FCC OET BULLETIN 65 SUPPLEMENT C 01-01
IEEE STD 1528:2003
RSS-102 Issue 4, March 2010
RSS-102 Supplementary Procedures (SPR)-001, January 1, 2011

SAR EVALUATION REPORT

For
WIFI 11A/N Module
(Tested inside of Host Device)

MODEL: MIC-A2
FCC ID: MCLMICA2
IC: 2878D-MICA2

REPORT NUMBER: 12J14215-3A1
ISSUE DATE: February 1 , 2012

Prepared for
HON HAI PRECISION IND. CO., LTD.
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	January 26, 2012	Initial Issue	--
A	January 30, 2012	Update DUT description	Kent Huang
A1	February 1, 2012	Deleted EN 62209 standard from report	Kent Huang

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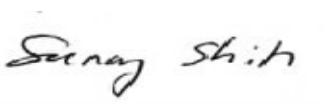
1. Attestation of Test Results

Applicant:	Hon Hai Precision Ind. Co., Ltd.		
EUT description:	WIFI 11A/N Module (Tested inside of Host)		
Model number:	MIC-A2		
Device category:	Portable		
Device type:	Prototype		
Exposure category:	General Population/Uncontrolled Exposure		
Date tested:	January 20 - 23, 2012		
FCC/IC Rule Parts	Freq. Range [MHz]	Highest 1-g SAR (W/kg)	Limit (W/kg)
15.407 / RSS-102	5180 - 5240	0.04	1.6
15.247 / RSS-102	5745 - 5825	0.12	
Applicable Standards			Test Results
FCC OET Bulletin 65 Supplement C 01-01, IEEE STD 1528:2003 RSS-102 Issue 4, March 2010 and RSS-102 Supplementary Procedures (SPR)-001, January 1, 2011			Pass

Compliance Certification Services, Inc. (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government (NIST Handbook 150, Annex A). This report is written to support regulatory compliance of the applicable standards stated above.

Approved & Released For UL CCS By:



Sunny Shih
Engineering Team Leader
Compliance Certification Services (UL CCS)

Tested By:

Kent Huang
SAR Engineer
Compliance Certification Services (UL CCS)

2. Test Methodology

The tests documented in this report were performed in accordance with FCC OET Bulletin 65 Supplement C 01-01, IEEE STD 1528:2003, RSS-102 Issue 4, March 2010, RSS-102 Supplementary Procedures (SPR)-001, January 1, 2011 and the following KDB Test Procedures.

- 248227 D01 SAR meas for 802.11abg v01r02
- 447498 D01 Mobile Portable RF Exposure v04

3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. Calibration and Uncertainty

4.1. Measuring Instrument Calibration

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due date		
				MM	DD	Year
Dielectronic Probe kit	HP	85070C	N/A	N/A		
S-Parameter Network Analyzer	Agilent	8753ES-6	MY40001647	11	22	2012
Signal Generator	Agilent	8753ES-6	MY40001647	11	22	2012
Synthesized Signal Generator	HP	83732B	US34490599	7	14	2012
E-Field Probe	SPEAG	EX3DV4	3686	1	24	2012
Thermometer	ERTCO	639-1S	1718	7	19	2012
Data Acquisition Electronics	SPEAG	DAE4	1259	5	3	2012
System Validation Dipole	SPEAG	D5GHzV2	1003	8	23	2012
Power Meter	Giga-tronics	8651A	8651404	5	13	2012
Power Sensor	Giga-tronics	80701A	1834588	5	13	2012
Power Meter	HP	437B	3125U16345	5	13	2012
Power Sensor	HP	8481A	2702A60780	5	13	2012
Amplifier	MITEQ	4D00400600-50-30P	1620606	N/A		
Directional coupler	Werlatone	C8060-102	2141	N/A		
Simulating Liquid	SPAEG	MSL5800 (4.6-6GHz)	N/A	Within 24 hrs of first test		

4.2. Measurement Uncertainty

Specific Absorption Rate (SAR) uncertainty calculation					
Measurement uncertainty for 3 to 6 GHz averaged over 1 gram					
Component	error, %	Distribution	Divisor	Sensitivity	U (Xi), %
Measurement System					
Probe Calibration (k=1)	6.55	Normal	1	1	6.55
Axial Isotropy	1.15	Rectangular	1.732	0.7071	0.47
Hemispherical Isotropy	2.30	Rectangular	1.732	0.7071	0.94
Boundary Effect	0.90	Rectangular	1.732	1	0.52
Probe Linearity	3.45	Rectangular	1.732	1	1.99
System Detection Limits	1.00	Rectangular	1.732	1	0.58
Readout Electronics	1.00	Normal	1	1	1.00
Response Time	0.80	Rectangular	1.732	1	0.46
Integration Time	2.60	Rectangular	1.732	1	1.50
RF Ambient Conditions - Noise	3.00	Rectangular	1.732	1	1.73
RF Ambient Conditions - Reflections	3.00	Rectangular	1.732	1	1.73
Probe Positioner Mechanical Tolerance	0.40	Rectangular	1.732	1	0.23
Probe Positioning with respect to Phantom	2.90	Rectangular	1.732	1	1.67
Extrapolation, Interpolation and Integration	3.90	Rectangular	1.732	1	2.25
Test Sample Related					
Test Sample Positioning	1.10	Normal	1	1	1.10
Device Holder Uncertainty	3.60	Normal	1	1	3.60
Output Power Variation - SAR Drift	5.00	Rectangular	1.732	1	2.89
Phantom and Tissue Parameters					
Phantom Uncertainty (shape and thickness)	4.00	Rectangular	1.732	1	2.31
Liquid Conductivity - deviation from target	5.00	Rectangular	1.732	0.64	1.85
Liquid Conductivity - measurement	3.25	Normal	1	0.64	2.08
Liquid Permittivity - deviation from target	10.00	Rectangular	1.732	0.6	3.46
Liquid Permittivity - measurement uncertainty	1.64	Normal	1	0.6	0.98
				Combined Standard Uncertainty Uc(y), %:	10.70
				Expanded Uncertainty U, Coverage Factor = 1.96, > 95 % Confidence = 20.97	%
				Expanded Uncertainty U, Coverage Factor = 1.96, > 95 % Confidence = 1.65	dB

5. Device Under Test

WIFI 11A/N Module (Tested inside of host device)			
Mode of operation:	Hand-held or lap-held		
Antenna-to-antenna and antenna-to-user's distances:	Please refer to Antenna Locations & Separation Distances		
Antenna tested:	Manufactured	Part number	Antenna Gain (dBi)
	Foxconn	Main: ANT2V1	0.23
		Aux: ANT2V2	0.23

6. RF Output Power Verification

The following procedures had been used to prepare the DUT for the SAR test.

Band (GHz)	Mode	Ch. #	Freq. (MHz)	Targrt Avg Pwr (dBm) from original EMC report		Measured Avg Pwr (dBm)	
				Main Ant.	Aux Ant.	Main Ant.	Aux Ant.
5.2	802.11a	36	5180	10.52			
		40	5200	10.77		10.81	
		48	5240	10.74			
		36	5180		10.52		
		40	5200		10.77		10.82
		48	5240		10.74		
	802.11n HT20	36	5180	10.69			
		40	5200	10.83			
		48	5240	10.84			
		36	5180		10.69		
		40	5200		10.83		

Note(s):

1. The modes with highest output power channel were chosen for the conducted output power.
2. Original average output power is from EMC report 11U13871-1. Refer to original report (FCC ID: MCLMICA2) for Average Power information as documented in 7/5/2011 original filing.
3. Per KDB 248227, SAR is not required for 802.11n HT20 modes due to the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11a channels.

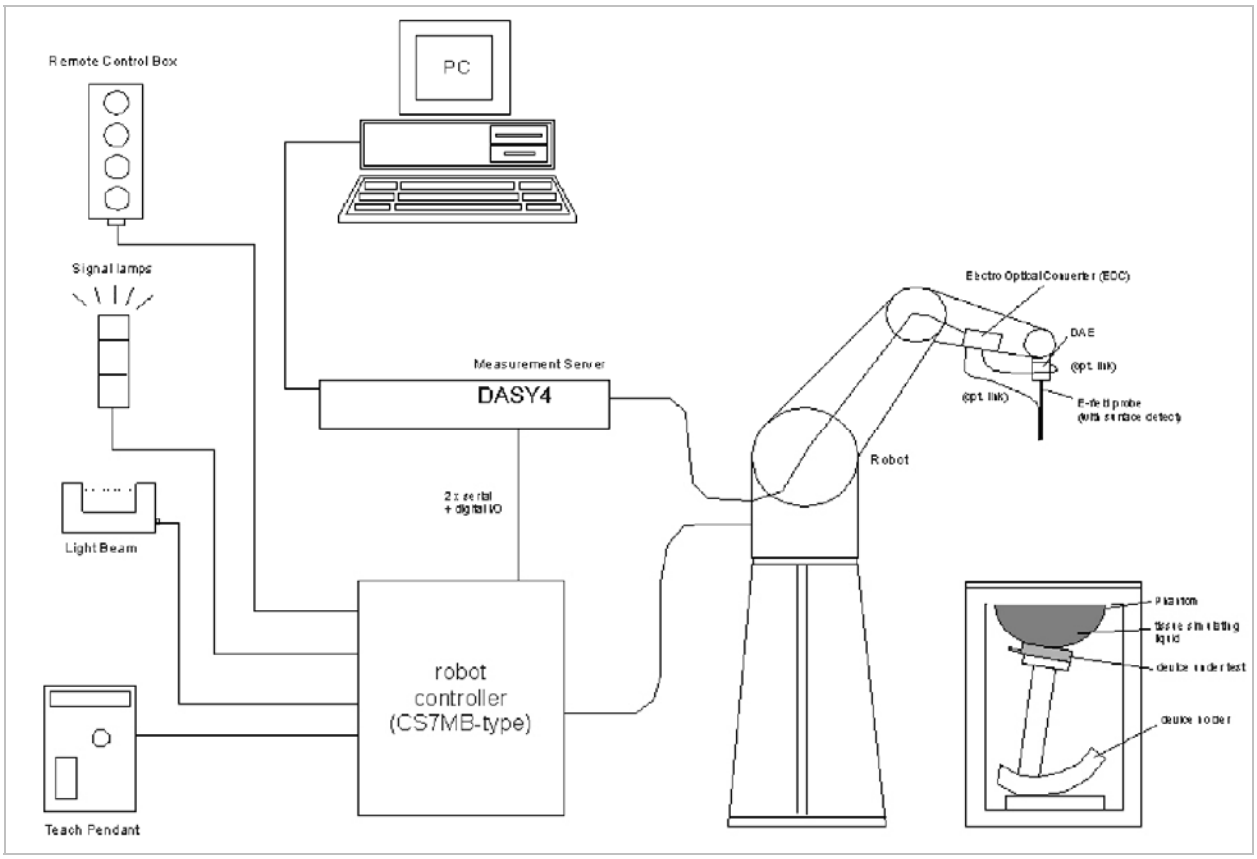
RF Output Power Verification (continued)

Band (GHz)	Mode	Ch. #	Freq. (MHz)	Targrt Avg Pwr (dBm) from original EMC report		Measured Avg Pwr (dBm)	
				Main Ant.	Aux Ant.	Main Ant.	Aux Ant.
5.8	802.11a	149	5745	10.88		11.00	
		157	5785	10.52			
		165	5825	10.64			
		149	5745		10.88		11.00
		157	5785		10.52		
		165	5825		10.64		
	802.11n HT20	149	5745	10.78			
		157	5785	10.54			
		165	5825	10.63			
		149	5745		10.78		
		157	5785		10.54		
		165	5825		10.63		

Notes:

1. The modes with highest output power channel were chosen for the conducted output power.
2. Original average output power is from EMC report 11U13871-6. Refer to original report (FCC ID: MCLMICA2) for Average Power information as documented in 7/14/2011 original filing.
3. Per KDB 248227 - SAR is not required for 802.11n HT20 modes due to the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11a channels.

7. System Specifications



The DASY system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Stäubli RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 2000 or Windows XP.
- DASY software.
- Remote controls with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing validating the proper functioning of the system.

8. Tissue Dielectric Property

IEEE Std 1528-2003 Table 2

Target Frequency (MHz)	Head	
	ε_r	σ (S/m)
300	45.3	0.87
450	43.5	0.87
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1800 – 2000	40.0	1.40
2450	39.2	1.80
2600	39.0	1.96
3000	38.5	2.40

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Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.8
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.9	55.2	0.97
900	41.5	0.97	55	1.05
915	41.5	0.98	55	1.06
1450	40.5	1.2	54	1.3
1610	40.3	1.29	53.8	1.4
1800 – 2000	40	1.4	53.3	1.52
2450	39.2	1.8	52.7	1.95
3000	38.5	2.4	52	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

8.1. Composition of ingredients for the tissue material used in the SAR tests

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

Salt: 99+% Pure Sodium Chloride Sugar: 98+% Pure Sucrose
Water: De-ionized, 16 MΩ+ resistivity HEC: Hydroxyethyl Cellulose
DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]
Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1, 3, 3-tetramethylbutyl)phenyl]ether

MSL5800 (Body liquids for 4600 – 6000 MHz)

Item	Body Tissue Simulation Liquids MSL8500 Muscle (body) Tissue Simulation Liquids HSL1750
Type No	SL AAM 850 AD
Manufacturer	SPEAG
-The item is composed of the following ingredients:	
H^2O	78%
Mineral oil	11%
Emulsifiers	9%
Additives and Salt	2%

8.2. Tissue dielectric parameters check results

Tissue dielectric parameters measured at the low, middle and high frequency of each operating frequency range of the test device.

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
1/20/2012	Body 5180	e'	49.8041	Relative Permittivity (ϵ_r):	49.80	49.05	1.54	10
		e"	18.2971	Conductivity (σ):	5.27	5.27	-0.03	5
	Body 5200	e'	49.8212	Relative Permittivity (ϵ_r):	49.82	49.02	1.64	10
		e"	18.3505	Conductivity (σ):	5.31	5.29	0.21	5
	Body 5500	e'	49.2225	Relative Permittivity (ϵ_r):	49.22	48.61	1.25	10
		e"	18.7528	Conductivity (σ):	5.73	5.64	1.60	5
	Body 5800	e'	48.7295	Relative Permittivity (ϵ_r):	48.73	48.20	1.10	10
		e"	18.9958	Conductivity (σ):	6.13	6.00	2.10	5
	Body 5825	e'	48.6012	Relative Permittivity (ϵ_r):	48.60	48.20	0.83	10
		e"	19.1272	Conductivity (σ):	6.20	6.00	3.25	5
1/22/2012	Body 5180	e'	49.8197	Relative Permittivity (ϵ_r):	49.82	49.05	1.58	10
		e"	17.9720	Conductivity (σ):	5.18	5.27	-1.80	5
	Body 5200	e'	49.7952	Relative Permittivity (ϵ_r):	49.80	49.02	1.58	10
		e"	18.0308	Conductivity (σ):	5.21	5.29	-1.54	5
	Body 5500	e'	49.3811	Relative Permittivity (ϵ_r):	49.38	48.61	1.58	10
		e"	18.2190	Conductivity (σ):	5.57	5.64	-1.29	5
	Body 5800	e'	48.6606	Relative Permittivity (ϵ_r):	48.66	48.20	0.96	10
		e"	18.7877	Conductivity (σ):	6.06	6.00	0.98	5
	Body 5825	e'	48.6950	Relative Permittivity (ϵ_r):	48.70	48.20	1.03	10
		e"	18.6442	Conductivity (σ):	6.04	6.00	0.64	5
1/23/2012	Body 5180	e'	49.5749	Relative Permittivity (εr):	49.57	49.05	1.08	10
		e"	18.0656	Conductivity (σ):	5.2	5.27	-1.29	5
	Body 5200	e'	49.5463	Relative Permittivity (εr):	49.55	49.02	1.07	10
		e"	18.1036	Conductivity (σ):	5.23	5.29	-1.14	5
	Body 5500	e'	48.9817	Relative Permittivity (εr):	48.98	48.61	0.76	10
		e"	18.4725	Conductivity (σ):	5.65	5.64	0.08	5
	Body 5800	e'	48.4306	Relative Permittivity (εr):	48.43	48.2	0.48	10
		e"	18.8246	Conductivity (σ):	6.07	6	1.18	5
	Body 5825	e'	48.3952	Relative Permittivity (εr):	48.4	48.2	0.4	10
		e"	18.8519	Conductivity (σ):	6.11	6	1.77	5

9. SAR Measurement Procedure

Step 1: Power Reference Measurement
The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan
The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and EN 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Step 3: Zoom Scan
Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures ≥ 7x7x9 (above 3 GHz) or 5x5x7 (below 3 GHz) points within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Step 4: Power drift measurement
The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan
The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation, the extrapolated distance should not be larger than the step size in Z-direction.

10. System Performance Check

The system performance check is performed prior to any usage of the system in order to verify SAR system measurement accuracy. The system performance check verifies that the system operates within its specifications of ±10%.

10.1. System performance check measurement conditions

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
  For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 fine cube was chosen for cube.
- Distance between probe sensors and phantom surface was set to 3 mm.
  For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

10.2. Reference SAR values for BODY-tissue from calibration certificate of SPEAG

The reference SAR values can be obtained from the calibration certificate of system validation dipoles

Dipole	Serial No.	Cal. date	Freq. (GHz)	SAR Avg (mW/g)		
				Tissue:	Head	Body
D5GHzV2	1003	8/23/11	5200	1g SAR:		74.5
				10g SAR:		20.8
			5800	1g SAR:		76.3
				10g SAR:		21.2

10.3. System Performance Check Results

Date Tested	System validation dipole		Measured (Normalized to 1 W)		Target	Delta (%)	Tolerance (%)
01/20/12	Body	5200	1g SAR:	77.9	74.5	4.56	±10
			10g SAR:	22.3	20.8	7.21	
	Body	5800	1g SAR:	72.0	76.3	-5.64	±10
			10g SAR:	20.5	21.2	-3.30	
01/22/12	Body	5200	1g SAR:	74.8	74.5	0.40	±10
			10g SAR:	21.3	20.8	2.40	
	Body	5800	1g SAR:	73.4	76.3	-3.80	±10
			10g SAR:	20.8	21.2	-1.89	
01/23/12	Body	5200	1g SAR:	72.2	74.5	-3.09	±10
			10g SAR:	20.8	20.8	0.00	
	Body	5800	1g SAR:	74.2	76.3	-2.75	±10
			10g SAR:	21.2	21.2	0.00	

10.4. System Check Plots

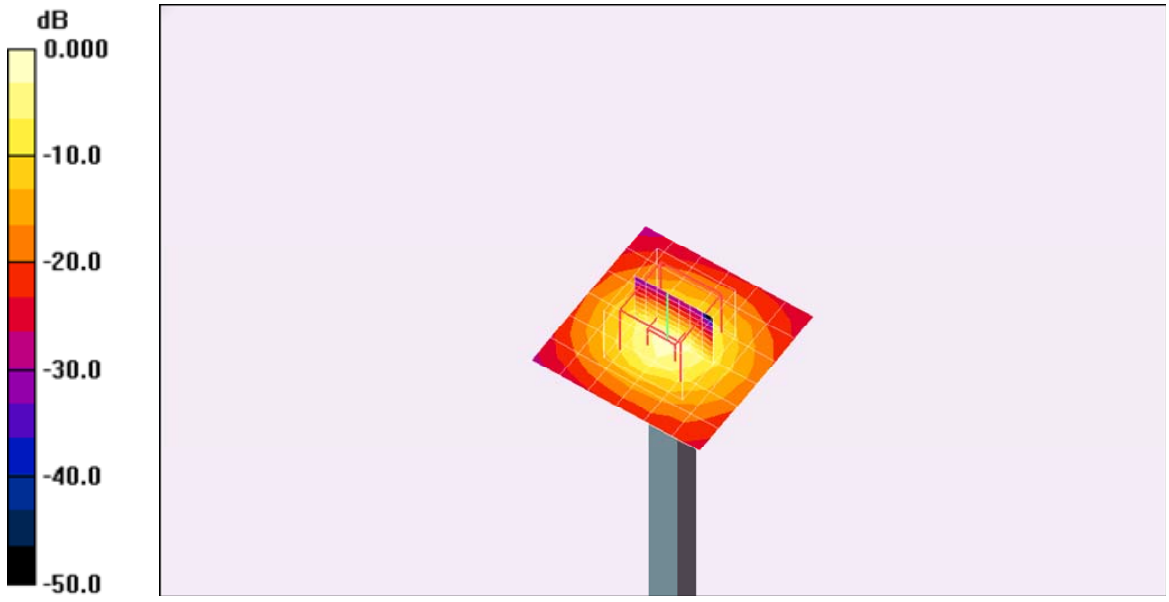
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/20/2012 9:49:03 AM

20120120 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5200 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5200 MHz; σ = 5.31 mho/m; ε_r = 49.8; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.98, 3.98, 3.98); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

Body, 5200 MHz, Pin=100mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 14.0 mW/g

Body, 5200 MHz, Pin=100mW/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 55.7 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 28.5 W/kg
SAR(1 g) = 7.79 mW/g; SAR(10 g) = 2.23 mW/g
Maximum value of SAR (measured) = 13.9 mW/g



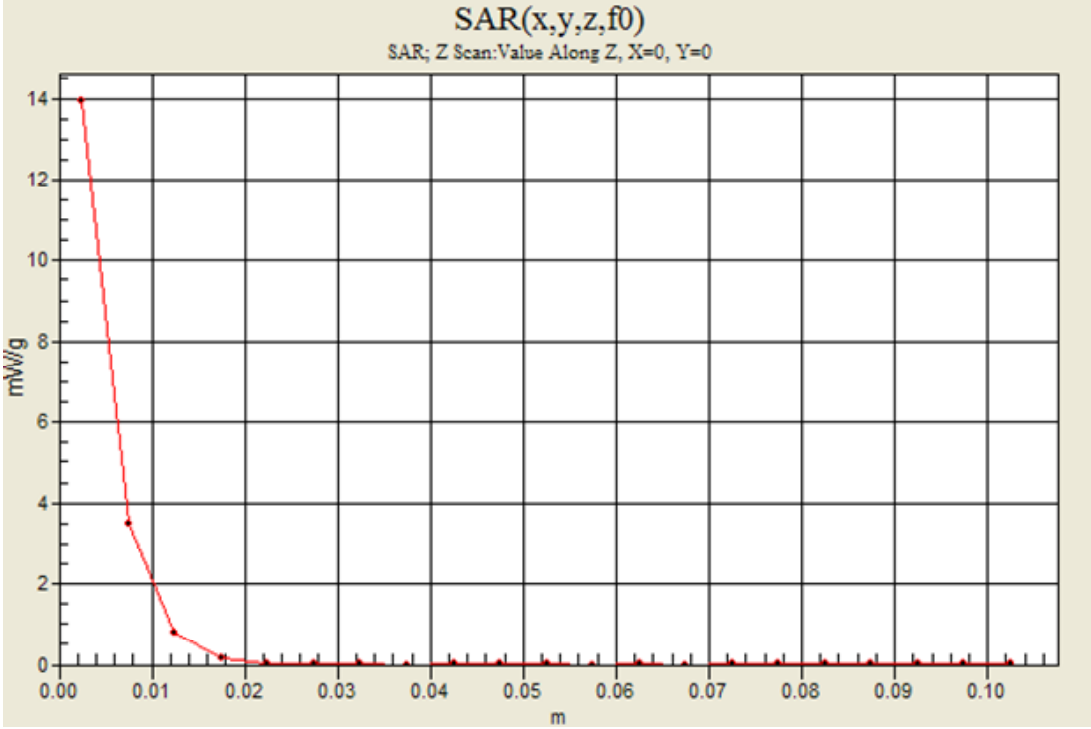
0 dB = 13.9mW/g

Test Laboratory: UL CCS SAR Lab D Date/Time: 1/20/2012 10:13:53 AM

20120120 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5200 MHz; Duty Cycle: 1:1

Body, 5200 MHz, Pin=100mW/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 13.9 mW/g



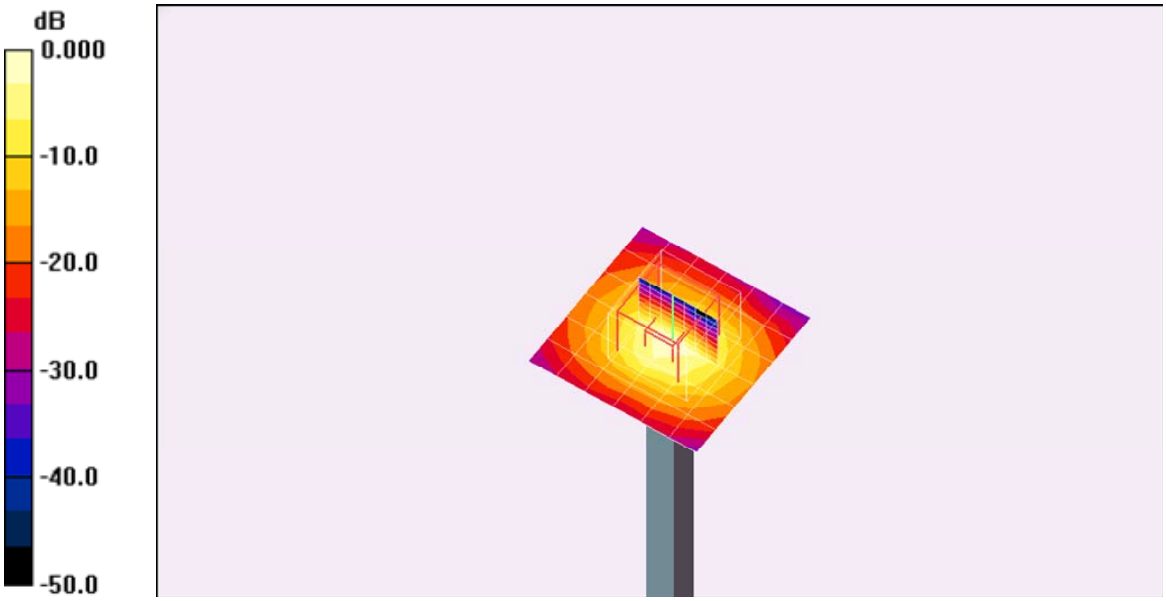
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/20/2012 10:15:37 AM

20120120 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5800 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5800 MHz; σ = 6.13 mho/m; ε_r = 48.7; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.7, 3.7, 3.7); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

Body, 5800 MHz, Pin=100mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 12.6 mW/g

Body, 5800 MHz, Pin=100mW/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 50.4 V/m; Power Drift = -0.078 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 7.2 mW/g; SAR(10 g) = 2.05 mW/g
Maximum value of SAR (measured) = 13.0 mW/g



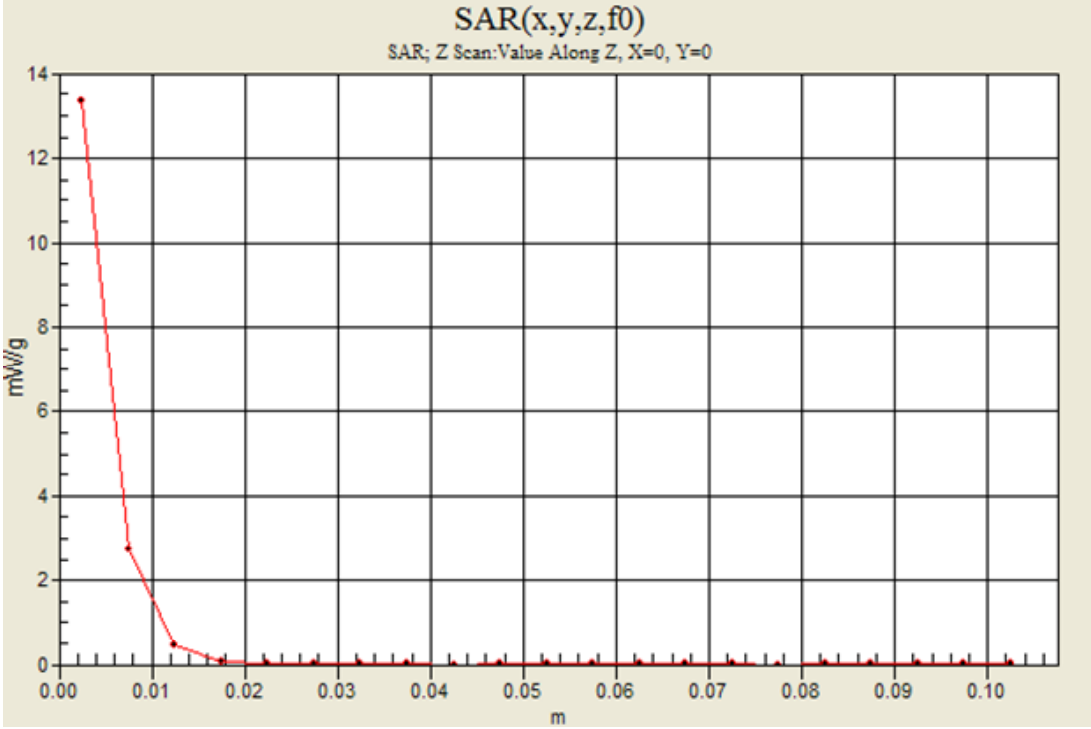
0 dB = 13.0mW/g

Test Laboratory: UL CCS SAR Lab D Date/Time: 1/20/2012 10:38:21 AM

20120120 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5800 MHz; Duty Cycle: 1:1

Body, 5800 MHz, Pin=100mW/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 13.3 mW/g



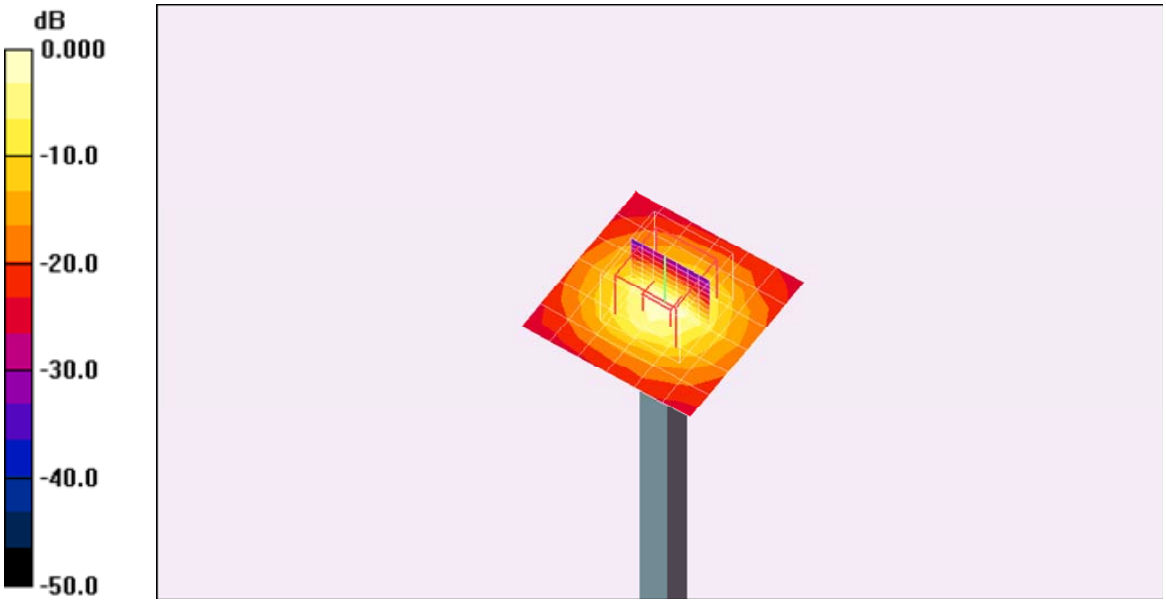
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 8:26:32 AM

20120122 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5200 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5200 MHz; σ = 5.22 mho/m; ε_r = 49.8; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.98, 3.98, 3.98); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

Body, 5200 MHz, Pin=100mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 13.5 mW/g

Body, 5200 MHz, Pin=100mW/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 55.1 V/m; Power Drift = -0.490 dB
Peak SAR (extrapolated) = 27.4 W/kg
SAR(1 g) = 7.48 mW/g; SAR(10 g) = 2.13 mW/g
Maximum value of SAR (measured) = 13.2 mW/g



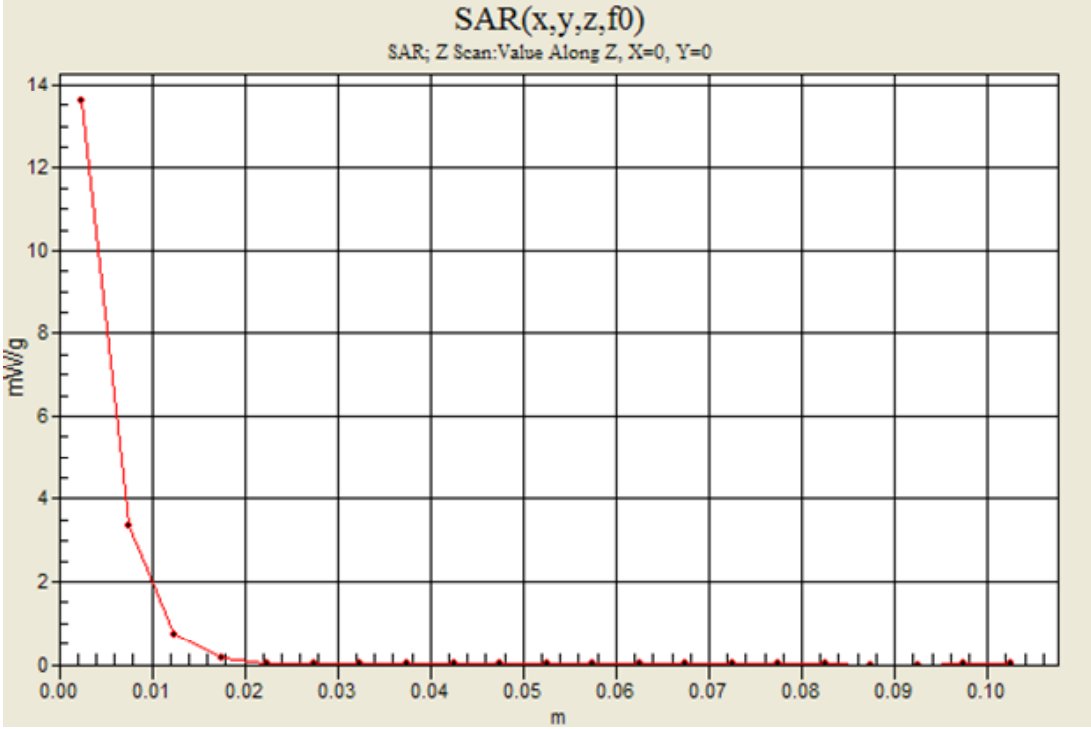
0 dB = 13.2mW/g

Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 8:50:31 AM

20120122 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5200 MHz; Duty Cycle: 1:1

Body, 5200 MHz, Pin=100mW/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 13.6 mW/g



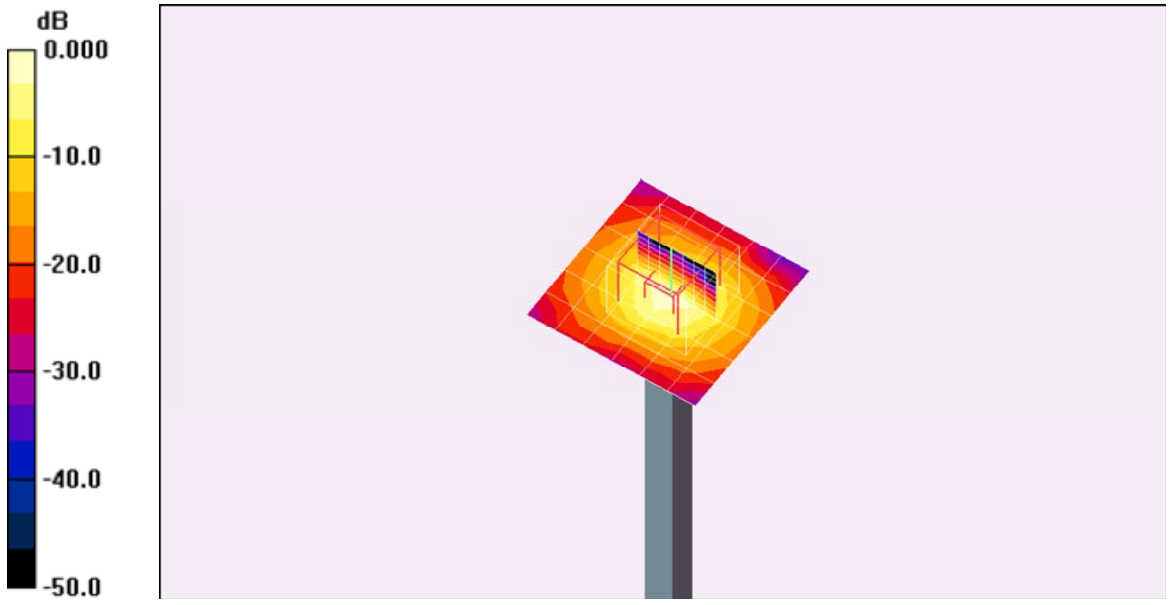
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 9:55:06 AM

20120122 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5800 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5800 MHz; σ = 6.06 mho/m; ε_r = 48.7; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.7, 3.7, 3.7); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

Body, 5800 MHz, Pin=100mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 13.0 mW/g

Body, 5800 MHz, Pin=100mW/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 51.3 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 29.4 W/kg
SAR(1 g) = 7.34 mW/g; SAR(10 g) = 2.08 mW/g
Maximum value of SAR (measured) = 13.4 mW/g



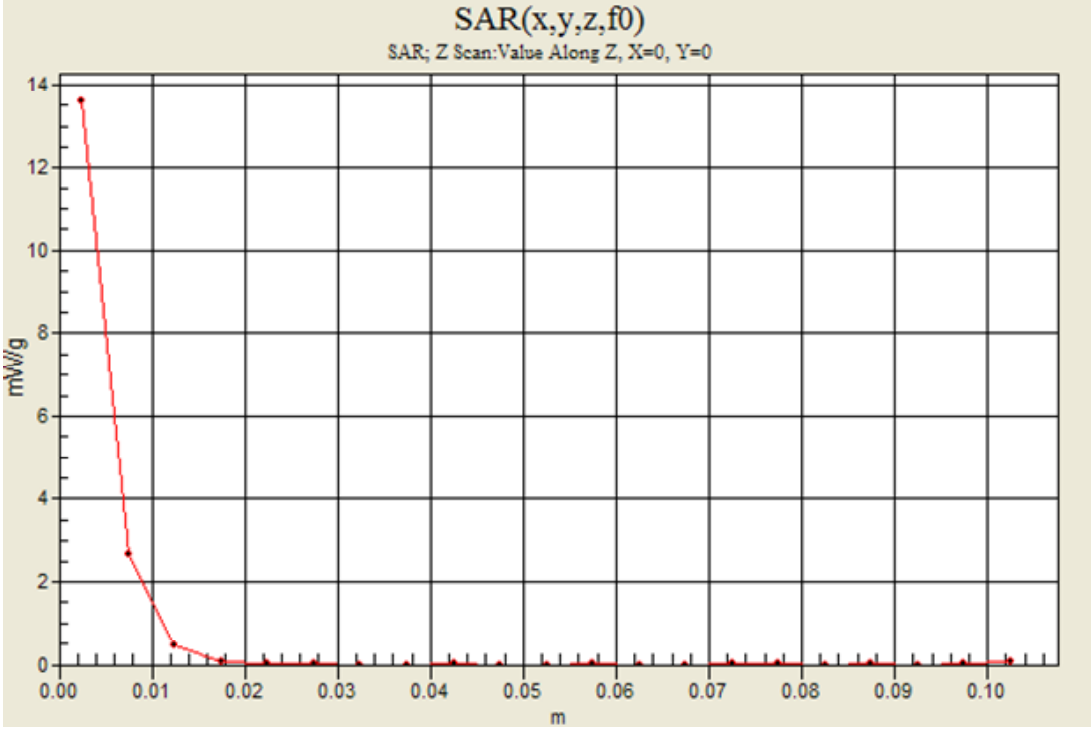
0 dB = 13.4mW/g

Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 10:16:03 AM

20120122 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5800 MHz; Duty Cycle: 1:1

Body, 5800 MHz, Pin=100mW/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 13.6 mW/g



Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 12:00:40 PM

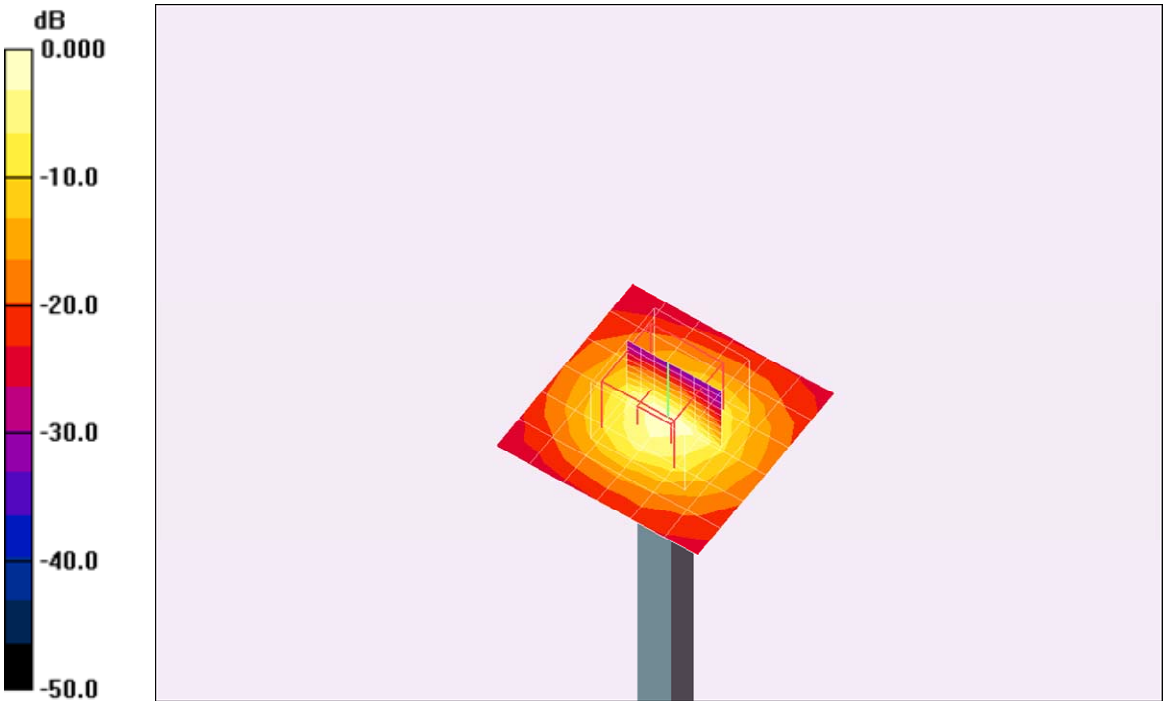
20120123 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5200 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5200 MHz; σ = 5.24 mho/m; ε_r = 49.5; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.98, 3.98, 3.98); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

Body, 5200 MHz, Pin=100mW 2/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 12.9 mW/g

Body, 5200 MHz, Pin=100mW 2/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 54.6 V/m; Power Drift = -0.074 dB
Peak SAR (extrapolated) = 26.2 W/kg
SAR(1 g) = 7.22 mW/g; SAR(10 g) = 2.08 mW/g

Maximum value of SAR (measured) = 13.1 mW/g



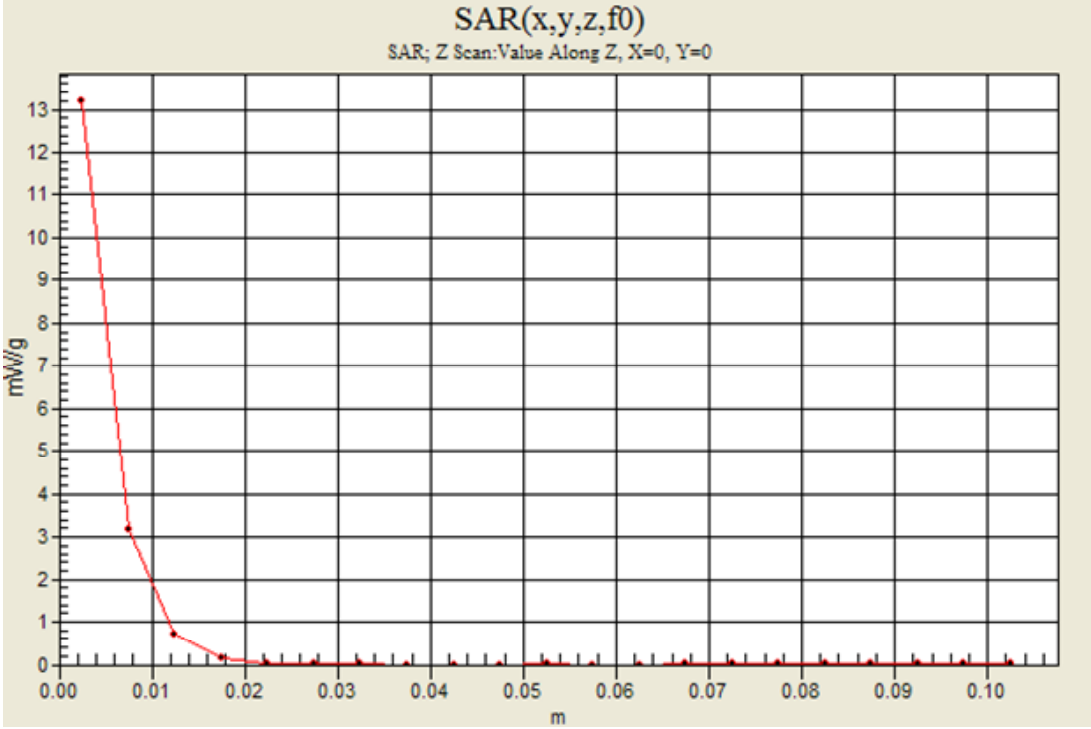
0 dB = 13.1mW/g

Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 12:21:38 PM

20120123 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5200 MHz; Duty Cycle: 1:1

Body, 5200 MHz, Pin=100mW 2/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 13.2 mW/g



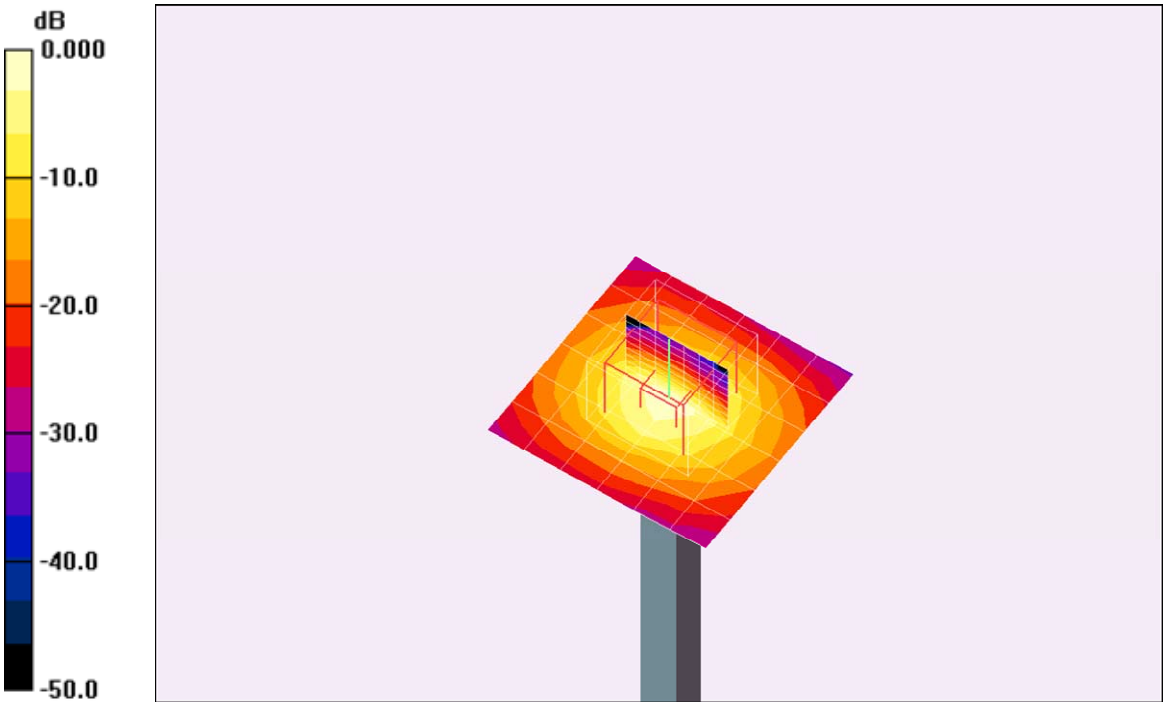
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 11:05:47 AM

20120123 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5800 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5800 MHz; σ = 6.07 mho/m; ε_r = 48.4; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.7, 3.7, 3.7); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

Body, 5800 MHz, Pin=100mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 13.7 mW/g

Body, 5800 MHz, Pin=100mW/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 52.1 V/m; Power Drift = -0.066 dB
Peak SAR (extrapolated) = 29.4 W/kg
SAR(1 g) = 7.42 mW/g; SAR(10 g) = 2.12 mW/g
Maximum value of SAR (measured) = 13.9 mW/g



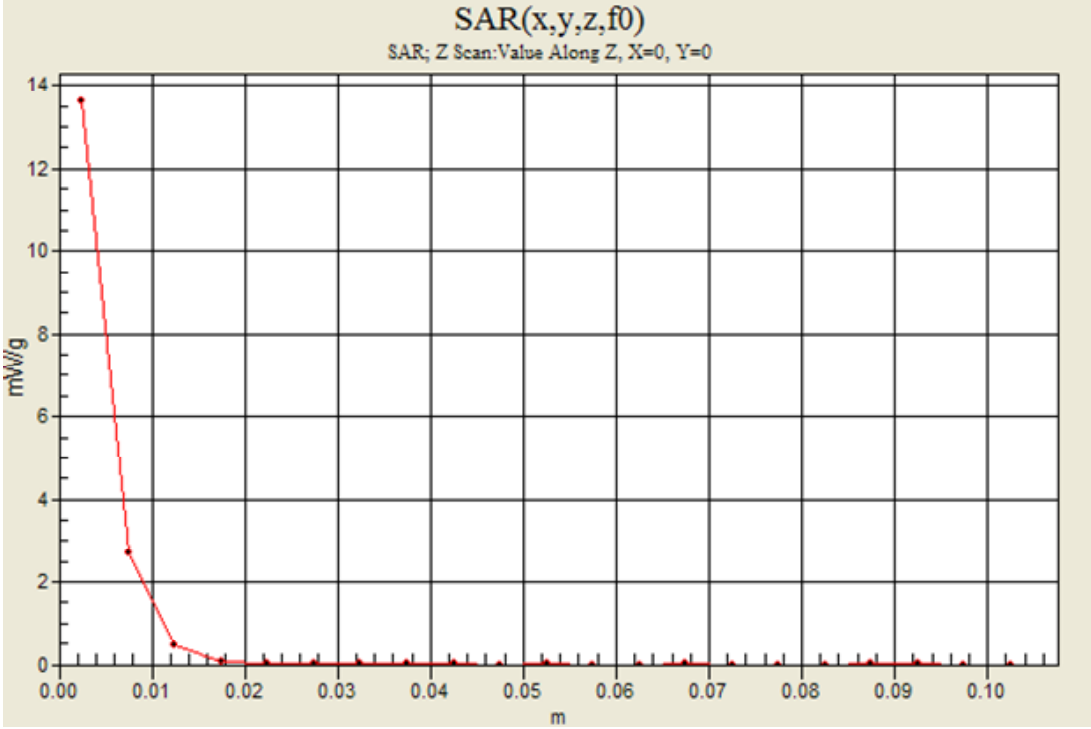
0 dB = 13.9mW/g

Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 11:28:42 AM

20120123 SystemPerformanceCheck-D5GHzV2 SN 1003

Frequency: 5800 MHz; Duty Cycle: 1:1

Body, 5800 MHz, Pin=100mW/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 13.6 mW/g



11. Summary of Test Configurations

The following test configurations are based on KDB 447498

Configuration	Antenna-to-edge/surface	SAR Required	Note
Rear (bottom)	37.7 mm	Yes	
Edge1 left corner at 16º	17.9 mm	Yes	Reference test: Although this position should be deemed rare usage mode, testing was done for the conservative mode.
Edge1 right corner at 34º	18.1 mm	Yes	Reference test: Although this position should be deemed rare usage mode, testing was done for the conservative mode.
Edge 2	82.7 mm	No	This is the most conservative antenna-to-user distance at edge mode compared with Left edge
Edge 3	128.6 mm	No	This is the most conservative antenna-to-user distance at edge mode as per KDB 447498 4) b) ii) (2)
Edge 4	57.7 mm	No	This is not the most conservative antenna-to-user distance at edge mode as per KDB 447498 4) b) ii) (2)

*

SAR Test Results

Main Antenna (ANT1V2) SAR Value

Test position	Mode	Band	Ch #	Freq. (MHz)	Ant.-to-user	SAR (mW/g)		Note
						1-g	10-g	
Rear	802.11a	5.2 GHz	36	5180	41.1			1
			40	5200	41.1	0.0000662	0.00000066	
			48	5240	41.1			1
		5.8 GHz	149	5745	41.1	0.075	0.020	
			157	5785	41.1			1
			165	5825	41.1			1
Edge1 left corner at 16º	802.11a	5.2 GHz	36	5180	41.1			1
			40	5200	41.1	0.044	0.00834	
			48	5240	41.1			1
		5.8 GHz	149	5745	41.1	0.116	0.047	
			157	5785	41.1			1
			165	5825	41.1			1

Aux Antenna (ANT2V2) SAR Value

Test position	Mode	Band	Ch #	Freq. (MHz)	Ant.-to-user	SAR (mW/g)		Note
						1-g	10-g	
Rear	802.11a	5.2 GHz	36	5180	41.1			1
			40	5200	41.1	0.00137	0.0000858	
			48	5240	41.1			1
		5.8 GHz	149	5745	41.1	0.055	0.019	
			157	5785	41.1			1
			165	5825	41.1			1
Edge1 right corner at 34º	802.11a	5.2 GHz	36	5180	41.1			1
			40	5200	41.1	0.000808	0.000017	
			48	5240	41.1			1
		5.8 GHz	149	5745	41.1	0.00403	0.000576	
			157	5785	41.1			1
			165	5825	41.1			1

Note(s):

1. Testing was performed on the channel with the highest output power only as the SAR was ≤ 0.8 W/kg with the operating frequency band having a range of < 100 MHz. Per KDB 447498 1) e) i).

11.1. SAR Test Plots

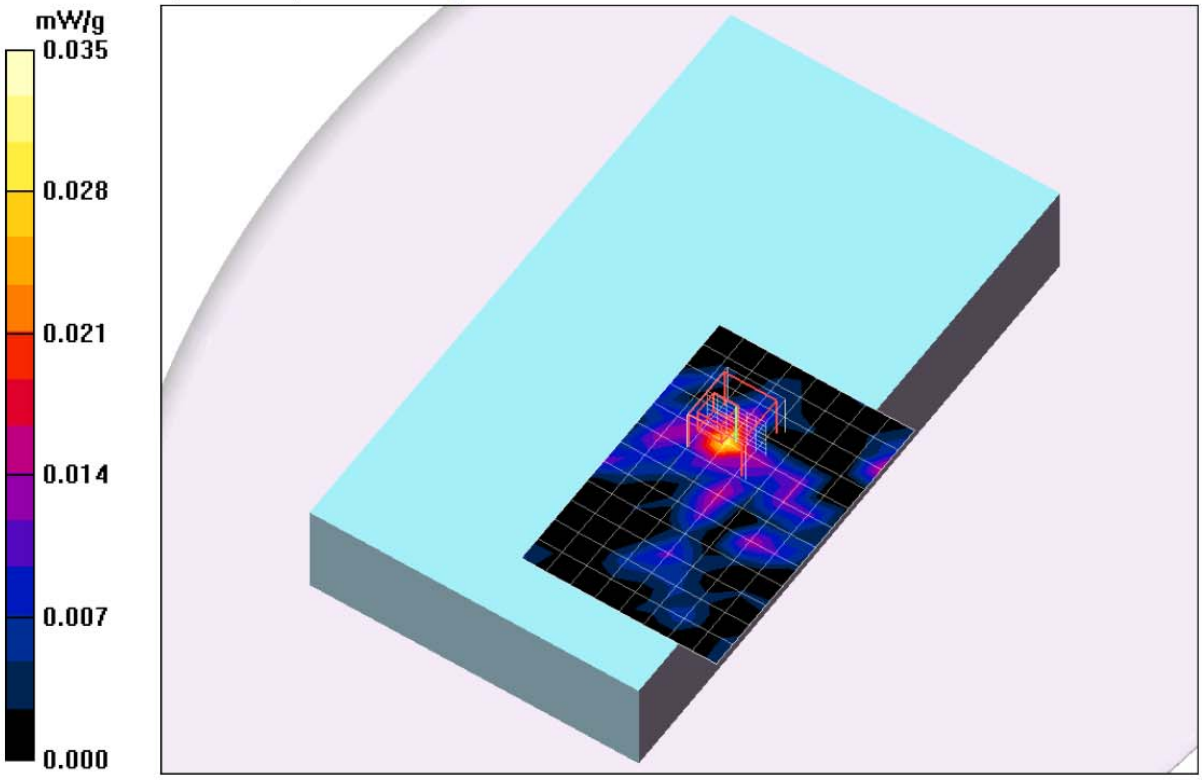
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/20/2012 7:57:23 PM

Rear_Main_Ant

Frequency: 5200 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5200 MHz; σ = 5.31 mho/m; ε_r = 49.8; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.98, 3.98, 3.98); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

802.11a_Main Ant_Ch 40/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.030 mW/g

802.11a_Main Ant_Ch 40/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 2.08 V/m; Power Drift = 0.524 dB
Peak SAR (extrapolated) = 0.015 W/kg
SAR(1 g) = 6.62e-005 mW/g; SAR(10 g) = 6.7e-006 mW/g
Maximum value of SAR (measured) = 0.041 mW/g



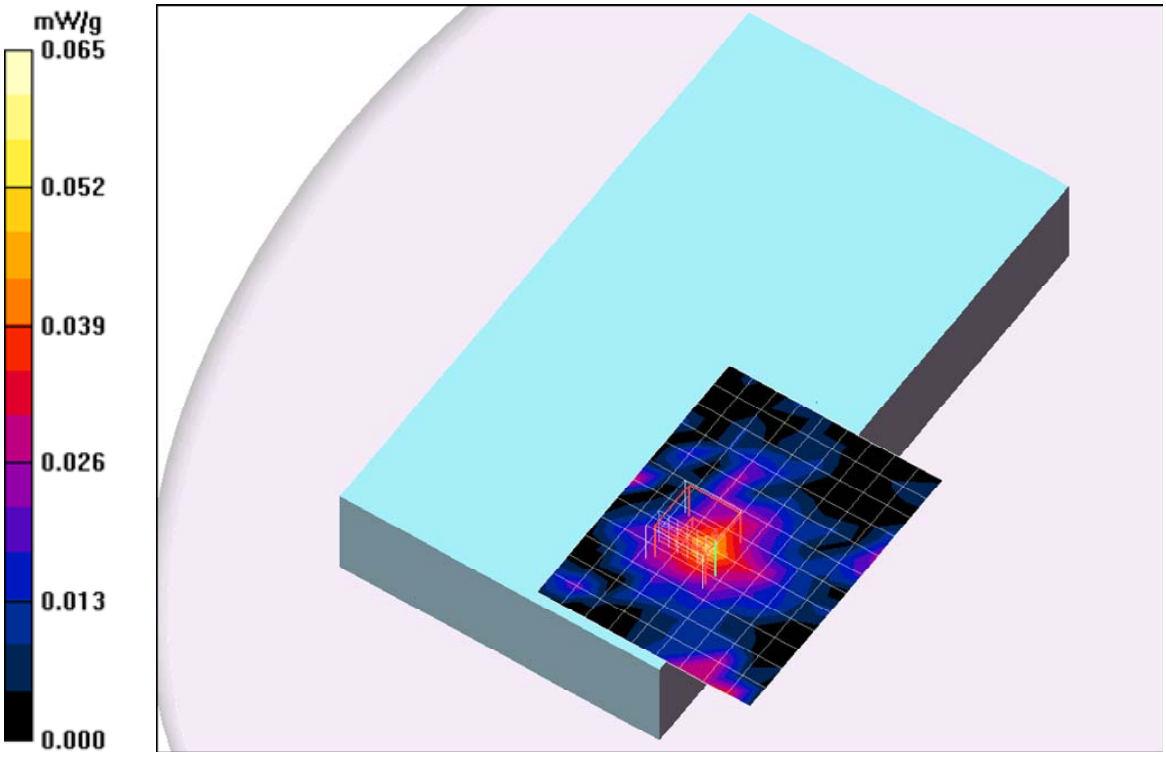
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 3:41:49 PM

Rear_Main_Ant

Frequency: 5745 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5745 MHz; σ = 5.93 mho/m; ε_r = 48.7; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.7, 3.7, 3.7); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

802.11a_Main Ant_Ch 149/Area Scan (10x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.047 mW/g

802.11a_Main Ant_Ch 149/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.39 V/m; Power Drift = 0.288 dB
Peak SAR (extrapolated) = 0.734 W/kg
SAR(1 g) = 0.075 mW/g; SAR(10 g) = 0.020 mW/g
Maximum value of SAR (measured) = 0.176 mW/g

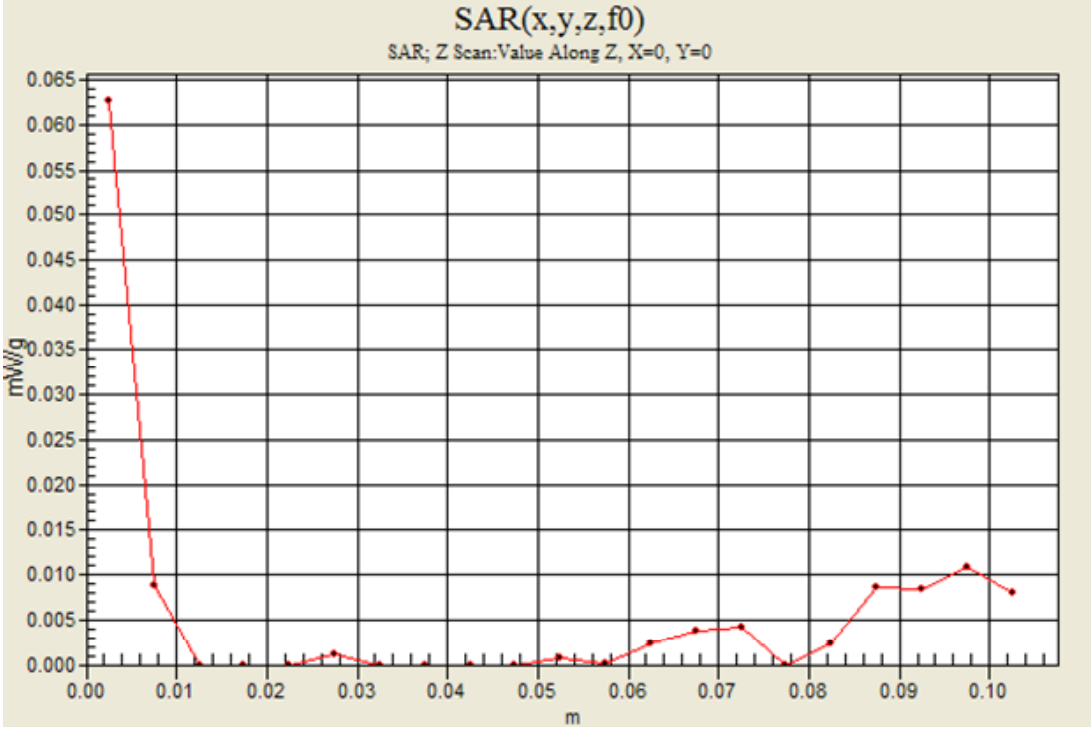


Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 4:03:39 PM

Rear_Main_Ant

Frequency: 5745 MHz; Duty Cycle: 1:1

802.11a_Main Ant_Ch 149/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.063 mW/g



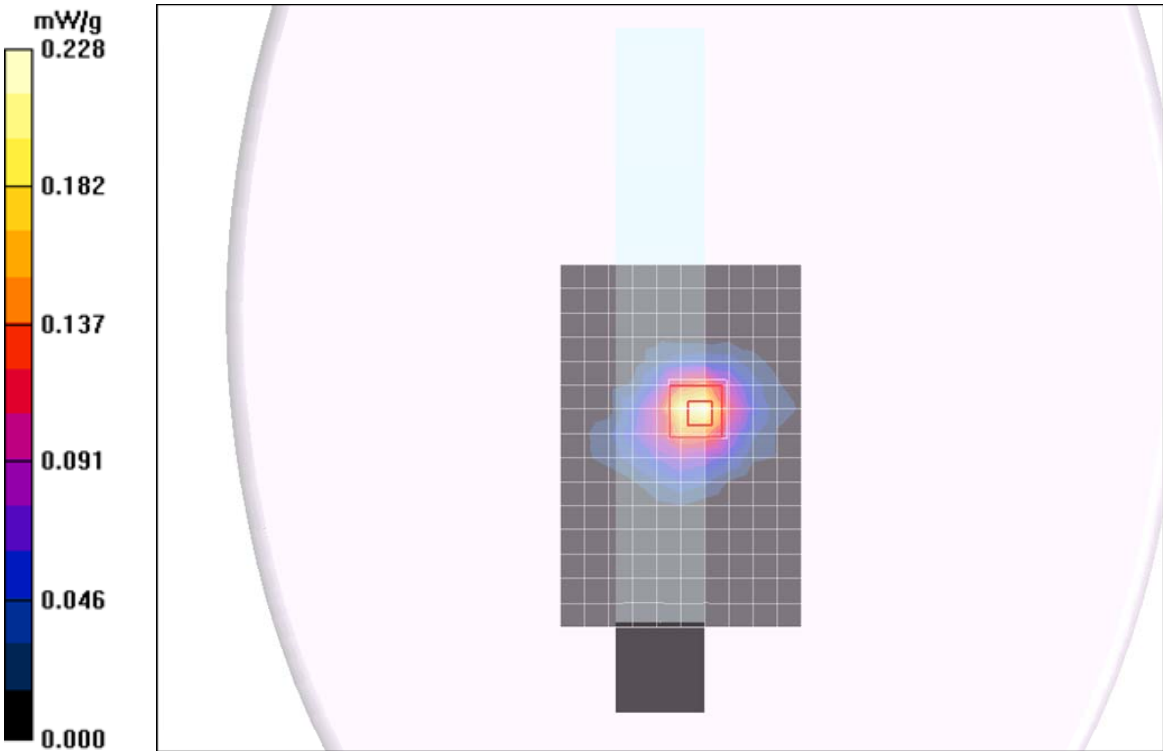
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 8:20:05 PM

Edge 1_Left Corner_16 deg

Frequency: 5745 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5745 MHz; σ = 5.93 mho/m; ε_r = 48.7; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.7, 3.7, 3.7); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

802.11a_Main Ant_Ch 149/Area Scan (16x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.228 mW/g

802.11a_Main Ant_Ch 149/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 6.45 V/m; Power Drift = 0.197 dB
Peak SAR (extrapolated) = 0.724 W/kg
SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.047 mW/g
Maximum value of SAR (measured) = 0.239 mW/g

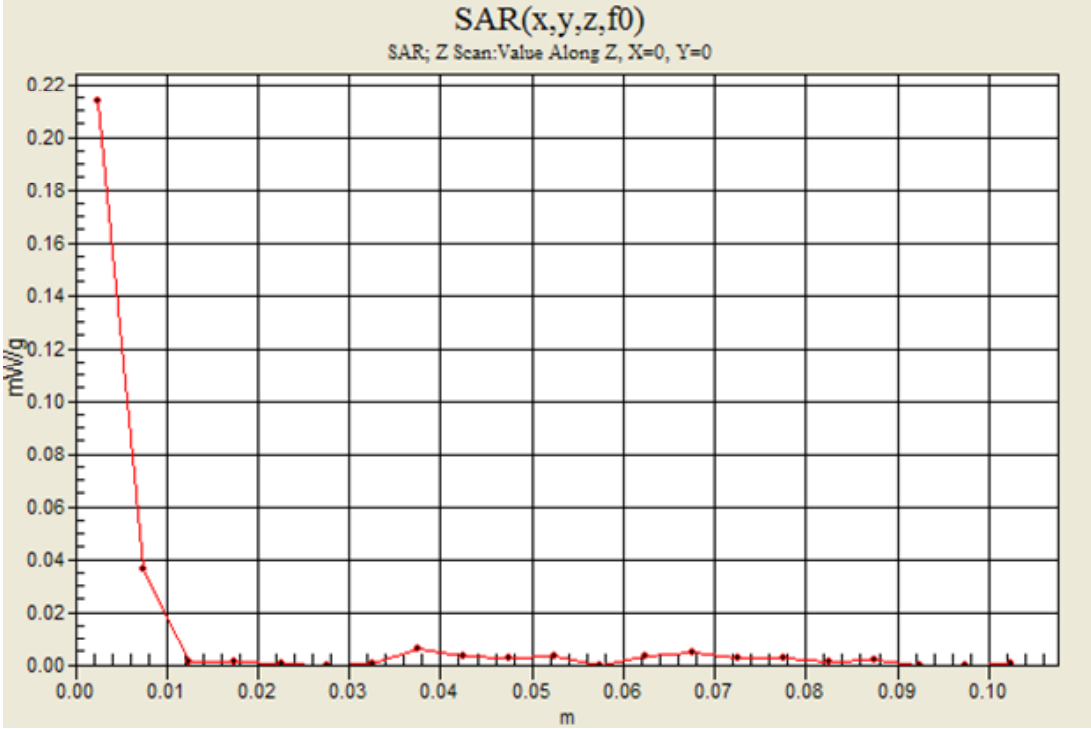


Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 8:48:19 PM

Edge 1_Left Corner_16 deg

Frequency: 5745 MHz; Duty Cycle: 1:1

802.11a_Main Ant_Ch 149/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.213 mW/g



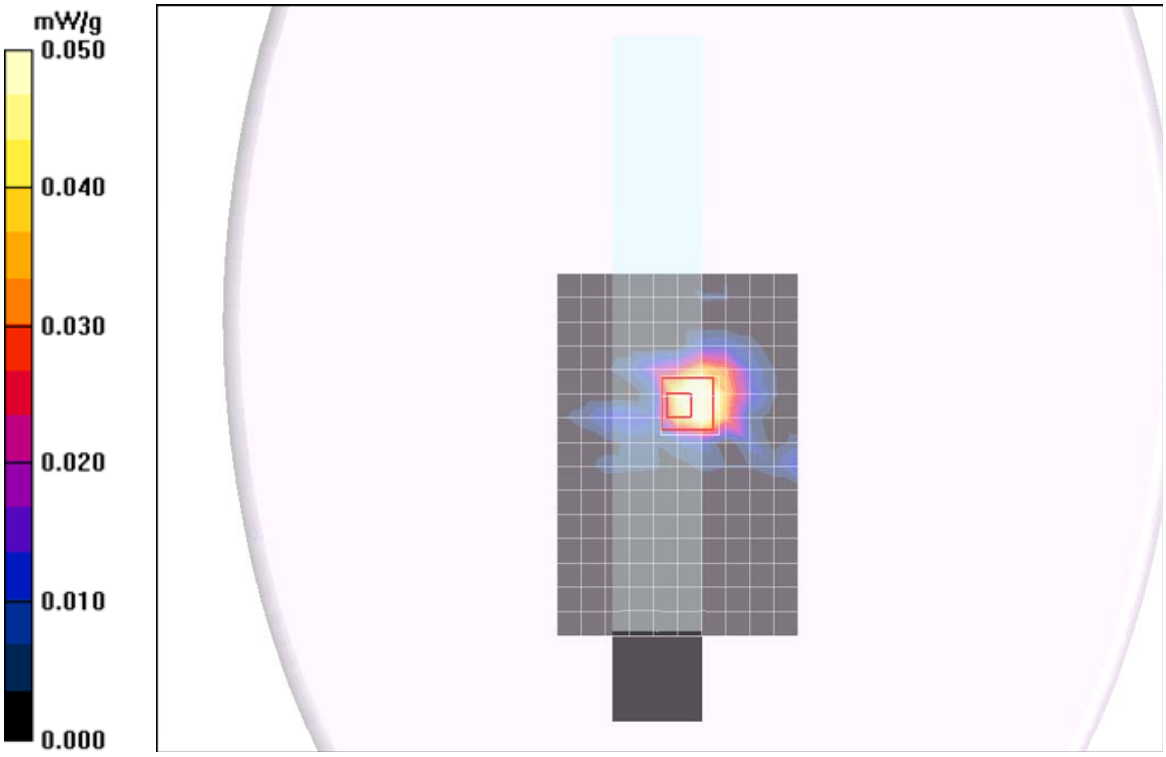
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 9:19:24 PM

Edge 1_Left Corner_16 deg

Frequency: 5200 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5200 MHz; σ = 5.22 mho/m; ε_r = 49.8; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.98, 3.98, 3.98); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

802.11a_Main Ant_Ch 40/Area Scan (16x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.069 mW/g

802.11a_Main Ant_Ch 40/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.69 V/m; Power Drift = -0.144 dB
Peak SAR (extrapolated) = 0.495 W/kg
SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.00834 mW/g
Maximum value of SAR (measured) = 0.147 mW/g

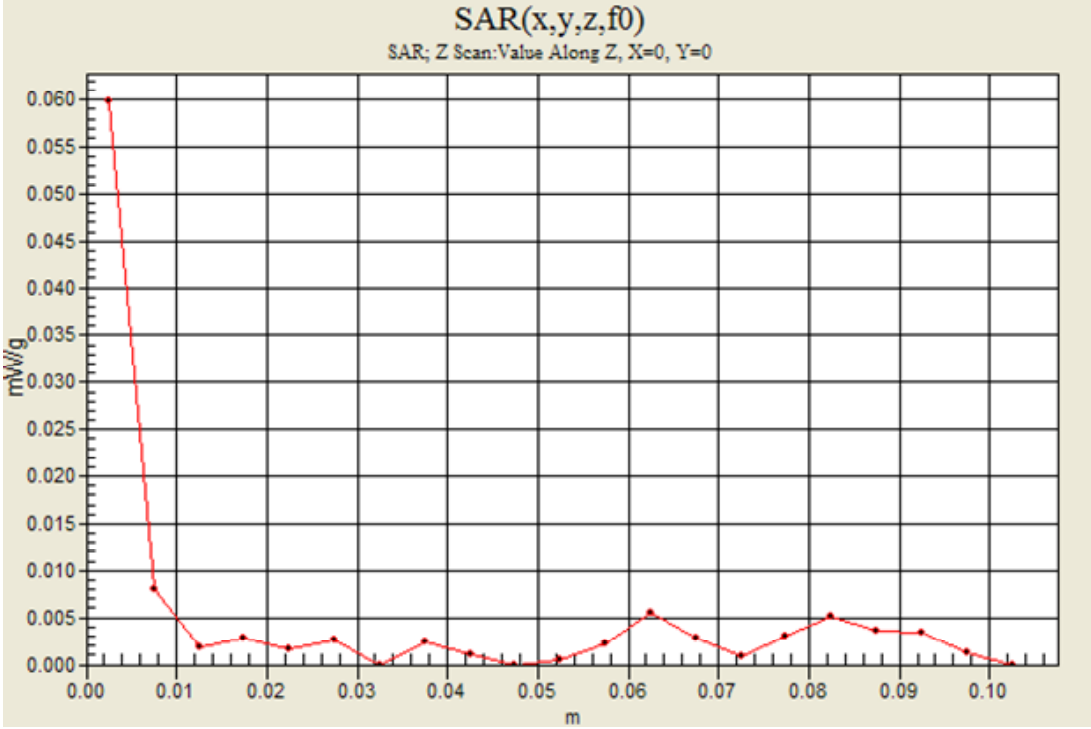


Test Laboratory: UL CCS SAR Lab D Date/Time: 1/22/2012 9:43:45 PM

Edge 1_Left Corner_16 deg

Frequency: 5200 MHz; Duty Cycle: 1:1

802.11a_Main Ant_Ch 40/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.060 mW/g



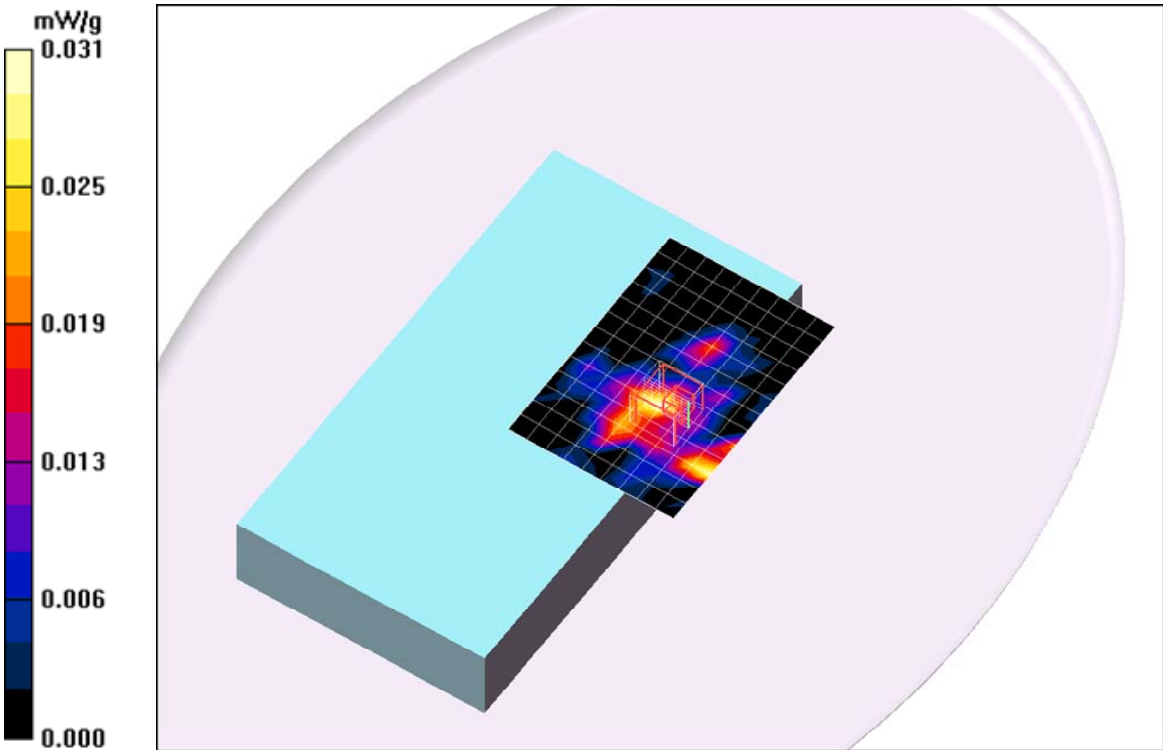
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 3:15:44 PM

Rear_Aux_Ant

Frequency: 5200 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5200 MHz; σ = 5.24 mho/m; ε_r = 49.5; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.98, 3.98, 3.98); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

802.11a_Aux Ant_Ch 40/Area Scan (10x14x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.031 mW/g

802.11a_Aux Ant_Ch 40/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 2.55 V/m; Power Drift = 0.173 dB
Peak SAR (extrapolated) = 0.280 W/kg
SAR(1 g) = 0.00137 mW/g; SAR(10 g) = 8.58e-005 mW/g
Maximum value of SAR (measured) = 0.280 mW/g



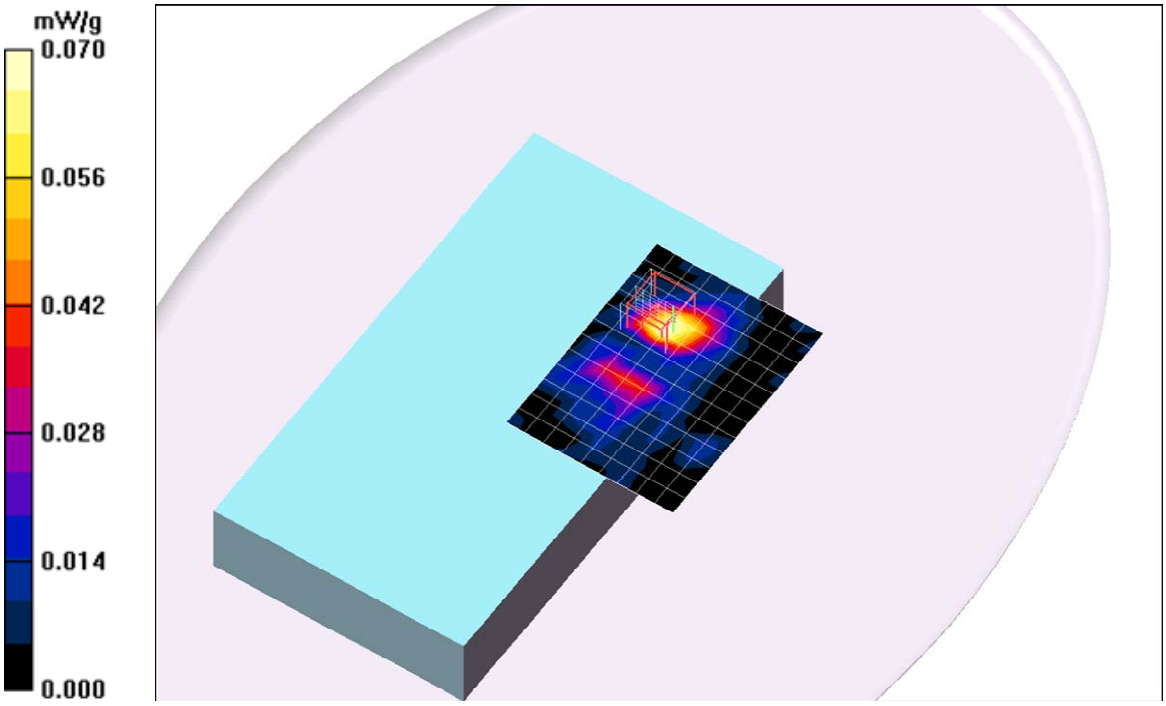
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 4:08:57 PM

Rear_Aux_Ant

Frequency: 5745 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5745 MHz; σ = 5.99 mho/m; ε_r = 48.5; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.7, 3.7, 3.7); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

802.11a_Aux Ant_Ch 149/Area Scan (10x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.070 mW/g

802.11a_Aux Ant_Ch 149/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 4.43 V/m; Power Drift = 0.002 dB
Peak SAR (extrapolated) = 0.224 W/kg
SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.110 mW/g

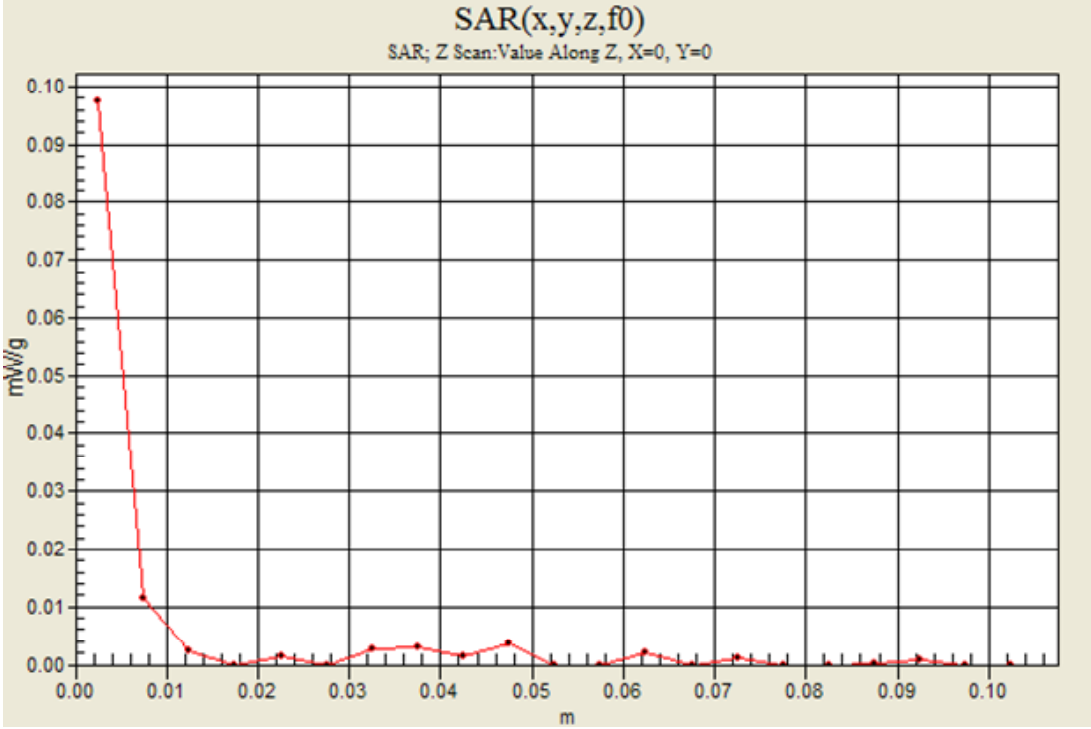


Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 4:35:01 PM

Rear_Aux_Ant

Frequency: 5745 MHz; Duty Cycle: 1:1

802.11a_Aux Ant_Ch 149/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.097 mW/g



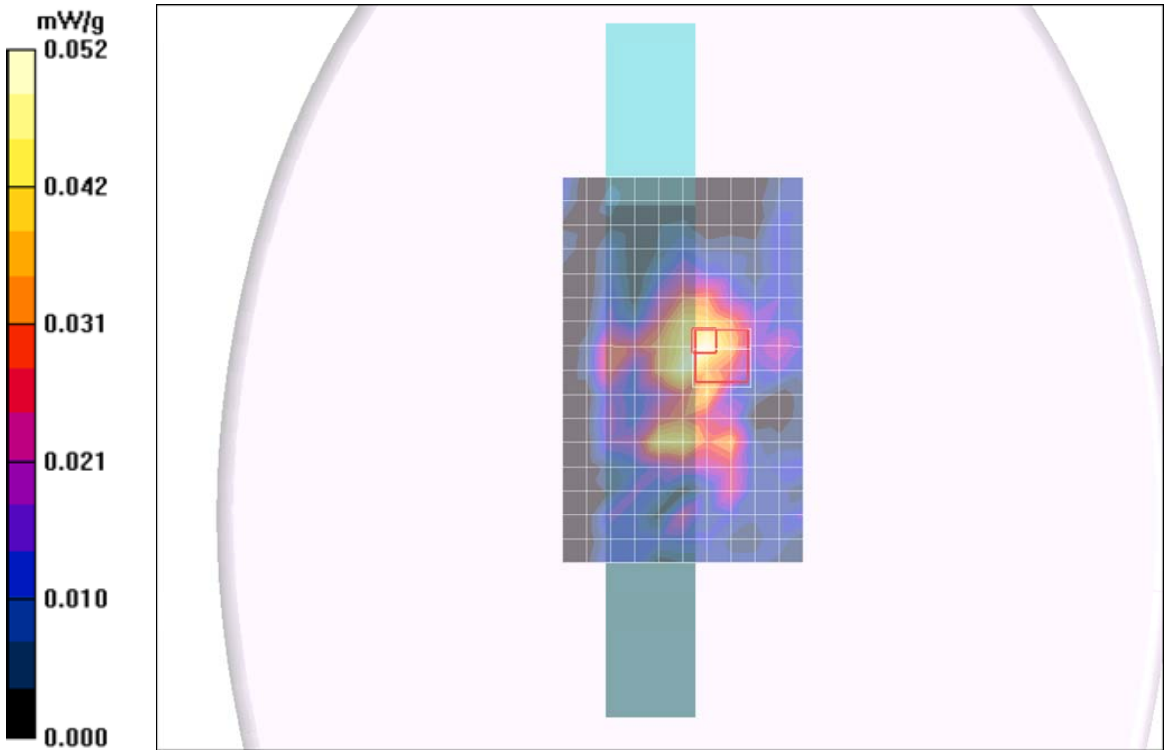
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 7:08:10 PM

Edge 1_Right Corner_34 deg

Frequency: 5745 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5745 MHz; σ = 5.99 mho/m; ε_r = 48.5; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.7, 3.7, 3.7); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

802.11a_Aux Ant_Ch 149/Area Scan (11x17x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.052 mW/g

802.11a_Aux Ant_Ch 149/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 4.59 V/m; Power Drift = -2.99 dB
Peak SAR (extrapolated) = 0.109 W/kg
SAR(1 g) = 0.00403 mW/g; SAR(10 g) = 0.000576 mW/g
Maximum value of SAR (measured) = 0.109 mW/g

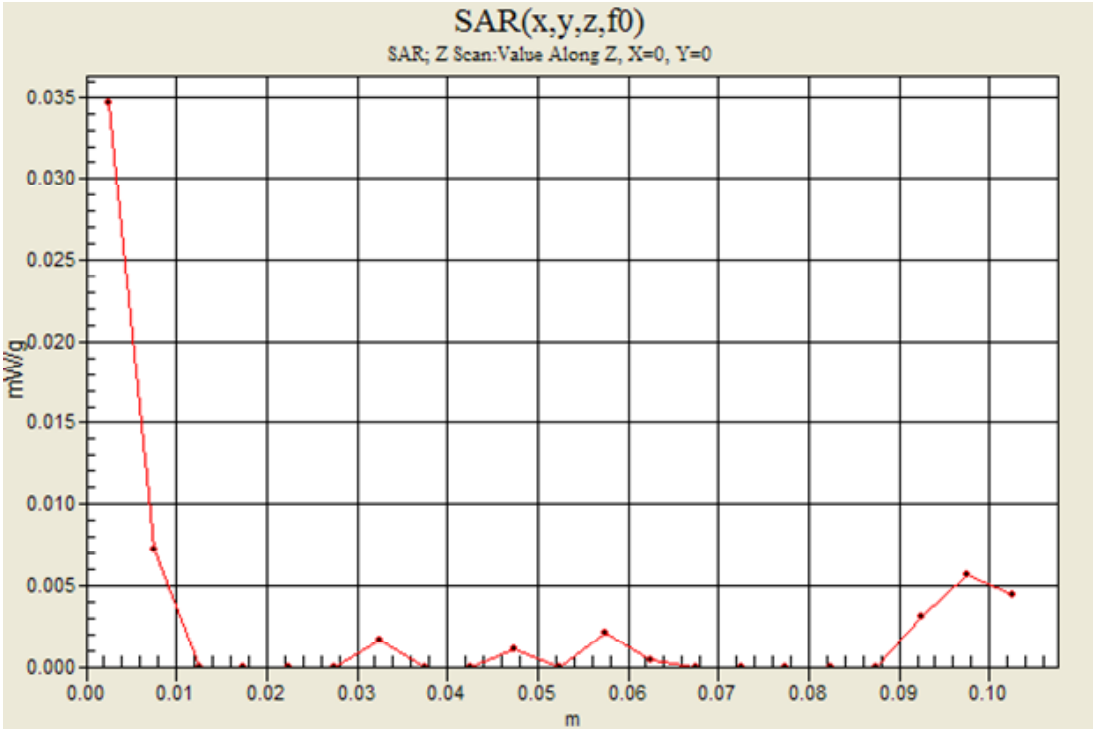


Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 7:37:53 PM

Edge 1_Right Corner_34 deg

Frequency: 5745 MHz; Duty Cycle: 1:1

802.11a_Aux Ant_Ch 149/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.035 mW/g



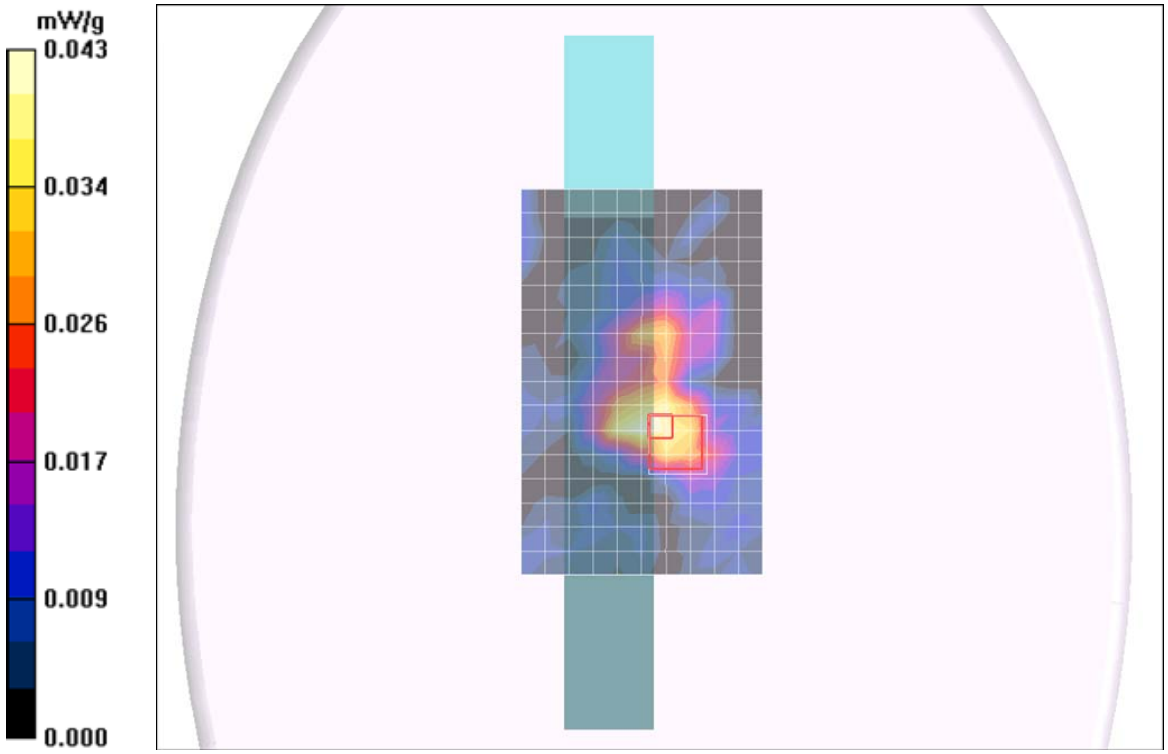
Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 7:47:32 PM

Edge 1_Right Corner_34 deg

Frequency: 5200 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 25.0°C; Liquid Temperature: 24.0°C
Medium parameters used: f = 5200 MHz; σ = 5.24 mho/m; ε_r = 49.5; ρ = 1000 kg/m^3 ;
DASY4 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 5/3/2011
- Probe: EX3DV4 - SN3686; ConvF(3.98, 3.98, 3.98); Calibrated: 1/24/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003

802.11a_Aux Ant_Ch 40/Area Scan (11x17x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.043 mW/g

802.11a_Aux Ant_Ch 40/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.15 V/m; Power Drift = -0.104 dB
Peak SAR (extrapolated) = 0.566 W/kg
SAR(1 g) = 0.000808 mW/g; SAR(10 g) = 1.66e-005 mW/g
Maximum value of SAR (measured) = 0.566 mW/g

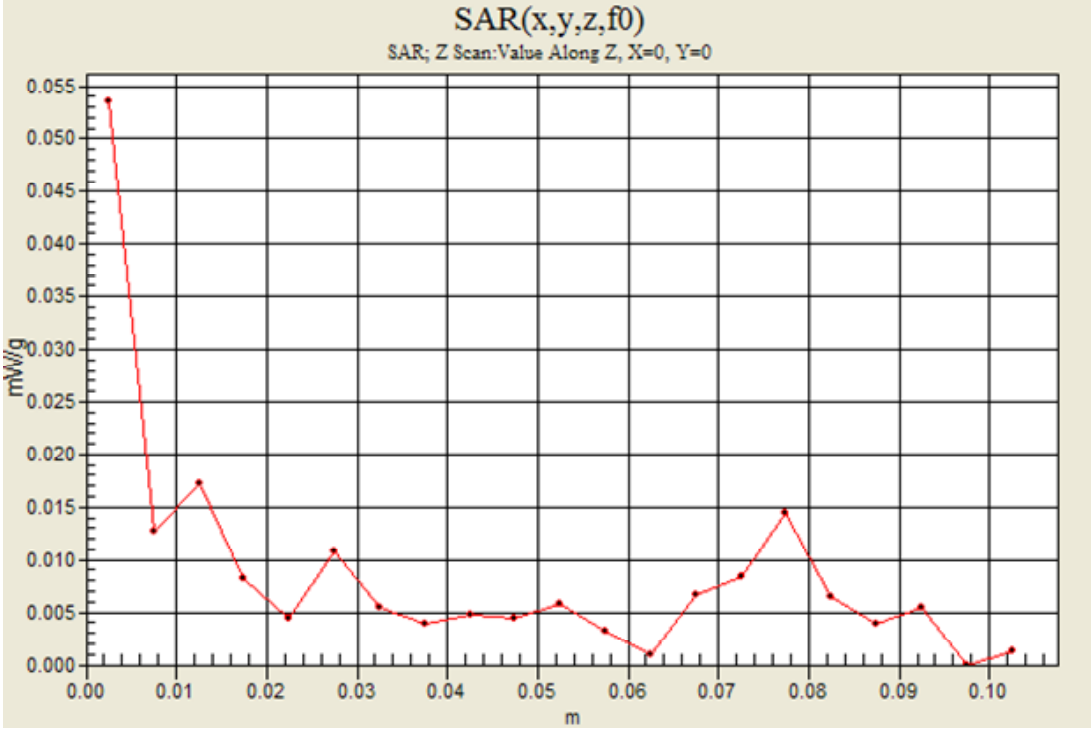


Test Laboratory: UL CCS SAR Lab D Date/Time: 1/23/2012 8:22:36 PM

Edge 1_Right Corner_34 deg

Frequency: 5200 MHz; Duty Cycle: 1:1

802.11a_Aux Ant_Ch 40/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.054 mW/g



12. Appendixes

Refer to separated files for the following appendixes.

12.1. Calibration certificate for E-Field Probe EX3DV4 SN 3686

12.2. Calibration Certificate for D5GHzV2 SN 1003