731 Enterprise Drive
Lexington, KY 40510

Telephone: 859-226-1000
Facsimile: 859-226-1040
www.intertek-etlsemko.com

TEST REPORT

Report Number: 100724301LEX-002
Project Number: G100724301

Evaluation of Model Number: PRONTO7A

FCCID: X44PRONTO7A
ICID: 7362A-PRONTO7A

Tested to the SAR Criteria in

FCC Part §2.1093

Industry Canada RSS-102 Issue 4

For

Cercacor Laboratories, Inc.

Test Performed by:	Test Authorized by:
Intertek 731 Enterprise Drive Lexington, KY 40510	Cercacor Laboratories, Inc. 30 Fairbanks Ste 100 Irvine, CA 92618

Prepared By:________________________________**Date:____10/31/2013________**

Jason Centers, Senior Project Engineer

Approved By:________________________________**Date:____10/31/2013_________**

James Sudduth, Senior Staff Engineer

TABLE OF CONTENTS

1.0 DOCUMENT HISTORY

Revision/ Project Number	Writer Initials	Date	Change
1.0 /G100724301	JC	10/31/2013	Original document

2.0 INTRODUCTION

At the request of Cercacor Laboratories, Inc., the Pronto-7 Spot Check Pulse CO-Oximeter was evaluated for SAR in accordance with the requirements for FCC Part 2.1093 and RSS-102. Testing was performed in accordance with IEEE Std 1528, IEC62209-2, and the Office of Engineering and Technology KDB 447498. Testing was performed at the Intertek facility in Lexington, Kentucky.

For the evaluation, the dosimetric assessment system DASY522 was used. The total uncertainty for the evaluation of the spatial peak SAR values averaged over a cube of 1g tissue mass had been assessed for this system to be ±21.4%.

The PRONTO7A was tested at the maximum output power measured by Intertek. Maximum output power measurements are tabulated under Section 9.0 Tabular Test Results.

The maximum spatial peak SAR value for the sample device averaged over 1g was found to be:

Transmit Band (MHz)	Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)	SAR_{1g} – Body Mode (W/kg)	Limit (W/kg)
2412-2463	802.11g/5.5Mbps	1	2412.0	12.06	0.011	1.6

Table 1: Maximum Measured SAR

Based on the worst-case data presented above, the Pronto-7 Spot Check Pulse CO-Oximeter was found to be **compliant** with the 1.6 mW/g requirement for general population / uncontrolled exposure.

Modifications made to test sample

Intertek implemented no modifications.

3.0 TEST SITE DESCRIPTION

The SAR test site located at 731 Enterprise Drive, Lexington KY 40510 is comprised of the SPEAG model DASY 5.2 automated near-field scanning system, which is a package, optimized for dosimetric evaluation of mobile radios [3]. This system is installed in an ambient-free shielded chamber. The ambient temperature is controlled to 22.0 $\pm 2^{O}$C. During the SAR evaluations, the RF ambient conditions are monitored continuously for signals that might interfere with the test results. The tissue simulating liquid is also stored in this area in order to keep it at the same constant ambient temperature as the room.

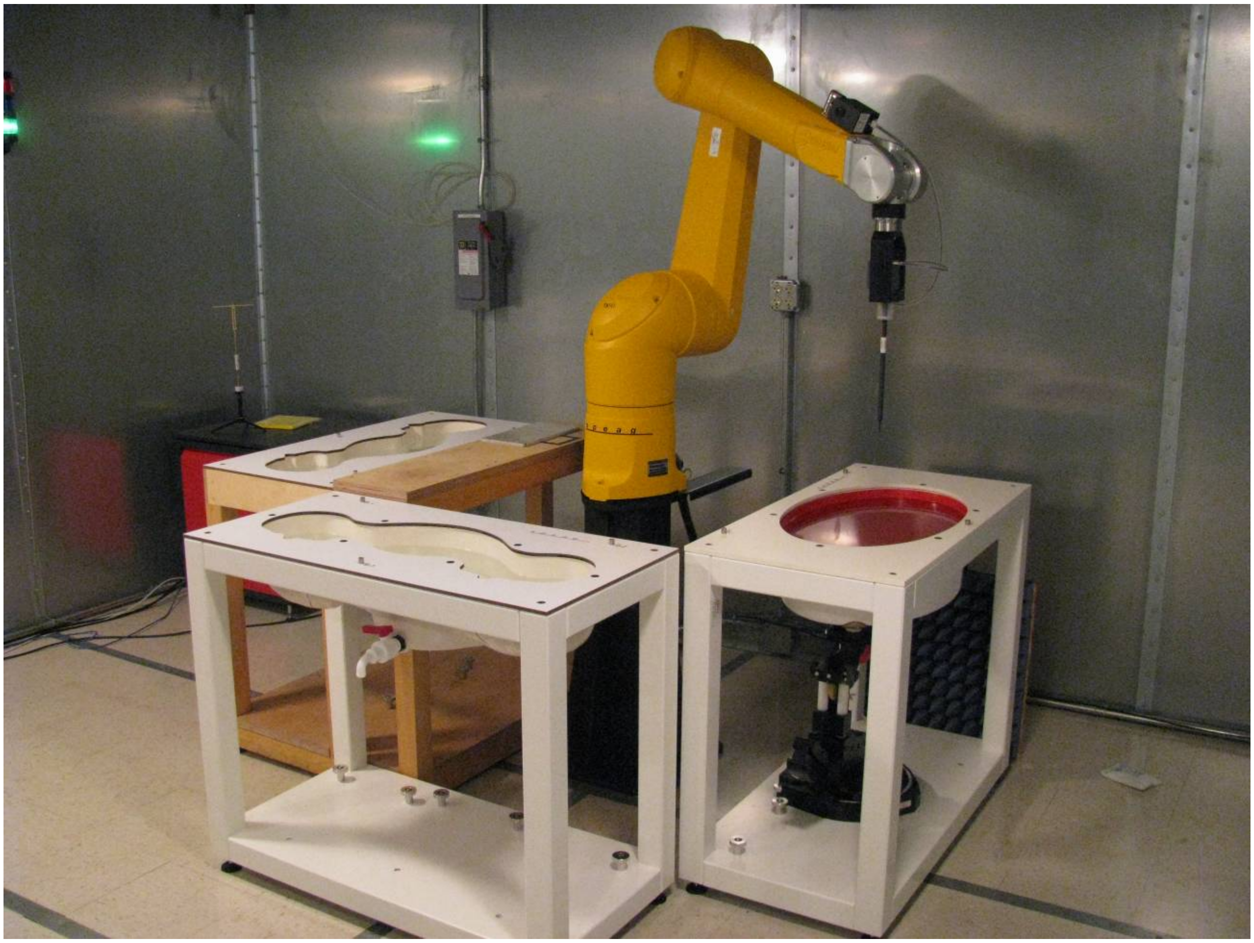


Figure 1: Intertek SAR Test Site

Measurement Equipment

The following major equipment/components were used for the SAR evaluation:

Description	Serial Number	Manufacture	Model	Cal. Date	Cal. Due
SAR Probe	3516	Speag	EXDV3	12/14/11	12/14/12
System Verification Dipole	1042	Speag	D750V3	9/12/11	9/12/12
System Verification Dipole	4d122	Speag	D835V2	9/20/11	9/20/12
System Verification Dipole	13	Speag	D900V2	12/7/11	12/7/12
System Verification Dipole	224	Speag	D1800V2	12/9/11	12/9/12
System Verification Dipole	718	Speag	D2450V2	12/9/11	12/9/12
System Verification Dipole	1025	Speag	D5GHzV2	12/14/11	12/14/12
DAE	358	Speag	DAE4	9/15/11	9/15/12
Signal Generator	US37040988	Hewlett Packard	ESG-D3000A	11/29/11	11/29/12
Network Analyzer	US39173983	Agilent	8753ES	11/22/11	11/22/12
Power Meter	1838538	Gigatronics	8542C	9/23/11	9/23/12
Power Sensor	1830320	Gigatronics	80601A	9/23/11	9/23/12
USB Power Sensor	100705	Rohde & Schwarz	NRP-Z51	9/9/11	9/9/12
Spectrum Analyzer	3099	Rohde & Schwarz	FSP7	9/23/11	9/23/12
Dielectric Probe Kit	3080	Agilent	85070D	NCR	NCR
ELI5 Phantom	1144	Speag	QDOVA002AA	NCR	NCR
Twin SAM Phantom	1663	Speag	QD000P40CD	NCR	NCR
Twin SAM Phantom	1243	Speag	QD000P40CA	NCR	NCR
6-axis robot	F11/5H1YA/A/01	Staubli	RX-90	NCR	NCR

NCR – No Calibration Required

Table 2: Test Equipment Used for SAR Evaluation

Measurement Traceability

All measurements described in this report are traceable to National Institute of Standards and Technology (NIST) standards or appropriate national standards.

Measurement Uncertainty

The Table below includes the uncertainty budget suggested by the IEEE Std 1528-2003 and determined by SPEAG for the DASY522 measurement System.

Error Description	Uncertainty Value	Prob. Dist.	Div.	c_i (1g)	c_i (10g)	Std.Unc. (1g)	Std.Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±5.5%	N	1	1	1	±5.5%	±5.5%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effect	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	√3	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	√3	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Test sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	√3	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	√3	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Standard Uncertainty						±10.7%	±10.5%	387
Expanded STD Uncertainty						**±21.4%**	**±21.0%**	

Notes.

1. Worst Case uncertainty budget for DASY52 assessed according to IEEE 1528-2003. The budget is valid for the frequency range 300 MHz – 3 GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerably smaller.

Error Description	Uncertainty Value	Prob. Dist.	Div.	c_i (1g)	c_i (10g)	Std.Unc. (1g)	Std.Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±6.55%	N	1	1	1	±6.55%	±6.55%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effect	±2.0%	R	√3	1	1	±1.2%	±1.2%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Probe Positioning	±9.9%	R	√3	1	1	±5.7%	±5.7%	∞
Max. SAR Eval.	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Test sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	√3	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	√3	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Standard Uncertainty						±12.8%	±12.8%	330
Expanded STD Uncertainty						**±25.6%**	**±25.2%**	

Notes.

Worst Case uncertainty budget for DASY522 assessed according to IEEE 1528-2003. The budget is valid for the frequency range 3 GHz – 6 GHz and represents a worst-case analysis. Probe calibration error reflects uncertainty of the EX3D probe. For specific tests and configurations, the uncertainty could be considerably smaller.

4.0 JOB DESCRIPTION

At the request of Cercacor Laboratories, Inc., the PRONTO7A was evaluated to the requirements defined in FCC Part 2.1093 and RSS-102. Cercacor Laboratories, Inc. has implemented the Connect One Wi-Fi Module (FCCID: XM5-SM2144N) and National Semiconductor Bluetooth Module (FCCID: ED9LMX9838) into the device.

Test sample	
Manufacturer	Cercacor Laboratories, Inc.
Model Number	PRONTO7A
Serial Number	32e2 3000 004a
Receive Date	1/3/2012
Test Start Date	5/14/2012
Test End Date	5/14/2012
Device Received Condition	Good
Device Category	Portable
RF Exposure Category	General Population/Uncontrolled Environment
Antenna Type	Integral
Test sample Accessories	
Cable	Masimo PDC-SC (Clip Spot Check Sensor)
Power Supply	Masimo - Model: GTM41060-1505, P/N: WR9QA3000C9PGS2040
Contact Information	
Contact Name	Sean Merritt
Phone Number	(949) 900-6614
Email Address	smerritt@masimolabs.com

Table 3: Product Information

Operating Bands	Frequency Range (MHz)	Modulation	Maximum Output Power (dBm)	Duty Cycle
2.4GHz ISM	2412-2462	802.11 b/g	14.89 dBm Peak 12.06 dBm Avg.	1:1

Table 4: Operating Bands

Test Sample Pictures:

Photographs of the test sample and its accessories are shown in Figure 2 through Figure 5.

Figure 2: Front of Test Sample – Front

Figure 3: Back of Test Sample – Right Side

Figure 4: Front of Test Sample – Left Side

Figure 5: Back of Test Sample – Back Side

5.0 SYSTEM VERIFICATION

System Validation

Prior to the assessment, the system was verified to be within ±10% of the specifications by using the system validation kit. The system validation procedure tests the system against reference SAR values and the performance of probe, readout electronics and software. The test setup utilizes a at phantom and a reference dipole. The results from the daily system verifications with a dipole are shown in Table 5.

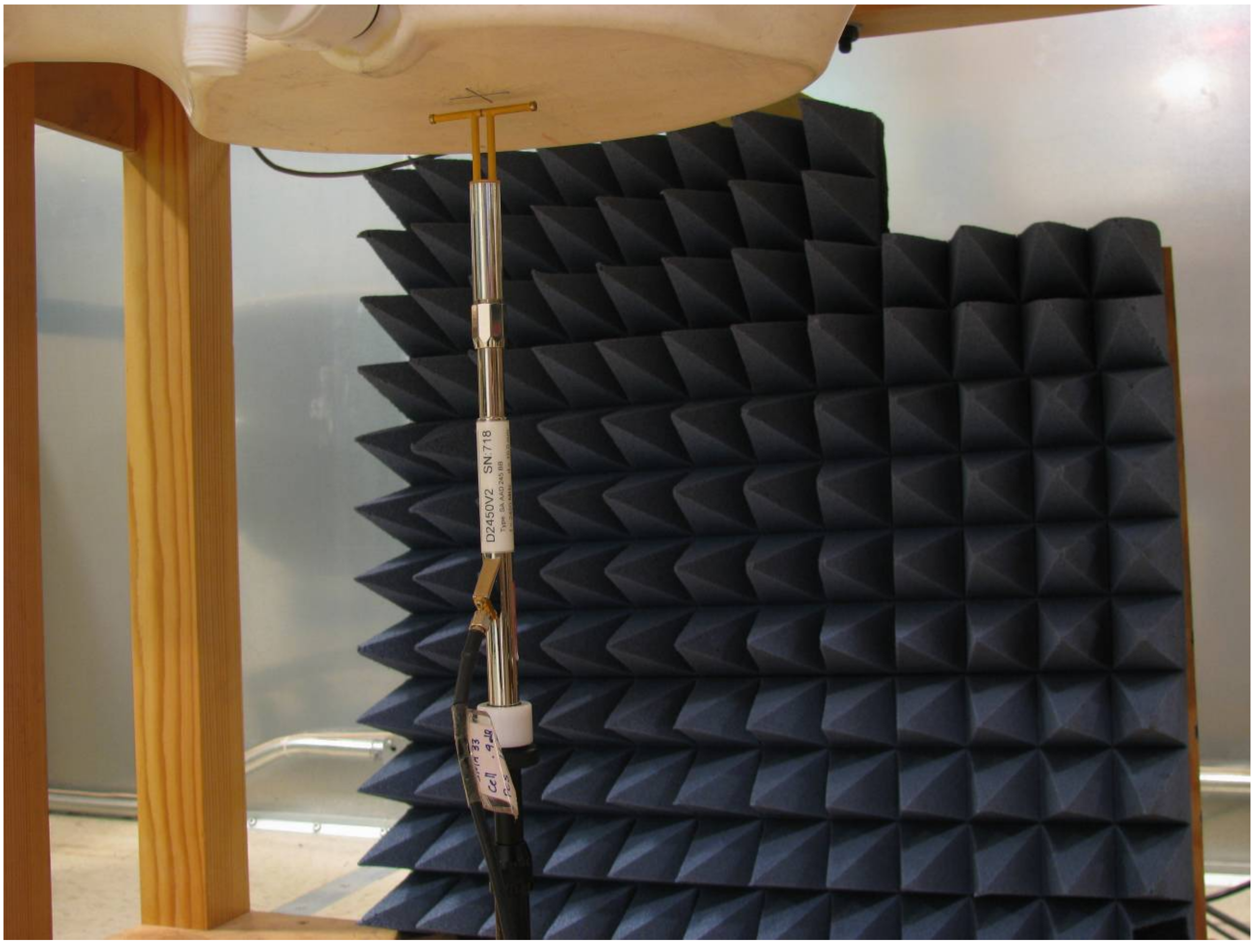


Figure 6: System Verification Setup

Reference Dipole Validation									
Ambient Temp (ºC)	**Fluid Temp (ºC)**	**Frequency (MHz)**	**Dipole**	**Fluid Type**	**Dipole Power Input**	**Cal. Lab SAR (1g)**	**Measured SAR (1g)**	**% Error SAR (1g)**	**Date**
23.2	22.9	2450	D2450V2	MSL2450	1W	53.9	52.4	2.78	5/14/12

Table 5: Dipole Validation

Tissue Simulating Liquid Description and Validation

The dielectric parameters were verified to be within 5% of the target values each day prior to assessment. The dielectric parameters (**ε_r, σ**) are shown in Table 6. A recipe for the tissue simulating fluid used is shown in Table 7.

Measured Tissue Properties									
Tissue Type	**Frequency Measure (MHz)**	**Dielectric Constant Target**	**Conductivity Target**	**Dielectric Constant Measure**	**Imaginary Part**	**Conductivity Measure**	**Dielectric % Deviation**	**Conductivity % Deviation**	**Date**
	2400	52.77	1.95	51.53	14.6	1.95	2.35	0.10	5/14/2012
	2437	52.73	1.95	51.4	14.73	2.00	2.52	2.34	5/14/2013
2450MSL	2450	52.7	1.95	51.36	14.8	2.0159	2.54	3.38	5/14/2014

Table 6: Dielectric Parameter Validation

TYPICAL COMPOSITION OF INGREDIENTS FOR LIQUID TISSUE PHANTOMS, Supplement C Edition 01-01 to OET Bulletin 65 Edition 97-01, Page 36. (450MHz to 2450 MHz data only)												
Ingredient (% by weight)	f (MHz)											
	450		835		915		1900		2450		5500	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56	54.9	70.45	62.7	68.64	65.53	78.67
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.36	0.5	0	0	0
Sugar	56.32	46.78	56	45	56.5	41.76	0	0	0	0	0	0
HEC	0.98	0.52	1	1	1	1.21	0	0	0	0	0	0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0	0	0	0	0	0
Triton X-100	0	0	0	0	0	0	0	0	36.8	0	17.235	10.665
DGBE	0	0	0	0	0	0	44.92	29.18	0	31.37	0	0
DGHE	0	0	0	0	0	0	0	0	0	0	17.235	10.665
Dielectric Constant	43.42	58	42.54	56.1	42	56.8	39.9	53.3	39.8	52.7		
Conductivity (S/m)	0.85	0.83	0.91	0.95	1	1.07	1.42	1.52	1.88	1.95		

Table 7: Tissue Simulating Fluid Recipe

6.0 EVALUATION PROCEDURES

Prior to any testing, the appropriate fluid was used to fill the phantom to a depth of 15 cm ±0.2cm. The fluid parameters were verified and the dipole validation was performed as described in the previous sections.

Test Positions:

The Device was positioned against the SAM and flat phantom using the exact procedure described in IEEE Std 1528, IEC62209-2, and the Office of Engineering and Technology KDB 447498.

Reference Power Measurement:

The measurement probe was positioned at a fixed location above the reference point. A power measurement was made with the probe above this reference position so it could used for the assessing the power drift later in the test procedure.

Area Scan:

A coarse area scan with a horizontal grid spacing of 15 x 15 mm was performed in order to find the approximate location of the peak SAR value. This scan was performed with the measurement probe at a constant height in the simulating fluid. A two dimensional spline interpolation algorithm was then used to determine the peaks and gradients within the scanned area.

Zoom Scan:

A zoom scan was performed around the approximate location of the peak SAR as determined from the area scan. The zoom scan was comprised of a measurement volume of 30 x 30 x 30 mm based on 7 x 7 x 7 points with a step size of 5mm. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

Interpolation, Extrapolation and Detection of Maxima:

The probe is calibrated at the center of the dipole sensors which is located 1 to 2.7 mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated.

In DASY52, the choice of the coordinate system defining the location of the measurement points has no influence on the uncertainty of the interpolation, Maxima Search and extrapolation routines. The interpolation, extrapolation and maximum search routines are all based on the modified Quadratic Shepard's method.

Thereby, the interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation. The DASY52 routines construct a once-continuously differentiable function that interpolates the measurement values as follows:

- For each measurement point a trivariate (3-D) / bivariate (2-D) quadratic is computed. It interpolates the measurement values at the data point and forms a least-square fit to neighboring measurement values.
- The spatial location of the quadratic with respect to the measurement values is attenuated by an inverse distance weighting. This is performed since the calculated quadratic will fit measurement values at nearby points more accurate than at points located further away.
- After the quadratics are calculated for at all measurement points, the interpolating function is calculated as a weighted average of the quadratics.

There are two control parameters that govern the behavior of the interpolation method. One specifies the number of measurement points to be used in computing the least-square fits for the local quadratics. These measurement points are the ones nearest the input point for which the quadratic is being computed. The second parameter specifies the number of measurement points that will be used in calculating the weights for the quadratics to produce the final function. The input data points used there are the ones nearest the point at which the interpolation is desired. Appropriate defaults are chosen for each of the control parameters.

The trivariate quadratics that have been previously computed for the 3-D interpolation and whose input data are at the closest distance from the phantom surface, are used in order to extrapolate the fields to the surface of the phantom.

In order to determine all the field maxima in 2-D (Area Scan) and 3-D (Zoom Scan), the measurement grid is refined by a default factor of 10 and the interpolation function is used to evaluate all field values between corresponding measurement points. Subsequently, a linear search is applied to find all the candidate maxima. In a last step, non physical maxima are removed and only those maxima which are within 2 dB of the global maximum value are retained.

Averaging and Determination of Spatial Peak SAR

The interpolated data is used to average the SAR over the 1g and 10g cubes by spatially discretizing the entire measured volume. The resolution of this spatial grid used to calculate the averaged SAR is 1mm or about 42875 interpolated points. The resulting volumes are defined as cubical volumes containing the appropriate tissue parameters that are centered at the location. The location is defined as the center of the incremental volume.

The spatial-peak SAR must be evaluated in cubical volumes containing a mass that is within 5% of the required mass. The cubical volume centered at each location, as defined above, should be expanded in all directions until the desired value for the mass is reached, with no surface boundaries of the averaging volume extending beyond the outermost surface of the considered region. In addition, the cubical volume should not consist of more than 10% of air. If these conditions are not satisfied then the center of the averaging volume is moved to the next location. Otherwise, the exact size of the final sampling cube is found using an inverse polynomial approximation algorithm, leading to results with improved accuracy. If one boundary of the averaging volume reaches the boundary of the measured volume during its expansion, it will not be evaluated at all. Reference is kept of all locations used and those not used for averaging the SAR. All average SAR values are finally assigned to the centered location in each valid averaging volume.

All locations included in an averaging volume are marked to indicate that they have been used at least once. If a location has been marked as used, but has never been assigned to the center of a cube, the highest averaged SAR value of all other cubical volumes which have used this location for averaging is assigned to this location. Only those locations that are not part of any valid averaging volume should be marked as unused. For the case of an unused location, a new averaging volume must be constructed which will have the unused location centered at one surface of the cube. The remaining five surfaces are expanded evenly in all directions until the required mass is enclosed, regardless of the amount of included air. Of the six possible cubes with one surface centered on the unused location, the smallest cube is used, which still contains the required mass.

If the final cube containing the highest averaged SAR touches the surface of the measured volume, an appropriate warning is issued within the postprocessing engine.

Power Drift Measurement:

The probe was positioned at precisely the same reference point and the reference power measurement was repeated. The difference between the initial reference power and the final one is referred to as the power drift. The power drift measurement was used to assess the output power stability of the test sample throughout the SAR scan.

RF Ambient Activity:

The SAR evaluation was performed in an ambient free RF shielded enclosure.

7.0 TEST CONFIGURATION

For the purpose of this evaluation, the PRONTO7A was considered to be a device that could be operated when held against the body. All SAR scans were performed with a freshly charged battery installed.

The test channels and operating modes were selected using software based test commands for the evaluation of the WLAN radio. The device was positioned against the bottom of the phantom with zero clearance during the evaluation. A photograph of the PRONTO7A, as positioned for testing, is shown in Figure 7.

Figure 7: Device Positioning for SAR Scans

8.0 CRITERIA

The following FCC limits for SAR apply to devices operating in the General Population/Uncontrolled Exposure environment:

Exposure **(General Population/Uncontrolled Exposure environment)**	**SAR** **(W/kg)**
Average over the whole body	0.08
Spatial Peak (1g)	1.60
Spatial Peak for hands, wrists, feet and ankles (10g)	4.00

9.0 TABULAR TEST RESULTS

The results on the following page(s) were obtained when the device was transmitting at maximum output power. Detailed measurement data and plots, which reveal information about the location of the maximum SAR with respect to the device, are referenced under APPENDIX A – SAR Plots**.**

Conducted Power Measurements

The conducted power measurements for the 802.11 module in the PRONTO7A were performed in accordance to ANSI C63.19:2009 Section 6.10.2.1 using the channel integration method for power.

Mode	Frequency (MHz)	Channel Number	Conducted Power (dBm) Data Rate (Mbps)			
			1	2	5.5	11
	2412	1	14.15	13.2	**14.89**	14.8
	2437	6	14.4	12.65	14.65	14.4
802.11b	2462	11	14.24	12.04	14.39	14.71

Table 8: Conducted Output Power – 802.11b – Peak

Mode	Frequency (MHz)	Channel Number	Conducted Power (dBm) Data Rate (Mbps)							
			6	9	12	18	24	36	48	54
	2412	1	14.6		14.67	14.8	14.8	14.5	12.2	12.15
	2437	6	15.1		15.5	15.7	15.4	15.5	12.73	12.4
802.11g	2462	11	16.02		16	16	15.9	15.9	12.4	12.4

Table 9: Conducted Output Power – 802.11g – Peak

Mode	Frequency (MHz)	Channel Number	Conducted Power (dBm) Data Rate (Mbps)			
			1	2	5.5	11
	2412	1	7.82	10.69	**12.06**	9.59
	2437	6	7.34	10.24	11.58	8.95
802.11b	2462	11	6.59	9.54	10.83	8.19

Table 10: Conducted Output Power – 802.11b – Average

Mode	Frequency (MHz)	Channel Number	Conducted Power (dBm) Data Rate (Mbps)							
			6	9	12	18	24	36	48	54
	2412	1	9.83		8.23	7.08	5.68	3.04	-0.83	-1.2
	2437	6	9.06		7.44	6.32	4.99	2.33	-1.59	-1.94
802.11g	2462	11	8.18		6.61	5.44	4.06	1.4	-2.54	-2.87

Table 11: Conducted Output Power – 802.11g – Average

Body Mode SAR Test Results

The device is used for noninvasive and quick spot checking of total hemoglobin (SpHb®), SpO2, pulse rate, and perfusion index that could be held against the body during operation. The device was evaluated according to the specific requirements found in FCC KDB 447498[9]. The worse case 1-g SAR value was less than the 1.6mW/g limit. The Bluetooth transmitter was not evaluated since the output power is less than 0.1mW and is exempted from testing per FCC KDB 447498[9].

SAR Measurement Results at the Body											
Band	Channel	Frequency (MHz)	Mode	Test Position	Seperation Distance (mm)	Power Drift (dB)	Measured SAR 1g (W/kg)	Reported SAR 1g (W/kg)	Measured Conducted Output Power (dBm)	Maximum Conducted Output Power (dBm)	Notes
2.4GHz	1	2412.00	802.11b - 1Mbps	Back Touching Phantom	0	-0.250	0.004	0.005	14.15	15.00	Appendix A: Plot A1
2.4GHz	1	2412.00	802.11b - 5.5Mbps	Back Touching Phantom	0	0.740	0.011	0.011	14.89	15.00	Appendix A: Plot A2

Table 12: Body Mode SAR Results

Simultaneous Transmission Test Results

The WLAN and Bluetooth transmitters can operate simultaneously. The Bluetooth transmitter was not evaluated since the output power is less than 0.1mW and is exempted from testing per FCC KDB 447498[9] guidelines.

10.0 REFERENCES

[1] ANSI, *ANSI/IEEE C95.1-1991: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz,* The Institute of electrical and Electronics Engineers, Inc., New York, NY 10017, 1992

[2] Federal Communications Commission, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields”, Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01), FCC, Washington, D.C. 20554, 1997

[3] Thomas Schmid, Oliver Egger, and Niels Kuster, “Automated E-field scanning system for dosimetric assessments”, *IEEE Transaction on Microwave Theory and Techniques*, vol. 44, pp. 105-113, Jan. 1996.

[4] Niels Kuster, Ralph Kastle, and Thomas Schmid, “Dosimetic evaluation of mobile communications equipment with know precision”, IEICE Transactions on Communications, vol. E80-B, no. 5, pp.645-652, May 1997.

[5] NIS81, NAMAS, “The treatment of uncertainty in EMC measurement”, Tech. Rep., NAMAS Executive, National Physical Laboratory, Teddinton, Middlesex, England, 1994.

[6] Barry N. Tayor and Chris E. Kuyatt, “Guidelines for evaluating and expressing the uncertainty of NIST measurement results”, Tech. Rep., National Institute of Standards and Technology, 1994.

[7] Federal Communications Commission, KDG 248227 - “SAR Measurement Procedures for 802.11 a/b/g Transmitters”

[8] Federal Communications Commission, KDB 648474 – “SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas”.

[9] Federal Communications Commission, KDB 447498 – “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”.

[10] Federal Communications Commission, KDB 616217 – “SAR Evaluation Considerations for Laptop Computers with Antennas Built-in on Display Screens”.

[11] Federal Communications Commission, KDB 450824 – “SAR Probe Calibration and System Verification Considerations for Measurements at 150MHz – 3GHz”.

[12] Federal Communications Commission, KDB 865664 – “SAR Measurement Requirements for 3-6GHz”.

[13] Federal Communications Commission, KDB 941225 – “SAR Measurement Procedures for 3G Devices”.

[14] ANSI, ANSI/IEEE C63.10-2009: American National Standard for Testing Unlicensed Wireless Devices.

11.0 APPENDIX A – SAR PLOTS

SAR Plot: A1

Date/Time: 5/14/2012 4:15:17 PM

Test Laboratory: Intertek
File Name: 802.11b Scan.da52:4

802.11b Scan

Procedure Notes:

DUT: Pronto 7; Serial: 32e2 3000 004a dlc7

Communication System: Generic 802.11b/g/n; Communication System Band: 2.4 GHz Band; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 2412 MHz; σ = 1.923 mho/m; ε_r = 50.645; ρ = 1000 kg/m^3

Phantom section: Flat Section
Measurement Standard: DASY52 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

Probe: EX3DV3 - SN3516; ConvF(8.21, 8.21, 8.21); Calibrated: 12/14/2011;

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn358; Calibrated: 9/15/2011

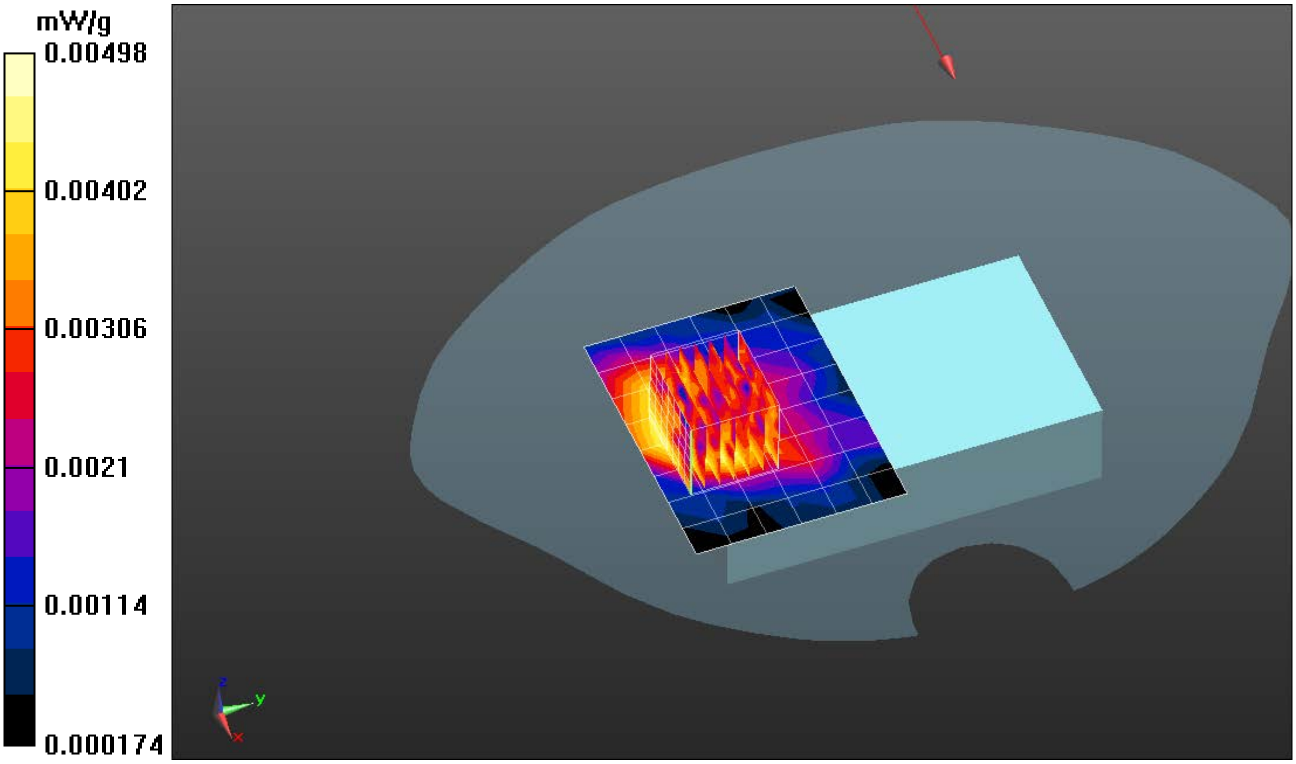
Phantom: SAM 1 with CRP v5.0; Type: QD000P40CD; Serial: TP: 1243

DASY522 52.8.1(838); SEMCAD X 14.6.5(6469)

Wifi Flat-Section MSL Testing on 1_14_12/Back of Device Against Phantom, Data Rate =1mbps/Area Scan (9x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.00498 mW/g

Wifi Flat-Section MSL Testing on 1_14_12/Back of Device Against Phantom, Data Rate =1mbps/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.456 V/m; Power Drift = -0.25 dB
Peak SAR (extrapolated) = 0.00753 mW/g
Maximum value of SAR (measured) = 0.00581 mW/g

SAR(1 g) = 0.00402 mW/g


mW/g
0.00498
0.00402
0.00306
0.0021
0.00114
0.000174

SAR Plot: A2

Date/Time: 5/14/2012 4:48:09 PM

Test Laboratory: Intertek
File Name: 802.11b Scan.da52:4

802.11b Scan

Procedure Notes:

DUT: Pronto 7; Serial: 32e2 3000 004a dlc7

Communication System: Generic 802.11b/g/n; Communication System Band: 2.4 GHz Band; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 2412 MHz; σ = 1.923 mho/m; ε_r = 50.645; ρ = 1000 kg/m^3

Phantom section: Flat Section
Measurement Standard: DASY52 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

Probe: EX3DV3 - SN3516; ConvF(8.21, 8.21, 8.21); Calibrated: 12/14/2011;

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn358; Calibrated: 9/15/2011

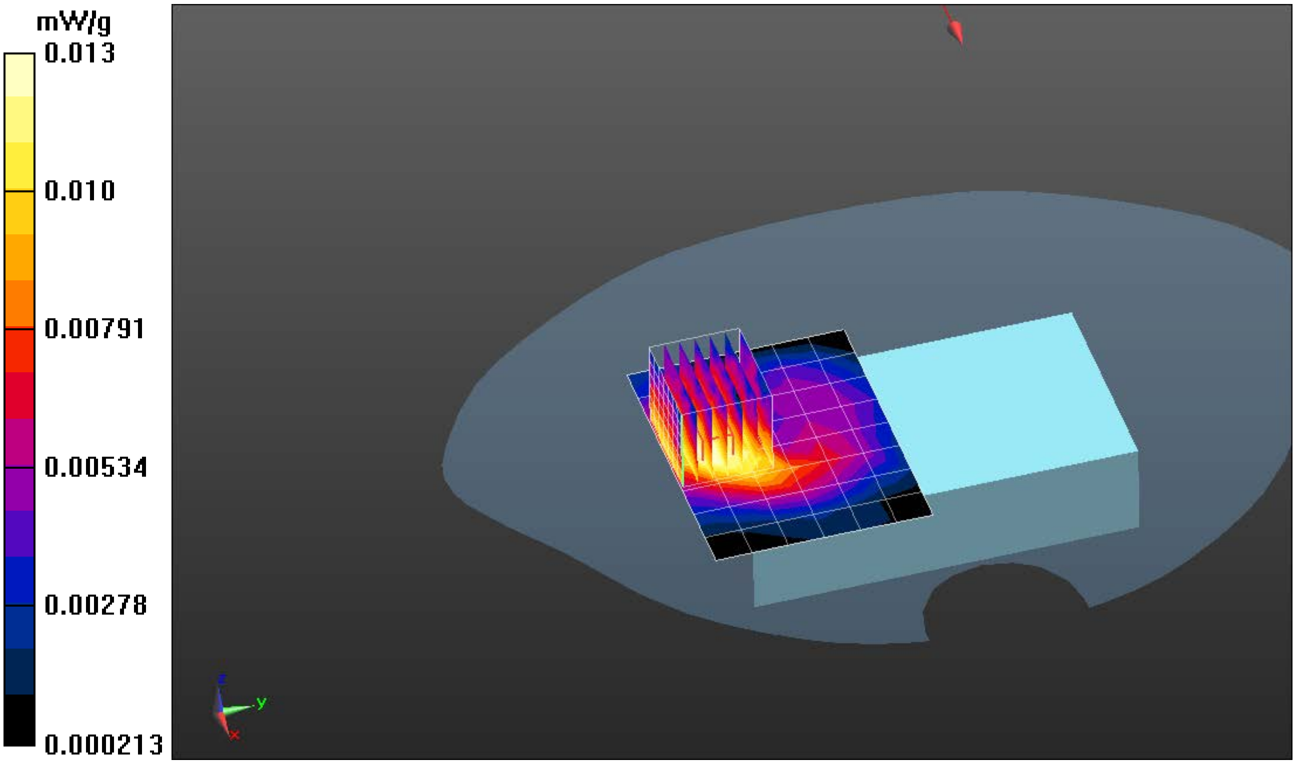
Phantom: SAM 1 with CRP v5.0; Type: QD000P40CD; Serial: TP: 1243

DASY522 52.8.1(838); SEMCAD X 14.6.5(6469)

Wifi Flat-Section MSL Testing on 1_14_12/Back of Device Against Phantom, Data Rate =5.5mbps 2/Area Scan (9x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0130 mW/g

Wifi Flat-Section MSL Testing on 1_14_12/Back of Device Against Phantom, Data Rate =5.5mbps 2/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.148 V/m; Power Drift = 0.74 dB
Peak SAR (extrapolated) = 0.020 mW/g
Maximum value of SAR (measured) = 0.0157 mW/g

SAR(1 g) = 0.011 mW/g


mW/g
0.013
0.010
0.00791
0.00534
0.00278
0.000213
z
y
x

12.0 APPENDIX B – SYSTEM VERIFICATION PLOTS

Date/Time: 5/14/2012 3:41:37 PM

Test Laboratory: Intertek
File Name: Dipole Validation 5_14_2011.da52:1

Dipole Validation 5_14_2011

Procedure Notes:

DUT: Dipole 2450 MHz D2450V2; Serial: D2450V2 - SN:718

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz; σ = 2.018 mho/m; ε_r = 51.361; ρ = 1000 kg/m^3

Phantom section: Flat Section
Measurement Standard: DASY52 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

Probe: EX3DV3 - SN3516; ConvF(8.21, 8.21, 8.21); Calibrated: 12/14/2011;

Sensor-Surface: 2mm (Mechanical Surface Detection)

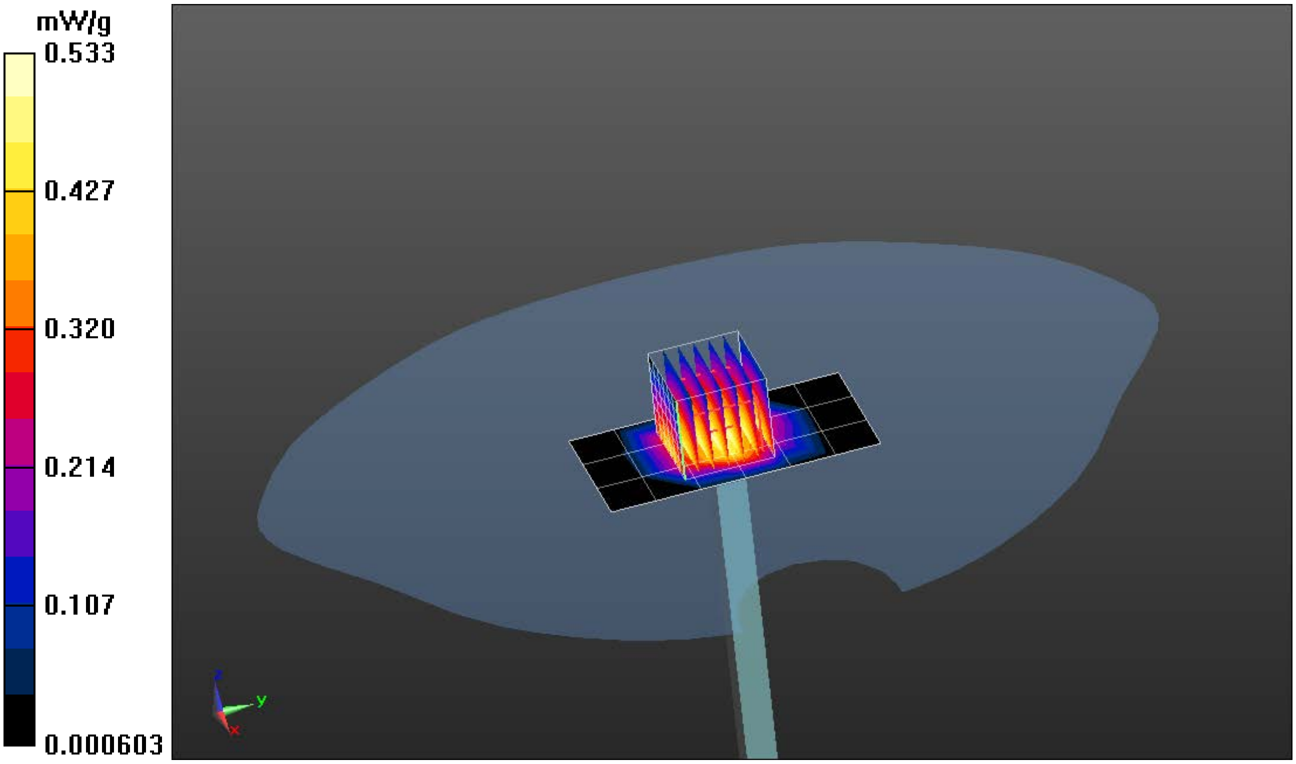
Electronics: DAE4 Sn358; Calibrated: 9/15/2011

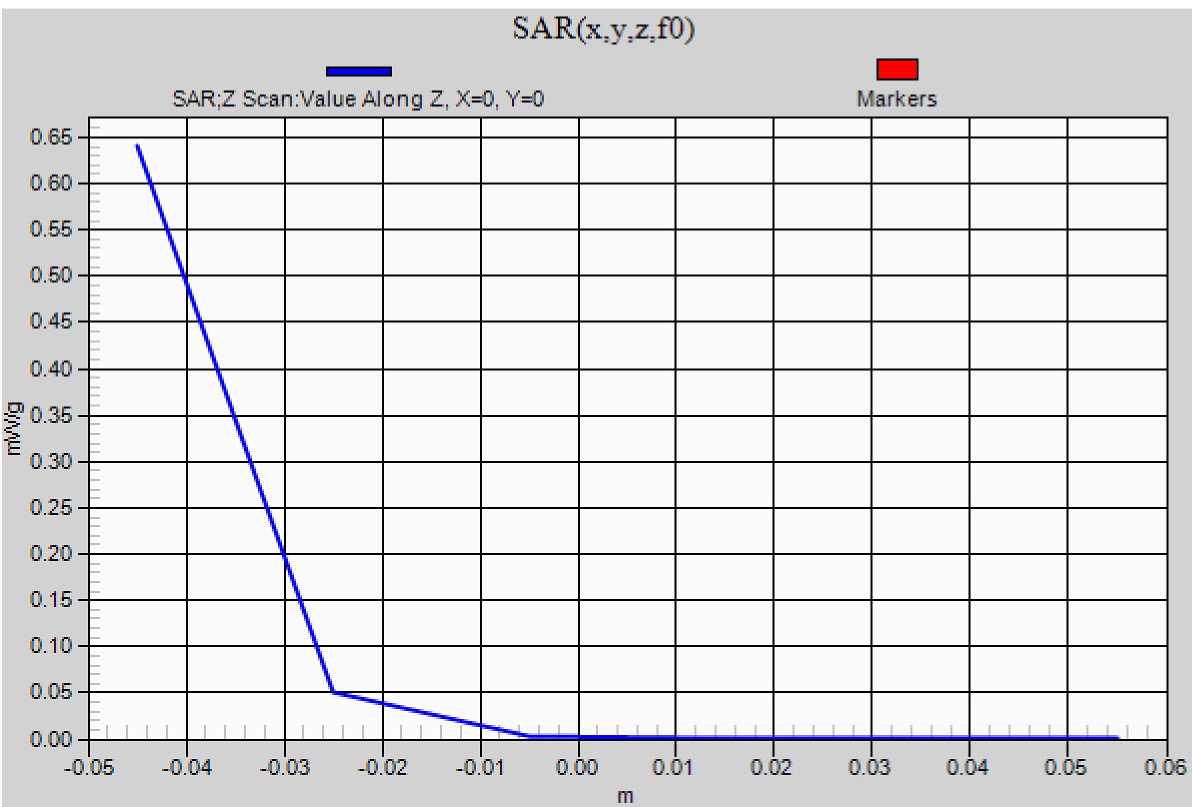
Phantom: SAM 1 with CRP v5.0; Type: QD000P40CD; Serial: TP: 1243

DASY522 52.8.1(838); SEMCAD X 14.6.5(6469)

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=10 mW with 10db attenuator at dipole, dist=2.0mm (EX-Probe)/Area Scan (4x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.533 mW/g

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=10 mW with 10db attenuator at dipole, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.948 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 108.0 mW/g
SAR(1 g) = 52.4 mW/g; SAR(10 g) = 24.5 mW/g (SAR corrected for target medium)
Normalized to target power = 1 W and actual power = 0.01 W
Maximum value of SAR (measured) = 78.4 mW/g


mW/g
0.533
0.427
0.320
0.214
0.107
0.000603


SAR(x,y,z,f0)
SAR;Z Scan:Value Along Z, X=0, Y=0
Markers
mW/g
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-0.05
-0.04
-0.03
-0.02
-0.01
0.00
0.01
0.02
0.03
0.04
0.05
0.06
m