

## 4.0 MEASUREMENT SUMMARY

BODY-WORN SAR MEASUREMENT RESULTS														
Tx	Test Mode	Freq. (MHz)	Cond. Power Before Test (dBm)	Batt. Type	Antenna Type	Body-Worn Accessories	DUT Position Relative to Front of Carry Case	DUT Position Relative to Planar Phantom	Separ. Distance to Planar Phantom (cm)	Measured SAR 1g (W/kg)		SAR Drift During Test (dB)	Scaled SAR 1g (W/kg)	
802.11b	DSSS	2437	14.0	Li-ion	Internal	Carry Case Ear-Mic	Front Side facing Front of Carry Case	Front Side facing Phantom	0.0	P	0.035	-0.193	P	0.037
										S	0.028		S	0.029
802.11b	DSSS	2437	14.0	Li-ion	Internal	Carry Case Ear-Mic	Front Side facing Front of Carry Case	Front Side facing Phantom	0.0	P	0.053	-0.0318	P	0.053
BT	Modulated Fixed Freq.	2441	3.5		Internal					S	0.038		S	0.038
ANSI / IEEE C95.1 1999 - SAFETY LIMIT Spatial Peak - Uncontrolled Exposure / General Population BODY: 1.6 W/kg (averaged over 1 gram)							Max. WLAN 1g SAR		0.053 W/kg		Front Side of DUT			
							Max. GPRS 1g SAR		0.530 W/kg		Front Side of DUT			
							Sum of 1g SAR Levels		0.583 W/kg		Front Side of DUT			
Test Date(s)				03/02/04			Relative Humidity			30		%		
Measured Fluid Type				2450 MHz Body			Atmospheric Pressure			101.9		kPa		
Dielectric Constant $\epsilon_r$				IEEE Target		Measured	Ambient Temperature			24.1		°C		
				52.7	± 5%	50.5	Fluid Temperature			23.8		°C		
Conductivity $\sigma$ (mho/m)				IEEE Target		Measured	Fluid Depth			≥ 15		cm		
				1.95	± 5%	2.01	$\rho$ (Kg/m <sup>3</sup> )			1000				

Note(s):

- The measurement results were obtained with the DUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A.
- If the SAR levels measured at the mid channel were  $\geq 3$  dB below the SAR limit; SAR evaluation for the low and high channels was optional (per FCC OET Bulletin 65, Supplement C, Edition 01-01 - see reference [3]).
- Secondary peak SAR levels were reported within 2 dB of the primary (P = Primary, S = Secondary).
- The power drifts measured by the DASY4 system for the duration of the SAR evaluations were added to the measured SAR levels to report scaled SAR results.
- The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluation. The temperatures reported were consistent for all measurement periods.
- The dielectric parameters of the simulated body tissue were measured prior to the evaluation using an HP 85070C Dielectric Probe Kit and an HP 8753E Network Analyzer (see attached printout of measured fluid dielectric parameters).
- The SAR evaluations were performed within 24 hours of the system performance check.

Date: 08/25/04

### 2450MHz Body SAR (Lap-held) - Back Side of DUT Touching Planar Phantom - WLAN Single Transmit

**DUT: Itronix Model: IX100XA750WLBT; Type: Rugged Handheld PC with 802.11b/Bluetooth/GPRS; Serial: 510495001-U5103-0025**

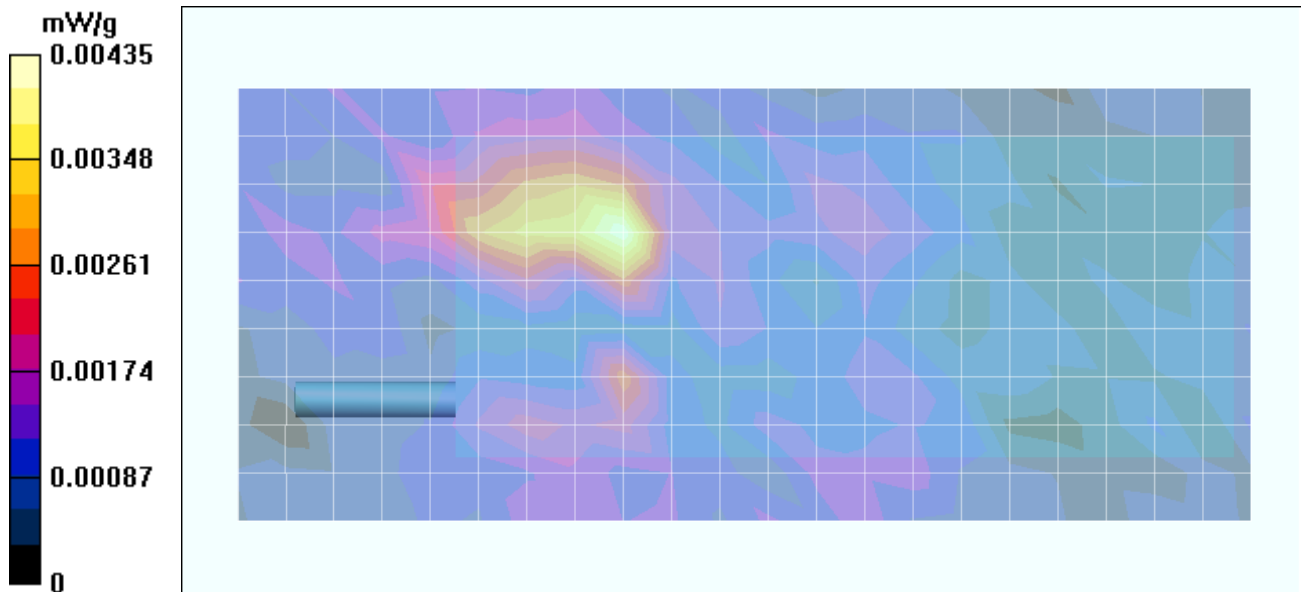
Ambient Temp: 24.0°C; Fluid Temp: 22.5°C; Barometric Pressure: 101.0 kPa; Humidity: 30%

7.4V, 3.0Ah Li-ion Battery Pack  
Communication System: DSSS  
Frequency: 2437 MHz; Duty Cycle: 1:1  
RF Output Power: 14.0 dBm (Peak Conducted)  
Medium: M2450 ( $\sigma = 1.97$  mho/m;  $\epsilon_r = 50.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>)

- Probe: ET3DV6 - SN1590; ConvF(4.22, 4.22, 4.22); Calibrated: 24/05/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn370; Calibrated: 14/05/2004
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.3 Build 16; Postprocessing SW: SEMCAD, V1.8 Build 123

### Back of Device Touching Planar Phantom - Without Carry Case - Mid Channel

**Area Scan (10x22x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (measured) = 0.00435 mW/g



Date: 08/25/04

### 2450MHz Body-Worn SAR - Back Side of DUT with Carry Case Accessory - WLAN Single Transmit

**DUT:** Itronix Model: IX100XA750WLBT; Type: Rugged Handheld PC with 802.11b/Bluetooth/GPRS; Serial: 510495001-U5103-0025

**Body-Worn Accessories:** Nylon Carry Case (P/N: 54-0644-001), Ear-Microphone (Model: JABRA)

Ambient Temp: 24.0°C; Fluid Temp: 22.5°C; Barometric Pressure: 101.0 kPa; Humidity: 30%

7.4V, 3.0Ah Li-ion Battery Pack

Communication System: DSSS

Frequency: 2437 MHz; Duty Cycle: 1:1

RF Output Power: 14.0 dBm (Peak Conducted)

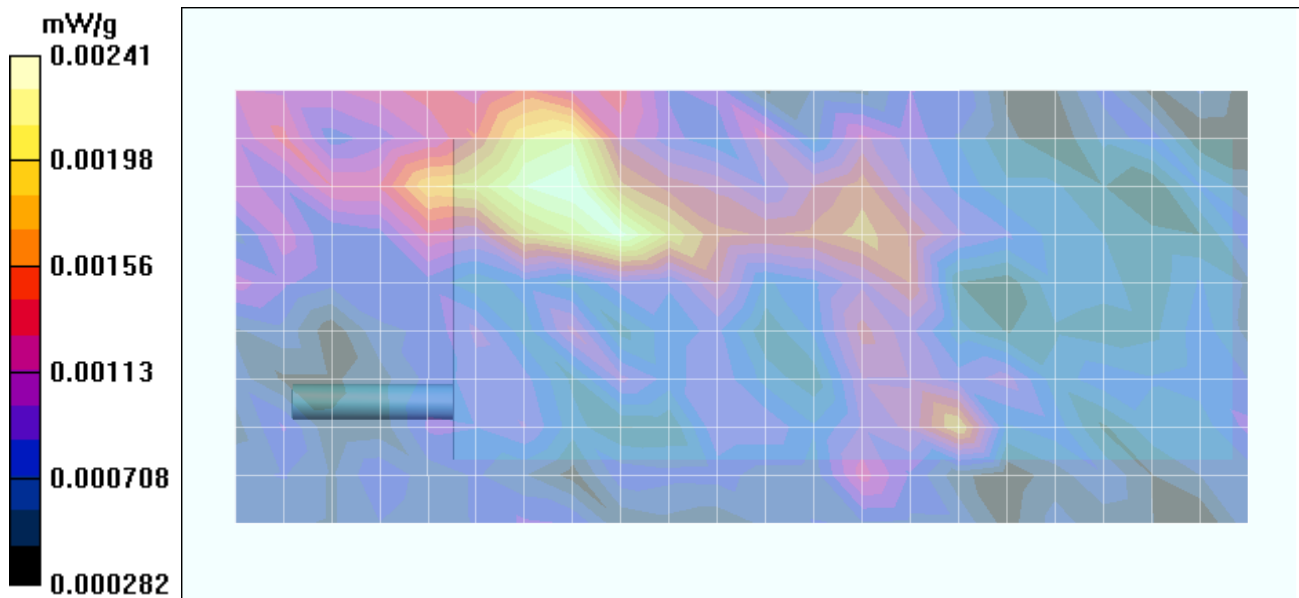
Medium: M2450 ( $\sigma = 1.97 \text{ mho/m}$ ;  $\epsilon_r = 50.2$ ;  $\rho = 1000 \text{ kg/m}^3$ )

- Probe: ET3DV6 - SN1590; ConvF(4.22, 4.22, 4.22); Calibrated: 24/05/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn370; Calibrated: 14/05/2004
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASy4, V4.3 Build 16; Postprocessing SW: SEMCAD, V1.8 Build 123

### Back of Device facing Front of Carry Case - Front of Carry Case Touching Planar Phantom - Mid Channel

**Area Scan (10x22x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.00241 mW/g



# 2450 MHz DUT Evaluation (Body)

## Measured Fluid Dielectric Parameters (Muscle)

August 25, 2004

Frequency	$\epsilon'$	$\epsilon''$
2.350000000 GHz	50.4980	14.0478
2.360000000 GHz	50.4631	14.0872
2.370000000 GHz	50.4358	14.1255
2.380000000 GHz	50.3963	14.1643
2.390000000 GHz	50.3605	14.1958
2.400000000 GHz	50.3095	14.2314
2.410000000 GHz	50.2732	14.2720
2.420000000 GHz	50.2331	14.3142
2.430000000 GHz	50.2075	14.3612
2.440000000 GHz	50.1882	14.4122
2.450000000 GHz	50.1712	14.4428
2.460000000 GHz	50.1288	14.5048
2.470000000 GHz	50.1154	14.5358
2.480000000 GHz	50.0845	14.5779
2.490000000 GHz	50.0510	14.6020
2.500000000 GHz	50.0003	14.6227
2.510000000 GHz	49.9521	14.6590
2.520000000 GHz	49.9041	14.7032
2.530000000 GHz	49.8421	14.7583
2.540000000 GHz	49.8046	14.8201
2.550000000 GHz	49.7687	14.8587

Date: 08/25/04

## System Performance Check - 2450 MHz Dipole

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 150; Calibrated: 09/17/2003**

Ambient Temp: 25.0°C; Fluid Temp: 23.9°C; Barometric Pressure: 101.2 kPa; Humidity: 30%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL2450 (1.86 mho/m;  $\epsilon_r = 37.4$ ;  $\rho = 1000 \text{ kg/m}^3$ )

- Probe: ET3DV6 - SN1590; ConvF(4.44, 4.44, 4.44); Calibrated: 24/05/2004

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

- Electronics: DAE3 Sn370; Calibrated: 14/05/2004

- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033

- Measurement SW: DASY4, V4.3 Build 16; Postprocessing SW: SEMCAD, V1.8 Build 123

**2450 MHz System Performance Check/Area Scan (6x10x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 14.3 mW/g

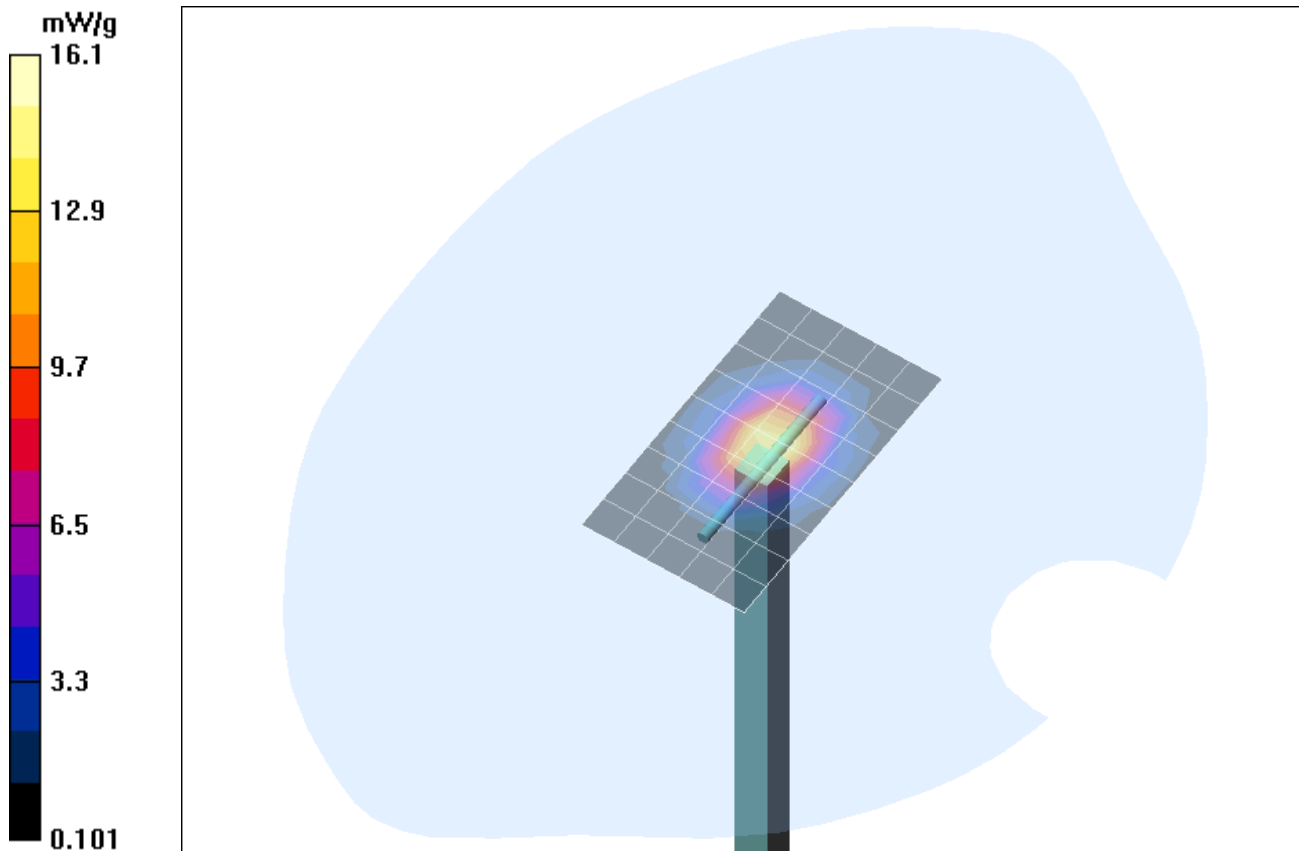
**2450 MHz System Performance Check/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.5 V/m; Power Drift = -0.1 dB

Peak SAR (extrapolated) = 30.1 W/kg

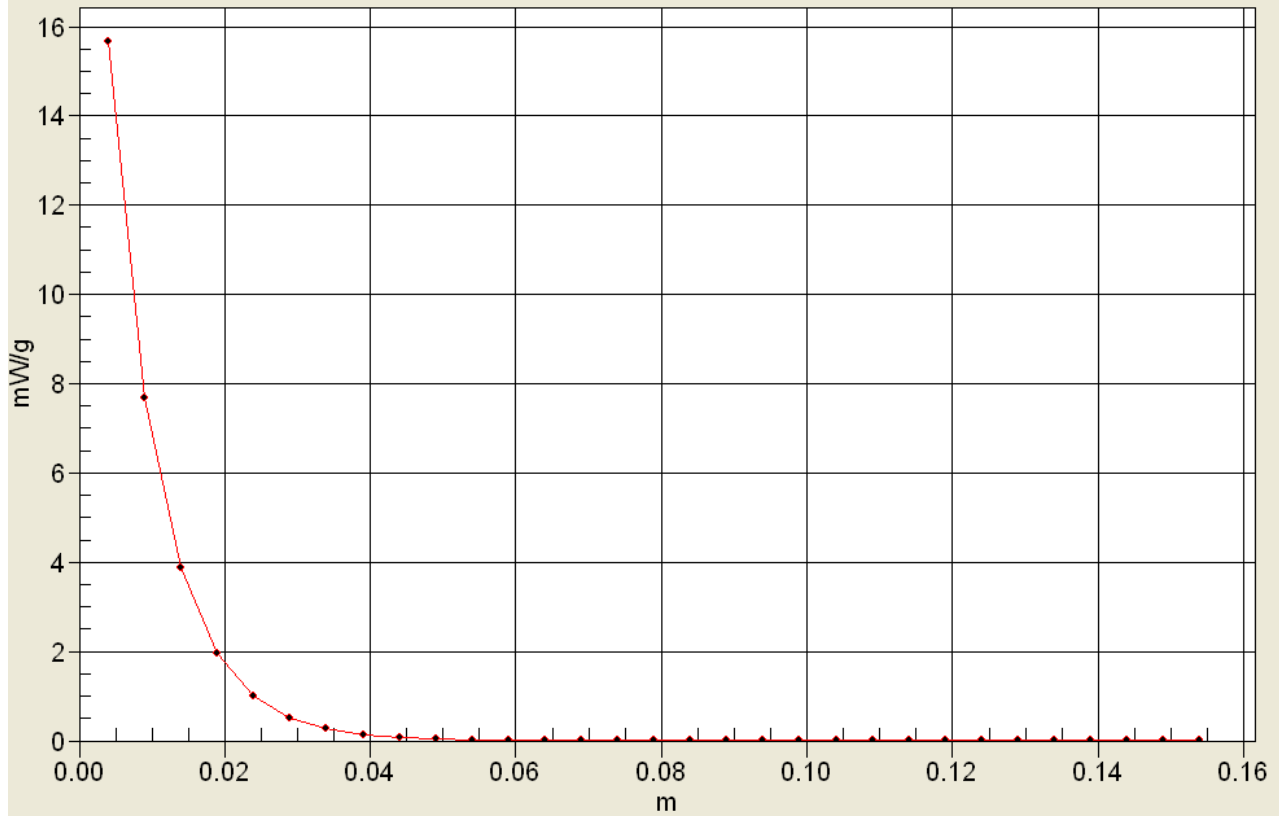
**SAR(1 g) = 14.3 mW/g; SAR(10 g) = 6.63 mW/g**

Maximum value of SAR (measured) = 16.1 mW/g



# SAR(x,y,z,f0)

SAR; Z Scan: Value Along Z, X=0, Y=0



# 2450 MHz System Performance Check

## Measured Fluid Dielectric Parameters (Brain)

August 25, 2004

Frequency	$\epsilon'$	$\epsilon''$
2.350000000 GHz	37.8216	13.3216
2.360000000 GHz	37.7736	13.3430
2.370000000 GHz	37.7336	13.3802
2.380000000 GHz	37.7027	13.4105
2.390000000 GHz	37.6531	13.4367
2.400000000 GHz	37.5959	13.4692
2.410000000 GHz	37.5438	13.5034
2.420000000 GHz	37.4978	13.5304
2.430000000 GHz	37.4594	13.5761
2.440000000 GHz	37.4416	13.6056
2.450000000 GHz	37.4158	13.6307
2.460000000 GHz	37.3831	13.6698
2.470000000 GHz	37.3615	13.6946
2.480000000 GHz	37.3161	13.7390
2.490000000 GHz	37.2972	13.7485
2.500000000 GHz	37.2340	13.7755
2.510000000 GHz	37.1796	13.7957
2.520000000 GHz	37.1198	13.8181
2.530000000 GHz	37.0517	13.8718
2.540000000 GHz	37.0068	13.9069
2.550000000 GHz	36.9674	13.9539