

January 28, 2004

Federal Communications Commission
Equipment Approval Services
7435 Oakland Mills Road
Columbia, MD 21046
Attn: Stan Lyles

**SUBJECT: Vertex Standard Co., Ltd.
FCC ID: K6610504420
731 Confirmation No.: EA271194
Correspondence Ref. No.: 26237**

Dear Stan:

On behalf of Vertex Standard Co., Ltd. is our response to item 7 of your e-mail dated January 21, 2004 requesting additional information for the subject application.

1. Attached is remeasured SAR test data and SAR versus Time plot using a 5x5x7 zoom grid for the worst-case measurement configuration previously reported. The original SAR measurements were performed using a 7x7x7 zoom grid with a 15 minute zoom scan evaluation period. The 5x5x7 zoom grid provides a shortened zoom scan with an 8-minute evaluation period showing a more conservative SAR value. The SAR versus Time evaluation reported a drift of -0.3 dB and was subsequently added to the remeasured SAR, which resulted in a scaled SAR value the same as was previously reported. The radio was retested with a fully charged NiCd battery (7.2V, 1100mAh) for both the area scan and zoom scan measurements. Upon completion of the area scan the radio was cooled down to ambient temperature prior to performing the zoom scan.

If you have any further questions regarding the above, please do not hesitate to contact us.

Sincerely,



Jonathan Hughes
General Manager
Celltech Labs Inc.

cc: Vertex Standard Co., Ltd.
M. Flom Associates, Inc.

SAR RE-EVALUATION RESULTS

Test Type	Freq. (MHz)	Chan.	Test Mode	Measured Conducted RF Output Power			Battery Type	Accessory Type	Separation Distance to Planar Phantom (cm)	Measured SAR (W/kg)		SAR over Time Drift (dB)	Scaled SAR (W/kg)	
				Before (W)	After (W)	Drift (dB)				Duty Cycle			Duty Cycle	
										100%	50%		100%	50%
Body	450.0	Low	CW	5.32	4.93	-0.33	NiCd	Belt-Clip Speaker-Mic	1.3	14.1	7.05	-0.30	15.1	7.55

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak - Controlled Exposure / Occupational BRAIN / BODY: 8.0 W/kg (averaged over 1 gram)

Dielectric Constant ϵ_r	Brain 450 MHz		Body 450 MHz		Atmospheric Pressure		
	IEEE Target	Measured	IEEE Target	Measured	Relative Humidity		
	43.5 (+/-5%)	-	56.7 (+/-5%)	57.3	Ambient Temperature		101.8 kPa
Conductivity σ (mho/m)	Brain 450 MHz		Body 450 MHz		Fluid Temperature		
	IEEE Target	Measured	IEEE Target	Measured	Fluid Depth		
	0.87 (+/-5%)	-	0.94 (+/-5%)	0.91	ρ (Kg/m ³)		22.2 °C
							≥ 15 cm
							1000

SYSTEM PERFORMANCE CHECK

Test Date	450MHz Equiv. Tissue	SAR 1g (W/kg)		Dielectric Constant ϵ_r		Conductivity σ (mho/m)		ρ (Kg/m ³)	Amb. Temp. (°C)	Fluid Temp. (°C)	Fluid Depth (cm)	Humid. (%)	Barom. Press. (kPa)
		IEEE Target	Measured	IEEE Target	Measured	IEEE Target	Measured						
01/27/03	Brain	1.23 (±10%)	1.26 (+2.8%)	43.5 ±5%	43.9	0.87 ±5%	0.87	1000	25.5	22.8	≥ 15	31	101.8

Notes:

- The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check, system performance check, and the SAR evaluation. The temperatures listed were consistent for all measurement periods.
- The dielectric parameters of the simulated tissue fluids were measured prior to the evaluations using an 85070C Dielectric Probe Kit and an 8753E Network Analyzer (see attached printout of measured fluid dielectric parameters).

Body SAR - Jan 27, 2004

DUT: Vertex Standard VX-417-4-5; Type: Portable UHF PTT Radio Transceiver; Serial: 3M000012

Ambient Temp: 25.6°C; Fluid Temp: 22.2°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

7.2 V NiCd Battery Pack

Communication System: FM UHF

Frequency: 450 MHz; Duty Cycle: 1:1

RF Output Power: 5.32 Watts (Conducted)

Medium: M450 ($\sigma = 0.91$ mho/m; $\epsilon_r = 57.3$; $\rho = 1000$ kg/m³)

- Probe: ET3DV6 - SN1387; ConvF(7.7, 7.7, 7.7); Calibrated: 26/02/2003

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn370; Calibrated: 19/05/2003

- Phantom: Small Planar; Type: Plexiglas; Serial: 161

- Measurement SW: DASY4, V4.2 Build 12; Postprocessing SW: SEMCAD, V1.8 Build 94

Body Worn - Back of DUT - 1.3 cm Belt-Clip Separation Distance - Low Channel/Area Scan (6x10x1):

Measurement grid: dx=15mm, dy=15mm

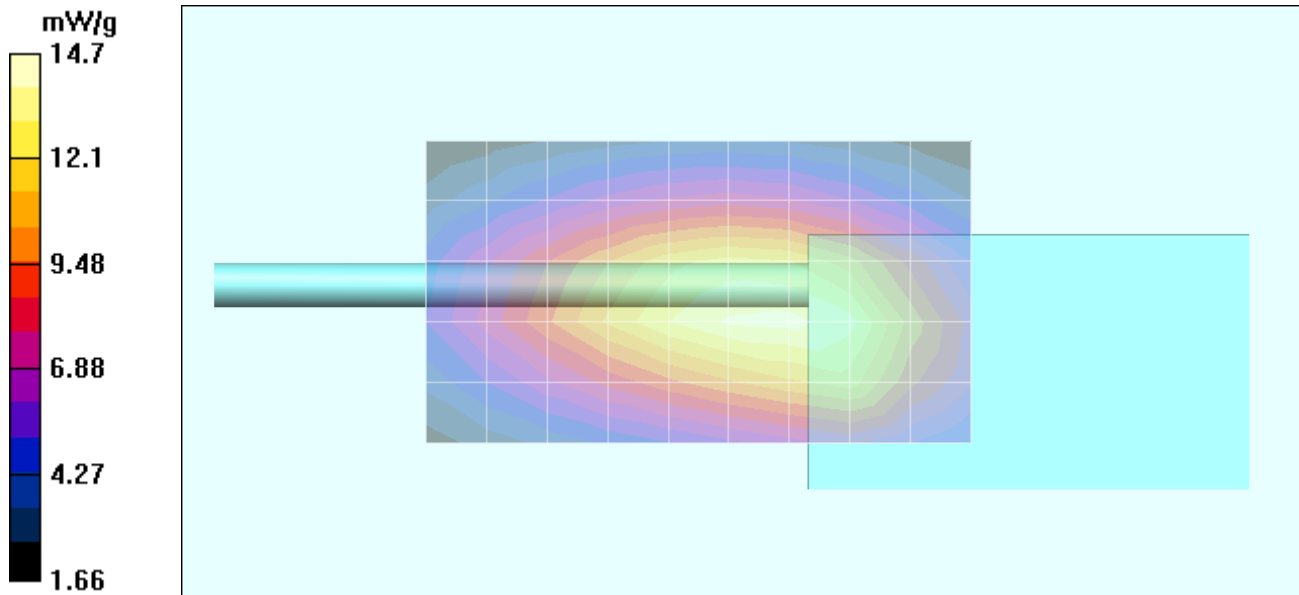
Body Worn - Back of DUT - 1.3 cm Belt-Clip Separation Distance - Low Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

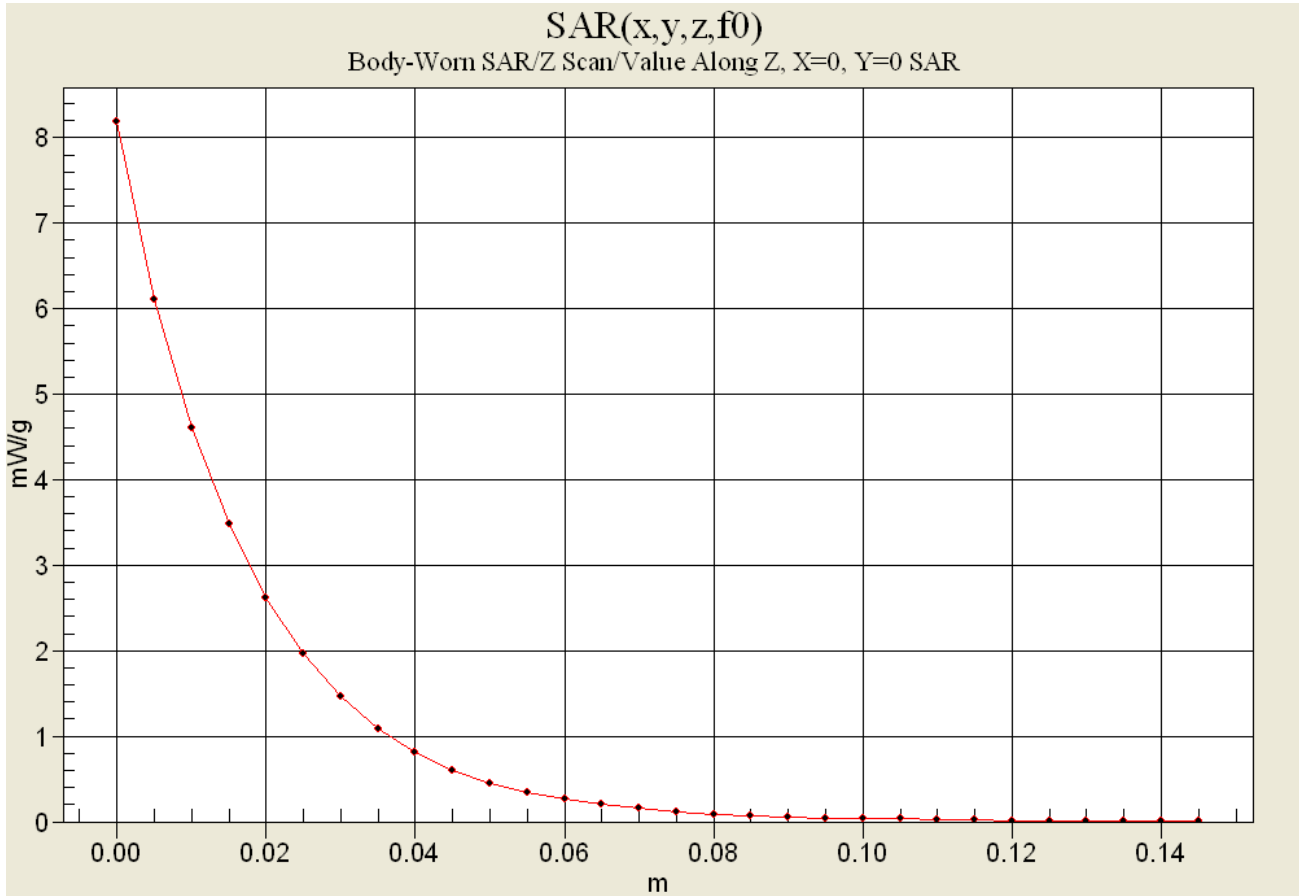
Peak SAR (extrapolated) = 22.5 W/kg

SAR(1 g) = 14.1 mW/g; SAR(10 g) = 9.92 mW/g

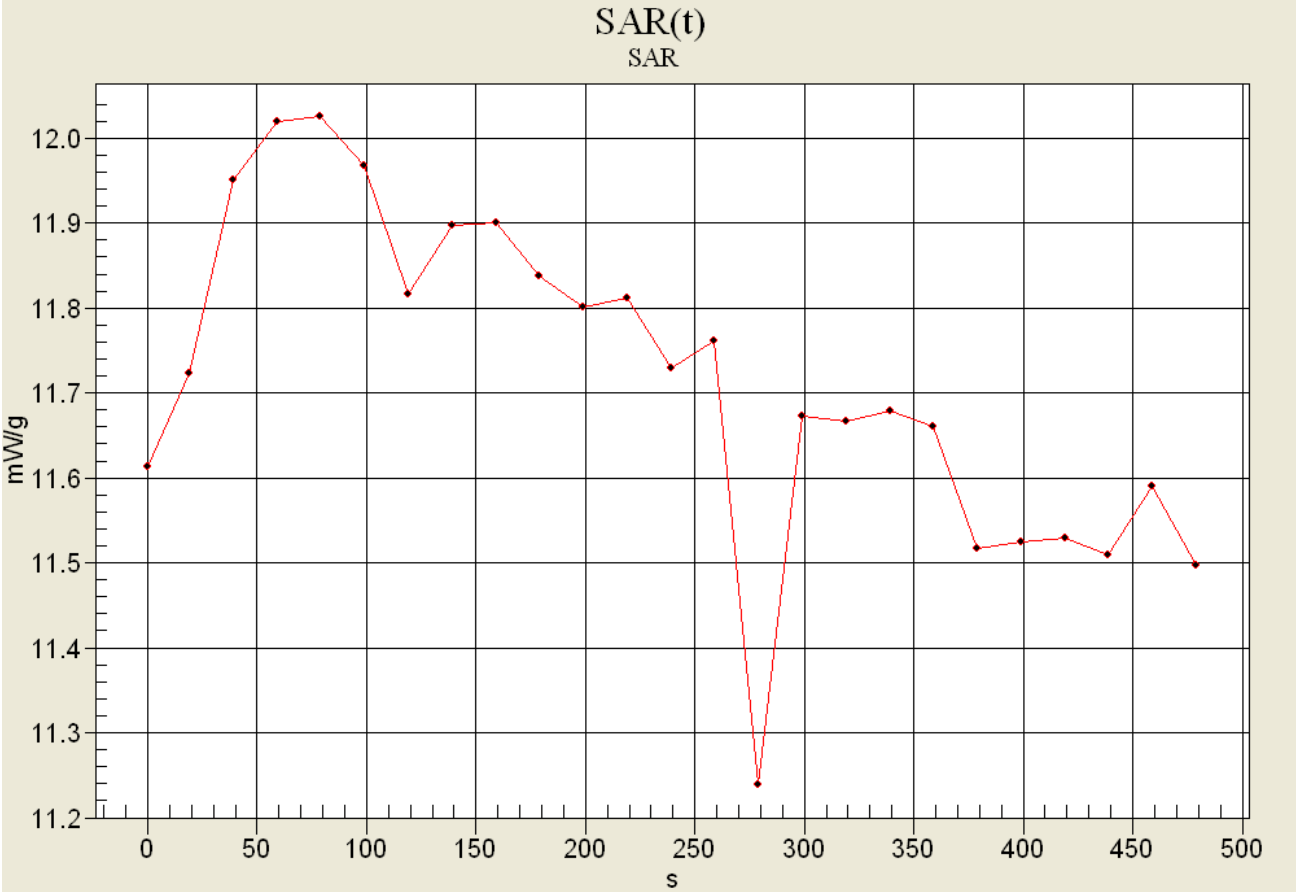
Reference Value = 120.5 V/m



Z-AXIS SCAN - Jan 27, 2004



SAR v Time - Jan 27, 2004



SAR versus Time Drift Evaluation – 8-minute evaluation period – -0.3 dB Drift

450 MHz DUT Evaluation (Body)

Measured Fluid Dielectric Parameters (Muscle)

January 27, 2004

Frequency	ϵ'	ϵ''
350.000000 MHz	58.9428	42.6717
360.000000 MHz	58.6697	41.8787
370.000000 MHz	58.5557	41.2139
380.000000 MHz	58.4501	40.5680
390.000000 MHz	58.1698	39.8961
400.000000 MHz	58.0284	39.3378
410.000000 MHz	57.8510	38.6654
420.000000 MHz	57.7137	38.0658
430.000000 MHz	57.6510	37.4170
440.000000 MHz	57.4492	36.8997
450.000000 MHz	57.2501	36.4514
460.000000 MHz	57.1444	36.0959
470.000000 MHz	56.9809	35.7015
480.000000 MHz	56.7565	35.3265
490.000000 MHz	56.5064	34.9546
500.000000 MHz	56.2836	34.5048
510.000000 MHz	56.1277	34.0912
520.000000 MHz	56.0500	33.7752
530.000000 MHz	55.9560	33.3737
540.000000 MHz	55.8411	32.9412
550.000000 MHz	55.7428	32.6306

450 MHz System Performance Check - Jan 27, 2004

DUT: Dipole 450 MHz; Model: D450V2; Type: System Performance Check; Serial: 136

Ambient Temp: 25.5°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.8 kPa; Humidity: 31%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: HSL450 ($\sigma = 0.87$ mho/m; $\epsilon_r = 43.9$; $\rho = 1000$ kg/m³)

- Probe: ET3DV6 - SN1590; ConvF(7.9, 7.9, 7.9); Calibrated: 15/05/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 19/12/2003
- Phantom: Validation Planar; Type: Plexiglas; Serial: 137
- Measurement SW: DASY4, V4.2 Build 12; Postprocessing SW: SEMCAD, V1.8 Build 94

450 MHz System Performance Check/Area Scan (6x11x1):

Measurement grid: dx=15mm, dy=15mm

450 MHz System Performance Check/Zoom Scan (7x7x7)/Cube 0:

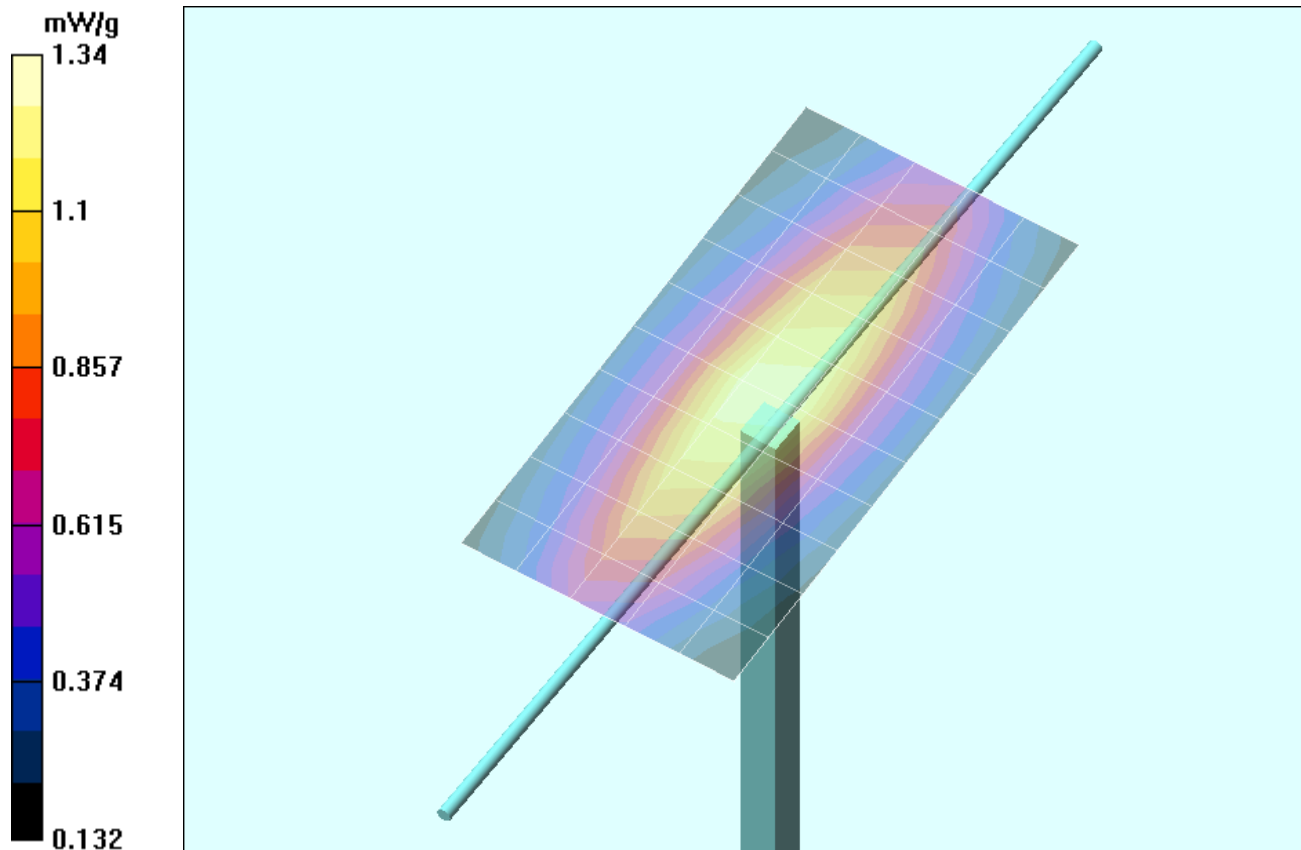
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 2.19 W/kg

SAR(1 g) = 1.26 mW/g; SAR(10 g) = 0.814 mW/g

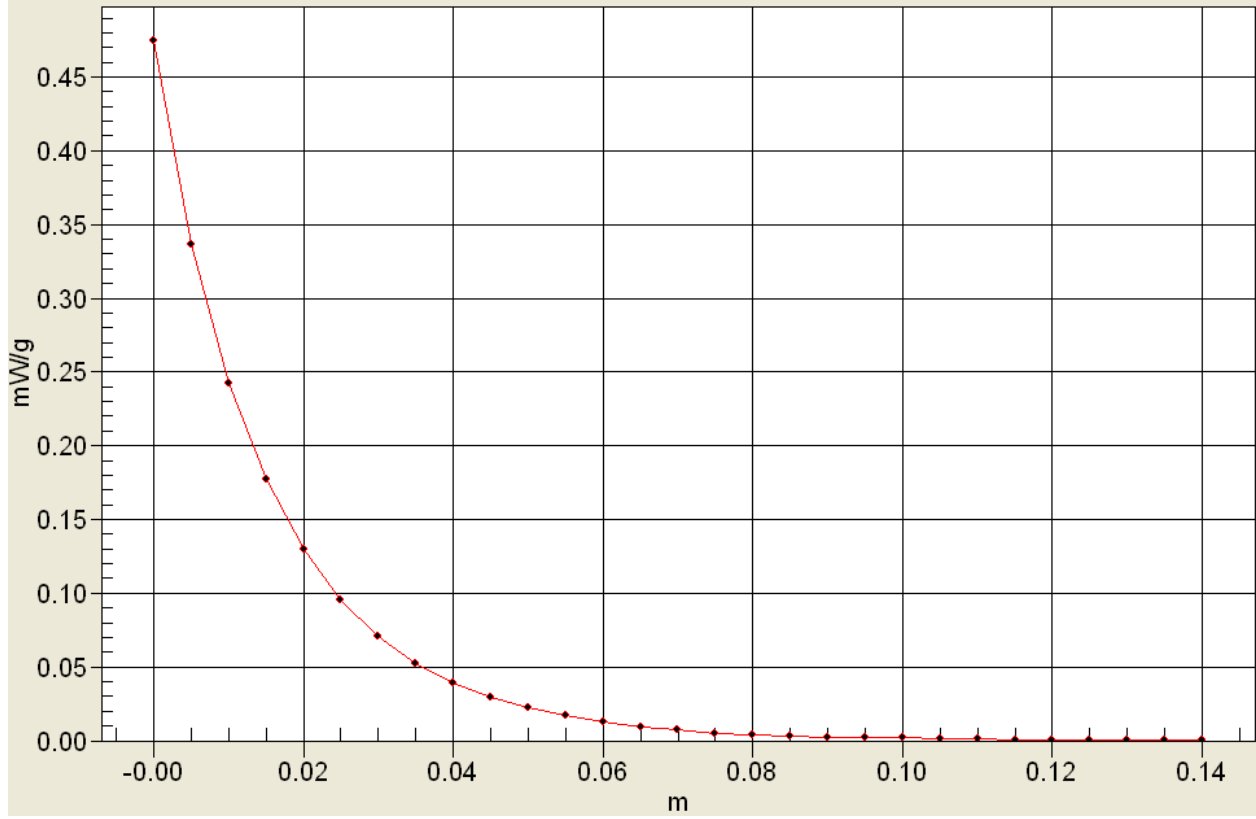
Reference Value = 39.4 V/m

Power Drift = -0.1 dB



SAR(x,y,z,f0)

450 MHz System Performance Check/Z Scan/Value Along Z, X=0, Y=0 SAR



450 MHz System Performance Check

Measured Fluid Dielectric Parameters (Brain)

January 27, 2004

Frequency	ϵ'	ϵ''
350.000000 MHz	46.3455	40.2423
360.000000 MHz	45.9712	39.4889
370.000000 MHz	45.7977	38.9303
380.000000 MHz	45.5485	38.4768
390.000000 MHz	45.2580	38.0959
400.000000 MHz	45.0469	37.5773
410.000000 MHz	44.7880	36.9475
420.000000 MHz	44.4803	36.3951
430.000000 MHz	44.2704	35.8252
440.000000 MHz	44.0536	35.3492
450.000000 MHz	43.9091	34.9207
460.000000 MHz	43.7296	34.5251
470.000000 MHz	43.5320	34.1402
480.000000 MHz	43.2209	33.8258
490.000000 MHz	42.9496	33.4671
500.000000 MHz	42.6782	33.0984
510.000000 MHz	42.4540	32.7036
520.000000 MHz	42.2519	32.3454
530.000000 MHz	42.0956	32.0254
540.000000 MHz	41.9156	31.5864
550.000000 MHz	41.7374	31.3037