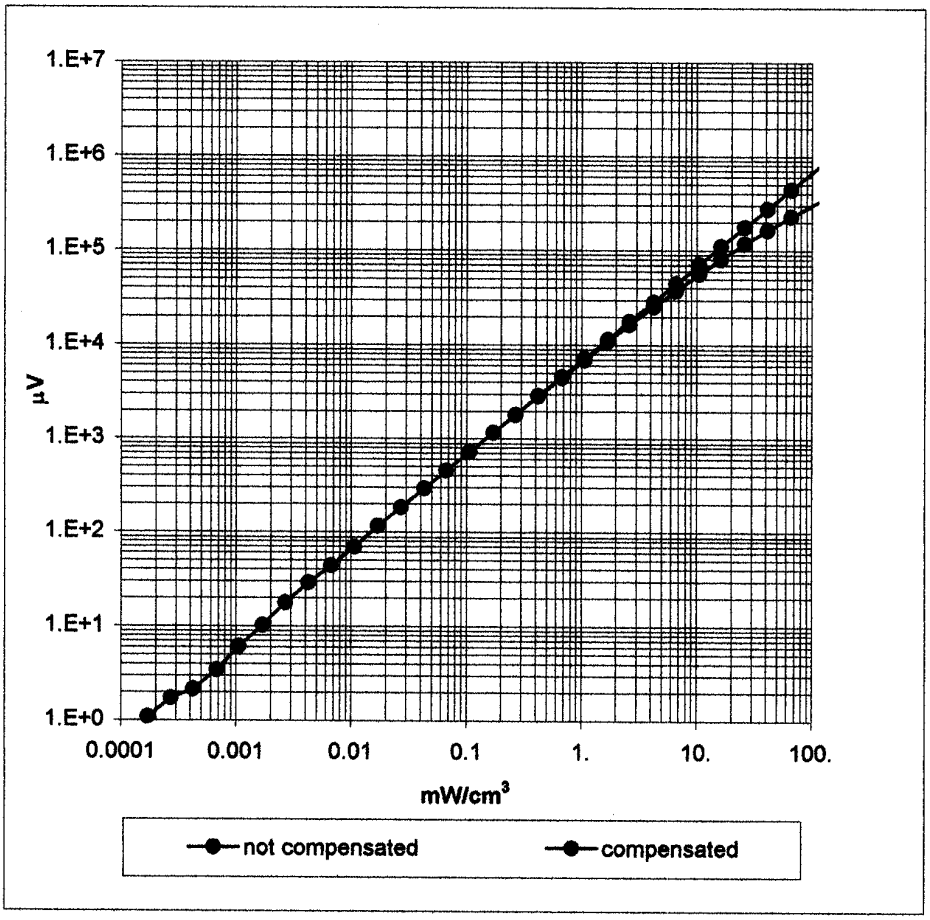
Frequency Response of E-Field

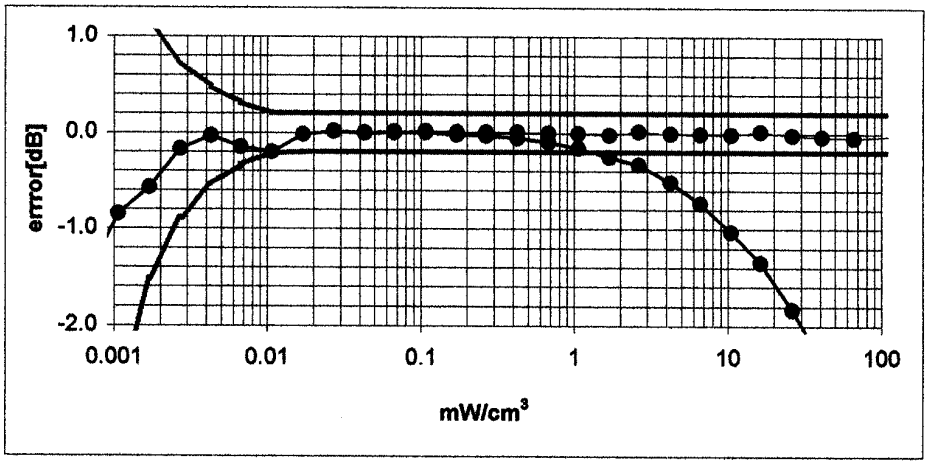
(TEM-Cell:ifi110, Waveguide R22)



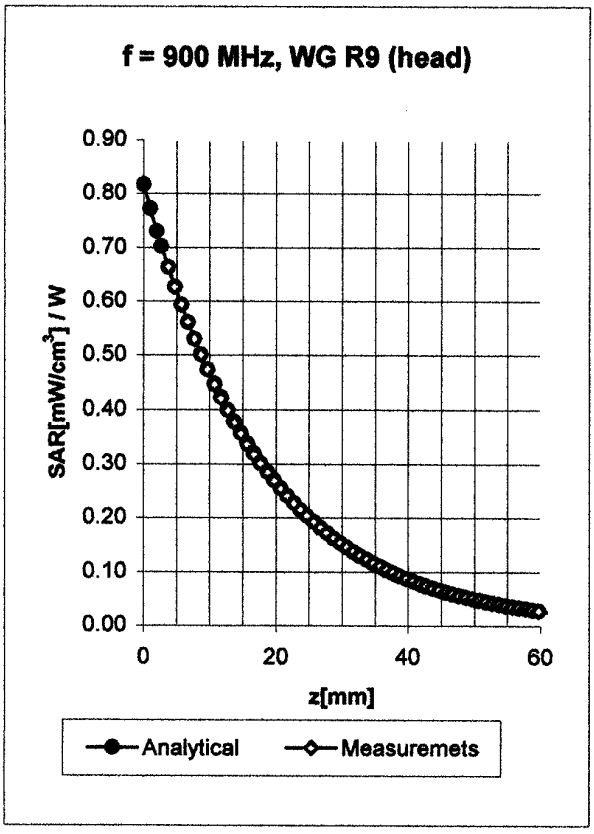
Dynamic Range f(SAR_{brain})

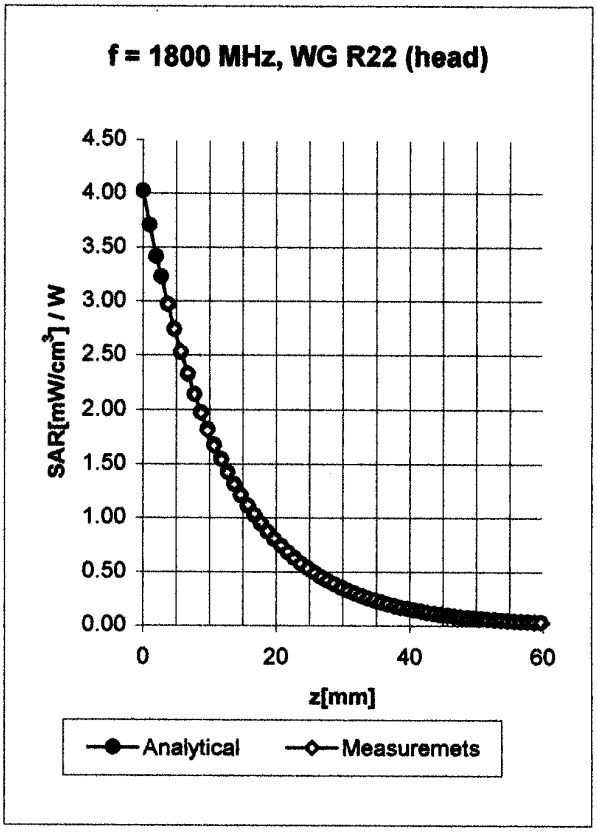
(Waveguide R22)





Conversion Factor Assessment



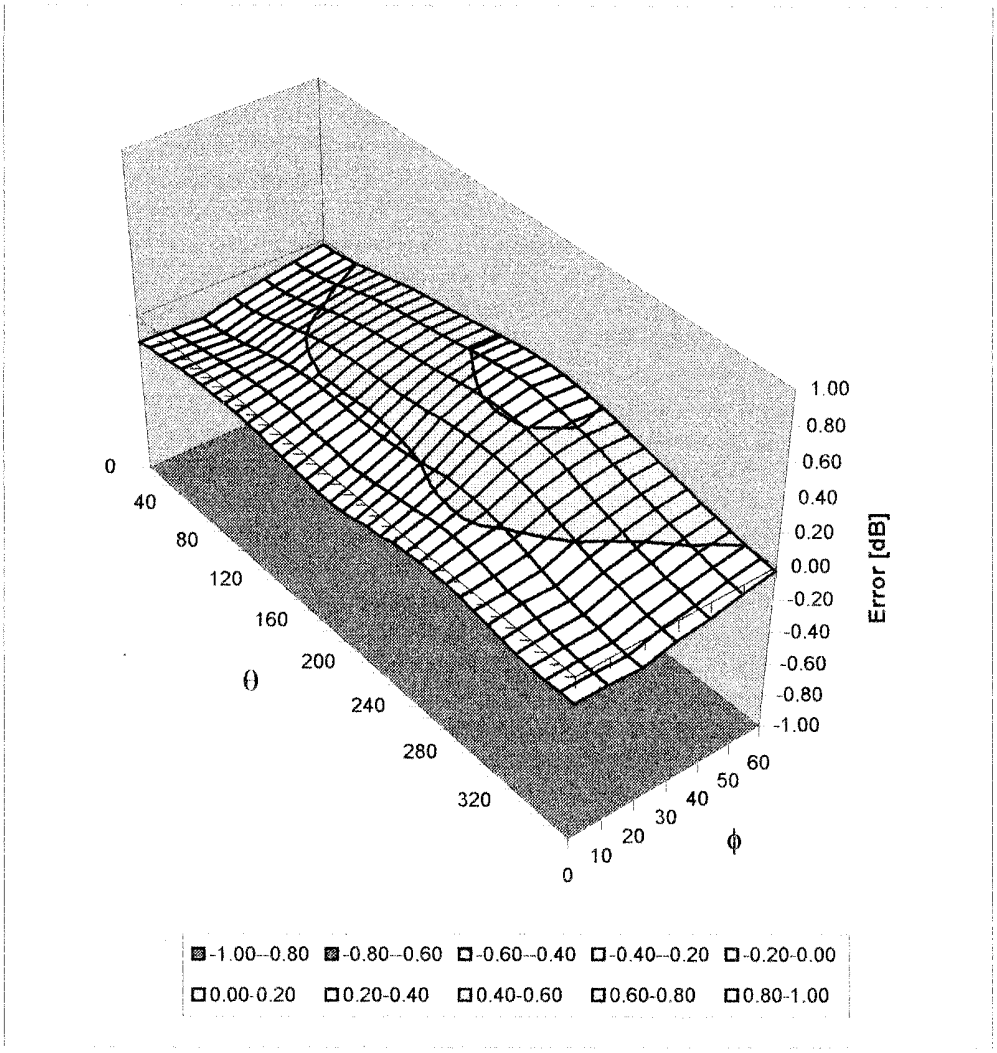


Head	**900 MHz**		ε_r = **41.5 ± 5%**	σ = **0.97 ± 5% mho/m**
Head	**835 MHz**		ε_r = **41.5 ± 5%**	σ = **0.90 ± 5% mho/m**
	ConvF X	**6.8** ± 9.5% (k=2)		Boundary effect:
	ConvF Y	**6.8** ± 9.5% (k=2)		Alpha **0.65**
	ConvF Z	**6.8** ± 9.5% (k=2)		Depth **1.62**

Head	**1800 MHz**		ε_r = **40.0 ± 5%**	σ = **1.40 ± 5% mho/m**
Head	**1900 MHz**		ε_r = **40.0 ± 5%**	σ = **1.40 ± 5% mho/m**
	ConvF X	**5.5** ± 9.5% (k=2)		Boundary effect:
	ConvF Y	**5.5** ± 9.5% (k=2)		Alpha **0.41**
	ConvF Z	**5.5** ± 9.5% (k=2)		Depth **2.61**

Deviation from Isotropy in HSL

Error (θ,φ), f = 900 MHz



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Engineering AG

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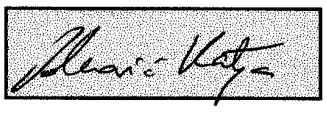
Additional Conversion Factors

for Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1590**
Place of Assessment:	**Zurich**
Date of Assessment:	**May 1, 2002**
Probe Calibration Date:	**April 26, 2002**

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 900 MHz or at 1800 MHz.

Assessed by: 

Dosimetric E-Field Probe ET3DV6 SN:1590

Conversion factor (± standard deviation)

150 MHz	ConvF	**9.4 ± 8%**	**ε_r = 52.3** **σ = 0.76 mho/m** (head tissue)
300 MHz	ConvF	**8.2 ± 8%**	**ε_r = 45.3** **σ = 0.87 mho/m** (head tissue)
450 MHz	ConvF	**7.8 ± 8%**	**ε_r = 43.5** **σ = 0.87mho/m** (head tissue)
150 MHz	ConvF	**9.1 ± 8%**	**ε_r = 61.9** **σ = 0.80 mho/m** (body tissue)
450 MHz	ConvF	**7.9 ± 8%**	**ε_r = 56.7** **σ = 0.94 mho/m** (body tissue)
2450 MHz	ConvF	**4.5 ± 8%**	**ε_r = 39.2** **σ = 1.80 mho/m** (head tissue)
2450 MHz	ConvF	**4.1 ± 8%**	**ε_r = 52.7** **σ = 1.95 mho/m** (body tissue)

APPENDIX E - MEASURED FLUID DIELECTRIC PARAMETERS

150MHz DUT Evaluation (Face)

Measured Fluid Dielectric Parameters (Brain)

January 30, 2003

Frequency	e'	e''
50.000000 MHz	61.9947	254.7897
60.000000 MHz	61.2300	215.2530
70.000000 MHz	60.8710	184.9338
80.000000 MHz	59.3925	163.7344
90.000000 MHz	58.4313	147.0838
100.000000 MHz	57.4235	133.6333
110.000000 MHz	56.6505	122.7221
120.000000 MHz	55.8936	113.8946
130.000000 MHz	55.3953	105.9636
140.000000 MHz	54.7273	99.4317
150.000000 MHz	54.2393	93.7827
160.000000 MHz	53.6195	88.9207
170.000000 MHz	53.0397	84.7471
180.000000 MHz	52.7518	80.6002
190.000000 MHz	52.2693	77.2911
200.000000 MHz	51.8930	74.1780
210.000000 MHz	51.2827	71.3782
220.000000 MHz	50.8687	68.8731
230.000000 MHz	50.3876	66.3914
240.000000 MHz	49.9661	64.2840
250.000000 MHz	49.5493	62.3442

150MHz DUT Evaluation (Body)

Measured Fluid Dielectric Parameters (Muscle)

January 30, 2003

Frequency	e'	e''
50.000000 MHz	63.3558	276.7084
60.000000 MHz	62.3484	232.4492
70.000000 MHz	63.0801	199.9249
80.000000 MHz	62.2662	175.9013
90.000000 MHz	62.2954	157.5254
100.000000 MHz	61.4299	142.9213
110.000000 MHz	61.4350	130.8028
120.000000 MHz	60.7961	120.7176
130.000000 MHz	60.4563	111.7102
140.000000 MHz	60.3029	104.6712
150.000000 MHz	59.9822	98.5126
160.000000 MHz	59.5520	93.0954
170.000000 MHz	59.1774	88.5964
180.000000 MHz	58.9901	84.2972
190.000000 MHz	58.7032	80.5151
200.000000 MHz	58.4222	77.0198
210.000000 MHz	58.1202	74.1308
220.000000 MHz	57.9292	71.3169
230.000000 MHz	57.5651	68.7951
240.000000 MHz	57.1209	66.3835
250.000000 MHz	56.9483	64.2837

300MHz System Performance Check

Measured Fluid Dielectric Parameters (Brain)

January 30, 2003

Frequency	e'	e''
200.000000 MHz	49.4626	72.2971
210.000000 MHz	49.0000	69.6403
220.000000 MHz	48.6896	67.1173
230.000000 MHz	48.1532	64.7588
240.000000 MHz	47.6769	62.7310
250.000000 MHz	47.2505	60.7614
260.000000 MHz	46.8881	59.0659
270.000000 MHz	46.4954	57.4989
280.000000 MHz	46.1878	55.9758
290.000000 MHz	45.8846	54.4988
300.000000 MHz	45.5261	53.0415
310.000000 MHz	45.0915	51.7410
320.000000 MHz	44.8270	50.5965
330.000000 MHz	44.5472	49.4458
340.000000 MHz	44.2755	48.3742
350.000000 MHz	43.9456	47.3345
360.000000 MHz	43.6476	46.4436
370.000000 MHz	43.4557	45.4731
380.000000 MHz	43.2904	44.6616
390.000000 MHz	43.0228	43.7839
400.000000 MHz	42.7742	43.0548

450MHz System Performance Check & DUT Evaluation (Face)

Measured Fluid Dielectric Parameters (Brain)

January 30, 2003

Frequency	e'	e''
350.000000 MHz	46.0841	39.7782
360.000000 MHz	45.7201	39.0717
370.000000 MHz	45.4678	38.4009
380.000000 MHz	45.1708	37.8042
390.000000 MHz	44.9872	37.2336
400.000000 MHz	44.7186	36.7448
410.000000 MHz	44.4998	36.2324
420.000000 MHz	44.3551	35.7535
430.000000 MHz	44.0837	35.2369
440.000000 MHz	43.8406	34.8358
450.000000 MHz	43.5681	34.4203
460.000000 MHz	43.3853	34.0372
470.000000 MHz	43.2153	33.6323
480.000000 MHz	42.9671	33.1421
490.000000 MHz	42.7245	32.7408
500.000000 MHz	42.5069	32.4371
510.000000 MHz	42.3130	32.1253
520.000000 MHz	42.1387	31.7896
530.000000 MHz	41.9384	31.4553
540.000000 MHz	41.8385	31.0681
550.000000 MHz	41.6391	30.8060

450MHz DUT Evaluation (Body)

Measured Fluid Dielectric Parameters (Muscle)

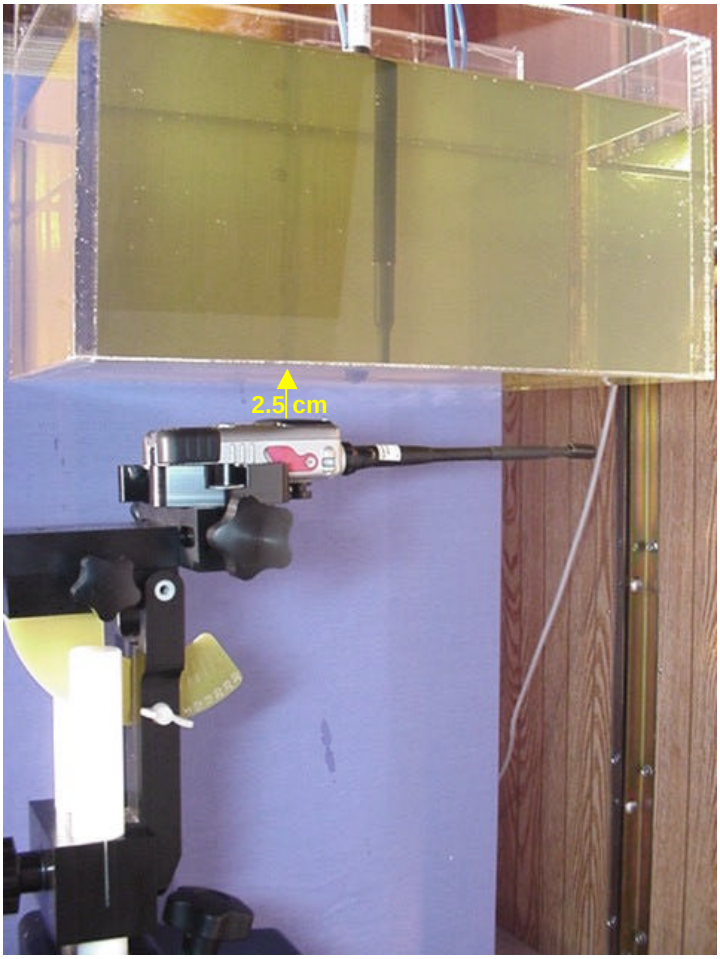
January 30, 2003

Frequency	e'	e''
350.000000 MHz	59.3858	43.9726
360.000000 MHz	59.1800	43.0957
370.000000 MHz	59.0832	42.2789
380.000000 MHz	58.8724	41.5656
390.000000 MHz	58.6797	40.7853
400.000000 MHz	58.5068	40.0804
410.000000 MHz	58.3920	39.5424
420.000000 MHz	58.2003	39.0014
430.000000 MHz	58.0883	38.3682
440.000000 MHz	57.9541	37.8533
450.000000 MHz	57.7737	37.3685
460.000000 MHz	57.6768	36.9330
470.000000 MHz	57.5986	36.4357
480.000000 MHz	57.4631	35.9143
490.000000 MHz	57.2921	35.4556
500.000000 MHz	57.1468	35.0081
510.000000 MHz	56.9480	34.6061
520.000000 MHz	56.8429	34.2139
530.000000 MHz	56.7165	33.8563
540.000000 MHz	56.6671	33.4265
550.000000 MHz	56.5094	33.1406

APPENDIX F - SAR TEST SETUP AND DUT PHOTOGRAPHS

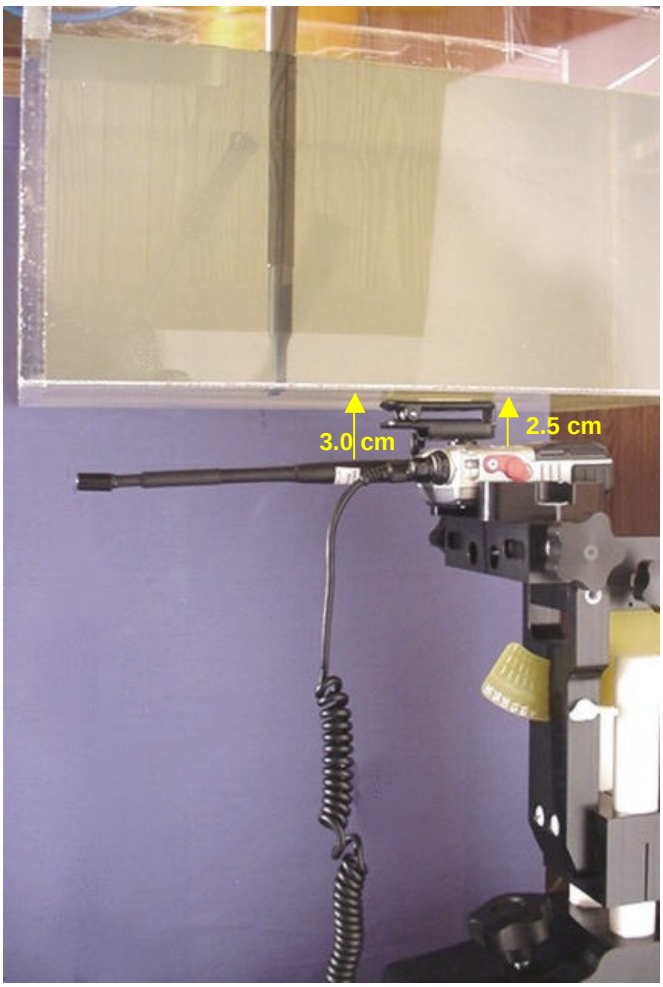
FACE-HELD SAR TEST SETUP PHOTOGRAPHS

2.5cm Separation Distance to Planar Phantom



BODY-WORN SAR TEST SETUP PHOTOGRAPHS

with Belt-Clip & Lapel-Clip Speaker-Microphone Accessories
2.5cm Belt-Clip Separation Distance to Planar Phantom



DUT PHOTOGRAPHS

Front of DUT

Back of DUT

Front of DUT with Belt-Clip
& Speaker-Microphone Accessories

Back of DUT with Belt-Clip
& Speaker-Microphone Accessories

Left Side of DUT & Belt-Clip

Right Side of DUT & Belt-Clip

Whip Antenna

DUT PHOTOGRAPHS

Belt-Clip Front Side

Belt-Clip Back Side

Belt-Clip Left Side

Belt-Clip Right Side

Lithium-Ion Battery Front Side

Lithium-Ion Battery Back Side