SAR TEST REPORT

RF EXPOSURE EVALUATION — SPECIFIC ABSORPTION RATE

APPLICANT	M/A-COM, INC.			
PRODUCT	PORTABLE FM UHF-H PTT RADIO TRANSCEIVER			
MODEL(S)	P5400			
IDENTIFIER(S)	FCC ID:	OWDTR-0046-E	IC ID:	3636B-0046
APPLICATION TYPE	New Certification			
STANDARD(S) APPLIED	FCC 47 CFR §2.1093	Health Canada Safety Code 6		
PROCEDURE(S) APPLIED	FCC OET Bulletin 65, Supplement C (01-01)			
	Industry Canada RSS-102 Issue 2			
FCC DEVICE CLASSIFICATION	Licensed Non-Broadcast Transmitter Held to Face (TNF)			
IC DEVICE CLASSIFICATION	Land Mobile Radio Transmitter/Receiver (27.41-960 MHz)			
RF EXPOSURE CATEGORY	Occupational / Controlled Exposure			
TEST REPORT SERIAL NO.	073107OWD-T845-S90U			
TEST REPORT REVISION NO.	Revision 1.0 (Initial Release)			
TEST REPORT ISSUE DATE	August 29, 2007			
TEST REPORT SIGNATORIES	Testing and Test Report By		Test Report Reviewed By	
	Cheri Frangiadakis Celltech Labs Inc.		Jonathan Hughes Celltech Labs Inc.	
TEST LAB AND LOCATION	Celltech Compliance Testing & Engineering Lab			
	21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada			
TEST LAB CONTACT INFO.	Tel.: 250-765-7650		Fax: 250-765-7645	
	info@celltechlabs.com		www.celltechlabs.com	
TEST LAB ACCREDITATION(S)	ilac-MRA ACCREDITED Certificate No. 2470.01			

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					
Company Information:	**Name**	**M/A-COM, INC.**		**Address**	221 Jefferson Ridge Parkway Lynchburg, VA 24501 United States					
Device Description:	Portable UHF-H PTT Radio Transceiver			**Device Model(s):**	P5400		**Type(s):**	Scan	System	
Device Part No.(s) & Serial No.(s) Tested:	Scan		P/N: RU-123550-031		S/N: T1-UH-004			Identical Prototype		
	System		P/N: RU-123550-032		S/N: T1-UH-003			Identical Prototype		
Mode(s) & Modulation Type(s):	Analog		FM		Digital			FSK		
Transmit Frequency Range(s):	440 - 512 MHz									
Max. RF Output Power Tested:	4.4 Watts		36.4 dBm		440 MHz			Conducted		
	4.3 Watts		36.3 dBm		476 MHz			Conducted		
	4.3 Watts		36.3 dBm		512 MHz			Conducted		
Antenna Type(s) Tested:	Helical Stub		440 - 494 MHz		Length: 64 mm			P/N: KRE 101 1219/12		
	Helical Stub		470 - 512 MHz		Length: 56 mm			P/N: KRE 101 1219/14		
	Quarter-Wave Whip		440 - 512 MHz		Length: 139 mm			P/N: KRE 101 1223/12		
Battery Type(s) Tested:	7.5V	NiCd	immersible	non-IS	P/N: BT-023406-001	7.5V	NiCd	immersible	IS	P/N: BT-023406-002
	7.5V	NiMH	immersible	non-IS	P/N: BT-023406-003	7.5V	NiMH	immersible	IS	P/N: BT-023406-004
	7.5V	Li-ion	immersible	non-IS	P/N: BT-023406-005	7.5V	Li-ion	immersible	IS	P/N: BT-023406-006
Body-worn Accessories Tested:	Metal Belt-Clip									P/N: CC23894
	Leather Belt Loop and Metal Swivel Mount (P/N: KRY 101 1608/2)									P/N: KRY 101 1609/1
	Leather Case Kit 1: Leather Case w/o D-rings (P/N: CC-023931-001), Swivel-Mount (P/N: KRY 101 1608/2), Elastic Strap (P/N: FM-011820) and Belt Loop (P/N: KRY 101 1609/1)									P/N: CC-023931-003
	Leather Case Kit 2: Leather Case w/ D-rings (P/N: CC-023931-002), Swivel-Mount (P/N: KRY 101 1608/2), Elastic Strap (P/N: FM-011820) and Belt Loop (P/N: KRY 101 1609/1)									P/N: CC-023931-004
	Leather Case w/ D-rings, Elastic Strap (P/N: FM-011820), Shoulder Strap (P/N: CC103333V1)									P/N: CC-023931-002
	Nylon (black) Case (w/ swivel) and Belt Loop (P/N: KRY 101 1609/1)									P/N: CC-023932-001
	Nylon "T"-Strap Holder									P/N: KRY 101 1656/1
Audio Accessories Tested:	Speaker-Microphone with Antenna (SMA)									P/N: MC-023933-002
	Speaker-Microphone									P/N: MC-023933-001
	Earphone for speaker/mic									P/N: LS103239V1
Max. SAR Level(s) Evaluated:	Face-held:	**2.13 W/kg**	1g average	50% Duty Cycle	ANSI/IEEE Limit:	8.0 W/kg	1g average			
	Body-worn:	**4.82 W/kg**	1g average	50% Duty Cycle	ANSI/IEEE Limit:	8.0 W/kg	1g average			

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 for the Occupational/Controlled 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) and Industry Canada RSS-102 Issue 2. 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.

Test Report Approved By:	**Sean Johnston**	**Celltech Labs Inc.**

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1.0 INTRODUCTION

This measurement report demonstrates that the M/A-COM Model: P5400 Portable Analog/Digital UHF-H PTT Radio Transceiver 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 Occupational / Controlled Exposure environment. The test procedures described in FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]) and IC RSS-102 Issue 2 (see reference [4]) were employed. A description of the device, 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 ADDITIONAL BODY-WORN AND AUDIO ACCESSORIES

	Accessory Type	Part No.
Additional Body-worn and Audio Accessories (Testing Not Required)	Nylon Case (Orange) w/ Leather Belt Loop (P/N: KRY 101 1609/1)	CC-023932-002
	Metal Belt Clip (alternate)	CC-011318
	Speaker-Mic (SML), black, no ant.	MC-023933-003
	Speaker/Mic (SML), black, with ant.	MC-023933-004
	Earphone Kit, Black	EA-009580-001
	Earphone Kit, Beige	EA-009580-002
	2-Wire Kit, Palm mic, Black	EA-009580-003
	2-Wire Kit, Palm mic, Beige	EA-009580-004
	3-Wire Kit, Mini-Lapel Mic, Black	EA-009580-005
	3-Wire Kit, Mini-Lapel Mic, Beige	EA-009580-006
	Explorer Headset w/ PTT	EA-009580-007
	Lightweight headset single speaker w/ PTT	EA-009580-008
	Breeze Headset w/ PTT	EA-009580-009
	Headset, heavy duty, N/C behind the head w/ PTT	EA-009580-010
	Ranger Headset w/ PTT	EA-009580-011
	Skull mic w/ body PTT & earcup	EA-009580-012
	Headset, heavy duty, N/C over the head w/ PTT	EA-009580-013
	Throat mic w/ acoustic tube & body PTT	EA-009580-014
	Throat mic w/ acoustic tube, body PTT, & ring PTT	EA-009580-015
	Breeze headset w/ PTT & pigtail jack	EA-009580-016
	Hurricane headset w/ PTT	EA-009580-017
	Hurricane headset w/ PTT & pigtail jack	EA-009580-018

3.0 SAR MEASUREMENT SYSTEM

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

DASY4 SAR System with Plexiglas validation phantom

DASY4 SAR System with Plexiglas side planar phantom

4.0 SAR MEASUREMENT SUMMARY

FACE-HELD SAR EVALUATION RESULTS

Test Date	Freq.	Chan.	Test Mode	DUT Type	Antenna Part No.	Battery Type	DUT Position to Planar Phantom	DUT Spacing to Planar Phantom	Cond. Power Before Test	Measured SAR 1g (W/kg)		SAR Drift During Test	Scaled SAR with droop 1g (W/kg)	
										Duty Cycle			Duty Cycle	
	MHz							cm	Watts	100%	50%	dB	100%	50%
Aug 2	476	Mid	CW	Scan	KRE1011219/12	NiCd NIS	Front	2.5	4.3	3.07	1.54	-0.0515	3.11	1.55
Aug 9	476	Mid	CW	Scan	KRE1011219/12	NiCd IS	Front	2.5	4.3	3.09	1.55	-0.500	3.47	1.73
Aug 2	476	Mid	CW	Scan	KRE1011219/12	NiMH NIS	Front	2.5	4.3	2.97	1.49	-0.0419	3.00	1.50
Aug 9	476	Mid	CW	Scan	KRE1011219/12	NiMH IS	Front	2.5	4.3	3.10	1.55	-0.567	3.53	1.77
Aug 2	476	Mid	CW	Scan	KRE1011219/12	Li-ion NIS	Front	2.5	4.3	3.06	1.53	-0.131	3.15	1.58
Aug 2	476	Mid	CW	Scan	KRE1011219/12	Li-ion IS	Front	2.5	4.3	2.87	1.44	-0.0825	2.93	1.46
Aug 2	476	Mid	CW	Scan	KRE1011219/14	NiCd NIS	Front	2.5	4.3	3.93	1.97	-0.0948	4.02	2.01
Aug 9	476	Mid	CW	Scan	KRE1011219/14	NiCd IS	Front	2.5	4.3	3.84	1.92	-0.369	4.18	2.09
Aug 2	476	Mid	CW	Scan	KRE1011219/14	NiMH NIS	Front	2.5	4.3	3.86	1.93	-0.0617	3.92	1.96
Aug 9	476	Mid	CW	Scan	KRE1011219/14	NiMH IS	Front	2.5	4.3	4.23	2.12	-0.0335	4.26	2.13
Aug 2	476	Mid	CW	Scan	KRE1011219/14	Li-ion NIS	Front	2.5	4.3	3.92	1.96	-0.0688	3.98	1.99
Aug 2	476	Mid	CW	Scan	KRE1011219/14	Li-ion IS	Front	2.5	4.3	4.01	2.01	-0.0210	4.03	2.01

ANSI / IEEE C95.1: 2005 - SAFETY LIMIT:	BRAIN: 8.0 W/kg (averaged over 1 gram)	Spatial Peak - Controlled Exposure / Occupational

Test Date(s)		August 2, 2007		August 9, 2007		Test Date	Aug 2	Aug 9	Unit
Dielectric Constant ε_r	Fluid Type	450 MHz Brain		450 MHz Brain		Relative Humidity	31	31	%
	IEEE Target	Measured	Deviation	Measured	Deviation	Atmospheric Pressure	101.4	101.4	kPa
	43.5 ± 5%	43.3	-0.4%	41.9	-3.6%	Ambient Temperature	25.2	23.3	°C
Conductivity σ (mho/m)	Fluid Type	450 MHz Brain		450 MHz Brain		Fluid Temperature	23.8	23.5	°C
	IEEE Target	Measured	Deviation	Measured	Deviation	Fluid Depth	≥ 15	≥ 15	cm
	0.87 ± 5%	0.86	-1.1%	0.85	-2.3%	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 scaled SAR levels evaluated at the mid channel (50% duty cycle) 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 droops measured by the DASY4 system for the duration of the SAR evaluations were added to the measured SAR levels to report scaled SAR results as shown in the above test data table.
4. The area scan evaluation was performed with a fully charged battery. After the area scan evaluation was completed the battery was replaced with a fully charged battery prior to the zoom scan evaluation.
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 mixture were measured prior to the SAR evaluations using an HP 85070C Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
7. The SAR evaluations were performed within 24 hours of the system performance check.

SAR MEASUREMENT SUMMARY (Cont.)

FACE-HELD SAR EVALUATION RESULTS

Test Date	Freq.	Ch.	Test Mode	DUT Type	Antenna Part No.	Battery Type	DUT Position to Planar Phantom	DUT Spacing to Planar Phantom	Cond. Power Before Test	Measured SAR 1g (W/kg) Duty Cycle		SAR Drift During Test	Scaled SAR with droop 1g (W/kg Duty Cycle	
	MHz							cm	Watts	100%	50%	dB	100%	50%
Aug 2	476	Mid	CW	Scan	KRE1011223/12	NiCd NIS	Front	2.5	4.3	3.24	1.62	0.0160	-	-
Aug 9	476	Mid	CW	Scan	KRE1011223/12	NiCd IS	Front	2.5	4.3	3.40	1.70	-0.411	3.74	1.87
Aug 2	476	Mid	CW	Scan	KRE1011223/12	NiMH NIS	Front	2.5	4.3	3.15	1.58	-0.00712	3.16	1.58
Aug 9	476	Mid	CW	Scan	KRE1011223/12	NiMH IS	Front	2.5	4.3	3.74	1.87	-0.166	3.89	1.94
Aug 2	476	Mid	CW	Scan	KRE1011223/12	Li-ion NIS	Front	2.5	4.3	3.23	1.62	0.00154	-	-
Aug 2	476	Mid	CW	Scan	KRE1011223/12	Li-ion IS	Front	2.5	4.3	3.21	1.61	0.00547	-	-
Aug 10	476	Mid	CW	SMA	KRE1011219/12	NiMH IS	Front	2.5	4.3	0.515	0.258	-0.0179	0.517	0.259
Aug 10	476	Mid	CW	SMA	KRE1011219/14	NiMH IS	Front	2.5	4.3	0.388	0.194	0.229	-	-
Aug 10	476	Mid	CW	SMA	KRE1011223/12	NiMH IS	Front	2.5	4.3	0.478	0.239	0.00017	-	-
Aug 10	476	Mid	CW	System	KRE1011219/14	NiMH IS	Front	2.5	4.3	3.99	2.00	-0.0163	4.01	2.00
ANSI / IEEE C95.1: 2005 - SAFETY LIMIT:					BRAIN: 8.0 W/kg (averaged over 1 gram)				Spatial Peak - Controlled Exposure / Occupational					

Test Date(s)			August 2, 2007		August 9, 2007		August 10, 2007		Test Date	Aug 2	Aug 9	Aug 10	Unit
Dielectric Constant ε_r	Fluid Type		450 MHz Brain		450 MHz Brain		450 MHz Brain		Relative Humidity	31	31	32	%
	IEEE Target		Meas.	Dev.	Meas.	Dev.	Meas.	Dev.	Atmospheric Pressure	101.4	101.4	101.4	kPa
	43.5	± 5%	43.3	-0.4%	41.9	-3.6%	43.2	-0.6%	Ambient Temperature	25.2	23.3	21.1	°C
Conductivity σ (mho/m)	Fluid Type		450 MHz Brain		450 MHz Brain		450 MHz Brain		Fluid Temperature	23.8	23.5	23.7	°C
	IEEE Target		Meas.	Dev.	Meas.	Dev.	Meas.	Dev.	Fluid Depth	≥ 15	≥ 15	≥ 15	cm
	0.87	± 5%	0.86	-1.1%	0.85	-2.3%	0.85	-2.3%	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 scaled SAR levels evaluated at the mid channel (50% duty cycle) 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 droops measured by the DASY4 system for the duration of the SAR evaluations were added to the measured SAR levels to report scaled SAR results as shown in the above test data table.
	4.	The area scan evaluation was performed with a fully charged battery. After the area scan evaluation was completed the battery was replaced with a fully charged battery prior to the zoom scan evaluation.
	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 mixture were measured prior to the SAR evaluations using an HP 85070C Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
	7.	The SAR evaluations were performed within 24 hours of the system performance check.
	8.	SMA = Speaker-Microphone with Antenna

SAR MEASUREMENT SUMMARY (Cont.)

BODY-WORN SAR EVALUATION RESULTS

Test Date	Freq.	Ch.	Test Mode	DUT Type	Antenna Part No.	Battery Type	DUT Position to Planar Phantom	Belt-Clip Spacing to Planar Phantom	Cond. Power Before Test	Measured SAR 1g W/kg (Duty Cycle)		SAR Drift During Test	Scaled SAR with droop 1g (W/kg Duty Cycle)	
	MHz							cm	Watts	100%	50%	dB	100%	50%
Radio with Metal Belt-Clip (P/N: CC23894) & Speaker-Microphone (P/N: MC-023933-001) Accessories														
Aug 1	476	Mid	CW	Scan	KRE1011219/12	NiCd NIS	Back	1.1	4.3	5.44	2.72	-0.0716	5.53	2.77
Aug 8	476	Mid	CW	Scan	KRE1011219/12	NiCd IS	Back	1.1	4.3	4.18	2.09	-0.651	4.86	2.43
Aug 1	476	Mid	CW	Scan	KRE1011219/12	NiMH NIS	Back	1.1	4.3	5.74	2.87	-0.0484	5.80	2.90
Aug 8	476	Mid	CW	Scan	KRE1011219/12	NiMH IS	Back	1.1	4.3	4.44	2.22	-0.524	5.01	2.50
Aug 1	476	Mid	CW	Scan	KRE1011219/12	Li-ion NIS	Back	1.1	4.3	4.84	2.42	-0.171	5.03	2.52
Aug 8	476	Mid	CW	Scan	KRE1011219/12	Li-ion IS	Back	1.1	4.3	4.42	2.21	0.571	-	-
Aug 1	476	Mid	CW	Scan	KRE1011219/14	NiCd NIS	Back	1.1	4.3	7.51	3.76	-0.0651	7.62	3.81
Aug 8	476	Mid	CW	Scan	KRE1011219/14	NiCd IS	Back	1.1	4.3	8.28	4.14	-0.105	8.48	4.24
Aug 1	476	Mid	CW	Scan	KRE1011219/14	NiMH NIS	Back	1.1	4.3	8.20	4.10	-0.155	8.50	4.25
Aug 8	476	Mid	CW	Scan	KRE1011219/14	NiMH IS	Back	1.1	4.3	8.12	4.06	-0.201	8.50	4.25
Aug 1	476	Mid	CW	Scan	KRE1011219/14	Li-ion NIS	Back	1.1	4.3	6.42	3.21	-0.0745	6.53	3.27
Aug 8	476	Mid	CW	Scan	KRE1011219/14	Li-ion IS	Back	1.1	4.3	7.77	3.89	-0.170	8.08	4.04
Aug 9	500[1]	High	CW	Scan	KRE1011219/14	NiMH NIS	Back	1.1	4.3	4.10	2.05	-0.216	4.31	2.15
ANSI / IEEE C95.1: 2005 - SAFETY LIMIT:					BODY: 8.0 W/kg (averaged over 1 gram)				Spatial Peak - Controlled Exposure / Occupational					

Test Date(s)			August 1, 2007		August 8, 2007		August 9. 2007		Test Date	Aug 1	Aug 8	Aug 9	Unit
Dielectric Constant ε_r	Fluid Type		450 MHz Body		450 MHz Body		450 MHz Body		Relative Humidity	31	32	31	%
	IEEE Target		Meas.	Dev.	Meas.	Dev.	Meas.	Dev.	Atmospheric Pressure	101.4	101.1	101.4	kPa
	56.7	± 5%	56.1	-1.0%	55.7	-1.7%	56.6	-0.1%	Ambient Temperature	25.7	23.5	22.2	°C
Conductivity σ (mho/m)	Fluid Type		450 MHz Body		450 MHz Body		450 MHz Body		Fluid Temperature	23.9	24.0	23.6	°C
	IEEE Target		Meas.	Dev.	Meas.	Dev.	Meas.	Dev.	Fluid Depth	≥ 15	≥ 15	≥ 15	cm
	0.94	± 5%	0.90	-4.2%	0.90	-4.2%	0.94	0.0%	ρ (Kg/m^3)	1000			

Note(s)		
	1.	For the high channel evaluation, 500 MHz was tested in place of 512 MHz due to the fact that the 512 MHz frequency is outside of the DASY4 system manufacturer's probe calibration frequency range (450 MHz +/- 50 MHz).
	2.	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.
	3.	If the scaled SAR levels evaluated at the mid channel (50% duty cycle) 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]).
	4.	The power droops measured by the DASY4 system for the duration of the SAR evaluations were added to the measured SAR levels to report scaled SAR results as shown in the above test data table.
	5.	The area scan evaluation was performed with a fully charged battery. After the area scan evaluation was completed the battery was replaced with a fully charged battery prior to the zoom scan evaluation.
	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.	SAR measurements were performed within 24 hours of the system performance check.

SAR MEASUREMENT SUMMARY (Cont.)

BODY-WORN SAR EVALUATION RESULTS

Test Date	Freq.	Ch.	Test Mode	DUT Type	Antenna Part No.	Battery Type	DUT Position to Planar Phantom	Access. Spacing to Planar Phantom	Cond. Power Before Test	Measured SAR 1g (W/kg) Duty Cycle		SAR Drift During Test	Scaled SAR with droop 1g (W/kg) Duty Cycle	
	MHz							cm	Watts	100%	50%	dB	100%	50%
Radio with Metal Belt-Clip (P/N: CC23894) & Speaker-Microphone (P/N: MC-023933-001) Accessories														
Aug 1	476	Mid	CW	Scan	KRE1011223/12	NiCd NIS	Back	1.1	4.3	6.96	3.48	0.0708	-	-
Aug 8	476	Mid	CW	Scan	KRE1011223/12	NiCd IS	Back	1.1	4.3	8.06	4.03	-0.0921	8.23	4.12
Aug 1	476	Mid	CW	Scan	KRE1011223/12	NiMH NIS	Back	1.1	4.3	6.72	3.36	-0.0134	6.74	3.37
Aug 8	476	Mid	CW	Scan	KRE1011223/12	NiMH IS	Back	1.1	4.3	7.81	3.91	-0.0573	7.91	3.96
Aug 1	476	Mid	CW	Scan	KRE1011223/12	Li-ion NIS	Back	1.1	4.3	5.74	2.87	0.0409	-	-
Aug 1	476	Mid	CW	Scan	KRE1011223/12	Li-ion IS	Back	1.1	4.3	6.42	3.21	-0.0154	6.44	3.22
Aug 9	440	Low	CW	Scan	KRE1011223/12	NiCd IS	Back	1.1	4.4	8.80	4.40	-0.392	**9.63**	**4.82**
Aug 9	440	Low	CW	System	KRE1011223/12	NiCd IS	Back	1.1	4.4	7.16	3.58	-0.392	7.84	3.92
Aug 9	500[1]	High	CW	Scan	KRE1011223/12	NiCd IS	Back	1.1	4.3	6.23	3.12	-0.0765	6.34	3.17
Speaker-Microphone Antenna Version with Lapel Clip (P/N: MC-023933-002) & Earphone (P/N: LS103239V1) Accessory														
Aug 8	476	Mid	CW	SMA	KRE1011219/12	NiMH NIS	Back	1.5	4.3	0.878	0.439	0.0213	-	-
Aug 8	476	Mid	CW	SMA	KRE1011219/14	NiMH NIS	Back	1.5	4.3	0.543	0.272	-0.0567	0.550	0.275
Aug 9	476	Mid	CW	SMA	KRE1011223/12	NiMH NIS	Back	1.5	4.3	0.545	0.273	-0.0304	0.549	0.274

ANSI / IEEE C95.1: 2005 - SAFETY LIMIT:	BODY: 8.0 W/kg (averaged over 1 gram)	Spatial Peak - Controlled Exposure / Occupational

Test Date(s)		August 1, 2007		August 8, 2007		August 9, 2007		Test Date	Aug 1	Aug 8	Aug 9	Unit
Dielectric Constant ε_r	Fluid Type	450 MHz Body		450 MHz Body		450 MHz Body		Relative Humidity	31	32	31	%
	IEEE Target	Meas.	Dev.	Meas.	Dev.	Meas.	Dev.	Atmospheric Pressure	101.4	101.1	101.4	kPa
	56.7 ± 5%	56.1	-1.0%	55.7	-1.7%	56.6	-0.1%	Ambient Temperature	25.7	23.5	22.2	°C
Conductivity σ (mho/m)	Fluid Type	450 MHz Body		450 MHz Body		450 MHz Body		Fluid Temperature	23.9	24.0	23.6	°C
	IEEE Target	Meas.	Dev.	Meas.	Dev.	Meas.	Dev.	Fluid Depth	≥ 15	≥ 15	≥ 15	cm
	0.94 ± 5%	0.90	-4.2%	0.90	-4.2%	0.94	0.0%	ρ (Kg/m^3)	1000			

Note(s)		
	1.	For the high channel evaluation, 500 MHz was tested in place of 512 MHz due to the fact that the 512 MHz frequency is outside of the DASY4 system manufacturer's probe calibration frequency range (450 MHz +/- 50 MHz).
	2.	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.
	3.	If the scaled SAR levels evaluated at the mid channel (50% duty cycle) 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]).
	4.	The power droops measured by the DASY4 system for the duration of the SAR evaluations were added to the measured SAR levels to report scaled SAR results as shown in the above test data table. A SAR-versus-Time power droop evaluation was performed in the maximum SAR level configuration and the evaluation plot is shown in Appendix A (SAR Test Plots).
	5.	The area scan evaluation was performed with a fully charged battery. After the area scan evaluation was completed the battery was replaced with a fully charged battery prior to the zoom scan evaluation.
	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.	SAR measurements were performed within 24 hours of the system performance check.

SAR MEASUREMENT SUMMARY (Cont.)

BODY-WORN SAR EVALUATION RESULTS

Test Date	Freq. MHz	Ch.	Test Mode	DUT Type	Antenna Part No.	Battery Type	DUT Position to Planar Phantom	DUT Spacing to Planar Phantom cm	Cond. Power Before Test Watts	Measured SAR 1g (W/kg) Duty Cycle 100%	Measured SAR 1g (W/kg) Duty Cycle 50%	SAR Drift During Test dB	Scaled SAR with droop 1g (W/kg) Duty Cycle 100%	Scaled SAR with droop 1g (W/kg) Duty Cycle 50%
Radio with Leather Case Kit 1 (P/N: CC-023931-003) & Speaker-Microphone (P/N: MC-023933-001) Accessories														
Aug 8	476	Mid	CW	Scan	KRE1011219/14	NiMH NIS	Back	4.0	4.3	2.27	1.14	-0.216	2.39	1.19
Radio with Leather Case Kit 2 (P/N: CC-023931-004) & Speaker-Microphone (P/N: MC-023933-001) Accessories														
Aug 8	476	Mid	CW	Scan	KRE1011219/14	NiMH NIS	Back	4.0	4.3	2.15	1.08	-0.0750	2.19	1.09
Radio with Leather Case (P/N: CC-023931-002), Shoulder Strap (P/N: P/N: CC103333V1) & Speaker-Microphone (P/N: MC-023933-001) Accessories														
Aug 8	476	Mid	CW	Scan	KRE1011219/14	NiMH NIS	Back	2.5	4.3	P 5.06	2.53	-0.147	P 5.23	2.62
										S 5.08	2.54		S 5.25	2.63
Radio with Leather Belt Loop (P/N: KRY 101 1609/1), Swivel-Mount (P/N: KRY 101 1608/2) & Speaker-Microphone (P/N: MC-023933-001) Accessories														
Aug 8	476	Mid	CW	Scan	KRE1011219/14	NiMH NIS	Back	3.0	4.3	3.38	1.69	-0.0835	3.45	1.72
Radio with Nylon Case (P/N: CC-023932-001), Belt Loop (KRY 101 1609/1) & Speaker-Microphone (P/N: MC-023933-001) Accessories														
Aug 8	476	Mid	CW	Scan	KRE1011219/14	NiMH NIS	Back	3.5	4.3	2.39	1.20	-0.0572	2.42	1.21
Radio with Nylon "T"-Strap Holder (P/N: KRY 101 1656/1) & Speaker-Microphone (P/N: MC-023933-001) Accessories														
Aug 8	476	Mid	CW	Scan	KRE1011219/14	NiMH NIS	Back	2.0	4.3	4.86	2.43	0.00678	-	-
ANSI / IEEE C95.1: 2005 - SAFETY LIMIT:							**BODY: 8.0 W/kg (averaged over 1 gram)**		**Spatial Peak - Controlled Exposure / Occupational**					

Test Date(s)	August 8, 2007			**Relative Humidity**	32	%
Fluid Type	**450 MHz Body**			**Atmospheric Pressure**	101.1	kPa
Dielectric Constant ε_r	**IEEE Target**	**Measured**	**Deviation**	**Ambient Temperature**	23.5	°C
	56.7 ± **5%**	55.7	-1.7%	**Fluid Temperature**	24.0	°C
Conductivity σ (mho/m)	**IEEE Target**	**Measured**	**Deviation**	**Fluid Depth**	≥ 15	cm
	0.94 ± **5%**	0.90	-4.2%	**ρ (Kg/m³)**	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.	The SAR evaluations shown in the above test data table were selected (antenna and battery type) based on the maximum SAR level configuration (mid-channel) measured with the belt-clip accessory (minimum spacing accessory).
	3.	If the scaled SAR levels evaluated at the mid channel (50% duty cycle) 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]).
	4.	The power droops measured by the DASY4 system for the duration of the SAR evaluations were added to the measured SAR levels to report scaled SAR results as shown in the above test data table.
	5.	Secondary peak SAR levels measured within 2 dB of the primary were reported (P = Primary, S = Secondary).
	6.	The area scan evaluation was performed with a fully charged battery. After the area scan evaluation was completed the battery was replaced with a fully charged battery prior to the zoom scan evaluation.
	7.	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.
	8.	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).
	9.	SAR measurements were performed within 24 hours of the system performance check.

5.0 DETAILS OF SAR EVALUATION

The M/A-COM Model: P5400 Portable Analog/Digital UHF-H PTT Radio Transceiver described in this report was compliant for localized Specific Absorption Rate (Occupational / Controlled Exposure) based on the test provisions and conditions described below. Detailed photographs of the test setup are shown in Appendix D.

Face-Held Configuration

1. The Radio was tested in a face-held configuration with the front of the radio placed parallel to the outer surface of the planar phantom. A spacing of 2.5 cm was maintained between the front side of the Radio and the outer surface of the planar phantom.
2. The Speaker-Microphone Antenna Version (P/N: MC-023933-002) was connected to the Radio and tested in a face-held configuration with the front of the speaker-microphone placed parallel to the outer surface of the planar phantom with a spacing of 2.5 cm.

Body-Worn Configuration

3. The Speaker-Microphone Antenna Version (P/N: MC-023933-002) was connected to the Radio and tested in a body-worn configuration with the back of the speaker-microphone placed parallel to the outer surface of the planar phantom. The speaker-microphone Lapel Clip was touching the outer surface of the planar phantom and provided a 1.5 cm spacing between the back of the speaker-microphone and the outer surface of the planar phantom. The SAR evaluation was performed with the Earphone audio accessory (P/N: LS103239V1) connected to the Speaker-Mic.
4. The Radio was tested in a body-worn configuration with the back side placed parallel to the outer surface of the planar phantom. The attached Metal Belt-Clip (P/N: CC23894) was touching the planar phantom and provided a 1.1 cm spacing between the back of the Radio and the planar phantom. The evaluation was performed with the Speaker-Microphone (non-antenna version) audio accessory (P/N: MC-023933-001) connected to the Radio.
5. The Radio was tested in a body-worn configuration with the Leather Case Kit 1 (P/N: CC-023931-003). The Radio was placed inside the Leather Case (P/N: CC-023931-001) with the Belt Loop (P/N: KRY 101 1609/1) attached to the Swivel Mount (P/N: KRY 101 1608/2) and the back of the Radio facing parallel to the outer surface of the planar phantom. The back side of the Belt Loop (P/N: KRY 101 1609/1) was touching the planar phantom and provided a 4.0 cm spacing between the back of the Radio and the planar phantom. The SAR evaluation was performed with the Speaker-Microphone (non-antenna version) audio accessory (P/N: MC-023933-001) connected to the Radio.
6. The Radio was tested in a body-worn configuration with the Leather Case Kit 2 (P/N: CC-023931-004). The Radio was placed inside the Leather Case (P/N: CC-023931-002) with the Belt Loop (P/N: KRY 101 1609/1) attached to the Swivel Mount (P/N: KRY 101 1608/2) and the back of the Radio facing parallel to the outer surface of the planar phantom. The back side of the Belt Loop (P/N: KRY 101 1609/1) was touching the planar phantom and provided a 4.0 cm spacing between the back of the Radio and the planar phantom. The SAR evaluation was performed with the Speaker-Microphone (non-antenna version) audio accessory (P/N: MC-023933-001) connected to the Radio.
7. The Radio was tested in a body-worn configuration placed inside Leather Case 3 (P/N: CC-023931-002), which provided a 2.5 cm spacing between the back of the Radio and the outer surface of the planar phantom. The Shoulder Strap (P/N: CC103333V1) was attached to the Leather Case and the SAR evaluation was performed with the Speaker-Microphone (non-antenna version) audio accessory (P/N: MC-023933-001) connected to the Radio.
8. The Radio was tested in a body-worn configuration with the Belt Loop (P/N: KRY 101 1609/1) attached to the Swivel Mount (P/N: KRY 101 1608/2) on the back of the Radio. The back side of the Belt Loop was touching the outer surface of the planar phantom and provided a 3.0 cm spacing between the back of the Radio and the planar phantom. The SAR evaluation was performed with the Speaker-Microphone (non-antenna version) audio accessory (P/N: MC-023933-001) connected to the Radio.
9. The Radio was tested in a body-worn configuration placed inside the Nylon Case (P/N: CC-023932-001) with Belt Loop (P/N: KRY 101 1609/1) attached to the Nylon Case. The back side of the Belt Loop (P/N: KRY 101 1609/1) was touching the outer surface of the planar phantom and provided a 3.5 cm spacing between the back of the Radio and the planar phantom. The SAR evaluation was performed with the Speaker-Microphone (non-antenna version) audio accessory (P/N: MC-023933-001) connected to the Radio.
10. The Radio was tested in a body-worn configuration with the Nylon “T”-Strap Holder (P/N: KRY 101 1656/1) attached to the Radio and the back side facing parallel to and touching the outer surface of the planar phantom. The Nylon “T”-Strap Holder provided a 2.0 cm spacing between the back of the Radio and the planar phantom. The SAR evaluation was performed with the Speaker-Microphone (non-antenna version) audio accessory (P/N: MC-023933-001) connected to the Radio.
11. Maximum SAR level configurations (face-held and body-worn) were evaluated with the System Radio in order to report a comparison between the two radio types.

DETAILS OF SAR EVALUATION (Cont.)

Power Setting(s)

12. The DUT was configured to maximum power setting prior to the SAR evaluations by the manufacturer.
13. The conducted power levels were measured prior to the SAR evaluations with a Gigatronics 8652A Universal Power Meter according to the procedures described in FCC 47 CFR §2.1046.
14. The area scan evaluation was performed with a fully charged battery. After the area scan evaluation was completed the battery was replaced with a fully charged battery prior to the zoom scan evaluation.
15. The power drift of the DUT during the SAR evaluations was measured by the DASY4 system.

Test Mode(s)

16. The DUT was configured to Analog FM modulation prior to the SAR evaluations by the manufacturer.
17. The DUT was tested in unmodulated continuous transmit operation (Continuous Wave mode at 100% duty cycle) with the transmit key constantly depressed. For a push-to-talk device the 50% duty cycle compensation reported assumes a transmit/receive cycle of equal time base.

Test Conditions

18. 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.
19. The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using an HP 85070C Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
20. 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 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 1 g and 10 g 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 form 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 1 g and 10 g 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. Depending on the device type under evaluation, zoom scans for frequencies ≥ 800 MHz are typically 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.

7.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations, system checks were performed using a Plexiglas planar phantom and 450 MHz dipole (see Appendix E for system validation procedures). The dielectric parameters of the simulated tissue mixture were measured prior to the system performance checks using an HP 85070C Dielectric Probe Kit and HP 8753ET Network Analyzer (see Appendix C for measured fluid dielectric parameters). 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 value (see Appendix B for system performance check test plots).

SYSTEM PERFORMANCE CHECK EVALUATIONS

Test Date	Equiv. Tissue	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)
	450 MHz	Sys. Val. Target	Meas.	Dev.	Sys. Val. Target	Meas.	Dev.	Sys. Val. Target	Meas.	Dev.						
Jul 31	Brain	1.29 ±10%	1.31	+1.6%	43.1 ±5%	44.8	+4.0%	0.85 ±5%	0.89	+4.8%	1000	24.8	24.0	≥ 15	31	101.1
Aug 2	Brain	1.29 ±10%	1.25	-3.1%	43.1 ±5%	43.3	+0.5%	0.85 ±5%	0.86	+1.2%	1000	25.2	23.8	≥ 15	31	101.4
Aug 8	Brain	1.29 ±10%	1.28	-0.7%	43.1 ±5%	42.8	-0.6%	0.85 ±5%	0.84	-1.1%	1000	23.5	23.2	≥ 15	32	101.1
Aug 9	Brain	1.29 ±10%	1.30	+0.8%	43.1 ±5%	41.9	-2.7%	0.85 ±5%	0.85	0.0%	1000	23.3	23.5	≥ 15	31	101.4

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 system performance checks 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 checks.

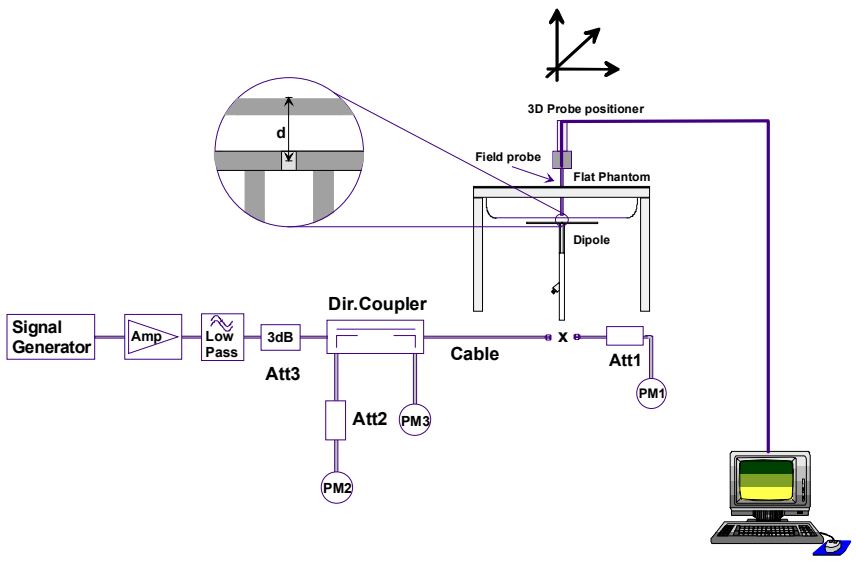


Figure 1. System Performance Check Measurement Setup Diagram

450 MHz Validation Dipole Setup

8.0 SIMULATED EQUIVALENT TISSUES

The simulated tissue mixtures consisted of a viscous gel using hydroxethylcellulose (HEC) gelling agent and saline solution. Preservation with a bactericide was added and visual inspection made to ensure air bubbles were not trapped during the mixing process. The fluid was prepared according to standardized procedures and measured for dielectric parameters (permittivity and conductivity).

SIMULATED TISSUE MIXTURES		
INGREDIENT	**450 MHz Brain**	**450 MHz Body**
	System Check & DUT Evaluation	DUT Evaluation
Water	38.56 %	52.00 %
Sugar	56.32 %	45.65 %
Salt	3.95 %	1.75 %
HEC	0.98 %	0.50 %
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
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.		

10.0 ROBOT SYSTEM SPECIFICATIONS

Specifications	
Positioner	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability	0.02 mm
No. of axis	6
Data Acquisition Electronic (DAE) System	
Cell Controller	
Processor	AMD Athlon XP 2400+
Clock Speed	2.0 GHz
Operating System	Windows XP Professional
Data Converter	
Features	Signal Amplifier, multiplexer, A/D converter, and control logic
Software	Measurement Software: DASY4, V4.7 Build 44
	Postprocessing Software: SEMCAD, V1.8 Build 171
Connecting Lines	Optical downlink for data and status info.; Optical uplink for commands and clock
DASY4 Measurement Server	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
E-Field Probe	
Model	ET3DV6
Serial No.	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)	
Evaluation Phantom	
Type:	Side Planar Phantom
Shell Material	Plexiglas
Bottom Thickness	2.0 mm ± 0.1 mm
Outer Dimensions	75.0 cm (L) x 22.5 cm (W) x 20.5 cm (H); Back Plane: 25.7 cm (H)
Validation Phantom (≤ 450MHz)	
Type	Planar Phantom
Shell Material	Plexiglas
Bottom Thickness	6.2 mm ± 0.1 mm
Outer Dimensions	86.0 cm (L) x 39.5 cm (W) x 21.8 cm (H)

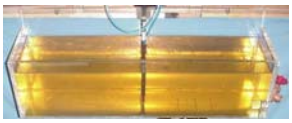
11.0 PROBE SPECIFICATION (ET3DV6)

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

ET3DV6 E-Field Probe

12.0 SIDE PLANAR PHANTOM

The side planar phantom is constructed of Plexiglas material with a 2.0 mm shell thickness for face-held and body-worn SAR evaluations of portable radio transceivers. The side planar phantom is mounted on the side of the DASY4 compact system table.



Plexiglas Side Planar Phantom

13.0 VALIDATION PLANAR PHANTOM

The validation planar phantom is constructed of Plexiglas material with a 6.0 mm shell thickness for system validations at 450 MHz and below. The validation planar phantom is mounted to the table of the DASY4 compact system.

Plexiglas Validation Planar Phantom

14.0 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

15.0 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	10Jul07		10Jul08
	-DAE3	00018	370	13Mar07		13Mar08
x	-ET3DV6 E-Field Probe	00016	1387	16Mar07		16Mar08
	-EX3DV4 E-Field Probe	00213	3600	24Jan07		24Jan08
	-300 MHz Validation Dipole	00023	135	08Jun07		08Jun08
x	-450 MHz Validation Dipole	00024	136	30Jul07		30Jul08
	-835 MHz Validation Dipole	00022	411	**Brain**	07Jun07	07Jun08
				Body	07Jun07	07Jun08
	-900 MHz Validation Dipole	00020	054	**Brain**	07Jun07	07Jun08
				Body	07Jun07	07Jun08
	-1800 MHz Validation Dipole	00021	247	**Brain**	06Jun07	06Jun08
				Body	06Jun07	06Jun08
	-1900 MHz Validation Dipole	00032	151	**Brain**	06Jun07	06Jun08
				Body	06Jun07	06Jun08
	-2450 MHz Validation Dipole	00025	150	**Brain**	08Jun07	08Jun08
				Body	08Jun07	08Jun08
	5GHz Validation Dipole -5200 MHz	00126	1031	**Body**	18May07	18May08
	5GHz Validation Dipole -5500 MHz			**Body**	22May07	22May08
	5GHz Validation Dipole -5800 MHz			**Brain**	09May07	09May08
				Body	10May07	10May08
	-SAM Phantom V4.0C	00154	1033	N/A		N/A
	-Barski Planar Phantom	00155	03-01	N/A		N/A
x	-Plexiglas Side Planar Phantom	00156	161	N/A		N/A
x	-Plexiglas Validation Planar Phantom	00157	137	N/A		N/A
	ALS-PR-DIEL Dielectric Probe Kit	00160	260-00953	N/A		N/A
x	HP 85070C Dielectric Probe Kit	00033	US39240170	N/A		N/A
x	Gigatronics 8652A Power Meter	00007	1835272	26Mar07		26Mar08
	Gigatronics 8652A Power Meter	00008	1835267	22Jan07		22Jan08
	Gigatronics 80701A Power Sensor	00012	1834350	22Jan07		22Jan08
x	Gigatronics 80701A Power Sensor	00014	1833699	22Jan07		22Jan08
x	Gigatronics 80701A Power Sensor	00109	1834366	26Mar07		26Mar08
x	HP 8753ET Network Analyzer	00134	US39170292	20Apr07		20Apr08
x	HP 8648D Signal Generator	00005	3847A00611	NCR		NCR
	Rohde & Schwarz SMR20 Signal Generator	00006	100104	NCR		NCR
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	NCR		NCR
	Amplifier Research 10W1000C Power Amplifier	00041	27887	NCR		NCR
	Nextec NB00383 Microwave Amplifier	00151	0535	NCR		NCR
	HP E4408B Spectrum Analyzer	00015	US39240170	05Feb07		05Feb08

16.0 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 (450 MHz)	8.0	Normal	1	1	8.0	∞
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)	5	Normal	1	0.64	3.2	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					**12.65**	
Expanded Uncertainty (k=2)					**25.31**	
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 (450 MHz)	8.0	Normal	1	1	8.0	∞
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)	5	Normal	1	0.64	3.2	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					**11.20**	
Expanded Uncertainty (k=2)					**22.39**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [5])						

17.0 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] ANSI/IEEE C95.1-2005 - “American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz”, New York: IEEE, April 2006.

APPENDIX B - SYSTEM PERFORMANCE CHECK DATA

Date Tested: 07/31/2007

System Performance Check - 450 MHz Dipole - HSL

DUT: Dipole 450 MHz; Asset: 00024; Serial: 136; Validation: 07/30/2007

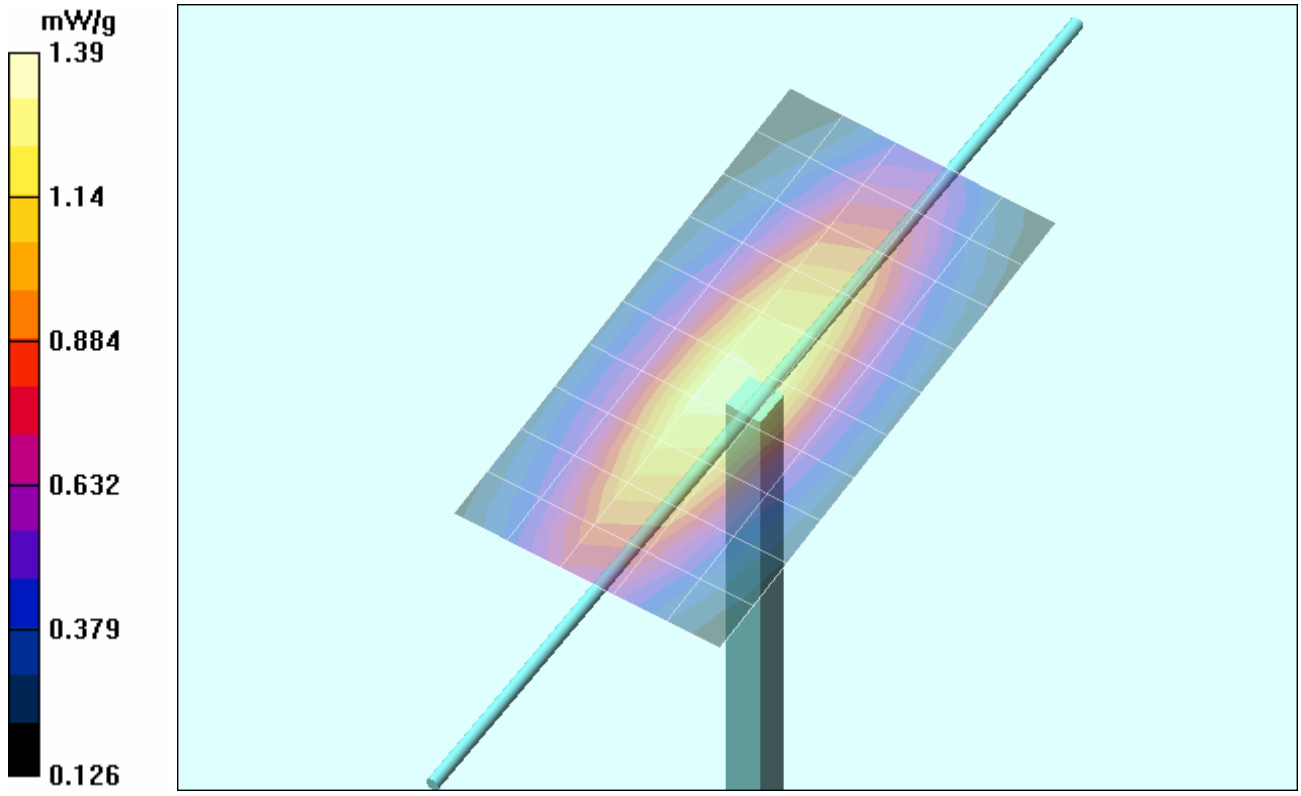
Ambient Temp: 24.8°C; Fluid Temp: 24.0°C; Barometric Pressure: 101.1 kPa; Humidity: 31%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 450 MHz; Duty Cycle: 1:1
Medium: HSL450 Medium parameters used: f = 450 MHz; σ = 0.89 mho/m; ε_r = 44.8; ρ = 1000 kg/m^3

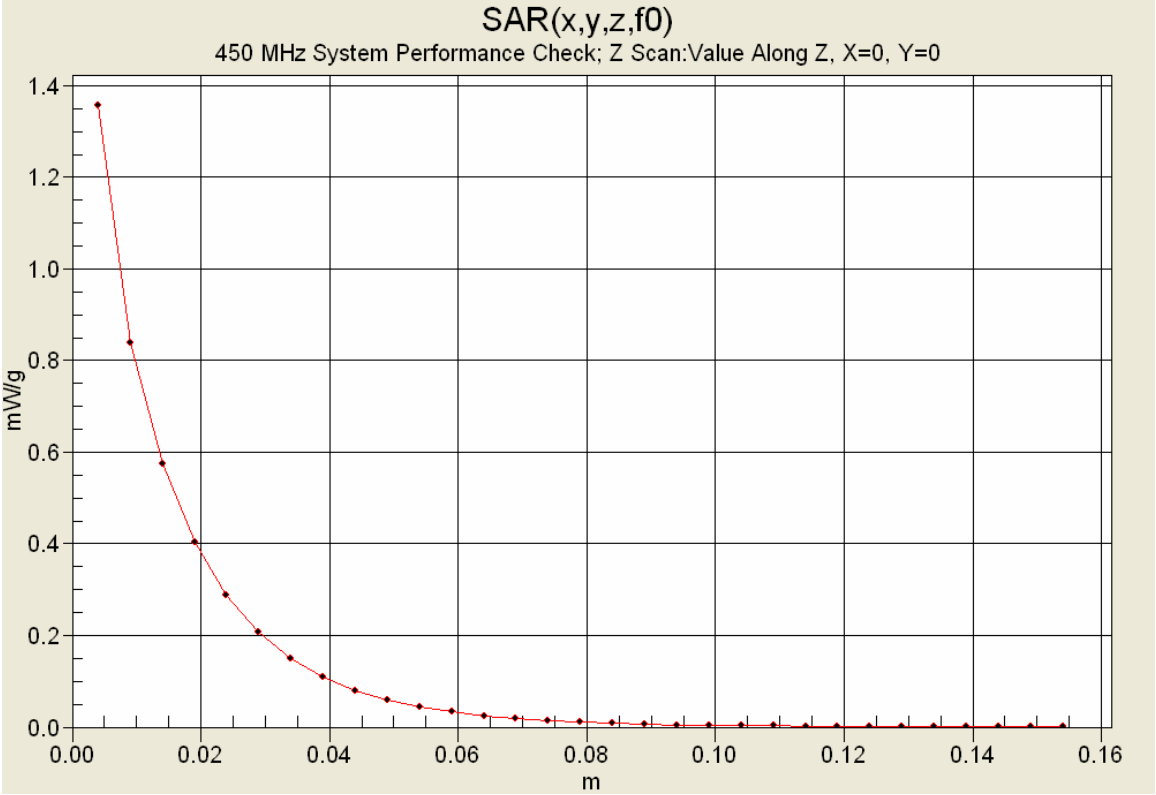
- Probe: ET3DV6 - SN1387; ConvF(7, 7, 7); Calibrated: 16/03/2007
- Sensor-Surface: 4 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 10/07/2007
- Phantom: Validation Planar; Type: Plexiglas; Serial: 137
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

450 MHz Dipole - System Performance Check/Area Scan (6x11x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.26 mW/g

450 MHz Dipole - System Performance Check/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 38.6 V/m; Power Drift = -0.018 dB
Peak SAR (extrapolated) = 2.31 W/kg
SAR(1 g) = 1.31 mW/g; SAR(10 g) = 0.837 mW/g
Maximum value of SAR (measured) = 1.39 mW/g



Z-Axis Scan



Date Tested: 08/02/2007

System Performance Check - 450 MHz Dipole - HSL

DUT: Dipole 450 MHz; Asset: 00024; Serial: 136; Validation: 07/30/2007

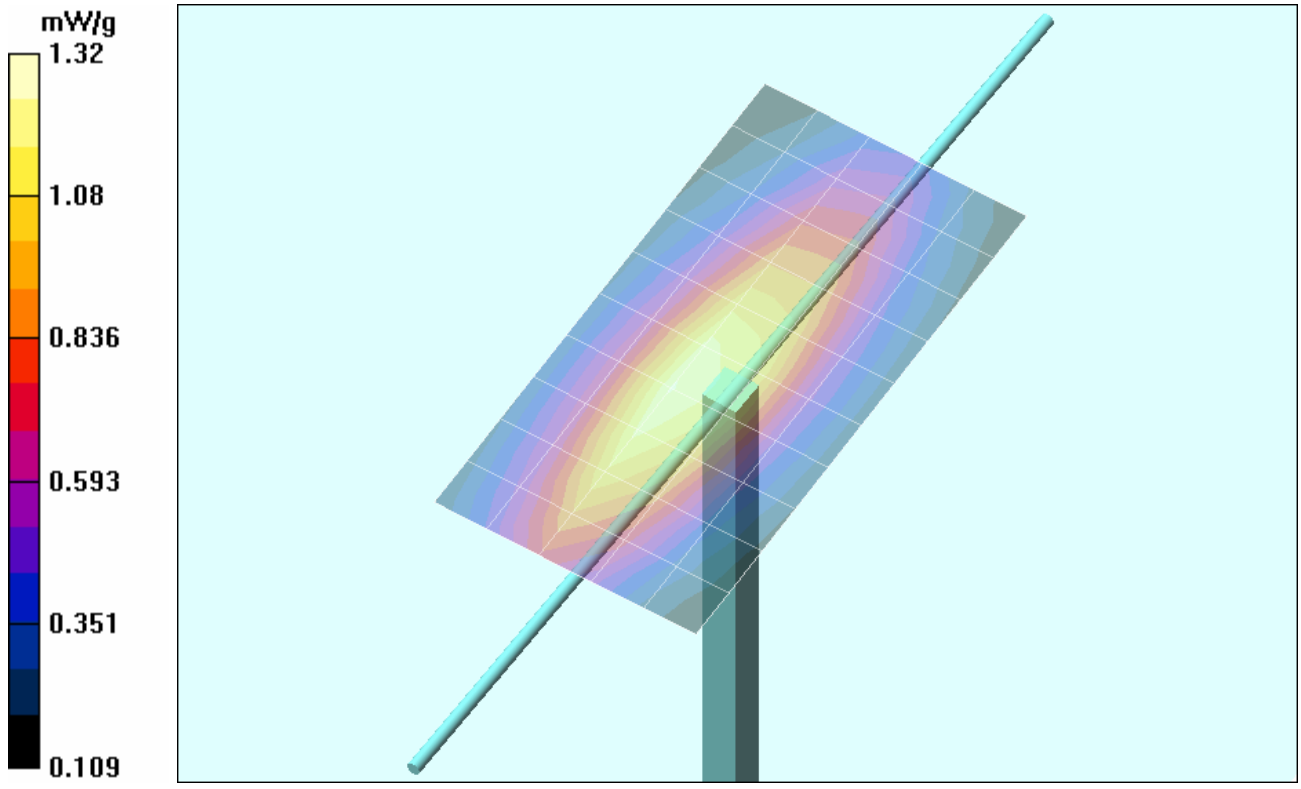
Ambient Temp: 25.2°C; Fluid Temp: 23.8°C; Barometric Pressure: 101.4 kPa; Humidity: 31%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 450 MHz; Duty Cycle: 1:1
Medium: HSL450 Medium parameters used: f = 450 MHz; σ = 0.86 mho/m; ε_r = 43.3; ρ = 1000 kg/m^3

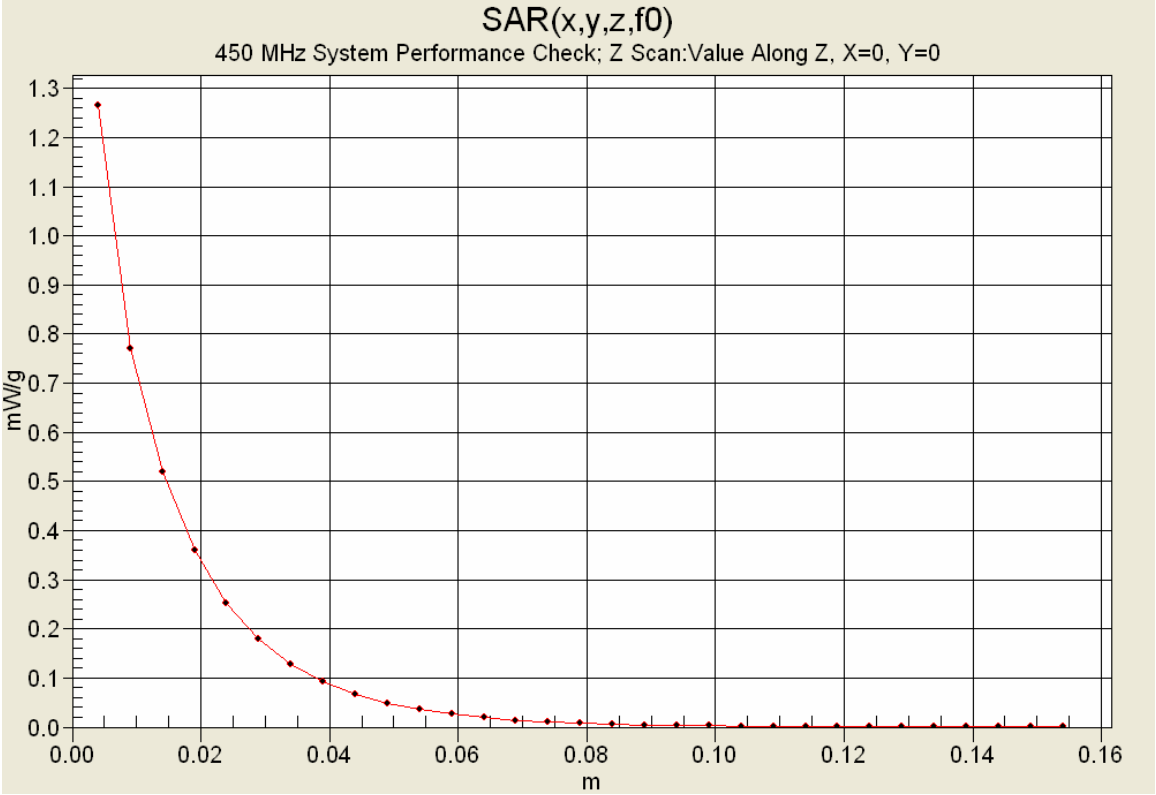
- Probe: ET3DV6 - SN1387; ConvF(7, 7, 7); Calibrated: 16/03/2007
- Sensor-Surface: 4 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 10/07/2007
- Phantom: Validation Planar; Type: Plexiglas; Serial: 137
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

450 MHz Dipole - System Performance Check/Area Scan (6x11x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.25 mW/g

450 MHz Dipole - System Performance Check/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 38.6 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 2.23 W/kg
SAR(1 g) = 1.25 mW/g; SAR(10 g) = 0.787 mW/g
Maximum value of SAR (measured) = 1.32 mW/g



Z-Axis Scan



Date Tested: 08/08/2007

System Performance Check - 450 MHz Dipole - HSL

DUT: Dipole 450 MHz; Asset: 00024; Serial: 136; Validation: 07/30/2007

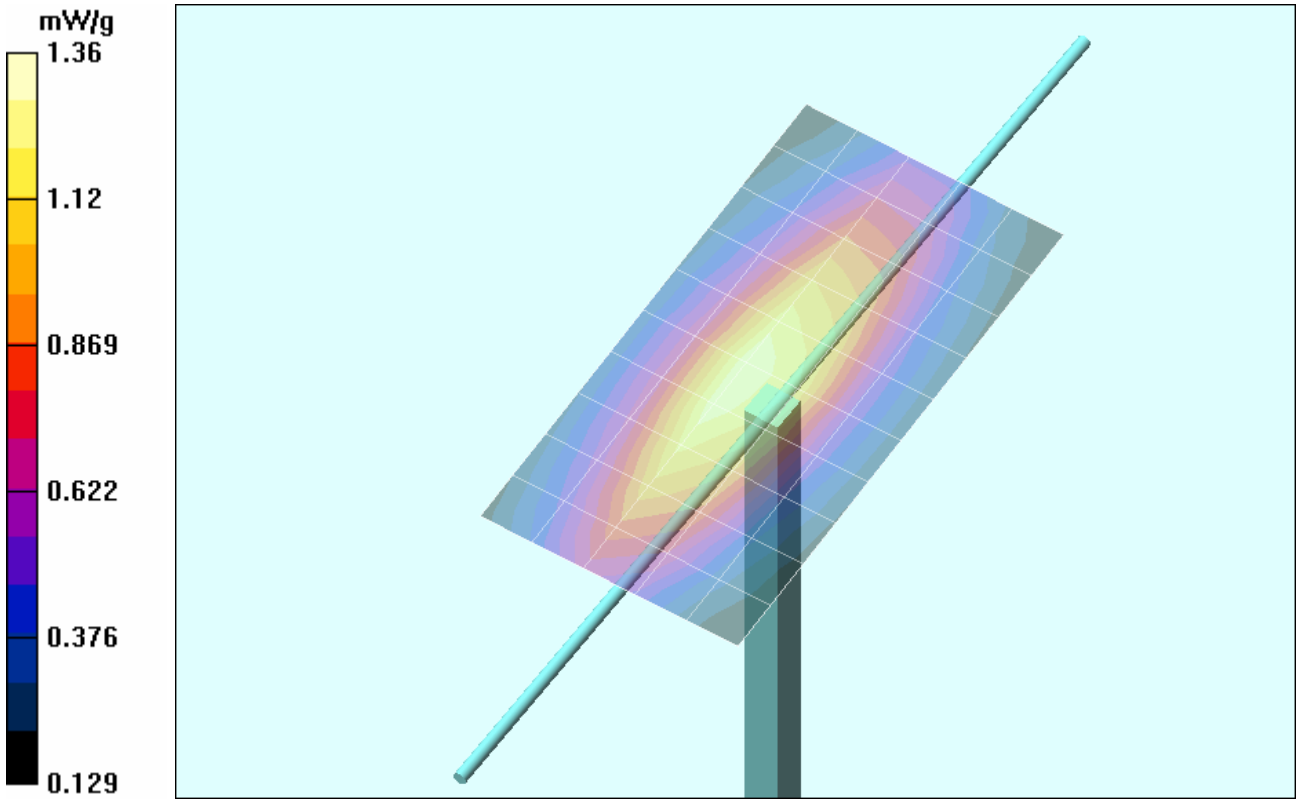
Ambient Temp: 23.5°C; Fluid Temp: 23.2°C; Barometric Pressure: 101.1 kPa; Humidity: 32%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 450 MHz; Duty Cycle: 1:1
Medium: HSL450 Medium parameters used: f = 450 MHz; σ = 0.84 mho/m; ε_r = 42.8; ρ = 1000 kg/m^3

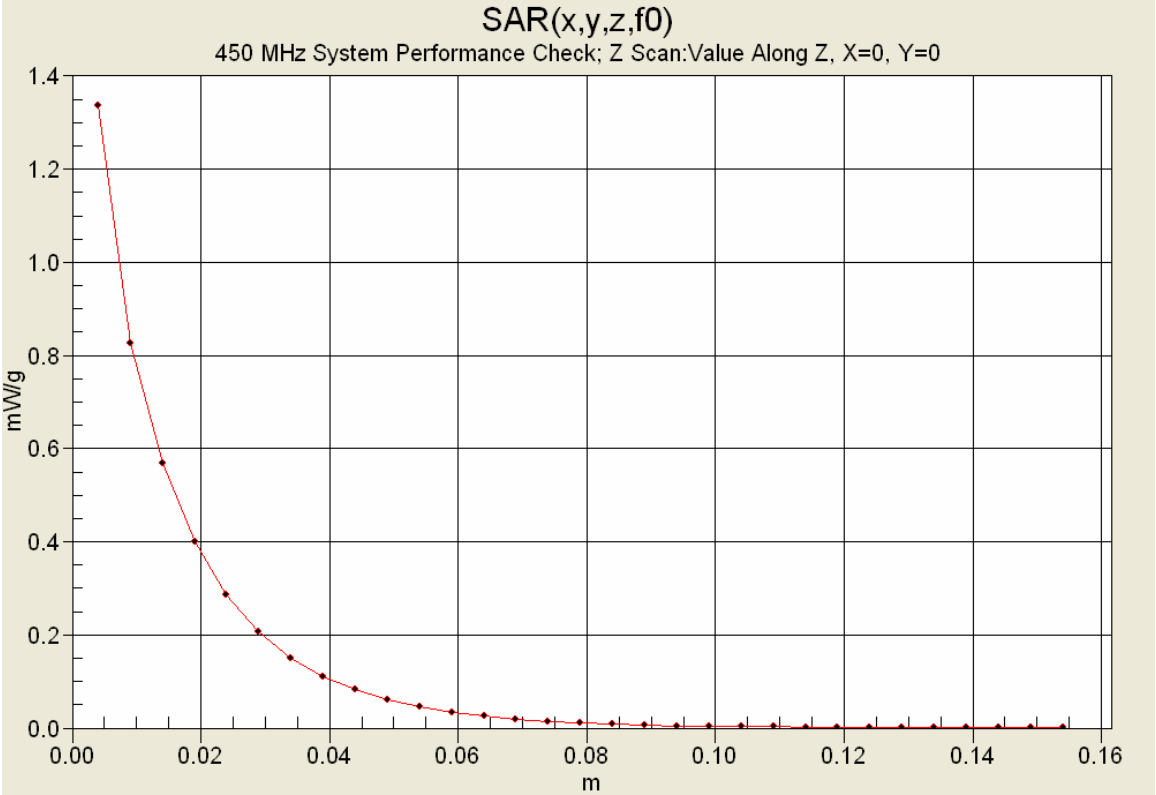
- Probe: ET3DV6 - SN1387; ConvF(7, 7, 7); Calibrated: 16/03/2007
- Sensor-Surface: 4 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 10/07/2007
- Phantom: Validation Planar; Type: Plexiglas; Serial: 137
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

450 MHz Dipole - System Performance Check/Area Scan (6x11x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.28 mW/g

450 MHz Dipole - System Performance Check/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 39.7 V/m; Power Drift = 0.043 dB
Peak SAR (extrapolated) = 2.26 W/kg
SAR(1 g) = 1.28 mW/g; SAR(10 g) = 0.820 mW/g
Maximum value of SAR (measured) = 1.36 mW/g



Z-Axis Scan



Date Tested: 08/09/2007

System Performance Check - 450 MHz Dipole - HSL

DUT: Dipole 450 MHz; Asset: 00024; Serial: 136; Validation: 07/30/2007

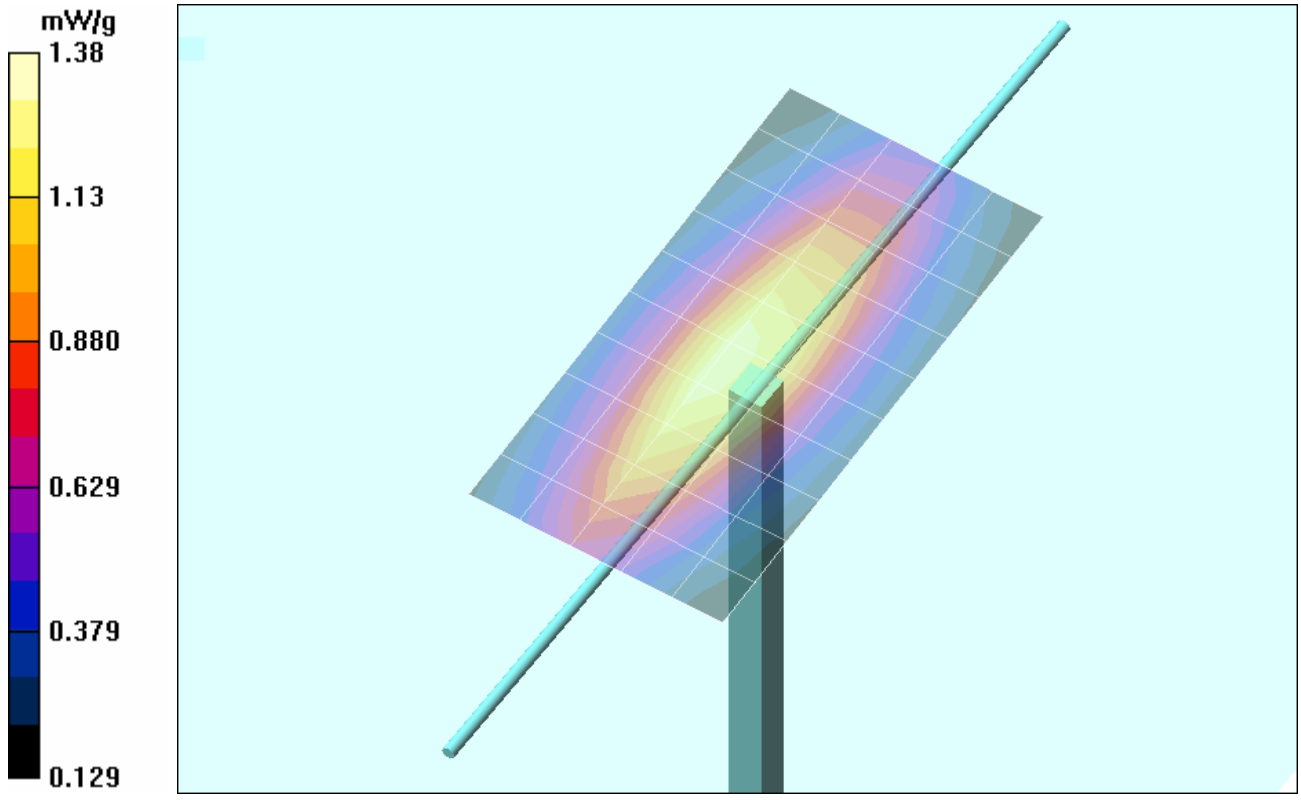
Ambient Temp: 23.3°C; Fluid Temp: 23.5°C; Barometric Pressure: 101.4 kPa; Humidity: 31%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 450 MHz; Duty Cycle: 1:1
Medium: HSL450 Medium parameters used: f = 450 MHz; σ = 0.85 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3

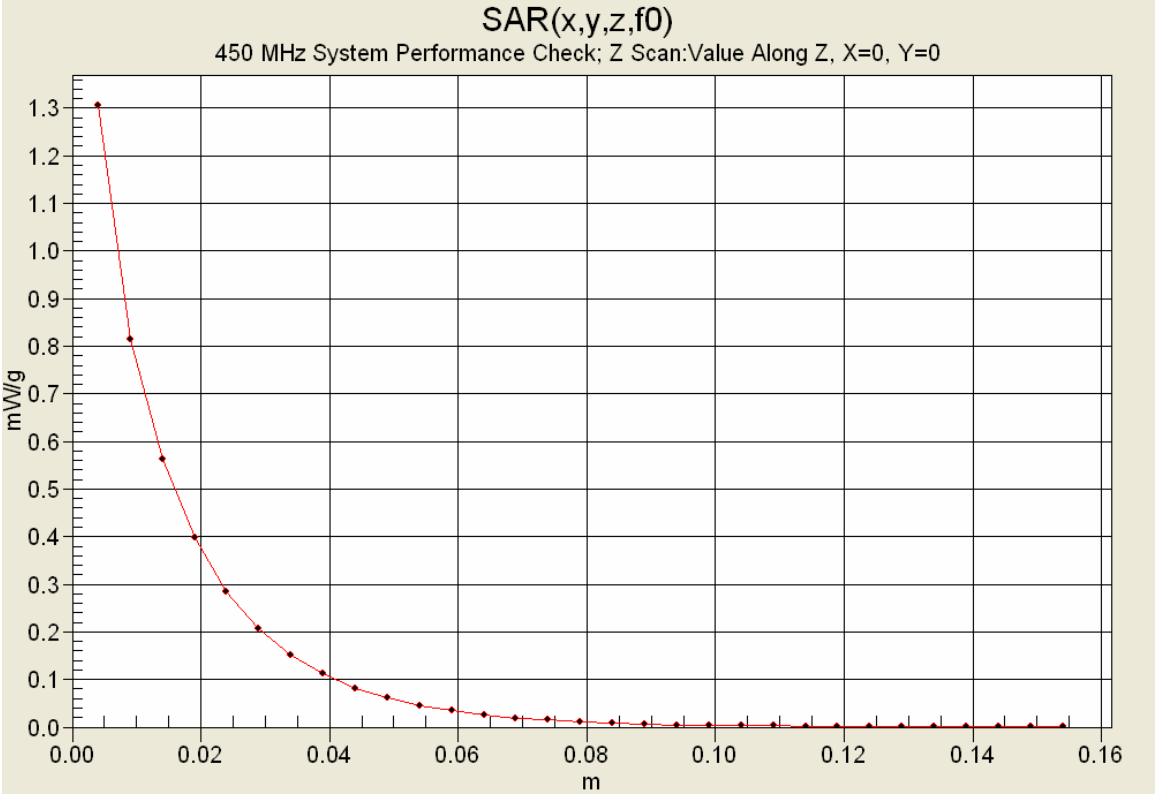
- Probe: ET3DV6 - SN1387; ConvF(7, 7, 7); Calibrated: 16/03/2007
- Sensor-Surface: 4 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 10/07/2007
- Phantom: Validation Planar; Type: Plexiglas; Serial: 137
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

450 MHz Dipole - System Performance Check/Area Scan (6x11x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.28 mW/g

450 MHz Dipole - System Performance Check/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 39.7 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 2.29 W/kg
SAR(1 g) = 1.30 mW/g; SAR(10 g) = 0.828 mW/g
Maximum value of SAR (measured) = 1.38 mW/g



Z-Axis Scan



APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

450 MHz System Performance Check (Brain)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Tue 31/Jul/2007
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
0.3500	44.70	0.87	47.08	0.80
0.3600	44.58	0.87	46.92	0.81
0.3700	44.46	0.87	46.81	0.82
0.3800	44.34	0.87	46.22	0.83
0.3900	44.22	0.87	46.05	0.83
0.4000	44.10	0.87	45.84	0.83
0.4100	43.98	0.87	45.39	0.85
0.4200	43.86	0.87	45.44	0.86
0.4300	43.74	0.87	45.03	0.87
0.4400	43.62	0.87	44.90	0.88
0.4500	43.50	0.87	44.79	0.89
0.4600	43.45	0.87	44.47	0.90
0.4700	43.40	0.87	44.22	0.91
0.4800	43.34	0.87	44.02	0.91
0.4900	43.29	0.87	43.89	0.92
0.5000	43.24	0.87	43.72	0.93
0.5100	43.19	0.87	43.43	0.94
0.5200	43.14	0.88	43.35	0.95
0.5300	43.08	0.88	42.90	0.96
0.5400	43.03	0.88	43.02	0.96
0.5500	42.98	0.88	42.69	0.97

450 MHz DUT Evaluation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Wed 01/Aug/2007
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
0.3500	57.70	0.93	57.43	0.81
0.3600	57.60	0.93	57.28	0.82
0.3700	57.50	0.93	57.37	0.83
0.3800	57.40	0.93	57.00	0.84
0.3900	57.30	0.93	56.90	0.85
0.4000	57.20	0.93	57.06	0.85
0.4100	57.10	0.93	56.62	0.86
0.4200	57.00	0.94	56.55	0.87
0.4300	56.90	0.94	56.61	0.88
0.4400	56.80	0.94	56.24	0.89
0.4500	56.70	0.94	56.14	0.90
0.4600	56.66	0.94	55.95	0.90
0.4700	56.62	0.94	55.83	0.92
0.4800	56.58	0.94	56.03	0.93
0.4900	56.54	0.94	55.61	0.93
0.5000	56.51	0.94	55.55	0.94
0.5100	56.47	0.94	55.43	0.95
0.5200	56.43	0.95	55.38	0.96
0.5300	56.39	0.95	55.34	0.97
0.5400	56.35	0.95	55.26	0.98
0.5500	56.31	0.95	55.10	0.99

450 MHz System Performance Check & DUT Evaluation (Brain)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Thu 02/Aug/2007
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
0.3500	44.70	0.87	45.72	0.76
0.3600	44.58	0.87	45.31	0.77
0.3700	44.46	0.87	45.14	0.78
0.3800	44.34	0.87	44.73	0.79
0.3900	44.22	0.87	44.67	0.80
0.4000	44.10	0.87	44.56	0.81
0.4100	43.98	0.87	44.11	0.82
0.4200	43.86	0.87	43.83	0.83
0.4300	43.74	0.87	43.69	0.84
0.4400	43.62	0.87	43.43	0.85
0.4500	43.50	0.87	43.32	0.86
0.4600	43.45	0.87	43.19	0.86
0.4700	43.40	0.87	42.89	0.87
0.4800	43.34	0.87	42.77	0.88
0.4900	43.29	0.87	42.37	0.89
0.5000	43.24	0.87	42.32	0.90
0.5100	43.19	0.87	41.89	0.91
0.5200	43.14	0.88	41.83	0.92
0.5300	43.08	0.88	41.79	0.93
0.5400	43.03	0.88	41.50	0.93
0.5500	42.98	0.88	41.40	0.94

450 MHz System Performance Check (Brain)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Wed 08/Aug/2007
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
0.3500	44.70	0.87	45.40	0.75
0.3600	44.58	0.87	45.15	0.77
0.3700	44.46	0.87	44.76	0.78
0.3800	44.34	0.87	44.45	0.78
0.3900	44.22	0.87	44.09	0.80
0.4000	44.10	0.87	44.12	0.80
0.4100	43.98	0.87	43.63	0.81
0.4200	43.86	0.87	43.47	0.82
0.4300	43.74	0.87	43.24	0.83
0.4400	43.62	0.87	43.18	0.84
0.4500	43.50	0.87	42.79	0.84
0.4600	43.45	0.87	42.66	0.85
0.4700	43.40	0.87	42.60	0.86
0.4800	43.34	0.87	42.33	0.87
0.4900	43.29	0.87	42.15	0.88
0.5000	43.24	0.87	41.96	0.89
0.5100	43.19	0.87	41.81	0.90
0.5200	43.14	0.88	41.51	0.91
0.5300	43.08	0.88	41.42	0.91
0.5400	43.03	0.88	41.22	0.92
0.5500	42.98	0.88	41.02	0.93

450 MHz DUT Evaluation (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Wed 08/Aug/2007
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
0.3500	57.70	0.93	57.32	0.83
0.3600	57.60	0.93	57.01	0.83
0.3700	57.50	0.93	56.98	0.84
0.3800	57.40	0.93	56.64	0.84
0.3900	57.30	0.93	56.59	0.86
0.4000	57.20	0.93	56.51	0.87
0.4100	57.10	0.93	56.26	0.87
0.4200	57.00	0.94	56.09	0.88
0.4300	56.90	0.94	56.03	0.89
0.4400	56.80	0.94	55.90	0.89
0.4500	56.70	0.94	55.70	0.90
0.4600	56.66	0.94	55.55	0.91
0.4700	56.62	0.94	55.44	0.91
0.4800	56.58	0.94	55.37	0.92
0.4900	56.54	0.94	55.29	0.93
0.5000	56.51	0.94	55.22	0.94
0.5100	56.47	0.94	55.04	0.95
0.5200	56.43	0.95	54.99	0.96
0.5300	56.39	0.95	54.77	0.96
0.5400	56.35	0.95	54.56	0.97
0.5500	56.31	0.95	54.59	0.98

450 MHz System Performance Check & DUT Evaluation (Brain)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Thu 09/Aug/2007
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

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Freq	FCC_eH	FCC_sH	Test_e	Test_s
0.3500	44.70	0.87	44.10	0.77
0.3600	44.58	0.87	44.08	0.77
0.3700	44.46	0.87	43.79	0.78
0.3800	44.34	0.87	43.69	0.79
0.3900	44.22	0.87	43.53	0.80
0.4000	44.10	0.87	42.94	0.81
0.4100	43.98	0.87	42.80	0.82
0.4200	43.86	0.87	42.75	0.82
0.4300	43.74	0.87	42.45	0.83
0.4400	43.62	0.87	42.29	0.84
0.4500	43.50	0.87	41.93	0.85
0.4600	43.45	0.87	41.81	0.85
0.4700	43.40	0.87	41.57	0.86
0.4800	43.34	0.87	41.49	0.87
0.4900	43.29	0.87	41.21	0.88
0.5000	43.24	0.87	41.04	0.88
0.5100	43.19	0.87	40.73	0.89
0.5200	43.14	0.88	40.72	0.91
0.5300	43.08	0.88	40.43	0.91
0.5400	43.03	0.88	40.34	0.92
0.5500	42.98	0.88	40.26	0.93

450 MHz DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Thu 09/Aug/2007
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

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Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.3500	57.70	0.93	57.99	0.87
0.3600	57.60	0.93	57.87	0.88
0.3700	57.50	0.93	57.63	0.88
0.3800	57.40	0.93	57.84	0.89
0.3900	57.30	0.93	57.55	0.90
0.4000	57.20	0.93	57.42	0.91
0.4100	57.10	0.93	57.43	0.91
0.4200	57.00	0.94	57.24	0.92
0.4300	56.90	0.94	56.99	0.93
0.4400	56.80	0.94	57.02	0.93
0.4500	56.70	0.94	56.57	0.94
0.4600	56.66	0.94	56.58	0.95
0.4700	56.62	0.94	56.47	0.95
0.4800	56.58	0.94	56.41	0.96
0.4900	56.54	0.94	56.50	0.97
0.5000	56.51	0.94	56.08	0.97
0.5100	56.47	0.94	55.92	0.98
0.5200	56.43	0.95	56.03	0.99
0.5300	56.39	0.95	55.89	1.00
0.5400	56.35	0.95	55.67	1.00
0.5500	56.31	0.95	55.57	1.01

450 MHz DUT Evaluation (Brain)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Fri 10/Aug/2007
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

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Freq	FCC_eH	FCC_sH	Test_e	Test_s
0.3500	44.70	0.87	45.73	0.77
0.3600	44.58	0.87	45.20	0.78
0.3700	44.46	0.87	45.18	0.78
0.3800	44.34	0.87	44.61	0.80
0.3900	44.22	0.87	44.59	0.80
0.4000	44.10	0.87	44.21	0.81
0.4100	43.98	0.87	43.93	0.82
0.4200	43.86	0.87	43.88	0.83
0.4300	43.74	0.87	43.29	0.83
0.4400	43.62	0.87	43.43	0.84
0.4500	43.50	0.87	43.16	0.85
0.4600	43.45	0.87	42.94	0.86
0.4700	43.40	0.87	42.78	0.87
0.4800	43.34	0.87	42.52	0.88
0.4900	43.29	0.87	42.29	0.89
0.5000	43.24	0.87	42.14	0.90
0.5100	43.19	0.87	41.97	0.90
0.5200	43.14	0.88	41.65	0.91
0.5300	43.08	0.88	41.62	0.92
0.5400	43.03	0.88	41.52	0.93
0.5500	42.98	0.88	41.21	0.94