SAR TEST REPORT (FCC/IC)

RF EXPOSURE EVALUATION — SPECIFIC ABSORPTION RATE

APPLICANT	GENERAL DYNAMICS ITRONIX CORPORATION			
DEVICE UNDER TEST (DUT)	DUAL-BAND GPRS/EDGE/WCDMA MINI-PCI EXPRESS CARD			
DEVICE MODEL(S)	IX-MC8775			
DEVICE IDENTIFIER(S)	FCC ID:	KBCIX-MC8775	IC:	1943A-MC8775
HOST PC	GD ITRONIX CORP. RUGGED HANDHELD PC MODEL: IX750			
APPLICATION TYPE	Class II Permissive Change (LMA) - Add IX750 Host PC			
STANDARD(S) APPLIED	FCC 47 CFR §2.1093			
	Health Canada Safety Code 6			
PROCEDURE(S) APPLIED	FCC OET Bulletin 65, Supplement C (01-01)			
	FCC OET SAR Measurement Procedures for 3G Devices (Rev. 2.0)			
	Industry Canada RSS-102 Issue 2			
	IEEE 1528-2003			
FCC DEVICE CLASSIFICATION(S)	PCS Licensed Transmitter (PCB)		47 CFR §24 Subpart E	
IC DEVICE CLASSIFICATION(S)	2 GHz Personal Communication Services		RSS-133 Issue 4	
	800 MHz Cellular Telephones Employing New Technologies		RSS-132 Issue 2	
RF EXPOSURE CATEGORY	General Population / Uncontrolled			
RF EXPOSURE EVALUATION(S)	Body (Lap-held)			
DATE(S) OF EVALUATION(S)	May 12 & 14, 2008			
TEST REPORT SERIAL NO.	050708KBC-T903-S24G			
TEST REPORT REVISION NO.	Revision 1.0	Initial Release	July 08, 2008	
TEST REPORT SIGNATORIES	Testing Performed By		Test Report Prepared By	
	Sean Johnston Celltech Labs Inc.		Jonathan Hughes Celltech Labs Inc.	
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TEST LAB ACCREDITATION(S)	Test Lab Certificate No. 2470.01			

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DECLARATION OF COMPLIANCE
SAR RF EXPOSURE EVALUATION

Test Lab Information	**Name**	**CELLTECH LABS INC.**	**Address**	21-364 Lougheed Road, Kelowna B.C. V1X 7R8 Canada			
Applicant Information	**Name**	**GENERAL DYNAMICS ITRONIX CORPORATION**					
	Address	12825 E. Mirabeau Parkway, Spokane Valley, WA 92216 USA					
Standard(s) Applied	**FCC**	47 CFR §2.1093	**IC**	Health Canada Safety Code 6			
Procedure(s) Applied	**FCC**	OET Bulletin 65, Supplement C (01-01)	OET SAR Measurement Procedures for 3G Devices (Rev. 2.0)				
	IC	RSS-102 Issue 2	**IEEE**	1528-2003			
Device Classification(s)	**FCC**	PCS Licensed Transmitter (PCB)	47 CFR §24(E)				
	IC	2 GHz Personal Communication Services	RSS-133 Issue 4				
		800 MHz Cellular Telephones Employing New Technologies	RSS-132 Issue 2				
Application Type	**FCC/IC**	Class II Permissive Change	Add New Host PC - GD Itronix Corp. Rugged Handheld PC Model: IX750				
Device Identifier(s)	**FCC ID:**	KBCIX-MC8775	**IC:**	1943A-MC8775	**Model**	IX-MC8775	
Device Under Test (DUT)	Dual-Band GPRS/EDGE/WCDMA Mini-PCI Express Card		**Modes**	GPRS/EDGE (Multislot Class 12)	WCDMA (Rel. 5)		
Host PC Description	Rugged Handheld PC Model: IX750		**Manufacturer**	General Dynamics Itronix Corporation			
Co-located Transmitter(s)	IX-WL3945 802.11abg WLAN Mini-PCI Card		FCC ID: KBCIX-WL3945	Does not co-transmit with IX-MC8775			
	IX-EYXFDC Class 2 Bluetooth Module		FCC ID: KBCIX-EYXFDC	Capable of co-transmit with IX-MC8775			
	Note: The Bluetooth transmitter antenna output power is < $60/f_{(GHz)}$ mW and is located > 5 cm from all other simultaneous transmitting antennas; therefore simultaneous transmission SAR evaluation is not required (per FCC OET "SAR Evaluation Considerations for Laptop Computers with Antennas Built-in on Display Screens" (FCC KDB 616217 D01 v01).						
Test Sample Serial No.(s)	IX-MC8775	X283656128310	Production Unit	IX750 Host PC	None	Identical Prototype	
Transmit Frequency Range(s)	Cell Band	824.2 - 848.8 MHz (GPRS/EDGE)	826.4 - 846.6 MHz (WCDMA - FDD V)				
	PCS Band	1850.2 - 1909.8 MHz (GPRS/EDGE)	1852.4 - 1907.5 MHz (WCDMA - FDD II)				

Max. RF Output Power Tested	**Band**	**Mode**	**Frequency**	**Channel**	**dBm**	**Watts**	**Method**
	PCS	GPRS	1850.2 MHz	512	29.4	0.871	Conducted (BAP)
			1880.0 MHz	661	29.3	0.851	Conducted (BAP)
			1909.8 MHz	810	29.1	0.813	Conducted (BAP)
		EDGE	1850.2 MHz	512	26.7	0.468	Conducted (BAP)
		WCDMA	1880.0 MHz	9400	23.7	0.234	Conducted (MAP)
	Cellular	GPRS	824.2 MHz	128	31.4	1.38	Conducted (BAP)
			836.6 MHz	190	31.6	1.42	Conducted (BAP)
			848.8 MHz	251	31.6	1.45	Conducted (BAP)
		EDGE	848.8 MHz	251	26.0	0.398	Conducted (BAP)
		WCDMA	836.4 MHz	4180	23.6	0.229	Conducted (MAP)

Max. Duty Cycle(s) Tested	GPRS/EDGE	12.5% : 1 Slot	25% : 2 Slots	37.5% : 3 Slots	50% : 4 Slots	WCDMA	100%
Antenna Type(s) Tested	Internal (Top Right Side of LCD Display)	**Power Class**	Cell GPRS: 4	PCS GPRS: 1	EDGE: E2	WCDMA: 3	
Power Source(s) Tested	Lithium-ion Rechargeable Smart Battery (Standard Capacity)	7.4V	4.0Ah	Model: IX750-29WHR			
	Note: Extended Capacity Smart Battery not tested due to thickness and increased spacing (2.5 cm antenna spacing)						
Configuration(s) Tested	1. Bottom Side of Handheld PC - 0.0 cm Separation Distance - LCD Display Lid Fully Extended - 2.0 cm antenna spacing						

Max. SAR Level(s) Evaluated							
	Body	**0.164 W/kg**	1g average	PCS Band	**FCC/IC SAR Limit**	1.6 W/kg	1g average
		0.139 W/kg	1g average	Cellular Band	**FCC/IC SAR Limit**	1.6 W/kg	1g average

Celltech Labs Inc. declares under its sole responsibility that this wireless device is compliant with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada's Safety Code 6 for the General Population / Uncontrolled Exposure environment. The device was tested in accordance with the measurement standards and procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01), FCC OET SAR Measurement Procedures for 3G Devices (Rev. 2.0), Industry Canada RSS-102 Issue 2 and IEEE 1528-2003. 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.

The results and statements contained in this report pertain only to the device(s) evaluated.

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Test Report Approved By		**Sean Johnston**	**Lab Manager**	**Celltech Labs Inc.**

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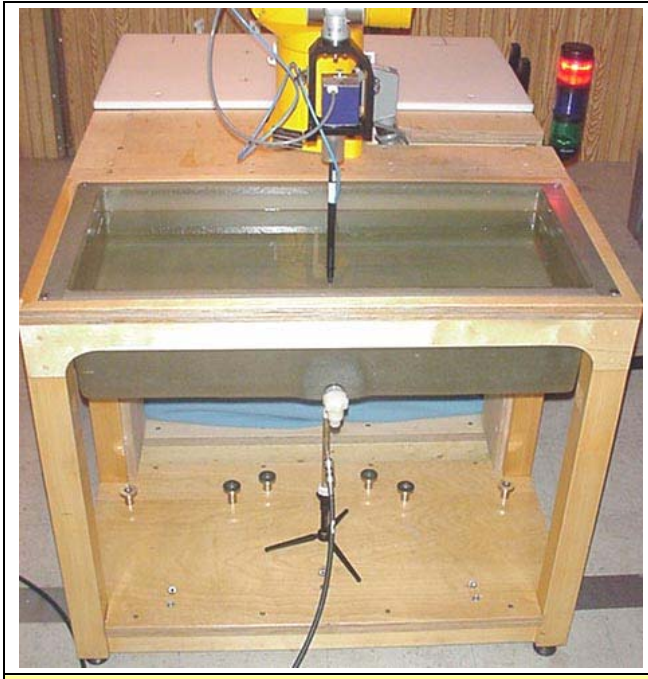
1.0 INTRODUCTION

This measurement report demonstrates that the General Dynamics Itronix Corporation Model: IX-MC8775 Dual-Band GPRS/EDGE/WCDMA Mini-PCI Express Card installed in the IX750 Rugged Handheld PC 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]), FCC OET SAR Measurement Procedures for 3G Devices, Rev. 2.0 (see reference [4], Industry Canada RSS-102 Issue 2 (see reference [6]) and IEEE 1528-2003 (see reference [7]) 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 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 Measurement System with Fiberglas Planar Phantom

DASY4 Measurement Server

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3.0 OUTPUT POWER MEASUREMENTS

Procedure used to establish test signal

GPRS/EDGE Modes

The following setting was used to configure the Agilent 8960 Series E5515C wireless communications test set.

Service Selection > Test Mode A - Auto Slot Config. > off
Main Service > Packet Data
Network Support > GSM+GPRS
Slot Config > 33 dBm (GSM850) & 30 dBm (GSM1900)
BAP: Burst Average Power
Pavg: Average power over all time slots

Band	Channel	Frequency (MHz)	GPRS							
			1 Slot		2 Slots		3 Slots		4 Slots	
			BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)
GSM 850	128	824.2	31.4	--	31.4	--	28.3	--	25.3	--
	190	836.6	31.6	22.0	31.5	25.0	28.5	23.8	25.5	22.1
	251	848.8	31.6	--	31.6	--	28.5	--	25.6	--

Band	Channel	Frequency (MHz)	EDGE							
			1 Slot		2 Slots		3 Slots		4 Slots	
			BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)
GSM 850	128	824.2	27.1	--	27.1	--	27.1	--	26.1	--
	190	836.6	27.2	17.1	27.2	20.1	27.2	21.8	26.0	22.7
	251	848.8	27.2	--	27.2	--	27.2	--	26.0	--

Band	Channel	Frequency (MHz)	GPRS							
			1 Slot		2 Slots		3 Slots		4 Slots	
			BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)
GSM 1900	512	1850.2	29.5	--	29.5	--	29.5	--	29.4	--
	661	1880.0	29.3	19.8	29.2	22.8	29.1	24.4	29	25.6
	810	1909.8	29.1	--	29.1	--	29.1	--	29.1	--

Band	Channel	Frequency (MHz)	EDGE							
			1 Slot		2 Slots		3 Slots		4 Slots	
			BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)	BAP (dBm)	Pavg (dBm)
GSM 1900	512	1850.2	26.7	--	26.7	--	26.7	--	26.7	--
	661	1880.0	26.4	16.9	26.3	19.9	26.2	21.6	26.2	22.8
	810	1909.8	26.3	--	26.3	--	26.3	--	26.3	--

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OUTPUT POWER MEASUREMENTS (Cont.)

Procedure used to establish test signal

This procedure assumes the Agilent 8960 Series E5515C wireless communications test set has the following applications installed and with valid license.

Application: WCDMA Mobile Test

Rev, License: A.07.13, L

WCDMA

Call Setup > Shift & Preset

Cell Parameters: PS Domain Information > Present
ATT (IMSI Attach) Flag State > Set

Security Parameter - System Operations > None

Channel Type: RMC - 12.2k, 64k, 144k, 384k
AMC - 12.2k UL / 64 DL AM RMC,
12.2k UL / 144 DL AM RMC,
12.2k UL / 384 DL AM RMC

Paging Service: RB Test Mode

Channel Parameters (UARFCN):
DL Channel: PCS: 9662 / 9800 / 9938
Cell: 4357 / 4407 / 4458
UL Channel: PCS: 9262 / 9400 / 9538
Cell: 4132 / 4182 / 4233

DL DTCH Data:	All Ones
RLC Reestablish:	Off
Call Limit State:	Off
Call Drop Timer:	Off
SRB Config.	13.6k DCCH
UE Target Power:	25 dBm
UL CL Pwr Ctrl Mode:	All Up Bits

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OUTPUT POWER MEASUREMENTS (Cont.)

WCDMA

RF CONDUCTED OUTPUT POWER MEASUREMENT RESULTS

Channel Type: 12.2k RMC

Band	Channel	Frequency (MHz)	Channel Power dBm	Band	Channel	Frequency (MHz)	Channel Power dBm
WCDMA 850	4132	826.4	23.5	WCDMA 1900	9262	1852.4	23.4
	4180	836.4	23.6		9400	1880.0	23.7
	4233	846.6	23.4		9538	1907.6	23.5

Channel Type: 64k RMC

Band	Channel	Frequency (MHz)	Channel Power dBm	Band	Channel	Frequency (MHz)	Channel Power dBm
WCDMA 850	4132	826.4	23.5	WCDMA 1900	9262	1852.4	23.3
	4180	836.4	23.6		9400	1880.0	23.7
	4233	846.6	23.3		9538	1907.6	23.5

Channel Type: 144k RMC

Band	Channel	Frequency (MHz)	Channel Power dBm	Band	Channel	Frequency (MHz)	Channel Power dBm
WCDMA 850	4132	826.4	23.5	WCDMA 1900	9262	1852.4	23.3
	4180	836.4	23.5		9400	1880.0	23.6
	4233	846.6	23.3		9538	1907.6	23.5

Channel Type: 384k RMC

Band	Channel	Frequency (MHz)	Channel Power dBm	Band	Channel	Frequency (MHz)	Channel Power dBm
WCDMA 850	4132	826.4	23.5	WCDMA 1900	9262	1852.4	23.3
	4180	836.4	23.6		9400	1880.0	23.7
	4233	846.6	23.3		9538	1907.6	23.5

Channel Type: 12.2k UL / 64 DL AM RMC

Band	Channel	Frequency (MHz)	Channel Power dBm	Band	Channel	Frequency (MHz)	Channel Power dBm
WCDMA 850	4132	826.4	23.5	WCDMA 1900	9262	1852.4	23.5
	4180	836.4	23.6		9400	1880.0	23.5
	4233	846.6	23.4		9538	1907.6	23.5

Channel Type: 12.2k UL / 144 DL AM RMC

Band	Channel	Frequency (MHz)	Channel Power dBm	Band	Channel	Frequency (MHz)	Channel Power dBm
WCDMA 850	4132	826.4	23.5	WCDMA 1900	9262	1852.4	23.5
	4180	836.4	23.6		9400	1880.0	23.6
	4233	846.6	23.4		9538	1907.6	23.4

Channel Type: 12.2k UL / 384 DL AM RMC

Band	Channel	Frequency (MHz)	Channel Power dBm	Band	Channel	Frequency (MHz)	Channel Power dBm
WCDMA 850	4132	826.4	23.5	WCDMA 1900	9262	1852.4	23.5
	4180	836.4	23.6		9400	1880.0	23.6
	4233	846.6	23.4		9538	1907.6	23.4

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OUTPUT POWER MEASUREMENTS (Cont.)

Procedure used to establish test signal

This procedure assumes the Agilent 8960 Series E5515C wireless communications test set has the following applications installed and with valid license.

Application: WCDMA Mobile Test

Rev, License: A.07.13, L

WCDMA + HSDPA

Uplink Parameter: PRACH Bc / Bd Control: Manual
Manual PRACH Bc: 9
Manual PRACH Bc: 15

Channel Type: 12.2k + HSDPA

HSDPA Parameters: HSDPA RB Test Mode Setup
HS-DSCH Configuration Type: FRC
FRC Type: <Selected H-set according to the UE category>

HS-DSCH Category	Corresponding Requirement
1	H-Set 1
2	H-Set 1
3	H-Set 2
4	H-Set 2
5	H-Set 3
6	**H-Set 3**
7	H-Set 6 (Rel-6)
8	H-Set 6 (Rel-6)
9	H-Set 4
10	H-Set 5

CN Domain: PS Domain
Uplink 64k DTCH for HSDPA Loopback State: On
HS-DSCH Data Pattern: All Ones
RLC Header on HS-DSCH: Present

HSDPA Uplink Parameters: DeltaACK: 5
DeltaNACK: 5
DeltaCQI: 2

RF CONDUCTED OUTPUT POWER MEASUREMENT RESULTS

Channel Type: 12.2k RMC + HSDPA

Band	Channel	Frequency (MHz)	Channel Power dBm	Band	Channel	Frequency (MHz)	Channel Power dBm
Cell 850	4132	826.4	23.5	PCS 1900	9262	1852.4	23.1
	4180	836.4	23.5		9400	1880.0	23.6
	4233	846.6	23.4		9538	1907.6	23.4

Note: The conducted output power levels of the DUT measured with HSDPA active were < 0.25 dB than the conducted output power levels measured with HSDPA inactive and the maximum SAR for 12.2k RMC was < 75% of the SAR limit; therefore the SAR evaluations were performed with HSDPA inactive.

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4.0 MEASUREMENT SUMMARY

BODY SAR EVALUATION RESULTS

Test Date	Band	Freq.	Chan.	Test Mode		Host PC Position to Planar Phantom	Host PC LCD Display Position	Antenna Distance to Planar Phantom	Conducted Power Before Test		SAR Drift During Test	Measured SAR 1g
		MHz							dBm		dB	W/kg
May 12	Cellular	836.6	190	GPRS	1 Slot	Bottom Side Touch	Extended	2.0 cm	31.6	BAP	-0.101	0.071
May 12	Cellular	836.6	190	GPRS	2 Slots	Bottom Side Touch	Extended	2.0 cm	31.5	BAP	-0.036	0.137
May 12	Cellular	836.6	190	GPRS	3 Slots	Bottom Side Touch	Extended	2.0 cm	28.5	BAP	-0.104	0.106
May 12	Cellular	836.6	190	GPRS	4 Slots	Bottom Side Touch	Extended	2.0 cm	25.5	BAP	0.177	0.071
May 12	Cellular	824.2	128	GPRS	2 Slots	Bottom Side Touch	Extended	2.0 cm	31.4	BAP	-0.083	0.130
May 12	Cellular	848.8	251	GPRS	2 Slots	Bottom Side Touch	Extended	2.0 cm	31.6	BAP	-0.055	**0.139**
May 12	Cellular	848.8	251	EDGE	4 Slots	Bottom Side Touch	Extended	2.0 cm	26.0	BAP	-0.041	0.088
May 12	Cellular	836.4	4182	WCDMA	12.2k RMC	Bottom Side Touch	Extended	2.0 cm	23.6	MAP	-0.146	0.100
May 14	PCS	1880.0	661	GPRS	1 Slot	Bottom Side Touch	Extended	2.0 cm	29.3	BAP	0.020	0.046
May 14	PCS	1880.0	661	GPRS	2 Slots	Bottom Side Touch	Extended	2.0 cm	29.2	BAP	-0.099	0.090
May 14	PCS	1880.0	661	GPRS	3 Slots	Bottom Side Touch	Extended	2.0 cm	29.1	BAP	0.006	0.102
May 14	PCS	1880.0	661	GPRS	4 Slots	Bottom Side Touch	Extended	2.0 cm	29.0	BAP	0.046	0.125
May 14	PCS	1850.2	512	GPRS	4 Slots	Bottom Side Touch	Extended	2.0 cm	29.4	BAP	-0.166	**0.164**
May 14	PCS	1909.8	810	GPRS	4 Slots	Bottom Side Touch	Extended	2.0 cm	29.1	BAP	0.109	0.119
May 14	PCS	1850.2	512	EDGE	4 Slots	Bottom Side Touch	Extended	2.0 cm	26.7	BAP	-0.036	0.121
May 14	PCS	1880.0	9400	WCDMA	12.2k RMC	Bottom Side Touch	Extended	2.0 cm	23.7	MAP	0.135	0.063

SAR LIMIT(S)		BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093	Health Canada Safety Code 6	1.6 W/kg	1g average	General Population / Uncontrolled

Test Date(s)	May 12, 2008				May 14, 2008				Measured Fluid Type	835 MHz	1880 MHz	Unit
Dielectric Constant ε_r	835 MHz Body				1880 MHz Body				Relative Humidity	35	35	%
	IEEE Target		Meas.	Dev.	IEEE Target		Meas.	Dev.	Atmospheric Pressure	101.1	101.1	kPa
	55.2	± 5%	55.8	+1.1%	53.3	± 5%	50.8	-4.7%	Ambient Temperature	22.0	24.5	°C
Conductivity σ (mho/m)	835 MHz Body				1880 MHz Body				Fluid Temperature	20.3	23.3	°C
	IEEE Target		Meas.	Dev.	IEEE Target		Meas.	Dev.	Fluid Depth	≥ 15	≥ 15	cm
	0.97	± 5%	0.95	-2.0%	1.52	± 5%	1.48	-2.6%	ρ (Kg/m^3)	1000		

Notes

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.	The device modes tested and reported in the above test data table were selected based on the procedures described in FCC OET SAR Measurement Procedures for 3G Devices Rev. 2.0 (see reference [4]).
3.	The SAR evaluations were performed with the DUT communicating via airlink with the Agilent 8960 Series 10 E5515C Wireless Communications Test Set.
4.	The power drifts of the DUT measured by the DASY4 system during the SAR evaluations were <5% from the start power.
5.	The Host PC battery was fully charged prior to the SAR evaluations.
6.	The fluid temperature was measured prior to and after the SAR evaluations to ensure the temperature remained within +/-2°C of the fluid temperature reported during the dielectric parameter measurements.
7.	The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an HP 85070C Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
8.	The SAR evaluations were performed within 24 hours of the system performance check.

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5.0 DETAILS OF SAR EVALUATION

The General Dynamics Itronix Corporation Model: IX-MC8775 Dual-Band GPRS/EDGE/WCDMA Mini-PCI Express Card installed in the IX750 Rugged Handheld PC 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 IX750 Handheld PC placed parallel to, and touching, the outer surface of the planar phantom. The LCD display lid was fully extended with a 2.0 cm spacing from the antenna to the planar phantom. Note: The DUT is not intended to transmit with the LCD display lid closed.

Test Mode(s)

2. For the SAR evaluations in GPRS and EDGE modes an air-link communication was established using the Agilent 8960 Series 10 E5515C Wireless Communications Test Set in each of the four slot allocations for multislot class 12.
3. For the SAR evaluations in WCDMA mode an air-link communication was established using the Agilent 8960 Series 10 E5515C Wireless Communications Test Set with 12.2 kbps RMC channel and the TPC bits configured to all “1s”.

Power Level(s)

4. The conducted power levels of the DUT were measured prior to the SAR evaluations using the Agilent 8960 Series 10 E5515C Wireless Communications Test Set and Gigatronics Universal Power Meter in Burst Average Power mode (GPRS/EGPRS) and Modulated Average Power mode (WCDMA) in accordance with the procedures described in FCC OET SAR Measurement Procedures for 3G Devices (see reference [4]).

Test Conditions

5. The fluid temperature was measured prior to and after the SAR evaluations to ensure the temperature remained within +/-2°C of the fluid temperature reported during the dielectric parameter measurements.
6. The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using an HP 85070C Dielectric Probe Kit and HP 8753ET Network Analyzer (see Appendix C).

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 determine the values between the dipole center of the probe and the surface of the phantom. For E-Field Probe EX3DV4 this data cannot be measured because the center of the dipole sensors is 1.0 mm away from the probe tip and the distance between the probe and the boundary must be larger than 25% of the probe diameter. The probe diameter is 2.4 mm (see probe calibration document in Appendix F). In the DASY4 software, the distance between the sensor center and phantom surface is set to 2.0 mm. This provides a distance of 1.0 mm between the probe tip and the surface. For E-Field Probe ET3DV6 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 of the values between the dipole center and the surface of the phantom 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.

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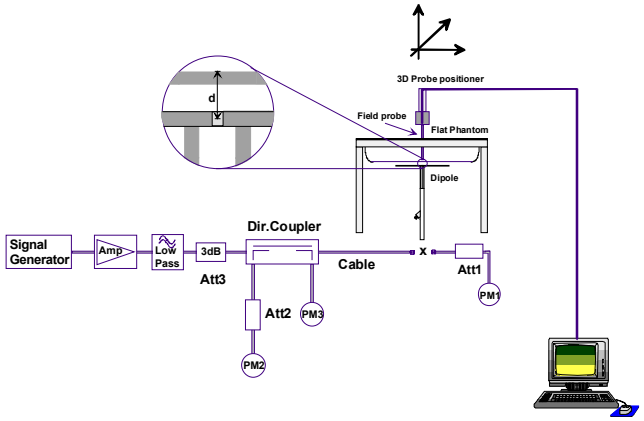
7.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations, system checks were performed using a Fiberglas planar phantom with 835 MHz and 1900 MHz dipoles (see Appendix B for system performance check test plots). The dielectric parameters of the simulated tissue mixtures were measured prior to the system performance checks using an HP 85070C 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% from the system validation target SAR values (see Appendix E for system validation procedures).

SYSTEM PERFORMANCE CHECK EVALUATIONS

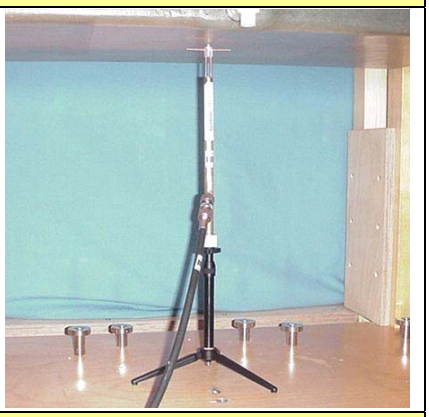
Test Date	Fluid Freq.	SAR 1g (W/kg)			Dielectric Constant ε_r			Conductivity σ (mho/m)			ρ (Kg/m³)	Amb. Temp. (°C)	Fluid Temp. (°C)	Fluid Depth (cm)	Humid. (%)	Barom. Press. (kPa)
	Body (MHz)	Sys. Val. Target	Meas.	Dev.	Sys. Val. Target	Meas.	Dev.	Sys. Val. Target	Meas.	Dev.						
May 12	835	2.53 ±10%	2.48	-2.0%	57.5 ±5%	55.8	-2.9%	0.97 ±5%	0.95	-2.0%	1000	22.0	20.3	≥ 15	35	101.1
May 14	1900	10.3 ±10%	10.3	0.0%	51.1 ±5%	51.1	0.0%	1.51 ±5%	1.51	0.0%	1000	24.5	23.3	≥ 15	35	101.1

Note(s)	
	1. The target SAR value is referenced from the System Validation procedure performed by Celltech Labs Inc. (see Appendix E).
	2. The target dielectric parameters are referenced from the System Validation procedure performed by Celltech Labs Inc. (see Appendix E).
	3. The fluid temperature was measured prior to and after the SAR evaluations to ensure the temperature remained within +/-2°C of the fluid temperature reported during the dielectric parameter measurements.
	4. The SAR evaluations were performed within 24 hours of the system performance check.



System Performance Check Measurement Setup Diagram

835 MHz Validation Dipole Setup



1900 MHz Validation 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).

PCS BAND 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 %

CELLULAR BAND 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 LIMITS

SAR RF EXPOSURE LIMITS			
FCC 47 CFR 2.1093	**Health Canada Safety Code 6**	**(General Population / Uncontrolled Exposure)**	**(Occupational / Controlled Exposure)**
Spatial Average (averaged over the whole body)		0.08 W/kg	0.4 W/kg
Spatial Peak (averaged over any 1 g of tissue)		**1.6 W/kg**	8.0 W/kg
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)		4.0 W/kg	20.0 W/kg
The Spatial Average value of the SAR averaged over the whole body.			
The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
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	
Probe (Cell Band)	
Model	ET3DV6
Serial No.	1387
Construction	Triangular core fiber optic detection system
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
Probe (PCS Band)	
Model	EX3DV4
Serial No.	3600
Construction	Symmetrical design with triangular core
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
Phantom(s)	
Type	Planar Phantom
Shell Material	Fiberglas
Thickness	2.0 ±0.1 mm
Dimensions	94 cm (L) x 44 cm (W) x 22 cm (H)

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11.0 PROBE SPECIFICATIONS

ET3DV6 E-Field Probe

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

EX3DV4 E-Field Probe

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. DGBE)
Calibration:	Basic Broadband Calibration in air: 10-3000 MHz Conversion Factors (CF) for HSL 900 and HSL 1750
Frequency:	10 MHz to >6 GHz; Linearity: ±0.2 dB (30 MHz to 3 GHz)
Directivity:	±0.3 dB in HSL (rotation around probe axis) ±0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range:	10 μW/g to >100 mW/g; Linearity: ±0.2 dB (noise: typically < 1 μW/g)
Dimensions:	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1.0 mm
Application:	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better than 30%.

EX3DV4 E-Field Probe

12.0 PLANAR PHANTOM

The planar phantom is a Fiberglas 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 mounted to the wooden table of the DASY4 compact system. The planar phantom is also used for system validations (≥ 835 MHz). See Appendix G for the dimensions and specifications.

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 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	NA		NA
x	-Robot		00046	599396-01	NA		NA
x	-DAE4		00019	353	22Apr08		22Apr09
x	-EX3DV4 E-Field Probe		00213	3600	19Apr08		19Apr09
x	-ET3DV6 E-Field Probe		00016	1387	22Apr08		22Apr09
	-300 MHz Validation Dipole		00023	135	30Apr08		30Apr09
	-450 MHz Validation Dipole		00024	136	01May08		01May09
x	-835 MHz Validation Dipole		00022	411	**Body**	02May08	02May09
	-900 MHz Validation Dipole		00020	054	**Body**	20May08	20May09
	-1800 MHz Validation Dipole		00021	247	**Body**	22May08	22May09
x	-1900 MHz Validation Dipole		00032	151	**Body**	14May08	14May09
	-2450 MHz Validation Dipole		00025	150	**Brain**	16Jul07	16Jul08
					Body	16Jun08	16Jun09
	5GHz Validation Dipole	-5200 MHz	00126	1031	**Body**	21Apr08	21Apr09
		-5500 MHz			**Body**	21Apr08	21Apr09
		-5800 MHz			**Brain**	21Apr08	21Apr09
					Body	21Apr08	21Apr09
	-SAM Phantom V4.0C		00154	1033	NA		NA
x	-Barski Planar Phantom		00155	03-01	NA		NA
	-Plexiglas Side Planar Phantom		00156	161	NA		NA
	-Plexiglas Validation Planar Phantom		00157	137	NA		NA
	ALS-PR-DIEL Dielectric Probe Kit		00160	260-00953	NA		NA
x	HP 85070C Dielectric Probe Kit		00033	US39240170	NA		NA
x	Gigatronics 8652A Power Meter		00007	1835272	23Apr08		23Apr09
x	Gigatronics 80701A Power Sensor		00014	1833699	23Apr08		23Apr09
x	HP 8753ET Network Analyzer		00134	US39170292	28Apr08		28Apr09
x	Rohde & Schwarz SMR20 Signal Generator		00006	100104	23Apr08		23Apr09
x	Amplifier Research 5S1G4 Power Amplifier		00106	26235	NR		NR
	Amplifier Research 10W1000C Power Amplifier		00041	27887	NR		NR
	Nextec NB00383 Microwave Amplifier		00151	0535	NR		NR
x	Agilent E5515C Wireless Communication Test Set		1076274	GB46311309	27May07		13Jun09
Notes	NA = Not Applicable			NR = Not Required			

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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 (Cell Band)	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	0.9	Rectangular	1.732050808	1	0.5	∞
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	Normal	1	0.64	1.3	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	1.1	Normal	1	0.6	0.7	∞
Combined Standard Uncertainty					**10.45**	
Expanded Uncertainty (k=2)					**20.89**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [7])						

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MEASUREMENT UNCERTAINTIES (Cont.)

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 (PCS Band)	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	0.2	Rectangular	1.732050808	1	0.1	∞
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)	2.6	Normal	1	0.64	1.7	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	4.7	Normal	1	0.6	2.8	∞
Combined Standard Uncertainty					**10.84**	
Expanded Uncertainty (k=2)					**21.68**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [7])						

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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 (835 MHz)	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	0.9	Rectangular	1.732050808	1	0.5	∞
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	∞
Dipole						
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	Normal	1	0.64	1.3	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	2.9	Normal	1	0.6	1.7	∞
Combined Standard Uncertainty					**8.77**	
Expanded Uncertainty (k=2)					**17.55**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [7])						

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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 (1900 MHz)	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	0.2	Rectangular	1.732050808	1	0.1	∞
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	∞
Dipole						
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)	0	Normal	1	0.64	0.0	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	0	Normal	1	0.6	0.0	∞
Combined Standard Uncertainty					**8.49**	
Expanded Uncertainty (k=2)					**16.98**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [7])						

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16.0 REFERENCES

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

[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] Federal Communications Commission - “SAR Measurement Procedures for 3G Devices”: Lab. Div., OET, October 2007 (Rev. 2.0).

[5] Federal Communications Commission - “SAR Evaluation Considerations for Laptop Computers with Antennas Built-in on Display Screens” (KDB 616217 D01 v01): Lab. Div., OET, December 2007.

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

[7] 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.

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APPENDIX A - SAR MEASUREMENT DATA

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Date Tested: 05/12/2008

Body SAR - Cellular Band - GPRS (1 Slot) - 836.6 MHz - Ch. 190 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

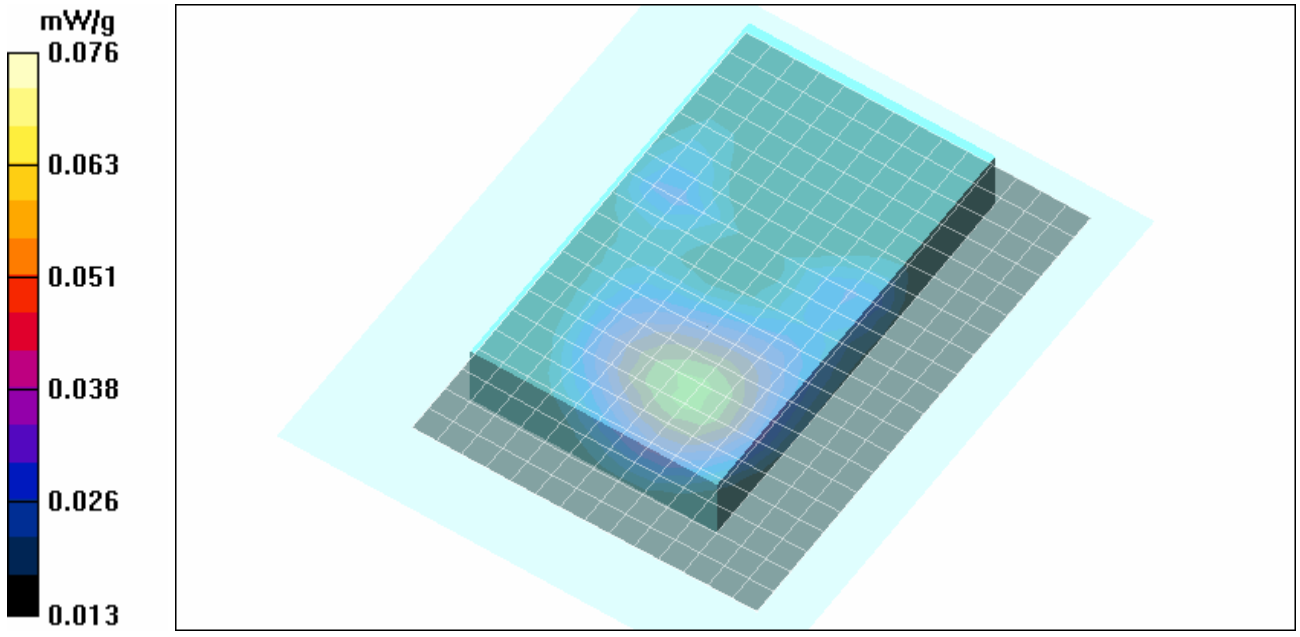
Ambient Temp: 22ºC; Fluid Temp: 20.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: Cellular GPRS
Frequency: 836.6 MHz; Duty Cycle: 1:8.3
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M835 Medium parameters: f = 836.6 MHz; σ = 0.95 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 1 Slot
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 1 Slot
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.24 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 0.087 W/kg
SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.054 mW/g
Maximum value of SAR (measured) = 0.076 mW/g



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Date Tested: 05/12/2008

Body SAR - Cellular Band - GPRS (2 Slots) - 836.6 MHz - Ch. 190 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

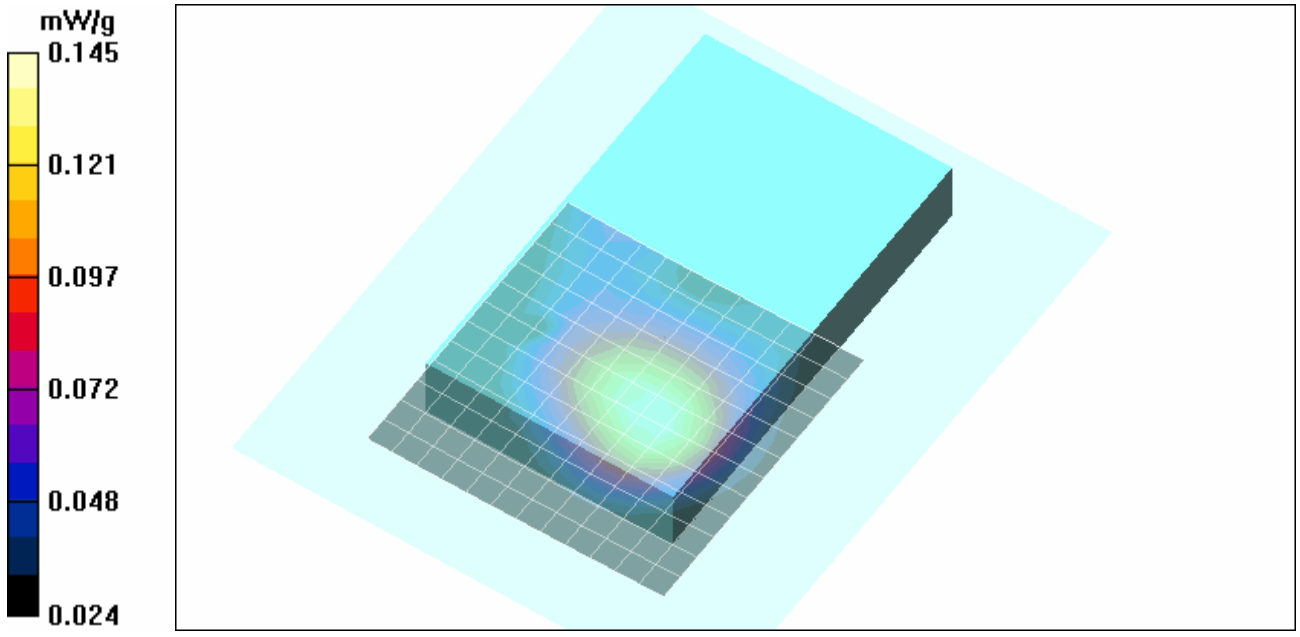
Ambient Temp: 22ºC; Fluid Temp: 20.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: Cellular GPRS
Frequency: 836.6 MHz; Duty Cycle: 1:4.16
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M835 Medium parameters used: f = 836.6 MHz; σ = 0.95 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 2 Slots
Area Scan (13x13x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 2 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 0.169 W/kg
SAR(1 g) = 0.137 mW/g; SAR(10 g) = 0.104 mW/g
Maximum value of SAR (measured) = 0.145 mW/g



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Date Tested: 05/12/2008

Body SAR - Cellular Band - GPRS (3 Slots) - 836.6 MHz - Ch. 190 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

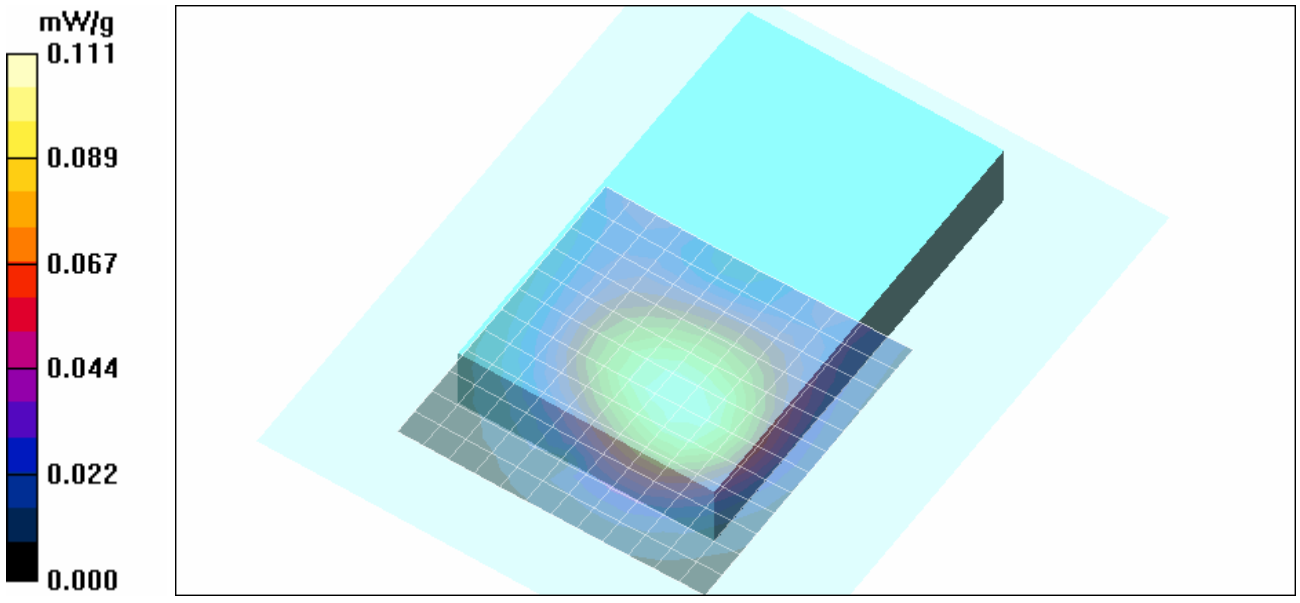
Ambient Temp: 22ºC; Fluid Temp: 20.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: Cellular GPRS
Frequency: 836.6 MHz; Duty Cycle: 1:2.6
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M835 Medium parameters used: f = 836.6 MHz; σ = 0.95 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 3 Slots
Area Scan (13x13x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 3 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = -0.104 dB
Peak SAR (extrapolated) = 0.130 W/kg
SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.079 mW/g
Maximum value of SAR (measured) = 0.111 mW/g



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Date Tested: 05/12/2008

Body SAR - Cellular Band - GPRS (4 Slots) - 836.6 MHz - Ch. 190 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

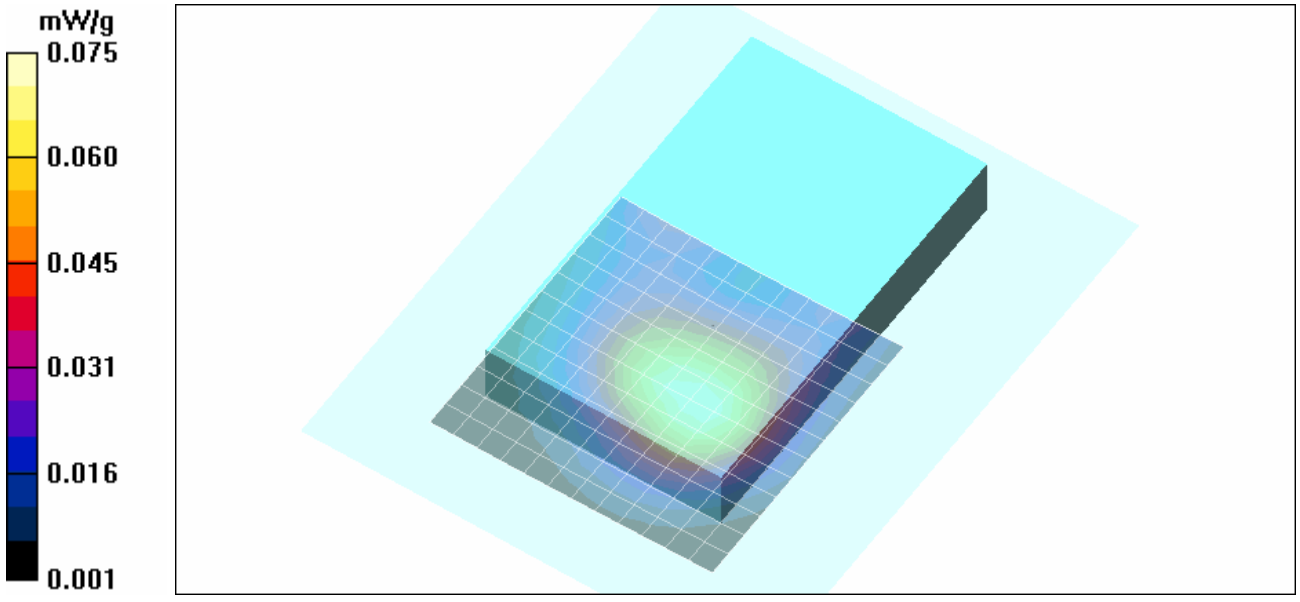
Ambient Temp: 22ºC; Fluid Temp: 20.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: Cellular GPRS
Frequency: 836.6 MHz; Duty Cycle: 1:2
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M835 Medium parameters used: f = 836.6 MHz; σ = 0.95 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 4 Slots
Area Scan (13x13x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 4 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.20 V/m; Power Drift = 0.177 dB
Peak SAR (extrapolated) = 0.088 W/kg
SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.053 mW/g
Maximum value of SAR (measured) = 0.075 mW/g



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Date Tested: 05/12/2008

Body SAR - Cellular Band - GPRS (2 Slots) - 824.2 MHz - Ch. 128 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

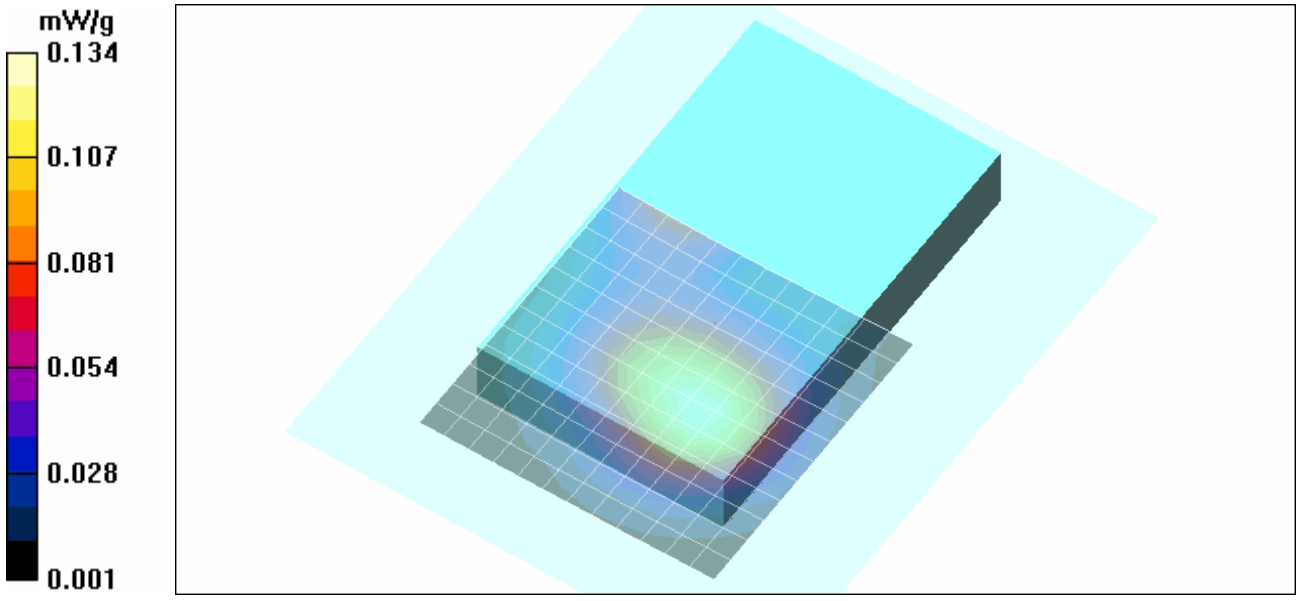
Ambient Temp: 22ºC; Fluid Temp: 20.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: Cellular GPRS
Frequency: 824.2 MHz; Duty Cycle: 1:4.16
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M835 Medium parameters used: f = 824.2 MHz; σ = 0.95 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 2 Slots
Area Scan (13x13x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 2 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.4 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 0.290 W/kg
SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.097 mW/g
Maximum value of SAR (measured) = 0.134 mW/g



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Date Tested: 05/12/2008

Body SAR - Cellular Band - GPRS (2 Slots) - 848.8 MHz - Ch. 251 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

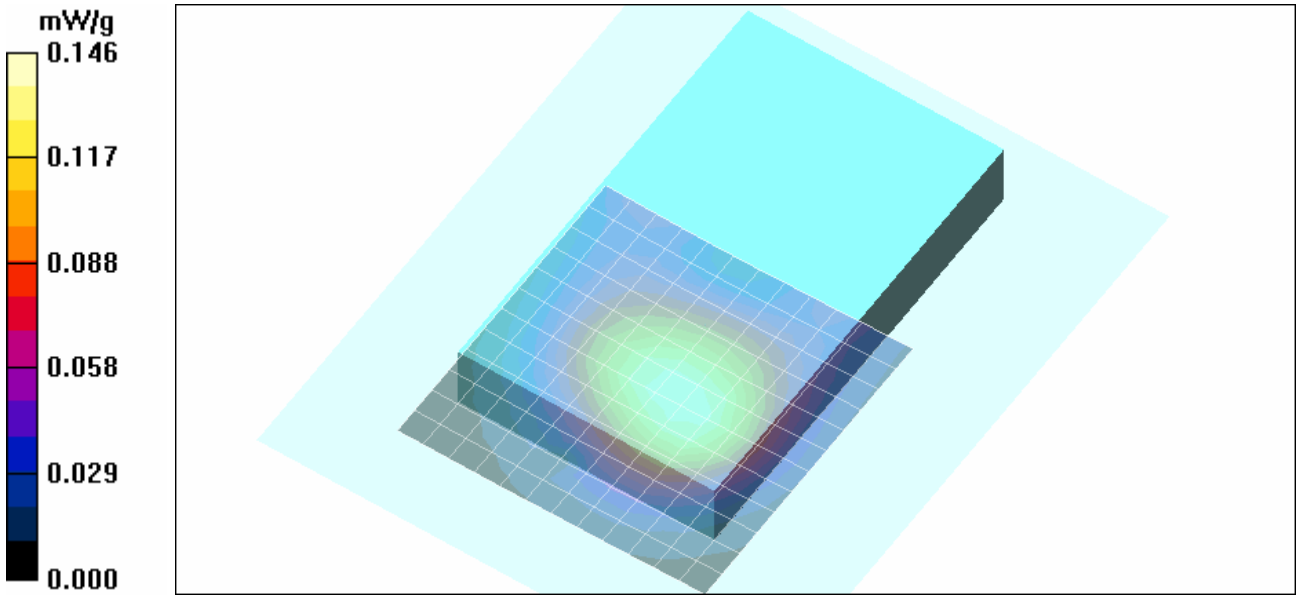
Ambient Temp: 22ºC; Fluid Temp: 20.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: Cellular GPRS
Frequency: 848.8 MHz; Duty Cycle: 1:4.16
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M835 Medium parameters used: f = 848.8 MHz; σ = 0.95 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 2 Slots
Area Scan (13x13x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 2 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.171 W/kg
SAR(1 g) = 0.139 mW/g; SAR(10 g) = 0.106 mW/g
Maximum value of SAR (measured) = 0.146 mW/g



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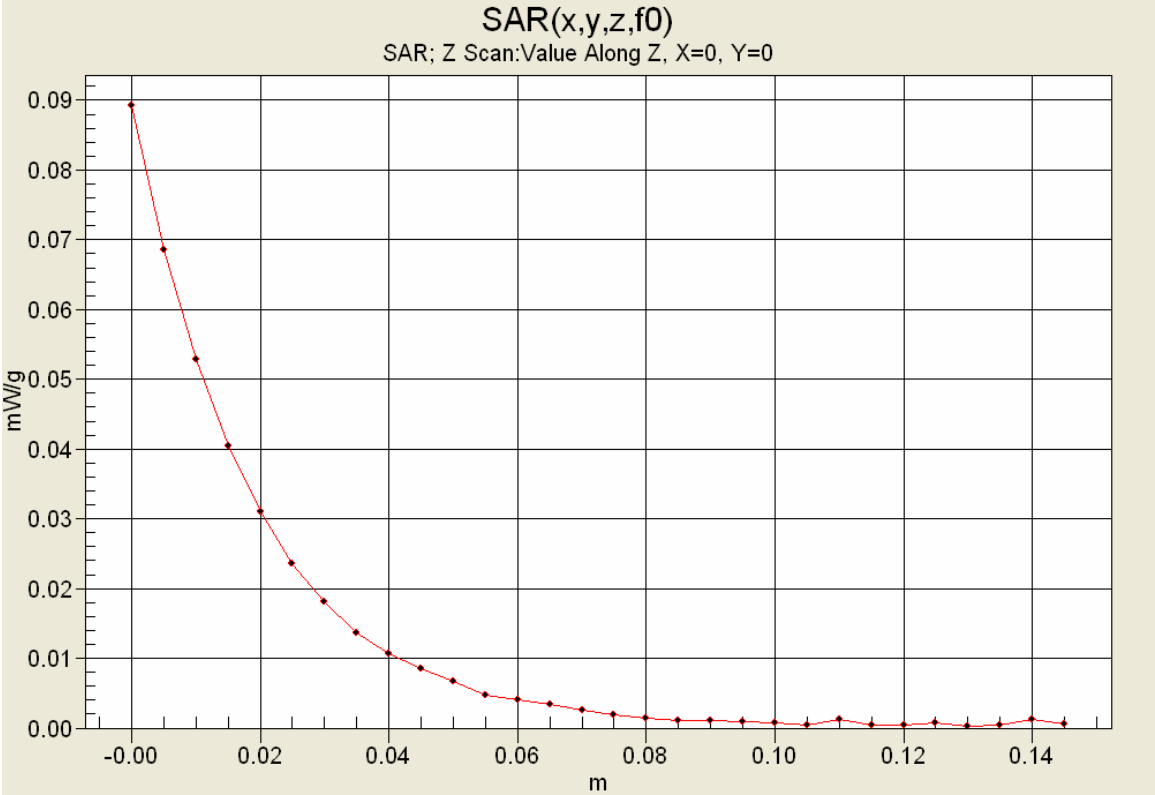
Z-Axis Scan



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Date Tested: 05/12/2008

Body SAR - Cellular Band - EDGE (4 Slots) - 848.8 MHz - Ch. 251 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

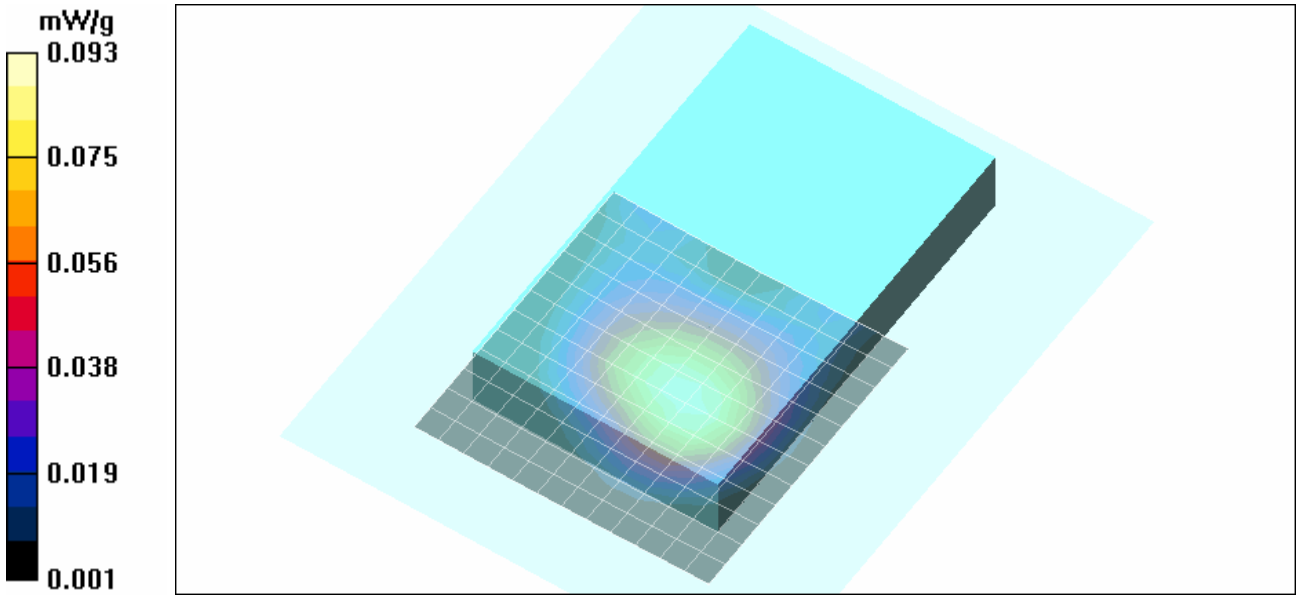
Ambient Temp: 22ºC; Fluid Temp: 20.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: Cellular EDGE
Frequency: 848.8 MHz; Duty Cycle: 1:2
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M835 Medium parameters used: f = 848.8 MHz; σ = 0.95 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - EDGE 4 Slots
Area Scan (13x13x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - EDGE 4 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.65 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 0.058 W/kg
SAR(1 g) = 0.088 mW/g; SAR(10 g) = 0.067 mW/g
Maximum value of SAR (measured) = 0.093 mW/g



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Date Tested: 05/12/2008

Body SAR - Cellular Band - WCDMA (RMS 12.2k) - 836.4 MHz - Ch. 4180 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

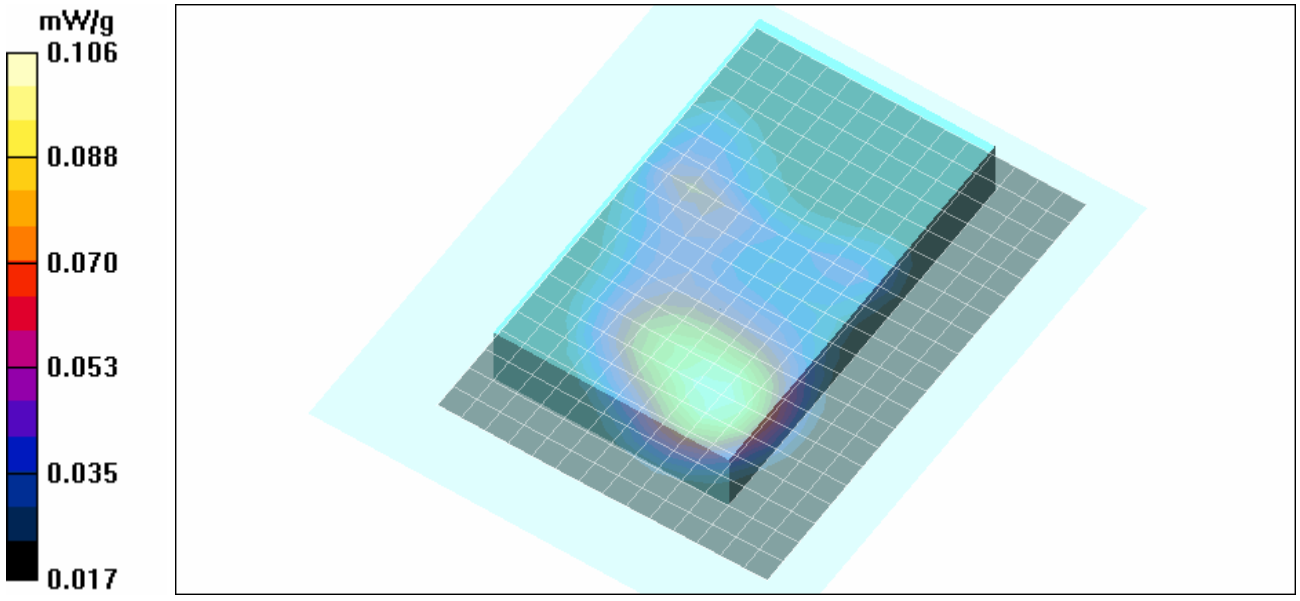
Ambient Temp: 22ºC; Fluid Temp: 20.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: Cellular WCDMA
Frequency: 836.4 MHz; Duty Cycle: 1:1
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M835 Medium parameters used: f = 836.52 MHz; σ = 0.95 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - WCDMA
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - WCDMA
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = -0.146 dB
Peak SAR (extrapolated) = 0.120 W/kg
SAR(1 g) = 0.100 mW/g; SAR(10 g) = 0.075 mW/g
Maximum value of SAR (measured) = 0.106 mW/g



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Date Tested: 05/14/2008

Body SAR - PCS Band - GPRS (1 Slot) - 1880 MHz - Ch. 661 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

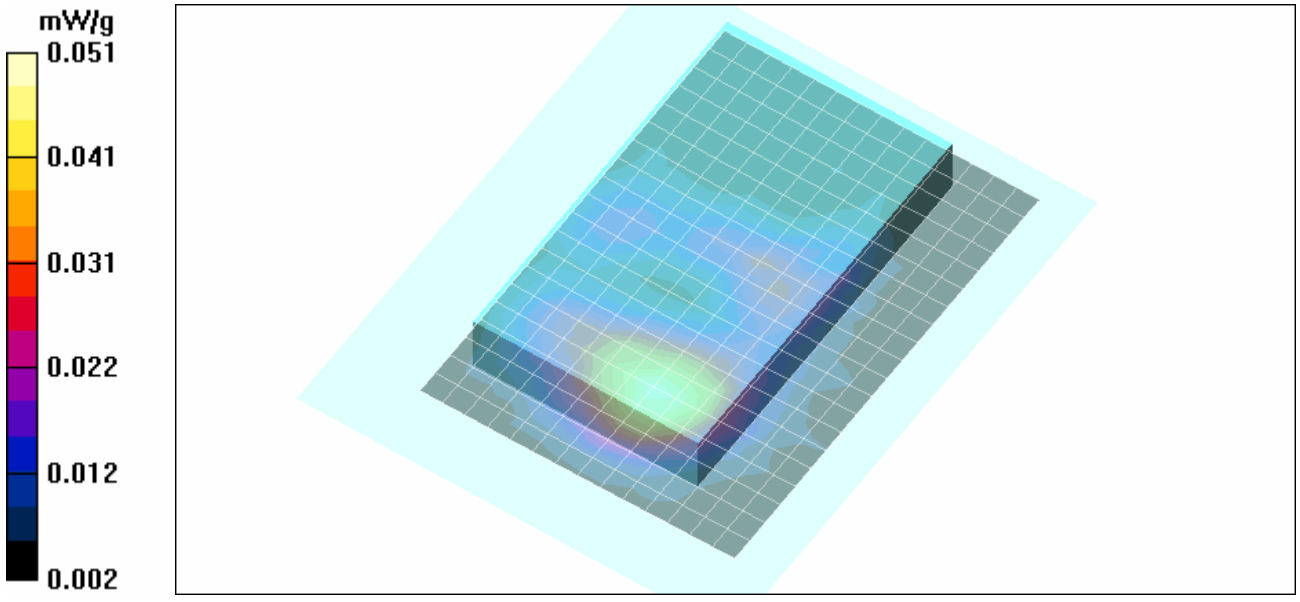
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: PCS GPRS
Frequency: 1880 MHz; Duty Cycle: 1:8.3
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1. 48 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 1 Slot
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 1 Slot
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.57 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 0.077 W/kg
SAR(1 g) = 0.046 mW/g; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.051 mW/g



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Date Tested: 05/14/2008

Body SAR - PCS Band - GPRS (2 Slots) - 1880 MHz - Ch. 661 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

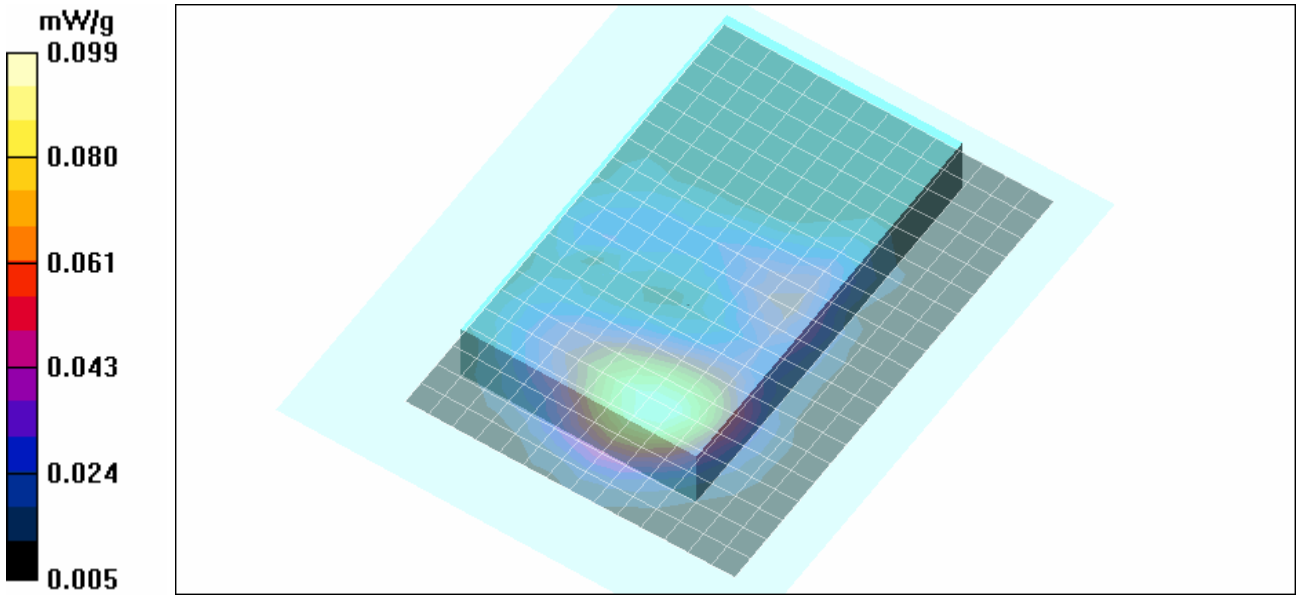
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: PCS GPRS
Frequency: 1880 MHz; Duty Cycle: 1:4.16
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.48 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 2 Slots
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 2 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.07 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.090 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.099 mW/g



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Date Tested: 05/14/2008

Body SAR - PCS Band - GPRS (3 Slots) - 1880 MHz - Ch. 661 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

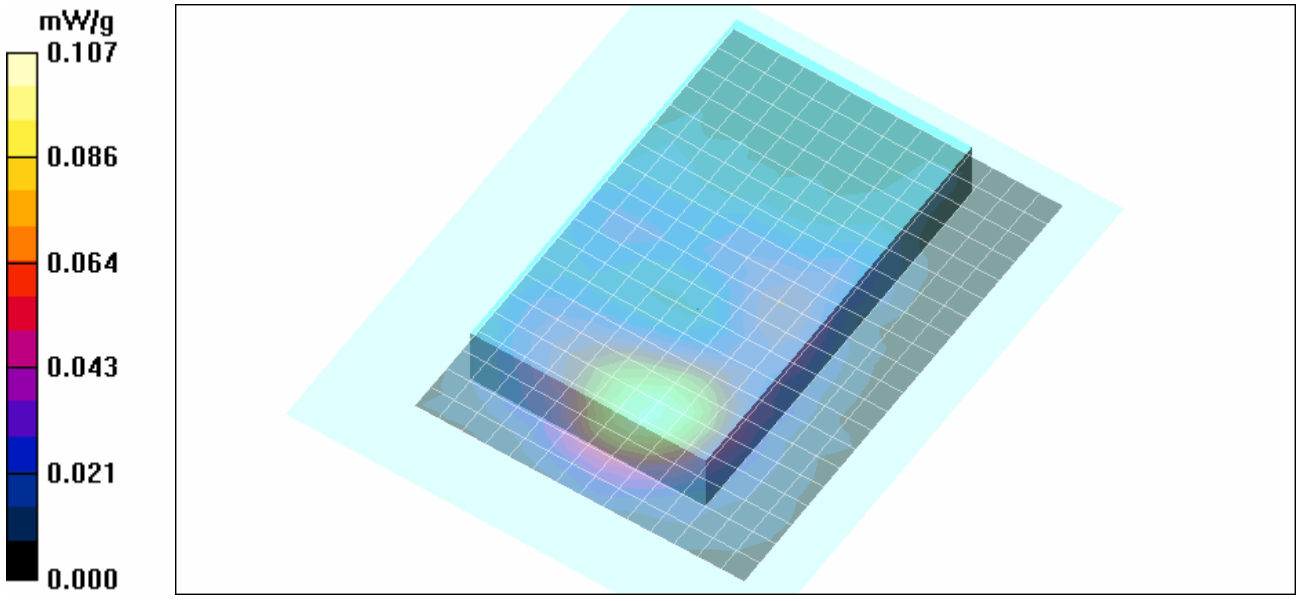
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: PCS GPRS
Frequency: 1880 MHz; Duty Cycle: 1:2.6
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.48 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 3 Slots
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 3 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.48 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 0.167 W/kg
SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.066 mW/g
Maximum value of SAR (measured) = 0.107 mW/g



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Date Tested: 05/14/2008

Body SAR - PCS Band - GPRS (4 Slots) - 1880 MHz - Ch. 661 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

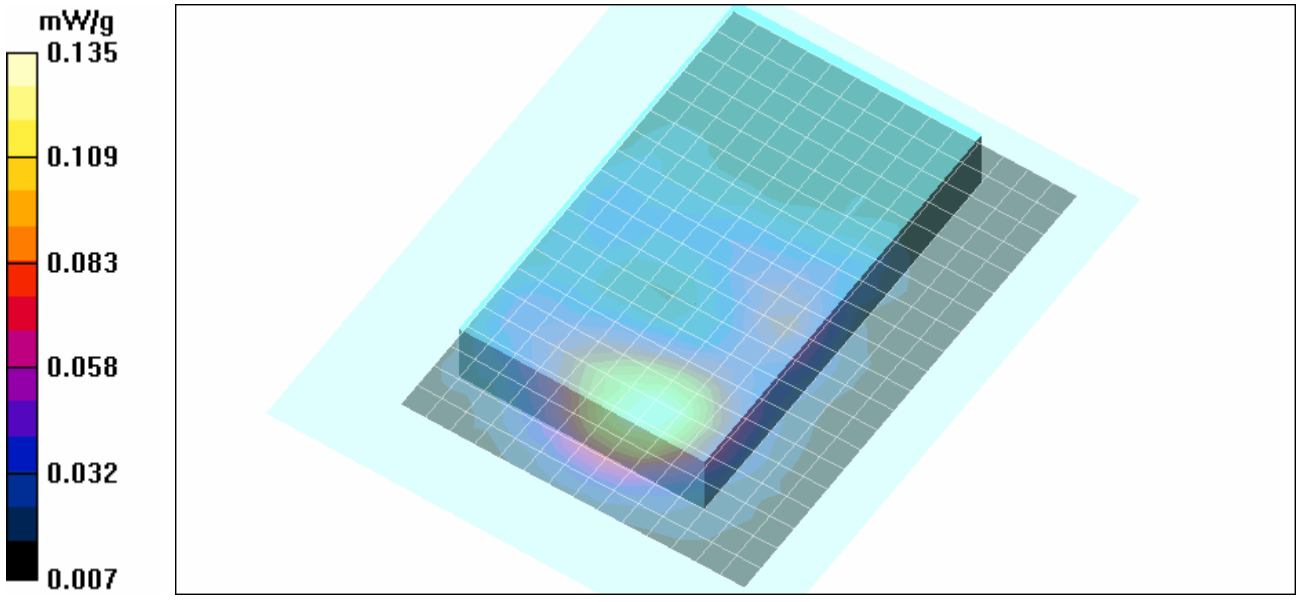
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: PCS GPRS
Frequency: 1880 MHz; Duty Cycle: 1:2
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.48 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 4 Slots
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 4 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.46 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 0.195 W/kg
SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.083 mW/g
Maximum value of SAR (measured) = 0.135 mW/g



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Date Tested: 05/14/2008

Body SAR - PCS Band - GPRS (4 Slots) - 1850.2 MHz - Ch. 512 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

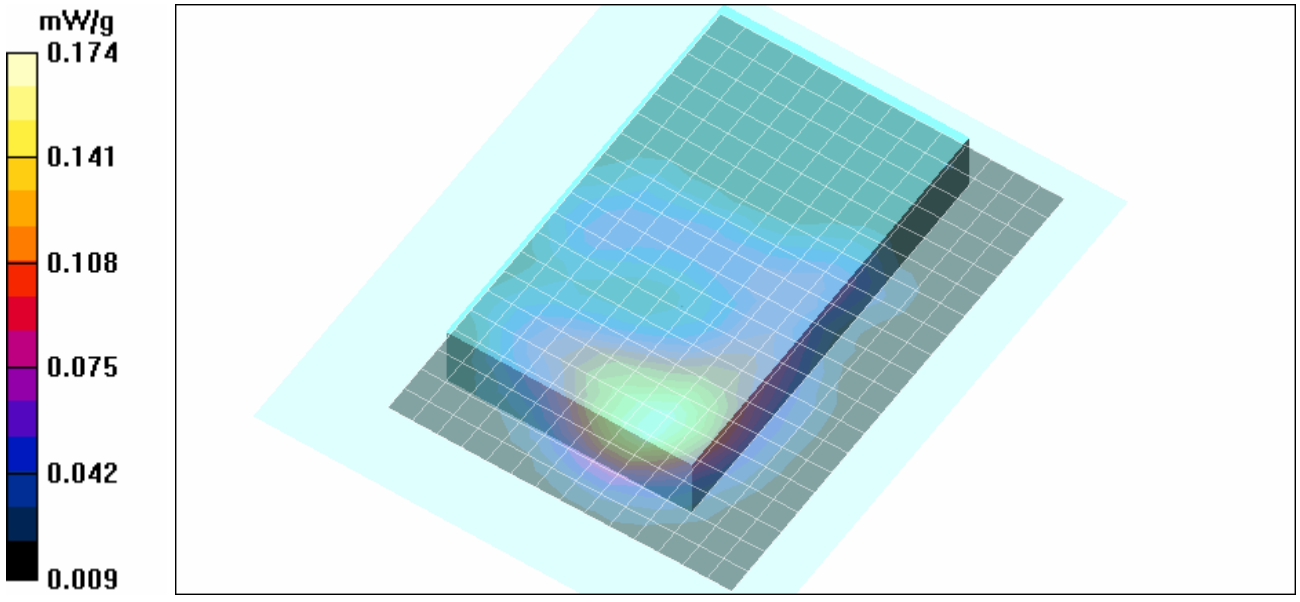
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: PCS GPRS
Frequency: 1850.2 MHz; Duty Cycle: 1:2
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M1900 Medium parameters used: f = 1850.2 MHz; σ = 1.48 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 4 Slots
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 4 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = -0.166 dB
Peak SAR (extrapolated) = 0.287 W/kg
SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.105 mW/g
Maximum value of SAR (measured) = 0.174 mW/g



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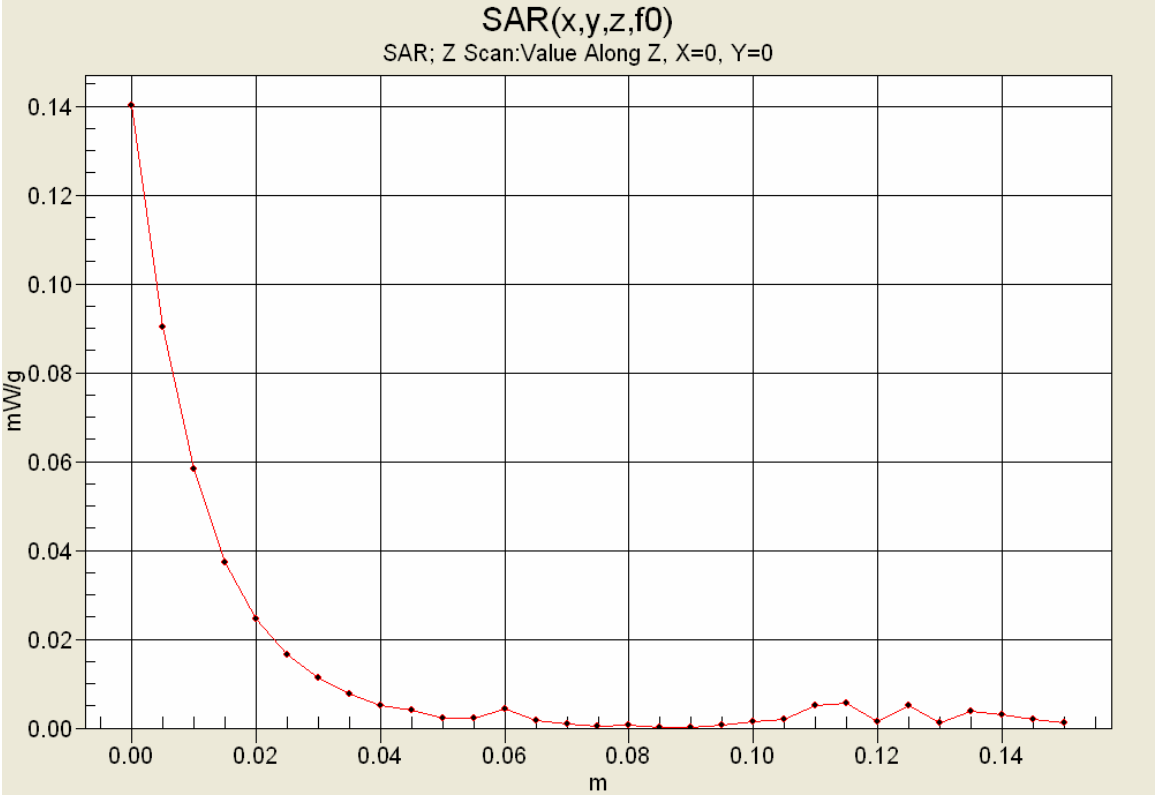
Z-Axis Scan



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Date Tested: 05/14/2008

Body SAR - PCS Band - GPRS (4 Slots) - 1909.8 MHz - Ch. 810 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

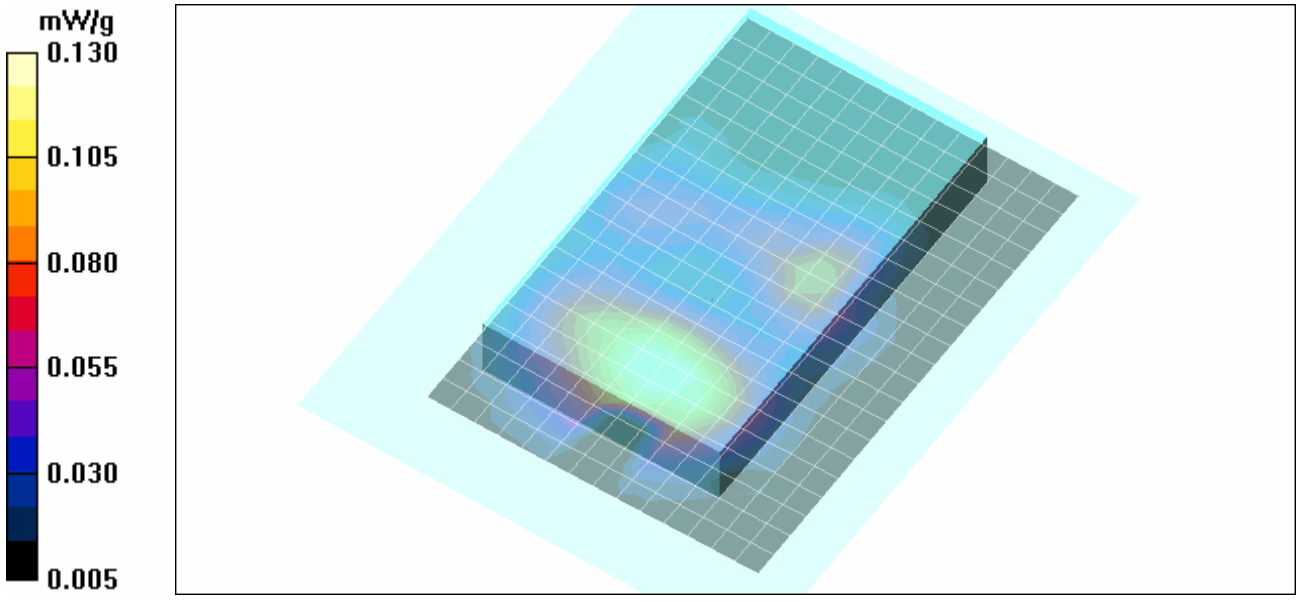
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: PCS GPRS
Frequency: 1909.8 MHz; Duty Cycle: 1:2
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M1900 Medium parameters used: f = 1909.8 MHz; σ = 1.48 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 4 Slots
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - GPRS 4 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.75 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 0.192 W/kg
SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.072 mW/g
Maximum value of SAR (measured) = 0.130 mW/g



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Date Tested: 05/14/2008

Body SAR - PCS Band - EDGE (4 Slots) - 1850.2 MHz - Ch. 512 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

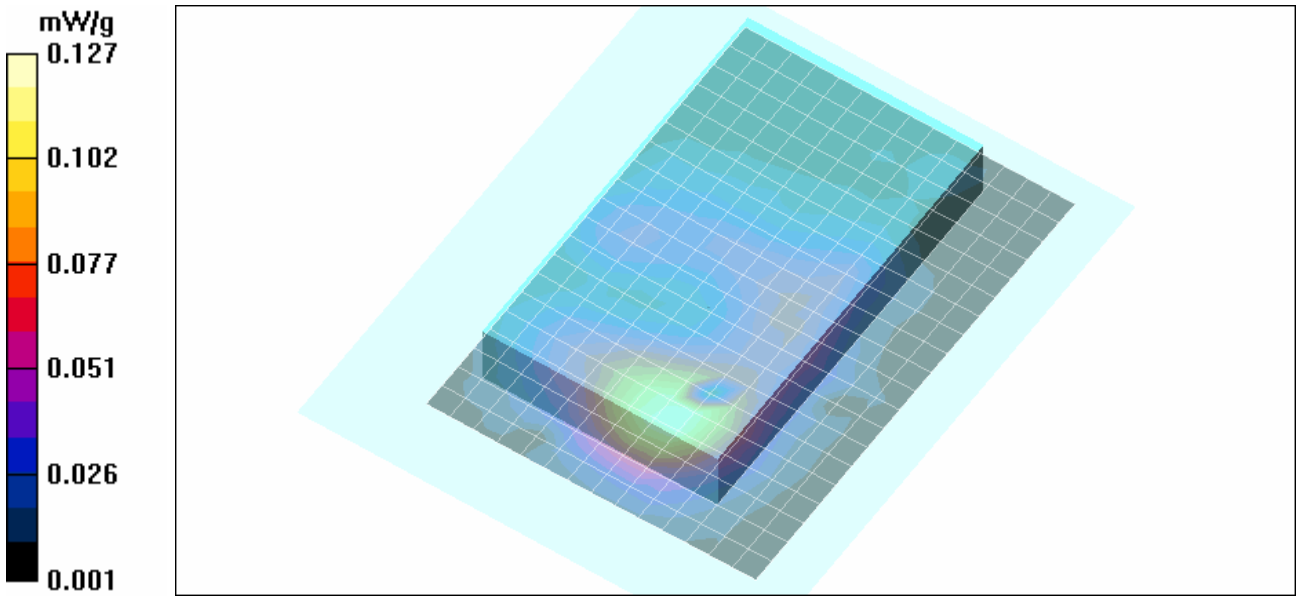
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: PCS EDGE
Frequency: 1850.2 MHz; Duty Cycle: 1:2
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M1900 Medium parameters used: f = 1850.2 MHz; σ = 1.48 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - EDGE 4 Slots
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - EDGE 4 Slots
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.16 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 0.527 W/kg
SAR(1 g) = 0.121 mW/g; SAR(10 g) = 0.078 mW/g
Maximum value of SAR (measured) = 0.127 mW/g



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Date Tested: 05/14/2008

Body SAR - PCS Band - WCDMA (RMS 12.2k) - 1880 MHz - Ch. 9400 - LCD Display Fully Extended

DUT: General Dynamics Itronix Corp.; Type: IX750 Handheld PC with IX-MC8775 GPRS/EDGE/WCDMA; Serial: None

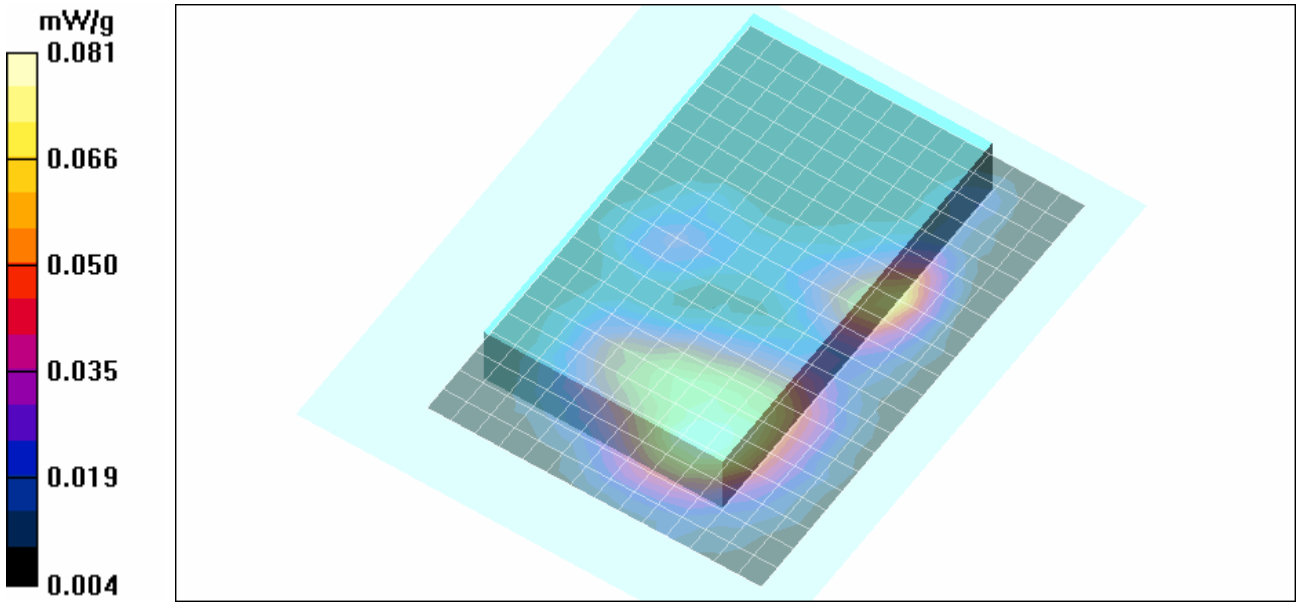
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: PCS WCDMA
Frequency: 1880 MHz; Duty Cycle: 1:1
7.4V, 4.0Ah Li-ion Smart Battery (Model: IX750-29WHR)
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.48 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - WCDMA
Area Scan (15x22x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.080 mW/g

Body SAR - Bottom Side of PC Touching Planar Phantom - 2.0 cm Spacing from Antenna to Phantom - WCDMA
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.10 V/m; Power Drift = 0.135 dB
Peak SAR (extrapolated) = 0.098 W/kg
SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.042 mW/g
Maximum value of SAR (measured) = 0.081 mW/g



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APPENDIX B - SYSTEM PERFORMANCE CHECK DATA

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Date Tested: 05/12/2008

System Performance Check - 835 MHz Dipole - MSL

DUT: Dipole 835 MHz; Asset: 00022; Serial: 411; Validation: 05/02/2008

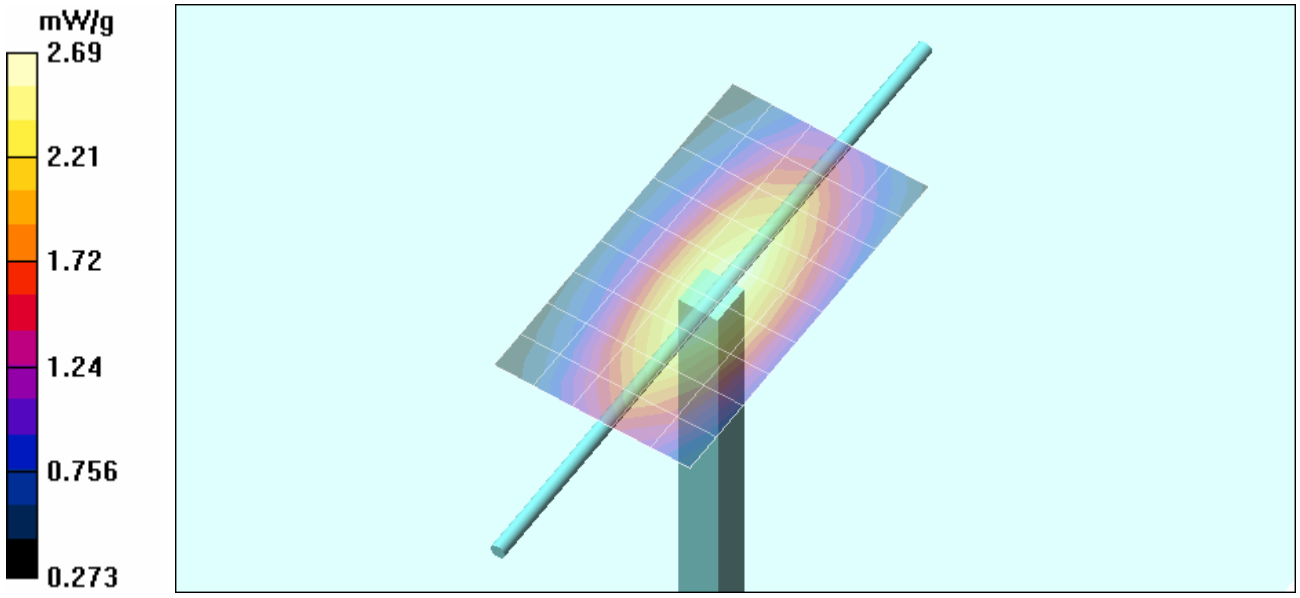
Ambient Temp: 22ºC; Fluid Temp: 20.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: M835 Medium parameters used: f = 835 MHz; σ = 0.95 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; 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 = 55.0 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 3.44 W/kg
SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.65 mW/g
Maximum value of SAR (measured) = 2.69 mW/g



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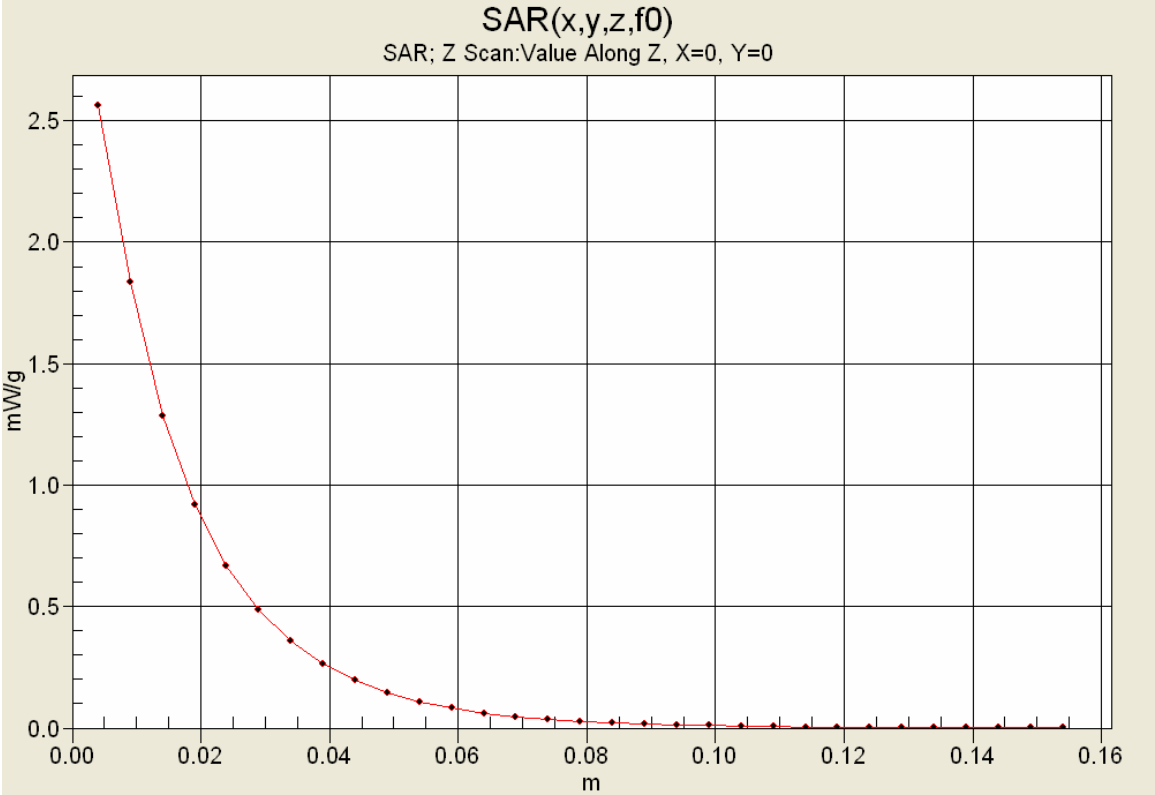
Z-Axis Scan



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Date Tested: 05/14/2008

System Performance Check - 1900 MHz Dipole - MSL

DUT: Dipole 1900 MHz; Asset: 00032; Serial: 151; Validation: 05/14/2008

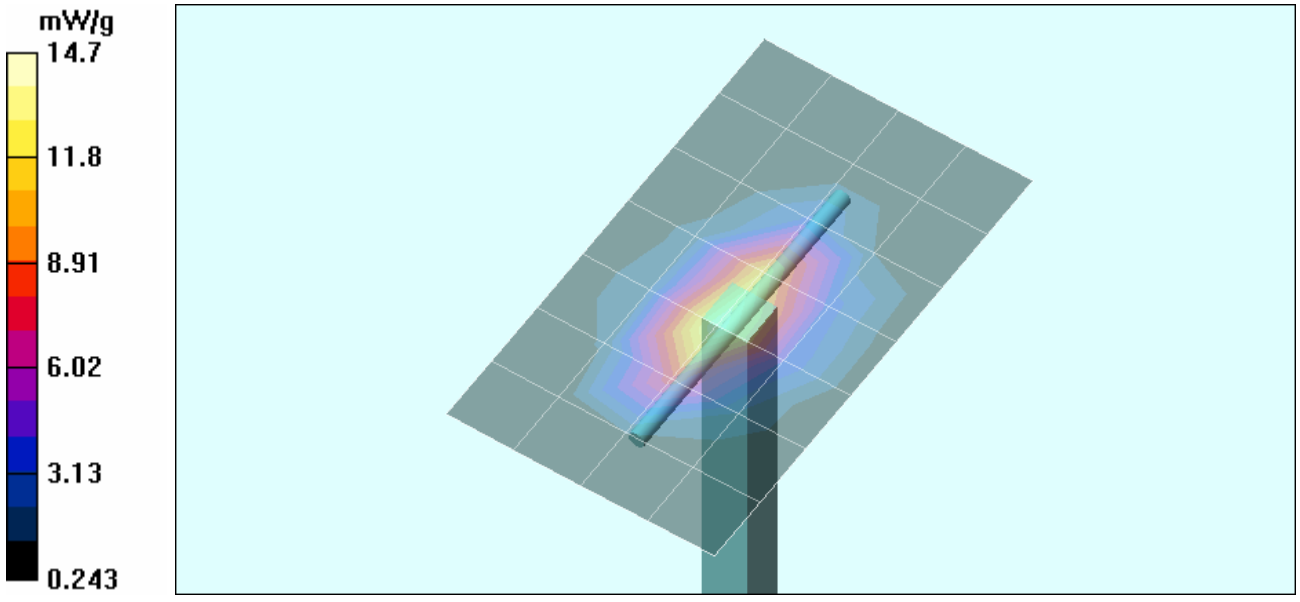
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used: f = 1900 MHz; σ = 1.51 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- 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 = 96.5 V/m; Power Drift = -0.069 dB
Peak SAR (extrapolated) = 19.2 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.26 mW/g
Maximum value of SAR (measured) = 14.7 mW/g



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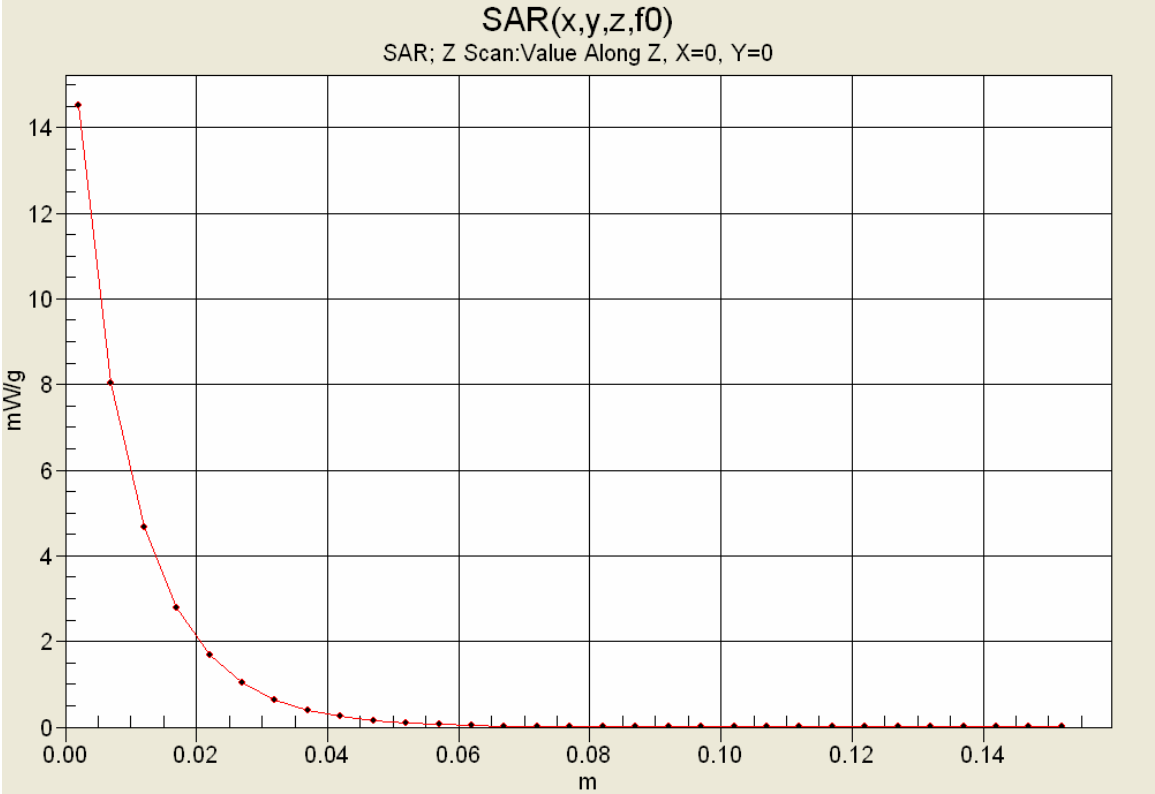
Z-Axis Scan



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APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

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835 MHz System Performance Check & DUT Evaluation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 12/May/2008
Frequency (GHz)
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	56.35	0.85
0.7450	55.55	0.96	56.68	0.85
0.7550	55.51	0.96	56.74	0.88
0.7650	55.47	0.96	56.51	0.87
0.7750	55.43	0.97	56.37	0.89
0.7850	55.39	0.97	56.18	0.90
0.7950	55.36	0.97	56.27	0.92
0.8050	55.32	0.97	56.14	0.91
0.8150	55.28	0.97	55.72	0.93
0.8250	55.24	0.97	55.89	0.94
0.8350	55.20	0.97	55.80	0.95
0.8450	55.17	0.98	55.57	0.96
0.8550	55.14	0.99	55.74	0.98
0.8650	55.11	1.01	55.56	0.99
0.8750	55.08	1.02	55.29	1.00
0.8850	55.05	1.03	55.26	1.01
0.8950	55.02	1.04	55.47	1.02
0.9050	55.00	1.05	55.04	1.02
0.9150	55.00	1.06	55.23	1.04
0.9250	54.98	1.06	55.00	1.04
0.9350	54.96	1.07	54.83	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
Wed 14/May/2008
Frequency (GHz)
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	51.30	1.41
1.8100	53.30	1.52	51.39	1.40
1.8200	53.30	1.52	51.28	1.43
1.8300	53.30	1.52	51.24	1.42
1.8400	53.30	1.52	51.17	1.44
1.8500	53.30	1.52	51.18	1.44
1.8600	53.30	1.52	51.15	1.47
1.8700	53.30	1.52	51.03	1.49
1.8800	53.30	1.52	50.83	1.48
1.8900	53.30	1.52	50.91	1.50
1.9000	53.30	1.52	51.06	1.51
1.9100	53.30	1.52	51.07	1.53
1.9200	53.30	1.52	50.85	1.53
1.9300	53.30	1.52	50.83	1.55
1.9400	53.30	1.52	50.89	1.55
1.9500	53.30	1.52	50.93	1.54
1.9600	53.30	1.52	50.73	1.56
1.9700	53.30	1.52	50.85	1.57
1.9800	53.30	1.52	50.72	1.58
1.9900	53.30	1.52	50.78	1.62
2.0000	53.30	1.52	50.77	1.63

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APPENDIX E - SYSTEM VALIDATION

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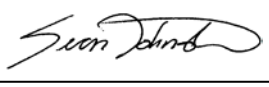
835 MHz SYSTEM VALIDATION

Type:	**835 MHz Validation Dipole**
Asset Number:	**00022**
Serial Number:	**411**
Place of Validation:	**Celltech Labs Inc.**
Date of Validation:	**May 02, 2008**

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

Performed by:	**Sean Johnston**
Signature:	

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Tel. 250-765-7650 • Fax. 250-765-7645 • e-mail: info@celltechlabs.com
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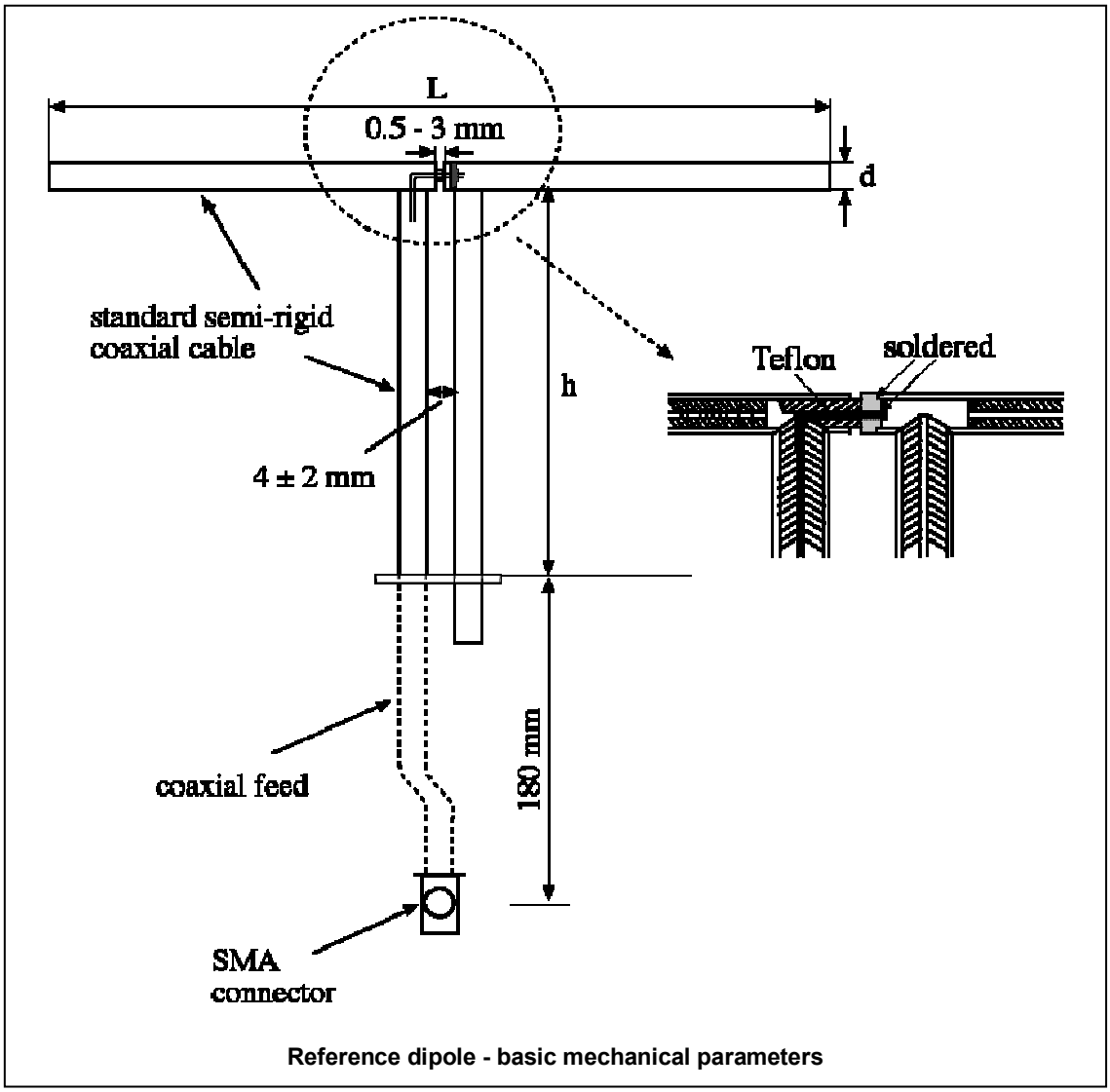
1. Dipole Construction & Electrical Characteristics

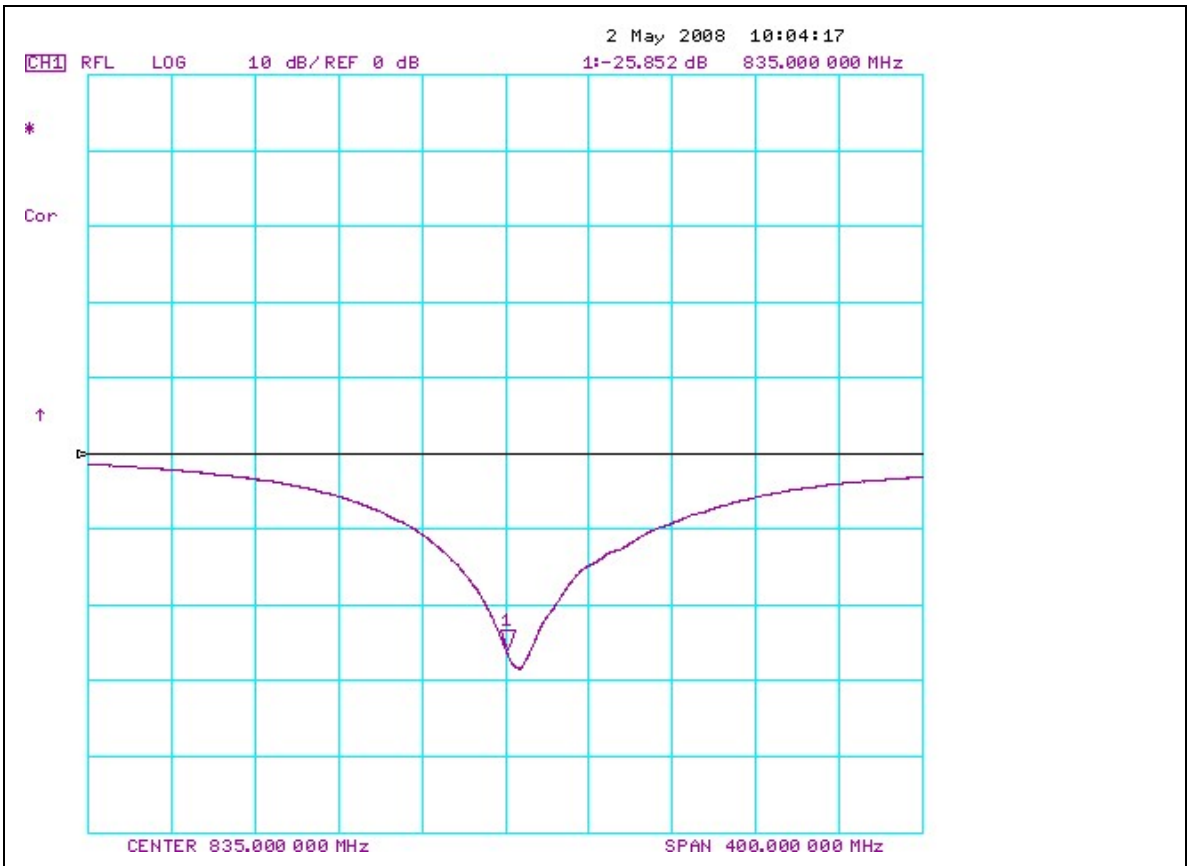
The validation dipole was constructed in accordance with the requirements specified in IEEE Standard 1528-2003 and International Standard IEC 62209-1:2005. The electrical properties were measured using an HP 8753ET Network Analyzer. The network analyzer was calibrated to the validation dipole N-type 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:

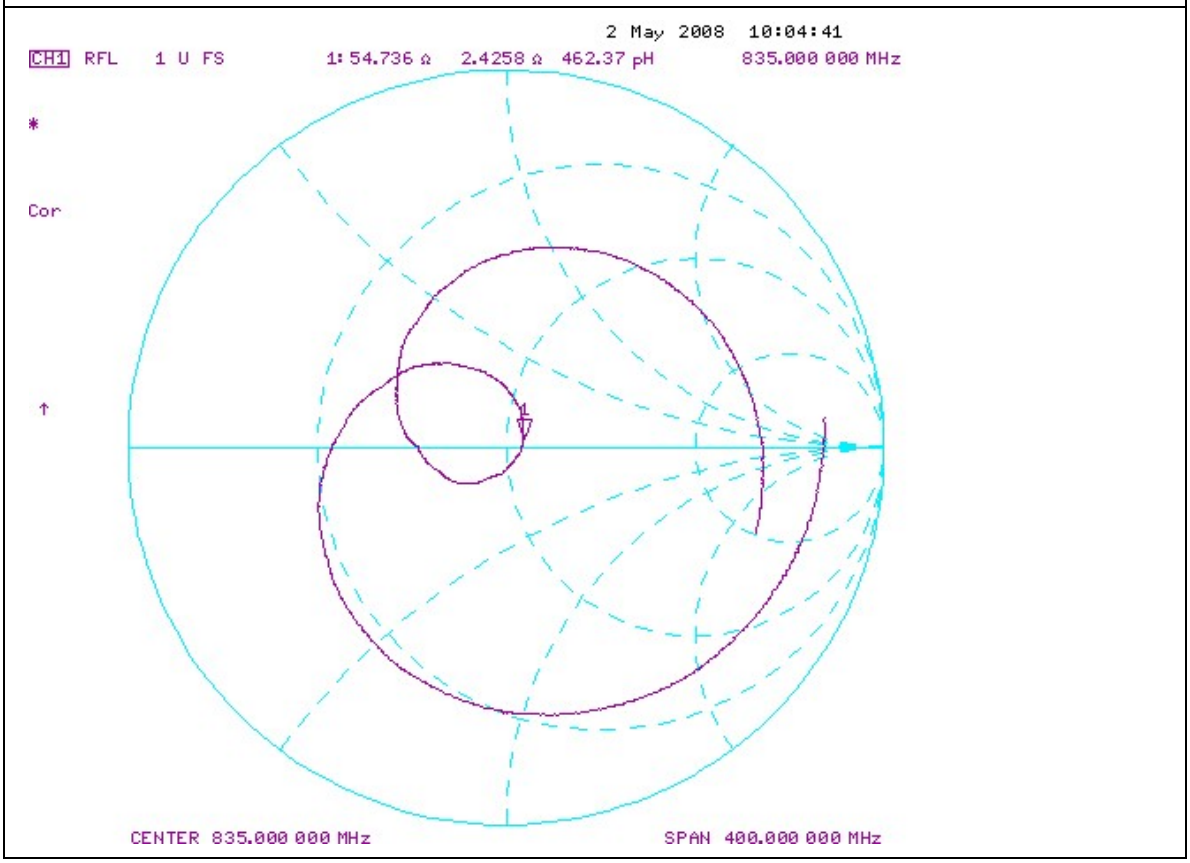
Feed point impedance at 835 MHz	Re{Z} = 54.736Ω
	Im{Z} = 2.4258Ω
Return Loss at 835 MHz	-25.852dB



Reference dipole - basic mechanical parameters

2. Validation Dipole VSWR Data





3. Validation Dipole Dimensions

Frequency (MHz)	L (mm)	h (mm)	d (mm)
300	396.0	250.0	6.0
450	270.0	167.0	6.0
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	51.5	30.4	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. 55 liters
Dimensions: 94 cm (L) x 44 cm (W) x 22 cm (H)

5. Test Equipment List

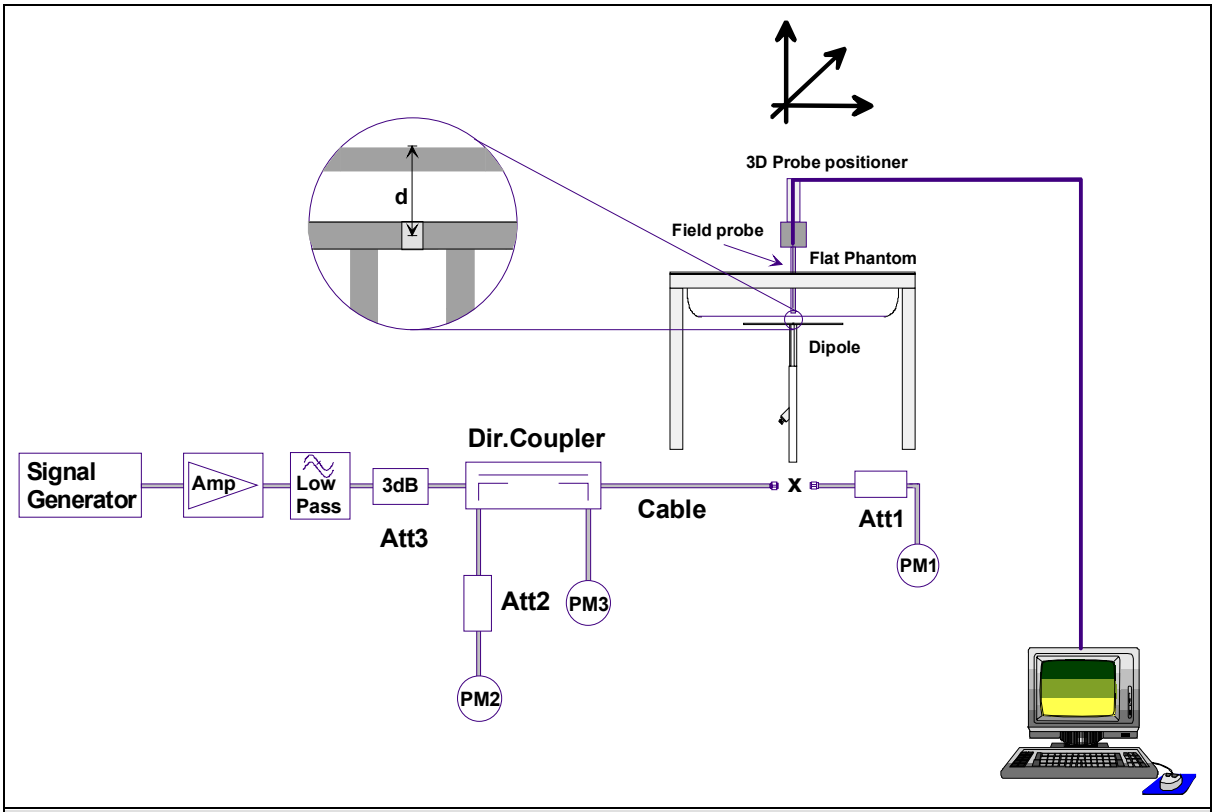
TEST EQUIPMENT	ASSET NO.	SERIAL NO.	DATE OF CAL.	CAL. DUE DATE
SPEAG DASY4 Measurement Server	00158	1078	N/A	N/A
SPEAG Robot	00046	599396-01	N/A	N/A
SPEAG DAE4	00019	353	22Apr08	22Apr09
SPEAG ET3DV6 E-Field Probe	00016	1387	22Apr08	22Apr09
835 MHz Validation Dipole	00022	411	02May08	02May09
Barski Planar Phantom	00155	03-01	N/A	N/A
ALS-PR-DIEL Dielectric Probe Kit	00160	260-00953	N/A	N/A
Gigatronics 8652A Power Meter	00007	1835272	23Apr08	23Apr09
Gigatronics 80701A Power Sensor	00014	1833699	23Apr08	23Apr09
HP 8753ET Network Analyzer	00134	US39170292	28Apr08	28Apr09
HP 8648D Signal Generator	00005	3847A00611	NCR	NCR
Amplifier Research 5S1G4 Power Amplifier	00106	26235	NCR	NCR

6. 835 MHz Validation Dipole & Planar Phantom

7. SAR Measurement

Measurements were made using a dosimetric E-field probe ET3DV6 (S/N: 1387, Conversion Factor 5.96). The SAR measurement was performed with the E-field probe in mechanical and optical surface detection mode. 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.



System Validation Measurement Setup Diagram

8. Measurement Conditions

The planar phantom was filled with 835 MHz Body tissue simulant.

Relative Permittivity: 57.5 (+4.2% deviation from target)
Conductivity: 0.97 mho/m (0.0% deviation from target)
Fluid Temperature: 20.3 °C (Start of Test) / 20.5 °C (End of Test)
Fluid Depth: ≥ 15.0 cm

Environmental Conditions:
Ambient Temperature: 22.0°C
Barometric Pressure: 101.1 kPa
Humidity: 35%

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%	
IEEE/IEC Target Dielectric Parameters (835 MHz):	**ε_r = 55.2 (+/- 5%)**	**σ = 0.97 S/m (+/- 5%)**

9. System Validation SAR Results

SAR @ 0.25W Input averaged over 1g (W/kg)				SAR @ 1W Input averaged over 1g (W/kg)			
SPEAG Target		Measured	Deviation	SPEAG Target		Measured	Deviation
2.43	+/- 10%	2.53	+4.2%	9.71	+/- 10%	10.1	+4.2%
SAR @ 0.25W Input averaged over 10g (W/kg)				**SAR @ 1W Input averaged over 10g (W/kg)**			
SPEAG Target		Measured	Deviation	SPEAG Target		Measured	Deviation
1.60	+/- 10%	1.69	+5.6%	6.38	+/- 10%	6.76	+6.0%

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.

Date Tested: 05/02/2008

System Validation - 835 MHz Dipole - MSL

DUT: Dipole 835 MHz; Asset: 00022; Serial: 411; Validation: 05/02/2008

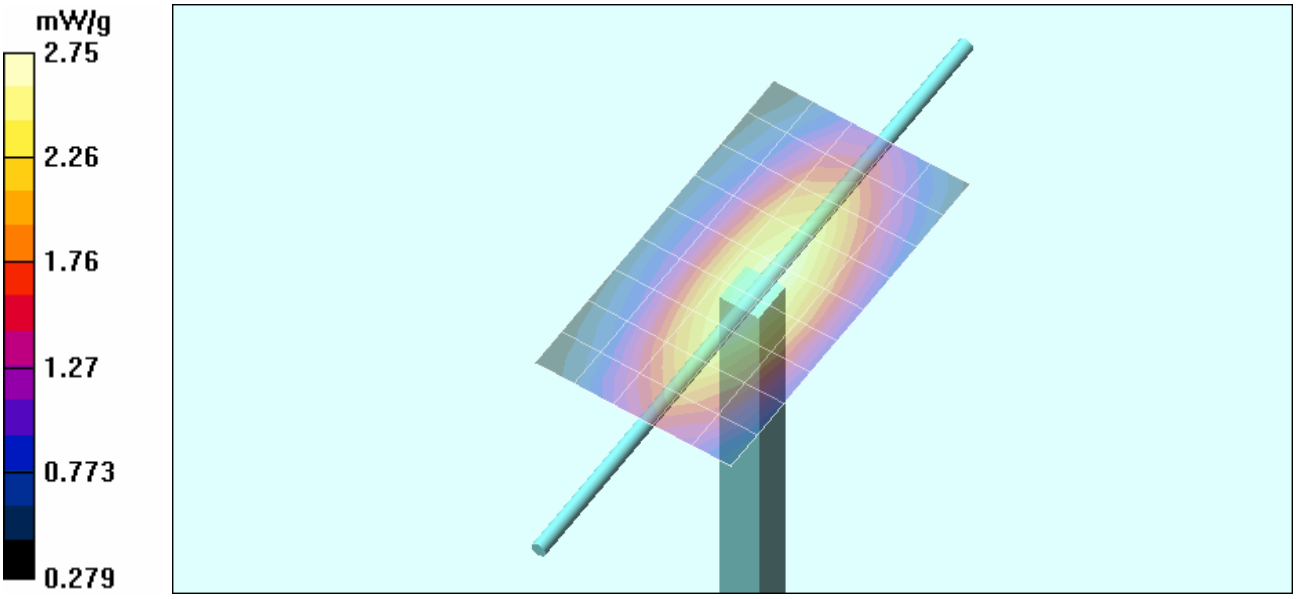
Ambient Temp: 22°C; Fluid Temp: 20.3°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: M835 Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 57.5; ρ = 1000 kg/m^3

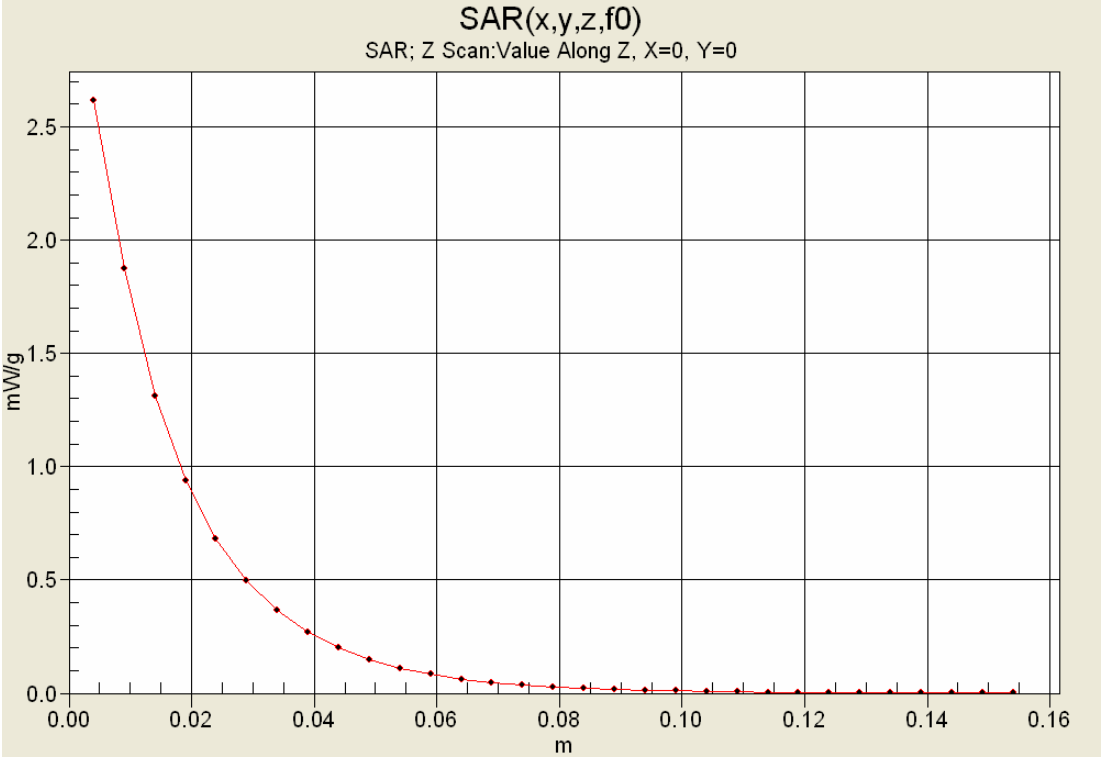
- Probe: ET3DV6 - SN1387; ConvF(5.96, 5.96, 5.96); Calibrated: 22/04/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

835 MHz Dipole - System Validation
Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 2.74 mW/g

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 = -0.052 dB
Peak SAR (extrapolated) = 3.52 W/kg
SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.69 mW/g
Maximum value of SAR (measured) = 2.75 mW/g



Z-Axis Scan



10. Measured Fluid Dielectric Parameters

System Validation - 835 MHz (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Fri 02/May/2008
Frequency (GHz)
IEEE 1528-2003 Limits for Body Epsilon
IEEE 1528-2003 Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	IEEE_eB	IEEE_sB	Test_e	Test_s
0.7350	55.59	0.96	57.99	0.86
0.7450	55.55	0.96	57.98	0.88
0.7550	55.51	0.96	57.89	0.90
0.7650	55.47	0.96	58.17	0.92
0.7750	55.43	0.97	57.98	0.92
0.7850	55.39	0.97	57.68	0.91
0.7950	55.36	0.97	57.63	0.94
0.8050	55.32	0.97	57.57	0.95
0.8150	55.28	0.97	57.80	0.96
0.8250	55.24	0.97	57.64	0.96
0.8350	55.20	0.97	57.51	0.97
0.8450	55.17	0.98	57.41	1.00
0.8550	55.14	0.99	57.24	1.00
0.8650	55.11	1.01	57.30	1.00
0.8750	55.08	1.02	57.27	1.01
0.8850	55.05	1.03	57.21	1.03
0.8950	55.02	1.04	56.98	1.03
0.9050	55.00	1.05	56.68	1.04
0.9150	55.00	1.06	56.71	1.06
0.9250	54.98	1.06	56.72	1.08
0.9350	54.96	1.07	56.69	1.08

11. Measurement Uncertainties

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 (835 MHz)	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	0.9	Rectangular	1.732050808	1	0.5	∞
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	∞
Dipole						
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)	0	Normal	1	0.64	0.0	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	4.2	Normal	1	0.6	2.5	∞
Combined Standard Uncertainty					**8.87**	
Expanded Uncertainty (k=2)					**17.74**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 and IEC Standard 62209-1:2005						

1900 MHz SYSTEM VALIDATION

Type:	**1900 MHz Validation Dipole**
Asset Number:	**00032**
Serial Number:	**151**
Place of Validation:	**Celltech Labs Inc.**
Date of Validation:	**May 14, 2008**

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

Performed by:	**Sean Johnston**
Signature:	

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Tel. 250-765-7650 • Fax. 250-765-7645 • e-mail: info@celltechlabs.com
www.celltechlabs.com

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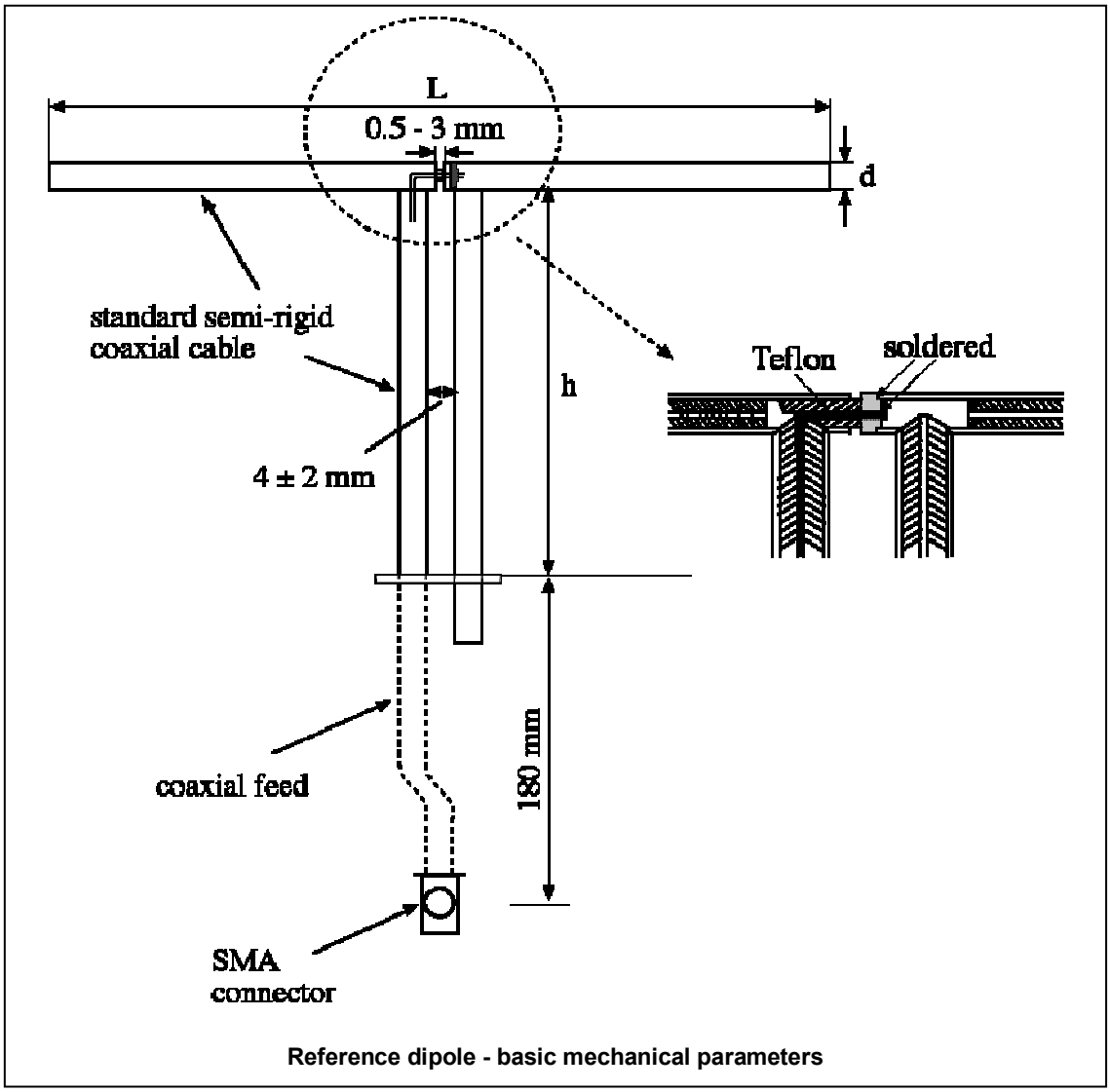
1. Dipole Construction & Electrical Characteristics

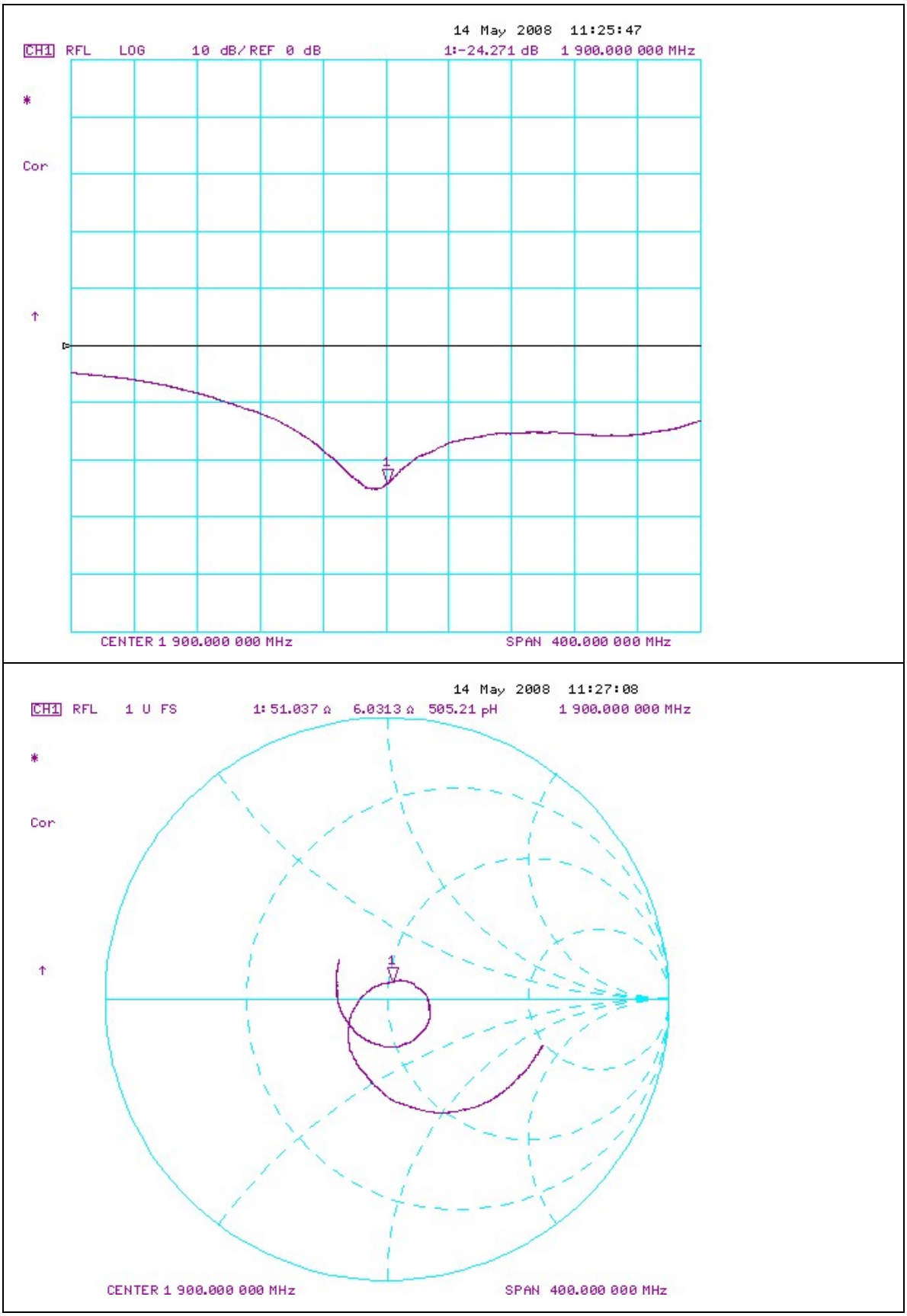
The validation dipole was constructed in accordance with the requirements specified in IEEE Standard 1528-2003 and International Standard IEC 62209-1:2005. The electrical properties were measured using an HP 8753ET Network Analyzer. The network analyzer was calibrated to the validation dipole N-type connector feed point using an HP85032E Type N calibration kit. The dipole was placed parallel to a planar phantom at a separation distance of 10.0mm from the simulating fluid using a loss-less dielectric spacer. The measured input impedance is:

Feed point impedance at 1900 MHz	Re{Z} = 51.037Ω
	Im{Z} = 6.0313Ω
Return Loss at 1900 MHz	-24.271dB



Reference dipole - basic mechanical parameters

2. Validation Dipole VSWR Data



3. Validation Dipole Dimensions

Frequency (MHz)	L (mm)	h (mm)	d (mm)
300	396.0	250.0	6.0
450	270.0	167.0	6.0
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	51.5	30.4	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. 55 liters
Dimensions: 94 cm (L) x 44 cm (W) x 22 cm (H)

5. Test Equipment List

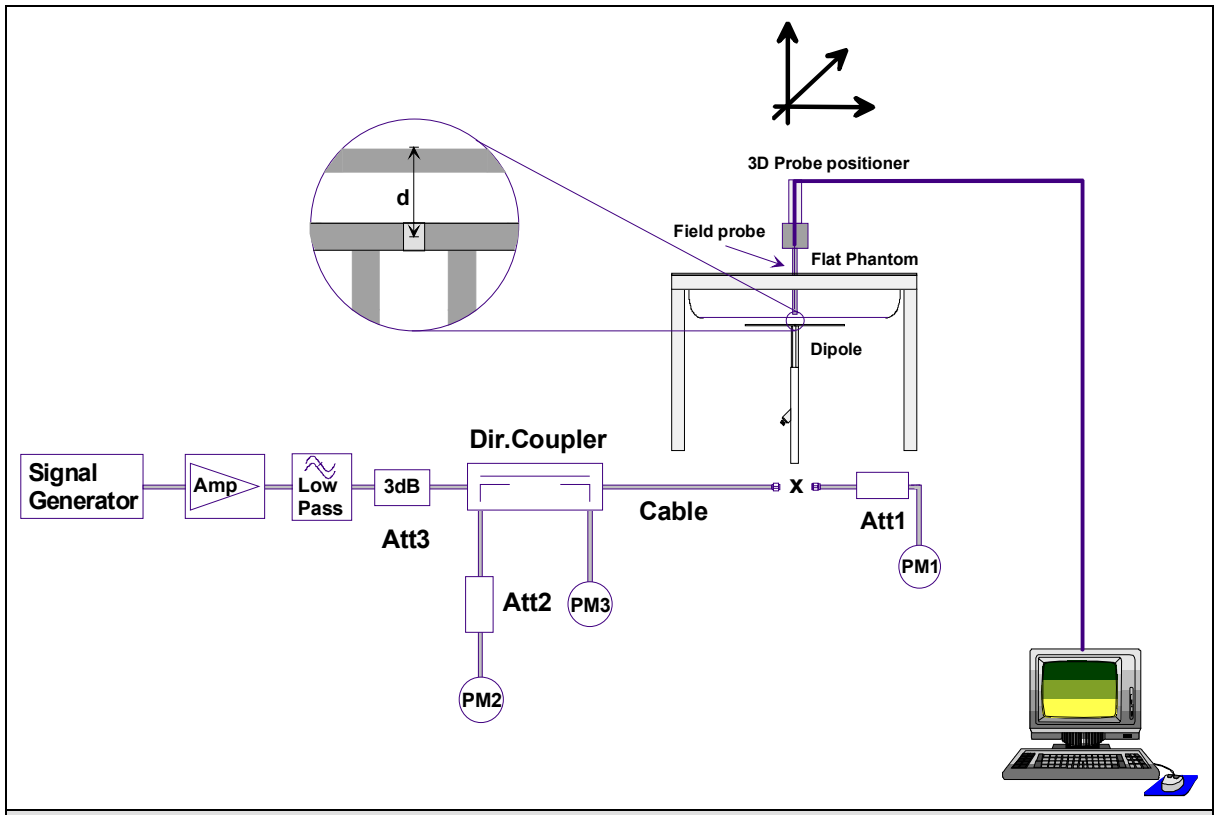
TEST EQUIPMENT	ASSET NO.	SERIAL NO.	DATE OF CAL.	CAL. DUE DATE
SPEAG DASY4 Measurement Server	00158	1078	N/A	N/A
SPEAG Robot	00046	599396-01	N/A	N/A
SPEAG DAE4	00019	353	22Apr08	22Apr09
EX3DV4 E-Field Probe	00213	3600	19Apr08	19Apr09
1900 MHz Validation Dipole	00032	151	14May08	14May09
Barski Planar Phantom	00155	03-01	N/A	N/A
ALS-PR-DIEL Dielectric Probe Kit	00160	260-00953	N/A	N/A
Gigatronics 8652A Power Meter	00007	1835272	23Apr08	23Apr09
Gigatronics 80701A Power Sensor	00014	1833699	23Apr08	23Apr09
HP 8753ET Network Analyzer	00134	US39170292	28Apr08	28Apr09
HP 8648D Signal Generator	00005	3847A00611	NCR	NCR
Amplifier Research 5S1G4 Power Amplifier	00106	26235	NCR	NCR

6. 1900 MHz Validation Dipole & Planar Phantom

7. SAR Measurement

Measurements were made using a dosimetric E-field probe EX3DV4 (S/N: 3600, Conversion Factor 7.45). 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 procedures described below.

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.



System Validation Measurement Setup Diagram

8. Measurement Conditions

The planar phantom was filled with 1900 MHz Body tissue simulant.

Relative Permittivity: 51.1 (-4.1% deviation from target)
Conductivity: 1.51 mho/m (-0.6% deviation from target)
Fluid Temperature: 23.3 °C (Start of Test) / 23.2 °C (End of Test)
Fluid Depth: ≥ 15.0 cm

Environmental Conditions:
Ambient Temperature: 24.5 °C
Barometric Pressure: 101.1 kPa
Humidity: 35%

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

Ingredient	Percentage by weight	
Water	69.85%	
Glycol	29.89%	
Salt	0.26%	
IEEE/IEC Target Dielectric Parameters (1900 MHz):	**ε_r = 53.3 (+/-5%)**	**σ = 1.52 S/m (+/-5%)**

9. System Validation SAR Results

SAR @ 0.25W Input averaged over 1g (W/kg)				SAR @ 1W Input averaged over 1g (W/kg)			
SPEAG Target		**Measured**	**Deviation**	**SPEAG Target**		**Measured**	**Deviation**
9.95	**+/- 10%**	10.3	+3.6%	**39.8**	**+/- 10%**	41.2	+3.6%
SAR @ 0.25W Input averaged over 10g (W/kg)				**SAR @ 1W Input averaged over 10g (W/kg)**			
SPEAG Target		**Measured**	**Deviation**	**SPEAG Target**		**Measured**	**Deviation**
5.20	**+/- 10%**	5.26	+1.2%	**20.8**	**+/- 10%**	21.04	+1.2%

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.

Date Tested: 05/14/2008

System Validation - 1900 MHz Dipole - MSL

DUT: Dipole 1900 MHz; Asset: 00032; Serial: 151; Validation: 05/14/2008

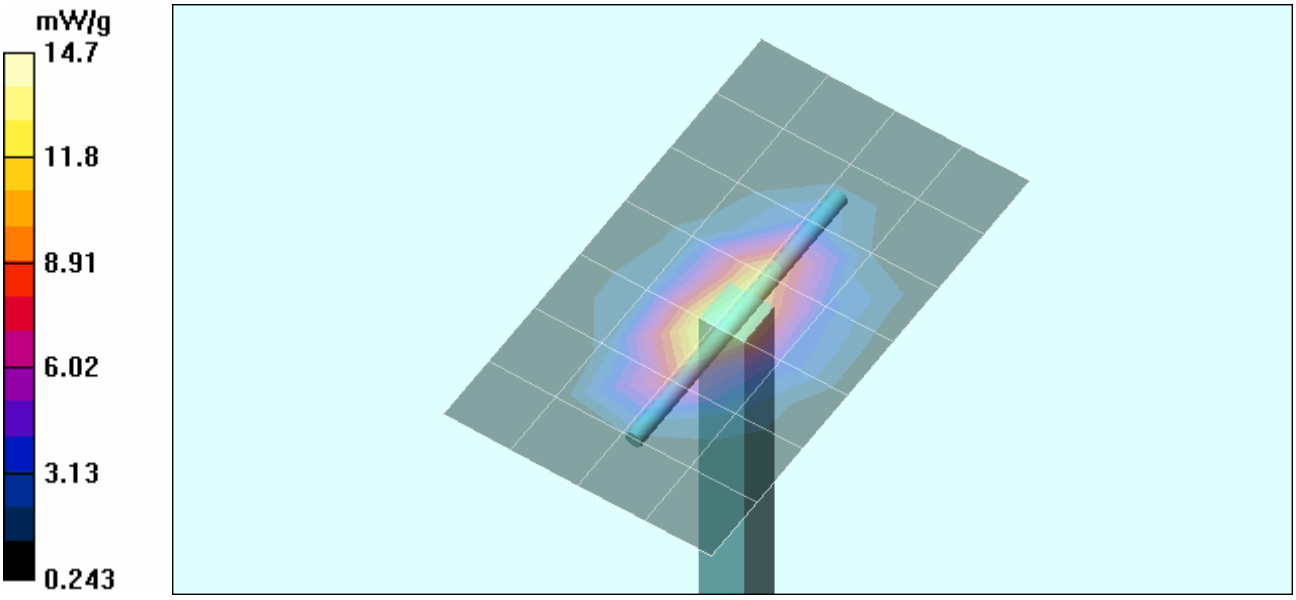
Ambient Temp: 24.5ºC; Fluid Temp: 23.3ºC; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used: f = 1900 MHz; σ = 1.51 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3

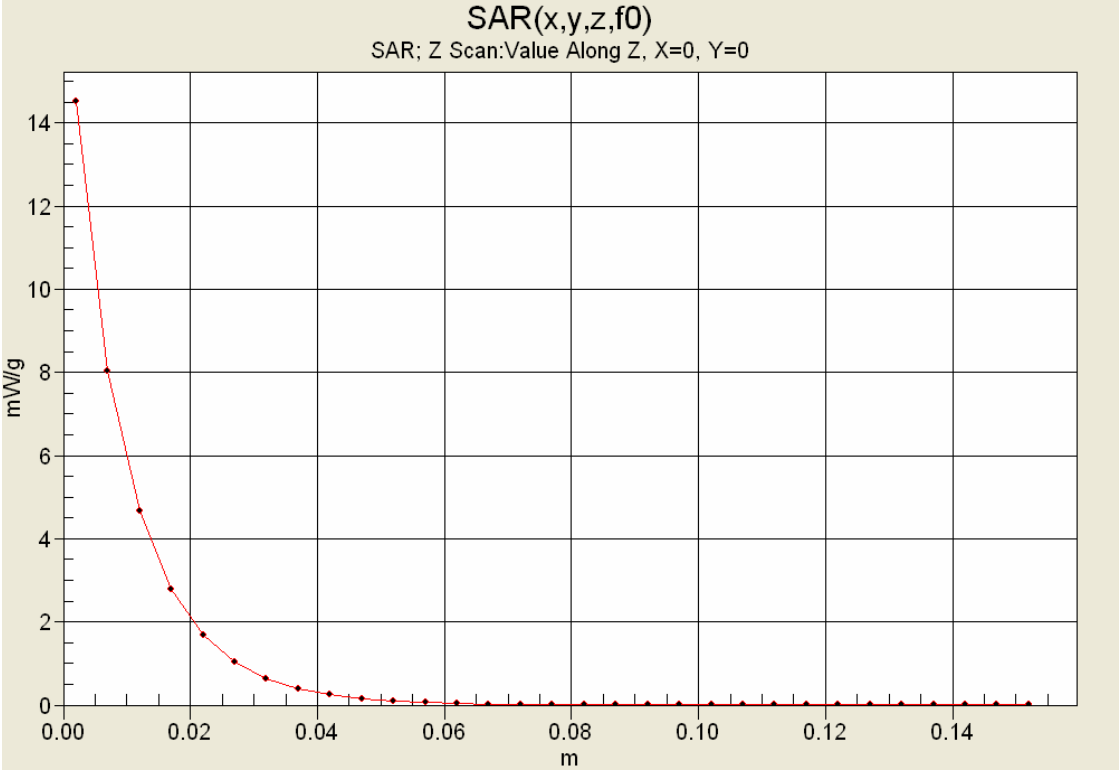
- Probe: EX3DV4 - SN3600; ConvF(7.45, 7.45, 7.45); Calibrated: 19/04/2008
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

1900 MHz Dipole - System 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 = 96.5 V/m; Power Drift = -0.069 dB
Peak SAR (extrapolated) = 19.2 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.26 mW/g
Maximum value of SAR (measured) = 14.7 mW/g



Z-Axis Scan



10. Measured Fluid Dielectric Parameters

System Validation - 1900 MHz (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Wed 14/May/2008
Frequency (GHz)
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	51.30	1.41
1.8100	53.30	1.52	51.39	1.40
1.8200	53.30	1.52	51.28	1.43
1.8300	53.30	1.52	51.24	1.42
1.8400	53.30	1.52	51.17	1.44
1.8500	53.30	1.52	51.18	1.44
1.8600	53.30	1.52	51.15	1.47
1.8700	53.30	1.52	51.03	1.49
1.8800	53.30	1.52	50.83	1.48
1.8900	53.30	1.52	50.91	1.50
1.9000	53.30	1.52	51.06	1.51
1.9100	53.30	1.52	51.07	1.53
1.9200	53.30	1.52	50.85	1.53
1.9300	53.30	1.52	50.83	1.55
1.9400	53.30	1.52	50.89	1.55
1.9500	53.30	1.52	50.93	1.54
1.9600	53.30	1.52	50.73	1.56
1.9700	53.30	1.52	50.85	1.57
1.9800	53.30	1.52	50.72	1.58
1.9900	53.30	1.52	50.78	1.62
2.0000	53.30	1.52	50.77	1.63

11. Measurement Uncertainties

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 (1810 MHz)	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	0.2	Rectangular	1.732050808	1	0.1	∞
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	∞
Dipole						
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)	0.6	Normal	1	0.64	0.4	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	4.1	Normal	1	0.6	2.5	∞
Combined Standard Uncertainty					**8.85**	
Expanded Uncertainty (k=2)					**17.69**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 and IEC Standard 62209-1:2005						

APPENDIX G - PLANAR PHANTOM CERTIFICATE OF CONFORMITY

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BARSKI INDUSTRIES (1985) LTD.

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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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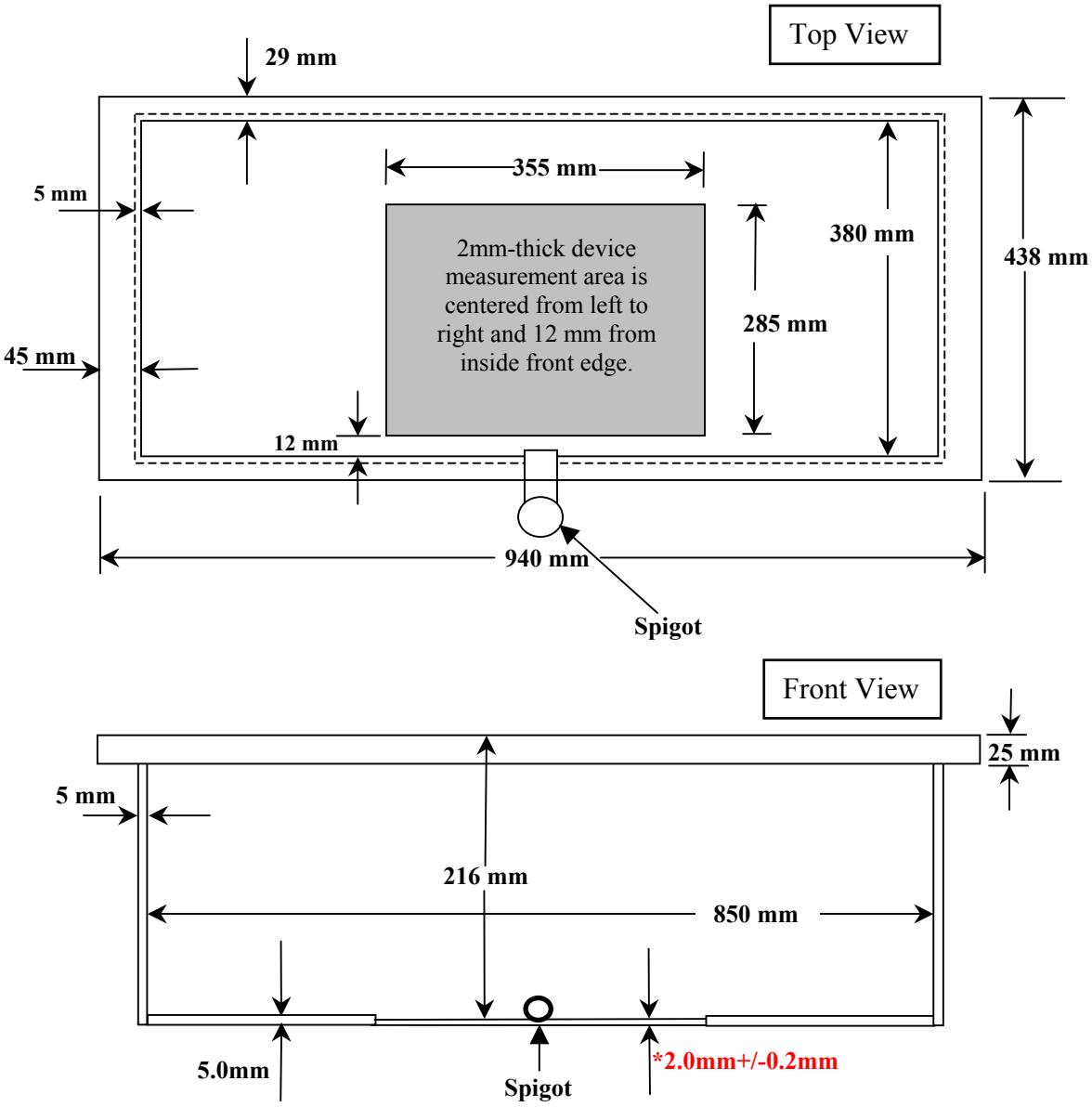
Dimensions of Fiberglass Planar Phantom

(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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