RF EXPOSURE EVALUATION

SPECIFIC ABSORPTION RATE

SAR TEST REPORT

FOR

PALM, INC.

DUAL-BAND PCS/CELLULAR CDMA-2000 PHONE

WITH

BLUETOOTH

MODEL(S): TREO XXX

FCC ID: O8F93001

IC: 3905A-93001

Test Report Serial Number

121405O8F-T705-S24C

Test Report Issue No.

S705C-020106-R0

Test Lab

Celltech Compliance Testing & Engineering Lab
(Celltech Labs Inc.)
1955 Moss Court
Kelowna, BC
Canada
V1Y 9L3

Test Report Prepared by:	Test Report Approved By:
Cheri Haight	
Cheri Haight Test Report Writer Celltech Labs Inc.	Jonathan Hughes General Manager Celltech Labs Inc.

DECLARATION OF COMPLIANCE
SAR RF EXPOSURE EVALUATION

Test Lab

CELLTECH LABS INC.
Testing and Engineering Services
1955 Moss Court
Kelowna, B.C.
Canada V1Y 9L3
Phone: 250-448-7047
Fax: 250-448-7046
e-mail: info@celltechlabs.com
web site: www.celltechlabs.com

Applicant Information

Palm, Inc.
950 West Maude Avenue
Sunnyvale, CA 94085-2801
United States

FCC IDENTIFER:	**O8F93001**
IC IDENTIFIER:	**3905A-93001**
Model(s):	**Treo XXX**
SAR Test Requirement(s):	**FCC 47 CFR §2.1093; Health Canada Safety Code 6**
SAR Test Procedure(s):	**FCC OET Bulletin 65, Supplement C (01-01)** **Industry Canada RSS-102 Issue 2** **IEEE Standard 1528-2003; IEC 62209-1:2005**
FCC Classification:	**PCS Licensed Transmitter held to ear (PCE)**
Device Description:	**Dual-Band PCS/Cellular CDMA-2000 Portable Phone with Bluetooth**
Transmit Frequency Range(s):	**1851.25 - 1908.75 MHz (PCS CDMA)** **824.70 - 848.31 MHz (Cellular CDMA)** **2402 - 2480 MHz (Bluetooth)**
Max. RF Output Power Tested:	**24.7 dBm (0.295 Watts) Conducted (PCS CDMA)** **24.4 dBm (0.275 Watts) Conducted (Cellular CDMA)** **0 dBm (1 mW) Peak Conducted (Bluetooth)**
Battery Type(s) Tested:	**Lithium-ion 3.7 VDC (P/N: 157-10014-00)**
Antenna Type(s) Tested:	**External Fixed Stubby (CDMA)** **Internal (Bluetooth)**
Body-Worn Accessories Tested:	**Leather Side Case with Belt-Clip (SKU#3256WW)** **Leather Pouch and Swivel Belt-Clip (SKU#3179WW)**
Addit. Body-worn Config. Tested:	**1.5 cm Air-Gap Spacing (Front and Back Sides of DUT)**
Audio Accessories Tested:	**Generic Ear-Microphone**
Max. SAR Level(s) Measured:	**Head: 1.13 W/kg (PCS CDMA); 1.48 W/kg (Cellular CDMA)** **Body: 0.678 W/kg (PCS CDMA); 0.896 W/kg (Cellular CDMA)**

Celltech Labs Inc. declares under its sole responsibility that this wireless portable device has demonstrated compliance with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada's Safety Code 6. The device was tested in accordance with the measurement standards and procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01), Industry Canada RSS-102 Issue 2, IEEE Standard 1528-2003, and IEC International Standard 62209-1:2005 for the General Population / Uncontrolled Exposure environment. All measurements were performed in accordance with the SAR system manufacturer recommendations.

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

Tested By:	Reviewed By:
	
Sean Johnston **Compliance Technologist** **Celltech Labs Inc.**	**Spencer Watson** **Senior Compliance Technologist** **Celltech Labs Inc.**

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1.0 INTRODUCTION

This measurement report demonstrates that the Palm, Inc. Model: Treo XXX Dual-Band PCS/Cellular CDMA-2000 Phone with Bluetooth FCC ID: O8F93001, 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]), Industry Canada RSS-102 Issue 2 (see reference [4]), IEEE Standard 1528-2003 (see reference [5]), and IEC 62209-1:2005 (see reference [6]) were employed. A description of the product, operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used, and the various provisions of the rules are included within this test report.

2.0 DESCRIPTION of Device Under Test (DUT)

SAR Test Requirement(s)	FCC Rule Part 47 CFR §2.1093			Health Canada Safety Code 6			
SAR Test Procedure(s)	FCC OET Bulletin 65, Supplement C (01-01)		Industry Canada RSS-102 Issue 2	IEEE 1528-2003		IEC 62209-1:2005	
FCC Device Classification	PCS Licensed Transmitter held to ear (PCE)						
IC Device Classification	2 GHz Personal Communications Services			RSS-133 Issue 3			
	800 MHz Cellular Telephone Employing New Technologies			RSS-132 Issue 2			
RF Exposure Category	General Population / Uncontrolled Environment						
Device Description	Dual-Band CDMA-2000 Portable Phone with Bluetooth						
FCC IDENTIFIER	O8F93001						
IC IDENTIFIER	3905A-93001						
Device Model(s)	Treo XXX						
Test Sample Serial No.	VC1CUBX50184			Identical Prototype			
Transmit Frequency Range(s)	1851.25 - 1908.75 MHz		824.70 - 848.31 MHz			2402 - 2480 MHz	
	PCS CDMA		Cellular CDMA			Bluetooth	
Max. RF Output Power Tested	23.8 dBm	0.240 W	Conducted	1851.25 MHz	Chan.	25	PCS CDMA Band
	24.7 dBm	0.295 W	Conducted	1880.00 MHz	Chan.	600	
	24.0 dBm	0.251 W	Conducted	1908.75 MHz	Chan.	1175	
	23.8 dBm	0.240 W	Conducted	824.70 MHz	Chan.	1013	Cellular CDMA Band
	24.4 dBm	0.275 W	Conducted	836.52 MHz	Chan.	384	
	24.2 dBm	0.263 W	Conducted	848.31 MHz	Chan.	777	
	0 dBm	1 mW	Peak Cond.	2441 MHz	Chan.	Mid	Bluetooth
Radio Configuration(s) Tested	RC3		**Service Option(s) Tested**			SO2	
Operating Mode(s) Tested	1x CDMA-2000	Voice/Data		1x EV-DO (Rev. 0)		Data only	
Test Control Mode(s)	All Bits Up	Communication Test Set		**CDMA MS Protocol Revision No.**		6	
Battery Type(s) Tested	Lithium-ion 3.7 VDC			P/N: 157-10014-00			
Antenna Type(s) Tested	External Fixed Stubby			Dual-Band CDMA			
	Internal			Bluetooth			
Body-Worn Accessories Tested	Leather Side Case with Belt-Clip (Metal)					SKU#3256WW	
	Leather Pouch and Swivel Belt-Clip (Plastic with Metal Spring)					SKU#3179WW	
Additional Accessories (Testing Not Required)	Leather Latch Case (No metal, > 1.5 cm separation distance)					SKU#3196WW	
Additional Configurations Tested	1.5 cm Air-Gap Spacing			Front and Back Sides of DUT			
Audio Accessories Tested	Generic Ear-Microphone						

3.0 SAR MEASUREMENT SYSTEM

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

DASY4 Measurement System with SAM Phantom and device holder

DASY4 Measurement System with SAM Phantom and validation dipole

4.0 MEASUREMENT SUMMARY

Conducted Power Measurements - Radio Configurations and Service Options

Cellular Band		RC1	RC2	RC3	RC4	RC5
SO2	1013	23.8	x	23.8	23.8	x
	384	24.5		24.4	24.4	
	777	24.3		24.2	24.2	
SO9	1013	x	23.8	x	x	23.8
	384		24.5			24.4
	777		24.2			24.2
SO17	1013	x	x	x	x	23.8
	384					24.4
	777					24.2
SO55	1013	23.8	23.9	23.8	23.8	x
	384	24.5	24.5	24.4	24.4	
	777	24.2	24.3	24.2	24.2	
PCS Band		**RC1**	**RC2**	**RC3**	**RC4**	**RC5**
SO2	25	23.9	x	23.8	23.8	x
	600	24.7		24.7	24.7	
	1175	24.1		24.0	23.9	
SO9	25	x	23.7	x	x	23.7
	600		24.8			24.7
	1175		23.9			23.8
SO17	25	x	x	x	x	23.7
	600					24.7
	1175					23.8
SO55	25	23.9	23.7	x	23.8	x
	600	24.7	24.7		24.7	
	1175	24.1	23.9		23.8	

SO/RC configuration and conducted power levels measured during SAR evaluations

SO/RC maximum conducted power levels measured (see below table for SAR scaling)

Maximum SAR Levels Evaluated

Test Band	Test Configuration	Measured SAR (1g)		Scaling Factor	Scaled SAR (1g)	
Cellular	Head	1.48	W/kg	+ 0.1 dB	1.51	W/kg
	Body	0.896	W/kg	+ 0.1 dB	0.917	W/kg
PCS	Head	1.13	W/kg	+ 0.1 dB	1.16	W/kg
	Body	0.589	W/kg	+ 0.1 dB	0.603	W/kg

Scaling Factor and Scaled SAR levels based on conducted power comparison between and shown above.

MEASUREMENT SUMMARY (Cont.)

HEAD SAR EVALUATION RESULTS - Cellular CDMA

OPERATING MODE: 1x CDMA-2000

Test Mode	Antenna Position	Battery Type	Freq. (MHz)	Chan.	Phantom Section	Test Position	Conducted Power Before Test			SAR Drift During Test (dB)	Measured SAR 1g (W/kg)	
							dBm	RC	SO			
Cellular CDMA	Fixed	Li-ion	836.52	384	Right Ear	Cheek/Touch	24.4	3	2	-0.0894	P	1.36
											S	1.17
Cellular CDMA	Fixed	Li-ion	824.70	1013	Right Ear	Cheek/Touch	23.8	3	2	0.178	P	1.16
											S	1.19
Cellular CDMA	Fixed	Li-ion	848.31	777	Right Ear	Cheek/Touch	24.2	3	2	-0.0822	P	**1.48**
											S	1.27
Cellular CDMA	Fixed	Li-ion	836.52	384	Right Ear	Ear/Tilt (15°)	24.4	3	2	0.0545	1.27	
Cellular CDMA	Fixed	Li-ion	824.70	1013	Right Ear	Ear/Tilt (15°)	23.8	3	2	0.0636	1.22	
Cellular CDMA	Fixed	Li-ion	848.31	777	Right Ear	Ear/Tilt (15°)	24.2	3	2	-0.0328	1.25	
Cellular CDMA	Fixed	Li-ion	836.52	384	Left Ear	Cheek/Touch	24.4	3	2	-0.0689	1.27	
Cellular CDMA	Fixed	Li-ion	824.70	1013	Left Ear	Cheek/Touch	23.8	3	2	-0.0219	1.03	
Cellular CDMA	Fixed	Li-ion	848.31	777	Left Ear	Cheek/Touch	24.2	3	2	-0.0285	1.30	
Cellular CDMA	Fixed	Li-ion	836.52	384	Left Ear	Ear/Tilt (15°)	24.4	3	2	0.0271	P	0.916
											S	0.875
Cellular CDMA	Fixed	Li-ion	824.70	1013	Left Ear	Ear/Tilt (15°)	23.8	3	2	0.0229	0.795	
Cellular CDMA	Fixed	Li-ion	848.31	777	Left Ear	Ear/Tilt (15°)	24.2	3	2	0.000659	0.994	

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

Test Date(s)	December 15, 2005				Relative Humidity	30	%
Measured Fluid Type	835 MHz Brain				Atmospheric Pressure	103.3	kPa
Dielectric Constant ε_r	IEEE Target		Measured	Deviation	Ambient Temperature	23.5	°C
	41.5	± 5%	39.9	-3.9%	Fluid Temperature	22.5	°C
Conductivity σ (mho/m)	IEEE Target		Measured	Deviation	Fluid Depth	≥ 15	cm
	0.90	± 5%	0.88	-2.2%	ρ (Kg/m^3)	1000	

Note(s):

1. The measurement results were obtained with the DUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A.
2. If the SAR levels measured at the mid channel were ≥ 3 dB below the SAR limit, SAR evaluation for the low and high channels was optional (per FCC OET Bulletin 65, Supplement C, Edition 01-01 - see reference [3]).
3. Secondary peak SAR levels within 2 dB of the primary were reported (P = Primary, S = Secondary).
4. The DUT was not evaluated for Head SAR with the Bluetooth co-transmitting due to the fact that the Bluetooth is intended for use in body-worn operation only with a corresponding Bluetooth device.
5. The power drift of the DUT during the SAR evaluations was measured by the DASY4 system.
6. The DUT battery was fully charged prior to the SAR evaluations.
7. The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported were consistent for all measurement periods.
8. The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
9. The SAR measurements were performed within 24 hours of the system performance check.

MEASUREMENT SUMMARY (Cont.)

HEAD SAR EVALUATION RESULTS - PCS CDMA

OPERATING MODE: 1x CDMA-2000

Test Date	Test Mode	Antenna Position	Battery Type	Freq. (MHz)	Chan.	Phantom Section	Test Position	Conducted Power Before Test			SAR Drift During Test (dB)	Measured SAR 1g (W/kg)	
								dBm	RC	SO			
Dec. 16	PCS CDMA	Fixed	Li-ion	1880.00	600	Right Ear	Cheek/Touch	24.7	3	2	-0.171	P	0.755
												S	0.708
												S	0.668
Dec. 16	PCS CDMA	Fixed	Li-ion	1880.00	600	Right Ear	Ear/Tilt (15°)	24.7	3	2	-0.0416	0.965	
Dec. 16	PCS CDMA	Fixed	Li-ion	1851.25	25	Right Ear	Ear/Tilt (15°)	23.8	3	2	-0.209	0.888	
Dec. 16	PCS CDMA	Fixed	Li-ion	1908.75	1175	Right Ear	Ear/Tilt (15°)	24.0	3	2	-0.134	0.640	
Dec. 16	PCS CDMA	Fixed	Li-ion	1880.00	600	Left Ear	Cheek/Touch	24.7	3	2	-0.203	0.900	
Dec. 19	PCS CDMA	Fixed	Li-ion	1851.25	25	Left Ear	Cheek/Touch	23.8	3	2	-0.190	0.765	
Dec. 19	PCS CDMA	Fixed	Li-ion	1908.75	1175	Left Ear	Cheek/Touch	24.0	3	2	-0.213	0.673	
Dec. 16	PCS CDMA	Fixed	Li-ion	1880.00	600	Left Ear	Ear/Tilt (15°)	24.7	3	2	-0.203	**1.13**	
Dec. 16	PCS CDMA	Fixed	Li-ion	1851.25	25	Left Ear	Ear/Tilt (15°)	23.8	3	2	-0.127	0.963	
Dec. 19	PCS CDMA	Fixed	Li-ion	1908.75	1175	Left Ear	Ear/Tilt (15°)	24.0	3	2	-0.141	0.877	

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

Test Date(s)	December 16, 2005	December 19, 2005
Measured Fluid Type	1880 MHz Brain	
Dielectric Constant ε_r	IEEE Target: 40.0 ± 5%	Date: Dec 16 / Dec 19; Measured: 38.5 / 39.0; Deviation: -3.8% / -2.5%
Conductivity σ (mho/m)	1880 MHz Brain	
	IEEE Target: 1.40 ± 5%	Date: Dec 16 / Dec 19; Measured: 1.35 / 1.40; Deviation: -3.6% / 0.0%

Test Date(s)	Dec 16	Dec 19	Unit
Relative Humidity	30	30	%
Atmospheric Pressure	102.7	103.1	kPa
Ambient Temperature	23.5	23.0	°C
Fluid Temperature	23.7	23.8	°C
Fluid Depth	≥ 15	≥ 15	cm
ρ (Kg/m^3)	1000		

Note(s):

1. The measurement results were obtained with the DUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A.
2. If the SAR levels measured at the mid channel were ≥ 3 dB below the SAR limit, SAR evaluation for the low and high channels was optional (per FCC OET Bulletin 65, Supplement C, Edition 01-01 - see reference [3]).
3. Secondary peak SAR levels within 2 dB of the primary were reported (P = Primary, S = Secondary).
4. The DUT was not evaluated for Head SAR with the Bluetooth co-transmitting due to the fact that the Bluetooth is intended for use in body-worn operation only with a corresponding Bluetooth device.
5. The power drift of the DUT during the SAR evaluations was measured by the DASY4 system.
6. The DUT battery was fully charged prior to the SAR evaluations.
7. The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported were consistent for all measurement periods.
8. The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
9. The SAR measurements were performed within 24 hours of the system performance check.

MEASUREMENT SUMMARY (Cont.)

BODY-WORN SAR EVALUATION RESULTS - PCS CDMA

OPERATING MODE: 1x CDMA-2000

Test Mode	Freq. (MHz)	Chan.	Antenna Position	Battery Type	Accessories Tested		DUT Position to Planar Phantom	Separation Distance to Planar Phantom (cm)	Conducted Power Before Test			SAR Drift During Test (dB)	Measured SAR 1g (W/kg)
					Body-Worn	Audio			dBm	RC	SO		
PCS CDMA	1880.00	600	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Front Side	1.7	24.7	3	2	-0.224	0.542
PCS CDMA	1880.00	600	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.7	3	2	-0.0618	0.543
PCS CDMA	1880.00	600	Fixed	Li-ion	Fitted Pouch and Swivel Belt-Clip	Ear-Mic	Back Side	2.5	24.7	3	2	-0.111	0.288
PCS CDMA	1880.00	600	Fixed	Li-ion	None (Air-Gap Spacing)	Ear-Mic	Back Side	1.5	24.7	3	2	-0.0753	0.539
PCS CDMA	1880.00	600	Fixed	Li-ion	None (Air-Gap Spacing)	Ear-Mic	Front Side	1.5	24.7	3	2	-0.104	0.537
PCS CDMA	1880.00	600	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.7	3	2	-0.0693	**0.589**
Bluetooth*	2441	Mid							0	-	-		
ANSI / IEEE C95.1 1999 SAFETY LIMIT					**BODY: 1.6 W/kg (averaged over 1 gram)**				**Spatial Peak Uncontrolled Exposure / General Population**				

Test Date(s)	December 19, 2005				**Relative Humidity**	30	%
Measured Fluid Type	**1880 MHz Body**				**Atmospheric Pressure**	103.0	kPa
Dielectric Constant ε_r	**IEEE Target**		**Measured**	**Deviation**	**Ambient Temperature**	24.0	°C
	53.3	**± 5%**	51.8	-2.8%	**Fluid Temperature**	23.8	°C
Conductivity σ **(mho/m)**	**IEEE Target**		**Measured**	**Deviation**	**Fluid Depth**	≥ 15	cm
	1.52	**± 5%**	1.57	+3.3%	**ρ (Kg/m^3)**	1000	

Note(s):

* Co-located Simultaneous Transmit evaluation with Bluetooth.

1. The measurement results were obtained with the DUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A.
2. If the SAR levels measured at the mid channel were ≥ 3 dB below the SAR limit, SAR evaluation for the low and high channels was optional (per FCC OET Bulletin 65, Supplement C, Edition 01-01 - see reference [3]).
3. The power drift of the DUT during the SAR evaluations was measured by the DASY4 system.
4. The DUT battery was fully charged prior to the SAR evaluations.
5. The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported were consistent for all measurement periods.
6. The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
7. The SAR measurements were performed within 24 hours of the system performance check.

MEASUREMENT SUMMARY (Cont.)

BODY-WORN SAR EVALUATION RESULTS - Cellular CDMA

OPERATING MODE: 1x CDMA-2000

Test Mode	Freq. (MHz)	Chan.	Antenna Position	Battery Type	Accessories Tested		DUT Position to Planar Phantom	Separation Distance to Planar Phantom (cm)	Conducted Power Before Test			SAR Drift During Test (dB)	Measured SAR 1g (W/kg)
					Body-Worn	Audio			dBm	RC	SO		
Cellular CDMA	836.52	384	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.4	3	2	-0.115	0.824
Cellular CDMA	824.70	1013	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	23.8	3	2	0.00193	0.650
Cellular CDMA	848.31	777	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.2	3	2	-0.0830	0.815
Cellular CDMA	836.52	384	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Front Side	1.7	24.4	3	2	0.0201	0.814
Cellular CDMA	824.70	1013	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Front Side	1.7	23.8	3	2	0.0550	0.683
Cellular CDMA	848.31	777	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Front Side	1.7	24.2	3	2	-0.0387	0.727
Cellular CDMA	836.52	384	Fixed	Li-ion	Fitted Pouch and Swivel Belt-Clip	Ear-Mic	Back Side	2.5	24.4	3	2	-0.0999	0.533
Cellular CDMA	836.52	384	Fixed	Li-ion	None (Air-Gap Spacing)	Ear-Mic	Back Side	1.5	24.4	3	2	-0.103	0.664
Cellular CDMA	836.52	384	Fixed	Li-ion	None (Air-Gap Spacing)	Ear-Mic	Front Side	1.5	24.4	3	2	-0.0686	0.544
Cellular CDMA	836.52	384	Fixed	Li-ion	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.4	3	2	-0.141	**0.896**
Bluetooth*	2441	Mid							0	-	-		
ANSI / IEEE C95.1 1999 SAFETY LIMIT					**BODY: 1.6 W/kg (averaged over 1 gram)**				**Spatial Peak Uncontrolled Exposure / General Population**				

Test Date(s)	December 20, 2005				Relative Humidity	30	%
Measured Fluid Type	835 MHz Body				Atmospheric Pressure	102.8	kPa
Dielectric Constant ε_r	IEEE Target		Measured	Deviation	Ambient Temperature	23.5	°C
	55.2	± 5%	53.5	-3.1%	Fluid Temperature	22.4	°C
Conductivity σ (mho/m)	IEEE Target		Measured	Deviation	Fluid Depth	≥ 15	cm
	0.97	± 5%	0.97	0.0%	ρ (Kg/m^3)	1000	

Note(s):

* Co-located Simultaneous Transmit evaluation with Bluetooth.

1. The measurement results were obtained with the DUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A.
2. If the SAR levels measured at the mid channel were ≥ 3 dB below the SAR limit, SAR evaluation for the low and high channels was optional (per FCC OET Bulletin 65, Supplement C, Edition 01-01 - see reference [3]).
3. The power drift of the DUT during the SAR evaluations was measured by the DASY4 system.
4. The DUT battery was fully charged prior to the SAR evaluations.
5. The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported were consistent for all measurement periods.
6. The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
7. The SAR measurements were performed within 24 hours of the system performance check.

MEASUREMENT SUMMARY (Cont.)

BODY-WORN SAR EVALUATION RESULTS - Cellular & PCS CDMA

OPERATING MODE: 1x EV-DO (Rev. 0)

Test Mode		Freq. (MHz)	Chan.	Bluetooth Transmit	Accessories Tested		DUT Position to Planar Phantom	Separation Distance to Planar Phantom (cm)	Conducted Power Before Test		SAR Drift During Test (dB)	Measured SAR 1g (W/kg)
					Body-Worn	Audio			dBm	Call Box Setting		
Cellular CDMA	EV-DO	836.52	384	On*	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.1	All Ups	-0.068	**0.801**
Cellular CDMA	EV-DO	836.52	384	Off	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.1	All Ups	-0.060	0.790
PCS CDMA	EV-DO	1880.00	600	On*	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.3	All Ups	-0.157	0.632
PCS CDMA	EV-DO	1851.25	25	On*	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.1	All Ups	-0.148	**0.678**
PCS CDMA	EV-DO	1908.75	1175	On*	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	23.8	All Ups	-0.151	0.453
PCS CDMA	EV-DO	1880.00	600	Off	Side Case with Belt-Clip	Ear-Mic	Back Side	1.7	24.3	All Ups	-0.170	0.572

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

Test Date(s)	January 23, 2006				January 24, 2006				Measured Fluid Type	835 MHz	1880 MHz	Unit
Dielectric Constant ε_r	835 MHz Body				1880 MHz Body				Relative Humidity	30	30	%
	IEEE Target		Meas.	Dev.	IEEE Target		Meas.	Dev.	Atmospheric Pressure	102.2	101.8	kPa
	55.2	± 5%	53.3	-3.4%	53.3	± 5%	51.1	-4.1%	Ambient Temperature	24.1	25.5	°C
Conductivity σ (mho/m)	835 MHz Body				1880 MHz Body				Fluid Temperature	23.5	23.5	°C
	IEEE Target		Meas.	Dev.	IEEE Target		Meas.	Dev.	Fluid Depth	≥ 15	≥ 15	cm
	0.97	± 5%	0.96	-1.0%	1.52	± 5%	1.48	-2.6%	ρ (Kg/m^3)	1000		

Note(s):

* Co-located Simultaneous Transmit evaluation with Bluetooth.

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. EV-DO test configuration(s) were determined based on the worst-case body-worn configuration(s) from the CDMA-2000 transmit mode evaluations for both the PCS and Cellular bands.
3. If the mid channel EV-DO SAR levels were greater than the SAR levels measured in the corresponding CDMA-2000 test mode configuration, EV-DO SAR evaluations were also performed for the low and high channels.
4. The power drift of the DUT during the SAR evaluations was measured by the DASY4 system.
5. The DUT battery was fully charged prior to the SAR evaluations.
6. The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported were consistent for all measurement periods.
7. The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
8. The SAR measurements were performed within 24 hours of the system performance check.

5.0 DETAILS OF SAR EVALUATION

The Palm, Inc. Model: Treo XXX Dual-Band PCS/Cellular CDMA-2000 Phone with Bluetooth FCC ID: O8F93001 was compliant for localized Specific Absorption Rate (SAR) based on the test provisions and conditions described below. The detailed test setup photographs are shown in Appendix D.

Ear-held Configuration

1) The handset was tested in an ear-held configuration on both the left and right sections of the SAM phantom at the mid channel of the operating band. If the SAR level at the mid channel of the frequency band for each test configuration (left ear, right ear, cheek/touch, ear/tilt) was ≥ 3dB below the SAR limit, measurements at the low and high channels were optional (per FCC OET Bulletin 65, Supplement C, Edition 01-01 - see reference [3]).

a) The handset was placed in the device holder in a normal operating position with the test device reference point located along the vertical centerline on the front of the device aligned to the ear reference point, with the center of the earpiece touching the center of the ear spacer of the SAM phantom.

b) With the handset positioned parallel to the cheek, the test device reference point was aligned to the ear reference point on the head phantom, and the vertical centerline was aligned to the phantom reference plane (initial ear position).

c) While maintaining the three alignments, the body of the handset was gradually adjusted to each of the following test positions:

- Cheek/Touch Position: the handset was brought toward the mouth of the head phantom by pivoting against the ear reference point until any point of the mouthpiece or keypad touched the phantom.

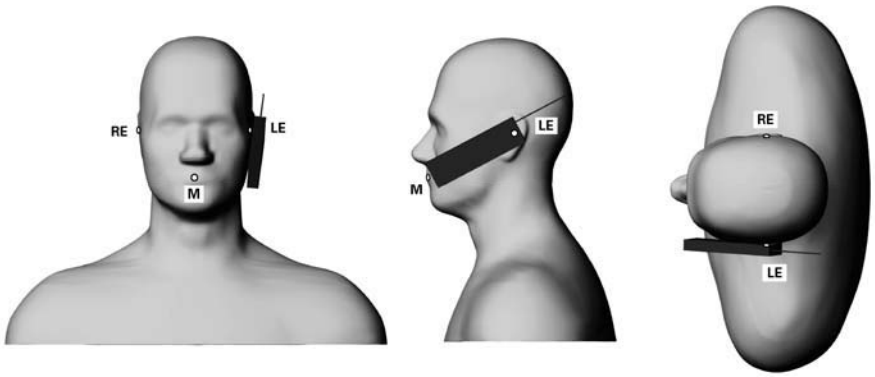


Figure 1. Phone position 1, "cheek" or "touch" position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning, are indicated (Shoulders are shown for illustration only).

- Ear/Tilt Position: With the phone aligned in the Cheek/Touch position, the handset was tilted away from the mouth with respect to the test device reference point by 15 degrees.

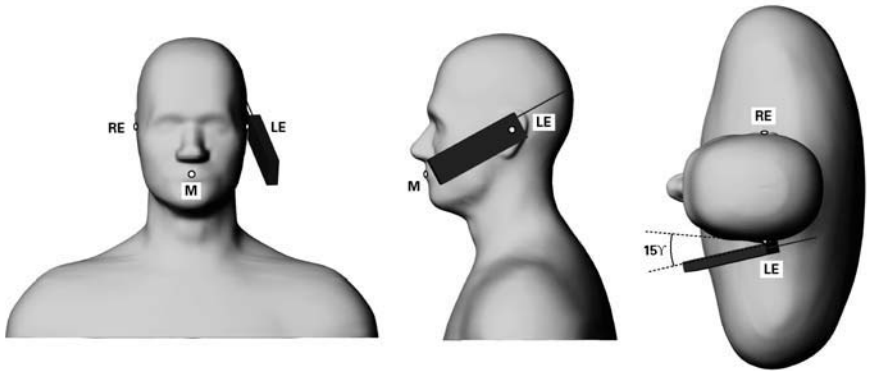


Figure 2. Phone position 2, "tilted position." The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning, are indicated (Shoulders are shown for illustration only).

DETAILS OF SAR EVALUATION (Cont.)

Body-worn Configuration

2) The DUT was tested in a body-worn configuration placed inside the Leather Side Case and Belt-Clip accessory (SKU#3256WW). The front side of the DUT (keypad side) was placed facing parallel to the outer surface of the SAM phantom (planar section) with the belt-clip touching the phantom surface. The Leather Side Case with Belt-Clip accessory provided a 1.7 cm separation distance between the front side of the DUT (keypad side) and the outer surface of the SAM phantom (planar section). A generic ear-microphone accessory was connected to the audio port of the DUT for the duration of the tests.
3) The DUT was tested in a body-worn configuration placed inside the Leather Side Case and Belt-Clip accessory (SKU#3256WW). The back side of the DUT (battery side) was placed facing parallel to the outer surface of the SAM phantom (planar section) with the belt-clip touching the phantom surface. The Leather Side Case with Belt-Clip accessory provided a 1.7 cm separation distance between the back side of the DUT (battery side) and the outer surface of the SAM phantom (planar section). A generic ear-microphone accessory was connected to the audio port of the DUT for the duration of the tests.
4) The DUT was tested in a body-worn configuration placed inside the Fitted Leather Pouch with Swivel Belt-Clip accessory (SKU#3179WW). The back side of the DUT was placed facing parallel to the outer surface of the SAM phantom (planar section) with the attached swivel belt-clip accessory touching the phantom surface (the Fitted Leather Pouch accessory is designed so that the DUT is positioned with the back side facing the user's body). The Fitted Leather Pouch with Swivel Belt-Clip accessory provided a 2.5 cm separation distance between the back side of the DUT and the outer surface of the SAM phantom (planar section). A generic ear-microphone accessory was connected to the audio port of the DUT for the duration of the tests.
5) The DUT was tested in a body-worn configuration with an "air-gap" spacing of 1.5 cm between the front side (keypad side) and the outer surface of the SAM phantom (planar section). The DUT was also tested with an "air-gap" spacing of 1.5 cm between the back side (battery side) and the outer surface of the SAM phantom (planar section). No body-worn accessories were used with the DUT in the "air-gap" spacing test configurations for the purpose of allowing for generic body-worn holster/case/clip accessories that do not contain any metallic components and provide a minimum separation distance of 1.5 cm between the phone and the user's body. A generic ear-microphone accessory was connected to the audio port of the DUT for the duration of the tests.
6) Co-located transmit tests were performed with the CDMA and Bluetooth transmitting simultaneously in the worst-case single-transmit body-worn configuration for both the PCS and Cellular CDMA bands.
7) The EV-DO SAR test configuration(s) were determined based on the worst-case body-worn configuration(s) from the CDMA-2000 evaluations for both the PCS and Cellular bands.

Test Modes & Power Settings

8) The DUT was tested with a modulated CDMA signal generated by the Will'Tek 4303 Mobile Service Tester (except for EV-DO mode, in which the Agilent E5515C Communications Test Set was used) at maximum power level in the "always up" power control setting (see page 6 for CDMA-2000 service option and radio configuration settings, and attached "Maximum RF Output Power" exhibit from the Agilent 1x EV-DO User Guide). The conducted power levels of the DUT were measured prior to the SAR evaluations according to the procedures described in FCC 47 CFR §2.1046 using a Gigatronics 8652A Universal Power Meter.
9) For the co-transmit body-worn SAR evaluations the Bluetooth was enabled via internal test software application transmitting with a modulated signal on a fixed frequency (frequency hopping disabled) at maximum power level.
10) The power drift of the DUT during the SAR evaluations was measured by the DASY4 system.
11) The DUT battery was fully charged prior to the SAR evaluations.

Test Conditions

12) The ambient and fluid temperatures were measured prior to the fluid dielectric parameter checks and the SAR evaluations.
13) The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
14) The SAR measurements were performed within 24 hours of the system performance check.

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 certain body-worn and face-held devices a planar phantom was used.

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

An area scan was determined as follows:

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

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

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

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

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

g. A zoom scan volume of 32 mm x 32 mm x 30 mm (5x5x7 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 (7x7x7 points) to ensure complete capture of the peak spatial-average SAR.

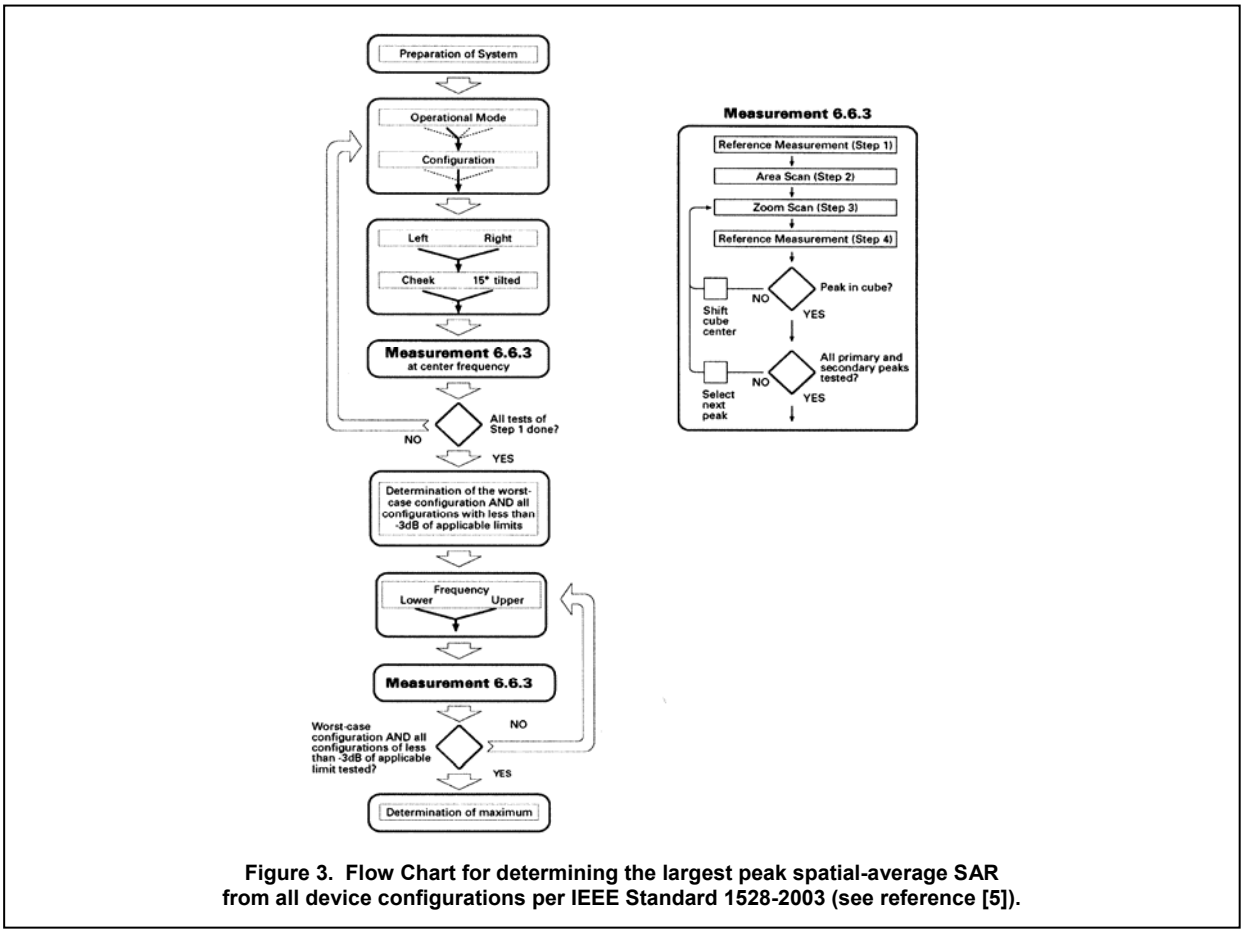


Figure 3. Flow Chart for determining the largest peak spatial-average SAR from all device configurations per IEEE Standard 1528-2003 (see reference [5]).

7.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations a system check was performed at the planar section of the phantom with an 835MHz dipole and a 1900MHz dipole (see Appendix E for system validation procedures). The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C). A forward power of 250mW was applied to the dipole and the system was verified to a tolerance of ±10% (see Appendix B for system performance check test plots). See Table 1 for the SAR system manufacturer's reference body SAR values from the DASY4 Operation Manual (see reference [7]).

SYSTEM PERFORMANCE CHECK EVALUATIONS

Test Date	Equiv. Tissue (MHz)	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)
		IEEE/SPEAG Target	Meas.	Dev.	IEEE Target	Meas.	Dev.	IEEE Target	Meas.	Dev.						
12/15/05	835 Brain	2.38 ±10%	2.19	-8.0%	41.5 ±5%	39.9	-3.9%	0.90 ±5%	0.88	-2.2%	1000	22.9	22.5	≥ 15	30	103.3
12/16/05	1900 Brain	9.93 ±10%	10.1	+1.7%	40.0 ±5%	38.5	-3.8%	1.40 ±5%	1.38	-1.4%	1000	23.0	23.8	≥ 15	30	102.7
12/19/05	1900 Brain	9.93 ±10%	10.4	+4.7%	40.0 ±5%	39.0	-2.5%	1.40 ±5%	1.43	+2.1%	1000	22.0	23.8	≥ 15	30	103.1
12/20/05	835 Body	2.43 ±10%	2.57	+5.8%	55.2±5%	53.5	-3.1%	0.97±5%	0.97	0.0%	1000	23.2	22.4	≥ 15	30	102.8
01/23/06	835 Body	2.43 ±10%	2.49	+2.5%	55.2±5%	53.3	-3.4%	0.97±5%	0.96	-1.0%	1000	22.5	20.8	≥ 15	30	102.8
01/24/06	1900 Body	9.95 ±10%	10.7	+7.5%	53.3±5%	51.0	-4.3%	1.52±5%	1.50	-1.3%	1000	21.2	23.0	≥ 15	30	102.1

Note(s):
1. The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the system performance check. The temperatures reported in the above table were consistent for all measurement periods.

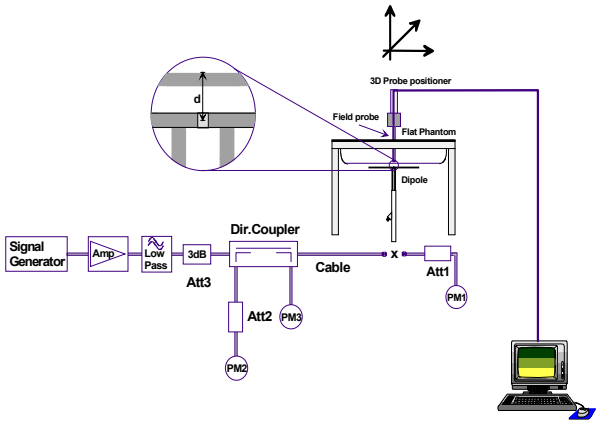


Figure 4. System Performance Check Setup Diagram

835MHz Dipole Setup

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

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

Table 1. SAR system manufacturer's reference Body SAR values

1900MHz Dipole Setup

8.0 SIMULATED EQUIVALENT TISSUES

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

1880/1900MHz TISSUE SIMULANT		
INGREDIENT	**1880/1900 MHz Brain**	**1880/1900 MHz Body**
Water	55.85 %	69.85 %
Glycol Monobutyl	44.00 %	29.89 %
Salt	0.15 %	0.26 %

835MHz TISSUE SIMULANT		
INGREDIENT	**835 MHz Brain**	**835 MHz Body**
Water	40.71 %	53.79 %
Sugar	56.63 %	45.13 %
Salt	1.48 %	0.98 %
HEC	0.99 %	--
Bactericide	0.19 %	0.10 %

9.0 SAR SAFETY LIMITS

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1 g of tissue)	1.60	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0

Notes:
1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
2. 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.

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:	DASY4 software
Connecting Lines:	Optical downlink for data and status info. Optical uplink for commands and clock

DASY4 Measurement Server

Function:	Real-time data evaluation for field measurements and surface detection
Hardware:	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections:	COM1, COM2, DAE, Robot, Ethernet, Service Interface

E-Field Probe

Model:	ET3DV6
Serial No.:	1387
Construction:	Triangular core fiber optic detection system
Frequency:	10 MHz to 6 GHz
Linearity:	±0.2 dB (30 MHz to 3 GHz)

Phantom(s)

Type:	SAM V4.0C
Shell Material:	Fiberglas
Thickness:	2.0 ±0.1 mm
Volume:	Approx. 25 liters

11.0 PROBE SPECIFICATION (ET3DV6)

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. 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 Detection:	±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 portable phone

ET3DV6 E-Field Probe

12.0 SAM PHANTOM V4.0C

The SAM phantom V4.0C is a fiberglass shell phantom with a 2.0 mm (+/-0.2 mm) shell thickness for left and right head and flat planar area integrated in a wooden table. The shape of the fiberglass shell corresponds to the phantom defined by SCC34-SC2. The device holder positions are adjusted to the standard measurement positions in the three sections (see Appendix G for specifications of the SAM phantom V4.0C).

SAM Phantom V4.0C

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.

Device Holder

14.0 TEST EQUIPMENT LIST

TEST EQUIPMENT		ASSET NO.	SERIAL NO.	DATE CALIBRATED		CALIBRATION DUE DATE
USED	DESCRIPTION					
x	Schmid & Partner DASY4 System	-	-	-		-
x	-DASY4 Measurement Server	00158	1078	N/A		N/A
x	-Robot	00046	599396-01	N/A		N/A
x	-DAE4	00019	353	15Jun05		15Jun06
	-DAE3	00018	370	25Jan05		25Jan06
x	-ET3DV6 E-Field Probe	00016	1387	18Mar05		18Mar06
	-ET3DV6 E-Field Probe	00017	1590	20May05		20May06
	-300MHz Validation Dipole	00023	135	25Oct05		25Oct06
	-450MHz Validation Dipole	00024	136	25Oct05		25Oct06
x	-835MHz Validation Dipole	00022	411	**Brain**	30Mar05	30Mar06
x				**Body**	12Apr05	12Apr06
	-900MHz Validation Dipole	00020	054	**Brain**	10Jun05	10Jun06
				Body	10Jun05	10Jun06
	-1800MHz Validation Dipole	00021	247	**Brain**	14Jun05	14Jun06
				Body	14Jun05	14Jun06
x	-1900MHz Validation Dipole	00032	151	**Brain**	17Jun05	17Jun06
x				**Body**	22Apr05	22Apr06
	-2450MHz Validation Dipole	00025	150	**Brain**	20Sep05	20Sep06
				Body	22Apr05	22Apr06
x	-SAM Phantom V4.0C	00154	1033	N/A		N/A
	-Barski Planar Phantom	00155	03-01	N/A		N/A
	-Plexiglas Side Planar Phantom	00156	161	N/A		N/A
	-Plexiglas Validation Planar Phantom	00157	137	N/A		N/A
	HP 85070C Dielectric Probe Kit	00033	N/A	N/A		N/A
x	ALS-PR-DIEL Dielectric Probe Kit	00160	260-00953	N/A		N/A
x	Gigatronics 8652A Power Meter	00110	1835801	16Apr05		16Apr06
	Gigatronics 8652A Power Meter	00008	1835267	29Apr05		29Apr06
x	Gigatronics 80701A Power Sensor	00012	1834350	12Sep05		12Sep06
x	Gigatronics 80701A Power Sensor	00014	1833699	07Sep05		07Sep06
x	HP 8753ET Network Analyzer	00134	US39170292	04May05		04May06
x	Will'Tek 4303 Mobile Service Tester	n/a	1141417	09Jun04		09Jun06
x	Agilent E5515C Communications Test Set	80008	GB41070432	06Jul05		06Jul07
x	HP 8648D Signal Generator	00005	3847A00611	29Apr05		29Apr06
x	Rohde & Schwarz SMR40 Signal Generator	00006	100104	12Apr05		12Apr06
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	N/A		N/A

15.0 MEASUREMENT UNCERTAINTIES

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

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

MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR SYSTEM VALIDATION

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

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

16.0 REFERENCES

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

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

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

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

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

[6] IEC International Standard 62209-1:2005, “Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz).”

[7] Schmid & Partner Engineering AG, “DASY4 Manual” V4.5: March 2005.

APPENDIX B - SYSTEM PERFORMANCE CHECK DATA

Date Tested: 12/15/2005

System Performance Check (Brain) - 835 MHz Dipole

DUT: Dipole 835 MHz; Model: D835V2; Type: System Performance Check; Serial: 411; Calibrated: 03/30/2005

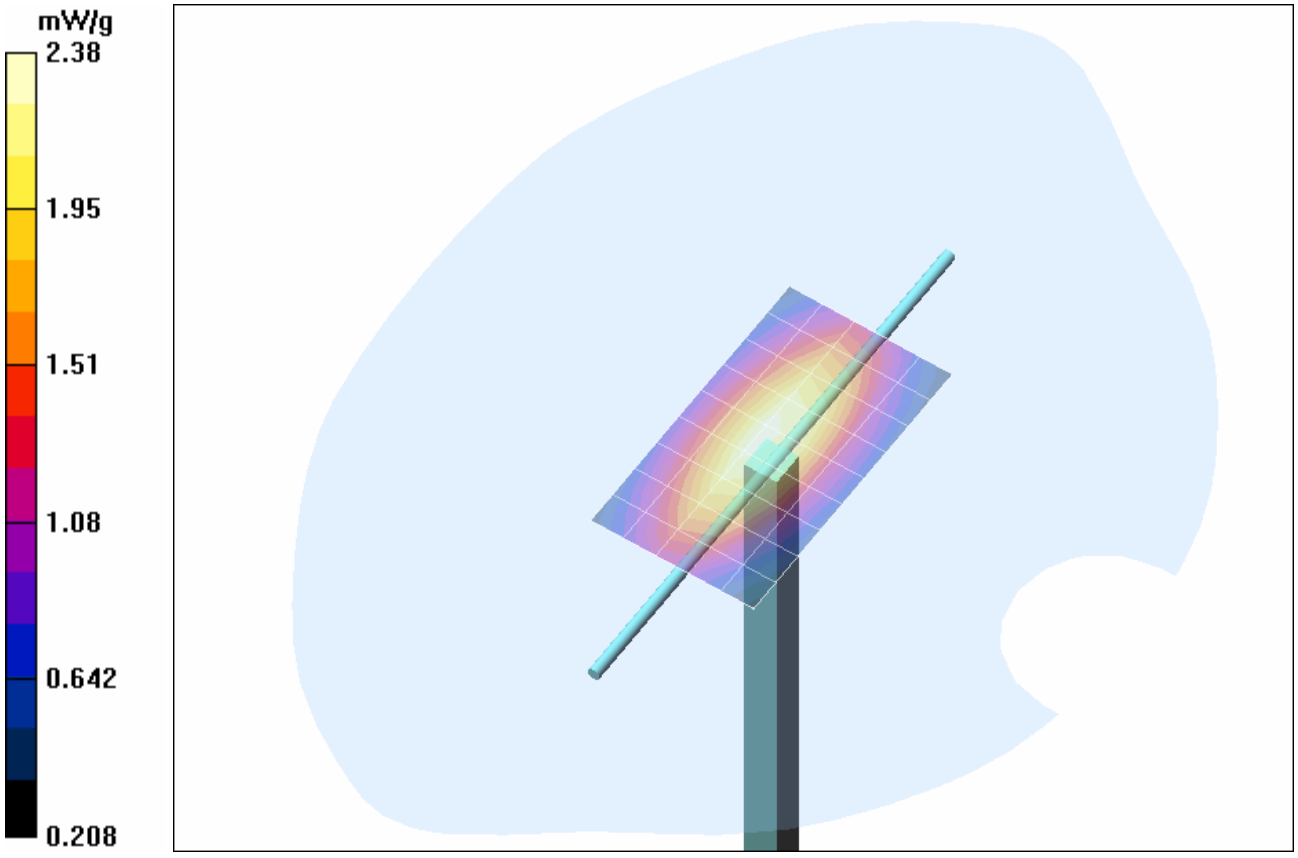
Ambient Temp: 22.9 °C; Fluid Temp: 22.5 °C; Barometric Pressure: 103.3 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL835 (σ = 0.88 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3)

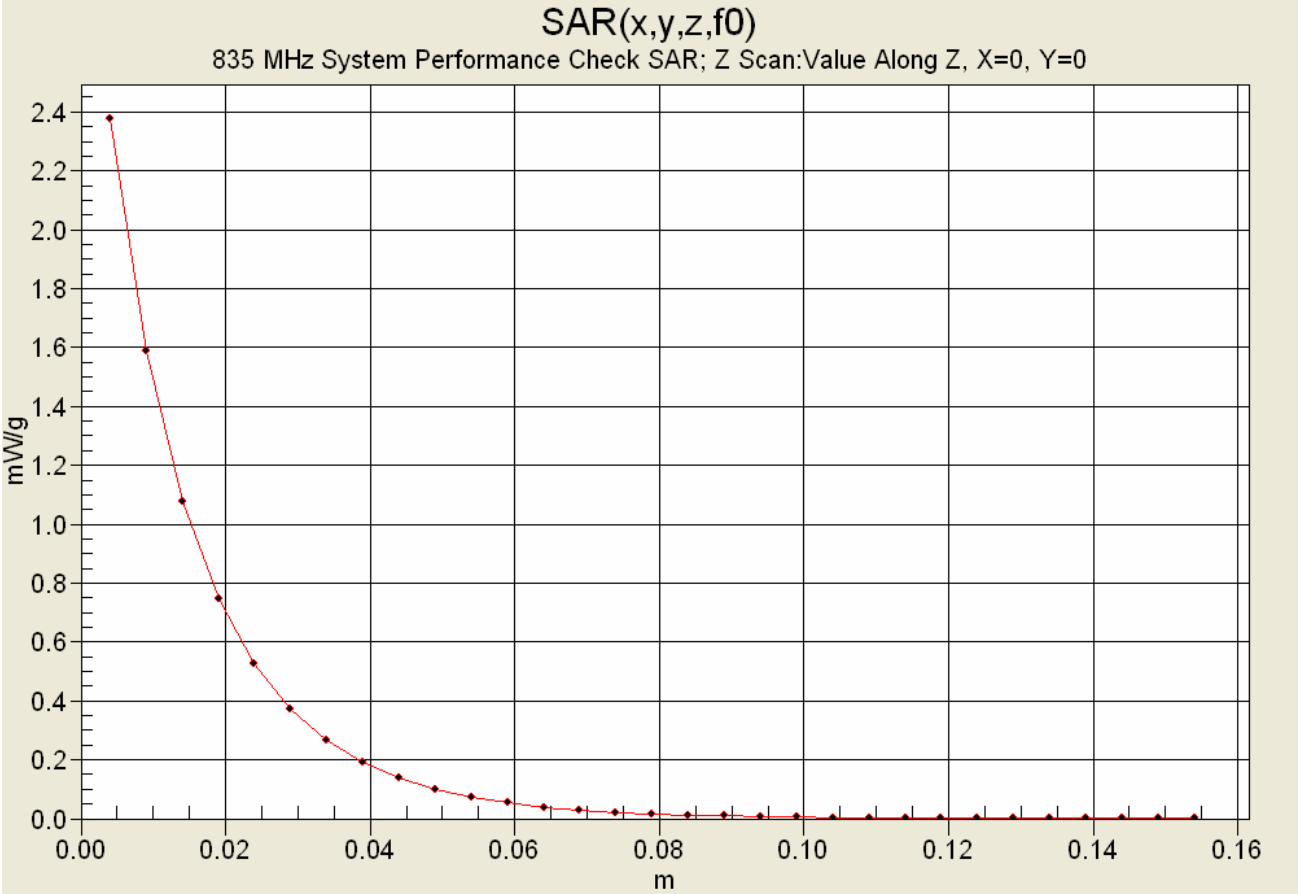
- Probe: ET3DV6 - SN1387; ConvF(6.47, 6.47, 6.47); Calibrated: 18/03/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.6 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 159

835 MHz Dipole - System 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 = 54.3 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 3.25 W/kg
SAR(1 g) = 2.19 mW/g; SAR(10 g) = 1.43 mW/g



Z-Axis Scan



Date Tested: 12/16/2005

System Performance Check (Brain) - 1900 MHz Dipole

DUT: Dipole 1900 MHz; Model: D1900V2; Type: System Performance Check; Serial: 151; Calibrated: 06/17/2005

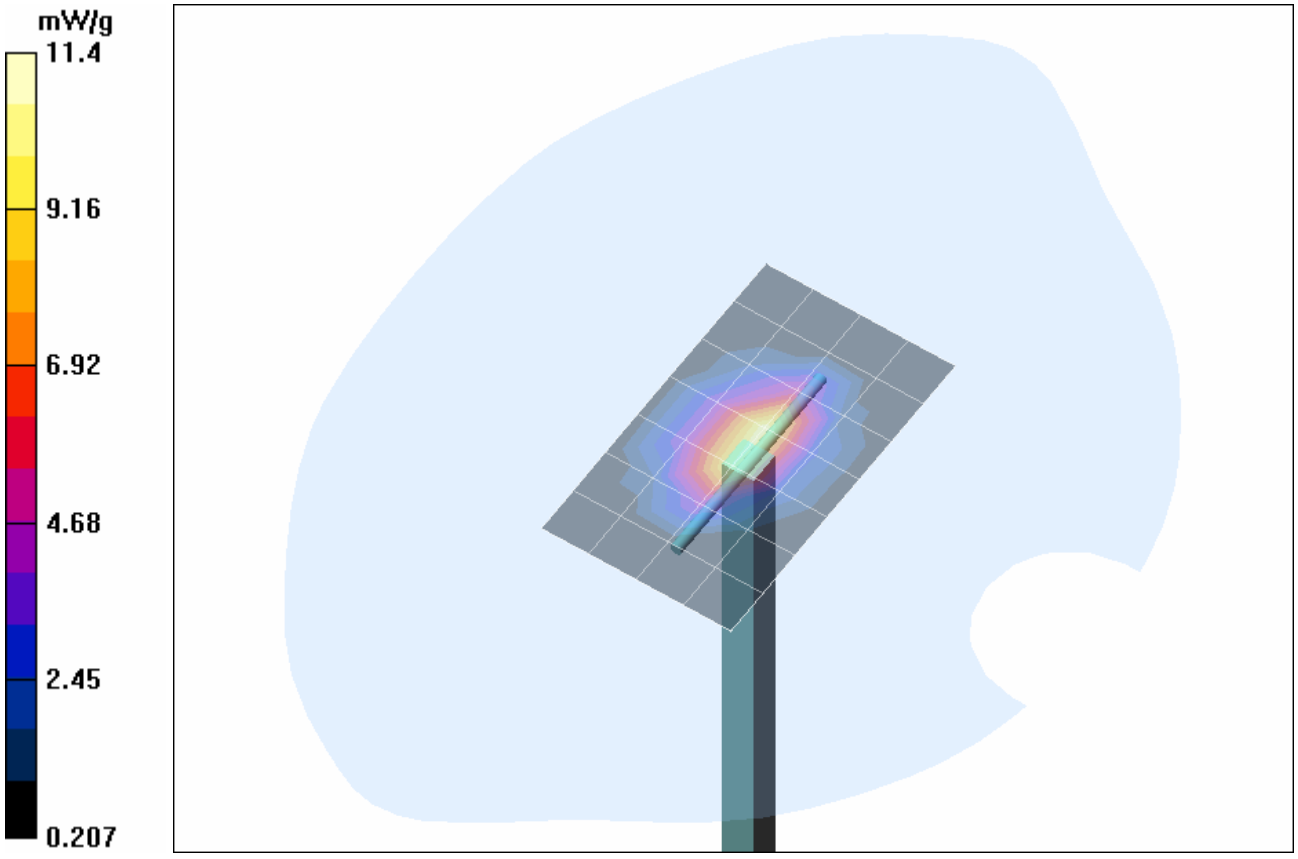
Ambient Temp: 23.0 °C; Fluid Temp: 23.8 °C; Barometric Pressure: 102.7 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL1900 (σ = 1.38 mho/m; ε_r = 38.5; ρ = 1000 kg/m^3)

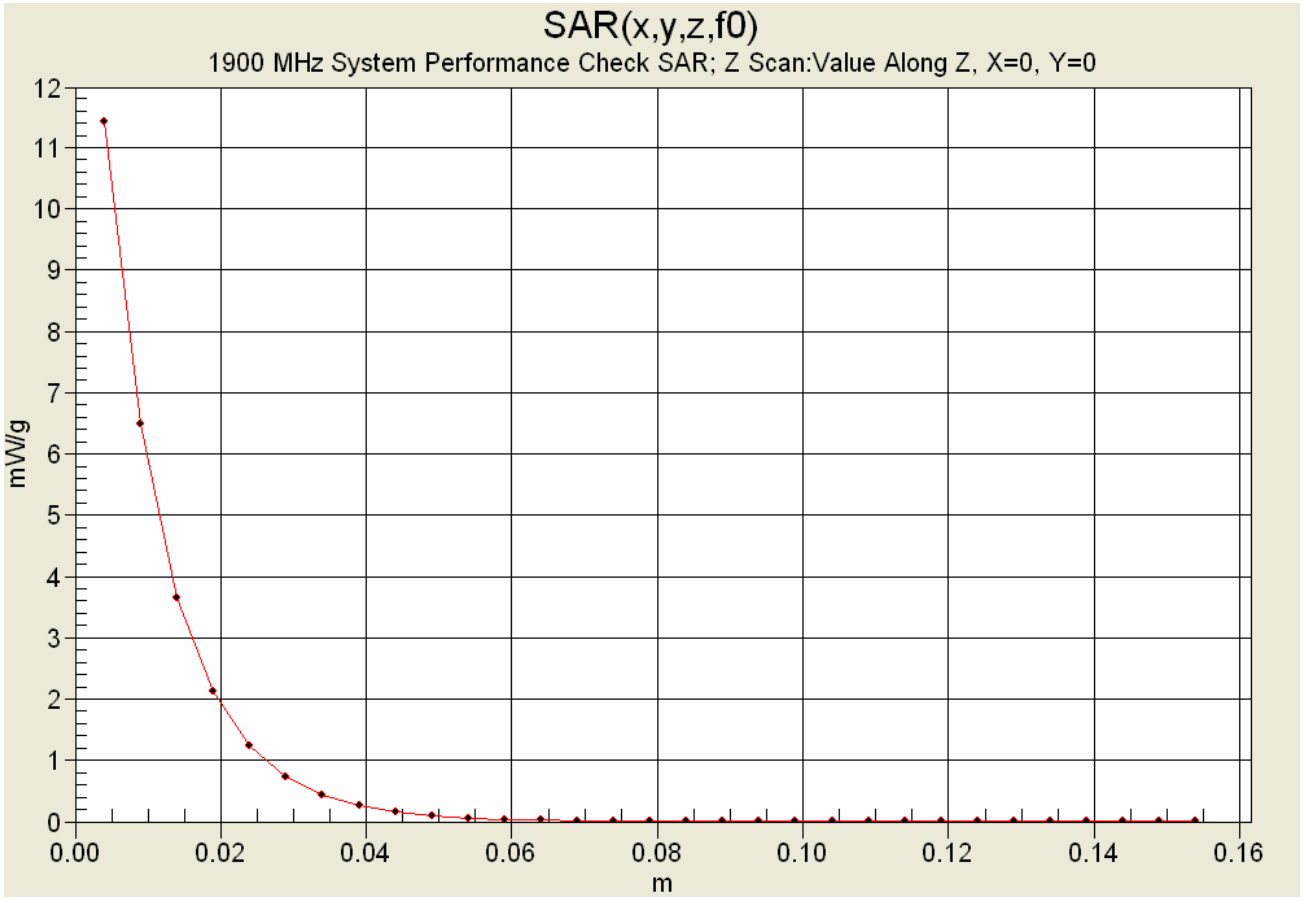
- Probe: ET3DV6 - SN1387; ConvF(5.18, 5.18, 5.18); Calibrated: 18/03/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.6 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 159

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 = 96.2 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 17.7 W/kg
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.26 mW/g



Z-Axis Scan



Date Tested: 12/19/2005

System Performance Check (Brain) - 1900 MHz Dipole

DUT: Dipole 1900 MHz; Model: D1900V2; Type: System Performance Check; Serial: 151; Calibrated: 06/17/2005

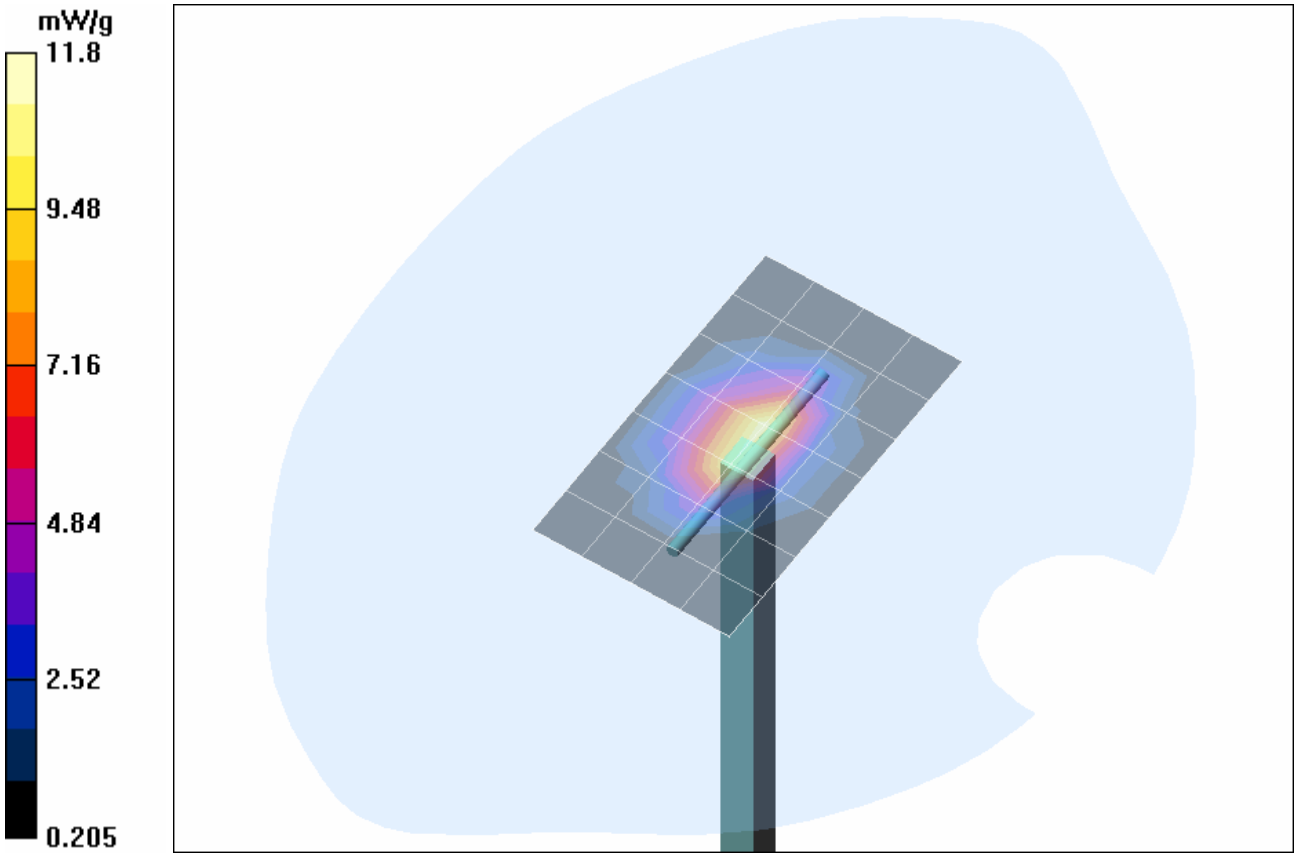
Ambient Temp: 22.0 °C; Fluid Temp: 23.8 °C; Barometric Pressure: 103.1 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL1900 (σ = 1.43 mho/m; ε_r = 39.0; ρ = 1000 kg/m^3)

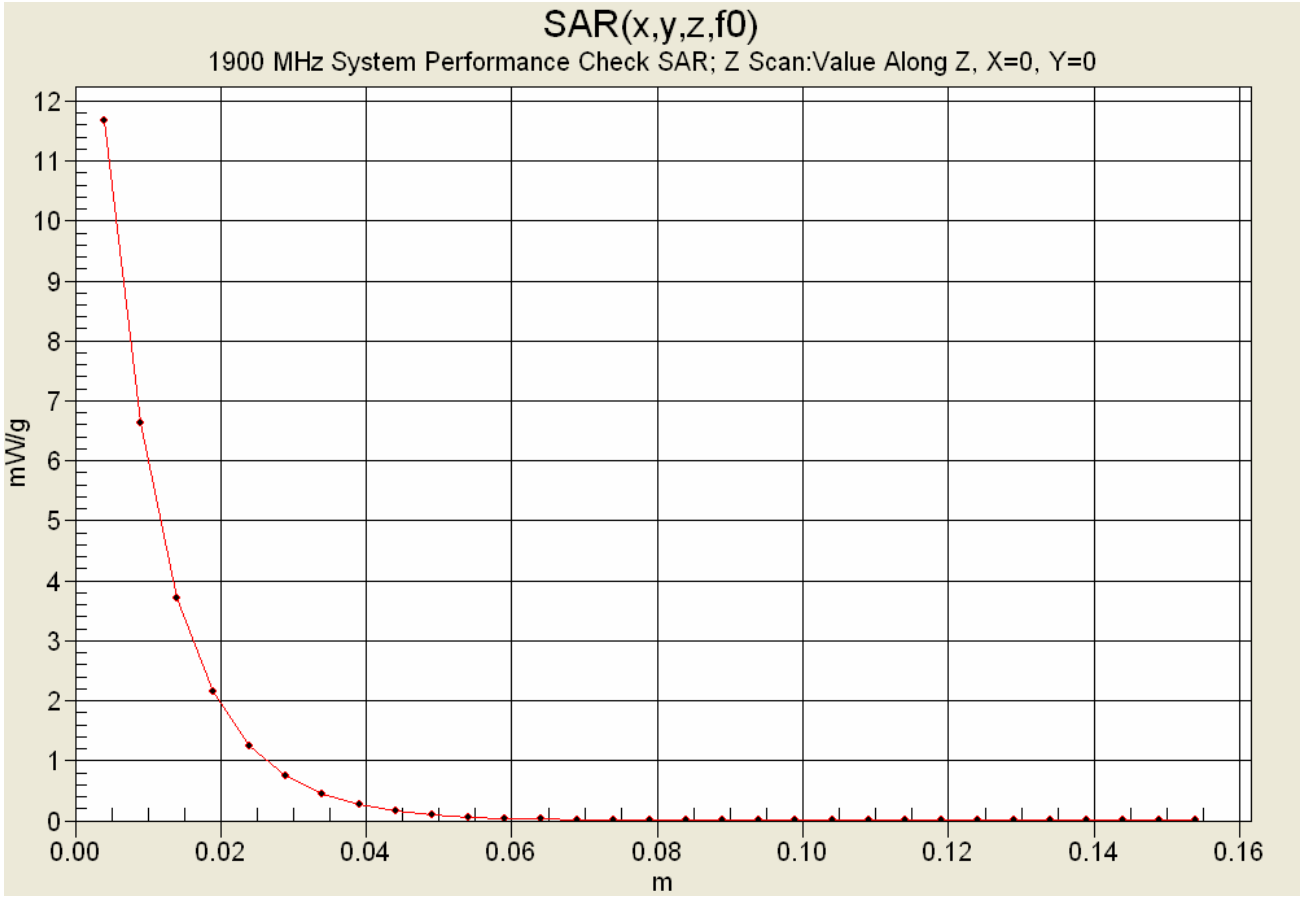
- Probe: ET3DV6 - SN1387; ConvF(5.18, 5.18, 5.18); Calibrated: 18/03/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.6 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 159

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 = 94.7 V/m; Power Drift = -0.040 dB
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.42 mW/g



Z-Axis Scan



Date Tested: 12/20/2005

System Performance Check (Body) - 835 MHz Dipole

DUT: Dipole 835 MHz; Model: D835V2; Type: System Performance Check; Serial: 411; Calibrated: 04/12/2005

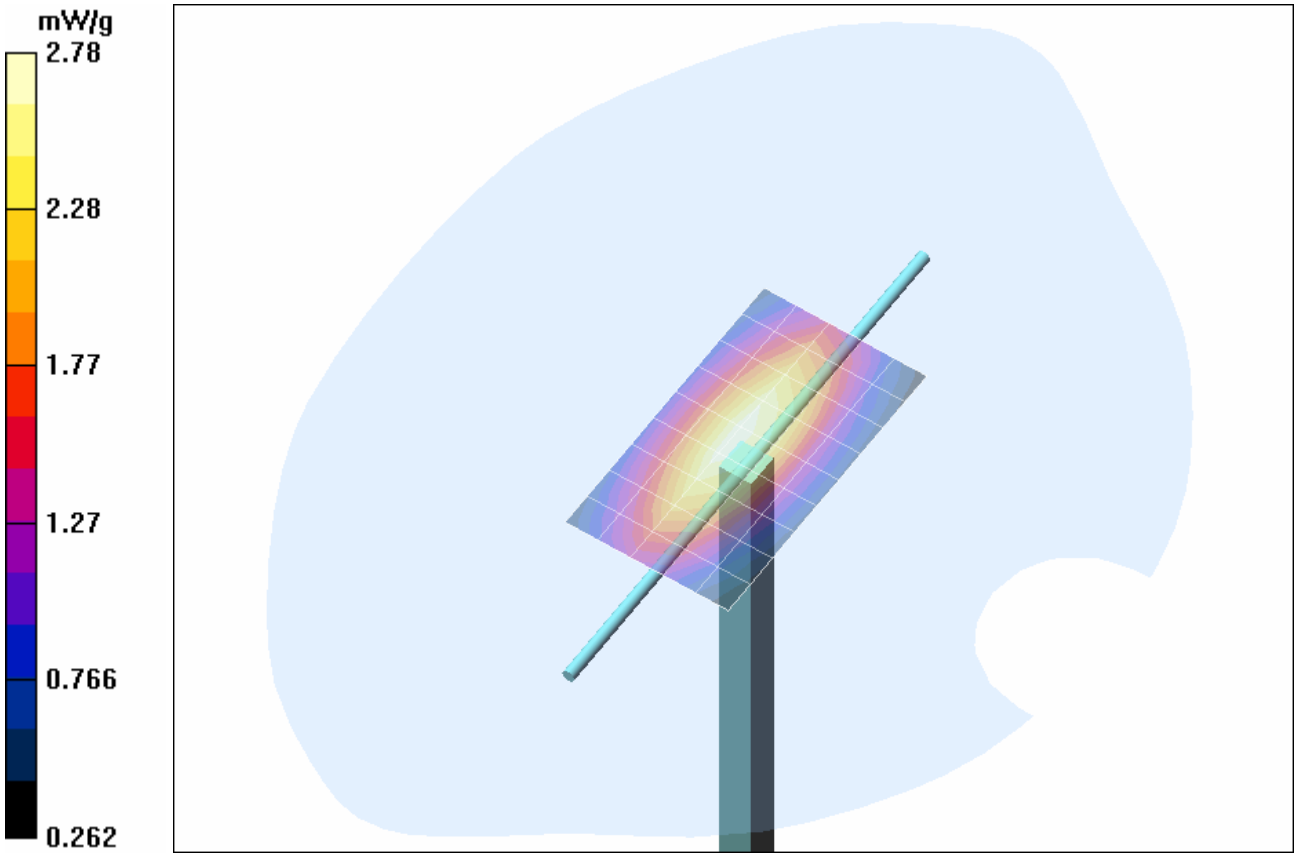
Ambient Temp: 23.2 °C; Fluid Temp: 22.4 °C; Barometric Pressure: 102.8 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: M835 (σ = 0.97 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3)

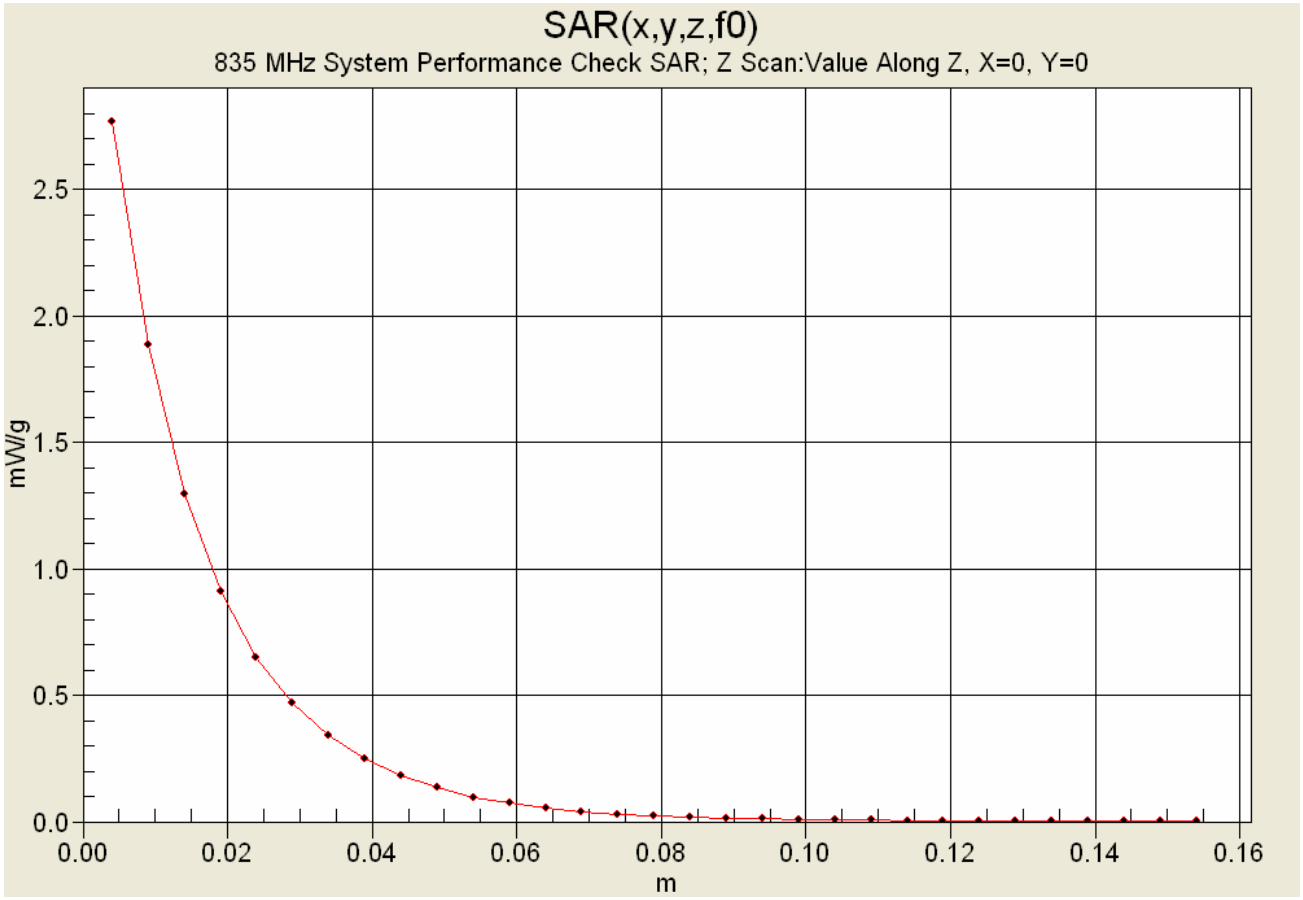
- Probe: ET3DV6 - SN1387; ConvF(6.1, 6.1, 6.1); Calibrated: 18/03/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.6 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 159

835 MHz Dipole - System 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 = 55.3 V/m; Power Drift = -0.050 dB
Peak SAR (extrapolated) = 3.75 W/kg
SAR(1 g) = 2.57 mW/g; SAR(10 g) = 1.68 mW/g



Z-Axis Scan



Date Tested: 01/23/2006

System Performance Check (Body) - 835 MHz Dipole

DUT: Dipole 835 MHz; Model: D835V2; Type: System Performance Check; Serial: 411; Calibrated: 04/12/2005

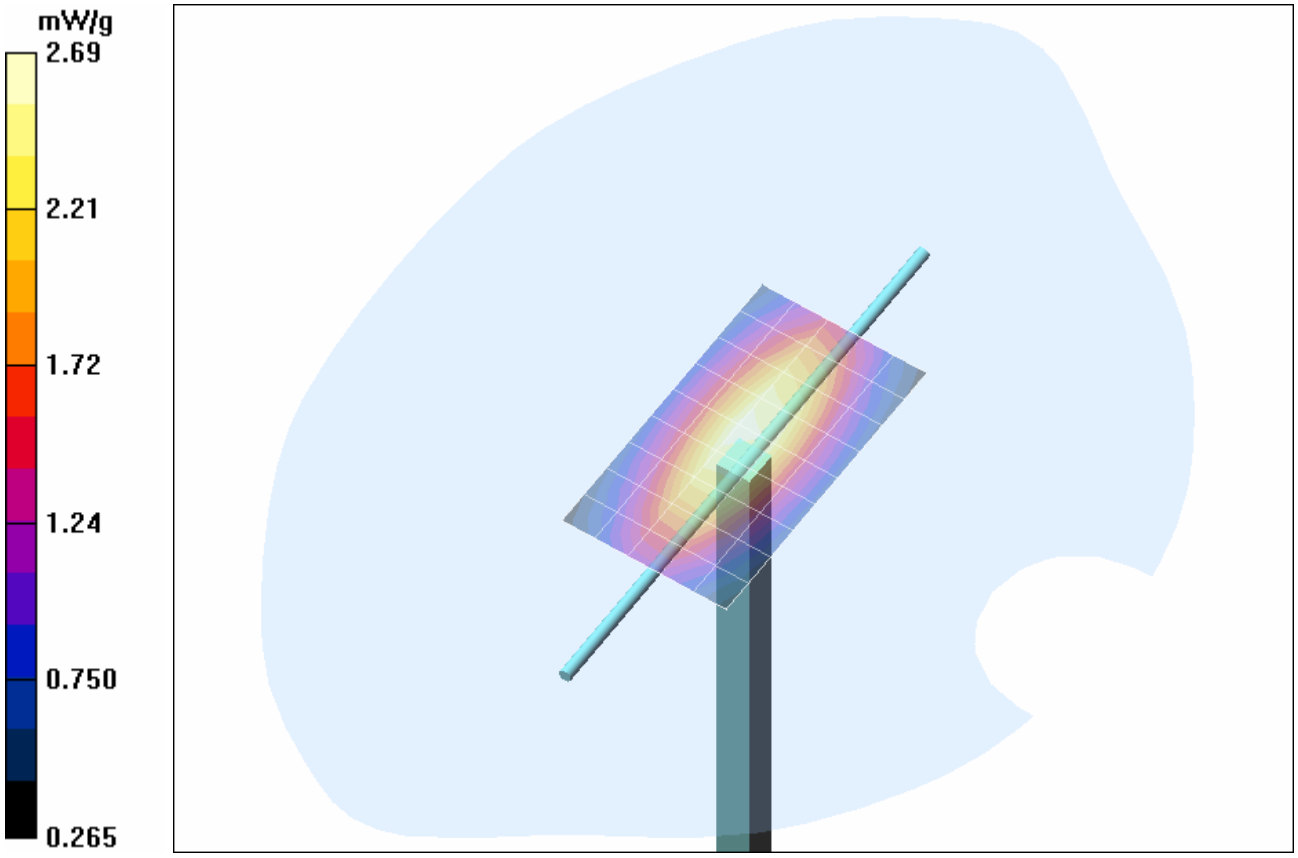
Ambient Temp: 22.5 °C; Fluid Temp: 20.8 °C; Barometric Pressure: 102.8 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: M835 (σ = 0.96 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3)

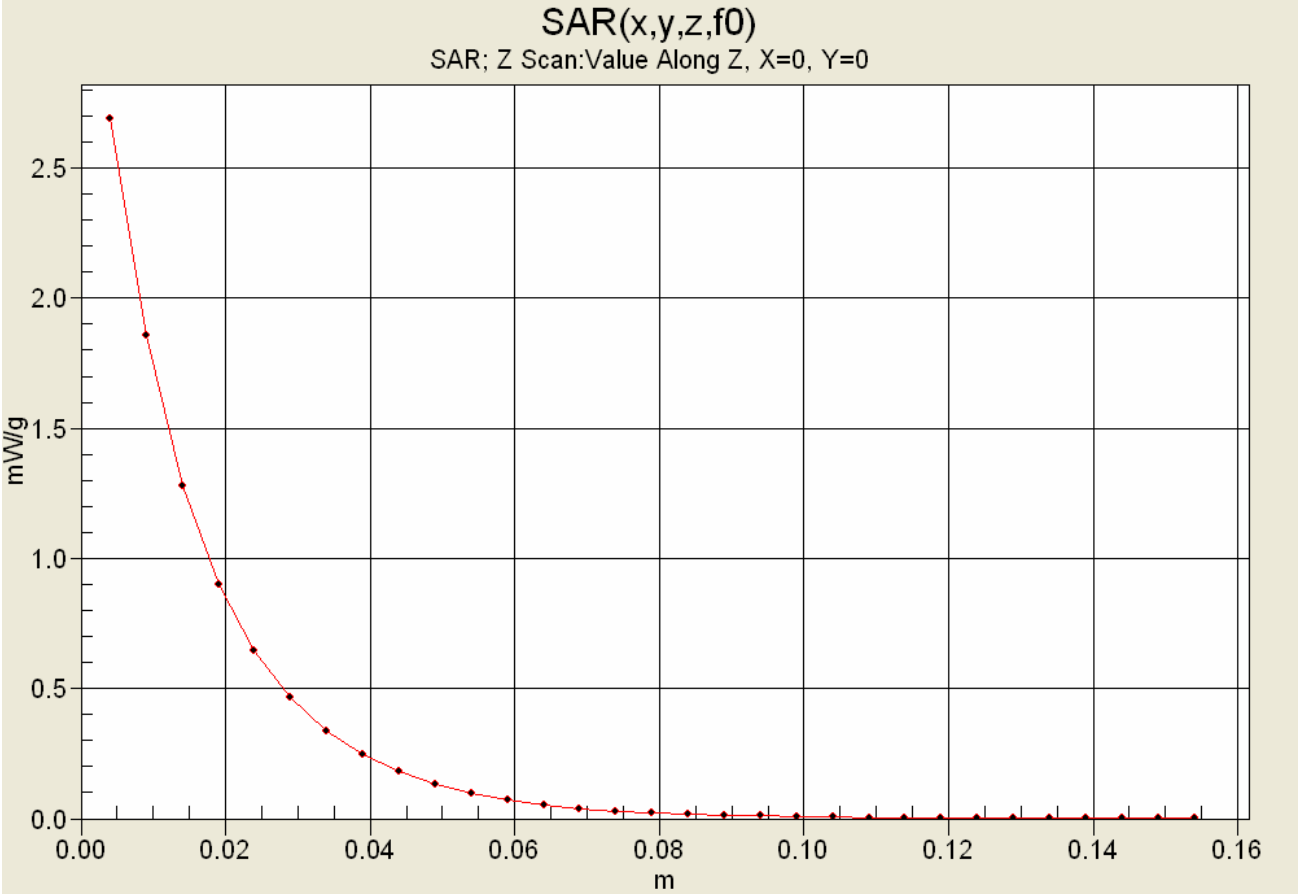
- Probe: ET3DV6 - SN1387; ConvF(6.1, 6.1, 6.1); Calibrated: 18/03/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.6 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 159

835 MHz Dipole - System 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 = 55.6 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 3.56 W/kg
SAR(1 g) = 2.49 mW/g; SAR(10 g) = 1.65 mW/g



Z-Axis Scan



Date Tested: 01/24/2006

System Performance Check (Body) - 1900 MHz Dipole

DUT: Dipole 1900 MHz; Model: D1900V2; Type: System Performance Check; Serial: 151; Calibrated: 04/22/2005

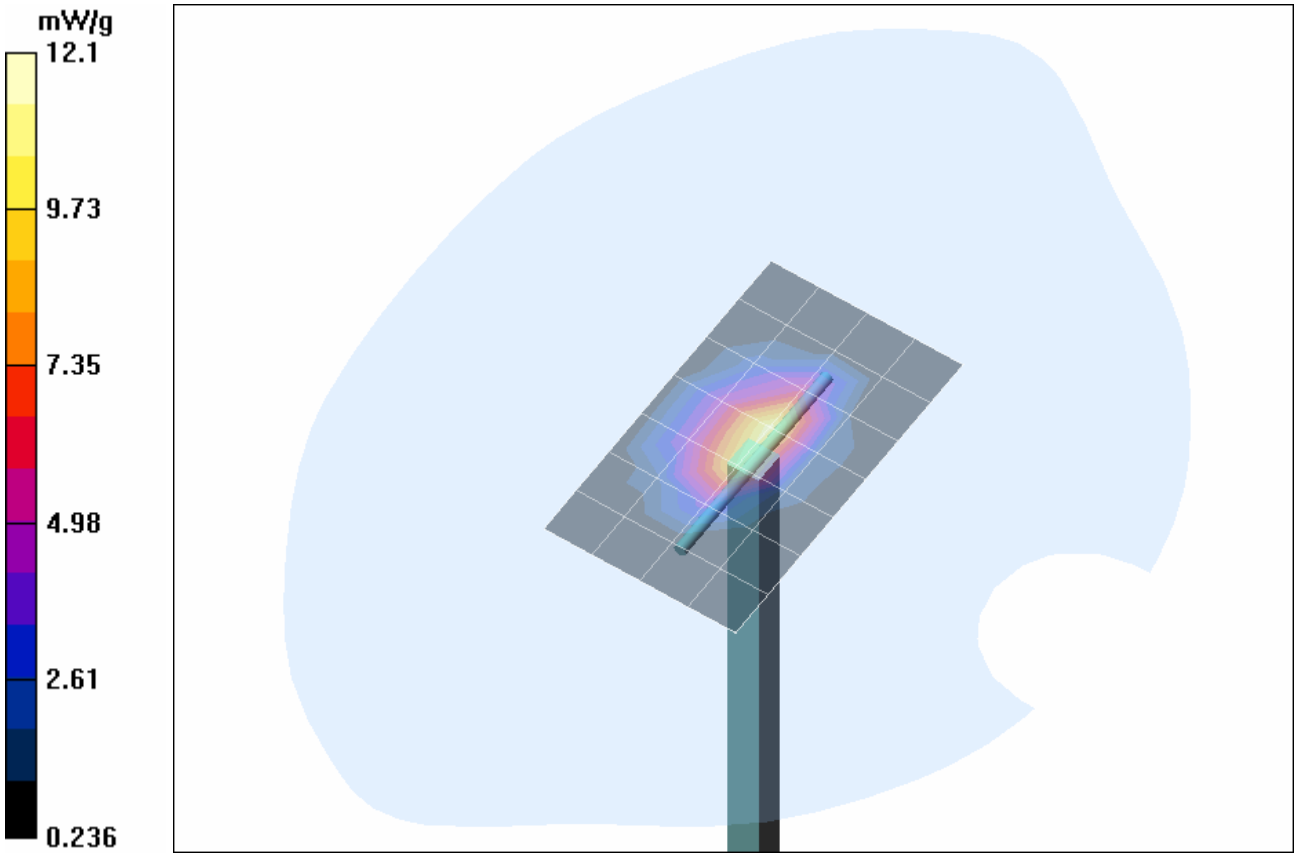
Ambient Temp: 21.2 °C; Fluid Temp: 23.0 °C; Barometric Pressure: 102.1 kPa; Humidity: 30%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 (σ = 1.50 mho/m; ε_r = 51.0; ρ = 1000 kg/m^3)

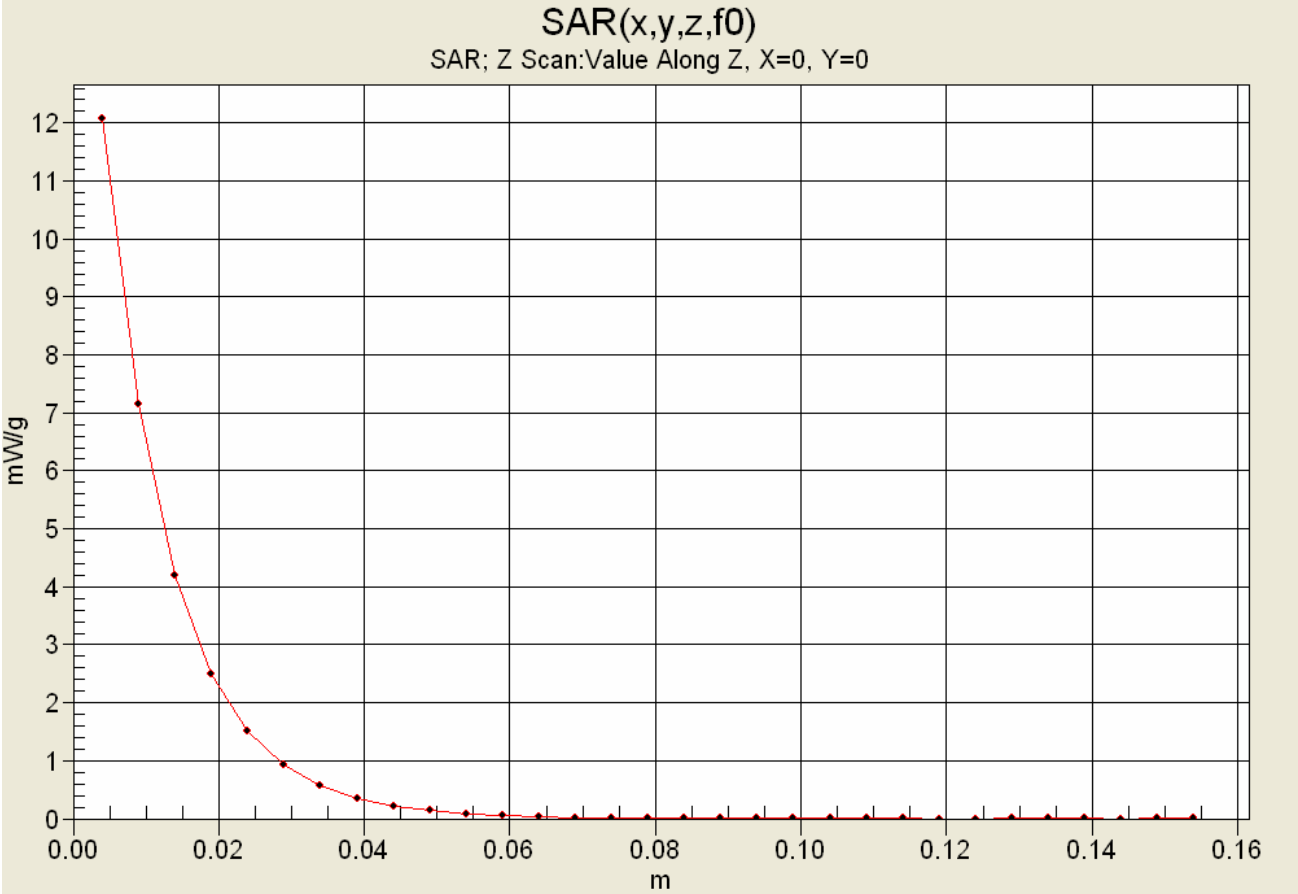
- Probe: ET3DV6 - SN1387; ConvF(4.75, 4.75, 4.75); Calibrated: 18/03/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 15/06/2005
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.6 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 159

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 = 94.0 V/m; Power Drift = -0.111 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 10.7 mW/g; SAR(10 g) = 5.63 mW/g



Z-Axis Scan



APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

835 MHz System Performance Check & DUT Evaluation (Head)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Thu 15/Dec/2005
Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eH	FCC_sH	Test_e	Test_s
0.7350	42.02	0.89	40.97	0.79
0.7450	41.97	0.89	41.11	0.80
0.7550	41.92	0.89	40.90	0.81
0.7650	41.86	0.89	40.76	0.82
0.7750	41.81	0.90	40.73	0.83
0.7850	41.76	0.90	40.57	0.84
0.7950	41.71	0.90	40.52	0.84
0.8050	41.66	0.90	40.20	0.86
0.8150	41.60	0.90	40.34	0.87
0.8250	41.55	0.90	40.11	0.88
0.8350	41.50	0.90	39.89	0.88
0.8450	41.50	0.91	39.90	0.89
0.8550	41.50	0.92	39.72	0.90
0.8650	41.50	0.93	39.53	0.91
0.8750	41.50	0.94	39.37	0.92
0.8850	41.50	0.95	39.34	0.93
0.8950	41.50	0.96	39.17	0.94
0.9050	41.50	0.97	39.12	0.95
0.9150	41.50	0.98	39.12	0.95
0.9250	41.48	0.98	38.88	0.97
0.9350	41.46	0.99	38.80	0.97

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

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Fri 16/Dec/2005
Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eH	FCC_sH	Test_e	Test_s
1.8000	40.00	1.40	38.86	1.28
1.8100	40.00	1.40	38.83	1.28
1.8200	40.00	1.40	38.82	1.30
1.8300	40.00	1.40	38.75	1.30
1.8400	40.00	1.40	38.72	1.31
1.8500	40.00	1.40	38.69	1.32
1.8600	40.00	1.40	38.64	1.33
1.8700	40.00	1.40	38.56	1.35
1.8800	40.00	1.40	38.51	1.35
1.8900	40.00	1.40	38.50	1.37
1.9000	40.00	1.40	38.46	1.38
1.9100	40.00	1.40	38.47	1.37
1.9200	40.00	1.40	38.44	1.39
1.9300	40.00	1.40	38.42	1.40
1.9400	40.00	1.40	38.39	1.42
1.9500	40.00	1.40	38.22	1.43
1.9600	40.00	1.40	38.32	1.43
1.9700	40.00	1.40	38.31	1.45
1.9800	40.00	1.40	38.18	1.45
1.9900	40.00	1.40	38.14	1.47
2.0000	40.00	1.40	38.15	1.48

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

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 19/Dec/2005
Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eH	FCC_sH	Test_e	Test_s
1.8000	40.00	1.40	39.29	1.30
1.8100	40.00	1.40	39.23	1.32
1.8200	40.00	1.40	39.26	1.33
1.8300	40.00	1.40	39.12	1.35
1.8400	40.00	1.40	39.20	1.36
1.8500	40.00	1.40	39.07	1.37
1.8600	40.00	1.40	39.03	1.38
1.8700	40.00	1.40	39.00	1.39
1.8800	40.00	1.40	38.98	1.40
1.8900	40.00	1.40	38.88	1.42
1.9000	40.00	1.40	38.96	1.43
1.9100	40.00	1.40	38.78	1.45
1.9200	40.00	1.40	38.70	1.45
1.9300	40.00	1.40	38.67	1.47
1.9400	40.00	1.40	38.65	1.48
1.9500	40.00	1.40	38.66	1.49
1.9600	40.00	1.40	38.49	1.51
1.9700	40.00	1.40	38.51	1.52
1.9800	40.00	1.40	38.39	1.53
1.9900	40.00	1.40	38.40	1.54
2.0000	40.00	1.40	38.40	1.54

1880 MHz DUT Evaluation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 19/Dec/2005
Frequency(GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
1.8000	53.30	1.52	52.11	1.47
1.8100	53.30	1.52	52.02	1.49
1.8200	53.30	1.52	52.07	1.51
1.8300	53.30	1.52	52.05	1.52
1.8400	53.30	1.52	52.16	1.53
1.8500	53.30	1.52	52.08	1.54
1.8600	53.30	1.52	52.06	1.55
1.8700	53.30	1.52	51.89	1.55
1.8800	53.30	1.52	51.80	1.57
1.8900	53.30	1.52	51.81	1.58
1.9000	53.30	1.52	51.70	1.60
1.9100	53.30	1.52	51.63	1.62
1.9200	53.30	1.52	51.67	1.64
1.9300	53.30	1.52	51.59	1.64
1.9400	53.30	1.52	51.57	1.67
1.9500	53.30	1.52	51.61	1.68
1.9600	53.30	1.52	51.53	1.68
1.9700	53.30	1.52	51.39	1.69
1.9800	53.30	1.52	51.36	1.70
1.9900	53.30	1.52	51.23	1.72
2.0000	53.30	1.52	51.21	1.72

835 MHz System Performance Check & DUT Evaluation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Tue 20/Dec/2005
Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eH	FCC_sH	Test_e	Test_s
0.7350	42.02	0.89	54.25	0.88
0.7450	41.97	0.89	54.02	0.89
0.7550	41.92	0.89	53.94	0.90
0.7650	41.86	0.89	53.87	0.90
0.7750	41.81	0.90	53.76	0.92
0.7850	41.76	0.90	53.72	0.92
0.7950	41.71	0.90	53.58	0.93
0.8050	41.66	0.90	53.56	0.95
0.8150	41.60	0.90	53.45	0.95
0.8250	41.55	0.90	53.37	0.96
0.8350	41.50	0.90	53.47	0.97
0.8450	41.50	0.91	53.07	0.99
0.8550	41.50	0.92	53.11	1.00
0.8650	41.50	0.93	53.01	1.00
0.8750	41.50	0.94	52.82	1.02
0.8850	41.50	0.95	52.81	1.03
0.8950	41.50	0.96	52.65	1.03
0.9050	41.50	0.97	52.44	1.05
0.9150	41.50	0.98	52.46	1.05
0.9250	41.48	0.98	52.24	1.06
0.9350	41.46	0.99	52.18	1.08

835 MHz System Performance Check & DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 23/Jan/2006
Frequency(GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.7350	55.59	0.96	54.26	0.87
0.7450	55.55	0.96	54.25	0.88
0.7550	55.51	0.96	54.05	0.89
0.7650	55.47	0.96	53.85	0.89
0.7750	55.43	0.97	54.00	0.90
0.7850	55.39	0.97	53.82	0.91
0.7950	55.36	0.97	53.76	0.92
0.8050	55.32	0.97	53.69	0.94
0.8150	55.28	0.97	53.58	0.95
0.8250	55.24	0.97	53.47	0.95
0.8350	55.20	0.97	53.30	0.96
0.8450	55.17	0.98	53.18	0.97
0.8550	55.14	0.99	53.22	0.98
0.8650	55.11	1.01	53.00	0.99
0.8750	55.08	1.02	52.87	1.00
0.8850	55.05	1.03	52.68	1.01
0.8950	55.02	1.04	52.76	1.02
0.9050	55.00	1.05	52.66	1.03
0.9150	55.00	1.06	52.69	1.04
0.9250	54.98	1.06	52.55	1.05

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

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Tue 24/Jan/2006
Frequency(GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
1.8000	53.30	1.52	51.37	1.40
1.8100	53.30	1.52	51.32	1.42
1.8200	53.30	1.52	51.34	1.43
1.8300	53.30	1.52	51.30	1.42
1.8400	53.30	1.52	51.29	1.44
1.8500	53.30	1.52	51.27	1.46
1.8600	53.30	1.52	51.26	1.46
1.8700	53.30	1.52	51.15	1.47
1.8800	53.30	1.52	51.12	1.48
1.8900	53.30	1.52	51.11	1.50
1.9000	53.30	1.52	51.03	1.50
1.9100	53.30	1.52	51.13	1.52
1.9200	53.30	1.52	51.01	1.53
1.9300	53.30	1.52	51.02	1.54
1.9400	53.30	1.52	50.97	1.56
1.9500	53.30	1.52	51.14	1.57
1.9600	53.30	1.52	51.04	1.57
1.9700	53.30	1.52	50.88	1.60
1.9800	53.30	1.52	50.87	1.61
1.9900	53.30	1.52	50.75	1.62
2.0000	53.30	1.52	50.80	1.64

APPENDIX G - SAM PHANTOM CERTIFICATE OF CONFORMITY

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Certificate of conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 BA
Series No	TP-1002 and higher
Manufacturer / Origin	Untersee Composites Hauptstr. 69 CH-8559 Fruthwilen Switzerland

Tests

The series production process used allows the limitation to test of first articles.
Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

Test	Requirement	Details	Units tested
Shape	Compliance with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness	Compliant with the requirements according to the standards	2mm +/- 0.2mm in specific areas	First article, Samples
Material parameters	Dielectric parameters for required frequencies	200 MHz – 3 GHz Relative permittivity < 5 Loss tangent < 0.05.	Material sample TP 104-5
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards	Liquid type HSL 1800 and others according to the standard.	Pre-series, First article

Standards

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

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date 18.11.2001

Signature / Stamp Schmid & Partner Engineering AG
Zeughausstrasse 43, CH-8004 Zurich
Tel. +41 1 245 97 00, Fax +41 1 245 97 79