RF EXPOSURE EVALUATION

SPECIFIC ABSORPTION RATE

SAR TEST REPORT

FOR

DRS TACTICAL SYSTEMS, INC.

RUGGED TABLET PC

WITH INTEGRATED

802.11ABG WLAN and BLUETOOTH

MODEL(S): HAMMERHEAD / HAMMERHEAD X^{TREME}

FCC ID: UGL0000181060001
TEST STANDARD(S) & PROCEDURE(S) APPLIED
FCC OET Bulletin 65, Supplement C (01-01)
FCC OET SAR Measurement Procedures for 802.11a/b/g Transmitters
FCC OET SAR Measurement Requirements for 3 - 6 GHz
Industry Canada RSS-102 Issue 2

Test Report Serial No.

072706UGL-T764-S15W

Test Report Revision No.

Revision 1.0 (Initial Release)

Test Lab and Location

Celltech Compliance Testing & Engineering Lab
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Certificate No. 2470.01

Test Report Prepared By:	Test Report Reviewed By:
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DECLARATION OF COMPLIANCE
SAR RF EXPOSURE EVALUATION

Test Lab and Location

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Company Information

DRS TACTICAL SYSTEMS, INC.
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United States

FCC IDENTIFIER:	**UGL0000181060001**
Device Model(s):	**Hammerhead (Magnesium Housing with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings)** **Hammerhead X^{TREME} (Aluminum Housing with Fixed Nylon Case & Plastic D-Rings)**
Rule Part(s):	**FCC 47 CFR §2.1093; Health Canada Safety Code 6**
Test Procedure(s):	**FCC OET Bulletin 65, Supplement C (Edition 01-01); Industry Canada RSS-102 Issue 2** **FCC OET SAR Measurement Procedures for 802.11a/b/g Transmitters** **FCC OET SAR Measurement Requirements for 3 - 6 GHz**
FCC Device Classification(s):	**Digital Transmission System (DTS) - §15C** **Unlicensed National Information Infrastructure TX (NII) - §15E**
IC Device Classification:	**Low Power License-Exempt Radiocommunication Device (RSS-210 Issue 6)**
Device Description:	**Rugged Tablet PC**
LCD Display Orientation(s):	**0 Degrees Landscape**
Internal Transmitter Type:	**Intel Pro 2915ABG 802.11abg WLAN Mini-PCI Card**
Co-located Transmitter(s):	**Bluetooth (simultaneous transmission)**
Mode(s) of Operation:	**802.11b: DSSS (Direct Sequence Spread Spectrum)** **802.11a/g: OFDM (Orthogonal Frequency Division Multiplexing)** **Bluetooth: FHSS (Frequency Hopping Spread Spectrum)**
Transmit Frequency Range(s):	**2412 - 2462 MHz 802.11b/g (ISM Band); 5180 - 5240 MHz 802.11a (UNII-1 Band)** **5260 - 5320 MHz 802.11a (UNII-2 Band); 5745 - 5825 MHz 802.11a (UNII-3 Band)** **2402 - 2480 MHz (Bluetooth)**
Max. RF Output Power Tested:	**17.1 dBm (51.3 mW) Average Conducted (802.11b: 2442 MHz - 1 Mbps)** **11.8 dBm (15.1 mW) Average Conducted (802.11a - UNII-1 - 5180 MHz - 6 Mbps)** **16.3 dBm (42.7 mW) Average Conducted (802.11a - UNII-2 - 5260 MHz - 6 Mbps)** **17.2 dBm (52.5 mW) Average Conducted (802.11a - UNII-3 - 5785 MHz - 6 Mbps)** **3.0 dBm (2 mW) Conducted (Bluetooth)**
Date Rate(s):	**802.11b: 1 / 2 / 5.5 / 11 Mbps** **802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps**
Battery Type(s) Tested:	**Lithium-ion 10.8 V (P/N: 020110-03)**
Antenna Type(s) Tested:	**802.11abg: Switched Diversity (Main & Auxiliary)** **Bluetooth: Internal**
Max. SAR Level(s) Evaluated: **(With 75% Duty Factor Scaling)**	**Body: 0.202 W/kg (1g average) UNII-1: 802.11a; 0.470 W/kg (1g average) UNII-2: 802.11a** **Body: 0.577 W/kg (1g average) UNII-3: 802.11a; 0.113 W/kg (1g average) ISM: 802.11b**

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

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

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

Hammerhead | Hammerhead X^{TREME}

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1.0 INTRODUCTION

This measurement report demonstrates that DRS TACTICAL SYSTEMS, INC. Model(s): Hammerhead and Hammerhead X^{TREME} Rugged Tablet PC FCC ID: UGL0000181060001, incorporating the Intel Pro 2915ABG 802.11abg WLAN Mini-PCI Card and co-located Bluetooth, complies with the SAR (Specific Absorption Rate) RF exposure requirements specified in FCC 47 CFR §2.1093 (see reference [1]) and Health Canada's Safety Code 6 (see reference [2]) for the General Population / Uncontrolled Exposure environment. The test procedures described in FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]) and IC RSS-102 Issue 2 (see reference [4]) were employed. A description of the product and operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used, and the various provisions of the rules are included within this test report.

2.0 DESCRIPTION of DEVICE UNDER TEST (DUT)

Rule Part(s)	FCC 47 CFR §2.1093			Health Canada Safety Code 6		
Test Procedure(s)	FCC OET Bulletin 65, Supplement C (01-01)			Industry Canada RSS-102 Issue 2		
	FCC OET SAR Measurement Procedures for 802.11a/b/g Transmitters					
	FCC OET SAR Measurement Requirements for 3 - 6 GHz					
FCC Device Classification	Digital Transmission System (DTS)			§15C	2412 - 2462 MHz	5745 - 5825 MHz
	Unlicensed National Information Infrastructure TX (NII)			§15E	5180 - 5320 MHz	
IC Device Classification	Low Power License-Exempt Radiocommunication Device: Category I Equipment					RSS-210 Issue 6
RF Exposure Category	Uncontrolled Environment / General Population					
Device Description	Rugged Tablet PC					
Internal Transmitter Type	Dominant:	Intel Pro 2915ABG 802.11abg WLAN Mini-PCI Card				
Co-located Transmitter(s)	Non-Dominant:	Bluetooth (Simultaneous Transmission)				
LCD Display Orientation(s)	0 Degrees Landscape					
FCC IDENTIFIER	UGL0000181060001					
Device Model(s) & Serial No.(s)	Hammerhead	Magnesium housing with rubber bumpers, nylon hand-strap & plastic d-rings				S/N: 046018
		(1.5 cm gap from bottom side of LCD display to phantom)				Identical Prototype
	Hammerhead X^{TREME}	Aluminum housing with fixed nylon case & plastic d-rings				S/N: 046363
		(0.8 cm gap from bottom side of LCD display to phantom)				Identical Prototype
Mode(s) of Operation	802.11a/g	OFDM		Orthogonal Frequency Division Multiplexing		
	802.11b	DSSS		Direct Sequence Spread Spectrum		
	Bluetooth	FHSS		Frequency Hopping Spread Spectrum		
Data Rates	802.11a/g	6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps		802.11b	1 / 2 / 5.5 / 11 Mbps	
Transmit Frequency Range(s)	5180 - 5240 MHz	802.11a	UNII-1 Band	5745 - 5825 MHz	802.11a	UNII-3 Band
	5260 - 5320 MHz	802.11a	UNII-2 Band	2412 - 2462 MHz	802.11b/g	ISM Band
	2402 - 2480 MHz	Bluetooth	-			

Maximum RF Output Power Levels Tested	**Transmitter Mode**		**Frequency (MHz)**	**Channel**	**Data Rate (Mbps)**	**Average Conducted Power**	
						dBm	**mW**
	802.11b	ISM	2442	7	1	17.1	51.3
	802.11a	UNII-1	5180	36	6	11.8	15.1
	802.11a	UNII-2	5260	52	6	16.3	42.7
	802.11a	UNII-3	5785	157	6	17.2	52.5
	Bluetooth		2441	39	-	3.0	2.0

Antenna Type(s) Tested	802.11a/b/g	Switched Diversity	Main	Top Left Edge above LCD Display
			Auxiliary	Top Right Edge above LCD Display
	Bluetooth	Internal	-	
Power Source(s) Tested	Dual Lithium-ion Battery		10.8 V	P/N: 020110-03

3.0 OUTPUT POWER MEASUREMENTS

Hammerhead X^{TREME} Tablet PC with Intel Pro 2915ABG WLAN						
Mode		Freq. (GHz)	Channel	Average Conducted Power		Data Rate
				dBm	Watts	Mbps
802.11b		2.412	1	15.2	0.0331	1
		2.442	7	**17.1**	0.0513	1
		2.462	11	17.1	0.0513	1
802.11g		2.412	1	15.3	0.0339	6
		2.442	7	**15.0**	0.0316	6
		2.462	11	14.6	0.0288	6
802.11a	UNII-1	5.18	36	**11.8**	0.0151	6
		5.20	40	11.7	0.0148	6
		5.22	44	11.8	0.0151	6
		5.24	48	11.8	0.0151	6
	UNII-2	5.26	52	**16.3**	0.0427	6
		5.28	56	16.1	0.0407	6
		5.30	60	15.9	0.0389	6
		5.32	64	16.2	0.0417	6
	UNII-3	5.745	149	17.0	0.0501	6
		5.765	153	17.1	0.0513	6
		5.785	157	**17.2**	0.0525	6
		5.805	161	17.0	0.0501	6
		5.825	165	17.0	0.0501	6

Hammerhead Tablet PC with Intel Pro 2915ABG WLAN						
Mode		Freq. (GHz)	Channel	Average Conducted Power		Data Rate
				dBm	Watts	Mbps
802.11b		2.442	7	**17.0**	0.0468	1
802.11a	UNII-2	5.260	52	**16.2**	0.0417	6
	UNII-3	5.785	157	**17.2**	0.0525	6

Notes:

1. Average conducted output power measurements were made in the test frequency channel configurations specified in FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" (see reference [7]) for the Hammerhead X^{TREME} Tablet PC with aluminum housing and nylon case (fixed to the housing) providing a 0.8 cm gap from the bottom side of the LCD display to the planar phantom. The Hammerhead Tablet PC with magnesium housing and rubber bumpers contains a nylon hand-strap with plastic d-rings which provided a 1.5 cm gap from the bottom side of the LCD display to the planar phantom. Based on the Hammerhead Tablet PC having the greater separation distance it was measured for output power in the worst-case output power channels from the Hammerhead X^{TREME} Tablet PC measurements to report a comparison between the two Tablet PC models.
2. Conducted output power measurements were also made at the higher data rates and the power levels were not > 0.25 dB than the power levels measured at the lowest data rate. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than ¼ dB higher than those measured at the lowest data rate (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
3. The average conducted output power levels were measured using a spectrum analyzer according to 15.247(b) (KDB Publication #558074 - Power Output Option 2, Method 1). The RBW was set to 1 MHz and the VBW was set to 3 MHz.

4.0 SAR MEASUREMENT SYSTEM

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

DASY4 SAR Measurement System & planar phantom

DASY4 SAR Measurement System with planar phantom & validation dipole

5.0 MEASUREMENT SUMMARY

BODY SAR MEASUREMENT RESULTS (802.11b: 2.4 GHz)

Test Date	Transmit Mode	Test Mode	Freq.	Chan.	Data Rate	Battery Type	Antenna Type	DUT Position to Planar Phantom	Bottom Side LCD Distance to Planar Phantom	Cond. Power Before Test	SAR Drift During Test	Meas. SAR 1g 100% Duty Factor	Scaled SAR 1g 75% Duty Factor [7]
			MHz		Mbps				cm	dBm	dB	W/kg	W/kg
Hammerhead Tablet PC (Magnesium Housing with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings)													
Sept 14	802.11b	DSSS	2442	7	1	Li-ion	MAIN	Bottom Touch	1.5	17.0	0.119	0.0354	0.0266
Sept 14	802.11b	DSSS	2442	7	1	Li-ion	AUX	Bottom Touch	1.5	17.0	0.00353	0.0873	0.0655
Hammerhead X^{TREME} Tablet PC (Aluminum Housing with Fixed Nylon Case & Plastic D-Rings)													
Sept 25	**802.11b**	DSSS	**2442**	7	1	Li-ion	AUX	Bottom Touch	0.8	17.1	-0.185	**0.151**	**0.113**
Sept 25	802.11b	DSSS	2442	7	1	Li-ion	AUX	Bottom Touch	0.8	17.1	-0.168	0.145	0.109
	Bluetooth	Modulated Fixed Freq.	2441	39	-		Internal			3.0			

ANSI / IEEE C95.1 2005 - SAFETY LIMIT | **BODY: 1.6 W/kg (averaged over 1 gram)** | **Spatial Peak Uncontrolled Exposure / General Population**

Test Date(s)	September 14, 2006		September 25, 2006		
Measured Fluid Type	2450 MHz Body				
	IEEE Target		Date	Measured	Deviation
Dielectric Constant ε	52.7	±5%	Sep 14	50.7	-3.8%
			Sep 25	51.4	-2.5%
Conductivity σ (mho/m)	1.95	±5%	Sep 14	2.02	+3.6%
			Sep 25	2.03	+4.1%

Test Date(s)	Sept. 14	Sept. 25	Unit
Relative Humidity	35	32	%
Atmospheric Pressure	102.1	101.8	KPa
Ambient Temperature	24.0	21.8	°C
Fluid Temperature	23.6	22.3	°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. The procedures described in FCC OET "SAR Measurement Requirements for 802.11a/b/g Transmitters" were implemented (see reference [7]).
3. If the SAR levels measured at the highest output channel were ≥ 3 dB below the SAR limit, SAR evaluation for other remaining selected channels was optional (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
4. For transmitting diversity antennas, each transmitting antenna should be tested independently, one at a time, on the maximum average output channel in each frequency band and BW configuration. When the 1-g SAR values for all antenna are less than 1.2 W/kg (75% of limit), the remaining "required test channels" should be tested in each frequency band using the antenna with the highest SAR measured on the maximum output channel, otherwise test both antennas (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
5. Higher data rates and 802.11g mode were not evaluated based on the average output power levels were not 0.25 dB > the output power level measured at the lowest data rate in 802.11b mode (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
6. The DUT was first evaluated for SAR with the Bluetooth disabled. A co-located simultaneous transmit SAR evaluation with both the 802.11b and Bluetooth enabled was performed in the worst-case configuration from the 802.11b single-transmit evaluations.
7. The measured SAR for each diversity antenna was scaled to a duty factor of 75% to demonstrate compliance (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
8. The power drifts measured by the DASY4 system for the duration of the SAR evaluations were <5% from the start power.
9. The DUT battery was fully charged prior to the SAR evaluations.
10. The SAR evaluations were performed within 24 hours of the system performance check.

MEASUREMENT SUMMARY (Cont.)

BODY SAR MEASUREMENT RESULTS (802.11a - 5.2 GHz)

Test Date	Transmit Mode	Test Mode	Freq.	Chan.	Data Rate	Battery Type	Antenna Type	DUT Position to Planar Phantom	Bottom Side LCD Distance to Planar Phantom	Cond. Power Before Test	SAR Drift During Test	Measured SAR 1g	Scaled SAR 1g
												100% Duty Factor	75% Duty Factor [6]
			MHz		Mbps				cm	dBm	dB	W/kg	W/kg
Hammerhead Tablet PC (Magnesium Housing with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings)													
Sept 11	802.11a	OFDM	5260	52	6	Li-ion	MAIN	Bottom Touch	1.5	16.2	-0.0360	0.489	0.367
Sept 11	802.11a	OFDM	5260	52	6	Li-ion	AUX	Bottom Touch	1.5	16.2	-0.0364	0.532	0.399
Hammerhead X[TREME] Tablet PC (Aluminum Housing with Fixed Nylon Case & Plastic D-Rings)													
Oct 16	**802.11a**	OFDM	**5180**	36	6	Li-ion	AUX	Bottom Touch	0.8	11.8	-0.0803	**0.269**	**0.202**
Sept 22	**802.11a**	OFDM	**5260**	52	6	Li-ion	AUX	Bottom Touch	0.8	16.3	-0.0890	**0.626**	**0.470**
Oct 16	802.11a	OFDM	5260	52	6	Li-ion	MAIN	Bottom Touch	0.8	16.3	-0.144	0.484	0.363

ANSI / IEEE C95.1 2005 - SAFETY LIMIT | **BODY: 1.6 W/kg (averaged over 1 gram)** | **Spatial Peak Uncontrolled Exposure / General Population**

Measured Fluid Type	5180 MHz Body					5260 MHz Body				
	IEEE Target		Date	Measured	Deviation	IEEE Target		Date	Measured	Deviation
Dielectric Constant ε_r	**49.0**	**±10%**	Oct. 16	46.0	-6.1%	**48.9**	**±10%**	Sept. 11	47.4	-3.1%
								Sept. 22	46.8	-4.3%
								Oct. 16	46.4	-5.1%
Conductivity σ (mho/m)	**5.28**	**±5%**	Oct. 16	5.35	+1.4%	**5.37**	**±5%**	Sept. 11	5.29	-1.5%
								Sept. 22	5.33	-0.7%
								Oct. 16	5.52	+2.8%

Test Date	ρ (Kg/m^3)	Ambient Temperature	Fluid Temperature	Fluid Depth	Relative Humidity	Atmospheric Pressure
Sept. 11, 2006	1000	22.8	22.3	≥ 15	32	101.8
Sept. 22, 2006	1000	22.8	22.3	≥ 15	32	101.8
Oct. 16, 2006	1000	24.2	23.0	≥ 15	32	101.1

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 procedures described in FCC OET "SAR Measurement Requirements for 802.11a/b/g Transmitters" were implemented (see reference [7]).
	3.	If the SAR levels measured at the highest output channel were ≥ 3 dB below the SAR limit, SAR evaluation for other remaining selected channels was optional (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
	4.	For transmitting diversity antennas, each transmitting antenna should be tested independently, one at a time, on the maximum average output channel in each frequency band and BW configuration. When the 1-g SAR values for all antenna are less than 1.2 W/kg (75% of limit), the remaining "required test channels" should be tested in each frequency band using the antenna with the highest SAR measured on the maximum output channel, otherwise test both antennas (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
	5.	Higher data rates were not evaluated based on the average output power levels were not 0.25 dB > the output power level measured at the lowest data rate (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
	6.	The measured SAR for each diversity antenna was scaled to a duty factor of 75% to demonstrate compliance (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
	7.	The power drifts measured by the DASY4 system for the duration of the SAR evaluations were <5% from the start power.
	8.	The DUT battery was fully charged prior to the SAR evaluations.
	9.	The SAR evaluations were performed within 24 hours of the system performance check.

MEASUREMENT SUMMARY (Cont.)

BODY SAR MEASUREMENT RESULTS (802.11a - 5.8 GHz)

Test Dates	Transmit Mode	Test Mode	Freq. (MHz)	Chan.	Data Rate (Mbps)	Battery Type	Antenna Type	DUT Position to Planar Phantom	Bottom Side LCD Distance to Planar Phantom (cm)	Cond. Power Before Test (dBm)	SAR Drift During Test (dB)	Meas. SAR 1g 100% Duty Factor (W/kg)	Scaled SAR 1g 75% Duty Factor[6] (W/kg)
Hammerhead Tablet PC (Magnesium Housing with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings)													
Sept 12	802.11a	OFDM	5785	157	6	Li-ion	MAIN	Bottom Touch	1.5	17.2	-0.133	0.650	0.488
Sept 12	802.11a	OFDM	5785	157	6	Li-ion	AUX	Bottom Touch	1.5	17.2	0.00962	0.627	0.470
Hammerhead X[TREME] Tablet PC (Aluminum Housing with Fixed Nylon Case & Plastic D-Rings)													
Sept 22	**802.11a**	OFDM	**5785**	157	6	Li-ion	MAIN	Bottom Touch	0.8	17.2	-0.0316	**0.769**	**0.577**
Sept 22	802.11a	OFDM	5785	157	6	Li-ion	MAIN	Bottom Touch	0.8	17.2	-0.159	0.561	0.421
	Bluetooth	Modulated Fixed Freq.	2441	39	-		Internal			3.0			
Oct 16	802.11a	OFDM	5785	157	6	Li-ion	AUX	Bottom Touch	0.8	17.2	-0.0111	0.749	0.562
Oct 16*	802.11a	OFDM	5785	157	6	Li-ion	AUX	Bottom Touch	0.8	17.2	0.00787	0.697	0.523

ANSI / IEEE C95.1 2005 - SAFETY LIMIT | **BODY: 1.6 W/kg (averaged over 1 gram)** | **Spatial Peak Uncontrolled Exposure / General Population**

Test Date(s)	Sept. 12, 2006	Sept. 22, 2006	Oct. 16, 2006
Measured Fluid Type	5790 MHz Body		
	IEEE Target	Date	Measured	Deviation
Dielectric Constant ε_r	48.2 ±10%	Sept. 12	46.2	-4.1%
		Sept. 22	46.5	-3.5%
		Oct. 16	45.1	-6.4%
Conductivity σ (mho/m)	5.99 ±5%	Sept. 12	5.87	-2.0%
		Sept. 22	5.98	-0.2%
		Oct. 16	5.74	-4.1%

Test Date(s)	Sept. 12	Sept. 22	Oct. 16	Unit
Relative Humidity	32	32	32	%
Atmospheric Pressure	101.8	101.8	101.1	kPa
Ambient Temperature	22.5	22.8	24.2	°C
Fluid Temperature	22.2	22.3	23.0	°C
Fluid Depth	≥ 15	≥ 15	≥ 15	cm
ρ (Kg/m^3)	1000			

Note(s)

*	In order to comply with the new FCC OET measurement procedures for 3 - 6 GHz an additional test was performed with the new SAR scan volume and resolution requirements (see note i on page 11 and FCC OET "SAR Measurement Requirements for 3 - 6 GHz" - see reference [8])
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 procedures described in FCC OET "SAR Measurement Requirements for 802.11a/b/g Transmitters" were implemented (see reference [7]).
3.	If the SAR levels measured at the highest output channel were ≥ 3 dB below the SAR limit, SAR evaluation for other remaining selected channels was optional (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
4.	For transmitting diversity antennas, each transmitting antenna should be tested independently, one at a time, on the maximum average output channel in each frequency band and BW configuration. When the 1-g SAR values for all antenna are less than 1.2 W/kg (75% of limit), the remaining "required test channels" should be tested in each frequency band using the antenna with the highest SAR measured on the maximum output channel, otherwise test both antennas (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
5.	Higher data rates were not evaluated based on the average output power levels were not 0.25 dB > the output power level measured at the lowest data rate (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
6.	The measured SAR for each diversity antenna was scaled to a duty factor of 75% to demonstrate compliance (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [7]).
7.	The power drifts measured by the DASY4 system for the duration of the SAR evaluations were <5% from the start power.
8.	The DUT battery was fully charged prior to the SAR evaluations.
9.	The SAR evaluations were performed within 24 hours of the system performance check.

6.0 DETAILS OF SAR EVALUATION

The DRS TACTICAL SYSTEMS, INC. Model(s): Hammerhead and Hammerhead X^{TREME} Rugged Tablet PC FCC ID: UGL0000181060001 with Intel Pro 2915ABG 802.11abg WLAN Mini-PCI Card and co-located Bluetooth was compliant for localized Specific Absorption Rate (Uncontrolled Exposure) based on the test provisions and conditions described below. The SAR test setup photographs are shown in Appendix E.

Test Configurations

1. The DUT was evaluated for body SAR with the bottom side of the Tablet PC placed parallel to, and touching, the outer surface of the planar phantom. For the Hammerhead Tablet PC with magnesium housing the nylon hand-straps with plastic d-rings provided a 1.5 cm separation distance from the bottom side of the LCD display to the planar phantom. For the Hammerhead X^{TREME} Tablet PC with aluminum housing the fixed nylon case and plastic d-rings provided a 0.8 cm separation distance from the bottom side of the LCD display to the planar phantom.

2. The SAR evaluations were performed with the main and auxiliary switched diversity antennas tested separately and transmitting individually with the other disabled.

3. Co-transmit SAR evaluations were performed with the WLAN and Bluetooth transmitting simultaneously.

Test Modes & Power Settings

4. The average conducted output power levels were measured prior to the SAR evaluations using a spectrum analyzer according to 15.247(b) (KDB Publication #558074 - Power Output Option 2, Method 1). The RBW was set to 1 MHz and the VBW was set to 3 MHz.

5. The power drift of the DUT was measured by the DASY4 system during the SAR evaluations.

6. The DUT was tested using internal chipset-based test mode software transmitting continuously at maximum power with a modulated DSSS signal in 802.11b mode and a modulated OFDM signal in 802.11a/g modes.

7. For the co-located simultaneous transmit SAR evaluations the Bluetooth was transmitting continuously at maximum power on a fixed frequency (frequency hopping disabled) with a modulated signal.

8. The DUT battery was fully charged prior to the SAR evaluations.

Test Conditions

9. 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.

10. 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).

7.0 EVALUATION PROCEDURES

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

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

An area scan was determined as follows:

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

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

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

e. Extrapolation is used to determine the values between the dipole center of the probe and the surface of the phantom. This data cannot be measured because the center of the dipole sensors is 1.0 mm away from the probe tip and the distance between the probe and the boundary must be larger than 25% of the probe diameter. The probe diameter is 2.4 mm. In the DASY4 software, the distance between the sensor center and phantom surface is set to 2.0 mm. This provides a distance of 1.0 mm between the probe tip and the surface. The extrapolation of the values between the dipole center and the surface of the phantom was based on trivariate quadratics computed from the previously calculated 3D interpolated points nearest the phantom surface.

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

g. For frequencies < 3 GHz a zoom scan volume of 24 mm x 24 mm x 24 mm (7x7x7 points) centered at the peak SAR location determined from the area scan was used and a zoom scan resolution of 5 mm x 5 mm x 5 mm was used.

h. For frequencies > 3 GHz a zoom scan volume of 30 mm x 30 mm x 21 mm (8x8x8 points) centered at the peak SAR location determined from the area scan was used and a zoom scan resolution of 4.3 mm x 4.3 mm x 3 mm was used (per system manufacturer's DASY4 Manual - see reference [6]).

i. (*) For frequencies > 3 GHz a zoom scan volume of 24 mm x 24 mm x 20 mm (7x7x9 points) centered at the peak SAR location determined from the area scan was used and a zoom scan resolution of 4 mm x 4 mm x 2.5 mm was used (per FCC OET "SAR Measurement Requirements for 3 - 6 GHz" (see reference [8]).

j. The procedures described in FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" were implemented (see reference [7]).

8.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations system checks were performed using a planar phantom with 2450 MHz and 5000 MHz validation dipoles (see Appendix F for system validation procedures). The dielectric parameters of the simulated tissue mixtures were measured prior to the system performance checks using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C). A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of ±10% (see Appendix B for system performance check test plots). Please refer to the tables at the bottom of this page for the system manufacturer's reference SAR values from the DASY4 Manual (see reference [6]).

SYSTEM PERFORMANCE CHECK EVALUATIONS

Test Date	Body Tissue (MHz)	SAR 1g (W/kg)			PEAK SAR (W/kg)			Dielectric Constant ε_r			Conductivity σ (mho/m)			Amb. Temp. (°C)	Fluid Temp. (°C)	Humid %	Barom. Press. (kPa)
		SPEAG Target	Meas.	Dev.	SPEAG Target	Meas.	Dev	IEEE Target	Meas.	Dev.	IEEE Target	Meas.	Dev.				
9/11/06	5200	18.0 ±10%	19.2	+6.7%	71.2 ±15%	76.7	+7.7%	49.0±10%	47.5	-3.1%	5.30±5%	5.24	-1.1%	22.8	22.3	32	101.8
9/12/06	5800	18.5 ±10%	17.6	-4.9%	81.2 ±15%	85.9	+5.8%	48.2 ±10%	45.9	-4.8%	6.00 ±5%	5.87	-2.2%	22.5	22.2	32	101.8
9/14/06	2450	12.8 ±10%	13.1	+2.3%	--	--	--	52.7±5%	50.7	-3.8%	1.95±5%	2.02	+3.6%	24.0	23.6	35	102.1
9/22/06	5200	18.0 ±10%	19.1	+6.1%	71.2 ±15%	80.7	+13.4%	49.0±10%	46.8	-4.5%	5.30±5%	5.27	-0.6%	22.8	22.3	32	101.8
9/22/06	5800	18.5 ±10%	17.8	-3.8%	81.2 ±15%	90.1	+11.0%	48.2 ±10%	46.5	-3.5%	6.00 ±5%	5.87	-2.2%	22.8	22.3	32	101.8
9/25/06	2450	12.8 ±10%	13.6	+6.3%	--	--	--	52.7±5%	51.4	-2.4%	1.95±5%	2.03	+4.1%	21.8	22.3	32	101.8
10/16/06	5200	18.0 ±10%	19.7	+9.4%	71.2 ±15%	81.8	+14.9%	49.0±10%	46.2	-5.7%	5.30±5%	5.44	+2.7%	24.2	23.0	32	101.1
10/16/06	5800	18.5 ±10%	17.2	-7.0%	81.2 ±15%	87.2	+7.4%	48.2 ±10%	45.3	-6.0%	6.00 ±5%	5.82	-3.0%	24.2	23.0	32	101.1

Fluid Depth	≥ 15 cm	Note(s)	1. The fluid temperature was measured prior to and after each of the SAR evaluations to ensure the temperature remained within +/-2°C of the fluid temperature reported during the dielectric parameter measurements.
ρ (Kg/m^3)	1000		2. The SAR evaluations were performed within 24 hours of the system performance checks.

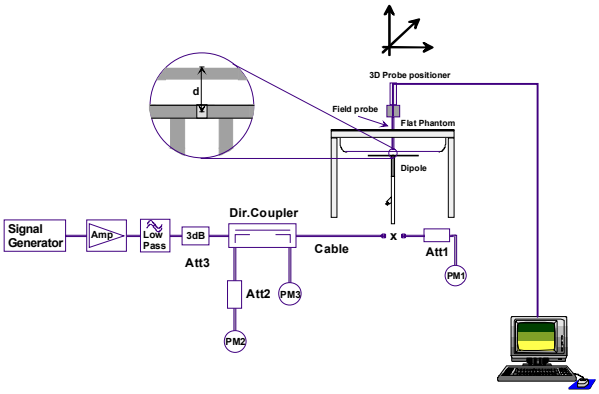


Figure 1. System Performance Check Measurement Setup

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 (< 5 GHz)

2450 MHz Dipole

5 GHz Dipole Setup

Reference SAR values

The reference SAR values were calculated using finite-difference time-domain FDTD method (feed-point impedance set to 50 Ω) and the mechanical dimensions of the D5GHzV2 dipole (manufactured by SPEAG).

f (GHz)	Head Tissue			Body Tissue		
	SAR_{1g}	SAR_{10g}	SAR_{peak}	SAR_{1g}	SAR_{10g}	SAR_{peak}
5.0	72.9	20.7	285.6	68.1	19.2	260.3
5.1	74.6	21.1	297.5	78.8	19.6	272.3
5.2	76.5	21.6	310.3	71.8	20.1	284.7
5.5	83.3	23.4	349.4	79.1	22.0	326.3
5.8	78.0	21.9	340.9	74.1	20.5	324.7

Table 27.2: Numerical reference SAR values for D5GHzV2 dipole and flat phantom.

Table 2. SAR system manufacturer's reference body SAR values (≥ 5 GHz)

9.0 SIMULATED EQUIVALENT TISSUES

The 2 GHz simulated tissue mixture consisted of Glycol-monobutyl, water, and salt. The 5 GHz simulated tissue mixture provided by SPEAG is listed below. The dielectric parameters of the fluid (permittivity and conductivity) were measured prior to the system performance checks and the SAR evaluations. See Appendix D for manufacturer's tissue data sheet.

2 GHz SIMULATED TISSUE MIXTURE		
INGREDIENT	2450 MHz Body System Performance Check	2450 MHz Body DUT Evaluation
Water	69.98 %	69.98 %
Glycol Monobutyl	30.00 %	30.00 %
Salt	0.02 %	0.02 %

5 GHz SIMULATED TISSUE MIXTURE		
INGREDIENT	System Performance Check & DUT Evaluation	
	5 GHz Body	5 GHz Fluid
Water	64-78%	
Mineral Oil	11-18%	
Emulsifiers	9-15%	
Additives and Salt	2-3%	

TISSUE TEMPERATURE SENSITIVITY						
Date	Tissue Type	Temp. (°C)	Dielectric Constant ε_r	Deviation (%)	Conductivity σ (mho/m)	Deviation (%)
Nov. 20	5.8 GHz Brain	20	34.2	-2.5	5.13	-0.5
Nov. 20	5.8 GHz Brain	22	35.1	0	5.16	0
Nov. 20	5.8 GHz Brain	24	34.9	-0.6	5.06	-2.0
Note(s)	1. The fluid temperature during the SAR evaluations was consistent within +/-2°C from the temperature reported during the dielectric parameter measurements. Fluid temperature sensitivity data is reported to show tissue dielectric parameter tolerances when varied by +/-2°C.					

10.0 SAR SAFETY LIMITS

EXPOSURE LIMITS	SAR (W/kg)	
	General Population - Uncontrolled Exposure	Occupational - Controlled Exposure
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.		

11.0 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	EX3DV4
Serial No.	3547
Construction	Symmetrical design with triangular core
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
Phantom(s)	
Type	Planar Phantom
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 70 liters

12.0 PROBE SPECIFICATION (EX3DV4)

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

EX3DV4 E-Field Probe

13.0 PLANAR PHANTOM

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

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. For evaluations of larger devices a Plexiglas platform is attached to the device holder.

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	21Jun06		21Jun07
	-DAE3		00018	370	08Feb06		08Feb07
	-ET3DV6 E-Field Probe		00016	1387	16Mar06		16Mar07
x	-EX3DV4 E-Field Probe		00125	3547	14Feb06		14Feb07
	-300MHz Validation Dipole		00023	135	25Oct05		25Oct06
	-450MHz Validation Dipole		00024	136	25Oct05		25Oct06
	-835MHz Validation Dipole		00022	411	**Brain**	28Mar06	28Mar07
					Body	27Mar06	27Mar07
	-900MHz Validation Dipole		00020	054	**Brain**	06Jun06	06Jun07
					Body	06Jun06	06Jun07
	-1640MHz Validation Dipole		00212	0175	**Brain**	14Aug06	14Aug07
	-1800MHz Validation Dipole		00021	247	**Brain**	08Jun06	08Jun07
					Body	09Jun06	09Jun07
	-1900MHz Validation Dipole		00032	151	**Brain**	09Jun06	09Jun07
					Body	12Jun06	12Jun07
x	-2450MHz Validation Dipole		00025	150	**Body**	24Apr06	24Apr07
x	5GHz Validation Dipole	5200MHz	00126	1031	**Body**	18Jul06	18Jul07
		5800MHz			**Brain**	15Mar06	15Mar07
x					**Body**	18Jul06	18Jul07
	-SAM Phantom V4.0C		00154	1033	N/A		N/A
x	-Barski Planar Phantom		00155	03-01	N/A		N/A
	-Plexiglas Side Planar Phantom		00156	161	N/A		N/A
	-Plexiglas Validation Planar Phantom		00157	137	N/A		N/A
x	ALS-PR-DIEL Dielectric Probe Kit		00160	260-00953	N/A		N/A
	Gigatronics 8652A Power Meter		00110	1835801	12Apr06		12Apr07
x	Gigatronics 8652A Power Meter		00007	1835272	03Feb06		03Feb07
x	Gigatronics 80701A Power Sensor		00011	1833542	03Feb06		03Feb07
x	Gigatronics 80701A Power Sensor		00013	1833713	03Feb06		03Feb07
x	HP 8753ET Network Analyzer		00134	US39170292	18Apr06		18Apr07
	HP 8648D Signal Generator		00005	3847A00611	N/A		N/A
	Rohde & Schwarz SMR40 Signal Generator		00006	100104	06Apr06		06Apr07
x	Amplifier Research 5S1G4 Power Amplifier		00106	26235	N/A		N/A
x	HP E4408B Spectrum Analyzer		00015	US39240170	02Feb06		02Feb07

16.0 MEASUREMENT UNCERTAINTIES

UNCERTAINTY BUDGET FOR DEVICE EVALUATION (5 GHz)						
Error Description	**Uncertainty Value ±%**	**Probability Distribution**	**Divisor**	**ci 1g**	**Uncertainty Value ±% (1g)**	**V_i or V_{eff}**
Measurement System						
Probe calibration (5 GHz)	6.6	Normal	1	1	6.6	∞
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	2	Rectangular	1.732050808	1	1.2	∞
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	0.8	Rectangular	1.732050808	1	0.5	∞
Probe positioning	5.7	Rectangular	1.732050808	1	3.3	∞
Extrapolation & integration	4	Rectangular	1.732050808	1	2.3	∞
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)	10	Rectangular	1.732050808	0.6	3.5	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					**12.74**	
Expanded Uncertainty (k=2)					**25.47**	

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

MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR SYSTEM VALIDATION (5 GHz)

Error Description	Uncertainty Value ±%	Probability Distribution	Divisor	ci 1g	Uncertainty Value ±% (1g)	V_i or V_{eff}
Measurement System						
Probe calibration (5 GHz)	6.6	Normal	1	1	6.6	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	1	2.7	∞
Spherical isotropy of the probe	9.6	Rectangular	1.732050808	1	5.5	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	2	Rectangular	1.732050808	1	1.2	∞
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	0.8	Rectangular	1.732050808	1	0.5	∞
Probe positioning	5.7	Rectangular	1.732050808	1	3.3	∞
Extrapolation & integration	4	Rectangular	1.732050808	1	2.3	∞
Dipole						
Dipole positioning	2	Rectangular	1.732050808	1	1.2	∞
Power & Power Drift	4.7	Rectangular	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)	10	Rectangular	1.732050808	0.6	3.5	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					**12.58**	
Expanded Uncertainty (k=2)					**25.15**	

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

MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR DEVICE EVALUATION (2.4 GHz)						
Error Description	**Uncertainty Value ±%**	**Probability Distribution**	**Divisor**	**ci 1g**	**Uncertainty Value ±% (1g)**	**V_i or V_{eff}**
Measurement System						
Probe calibration (2.4 GHz)	5.9	Normal	1	1	5.9	∞
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					**11.44**	
Expanded Uncertainty (k=2)					**22.89**	

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

MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR SYSTEM VALIDATION (2.4 GHz)						
Error Description	**Uncertainty Value ±%**	**Probability Distribution**	**Divisor**	**ci 1g**	**Uncertainty Value ±% (1g)**	**V_i or V_{eff}**
Measurement System						
Probe calibration (2.4 GHz)	5.9	Normal	1	1	5.9	∞
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	∞
Dipole						
Dipole Positioning	2	Normal	1.732050808	1	1.2	∞
Power & Power Drift	4.7	Normal	1.732050808	1	2.7	∞
Phantom and Setup						
Phantom uncertainty	4	Rectangular	1.732050808	1	2.3	∞
Liquid conductivity (target)	5	Rectangular	1.732050808	0.64	1.8	∞
Liquid conductivity (measured)	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					**9.81**	
Expanded Uncertainty (k=2)					**19.61**	

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

[7] Federal Communications Commission - “SAR Measurement Procedures for 802.11a/b/g Transmitters”: October 2006 (Rev 1.1).

[8] Federal Communications Commission - “SAR Measurement Requirements for 3 - 6 GHz”: October 2006 (Rev. 1.1).

[9] 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 A - SAR MEASUREMENT DATA

Date Tested: 09/14/2006

Body SAR - Magnesium Tablet - 802.11b - 1 Mbps - 2442 MHz - Channel 7 - MAIN Antenna

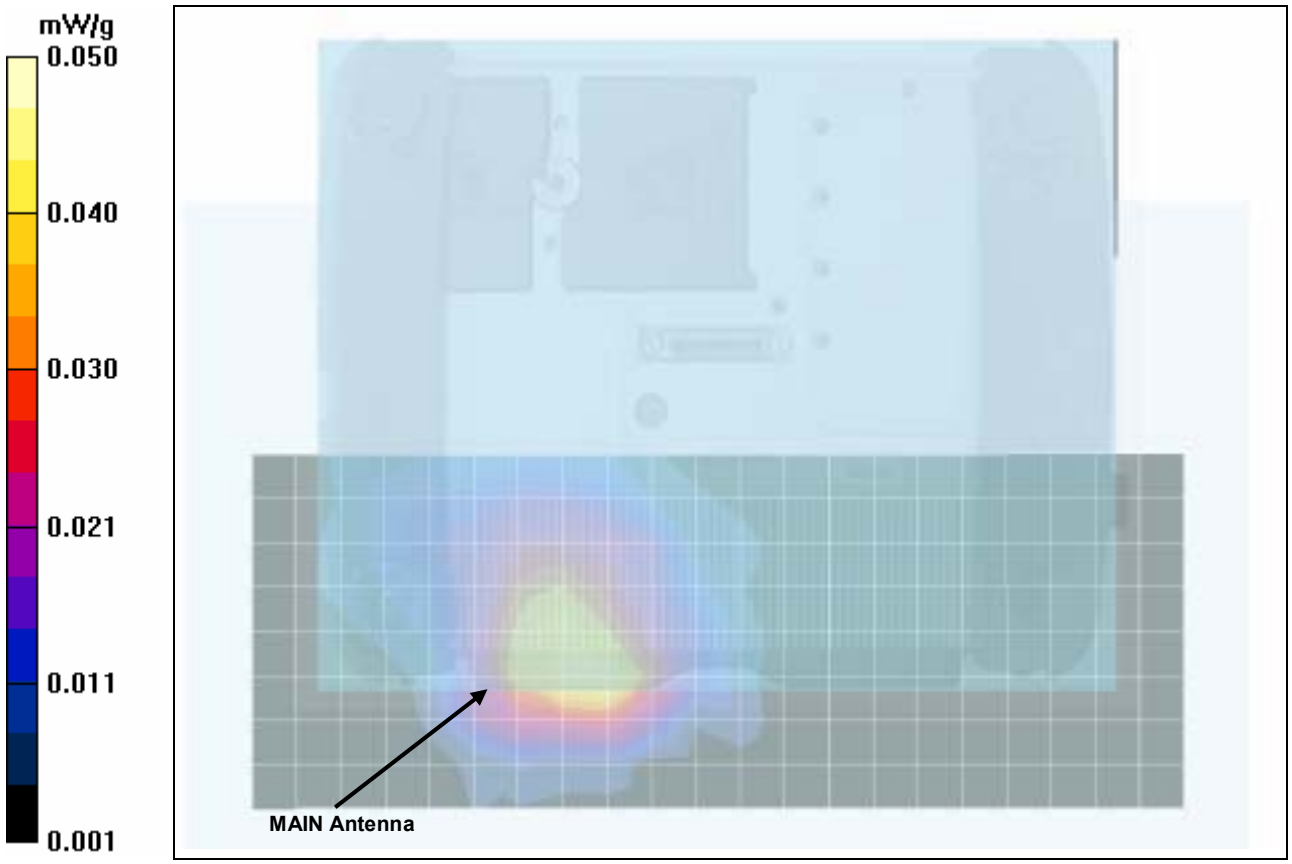
DUT: DRS Tactical; Model: Hammerhead (with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings); Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046018

Ambient Temp: 24.0°C; Fluid Temp: 23.6°C; Barometric Pressure: 102.1 kPa; Humidity: 35%

Communication System: DSSS WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
RF Output Power: 17.0 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M2450 Medium parameters used: f = 2442 MHz; σ = 2.02 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(7.53, 7.53, 7.53); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 7 - 2442 MHz
Area Scan (9x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 7 - 2442 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.86 V/m; Power Drift = 0.119 dB
Peak SAR (extrapolated) = 0.068 W/kg
SAR(1 g) = 0.0354 mW/g; SAR(10 g) = 0.021 mW/g



Date Tested: 09/14/2006

Body SAR - Magnesium Tablet - 802.11b - 1 Mbps - 2442 MHz - Channel 7 - AUX Antenna

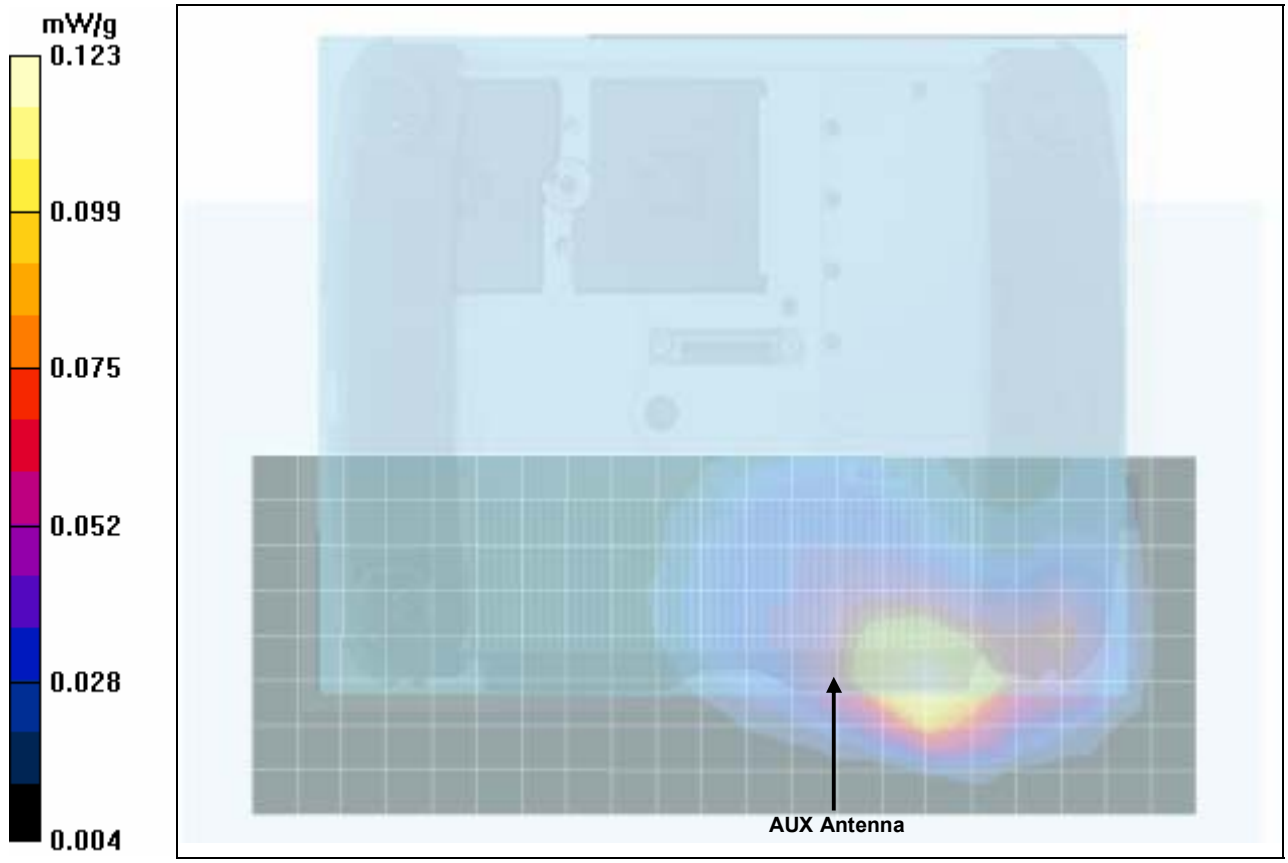
DUT: DRS Tactical; Model: Hammerhead (with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings); Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046018

Ambient Temp: 24.0°C; Fluid Temp: 23.6°C; Barometric Pressure: 102.1 kPa; Humidity: 35%

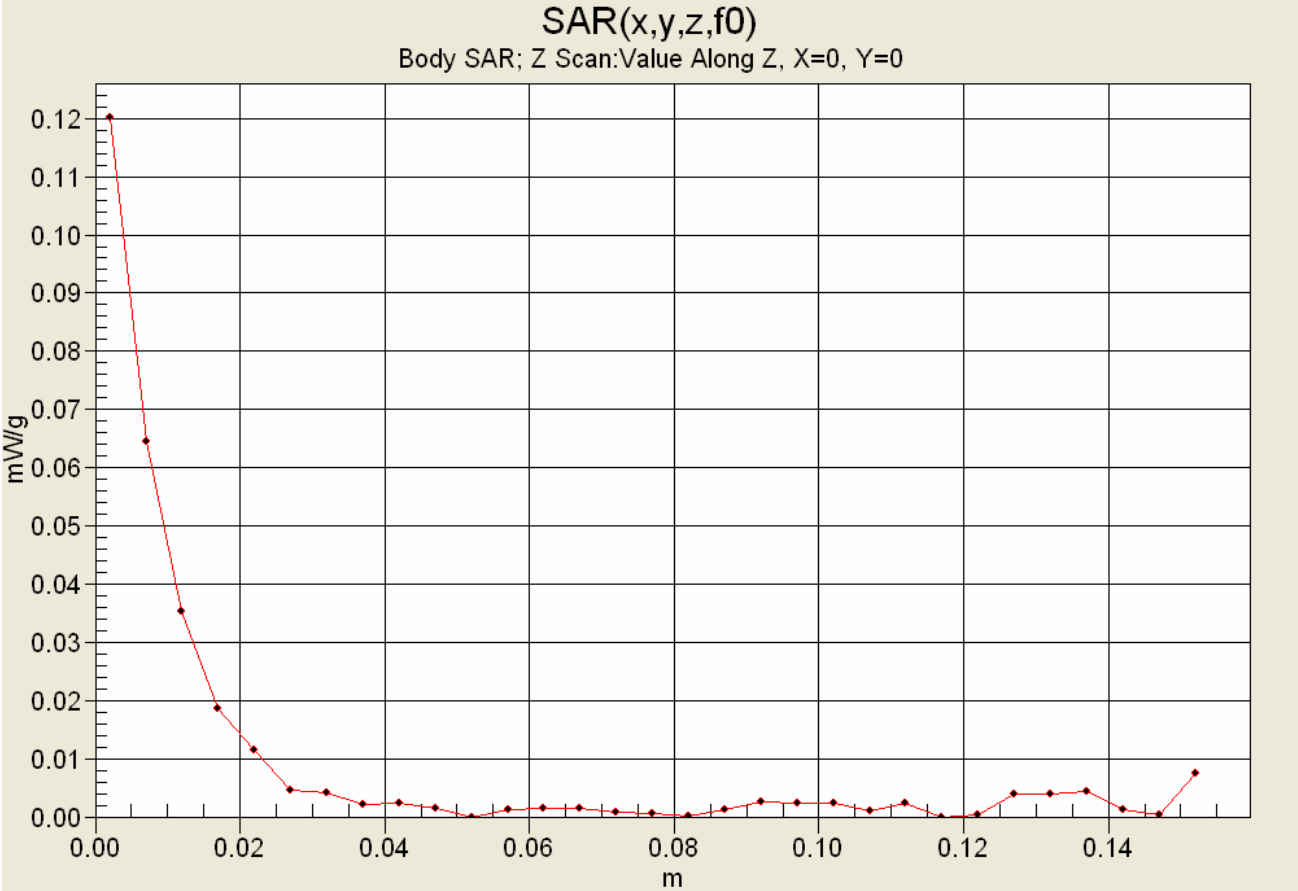
Communication System: DSSS WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
RF Output Power: 17.0 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M2450 Medium parameters used: f = 2442 MHz; σ = 2.02 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(7.53, 7.53, 7.53); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 7 - 2442 MHz
Area Scan (9x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 7 - 2442 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.60 V/m; Power Drift = 0.00353 dB
Peak SAR (extrapolated) = 0.161 W/kg
SAR(1 g) = 0.0873 mW/g; SAR(10 g) = 0.050 mW/g



Z-Axis Scan



Date Tested: 09/25/2006

Body SAR - Aluminum Tablet - 802.11b - 1 Mbps - 2442 MHz - Channel 7 - AUX Antenna

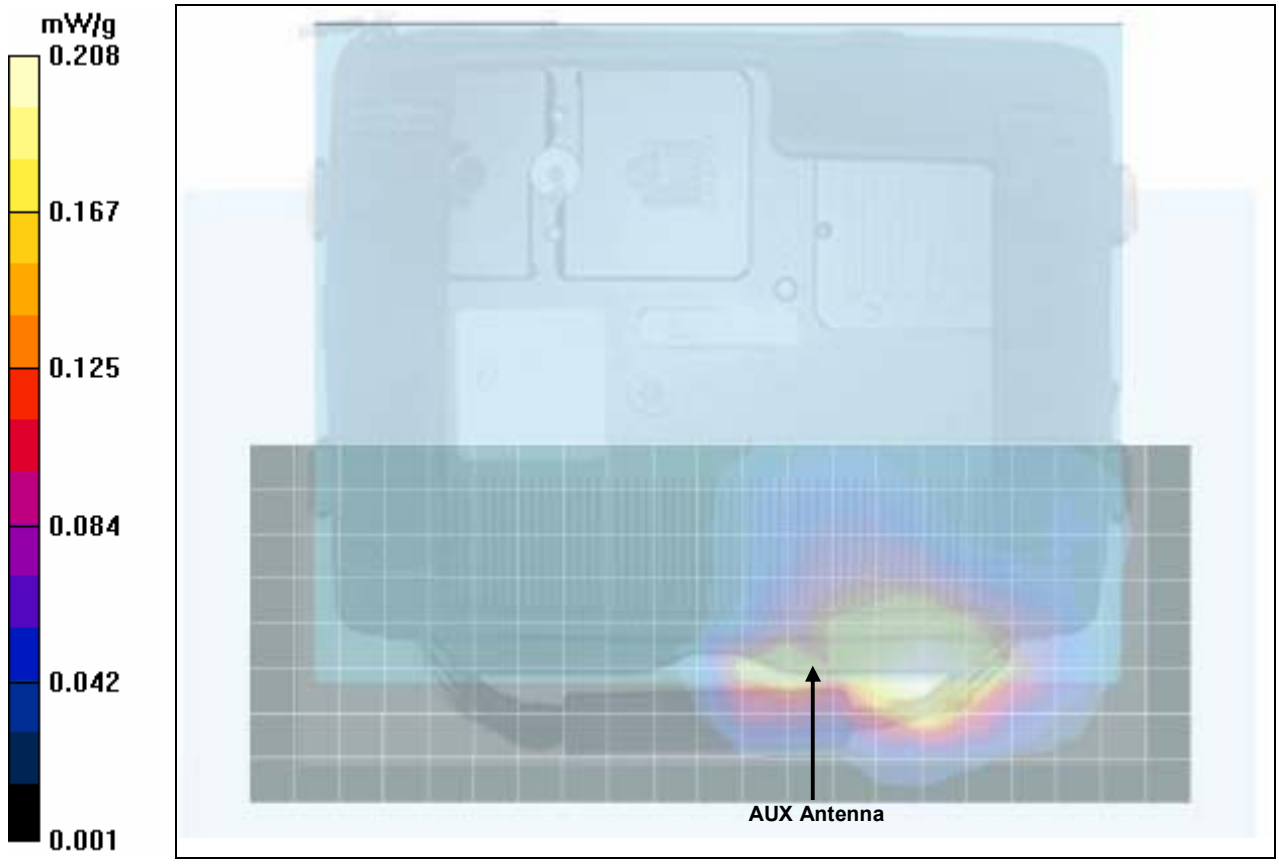
DUT: DRS Tactical; Model: Hammerhead X^{TREME} (with Fixed Nylon Case & Plastic D-Rings);
Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046363

Ambient Temp: 21.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

Communication System: DSSS WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
RF Output Power: 17.1 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M2450 Medium parameters used: f = 2442 MHz; σ = 2.03 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(7.53, 7.53, 7.53); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 7 - 2442 MHz
Area Scan (9x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 7 - 2442 MHz
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.6 V/m; Power Drift = -0.185 dB
Peak SAR (extrapolated) = 0.272 W/kg
SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.081 mW/g



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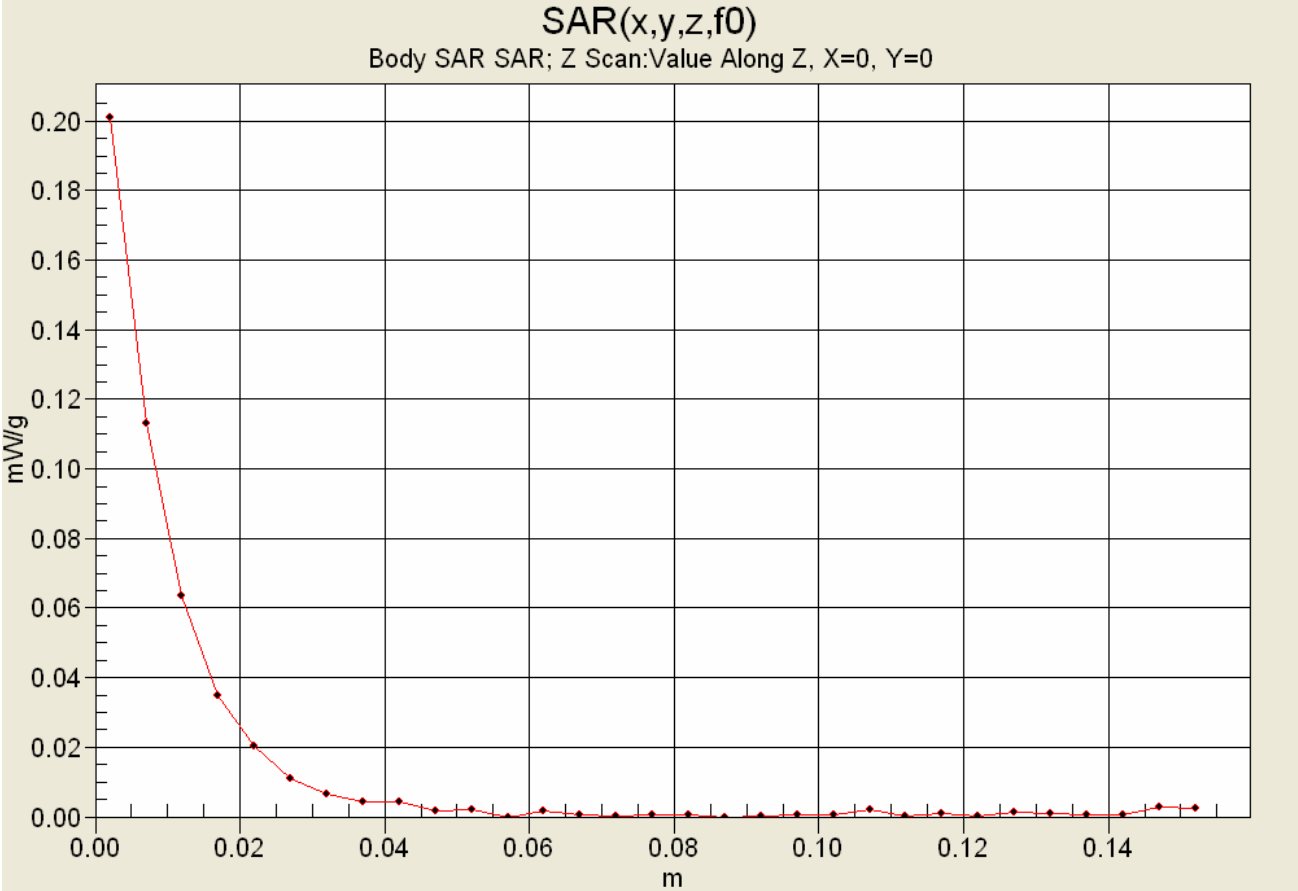


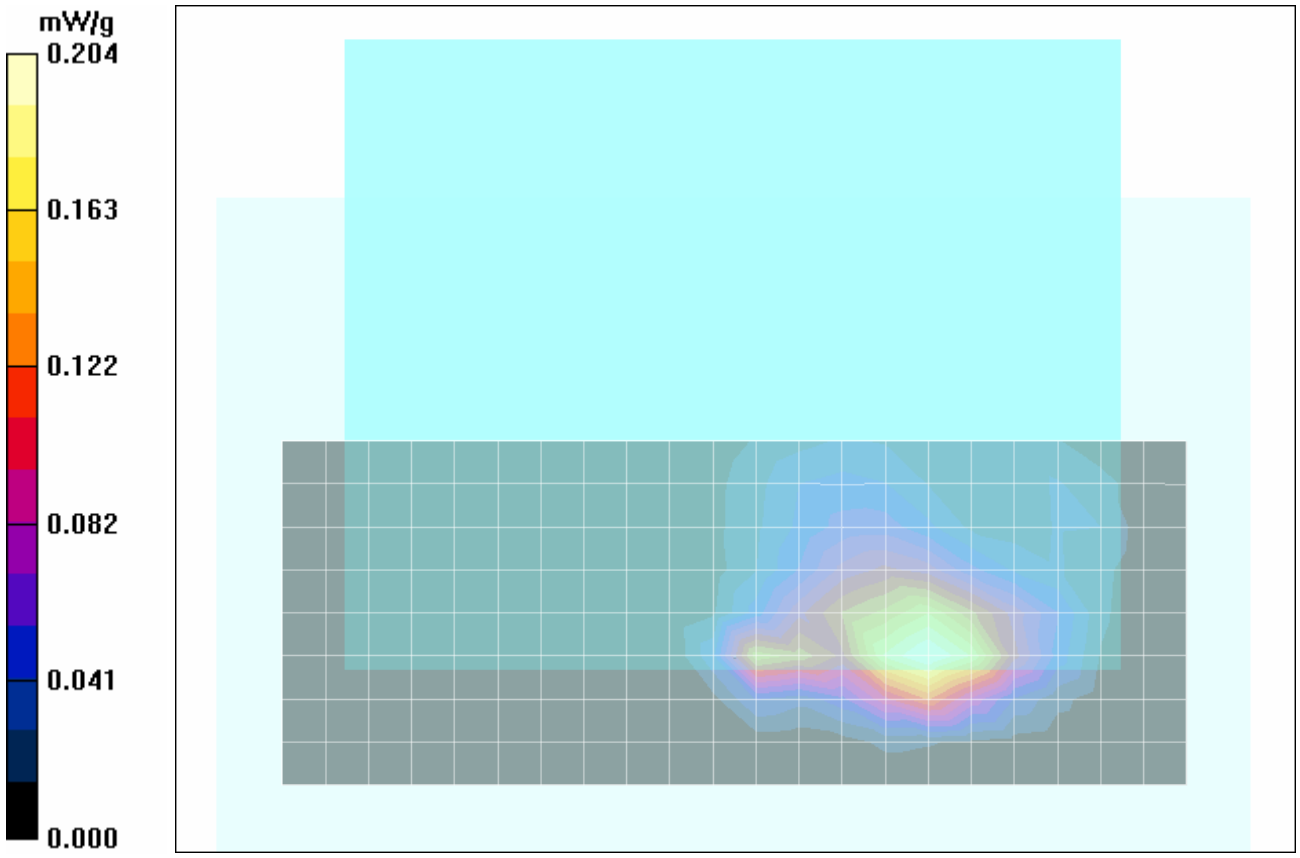
Date Tested: 09/25/2006

Body SAR - Aluminum Tablet - 802.11b - 1 Mbps - 2442 MHz - Channel 7 - AUX Antenna Simultaneous Transmit with Co-located Bluetooth

DUT: DRS Tactical; Model: Hammerhead X^{TREME} (with Fixed Nylon Case & Plastic D-Rings); Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046363

Ambient Temp: 21.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%
Communication System: DSSS WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
RF Output Power: 17.1 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Communication System: Modulated Fixed Frequency (Bluetooth)
RF Output Power: 3.0 dBm (Conducted) Bluetooth
Frequency: 2441 MHz; Duty Cycle: 1:1 (Bluetooth)
Medium: M2450 Medium parameters used: f = 2442 MHz; σ = 2.03 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(7.53, 7.53, 7.53); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 7 - 2442 MHz Area Scan (9x22x1): Measurement grid: dx=15mm, dy=15mm
Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 7 - 2442 MHz Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.95 V/m; Power Drift = -0.168 dB
Peak SAR (extrapolated) = 0.264 W/kg
SAR(1 g) = 0.145 mW/g; SAR(10 g) = 0.077 mW/g



Date Tested: 09/11/2006

Body SAR - Magnesium Tablet - 802.11a - 6 Mbps - 5260 MHz - Channel 52 - MAIN Antenna

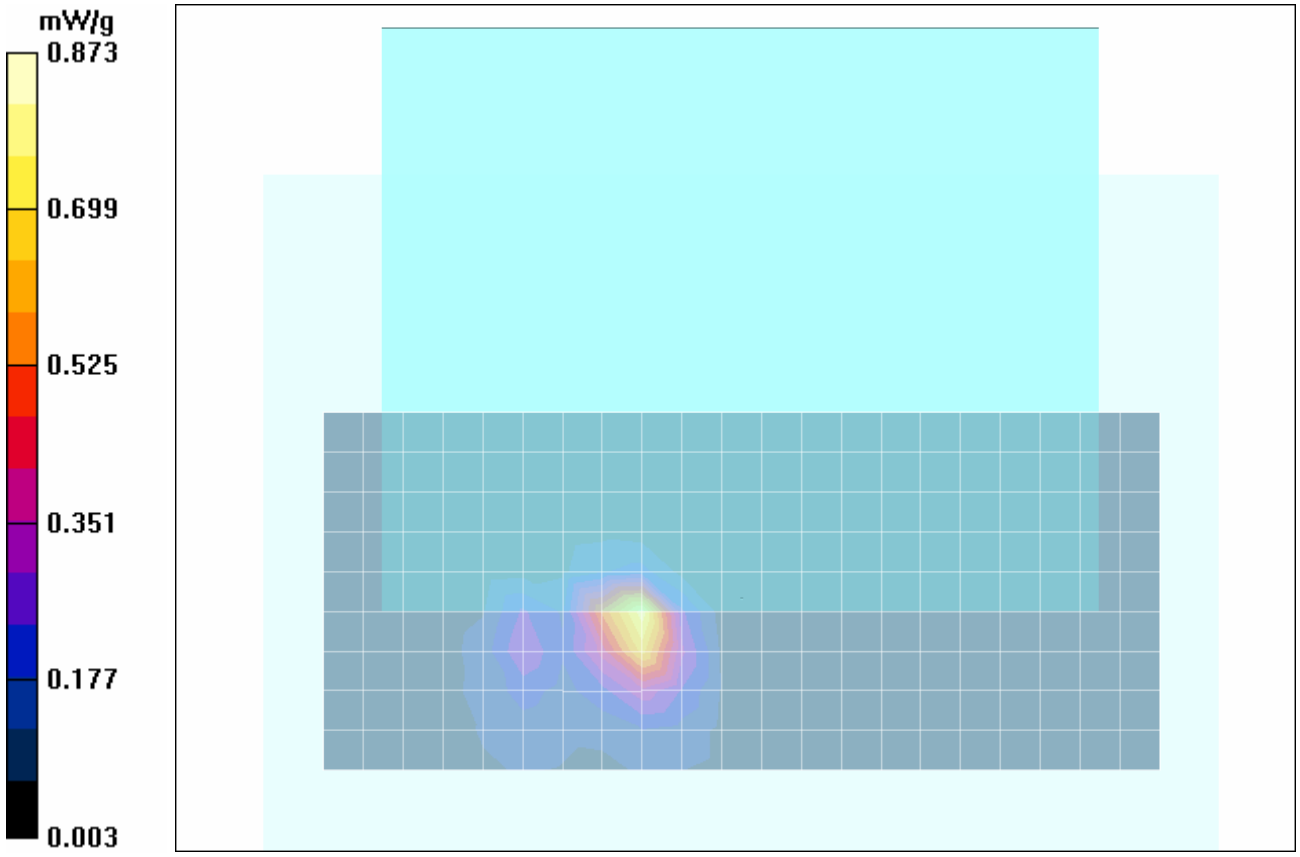
DUT: DRS Tactical; Model: Hammerhead (with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings); Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046018

Ambient Temp: 22.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

Communication System: OFDM WLAN
Frequency: 5260 MHz; Duty Cycle: 1:1
RF Output Power: 16.2 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5260 MHz; σ = 5.29 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.87, 4.87, 4.87); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 52 - 5260 MHz
Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 52 - 5260 MHz
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 13.1 V/m; Power Drift = -0.0360 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.489 mW/g; SAR(10 g) = 0.191 mW/g



Date Tested: 09/11/2006

Body SAR - Magnesium Tablet - 802.11a - 6 Mbps - 5260 MHz - Channel 52 - AUX Antenna

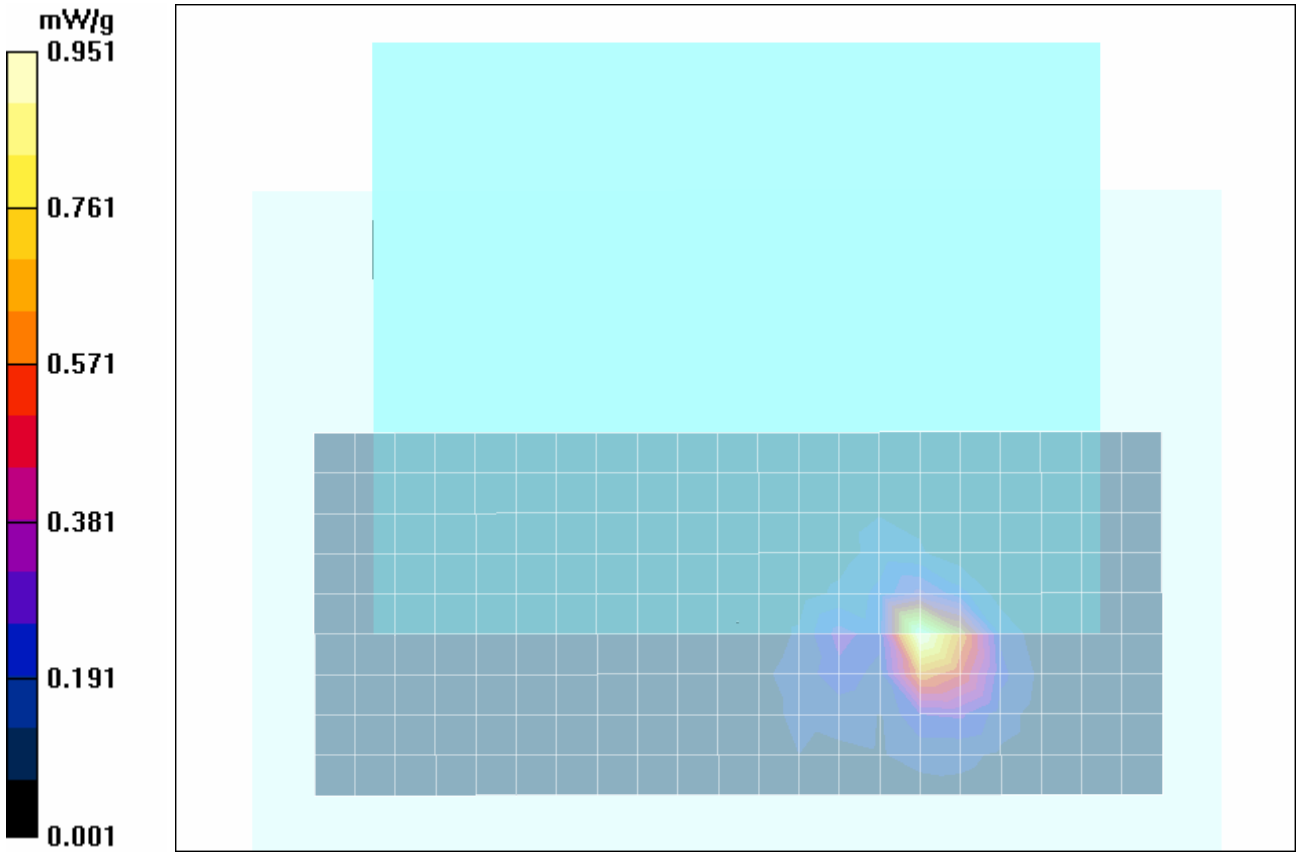
DUT: DRS Tactical; Model: Hammerhead (with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings); Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046018

Ambient Temp: 22.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

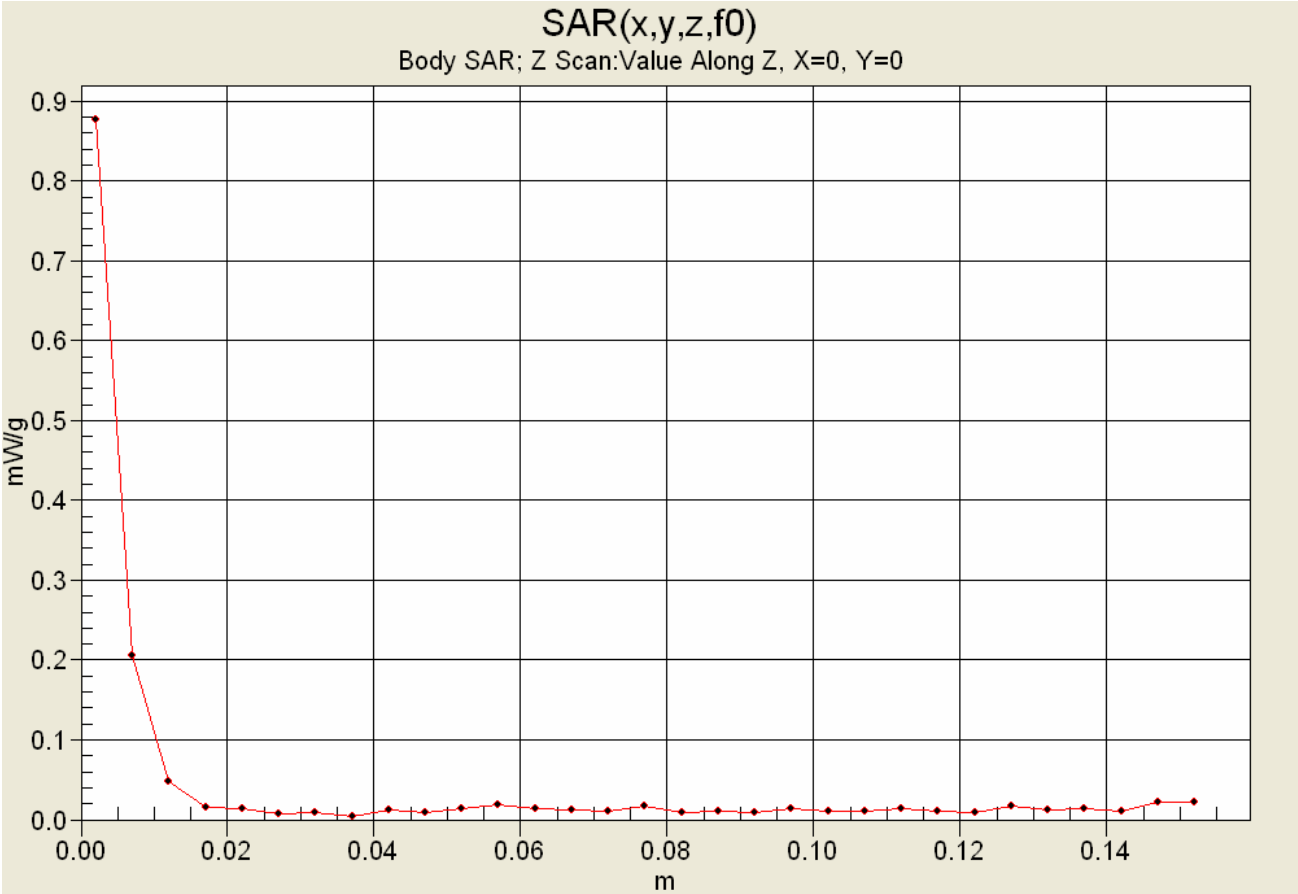
Communication System: OFDM WLAN
Frequency: 5260 MHz; Duty Cycle: 1:1
RF Output Power: 16.2 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5260 MHz; σ = 5.29 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.87, 4.87, 4.87); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 52 - 5260 MHz
Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 52 - 5260 MHz
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 14.3 V/m; Power Drift = -0.0364 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.208 mW/g



Z-Axis Scan



Date Tested: 10/16/2006

Body SAR - Aluminum Tablet - 802.11a - 6 Mbps - 5180 MHz - Channel 36 - AUX Antenna

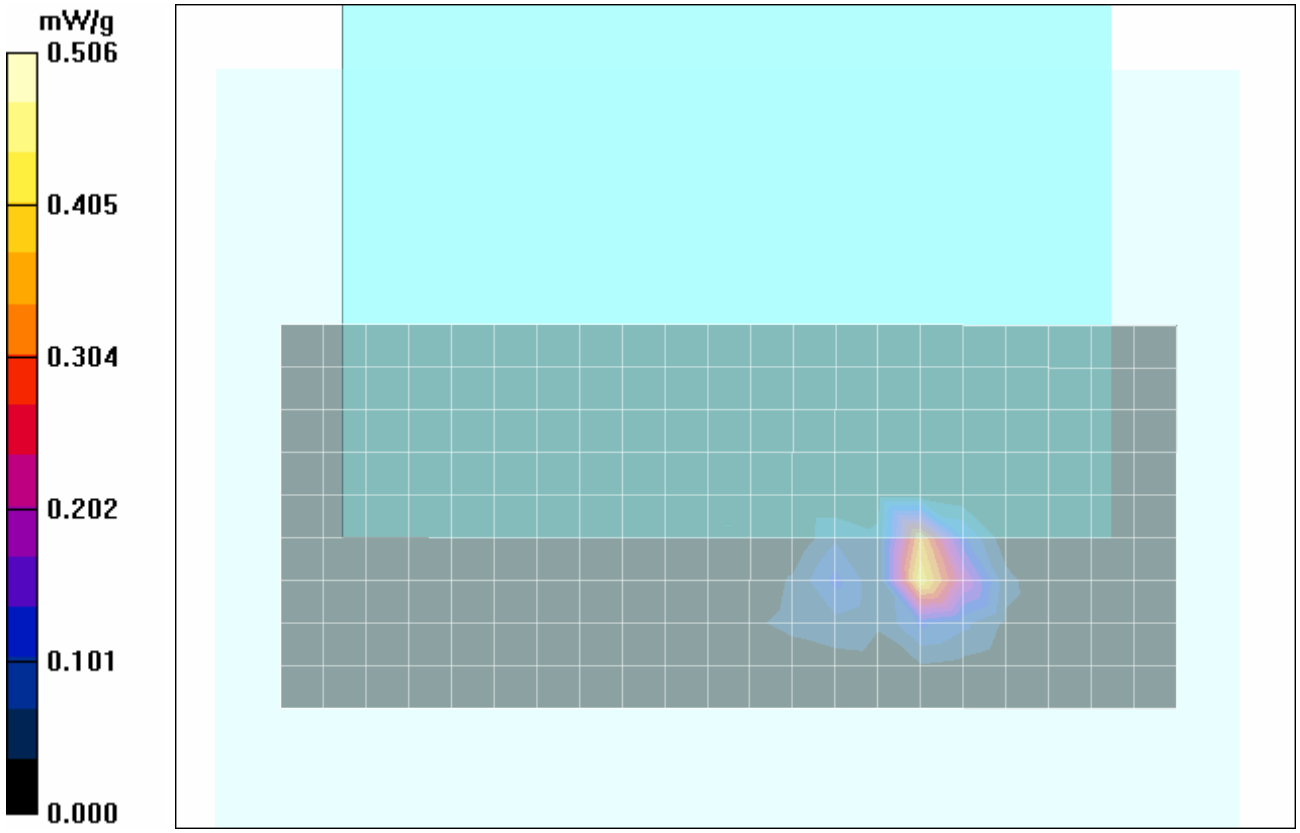
DUT: DRS Tactical; Model: Hammerhead X^{TREME} (with Fixed Nylon Case & Plastic D-Rings);
Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046363

Ambient Temp: 24.2ºC; Fluid Temp: 23.0ºC; Barometric Pressure: 101.1 kPa; Humidity: 32%

Communication System: OFDM WLAN
Frequency: 5180 MHz; Duty Cycle: 1:1
RF Output Power: 11.8 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5180 MHz; σ = 5.35 mho/m; ε_r = 46.0; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.87, 4.87, 4.87); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 36 - 5180 MHz
Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 36 - 5180 MHz
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.22 V/m; Power Drift = -0.0803 dB
Peak SAR (extrapolated) = 0.955 W/kg
SAR(1 g) = 0.269 mW/g; SAR(10 g) = 0.089 mW/g



Date Tested: 09/22/2006

Body SAR - Aluminum Tablet - 802.11a - 6 Mbps - 5260 MHz - Channel 52 - AUX Antenna

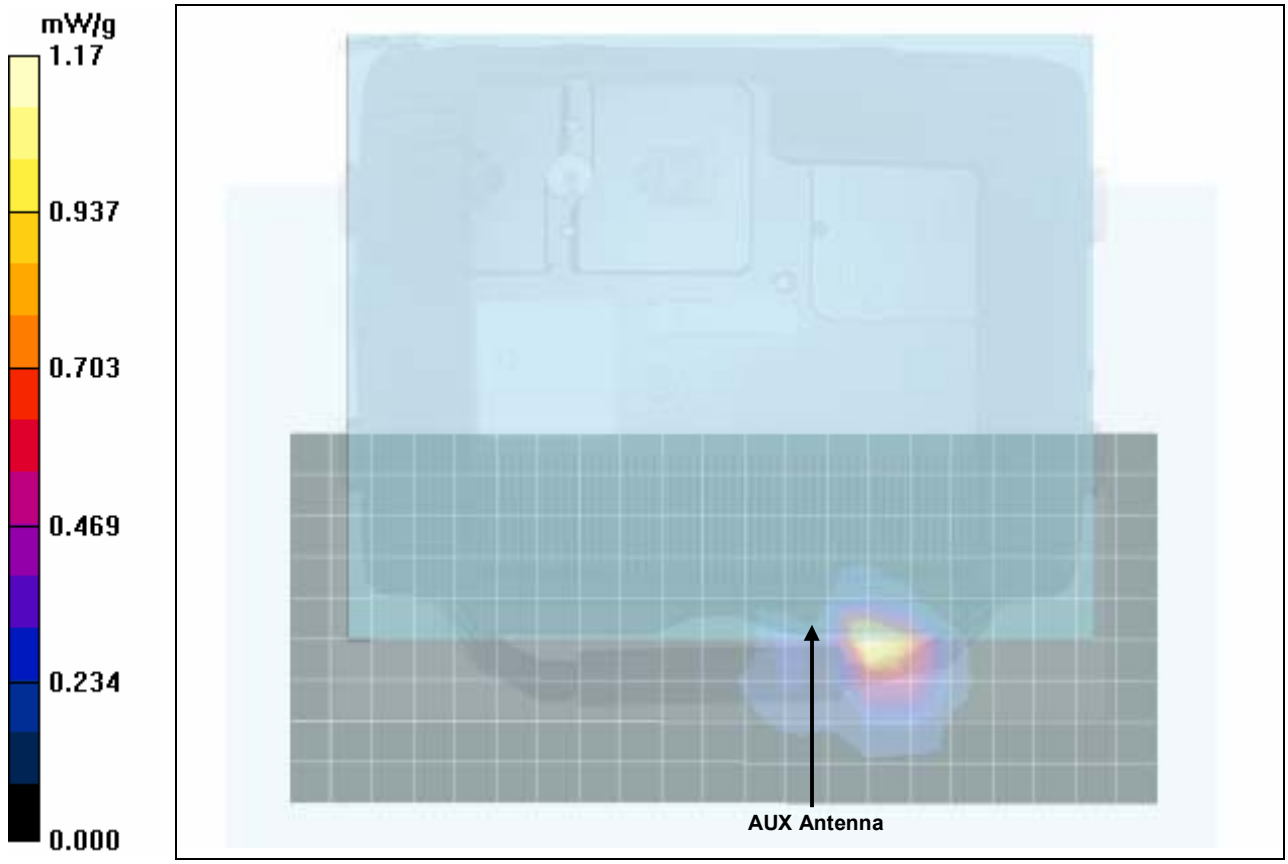
DUT: DRS Tactical; Model: Hammerhead X^{TREME} (with Fixed Nylon Case & Plastic D-Rings);
Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046363

Ambient Temp: 22.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

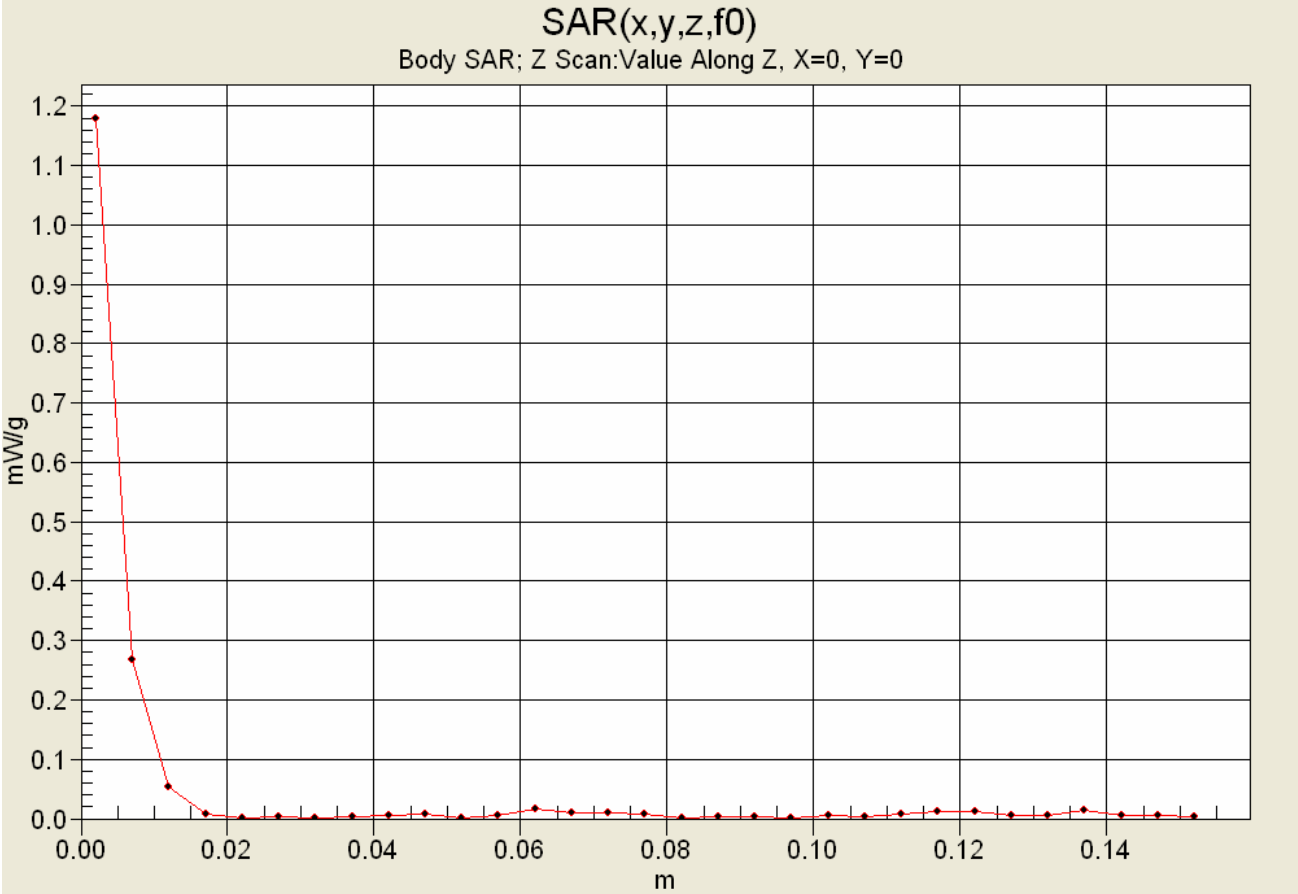
Communication System: OFDM WLAN
Frequency: 5260 MHz; Duty Cycle: 1:1
RF Output Power: 16.3 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5260 MHz; σ = 5.33 mho/m; ε_r = 46.8; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.87, 4.87, 4.87); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 52 - 5260 MHz
Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 52 - 5260 MHz
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 14.0 V/m; Power Drift = -0.0890 dB
Peak SAR (extrapolated) = 2.24 W/kg
SAR(1 g) = 0.626 mW/g; SAR(10 g) = 0.207 mW/g



Z-Axis Scan



Date Tested: 10/16/2006

Body SAR - Aluminum Tablet - 802.11a - 6 Mbps - 5260 MHz - Channel 52 - MAIN Antenna

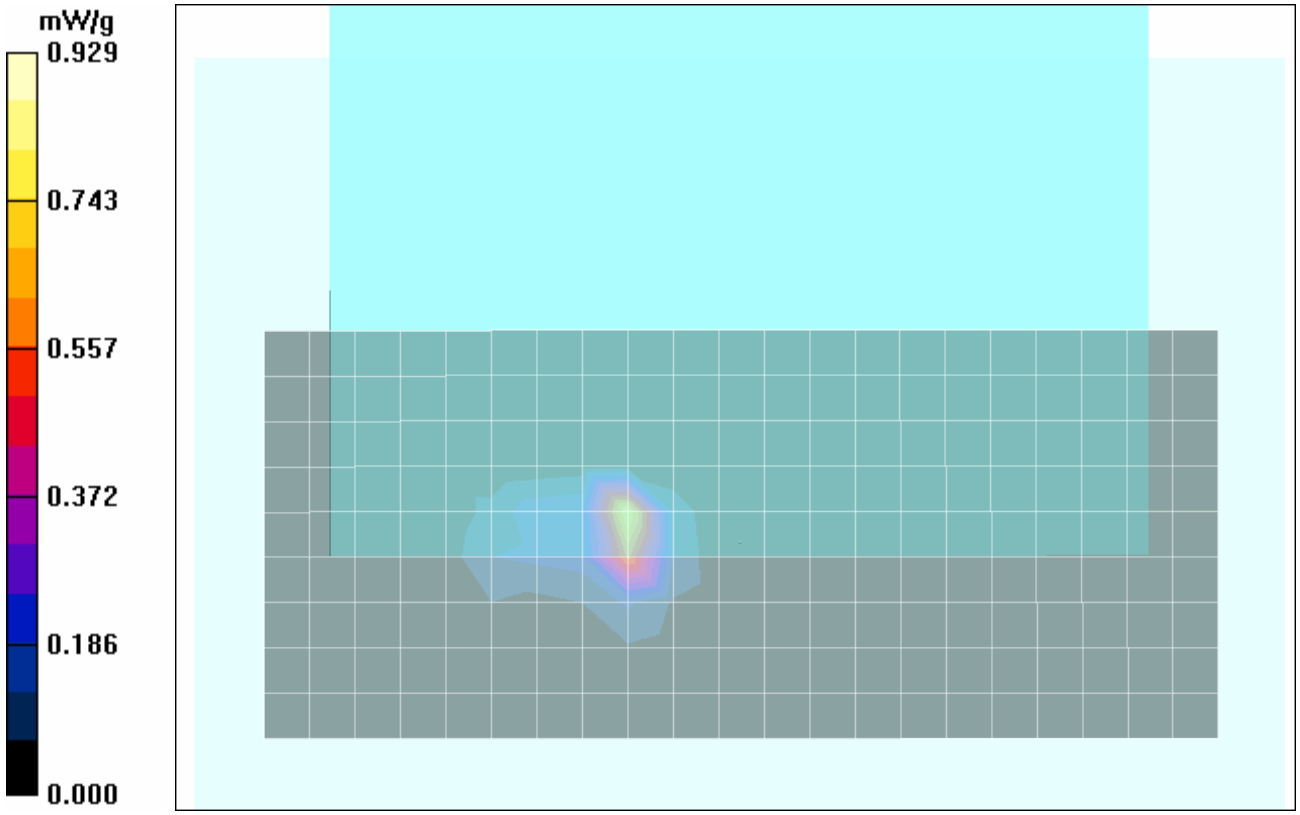
DUT: DRS Tactical; Model: Hammerhead X^{TREME} (with Fixed Nylon Case & Plastic D-Rings);
Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046363

Ambient Temp: 24.2ºC; Fluid Temp: 23.0ºC; Barometric Pressure: 101.1 kPa; Humidity: 32%

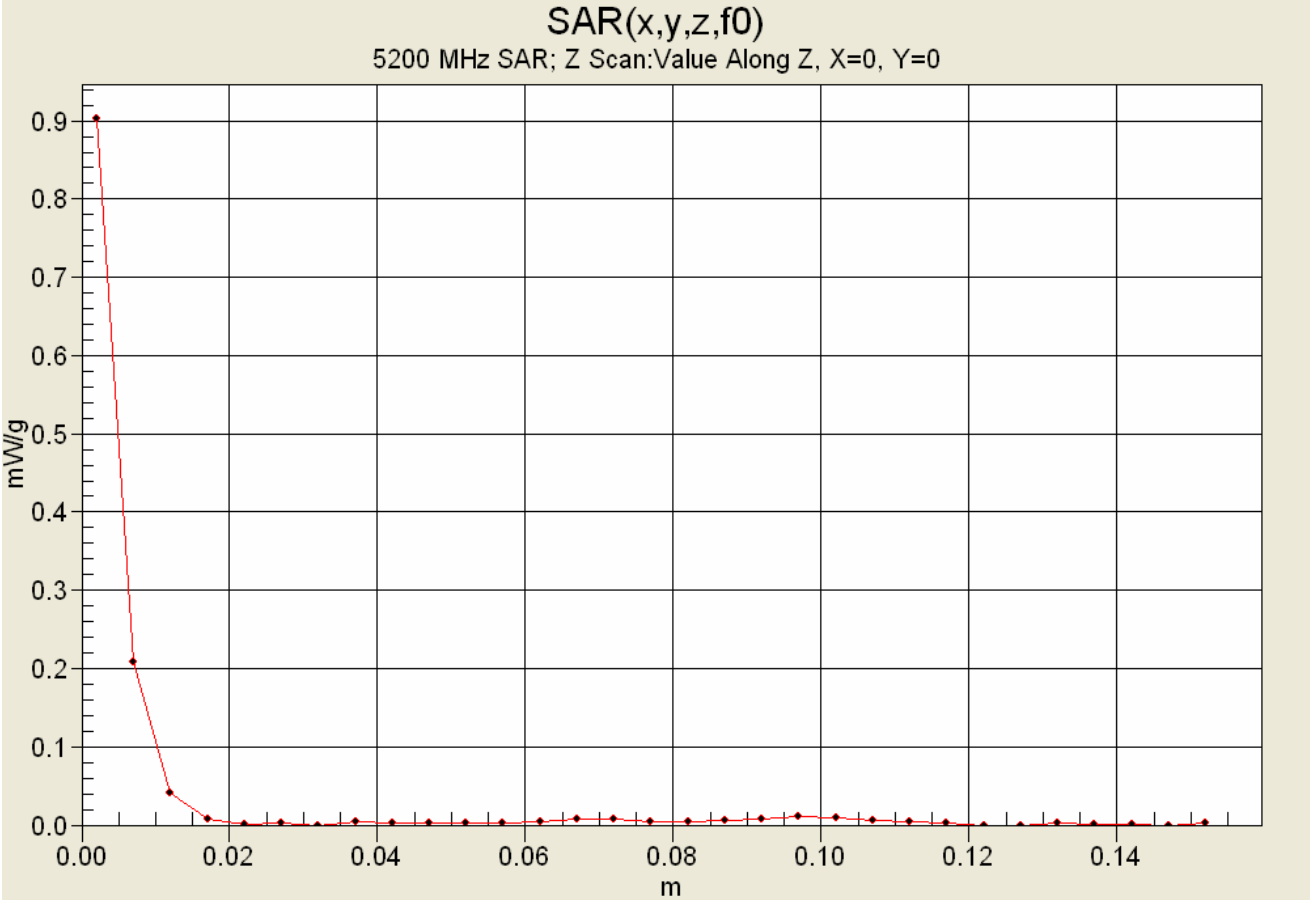
Communication System: OFDM WLAN
Frequency: 5260 MHz; Duty Cycle: 1:1
RF Output Power: 16.3 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5260 MHz; σ = 5.52 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.87, 4.87, 4.87); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 52 - 5260 MHz
Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 52 - 5260 MHz
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 12.0 V/m; Power Drift = -0.144 dB
Peak SAR (extrapolated) = 1.72 W/kg
SAR(1 g) = 0.484 mW/g; SAR(10 g) = 0.158 mW/g



Z-Axis Scan



Date Tested: 09/12/2006

Body SAR - Magnesium Tablet - 802.11a - 6 Mbps - 5785 MHz - Channel 157 - MAIN Antenna

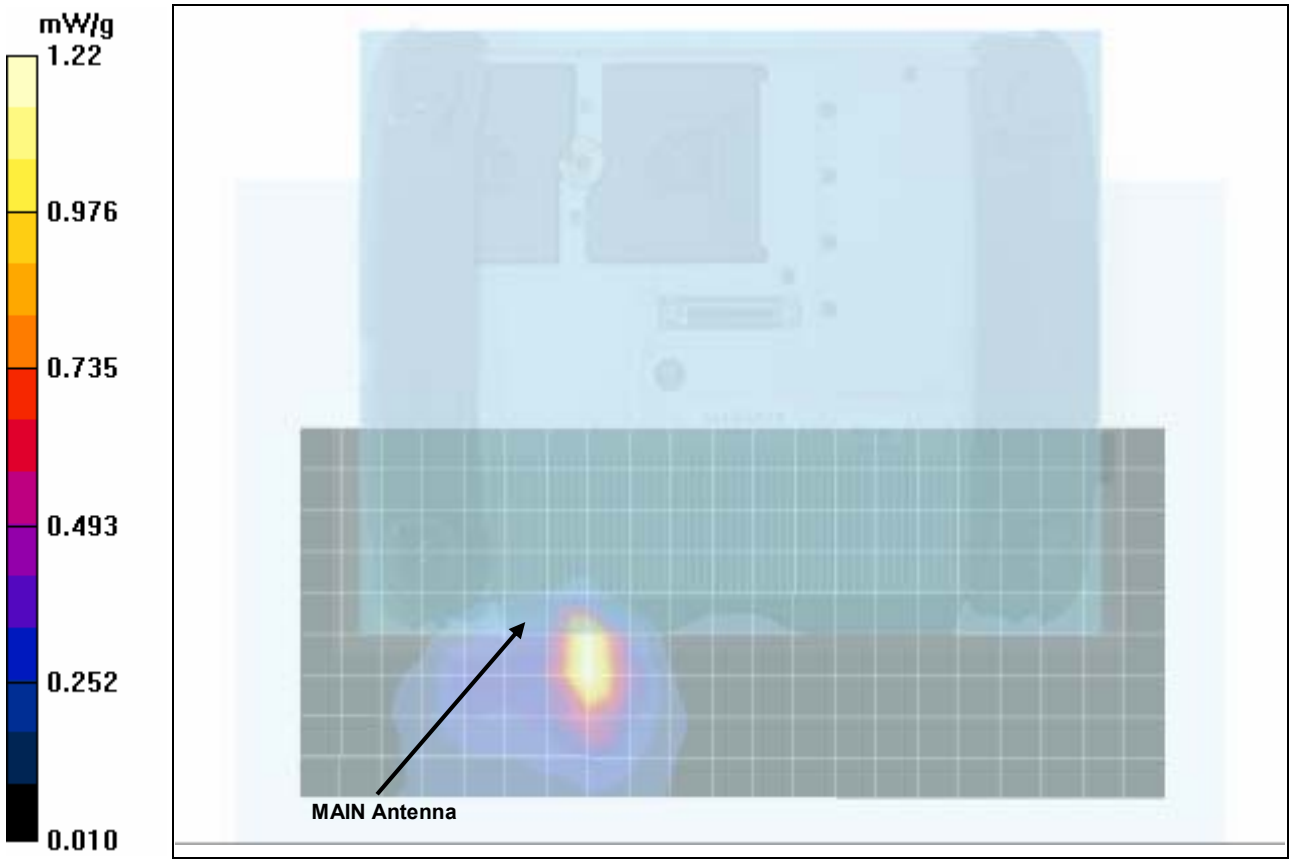
DUT: DRS Tactical; Model: Hammerhead (with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings); Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046018

Ambient Temp: 22.5°C; Fluid Temp: 22.2°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

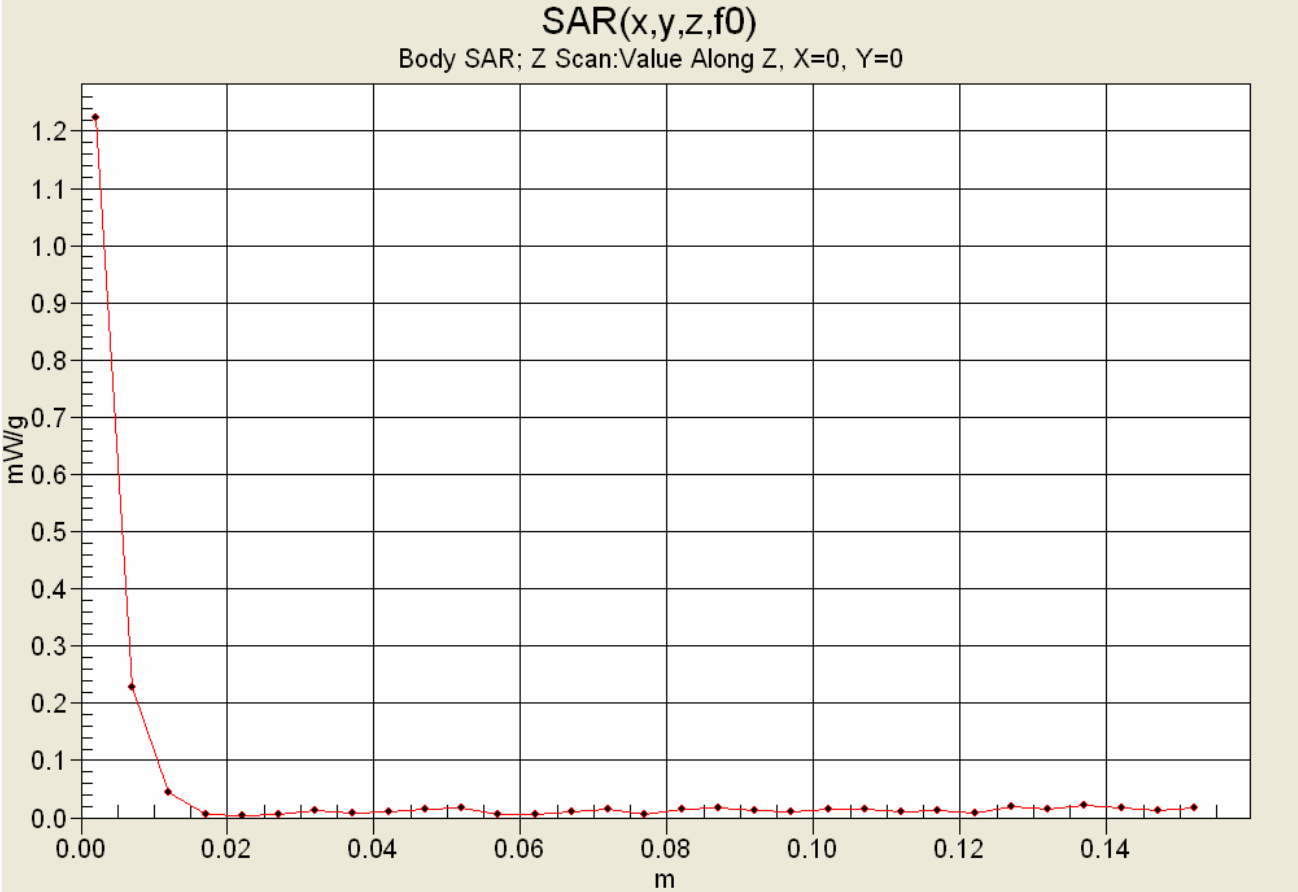
Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
RF Output Power: 17.2 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5790 MHz; σ = 5.87 mho/m; ε_r = 46.2; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.69, 4.69, 4.69); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 157 - 5785 MHz Channel 157/Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 157 - 5785 MHz Channel 157/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 3.59 V/m; Power Drift = -0.133 dB
Peak SAR (extrapolated) = 2.61 W/kg
SAR(1 g) = 0.650 mW/g; SAR(10 g) = 0.262 mW/g



Z-Axis Scan



Date Tested: 09/12/2006

Body SAR - Magnesium Tablet - 802.11a - 6 Mbps - 5785 MHz - Channel 157 - AUX Antenna

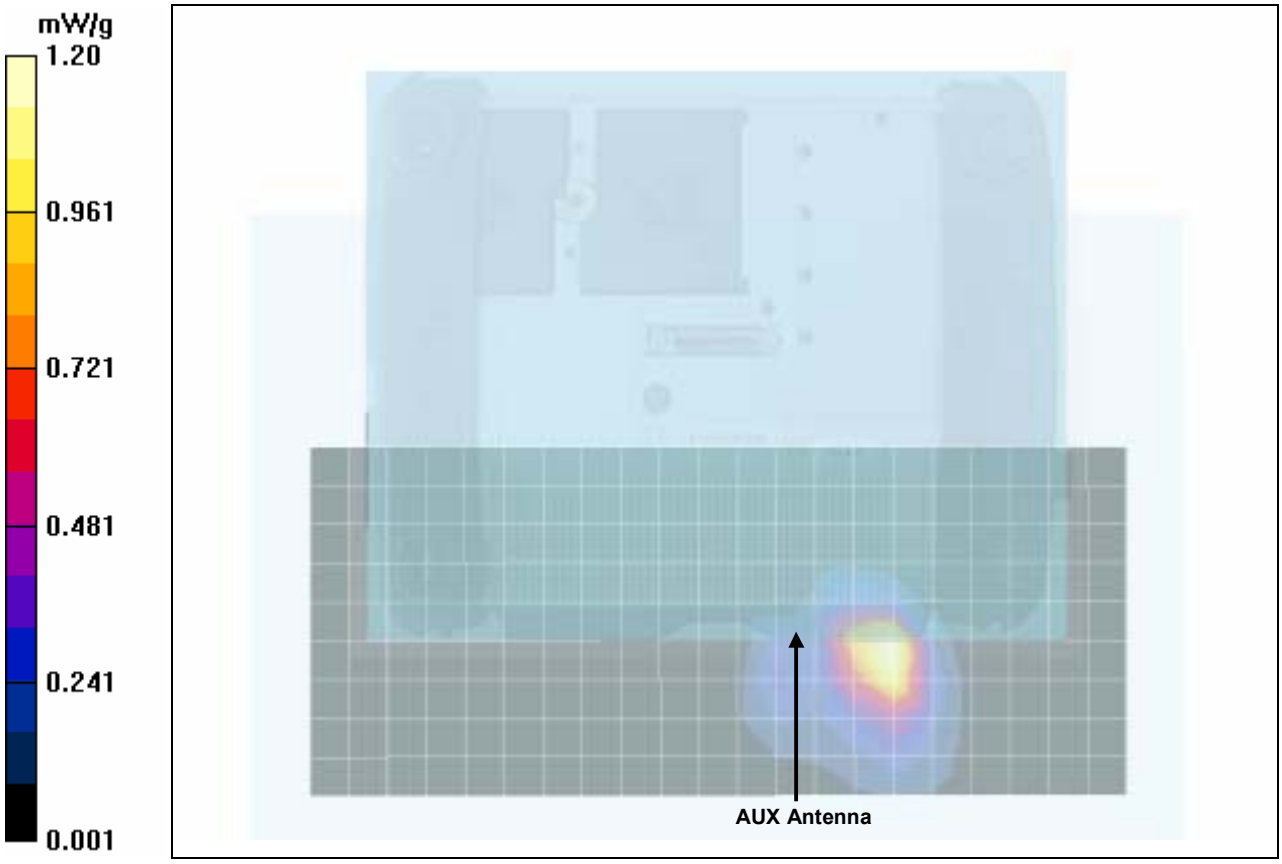
DUT: DRS Tactical; Model: Hammerhead (with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings); Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046018

Ambient Temp: 22.5°C; Fluid Temp: 22.2°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
RF Output Power: 17.2 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5790 MHz; σ = 5.87 mho/m; ε_r = 46.2; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.69, 4.69, 4.69); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 157 - 5785 MHz Channel 157/Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 1.5 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 157 - 5785 MHz Channel 157/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 12.3 V/m; Power Drift = 0.00962 dB
Peak SAR (extrapolated) = 2.56 W/kg
SAR(1 g) = 0.627 mW/g; SAR(10 g) = 0.231 mW/g



Date Tested: 09/22/2006

Body SAR - Aluminum Tablet - 802.11a - 6 Mbps - 5785 MHz - Channel 157 - MAIN Antenna

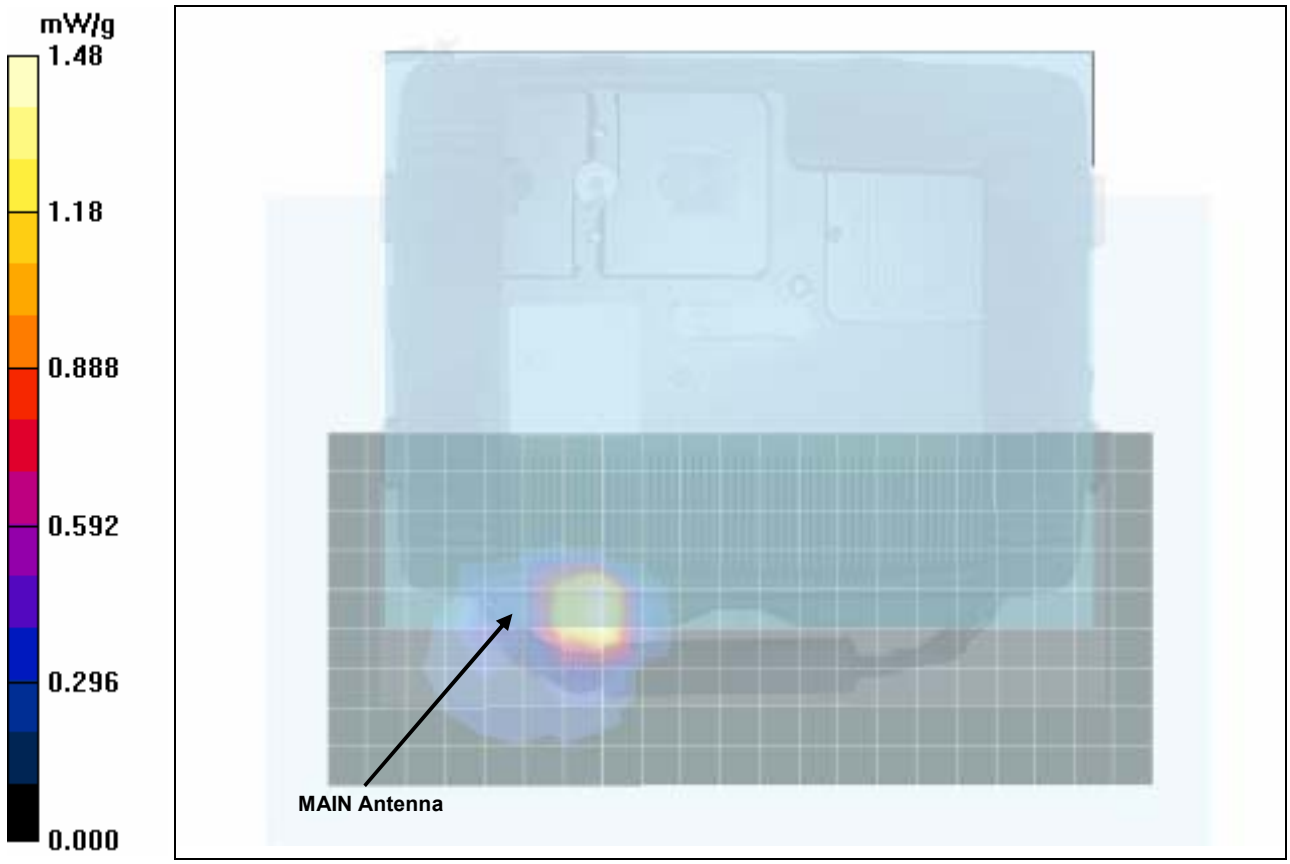
DUT: DRS Tactical; Model: Hammerhead X^{TREME} (with Fixed Nylon Case & Plastic D-Rings);
Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046363

Ambient Temp: 22.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

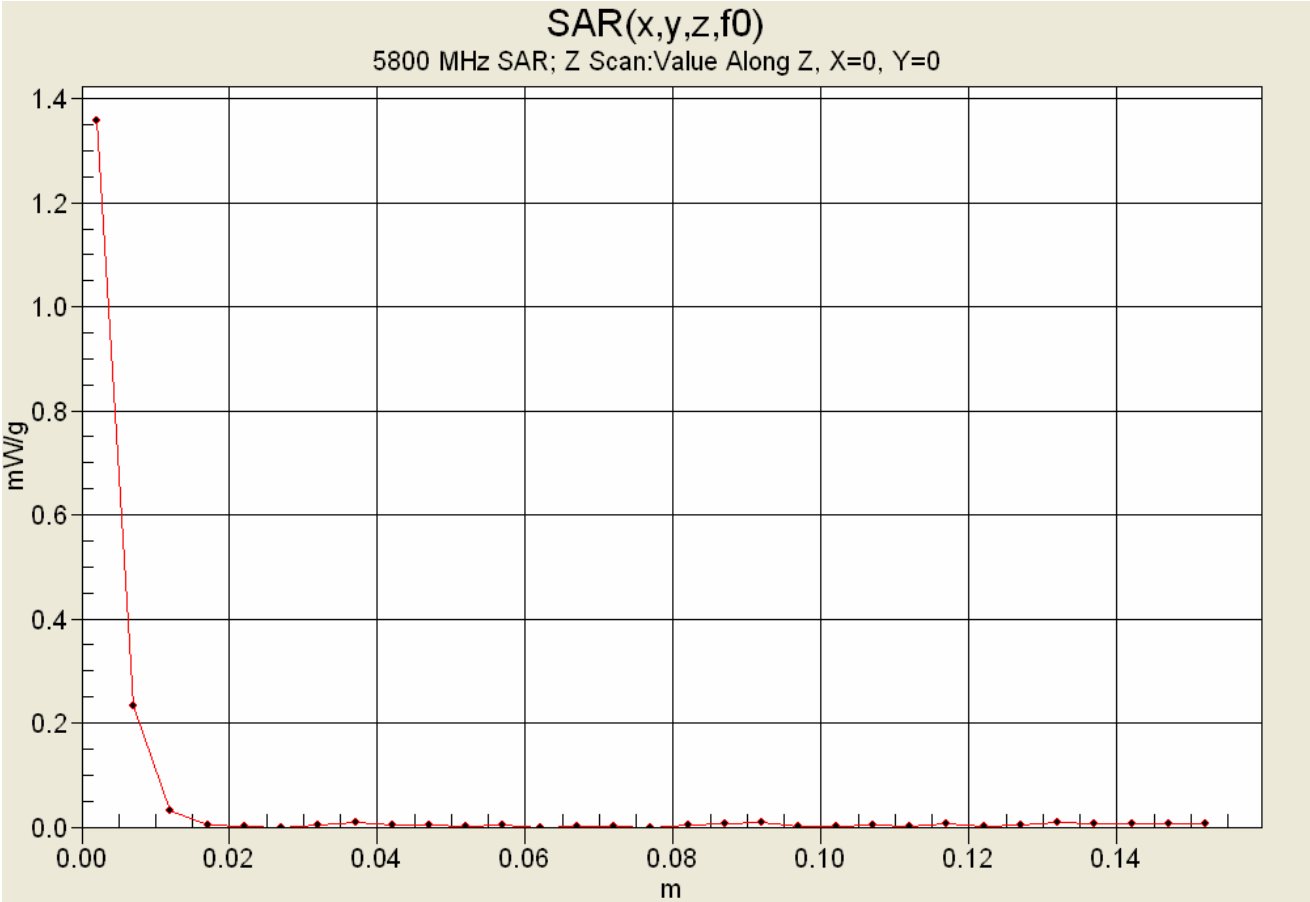
Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
RF Output Power: 17.2 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5790 MHz; σ = 5.98 mho/m; ε_r = 46.5; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.69, 4.69, 4.69); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 157 - 5785 MHz
Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 157 - 5785 MHz
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 15.45 V/m; Power Drift = -0.0316 dB
Peak SAR (extrapolated) = 3.36 W/kg
SAR(1 g) = 0.769 mW/g; SAR(10 g) = 0.242 mW/g



Z-Axis Scan



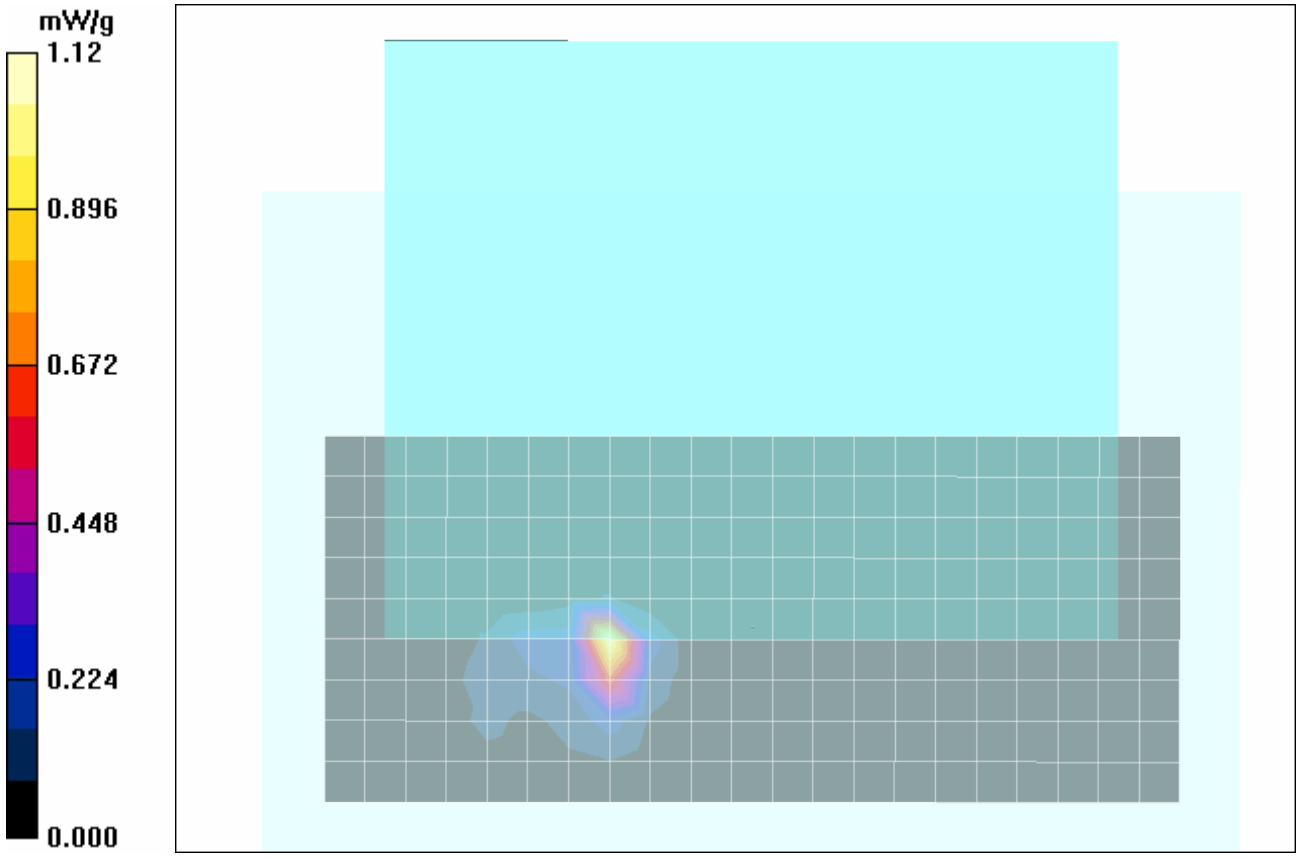
Date Tested: 09/22/2006

Body SAR - Aluminum Tablet - 802.11a - 6 Mbps - 5785 MHz - Channel 157 - MAIN Antenna Simultaneous Transmit with Co-located Bluetooth

DUT: DRS Tactical; Model: Hammerhead X^{TREME} (with Fixed Nylon Case & Plastic D-Rings); Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046363

Ambient Temp: 22.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%
Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
RF Output Power: 17.2 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Communication System: Modulated Fixed Frequency (Bluetooth)
RF Output Power: 3.0 dBm (Conducted) Bluetooth
Frequency: 2441 MHz; Duty Cycle: 1:1 (Bluetooth)
Medium: M5200-5800 Medium parameters used: f = 5790 MHz; σ = 5.98 mho/m; ε_r = 46.5; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.69, 4.69, 4.69); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 157 - 5785 MHz Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm
Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - MAIN Antenna - Channel 157 - 5785 MHz Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 13.4 V/m; Power Drift = -0.159 dB
Peak SAR (extrapolated) = 2.44 W/kg
SAR(1 g) = 0.561 mW/g; SAR(10 g) = 0.178 mW/g



Date Tested: 10/16/2006

Body SAR - Aluminum Tablet - 802.11a - 6 Mbps - 5785 MHz - Channel 157 - AUX Antenna

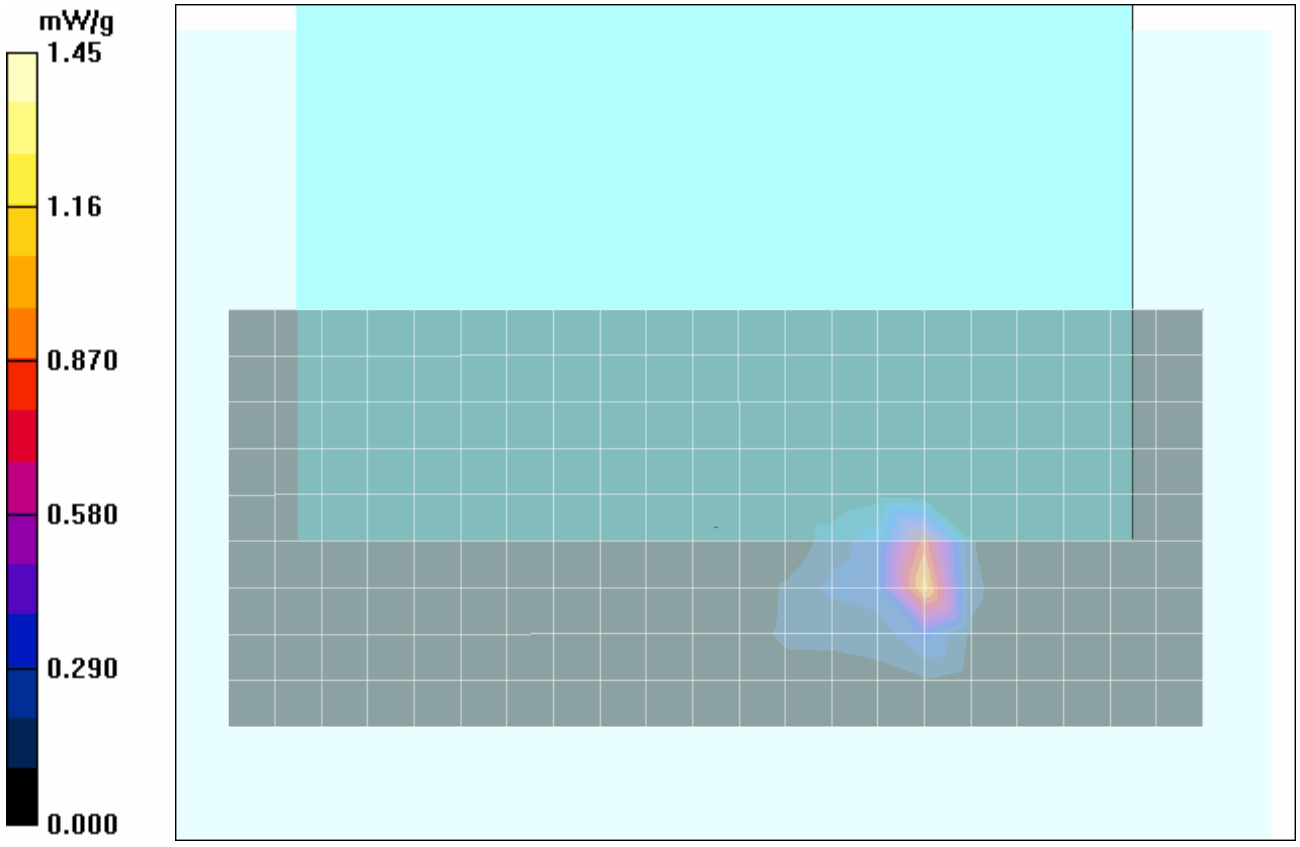
DUT: DRS Tactical; Model: Hammerhead X^{TREME} (with Fixed Nylon Case & Plastic D-Rings);
Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046363

Ambient Temp: 24.2°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 32%

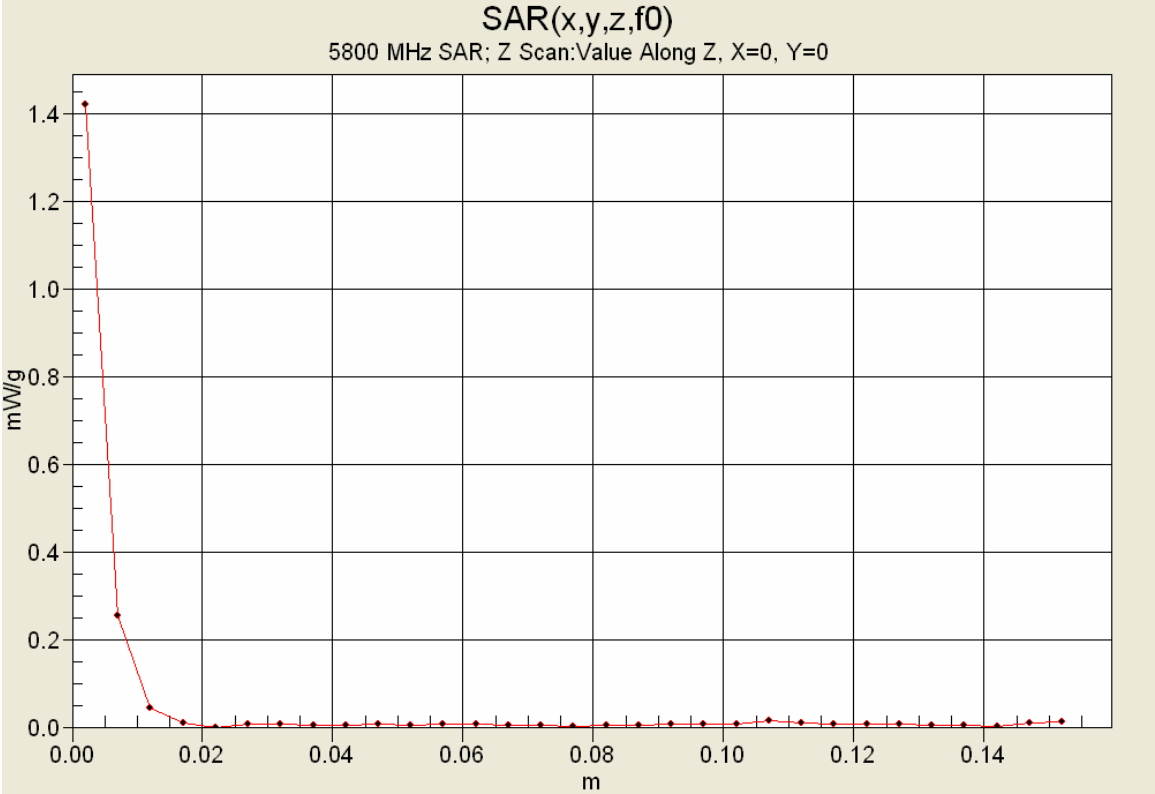
Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
RF Output Power: 17.2 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5790 MHz; σ = 5.74 mho/m; ε_r = 45.1; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.69, 4.69, 4.69); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 157 - 5785 MHz
Area Scan (10x22x1): Measurement grid: dx=15mm, dy=15mm

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 157 - 5785 MHz
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.000 V/m; Power Drift = -0.0111 dB
Peak SAR (extrapolated) = 3.09 W/kg
SAR(1 g) = 0.749 mW/g; SAR(10 g) = 0.236 mW/g



Z-Axis Scan



Date Tested: 10/16/2006

Body SAR - Aluminum Tablet - 802.11a - 6 Mbps - 5785 MHz - Channel 157 - AUX Antenna

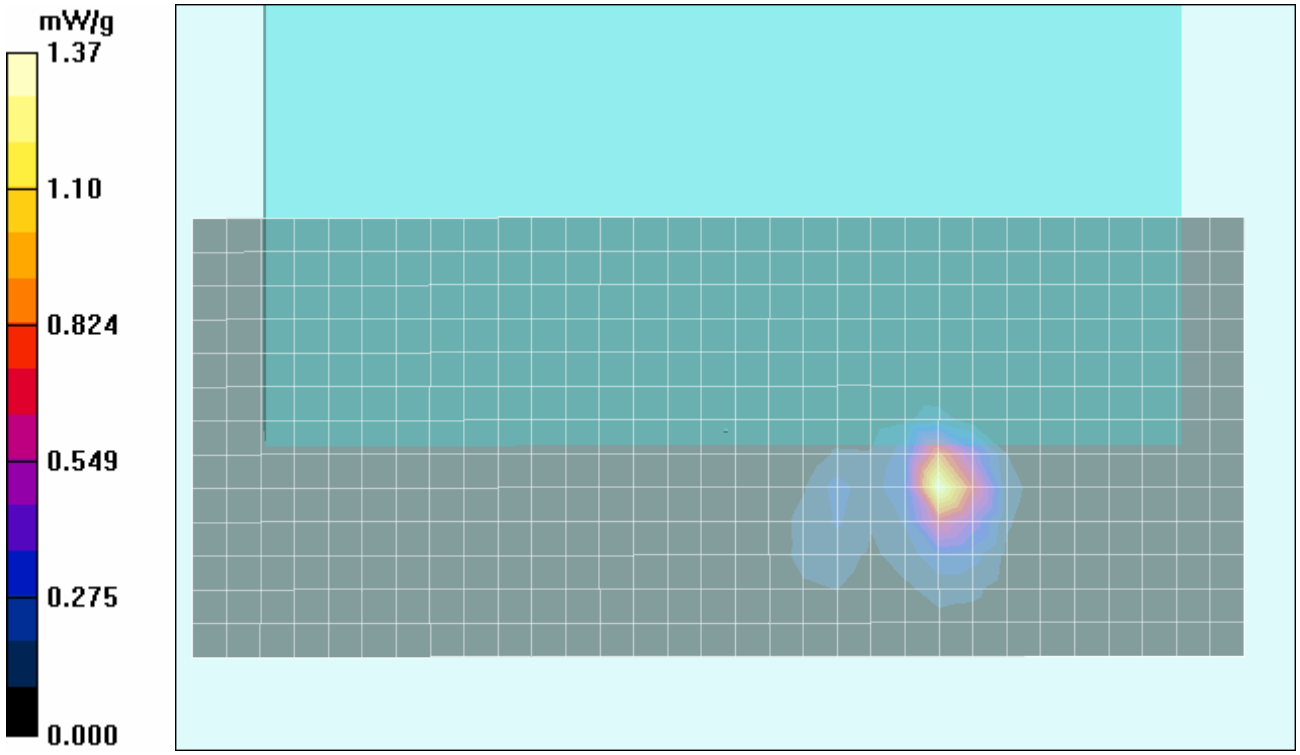
DUT: DRS Tactical; Model: Hammerhead X^{TREME} (with Fixed Nylon Case & Plastic D-Rings);
Type: Rugged Tablet PC with 802.11abg & Bluetooth; Serial: 046363

Ambient Temp: 24.2°C; Fluid Temp: 23.0°C; Barometric Pressure: 101.1 kPa; Humidity: 32%

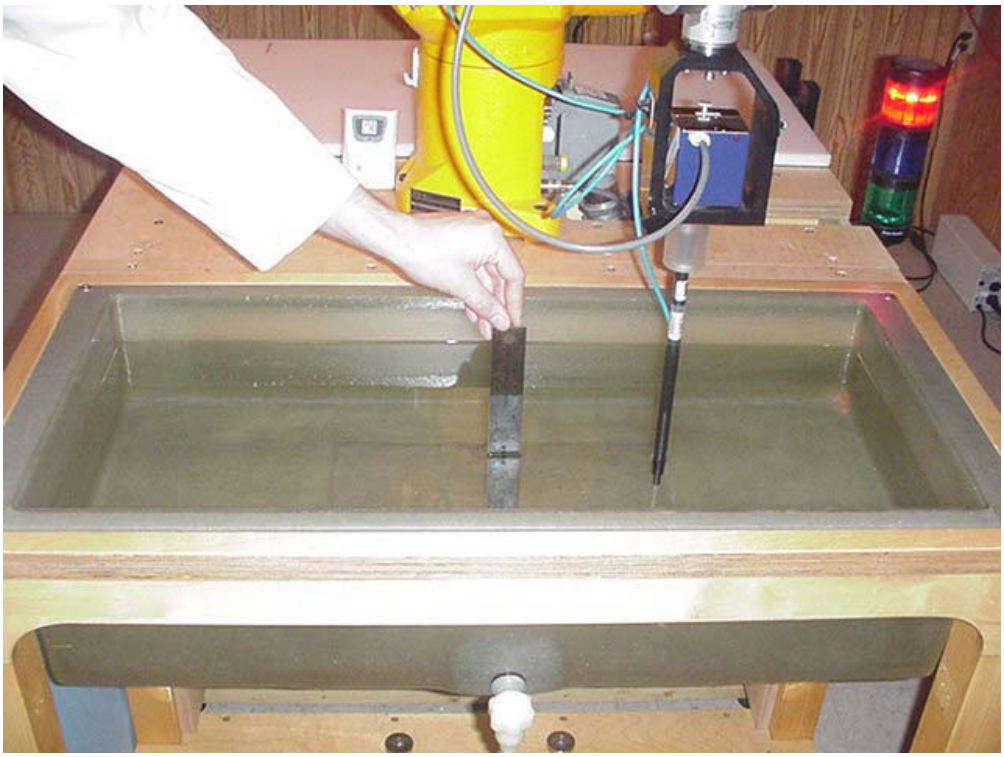
Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
RF Output Power: 17.2 dBm (Conducted)
Dual Li-ion Battery 10.8 V (P/N: 020110-03)
Medium: M5200-5800 Medium parameters used: f = 5790 MHz; σ = 5.74 mho/m; ε_r = 45.1; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.69, 4.69, 4.69); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 157 - 5785 MHz
Area Scan (14x32x1): Measurement grid: dx=10mm, dy=10mm

Body SAR - 0.8 cm Gap from Bottom Side of LCD Display to Phantom - AUX Antenna - Channel 157 - 5785 MHz
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 15.3 V/m; Power Drift = 0.00787 dB
Peak SAR (extrapolated) = 3.07 W/kg
SAR(1 g) = 0.697 mW/g; SAR(10 g) = 0.217 mW/g



Fluid Depth (≥ 15cm)



APPENDIX B - SYSTEM PERFORMANCE CHECK DATA

Date Tested: 09/11/2006

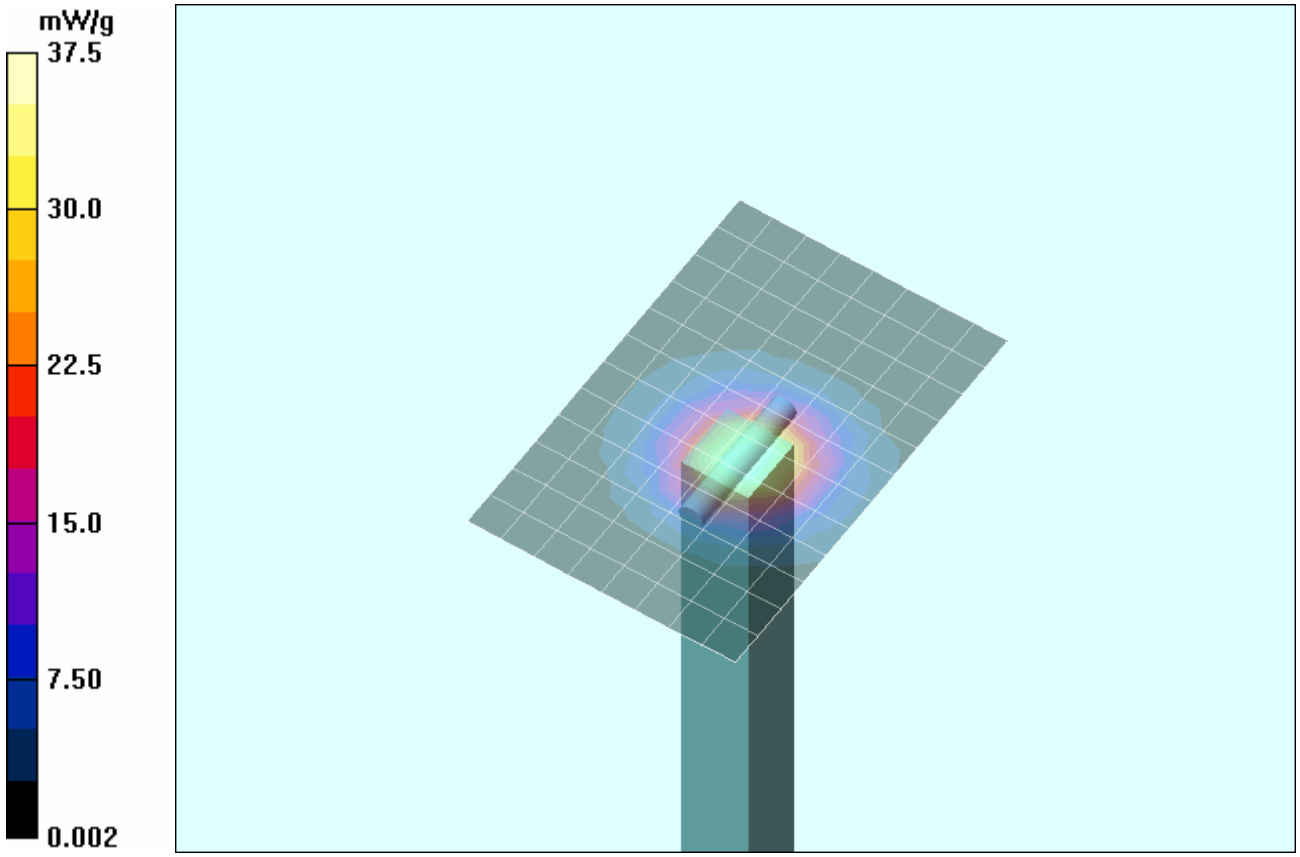
System Performance Check (Body) - 5200 MHz Dipole

DUT: Dipole 5GHz; Model: D5GHzV2; Serial: 1031; Validation: 07/18/2006

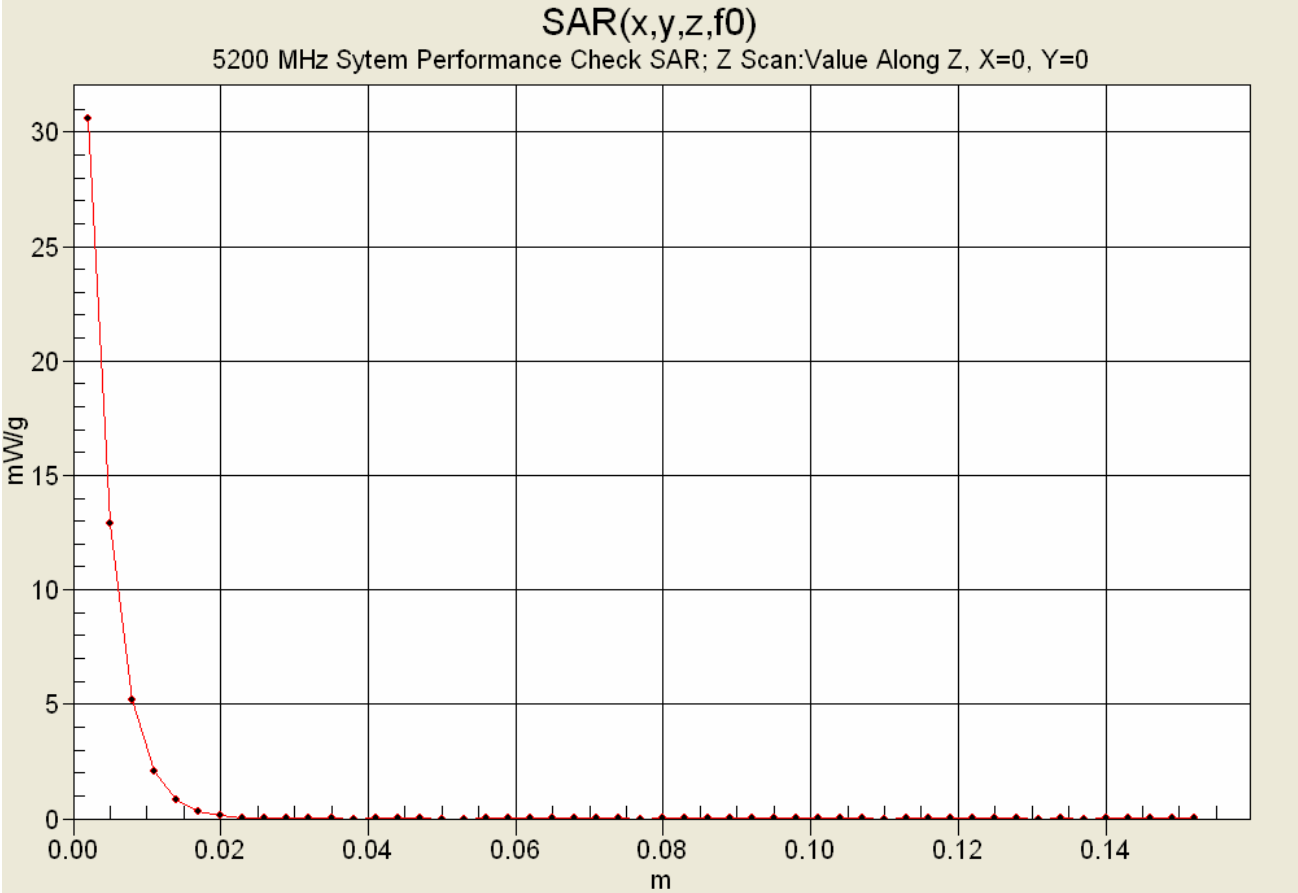
Ambient Temp: 22.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5200 MHz; σ = 5.24 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.87, 4.87, 4.87); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5200 MHz Dipole - System Performance Check
Area Scan (9x13x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of SAR (measured) = 37.7 mW/g

5200 MHz Dipole - System Performance Check
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 79.8 V/m; Power Drift = -0.0166 dB
Peak SAR (extrapolated) = 76.7 W/kg
SAR(1 g) = 19.2 mW/g; SAR(10 g) = 5.35 mW/g
Maximum value of SAR (measured) = 37.5 mW/g



Z-Axis Scan



Date Tested: 09/12/2006

System Performance Check (Body) - 5800 MHz Dipole

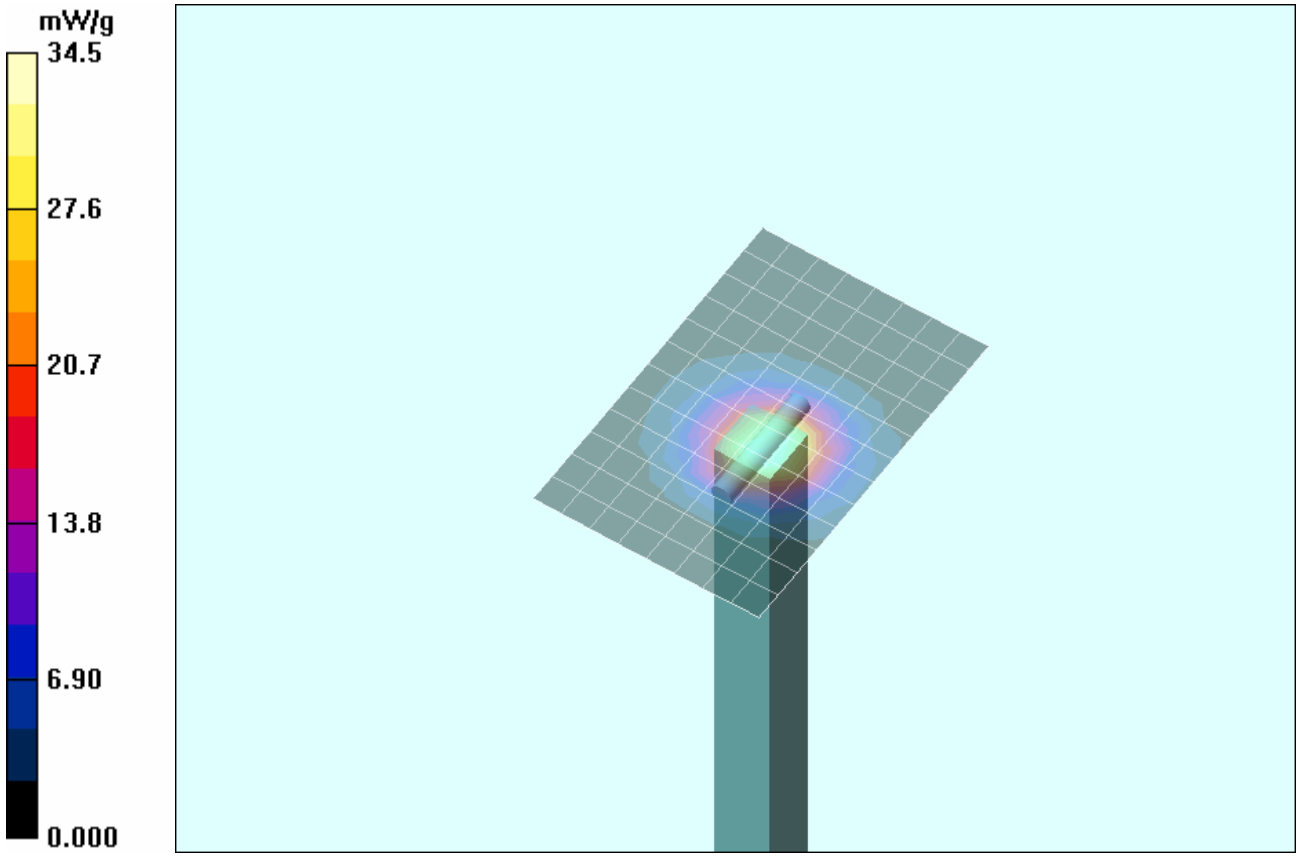
DUT: Dipole 5GHz; Model: D5GHzV2; Serial: 1031; Validation: 07/18/2006

Ambient Temp: 22.5°C; Fluid Temp: 22.2°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

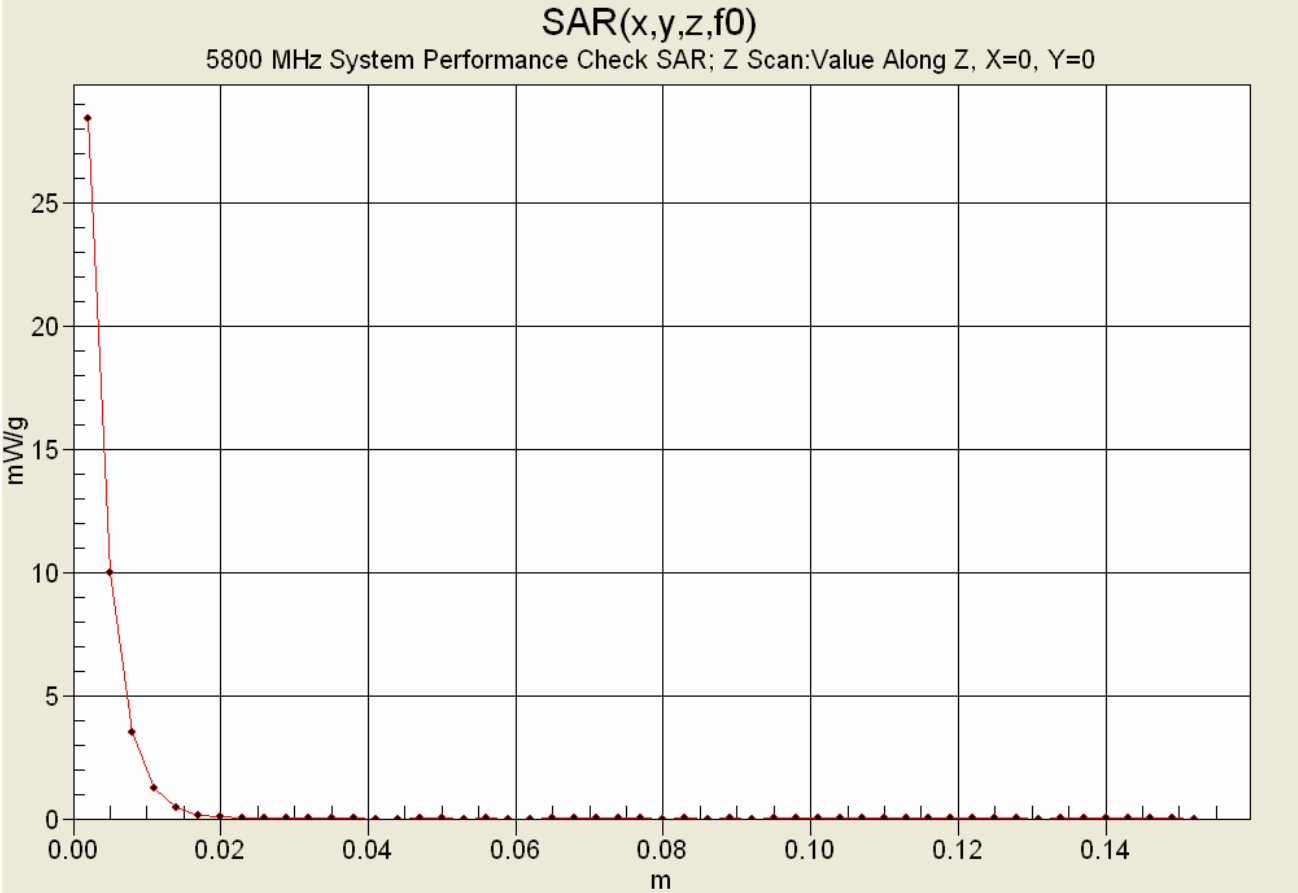
Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5800 MHz; σ = 5.87 mho/m; ε_r = 45.9; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.69, 4.69, 4.69); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5800 MHz Dipole - System Performance Check
Area Scan (9x13x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of SAR (measured) = 36.3 mW/g

5800 MHz Dipole - System Performance Check
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 70.9 V/m; Power Drift = -0.152 dB
Peak SAR (extrapolated) = 85.9 W/kg
SAR(1 g) = 17.6 mW/g; SAR(10 g) = 4.83 mW/g
Maximum value of SAR (measured) = 34.5 mW/g



Z-Axis Scan



Date Tested: 09/14/2006

System Performance Check (Body) - 2450 MHz Dipole

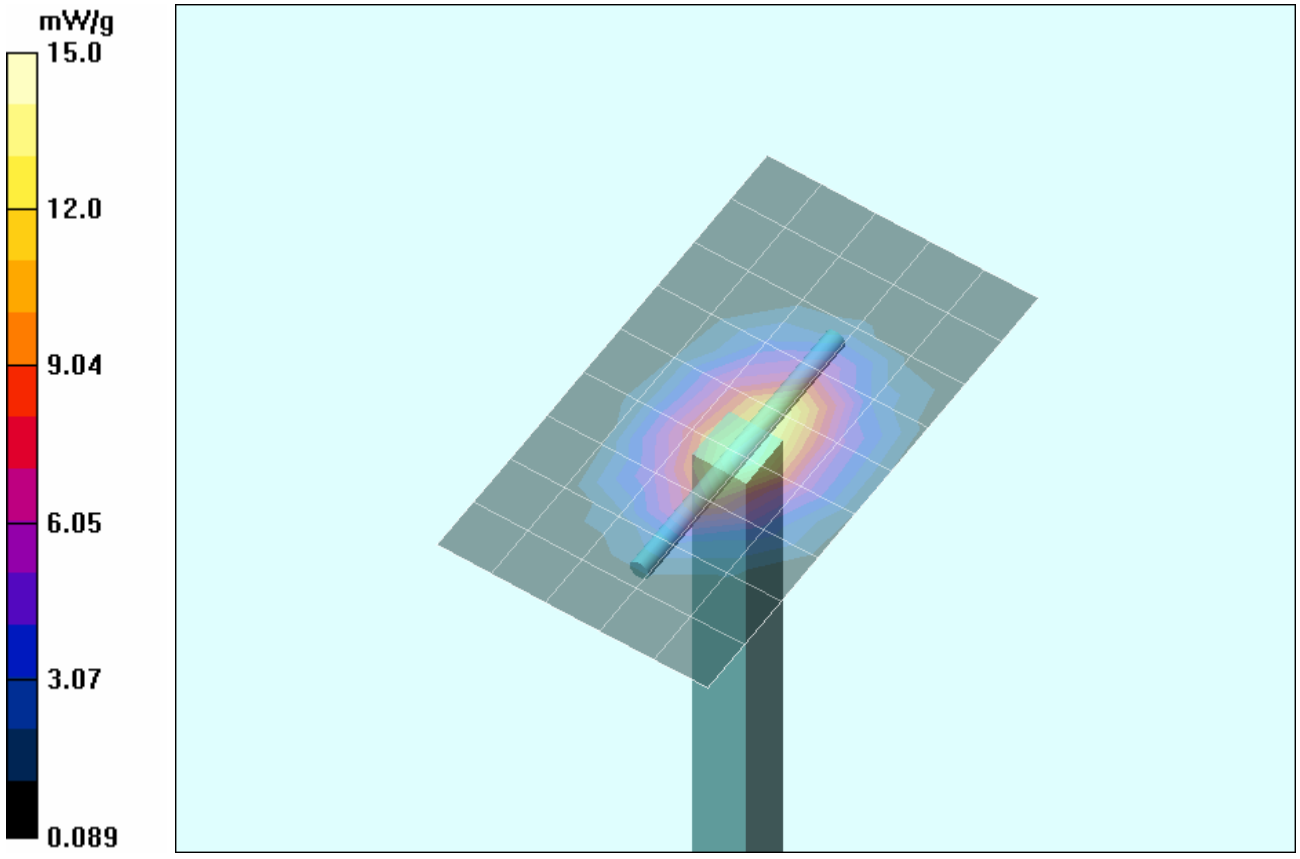
DUT: Dipole 2450 MHz; Asset: 00025; Serial: 150; Validation: 04/24/2006

Ambient Temp: 24.0°C; Fluid Temp: 23.6°C; Barometric Pressure: 102.1 kPa; Humidity: 35%

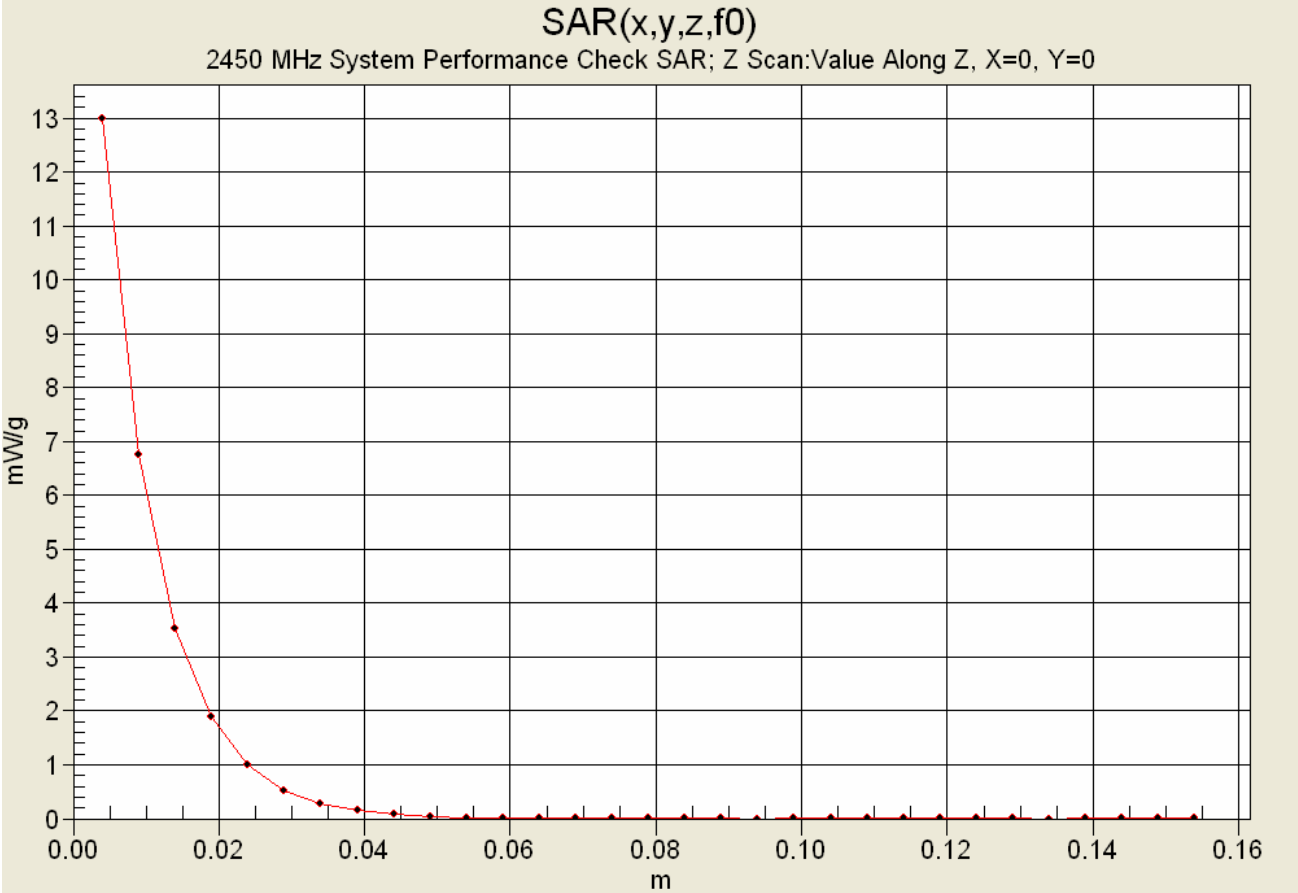
Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used: f = 2450 MHz; σ = 2.02 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(7.53, 7.53, 7.53); Calibrated: 14/02/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

2450 MHz Dipole - System Performance Check
Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 14.6 mW/g

2450 MHz Dipole - System Performance Check
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 77.2 V/m; Power Drift = 0.0315 dB
Peak SAR (extrapolated) = 28.2 W/kg
SAR(1 g) = 13.1 mW/g; SAR(10 g) = 5.92 mW/g
Maximum value of SAR (measured) = 15.0 mW/g



Z-Axis Scan



Date Tested: 09/22/2006

System Performance Check (Body) - 5200 MHz Dipole

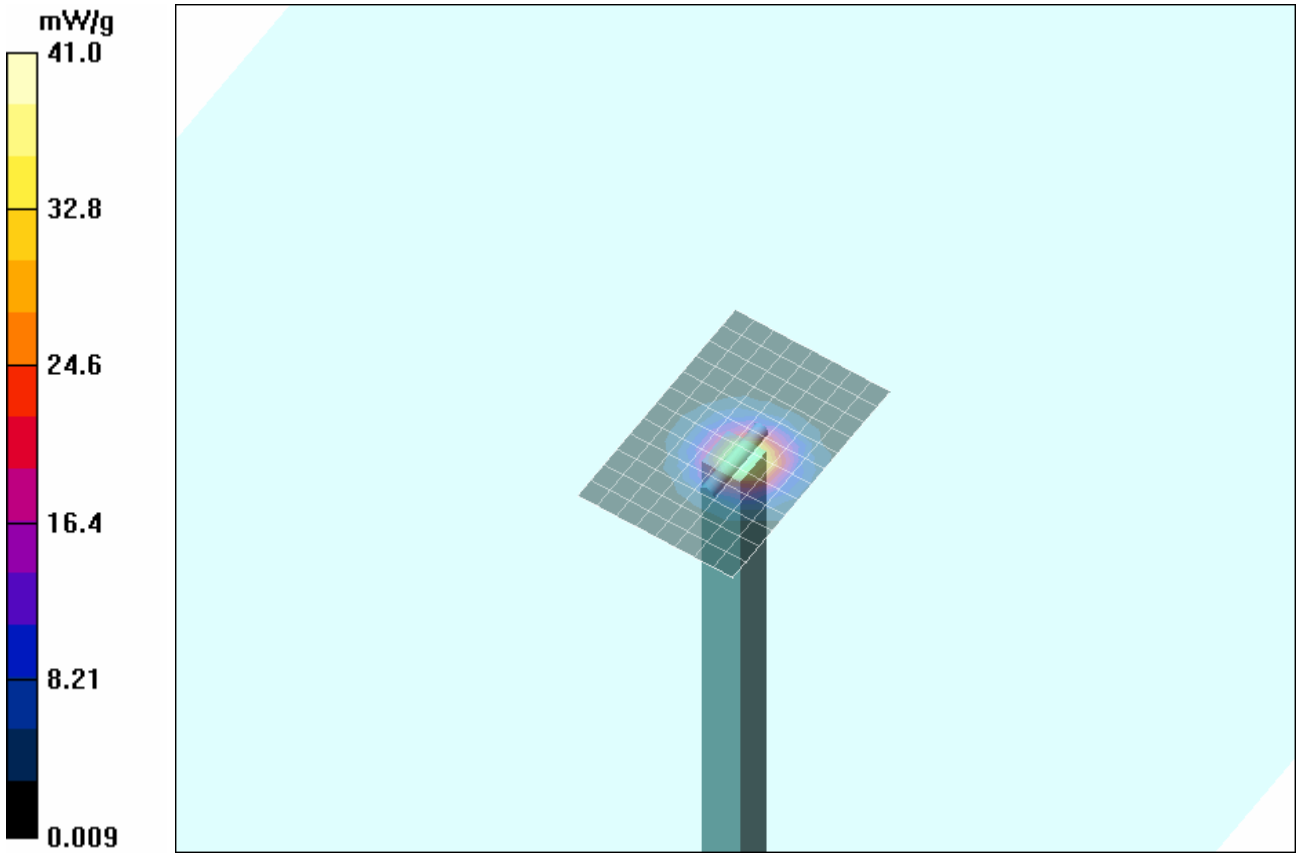
DUT: Dipole 5GHz; Model: D5GHzV2; Serial: 1031; Validation: 07/18/2006

Ambient Temp: 22.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%

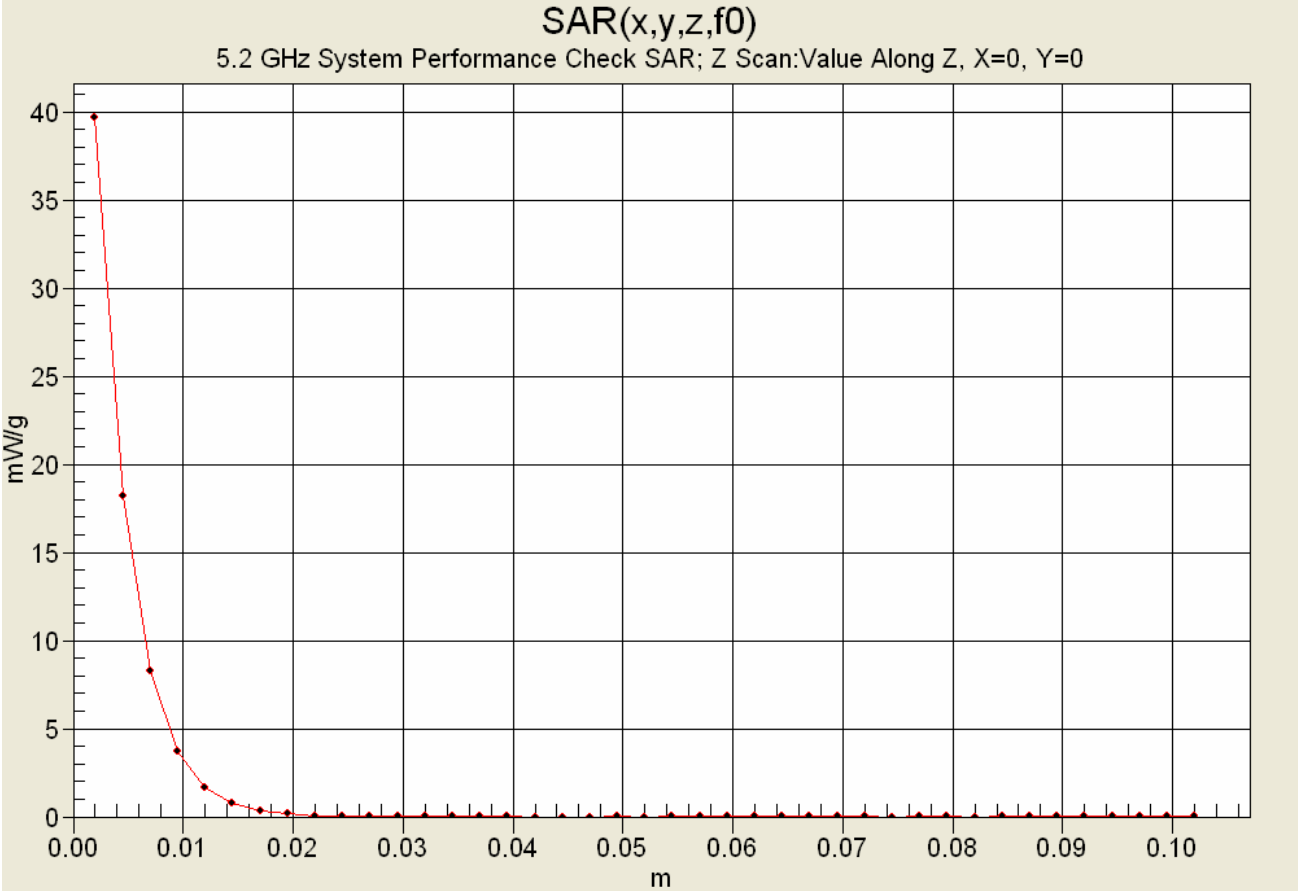
Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5200 MHz; σ = 5.27 mho/m; ε_r = 46.8; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3547; ConvF(4.87, 4.87, 4.87); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5200 MHz Dipole - System Performance Check
Area Scan (9x13x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of SAR (measured) = 38.4 mW/g
5200 MHz Dipole - System Performance Check
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 76.5 V/m; Power Drift = -0.098 dB
Peak SAR (extrapolated) = 80.7 W/kg
SAR(1 g) = 19.1 mW/g; SAR(10 g) = 5.31 mW/g
Maximum value of SAR (measured) = 41.0 mW/g



Z-Axis Scan



Date Tested: 09/22/2006

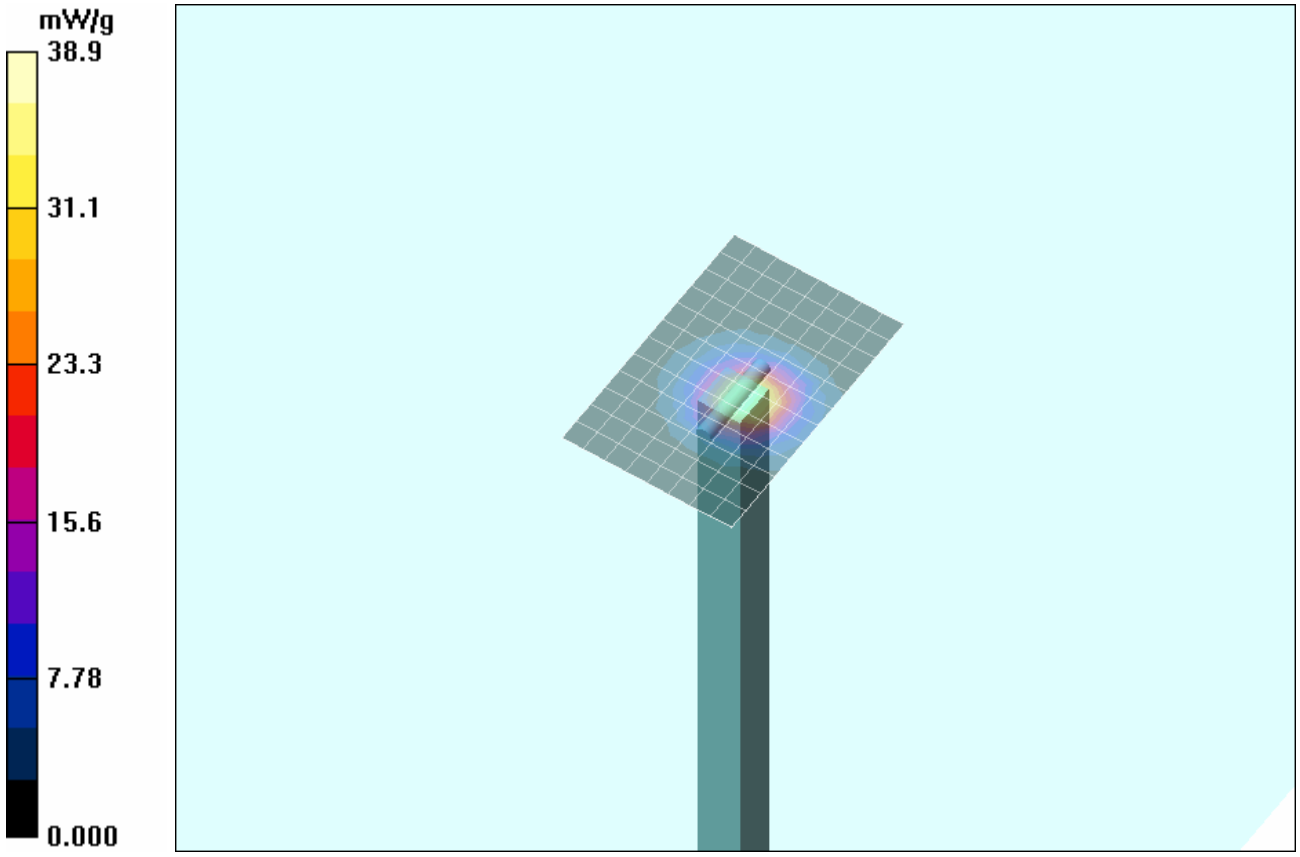
System Performance Check (Body) - 5800 MHz Dipole

DUT: Dipole 5GHz; Model: D5GHzV2; Serial: 1031; Validation: 07/18/2006

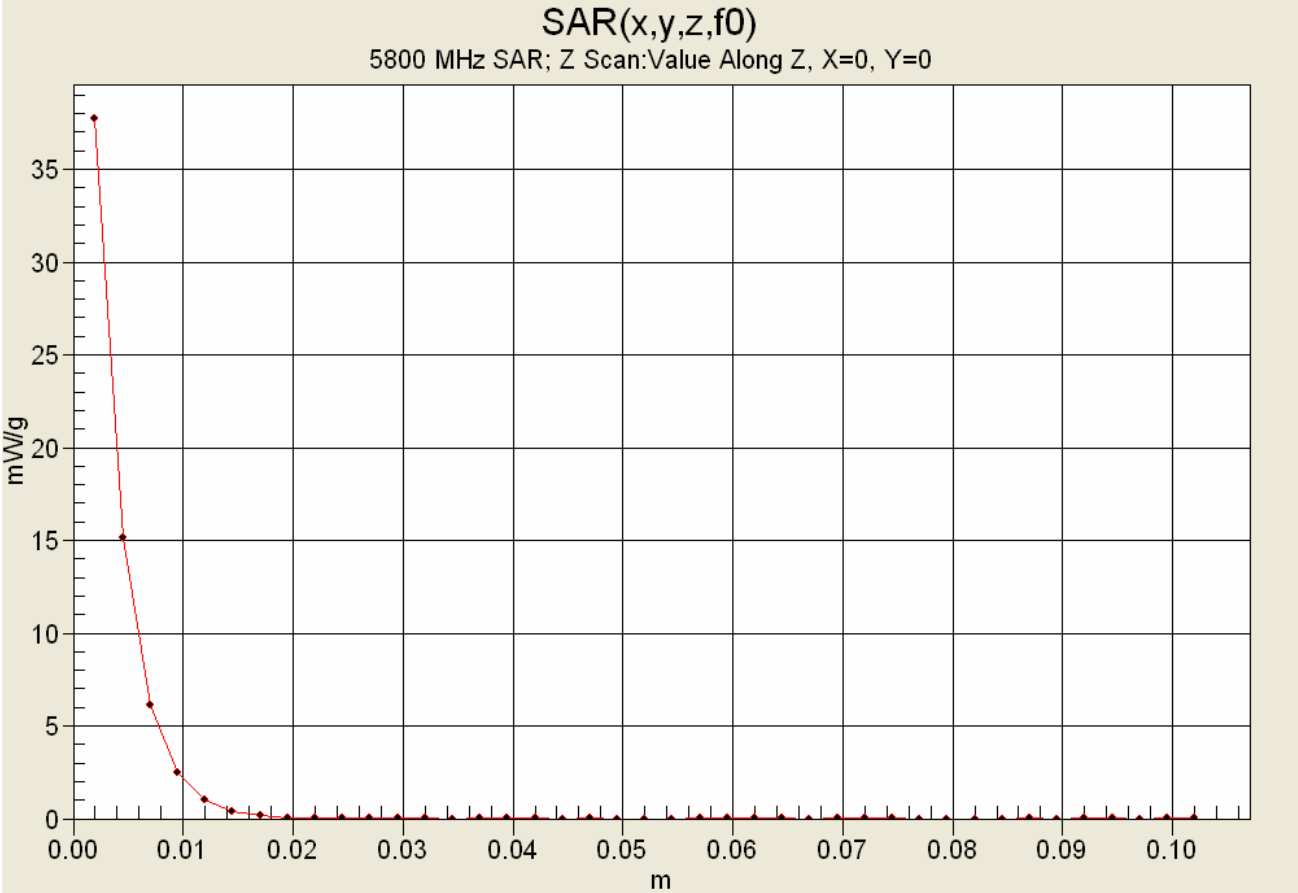
Ambient Temp: 22.8°C; Fluid Temp: 22.3°C; Barometric Pressure: 101.8 kPa; Humidity: 32%
Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5800 MHz; σ = 5.87 mho/m; ε_r = 46.5; ρ = 1000 kg/m^3
- Probe: EX3DV4 - SN3547; ConvF(4.69, 4.69, 4.69); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5800 MHz Dipole - System Performance Check
Area Scan (9x13x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of SAR (measured) = 35.8 mW/g

5800 MHz Dipole - System Performance Check
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 66.2 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 90.1 W/kg
SAR(1 g) = 17.8 mW/g; SAR(10 g) = 4.89 mW/g
Maximum value of SAR (measured) = 38.9 mW/g



Z-Axis Scan



Date Tested: 09/25/2006

System Performance Check (Body) - 2450 MHz Dipole

DUT: Dipole 2450 MHz; Asset: 00025; Serial: 150; Validation: 04/24/2006

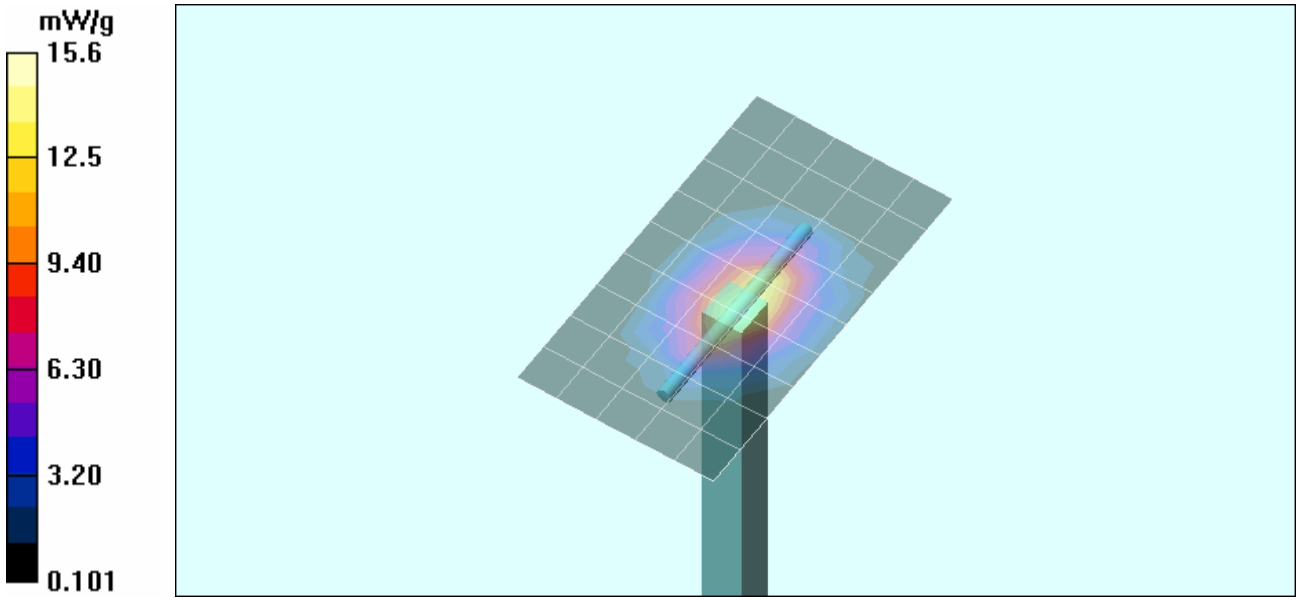
Ambient Temp: 21.8 °C; Fluid Temp: 22.3 °C; Barometric Pressure: 101.8 kPa; Humidity: 32%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used: f = 2450 MHz; σ = 2.03 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3

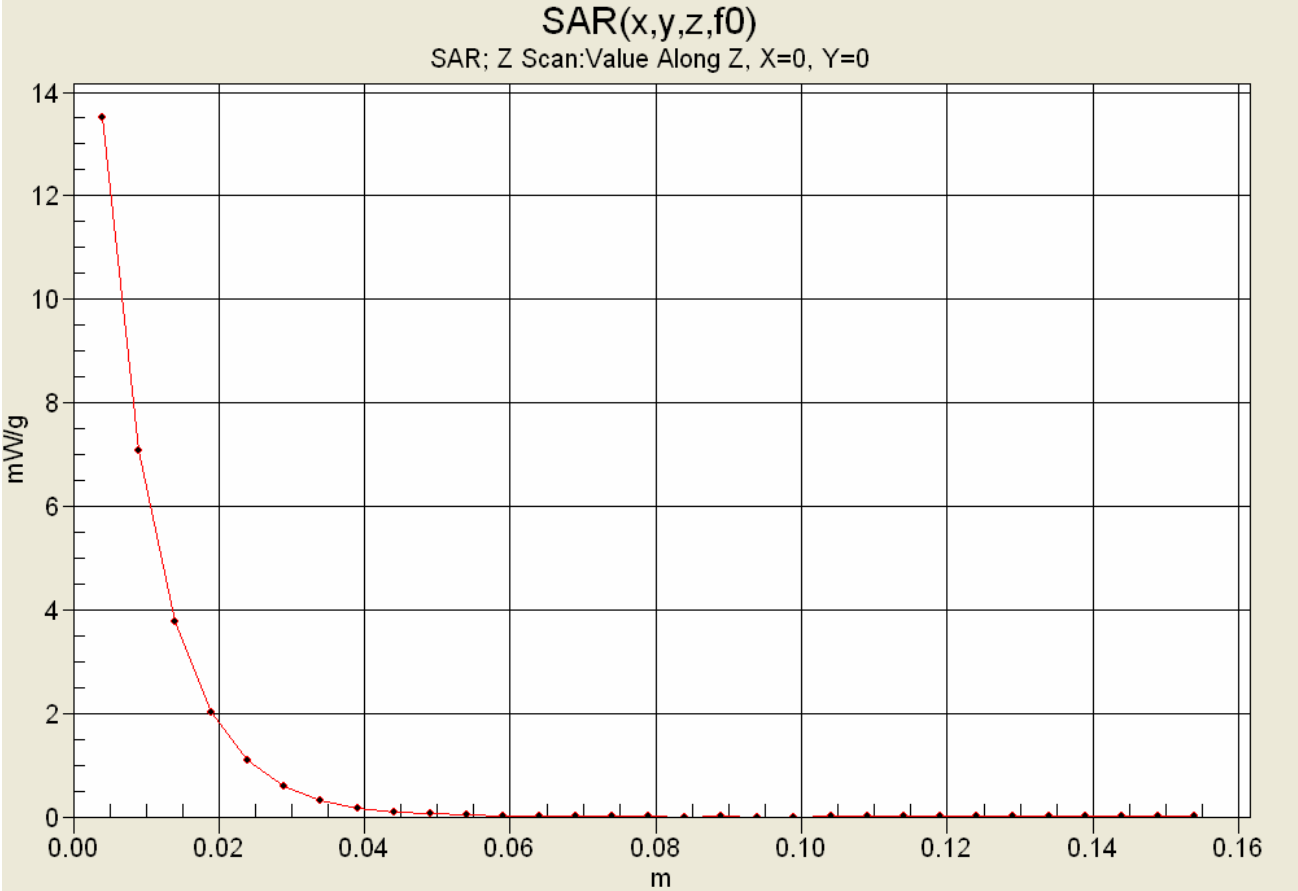
- Probe: EX3DV4 - SN3547; ConvF(7.53, 7.53, 7.53); Calibrated: 14/02/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

2450 MHz Dipole - System Performance Check
Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 14.9 mW/g

2450 MHz Dipole - System Performance Check
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 80.4 V/m; Power Drift = 0.129 dB
Peak SAR (extrapolated) = 28.6 W/kg
SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.22 mW/g
Maximum value of SAR (measured) = 15.6 mW/g



Z-Axis Scan



Date Tested: 10/16/2006

System Performance Check (Body) - 5200 MHz Dipole

DUT: Dipole 5GHz; Model: D5GHzV2; Serial: 1031; Validation: 07/18/2006

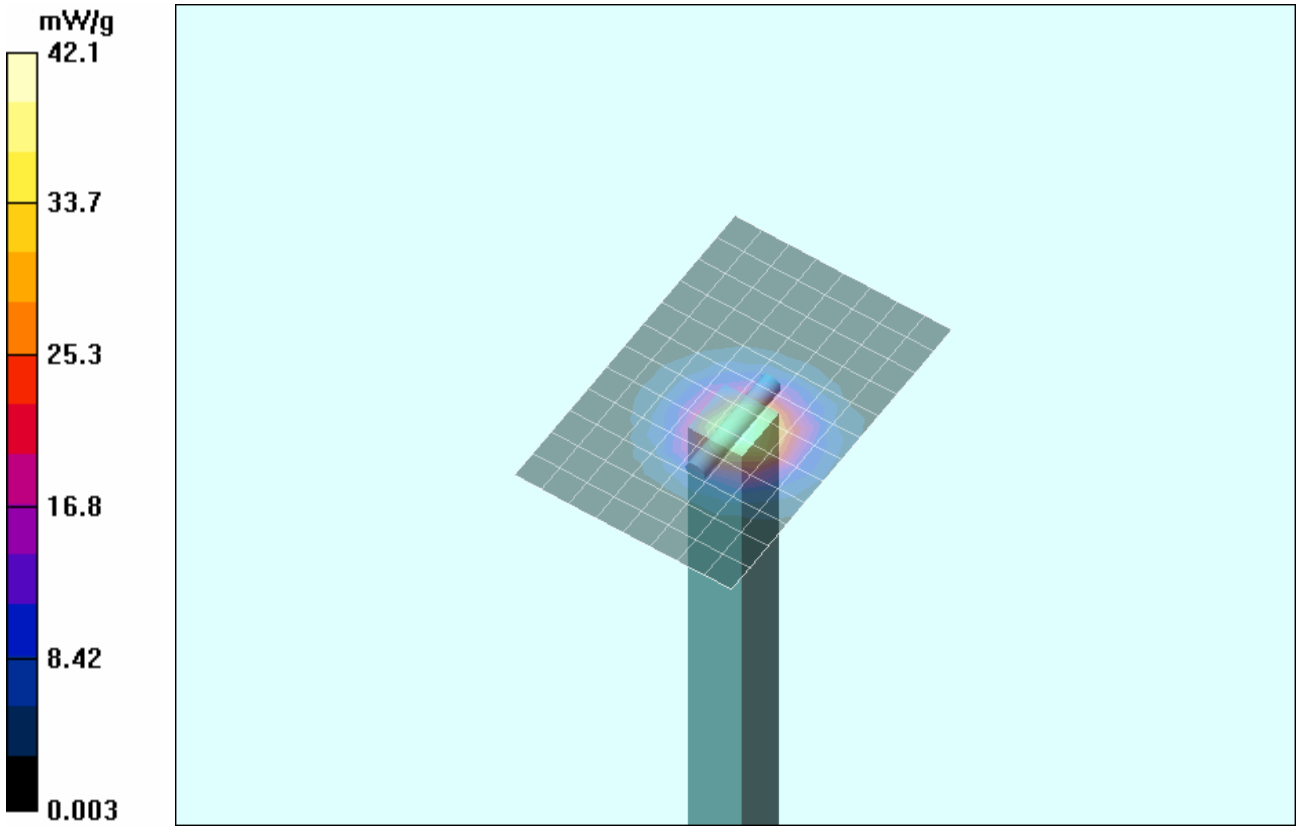
Ambient Temp: 24.2ºC; Fluid Temp: 23.0ºC; Barometric Pressure: 101.1 kPa; Humidity: 32%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5200 MHz; σ = 5.44 mho/m; ε_r = 46.2; ρ = 1000 kg/m^3

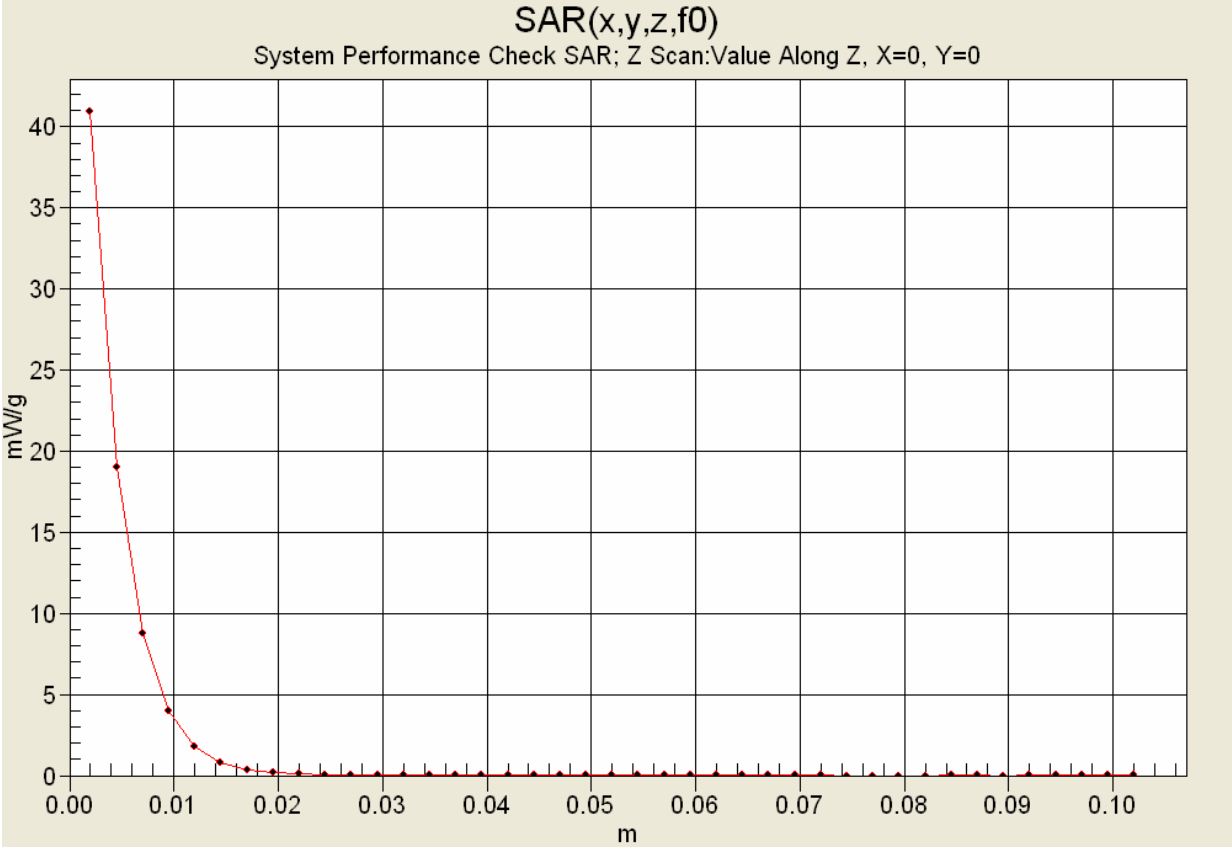
- Probe: EX3DV4 - SN3547; ConvF(4.87, 4.87, 4.87); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5200 MHz Dipole - System Performance Check
Area Scan (9x13x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of SAR (measured) = 40.7 mW/g

5200 MHz Dipole - System Performance Check
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 73.3 V/m; Power Drift = -0.139 dB
Peak SAR (extrapolated) = 81.8 W/kg
SAR(1 g) = 19.7 mW/g; SAR(10 g) = 5.48 mW/g
Maximum value of SAR (measured) = 42.1 mW/g



Z-Axis Scan



Date Tested: 10/16/2006

System Performance Check (Body) - 5800 MHz Dipole

DUT: Dipole 5GHz; Model: D5GHzV2; Serial: 1031; Validation: 07/18/2006

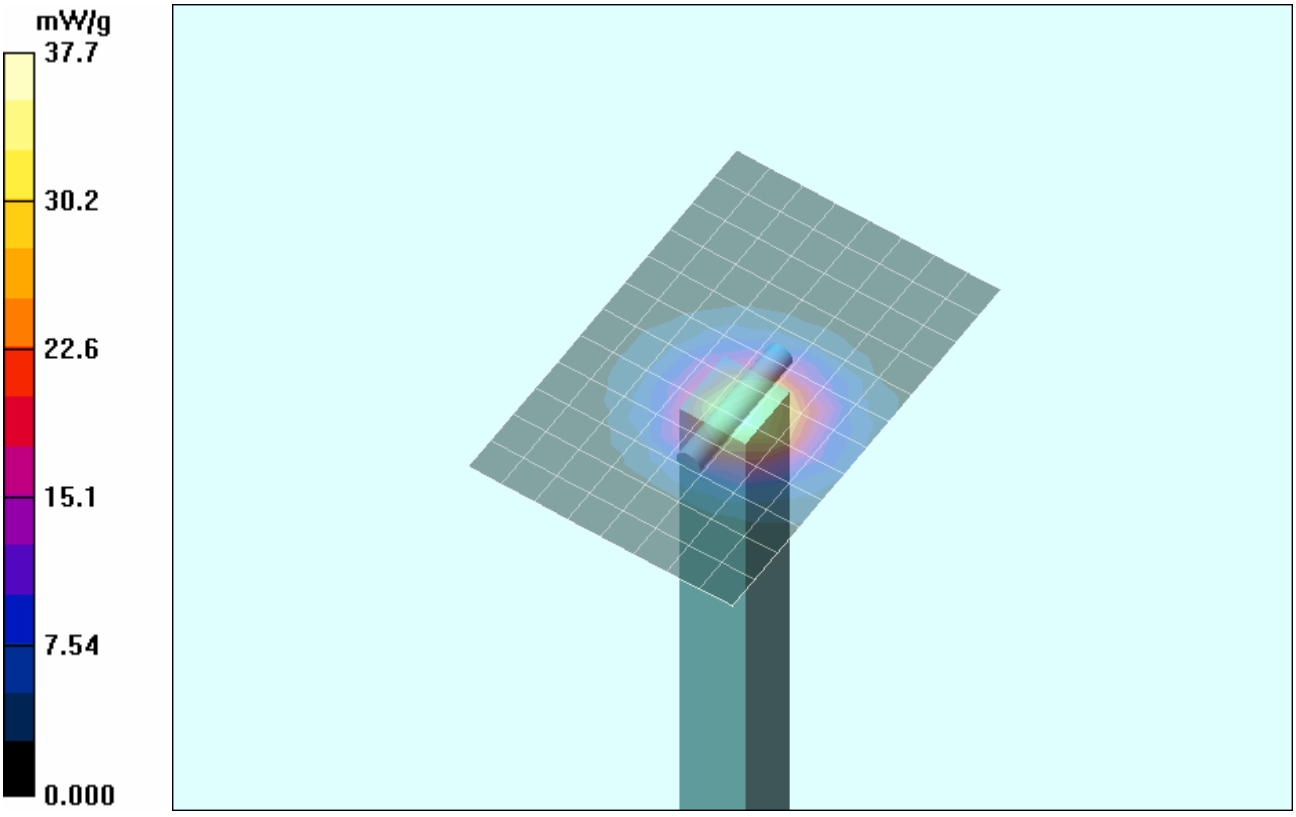
Ambient Temp: 24.2ºC; Fluid Temp: 23.0ºC; Barometric Pressure: 101.1 kPa; Humidity: 32%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5800 MHz; σ = 5.82 mho/m; ε_r = 45.3; ρ = 1000 kg/m^3

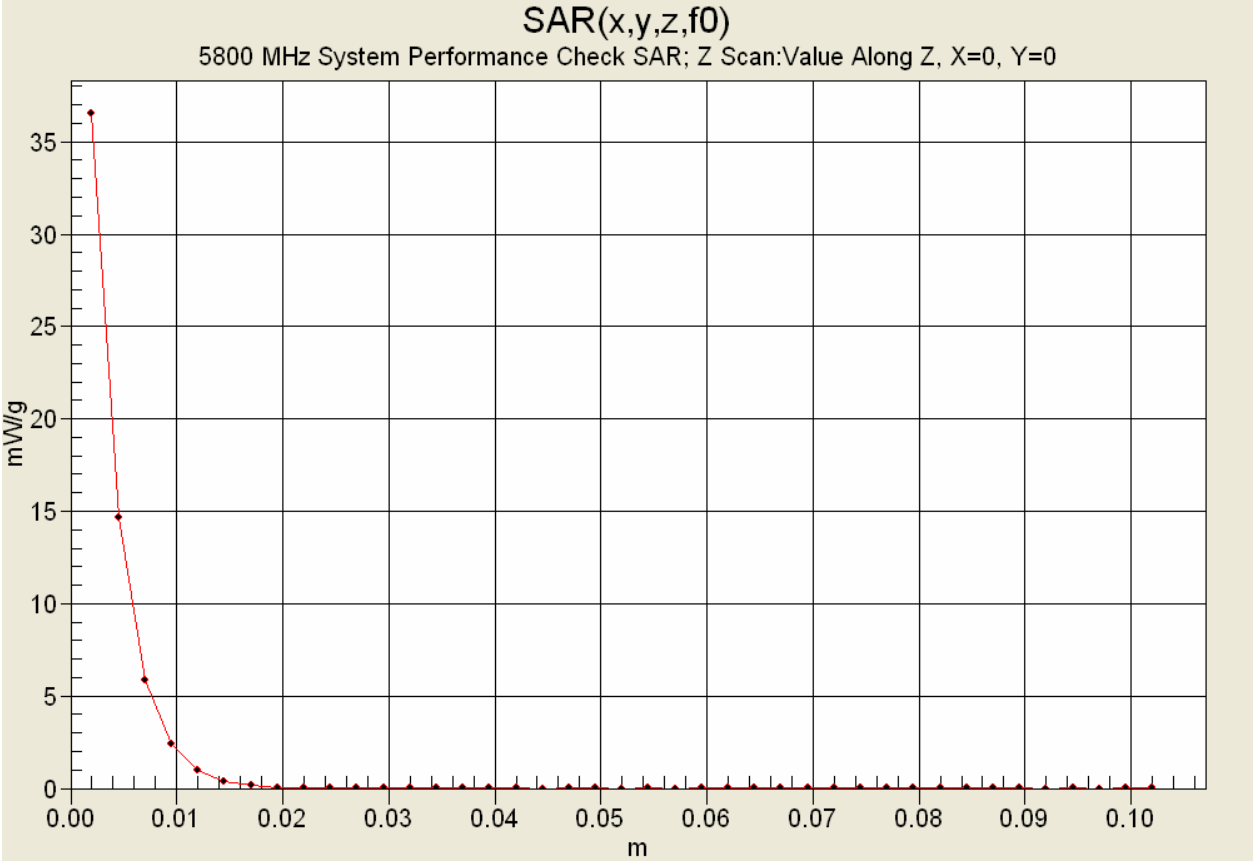
- Probe: EX3DV4 - SN3547; ConvF(4.69, 4.69, 4.69); Calibrated: 14/02/2006
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5800 MHz Dipole - System Performance Check
Area Scan (9x13x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of SAR (measured) = 36.9 mW/g

5800 MHz Dipole - System Performance Check
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 65.0 V/m; Power Drift = -0.146 dB
Peak SAR (extrapolated) = 87.2 W/kg
SAR(1 g) = 17.2 mW/g; SAR(10 g) = 4.71 mW/g
Maximum value of SAR (measured) = 37.7 mW/g



Z-Axis Scan



APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

5200 MHz System Performance Check & 5260 MHz DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 11/Sep/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
5.1600	49.07	5.25	47.38	5.18
5.1700	49.06	5.26	47.53	5.20
5.1800	49.04	5.28	47.36	5.22
5.1900	49.03	5.29	47.49	5.19
5.2000	49.01	5.30	47.48	5.24
5.2100	49.00	5.31	47.34	5.24
5.2200	48.99	5.32	47.45	5.22
5.2300	48.97	5.33	47.37	5.23
5.2400	48.96	5.35	47.35	5.28
5.2500	48.95	5.36	47.38	5.30
5.2600	48.93	5.37	47.36	5.29
5.2700	48.92	5.38	47.50	5.27
5.2800	48.91	5.39	47.31	5.31
5.2900	48.89	5.40	47.30	5.31
5.3000	48.88	5.42	47.19	5.31
5.3100	48.87	5.43	47.48	5.29
5.3200	48.85	5.44	47.19	5.42
5.3300	48.84	5.45	47.23	5.39
5.3400	48.82	5.46	47.34	5.33
5.3500	48.81	5.47	47.34	5.40
5.3600	48.80	5.49	47.50	5.47

5800 MHz System Performance Check & 5785 MHz DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Tue 12/Sep/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
5.7000	48.34	5.88	46.48	5.80
5.7100	48.32	5.89	46.52	5.81
5.7200	48.31	5.91	46.35	5.74
5.7300	48.30	5.92	46.03	5.77
5.7400	48.28	5.93	46.28	5.84
5.7500	48.27	5.94	46.41	5.84
5.7600	48.25	5.95	46.24	5.80
5.7700	48.24	5.96	46.23	5.87
5.7800	48.23	5.98	46.14	5.86
5.7900	48.21	5.99	46.16	5.87
5.8000	48.20	6.00	45.90	5.87
5.8100	48.19	6.01	46.04	5.90
5.8200	48.17	6.02	45.98	5.95
5.8300	48.16	6.04	46.11	5.98
5.8400	48.15	6.05	46.25	5.93
5.8500	48.13	6.06	45.97	5.92
5.8600	48.12	6.07	45.94	6.05
5.8700	48.10	6.08	46.08	5.97
5.8800	48.09	6.09	46.14	5.99
5.8900	48.08	6.11	45.81	5.91
5.9000	48.06	6.12	45.95	5.87

2450 MHz System Performance Check & DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Thu 14/Sep/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
2.3500	52.83	1.85	51.13	1.92
2.3600	52.82	1.86	51.03	1.93
2.3700	52.81	1.87	51.11	1.94
2.3800	52.79	1.88	50.89	1.94
2.3900	52.78	1.89	50.87	1.96
2.4000	52.77	1.90	50.95	1.96
2.4100	52.75	1.91	50.85	1.97
2.4200	52.74	1.92	50.81	1.99
2.4300	52.73	1.93	50.87	2.00
2.4400	52.71	1.94	50.60	2.01
2.4500	52.70	1.95	50.67	2.02
2.4600	52.69	1.96	50.75	2.03
2.4700	52.67	1.98	50.69	2.04
2.4800	52.66	1.99	50.68	2.06
2.4900	52.65	2.01	50.51	2.08
2.5000	52.64	2.02	50.60	2.09
2.5100	52.62	2.04	50.39	2.10
2.5200	52.61	2.05	50.46	2.11
2.5300	52.60	2.06	50.56	2.12
2.5400	52.59	2.08	50.47	2.14
2.5500	52.57	2.09	50.54	2.17

5200 MHz System Performance Check & 5260 MHz DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Fri 22/Sep/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
5.1000	49.15	5.18	46.98	5.16
5.1100	49.14	5.19	47.00	5.10
5.1200	49.12	5.21	47.34	5.20
5.1300	49.11	5.22	47.10	5.17
5.1400	49.10	5.23	47.10	5.16
5.1500	49.08	5.24	47.13	5.21
5.1600	49.07	5.25	47.04	5.22
5.1700	49.06	5.26	46.82	5.23
5.1800	49.04	5.28	47.09	5.19
5.1900	49.03	5.29	47.04	5.25
5.2000	49.01	5.30	46.76	5.27
5.2100	49.00	5.31	46.94	5.30
5.2200	48.99	5.32	46.83	5.24
5.2300	48.97	5.33	47.02	5.27
5.2400	48.96	5.35	46.75	5.27
5.2500	48.95	5.36	46.71	5.30
5.2600	48.93	5.37	46.82	5.33
5.2700	48.92	5.38	46.60	5.29
5.2800	48.91	5.39	46.67	5.33
5.2900	48.89	5.40	46.71	5.36
5.3000	48.88	5.42	46.62	5.34

5800 MHz System Performance Check & 5785 DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Fri 22/Sep/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
5.7000	48.34	5.88	46.32	5.85
5.7100	48.32	5.89	46.55	5.90
5.7200	48.31	5.91	46.45	5.84
5.7300	48.30	5.92	46.52	5.93
5.7400	48.28	5.93	46.47	5.88
5.7500	48.27	5.94	46.48	5.81
5.7600	48.25	5.95	46.26	5.98
5.7700	48.24	5.96	46.26	6.00
5.7800	48.23	5.98	46.33	6.01
5.7900	48.21	5.99	46.51	5.98
5.8000	48.20	6.00	46.47	5.87
5.8100	48.19	6.01	46.03	5.90
5.8200	48.17	6.02	46.14	6.03
5.8300	48.16	6.04	45.99	6.05
5.8400	48.15	6.05	46.24	6.02
5.8500	48.13	6.06	45.95	6.11
5.8600	48.12	6.07	46.39	6.07
5.8700	48.10	6.08	46.00	6.13
5.8800	48.09	6.09	45.82	6.06
5.8900	48.08	6.11	46.04	6.18
5.9000	48.06	6.12	46.24	6.09

2450 MHz System Performance Check & DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 25/Sep/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
2.3500	52.83	1.85	51.67	1.92
2.3600	52.82	1.86	51.66	1.92
2.3700	52.81	1.87	51.49	1.95
2.3800	52.79	1.88	51.54	1.96
2.3900	52.78	1.89	51.52	1.96
2.4000	52.77	1.90	51.39	1.97
2.4100	52.75	1.91	51.41	1.99
2.4200	52.74	1.92	51.34	2.01
2.4300	52.73	1.93	51.46	2.01
2.4400	52.71	1.94	51.38	2.03
2.4500	52.70	1.95	51.39	2.03
2.4600	52.69	1.96	51.28	2.05
2.4700	52.67	1.98	51.33	2.07
2.4800	52.66	1.99	51.24	2.07
2.4900	52.65	2.01	51.03	2.09
2.5000	52.64	2.02	51.07	2.09
2.5100	52.62	2.04	51.16	2.10
2.5200	52.61	2.05	51.05	2.13
2.5300	52.60	2.06	51.03	2.14
2.5400	52.59	2.08	50.98	2.16
2.5500	52.57	2.09	50.96	2.18

5200 MHz System Performance Check & 5180 / 5260 MHz DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 16/Oct/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
5.1000	49.15	5.18	45.78	5.17
5.1100	49.14	5.19	45.84	5.17
5.1200	49.12	5.21	46.07	5.22
5.1300	49.11	5.22	46.27	5.26
5.1400	49.10	5.23	45.85	5.27
5.1500	49.08	5.24	45.99	5.29
5.1600	49.07	5.25	46.07	5.32
5.1700	49.06	5.26	46.09	5.29
5.1800	49.04	5.28	45.95	5.35
5.1900	49.03	5.29	46.17	5.40
5.2000	49.01	5.30	46.16	5.44
5.2100	49.00	5.31	46.34	5.39
5.2200	48.99	5.32	46.24	5.41
5.2300	48.97	5.33	46.40	5.45
5.2400	48.96	5.35	46.24	5.46
5.2500	48.95	5.36	46.27	5.53
5.2600	48.93	5.37	46.42	5.52
5.2700	48.92	5.38	46.37	5.51
5.2800	48.91	5.39	46.30	5.54
5.2900	48.89	5.40	46.39	5.54
5.3000	48.88	5.42	46.45	5.57

5800 MHz System Performance Check & 5785 MHz DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
Mon 16/Oct/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
5.7000	48.34	5.88	45.32	5.63
5.7100	48.32	5.89	45.56	5.71
5.7200	48.31	5.91	45.49	5.69
5.7300	48.30	5.92	45.45	5.77
5.7400	48.28	5.93	45.33	5.69
5.7500	48.27	5.94	45.49	5.76
5.7600	48.25	5.95	45.37	5.72
5.7700	48.24	5.96	45.28	5.78
5.7800	48.23	5.98	45.26	5.79
5.7900	48.21	5.99	45.06	5.74
5.8000	48.20	6.00	45.30	5.82
5.8100	48.19	6.01	45.41	5.76
5.8200	48.17	6.02	45.05	5.85
5.8300	48.16	6.04	45.28	5.90
5.8400	48.15	6.05	45.00	5.78
5.8500	48.13	6.06	45.18	5.89
5.8600	48.12	6.07	45.30	5.88
5.8700	48.10	6.08	45.23	5.89
5.8800	48.09	6.09	45.10	5.84
5.8900	48.08	6.11	45.02	5.88
5.9000	48.06	6.12	44.87	5.95

APPENDIX D - MANUFACTURER'S TISSUE SIMULANT DATA SHEET

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Material Safety Data Sheet

1 Identification of the substance and of the manufacturer / origin

Item	Head Tissue Simulation Liquid HSL5800 Muscle Tissue Simulation Liquid MSL 5800
Type No	SL AAH 580, SL AAM 580
Series No	N/A
Manufacturer / Origin	Schmid & Partner Engineering AG Zeughausstrasse 43 8004 Zürich Switzerland Phone +41 1 245 9700, Fax +41 1 245 9779, support@speag.com

Use of the substance:
Liquid simulating physical parameters of Head or Muscle Tissue in the RF range to 6GHz.

2 Composition / Information on ingredients

The Item is composed of the following ingredients:

Water	64 - 78%
Mineral Oil	11 - 18%
Emulsifiers	9 - 15%
Additives and Salt	2 - 3%

Safety relevant ingredients according to EU directives:

CAS-No 107-41-5	< 4%	2-Methyl-2,4-pentandiol (Hexylene Glycol): Xi irritant, R36/38 irritant for eyes and skin
CAS-No 770-35-4	< 2%	1-Phenoxy-2-propanol (Propylene Glycol Phenyl Ether): Xi irritant, R36 irritant for eyes
CAS-No 93-83-4	< 2%	N,N-bis(2-Hydroxyethyl)oleamide: Xi irritant, R36/38 irritant for eyes and skin
CAS-No 9004-95-9	< 0.5%	Polyethylene glycol cetyl ether: Xi irritant, R22 harmful if swallowed, R36/38 irritant for eyes and skin R50 Very toxic to aquatic organisms

According to EU guidelines and Swiss rules, the product is not a dangerous mixture and therefore not required to be marked by symbols.

3 Hazards identification

Identification not required.

4 First aid measures

The product reacts slightly alkaline.

After skin contact:	Wash with fresh water and mild sope
After eye contact:	Rinse out with plenty of water for several minutes with the eyelid held open. Consult an ophthalmologist if necessary.
After ingestion:	Do not induce vomiting. Get medical attention.

5 Fire-fighting measures

Firefighting media	CO2, foam, dry chemical
Combustion products	Carbon oxides, nitrogen and traces of oxides of chlorine and sulfur, HCl

Due to the high water content, the liquid is self-extinguishing.

6 Accidental release measures

Person-related precaution measures: wash with water and mild soap.
Environmental-protection measures: do not allow to enter sewerage system.
Procedures for cleaning / absorption: Use oil-binding agents., forward for disposal. Spills may cause slippery conditions.

7 Handling and storage

Handling: Keep in open container only for minimum required time in order to avoid water evaporation.
Storage: tightly closed, between >0 to 40°C. Avoid direct solar irradiation of the storage containers.

8 Exposure controls / personal protection

Protection measures are not generally required. For eye protection, industrial safety glasses are recommended.
Personal hygiene and clean working practices are sufficient.

9 Physical and chemical properties

Form:	liquid
Colour:	medium to dark brown, transparent to opaque
Odour:	almost odourless / slightly oily
pH-Value:	slightly alcalic
Boiling point:	100°C
Density:	1g/cm^3

10 Stability and reactivity

Conditions to be avoided: heating above 40°C
The product contains water and is not compatible with strong oxidizers or magnesium.

11 Toxicological information

LD50 > 40 g/kg
Further data: the product should be handled with the care usual when dealing with chemicals

12 Ecological information

Contains mineral oil. Do not allow to enter waters, waste water, or soil!

13 Disposal considerations

Disposal is possible by splitting the mineral oil from the emulsion with absorbing agents, with salt or ultra-filtration. Dispose as other mineral oil containing products according to local regulations.
Product packing must be disposed of in compliance with respect national regulations.

14 Transport information

Not subject to transport regulations.

15 Regulatory information

No special labelling required.

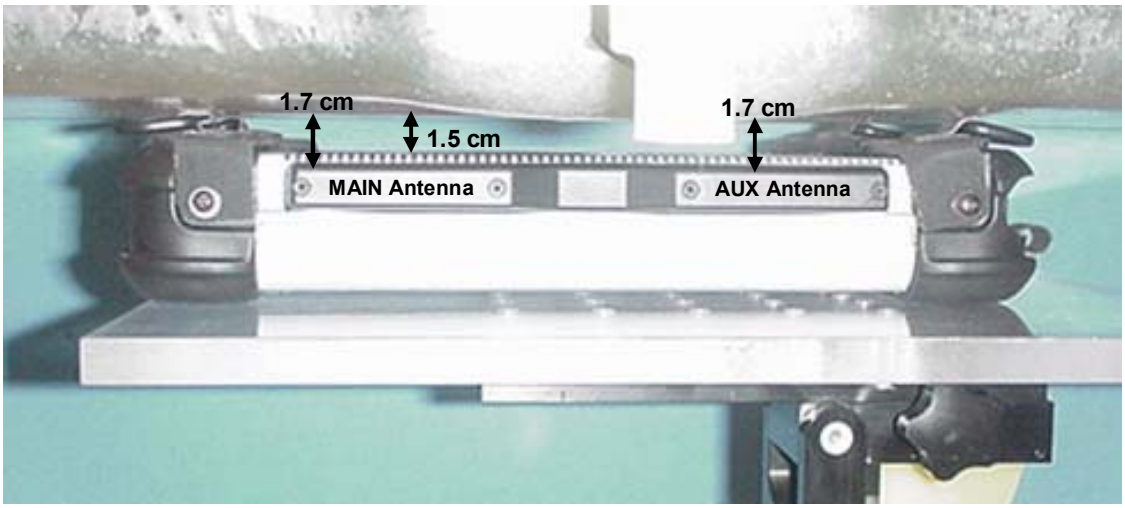
16 Other information

Release date:	6.1.2005
Responsible:	FB

APPENDIX E - SAR TEST SETUP PHOTOGRAPHS

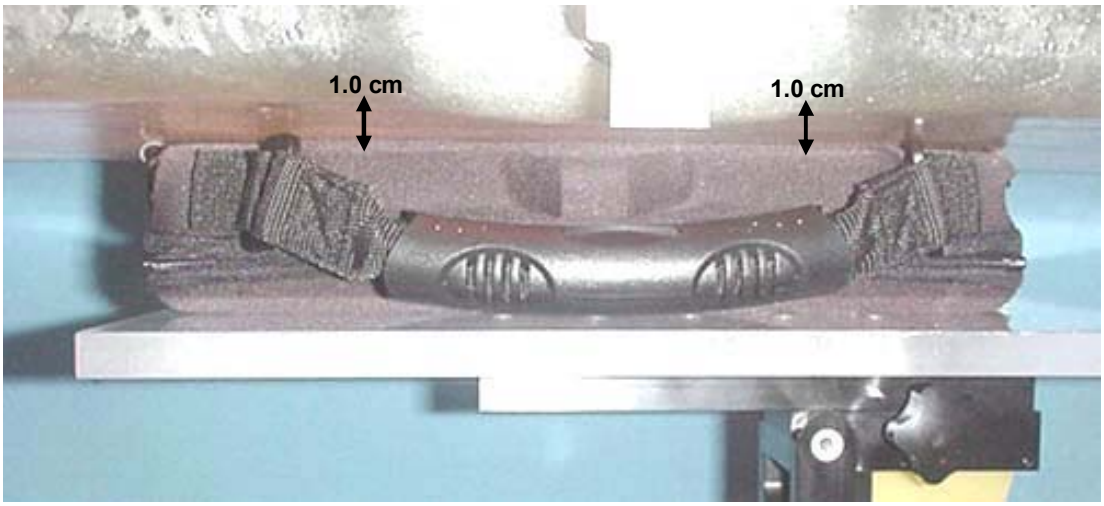
BODY SAR TEST SETUP PHOTOGRAPHS

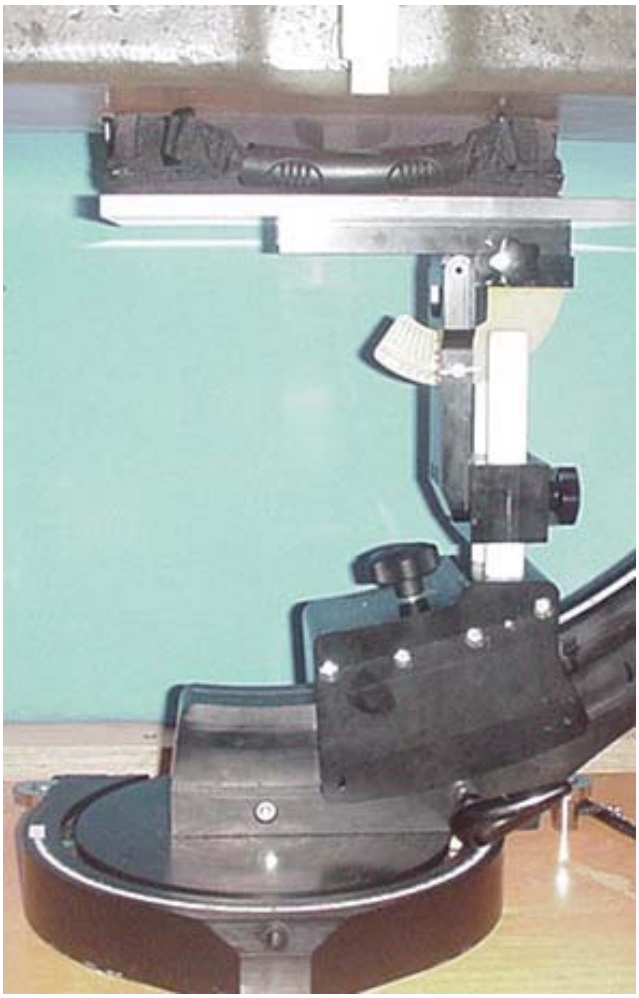
Bottom Touch Position (1.5 cm Gap from Bottom Side of LCD Display to Planar Phantom)
(1.7 cm Gap from MAIN/AUX Switched Diversity Antennas to Planar Phantom)
Hammerhead Tablet PC (Magnesium Housing with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings)



BODY SAR TEST SETUP PHOTOGRAPHS

Bottom Touch Position (0.8 cm Gap from Bottom Side of LCD Display to Planar Phantom)
(1.0 cm Gap from MAIN/AUX Switched Diversity Antennas to Planar Phantom)
Hammerhead X^{TREME} Tablet PC (Aluminum Housing with Fixed Nylon Case & Plastic D-Rings)





DUT PHOTOGRAPHS

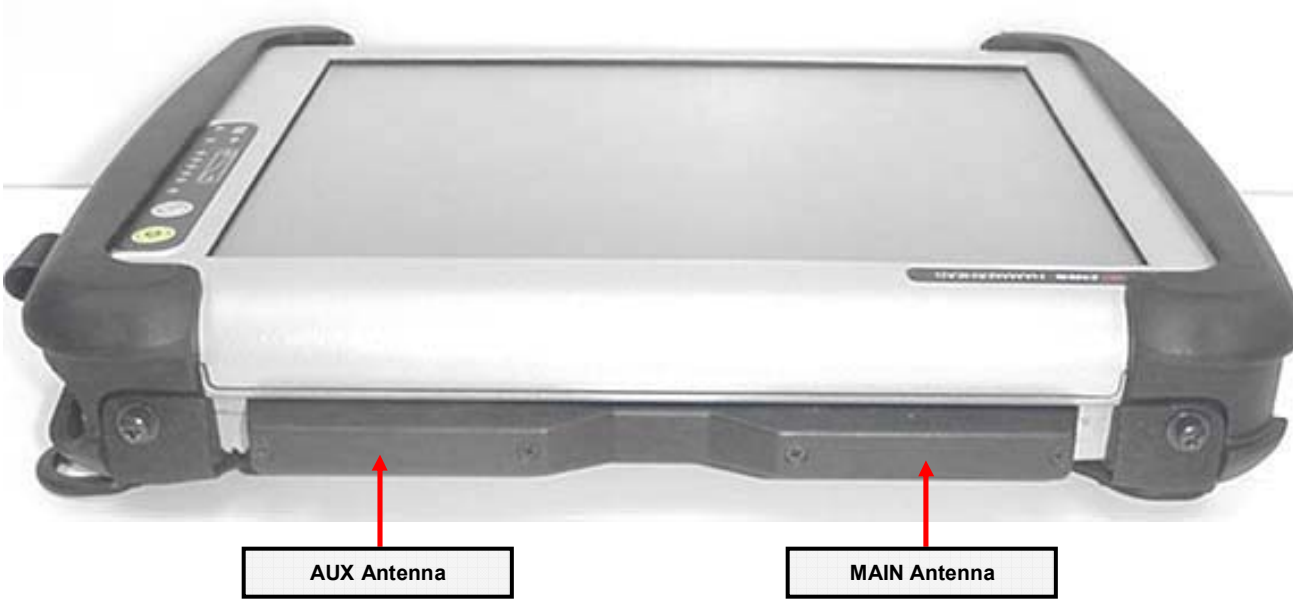
Hammerhead Tablet PC (Magnesium Housing with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings)

Top Side of DUT ("0 Degrees Landscape" LCD Display User Orientation)

Bottom Side of DUT (Bottom Side of LCD Display)

DUT PHOTOGRAPHS

Hammerhead Tablet PC (Magnesium Housing with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings)



"0 Degrees Landscape" LCD Display User Orientation

DUT PHOTOGRAPHS

Hammerhead Tablet PC (Magnesium Housing with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings)

Right Side of DUT

Left Side of DUT

DUT PHOTOGRAPHS

Hammerhead Tablet PC (Magnesium Housing with Rubber Bumpers, Nylon Hand-Strap & Plastic D-Rings)

DUT Dual Battery Compartments

Dual Li-ion Batteries (P/N: 020110-03)

DUT PHOTOGRAPHS

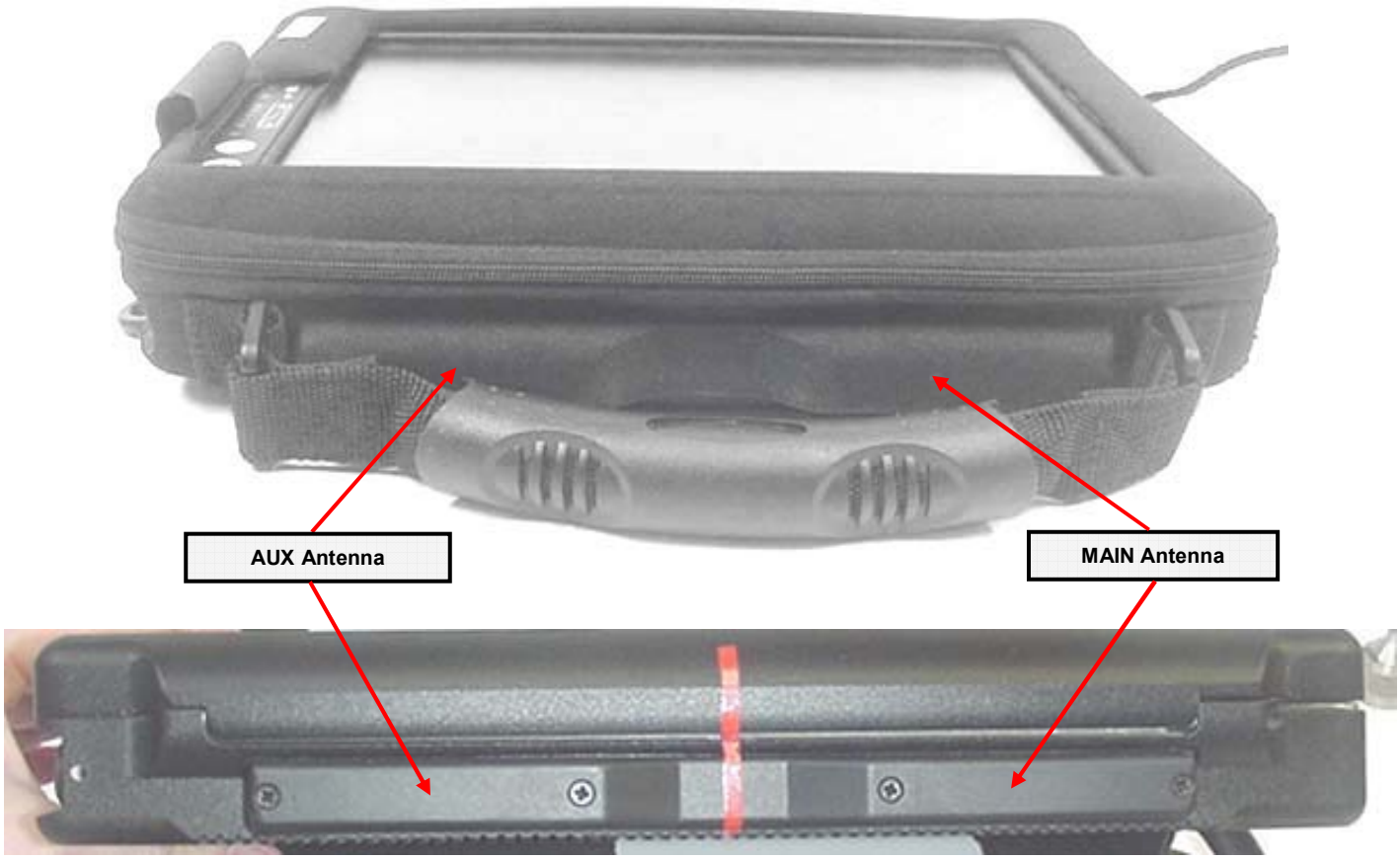
Hammerhead X^{TREME} Tablet PC (Aluminum Housing with Fixed Nylon Case & Plastic D-Rings)

Top Side of DUT ("0 Degrees Landscape" LCD Display User Orientation)

Bottom Side of DUT (Bottom Side of LCD Display)

DUT PHOTOGRAPHS

Hammerhead X^{TREME} Tablet PC (Aluminum Housing with Fixed Nylon Case & Plastic D-Rings)



"0 Degrees Landscape" LCD Display User Orientation

DUT PHOTOGRAPHS

Hammerhead X^{TREME} Tablet PC (Aluminum Housing with Fixed Nylon Case & Plastic D-Rings)

Left Side of DUT

Right Side of DUT

DUT PHOTOGRAPHS

Hammerhead X^{TREME} Tablet PC (Aluminum Housing with Fixed Nylon Case & Plastic D-Rings)

DUT Dual Battery Compartments

Dual Li-ion Batteries (P/N: 020110-03)

APPENDIX H - PLANAR PHANTOM CERTIFICATE OF CONFORMITY

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

BARSKI INDUSTRIES (1985) LTD.

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

FIBERGLASS FABRICATORS

Certificate of Conformity

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

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

Conformity

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

Signature: _____

Daniel Chailler

Fiberglass Planar Phantom - Top View

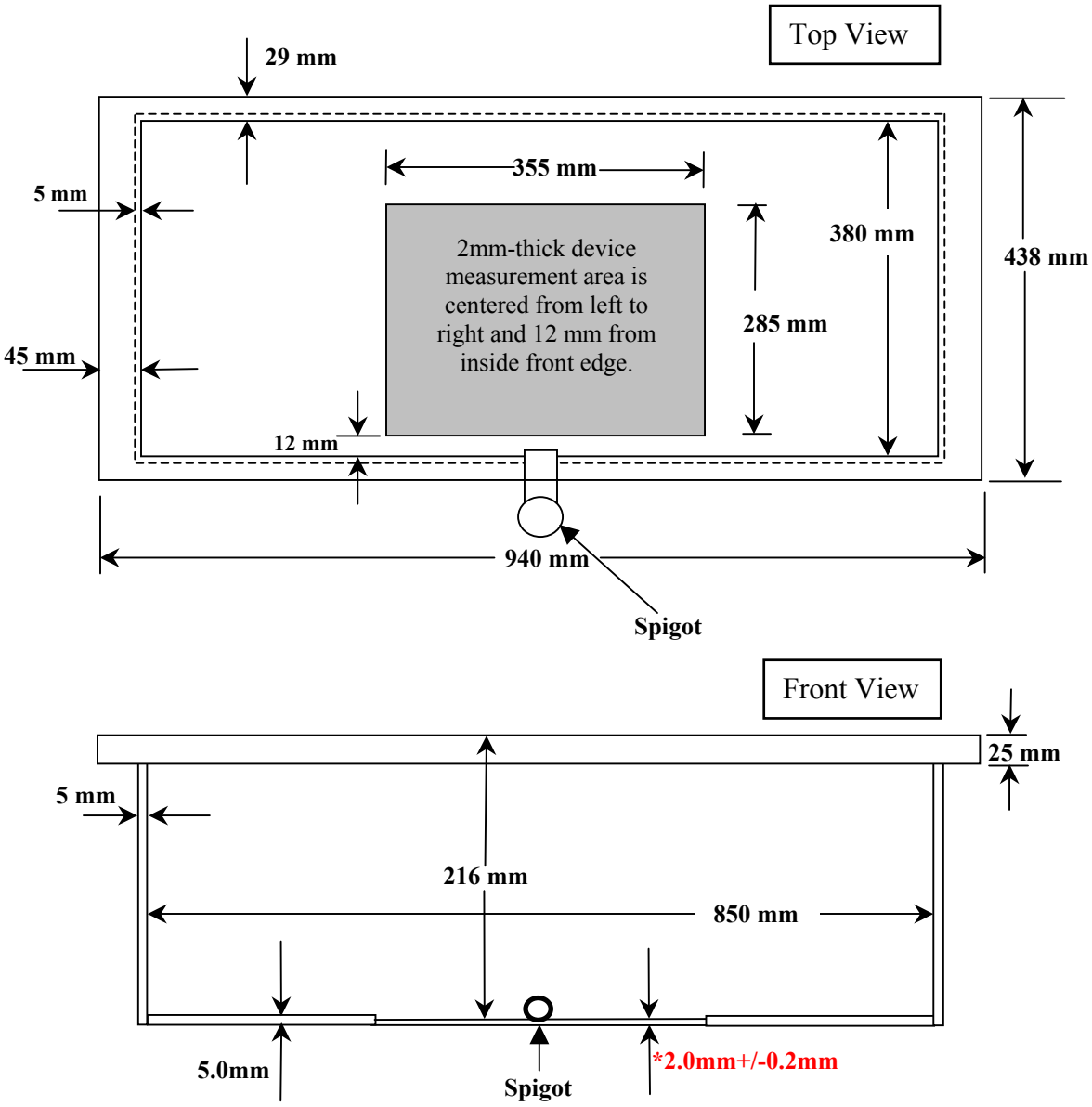
Fiberglass Planar Phantom - Front View

Fiberglass Planar Phantom - Back View

Fiberglass Planar Phantom - Bottom View

Dimensions of Fiberglass Planar Phantom

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



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