

Test Report Serial No.:	071105BV8-T656-S90F	TR Issue Date:	August 25, 2005
Dates of Evaluation:	July 19-22, 25-28, August 02-04, 2005		Issue 1 Rev. 3
Description of Test:	RF Exposure	SAR	FCC 2.1093 IC RSS-102

APPENDIX E - SYSTEM VALIDATION

Applicant:	M/A-COM, Inc.	Model:	P7200	FCC ID:	BV8P7200	IC ID:	3670A-P7200	
DUT Type:	Portable FM PTT Radio Transceiver			764-776MHz / 794-806MHz / 806-824MHz / 851-869MHz				
2005 Celltech Labs Inc.		This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.						334 of 336

835 MHz SYSTEM VALIDATION DIPOLE

Type:

835 MHz Validation Dipole

Serial Number:

411

Place of Calibration:

Celltech Labs Inc.

Date of Calibration:

March 30, 2005

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

Calibrated by:



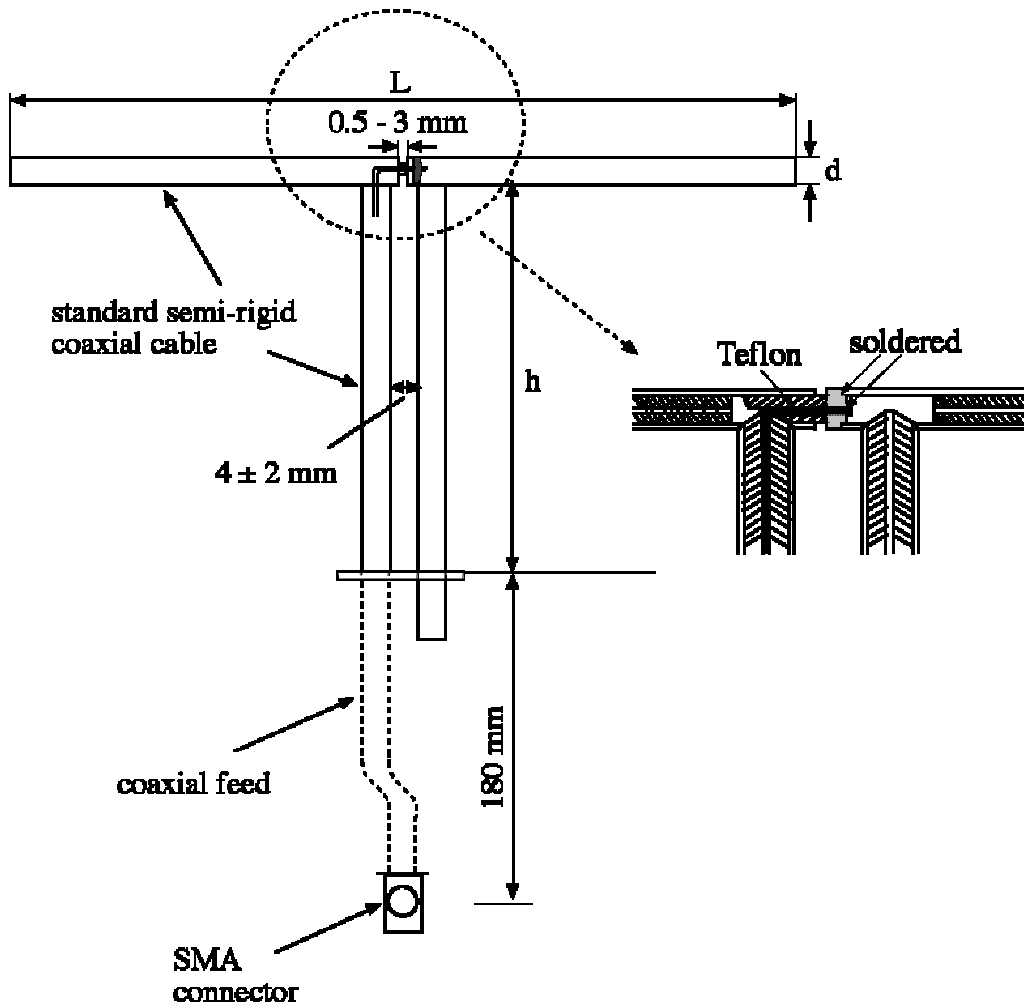
Approved by:



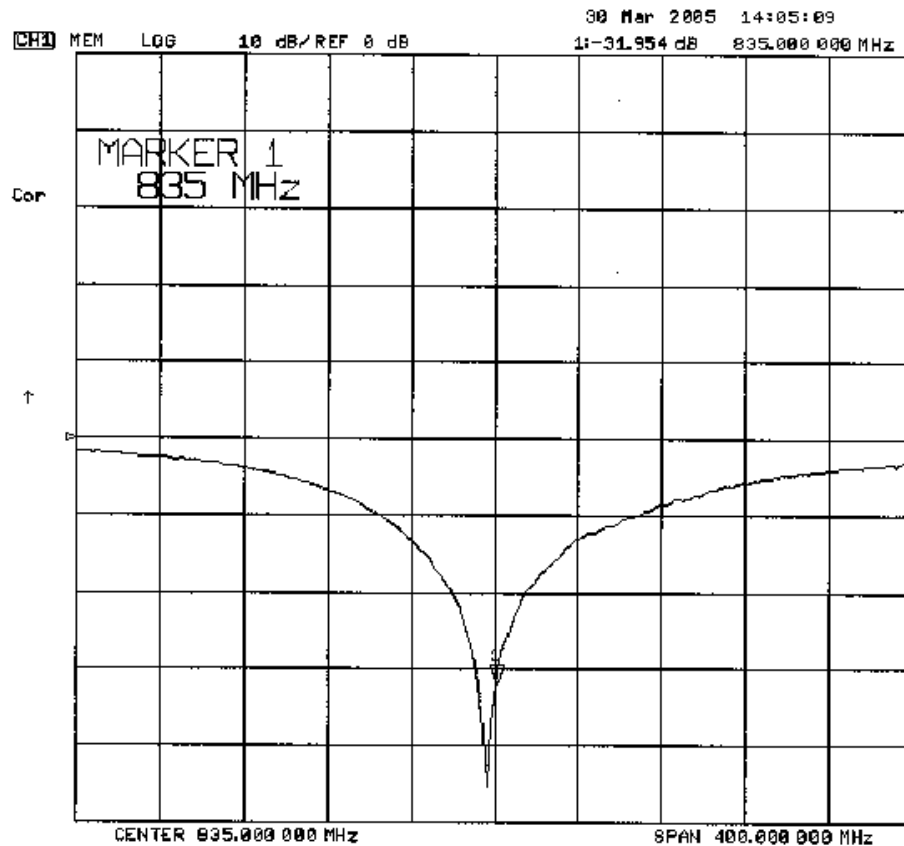
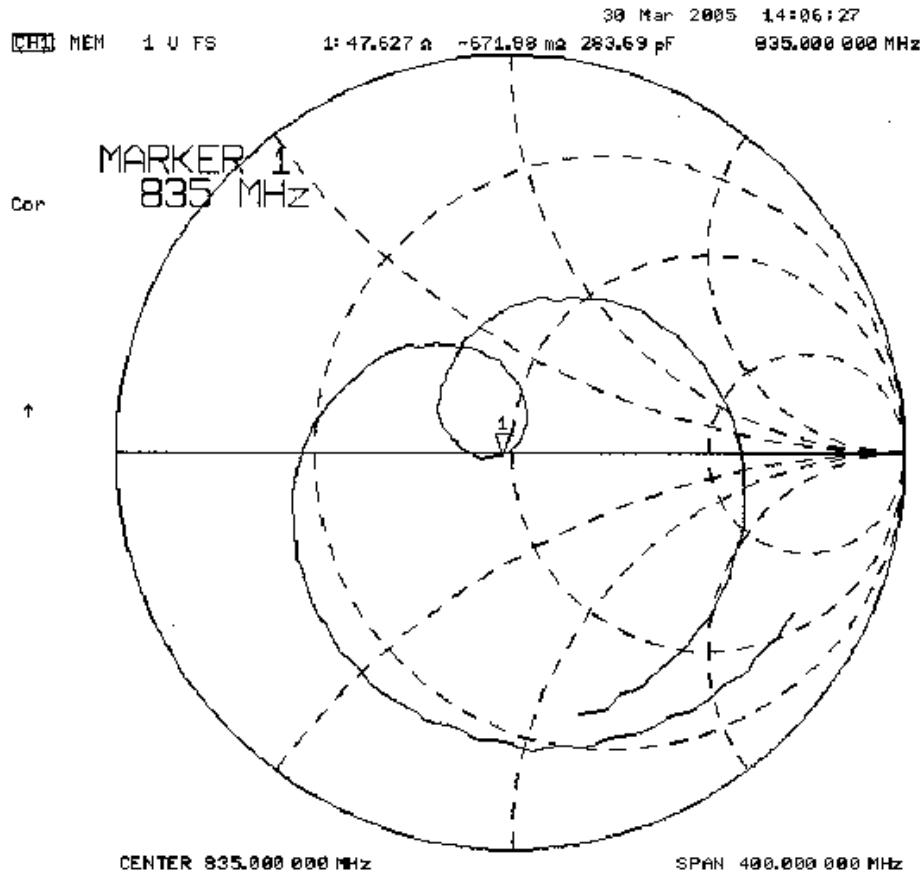
1. Validation Dipole Construction & Electrical Characteristics

The validation dipole was constructed in accordance with the IEEE Standard “Annex G (informative) Reference dipoles for use in system validation”. The electrical properties were measured using an HP 8753ET 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 835MHz	$\text{Re}\{Z\} = 47.627\Omega$ $\text{Im}\{Z\} = -0.67188\Omega$
Return Loss at 835MHz	-31.954dB



2. Validation Dipole VSWR Data



3. 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

4. Validation Phantom

The validation phantom is the SAM (Specific Anthropomorphic Mannequin) phantom manufactured by Schmid & Partner Engineering AG. The SAM phantom is a Fiberglass shell integrated in a wooden table. The shape of the shell corresponds to the phantom defined by SCC34-SC2. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness: 2.0 ± 0.1 mm
Filling Volume: Approx. 20 liters
Dimensions: 50 cm (W) x 100 cm (L)

5. 835 MHz System Validation Setup



835 MHz System Validation Setup



6. Measurement Conditions

The SAM phantom was filled with 835 MHz simulated brain tissue mixture having the following parameters at 450 MHz:

Relative Permittivity: 39.5
 Conductivity: 0.90 mho/m
 Fluid Temperature: 20.4 °C
 Fluid Depth: ≥ 15.0 cm

Environmental Conditions:
 Ambient Temperature: 20.5 °C
 Barometric Pressure: 102.2 kPa
 Humidity: 32 %

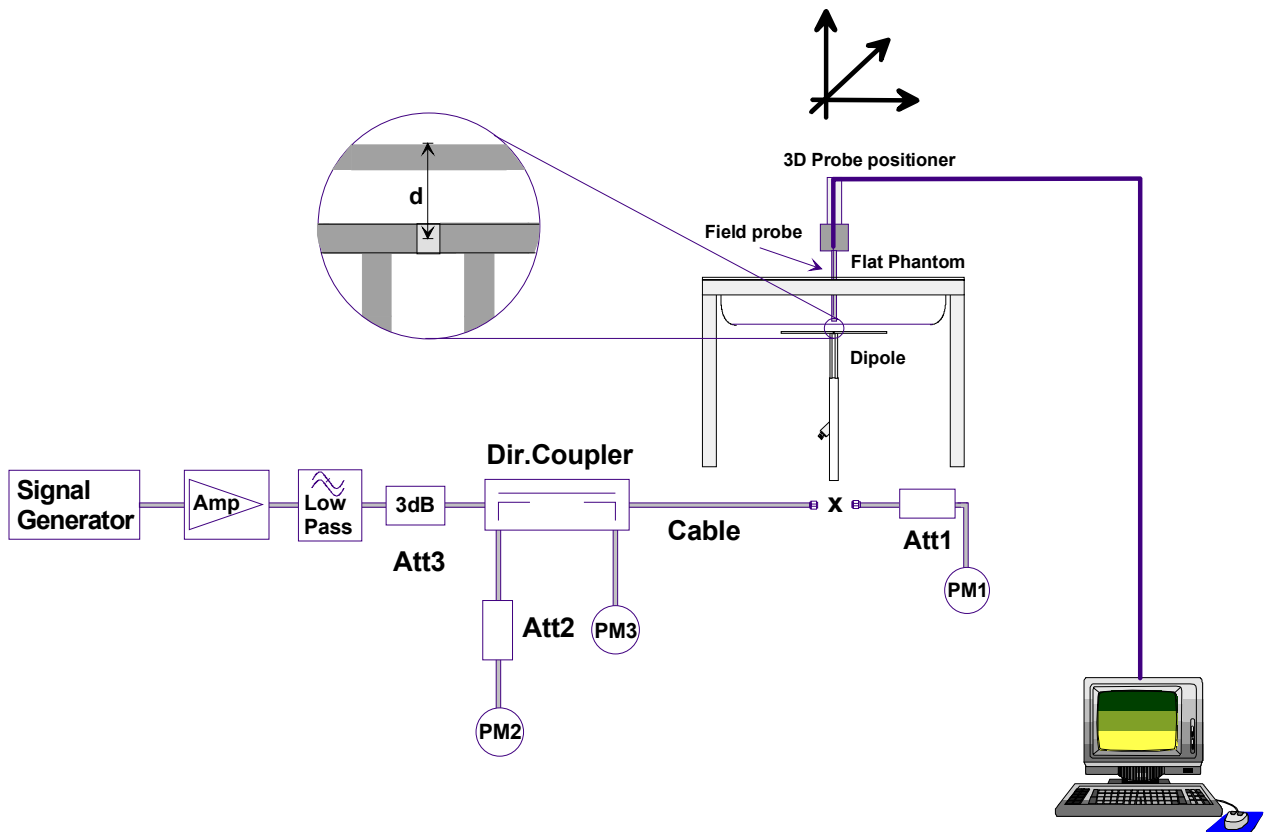
Measurements were made at the planar section of the SAM phantom using a dosimetric E-field probe ET3DV5 (S/N: 1590, conversion factor 6.71).

The 835 MHz simulated brain tissue mixture consisted of the following ingredients:

Ingredient	Percentage by weight
Water	40.71%
Sugar	56.63%
Salt	1.48%
HEC	0.99%
Dowicil 75	0.19%
Target Dielectric Parameters at 22 °C	$\epsilon_r = 41.5$ $\sigma = 0.90$ S/m

7. 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.

8. Validation Dipole SAR Test Results

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

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	2.45	9.80	1.60	6.40	3.65
Test 2	2.44	9.76	1.59	6.36	3.66
Test 3	2.45	9.80	1.60	6.40	3.67
Test 4	2.44	9.76	1.59	6.36	3.64
Test 5	2.44	9.76	1.59	6.36	3.62
Test 6	2.43	9.72	1.59	6.36	3.61
Test 7	2.45	9.80	1.60	6.40	3.65
Test 8	2.43	9.72	1.59	6.36	3.62
Test 9	2.43	9.72	1.59	6.36	3.61
Test10	2.45	9.80	1.60	6.40	3.65
Average SAR	2.44	9.76	1.59	6.38	3.64

IEEE Target SAR @ 1 Watt Input averaged over 1 gram (W/kg)		Measured SAR @ 1 Watt Input averaged over 1 gram (W/kg)	Deviation from Target (%)	IEEE Target SAR @ 1 Watt Input averaged over 10 grams (W/kg)		Measured SAR @ 1 Watt Input averaged over 10 grams (W/kg)	Deviation from Target (%)
9.5	+/- 10%	9.76	+ 2.7	6.2	+/- 10%	6.38	+ 2.9

835 MHz System Validation - March 30, 2005

DUT: Dipole 835 MHz; Type: D835V2; Serial: 411
 Ambient Temp: 20.5°C; Fluid Temp: 20.4°C; Barometric Pressure: 102.2 kPa; Humidity: 32%
 Communication System: CW
 Frequency: 835 MHz; Duty Cycle: 1:1
 Medium: HSL835 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.90 \text{ mho/m}$; $\epsilon_r = 39.5$; $\rho = 1000 \text{ kg/m}^3$
 - Probe: ET3DV6 - SN1590; ConvF(6.71, 6.71, 6.71); Calibrated: 24/05/2004
 - Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
 - Electronics: DAE3 Sn370; Calibrated: 25/01/2005
 - Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
 - Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

835 MHz System Validation/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm
 Reference Value = 56.5 V/m; Power Drift = -0.031 dB

835 MHz System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 56.5 V/m; Power Drift = -0.031 dB
 Peak SAR (extrapolated) = 3.65 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.6 mW/g

835 MHz System Validation/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 56.1 V/m; Power Drift = -0.00 dB
 Peak SAR (extrapolated) = 3.66 W/kg
SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.59 mW/g

835 MHz System Validation/Zoom Scan 3 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 55.9 V/m; Power Drift = -0.013 dB
 Peak SAR (extrapolated) = 3.67 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.6 mW/g

835 MHz System Validation/Zoom Scan 4 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 55.9 V/m; Power Drift = 0.00 dB
 Peak SAR (extrapolated) = 3.64 W/kg
SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.59 mW/g

835 MHz System Validation/Zoom Scan 5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 56.0 V/m; Power Drift = -0.017 dB
 Peak SAR (extrapolated) = 3.62 W/kg
SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.59 mW/g

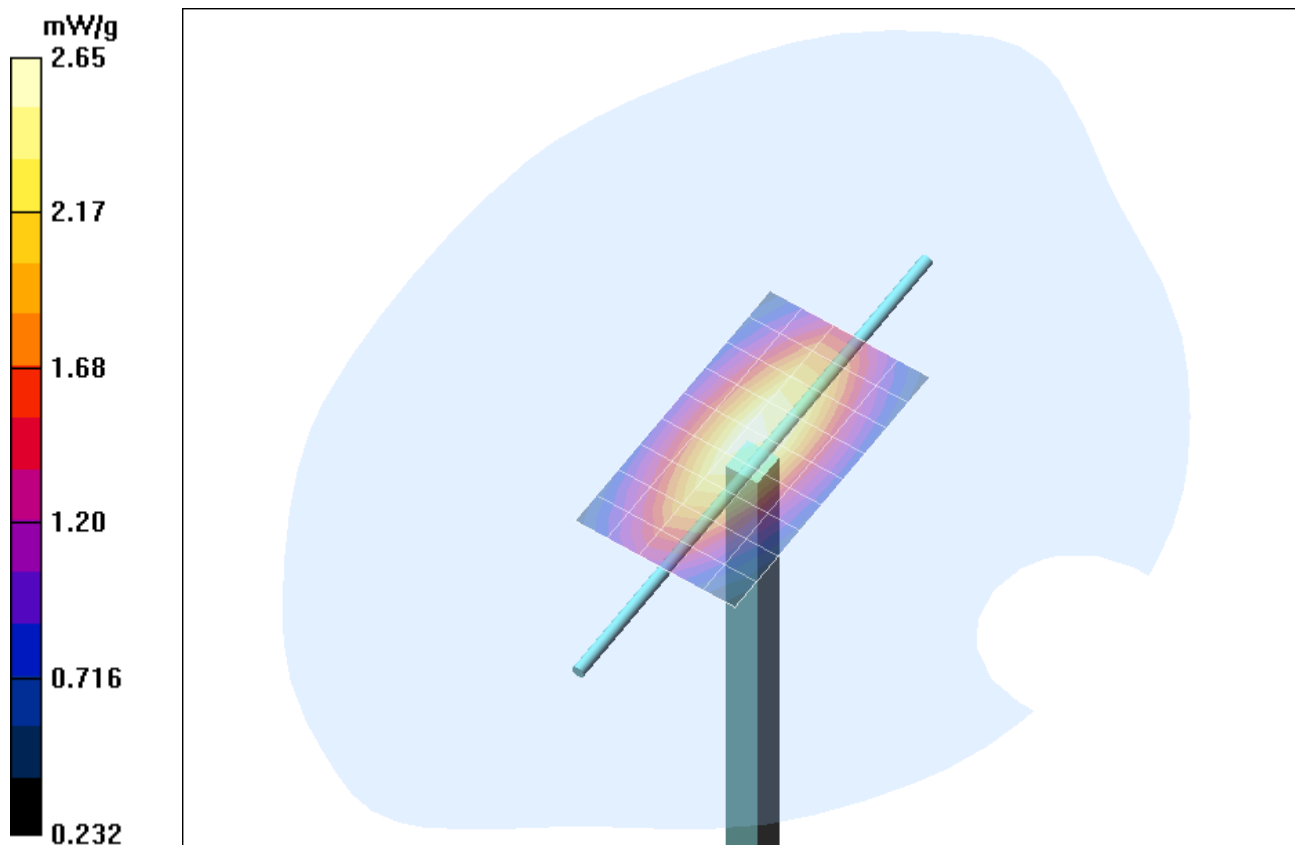
835 MHz System Validation/Zoom Scan 6 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 55.8 V/m; Power Drift = -0.01 dB
 Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.59 mW/g

835 MHz System Validation/Zoom Scan 7 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 56.2 V/m; Power Drift = 0.00 dB
 Peak SAR (extrapolated) = 3.65 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.6 mW/g

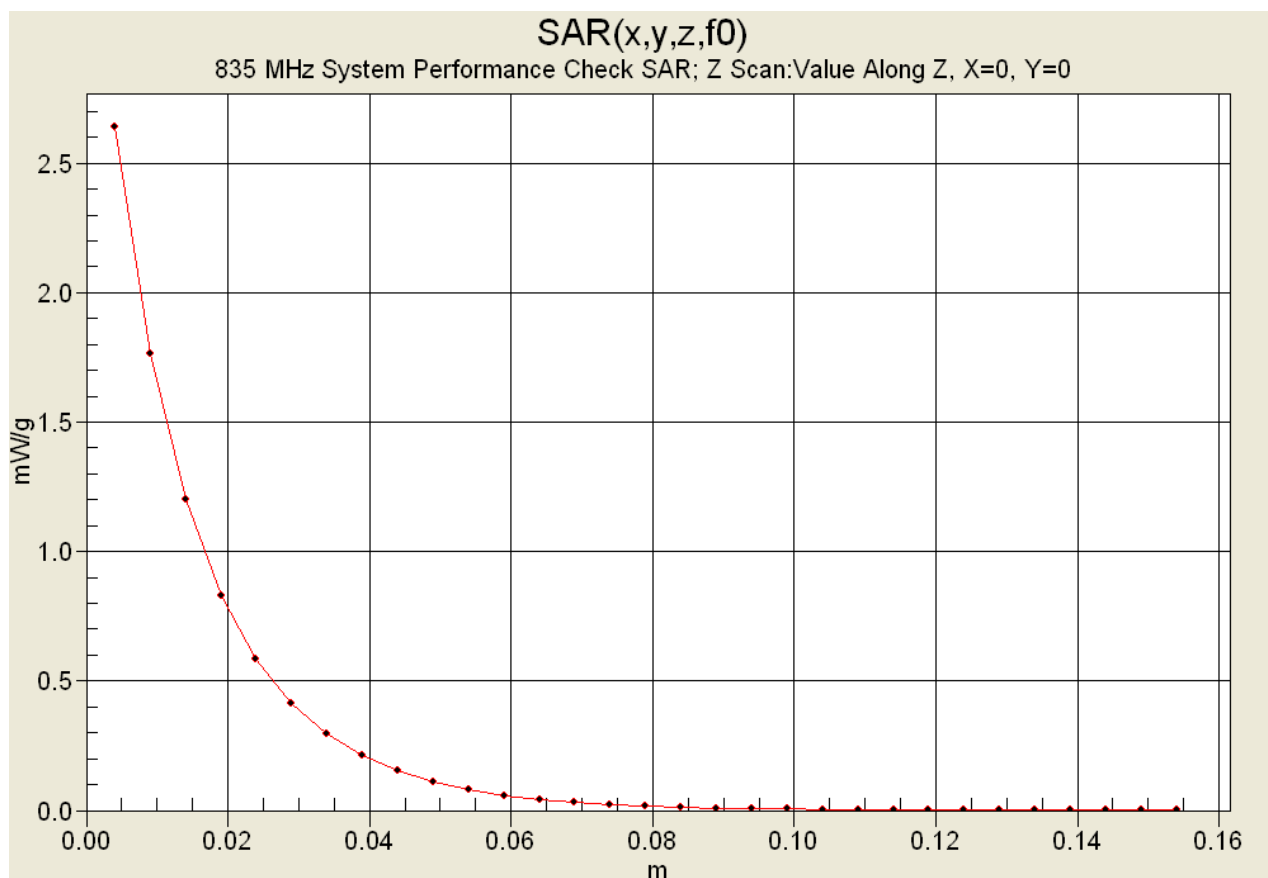
835 MHz System Validation/Zoom Scan 8 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 56.2 V/m; Power Drift = 0.00 dB
 Peak SAR (extrapolated) = 3.62 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.59 mW/g

835 MHz System Validation/Zoom Scan 9 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 55.8 V/m; Power Drift = -0.00 dB
 Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.59 mW/g

835 MHz System Validation/Zoom Scan 10 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 56.2 V/m; Power Drift = -0.00 dB
 Peak SAR (extrapolated) = 3.65 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.6 mW/g



1 g average of 10 measurements: 2.44 mW/g
10 g average of 10 measurements: 1.59 mW/g



System Validation - 835 MHz Dipole

Measured Fluid Dielectric Parameters (Brain)

March 30, 2005

Frequency	ϵ'	ϵ''
735.000000 MHz	40.7992	19.7090
745.000000 MHz	40.6764	19.6562
755.000000 MHz	40.5150	19.6147
765.000000 MHz	40.3469	19.5936
775.000000 MHz	40.2286	19.5727
785.000000 MHz	40.1120	19.5413
795.000000 MHz	39.9862	19.4590
805.000000 MHz	39.8373	19.4821
815.000000 MHz	39.7113	19.4303
825.000000 MHz	39.5956	19.3828
835.000000 MHz	39.4525	19.3180
845.000000 MHz	39.3521	19.3009
855.000000 MHz	39.2084	19.3013
865.000000 MHz	39.0910	19.2701
875.000000 MHz	38.9606	19.2337
885.000000 MHz	38.8205	19.2213
895.000000 MHz	38.7043	19.1737
905.000000 MHz	38.6586	19.1569
915.000000 MHz	38.4783	19.1542
925.000000 MHz	38.3777	19.0771
935.000000 MHz	38.2585	19.0264

Test Report Serial No.:	071105BV8-T656-S90F	TR Issue Date:	August 25, 2005
Dates of Evaluation:	July 19-22, 25-28, August 02-04, 2005		Issue 1 Rev. 3
Description of Test:	RF Exposure	SAR	FCC 2.1093 IC RSS-102

APPENDIX F - PROBE CALIBRATION



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

Accreditation No.: **SCS 108**

Client **Celltech Labs**

Certificate No: **ET3-1387_Mar05**

CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1387**

Calibration procedure(s) **QA CAL-01.v5**
Calibration procedure for dosimetric E-field probes

Calibration date: **March 18, 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 $(22 \pm 3)^{\circ}\text{C}$ 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	5-May-04 (METAS, No. 251-00388)	May-05
Power sensor E4412A	MY41495277	5-May-04 (METAS, No. 251-00388)	May-05
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-04 (METAS, No. 251-00403)	Aug-05
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-04 (METAS, No. 251-00389)	May-05
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-04 (METAS, No. 251-00404)	Aug-05
Reference Probe ES3DV2	SN: 3013	7-Jan-05 (SPEAG, No. ES3-3013_Jan05)	Jan-06
DAE4	SN: 617	19-Jan-05 (SPEAG, No. DAE4-617_Jan05)	Jan-06
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct-03)	In house check: Oct 05
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 Vetterli	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 18, 2005

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



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

Accreditation No.: **SCS 108**

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 ET3DV6

SN:1387

Manufactured:	September 21, 1999
Last calibrated:	March 18, 2004
Recalibrated:	March 18, 2005

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ET3DV6 SN:1387

Sensitivity in Free Space^A

Diode Compression^B

NormX	1.61 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	92 mV
NormY	1.70 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	92 mV
NormZ	1.70 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	92 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		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	9.4	4.9
SAR _{be} [%]	With Correction Algorithm	0.1	0.3

TSL **1810 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	14.3	9.6
SAR _{be} [%]	With Correction Algorithm	0.6	0.1

Sensor Offset

Probe Tip to Sensor Center **2.7 mm**

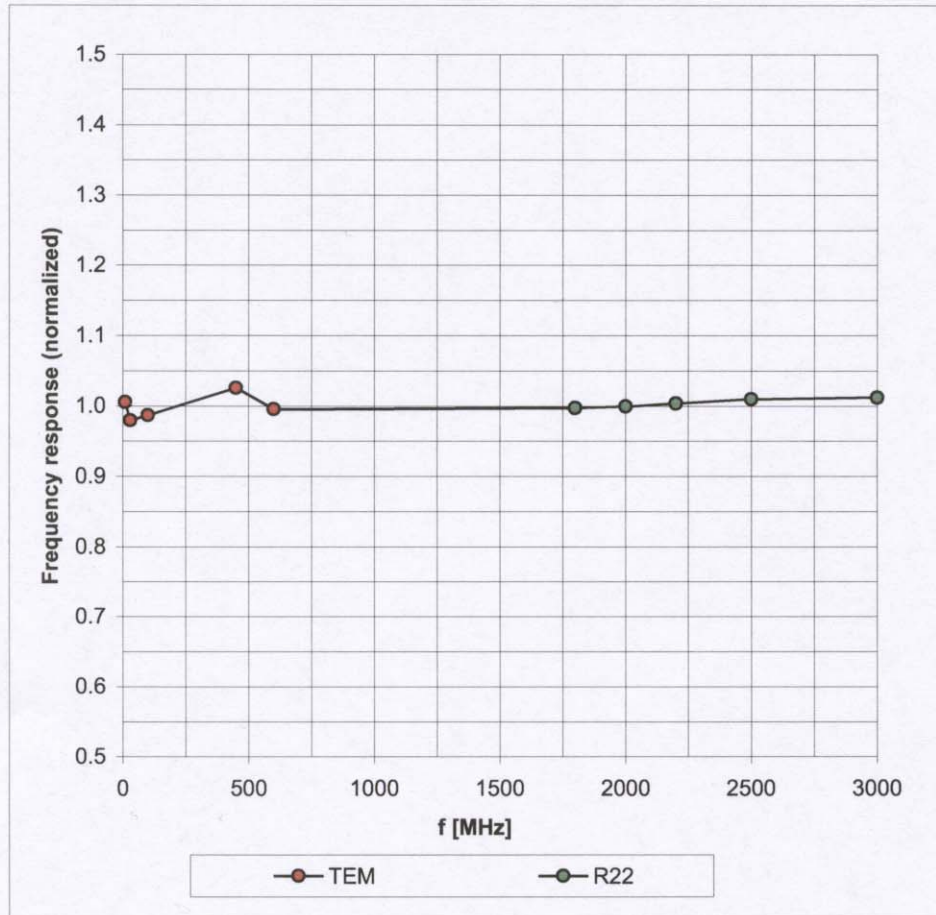
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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

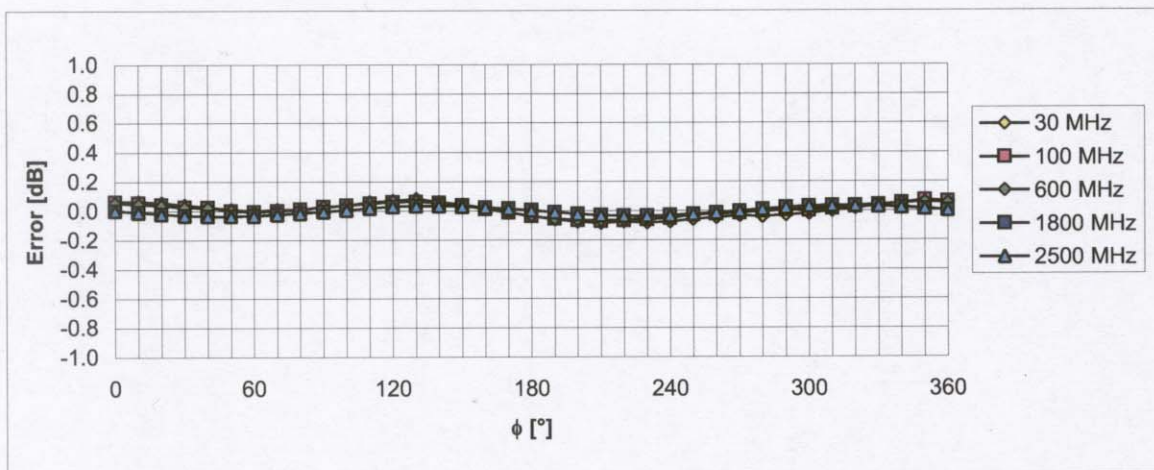
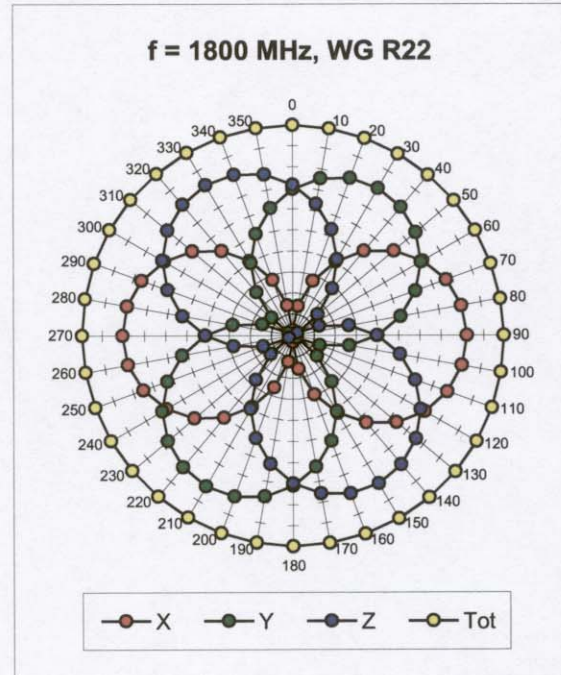
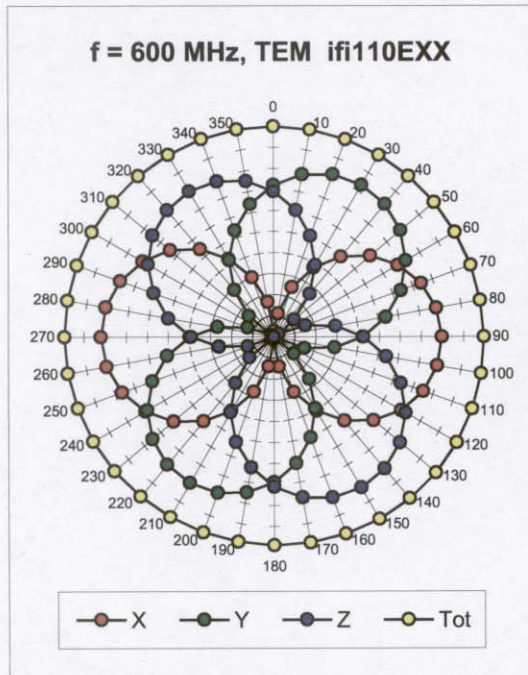
^B Numerical linearization parameter: uncertainty not required.

Frequency Response of E-Field

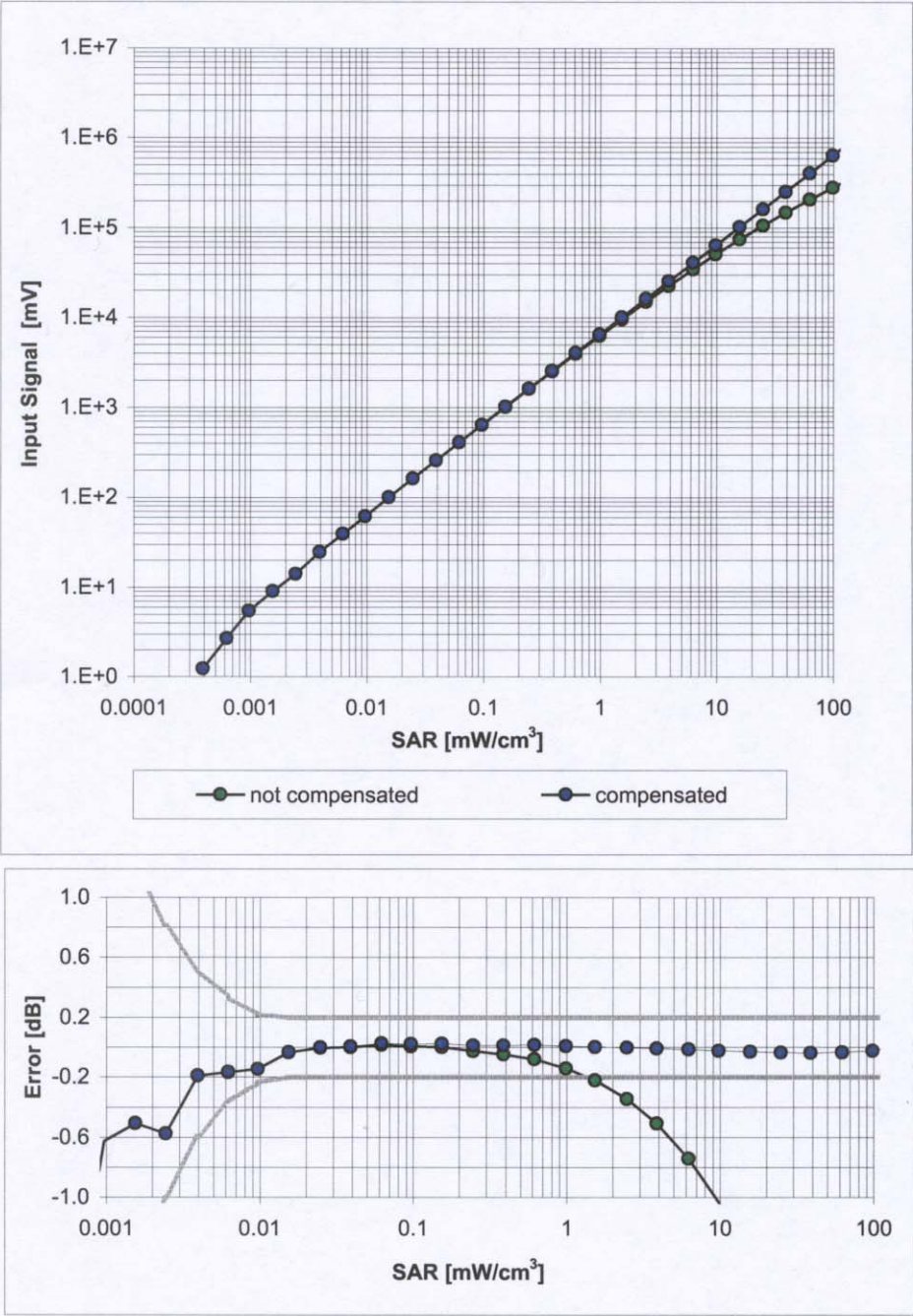
(TEM-Cell:ifi110 EXX, Waveguide: R22)



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

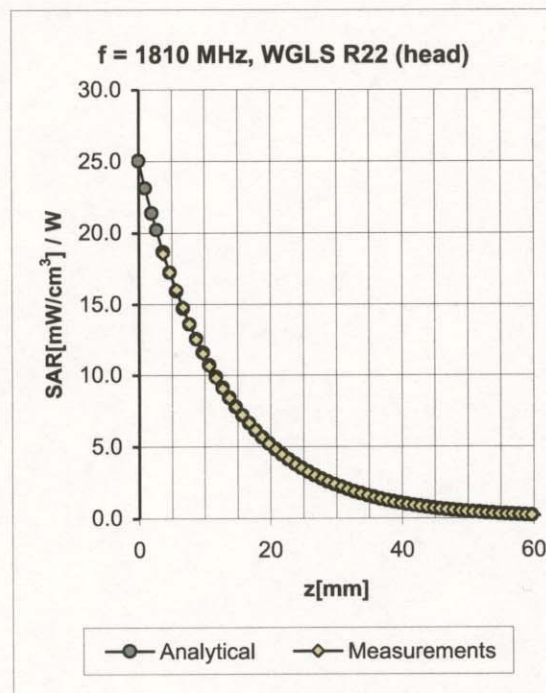
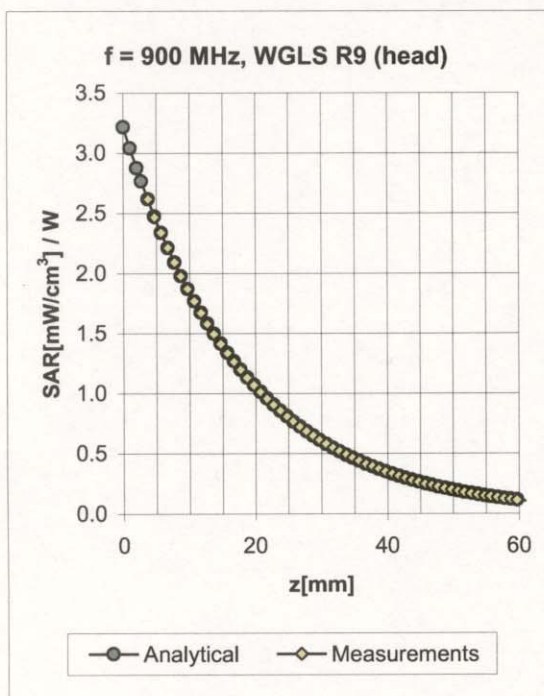
Receiving Pattern (ϕ), $\theta = 0^\circ$ Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range f(SAR_{head})
(Waveguide R22, f = 1800 MHz)



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

Conversion Factor Assessment

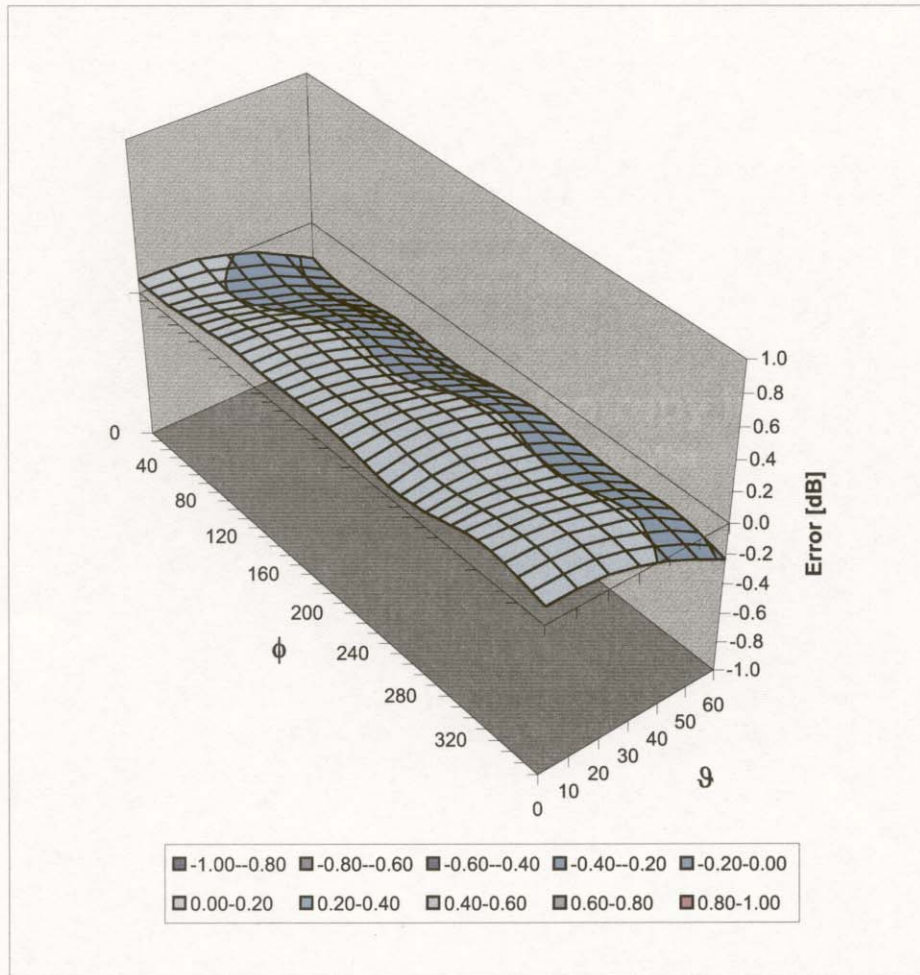


f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.65	1.81	6.47 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.62	2.39	5.18 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.76	2.09	4.56 ± 11.8% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.60	2.01	6.10 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.60	2.67	4.75 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.82	1.82	4.30 ± 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: $\pm 2.6\%$ ($k=2$)

Additional Conversion Factors

for Dosimetric E-Field Probe

Type:

ET3DV6

Serial Number:

1387

Place of Assessment:

Zurich

Date of Assessment:

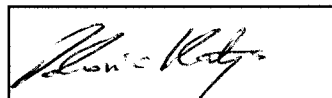
March 21, 2005

Probe Calibration Date:

March 18, 2005

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:1387

Conversion factor ($\pm$ standard deviation)

f = 150 MHz	ConvF	8.8 $\pm$ 10%	$\epsilon_r = 52.3 \pm 5\%$ $\sigma = 0.76 \pm 5\%$ mho/m (head tissue)
f = 300 MHz	ConvF	7.9 $\pm$ 9%	$\epsilon_r = 45.3 \pm 5\%$ $\sigma = 0.87 \pm 5\%$ mho/m (head tissue)
f = 450 MHz	ConvF	7.5 $\pm$ 8%	$\epsilon_r = 43.5 \pm 5\%$ $\sigma = 0.87 \pm 5\%$ mho/m (head tissue)
f = 150 MHz	ConvF	8.4 $\pm$ 10%	$\epsilon_r = 61.9 \pm 5\%$ $\sigma = 0.80 \pm 5\%$ mho/m (body tissue)
f = 450 MHz	ConvF	7.5 $\pm$ 8%	$\epsilon_r = 56.7 \pm 5\%$ $\sigma = 0.94 \pm 5\%$ mho/m (body tissue)

Important Note:

For numerically assessed probe conversion factors, parameters Alpha and Delta in the DASY software must have the following entries: Alpha = 0 and Delta = 1.

Please see also Section 4.7 of the DASY4 Manual.

Additional Conversion Factors

for Dosimetric E-Field Probe

Type:

ET3DV6

Serial Number:

1387

Place of Assessment:

Zurich

Date of Assessment:

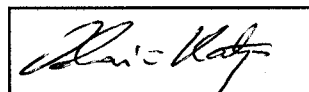
July 14, 2005

Probe Calibration Date:

March 18, 2005

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:1387Conversion factor ($\pm$ standard deviation)

f = 750 MHz	ConvF	6.8 $\pm$ 7%	$\alpha_r = 41.8 \pm 5\%$ $\sigma = 0.89 \pm 5\%$ mho/m (head tissue)
f = 750 MHz	ConvF	6.5 $\pm$ 7%	$\alpha_r = 55.4 \pm 5\%$ $\sigma = 0.96 \pm 5\%$ mho/m (body tissue)
f = 1925 MHz	ConvF	5.0 $\pm$ 7%	$\alpha_r = 39.8 \pm 5\%$ $\sigma = 1.48 \pm 5\%$ mho/m (head tissue)
f = 1925 MHz	ConvF	4.6 $\pm$ 7%	$\alpha_r = 53.2 \pm 5\%$ $\sigma = 1.60 \pm 5\%$ mho/m (body tissue)

Important Note:

For numerically assessed probe conversion factors, parameters Alpha and Delta in the DASY software must have the following entries: Alpha = 0 and Delta = 1.

Please see also Section 4.7 of the DASY4 Manual.

Test Report Serial No.:	071105BV8-T656-S90F	TR Issue Date:	August 25, 2005
Dates of Evaluation:	July 19-22, 25-28, August 02-04, 2005		Issue 1 Rev. 3
Description of Test:	RF Exposure	SAR	FCC 2.1093 IC RSS-102

APPENDIX G - SAM PHANTOM CERTIFICATE OF CONFORMITY

Applicant:	M/A-COM, Inc.	Model:	P7200	FCC ID:	BV8P7200	IC ID:	3670A-P7200	
DUT Type:	Portable FM PTT Radio Transceiver			764-776MHz / 794-806MHz / 806-824MHz / 851-869MHz				
2005 Celltech Labs Inc.		This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.						336 of 336

Schmid & Partner Engineering AG

Zeughausstrasse 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 Hauptstr. 69 CH-8559 Fruthwilen 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 Relative permittivity < 5 Loss tangent < 0.05.	Material sample 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

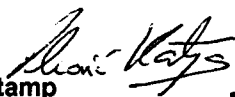
- [1] CENELEC EN 50361
- [2] IEEE P1528-200x draft 6.5
- [3] IEC PT 62209 draft 0.9
- (*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

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**



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