DECLARATION OF COMPLIANCE		SAR RF EXPOSURE EVALUATION				FCC & IC
Test Lab Information	**Name**	**CELLTECH LABS INC.**				
	Address	21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada				
Test Lab Accreditation(s)	**ISO 17025**	A2LA Test Lab Certificate No. 2470.01				
Applicant Information	**Name**	**SEPURA PLC**				
	Address	Radio House, St. Andrews Road, Cambridge, UK, GB4 1RG				
Standard(s) Applied	**FCC**	47 CFR §2.1093				
	IC	Health Canada Safety Code 6				
Procedure(s) Applied	**FCC**	KDB 447498 D01v05r01, 643646 D01 V01R01		**IEEE**	1528-2003	
	IC	RSS-102 Issue 4		**IEC**	62209-1:2005;	
Device Classification(s)	**FCC**	Licensed Non-Broadcast Transmitter Held to Face (TNF) - FCC Part 90				
	IC	Land Mobile Radio Transmitter/Receiver (27.41-960 MHz) - RSS-119				
Device Identifier(s)	**FCC ID:**	STP9040: XX6STP9040 STP9240: XX6STP9240		**IC:**	STP9040: 8739A-STP9040 STP9240: 8739A-STP9240	
Date of Sample Receipt	Oct 17, 2013					
Dates of Evaluation	Oct 18-23, 2013					
Device Description	Portable Tetra Radio Transceiver					
Device Model(s)	Model: STP9040	450-470MHz, w/ Colour LCD, numeric keys and Bluetooth				
	Model: STP9240	407-430MHz, w/ Mono LCD and reduced keys				
	Note: Manufacturer states that model variants are electrically and mechanically identical other than the differences stated.					
Test Sample Serial No.(s)	STP9040 - S/N: 1PR101324G803LZ			STP9240 - S/N: 1PR301328G108W		
Test Sample Revision No.s	STP9040 – HW Rev: PSYUW001T300N0001			STP9240 – HW Rev: PSLUW001T300N0001		
Transmit Frequency Range(s)	STP9040 – 450-470 MHz			STP9240 – 407-430 MHz		
Manufacturer's Rated Output Power	32.5 dBm (peak); 26.4dBm (1 slot, ~24% duty cycle); max duty cycle = 1 slot = 24%					
Co-located Transmitter(s)	Bluetooth (STP9040 Only)					
Antenna Type(s) Tested	P/N 300-00663 (STP9040 450 – 470MHz)			P/N 300-00662 (STP9240 407 – 430MHz)		
Battery Type(s) Tested	P/N 300-00364 Li-Polymer (7.4V, 1280mAh)			P/N 300-00365 Li-Polymer (7.4V, 1880mAh)		
Max. SAR Level(s) Evaluated	FCC	Held-to-Ear	**3.35 W/kg**	1g	Occupational / Controlled Exposure	
	IC	Held-to-Ear	**3.63 W/kg**	1g	Occupational / Controlled Exposure	
FCC/IC Spatial Peak SAR Limit	FCC/IC	Head/Body	8.0 W/kg	1g	Occupational / Controlled Exposure	

Celltech Labs Inc. declares under its sole responsibility that this wireless portable device has demonstrated compliance with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada Safety Code 6 for the Occupational / Controlled Exposure environment. The device was tested in accordance with the measurement procedures specified in FCC KDB 865664, Industry Canada RSS-102 Issue 4, IEEE Standard 1528-2003. All measurements were performed in accordance with the SAR system manufacturer recommendations.

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

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

Test Report Approved By		Mike Meaker	Engineering Technologist	Celltech Labs Inc.

TABLE OF CONTENTS

REVISION HISTORY			
REVISION NO.	**DESCRIPTION**	**IMPLEMENTED BY**	**RELEASE DATE**
1.0	1st Release	Mike Meaker	Nov 5, 2013

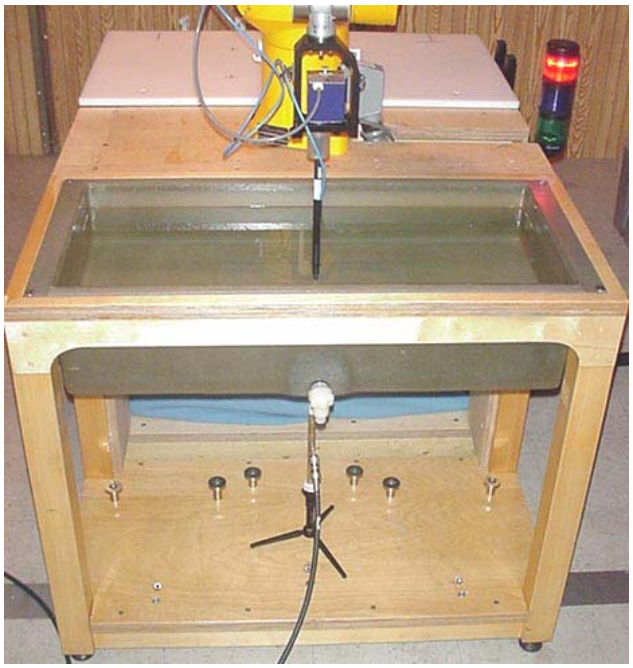
TEST REPORT SIGN-OFF			
DEVICE TESTED BY	**REPORT PREPARED BY**	**QA REVIEW BY**	**REPORT APPROVED BY**
Mike Meaker	Art Voss	Glen Westwell	Mike Meaker

1.0 INTRODUCTION

This measurement report demonstrates that the Sepura Models: STP9040 and STP9240 Portable TETRA Radio Transceivers comply with the SAR (Specific Absorption Rate) RF exposure requirements specified in FCC 47 CFR §2.1093 (see reference [1]) and Health Canada's Safety Code 6 (see reference [2]) for the Occupational / Controlled Exposure environment. The measurement procedures described in FCC KDB 865664 (see reference [3]), IC RSS-102 Issue 4 (see reference [4]), IEEE Standard 1528-2003 (see reference [5]) were employed. A description of the device, operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used and the various provisions of the rules are included within this test report.

2.0 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 head 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 a controller with a built in VME-bus computer.



DASY4 SAR System with Barski Fiberglas Planar Phantom

DASY4 Measurement Server

3.0 RF CONDUCTED OUTPUT POWER MEASUREMENTS

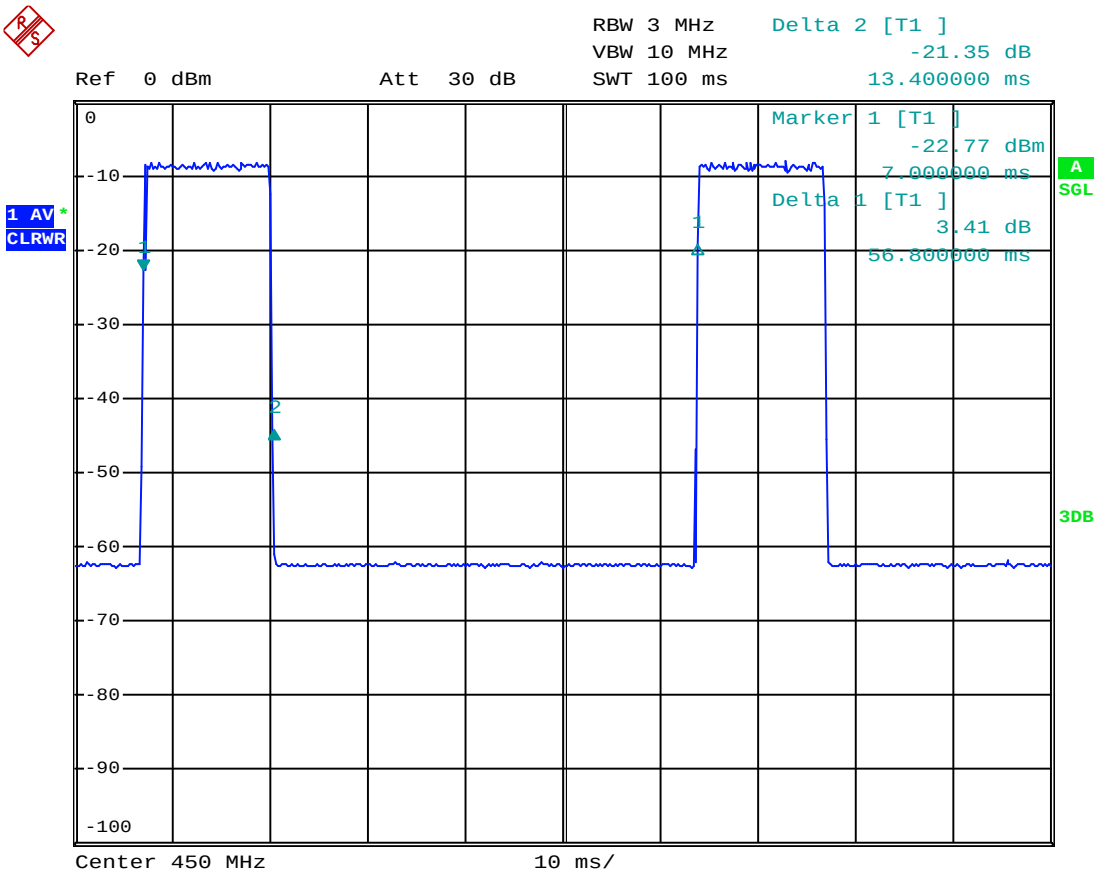
MEASURED RF CONDUCTED OUTPUT POWER LEVELS

Test Freq.	Mode	STP9240		STP9040		Method
		mW	dBm	mW	dBm	
407	TETRA 1 slot 24% d/c	-	-	405	26.0	Average Conducted
418.5		-	-	390	25.9	
430		-	-	423	26.2	
450		408	26.1	-	-	
460		410	26.1	-	-	
470		410	26.1	-	-	

Notes

1. The test channels were selected in accordance with the procedures specified in FCC KDB 447498 (see reference [6]).

2. The RF conducted output power levels of the DUT were measured by Celltech Labs prior to the SAR evaluations using a Gigatronics 8652A Universal Power Meter at the external antenna connector of the radio in accordance with requirements of FCC 47 CFR §2.1046 (see reference [8]) and IC RSS-Gen (see reference [9]).



Max duty cycle measurement: 1 time slot = 24%

4.0 NO. OF TEST CHANNELS (N_c)

Antenna Part No.		Antenna Type	Antenna Freq. Range	N_c	Test Frequencies (MHz)
1	300-00662	Stub	407 - 430 MHz	3	407, 418.5, 430
2	300-00663	Stub	450 - 470 MHz	3	450, 460, 470
Note: The number of test channels (*Nc*) were calculated in accordance with the procedures specified in FCC KDB 447498 (see reference [8]).					

5.0 FLUID DIELECTRIC PARAMETERS

FLUID DIELECTRIC PARAMETERS

Date: 10/18/2013		Frequency: 450 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.350	46.74	0.78	43.5	0.87	7.45%	-10.34%
0.360	46.84	0.8	43.5	0.87	7.68%	-8.05%
0.370	45.54	0.81	43.5	0.87	4.69%	-6.90%
0.380	45.83	0.8	43.5	0.87	5.36%	-8.05%
0.390	45.53	0.81	43.5	0.87	4.67%	-6.90%
0.400	45.44	0.82	43.5	0.87	4.46%	-5.75%
0.410	44.27	0.82	43.5	0.87	1.77%	-5.75%
0.420	44.44	0.84	43.5	0.87	2.16%	-3.45%
0.430	44.68	0.85	43.5	0.87	2.71%	-2.30%
0.440	44.67	0.87	43.5	0.87	2.69%	0.00%
0.450	44.63	0.87	43.5	0.87	2.60%	0.00%
0.460	43.67	0.88	43.5	0.87	0.39%	1.15%
0.470	43.97	0.88	43.5	0.87	1.08%	1.15%
0.480	43.86	0.89	43.5	0.87	0.83%	2.30%
0.490	43.65	0.9	43.5	0.87	0.34%	3.45%
0.500	43.31	0.89	43.5	0.87	-0.44%	2.30%
0.510	43.19	0.92	43.5	0.87	-0.71%	5.75%
0.520	42.6	0.94	43.5	0.87	-2.07%	8.05%
0.530	42.95	0.93	43.5	0.87	-1.26%	6.90%
0.540	42.47	0.94	43.5	0.87	-2.37%	8.05%
0.550	42.64	0.96	43.5	0.87	-1.98%	10.34%

**interpolated using DASY4 software*

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct. 18	450 Head	23°C	20.9°C	≥ 15 cm	102.9 kPa	30%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/22/2013		Frequency: 450 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.350	45.92	0.78	43.5	0.87	5.56%	-10.34%
0.360	46.55	0.8	43.5	0.87	7.01%	-8.05%
0.370	45.68	0.81	43.5	0.87	5.01%	-6.90%
0.380	45.52	0.82	43.5	0.87	4.64%	-5.75%
0.390	45.15	0.82	43.5	0.87	3.79%	-5.75%
0.400	45.66	0.83	43.5	0.87	4.97%	-4.60%
0.407*	45.1	0.83	43.5	0.87	3.68%	-4.60%
0.410	44.85	0.83	43.5	0.87	3.10%	-4.60%
0.4185*	44.7	0.847	43.5	0.87	2.76%	-2.64%
0.420	44.64	0.85	43.5	0.87	2.62%	-2.30%
0.430	44.77	0.87	43.5	0.87	2.92%	0.00%
0.440	44.86	0.87	43.5	0.87	3.13%	0.00%
0.450	44.02	0.88	43.5	0.87	1.20%	1.15%
0.460	43.89	0.91	43.5	0.87	0.90%	4.60%
0.470	43.63	0.9	43.5	0.87	0.30%	3.45%
0.480	43.43	0.9	43.5	0.87	-0.16%	3.45%
0.490	43.24	0.91	43.5	0.87	-0.60%	4.60%
0.500	42.76	0.92	43.5	0.87	-1.70%	5.75%
0.510	43.38	0.93	43.5	0.87	-0.28%	6.90%
0.520	42.84	0.94	43.5	0.87	-1.52%	8.05%
0.530	42.61	0.94	43.5	0.87	-2.05%	8.05%
0.540	42.31	0.96	43.5	0.87	-2.74%	10.34%
0.550	42.7	0.98	43.5	0.87	-1.84%	12.64%

**interpolated using DASY4 software*

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 22	450 Head	22°C	21.1°C	≥ 15 cm	102.4 kPa	32%	1000
Oct 23	450 Head	22°C	20.8°C	≥ 15 cm	102.4 kPa	34%	1000

6.0 SAR MEASUREMENT SUMMARY

Table 1 — SAR EVALUATION RESULTS

Test Config.	Plot #	Model Variant	Test Freq.	Battery	Antenna	Position	DUT Power Before Test	Measured SAR	SAR Drift During Test
			MHz				dBm	1g (W/kg)	dB
EAR	E1	STP9040	460	-00635	-00663	Left Ear Touch	26.1	1.98	0.325
	E2	STP9040	460	-00635	-00663	Left Ear Tilt	26.1	2.57	0.349
	E3	STP9040	460	-00635	-00663	Right Ear Touch	26.1	1.68	-0.628
	E4	STP9040	460	-00635	-00663	Right Ear Tilt	26.1	2.07	-0.558
	E5	STP9040	450	-00635	-00663	Left Ear Tilt	26.1	**3.02**	0.237
	E6	STP9040	470	-00635	-00663	Left Ear Tilt	26.1	2.14	0.421
	E7	STP9040	450	-00634	-00663	Left Ear Tilt	26.1	2.97	-0.436
	E8	STP9240	430	-00635	-00662	Left Ear Touch	26.2	1.86	0.180
	E9	STP9240	430	-00635	-00662	Left Ear Tilt	26.2	2.77	0.068
	E10	STP9240	430	-00635	-00662	Right Ear Touch	26.2	1.75	0.391
	E11	STP9240	430	-00635	-00662	Right Ear Tilt	26.2	2.15	-0.646
	E12	STP9240	407	-00635	-00662	Left Ear Tilt	26.0	1.98	-0.360
	E13	STP9240	418.5	-00635	-00662	Left Ear Tilt	25.9	2.50	0.069
	E14	STP9240	430	-00634	-00662	Left Ear Tilt	26.2	2.39	-0.577

SAR LIMIT(S)	HEAD / BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093 / Health Canada Safety Code 6	8 W/kg	averaged over 1 gram	Occupational / Controlled

Notes

1.	Detailed measurement plots showing the maximum SAR location of the DUT are reported in Appendix A.
2.	The DUT was tested at the maximum duty cycle of 1 time slot (~24%).
3.	Model variant fully tested.

Table 2 — SAR EVALUATION RESULTS

Test Config.	Plot #	Model Variant	Test Freq.	Battery	Antenna	Distance to Phantom		DUT Power Before Test	Measured SAR	SAR Drift During Test
			MHz			DUT	Ant.	dBm	1g (W/kg)	dB
FACE	F1	STP9040	460	-00635	-00663	2.5 cm	3.3 cm	26.1	0.674	-0.266
	F2	STP9240	430	-00635	-00662	2.5 cm	3.3 cm	26.2	0.574	-0.345
	F3	STP9040	460	-00634	-00663	2.5 cm	3.3 cm	26.1	**0.700**	-0.367
	F4	STP9240	430	-00634	-00662	2.5 cm	3.3 cm	26.2	0.540	0.367

SAR LIMIT(S)	HEAD / BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093 / Health Canada Safety Code 6	8 W/kg	averaged over 1 gram	Occupational/Controlled

Notes

1. Detailed measurement plots showing the maximum SAR location of the DUT are reported in Appendix A.
2. The DUT was tested at the maximum duty cycle of 1 time slot (~24%).

7.0 SAR SCALING (TUNE-UP TOLERANCE)

SCALING OF MAXIMUM SAR LEVELS TO MANUFACTURER'S TUNE-UP TOLERANCE SPECIFICATION

Test Config.	Cert.	Plot	Model	Cond. Power	SAR Level 1g (Note 4)	Scaling up to Manuf. Upper Tol. Power Spec. (26.4 dBm)	Scaled SAR 1g (W/kg)
				dBm	W/kg		
FACE	FCC	F3	STP9040	26.1	0.700	+0.3 dB	0.750
FACE	IC	F3	STP9040	26.1	0.762*	+0.3 dB	0.816
EAR	FCC	E5	STP9040	26.1	3.02	+0.3 dB	**3.24**
EAR	IC	E7	STP9040	26.1	3.28*	+0.3 dB	**3.52**

Notes:

1. Only the highest SAR values for face and ear are scaled.
2. The resulting value is the reported SAR.
3. The scaled SAR levels are below the FCC/IC SAR Limit of 8 W/kg.
4. * SAR Values indicated are scaled for drift and power per IC requirements.

8.0 CO-LOCATED TRANSMITTERS

STP9040 - contains a Bluetooth co-located transmitter and simultaneous transmission is possible.

Bluetooth max rated power = 2.5 mW
Bluetooth frequency range = 2402 - 2480 MHz

The Bluetooth transmitter is below test exclusion threshold according to FCC KDB 447498 D01v05r01 (see reference [6]) and RSS-102 issue 4 (see reference [4]). Therefore SAR testing is not required.

As per FCC KDB 447498 D01v05r01 (see reference [6]) the Bluetooth SAR is estimated for the purposes of simultaneous transmission assessment.

(2.5mW / 5mm) * (sqrt(2.48GHz) / 7.5) = 0.105 W/kg

SIMULTANEOUS TRANSMISSION ASSESSMENT

Test Config.	Cert.	Plot	Model	TETRA Measured SAR Level 1g	TETRA Scaled SAR 1g	Bluetooth Est. SAR 1g	Simultaneous SAR 1g
				W/kg	W/kg	W/kg	W/kg
EAR	FCC	E5	STP9040	3.02	3.24	0.105	**3.35**
EAR	IC	E7	STP9040	3.28*	3.52*	0.105	**3.63**

* SAR Values indicated are scaled for drift and power per IC requirements.

STP9240 - Does not contain co-located transmitter

9.0 DETAILS OF SAR EVALUATION

1. The number of test frequencies and the test channels selected for the SAR evaluations are in accordance with the procedures described in FCC KDB 447498 (see reference [6]).
2. Both model variants were fully tested in the Face and Ear configurations.
3. The 300-00635 battery was chosen at the default battery due to its highest capacity. The 300-00634 battery was tested at each variant's worst case configuration.
4. The SAR evaluations were performed with a fully charged battery.
5. The SAR drift of the DUT was measured by the DASY4 system for the duration of the SAR evaluations.
6. The fluid temperature remained within +/-2°C from the fluid dielectric parameter measurement to the completion of the SAR evaluation.
7. The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using a Dielectric Probe Kit and a Network Analyzer (see Appendix C).
8. The DUT utilized a software test mode to transmit at the desired frequency and the maximum power and duty cycle.
9. This push-to-talk radio supports modes that do not require the mechanical PTT button to transmit; therefore a 100% PTT duty-cycle was used.
10. Body-worn SAR was not addressed in this report.
11. Simultaneous transmission with the TETRA and Bluetooth radios was assessed according to FCC KDB 447498 D01v05r01 (see reference [6]).
12. Test reduction techniques were applied according to FCC KDB 643646 D01v01r01 (see reference [12]).

10.0 SAR EVALUATION PROCEDURES

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

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

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

An area scan was determined as follows:

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

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

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

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

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

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

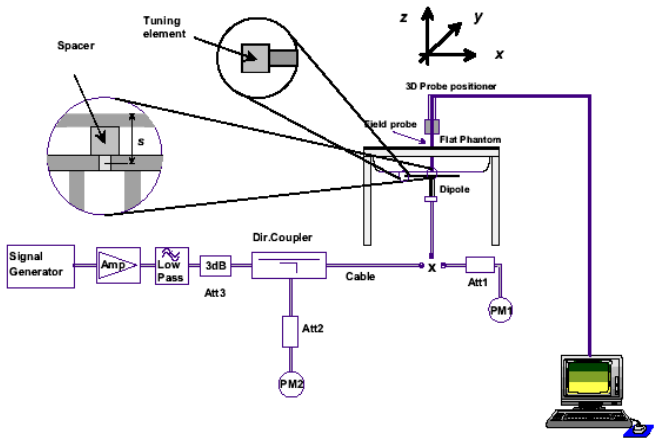
11.0 SYSTEM VERIFICATION

Prior to the SAR evaluations, system checks were performed with a planar phantom and an 450 MHz SPEAG validation dipole (see Appendix B) in accordance with the procedures described in IEEE Standard 1528-2003 (see reference [5]). The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer (see Appendix C). A forward power of 398 mW was applied to the dipole and the system was verified to a tolerance of ±10% from the system manufacturer's dipole calibration target SAR value (see Appendix E for system manufacturer's dipole calibration procedures).

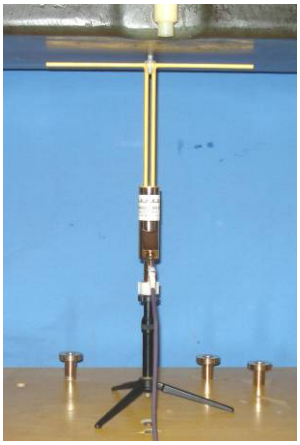
SYSTEM PERFORMANCE CHECK EVALUATIONS

Test Date	Equiv. Tissue	SAR 1g (W/kg)			Dielectric Constant ε_r			Conductivity σ (mho/m)			ρ (Kg/m^3)	Amb. Temp. (°C)	Fluid Temp. (°C)	Fluid Depth (cm)	Humid. (%)	Barom. Press. (kPa)
	Freq. (MHz)	SPEAG Target	Meas.	Dev.	SPEAG Target	Meas.	Dev.	SPEAG Target	Meas.	Dev.						
Oct 18	**Head 450**	**1.87 ±10%**	1.87	0.0%	**43.5 ±5%**	44.6	2.5%	**0.87 ±5%**	0.86	-1.1%	1000	23.0	20.9	≥ 15	30	102.9
Oct 22	**Head 450**	**1.87 ±10%**	2.01	+7.5%	**43.5 ±5%**	44.0	1.1%	**0.87 ±5%**	0.88	1.1%	1000	22.0	21.1	≥ 15	32	102.4

Notes		
	1.	The target SAR values are the measured values from the SAR system manufacturer's dipole calibration (see Appendix E).
	2.	The target dielectric parameters are the nominal values from the SAR system manufacturer's dipole calibration (see Appendix E).
	3.	The fluid temperature was measured prior to and after the system performance check evaluations. The fluid temperature remained within +/-2°C during the system performance check evaluations.
	4.	The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer (see Appendix C).



System Performance Check Measurement Setup (IEEE Standard 1528-2003)



SPEAG 450 MHz Validation Dipole Setup

12.0 SIMULATED EQUIVALENT TISSUES

The simulated equivalent tissue recipes in the table below are derived from the SAR system manufacturer's suggested recipes in the DASY4 manual (see references [7] and [10]) in accordance with the procedures and requirements specified in IEEE Standard 1528-2003 (see reference [5]). The ingredient percentage may have been adjusted minimally in order to achieve the appropriate target dielectric parameters within the specified tolerance.

INGREDIENT	450 MHz HEAD
Water	38.56 %
Sugar	56.32 %
Salt	3.95 %
HEC	0.98 %
Bactericide	0.19 %

13.0 SAR LIMITS

SAR RF EXPOSURE LIMITS			
FCC 47 CFR 2.1093	**Health Canada Safety Code 6**	**General Population**	**Occupational**
Spatial Average (averaged over the whole body)		0.08 W/kg	0.4 W/kg
Spatial Peak (averaged over any 1 g of tissue)		1.6 W/kg	**8.0 W/kg**
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)		4.0 W/kg	20.0 W/kg
The Spatial Average value of the SAR averaged over the whole body.			
The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.			
Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.			

14.0 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 80
	Postprocessing Software: SEMCAD, V1.8 Build 186
Connecting Lines	Optical downlink for data and status info., Optical uplink for commands and clock
DASY4 Measurement Server	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
E-Field Probe	
Model	ET3DV6
Serial No.	1590
Construction	Triangular core fiber optic detection system
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
Phantom 1	
Type	Barski Planar Phantom
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 70 liters
Phantom 2	
Type	SAM V4.0C
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 25 liters

15.0 PROBE SPECIFICATION (ET3DV6)

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

ET3DV6 E-Field Probe

16.0 PHANTOM(S)

The Barski 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. The planar phantom was used for the DUT SAR evaluations and the system performance check evaluations. See Appendix G for dimensions and specifications of the Barski planar phantom.

Barski Planar Phantom

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

SAM Twin Phantom V4.0C

17.0 DEVICE HOLDER

The DASY4 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections.

Device Holder

18.0 TEST EQUIPMENT LIST

TEST EQUIPMENT		ASSET NO.	SERIAL NO.	DATE CALIBRATED	CALIBRATION INTERVAL
USED	DESCRIPTION				
x	Schmid & Partner DASY4 System	-	-	-	-
x	-DASY4 Measurement Server	00158	1078	CNR	CNR
x	-Robot	00046	599396-01	CNR	CNR
x	-DAE4	00019	353	19-Apr-12	Biennial
x	-ET3DV6 E-Field Probe	00017	1590	24-Apr-13	Annual
x	-D450V3 Validation Dipole	00221	1068	27-Apr-12	Triennial
x	-Barski Planar Phantom	00155	03-01	CNR	CNR
x	SPEAG SAM Twin Phantom V4.0C	00154	1033	CNR	CNR
x	HP 85070C Dielectric Probe Kit	00033	none	CNR	CNR
x	Gigatronics 8652A Power Meter	00007	1835272	03-May-12	Biennial
x	Gigatronics 80701A Power Sensor	00014	1833542	03-May-12	Biennial
x	Gigatronics 80334A Power Sensor	-	1837001	03-May-12	Biennial
x	HP 8753ET Network Analyzer	00134	US39170292	26-Apr-12	Biennial
x	Rohde & Schwarz SMR20 Signal Generator	00006	100104	02-May-12	Biennial
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	CNR	CNR
Abbr.	CNR = Calibration Not Required				

19.0 MEASUREMENT UNCERTAINTIES

UNCERTAINTY BUDGET FOR DEVICE EVALUATION (IEC 62209-2:2010) (IC Only)

Source of Uncertainty	IEC 62209-2 Section	Tolerance / Uncertainty ±%	Probability Distribution	Divisor	ci 1g	ci 10g	Standard Uncertainty ±% (1g)	Standard Uncertainty ±% (10g)	V_i or V_{eff}
Measurement System									
Probe Calibration (450MHz)	7.2.2.1	6.7	Normal	1	1	1	6.7	6.7	∞
Isotropy	7.2.2.2	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
Boundary Effect	7.2.2.6	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Linearity	7.2.2.3	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
Detection Limits	7.2.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Readout Electronics	7.2.2.7	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	7.2.2.8	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time	7.2.2.9	2.6	Rectangular	1.732050808	1	1	1.5	1.5	∞
RF Ambient Conditions	7.2.4.5	3	Rectangular	1.732050808	1	1	1.7	1.7	∞
Probe Positioner Mechanical Restrictions	7.2.3.1	0.4	Rectangular	1.732050808	1	1	0.2	0.2	∞
Probe Positioning wrt Phantom Shell	7.2.3.3	2.9	Rectangular	1.732050808	1	1	1.7	1.7	∞
Post-processing	7.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	7.2.3.4.3	2.9	Normal	1	1	1	2.9	2.9	12
Device Holder Uncertainty	7.2.3.4.2	3.6	Normal	1	1	1	3.6	3.6	8
Drift of Output Power (meas. SAR drift)	7.2.2.10	0	Rectangular	1.732050808	1	1	0.0	0.0	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	7.2.3.2	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
SAR Correction Algorithm for deviations in permittivity and conductivity	7.2.4.3	1.2	Normal	1	1	0.81	1.2	0.97	∞
Liquid Conductivity (measured)	7.2.4.3	4.6	Normal	1	0.78	0.71	3.6	3.3	∞
Liquid Permittivity (measured)	7.2.4.3	3.68	Normal	1	0.23	0.26	0.8	1.0	∞
Liquid Permittivity - temp. uncertainty	7.2.4.4	0.27	Rectangular	1.732050808	0.78	0.71	0.1	0.1	∞
Liquid Conductivity - temp. uncertainty	7.2.4.4	0.84	Rectangular	1.732050808	0.23	0.26	0.1	0.1	∞
Combined Standard Uncertainty	**7.3.1**		**RSS**				**10.53**	**10.41**	
Expanded Uncertainty (95% Confidence Interval)	**7.3.2**		**k=2**				**21.05**	**20.81**	

Measurement Uncertainty Table in accordance with International Standard IEC 62209-2:2010

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

20.0 REFERENCES

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

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

[3] Federal Communications Commission, Office of Engineering and Technology - “SAR Measurement Requirements for 100 MHz to 6 GHz”; KDB 865664 D01v01r01: May 2013.

[4] Industry Canada - “Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)”, Radio Standards Specification RSS-102 Issue 4: March 2010.

[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] Federal Communications Commission, Office of Engineering and Technology - “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”; KDB 447498 D01v05r01: May 2013.

[7] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 16 Application Note, Head Tissue Recipe: Sept. 2005.

[8] Federal Communications Commission - “Measurements Required: RF Power Output”; Rule Part 47 CFR §2.1046.

[9] Industry Canada - “General Requirements and Information for the Certification of Radiocommunication Equipment”, Radio Standards Specification RSS-Gen Issue 3: December 2010.

[10] ISO/IEC 17025 - “General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005).”

[11] IEC International Standard 62209-1:2005 - “Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures.”

[12] Federal Communications Commission, Office of Engineering and Technology – “SAR Test Reduction Considerations for Occupational PTT Radios”, KDB 643646 D10v01r01

APPENDIX A - SAR MEASUREMENT PLOTS

Plot E1

Date: 10/22/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 21.1C; Barometric Pressure: 102.4 kPa; Humidity: 32%

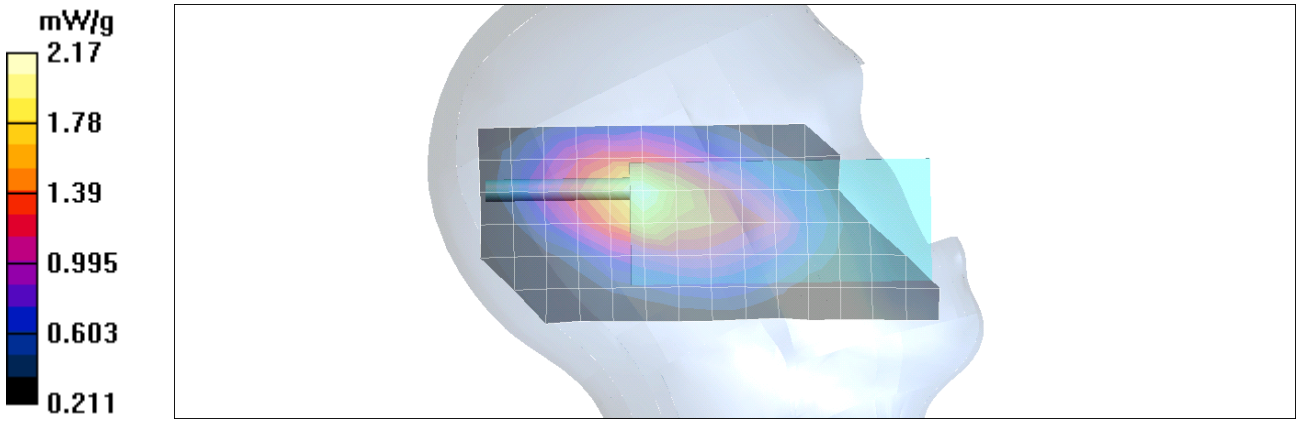
Procedure Notes:

Communication System: TETRA
Frequency: 460 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 460 MHz; σ = 0.91 mho/m; ε_r = 43.9; ρ = 1000 kg/m^3

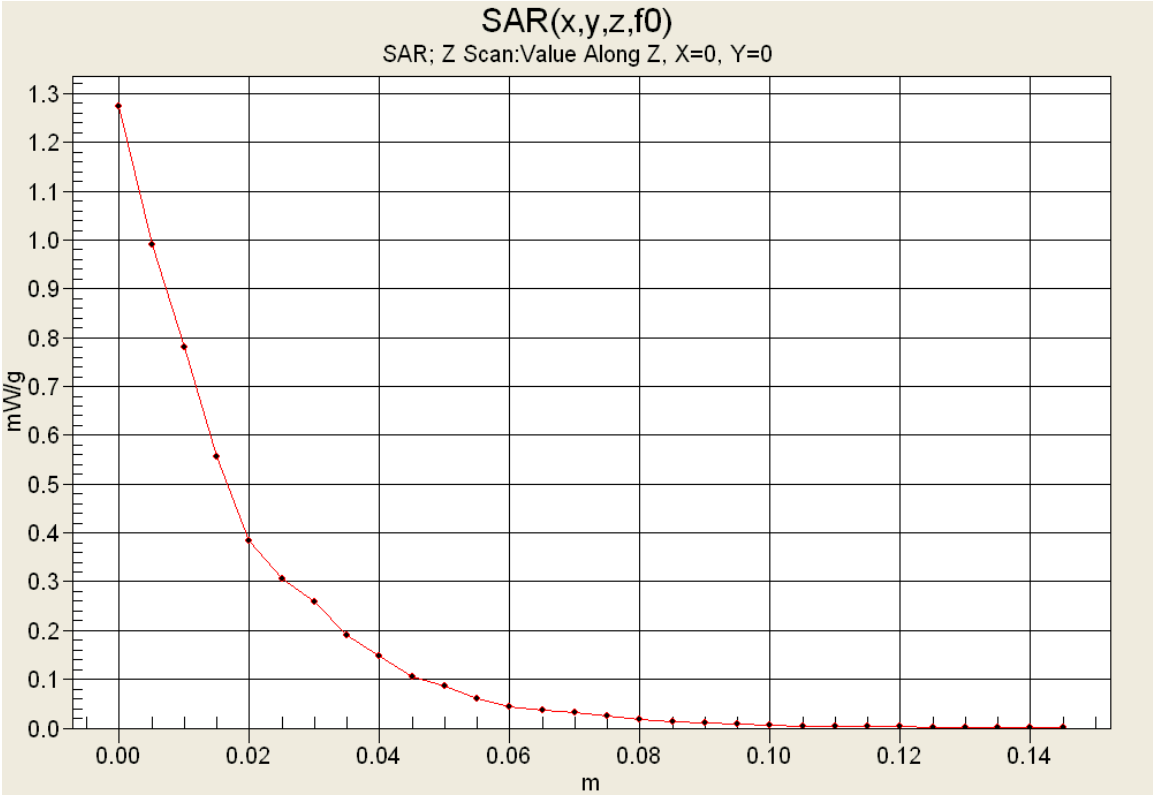
- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Left Touch - 9040 - 460MHz - 663 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.18 mW/g

Left Touch - 9040 - 460MHz - 663 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 42.6 V/m; Power Drift = 0.325 dB
Peak SAR (extrapolated) = 3.49 W/kg
SAR(1 g) = 1.98 mW/g; SAR(10 g) = 1.29 mW/g
Maximum value of SAR (measured) = 2.17 mW/g



Z Axis Scan


SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
m

Plot E2

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

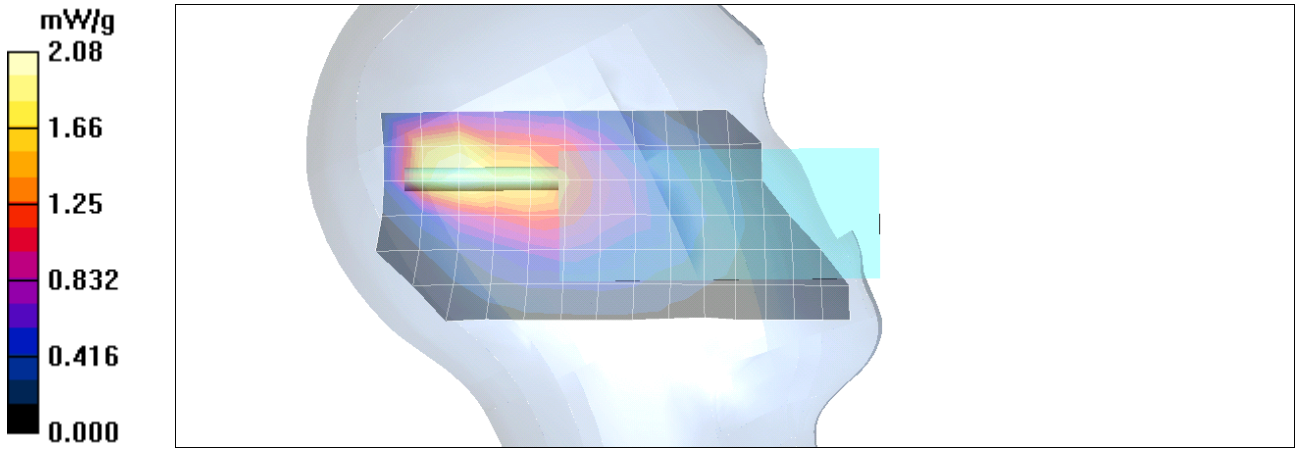
Procedure Notes:

Communication System: TETRA
Frequency: 460 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 460 MHz; σ = 0.91 mho/m; ε_r = 43.9; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilt - 9040 - 460MHz - 663 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.08 mW/g

Left Tilt - 9040 - 460MHz - 663 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 34.5 V/m; Power Drift = 0.349 dB
Peak SAR (extrapolated) = 7.59 W/kg
SAR(1 g) = 2.57 mW/g; SAR(10 g) = 1.34 mW/g
Maximum value of SAR (measured) = 2.72 mW/g



Plot E3

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

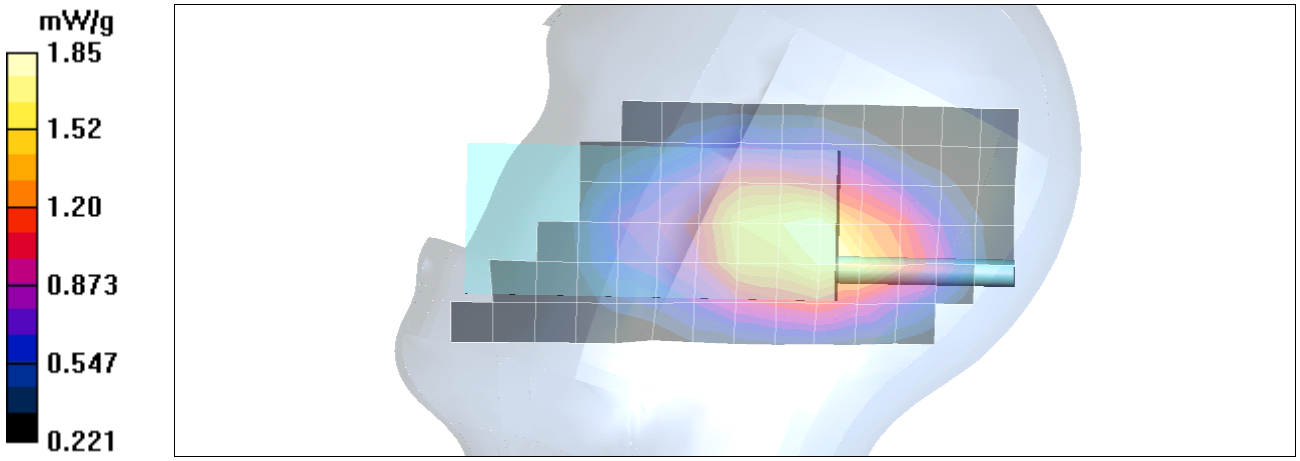
Procedure Notes:

Communication System: TETRA
Frequency: 460 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 460 MHz; σ = 0.91 mho/m; ε_r = 43.9; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Right Touch - 9040 - 460MHz - 663 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.73 mW/g

Right Touch - 9040 - 460MHz - 663 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 45.4 V/m; Power Drift = -0.628 dB
Peak SAR (extrapolated) = 2.52 W/kg
SAR(1 g) = 1.68 mW/g; SAR(10 g) = 1.18 mW/g
Maximum value of SAR (measured) = 1.85 mW/g



Plot E4

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

Procedure Notes:

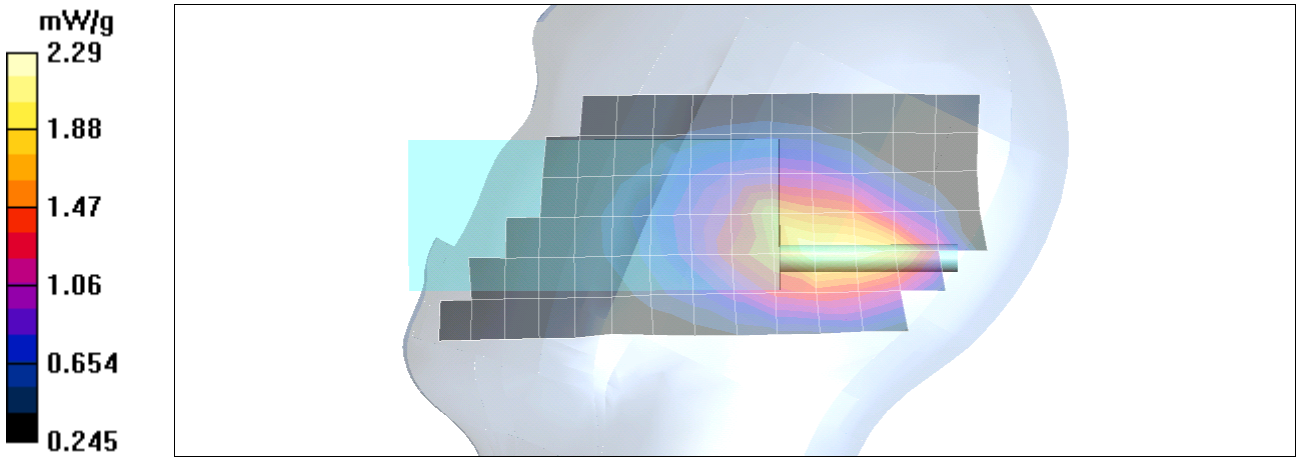
Communication System: TETRA
Frequency: 460 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 460 MHz; σ = 0.91 mho/m; ε_r = 43.9; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Right Tilt - 9040 - 460MHz - 663 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.20 mW/g

Right Tilt - 9040 - 460MHz - 663 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 43.5 V/m; Power Drift = -0.558 dB
Peak SAR (extrapolated) = 3.09 W/kg
SAR(1 g) = 2.07 mW/g; SAR(10 g) = 1.36 mW/g

Maximum value of SAR (measured) = 2.29 mW/g



Plot E5

Date 10/23/2013 1:45:05 PM

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

Procedure Notes:

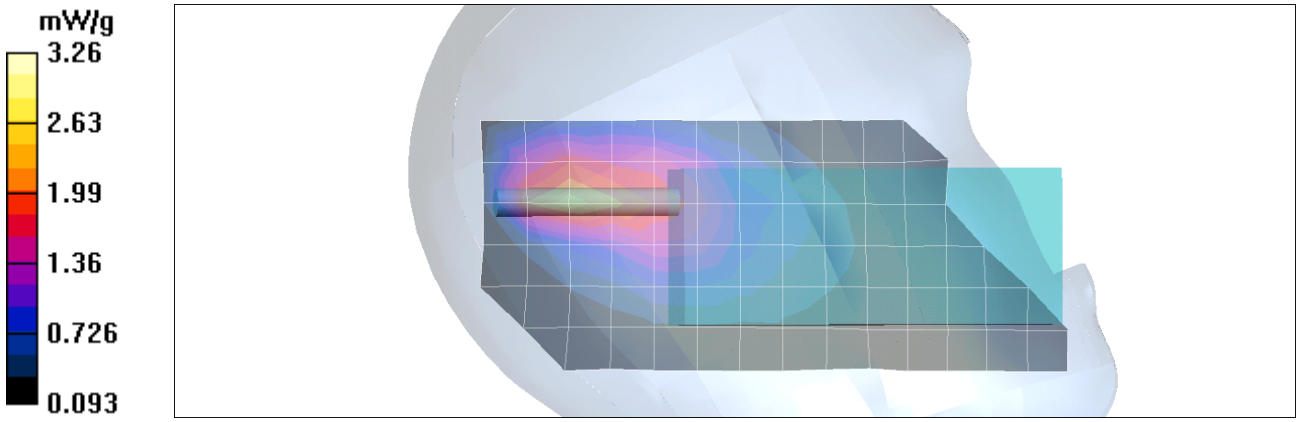
Communication System: TETRA
Frequency: 450 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 450 MHz; σ = 0.88 mho/m; ε_r = 44; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

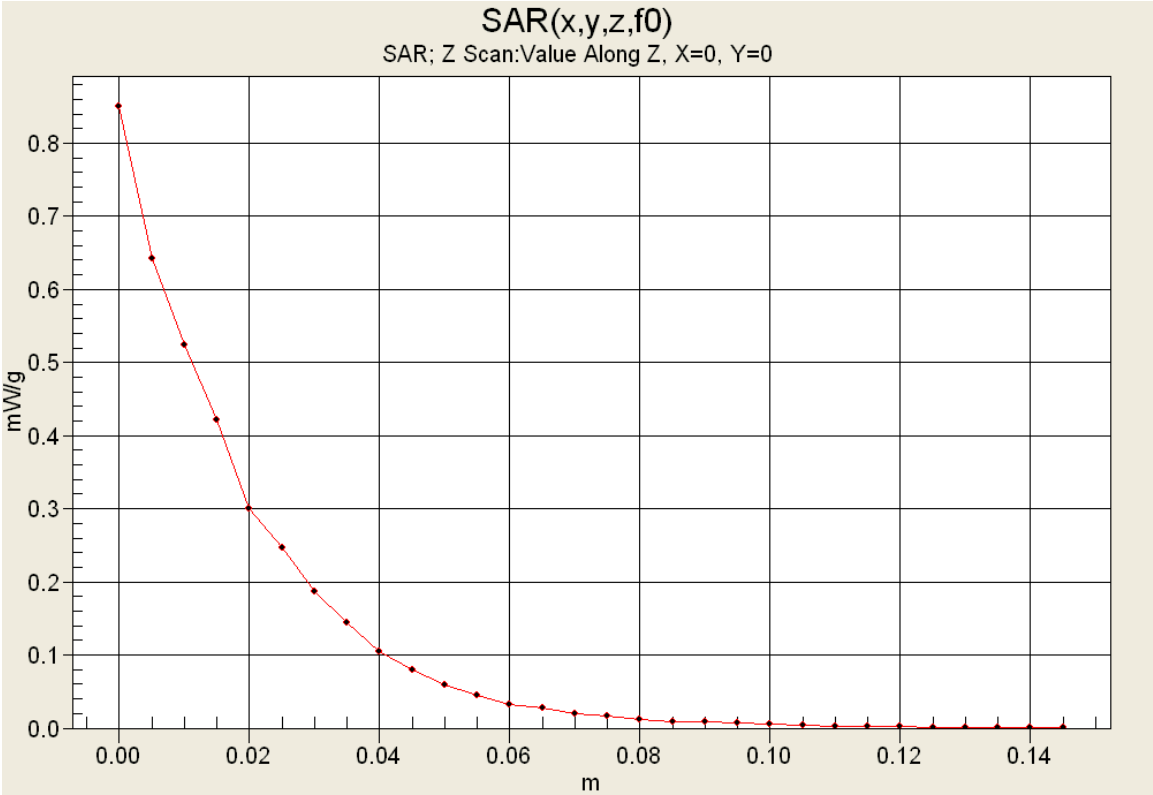
Left Tilt - 9040 - 450MHz - 663 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.34 mW/g

Left Tilt - 9040 - 450MHz - 663 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 35.1 V/m; Power Drift = 0.237 dB
Peak SAR (extrapolated) = 8.78 W/kg
SAR(1 g) = 3.02 mW/g; SAR(10 g) = 1.48 mW/g

Maximum value of SAR (measured) = 3.26 mW/g



Z Axis Scan


SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
m

Plot E6

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

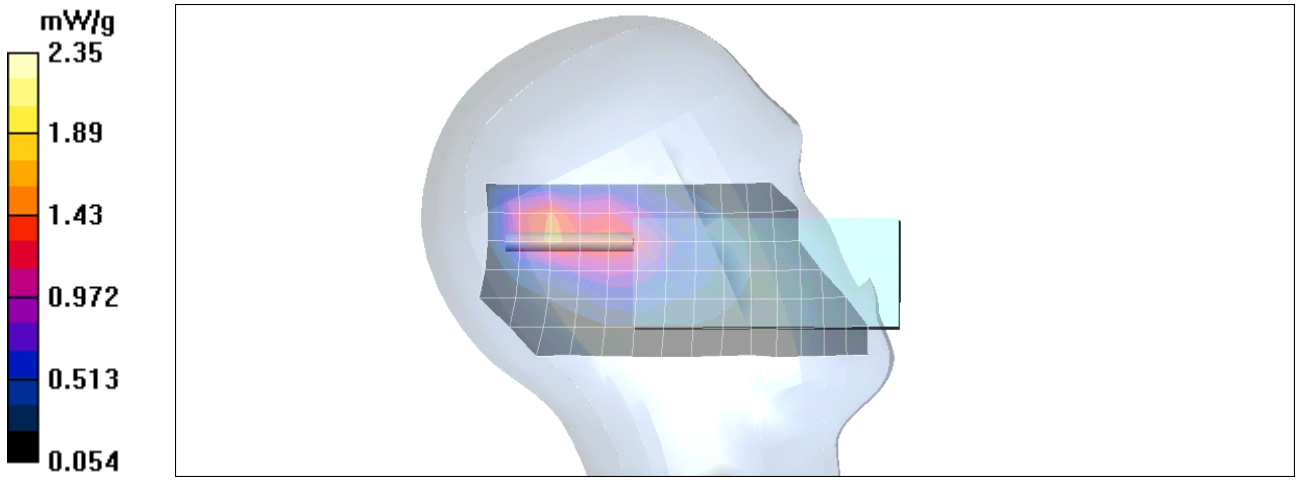
Procedure Notes:

Communication System: TETRA
Frequency: 470 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 470 MHz; σ = 0.9 mho/m; ε_r = 43.6; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilt - 9040 - 470MHz - 663 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.50 mW/g

Left Tilt - 9040 - 470MHz - 663 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 29.7 V/m; Power Drift = 0.421 dB
Peak SAR (extrapolated) = 6.30 W/kg
SAR(1 g) = 2.14 mW/g; SAR(10 g) = 1.06 mW/g
Maximum value of SAR (measured) = 2.35 mW/g



Plot E7

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

Procedure Notes:

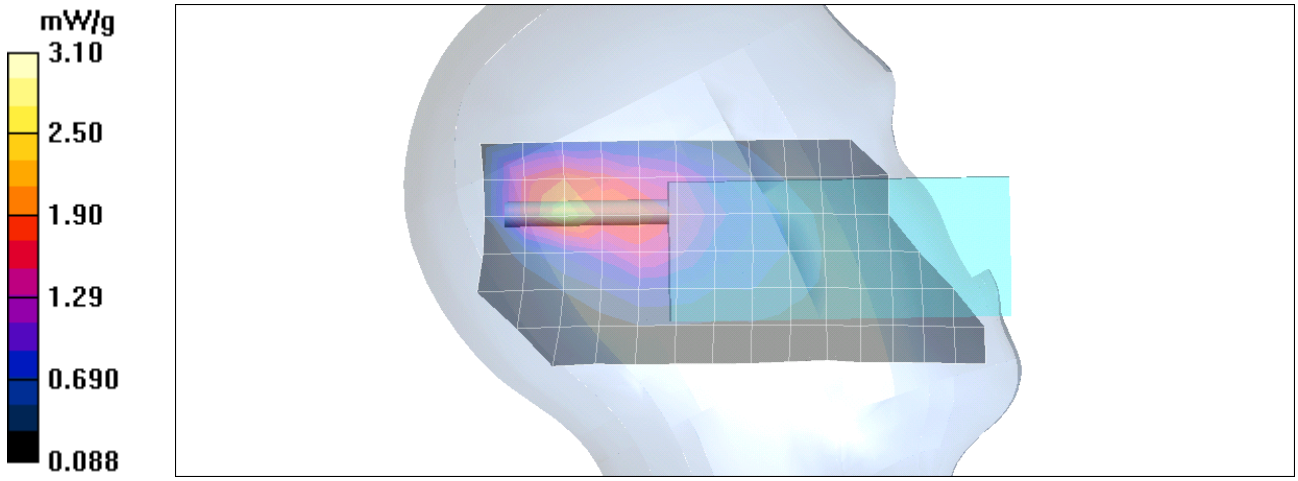
Communication System: TETRA
Frequency: 450 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 450 MHz; σ = 0.88 mho/m; ε_r = 44; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilt - 9040 - 450MHz - 663 - Thin Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.30 mW/g

Left Tilt - 9040 - 450MHz - 663 - Thin Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 36.9 V/m; Power Drift = -0.436 dB
Peak SAR (extrapolated) = 9.40 W/kg
SAR(1 g) = 2.97 mW/g; SAR(10 g) = 1.46 mW/g

Maximum value of SAR (measured) = 3.10 mW/g



Plot E8

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

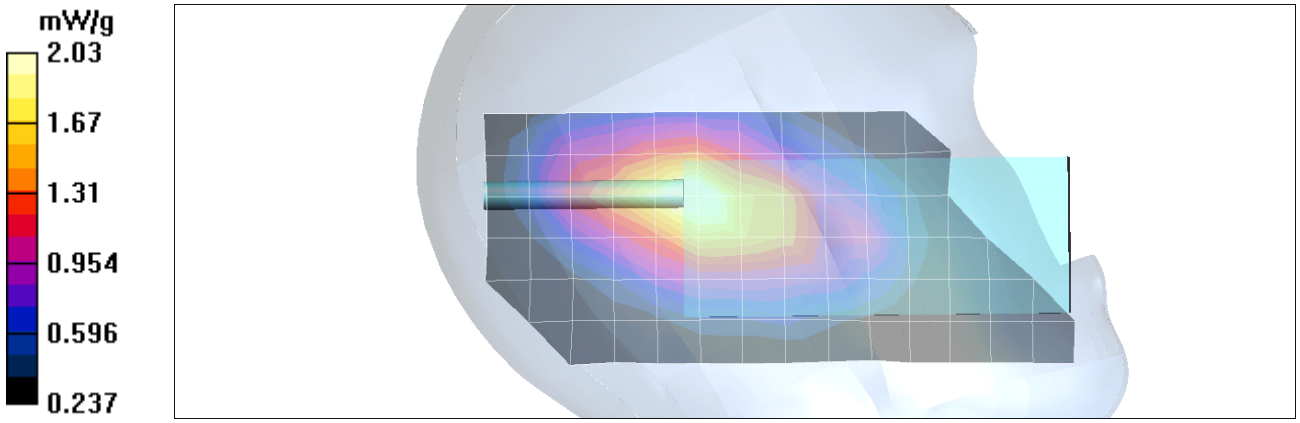
Procedure Notes:

Communication System: TETRA
Frequency: 430 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 430 MHz; σ = 0.87 mho/m; ε_r = 44.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Left Touch - 9240 - 430MHz - 662 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.23 mW/g

Left Touch - 9240 - 430MHz - 662 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 44.9 V/m; Power Drift = 0.180 dB
Peak SAR (extrapolated) = 2.72 W/kg
SAR(1 g) = 1.86 mW/g; SAR(10 g) = 1.29 mW/g
Maximum value of SAR (measured) = 2.03 mW/g



Plot E9

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

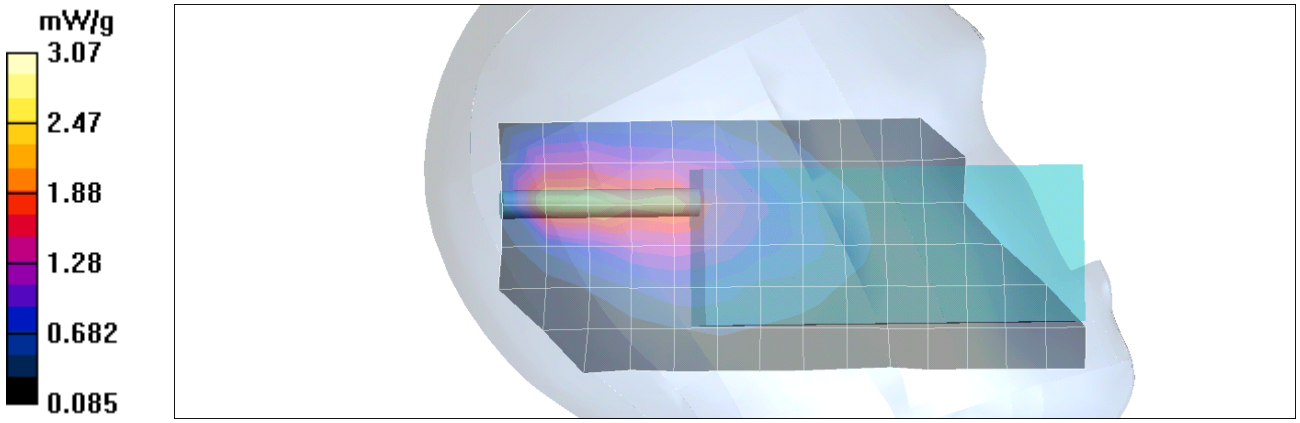
Procedure Notes:

Communication System: TETRA
Frequency: 430 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 430 MHz; σ = 0.87 mho/m; ε_r = 44.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilt - 9240 - 430MHz - 662 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.31 mW/g

Left Tilt - 9240 - 430MHz - 662 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 36.2 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 7.03 W/kg
SAR(1 g) = 2.77 mW/g; SAR(10 g) = 1.41 mW/g
Maximum value of SAR (measured) = 3.07 mW/g



Plot E10

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

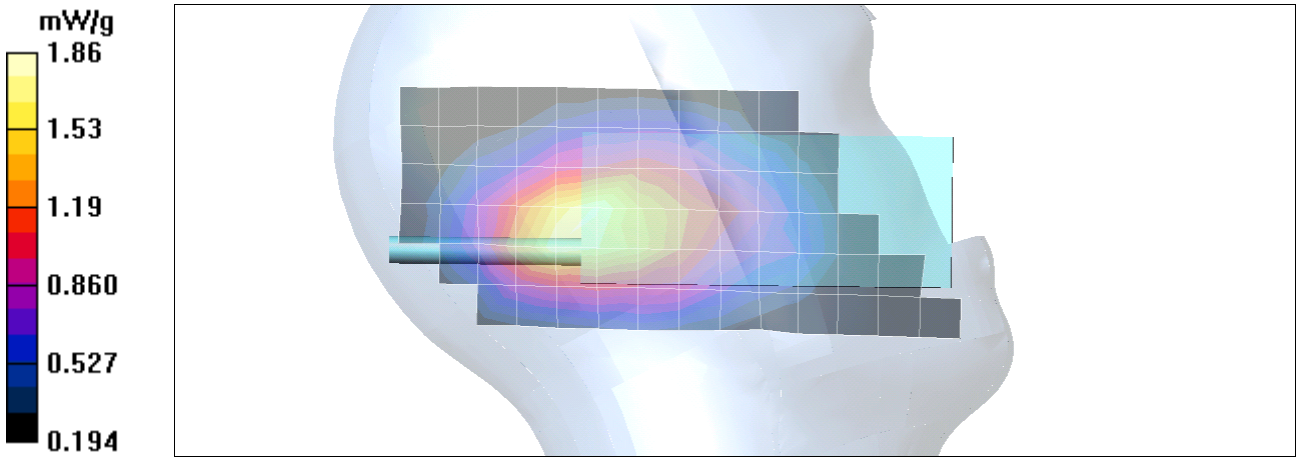
Procedure Notes:

Communication System: TETRA
Frequency: 430 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 430 MHz; σ = 0.87 mho/m; ε_r = 44.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Right Touch - 9240 - 430MHz - 662 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.77 mW/g

Right Touch - 9240 - 430MHz - 662 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 43.1 V/m; Power Drift = 0.391 dB
Peak SAR (extrapolated) = 2.69 W/kg
SAR(1 g) = 1.75 mW/g; SAR(10 g) = 1.18 mW/g
Maximum value of SAR (measured) = 1.86 mW/g



Plot E11

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

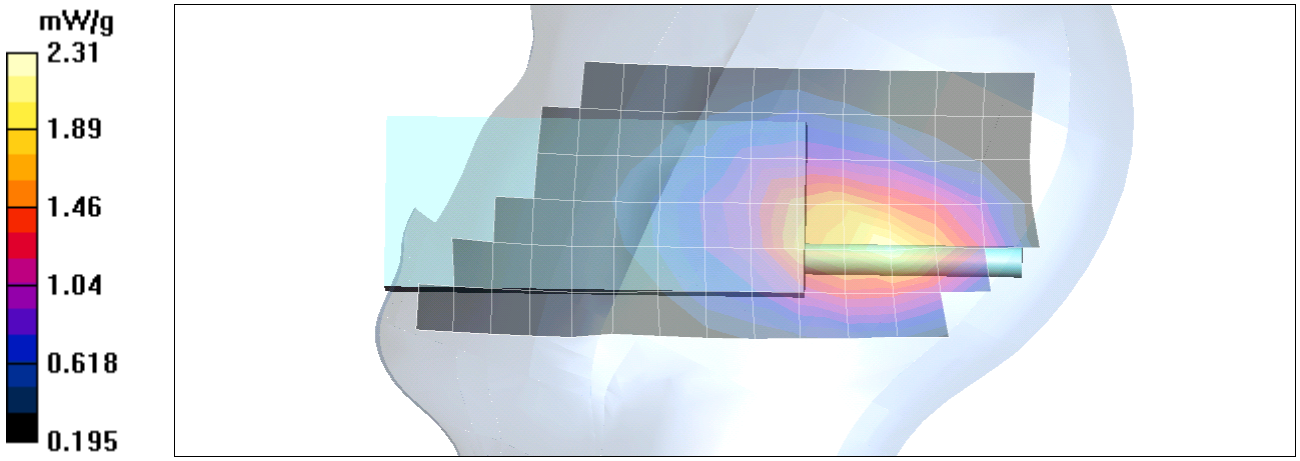
Procedure Notes:

Communication System: TETRA
Frequency: 430 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 430 MHz; σ = 0.87 mho/m; ε_r = 44.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Right Tilt - 9240 - 430MHz - 662 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.22 mW/g

Right Tilt - 9240 - 430MHz - 662 - Thick Batt/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 44.2 V/m; Power Drift = -0.646 dB
Peak SAR (extrapolated) = 3.32 W/kg
SAR(1 g) = 2.15 mW/g; SAR(10 g) = 1.4 mW/g
Maximum value of SAR (measured) = 2.31 mW/g



Plot E12

Date: 10/23/2013 2:31:23 PM

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

Procedure Notes:

Communication System: TETRA
Frequency: 407 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used (interpolated): f = 407 MHz; σ = 0.83 mho/m; ε_r = 45.1; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

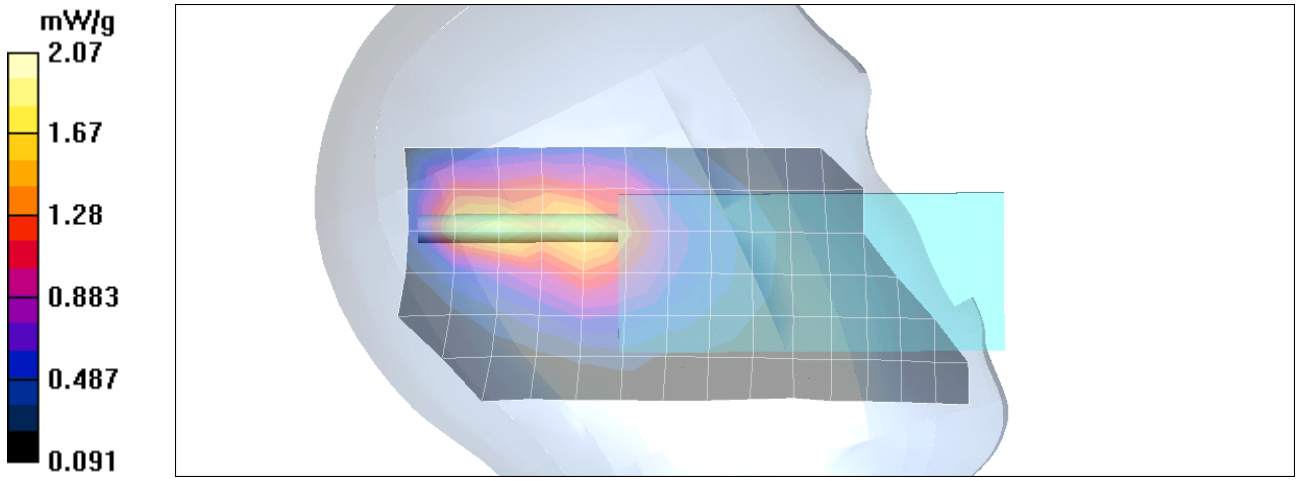
Left Tilt - 9240 - 407MHz - 662 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.87 mW/g

Left Tilt - 9240 - 407MHz - 662 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 35.5 V/m; Power Drift = -0.360 dB
Peak SAR (extrapolated) = 4.34 W/kg
SAR(1 g) = 1.98 mW/g; SAR(10 g) = 1.11 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

.Maximum value of SAR (measured) = 2.07 mW/g



Plot E13

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

Procedure Notes:

Communication System: TETRA
Frequency: 418.5 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used (interpolated): f = 418.5 MHz; σ = 0.847 mho/m; ε_r = 44.7; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

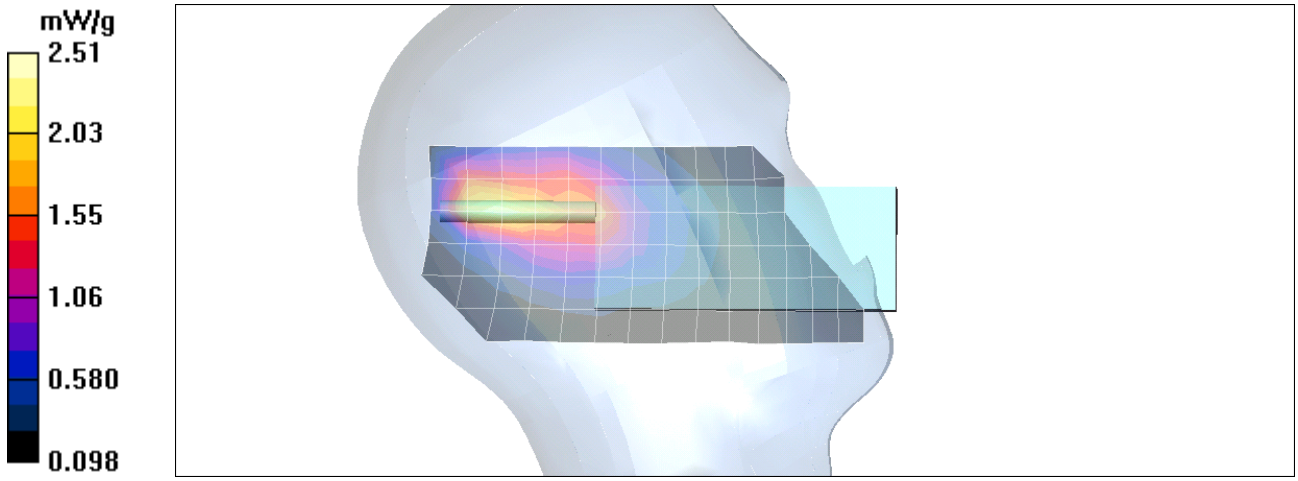
Left Tilt - 9240 - 418.5MHz - 662 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.35 mW/g

Left Tilt - 9240 - 418.5MHz - 662 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 36.3 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 5.92 W/kg
SAR(1 g) = 2.5 mW/g; SAR(10 g) = 1.39 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 2.51 mW/g



Plot E14

Date: 10/23/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 22C; Fluid Temp: 20.8C; Barometric Pressure: 102.4 kPa; Humidity: 34%

Procedure Notes:

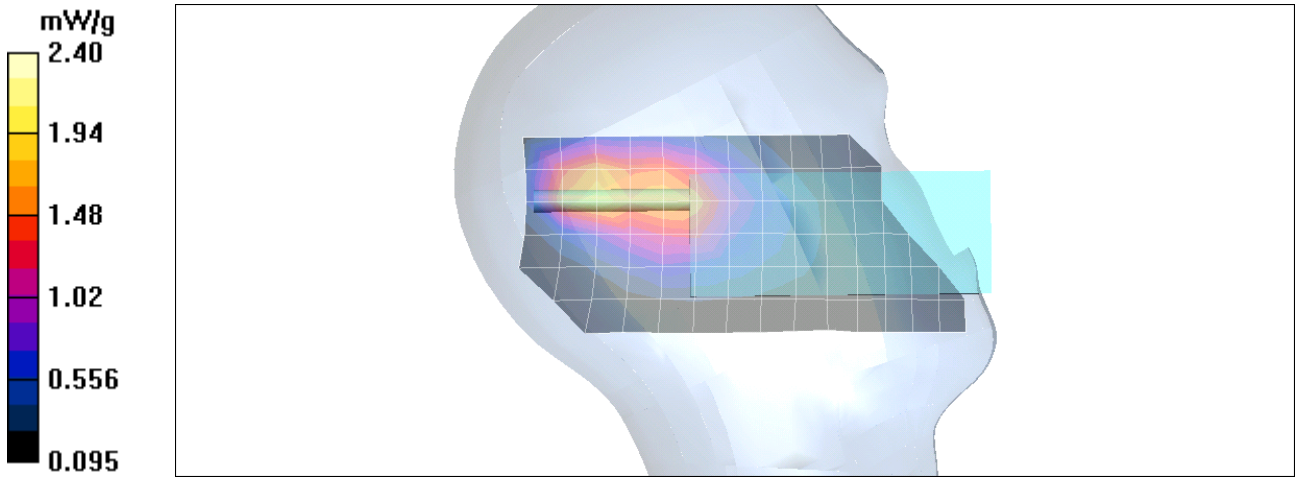
Communication System: TETRA
Frequency: 430 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 430 MHz; σ = 0.87 mho/m; ε_r = 44.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilt - 9240 - 430MHz - 662 - Thin Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.94 mW/g

Left Tilt - 9240 - 430MHz - 662 - Thin Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 37.0 V/m; Power Drift = -0.577 dB
Peak SAR (extrapolated) = 7.00 W/kg
SAR(1 g) = 2.39 mW/g; SAR(10 g) = 1.31 mW/g

Maximum value of SAR (measured) = 2.40 mW/g



Plot F1

Date: 10/18/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 23C; Fluid Temp: 20.9C; Barometric Pressure: 102.9 kPa; Humidity: 30%

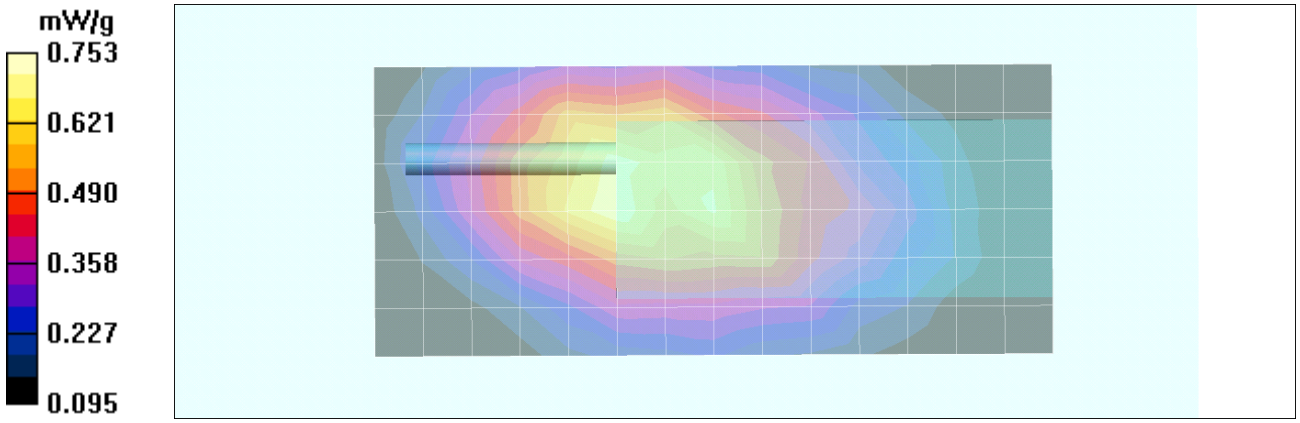
Procedure Notes:

Communication System: TETRA
Frequency: 460 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 460 MHz; σ = 0.88 mho/m; ε_r = 43.7; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Face - 9040 - 460MHz - 663 - Thick Batt/Area Scan 2 (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.707 mW/g

Face - 9040 - 460MHz - 663 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 29.5 V/m; Power Drift = -0.266 dB
Peak SAR (extrapolated) = 0.959 W/kg
SAR(1 g) = 0.674 mW/g; SAR(10 g) = 0.482 mW/g
Maximum value of SAR (measured) = 0.753 mW/g



Plot F2

Date: 10/18/2013 3

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 23C; Fluid Temp: 20.9C; Barometric Pressure: 102.9 kPa; Humidity: 30%

Procedure Notes:

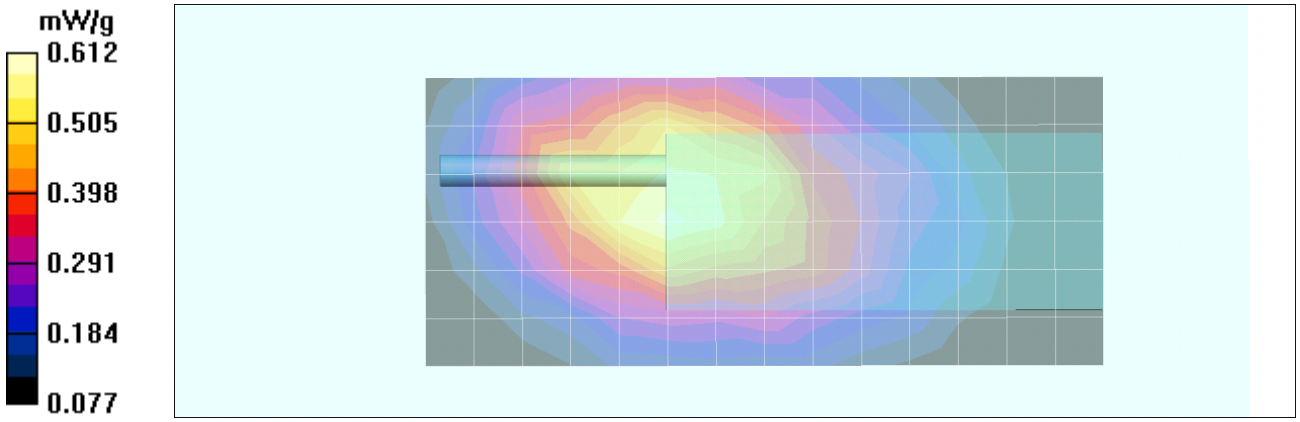
Communication System: TETRA
Frequency: 430 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 430 MHz; σ = 0.85 mho/m; ε_r = 44.7; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Face - 9240 - 430MHz - 662 - Thick Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.589 mW/g

Face - 9240 - 430MHz - 662 - Thick Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 27.2 V/m; Power Drift = -0.345 dB
Peak SAR (extrapolated) = 0.869 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.407 mW/g

Maximum value of SAR (measured) = 0.612 mW/g



Plot F3

Date: 10/18/2013 2:02:34 PM

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 23C; Fluid Temp: 20.9C; Barometric Pressure: 102.9 kPa; Humidity: 30%

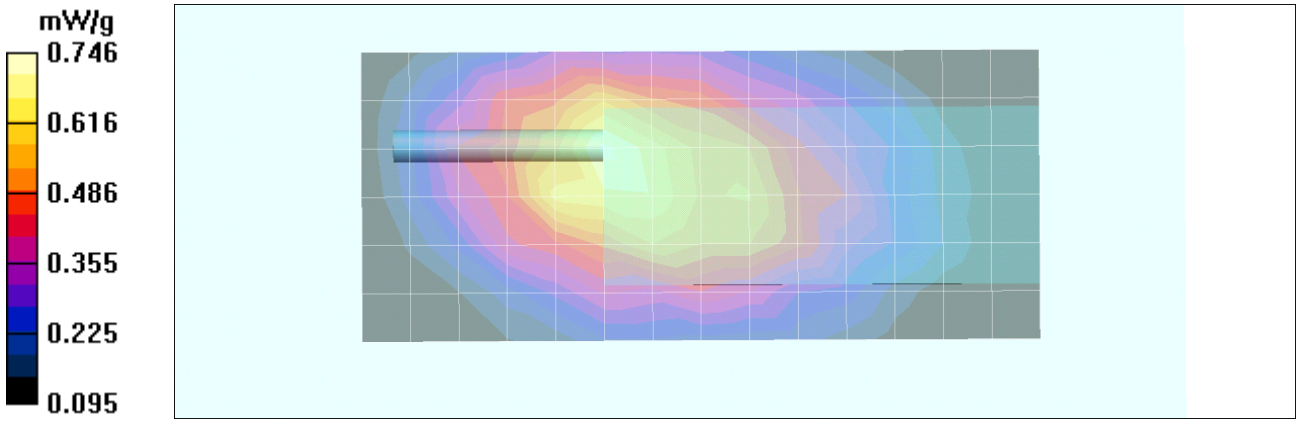
Procedure Notes:

Communication System: TETRA
Frequency: 460 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 460 MHz; σ = 0.88 mho/m; ε_r = 43.7; ρ = 1000 kg/m^3

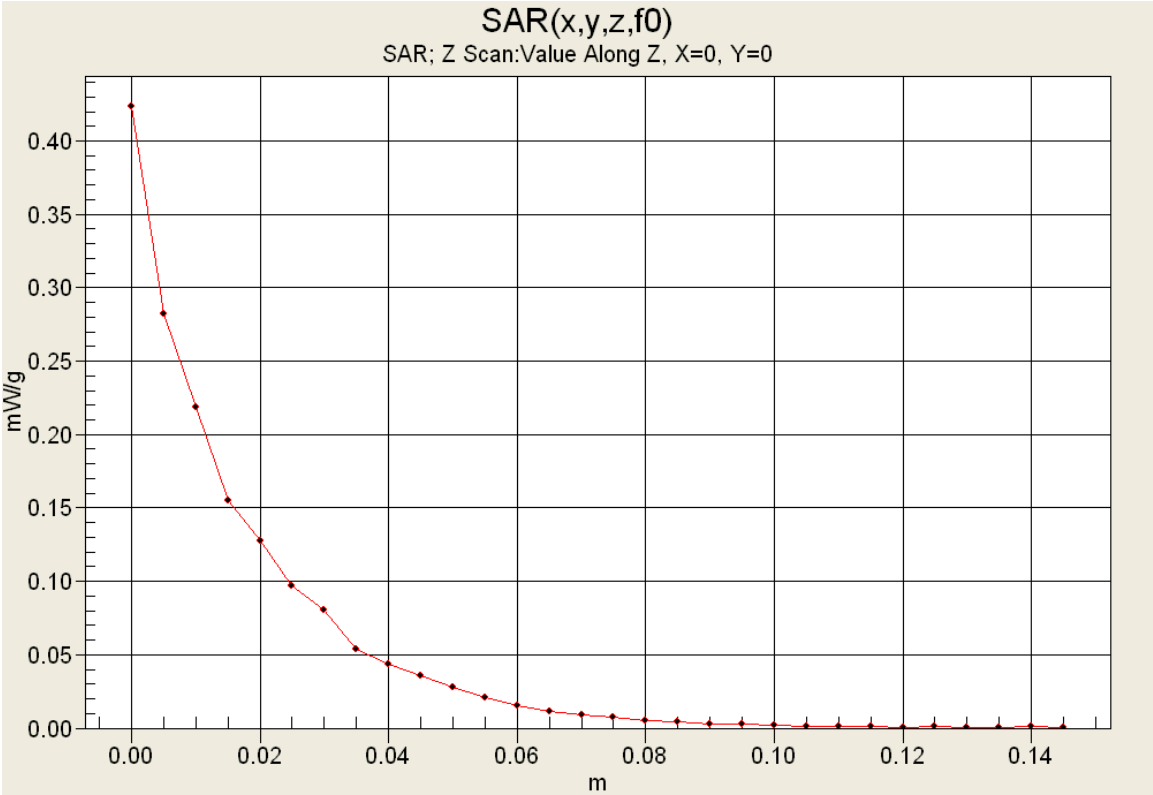
- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Face - 9040 - 460MHz - 663 - Thin Batt/Area Scan 2 (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.718 mW/g

Face - 9040 - 460MHz - 663 - Thin Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 28.7 V/m; Power Drift = -0.367 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.700 mW/g; SAR(10 g) = 0.501 mW/g
Maximum value of SAR (measured) = 0.746 mW/g



Z Axis Scan


SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
m

Plot F4

Date: 10/18/2013

DUT: STP9040 / 9240; Type: 450MHz TETRA Radio; Serial: Not Specified

Program Notes: Ambient Temp: 23C; Fluid Temp: 20.9C; Barometric Pressure: 102.9 kPa; Humidity: 30%

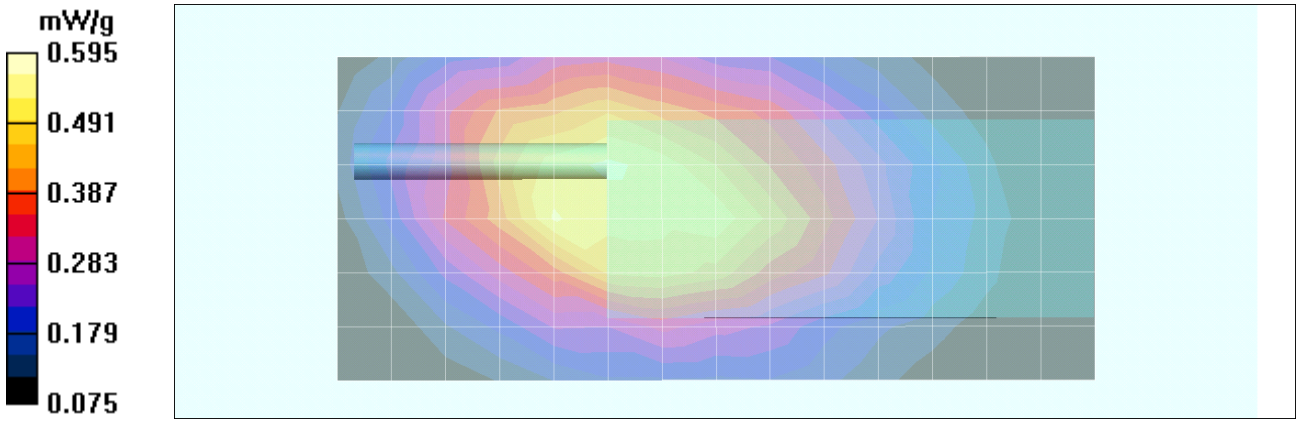
Procedure Notes:

Communication System: TETRA
Frequency: 430 MHz; Duty Cycle: 1:4
Medium: HSL450 Medium parameters used: f = 430 MHz; σ = 0.85 mho/m; ε_r = 44.7; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Face - 9240 430MHz - 662 - Thin Batt/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.535 mW/g

Face - 9240 430MHz - 662 - Thin Batt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 25.6 V/m; Power Drift = 0.367 dB
Peak SAR (extrapolated) = 0.869 W/kg
SAR(1 g) = 0.540 mW/g; SAR(10 g) = 0.379 mW/g
Maximum value of SAR (measured) = 0.595 mW/g



APPENDIX B - SYSTEM PERFORMANCE CHECK PLOTS

Date: 10/18/2013

DUT: Dipole 450 MHz; Type: D450V3; Serial: 1068; Calibrated: 04/27/2012

Program Notes: Ambient Temp: 23C; Fluid Temp: 20.9C; Barometric Pressure: 102.9 kPa; Humidity: 30%

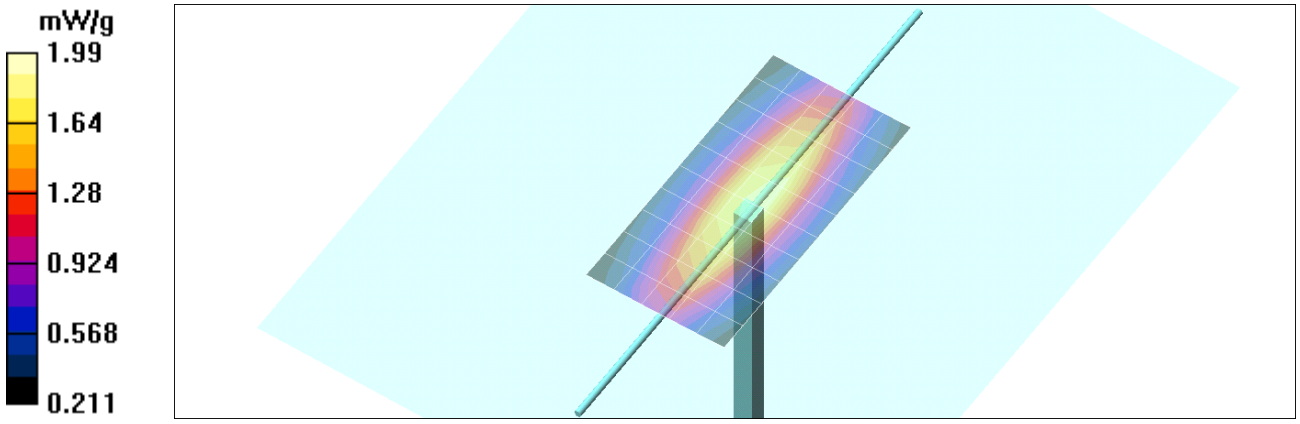
Procedure Notes:

Communication System: CW
Frequency: 450 MHz; Duty Cycle: 1:1
Medium: HSL450 Medium parameters used: f = 450 MHz; σ = 0.86 mho/m; ε_r = 44.5; ρ = 1000 kg/m^3

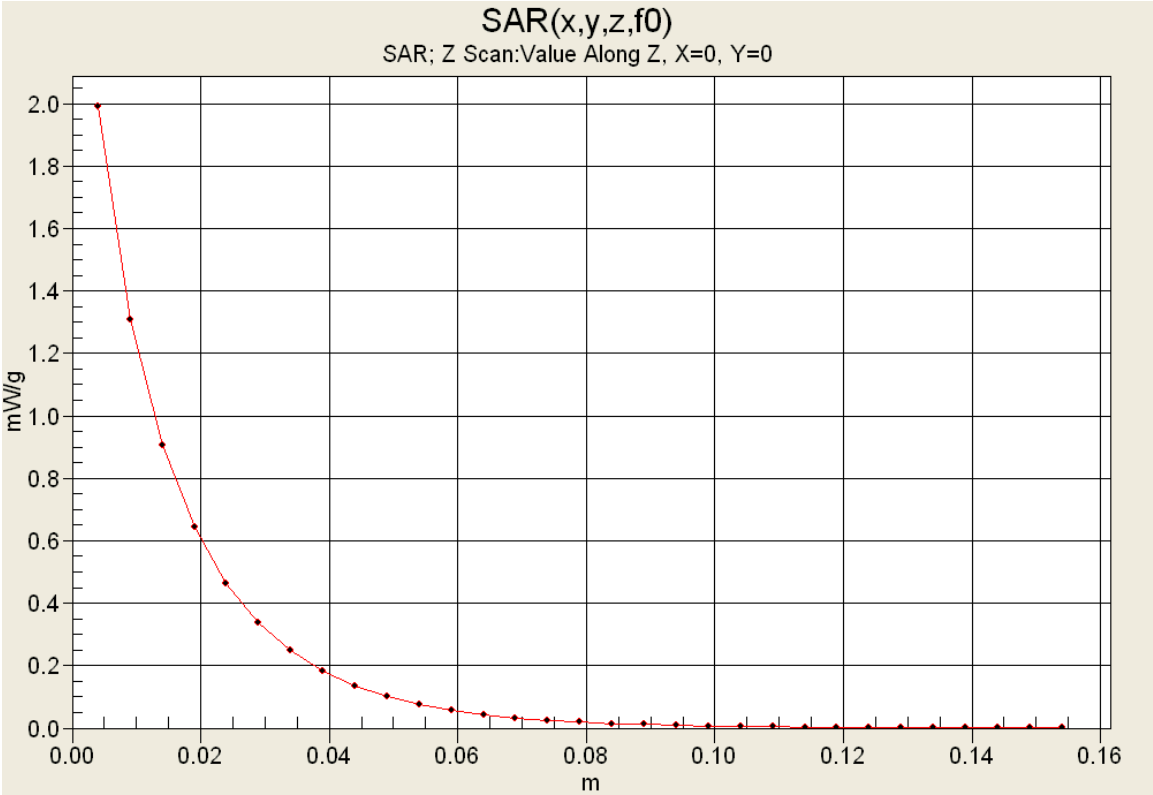
- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Head d=15mm Pin=398mW/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.88 mW/g

Head d=15mm Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.6 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 2.93 W/kg
SAR(1 g) = 1.87 mW/g; SAR(10 g) = 1.24 mW/g
Maximum value of SAR (measured) = 1.99 mW/g



Z-Axis Scan


SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Date10/22/2013

DUT: Dipole 450 MHz; Type: D450V3; Serial: 1068; Calibrated: 04/27/2012

Program Notes: Ambient Temp: 22C; Fluid Temp: 21.1C; Barometric Pressure: 102.4 kPa; Humidity: 32%

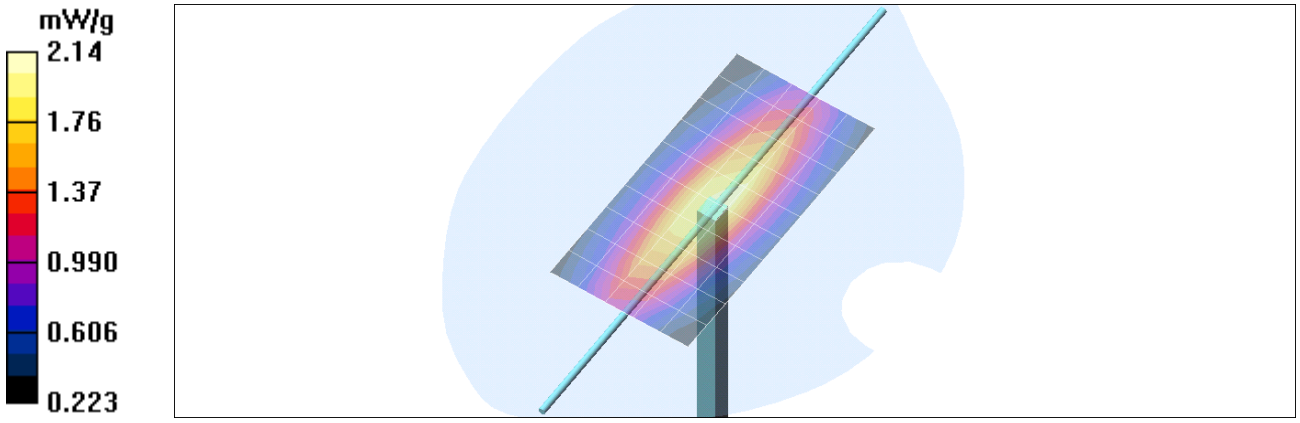
Procedure Notes:

Communication System: CW
Frequency: 450 MHz; Duty Cycle: 1:1
Medium: HSL450 Medium parameters used: f = 450 MHz; σ = 0.88 mho/m; ε_r = 44; ρ = 1000 kg/m^3

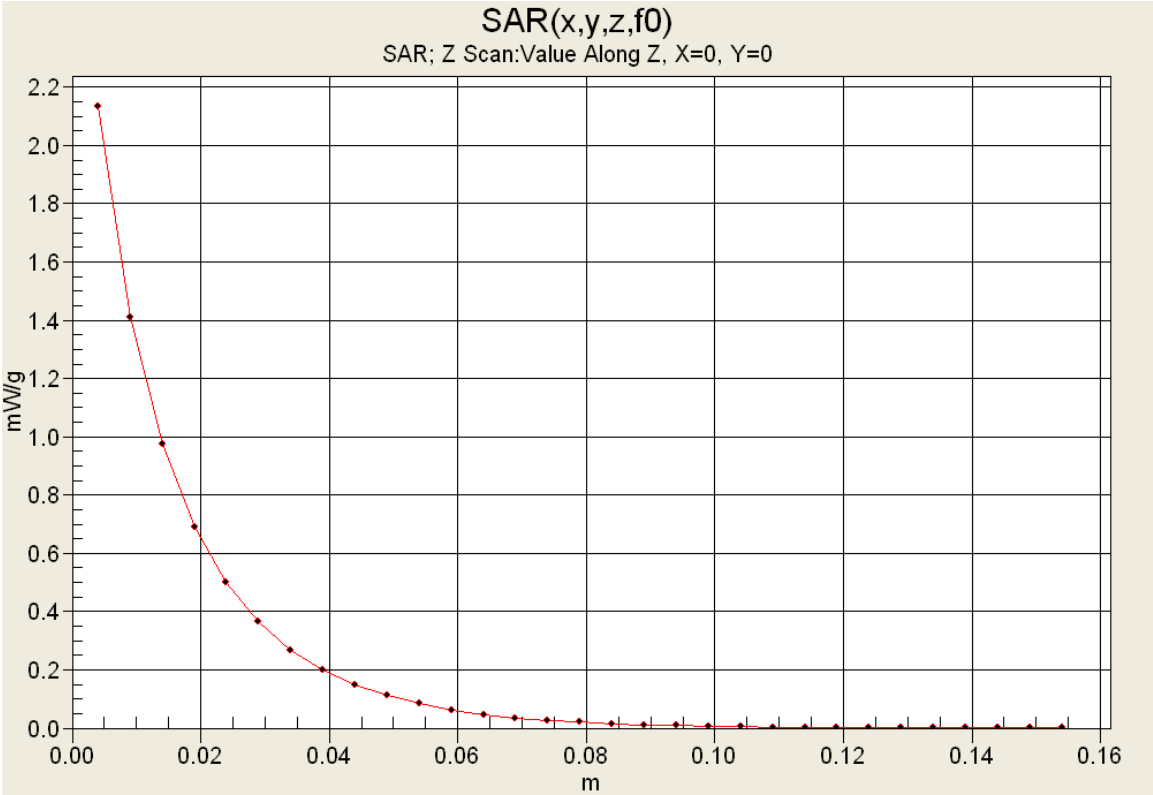
- Probe: ET3DV6 - SN1590; ConvF(7.53, 7.53, 7.53); Calibrated: 24/04/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Head d=15mm Pin=398mW/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.96 mW/g

Head d=15mm Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.0 V/m; Power Drift = 0.059 dB
Peak SAR (extrapolated) = 3.14 W/kg
SAR(1 g) = 2.01 mW/g; SAR(10 g) = 1.33 mW/g
Maximum value of SAR (measured) = 2.14 mW/g



Z-Axis Scan


SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

450 MHz Head

****

Celltech Labs
Test Result for UIM Dielectric Parameter
18/Oct/2013
Freq Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eH	FCC_sH	Test_e	Test_s
0.3500	44.70	0.87	46.74	0.78
0.3600	44.58	0.87	46.84	0.80
0.3700	44.46	0.87	45.54	0.81
0.3800	44.34	0.87	45.83	0.80
0.3900	44.22	0.87	45.53	0.81
0.4000	44.10	0.87	45.44	0.82
0.4100	43.98	0.87	44.27	0.82
0.4200	43.86	0.87	44.44	0.84
0.4300	43.74	0.87	44.68	0.85
0.4400	43.62	0.87	44.67	0.87
0.4500	43.50	0.87	44.63	0.87
0.4600	43.45	0.87	43.67	0.88
0.4700	43.40	0.87	43.97	0.88
0.4800	43.34	0.87	43.86	0.89
0.4900	43.29	0.87	43.65	0.90
0.5000	43.24	0.87	43.31	0.89
0.5100	43.19	0.87	43.19	0.92
0.5200	43.14	0.88	42.60	0.94
0.5300	43.08	0.88	42.95	0.93
0.5400	43.03	0.88	42.47	0.94
0.5500	42.98	0.88	42.64	0.96

450 MHz Head

****

Celltech Labs
Test Result for UIM Dielectric Parameter
22/Oct/2013
Freq Frequency(GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eH	FCC_sH	Test_e	Test_s
0.3500	44.70	0.87	45.92	0.78
0.3600	44.58	0.87	46.55	0.80
0.3700	44.46	0.87	45.68	0.81
0.3800	44.34	0.87	45.52	0.82
0.3900	44.22	0.87	45.15	0.82
0.4000	44.10	0.87	45.66	0.83
0.4100	43.98	0.87	44.85	0.83
0.4200	43.86	0.87	44.64	0.85
0.4300	43.74	0.87	44.77	0.87
0.4400	43.62	0.87	44.86	0.87
0.4500	43.50	0.87	44.02	0.88
0.4600	43.45	0.87	43.89	0.91
0.4700	43.40	0.87	43.63	0.90
0.4800	43.34	0.87	43.43	0.90
0.4900	43.29	0.87	43.24	0.91
0.5000	43.24	0.87	42.76	0.92
0.5100	43.19	0.87	43.38	0.93
0.5200	43.14	0.88	42.84	0.94
0.5300	43.08	0.88	42.61	0.94
0.5400	43.03	0.88	42.31	0.96
0.5500	42.98	0.88	42.70	0.98

APPENDIX D - SAR TEST SETUP & DUT PHOTOGRAPHS

TEST SETUP PHOTOGRAPHS

Held-to-Ear Test Setup STP9040, -00663 Antenna, Left ear touch position

Held-to-Ear Test Setup – STP9040, -00663 Antenna, Left ear tilt position

TEST SETUP PHOTOGRAPHS

Held-to-Ear Test Setup – STP9240, -00662 Antenna, Left ear touch position

Held-to-Ear Test Setup – STP9240, -00662 Antenna, Left ear tilt position

TEST SETUP PHOTOGRAPHS

Held-to-Ear Test Setup – STP9040, -00663 Antenna, Right ear touch position

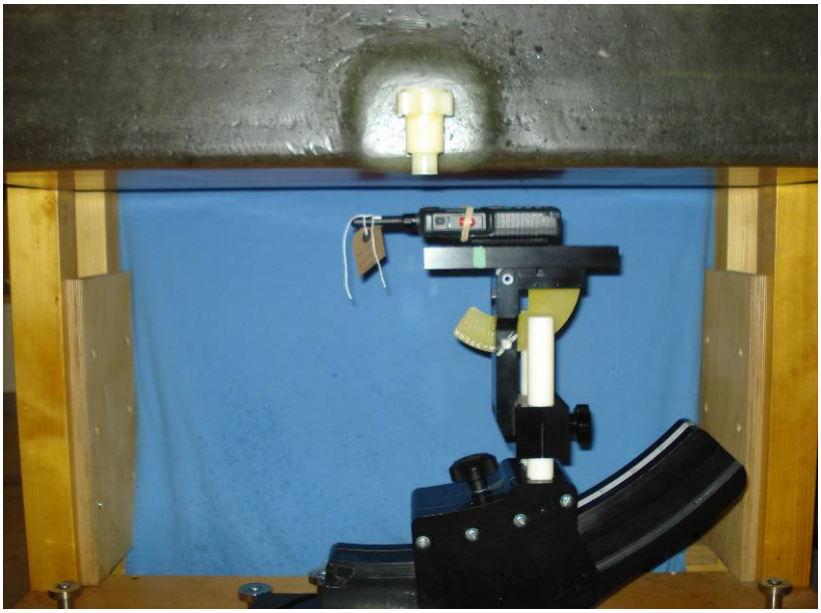
Held-to-Ear Test Setup – STP9040, -00663 Antenna, Right ear tilt position

TEST SETUP PHOTOGRAPHS

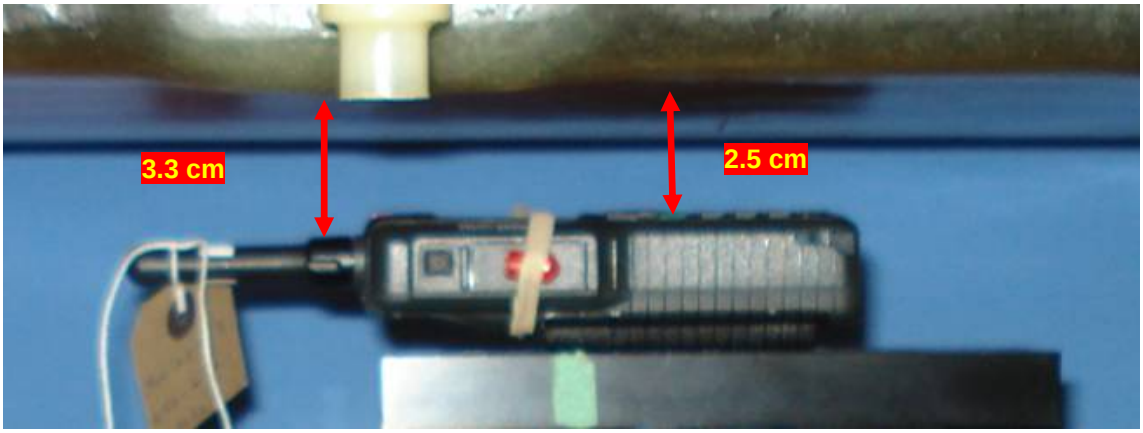
Held-to-Ear Test Setup – STP9240, -00662 Antenna, Right ear touch position

Held-to-Ear Test Setup – STP9240, -00662 Antenna, Right ear tilt position

TEST SETUP PHOTOGRAPHS



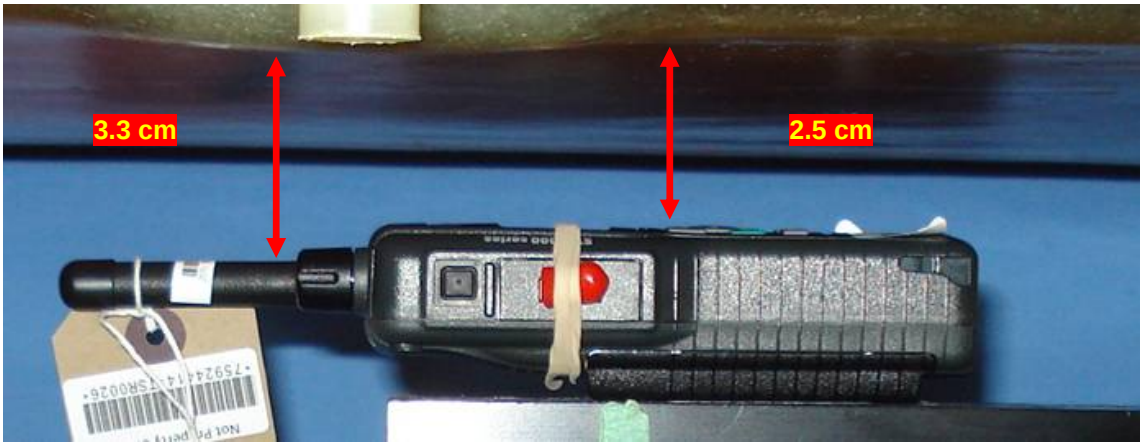
Face-Held Test Setup – STP9040, -00663 Antenna, -00635 Battery



STP9040, -00663 Antenna, -00635 Battery

TEST SETUP PHOTOGRAPHS

Face-Held Test Setup – STP9240, -00662 Antenna, -00635 Battery



STP9240, -00662 Antenna, -00635 Battery

TEST SETUP PHOTOGRAPHS

Face-Held Test Setup – STP9040, -00663 Antenna, -00634 Battery

STP9040, -00663 Antenna, -00634 Battery

TEST SETUP PHOTOGRAPHS

Face-Held Test Setup – STP9240, -00662 Antenna, -00634 Battery

STP9240, -00662 Antenna, -00634 Battery

DUT PHOTOGRAPHS

			
Radio Front	**Radio Left Side**	**Radio Back**	**Radio Right Side**
			
Radio Bottom	**Radio Top**		

STP9040 w/ -00634 Battery Variant

DUT PHOTOGRAPHS

Radio Front

Radio Left Side

Radio Back

Radio Right Side

Radio Bottom

Radio Top

STP9240 w/ -00634 Battery Variant)

DUT PHOTOGRAPHS

Back STP9040 (Normal Variant) without battery

Back of STP9240 (Normal Variant) without battery

DUT PHOTOGRAPHS

-0063 Antenna

-0062 Antenna

DUT PHOTOGRAPHS

-00635 Battery Back

-00635 Battery Front

-00634 Battery Back

-00634 Battery Front