RF EXPOSURE EVALUATION

SPECIFIC ABSORPTION RATE

SAR TEST REPORT

FOR

ITRONIX CORPORATION

MODEL: IX325-AC860BT

IX325 SERIES RUGGED TABLET PC

WITH

DUAL-BAND GSM/GPRS/EDGE/UMTS PCMCIA MODEM

AND

CO-LOCATED BLUETOOTH

FCC ID: KBCIX325-AC860BT

IC: 1943A-IX325g

TEST STANDARD(S) & PROCEDURE(S) APPLIED
FCC OET Bulletin 65, Supplement C (01-01)
Industry Canada RSS-102 Issue 2

Test Report Serial No.

042406KBC-T742-S24GWC

Test Report Revision No.

Revision 1.0 (Initial Release)

Test Lab and Location

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DECLARATION OF COMPLIANCE
SAR RF EXPOSURE EVALUATION

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FCC IDENTIFIER:	KBCIX325-AC860BT	**IC IDENTIFIER:**	1943A-IX325g	**Model(s):**	IX325-AC860BT

Rule Part(s):	FCC	47 CFR §2.1093	IC	Health Canada Safety Code 6
Test Procedure(s):	FCC	OET Bulletin 65, Supplement C (01-01)	IC	RSS-102 Issue 2
Device Classification(s):	FCC	PCS Licensed Transmitter (PCB)		47 CFR Part 24 Subpart E
	IC	2 GHz Personal Communication Services		RSS-133 Issue 3
		800 MHz Cellular Telephones Employing New Technologies		RSS-132 Issue 2

Device Description:	Rugged Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS and Bluetooth			
Internal Transmitter Type(s):	Sierra Wireless Model: AirCard 860 PCMCIA Modem		MSI Model: MS-6837 Bluetooth Transmitter	
User Display Orientation(s):	0 Degrees Landscape		-90 Degrees Portrait	
Transmit Frequency Range(s):	1850.2 - 1909.8 MHz	PCS GSM/GPRS/EDGE	824.2 - 848.8 MHz	Cellular GSM/GPRS/EDGE
	1852.4 - 1907.5 MHz	PCS UMTS	826.4 - 846.6 MHz	Cellular UMTS
	2402 - 2480 MHz	Bluetooth	-	-

Max. RF Output Power Tested:	Conducted	PCS GPRS	28.71 dBm	0.743 Watts	Cellular GPRS	32.27 dBm	1.69 Watts
	Conducted	PCS EDGE	25.72 dBm	0.373 Watts	Cellular EDGE	26.91 dBm	0.491 Watts
	Conducted	PCS UMTS	23.00 dBm	0.200 Watts	Cellular UMTS	24.00 dBm	0.251 Watts
	Conducted	Bluetooth	3.60 dBm	0.0023 Watts	tested with modulated signal & fixed frequency		
Max. RF Output Power Tested: (Source-Based Time Averaged)	Conducted	PCS GPRS	22.69 dBm	0.186 Watts	Cellular GPRS	25.80 dBm	0.380 Watts
	Conducted	PCS EDGE	19.70 dBm	0.093 Watts	Cellular EDGE	20.89 dBm	0.123 Watts

GSM Transmit Class:	Class B	can be connected to GPRS and GSM services using only one service at a time		
GSM Multislot Class:	Class 10	2 Uplink Slots	Max. Source-Based Time-Averaged Duty Cycle:	25%
GSM Power Class:	GPRS 850: 1	GPRS 1900: 1	EDGE 850: E2	EDGE 1900: E2
WCDMA Power Class:	UMTS 850: 3	UMTS 1900: 3	Max. Duty Cycle:	100%
WCDMA Uplink Channel(s):	1 DPCCH Channel		1 DPDCH Channel	
Antenna Type(s) Tested:	AC860 External Hinged Monopole	Sierra Wireless	attached to AirCard 860	
	Bluetooth Internal PIFA 3	Well Green Technology	Left Side Center Edge of Tablet PC	
Battery Type(s) Tested:	Lithium-ion	11.1 V, 3600 mAh	Model: T8M-E	

Max. SAR Level(s) Evaluated:	**Body (1g)**	**PCS Band**	**GPRS:**	**0.628 W/kg**	**EDGE:**	**0.306 W/kg**	**UMTS:**	**0.252 W/kg**
		Cellular Band	**GPRS:**	**0.334 W/kg**	**EDGE:**	**0.0919 W/kg**	**UMTS:**	**0.251 W/kg**

Celltech Labs Inc. declares under its sole responsibility that this wireless device was compliant with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada's Safety Code 6. The device was tested in accordance with the measurement standards and procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01) and Industry Canada RSS-102 Issue 2 for the General Population / Uncontrolled Exposure environment. All measurements were performed in accordance with the SAR system manufacturer recommendations.

I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc.
The results and statements contained in this report pertain only to the device(s) evaluated.

Test Report Approved By:

Sean Johnston
SAR Lab Manager
Celltech Labs Inc.

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1.0 INTRODUCTION

This measurement report demonstrates that ITRONIX CORPORATION Model: IX325-AC860BT Rugged Tablet PC FCC ID: KBCIX325-AC860BT, incorporating the Sierra Wireless AirCard 860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem, complies with the SAR (Specific Absorption Rate) RF exposure requirements specified in FCC 47 CFR §2.1093 (see reference [1]) and Health Canada's Safety Code 6 (see reference [2]) for the General Population / Uncontrolled Exposure environment. The test procedures described in FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]) and IC RSS-102 Issue 2 (see reference [4]) were employed. A description of the product and operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used, and the various provisions of the rules are included within this test report.

2.0 DESCRIPTION of DEVICE UNDER TEST (DUT)

FCC Rule Part(s) Applied	47 CFR §2.1093			**IC Rule Part(s)**		Health Canada Safety Code 6			
Test Procedure(s) Applied	FCC OET Bulletin 65, Supplement C (01-01)					Industry Canada RSS-102 Issue 2			
RF Exposure Category	General Population / Uncontrolled Environment								
FCC Device Classification	PCS Licensed Transmitter (PCB)					47 CFR Part 24 Subpart E			
IC Device Classification	2 GHz Personal Communication Services					RSS 133 Issue 3			
	800MHz Cellular Telephones Employing New Technologies					RSS-132 Issue 2			
Device Description	Rugged Tablet PC			**Model(s)**		IX325-AC860BT			
Internal Transmitter(s)	Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem					Sierra Wireless Model: AirCard 860			
Tablet PC User Orientation(s)	0 Degrees Landscape					-90 Degrees Portrait			
FCC IDENTIFIER	KBCIX325-AC860BT			**IC IDENTIFIER**		1943A-IX325g			
Test Sample Serial No.(s)	ZZGEG5073ZZ9784			IX325 Tablet PC				Production Unit	
	357806000465210			AirCard 860 Modem				Production Unit	
Transmitter Frequency Range(s)	1850.2 - 1909.8 MHz			PCS GSM/GPRS/EDGE		824.2 - 848.8 MHz		Cellular GSM/GPRS/EDGE	
	1852.4 - 1907.5 MHz			PCS UMTS		826.4 - 846.6 MHz		Cellular UMTS	

Max. RF Conducted Output Power Level(s) Measured	**Band**	**Freq.**	**GPRS**		**EDGE**		**Freq.**	**W-CDMA**	
		MHz	**dBm**	**Watts**	**dBm**	**Watts**	**MHz**	**dBm**	**Watts**
	Cellular	**824.2**	31.70	1.48	26.74	0.472	**826.4**	23.80	0.240
		836.6	31.82	1.52	26.91	0.491	**836.4**	23.90	0.245
		848.8	32.27	1.69	26.85	0.484	**846.6**	24.00	0.251
	PCS	**1850.2**	28.62	0.728	25.61	0.364	**1852.4**	22.33	0.171
		1880.0	28.71	0.743	25.72	0.373	**1880.0**	23.00	0.200
		1909.8	28.50	0.708	25.52	0.356	**1907.5**	22.70	0.186
Max. Conducted Source-Based Time Averaged RF Output Power Tested	**Cellular**	**836.6**	25.80	0.380	20.89	0.123	**Bluetooth Freq. Range**		2402-2480 MHz
	PCS	**1880.0**	22.69	0.186	19.70	0.093	**Bluetooth Power Tested**		3.60 dBm (Mid Ch.)

GSM Transmit Class	Class B	can be connected to both GPRS and GSM services using one service at a time						
GSM Multislot Class	Class 10	2 Uplink Slots			Max. Source-Based Time-Averaged Duty Cycle:			25%
GSM Power Class	GPRS 850:	1	GPRS: 1900:		1	EDGE 850:	E2	EDGE 1900:	E2
WCDMA Power Class	UMTS 850:	3	UMTS 1900:		3	Source-Based Time-Averaged Duty Cycle:			100%
WCDMA Uplink Channel(s)	1 DPCCH Channel					1 DPDCH Channel			
Modulation Type(s)	GPRS: GMSK			EDGE: 8-PSK			UMTS: WCDMA		
Antenna Type(s) Tested	AirCard 860: External Hinged Monopole					Bluetooth: Internal PIFA 3 (left side center edge of Tablet PC)			
Antenna Position(s) Tested	AirCard 860	Position 1		Closed 180°		Pivot Closed		Antenna 180° to PCMCIA Card	
		Position 2		Open 180°		Pivot Open		Antenna 180° to PCMCIA Card	
		Position 3		Open 90°		Pivot Open		Antenna 90° to PCMCIA Card	
Battery Type(s) Tested	Internal Lithium-ion Battery				11.1 V, 3600 mAh			Model: T8M-E	
Additional Battery Type(s) Testing Not Performed	External Second Lithium-ion Battery				11.1 V, 3600 mAh			Model: T8S-E	
	Note: The external second lithium-ion battery was not evaluated for SAR due to the fact that it has exactly the same power specifications as the internal battery and provides additional separation distance from tablet to user.								

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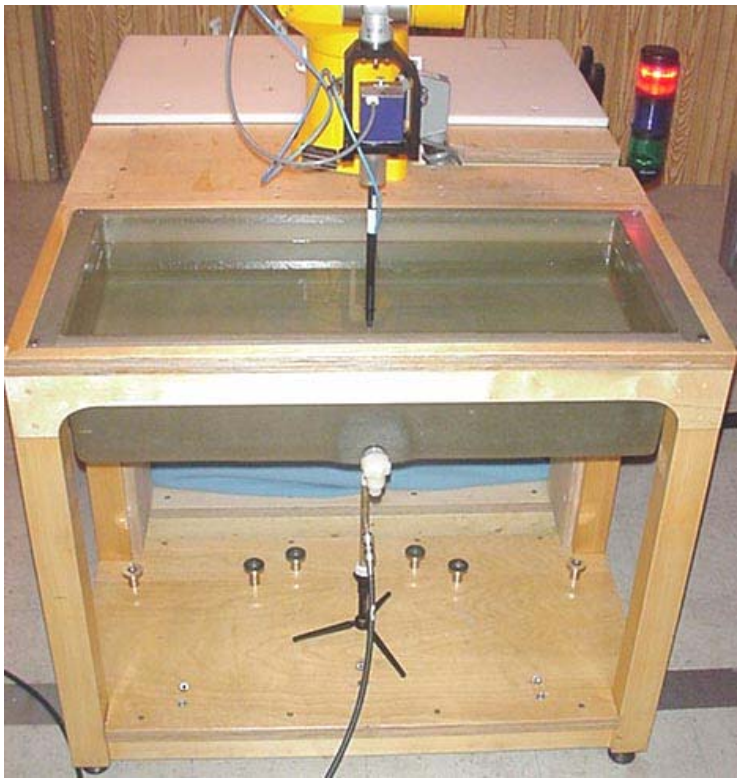
3.0 SAR MEASUREMENT SYSTEM

Celltech Labs Inc. SAR measurement facility utilizes the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 measurement system is comprised of the measurement server, robot controller, computer, near-field probe, probe alignment sensor, specific anthropomorphic mannequin (SAM) phantom, and various planar phantoms for brain and/or body SAR evaluations. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the DASY4 measurement server. The DAE4 utilizes a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the DASY4 measurement server is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. The sensor systems are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

DASY4 SAR Measurement System with planar phantom



DASY4 SAR Measurement System with planar phantom and validation dipole

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4.0 MEASUREMENT SUMMARY

BODY SAR EVALUATION RESULTS

Cellular Band

Test Date	Test Mode			Freq. (MHz)	Chan.	Antenna Position	Battery Type	DUT Position to Planar Phantom	Separation Distance to Planar Phantom (cm)	Cond. Power Before Test (dBm)	SAR Drift During Test (dB)	Measured SAR 1g (W/kg)
May 2	GPRS	2 Slots	Script	836.6	190	Closed 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	31.82	0.0131	0.332
May 3	GPRS	2 Slots	Script	836.6	190	Closed 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	31.82	0.032	**0.334**
	Bluetooth Co-transmit - Modulated Fixed Frequency			2441	41	Internal				3.60		
May 2	GPRS	2 Slots	Script	836.6	190	Open 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	31.82	-0.0280	0.0569
May 2	GPRS	2 Slots	Script	836.6	190	Open 90°	Internal Li-ion	Bottom Side	0.0 (Touch)	31.82	-0.0955	0.0207
May 3	EDGE	2 Slots	Script	836.6	190	Closed 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	26.91	0.0106	**0.0919**
May 11	UMTS	WCDMA	Air-link	836.4	4182	Closed 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	23.90	0.009	**0.251**

ANSI / IEEE C95.1 1999 - SAFETY LIMIT	BODY: 1.6 W/kg (averaged over 1 gram)	Spatial Peak - Uncontrolled Exposure / General Population

Test Date(s)		May 2, 2006		May 3, 2006		May 11, 2006		Test Date(s)	May 2	May 3	May 11	Unit
Dielectric Constant ε_r	Fluid Type	835 MHz Body		835 MHz Body		835 MHz Body		Relative Humidity	30	30	30	%
	IEEE Target	Meas.	Dev.	Meas.	Dev.	Meas.	Dev.	Atmospheric Pressure	101.6	102.9	102.7	kPa
	55.2 ± 5%	53.2	-3.6%	53.1	-3.8%	52.7	-4.5%	Ambient Temperature	22.4	22.5	23.2	°C
Conductivity σ (mho/m)	Fluid Type	835 MHz Body		835 MHz Body		835 MHz Body		Fluid Temperature	22.2	22.0	21.5	°C
	IEEE Target	Meas.	Dev.	Meas.	Dev.	Meas.	Dev.	Fluid Depth	≥ 15	≥ 15	≥ 15	cm
	0.97 ± 5%	0.95	-2.1%	0.97	0.0%	0.95	-2.1%	ρ (Kg/m^3)	1000			

Note(s)		
	1.	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.
	2.	If the SAR levels measured at the mid channel were ≥ 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]).
	3.	GPRS and EDGE modes were evaluated for SAR at maximum power using the proprietary Sierra Wireless Procomm Plus Test Script.
	4.	UMTS mode was evaluated for SAR at maximum power via air-link using the Anritsu MT8820A communications test set.
	5.	EDGE and UMTS modes were evaluated for SAR in the worst-case antenna configuration evaluated in GPRS mode.
	6.	The power drift of the DUT measured by the DASY4 system during the SAR evaluations was <5% from the start power.
	7.	The DUT battery was fully charged prior to the SAR evaluations.
	8.	The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported in the table above were consistent for all measurement periods.
	9.	The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
	10.	The SAR evaluations were performed within 24 hours of the system performance check.

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MEASUREMENT SUMMARY (Cont.)

BODY SAR EVALUATION RESULTS

PCS Band

Test Date	Test Mode			Freq. (MHz)	Chan.	Antenna Position	Battery Type	DUT Position to Planar Phantom	Separation Distance to Planar Phantom (cm)	Cond. Power Before Test (dBm)	SAR Drift During Test (dB)	Measured SAR 1g (W/kg)
May 4	GPRS	2 Slots	Script	1880.0	661	Closed 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	28.71	-0.135	0.624
May 4	GPRS	2 Slots	Script	1880.0	661	Closed 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	28.71	-0.102	**0.628**
	Bluetooth Co-transmit - Modulated Fixed Frequency			2441	41	Internal				3.60		
May 4	GPRS	2 Slots	Script	1880.0	661	Open 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	28.71	0.039	0.0626
May 4	GPRS	2 Slots	Script	1880.0	661	Open 90°	Internal Li-ion	Bottom Side	0.0 (Touch)	28.71	-0.040	0.0806
May 4	EDGE	2 Slots	Script	1880.0	661	Closed 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	25.72	-0.012	**0.306**
May 11	UMTS	WCDMA	Air-link	1880.0	9400	Closed 180°	Internal Li-ion	Bottom Side	0.0 (Touch)	23.0	-0.207	**0.252**

ANSI / IEEE C95.1 1999 - SAFETY LIMIT	BODY: 1.6 W/kg (averaged over 1 gram)	Spatial Peak - Uncontrolled Exposure / General Population

Test Date(s)			May 4, 2006		May 11, 2006		Test Date(s)	May 4	May 11	Unit
Dielectric Constant ε_r	Fluid Type		1880 MHz Body		1880 MHz Body		Relative Humidity	30	30	%
	IEEE Target		Meas.	Dev.	Meas.	Dev.	Atmospheric Pressure	101.6	102.9	kPa
	53.3	± 5%	51.5	-3.4%	51.2	-3.9%	Ambient Temperature	24.0	24.3	°C
Conductivity σ (mho/m)	Fluid Type		1880 MHz Body		1880 MHz Body		Fluid Temperature	23.5	23.7	°C
	IEEE Target		Meas.	Dev.	Meas.	Dev.	Fluid Depth	≥ 15	≥ 15	cm
	1.52	± 5%	1.55	+2.0%	1.46	-3.9%	ρ (Kg/m^3)	1000		

Note(s)		
	1.	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.
	2.	If the SAR levels measured at the mid channel were ≥ 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]).
	3.	GPRS and EDGE modes were evaluated for SAR at maximum power using the proprietary Sierra Wireless Procomm Plus Test Script.
	4.	UMTS mode was evaluated for SAR at maximum power via air-link using the Anritsu MT8820A communications test set.
	5.	EDGE and UMTS modes were evaluated for SAR in the worst-case antenna configuration evaluated in GPRS mode.
	6.	The power drifts measured by the DASY4 system for the duration of the SAR evaluations were <5% from the start power.
	7.	The DUT battery was fully charged prior to the SAR evaluations.
	8.	The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported in the table above were consistent for all measurement periods.
	9.	The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
	10.	The SAR evaluations were performed within 24 hours of the system performance check.

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5.0 DETAILS OF SAR EVALUATION

The ITRONIX CORPORATION Model: IX325-AC860BT Rugged Tablet PC with internal Sierra Wireless AirCard 860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem was compliant for localized Specific Absorption Rate (Uncontrolled Exposure) based on the test provisions and conditions described below. The detailed test setup photographs are shown in Appendix D.

Test Configuration(s)

1. The DUT was tested for body SAR (lap-held) with the bottom side of the Tablet PC placed parallel to, and touching, the outer surface of the planar phantom. The DUT was evaluated for SAR with the AirCard 860 antenna placed in the "Closed 180°" position, "Open 180°" position, and "Open 90°" position (see placement photos on next page).

Test Modes & Power Settings

2. For the SAR evaluations in GPRS and EDGE modes the proprietary Sierra Wireless Procomm Plus Test Script installed in the DUT was utilized. The DUT was transmitting at maximum power in 2 time slots (25% duty cycle with a crest factor of 2).
3. For the SAR evaluations in UMTS mode an air-link communication was established using the Anritsu MT8820A communications test set. The DUT was transmitting at maximum power with "all-up bits" (see below settings table).

PROCEDURES USED TO ESTABLISH TEST SIGNAL

The following settings were used to configure the Anritsu MT8820A Communications Test Set:

Instrument Information

Application:	WCDMA
Standard:	MX88200B 4.41 #003
Scenario:	MX882050A
Serial Number:	6200241241

Call Parameters

Preset:	3GPP
Test Loop Mode:	Mode 1
Channel Coding:	Reference Measurement Channel 12.2 kbps
DTCH Data Pattern:	PN9
Power Control Algorithm:	Algorithm 1
TPC Step size:	1dB
Power Control Bit Pattern:	All-Up Bits
UL Channel:	9262 / 9400 / 9538 4132 / 4182 / 4233
DL Channel:	9662 / 9800 / 9938 4357 / 4407 / 4458

4. The conducted power levels of the AC860 were measured at the PC card antenna connector prior to the SAR evaluations using a Gigatronics 8652A Universal Power Meter in Burst Average Power mode (GPRS/EDGE) and Modulated Average Power mode (WCDMA) according to the procedures described in FCC 47 CFR §2.1046.
5. For the co-located simultaneous transmit evaluations the Bluetooth transmitter was tested in continuous transmit mode at maximum power level on a fixed frequency with the frequency hopping disabled and a modulated signal.
6. The power drift of the DUT during the SAR evaluations was measured by the DASY4 system.

Test Conditions

7. The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported were consistent for all measurement periods.
8. The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).

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6.0 EVALUATION PROCEDURES

a. (i) The evaluation was performed in the applicable area of the phantom depending on the type of device being tested. For devices held to the ear during normal operation, both the left and right ear positions were evaluated using the SAM phantom.

(ii) For body-worn and face-held devices a planar phantom was used.

b. The SAR was determined by a pre-defined procedure within the DASY4 software. Upon completion of a reference and optical surface check, the exposed region of the phantom was scanned near the inner surface with a grid spacing of 15mm x 15mm.

An area scan was determined as follows:

c. Based on the defined area scan grid, a more detailed grid is created to increase the points by a factor of 10. The interpolation function then evaluates all field values between corresponding measurement points.

d. A linear search is applied to find all the candidate maxima. Subsequently, all maxima are removed that are >2 dB from the global maximum. The remaining maxima are then used to position the cube scans.

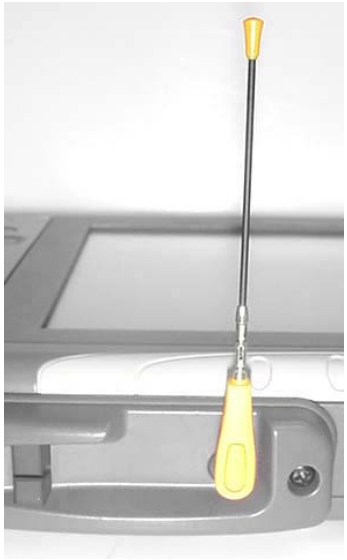
A 1g and 10g spatial peak SAR was determined as follows:

e. Extrapolation is used to find the points between the dipole center of the probe and the surface of the phantom. This data cannot be measured, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.4 mm (see probe calibration document in Appendix F). The extrapolation was based on trivariate quadratics computed from the previously calculated 3D interpolated points nearest the phantom surface.

f. Interpolated data is used to calculate the average SAR over 1g and 10g cubes by spatially discretizing the entire measured cube. The volume used to determine the averaged SAR is a 1mm grid (42875 interpolated points).

g. A zoom scan volume of 32 mm x 32 mm x 30 mm (5 x 5 x 7 points) centered at the peak SAR location determined from the area scan is used for all zoom scans for devices with a transmit frequency < 800 MHz. Zoom scans for frequencies ≥ 800 MHz are determined with a scan volume of 30 mm x 30 mm x 30 mm (7 x 7 x 7) to ensure complete capture of the peak spatial-average SAR.

Antenna Test Positions



Antenna "Open 90°" Position

Antenna "Closed 180°" Position

Antenna "Open 180°" Position

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7.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations a system check was performed using a planar phantom with an 835MHz dipole and a 1900MHz dipole (see Appendix E for system validation procedures). The dielectric parameters of the simulated tissue mixtures were measured prior to the system performance check using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C). A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of ±10% (see Appendix B for system performance check test plots). See Table 1 below for the SAR system manufacturer's reference body SAR values from the DASY4 Operation Manual (see reference [6]).

SYSTEM PERFORMANCE CHECK EVALUATIONS

Test Date	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)
	Body (MHz)	IEEE Target	Meas.	Dev.	IEEE Target	Meas.	Dev.	IEEE Target	Meas.	Dev.						
5/1/06	835	2.43 ±10%	2.45	+0.8%	55.2 ±5%	53.0	-4.0%	0.97 ±5%	0.96	-1.0%	1000	25.5	22.8	≥ 15	30	101.8
5/3/06	835	2.43 ±10%	2.24	-7.8%	55.2 ±5%	53.1	-3.8%	0.97 ±5%	0.97	0.0%	1000	22.5	22.0	≥ 15	30	102.9
5/4/06	1900	9.95 ±10%	10.2	+2.5%	53.3 ±5%	51.5	-3.4%	1.52 ±5%	1.56	-2.6%	1000	24.0	23.5	≥ 15	30	101.6
5/11/06	835	2.43 ±10%	2.48	+2.1%	55.2 ±5%	52.7	-4.5%	0.97 ±5%	0.95	-2.1%	1000	23.2	21.5	≥ 15	30	102.7
5/11/06	1900	9.95 ±10%	9.71	-2.4%	53.3 ±5%	51.1	-4.1%	1.52 ±5%	1.47	-3.3%	1000	24.3	23.7	≥ 15	30	102.9

Note(s)		
	1.	The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the system performance check. The temperatures listed in the table above were consistent for all measurement periods.
	2.	The SAR evaluations were performed within 24 hours of the system performance check.

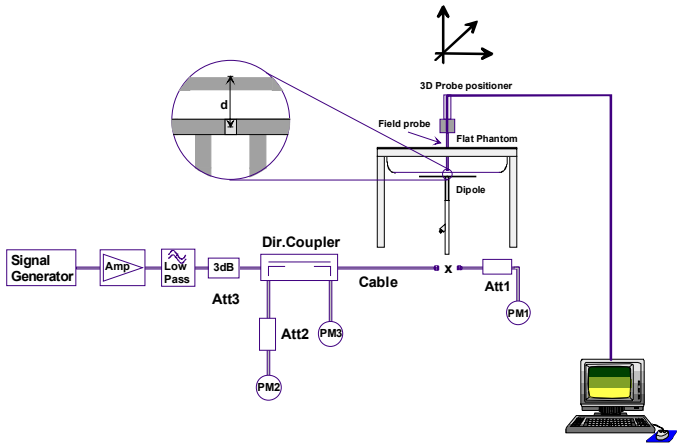

Figure 1. System Performance Check Measurement Setup

835MHz Dipole Setup

Dipole Type	Distance [mm]	Frequency [MHz]	SAR (1g) [W/kg]	SAR (10g) [W/kg]	SAR (peak) [W/kg]
D300V2	15	300	3.02	2.06	4.36
D450V2	15	450	5.01	3.36	7.22
D835V2	15	835	9.71	6.38	14.1
D900V2	15	900	11.1	7.17	16.3
D1450V2	10	1450	29.6	16.6	49.8
D1500V2	10	1500	30.8	17.1	52.1
D1640V2	10	1640	34.4	18.7	59.4
D1800V2	10	1800	38.5	20.3	67.5
D1900V2	10	1900	39.8	20.8	69.6
D2000V2	10	2000	40.9	21.2	71.5
D2450V2	10	2450	51.2	23.7	97.6
D3000V2	10	3000	61.9	24.8	136.7

Table 32.1: Numerical reference SAR values for SPEAG dipoles and flat phantom filled with body-tissue simulating liquid. Note: All SAR values normalized to 1 W forward power.

Table 1. SAR System Manufacturer's Reference Body SAR Values

1900MHz Dipole Setup

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8.0 SIMULATED EQUIVALENT TISSUES

The 1880/1900MHz simulated equivalent tissue mixture consisted of Glycol-monobutyl, water, and salt. The 835MHz simulated equivalent tissue mixture consisted of a viscous gel using saline solution. Preservation with a bactericide was added and visual inspection was made to ensure air bubbles were not trapped during the mixing process. The fluids were prepared according to standardized procedures and measured for dielectric parameters (permittivity and conductivity).

1880/1900MHz TISSUE MIXTURE		
INGREDIENT	**1900 MHz Body** System Performance Check	**1880 MHz Body** DUT Evaluation
Water	69.85 %	69.85 %
Glycol Monobutyl	29.89 %	29.89 %
Salt	0.26 %	0.26 %

835MHz TISSUE MIXTURE		
INGREDIENT	**835 MHz Body** System Performance Check	**835 MHz Body** DUT Evaluation
Water	53.79 %	53.79 %
Sugar	45.13 %	45.13 %
Salt	0.98 %	0.98 %
Bactericide	0.10 %	0.10 %

9.0 SAR SAFETY LIMITS

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1 g of tissue)	1.60	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0
Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.		
Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.		

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10.0 ROBOT SYSTEM SPECIFICATIONS

Specifications	
Positioner	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability	0.02 mm
No. of axis	6
Data Acquisition Electronic (DAE) System	
Cell Controller	
Processor	AMD Athlon XP 2400+
Clock Speed	2.0 GHz
Operating System	Windows XP Professional
Data Converter	
Features	Signal Amplifier, multiplexer, A/D converter, and control logic
Software	Measurement Software: DASY4, V4.7 Build 44
	Postprocessing Software: SEMCAD, V1.8 Build 171
Connecting Lines	Optical downlink for data and status info.; Optical uplink for commands and clock
DASY4 Measurement Server	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
E-Field Probe	
Model	ET3DV6
Serial No.	1590
Construction	Triangular core fiber optic detection system
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
Phantom(s)	
Type	Planar Phantom
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 70 liters

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11.0 PROBE SPECIFICATION (ET3DV6)

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, glycol)
Calibration:	In air from 10 MHz to 2.5 GHz In brain simulating tissue at frequencies of 900 MHz and 1.8 GHz (accuracy ± 8%)
Frequency:	10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity:	± 0.2 dB in brain tissue (rotation around probe axis) ± 0.4 dB in brain tissue (rotation normal to probe axis)
Dynamic Range:	5 μW/g to > 100 mW/g; Linearity: ± 0.2 dB
Surface Detect:	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Dimensions:	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application:	General dosimetry up to 3 GHz Compliance tests of mobile phone

ET3DV6 E-Field Probe

12.0 PLANAR PHANTOM

The planar phantom is a fiberglass shell phantom with a 2.0 mm (+/-0.2mm) thick device measurement area at the center of the phantom for SAR evaluations of devices with a larger surface area than the planar section of the SAM phantom. The planar phantom is integrated in a wooden table (see Appendix G for dimensions and specifications of the planar phantom).

Planar Phantom

13.0 DEVICE HOLDER

The DASY4 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. For evaluations of larger devices such as Laptop and Tablet PCs, a Plexiglas platform is attached to the device holder.

Device Holder

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14.0 TEST EQUIPMENT LIST

TEST EQUIPMENT		ASSET NO.	SERIAL NO.	DATE CALIBRATED		CALIBRATION DUE DATE
USED	DESCRIPTION					
x	Schmid & Partner DASY4 System	-	-	-		-
x	-DASY4 Measurement Server	00158	1078	N/A		N/A
x	-Robot	00046	599396-01	N/A		N/A
x	-DAE4	00019	353	15Jun05		15Jun06
	-DAE3	00018	370	08Feb06		08Feb07
	-ET3DV6 E-Field Probe	00016	1387	16Mar06		16Mar07
x	-ET3DV6 E-Field Probe	00017	1590	20May05		20May06
	-EX3DV4 E-Field Probe	00125	3547	14Feb06		14Feb07
	-300MHz Validation Dipole	00023	135	25Oct05		25Oct06
	-450MHz Validation Dipole	00024	136	25Oct05		25Oct06
	-835MHz Validation Dipole	00022	411	**Brain**	28Mar06	28Mar07
x				**Body**	27Mar06	27Mar07
	-900MHz Validation Dipole	00020	054	**Brain**	10Jun05	10Jun06
				Body	10Jun05	10Jun06
	-1800MHz Validation Dipole	00021	247	**Brain**	14Jun05	14Jun06
				Body	14Jun05	14Jun06
	-1900MHz Validation Dipole	00032	151	**Brain**	17Jun05	17Jun06
x				**Body**	25Apr06	25Apr07
	-2450MHz Validation Dipole	00025	150	**Brain**	20Sep05	20Sep06
				Body	24Apr06	24Apr07
	-5800MHz Validation Dipole	00126	1031	**Brain**	15Mar06	15Mar07
	-SAM Phantom V4.0C	00154	1033	N/A		N/A
x	-Barski Planar Phantom	00155	03-01	N/A		N/A
	-Plexiglas Side Planar Phantom	00156	161	N/A		N/A
	-Plexiglas Validation Planar Phantom	00157	137	N/A		N/A
x	ALS-PR-DIEL Dielectric Probe Kit	00160	260-00953	N/A		N/A
x	Gigatronics 8652A Power Meter	00110	1835801	12Apr06		12Apr07
	Gigatronics 8652A Power Meter	00007	1835272	03Feb06		03Feb07
	Gigatronics 80701A Power Sensor	00011	1833542	03Feb06		03Feb07
x	Gigatronics 80701A Power Sensor	00012	1834350	12Sep05		12Sep06
x	Gigatronics 80701A Power Sensor	00013	1833713	03Feb06		03Feb07
	Gigatronics 80701A Power Sensor	00014	1833699	07Sep05		07Sep06
x	HP 8753ET Network Analyzer	00134	US39170292	18Apr06		18Apr07
x	HP 8648D Signal Generator	00005	3847A00611	N/A		N/A
	Rohde & Schwarz SMR40 Signal Generator	00006	100104	06Apr06		06Apr07
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	N/A		N/A

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15.0 MEASUREMENT UNCERTAINTIES

UNCERTAINTY BUDGET FOR DEVICE EVALUATION						
Error Description	**Uncertainty Value ±%**	**Probability Distribution**	**Divisor**	**ci 1g**	**Uncertainty Value ±% (1g)**	**V_i or V_{eff}**
Measurement System						
Probe calibration	5.5	Normal	1	1	5.5	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	0.7	1.9	∞
Spherical isotropy of the probe	9.6	Rectangular	1.732050808	0.7	3.9	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	1	Rectangular	1.732050808	1	0.6	∞
Probe linearity	4.7	Rectangular	1.732050808	1	2.7	∞
Detection limit	1	Rectangular	1.732050808	1	0.6	∞
Readout electronics	0.3	Normal	1	1	0.3	∞
Response time	0.8	Rectangular	1.732050808	1	0.5	∞
Integration time	2.6	Rectangular	1.732050808	1	1.5	∞
RF ambient conditions	3	Rectangular	1.732050808	1	1.7	∞
Mech. constraints of robot	0.4	Rectangular	1.732050808	1	0.2	∞
Probe positioning	2.9	Rectangular	1.732050808	1	1.7	∞
Extrapolation & integration	1	Rectangular	1.732050808	1	0.6	∞
Test Sample Related						
Device positioning	2.9	Normal	1	1	2.9	12
Device holder uncertainty	3.6	Normal	1	1	3.6	8
Power drift	5	Rectangular	1.732050808	1	2.9	∞
Phantom and Setup						
Phantom uncertainty	4	Rectangular	1.732050808	1	2.3	∞
Liquid conductivity (target)	5	Rectangular	1.732050808	0.64	1.8	∞
Liquid conductivity (measured)	2.5	Normal	1	0.64	1.6	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	2.5	Normal	1	0.6	1.5	∞
Combined Standard Uncertainty					**10.58**	
Expanded Uncertainty (k=2)					**21.16**	

Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [5])

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MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR SYSTEM VALIDATION

Error Description	Uncertainty Value ±%	Probability Distribution	Divisor	ci 1g	Uncertainty Value ±% (1g)	V_i or V_{eff}
Measurement System						
Probe calibration	5.5	Normal	1	1	5.5	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	1	2.7	∞
Spherical isotropy of the probe	0	Rectangular	1.732050808	1	0.0	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	1	Rectangular	1.732050808	1	0.6	∞
Probe linearity	4.7	Rectangular	1.732050808	1	2.7	∞
Detection limit	1	Rectangular	1.732050808	1	0.6	∞
Readout electronics	0.3	Normal	1	1	0.3	∞
Response time	0	Rectangular	1.732050808	1	0.0	∞
Integration time	0	Rectangular	1.732050808	1	0.0	∞
RF ambient conditions	3	Rectangular	1.732050808	1	1.7	∞
Mech. constraints of robot	0.4	Rectangular	1.732050808	1	0.2	∞
Probe positioning	2.9	Rectangular	1.732050808	1	1.7	∞
Extrapolation & integration	1	Rectangular	1.732050808	1	0.6	∞
Test Sample Related						
Dipole Positioning	2	Normal	1.732050808	1	1.2	∞
Power & Power Drift	4.7	Normal	1.732050808	1	2.7	∞
Phantom and Setup						
Phantom uncertainty	4	Rectangular	1.732050808	1	2.3	∞
Liquid conductivity (target)	5	Rectangular	1.732050808	0.64	1.8	∞
Liquid conductivity (measured)	2.5	Normal	1	0.64	1.6	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	2.5	Normal	1	0.6	1.5	∞
Combined Standard Uncertainty					**8.79**	
Expanded Uncertainty (k=2)					**17.57**	

Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [5])

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16.0 REFERENCES

[1] Federal Communications Commission - "Radiofrequency radiation exposure evaluation: portable devices", Rule Part 47 CFR §2.1093: 1999.

[2] Health Canada - "Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz", Safety Code 6: 1999.

[3] Federal Communications Commission - "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields", OET Bulletin 65, Supplement C (Edition 01-01), FCC, Washington, D.C.: June 2001.

[4] Industry Canada - "Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)", Radio Standards Specification RSS-102 Issue 2: November 2005.

[5] IEEE Standard 1528-2003 - "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques": December 2003.

[6] Schmid & Partner Engineering AG - "DASY4 Manual", V4.5 March 2005.

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APPENDIX A - SAR MEASUREMENT DATA

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Date Tested: 05/02/2006

Body SAR - Cellular Band - GPRS Mode - 836.6 MHz - Bottom Side of DUT - Antenna "Closed 180°"

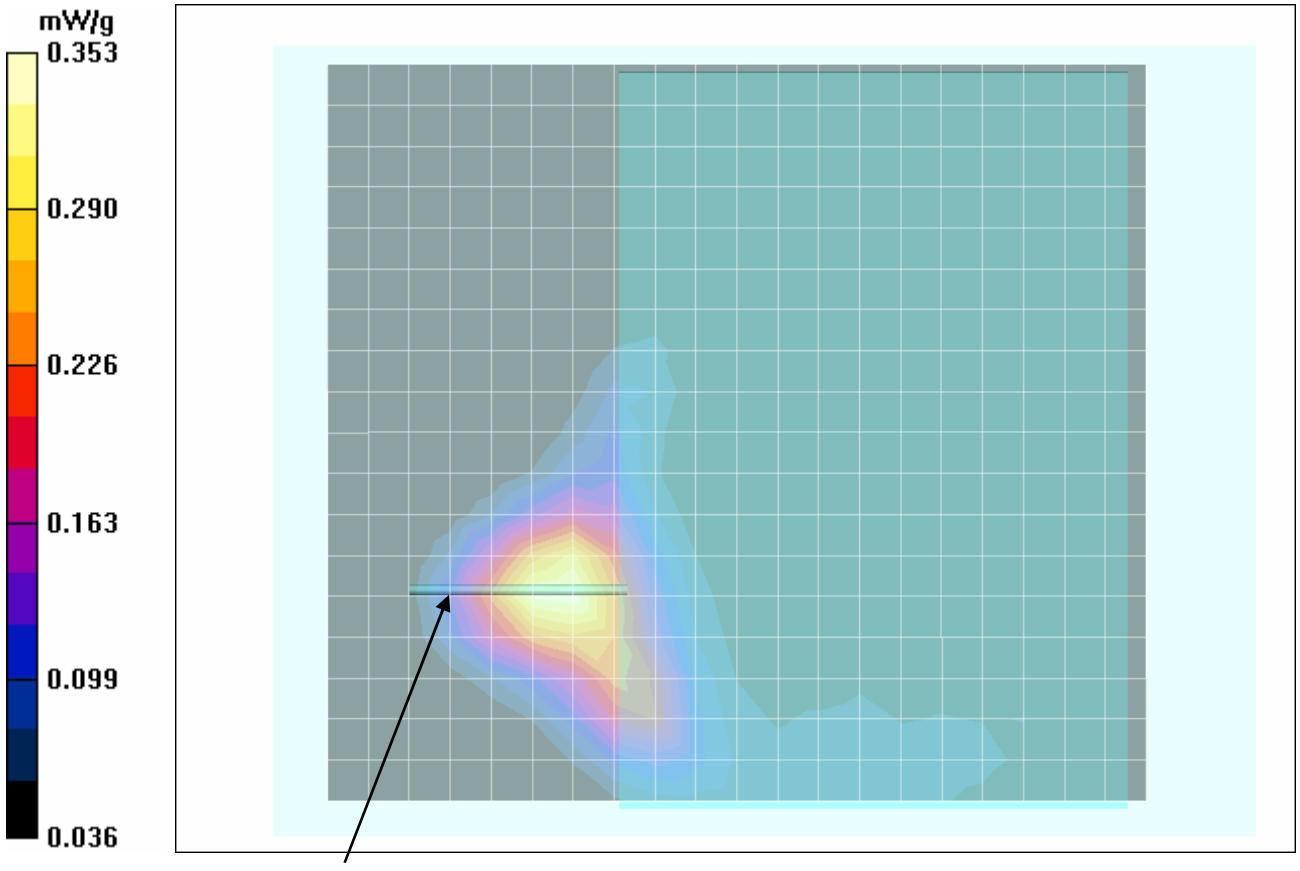
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 22.4 °C; Fluid Temp: 22.2 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

RF Output Power: 31.82 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: Cellular GPRS (2 Time Slots)
Frequency: 836.6 MHz; Channel 190; Duty Cycle: 1:4.16
Medium: M835 (σ = 0.95 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body SAR - Cellular GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 190 - 836.6 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Cellular GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 190 - 836.6 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.6 V/m; Power Drift = 0.0131 dB
Peak SAR (extrapolated) = 0.453 W/kg
SAR(1 g) = 0.332 mW/g; SAR(10 g) = 0.228 mW/g



AirCard 860 Antenna "Closed 180°"

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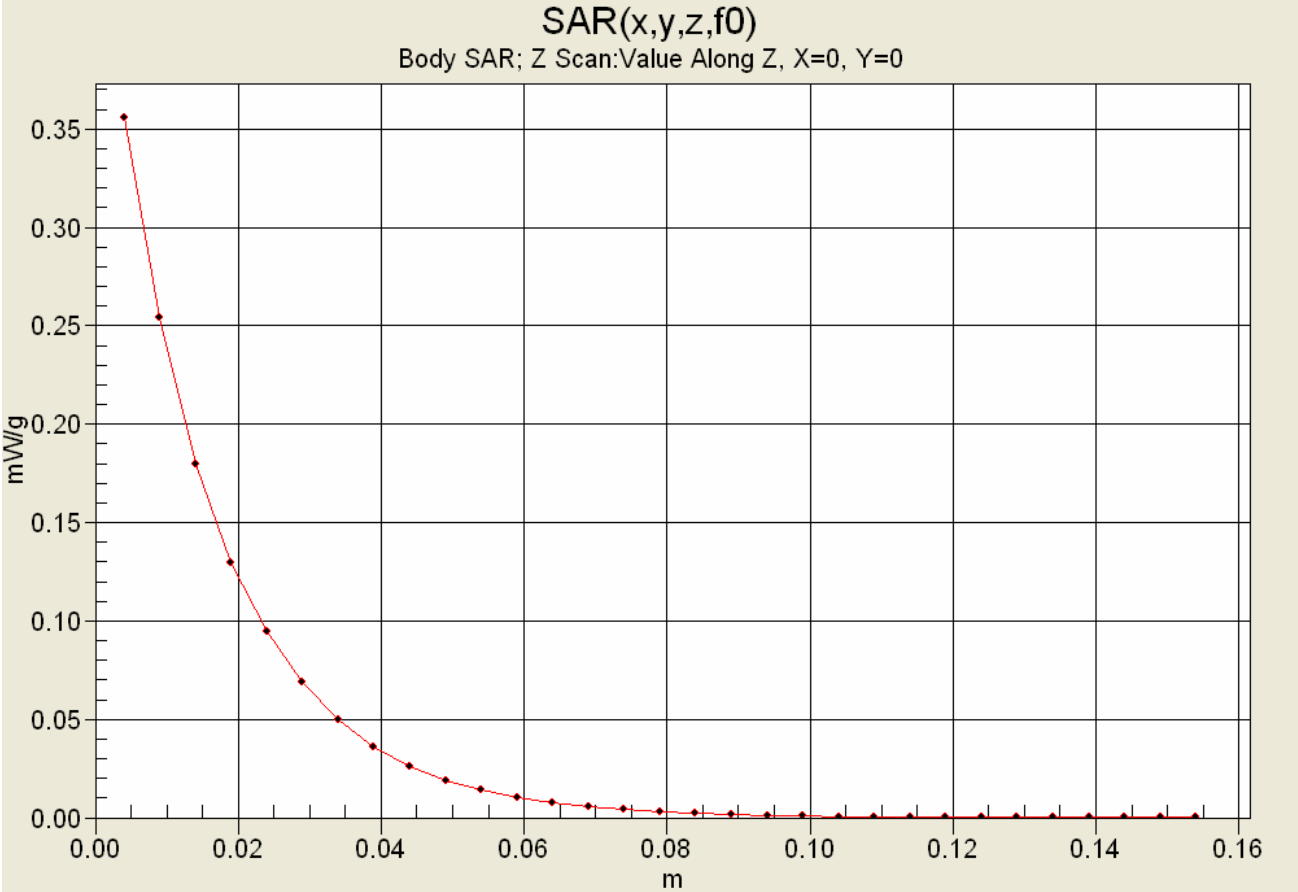
Z-Axis Scan


SAR(x,y,z,f0)
Body SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

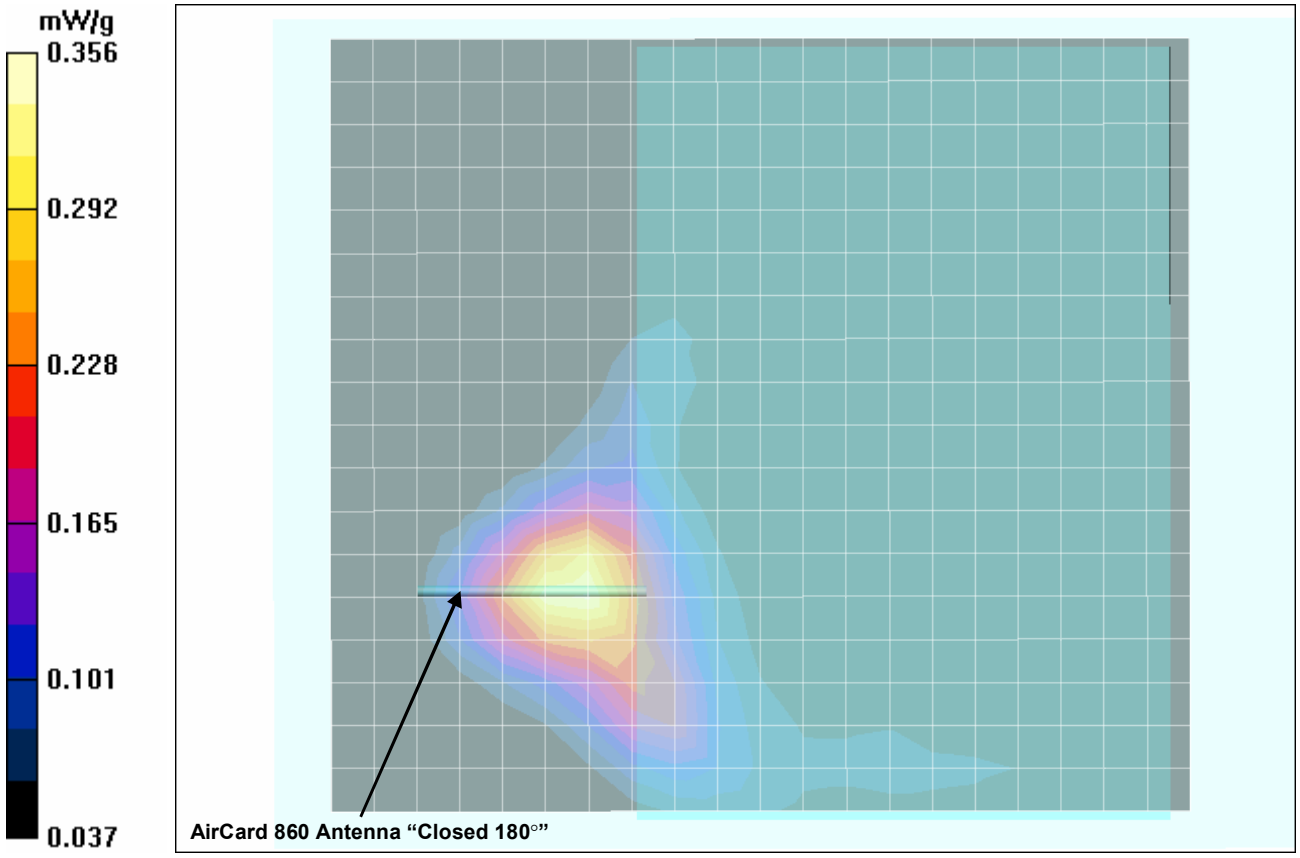
Date Tested: 05/03/2006

Body SAR - Cellular Band - GPRS Mode - 836.6 MHz - Bottom Side of DUT - Antenna "Closed 180°" Simultaneous Transmit with Co-located Bluetooth

DUT: Itronix Model: IX325-AC860; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784
Ambient Temp: 22.5 °C; Fluid Temp: 22.0 °C; Barometric Pressure: 102.9 kPa; Humidity: 30%
RF Output Power: 31.82 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: Cellular GPRS (2 Time Slots)
Frequency: 836.6 MHz; Channel 190; Duty Cycle: 1:4.16
Frequency: 2441 MHz; Channel 41; Duty Cycle: 1:1 (Bluetooth)
RF Output Power: 3.60 dBm - Conducted (Bluetooth)
Medium: M835 (σ = 0.97 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body SAR - Cellular GPRS with co-transmitting Bluetooth - Bottom Side of DUT Touching Planar Phantom - Channel 190
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Cellular GPRS with co-transmitting Bluetooth - Bottom Side of DUT Touching Planar Phantom - Channel 190
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.4 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 0.454 W/kg
SAR(1 g) = 0.334 mW/g; SAR(10 g) = 0.231 mW/g



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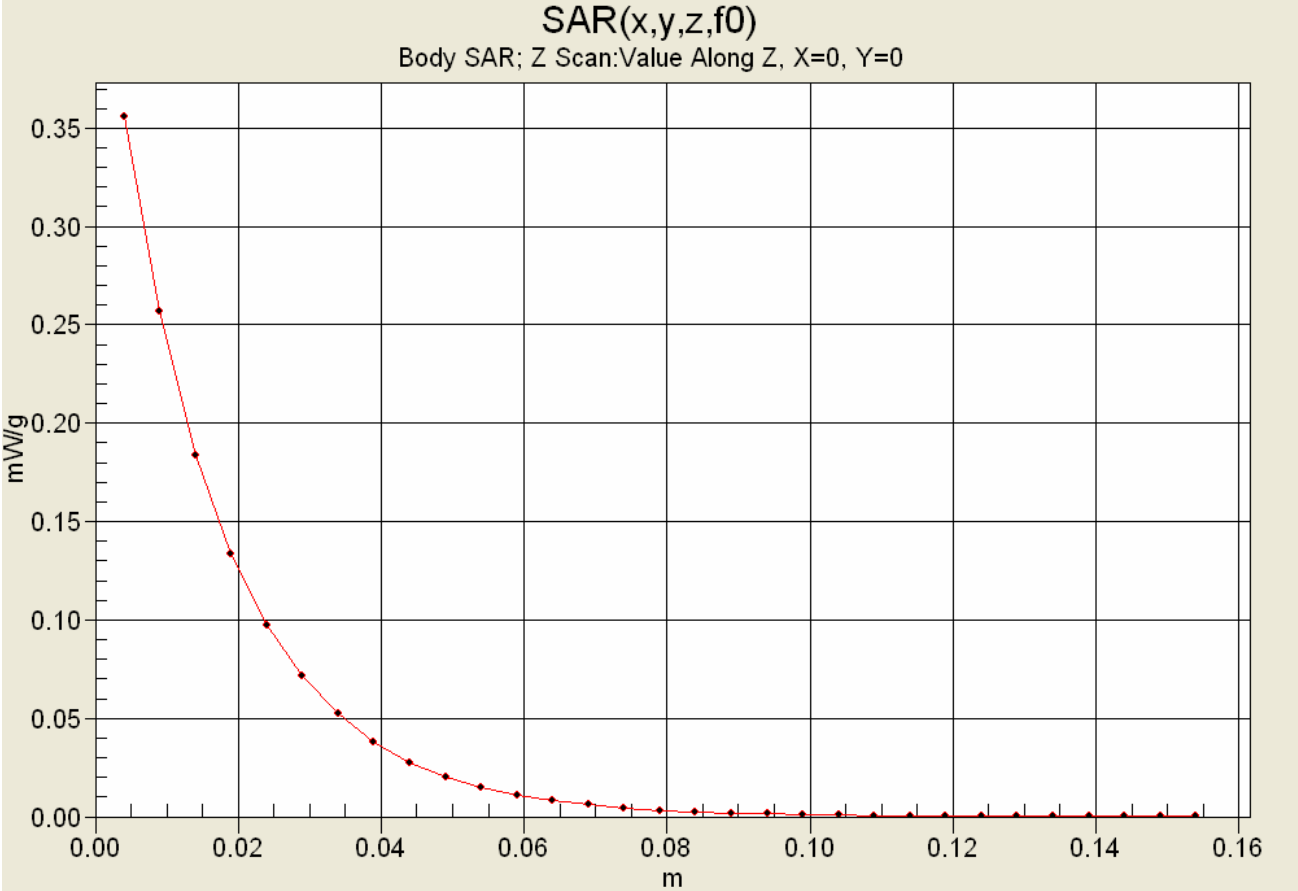
Z-Axis Scan


SAR(x,y,z,f0)
Body SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Date Tested: 05/02/2006

Body SAR - Cellular Band - GPRS Mode - 836.6 MHz - Bottom Side of DUT - Antenna "Open 180°"

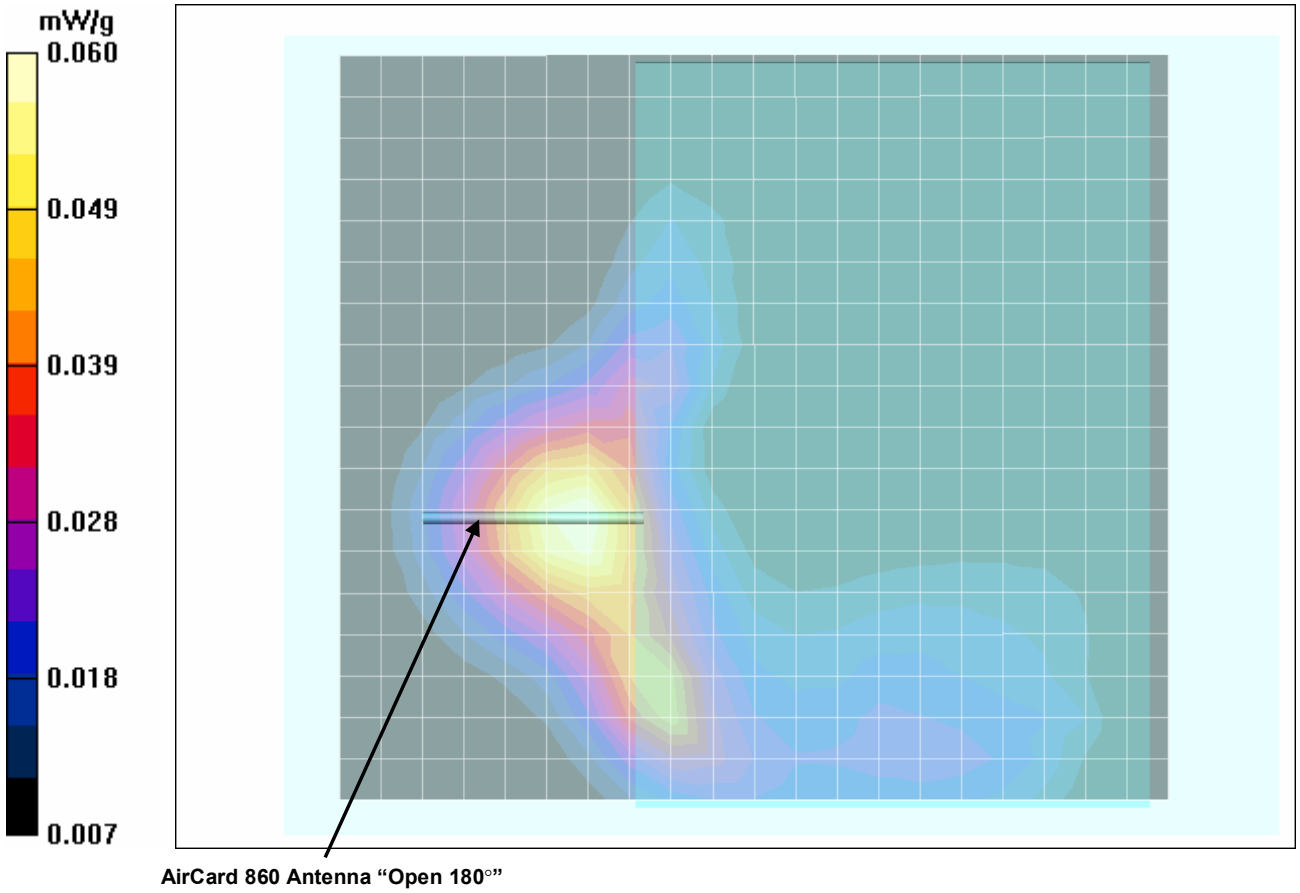
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 22.4 °C; Fluid Temp: 22.2 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

RF Output Power: 31.82 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: Cellular GPRS (2 Time Slots)
Frequency: 836.6 MHz; Channel 190; Duty Cycle: 1:4.16
Medium: M835 (σ = 0.95 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body SAR - Cellular GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Open 180 - Channel 190 - 836.6 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Cellular GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Open 180 - Channel 190 - 836.6 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.16 V/m; Power Drift = -0.0280 dB
Peak SAR (extrapolated) = 0.075 W/kg
SAR(1 g) = 0.0569 mW/g; SAR(10 g) = 0.041 mW/g



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Date Tested: 05/02/2006

Body SAR - Cellular Band - GPRS Mode - 836.6 MHz - Bottom Side of DUT - Antenna "Open 90°"

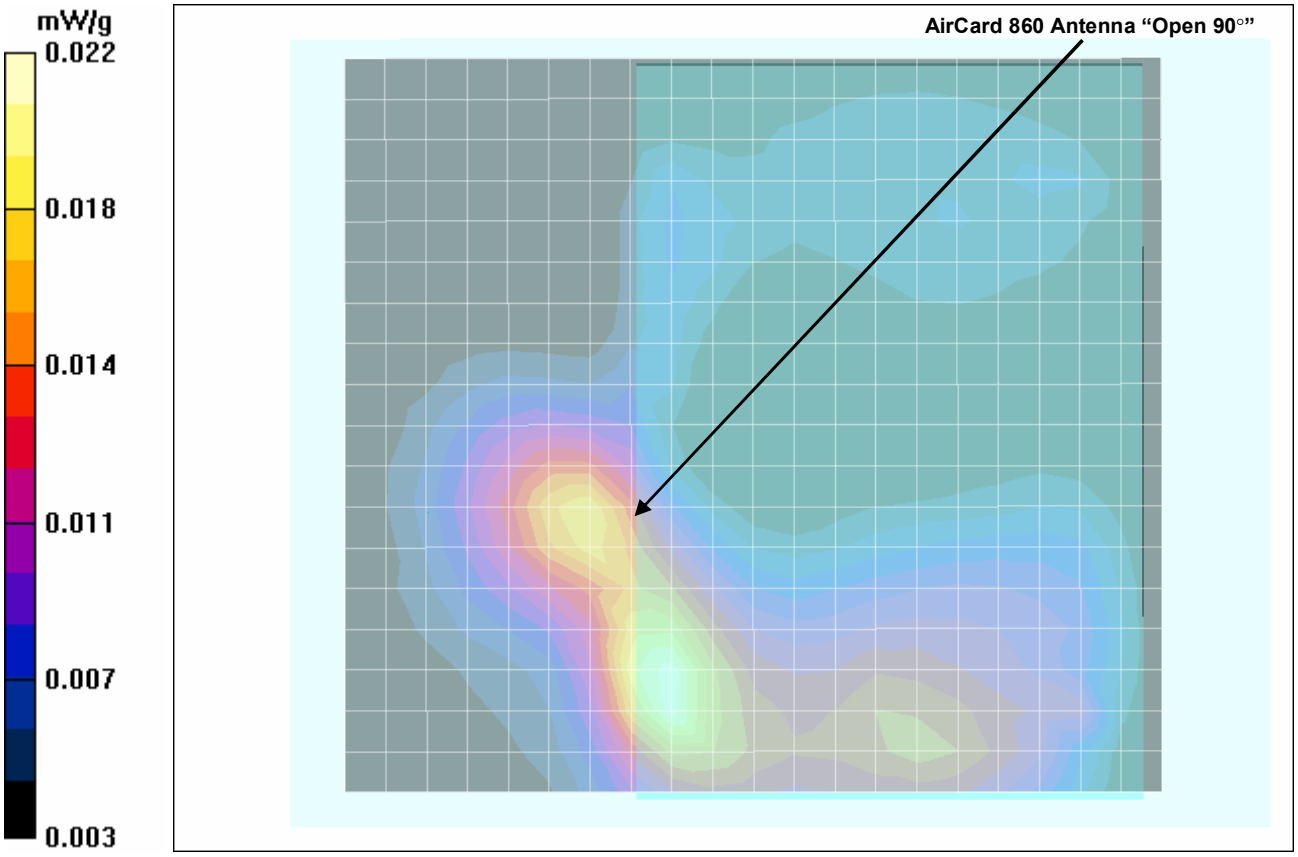
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 22.4 °C; Fluid Temp: 22.2 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

RF Output Power: 31.82 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: Cellular GPRS (2 Time Slots)
Frequency: 836.6 MHz; Channel 190; Duty Cycle: 1:4.16
Medium: M835 (σ = 0.95 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body SAR - Cellular GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Open 90 - Channel 190 - 836.6 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Cellular GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Open 90 - Channel 190 - 836.6 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.94 V/m; Power Drift = -0.0955 dB
Peak SAR (extrapolated) = 0.029 W/kg
SAR(1 g) = 0.0207 mW/g; SAR(10 g) = 0.015 mW/g



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Date Tested: 05/03/2006

Body SAR - Cellular Band - EDGE Mode - 836.6 MHz - Bottom Side of DUT - Antenna "Closed 180°"

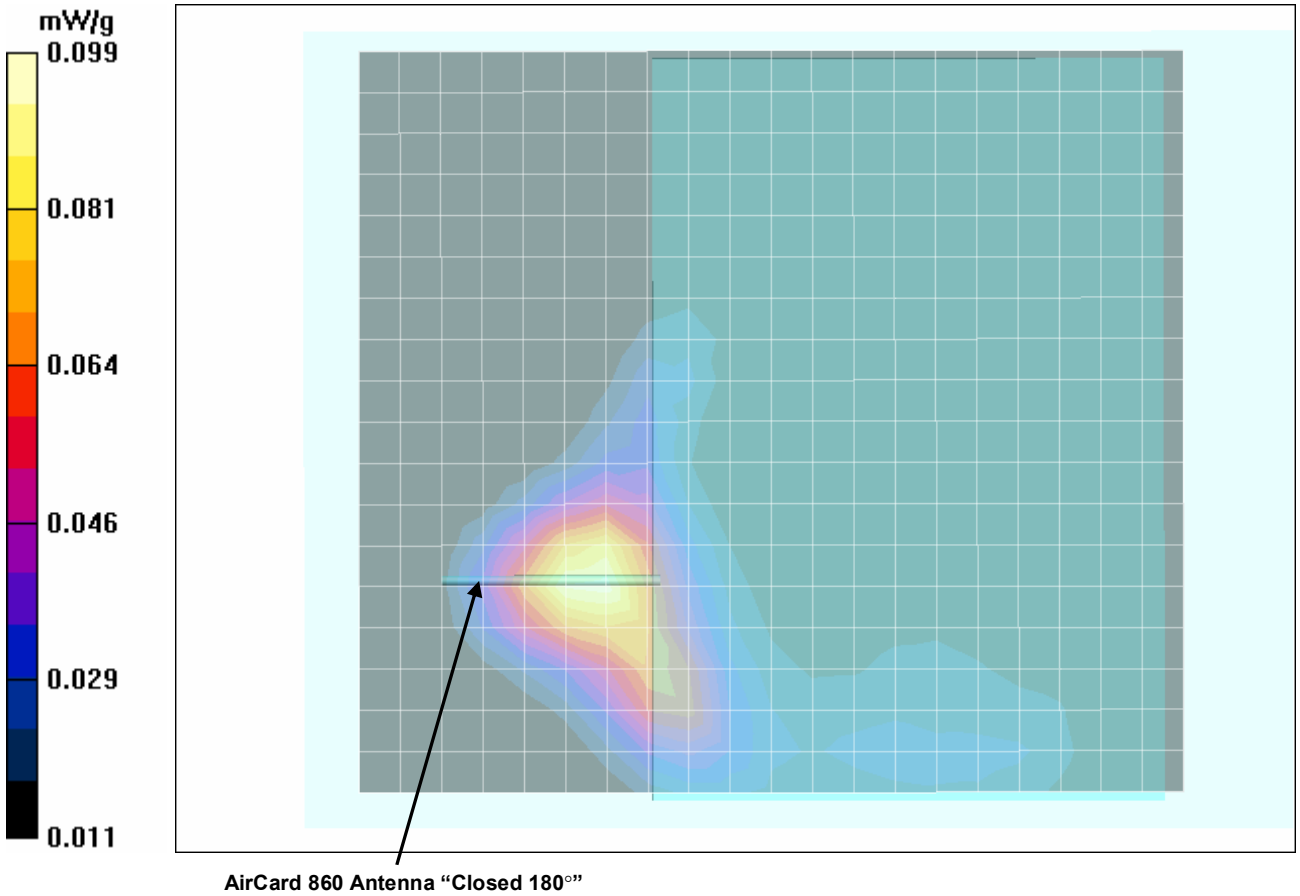
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 22.5 °C; Fluid Temp: 22.0 °C; Barometric Pressure: 102.9 kPa; Humidity: 30%

RF Output Power: 26.91 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: Cellular EDGE (2 Time Slots)
Frequency: 836.6 MHz; Channel 190; Duty Cycle: 1:4.16
Medium: M835 (σ = 0.97 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body SAR - Cellular EDGE - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 190 - 836.6 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Cellular EDGE - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 190 - 836.6 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = 0.0106 dB
Peak SAR (extrapolated) = 0.124 W/kg
SAR(1 g) = 0.0919 mW/g; SAR(10 g) = 0.064 mW/g



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Date Tested: 05/11/2006

Body SAR - Cellular Band - UMTS Mode - 836.4 MHz - Bottom Side of DUT - Antenna "Closed 180°"

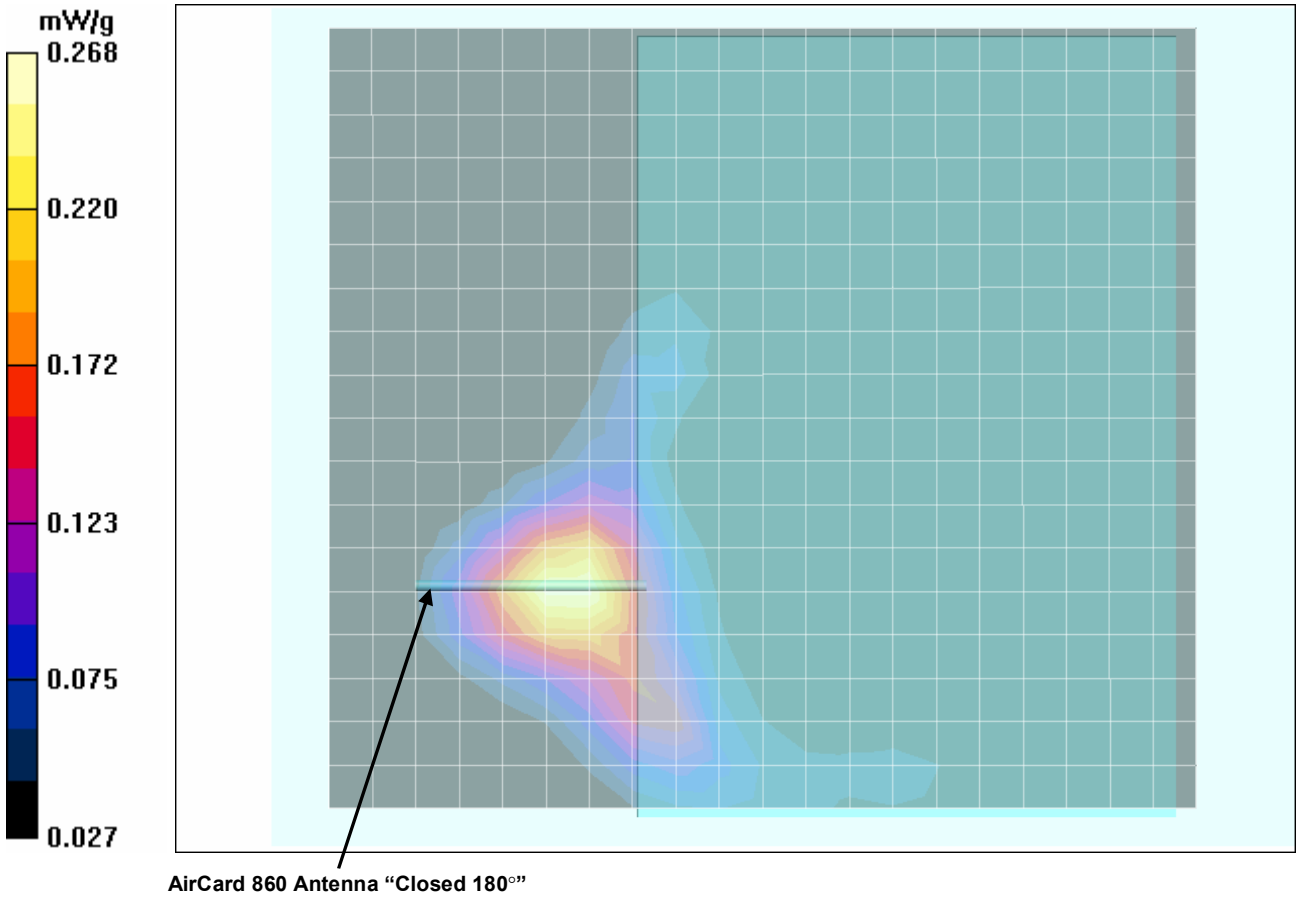
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 23.2 °C; Fluid Temp: 21.5 °C; Barometric Pressure: 102.7 kPa; Humidity: 30%

RF Output Power: 23.90 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: Cellular UMTS (WCDMA)
Frequency: 836.4 MHz; Channel 4182; Duty Cycle: 1:1
Medium: M835 (σ = 0.95 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Cellular UMTS - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 4182 - 836.4 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Cellular UMTS - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 4182 - 836.4 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 0.340 W/kg
SAR(1 g) = 0.251 mW/g; SAR(10 g) = 0.173 mW/g



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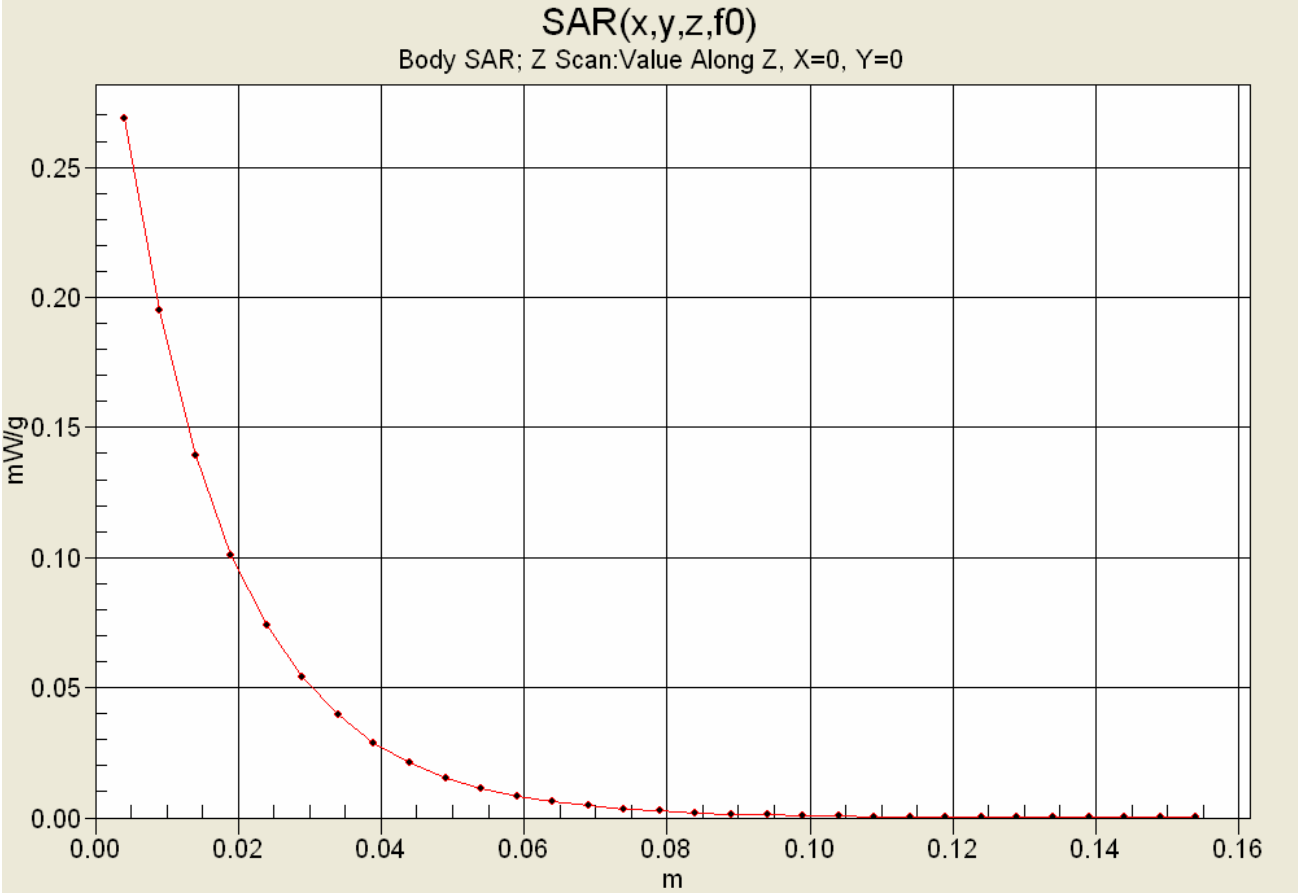
Z-Axis Scan



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Date Tested: 05/04/2006

Body SAR - PCS Band - GPRS Mode - 1880.0 MHz - Bottom Side of DUT - Antenna "Closed 180°"

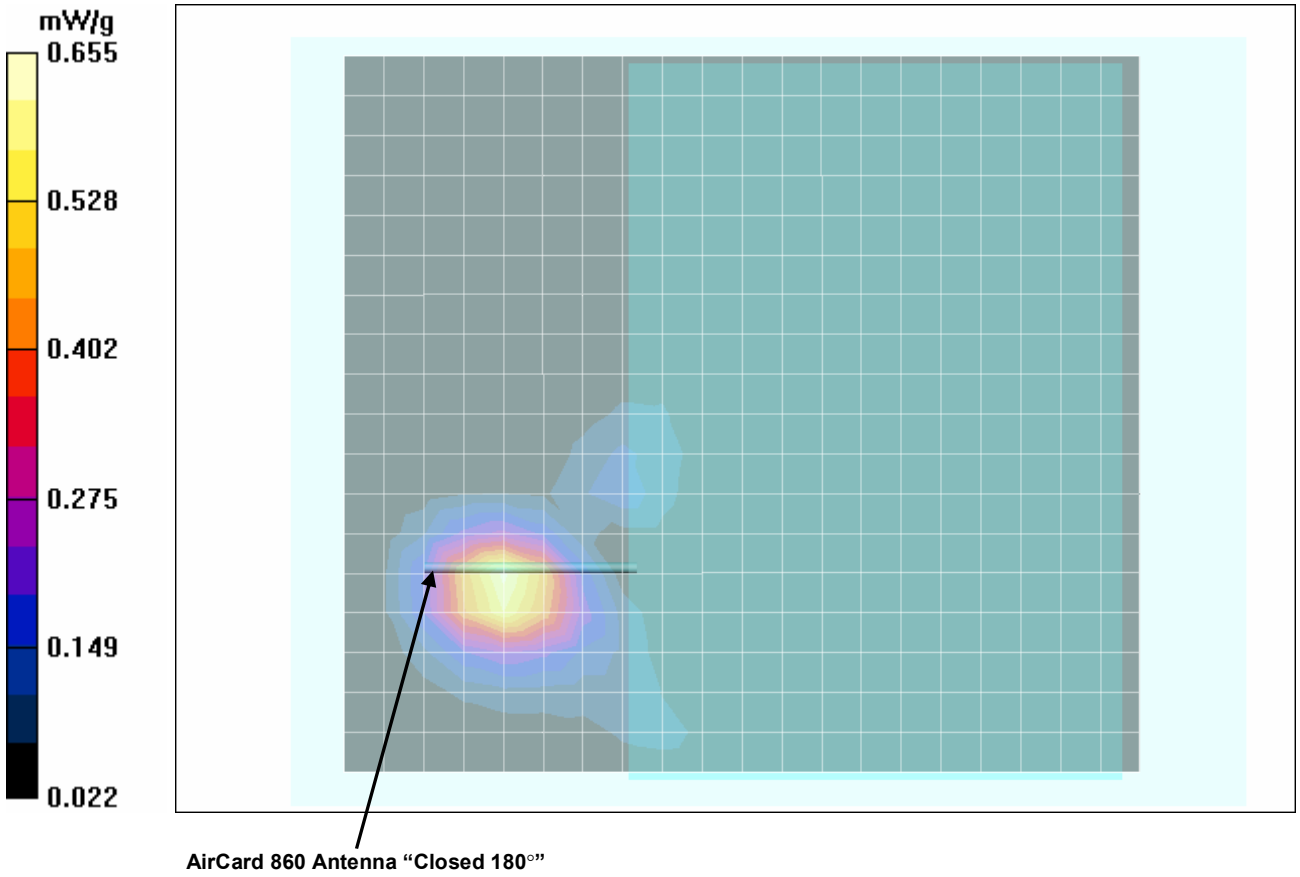
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 24.0 °C; Fluid Temp: 23.5 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

RF Output Power: 28.71 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: PCS GPRS (2 Time Slots)
Frequency: 1880.0 MHz; Channel 661; Duty Cycle: 1:4.16
Medium: M1900 (σ = 1.55 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(4.85, 4.85, 4.85); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body SAR - PCS GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 661 - 1880 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - PCS GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 661 - 1880 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.2 V/m; Power Drift = -0.135 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.624 mW/g; SAR(10 g) = 0.364 mW/g



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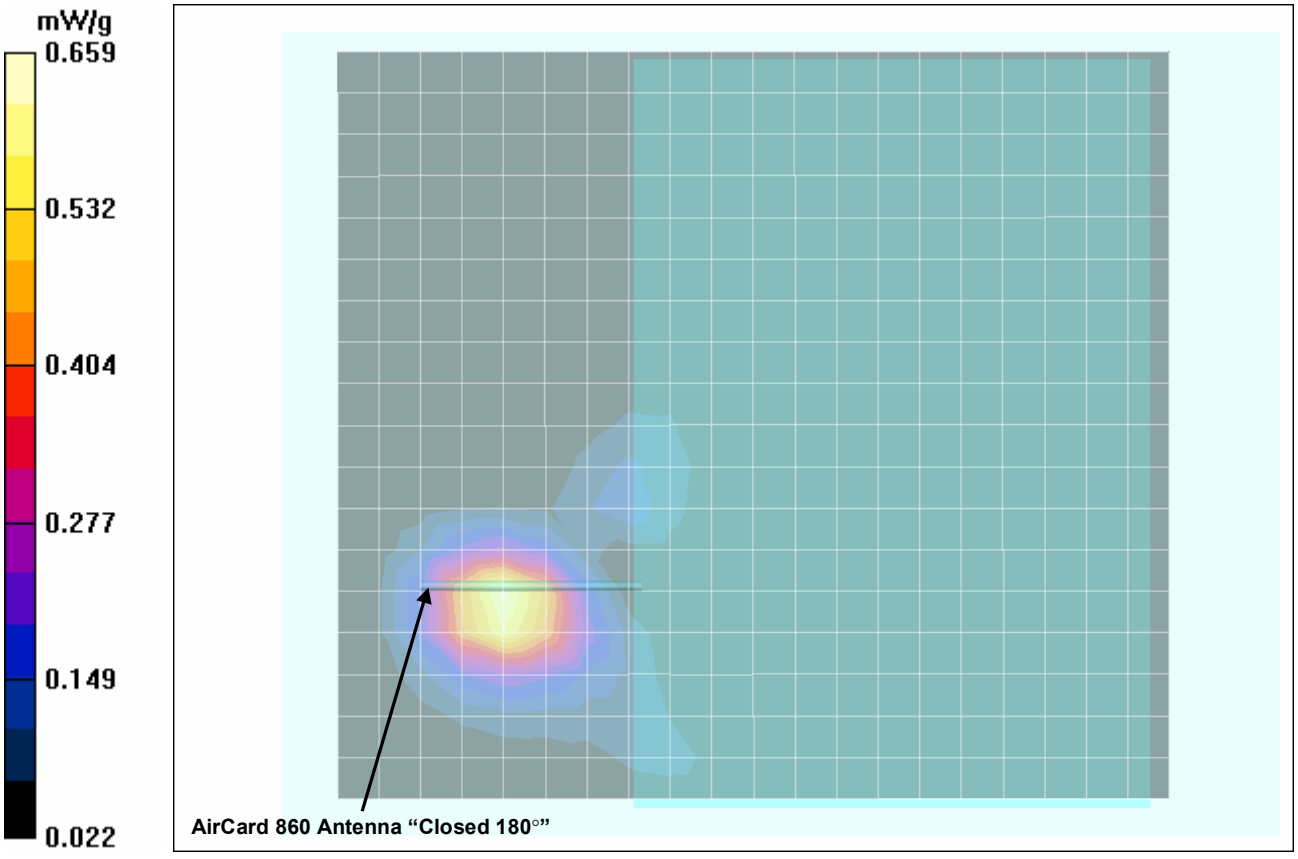
Date Tested: 05/04/2006

Body SAR - PCS Band - GPRS Mode - 1880.0 MHz - Bottom Side of DUT - Antenna "Closed 180°" Simultaneous Transmit with Co-located Bluetooth

DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784
Ambient Temp: 24.0 °C; Fluid Temp: 23.5 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%
RF Output Power: 28.71 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: PCS GPRS (2 Time Slots)
Frequency: 1880.0 MHz; Channel 661; Duty Cycle: 1:4.16
Frequency: 2441 MHz; Channel 41; Duty Cycle: 1:1 (Bluetooth)
RF Output Power: 3.60 dBm - Conducted (Bluetooth)
Medium: M1900 (σ = 1.55 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(4.85, 4.85, 4.85); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body SAR - PCS GPRS with co-transmitting Bluetooth - Bottom Side of DUT Touching Planar Phantom - Channel 661
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - PCS GPRS with co-transmitting Bluetooth - Bottom Side of DUT Touching Planar Phantom - Channel 661
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.3 V/m; Power Drift = -0.102 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.628 mW/g; SAR(10 g) = 0.366 mW/g



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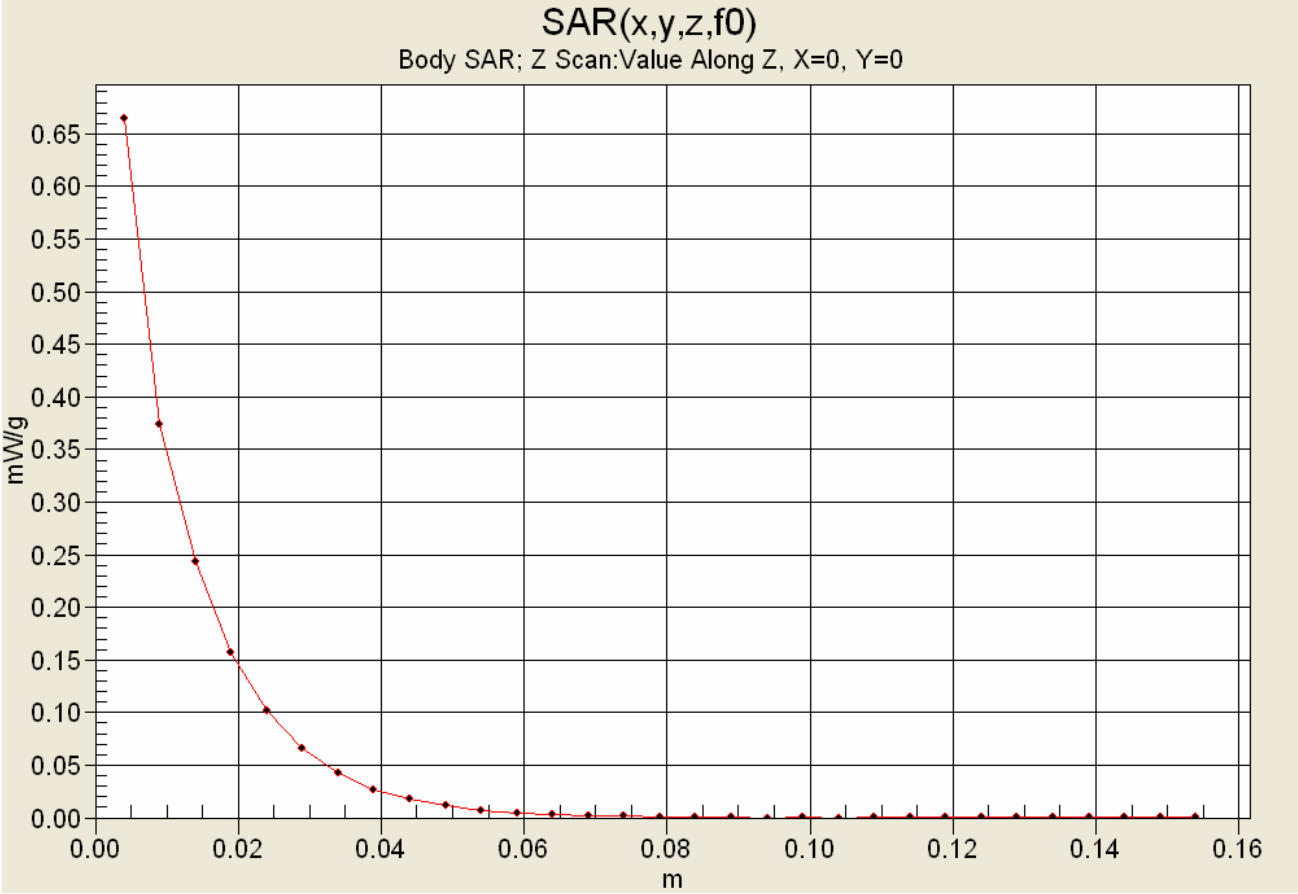
Z-Axis Scan



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Date Tested: 05/04/2006

Body SAR - PCS Band - GPRS Mode - 1880.0 MHz - Bottom Side of DUT - Antenna "Open 180°"

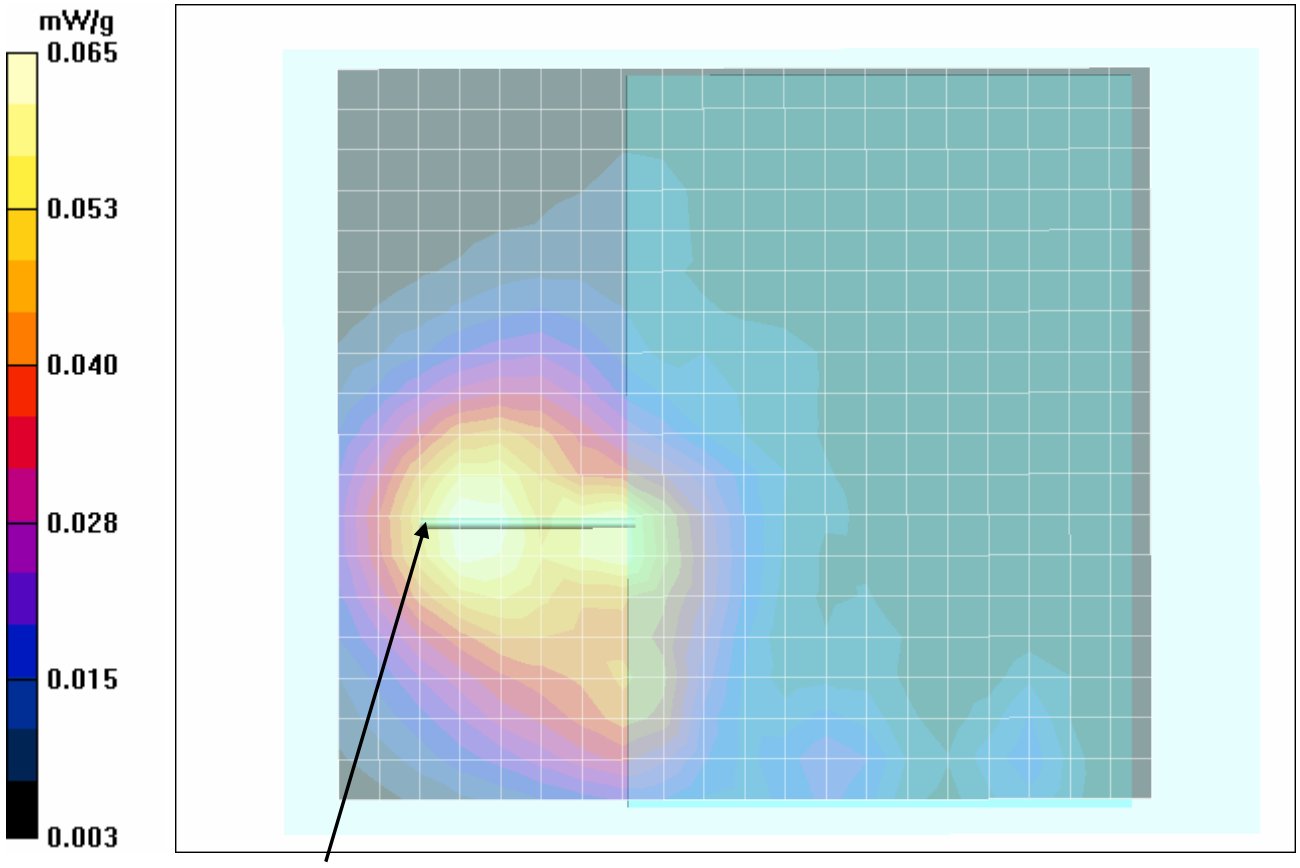
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 24.0 °C; Fluid Temp: 23.5 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

RF Output Power: 28.71 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: PCS GPRS (2 Time Slots)
Frequency: 1880.0 MHz; Channel 661; Duty Cycle: 1:4.16
Medium: M1900 (σ = 1.55 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(4.85, 4.85, 4.85); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body SAR - PCS GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Open 180 - Channel 661 - 1880 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - PCS GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Open 180 - Channel 661 - 1880 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.42 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 0.119 W/kg
SAR(1 g) = 0.0626 mW/g; SAR(10 g) = 0.040 mW/g



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Date Tested: 05/04/2006

Body SAR - PCS Band - GPRS Mode - 1880.0 MHz - Bottom Side of DUT - Antenna "Open 90°"

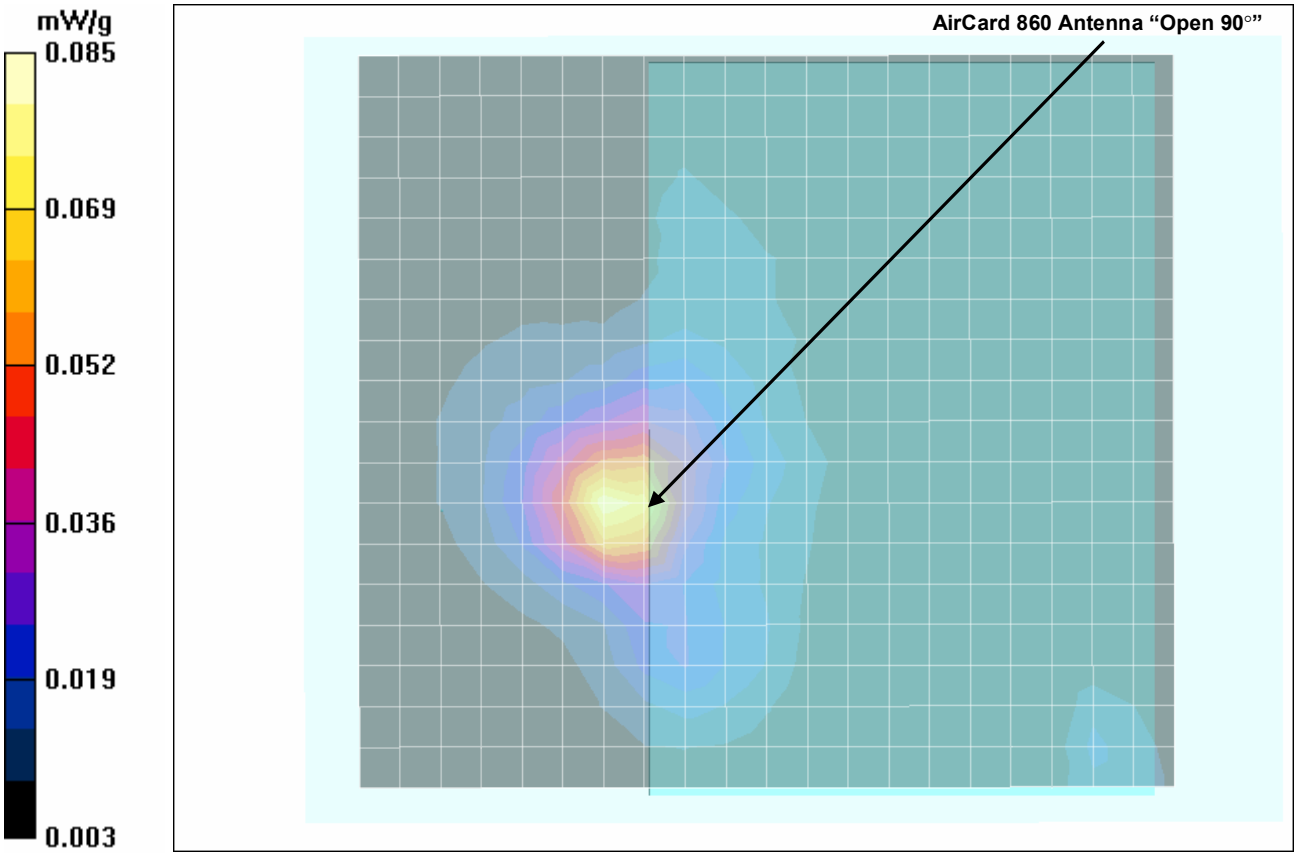
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 24.0 °C; Fluid Temp: 23.5 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

RF Output Power: 28.71 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: PCS GPRS (2 Time Slots)
Frequency: 1880.0 MHz; Channel 661; Duty Cycle: 1:4.16
Medium: M1900 (σ = 1.55 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(4.85, 4.85, 4.85); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body SAR - PCS GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Open 90 - Channel 661 - 1880 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - PCS GPRS - Bottom Side of DUT Touching Planar Phantom - Antenna Open 90 - Channel 661 - 1880 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.20 V/m; Power Drift = -0.040 dB
Peak SAR (extrapolated) = 0.159 W/kg
SAR(1 g) = 0.0806 mW/g; SAR(10 g) = 0.047 mW/g



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Date Tested: 05/04/2006

Body SAR - PCS Band - EDGE Mode - 1880.0 MHz - Bottom Side of DUT - Antenna "Closed 180°"

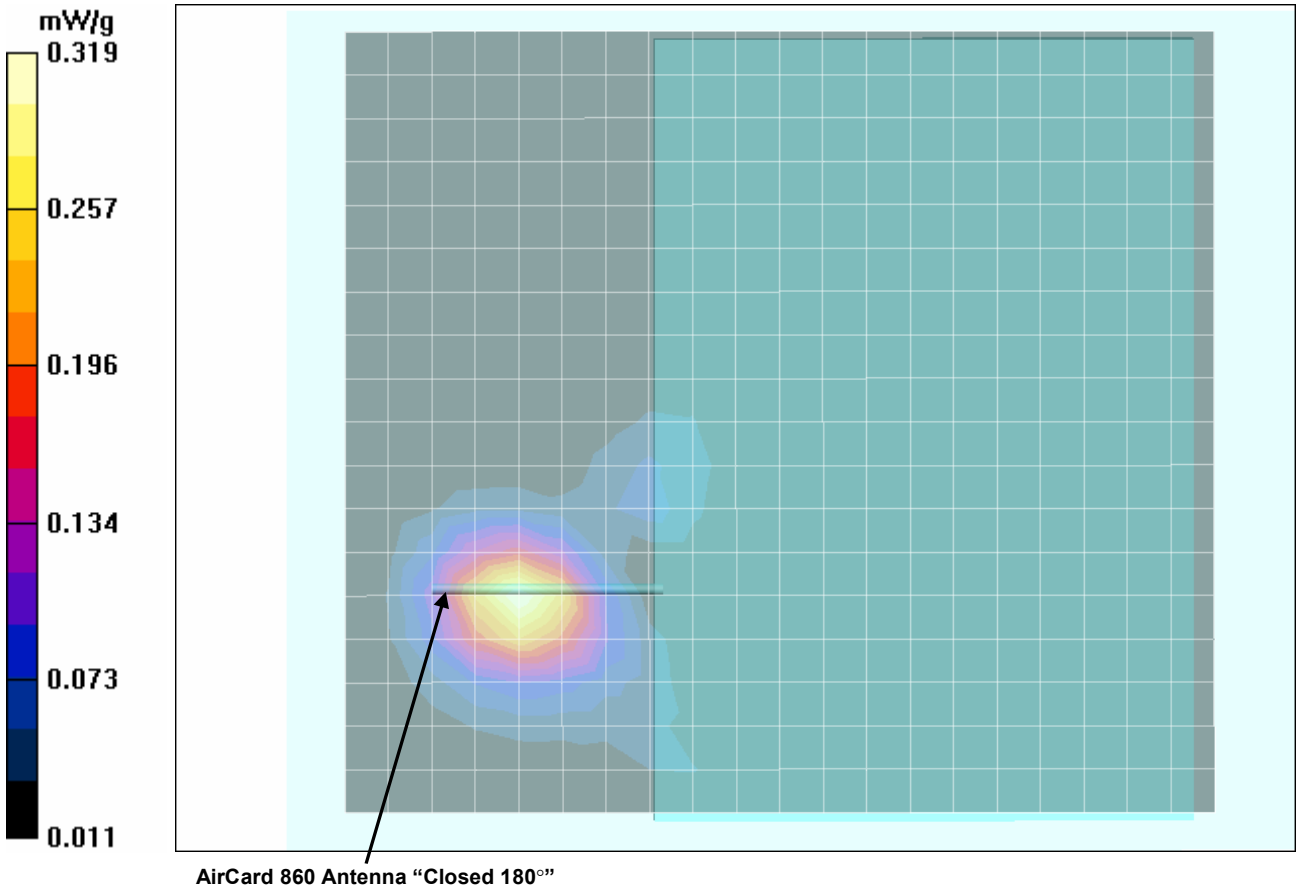
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 24.0 °C; Fluid Temp: 23.5 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

RF Output Power: 25.72 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: PCS EDGE (2 Time Slots)
Frequency: 1880.0 MHz; Channel 661; Duty Cycle: 1:4.16
Medium: M1900 (σ = 1.55 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(4.85, 4.85, 4.85); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - PCS EDGE - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 661 - 1880 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - PCS EDGE - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 661 - 1880 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 0.601 W/kg
SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.180 mW/g



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Date Tested: 05/11/2006

Body SAR - PCS Band - UMTS Mode - 1880.0 MHz - Bottom Side of DUT - Antenna "Closed 180°"

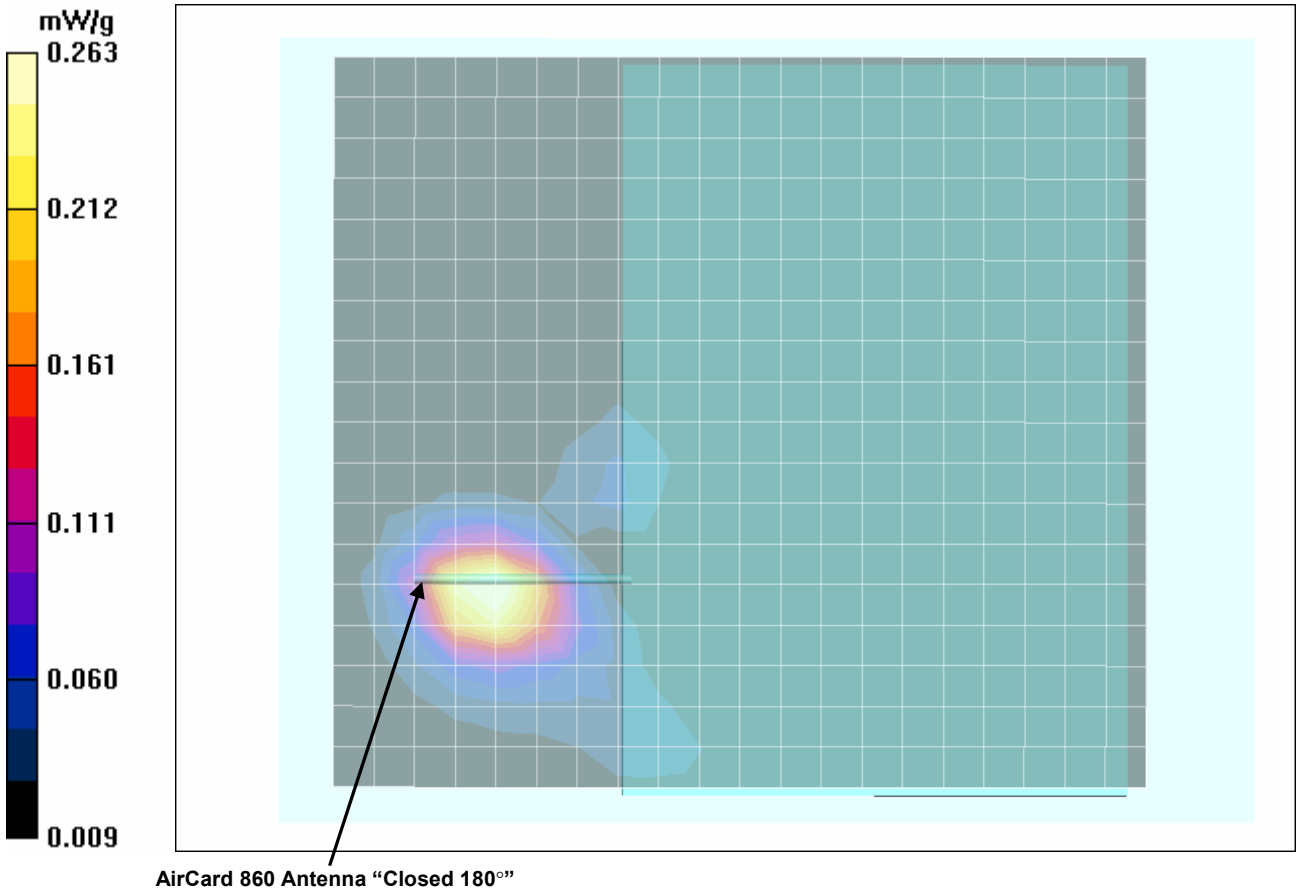
DUT: Itronix Model: IX325-AC860BT; Type: Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS; Serial: ZZGEG5073ZZ9784

Ambient Temp: 24.3 °C; Fluid Temp: 23.7 °C; Barometric Pressure: 102.9 kPa; Humidity: 30%

RF Output Power: 23.00 dBm (Conducted)
11.1V, 3600mAh Lithium-ion Battery (Model: T8M-E)
Communication System: PCS UMTS (WCDMA)
Frequency: 1880 MHz; Channel 9400; Duty Cycle: 1:1
Medium: M1880 (σ = 1.46 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(4.85, 4.85, 4.85); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - PCS UMTS - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 9400 - 1880 MHz
Area Scan (19x21x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - PCS UMTS - Bottom Side of DUT Touching Planar Phantom - Antenna Closed 180 - Channel 9400 - 1880 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = -0.207 dB
Peak SAR (extrapolated) = 0.503 W/kg
SAR(1 g) = 0.252 mW/g; SAR(10 g) = 0.148 mW/g



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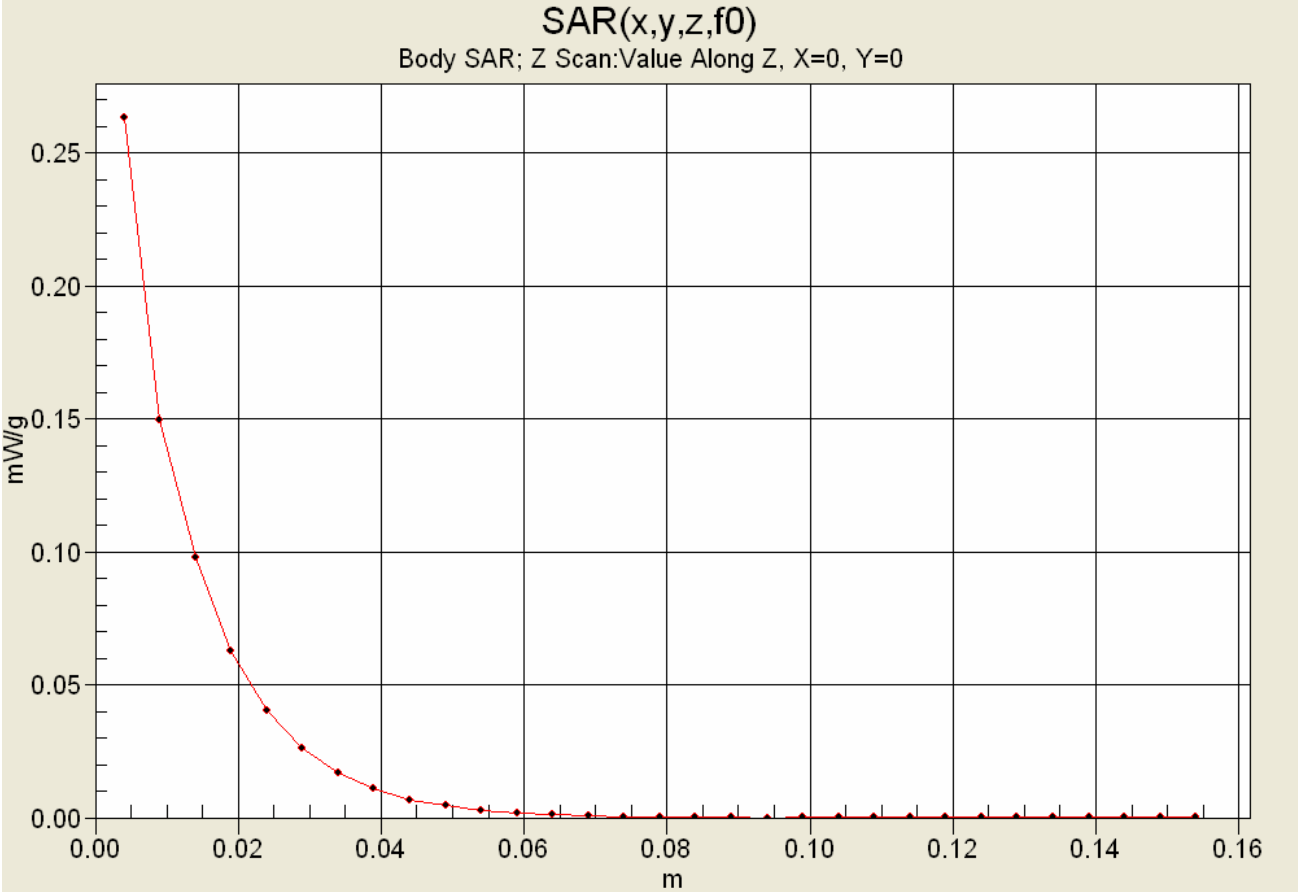
Z-Axis Scan



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APPENDIX B - SYSTEM PERFORMANCE CHECK DATA

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Date Tested: 05/01/2006

System Performance Check (Body) - 835 MHz Dipole

DUT: Dipole 835 MHz; Model: D835V2; Type: System Performance Check; Serial: 411; Validation: 03/27/2006

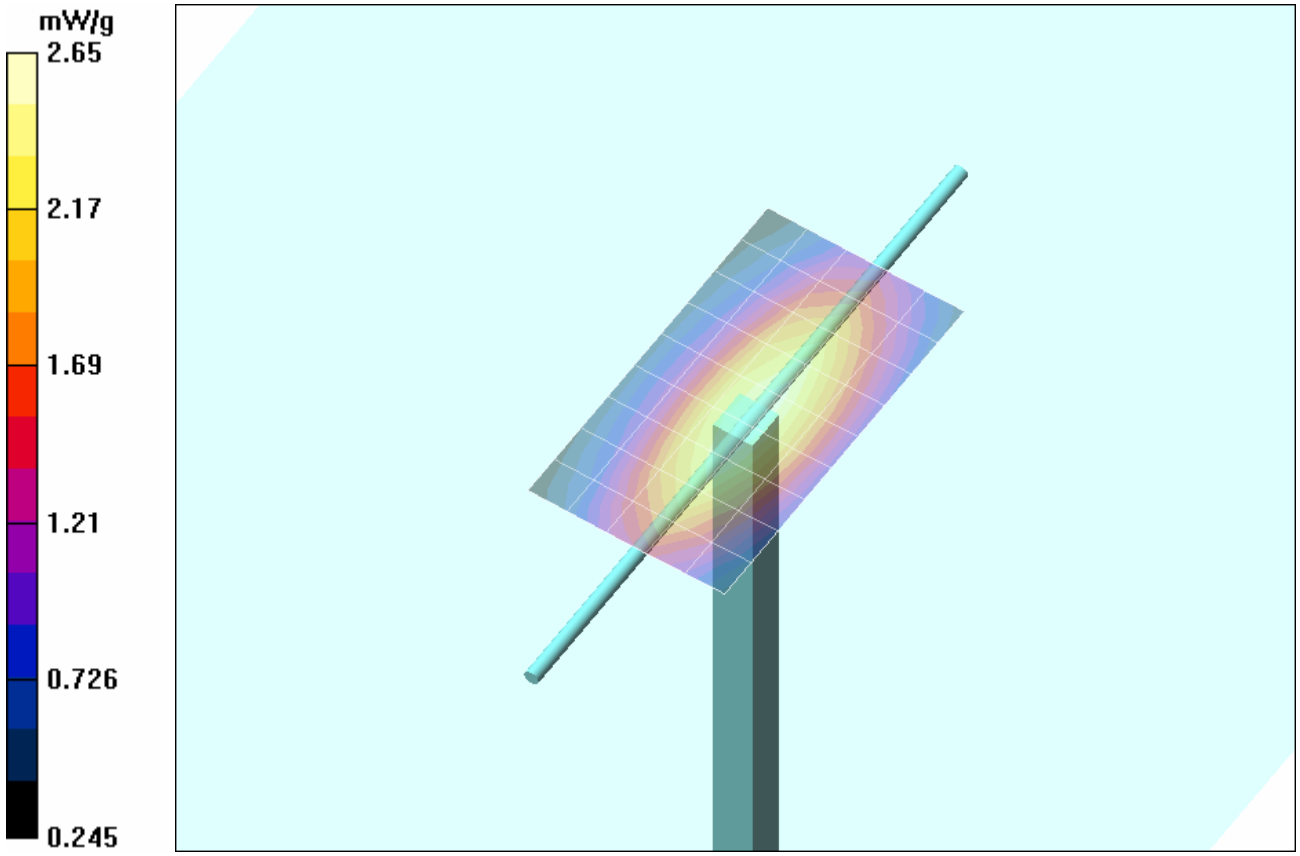
Ambient Temp: 25.5 °C; Fluid Temp: 22.8 °C; Barometric Pressure: 101.8 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: M835 (σ = 0.96 mho/m; ε_r = 53.0; ρ = 1000 kg/m^3)

- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

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

835 MHz Dipole - System Performance Check/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.8 V/m; Power Drift = -0.047 dB
Peak SAR (extrapolated) = 3.58 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.61 mW/g



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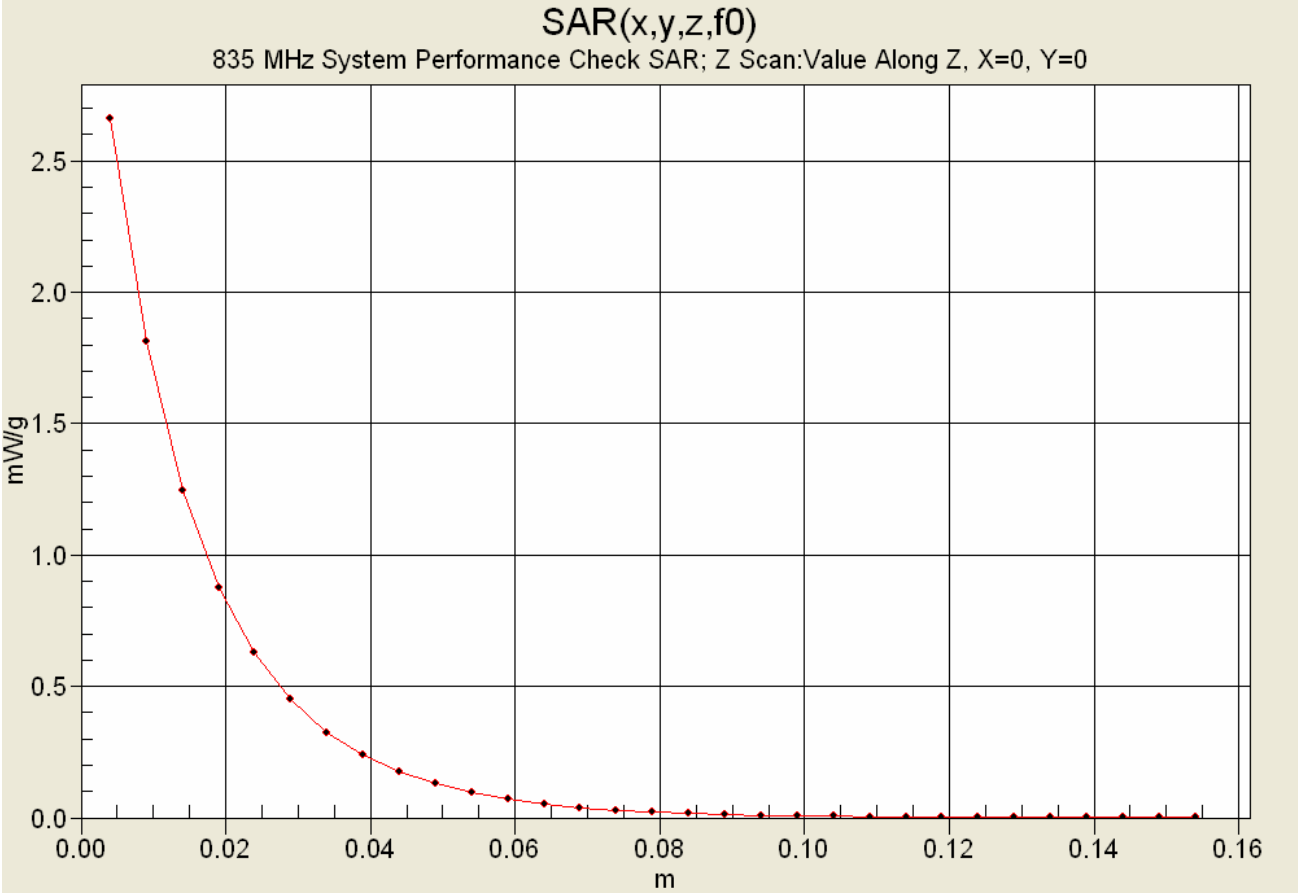
Z-Axis Scan



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Date Tested: 05/03/2006

System Performance Check (Body) - 835 MHz Dipole

DUT: Dipole 835 MHz; Model: D835V2; Type: System Performance Check; Serial: 411; Validation: 03/27/2006

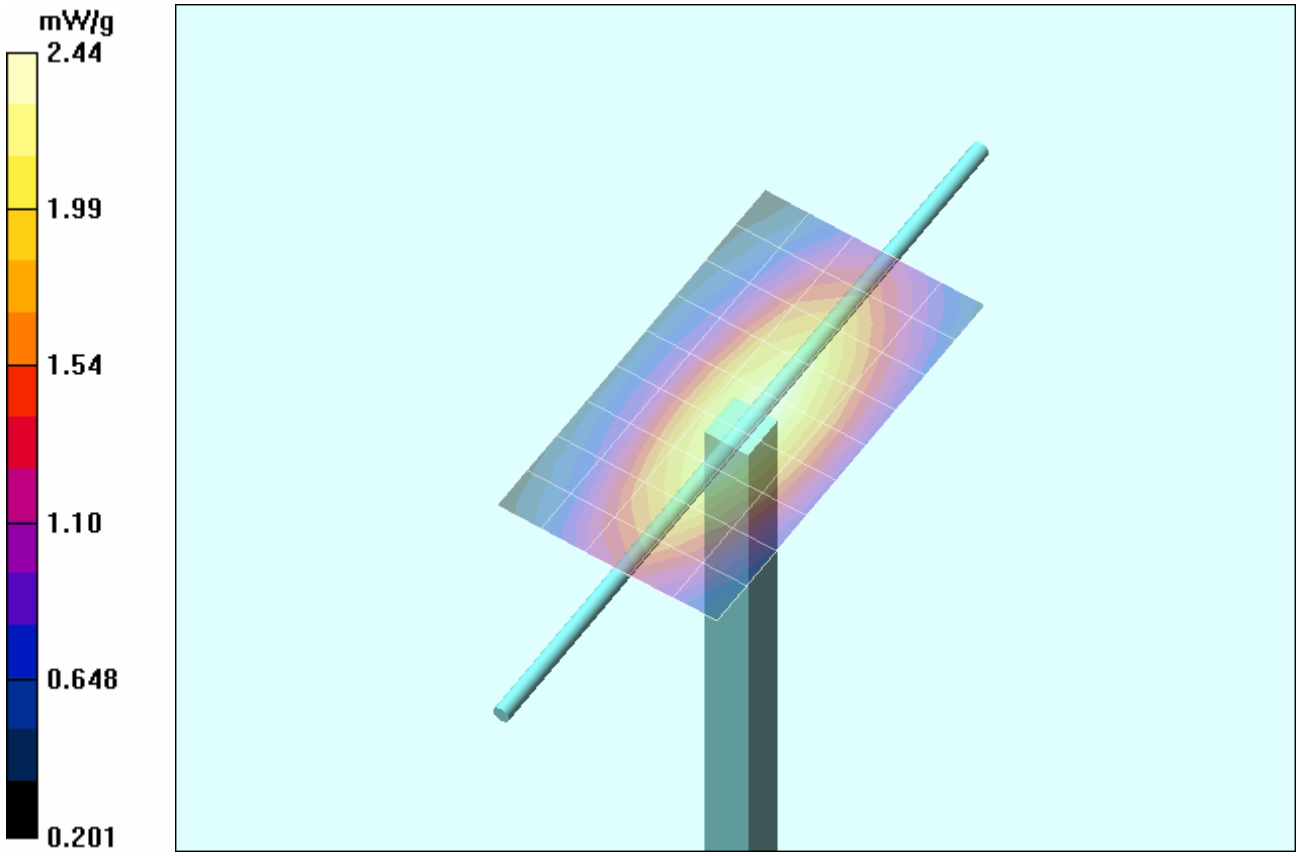
Ambient Temp: 22.5 °C; Fluid Temp: 22.0 °C; Barometric Pressure: 102.9 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: M835 (σ = 0.97 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3)

- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

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

835 MHz Dipole - System Performance Check/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.8 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 3.24 W/kg
SAR(1 g) = 2.24 mW/g; SAR(10 g) = 1.47 mW/g



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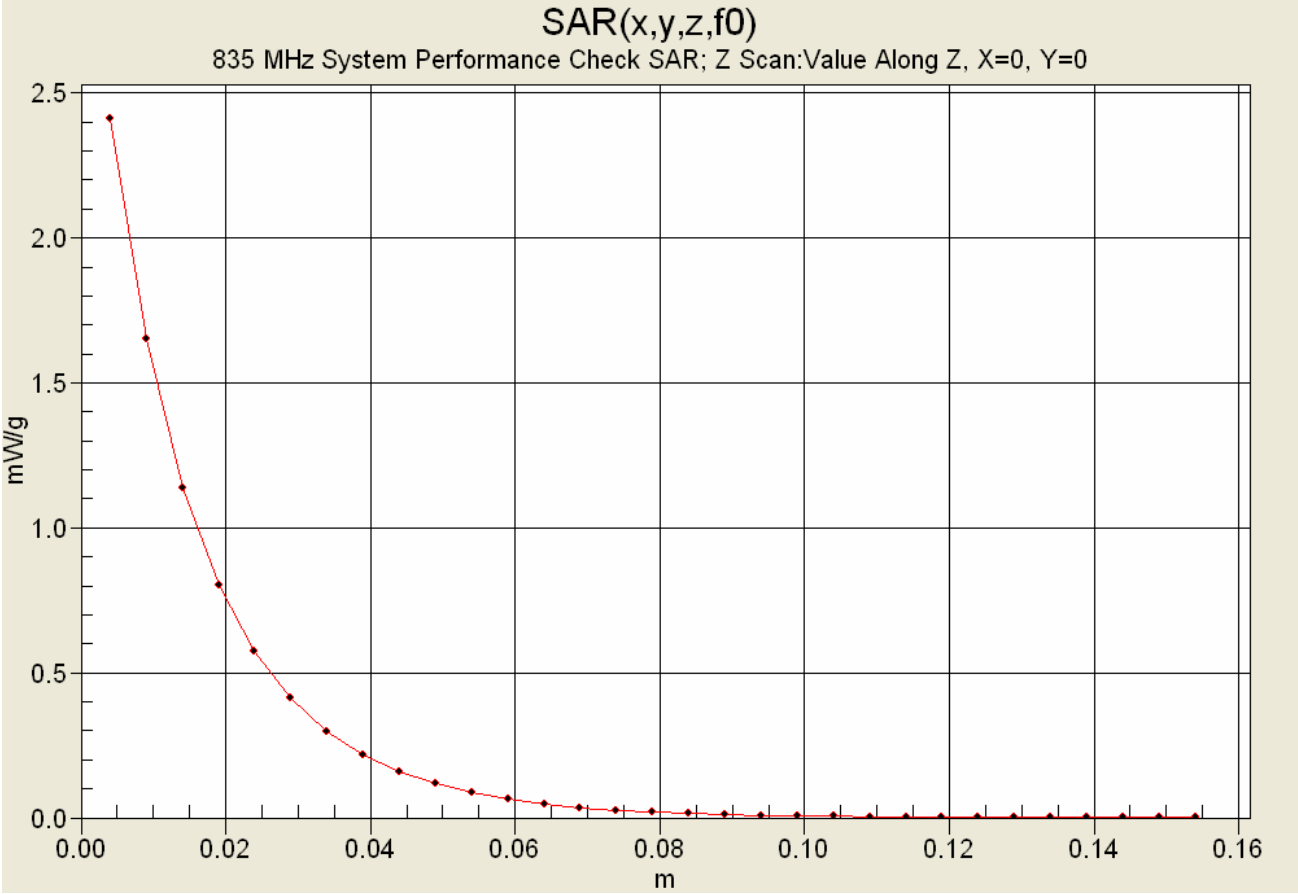
Z-Axis Scan


SAR(x,y,z,f0)
835 MHz System Performance Check SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Date Tested: 05/04/2006

System Performance Check (Body) - 1900 MHz Dipole

DUT: Dipole 1900 MHz; Model: D1900V2; Type: System Performance Check; Serial: 151; Validation: 04/25/2006

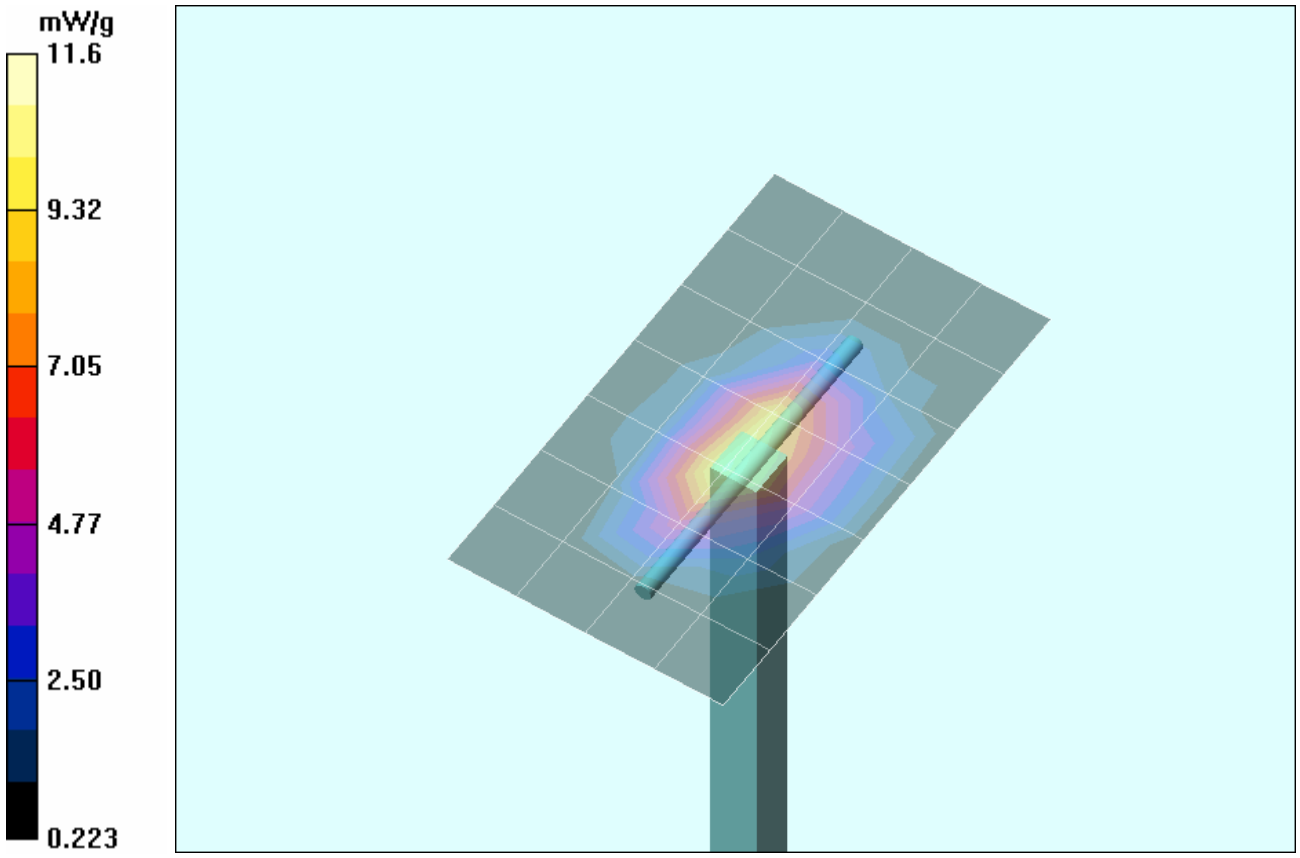
Ambient Temp: 24.0 °C; Fluid Temp: 23.5 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 (σ = 1.56 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3)

- Probe: ET3DV6 - SN1590; ConvF(4.85, 4.85, 4.85); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

1900 MHz Dipole - System Performance Check/Area Scan (5x8x1):
Measurement grid: dx=15mm, dy=15mm

1900 MHz Dipole - System Performance Check/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.1 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 17.7 W/kg
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.42 mW/g



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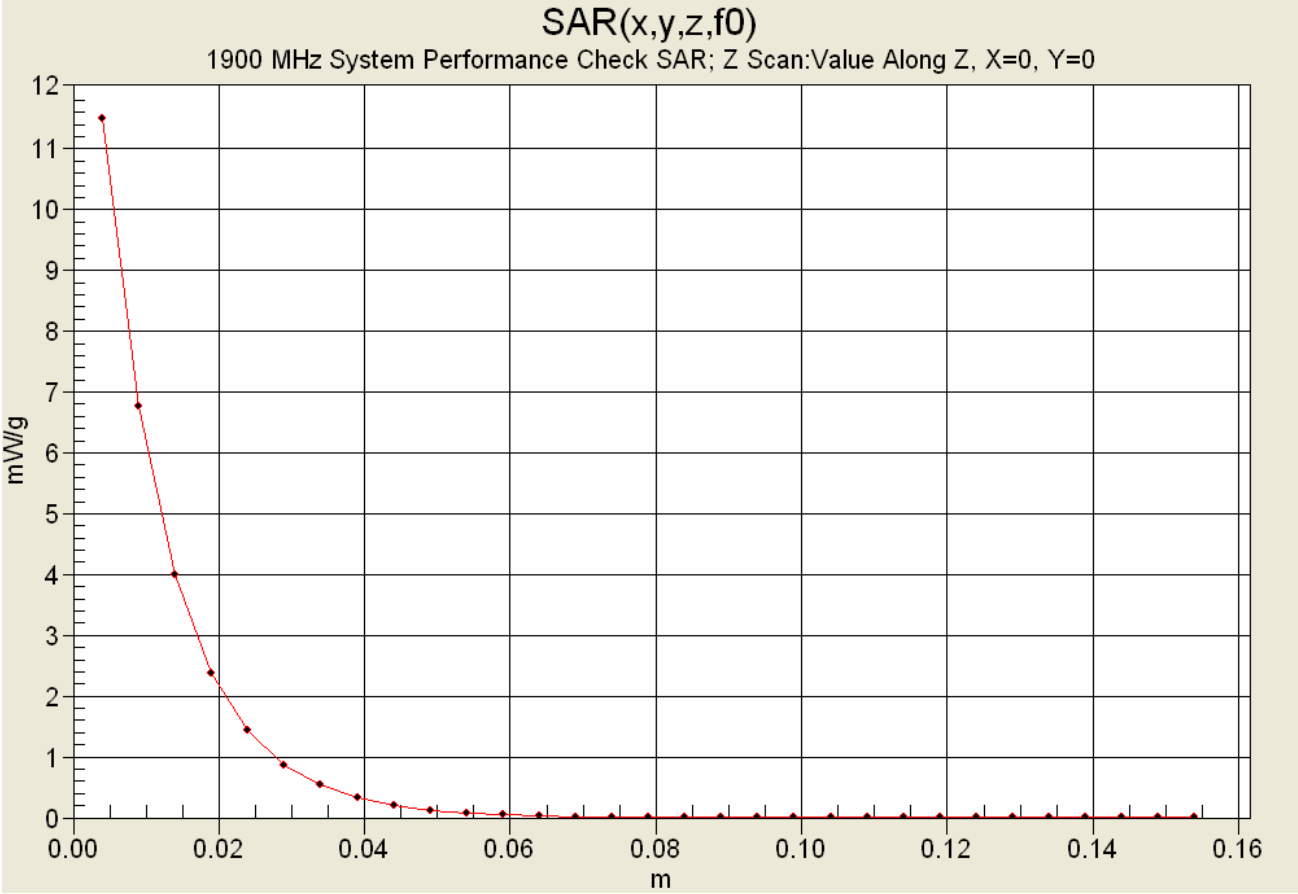
Z-Axis Scan



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Date Tested: 05/11//2006

System Performance Check (Body) - 835 MHz Dipole

DUT: Dipole 835 MHz; Model: D835V2; Type: System Performance Check; Serial: 411; Validation: 03/27/2006

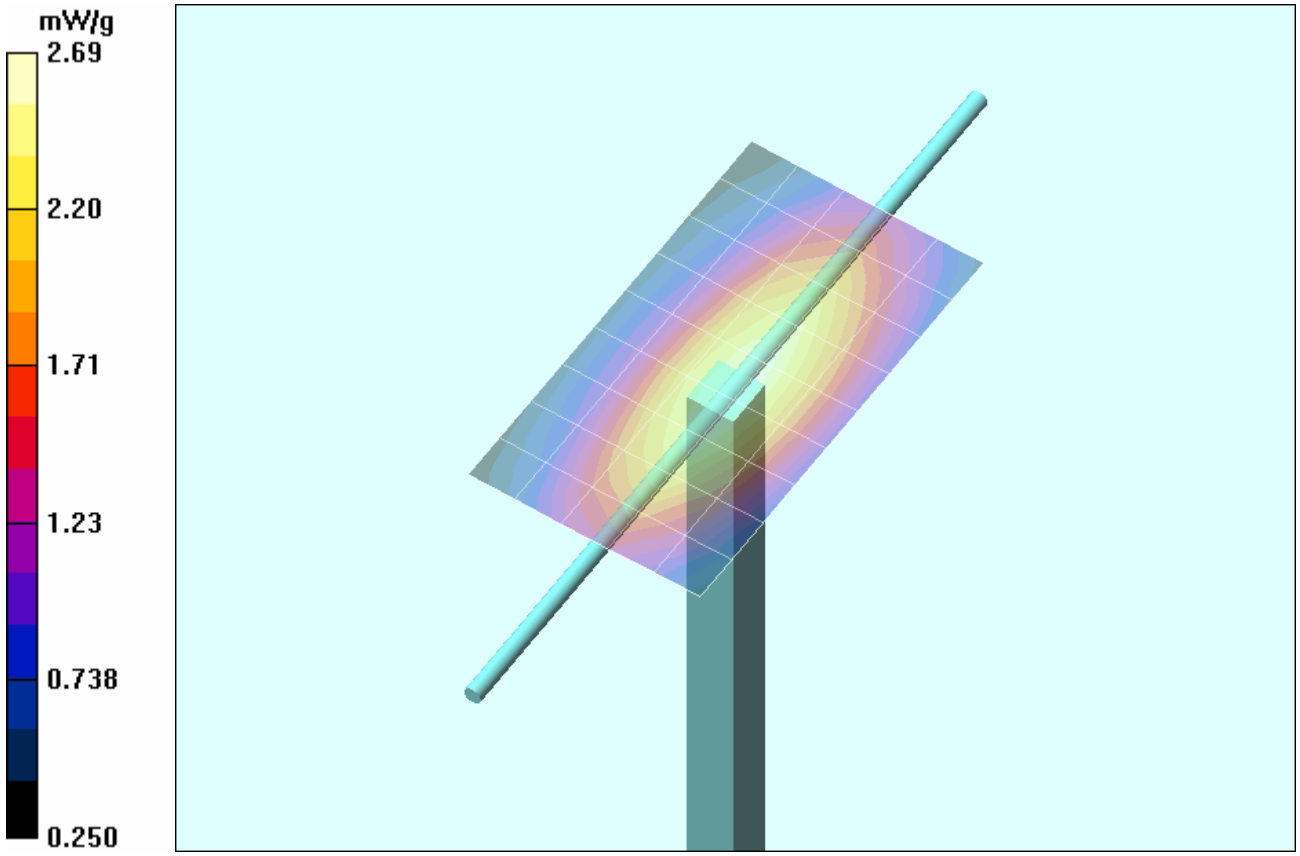
Ambient Temp: 23.2 °C; Fluid Temp: 21.5 °C; Barometric Pressure: 102.7 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: M835 (σ = 0.95 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3)

- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 171

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

835 MHz Dipole - System Performance Check/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.3 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 3.63 W/kg
SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.63 mW/g



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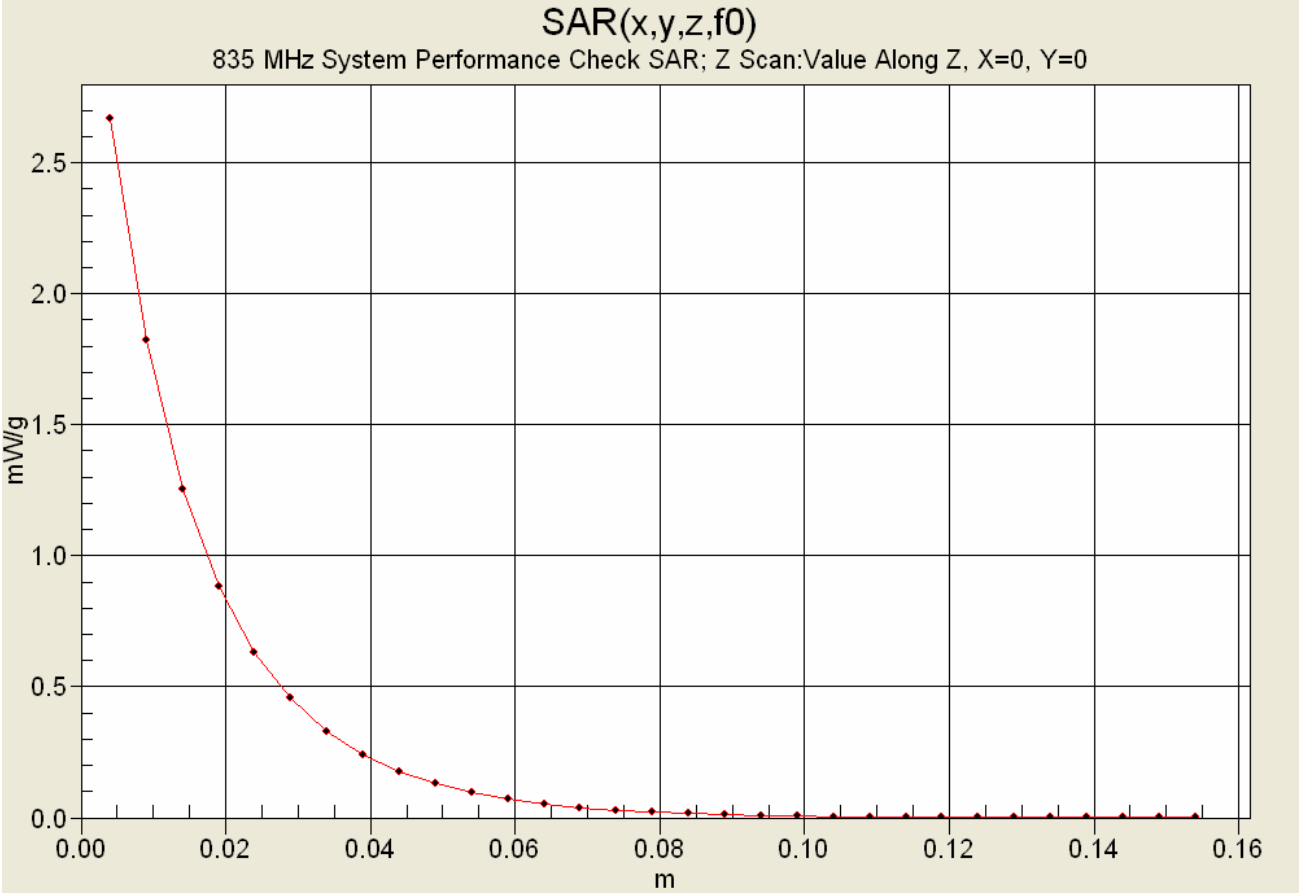
Z-Axis Scan


SAR(x,y,z,f0)
835 MHz System Performance Check SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Date Tested: 05/11/2006

System Performance Check (Body) - 1900 MHz Dipole

DUT: Dipole 1900 MHz; Model: D1900V2; Type: System Performance Check; Serial: 151; Validation: 04/25/2006

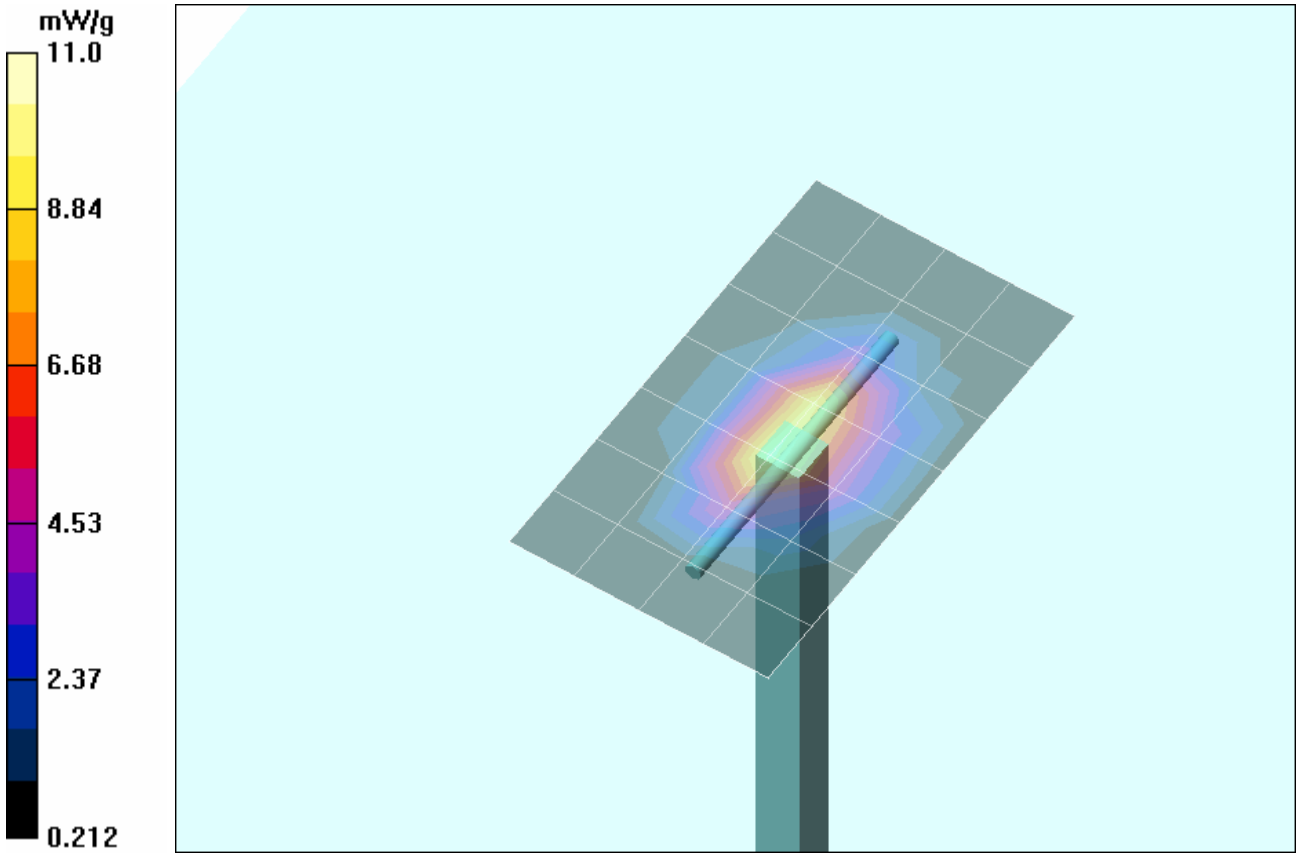
Ambient Temp: 24.3 °C; Fluid Temp: 23.7 °C; Barometric Pressure: 102.9 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 (σ = 1.47 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3)

- Probe: ET3DV6 - SN1590; ConvF(4.85, 4.85, 4.85); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

1900 MHz Dipole - System Performance Check/Area Scan (5x8x1):
Measurement grid: dx=15mm, dy=15mm

1900 MHz Dipole - System Performance Check/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.3 V/m; Power Drift = -0.047 dB
Peak SAR (extrapolated) = 16.9 W/kg
SAR(1 g) = 9.71 mW/g; SAR(10 g) = 5.13 mW/g



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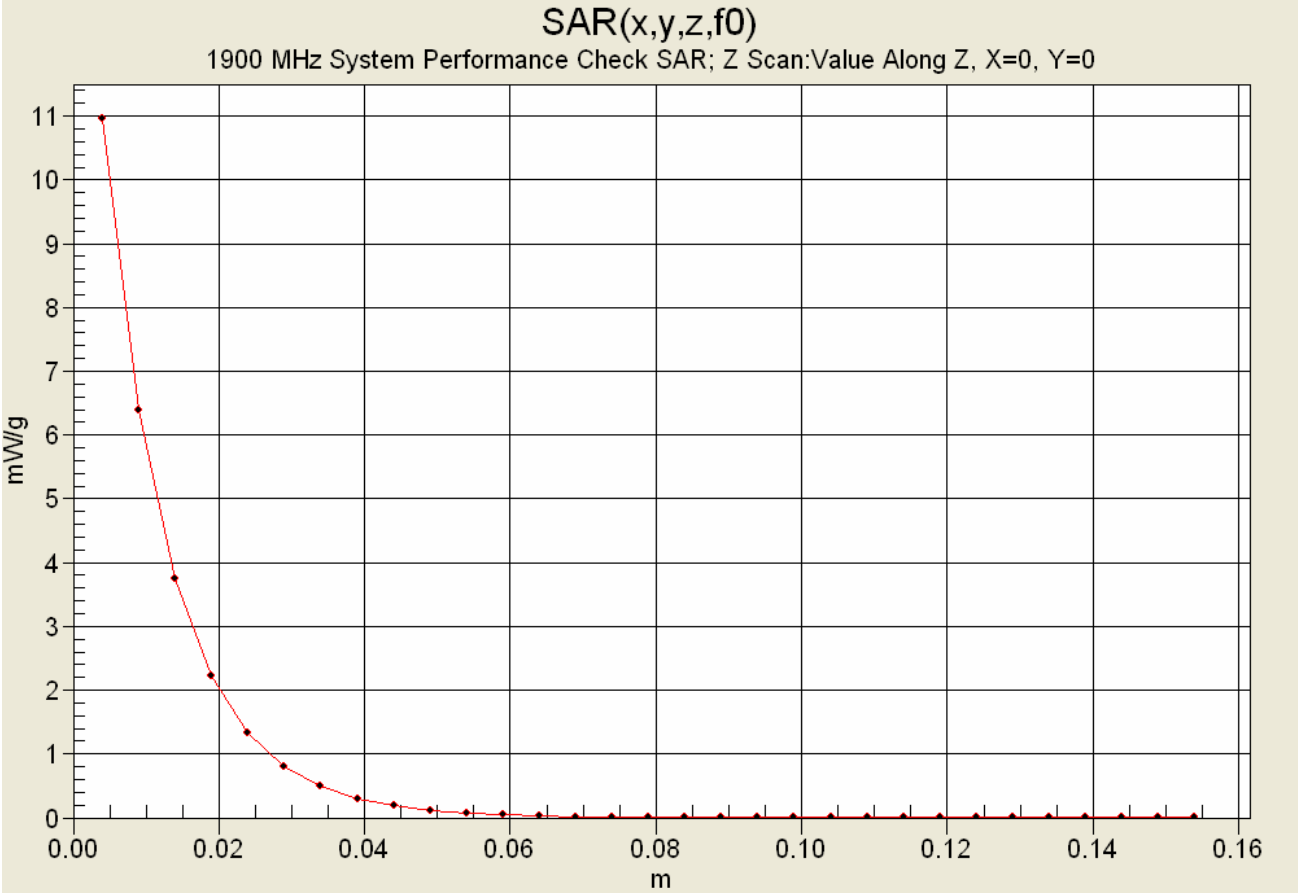
Z-Axis Scan



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APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

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835 MHz System Performance Check (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 01/May/2006
Frequency (GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.7350	55.59	0.96	53.78	0.87
0.7450	55.55	0.96	53.76	0.88
0.7550	55.51	0.96	53.70	0.88
0.7650	55.47	0.96	53.71	0.89
0.7750	55.43	0.97	53.43	0.91
0.7850	55.39	0.97	53.44	0.92
0.7950	55.36	0.97	53.49	0.92
0.8050	55.32	0.97	53.34	0.93
0.8150	55.28	0.97	53.33	0.94
0.8250	55.24	0.97	53.20	0.95
0.8350	55.20	0.97	52.99	0.96
0.8450	55.17	0.98	53.08	0.97
0.8550	55.14	0.99	52.87	0.98
0.8650	55.11	1.01	52.82	0.99
0.8750	55.08	1.02	52.63	0.99
0.8850	55.05	1.03	52.55	1.00
0.8950	55.02	1.04	52.61	1.02
0.9050	55.00	1.05	52.46	1.02
0.9150	55.00	1.06	52.35	1.03
0.9250	54.98	1.06	52.25	1.04
0.9350	54.96	1.07	52.20	1.05

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835 MHz DUT Evaluation (Body)

****

Celltech Labs Inc
Test Result for UIM Dielectric Parameter
Tue 02/May/2006
Frequency (GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.7350	55.59	0.96	54.21	0.86
0.7450	55.55	0.96	53.90	0.87
0.7550	55.51	0.96	53.87	0.87
0.7650	55.47	0.96	53.75	0.88
0.7750	55.43	0.97	53.63	0.88
0.7850	55.39	0.97	53.47	0.89
0.7950	55.36	0.97	53.51	0.91
0.8050	55.32	0.97	53.32	0.92
0.8150	55.28	0.97	53.34	0.92
0.8250	55.24	0.97	53.23	0.94
0.8350	55.20	0.97	53.18	0.95
0.8450	55.17	0.98	53.10	0.96
0.8550	55.14	0.99	52.97	0.96
0.8650	55.11	1.01	52.96	0.97
0.8750	55.08	1.02	52.97	0.98
0.8850	55.05	1.03	52.81	0.98
0.8950	55.02	1.04	52.69	1.00
0.9050	55.00	1.05	52.69	1.00
0.9150	55.00	1.06	52.59	1.01
0.9250	54.98	1.06	52.34	1.02
0.9350	54.96	1.07	52.47	1.03

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835 MHz System Performance Check & DUT Evaluation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Wed 03/May/2006
Frequency (GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.7350	55.59	0.96	53.88	0.87
0.7450	55.55	0.96	53.95	0.88
0.7550	55.51	0.96	53.82	0.89
0.7650	55.47	0.96	53.69	0.90
0.7750	55.43	0.97	53.53	0.91
0.7850	55.39	0.97	53.59	0.92
0.7950	55.36	0.97	53.44	0.93
0.8050	55.32	0.97	53.35	0.94
0.8150	55.28	0.97	53.29	0.95
0.8250	55.24	0.97	53.24	0.97
0.8350	55.20	0.97	53.14	0.97
0.8450	55.17	0.98	52.99	0.98
0.8550	55.14	0.99	52.73	0.99
0.8650	55.11	1.01	52.66	1.01
0.8750	55.08	1.02	52.69	1.02
0.8850	55.05	1.03	52.50	1.02
0.8950	55.02	1.04	52.41	1.03
0.9050	55.00	1.05	52.26	1.05
0.9150	55.00	1.06	52.22	1.06
0.9250	54.98	1.06	52.05	1.06
0.9350	54.96	1.07	52.06	1.07

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1900 MHz System Performance Check & 1880 MHz DUT Evaluation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Thu 04/May/2006
Frequency (GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
1.8000	53.30	1.52	51.84	1.47
1.8100	53.30	1.52	51.88	1.47
1.8200	53.30	1.52	51.79	1.47
1.8300	53.30	1.52	51.64	1.49
1.8400	53.30	1.52	51.67	1.51
1.8500	53.30	1.52	51.71	1.52
1.8600	53.30	1.52	51.64	1.52
1.8700	53.30	1.52	51.60	1.54
1.8800	53.30	1.52	51.45	1.55
1.8900	53.30	1.52	51.44	1.56
1.9000	53.30	1.52	51.50	1.56
1.9100	53.30	1.52	51.35	1.57
1.9200	53.30	1.52	51.38	1.60
1.9300	53.30	1.52	51.32	1.60
1.9400	53.30	1.52	51.22	1.61
1.9500	53.30	1.52	51.22	1.61
1.9600	53.30	1.52	51.19	1.63
1.9700	53.30	1.52	51.13	1.64
1.9800	53.30	1.52	51.22	1.65
1.9900	53.30	1.52	51.12	1.66
2.0000	53.30	1.52	51.08	1.67

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835 MHz System Performance Check & DUT Evaluation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Thu 11/May/2006
Frequency (GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.7350	55.59	0.96	53.54	0.86
0.7450	55.55	0.96	53.37	0.88
0.7550	55.51	0.96	53.35	0.88
0.7650	55.47	0.96	53.30	0.89
0.7750	55.43	0.97	53.34	0.90
0.7850	55.39	0.97	52.91	0.91
0.7950	55.36	0.97	52.73	0.92
0.8050	55.32	0.97	52.73	0.93
0.8150	55.28	0.97	52.60	0.93
0.8250	55.24	0.97	52.55	0.95
0.8350	55.20	0.97	52.68	0.95
0.8450	55.17	0.98	52.54	0.96
0.8550	55.14	0.99	52.33	0.98
0.8650	55.11	1.01	52.36	0.99
0.8750	55.08	1.02	52.10	0.99
0.8850	55.05	1.03	52.11	1.00
0.8950	55.02	1.04	51.94	1.01
0.9050	55.00	1.05	51.89	1.02
0.9150	55.00	1.06	51.75	1.03
0.9250	54.98	1.06	51.57	1.04
0.9350	54.96	1.07	51.56	1.05

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1900 MHz System Performance Check & 1880 MHz DUT Evaluation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Thu 11/May/2006
Frequency (GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
1.8000	53.30	1.52	51.51	1.38
1.8100	53.30	1.52	51.53	1.39
1.8200	53.30	1.52	51.37	1.39
1.8300	53.30	1.52	51.40	1.41
1.8400	53.30	1.52	51.24	1.41
1.8500	53.30	1.52	51.29	1.43
1.8600	53.30	1.52	51.34	1.43
1.8700	53.30	1.52	51.24	1.44
1.8800	53.30	1.52	51.21	1.46
1.8900	53.30	1.52	51.25	1.46
1.9000	53.30	1.52	51.13	1.47
1.9100	53.30	1.52	51.08	1.48
1.9200	53.30	1.52	51.19	1.49
1.9300	53.30	1.52	51.06	1.50
1.9400	53.30	1.52	51.01	1.51
1.9500	53.30	1.52	51.09	1.53
1.9600	53.30	1.52	51.08	1.53
1.9700	53.30	1.52	51.02	1.54
1.9800	53.30	1.52	50.95	1.56
1.9900	53.30	1.52	50.95	1.57
2.0000	53.30	1.52	50.90	1.58

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APPENDIX D - SAR TEST SETUP PHOTOGRAPHS

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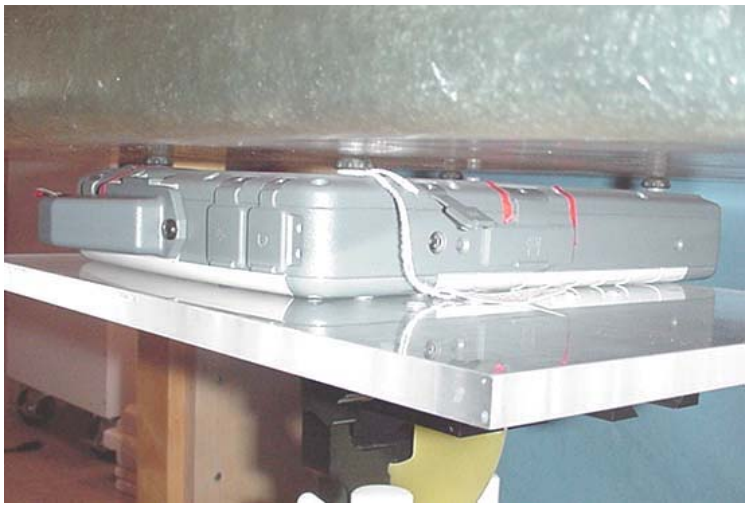
BODY SAR TEST SETUP PHOTOGRAPHS

0.0 cm Separation Distance from Bottom of DUT to Planar Phantom
AirCard 860 Antenna "Closed 180°"



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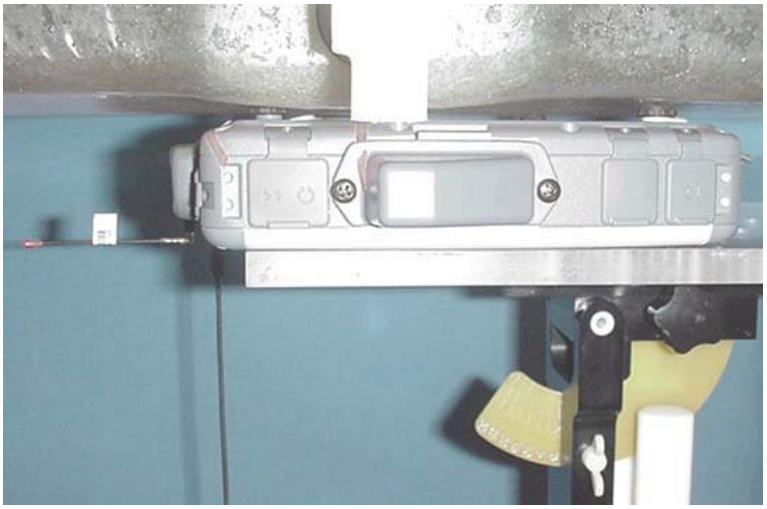
BODY SAR TEST SETUP PHOTOGRAPHS

0.0 cm Separation Distance from Bottom of DUT to Planar Phantom
AirCard 860 Antenna "Open 180°"



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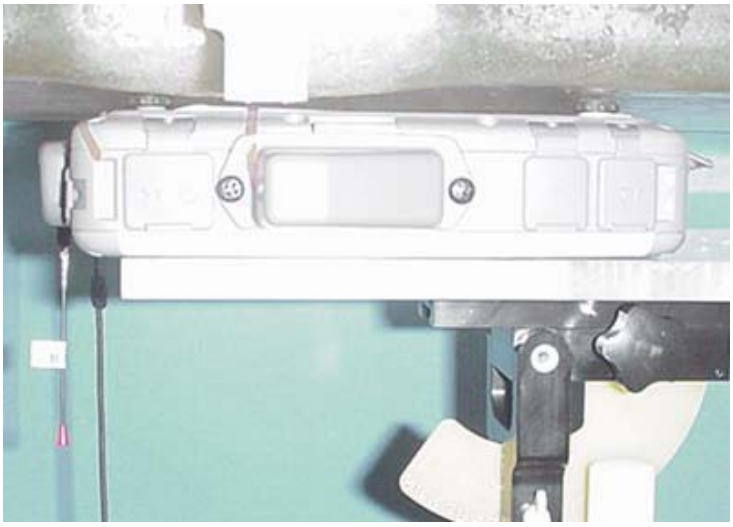
BODY SAR TEST SETUP PHOTOGRAPHS

0.0 cm Separation Distance from Bottom of DUT to Planar Phantom
AirCard 860 Antenna "Open 90°"



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APPENDIX E - SYSTEM VALIDATION

2006 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.

835 MHz SYSTEM VALIDATION DIPOLE

Type:	**835 MHz Validation Dipole**
Asset Number:	**00022**
Serial Number:	**411**
Place of Validation:	**Celltech Labs Inc.**
Date of Validation:	**March 27, 2006**

Celltech Labs Inc. hereby certifies that the 835 MHz System Validation (Body) was performed on the date indicated above.

Performed by:	**Sean Johnston**
Approved by:	**Spencer Watson**

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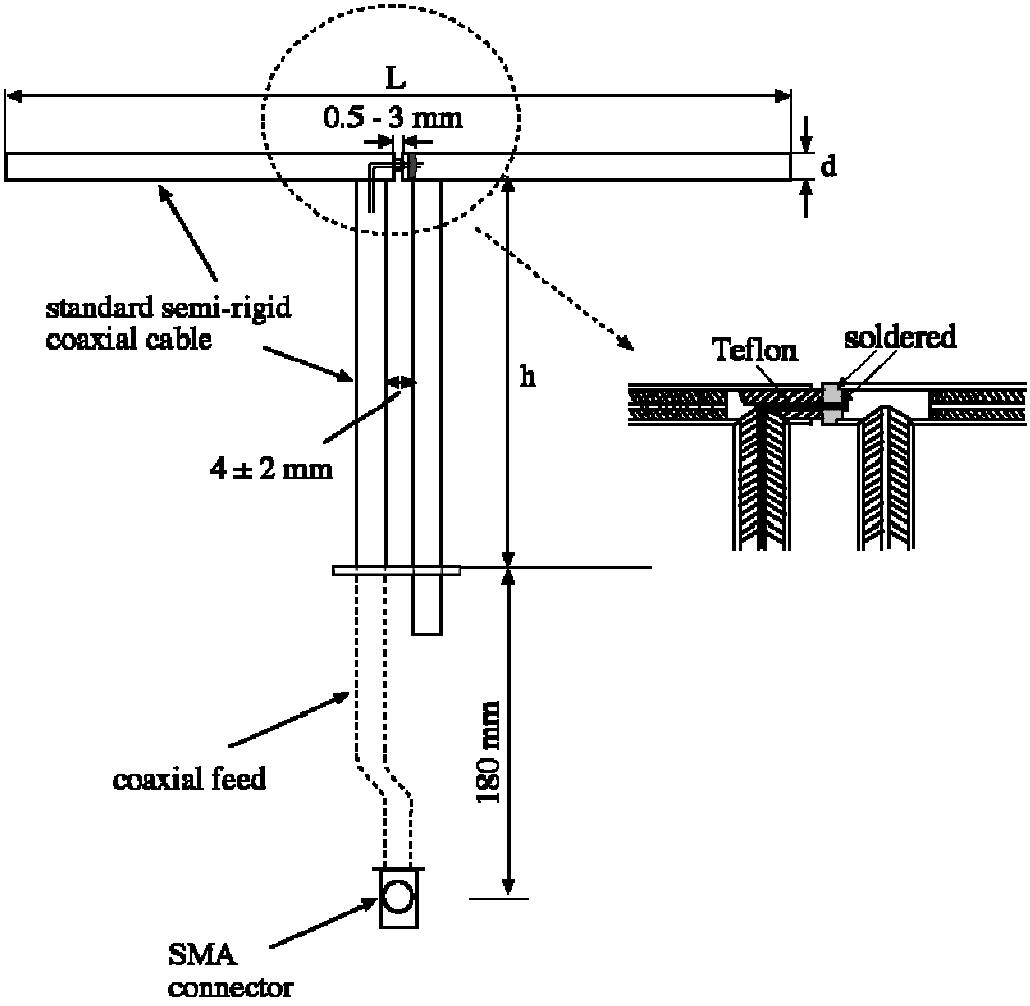
1. Validation Dipole Construction & Electrical Characteristics

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	Re{Z} = 47.627Ω
	Im{Z} = -0.67188Ω
Return Loss at 835MHz	-31.954dB



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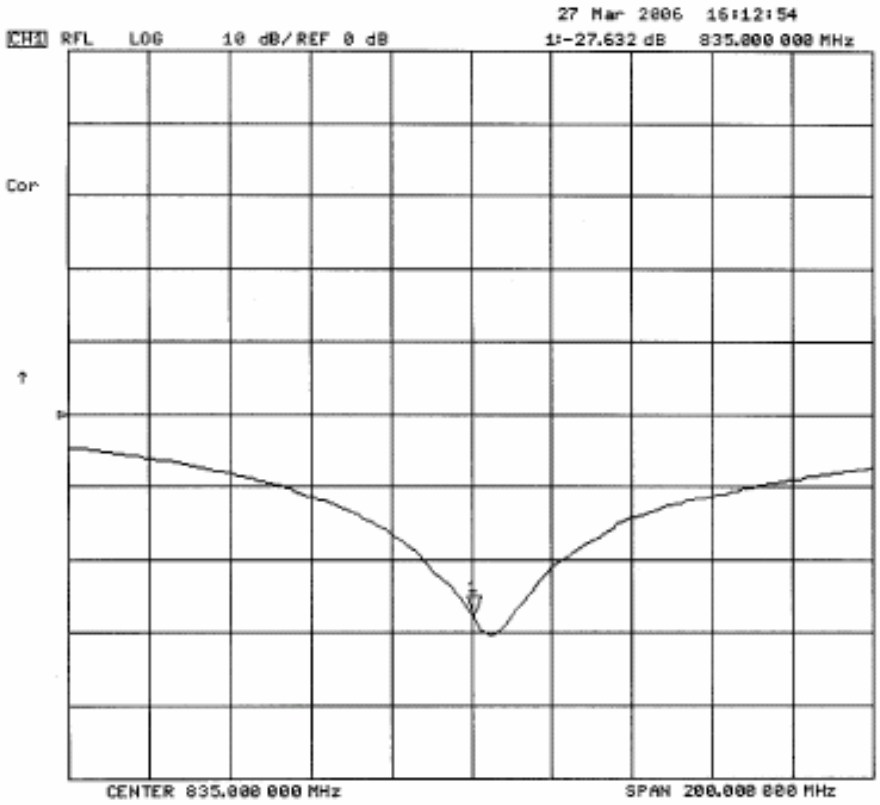
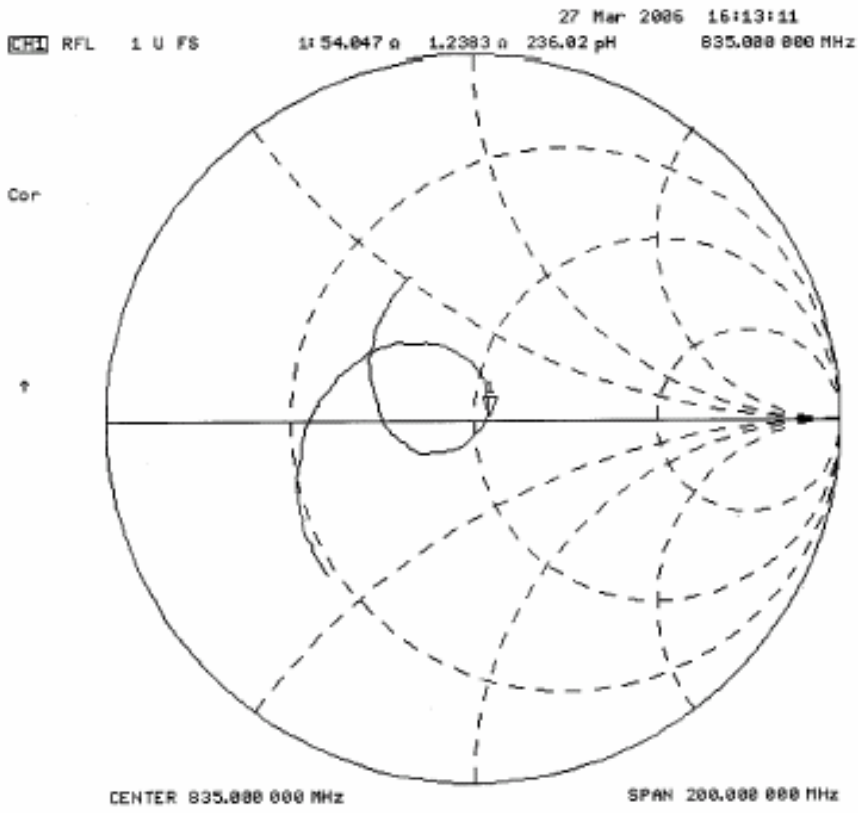
2. Validation Dipole VSWR Data





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. 25 liters
Dimensions: 50 cm (W) x 100 cm (L)

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5. 835 MHz System Validation Setup

6. 835 MHz Validation Dipole Setup

7. Measurement Conditions

The SAM phantom was filled with 835 MHz body tissue simulant with the following parameters:

Relative Permittivity: 53.7 (-2.7% from target)
Conductivity: 0.94 mho/m (-3% from target)
Fluid Temperature: 20.8 °C
Fluid Depth: ≥ 15.0 cm

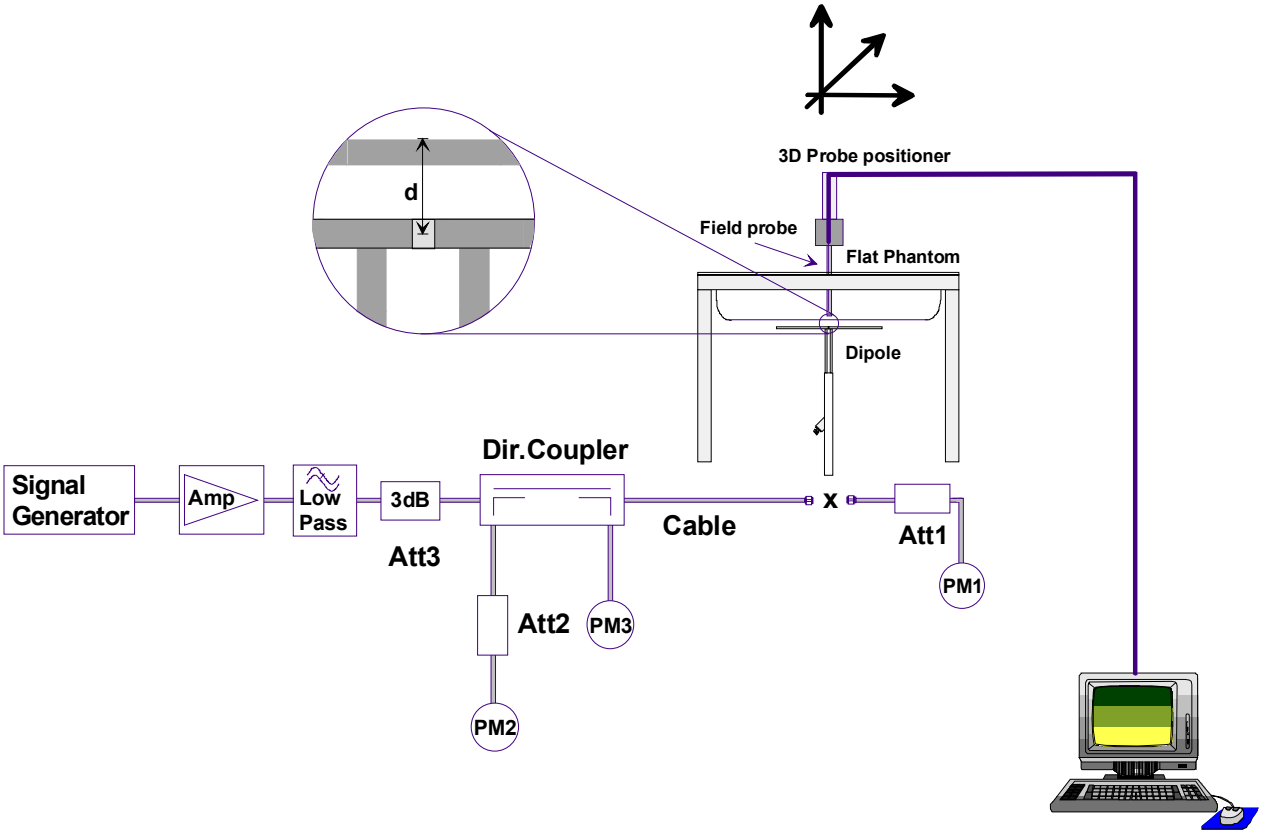
Environmental Conditions:
Ambient Temperature: 22.6 °C
Barometric Pressure: 101.8 kPa
Humidity: 30 %

The 835 MHz body tissue simulant consisted of the following ingredients:

Ingredient	Percentage by weight
Water	53.79%
Sugar	45.13%
Salt	0.98%
Dowicil 75	0.10%
Target Dielectric Parameters at 22 °C	ε_r = 55.2 (+/- 5%) σ = 0.97 S/m (+/- 5%)

8. SAR Measurement

Measurements were made at the planar section of the SAM phantom using a dosimetric E-field probe ET3DV5 (S/N: 1590, conversion factor 6.47). 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.

9. Validation Dipole SAR Test Results

Ten SAR measurements were performed in order to achieve repeatability and to establish an average target value (W/kg).

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	Max SAR @ 0.25W Input
Test 1	2.46	9.84	1.62	6.48	2.65
Test 2	2.46	9.84	1.62	6.48	2.66
Test 3	2.46	9.84	1.62	6.48	2.67
Test 4	2.47	9.88	1.62	6.48	2.68
Test 5	2.43	9.72	1.60	6.40	2.64
Test 6	2.43	9.72	1.59	6.36	2.63
Test 7	2.42	9.68	1.59	6.36	2.59
Test 8	2.46	9.84	1.62	6.48	2.64
Test 9	2.47	9.88	1.62	6.48	2.65
Test10	2.45	9.80	1.62	6.48	2.61
Average SAR	**2.451**	**9.804**	**1.612**	**6.448**	**2.642**

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 (%)
9.71	+/- 10%	9.804	+1.0%	6.38	+/- 10%	6.448	+1.1%

Dipole Type	Distance [mm]	Frequency [MHz]	SAR (1g) [W/kg]	SAR (10g) [W/kg]	SAR (peak) [W/kg]
D300V2	15	300	3.02	2.06	4.36
D450V2	15	450	5.01	3.36	7.22
D835V2	15	835	9.71	6.38	14.1
D900V2	15	900	11.1	7.17	16.3
D1450V2	10	1450	29.6	16.6	49.8
D1500V2	10	1500	30.8	17.1	52.1
D1640V2	10	1640	34.4	18.7	59.4
D1800V2	10	1800	38.5	20.3	67.5
D1900V2	10	1900	39.8	20.8	69.6
D2000V2	10	2000	40.9	21.2	71.5
D2450V2	10	2450	51.2	23.7	97.6
D3000V2	10	3000	61.9	24.8	136.7

Table 32.1: Numerical reference SAR values for SPEAG dipoles and flat phantom filled with body-tissue simulating liquid. Note: All SAR values normalized to 1 W forward power.

835 MHz Dipole System Validation (Body) - March 27, 2006

DUT: Dipole 835 MHz; Model: D835V2; Serial: 411; Calibrated: 03/27/2006
Ambient Temp: 22.6 °C; Fluid Temp: 20.8 °C; Barometric Pressure: 101.8 kPa; Humidity: 30%
Communication System: CW
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: M835 (σ = 0.94 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(6.47, 6.47, 6.47); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.6 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 159

835 MHz Dipole System Validation/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm

835 MHz Dipole System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.0 V/m; Power Drift = 0.027 dB
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.65 mW/g

835 MHz Dipole System Validation/Zoom Scan 3 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.8 V/m; Power Drift = 0.029 dB
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.66 mW/g

835 MHz Dipole System Validation/Zoom Scan 4 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.5 V/m; Power Drift = 0.075 dB
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.67 mW/g

835 MHz Dipole System Validation/Zoom Scan 5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.9 V/m; Power Drift = 0.010 dB
SAR(1 g) = 2.47 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.68 mW/g

835 MHz Dipole System Validation/Zoom Scan 6 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.0 V/m; Power Drift = -0.087 dB
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.64 mW/g

835 MHz Dipole System Validation/Zoom Scan 7 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.6 V/m; Power Drift = -0.017 dB
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.59 mW/g
Maximum value of SAR (measured) = 2.63 mW/g

835 MHz Dipole System Validation/Zoom Scan 8 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.1 V/m; Power Drift = -0.023 dB
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.59 mW/g
Maximum value of SAR (measured) = 2.59 mW/g

835 MHz Dipole System Validation/Zoom Scan 9 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.6 V/m; Power Drift = -0.004 dB
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.64 mW/g

835 MHz Dipole System Validation/Zoom Scan 10 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.5 V/m; Power Drift = 0.012 dB
SAR(1 g) = 2.47 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.65 mW/g

835 MHz Dipole System Validation/Zoom Scan 11 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.5 V/m; Power Drift = -0.005 dB
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.61 mW/g

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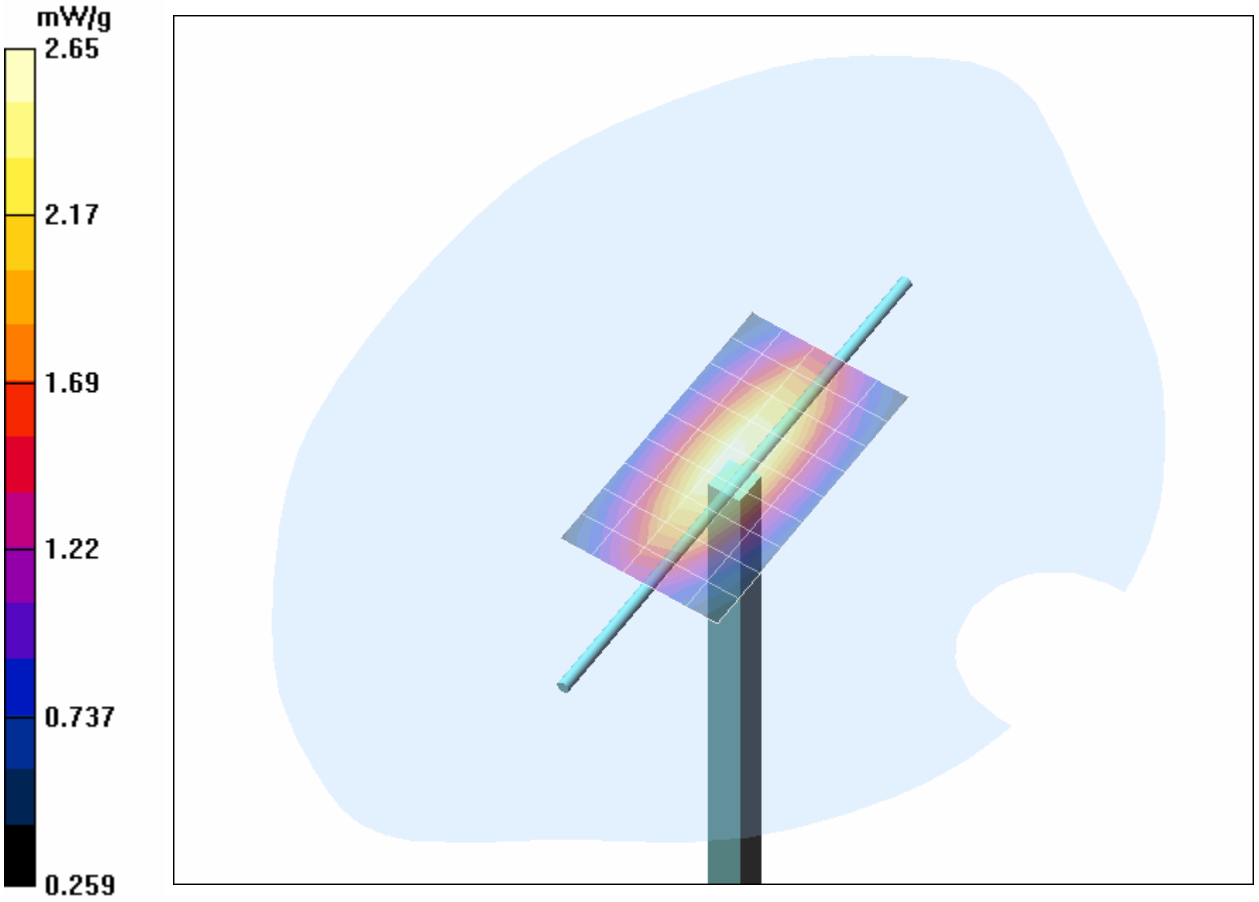
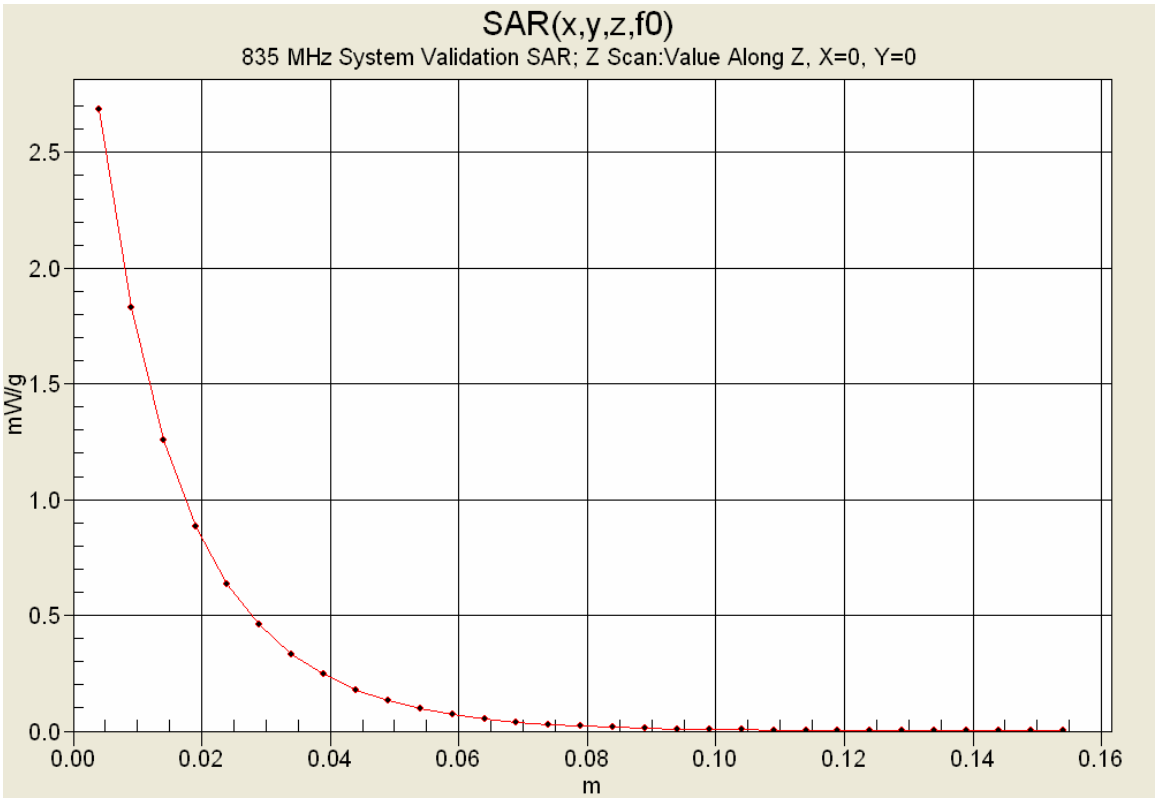


1 g average of 10 measurements: 2.451 mW/g
10 g average of 10 measurements: 1.612 mW/g



10. Measured Fluid Dielectric Parameters

835 MHz System Validation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 27/Mar/2006
Frequency(GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.7350	55.59	0.96	54.23	0.86
0.7450	55.55	0.96	54.00	0.87
0.7550	55.51	0.96	54.00	0.88
0.7650	55.47	0.96	54.04	0.89
0.7750	55.43	0.97	53.97	0.90
0.7850	55.39	0.97	54.01	0.90
0.7950	55.36	0.97	53.96	0.91
0.8050	55.32	0.97	53.85	0.92
0.8150	55.28	0.97	53.79	0.93
0.8250	55.24	0.97	53.69	0.94
0.8350	55.20	0.97	53.68	0.94
0.8450	55.17	0.98	53.35	0.95
0.8550	55.14	0.99	53.18	0.96
0.8650	55.11	1.01	53.25	0.98
0.8750	55.08	1.02	53.26	0.98
0.8850	55.05	1.03	53.11	0.99
0.8950	55.02	1.04	53.11	1.00
0.9050	55.00	1.05	52.96	1.01
0.9150	55.00	1.06	52.91	1.02
0.9250	54.98	1.06	52.93	1.03
0.9350	54.96	1.07	52.58	1.03

1900 MHz SYSTEM VALIDATION DIPOLE

Type:	**1900 MHz Validation Dipole**
Asset Number:	**00032**
Serial Number:	**151**
Place of Validation:	**Celltech Labs Inc.**
Date of Validation:	**April 25, 2006**

Celltech Labs Inc. hereby certifies that the 1900 MHz System Validation (Body) was performed on the date indicated above.

Performed by:	**Sean Johnston**
Approved by:	**Spencer Watson**

Celltech Labs Inc. 1955 Moss Court, Kelowna, B.C. Canada V1Y 9L3
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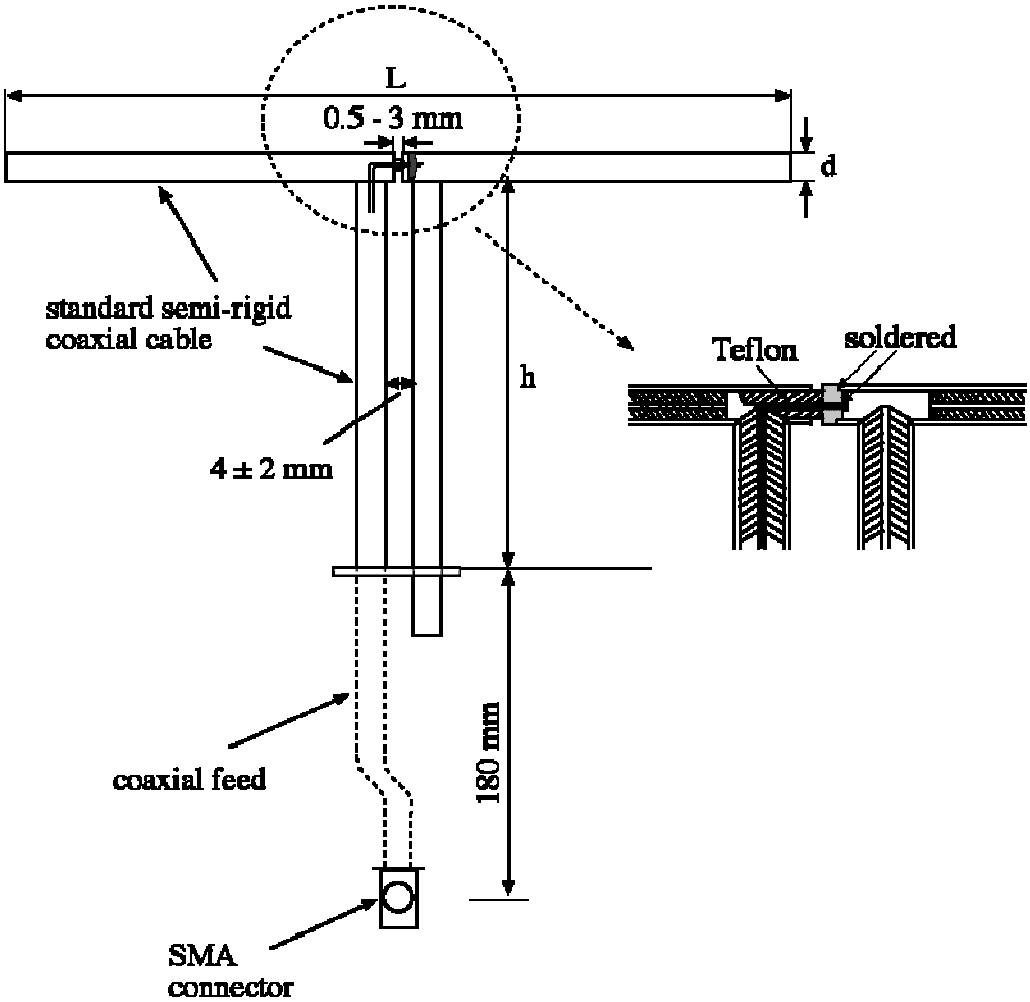
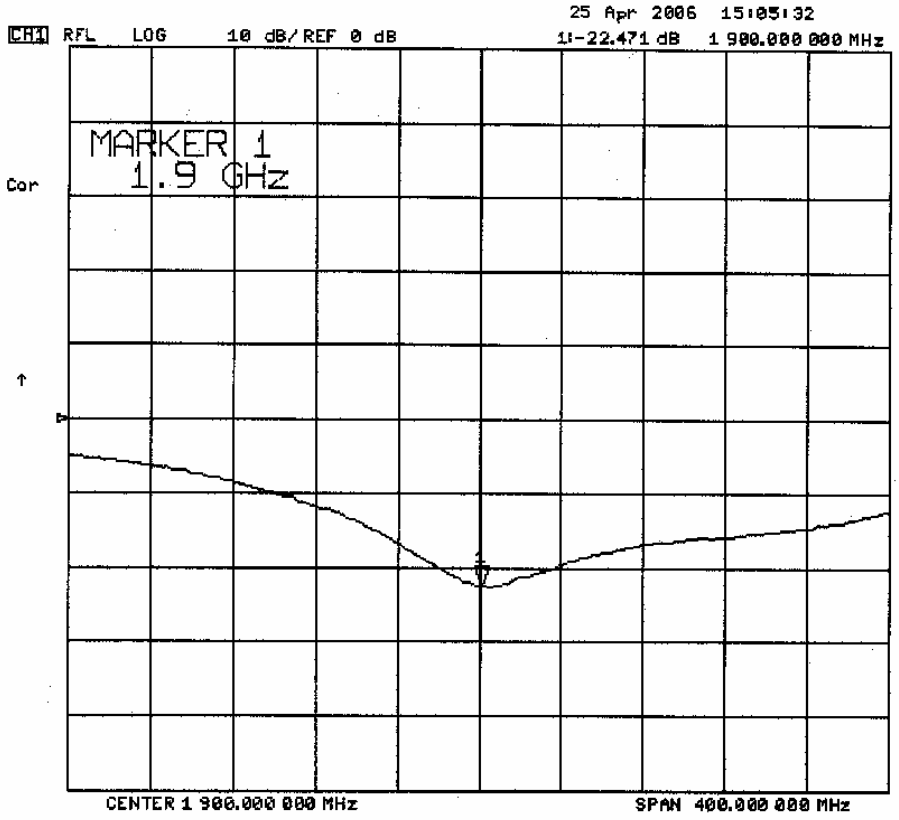
1. Dipole Construction & Electrical Characteristics

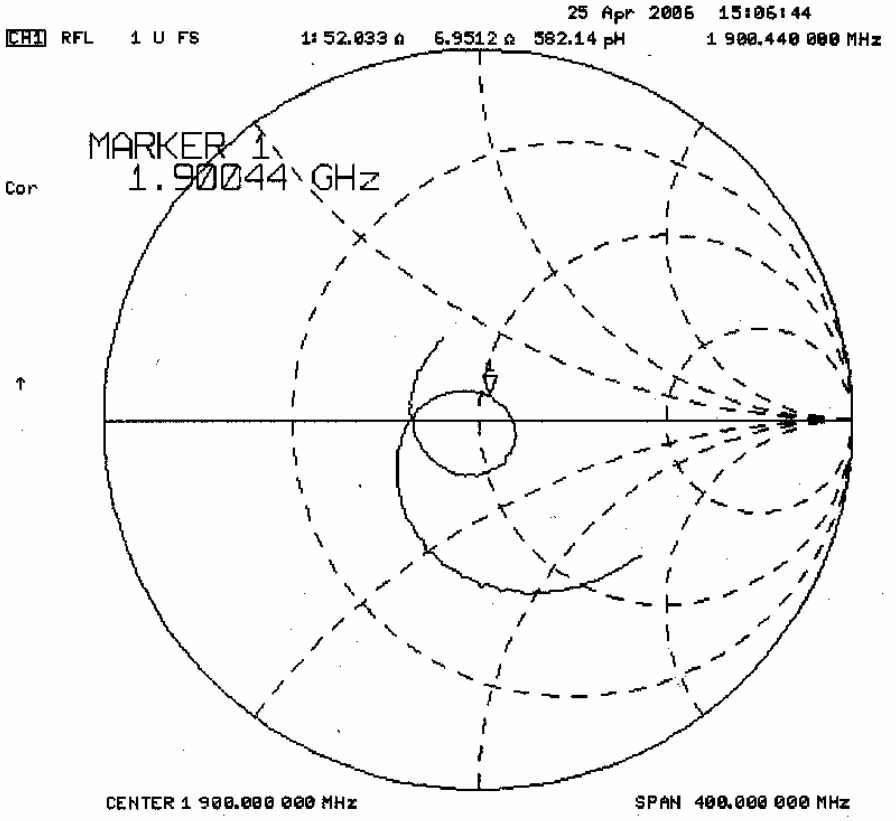
The validation dipole was constructed in accordance with the IEEE Standard "Annex G (informative) Reference dipoles for use in system validation". The electrical properties were measured using an HP 8753E Network Analyzer. The network analyzer was calibrated to the validation dipole N-type connector feed point using an HP85032E Type N calibration kit. The dipole was placed parallel to a planar phantom at a separation distance of 10.0mm from the simulating fluid using a loss-less dielectric spacer. The measured input impedance is:

Feed point impedance at 1900MHz	Re{Z} = 48.715Ω
	Im{Z} = 9.412Ω
Return Loss at 1900MHz	-20.371dB



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 a Fiberglass shell planar phantom manufactured by Barski Industries Ltd. The phantom is in conformance with the requirements defined by IEEE SCC34-SC2 for the dosimetric evaluations of body-worn and lap-held operating configurations. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids.

Shell Thickness: 2.0 ± 0.1 mm
Filling Volume: Approx. 72 liters
Dimensions: (L) 94 cm x (W) 44 cm x (H) 22 cm

5. 1900 MHz System Validation Setup

6. 1900 MHz System Validation Dipole

7. Measurement Conditions

The phantom was filled with 1900 MHz Body tissue simulant:

Relative Permittivity: 51.2 (-3.9% from target)
Conductivity: 1.57 mho/m (+3.3% from target)
Fluid Temperature: 23.5 °C
Fluid Depth: ≥ 15.0 cm

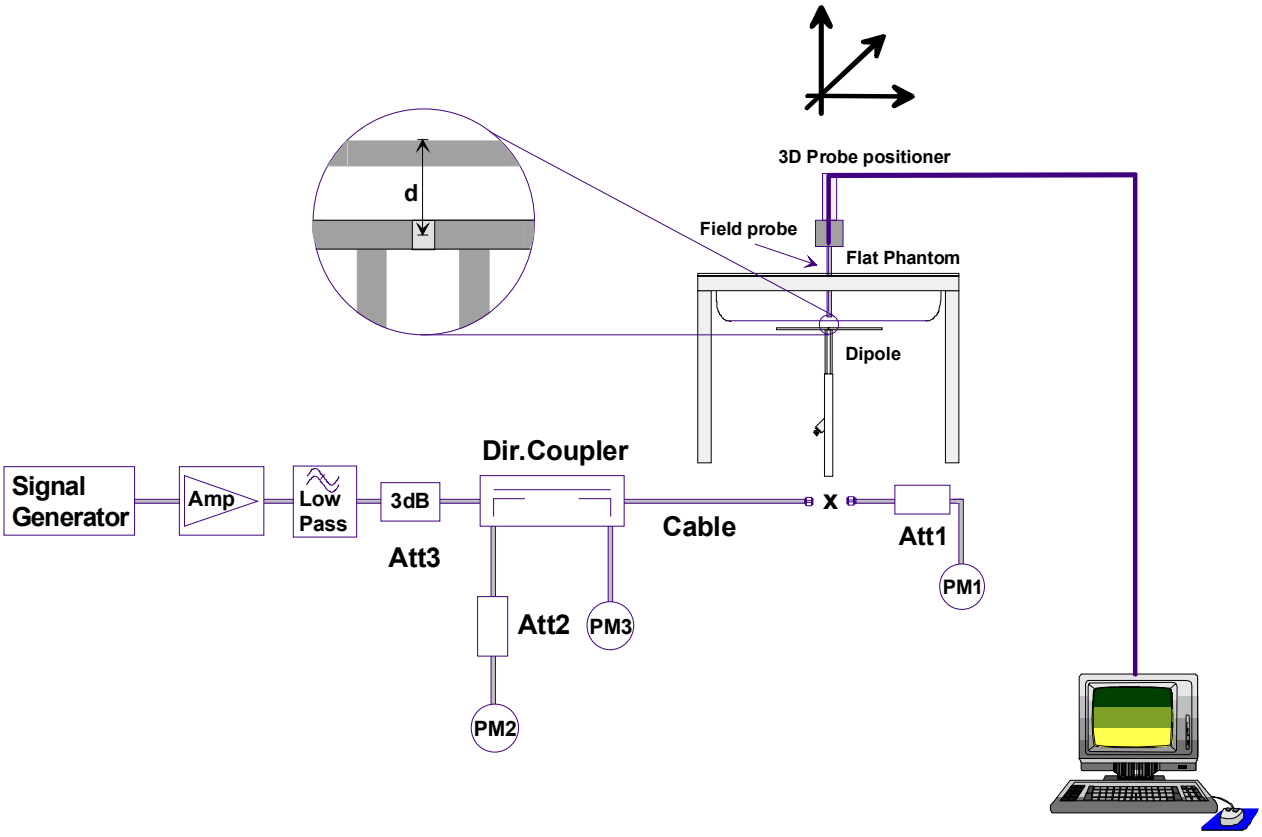
Environmental Conditions:
Ambient Temperature: 24.1 °C
Barometric Pressure: 101.6 kPa
Humidity: 31%

The 1900 MHz Body tissue simulant consisted of the following ingredients:

Ingredient	Percentage by weight
Water	69.85%
Glycol	29.89%
Salt	0.26%
Target Dielectric Parameters at 22 °C	ε_r = 53.3 (+/- 5%) σ = 1.52 S/m (+/- 5%)

8. SAR Measurement

Measurements were made using a dosimetric E-field probe ET3DV6 (S/N: 1590, conversion factor 4.85). 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 50dB below the forward power.

9. 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	10.5	42.00	5.53	22.12	11.8
Test 2	10.4	41.60	5.53	22.12	11.7
Test 3	10.3	41.20	5.44	21.76	11.6
Test 4	10.5	42.00	5.53	22.12	11.6
Test 5	10.5	42.00	5.54	22.16	11.7
Test 6	10.4	41.60	5.47	21.88	11.6
Test 7	10.5	42.00	5.54	22.16	11.7
Test 8	10.2	40.80	5.39	21.56	11.4
Test 9	10.2	40.80	5.39	21.56	11.4
Test 10	10.5	42.00	5.54	22.16	11.7
Average	**10.40**	**41.60**	**5.49**	**21.96**	**11.62**

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

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 (%)	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 (%)
39.8	+/- 10%	41.60	+4.52	20.8	+/- 10%	21.96	+5.58

Dipole Type	Distance [mm]	Frequency [MHz]	SAR (1g) [W/kg]	SAR (10g) [W/kg]	SAR (peak) [W/kg]
D300V2	15	300	3.02	2.06	4.36
D450V2	15	450	5.01	3.36	7.22
D835V2	15	835	9.71	6.38	14.1
D900V2	15	900	11.1	7.17	16.3
D1450V2	10	1450	29.6	16.6	49.8
D1500V2	10	1500	30.8	17.1	52.1
D1640V2	10	1640	34.4	18.7	59.4
D1800V2	10	1800	38.5	20.3	67.5
D1900V2	10	1900	39.8	20.8	69.6
D2000V2	10	2000	40.9	21.2	71.5
D2450V2	10	2450	51.2	23.7	97.6
D3000V2	10	3000	61.9	24.8	136.7

Table 32.1: Numerical reference SAR values for SPEAG dipoles and flat phantom filled with body-tissue simulating liquid. Note: All SAR values normalized to 1 W forward power.

System Validation (Body) - 1900 MHz Dipole - April 25, 2006

DUT: Dipole 1900 MHz; Model: D1900V2; Serial: 151; Validation: 04/25/2006
Ambient Temp: 24.1 °C; Fluid Temp: 23.5 °C; Barometric Pressure: 101.6 kPa; Humidity: 31%
Communication System: CW
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 (σ = 1.57 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3)
- Probe: ET3DV6 - SN1590; ConvF(4.85, 4.85, 4.85); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

1900 MHz Dipole - System Validation/Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm

1900 MHz Dipole - System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.3 V/m; Power Drift = 0.002 dB
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.53 mW/g
Maximum value of SAR (measured) = 11.8 mW/g

1900 MHz Dipole - System Validation/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.0 V/m; Power Drift = 0.027 dB
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.53 mW/g
Maximum value of SAR (measured) = 11.7 mW/g

1900 MHz Dipole - System Validation/Zoom Scan 3 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 88.4 V/m; Power Drift = -0.026 dB
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.44 mW/g
Maximum value of SAR (measured) = 11.6 mW/g

1900 MHz Dipole - System Validation/Zoom Scan 4 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.3 V/m; Power Drift = -0.060 dB
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.53 mW/g
Maximum value of SAR (measured) = 11.6 mW/g

1900 MHz Dipole - System Validation/Zoom Scan 5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.3 V/m; Power Drift = -0.033 dB
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.54 mW/g
Maximum value of SAR (measured) = 11.7 mW/g

1900 MHz Dipole - System Validation/Zoom Scan 6 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.6 V/m; Power Drift = -0.060 dB
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.47 mW/g
Maximum value of SAR (measured) = 11.6 mW/g

1900 MHz Dipole - System Validation/Zoom Scan 7 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.9 V/m; Power Drift = 0.041 dB
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.54 mW/g
Maximum value of SAR (measured) = 11.7 mW/g

1900 MHz Dipole - System Validation/Zoom Scan 8 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.0 V/m; Power Drift = -0.074 dB
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.39 mW/g
Maximum value of SAR (measured) = 11.4 mW/g

1900 MHz Dipole - System Validation/Zoom Scan 9 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.0 V/m; Power Drift = -0.051 dB
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.39 mW/g
Maximum value of SAR (measured) = 11.4 mW/g

1900 MHz Dipole - System Validation/Zoom Scan 10 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.0 V/m; Power Drift = -0.056 dB
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.54 mW/g
Maximum value of SAR (measured) = 11.7 mW/g

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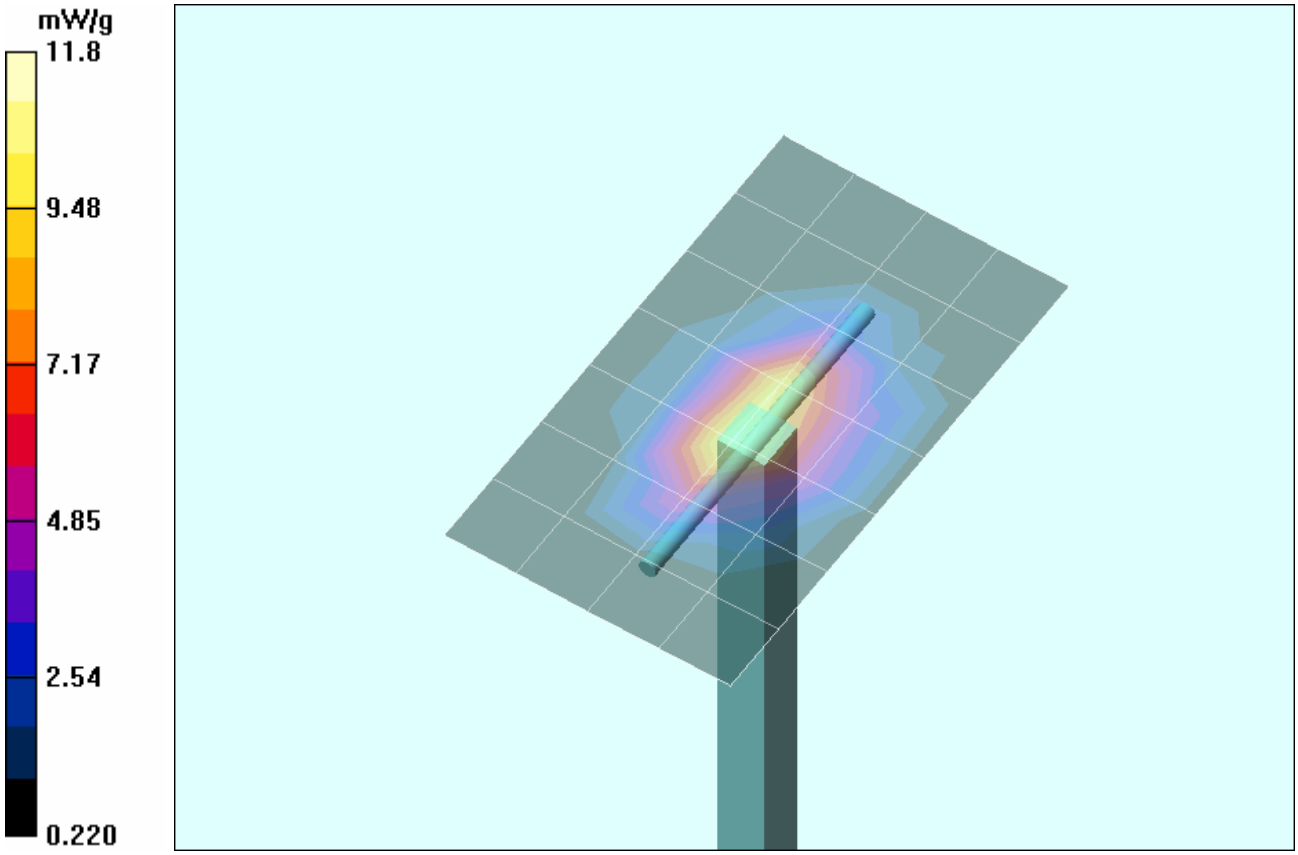
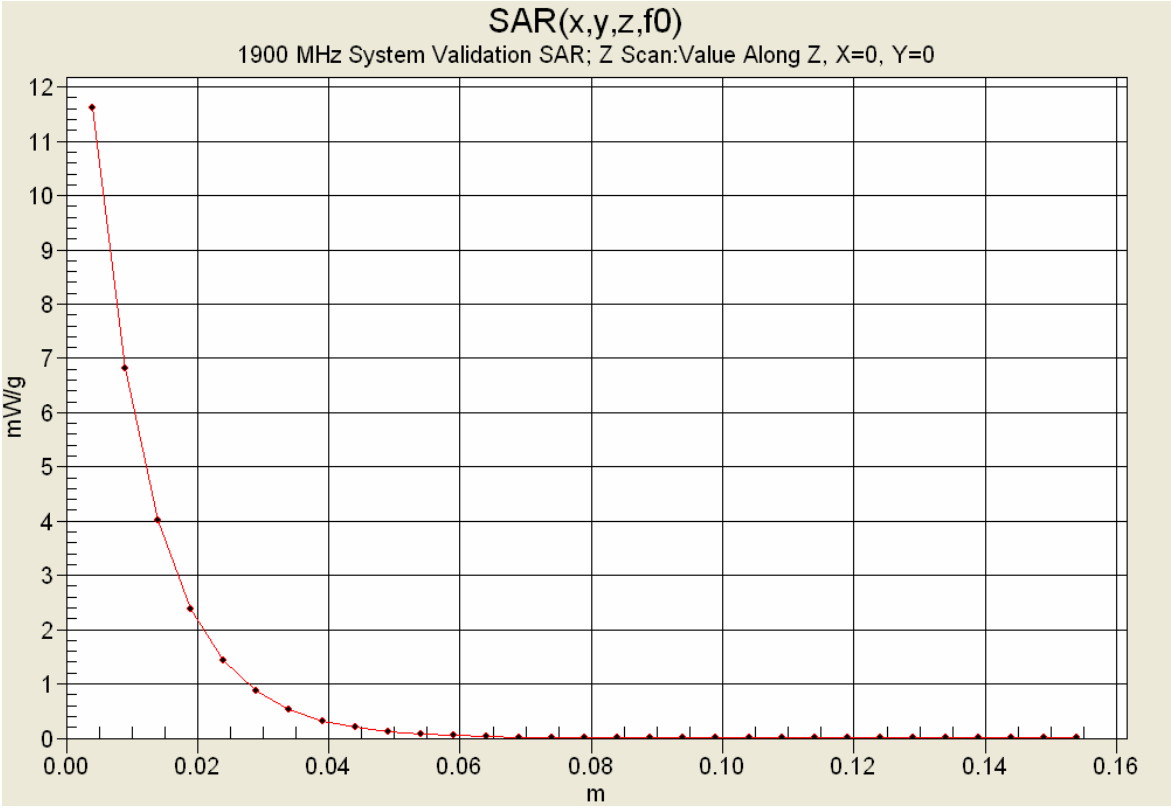


1 g average of 10 measurements: 10.40 mW/g
10 g average of 10 measurements: 5.49 mW/g



10. Measured Fluid Dielectric Parameters

1900 MHz System Validation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Tue 25/Apr/2006
Frequency(GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
1.8000	53.30	1.52	51.68	1.46
1.8100	53.30	1.52	51.51	1.48
1.8200	53.30	1.52	51.45	1.49
1.8300	53.30	1.52	51.50	1.50
1.8400	53.30	1.52	51.34	1.50
1.8500	53.30	1.52	51.27	1.52
1.8600	53.30	1.52	51.21	1.53
1.8700	53.30	1.52	51.33	1.54
1.8800	53.30	1.52	51.22	1.55
1.8900	53.30	1.52	51.18	1.56
1.9000	53.30	1.52	51.20	1.57
1.9100	53.30	1.52	51.09	1.58
1.9200	53.30	1.52	51.18	1.59
1.9300	53.30	1.52	51.10	1.62
1.9400	53.30	1.52	50.95	1.62
1.9500	53.30	1.52	50.95	1.63
1.9600	53.30	1.52	50.91	1.64
1.9700	53.30	1.52	50.88	1.65
1.9800	53.30	1.52	50.81	1.67
1.9900	53.30	1.52	50.79	1.68
2.0000	53.30	1.52	50.66	1.70

APPENDIX G - PLANAR PHANTOM CERTIFICATE OF CONFORMITY

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2378 Westlake Road
Kelowna, B.C. Canada
V1Z-2V2

BARSKI INDUSTRIES (1985) LTD.

Ph. # 250-769-6848
Fax # 250-769-6334
E-mail: barskiind@shaw.ca
Web: www.bcfiberglass.com

FIBERGLASS FABRICATORS

Certificate of Conformity

Item : Flat Planar Phantom Unit # 03-01
Date: June 16, 2003
Manufacturer: Barski Industries (1985 Ltd)

Test	Requirement	Details
Shape	Compliance to geometry according to drawing	Supplied CAD drawing
Material Thickness	Compliant with the requirements	2mm +/- 0.2mm in measurement area
Material Parameters	Dielectric parameters for required frequencies Based on Dow Chemical technical data	100 MHz-5 GHz Relative permittivity<5 Loss Tangent<0.05

Conformity

Based on the above information, we certify this product to be compliant to the requirements specified.

Signature: _____

Daniel Chailler

Fiberglass Planar Phantom - Top View

Fiberglass Planar Phantom - Front View

Fiberglass Planar Phantom - Back View

Fiberglass Planar Phantom - Bottom View

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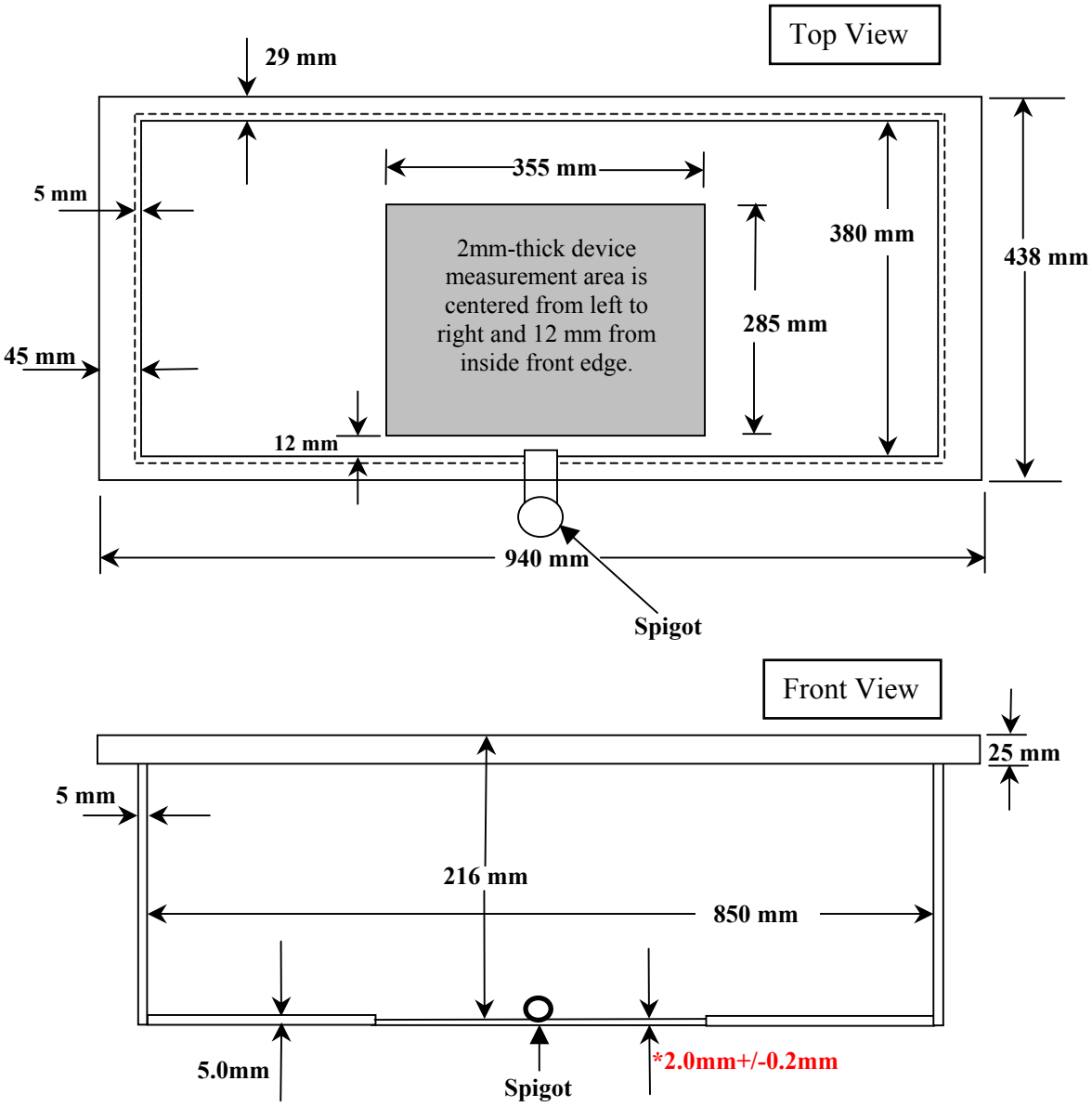
Dimensions of Fiberglass Planar Phantom

(Manufactured by Barski Industries Ltd. - Unit# 03-01)



Note: Measurements that aren't repeated for the opposite sides are the same as the side measured. This drawing is not to scale.

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