

SAR TEST REPORT

for

JDSU Uniphase Corporation

WiFi Advisor

Model No.: WFED-300AC

Prepared for : JDSU Uniphase Corporation
1100 Perimeter Park Drive, Suite 101, Morrisville, NC 27560

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block,
Shenzhen Science & Industrial Park,
Nantou, Shenzhen, Guangdong, China

Tel: (0755) 26639496
Fax: (0755) 26632877

Report Number : ACS-SF14009
Date of Test : Nov.30~Dec.03, 2014
Date of Report : Dec.12, 2014

TABLE OF CONTENTS

Description	Page
Test Report Verification.....	3
1. GENERAL INFORMATION.....	4
1.1. Description of Device (EUT)	4
2. GENERAL DESCRIPTION.....	5
2.1. Product Description For EUT.....	5
2.2. Applied Standards	5
2.3. Device Category and SAR Limits	5
2.4. Test Conditions	5
2.5. Exposure Positions Consideration.....	6
2.6. Standalone SAR Test Exclusion Considerations.....	7
2.7. Block Diagram of connection between EUT and simulators	9
2.8. Test Equipment	9
2.9. Laboratory Environment	10
2.10. Measurement Uncertainty	10
2.11. Statement of Compliance	12
3. MEASURE PROCEDURES.....	13
3.1. General description of test procedures	13
3.2. Position of module in Portable devices	15
4. SAR MEASUREMENTS SYSTEM	16
4.1. SAR Measurement Set-up	16
4.2. ELI Phantom	17
4.3. Device Holder for SAM Twin Phantom.....	18
4.4. DASY5 E-field Probe System	19
4.5. E-field Probe Calibration	20
4.6. Scanning procedure	21
5. DATA STORAGE AND EVALUATION	23
5.1. Data Storage	23
5.2. Data Evaluation by SEMCAD	23
6. SYSTEM CHECK	25
7. TEST RESULTS.....	26
7.1. Average power VS Data Rate(WIFI 2.4GHz).....	26
7.2. Output power VS Data Rate (WiFi 5GHz).....	26
7.3. System Check for Body Tissue simulating liquid.....	27
7.4. Test Results (WiFi 2.4GHz).....	28
7.5. Test Results (WiFi 5GHz).....	31
7.6. Composition of Ingredients for Tissue Simulating Liquids	33
7.7. Dielectric Performance for Body Tissue simulating liquid.....	34
8. ANNEX A: SYSTEM CHECK RESULTS	36
9. ANNEX B: GRAPH RESULTS	48
10. ANNEX C: DASY CABLIBRATION CERTIFICATE.....	199
11. ANNEX D: TEST SETUP PHOTOS	248

SAR TEST REPORT

Applicant : JDSU Uniphase Corporation

EUT Description : WiFi Advisor

(A) MODEL NO. : WFED-300AC

(B) FCC ID : WUW22073946

(C) IC : 9613A-22073946

(C) TEST VOLTAGE : DC 7.2V

Measurement Standard Used:

- FCC 47 CFR Part 2 (2.1093)
- IEEE C95.1-1999
- IEEE 1528-2003
- FCC OET Bulletin 65 Supplement C (Edition 01-01)
- FCC KDB 447498 D01 v05r01
- FCC KDB 248227 D01 v01r02
- FCC KDB 865664 D01
- FCC KDB 616217 D04
- FCC KDB 865664 D02
- FCC KDB616217 D04 SAR for laptop and tablets v01 r01

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of test. This report contains data that are not covered by the NVLAP accreditation. Also, this report shows that the EUT is technically compliant with the OET 65 Supplement C.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Nov.30~Dec.03, 2014 Report of date: Dec.12, 2014

Prepared by :

Kayli He

Reviewed by :



Kayli He / Assistant



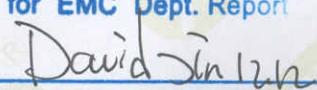
信華科技(深圳)有限公司

Sunny Lu / Assistant Manager

Audix Technology (Shenzhen) Co., Ltd.

EMC 部門報告專用章

Stamp only for EMC Dept. Report

Signature: 

David Jin / Manager

Approved & Authorized Signer :

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product Name : WiFi Advisor

Model Number : WFED-300AC

FCC ID : WUW22073946

IC : 9613A-22073946

Radio : IEEE802.11a/b/g/n/ac

Operation Frequency : IEEE 802.11a: 5180MHz—5240MHz;
5745MHz—5825MHz
IEEE 802.11ac VHT20: 5180MHz—5240MHz,
5745MHz—5825MHz
IEEE 802.11ac VHT40: 5190MHz—5230MHz,
5755MHz—5795MHz
IEEE 802.11ac VHT80: 5210MHz, 5775MHz
IEEE 802.11b: 2412MHz—2462MHz
IEEE 802.11g: 2412MHz—2462MHz
IEEE802.11nHT20: 2412MHz—2462MHz
IEEE802.11nHT40: 2422MHz—2452MHz;
5190MHz—5230MHz;
5755MHz—5795MHz

Modulation Technology : IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK)
IEEE 802.11a/g: OFDM(64QAM, 16QAM, QPSK, BPSK)
IEEE 802.11ac VHT20, VHT40, VHT80: OFDM (16QAM, 64QAM, 256QAM, QPSK, BPSK)
IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK,BPSK)

Applicant : JDSU Uniphase Corporation
1100 Perimeter Park Drive, Suite 101, Morrisville, NC 27560

Manufacturer : JDSU Uniphase Corporation
1100 Perimeter Park Drive, Suite 101, Morrisville, NC 27560

Date of Test : Nov.30~Dec.03, 2014

Date of Receipt : Nov.28, 2014

Sample Type : Prototype production

Remark: The EUT is Wireless LAN Analyzer provides a complete, multi-dimensional map of real WiFi performance, highlighting margin and resiliency of WiFi connections at multiple locations within a site. It includes intuitive tools to quickly optimize and troubleshoot the in-home WiFi network. It provides valuable performance information to the end-user to help reduce unnecessary trouble calls and repeats.

2. GENERAL DESCRIPTION

2.1. Product Description For EUT [None]

2.2. Applied Standards

The Specific Absorption Rate (SAR) testing specification, method and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- IEEE C95.1-1999
- IEEE 1528-2003
- FCC OET Bulletin 65 Supplement C (Edition 01-01)
- FCC KDB 447498 D01 v05r01
- FCC KDB 248227 D01 v01r02
- FCC KDB 865664 D01 SAR measurement requirement for 100 MHz to 6 GHz v01 r01

2.3. Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General

Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

2.4. Test Conditions

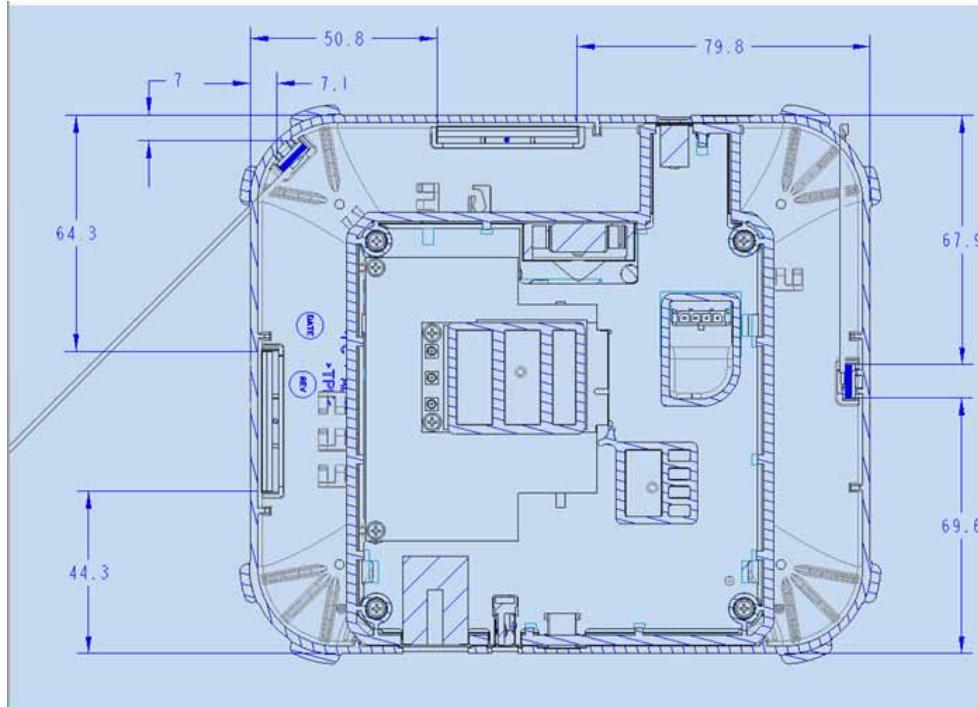
2.4.1. Ambient Condition

Ambient Temperature	20 to 24 °C
Humidity	< 60 %

2.4.2. Test Configuration

The distance between the EUT and the antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30Db smaller than the output power of EUT. The EUT was set from the emulator to radiate maximum output power during all tests.

2.5.Exposure Positions Consideration



Antenna	Description
WiFi/ Antenna (Tx/Rx)	802.11 a /b/g/n/ac

Note: The length of the diagonal dimension of the EUT is larger than 20cm.

Sides for Body SAR tests Test distance: 0 mm						
Band	Back	Front	Top	Bottom	Right	Left
WIFI 2.4GHz	✓	✗	✗	✓	✓	✗
WIFI 5GHz	✓	✗	✓	✓	✓	✗

Note:

- As the length of the diagonal dimension of the EUT is larger than 20cm. So, the front side can be excluded from SAR test.
- The side which have a distance larger than 5cm from antenna can be excluded from SAR test.
- The sum of the SAR value of 2.4G and 5GHz is less than 1.6W/Kg, thus the SAR evaluation for simultaneously can be excluded.

2.6.Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

According to the KDB447498 appendix A, the SAR test exclusion threshold for 2450MHz at 5mm test separation distances is 10 mW 5.2GHz&5.3GHz is 7 mW, and 5.4GHz & 5.8GHz is 6mW

Appendix A

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

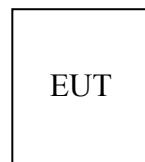
Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

Standalone SAR test exclusion considerations

Band/Mode	Frequency (GHz)	SAR test exclusion threshold (mW)	RF output power		SAR test exclusion
			dBm	mW	
2.4GHz WLAN 802.11 b	2.45	10	20.3	107.15	NO
2.4GHz WLAN 802.11 g	2.45	10	18.7	74.13	NO
2.4GHz WLAN 802.11n HT20	2.45	10	18.6	72.44	NO
2.4GHz WLAN 802. 11n HT40	2.45	10	19.1	81.28	NO
BT 2.4GHz	2.45	10	9.89	9.75	YES
5.2GHz WLAN 802.11a	5.2	7	17.4	54.95	NO
5.8GHz WLAN 802.11 a	5.8	6	16.6	45.71	NO
5.2GHz WLAN 802.11n HT40	5.2	7	13.9	24.55	NO
5.8GHz WLAN 802.11n HT40	5.8	6	17.58	57.28	NO

2.7. Block Diagram of connection between EUT and simulators



(Full Charged battery)

(EUT: WiFi Advisor)

2.8. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal Date	Cal. Interval
1.	DASY5 SAR Test System	Speag	TX60 L speag	F09/5B1H1/01	July.12,14	1Year
2.	Wireless Communication Test Set	Agilent	E5515C	GB44300243	May.09, 14	1Year
3.	Power Meter	Anritsu	ML2487A	6K00002472	Aug. 20,14	1 Year
4.	Power Sensor	Anritsu	MA2491A	032516	Aug. 20,14	1 Year
5.	Signal Generator	HP	83732B	VS34490501	Apr. 28,14	1 Year
6.	Amplifier	Milmega	ZHL-42W	C620601316	NCR	N/A
7.	Dipole Validation Kits	Speag	D900V2	1d088	May.26, 14	3Year
8.	Dipole Validation Kits	Speag	D1800V2	2d186	May.23, 14	3Year
9.	Dipole Validation Kits	Speag	D2000V2	1055	May.23, 14	3Year
10.	Dipole Validation Kits	Speag	D2450V2	862	May.29, 14	3Year
11.	Dipole Validation Kits	Speag	D5GHzV2	1102	Jun.16, 14	3Year
12.	Attenuator	Agilent	8491A 3dB	MY39262001	Apr. 28,14	1Year
13.	Attenuator	Agilent	8491A 10dB	MY39264375	Apr. 28,14	1Year
14.	Data Acquisition Electronics	Speag	DAE4	899	Feb.07,14	2Year
15.	E-Field Probe	Speag	ES3DV3	3139	July.25,12	3Year
16.	E-Field Probe	Speag	EX3DV4	3976	Sep.02,14	3Year
17.	Network Analyzer	Agilent	E5071B	MY42403549	Apr. 28,14	1Year

Note:

Dipole antenna calibration interval is 3 year, annual check result to be follow (Refer to KDB 865640, Dipole calibration):

Calibration date: May.17,13	
Antenna Parameters at 2450MHz	
Impedance, transformed to feed point	53.343 Ω -3.254j Ω
Return Loss	+24.745
Antenna Parameters at 5200MHz	
Impedance, transformed to feed point	52.4 Ω -6.98j Ω
Return Loss	+22.51
Antenna Parameters at 5800MHz	
Impedance, transformed to feed point	52.1 Ω -1.02j Ω
Return Loss	-31.15

2.9. Laboratory Environment

Temperature	Min:20°C,Max.25°C
Relative humidity	Min. = 30%, Max. = 70%
Note: Ambient noise is checked and found very low and in compliance with requirement of standards.	

2.10. Measurement Uncertainty

Test Item	Uncertainty
Uncertainty for SAR test	1g: 21.14
	10g: 20.64
Uncertainty for test site temperature and humidity	0.6°C

No.	source	Type	Uncertainty Value (%)	Probability Distribution	k	c _i	Standard uncertainty u _i (%)	Degree of freedom V _{eff} or v _i
1	System repetitivity	A	0.5	N	1	1	0.5	9
Measurement system								
2	-probe calibration	B	6	N	1	1	6	∞
3	-axial isotropy of the probe	B	4.7	R	$\sqrt{3}$	$\sqrt{0.5}$	1.9	∞
4	- Hemispherical isotropy of the probe	B	9.4	R	$\sqrt{3}$	$\sqrt{0.5}$	3.9	∞
5	-boundary effect	B	1.9	R	$\sqrt{3}$	1	1.1	∞
6	-probe linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
7	- System detection limits	B	1.0	R	$\sqrt{3}$	1	0.6	∞
8	-readout Electronics	B	1.0	N	1	1	1.0	∞
9	-response time	B	0	R	$\sqrt{3}$	1	0	∞
10	-integration time	B	4.3	R	$\sqrt{3}$	1	2.5	∞
11	-noise	B	0	R	$\sqrt{3}$	1	0	∞
12	-RF Ambient Conditions	B	3	R	$\sqrt{3}$	1	1.7	∞
13	-Probe Positioner Mechanical Tolerance	B	0.4	R	$\sqrt{3}$	1	0.2	∞
14	-Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	∞
15	-Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	1	2.3	∞
Test sample Related								
16	-Test Sample Positioning	A	2.9	N	1	1	2.9	71
17	-Device Holder Uncertainty	A	4.1	N	1	1	4.1	5
18	-Output Power Variation - SAR drift measurement	B	5.0	R	$\sqrt{3}$	1	2.9	∞
Physical parameter								
19	-phantom	B	4.0	R	$\sqrt{3}$	1	2.3	∞
20	Algorithm for correcting SAR for deviations in permittivity and conductivity	B	1.9	N	1	0.84	0.9	∞

21	-Liquid conductivity (measurement uncertainty)	B	2.5	N	1	0.71	1.8	9
22	-Liquid permittivity (measurement uncertainty)	B	2.5	N	1	0.26	0.7	9
23	-Liquid conductivity -temperature uncertainty	B	1.7	R	$\sqrt{3}$	0.71	0.7	∞
24	-Liquid permittivity -temperature uncertainty	B	0.3	R	$\sqrt{3}$	0.26	0.05	∞
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{24} c_i^2 u_i^2}$					11.24	
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$		N	k=2		22.48	

2.11. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for the product WiFi Advisor (M/N: WFED-300AC) are as below:

Max. Reported SAR (1g)

Band	Position	Measured SAR	Scaled SAR
		SAR _{1g} (W/kg)	SAR _{1g} (W/kg)
WIFI 2.4GHz	Body	1.089	1.171
WIFI 5GHz	Body	1.06	1.133

The SAR values found for this device are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1g tissue according to the ANSI C95.1-1999.

For body worn operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and which provides a minimum separation distance of 0 mm between this device and the body of the user. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

3. MEASURE PROCEDURES

3.1. General description of test procedures

For the 802.11a/b/g SAR body tests, a communication link is set up with the test mode software for WIFI mode test. The Absolute Radiofrequency Channel Number (ARFCN) is allocated to 1,6 and 11 respectively in the case of 2450 MHz. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. Each channel should be tested at the lowest data rate. Testing at higher data rates is not required when the maximum average output power is less than 0.25dB higher than those measured at the lowest data rate.

802.11b/g operating modes are tested independently according to the service requirements in each frequency band. 802.11b/g modes are tested on channels 1,6,11; however, if output power reduction is necessary for channels 1 and /or 11 to meet restricted band requirements the highest output channels closest to each of these channels must be tested instead.

SAR is not required for 802.11g channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels. When the maximum average output channel in each frequency band is not included in the “default test channels”, the maximum channel should be tested instead of an adjacent “default test channels”, these are referred to as the “required test channels” and are illustrated in table 1.

Please apply the following guidance for SAR testing:

1. Please use a 0 mm (touching) test separation distance on the flat phantom during SAR testing of this device. This separation distance is based on the guidance found in FCC KDB Publication 447498 D01, Section 5.2.3 3) as well as the RF exposure information for the original Tablet PC(FCC ID: WUW22073946).
2. Please utilize a body tissue simulating liquid (TSL) of the appropriate frequency during SAR testing.
3. Please use the guidance found in FCC KDB Publication 447498 D01 to determine which sides of the device need to be tested for SAR.
4. FCC KDB Publication 248227 D01 should be used for selection of the WiFi channels, data rates, etc.

Mode	GHz	Chann el	Turbo Channel	“Default Test Channels”		
				§ 15.247		UNII
				802.11b	802.11g	
802.11b/g	2.412	1 #		✓	▽	
	2.437	6	6	✓	▽	
	2.462	11 #		✓	▽	
802.11a	5.18	36				✓
	5.20	40	42(5.21GHz)			*
	5.22	44				*
	5.24	48	50(5.25GHz)			✓
	5.26	52				✓
	5.28	56	58(5.29GHz)			*
	5.30	60				*
	5.32	64				✓
	5.500	100	Unknown			*
	5.520	104				✓
	5.540	108				*
	5.560	112				*
	5.580	116				✓
	5.600	120				*
	5.620	124				✓
	5.640	128				*
	5.660	132				*
	5.680	136				✓
	5700	140				
UNII or § 15.247	5.745	149		✓		✓
	5.765	153	152(5.76GHz)		*	
	5.785	157		✓		
	5.805	161	160(5.80GHz)		*	✓
	§ 15.247	5.825	165	✓		

Note:

✓ = “default test channels”

* = possible 802.11a channels with maximum average output > the “default test channels”

▽ = possible 802.11g channels with maximum average output $\frac{1}{4}$ dB ≥ the “default test channels”

= when output power is reduced for channel 1 and/or 11 to meet restricted band requirements the highest output channels closest to each of these channels should be tested

3.2. Position of module in Portable devices

SAR is required for Front, back, edge, Top and bottom with the most conservative exposure conditions, The EUT is tested at the following test positions:

WiFi 2.4GHz:

- (1) Test Position Bottom Side: The Bottom Side of the EUT towards and directed tightly to touch the flat phantom.
- (2) Test Position Top Side: The Top Side of the EUT towards and directed tightly to touch the flat phantom.
- (3) Other side can be excluded from SAR test.

WiFi 5GHz:

- (1) Test Position Bottom Side: The Bottom Side of the EUT towards and directed tightly to touch the flat phantom.
- (2) Test Position Top Side: The Top Side of the EUT towards and directed tightly to touch the flat phantom.
- (3) Other side can be excluded from SAR test.

4. SAR MEASUREMENTS SYSTEM

4.1. SAR Measurement Set-up

DASY5 system for performing compliance tests consists of the following items:

- (1) A standard high precision 6-axis robot (Stäubli RX family) with controller and software.
An arm extension for accommodating the data acquisition electronics (DAE).
- (2) A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage It issue simulating liquid. The probe is equipped with an optical surface detector system.
- (3) A data acquisition electronic (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.
- (4) A unit to operate the optical surface detector which is connected to the EOC.
- (5) The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
- (6) The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003.
- (7) DASY5 software and SEMCAD data evaluation software.
- (8) Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- (9) The generic twin phantom enabling the testing of left-hand and right-hand usage.
- (10) The device holder for handheld mobile phones.
- (11) Tissue simulating liquid mixed according to the given recipes.
- (12) System validation dipoles allowing to validate the proper functioning of the system.

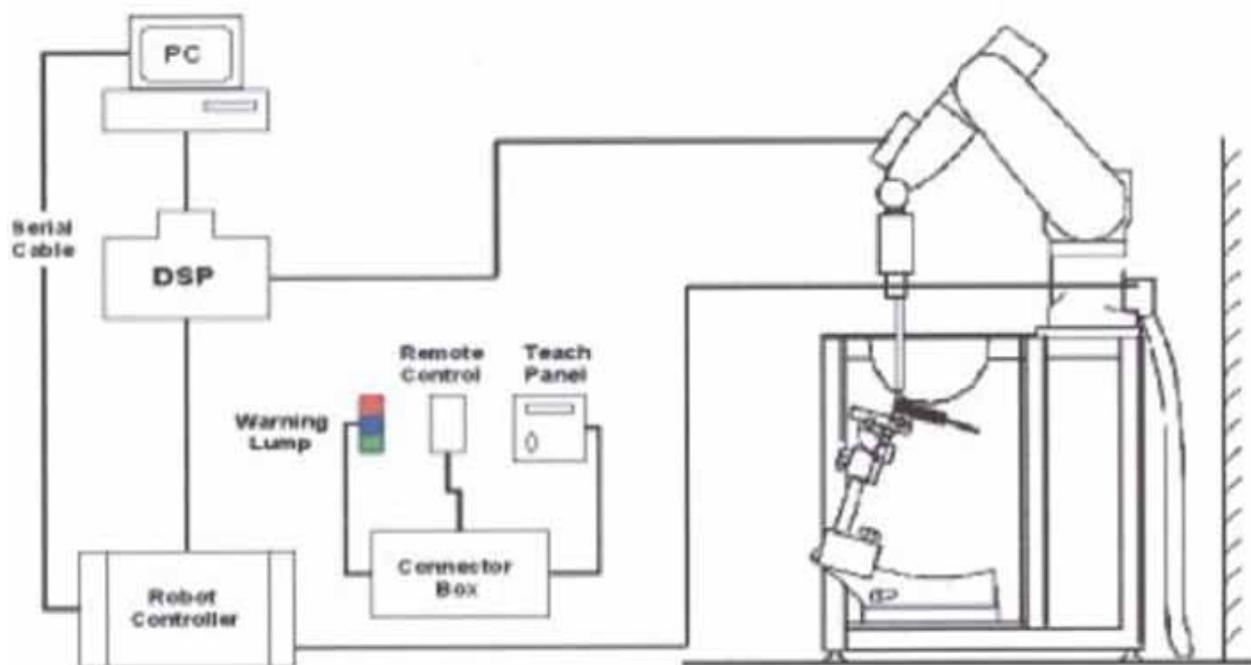


Figure 4.1 SAR Lab Test Measurement Set-up

4.2. ELI Phantom

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.

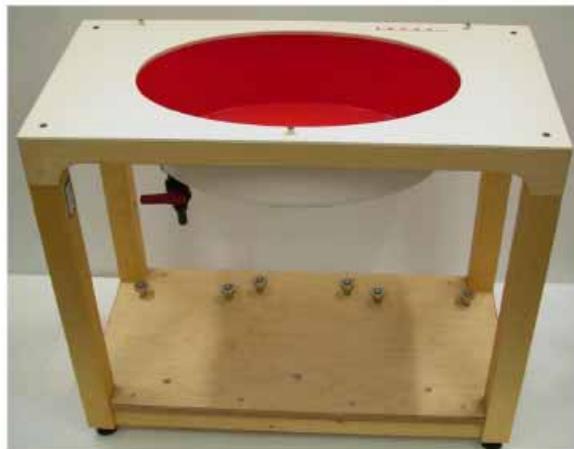


Figure 4.2 Top View of Twin Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2.0 ± 0.2 mm (bottom plate)
Dimensions	Major axis: 600 mm Minor axis: 400 mm
Filling Volume	approx. 30 liters
Wooden Support	SPEAG standard phantom table

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. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters.

On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

The phantom can be used with the following tissue simulating liquids:

*Water-sugar based liquid

*Glycol based liquids

4.3.Device Holder for SAM Twin Phantom

The SAR in the Phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source in 5 mm distance, a positioning uncertainty of $\pm 0.5\text{mm}$ would produce a SAR uncertainty of $\pm 20\%$. An accurate device position is therefore crucial for accurate and repeatable measurement. The position in which the devices must be measured, are defined by the standards.

The DASY5 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (EPR).

Thus the device needs no repositioning when changing the angles.

The DASY5 device holder has been made out of low-loss PO δ l material having the following dielectric parameters: relative permittivity $\epsilon_r = 3$ and loss tangent $\tan \delta = 0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



Figure 4.3 Device Holder

4.4.DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.



4.4.1. EX3DV4 Probe Specification

Figure 4.4 EX3DV4 E-field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μ W/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
Dimensions	Overall length: PRS-T2 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

4.5.E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than $\pm 10\%$. The spherical isotropy was evaluated and found to be better than $\pm 0.25\text{dB}$. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies below 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$\mathbf{SAR} = \mathbf{C} \frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),
 C = Heat capacity of tissue (brain or muscle),
 ΔT = Temperature increase due to RF exposure.
Or

$$\mathbf{SAR} = \frac{|E|^2 \sigma}{\rho}$$

Where:
 σ = Simulated tissue conductivity,
 ρ = Tissue density (kg/m^3).

4.6.Scanning procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

The "reference" and "drift" measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the EUT's output power and should vary max. $\pm 5\%$.

The "surface check" measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above $\pm 0.1\text{mm}$). To prevent wrong results tests are only executed when the liquid is free of air bubbles.

The difference between the optical surface detection and the actual surface depends on the Probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within $\pm 30^\circ$.)

Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.

After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

Zoom Scan

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan.

Spatial Peak Detection

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY5 system allows evaluations that combine measured data and robot positions, such as:

- maximum search
- extrapolation
- boundary correction
- peak search for averaged SAR

During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

5. DATA STORAGE AND EVALUATION

5.1.Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

5.2.Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, ai0, ai1, ai2
	- Conversion factor	ConvFi
	- Diode compression point	DcpI
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$Vi =Ui +Ui2 \cdot cf / dcpI$$

With Vi = compensated signal of channel i ($i = x, y, z$)

Ui = input signal of channel i ($i = x, y, z$)

cf = crest factor of exciting field (DASY parameter)

$dcpi$ = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $Ei = (Vi / Normi \cdot ConvF)1/2$

H-field probes: $Hi = (Vi)1/2 \cdot (ai0 + ai1f + ai2f2)/f$

With Vi = compensated signal of channel i ($i = x, y, z$)

$Normi$ = sensor sensitivity of channel i ($i = x, y, z$)

$ConvF$ = sensitivity enhancement in solution

aij = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

Ei = electric field strength of channel i in V/m

Hi = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$Etot = (Ex^2 + EY^2 + Ez^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (Etot^2 \cdot \rho) / (4\pi \cdot 1000)$$

with

SAR = local specific absorption rate in mW/g

$Etot$ = total field strength in V/m

= conductivity in [mho/m] or [Siemens/m]

= equivalent tissue density in g/cm³

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$Ppwe = Etot^2 / 3770 \quad \text{or} \quad Ppwe = Htot^2 \cdot 37.7$$

with $Ppwe$ = equivalent power density of a plane wave in mW/cm²

$Etot$ = total electric field strength in V/m

$Htot$ = total magnetic field strength in A/m

6. SYSTEM CHECK

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the ANNEX A.

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system ($\pm 10\%$).

System check is performed regularly on all frequency bands where tests are performed with the DASY5 system.

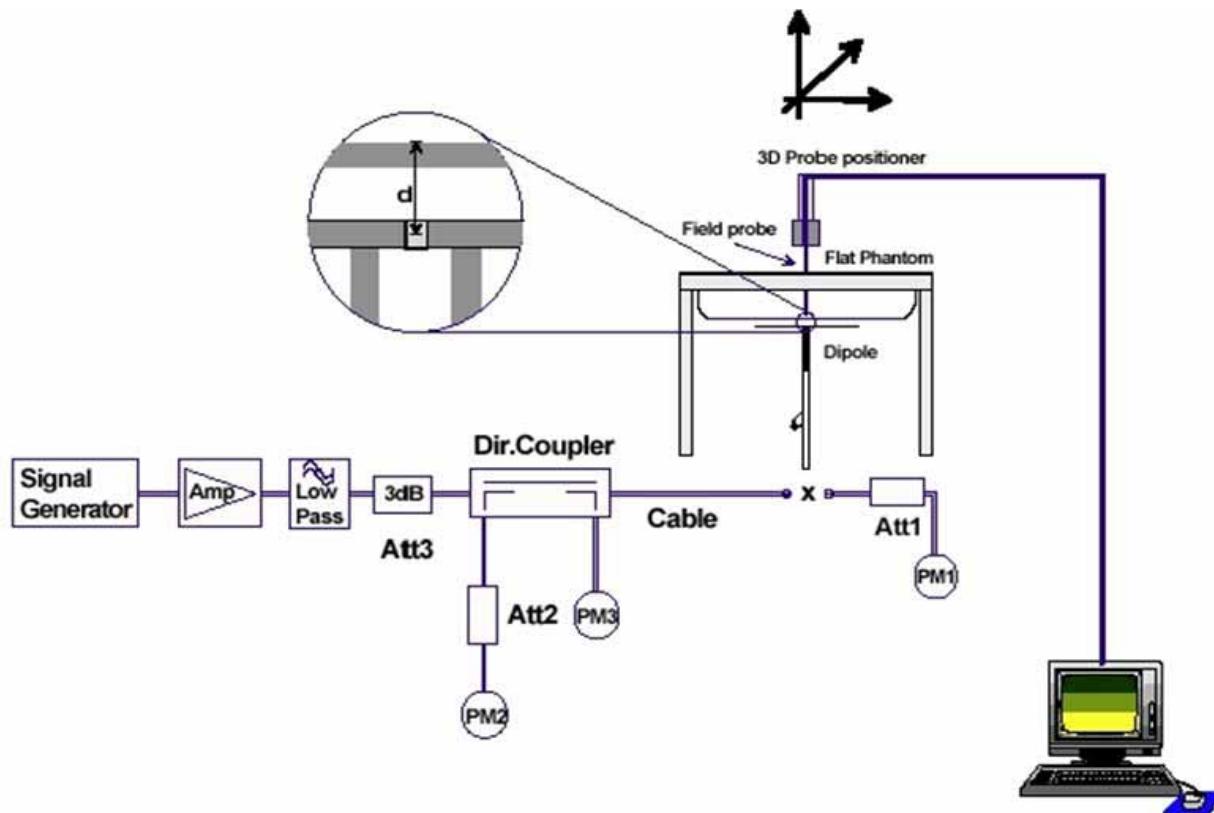


Figure 6.1: System Check Set-up

7. TEST RESULTS

7.1. Average power VS Data Rate(WIFI 2.4GHz)

Mode	CH	Average Power Chain1	Average Power Chain2	Average Power Chain3
802.11b (2.4GHz)	CH1	20.3	N/A	N/A
	CH6	20.2	N/A	N/A
	CH11	20.2	N/A	N/A
802.11g (2.4GHz)	CH1	14.1	13.2	15.5
	CH6	18.3	18.3	18.7
	CH11	14.5	13.4	15.6
802.11n HT20 (2.4GHz)	CH1	14.2	13.3	14.2
	CH6	18.5	18.4	18.6
	CH11	14.2	13.4	14.6
802.11n HT40 (2.4GHz)	CH3	14.5	12.2	16.4
	CH6	19	18.9	19.1
	CH9	14.2	12.2	16.1

Note: SAR test was conducted at the data rate which has maximum output level.

Note1 :Those data rate has the maximum power output.

Note2 : Per KDB 248227, 11g/n output power is larger than 1/4 dB higher than 11b mode, thus the SAR. Also be evaluated.

7.2. Output power VS Data Rate (WiFi 5GHz)

Mode	CH	Average Power Chain 1	Average Power Chain 2	Average Power Chain 3
802.11a (5G)	36	17.40	17.10	17.30
	48	17.40	17.10	17.10
	149	16.26	15.90	16.53
	161	16.37	16.56	16.60
802.11n HT40 (5G)	38	13.90	11.80	13.30
	46	13.50	11.80	13.30
	151	17.27	16.57	17.36
	159	17.52	16.57	17.58

Note: SAR test was conducted at the data rate which has maximum output level.

Remark:

1. Per KDB 248227, 11n output power is less than 1/4 dB higher than 11a mode, thus the SAR. Also be evaluated.
2. These date rate has the maximum power output.

7.3.System Check for Body Tissue simulating liquid

Frequency	Description	SAR(W/kg)		Dielectric Parameters		Temp °C
		1g	10g	εr	σ(s/m)	
2450MHz	Recommended value ±10% window	12.8 11.52 — 14.08	5.86 5.27 — 6.45	52.7	1.95	/
	Measurement value 2014-11-30	13.13	5.97	54.338	1.971	20.05
Frequency (MHz)	Description	SAR(W/kg)		Dielectric Parameters		Temp °C
		1g	10g	εr	σ(s/m)	
2450MHz	Recommended value ±10% window	12.8 11.52 — 14.08	5.86 5.27 — 6.45	52.7	1.95	/
	Measurement value 2014-12-01	12.8	5.98	54.338	1.971	20.05
Frequency (MHz)	Description	SAR(W/kg)		Dielectric Parameters		Temp °C
		1g	10g	εr	σ(s/m)	
2450MHz	Recommended value ±10% window	12.8 11.52 — 14.08	5.86 5.27 — 6.45	52.7	1.95	/
	Measurement value 2014-12-02	13.21	6.04	54.338	1.971	20.05
Frequency (MHz)	Description	SAR(W/kg)		Dielectric Parameters		Temp °C
		1g	10g	εr	σ(s/m)	
5200MHz	Recommended value ±10% window	19.125 17.21 — 21.04	5.4 4.86 — 5.94	49	5.3	/
	Measurement value 2014-12-03	19.5	5.42	48.508	5.598	20.21
Frequency (MHz)	Description	SAR(W/kg)		Dielectric Parameters		Temp °C
		1g	10g	εr	σ(s/m)	
5200MHz	Recommended value ±10% window	19.125 17.21 — 21.04	5.4 4.86 — 5.94	49	5.3	/
	Measurement value 2014-12-08	19.62	5.53	48.508	5.598	20.21
Frequency (MHz)	Description	SAR(W/kg)		Dielectric Parameters		Temp °C
		1g	10g	εr	σ(s/m)	
5800MHz	Recommended value ±10% window	19.041 17.55 — 21.45	5.239 4.93— 6.02	48.2	6	/
	Measurement value 2014-12-08	19.83	5.43	48.327	6.021	20.27

Note: Recommended Values used derive from the calibration certificate and 250 mW is used as feeding power to the calibrated dipole.

7.4. Test Results (WiFi 2.4GHz)

WiFi IEEE802.11b 2.4GHz

Chain	Channel	Test Position	Output Power		Measured Results		Scaled		Power Drift (dBm)
			Max. Target AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
Chain 1	CH 1	Back	19.5	20.3	0.116	0.054	0.096	0.045	-0.18
		Bottom	19.5	20.3	0.023	0.018	0.019	0.015	0.05
		Right	19.5	20.3	0.182	0.077	0.151	0.064	-0.16
	CH 6	Back	19.5	20.2	0.116	0.053	0.099	0.045	-0.16
		Bottom	19.5	20.2	0.031	0.014	0.026	0.012	0.11
		Right	19.5	20.2	0.186	0.080	0.158	0.068	-0.08
	CH 11	Back	19.5	20.2	0.118	0.054	0.100	0.046	-0.09
		Bottom	19.5	20.2	0.024	0.016	0.020	0.014	0.01
		Right	19.5	20.2	0.126	0.057	0.107	0.049	-0.07

WiFi IEEE802.11g 2.4GHz

Chain	Channel	Test Position	Output Power		Measured Results		Scaled		Power Drift (dBm)
			Max. Target AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
Chain 1	CH 1	Back	15	14.1	0.015	0.0086	0.018	0.011	-0.03
		Bottom	15	14.1	0.038	0.027	0.047	0.033	0.02
		Right	15	14.1	0.952	0.698	1.171	0.859	-0.11
	CH 6	Back	19	18.3	0.014	0.0081	0.016	0.010	0.15
		Bottom	19	18.3	0.038	0.028	0.045	0.033	0.02
		Right	19	18.3	0.961	0.648	1.129	0.761	-0.00
	CH 11	Back	15	14.5	0.013	0.0075	0.015	0.008	-0.03
		Bottom	15	14.5	0.055	0.031	0.062	0.035	-0.12
		Right	15	14.5	1.02	0.577	1.145	0.647	-0.14
Chain 2	CH 1	Back	14	13.2	0.023	0.013	0.028	0.016	0.12
		Right	14	13.2	0.318	0.159	0.382	0.191	0.10
		Top	14	13.2	0.668	0.315	0.803	0.379	-0.03
	CH 6	Back	19	18.3	0.023	0.014	0.027	0.016	-0.09
		Right	19	18.3	0.349	0.193	0.410	0.227	0.07
		Top	19	18.3	0.695	0.327	0.817	0.384	-0.02
	CH 11	Back	14	13.4	0.023	0.014	0.026	0.016	-0.04
		Right	14	13.4	0.447	0.218	0.513	0.250	0.08
		Top	14	13.4	0.808	0.374	0.928	0.429	0.04
Chain 3	CH 1	Back	16	15.5	0.040	0.036	0.045	0.040	0.07
		Top	16	15.5	0.997	0.512	1.119	0.574	-0.18
	CH 6	Back	19	18.7	0.041	0.037	0.044	0.040	0.14
		Top	19	18.7	0.768	0.348	0.823	0.373	-0.08
	CH 11	Back	16	15.6	0.041	0.038	0.045	0.042	0.06
		Top	16	15.6	1.06	0.519	1.162	0.569	-0.09

WiFi IEEE802.11n HT20 2.4GHz

Chain	Channel	Test Position	Output Power		Measured Results		Scaled		Power Drift (dBm)
			Max. Target AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
Chain 1	CH 1	Back	15	14.2	0.0077	0.0038	0.009	0.005	0.06
		Bottom	15	14.2	0.0269	0.0141	0.032	0.017	0.01
		Right	15	14.2	0.936	0.622	1.125	0.748	-0.07
	CH 6	Back	19	18.5	0.0078	0.0039	0.009	0.004	-0.12
		Bottom	19	18.5	0.0321	0.022	0.036	0.025	-0.03
		Right	19	18.5	1.01	0.517	1.133	0.580	0.02
	CH 11	Back	15	14.2	0.0069	0.0034	0.008	0.004	-0.14
		Bottom	15	14.2	0.036	0.018	0.043	0.022	-0.04
		Right	15	14.2	0.892	0.541	1.072	0.650	0.04
Chain 2	CH 1	Back	14	13.3	0.048	0.039	0.056	0.046	0.02
		Right	14	13.3	0.566	0.279	0.665	0.328	0.09
		Top	14	13.3	0.866	0.402	1.017	0.472	0.02
	CH 6	Back	19	18.4	0.050	0.041	0.057	0.047	-0.08
		Right	19	18.4	0.587	0.291	0.674	0.334	0.01
		Top	19	18.4	0.972	0.445	1.116	0.511	-0.10
	CH 11	Back	14	13.4	0.050	0.042	0.057	0.048	0.06
		Right	14	13.4	0.628	0.308	0.721	0.354	-0.03
		Top	14	13.4	0.762	0.362	0.875	0.416	-0.11
Chain 3	CH 1	Back	15	14.2	0.0092	0.0052	0.011	0.006	0.00
		Top	15	14.2	0.911	0.603	1.095	0.725	-0.02
	CH 6	Back	19	18.6	0.0092	0.0054	0.010	0.006	0.10
		Top	19	18.6	0.988	0.581	1.083	0.637	-0.12
	CH 11	Back	15	14.6	0.0096	0.0055	0.011	0.006	0.13
		Top	15	14.6	0.976	0.575	1.070	0.630	-0.01

WiFi IEEE802.11n HT40 2.4GHz

Chain	Channel	Test Position	Output Power		Measured Results		Scaled		Power Drift (dBm)
			Max. Target AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
Chain 1	CH 3	Back	14	14.5	0.051	0.0247	0.045	0.022	0.14
		Bottom	14	14.5	0.065	0.0417	0.058	0.037	0.02
		Right	14	14.5	1.09	0.649	0.972	0.579	0.14
	CH 6	Back	19	19	0.113	0.0678	0.113	0.068	0.09
		Bottom	19	19	0.053	0.037	0.053	0.037	0.01
		Right	19	19	1.04	0.655	1.040	0.655	0.09
	CH 9	Back	14	14.2	0.093	0.0472	0.089	0.045	0.04
		Bottom	14	14.2	0.061	0.042	0.058	0.040	0.01
		Right	14	14.2	1.03	0.482	0.984	0.460	0.04
Chain 2	CH 3	Back	12	12.2	0.0231	0.012	0.022	0.011	0.03
		Right	12	12.2	0.301	0.134	0.287	0.128	-0.02
		Top	12	12.2	0.601	0.434	0.574	0.414	-0.04
	CH 6	Back	19	18.9	0.0261	0.0123	0.027	0.013	0.02
		Right	19	18.9	0.329	0.138	0.337	0.141	0.03
		Top	19	18.9	0.561	0.323	0.574	0.331	0.01
	CH 9	Back	12	12.2	0.0211	0.0139	0.020	0.013	0.01
		Right	12	12.2	0.358	0.418	0.342	0.399	0.04
		Top	12	12.2	0.0311	0.0439	0.030	0.042	0.02
Chain 3	CH 3	Back	16	16.4	0.015	0.0094	0.014	0.009	0.02
		Top	16	16.4	1.023	0.447	0.933	0.408	0.04
	CH 6	Back	19	19.1	0.012	0.0078	0.012	0.008	0.05
		Top	19	19.1	1.023	0.678	1.000	0.663	0.02
	CH 9	Back	16	16.1	0.029	0.0147	0.028	0.014	0.01
		Top	16	16.1	1.089	0.483	0.771	0.342	0.01

7.5. Test Results (WiFi 5GHz)

WiFi IEEE802.11a 5GHz

Chain	Channel	Test Position	Output Power		Measured Results		Scaled		Power Drift (dBm)
			Max. Target AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
Chain 1	CH 36	Back	17.5	17.40	0.027	0.016	0.028	0.016	0.02
		Bottom	17.5	17.40	0.034	0.027	0.035	0.028	0.03
		Right	17.5	17.40	0.609	0.215	0.623	0.220	0.11
	CH 48	Back	17.5	17.40	0.031	0.015	0.032	0.015	0.05
		Bottom	17.5	17.40	0.037	0.021	0.038	0.021	0.03
		Right	17.5	17.40	1.02	0.335	1.044	0.343	0.15
	CH 149	Back	16	16.26	0.045	0.021	0.042	0.020	0.03
		Bottom	16	16.26	0.067	0.034	0.063	0.032	0.04
		Right	16	16.26	0.967	0.571	0.911	0.538	0.12
	CH 161	Back	16	16.37	0.066	0.031	0.061	0.028	-0.10
		Bottom	16	16.37	0.087	0.064	0.080	0.059	0.06
		Right	16	16.37	0.996	0.552	0.915	0.507	0.02
Chain 2	CH 36	Back	17.5	17.10	0.096	0.070	0.105	0.077	-0.11
		Right	17.5	17.10	0.627	0.426	0.687	0.467	-0.07
		Top	17.5	17.10	0.237	0.426	0.260	0.467	-0.12
	CH 48	Back	17.5	17.10	0.089	0.065	0.098	0.071	0.11
		Right	17.5	17.10	0.681	0.468	0.747	0.513	0.04
		Top	17.5	17.10	0.416	0.217	0.456	0.238	0.03
	CH 149	Back	16	15.90	0.092	0.069	0.094	0.071	0.04
		Right	16	15.90	0.749	0.249	0.767	0.255	0.02
		Top	16	15.90	0.244	0.107	0.250	0.110	0.03
	CH 161	Back	16	16.56	0.098	0.076	0.086	0.067	-0.04
		Right	16	16.56	0.715	0.252	0.628	0.222	-0.05
		Top	16	16.56	0.283	0.122	0.249	0.107	0.01
Chain 3	CH 36	Back	17.5	17.30	0.014	0.011	0.015	0.012	0.06
		Top	17.5	17.30	0.907	0.321	0.950	0.336	0.11
	CH 48	Back	17.5	17.10	0.024	0.011	0.026	0.012	0.03
		Top	17.5	17.10	0.856	0.308	0.938	0.338	0.01
	CH 149	Back	16	16.53	0.059	0.027	0.052	0.024	0.01
		Top	16	16.53	0.855	0.337	0.757	0.298	-0.01
	CH 161	Back	16	16.60	0.056	0.029	0.028	0.016	0.03
		Top	16	16.60	0.889	0.312	0.035	0.028	0.05

WiFi IEEE802.11n HT40 5GHz

Chain	Channel	Test Position	Output Power		Measured Results		Scaled		Power Drift (dBm)
			Max. Target AV Power (dBm)	Measured AV Power (dBm)	SAR1g (W/kg)	SAR10g (W/kg)	SAR1g (W/kg)	SAR10g (W/kg)	
Chain 1	CH 38	Back	14	13.90	0.037	0.018	0.038	0.018	-0.04
		Bottom	14	13.90	0.079	0.061	0.081	0.062	-0.07
		Right	14	13.90	1.06	0.439	1.085	0.449	-0.18
	CH 46	Back	14	13.50	0.067	0.031	0.075	0.035	0.01
		Bottom	14	13.50	0.078	0.033	0.088	0.037	0.02
		Right	14	13.50	1.01	0.439	1.133	0.493	-0.01
	CH 151	Back	17.5	17.27	0.021	0.007	0.022	0.007	0.01
		Bottom	17.5	17.27	0.033	0.012	0.035	0.013	0.05
		Right	17.5	17.27	0.867	0.408	0.914	0.430	-0.05
	CH 159	Back	17.5	17.52	0.328	0.128	0.326	0.127	0.04
		Bottom	17.5	17.52	0.066	0.024	0.066	0.024	0.01
		Right	17.5	17.52	0.903	0.421	0.899	0.419	0.02
Chain 2	CH 38	Back	12	11.80	0.094	0.071	0.098	0.074	-0.12
		Right	12	11.80	0.768	0.260	0.804	0.272	-0.04
		Top	12	11.80	0.279	0.108	0.292	0.113	-0.04
	CH 46	Back	12	11.80	0.091	0.071	0.095	0.074	0.17
		Right	12	11.80	0.651	0.227	0.682	0.238	-0.02
		Top	12	11.80	0.285	0.111	0.298	0.116	-0.02
	CH 151	Back	16	16.57	0.253	0.108	0.222	0.095	-0.11
		Right	16	16.57	0.788	0.386	0.691	0.339	-0.04
		Top	16	16.57	0.179	0.070	0.157	0.061	0.00
	CH 159	Back	16	16.57	0.024	0.010	0.021	0.009	-0.15
		Right	16	16.57	0.674	0.403	0.591	0.353	-0.14
		Top	16	16.57	0.171	0.067	0.150	0.059	-0.13
Chain 3	CH 38	Back	14	13.30	0.064	0.027	0.075	0.032	0.06
		Top	14	13.30	0.907	0.335	1.066	0.394	0.02
	CH 46	Back	14	13.30	0.045	0.031	0.053	0.036	0.06
		Top	14	13.30	0.916	0.357	1.076	0.419	0.07
	CH 151	Back	17.5	17.36	0.038	0.027	0.039	0.028	0.02
		Top	17.5	17.36	0.984	0.512	1.016	0.529	0.02
	CH 159	Back	17.5	17.58	0.062	0.031	0.038	0.018	-0.03
		Top	17.5	17.58	0.847	0.413	0.081	0.062	-0.15

7.6. Composition of Ingredients for Tissue Simulating Liquids

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

Simulating Liquids for 5 GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	78
Mineral Oil	11
Emulsifiers	9
Additives and Salt	2

7.7.Dielectric Performance for Body Tissue simulating liquid

Frequency	Description	Dielectric Parameters		Temp °C
		εr	σ(s/m)	
2450MHz	Recommended value ±10% window	52.7	1.95	/
	Measurement value 2014-11-30	54.338	1.971	20.05
Frequency (MHz)	Description	Dielectric Parameters		Temp °C
		εr	σ(s/m)	
2450MHz	Recommended value ±10% window	52.7	1.95	/
	Measurement value 2014-12-01	54.338	1.971	20.05
Frequency (MHz)	Description	Dielectric Parameters		Temp °C
		εr	σ(s/m)	
2450MHz	Recommended value ±10% window	52.7	1.95	/
	Measurement value 2014-12-02	54.338	1.971	20.05
Frequency (MHz)	Description	Dielectric Parameters		Temp °C
		εr	σ(s/m)	
5200MHz	Recommended value ±10% window	49	5.3	/
	Measurement value 2014-12-03	48.508	5.598	20.21
Frequency (MHz)	Description	Dielectric Parameters		Temp °C
		εr	σ(s/m)	
5200MHz	Recommended value ±10% window	49	5.3	/
	Measurement value 2014-12-08	48.508	5.598	20.21
Frequency (MHz)	Description	Dielectric Parameters		Temp °C
		εr	σ(s/m)	
5800MHz	Recommended value ±10% window	48.2	6	/
	Measurement value 2014-12-08	48.327	6.021	20.27



Figure 4.4: Liquid depth in the Flat Phantom

8. ANNEX A: SYSTEM CHECK RESULTS

Test Laboratory: Audix SAR Lab

Date: 30/11/2014

CW 2450

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:862

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.971 \text{ S/m}$; $\epsilon_r = 54.338$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012;
- Modulation Compensation;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 2450MHz/Area Scan (61x71x1): Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$

Maximum value of SAR (interpolated) = 16.3 W/kg

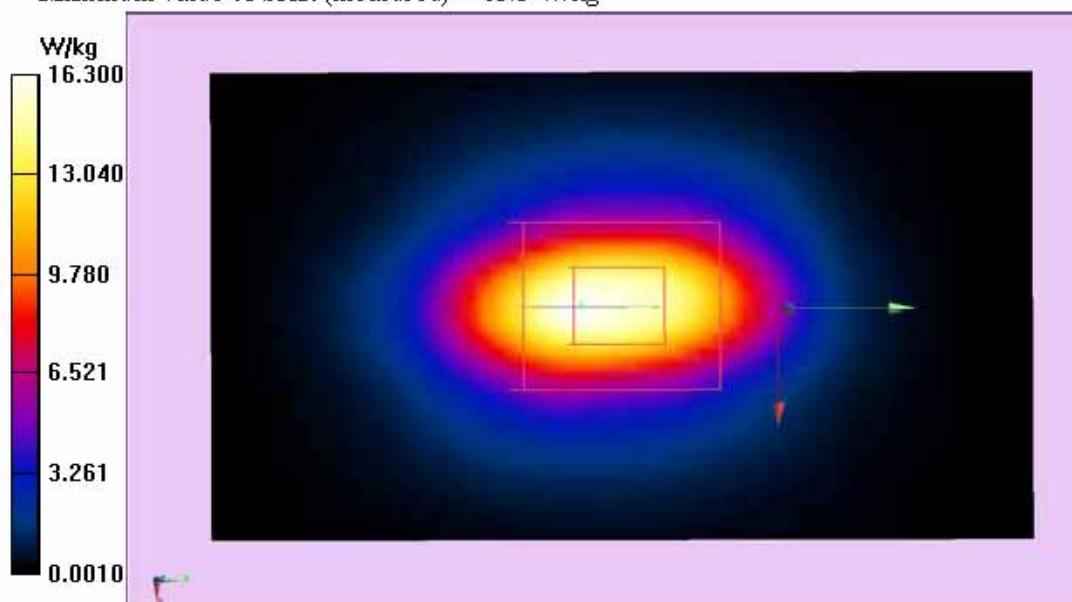
Configuration/CW 2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

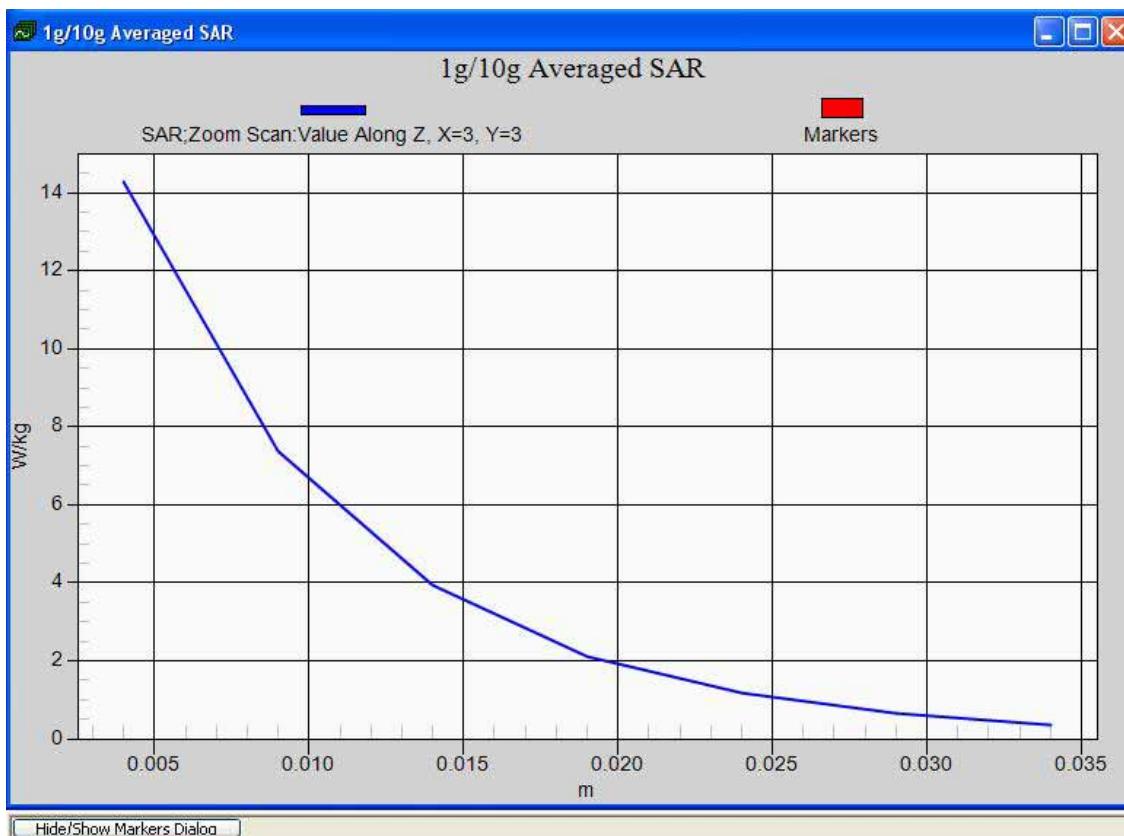
Reference Value = 85.35 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 24.1 W/kg

SAR(1 g) = 13.13 W/kg; SAR(10 g) = 5.97 W/kg

Maximum value of SAR (measured) = 15.5 W/kg





Test Laboratory: Audix SAR Lab

Date: 01/12/2014

CW 2450

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:862

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.971 \text{ S/m}$; $\epsilon_r = 54.338$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899, Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/ CW 2450MHz/Area Scan (41x61x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 16.2 W/kg

Configuration/ CW 2450MHz/Zoom Scan (7x7x7)/Cube 0:

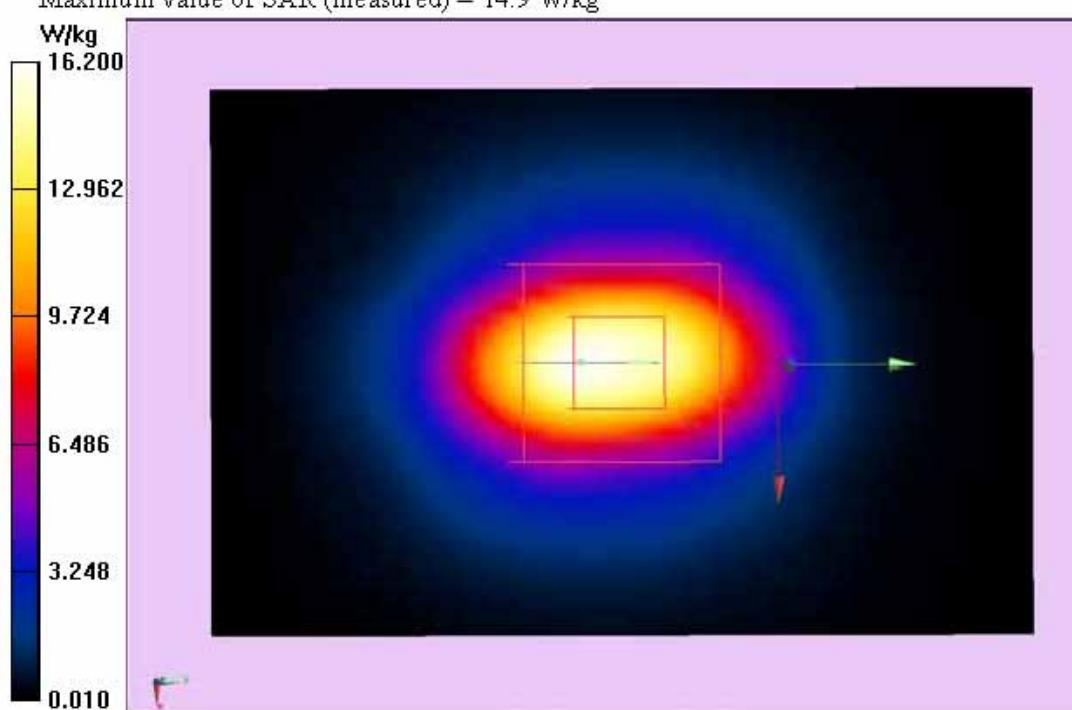
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

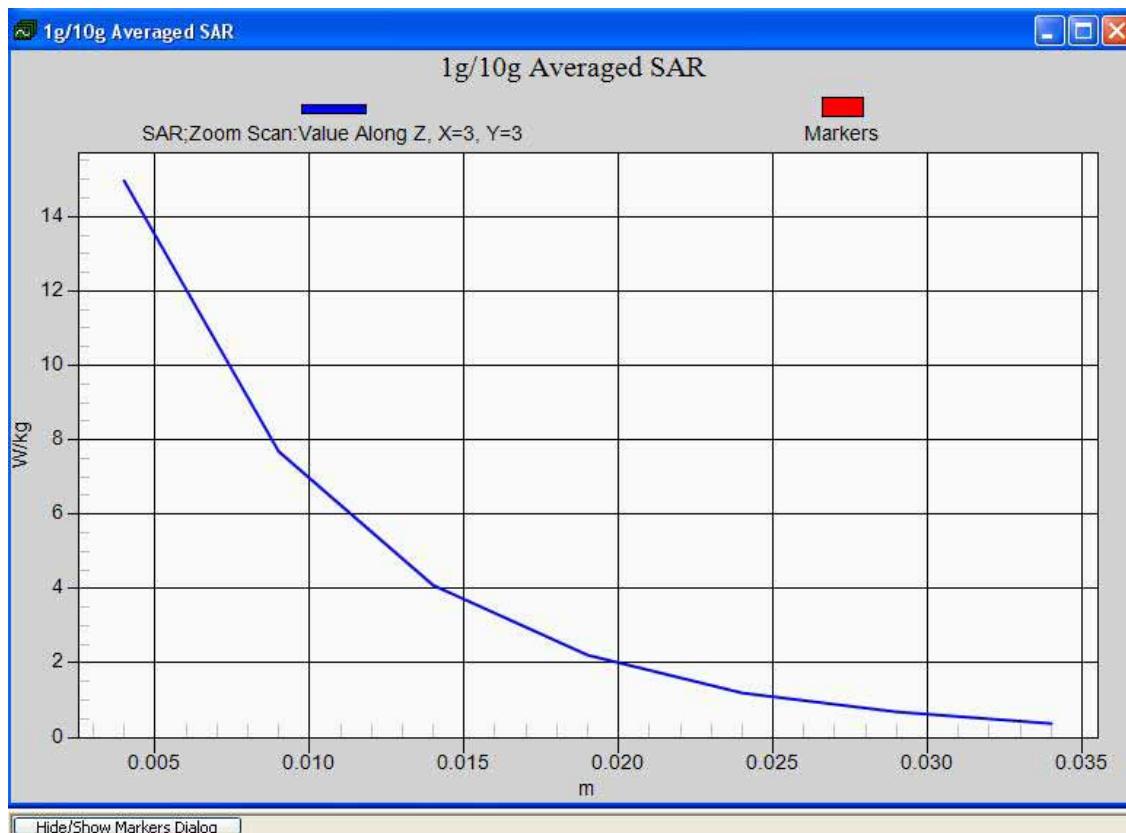
Reference Value = 89.12 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 26.5 W/kg

SAR(1 g) = 12.8 W/kg; SAR(10 g) = 5.98 W/kg

Maximum value of SAR (measured) = 14.9 W/kg





Test Laboratory: Audix SAR Lab

Date: 02/12/2014

CW 2450

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:862

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.971$ S/m; $\epsilon_r = 54.338$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899, Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 2450MHz/Area Scan (41x61x1): Interpolated grid: dx=1.500

mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 13.8 W/kg

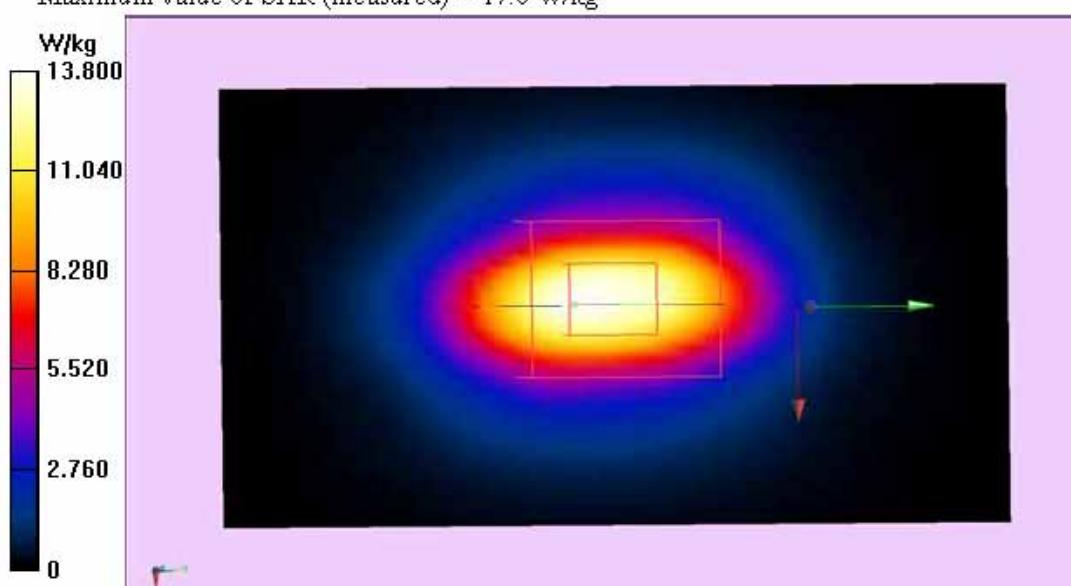
Configuration/CW 2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

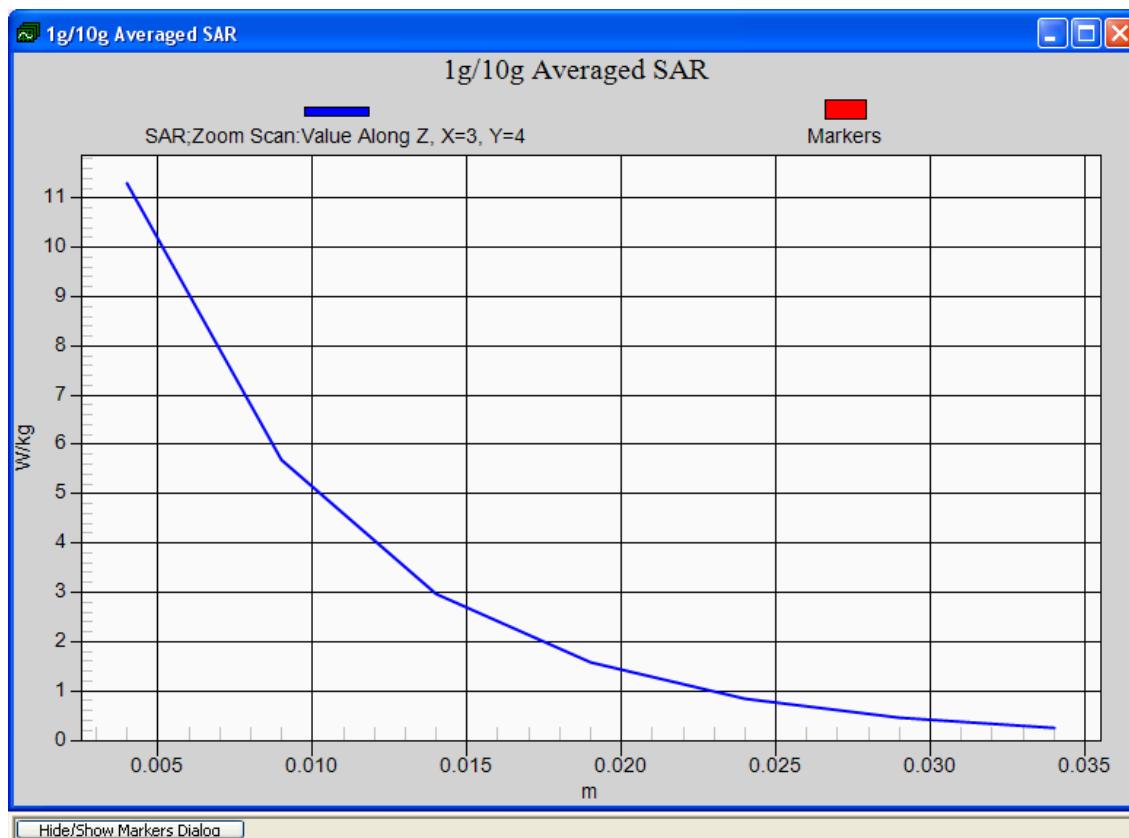
Reference Value = 81.9 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 19.15 W/kg

SAR(1 g) = 13.21 W/kg; SAR(10 g) = 6.04 W/kg

Maximum value of SAR (measured) = 17.6 W/kg





Test Laboratory: Audix SAR Lab

Date: 03/12/2014

CW 5200

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1102

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5200 MHz; Communication System PAR: 0 dB

Medium parameters used: $f = 5200$ MHz; $\sigma = 5.598$ S/m; $\epsilon_r = 48.508$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(7.85, 7.85, 7.85); Calibrated: 02/09/2014;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0, Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 5200MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 23.7 W/kg

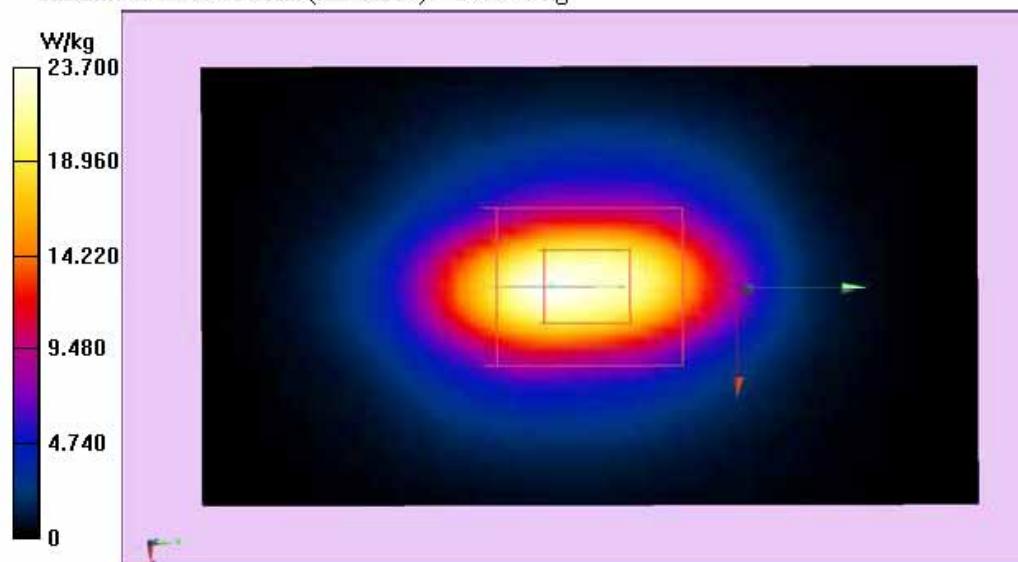
Configuration/CW 5200MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

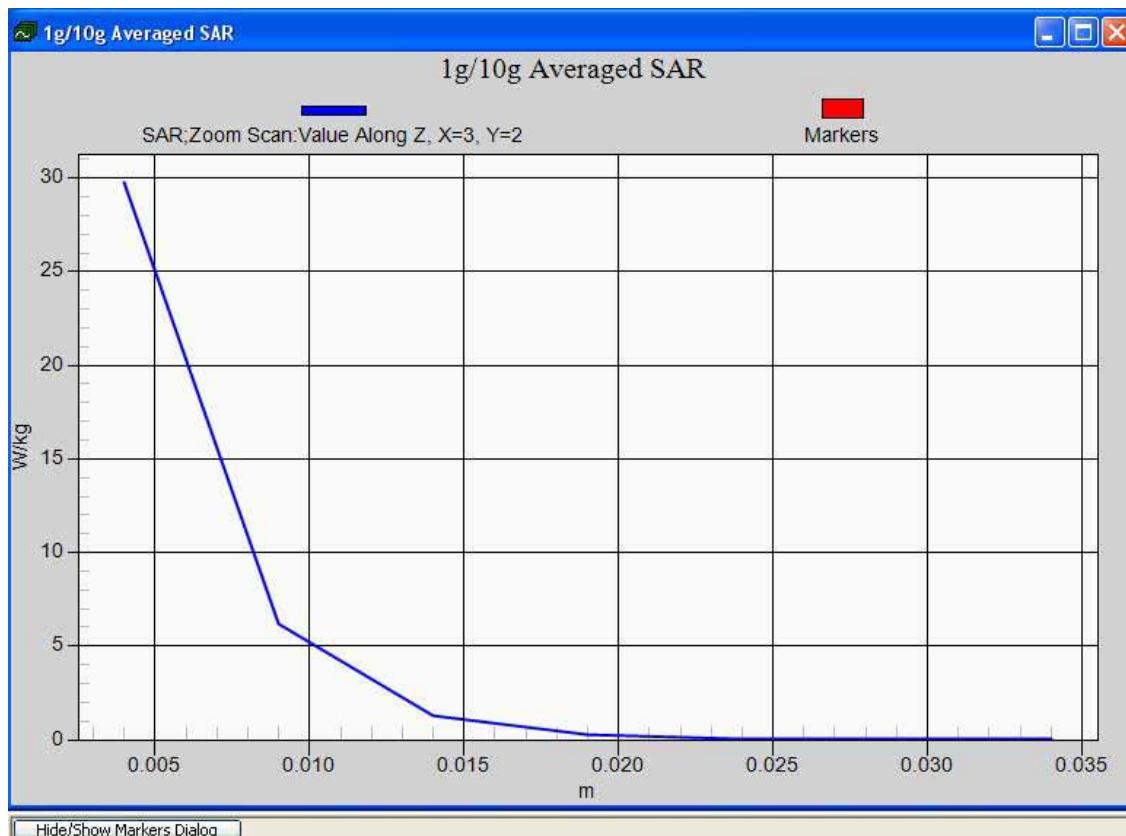
Reference Value = 80.15 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 224 W/kg

SAR(1 g) = 19.5 W/kg; SAR(10 g) = 5.42 W/kg

Maximum value of SAR (measured) = 37.1 W/kg





Test Laboratory: Audix SAR Lab

Date: 08/12/2014

CW 5200

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1102

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5200 MHz; Communication System PAR: 0 dB

Medium parameters used: $f = 5200$ MHz; $\sigma = 5.598$ S/m; $\epsilon_r = 48.508$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(7.85, 7.85, 7.85); Calibrated: 02/09/2014;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0, Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 5200MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000

mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 15.40 W/kg

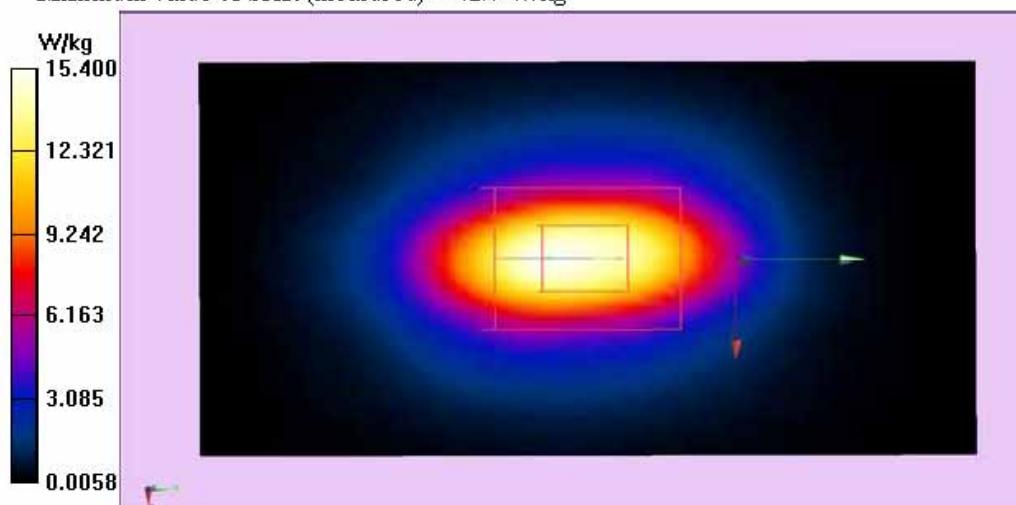
Configuration/CW 5200MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

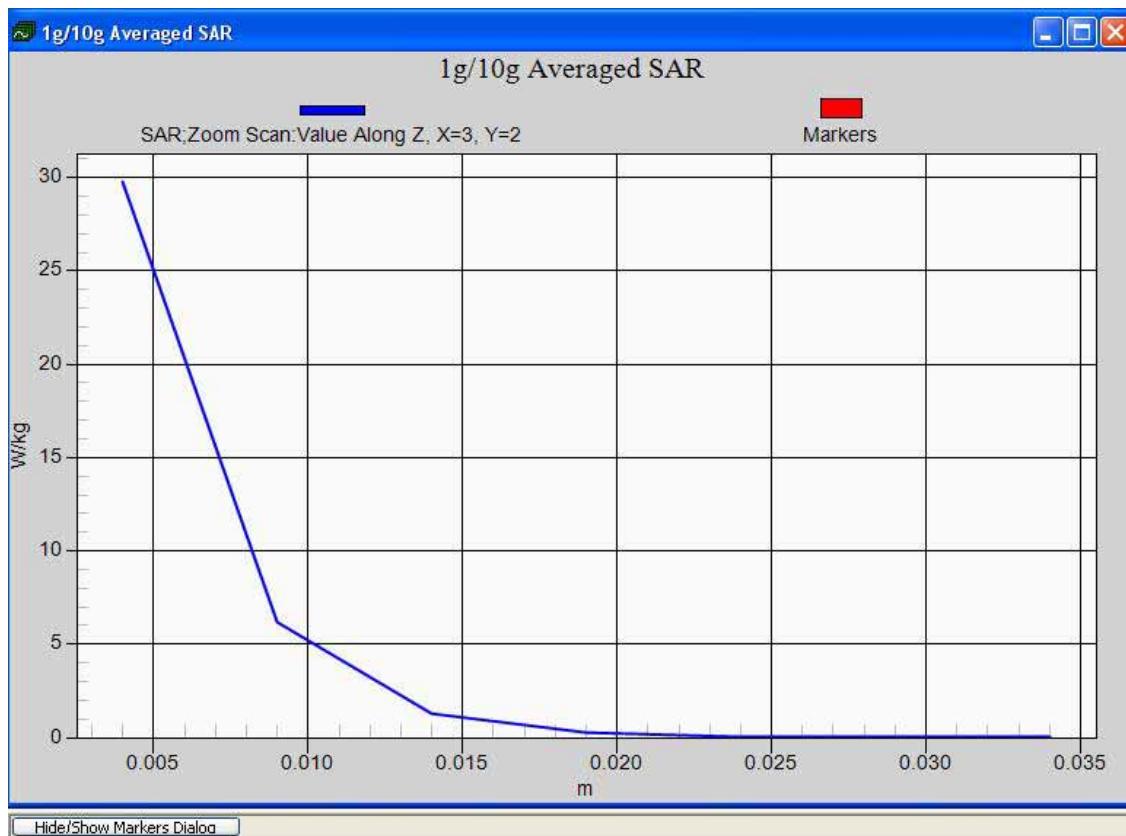
Reference Value = 60.28 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 172 W/kg

SAR(1 g) = 19.62 W/kg; SAR(10 g) = 5.53 W/kg

Maximum value of SAR (measured) = 42.7 W/kg





Test Laboratory: Audix SAR Lab

Date: 08/12/2014

CW 5800

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1102

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz; Communication System PAR: 0 dB

Medium parameters used: $f = 5800$ MHz; $\sigma = 6.021$ S/m; $\epsilon_r = 48.327$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(7.85, 7.85, 7.85); Calibrated: 02/09/2014;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0, Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/CW 5500MHz/Area Scan (61x71x1): Interpolated grid: dx=2.000

mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 17.90 W/kg

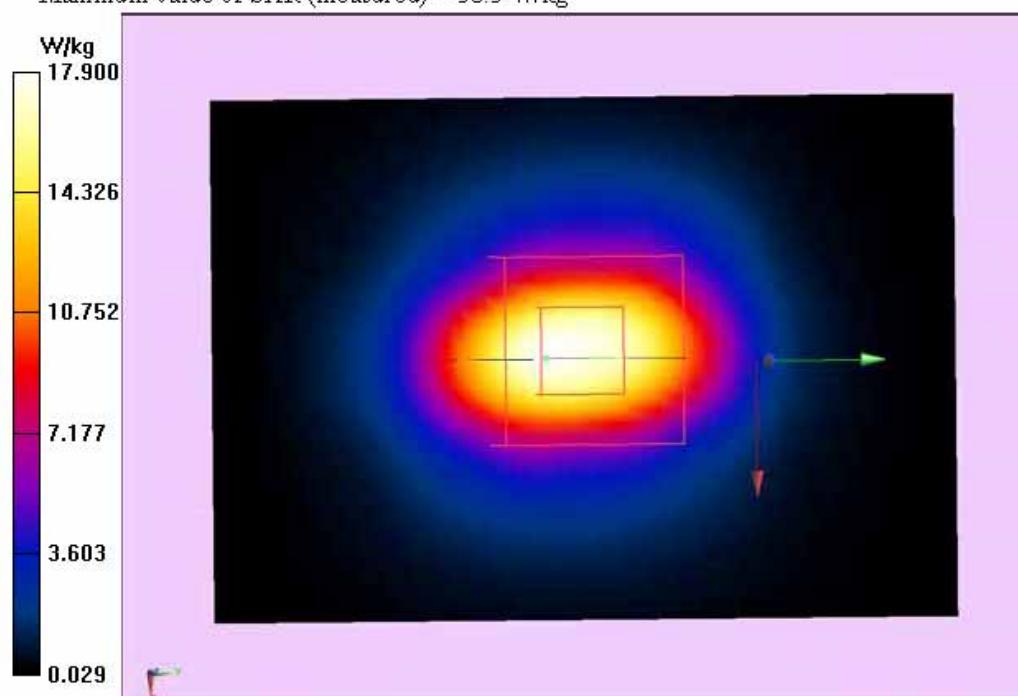
Configuration/CW 5500MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

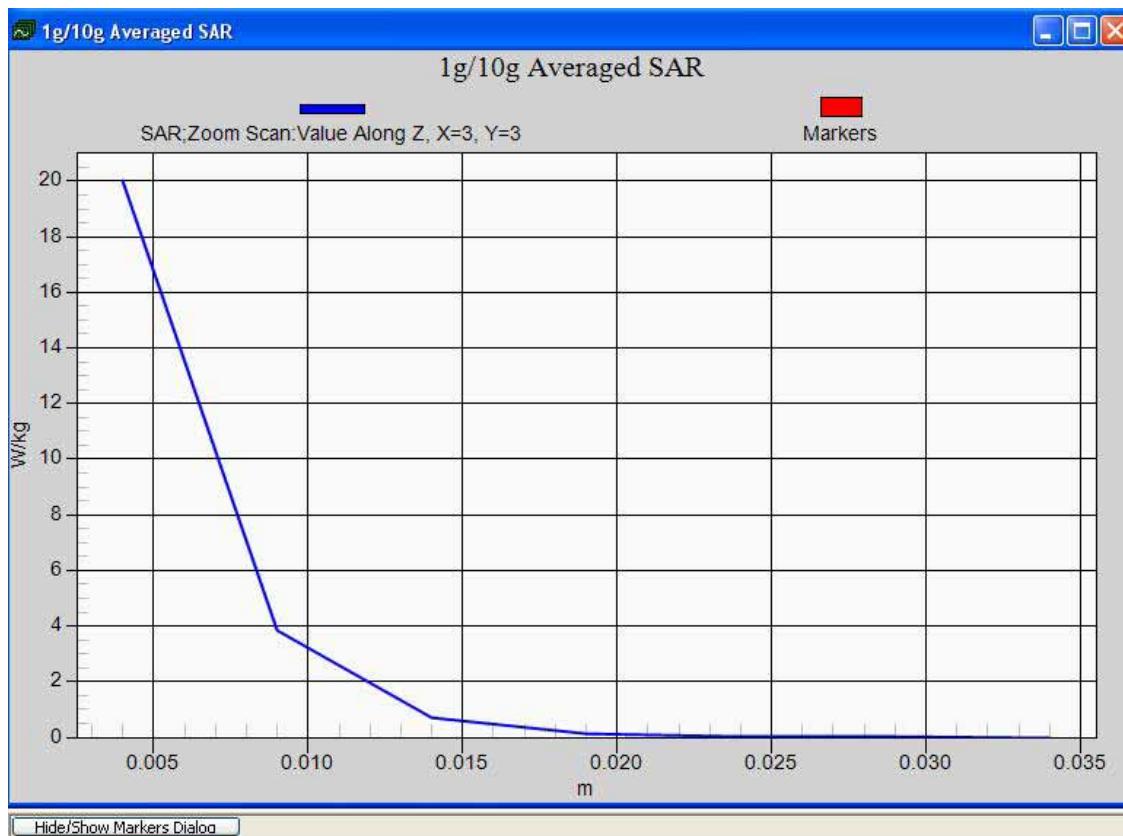
Reference Value = 95.35 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 63.7 W/kg

SAR(1 g) = 19.83 W/kg; SAR(10 g) = 5.43 W/kg

Maximum value of SAR (measured) = 38.5 W/kg





9. ANNEX B: GRAPH RESULTS

2.4G:

Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11b_CH1(2412MHz)-Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz); Frequency: 2412 MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11b_CH1(2412MHz)-Back/Area Scan (51x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.154 W/kg

Configuration/802.11b_CH1(2412MHz)-Back/Zoom Scan (7x7x7)/Cube 0:

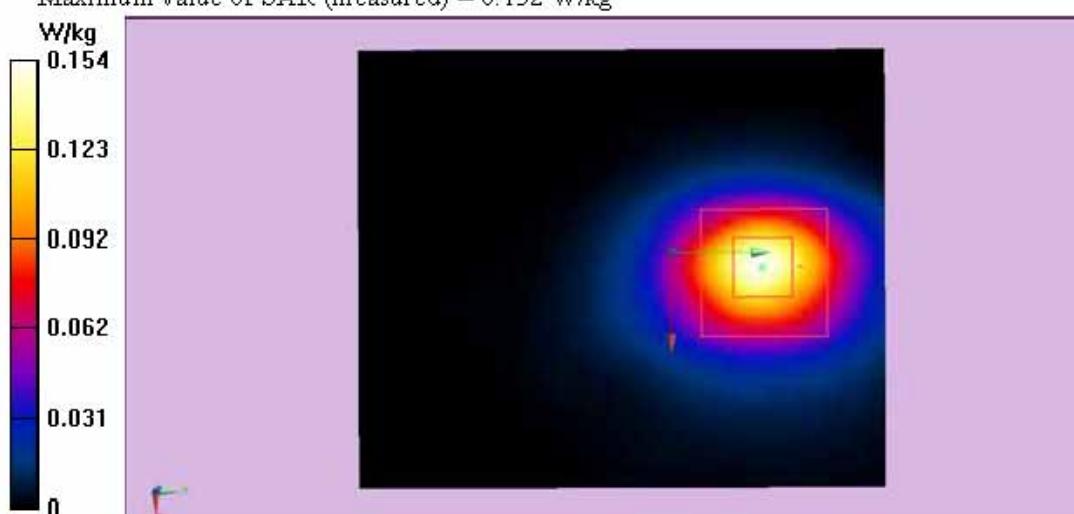
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.276 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.238 W/kg

SAR(1 g) = 0.116 W/kg; SAR(10 g) = 0.054 W/kg

Maximum value of SAR (measured) = 0.132 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11b_CH1(2412MHz)-Bottom

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz); Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11b_CH1(2412MHz)-Bottom/Area Scan (51x61x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.016 W/kg

Configuration/802.11b_CH1(2412MHz)-Bottom/Zoom Scan (7x7x7)/Cube 0:

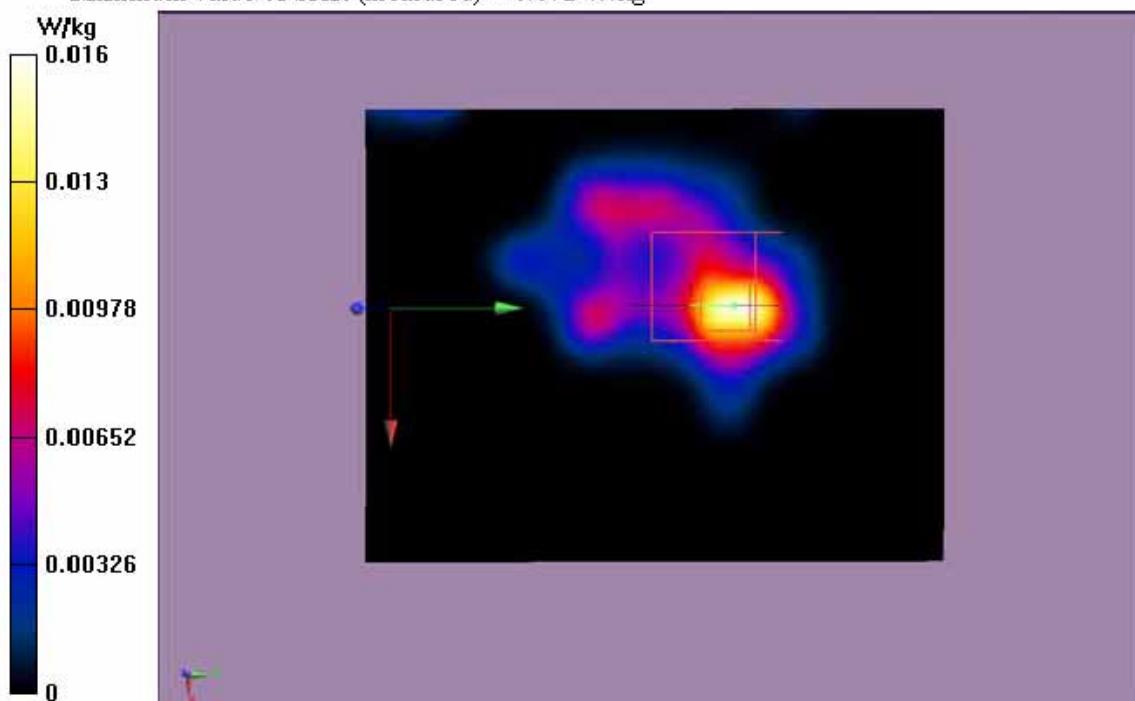
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.565 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.091 W/kg

SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.018 W/kg

Maximum value of SAR (measured) = 0.072 W/kg



Test Laboratory: Audix SAR Lab
802.11b_CH1 (2412MHz)-Right

Date: 30/11/2014

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);
Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz); Frequency: 2412 MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11b_CH1(2412MHz)-Right/Area Scan (51x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.237 W/kg

Configuration/802.11b_CH1(2412MHz)-Right/Zoom Scan (7x7x7)/Cube 0:

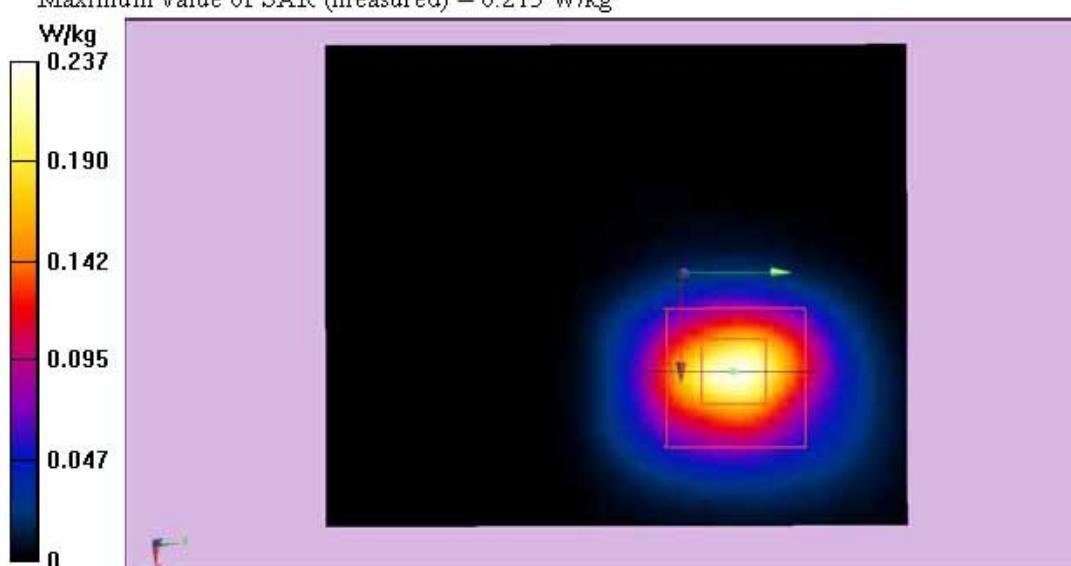
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.343 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.394 W/kg

SAR(1 g) = 0.182 W/kg; SAR(10 g) = 0.077 W/kg

Maximum value of SAR (measured) = 0.213 W/kg



**Test Laboratory: Audix SAR Lab
802.11b_CH6(2437MHz)-Back**

Date: 30/11/2014

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);
Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz); Frequency: 2437
MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$
MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11b_CH6(2437MHz)-Back/Area Scan (51x61x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.157 W/kg

Configuration/802.11b_CH6(2437MHz)-Back/Zoom Scan (7x7x7)/Cube 0:

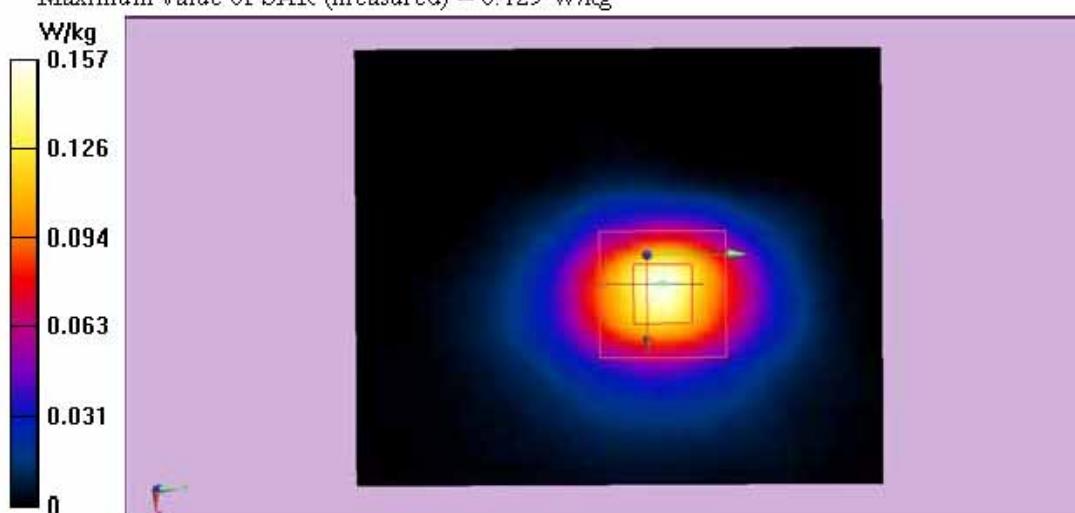
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.826 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.239 W/kg

SAR(1 g) = 0.116 W/kg; SAR(10 g) = 0.053 W/kg

Maximum value of SAR (measured) = 0.129 W/kg



Test Laboratory: Audix SAR Lab
802.11b_CH6(2437MHz)-Bottom

Date: 30/11/2014

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);
Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz); Frequency: 2437
MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$
MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11b_CH6(2437MHz)-Bottom/Area Scan (51x61x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.017 W/kg

Configuration/802.11b_CH6(2437MHz)-Bottom/Zoom Scan (7x7x7)/Cube 0:

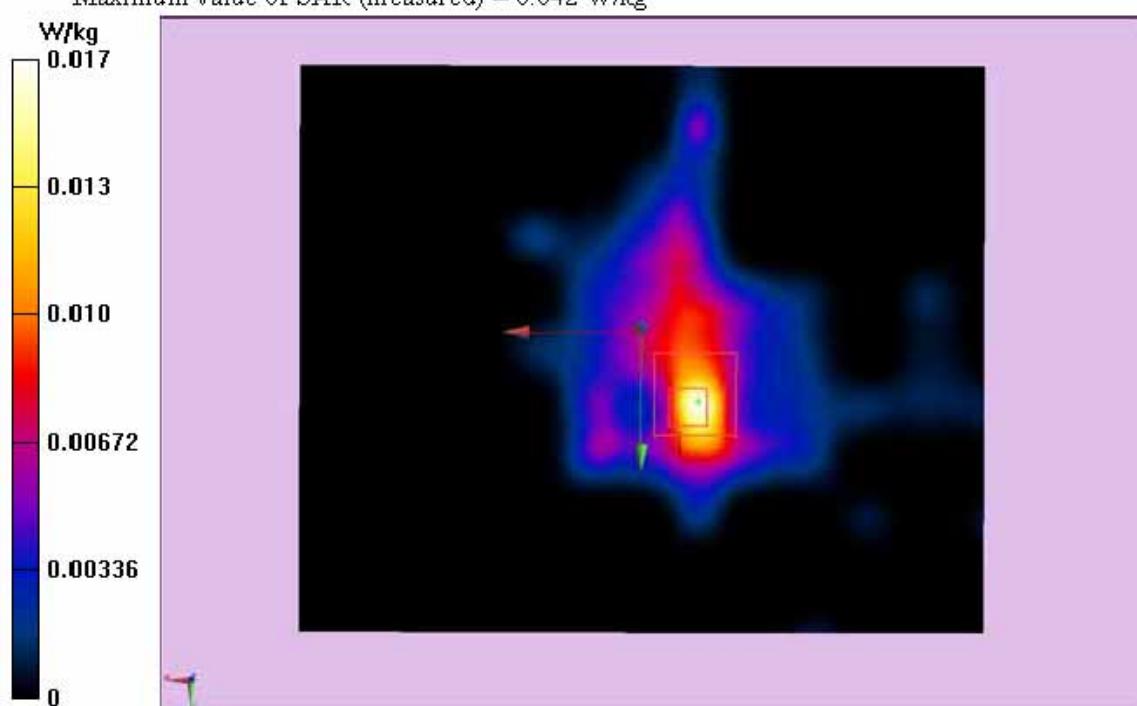
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.728 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.037 W/kg

SAR(1 g) = 0.031 W/kg; SAR(10 g) = 0.014 W/kg

Maximum value of SAR (measured) = 0.042 W/kg



Test Laboratory: Audix SAR Lab
802.11b_CH6(2437MHz)-Right

Date: 30/11/2014

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);
Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz); Frequency: 2437
MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$
MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11b_CH6(2437MHz)-Right/Area Scan (51x61x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.276 W/kg

Configuration/802.11b_CH6(2437MHz)-Right/Zoom Scan (7x7x7)/Cube 0:

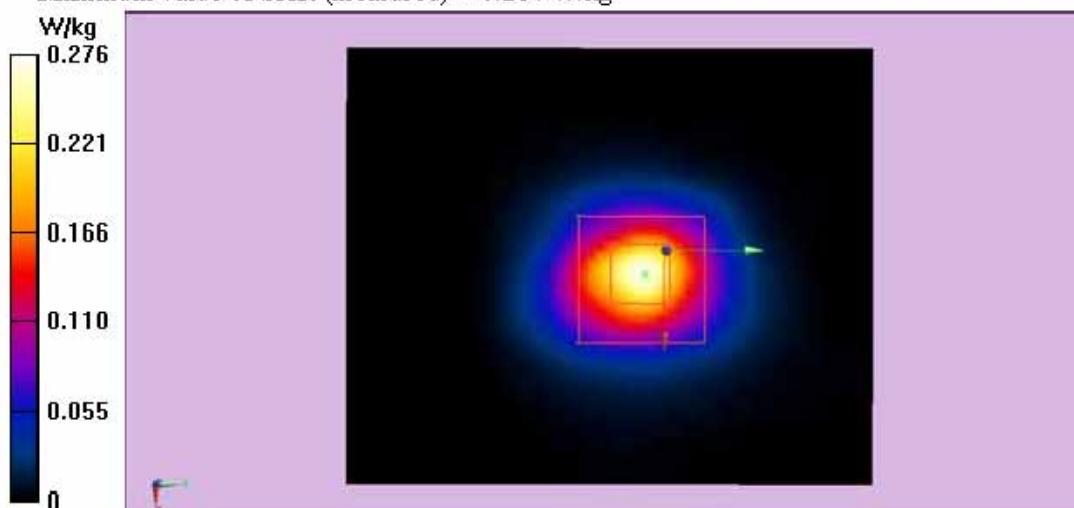
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

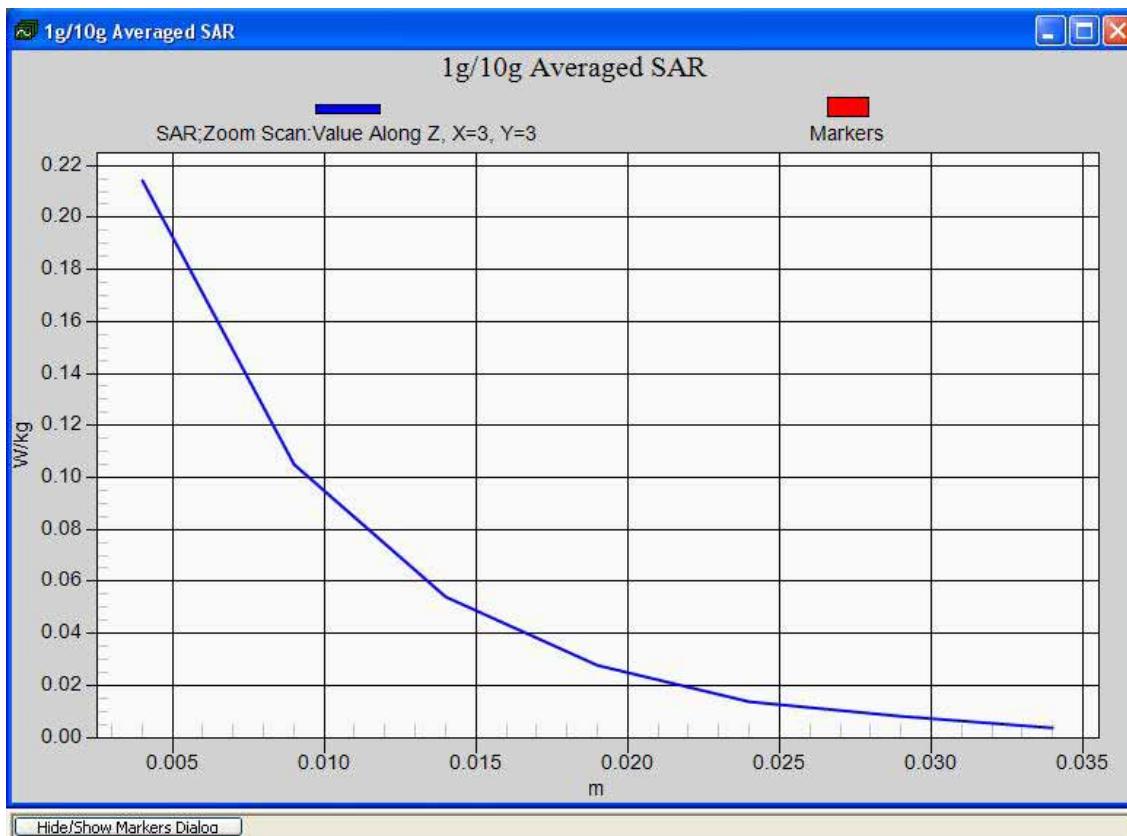
Reference Value = 9.839 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.408 W/kg

SAR(1 g) = 0.186 W/kg; SAR(10 g) = 0.080 W/kg

Maximum value of SAR (measured) = 0.214 W/kg





**Test Laboratory: Audix SAR Lab
802.11b_CH11(2462MHz)-Back**

Date: 30/11/2014

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);
Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz); Frequency: 2462
MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2462 \text{ MHz}$;
 $\sigma = 1.996 \text{ S/m}$; $\epsilon_r = 54.278$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11b_CH11(2462MHz)-Back/Area Scan (51x61x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.139 W/kg

Configuration/802.11b_CH11(2462MHz)-Back/Zoom Scan (7x7x7)/Cube 0:

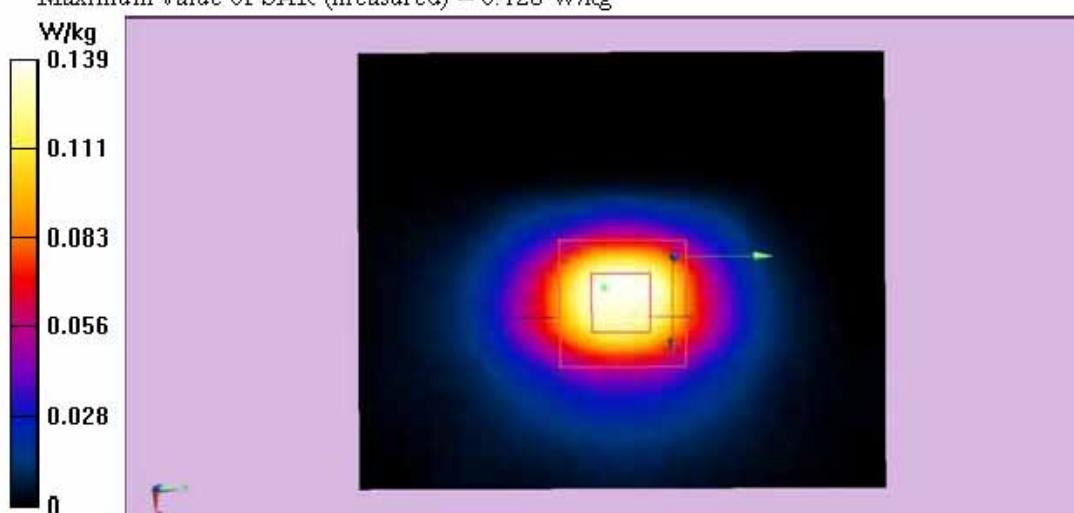
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.312 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.243 W/kg

SAR(1 g) = 0.118 W/kg; SAR(10 g) = 0.054 W/kg

Maximum value of SAR (measured) = 0.128 W/kg



Test Laboratory: Audix SAR Lab
802.11b_CH11(2462MHz)-Bottom

Date: 30/11/2014

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);
Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz); Frequency: 2462 MHz;
Communication System PAR: 0 dB; Medium parameters used: $f = 2462 \text{ MHz}$,
 $\sigma = 1.996 \text{ S/m}$; $\epsilon_r = 54.278$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11b_CH11(2462MHz)-Bottom/Area Scan (51x61x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.52 W/kg

Configuration/802.11b_CH11(2462MHz)-Bottom/Zoom Scan (7x7x7)/Cube 0:

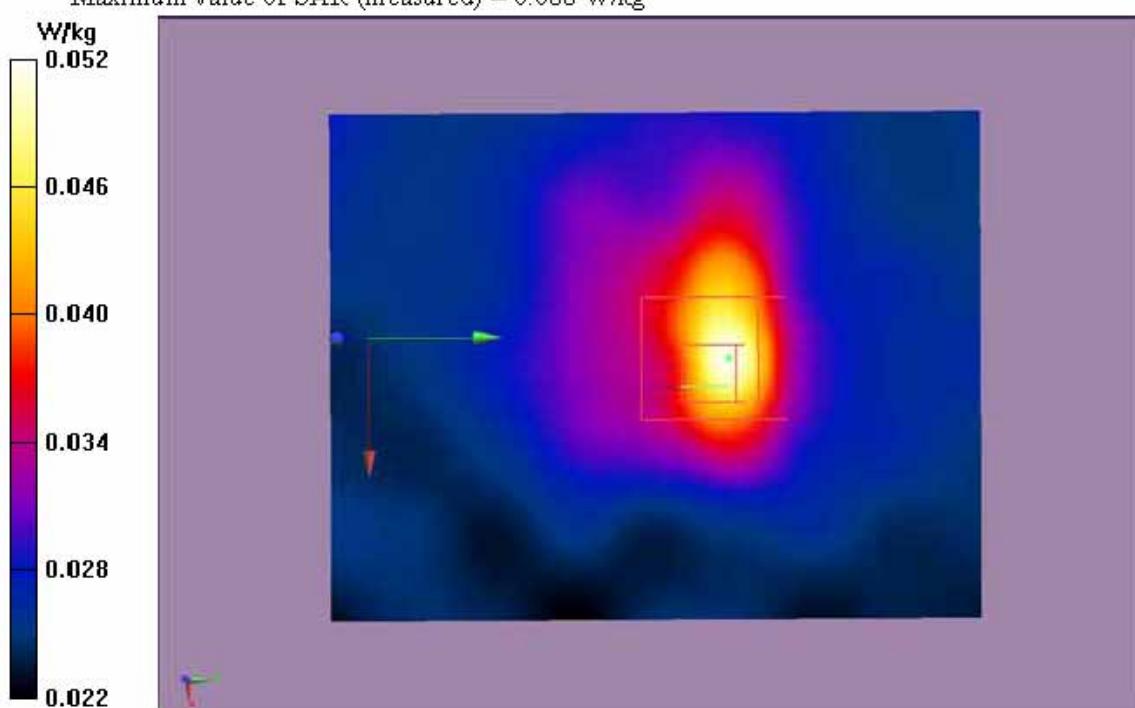
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.411 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.087 W/kg

SAR(1 g) = 0.024 W/kg; SAR(10 g) = 0.016 W/kg

Maximum value of SAR (measured) = 0.088 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11b_CH11(2462MHz)-Right

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz); Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2462$

MHz; $\sigma = 1.996 \text{ S/m}$; $\epsilon_r = 54.278$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11b_CH11(2462MHz)-Right/Area Scan (51x61x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.153 W/kg

Configuration/802.11b_CH11(2462MHz)-Right/Zoom Scan (7x7x7)/Cube 0:

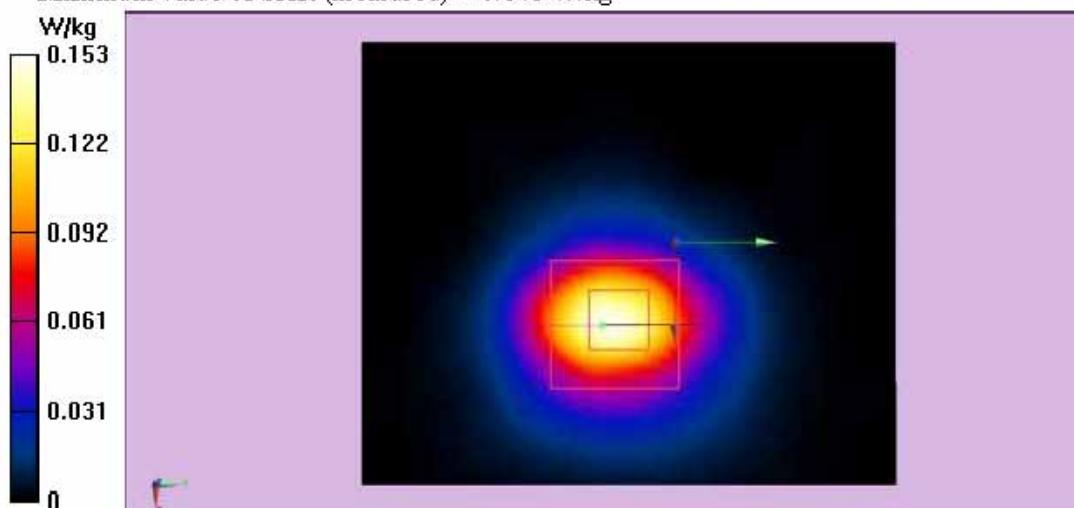
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.660 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.264 W/kg

SAR(1 g) = 0.126 W/kg; SAR(10 g) = 0.057 W/kg

Maximum value of SAR (measured) = 0.141 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH1(2412MHz)-chain 1 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH1(2412MHz)-chain 1 Back/Area Scan (81x101x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.0157 W/kg

Configuration/802.11g_CH1(2412MHz)-chain 1 Back/Zoom Scan

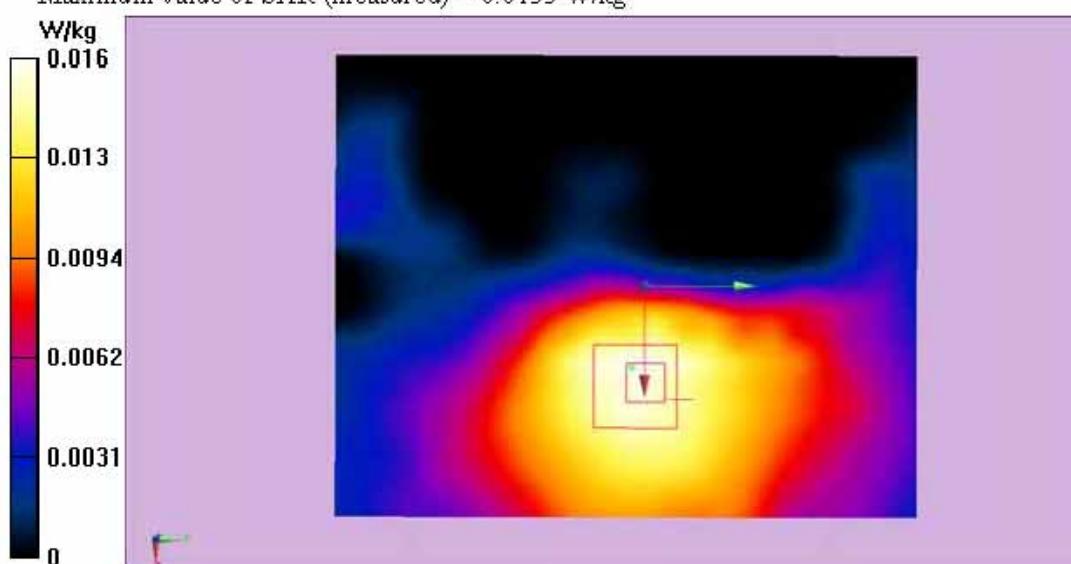
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.679 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.0270 W/kg

SAR(1 g) = 0.015 W/kg; SAR(10 g) = 0.0086 W/kg

Maximum value of SAR (measured) = 0.0153 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH1(2412MHz)-chain 1 Bottom

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH1(2412MHz)-chain 1 Bottom/Area Scan

(81x101x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.032 W/kg

Configuration/802.11g_CH1(2412MHz)-chain 1 Bottom/Zoom Scan

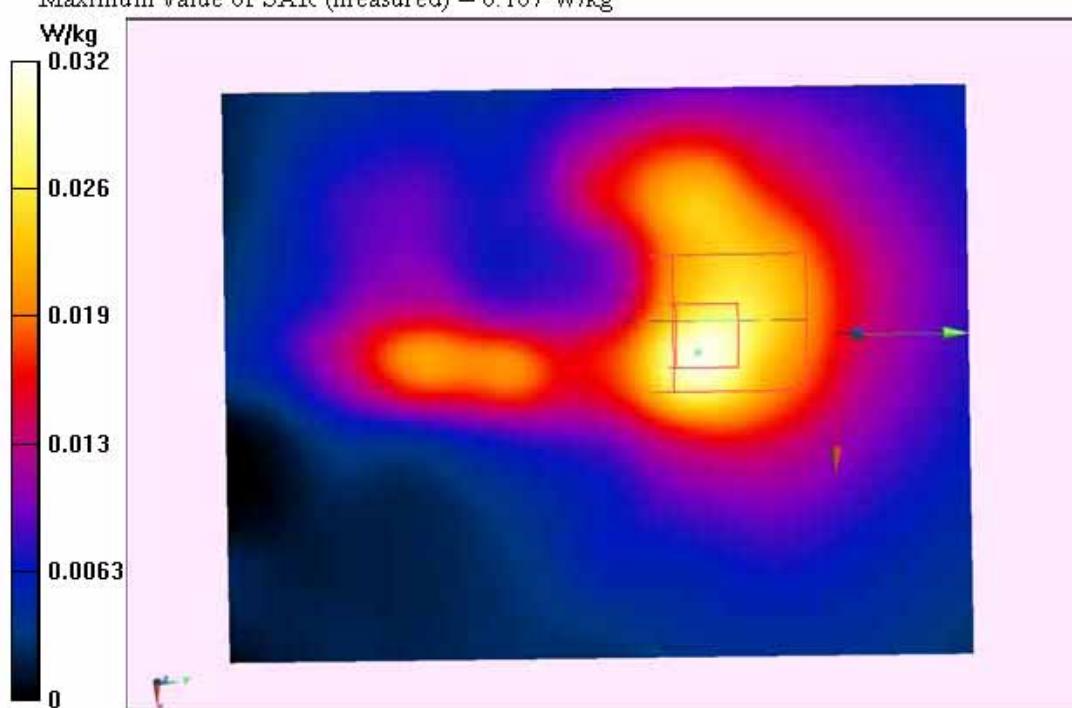
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.155 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.155 W/kg

SAR(1 g) = 0.038 W/kg; SAR(10 g) = 0.027 W/kg

Maximum value of SAR (measured) = 0.167 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH1(2412MHz)-chain 1 Right

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH1(2412MHz)-chain 1 Right/Area Scan (51x61x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 2.78 W/kg

Configuration/802.11g_CH1(2412MHz)-chain 1 Right/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.760 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 4.54 W/kg

SAR(1 g) = 0.952 W/kg; SAR(10 g) = 0.698 W/kg

Maximum value of SAR (measured) = 2.34 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH6(2437MHz)-chain 1 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH6(2437MHz)-chain 1 Back/Area Scan (81x101x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.0142 W/kg

Configuration/802.11g_CH6(2437MHz)-chain 1 Back/Zoom Scan

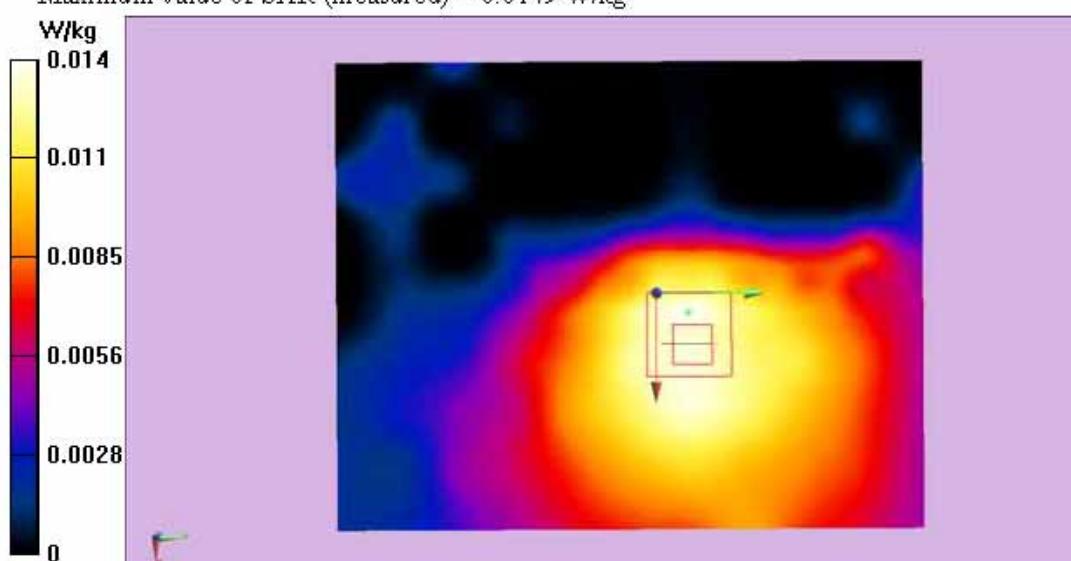
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.414 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.0240 W/kg

SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.0081 W/kg

Maximum value of SAR (measured) = 0.0149 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH6(2437MHz)-chain 1 Bottom

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH6(2437MHz)-chain 1 Bottom/Area Scan

(81x101x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.046 W/kg

Configuration/802.11g_CH6(2437MHz)-chain 1 Bottom/Zoom Scan

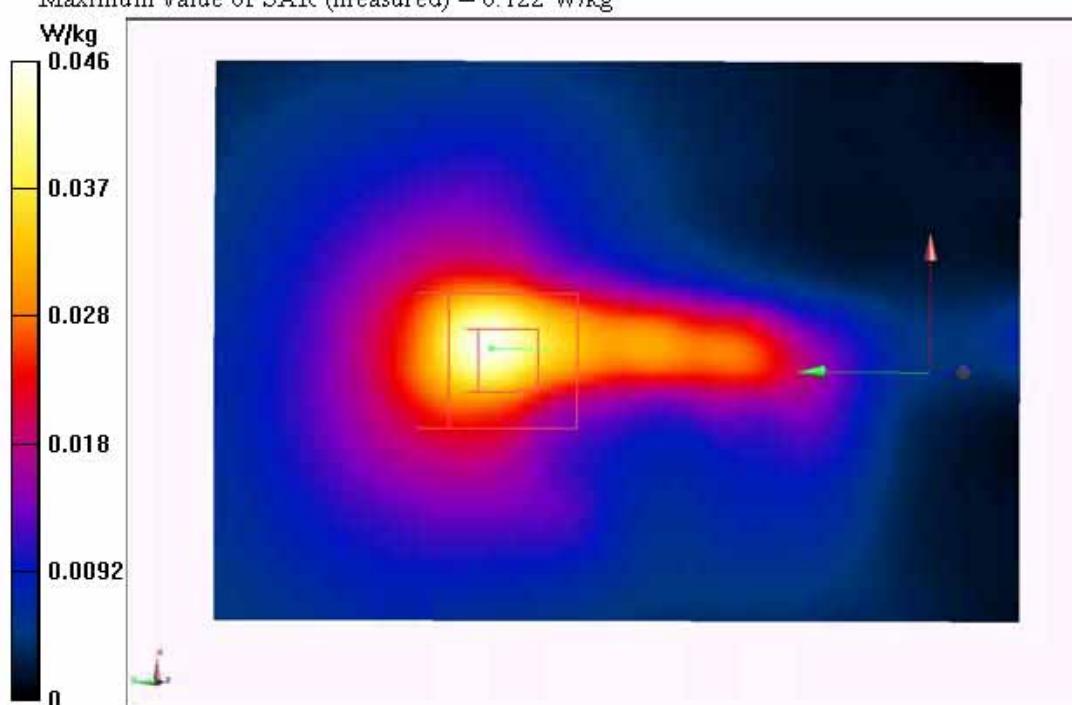
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.885 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.134 W/kg

SAR(1 g) = 0.038 W/kg; SAR(10 g) = 0.028 W/kg

Maximum value of SAR (measured) = 0.122 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH6(2437MHz)-chain 1 Right

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH6(2437MHz)-chain 1 Right/Area Scan (51x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.54 W/kg

Configuration/802.11g_CH6(2437MHz)-chain 1 Right/Zoom Scan

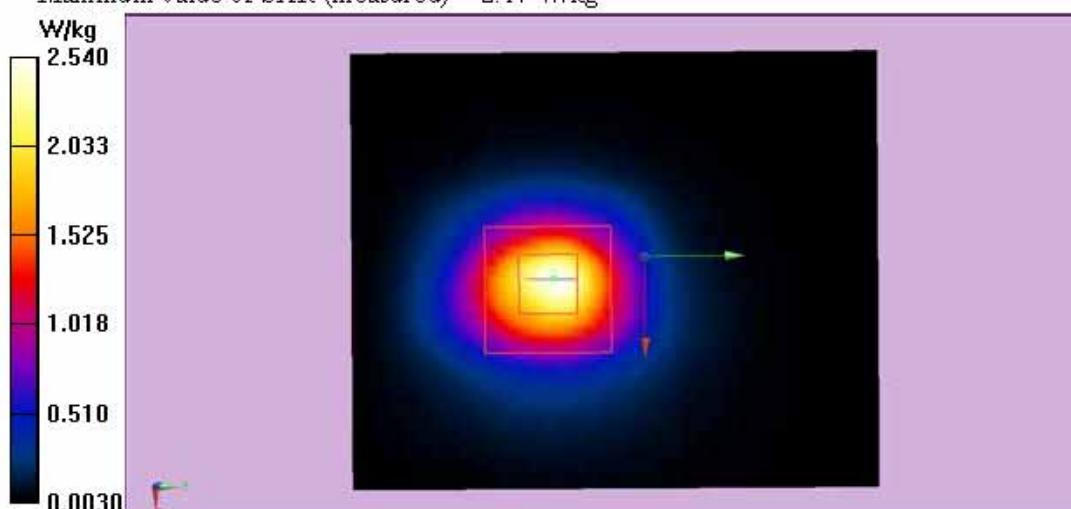
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.40 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 4.21 W/kg

SAR(1 g) = 0.961 W/kg; SAR(10 g) = 0.648 W/kg

Maximum value of SAR (measured) = 2.17 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH11(2462MHz)-chain 1 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2462$ MHz; $\sigma = 1.996$ S/m; $\epsilon_r = 54.278$; $\rho = 1000$ kg/m³; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH11(2462MHz)-chain 1 Back/Area Scan (91x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0143 W/kg

Configuration/802.11g_CH11(2462MHz)-chain 1 Back/Zoom Scan

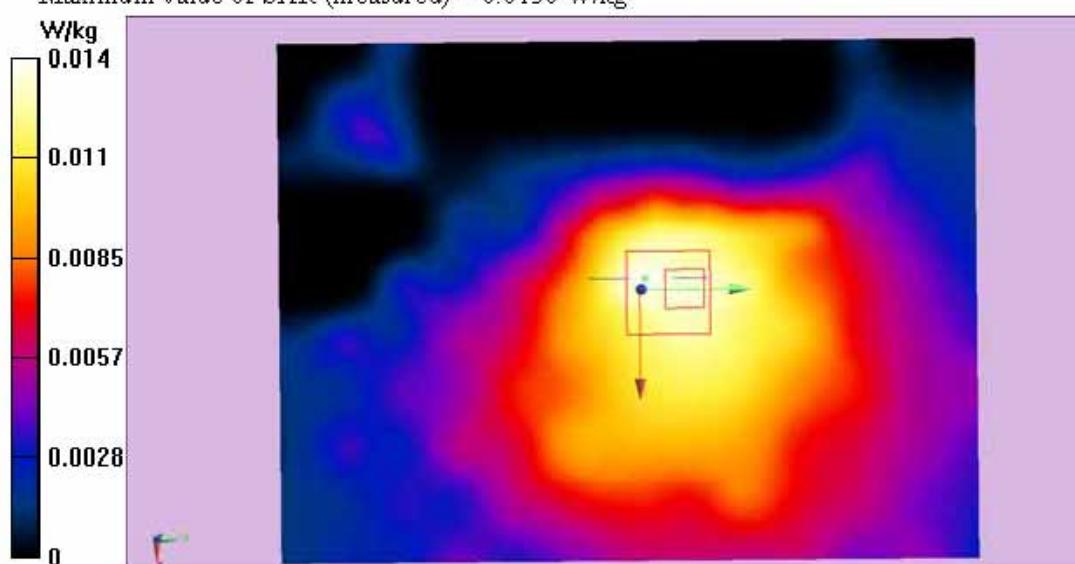
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.509 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.0240 W/kg

SAR(1 g) = 0.013 W/kg; SAR(10 g) = 0.0075 W/kg

Maximum value of SAR (measured) = 0.0136 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH11(2462MHz)-chain 1 Bottom

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.996 \text{ S/m}$; $\epsilon_r = 54.278$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH11(2462MHz)-chain 1 Bottom/Area Scan

(91x121x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.040 W/kg

Configuration/802.11g_CH11(2462MHz)-chain 1 Bottom/Zoom Scan

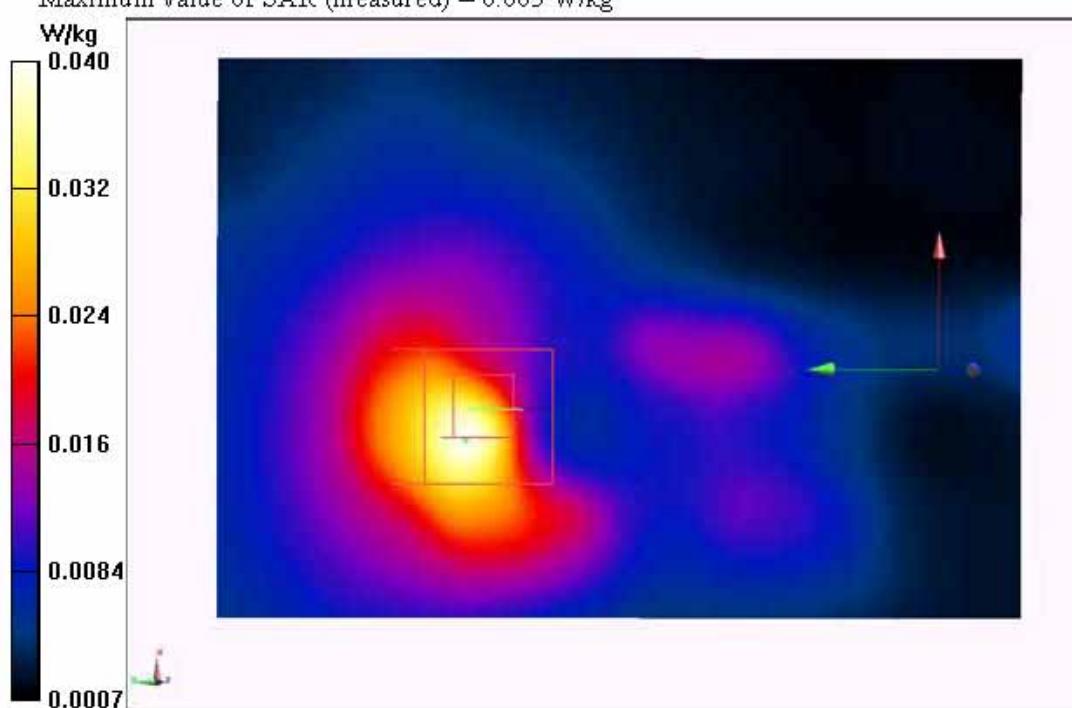
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.611 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.787 W/kg

SAR(1 g) = 0.055 W/kg; SAR(10 g) = 0.031 W/kg

Maximum value of SAR (measured) = 0.665 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH11(2462MHz)-chain 1 Right

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2462$ MHz;

$\sigma = 1.996$ S/m; $\epsilon_r = 54.278$; $\rho = 1000$ kg/m³; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH11(2462MHz)-chain 1 Right/Area Scan (51x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.29 W/kg

Configuration/802.11g_CH11(2462MHz)-chain 1 Right/Zoom Scan

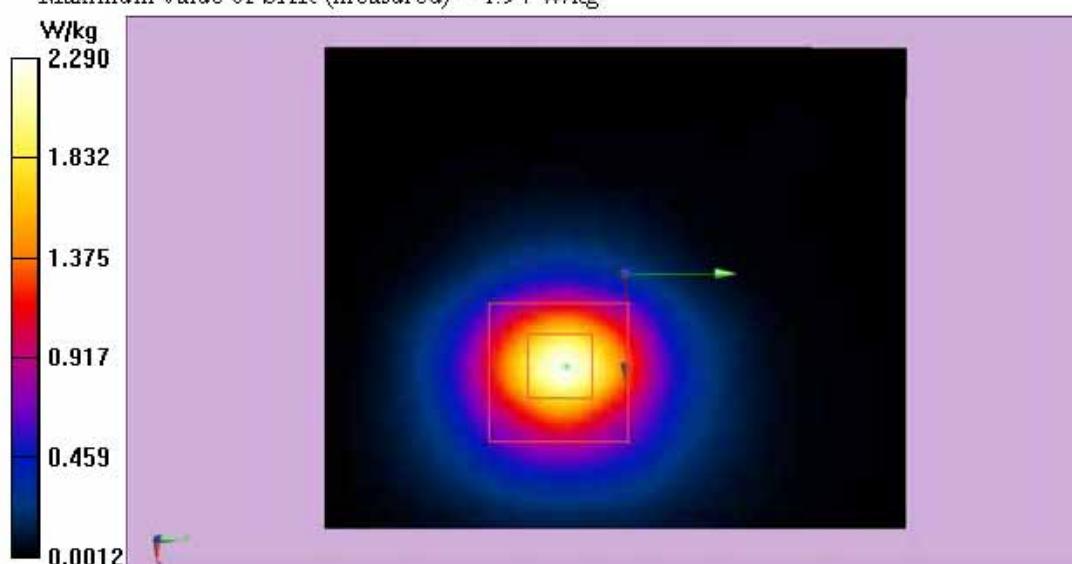
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.34 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 3.69 W/kg

SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.577 W/kg

Maximum value of SAR (measured) = 1.94 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH1(2412MHz)-chain 2 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH1(2412MHz)-chain 2 Back/Area Scan (101x131x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.0246 W/kg

Configuration/802.11g_CH1(2412MHz)-chain 2 Back/Zoom Scan

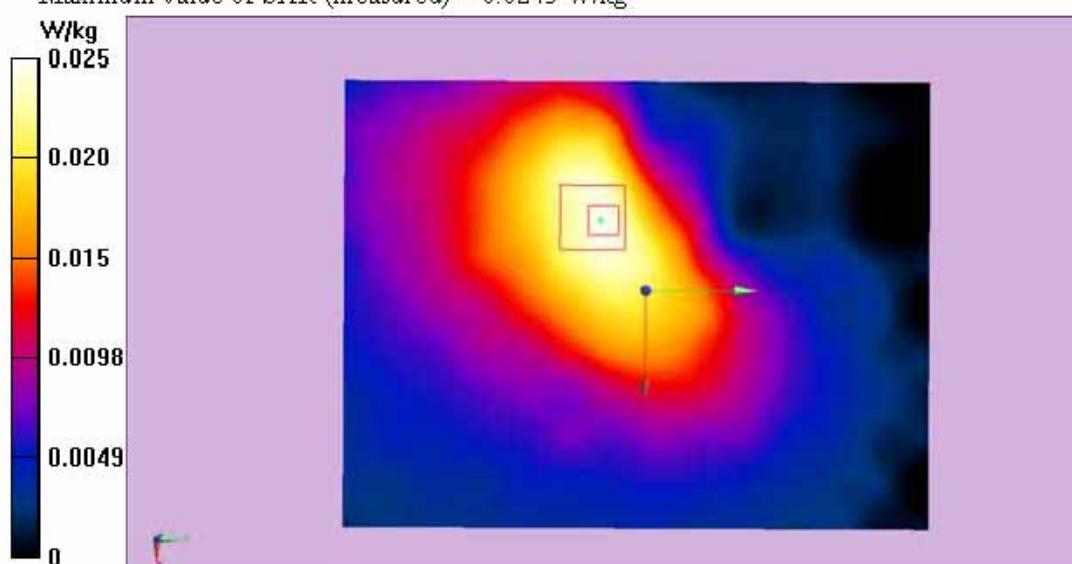
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.283 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.0450 W/kg

SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.013 W/kg

Maximum value of SAR (measured) = 0.0245 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH1(2412MHz)-chain 2 Right

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section ;

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH1(2412MHz)-chain 2 Right/Area Scan

(101x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.359 W/kg

Configuration/802.11g_CH1(2412MHz)-chain 2 Right/Zoom Scan

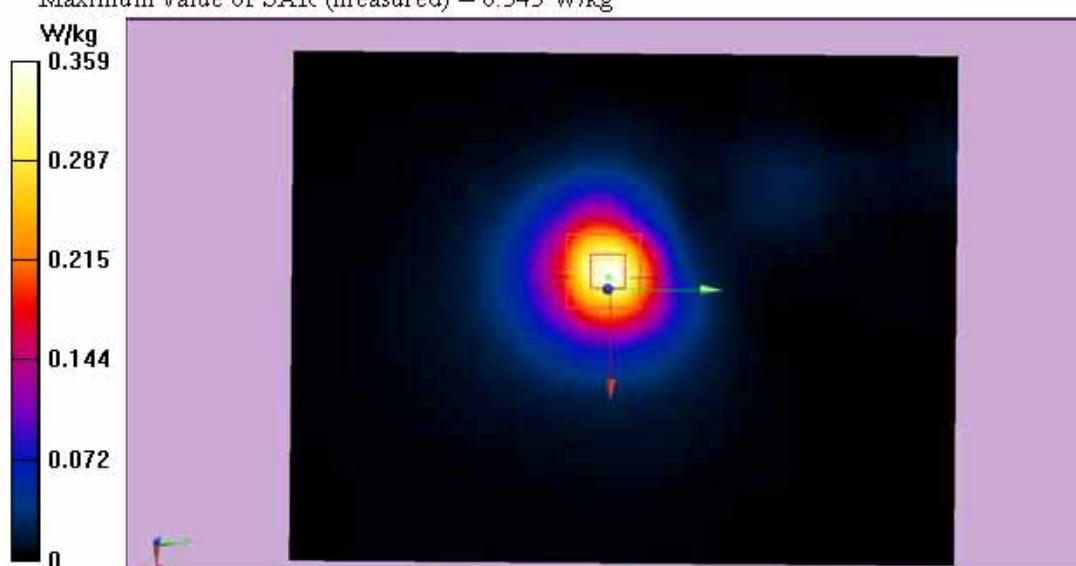
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.87 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.636 W/kg

SAR(1 g) = 0.318 W/kg; SAR(10 g) = 0.159 W/kg

Maximum value of SAR (measured) = 0.345 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH1(2412MHz)-chain 2 Top

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH1(2412MHz)-chain 2 Top/Area Scan (61x81x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.806 W/kg

Configuration/802.11g_CH1(2412MHz)-chain 2 Top/Zoom Scan

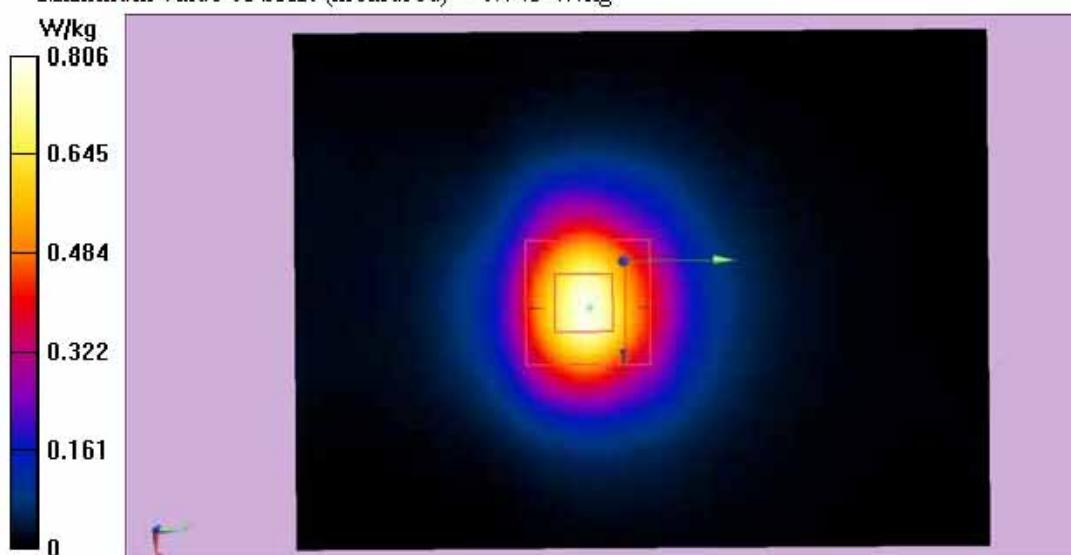
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.25 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.668 W/kg; SAR(10 g) = 0.315 W/kg

Maximum value of SAR (measured) = 0.743 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH6(2437MHz)-chain 2 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH6(2437MHz)-chain 2 Back/Area Scan (101x131x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.0248 W/kg

Configuration/802.11g_CH6(2437MHz)-chain 2 Back/Zoom Scan

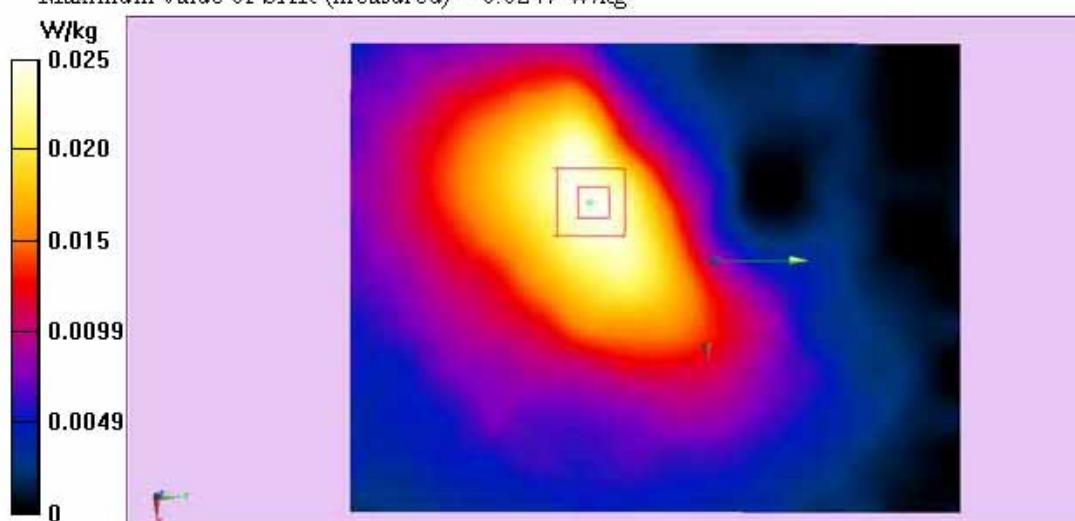
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.160 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.0430 W/kg

SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.014 W/kg

Maximum value of SAR (measured) = 0.0247 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH6(2437MHz)-chain 2 Right

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH6(2437MHz)-chain 2 Right/Area Scan (61x81x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.455 W/kg

Configuration/802.11g_CH6(2437MHz)-chain 2 Right/Zoom Scan

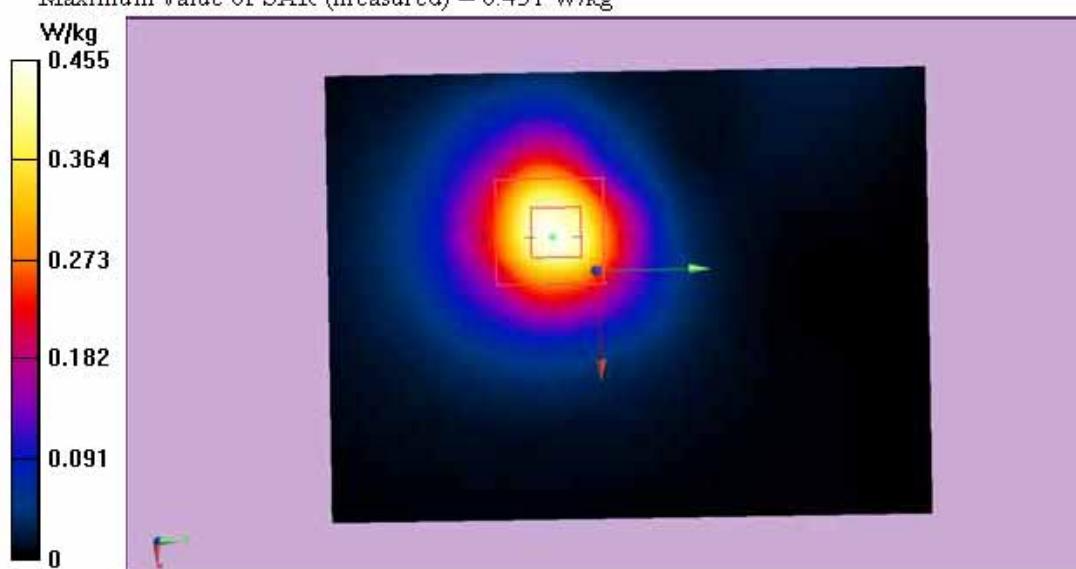
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.397 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.797 W/kg

SAR(1 g) = 0.394 W/kg; SAR(10 g) = 0.193 W/kg

Maximum value of SAR (measured) = 0.431 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH6(2437MHz)-chain 2 Top

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH6(2437MHz)-chain 2 Top/Area Scan (61x81x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.810 W/kg

Configuration/802.11g_CH6(2437MHz)-chain 2 Top/Zoom Scan

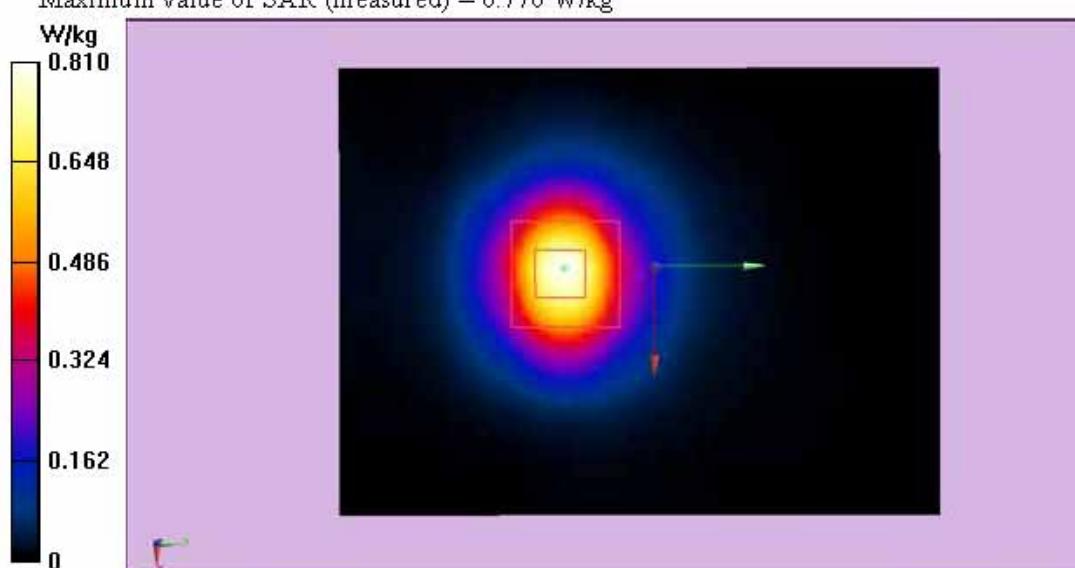
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.36 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 0.695 W/kg; SAR(10 g) = 0.327 W/kg

Maximum value of SAR (measured) = 0.770 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH11(2462MHz)-chain 2 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2462$ MHz;

$\sigma = 1.996$ S/m; $\epsilon_r = 54.278$; $\rho = 1000$ kg/m³; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH11(2462MHz)-chain 2 Back/Area Scan (91x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0246 W/kg

Configuration/802.11g_CH11(2462MHz)-chain 2 Back/Zoom Scan

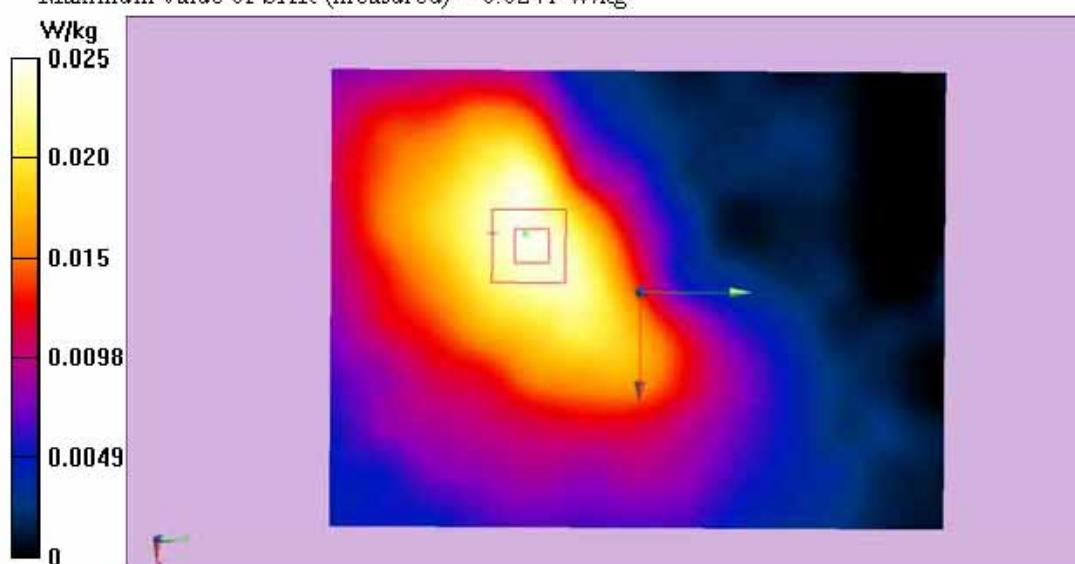
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.751 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.0420 W/kg

SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.014 W/kg

Maximum value of SAR (measured) = 0.0241 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH11(2462MHz)-chain 2 Right

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2462$ MHz;

$\sigma = 1.996$ S/m; $\epsilon_r = 54.278$; $\rho = 1000$ kg/m³; Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH11(2462MHz)-chain 2 Right/Area Scan (61x81x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.534 W/kg

Configuration/802.11g_CH11(2462MHz)-chain 2 Right/Zoom Scan

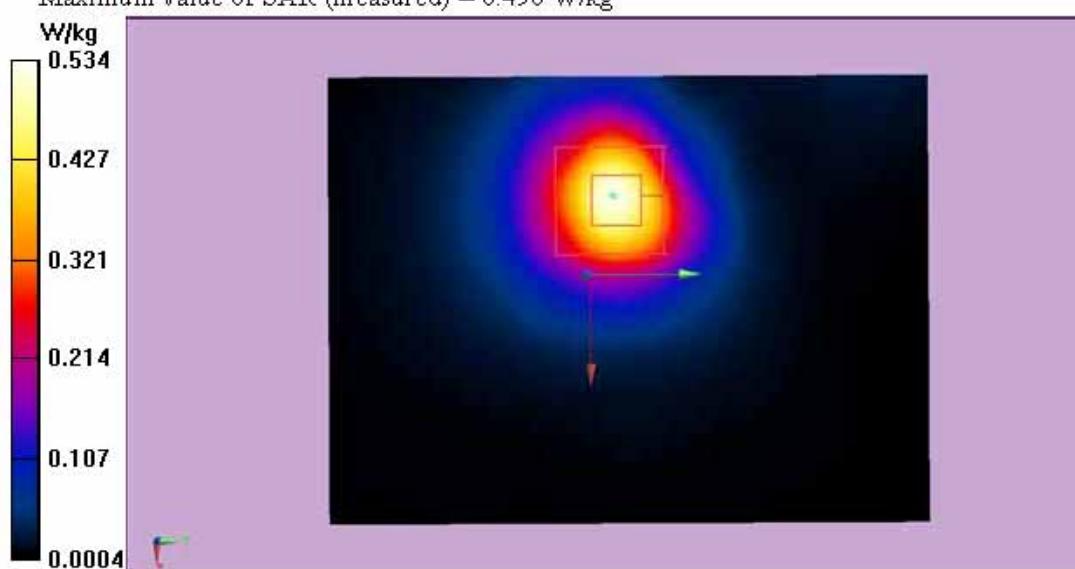
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.75 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.914 W/kg

SAR(1 g) = 0.447 W/kg; SAR(10 g) = 0.218 W/kg

Maximum value of SAR (measured) = 0.490 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH11(2462MHz)-chain 2 Top

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2462$ MHz;

$\sigma = 1.996$ S/m; $\epsilon_r = 54.278$; $\rho = 1000$ kg/m³; Phantom section: Flat Section ;

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH11(2462MHz)-chain 2 Top/Area Scan (61x81x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.963 W/kg

Configuration/802.11g_CH11(2462MHz)-chain 2 Top/Zoom Scan

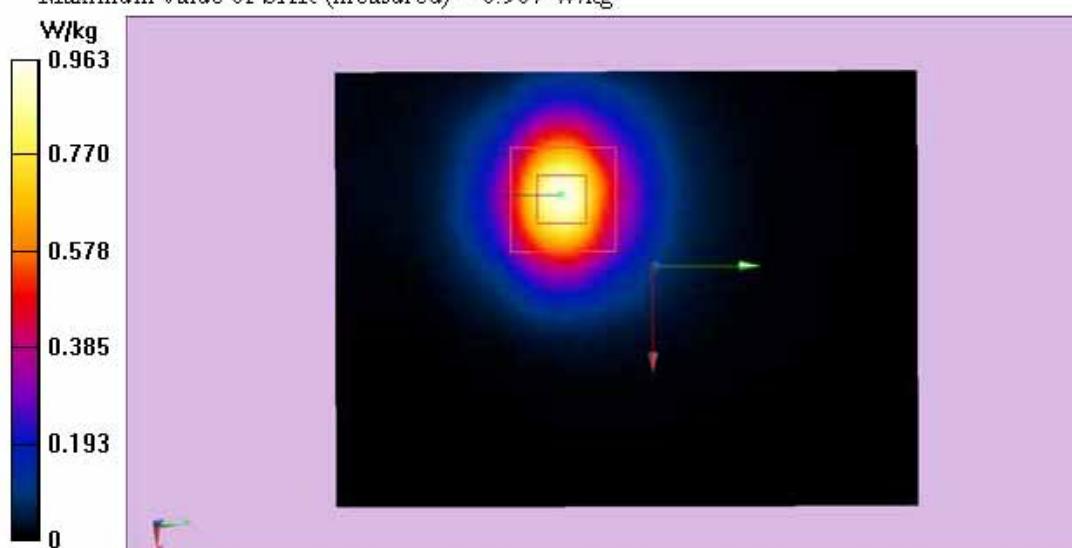
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.922 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.70 W/kg

SAR(1 g) = 0.808 W/kg; SAR(10 g) = 0.374 W/kg

Maximum value of SAR (measured) = 0.907 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH1(2412MHz)-chain 3 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH1(2412MHz)-chain 3 Back/Area Scan (61x81x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0412 W/kg

Configuration/802.11g_CH1(2412MHz)-chain 3 Back/Zoom Scan

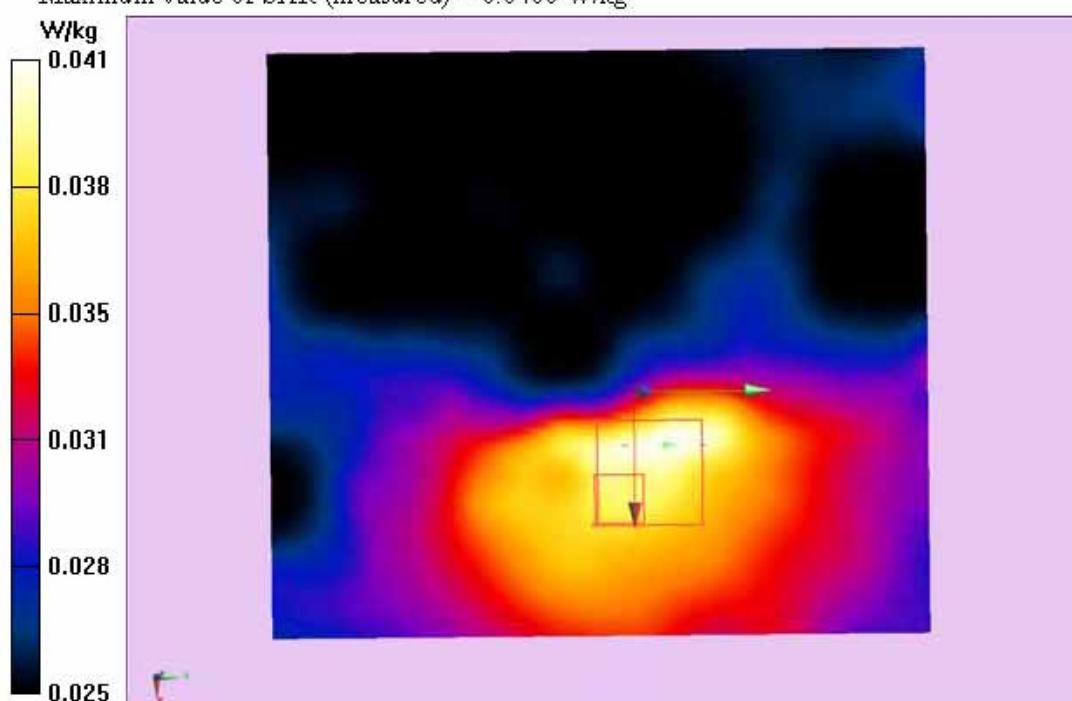
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.864 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.0570 W/kg

SAR(1 g) = 0.040 W/kg; SAR(10 g) = 0.036 W/kg

Maximum value of SAR (measured) = 0.0406 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH1(2412MHz)-chain 3 Top

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH1(2412MHz)-chain 3 Top/Area Scan (61x81x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 1.77 W/kg

Configuration/802.11g_CH1(2412MHz)-chain 3 Top/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.154 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 2.93 W/kg

SAR(1 g) = 0.997 W/kg; SAR(10 g) = 0.512 W/kg

Maximum value of SAR (measured) = 1.39 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH6(2437MHz)-chain 3 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH6(2437MHz)-chain 3 Back/Area Scan (61x81x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0439 W/kg

Configuration/802.11g_CH6(2437MHz)-chain 3 Back/Zoom Scan

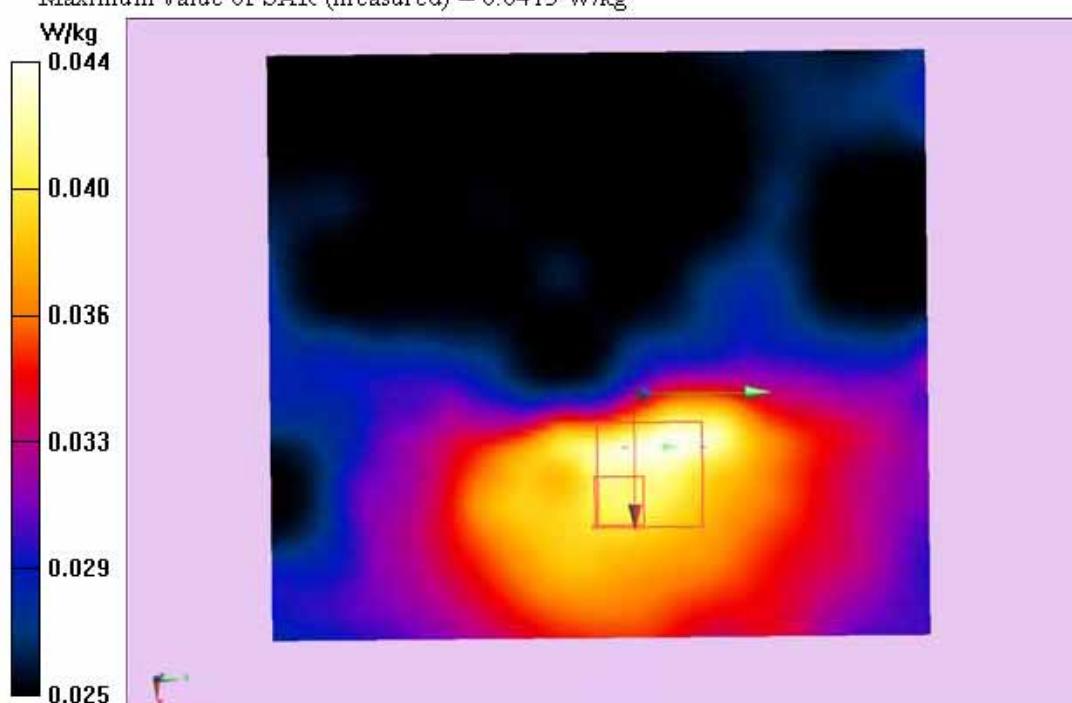
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.975 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.0560 W/kg

SAR(1 g) = 0.041 W/kg; SAR(10 g) = 0.037 W/kg

Maximum value of SAR (measured) = 0.0413 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH6(2437MHz)-chain 3 Top

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH6(2437MHz)-chain 3 Top/Area Scan (61x81x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.912 W/kg

Configuration/802.11g_CH6(2437MHz)-chain 3 Top/Zoom Scan

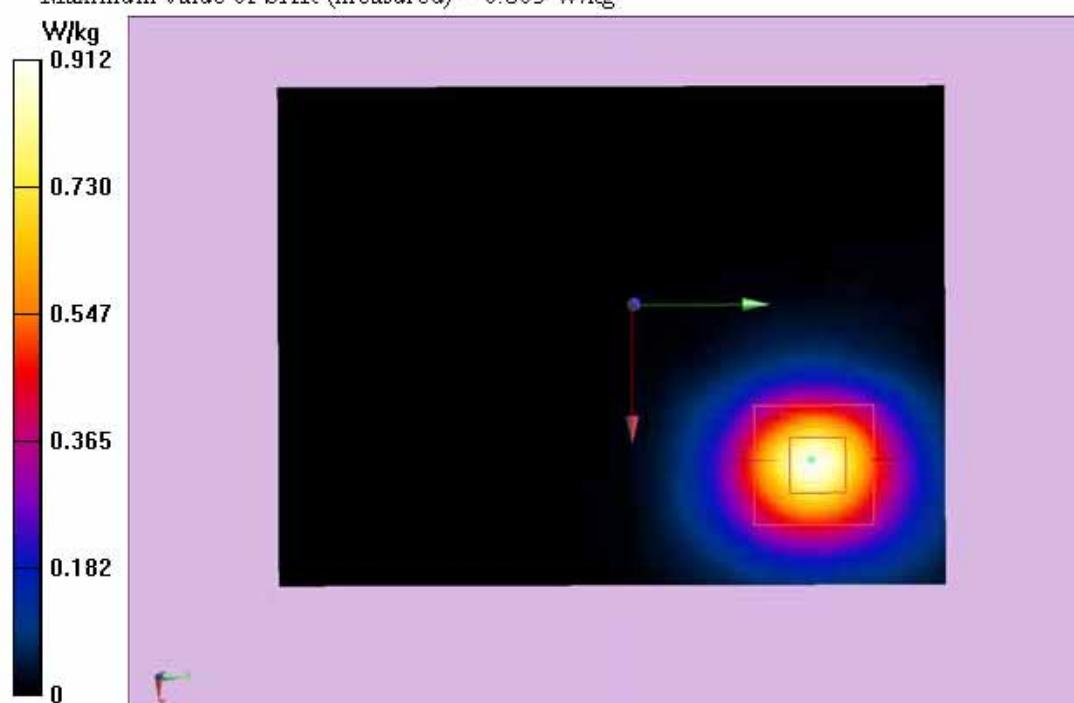
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.7470 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.63 W/kg

SAR(1 g) = 0.768 W/kg; SAR(10 g) = 0.348 W/kg

Maximum value of SAR (measured) = 0.865 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH11(2462MHz)-chain 3 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.996 \text{ S/m}$; $\epsilon_r = 54.278$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH11(2462MHz)-chain 3 Back/Area Scan (81x91x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0428 W/kg

Configuration/802.11g_CH11(2462MHz)-chain 3 Back/Zoom Scan

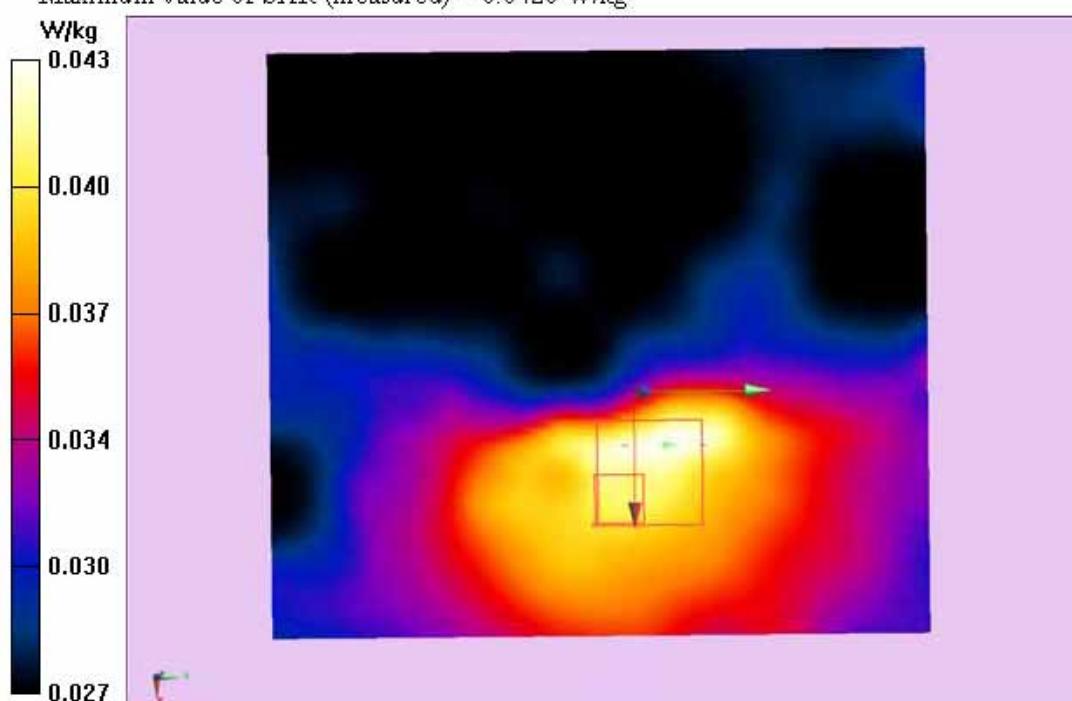
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.133 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.0590 W/kg

SAR(1 g) = 0.041 W/kg; SAR(10 g) = 0.038 W/kg

Maximum value of SAR (measured) = 0.0426 W/kg



Test Laboratory: Audix SAR Lab

Date: 30/11/2014

802.11g_CH11(2462MHz)-chain 3 Top

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.996 \text{ S/m}$; $\epsilon_r = 54.278$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g_CH11(2462MHz)-chain 3 Top/Area Scan (61x81x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 1.77 W/kg

Configuration/802.11g_CH11(2462MHz)-chain 3 Top/Zoom Scan

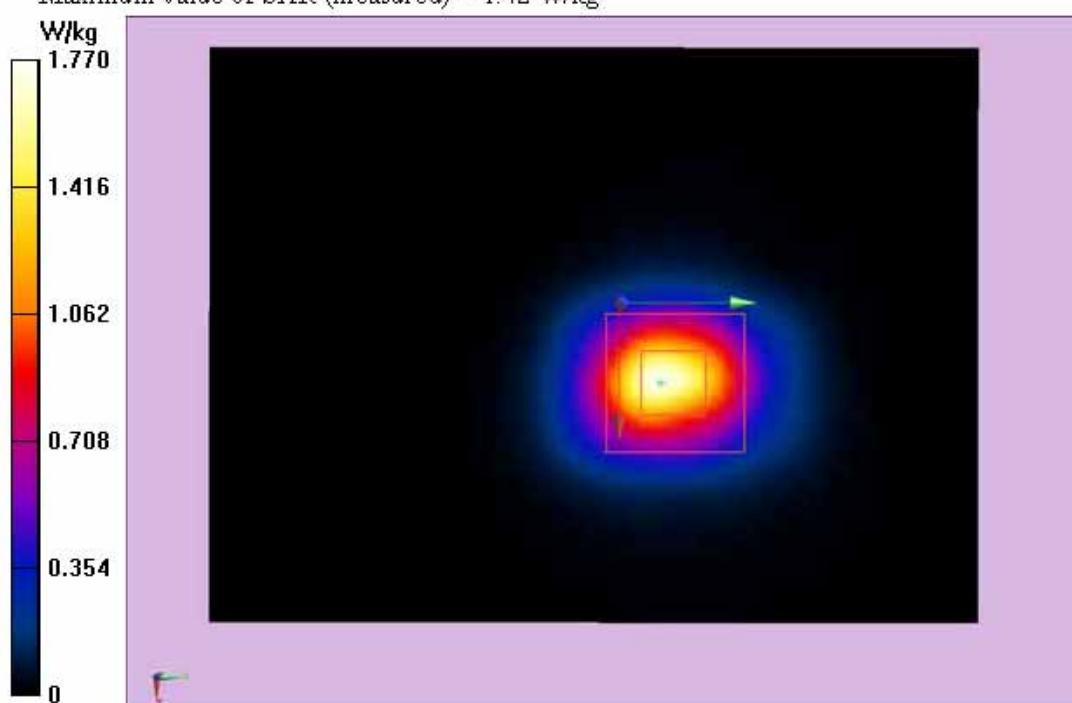
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

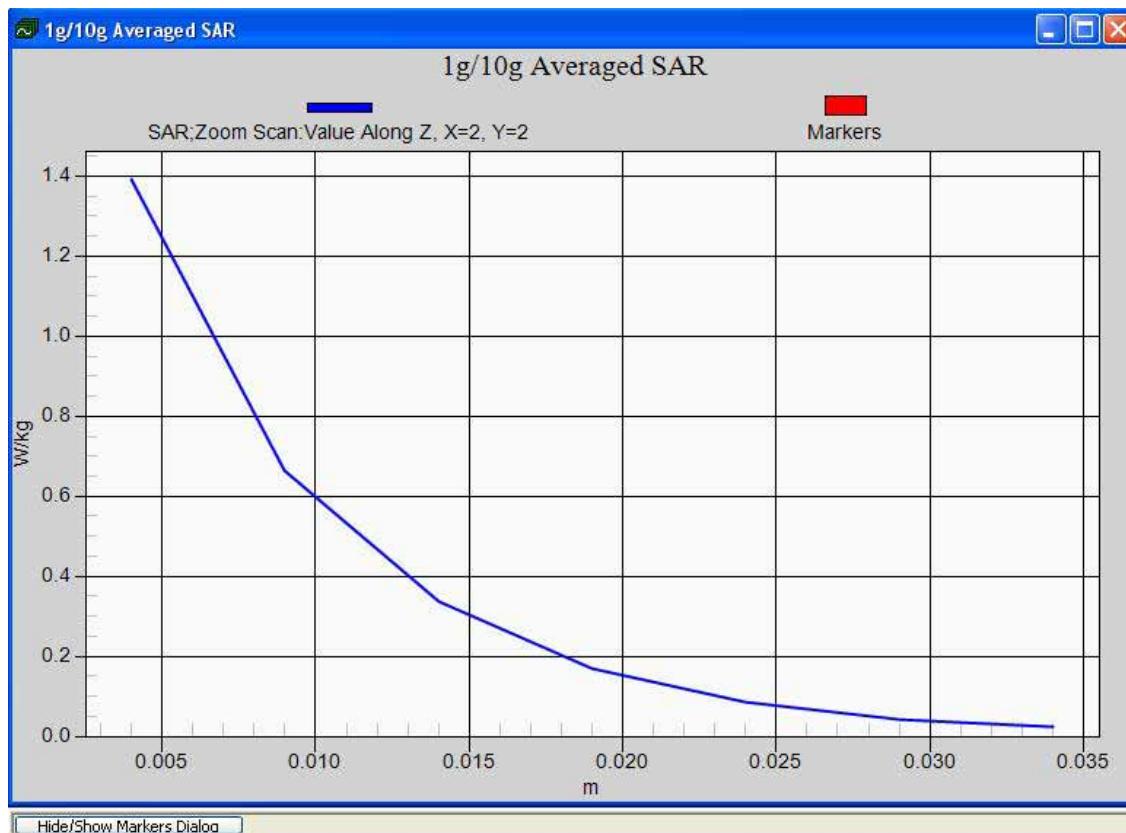
Reference Value = 10.65 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 2.91 W/kg

SAR(1 g) = 1.06 W/kg; SAR(10 g) = 0.519 W/kg

Maximum value of SAR (measured) = 1.42 W/kg





Test Laboratory: Audix SAR Lab

Date: 01/12/2014

802.11nHT20_CH1(2412MHz)-chain 1 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11nHT20 WiFi 2.4 GHz (OFDM, 6.5 Mbps) (0);

Communication System Band: ISM 2.4GHz Band(2400-2483.5MHz); Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11nHT20_CH1(2412MHz)-chain 1 Back/Area Scan

(61x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.0123 W/kg

Configuration/802.11nHT20_CH1(2412MHz)-chain 1 Back/Zoom Scan

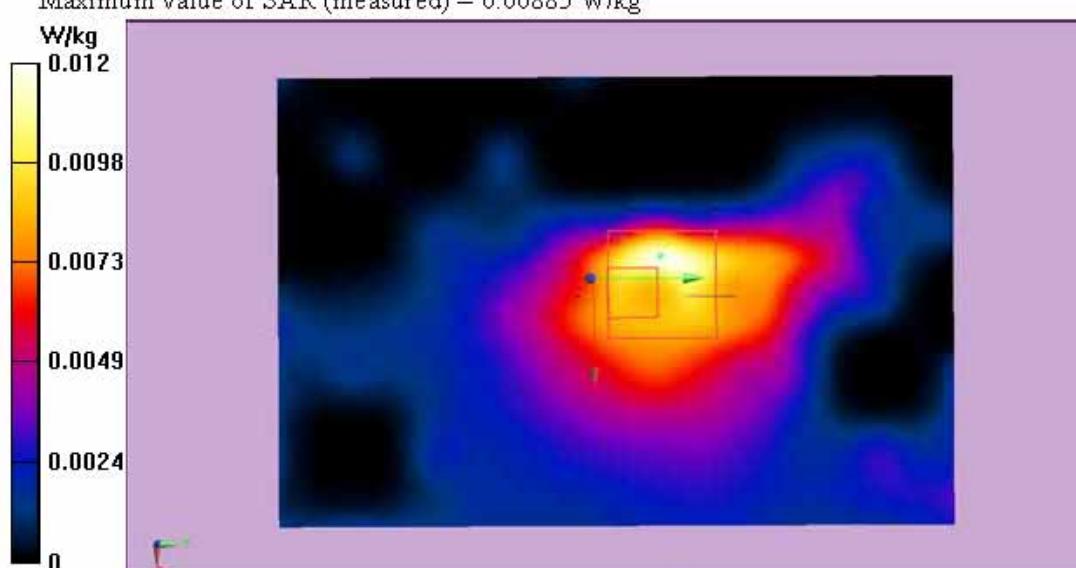
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.050 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.0150 W/kg

SAR(1 g) = 0.00771 W/kg; SAR(10 g) = 0.00377 W/kg

Maximum value of SAR (measured) = 0.00885 W/kg



Test Laboratory: Audix SAR Lab

Date: 01/12/2014

802.11nHT20_CH1(2412MHz)-chain 1 Bottom

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11nHT20 WiFi 2.4 GHz (OFDM, 6.5 Mbps) (0);

Communication System Band: ISM 2.4GHz Band(2400-2483.5MHz); Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11nHT20_CH1(2412MHz)-chain 1 Bottom/Area Scan

(61x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.0171 W/kg

Configuration/802.11nHT20_CH1(2412MHz)-chain 1 Bottom/Zoom Scan

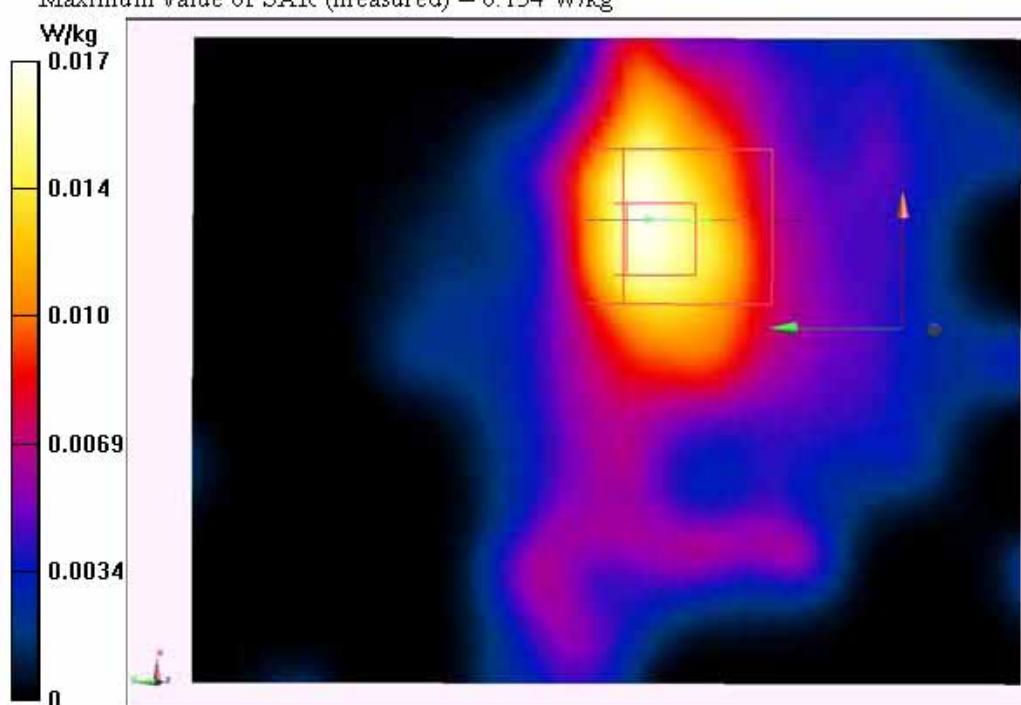
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.224 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.166 W/kg

SAR(1 g) = 0.0269 W/kg; SAR(10 g) = 0.0141 W/kg

Maximum value of SAR (measured) = 0.154 W/kg



Test Laboratory: Audix SAR Lab

Date: 01/12/2014

802.11nHT20_CH1(2412MHz)-chain 1 Right

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2412

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2412 \text{ MHz}$;

$\sigma = 1.928 \text{ S/m}$; $\epsilon_r = 54.466$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11nHT20_CH1(2412MHz)-chain 1 Right/Area Scan

(51x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 2.44 W/kg

Configuration/802.11nHT20_CH1(2412MHz)-chain 1 Right/Zoom Scan

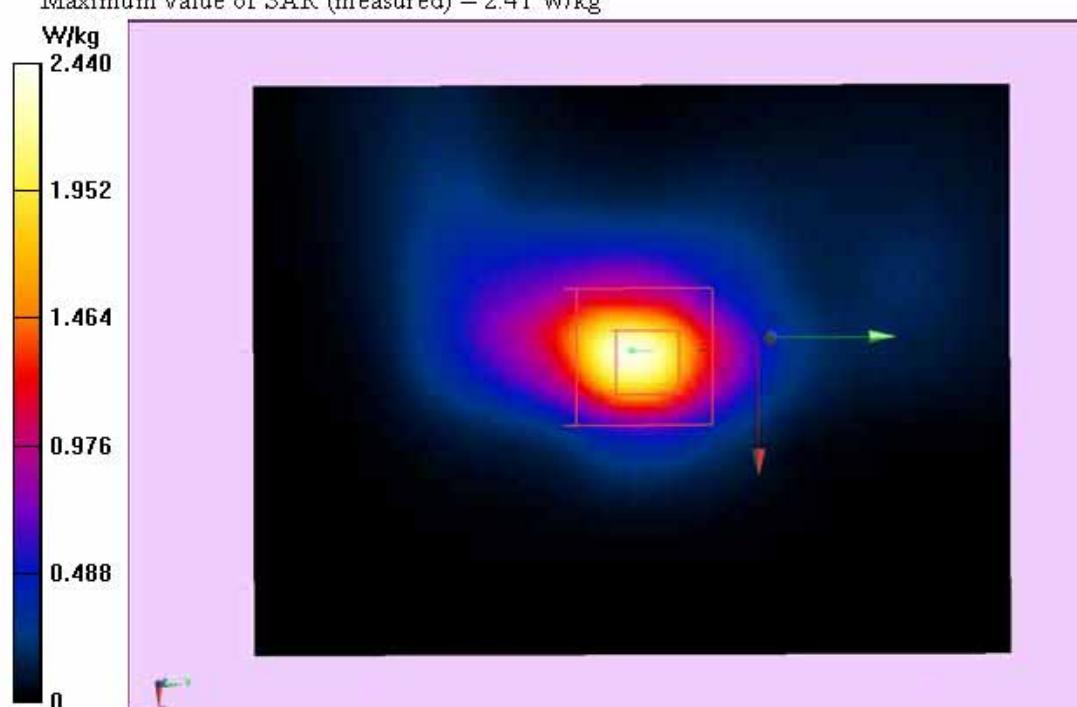
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.529 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 5.03 W/kg

SAR(1 g) = 0.936 W/kg; SAR(10 g) = 0.622 W/kg

Maximum value of SAR (measured) = 2.41 W/kg



Test Laboratory: Audix SAR Lab

Date: 01/12/2014

802.11nHT20_CH6(2437MHz)-chain 1 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11nHT20 WiFi 2.4 GHz (OFDM, 6.5 Mbps) (0);

Communication System Band: ISM 2.4GHz Band(2400-2483.5MHz); Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11nHT20_CH6(2437MHz)-chain 1 Back/Area Scan

(61x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.00975 W/kg

Configuration/802.11nHT20_CH6(2437MHz)-chain 1 Back/Zoom Scan

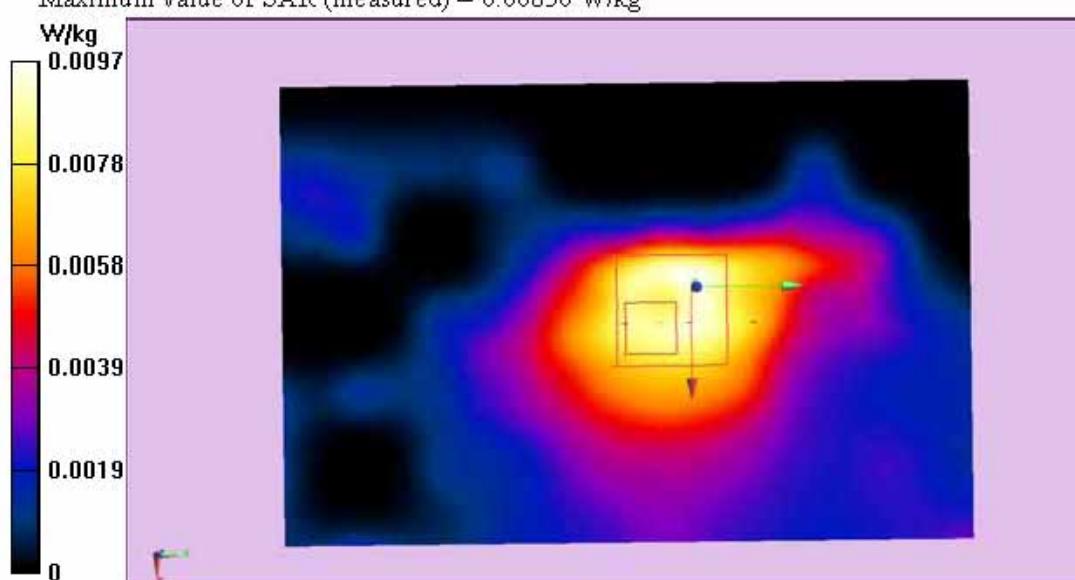
(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.957 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.0140 W/kg

SAR(1 g) = 0.00778 W/kg; SAR(10 g) = 0.00385 W/kg

Maximum value of SAR (measured) = 0.00856 W/kg



Test Laboratory: Audix SAR Lab

Date: 01/12/2014

802.11nHT20_CH6(2437MHz)-chain 1 Bottom

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11nHT20 WiFi 2.4 GHz (OFDM, 6.5 Mbps) (0);

Communication System Band: ISM 2.4GHz Band(2400-2483.5MHz); Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$

MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11nHT20_CH6(2437MHz)-chain 1 Bottom/Area Scan

(61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0153 W/kg

Configuration/802.11nHT20_CH6(2437MHz)-chain 1 Bottom/Zoom Scan

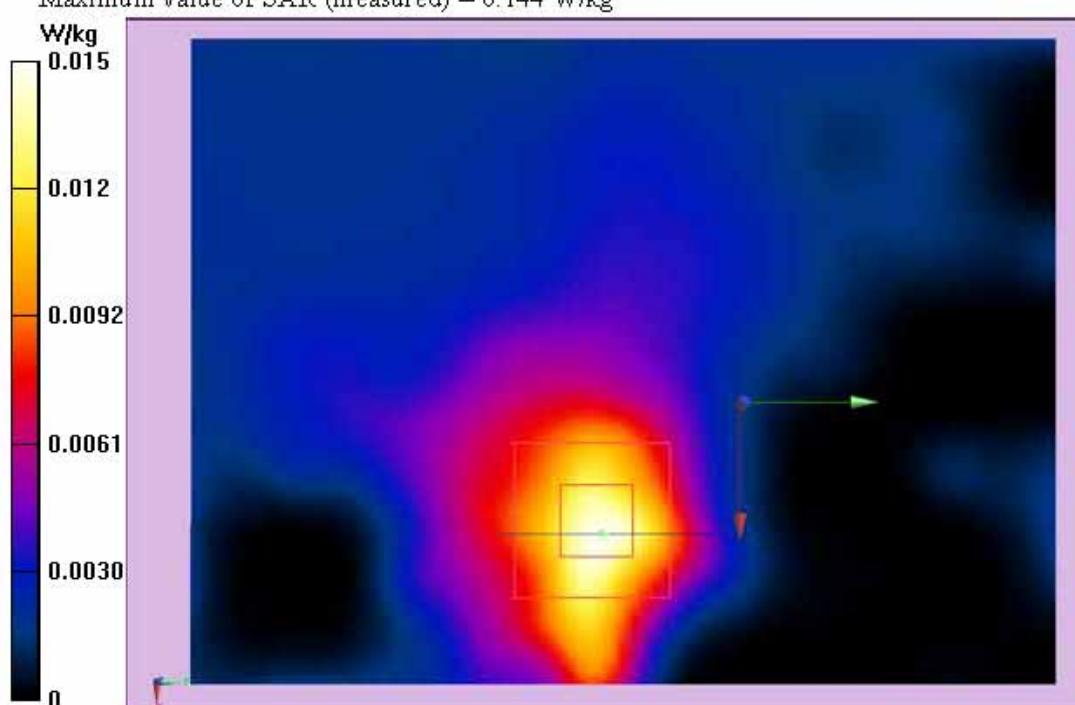
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.887 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.131 W/kg

SAR(1 g) = 0.0312 W/kg; SAR(10 g) = 0.022 W/kg

Maximum value of SAR (measured) = 0.144 W/kg



Test Laboratory: Audix SAR Lab

Date: 01/12/2014

802.11nHT20_CH6(2437MHz)-chain 1 Right

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11g WiFi 2.4 GHz (OFDM, 6 Mbps) (0);

Communication System Band: ISM 2.4GHz Band (2400.0-2483.5MHz) ; Frequency: 2437

MHz; Communication System PAR: 0 dB; Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 54.384$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11nHT20_CH6(2437MHz)-chain 1 Right/Area Scan

(51x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.25 W/kg

Configuration/802.11nHT20_CH6(2437MHz)-chain 1 Right/Zoom Scan

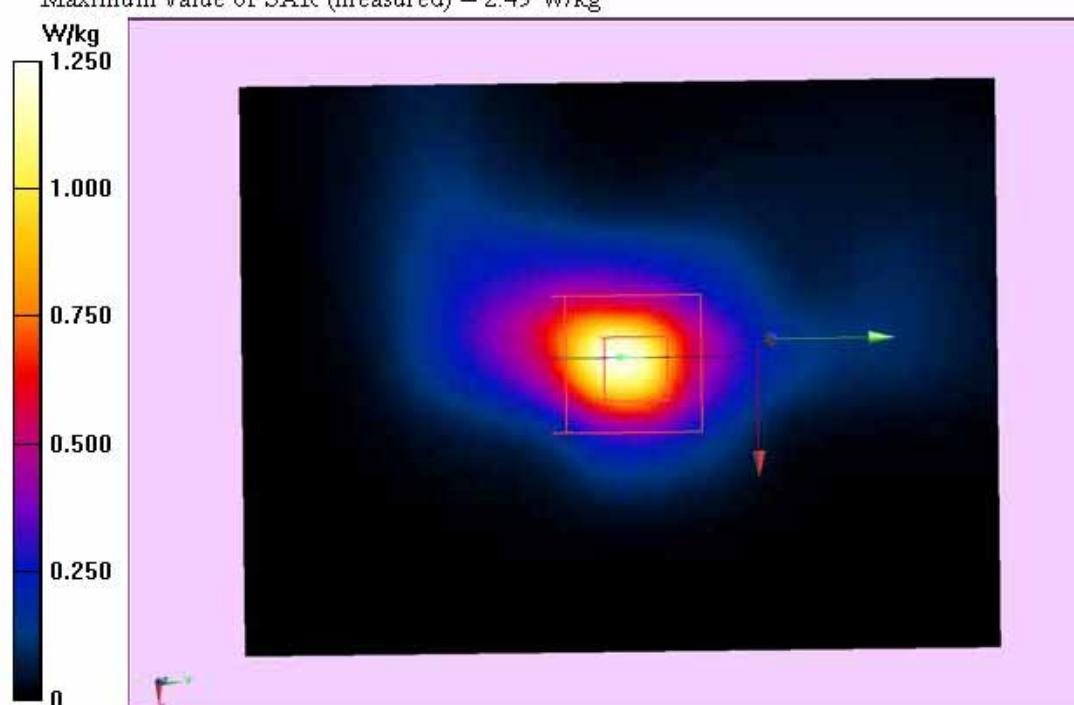
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

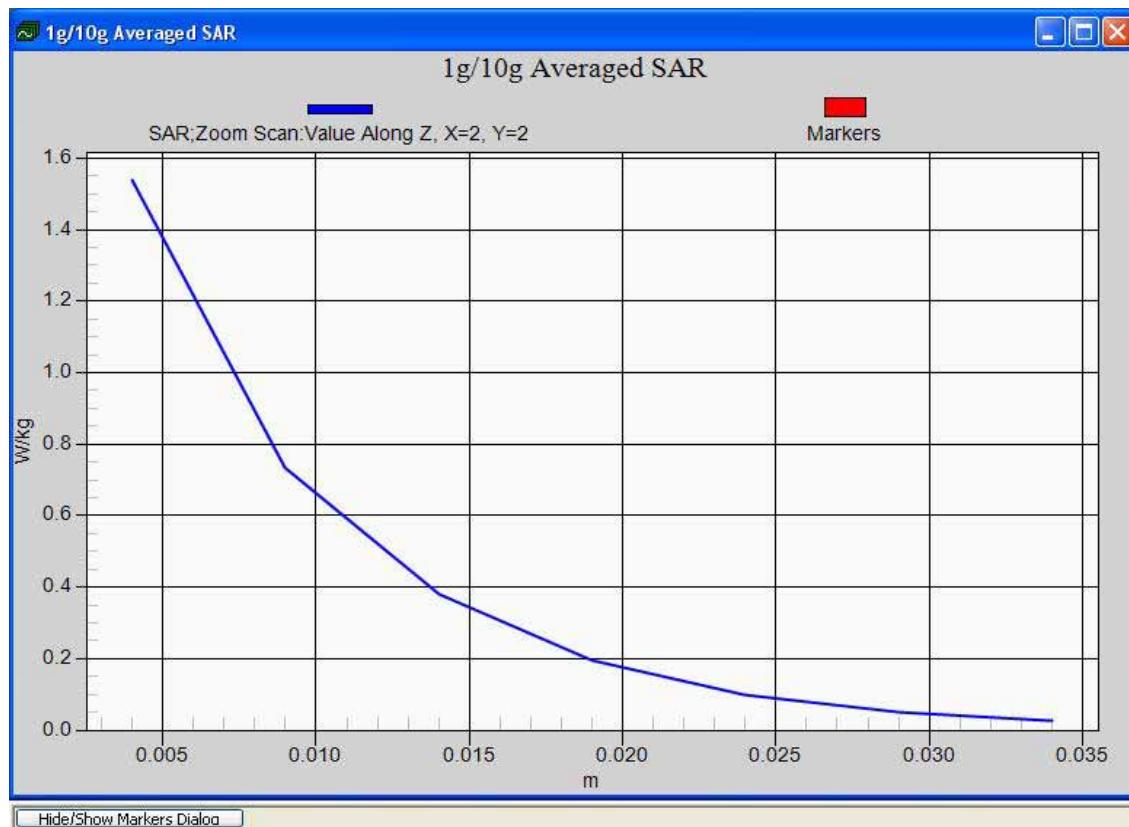
Reference Value = 18.59 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 4.36 W/kg

SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.517 W/kg

Maximum value of SAR (measured) = 2.49 W/kg





Test Laboratory: Audix SAR Lab

Date: 01/12/2014

802.11nHT20_CH11(2462MHz)-chain 1 Back

DUT: WiFi Advisor

M/N:WFED-300AC

Communication System: UID 0, IEEE 802.11nHT20 WiFi 2.4 GHz (OFDM, 6.5 Mbps) (0);

Communication System Band: ISM 2.4GHz Band(2400-2483.5MHz); Frequency: 2462

MHz; Communication System PAR: 0 dB; Medium parameters used: $f = 2462 \text{ MHz}$;

$\sigma = 1.996 \text{ S/m}$; $\epsilon_r = 54.278$; $\rho = 1000 \text{ kg/m}^3$; Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3139; ConvF(4.16, 4.16, 4.16); Calibrated: 25/07/2012,
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn899; Calibrated: 07/02/2014
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1112
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11nHT20_CH11(2462MHz)-chain 1 Back/Area Scan

(61x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.00967 W/kg

Configuration/802.11nHT20_CH11(2462MHz)-chain 1 Back/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.219 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.0110 W/kg

SAR(1 g) = 0.00688 W/kg; SAR(10 g) = 0.00335 W/kg

Maximum value of SAR (measured) = 0.00783 W/kg

