SAR Test Report

Product Name: iScreen

Applicant : NETGEAR. lnc.

Address : 350 East Plumeria Drive San Jose, CA 95134-1911

Date of Receipt : Apr.11,2011

Date of Test : Apr.12,2011

Report No. : 110412SAR01

The Test Results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of IACP EMC Lab.

Test Report Certification

Report No. : 110412SAR01

Product Name	:	iScreen
Applicant	:	NETGEAR. lnc.
Address	:	350 East Plumeria Drive San Jose, CA 95134-1911
Model No.	:	HSS101
Trade Name	:	iScreen
Measurement Standard	:	IEEE C95.1-1999 IEEE 1528-2003 FCC OET Bulletin 65 Supplement C FCC KDB 248227 D01 FCC KDB 447498 D01
Test Result	:	Complied

The Test Results relate only to the samples tested.
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Documented By	:	Jin-Qvang. Wang
Tested By	:	vida gu
Approved By	:	Jeff Huang

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Description Page

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	:	iScreen
Trade Name	:	iScreen
TX Frequency	:	802.11b: 2412MHz~2462MHz 802.11g: 2412MHz~2462MHz
	:	802.11n: 2412MHz~2462MHz
Antenna Type	:	Main antenna: Pole antenna Auxiliary antenna: PCB antenna
Max. Output Power (Conducted)	:	802.11b: 14.5~18.5dBm 802.11g: 12.5~16.5dBm 802.11n: 11.5~15.5dBm

1.2. Test Environment

Ambient conditions in the laboratory:

Items	Required	Actural
Temperature(℃)	15~30	21.4
Humidity(%RH)	30~70	46

2. SAR Measurement System

2.1. ALSAS-10U System Description

ALSAS-10-U is fully compliant with the technical and scientific requirements of IEEE 1528, IEC 62209, CENELEC, ARIB, ACA, and the Federal Communications Commission. The system comprises of a six axes articulated robot which utilizes a dedicated controller.
ALSAS-10U uses the latest methodologies and FDTD order to provide a platform which is repeatable with minimum uncertainty.

2.1.1 Applications

Predefined measurement procedures compliant with the guidelines of CENELEC, IEEE, IEC, FCC, etc are utilized during the assessment for the device. Automatic detection for all SAR maxima are embedded within the core architecture for the system, ensuring that peak locations used for centering the zoom scan are within a 1mm resolution and a 0.05mm repeatable position. System operation range currently is available up to 6 GHz in simulated tissue.

2.1.2 Area Scans

Area Scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a $10mm^2$ step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

Where the system identifies multiple SAR peaks (which are within 25% of peak value) the system will provide the user with the option of assessing each peak location individually for zoom scan averaging.

2.1.3 Zoom Scan (Cube Scan Averaging)

The averaging zoom scan volume utilized in the ALSAS-10U software is in the shape of a cube and the side dimension of a 1g or 10g mass is dependent on the density of the liquid representing the simulated tissue. A density of $1000Kg/m^3$ is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 10mm, with the side length of the 10g cube 21.5mm.

When the cube intersects with the surface of the phantom, it is oriented so that 3 vertices touch the surface of the shell or the center of a face is tangent to the surface.

The zoom Scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 5× 5×8 (8mm×8mm×5mm) providing a volume of 32mm in the X & Y axis, and 35mm in the Z axis.

2.1.4 ALSAS-10U Interpolation and Extrapolation Uncertainty

The overall uncertainty for the methodology and algorithms the used during the SAR calculation was evaluated using the data from IEEE 1528 based on the example f3 algorithm:

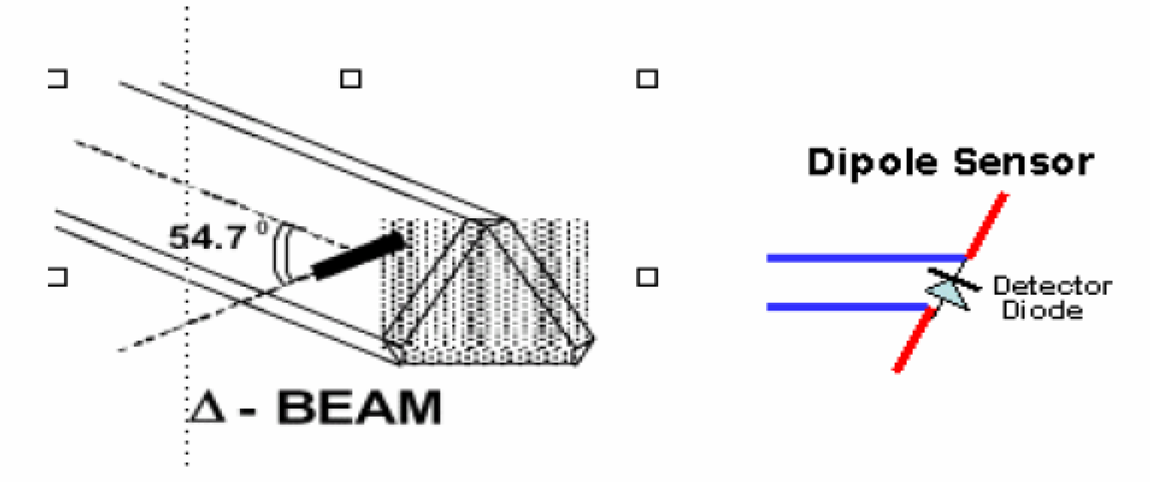
$$f_3(x,y,z) = A\frac{a^2}{\frac{a^2}{4}+x'^2+y'^2}\cdot\left(e^{-\frac{2z}{a}}+\frac{a^2}{2(a+2z)^2}\right)$$

2.2 Isotropic E-Field Probe

The isotropic E-Field probe has been fully calibrated and assessed for isotropic, and boundary effect within a controlled environment. Depending on the frequency for which the probe is calibrated the method utilized for calibration will change. A number of methods is used for calibrating probes, and these are outlined in the table below:

Calibration Frequency	Air Calibration	Tissue Calibration
900MHz	TEM Cell	Temperature
1800MHz	TEM Cell	Temperature

The E-Field probe utilizes a triangular sensor arrangement as detailed in the diagram below:



SAR is assessed with a calibrated probe which moves at a default height of 5mm from the center of the diode, which is mounted to the sensor, to the phantom surface (in the Z Axis). The 5mm offset height has been selected so as to minimize any resultant boundary effect due to the probe being in close proximity to the phantom surface.

The following algorithm is an example of the function used by the system for linearization of the output from the probe when measuring complex modulation schemes.

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

2.2.1 Isotropic E-Field Probe Specification

Calibration in Air	Frequency Dependent Below 2GHz Calibration in air performed in a TEM Cell Above 2GHz Calibration in air performed in waveguide
Sensitivity	0.70 $\mu V/(V/m)^2$ to 0.85 $\mu V/(V/m)^2$
Dynamic Range	0.0005 W/kg to 100W/kg
Isotropic Response	Better than 0.2dB
Diode Compression point (DCP)	Calibration for Specific Frequency
Probe Tip Radius	< 5mm
Sensor Offset	1.56 (+/- 0.02mm)
Probe Length	290mm
Video Bandwidth	@ 500 Hz: 1dB @1.02 KHz: 3dB
Boundary Effect	Less than 2% for distance greater than 2.4mm
Spatial Resolution	Diameter less than 5mm Compliant with Standards

2.3 Boundary detection Unit and Probe Mounting Device

ALSAS-10U incorporates a boundary detection unit with a sensitivity of 0.05mm for detecting all types of surfaces. The robust design allows for detecting during probe tilt (probe normalize) exercises, and utilizes a second stage emergency stop. The signal electronics are directly into the robot controller for high accuracy surface detection in lateral and axial detection modes (X, Y, &Z).

The probe is mounted directly onto the Boundary Detection unit for accurate tooling and displacement calculations controlled by the robot kinematics. The probe is connected to an isolated probe interconnect where the output stage of the probe is fed directly into the amplifier stage of the Daq-Paq.

2.4 Daq-Paq (Analog to Digital Electronics)

ALSAS-10U incorporates a fully calibrated Daq-Paq (analog to digital conversion system) which has a 4 channel input stage, sent via a 2 stage auto-set amplifier module. The input signal is amplified accordingly so as to offer a dynamic range from 5 μV to 800mV. Integration of the fields measured is carried out at board level utilizing a Co-Processor which then sends the measured fields down into the main computational module in digitized form via a RS232 communications port. Probe linearity and duty cycle compensation is carried out within the main Daq-Paq module.

ADC	12 Bit
Amplifier Range	20mV to 200mV and 150mV to 800mV
Field Integration	Local Co-Processor utilizing proprietary integration algorithms
Number of Input Channels	4 in total 3 dedicated and 1 spare
Communication	Packet data via RS232

2.5 Axis Articulated Robot

ALSAS-10U utilizes a six articulated robot, which is controlled using a Pentium based real-time movement controller. The movement kinematics engine utilizes proprietary (Thermo CRS) interpolation and extrapolation algorithms, which allow full freedom of movement for each of the six joints within the working envelop. Utilization of joint 6 allows for full probe rotation with a tolerance better than 0.05mm around the central axis.

Robot/Controller Manufacturer	Thermo CRS
Number of Axis	Six independently controlled axis
Positioning Repeatability	0.05mm
Controller Type	Single phase Pentium based C500C
Robot Reach	710mm
Communication	RS232 and LAN compatible

2.6 ALSAS Universal Workstation

ALSAS Universal workstation allows for repeatability and fast adaptability. It allows users to do calibration, testing and measurement using different types of phantoms with one set up, which significantly speeds up the measurement process.

2.7 Universal Device Positioner

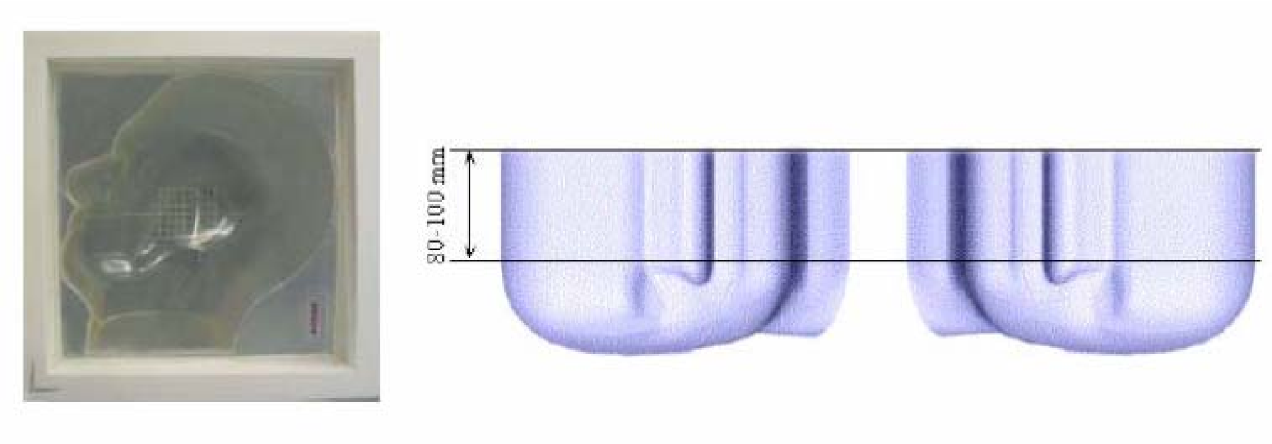
The universal device positioner allows complete freedom of movement of the EUT. Developed to hold a EUT in a free-space scenario any additional loading attributable to the material used in the construction of the positioner has been eliminated. Repeatability has been enhanced through the linear scales which form the design used to indicate positioning for any given test scenario in all major axes. A 15° tilt movements for head SAR analysis. Overall uncertainty for measurements has been reduced due to the design of the Universal device positioner, which allows positioning of a device in as near to a free-space scenario as possible, and by providing the means for complete repeatability.

2.8 Phontom Types

The ALSAS-10U allows the integration of multiple phantom types. SAM Phantoms fully compliant with IEEE 1528, Universal Phantom, and Universal Flat.

2.8.1 APREL SAM Phantoms

The SAM phantoms developed using the IEEE SAM CAD file. They are fully compliant with the requirements for both IEEE 1528 and FCC Supplement C. Both the left and right SAM phantoms are interchangeable, transparent and include the IEEE 1528 grid with visible NF and MB lines.



2.8.2 APREL Laboratories Universal Phantom

The Universal Phantom is used on the ALSAS-10U as a system validation phantom. The Universal Phantom has been fully validated both experimentally from 800MHz to 6GHz and numerically using XFDTD numerical software. The shell thickness is 2mm overall, with a 4mm spacer located at the NF/MB intersection providing an overall thickness of 6mm in line with the requirements of IEEE-1528.

The design allows for fast and accurate measurements, of handsets , by allowing the conservative SAR to be evaluated at on frequency for both left and right head experiments in one measurement.

3. Tissue Simulating Liquid

3.1. The composition of the tissue simulating liquid

INGREDIENT (% Weight)	900MHz Head	1800MHz Head	1900MHZ Head	2450MHZ Body
Water	--	--	--	73.2%
Salt	--	--	--	--
Sugar	--	--	--	
HEC	--	--	--	--
Preventol	--	--	--	--
DGBE	--	--	--	27.76%

3.2. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to SAR evaluation using APREL Dielectric Probe Kit and Anritsu MS4623B Vector Network Analyzer.

Body Tissue Simulate Measurement				
Frequency (MHz)	Description	Dielectric Parameters		Tissue Temp.(℃)
		ε_r	σ (s/m)	
2450MHz	Reference result	52.7	1.95	NA
	+/-5% window	50.065 to 55.335	1.8525 to 2.0475	
	12-Apr-11	51.81	1.92	20.7

3.3. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in PP1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1428 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

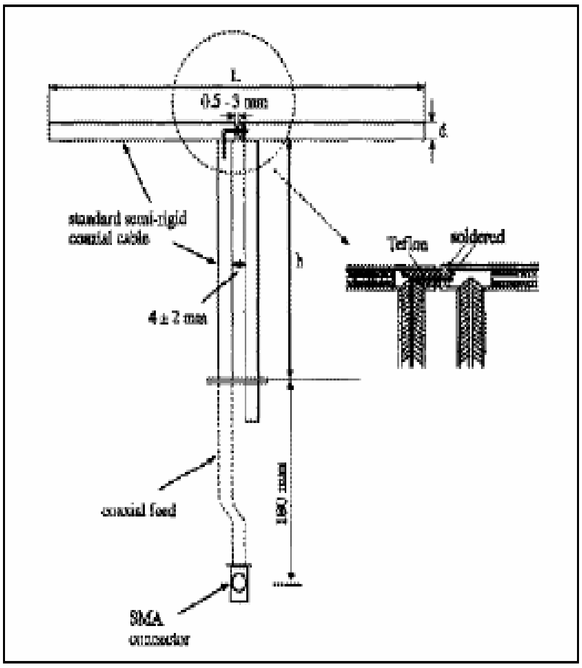
Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_γ =relative permittivity, σ =conductivity and ρ =1000 Kg/m^3)

4. SAR Measurement Procedure

4.1. SAR System Validation

4.1.1. Validation Dipoles

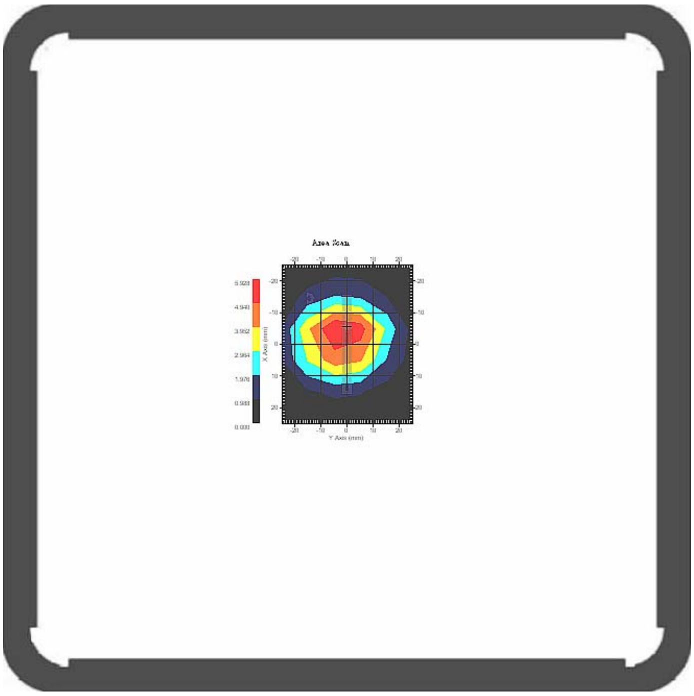
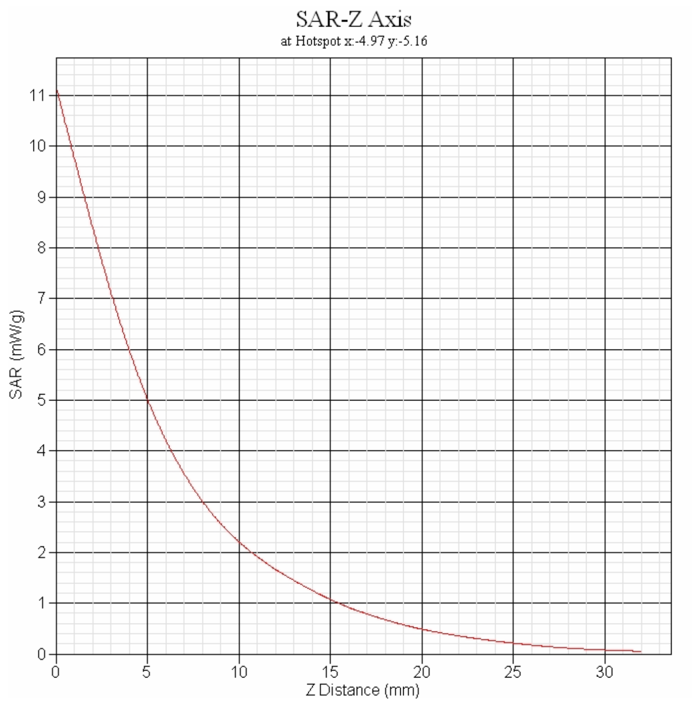


The dipoles used are based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. The table below provides details for the mechanical and electrical specifications for the dipoles.

Frequency	L(mm)	H(mm)	D(mm)
2450MHz	52.7	31.2	3.6

4.1.2. Validation Result

System Performance Check at 2450MHz				
Validation Kit: ASL-D-2450-S-2				
Frequency(MHz)	Description	SAR(W/Kg) 1g	SAR(W/Kg) 10g	Tissue Temp.(℃)
2450MHz	Reference result	52.4	24.0	N/A
	+/-5%window	49.78 to 55.02	22.8 to 25.25	
	12-Apr-11	52.68	23.79	20.7
Note: All SAR values are normalized to 1W forward power.				

Frequency(MHz)	2450
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	-2.685
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	5.268
SAR 10g(W/Kg)	2.379

4.2. Arrangement Assessment Setup

4.2.1. Test Positions of Device Relative to Head

This specifies exactly two test positions for the handset against the head phantom, the “cheek” position and the “tilted” position. The handset should be tested in both positions on the left and right sides of the SAM phantom. If the handset construction is such that it cannot be positioned using the handset positioning procedures described in 4.2.2.1 and 4.2.2.2 to represent normal use conditions (e.g. asymmetric handset), alternative alignment procedures should be considered with details provided in the test report.

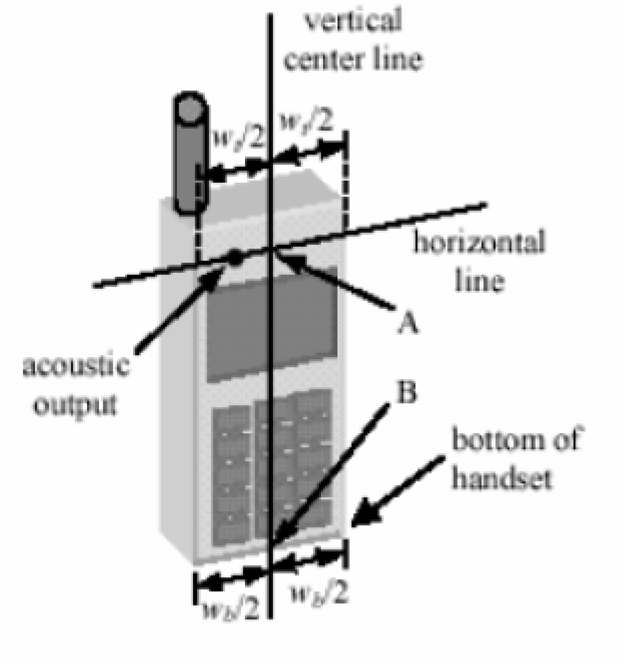


Figure 4.1a Internal Case

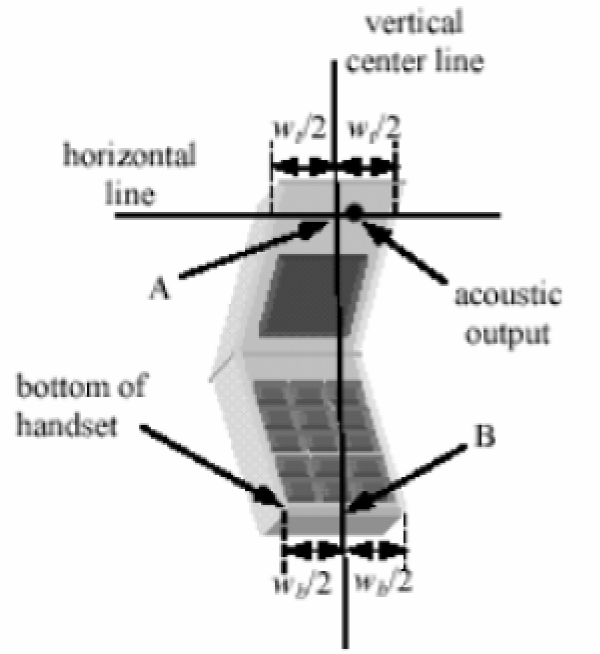


Figure4.1b Clam Shell

4.2.2.1. Definition of the “Cheek” Position

The “cheek” position is defined as follows:

a. Ready the handset for talk operation, if necessary. For example, for hand sets with a cover piece, open the cover. (If the handset can also be used with the cover closed both configurations must be tested.)

b. Define two imaginary lines on the handset: the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset: the midpoint of the width wt of the handset at the level of the acoustic output (point A on Figures 4.1 a and 4.1 b), and the midpoint of the width wb of the bottom of the handset through the center of the acoustic output (see Figure 4.1 a). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output. However, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 4.1 b), especially for clamshell handsets, handsets with flip pieces, and other irregularly-shaped handsets.

c. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see 4.2), such that the plan defined by the vertical center line and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.

d. Translate the handset towards the phantom along the line passing through RE and LE until the handset touches the pinna.

e. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to MB-NF including the line MB (called the reference plane).

f. Rotate the handset around the vertical centerline until the handset (horizontal line) is symmetrical with respect to the line NF.

While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE and maintaining the handset contact with the pinna, rotate the handset about the line NF until any point on the handset is in contact with a phantom point below the pinna (cheek). See Figure 4.2 the physical angles of rotation should be noted.

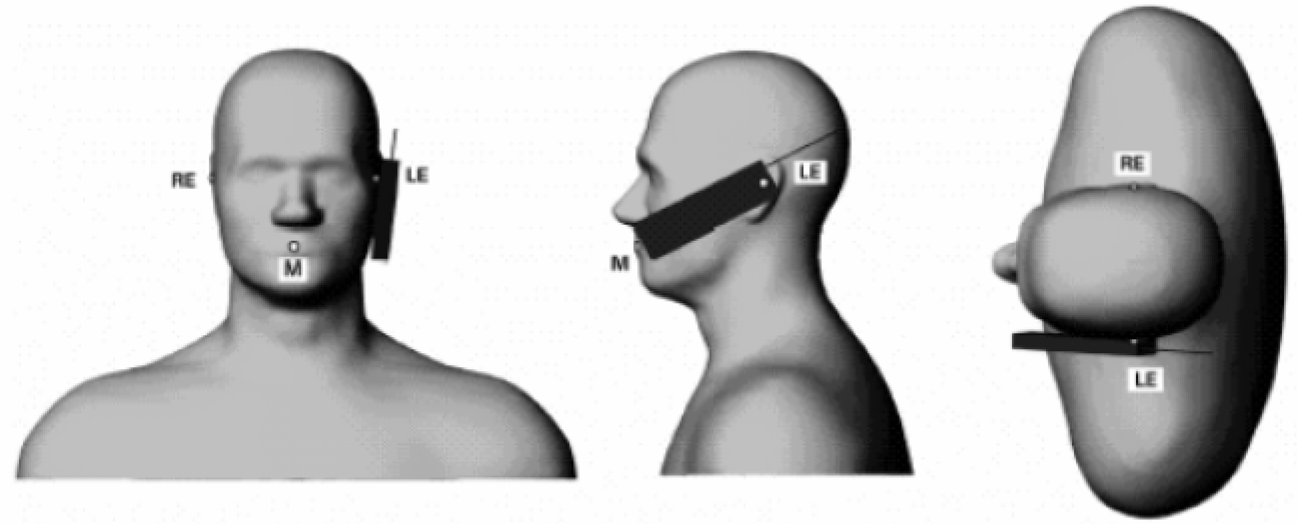


Figure 4.2 – Phone position 1, "cheek" or "touch" position.

4.2.1.2 Definition of the "Tilted" Position

The "tilted" position is defined as follows:

a. Repeat steps (a) – (g) of 4.2.1.1 to place the device in the "cheek position".

b. While maintaining the orientation of the handset move the handset away from the pinna along the line passing through RE and LE in order to enable a rotation of the handset by 15 degrees.

c. Rotate the handset around the horizontal line by 15 degrees.

d. While maintaining the orientation of the handset, move the handset towards the phantom on a line passing through RE and LE until any part of the handset touches the ear. The tilted position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna (e.g. the antenna with the back of the phantom head), the angle of the handset should be reduced. In this case, the tilted position is obtained if any part of the handset is in contact with the pinna as well as a second part of the handset is contact with the phantom (e.g. the antenna with back of the head).

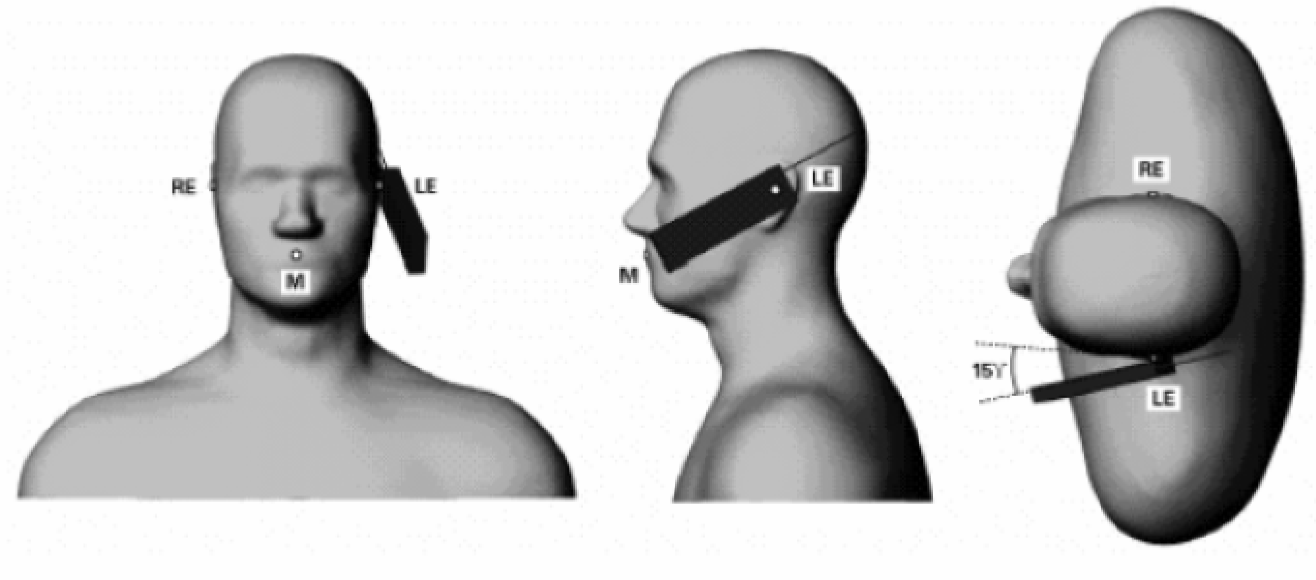


Figure 4.3 – Phone position 2, "tilted" position.

4.2.2 Test Positions for body-worn

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distance may be use, but not exceed 2.5cm.

4.3. SAR Measurement Procedure

The ALSAS-10U calculates SAR using the following equation,

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

σ :represents the simulated tissue conductivity

ρ :represents the tissue density

The EUT is set to transmit at the required power in line with product specification, at each frequency relating to the LOW, MID, and HIGH channel settings.

Pre-scans are made on the device to establish the location for the transmitting antenna, using a large area scan in either air or tissue simulation fluid.

The EUT is placed against the Universal Phantom where the maximum area scan dimensions are large than the physical size of the resonating antenna. When the scan size is not large enough to cover the peak SAR distribution, it is modified by either extending the area scan size in both the X and Y directions, or the device is shifted within the predefined area.

The area scan is then run to establish the peak SAR location (interpolated resolution set at 1 mm^2) which is then used to orient the center of the zoom scan. The zoom scan is then executed and the 1g and 10g averages are derived from the zoom scan volume (interpolated resolution set at 1 mm^3).

5. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE C95.1-1999, IEEE 1528-2003, FCC OET Bulletin 65 Supplement C，FCC KDB 248227 D01，and FCC KDB447298 D01.

Type Exposure (W/kg)	**Uncontrolled environment Limit**
Spatial Peak SAR (1g cube tissue for brain or body)	**1.60 W/kg**
Spatial Average SAR (whole body)	**0.08 W/kg**
Spatial Peak SAR (10g for hands, feet, ankles and wrist)	**4.00 W/kg**

6. Test Equipment List

Instrument	Manufacture	Model No.	Serial No.	Last Calibration
Universal Work Station	Aprel	ALS-UWS	100-00154	Jun.2006
Data Acquisition Package	Aprel	ALS-DAQ-PAQ-3	110-00215	Jun.2006
Probe Mounting Device and Boundary Detection Sensor System	Aprel	ALS-PMDPS-3	120-00265	Jun.2006
Left ear SAM Phontom	Aprel	ALS-P-SAM-L	130-00312	NCR
Right ear SAM Phontom	Aprel	ALS-P-SAM-R	140-00362	NCR
Universal SAM Phontom	Aprel	ALS-P-SU-1	150-00410	NCR
Reference Validation Dipole 2450MHz	Aprel	ALS-D-2450-S-2	2450-220-00755	MAY.28,2009
Miniature E-Field Probe	Aprel	E-020	273-B	Sep.13,2010
Dielectric Probe Kit	Aprel	ALS-PR-DIEL	260-00955	NCR
Device Holder 2.0	Aprel	ALS-H-E-SET-2	220-00755	NCR
SAR software	Aprel	ALS-SAR-AL-10	Ver.2.3.8	NCR
CRS C500C Controller	Thermo	ALS-C500	RCF0504291	NCR
CRS F3 Robot	Aprel	ALS-F3-SW	N/A	NCR
Power Amplifier	Mini-Circuit	SN0974	040306	NCR
Directional Coupler	Agilent	778D-012	N/A	NCR
Universal Radio Communication Tester	Agilent	E5515C	104845	Mar.11,2011
Vector Network	Agilent	US39170580	N/A	Oct.21,2010
Signal Generator	Agilent	E8257D	N/A	Dec.14,2010
Power Meter	Rohde&Schwarz	NRP	N/A	Dec.14,2010

Note: All equipment upon which need to be calibrated are with calibration period of 1 year, Standard validation kits calibration period of 3 years.

7. Measurement Uncertainty

Exposure Assessment Measurement Uncertainty

Source of Uncertainty	Tolerance Value	Probability Distribution	Divisor	c_i^1 (1-g)	c_i^1 (10-g)	Standard Uncertainty (1-g) %	Standard Uncertainty (10-g) %
Measurement System							
Probe Calibration	3.5	normal	1	1	1	3.5	3.5
Axial Isotropy	3.7	rectangular	$\sqrt{3}$	$(1-cp)^{1/2}$	$(1-cp)^{1/2}$	1.5	1.5
Hemispherical Isotropy	10.9	rectangular	$\sqrt{3}$	$\sqrt{cp}$	$\sqrt{cp}$	4.4	4.4
Boundary Effect	1.0	rectangular	$\sqrt{3}$	1	1	0.6	0.6
Linearity	4.7	rectangular	$\sqrt{3}$	1	1	2.7	2.7
Detection Limit	1.0	rectangular	$\sqrt{3}$	1	1	0.6	0.6
Readout Electronics	1.0	normal	1	1	1	1.0	1.0
Response Time	0.8	rectangular	$\sqrt{3}$	1	1	0.5	0.5
Integration Time	1.7	rectangular	$\sqrt{3}$	1	1	1.0	1.0
RF Ambient Condition	3.0	rectangular	$\sqrt{3}$	1	1	1.7	1.7
Probe Positioner Mech.	0.4	rectangular	$\sqrt{3}$	1	1	0.2	0.2
Restriction							
Probe Positioning with respect to Phantom Shell	2.9	rectangular	$\sqrt{3}$	1	1	1.7	1.7
Extrapolation and Integration	3.7	rectangular	$\sqrt{3}$	1	1	2.1	2.1
Test Sample Positioning	4.0	normal	1	1	1	4.0	4.0
Device Holder Uncertainty	2.0	normal	1	1	1	2.0	2.0
Drift of Output Power	0.6	rectangular	$\sqrt{3}$	1	1	0.3	0.3
Phantom and Setup							
Phantom Uncertainty(shape & thickness tolerance)	3.4	rectangular	$\sqrt{3}$	1	1	2.0	2.0
Liquid Conductivity(target)	5.0	rectangular	$\sqrt{3}$	0.7	0.5	2.0	1.4
Liquid Conductivity(meas.)	0.0	normal	1	0.7	0.5	0.0	0.0

Liquid Permittivity(target)	5.0	rectangular	$\sqrt{3}$	0.6	0.5	1.7	1.4
Liquid Permittivity(meas.)	2.4	normal	1	0.6	0.5	1.4	1.2
Combined Uncertainty		RSS				9.3	9.2
Combined Uncertainty (coverage factor=2)		Normal(k=2)				18.7	18.3

8. Test Results

8.1. SAR Test Results Summary

SAR MEASUREMENT					
Ambient Temperature (˚C): 21.2 ± 2			Relative Humidity (%): 46		
Liquid Temperature (˚C): 20.5 ± 2			Depth of Liquid (cm):>15		
Product: iScreen					
Test Mode: 802.11b					
Test Position Body	Antenna Position	Frequency		SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz		
Bottom flated	Internal	1	2412	0.571	1.6
Bottom flated	Internal	6	2437	0.728	1.6
Bottom flated	Internal	11	2462	0.659	1.6
Left edge	Internal	1	2412	0.014	1.6
Left edge	Internal	6	2437	0.011	1.6
Left edge	Internal	11	2462	0.021	1.6
Top edge	Internal	1	2412	0.615	1.6
Top edge	Internal	6	2437	0.575	1.6
Top edge	Internal	11	2462	0.631	1.6

SAR MEASUREMENT					
Ambient Temperature (˚C): 21.2 ± 2			Relative Humidity (%): 46		
Liquid Temperature (˚C): 20.5 ± 2			Depth of Liquid (cm):>15		
Product: iScreen					
Test Mode: 802.11g					
Test Position Body	Antenna Position	Frequency		SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz		
Bottom flated	Internal	6	2437	0.147	1.6

SAR MEASUREMENT					
Ambient Temperature (˚C): 21.2 ± 2			Relative Humidity (%): 46		
Liquid Temperature (˚C): 20.5 ± 2			Depth of Liquid (cm):>15		
Product: iScreen					
Test Mode: 802.11n (BW 20MHz)					
Test Position Body	Antenna Position	Frequency		SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz		
Bottom flated	Internal	6	2437	0.064	1.6

SAR MEASUREMENT					
Ambient Temperature (˚C): 21.2 ± 2			Relative Humidity (%): 46		
Liquid Temperature (˚C): 20.5 ± 2			Depth of Liquid (cm):>15		
Product: iScreen					
Test Mode: 802.11n (BW 40MHz)					
Test Position Body	Antenna Position	Frequency		SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz		
Bottom flated	Internal	6	2437	0.131	1.6

• 8.2. Conducted Power(Unit:dBm)

Main antenna:

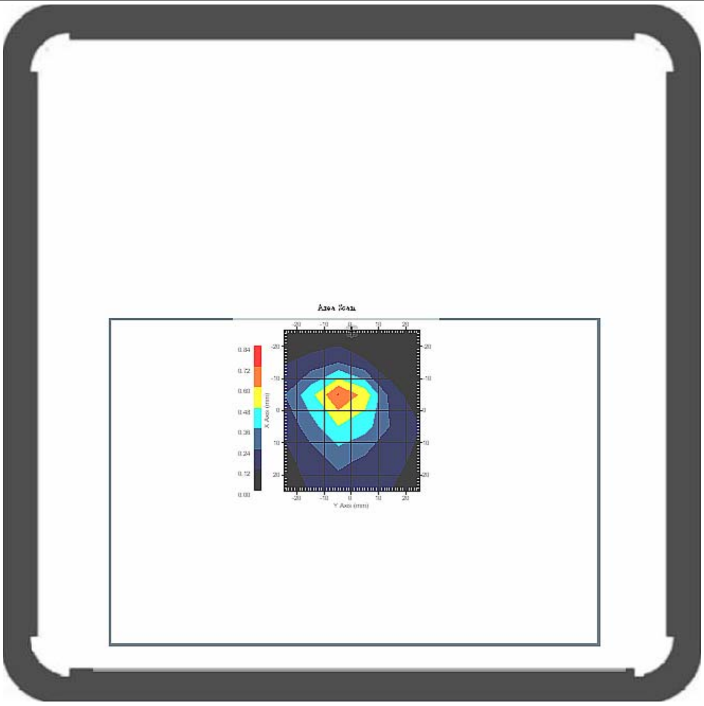
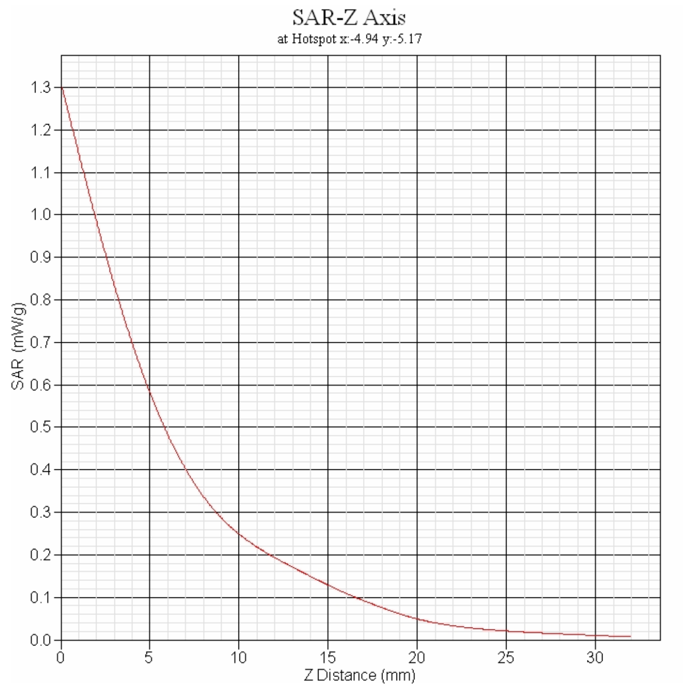
Band	802.11b			802.11g		
Channel	1	6	11	1	6	11
Frequency(MHz)	2412	2437	2462	2412	2437	2462
Average Power	14.73	14.86	14.93	9.24	9.31	9.48
Peak Power	18.47	19.37	19.78	18.03	19.06	19.25
Band	802.11n(BW 20MHz)			802.11n(BW 40MHz)		
Channel	1	6	11	3	6	9
Frequency(MHz)	2412	2437	2462	2422	2437	2452
Average Power	8.53	8.48	8.84	7.96	8.10	8.12
Peak Power	18.09	18.82	19.35	15.95	16.78	17.42

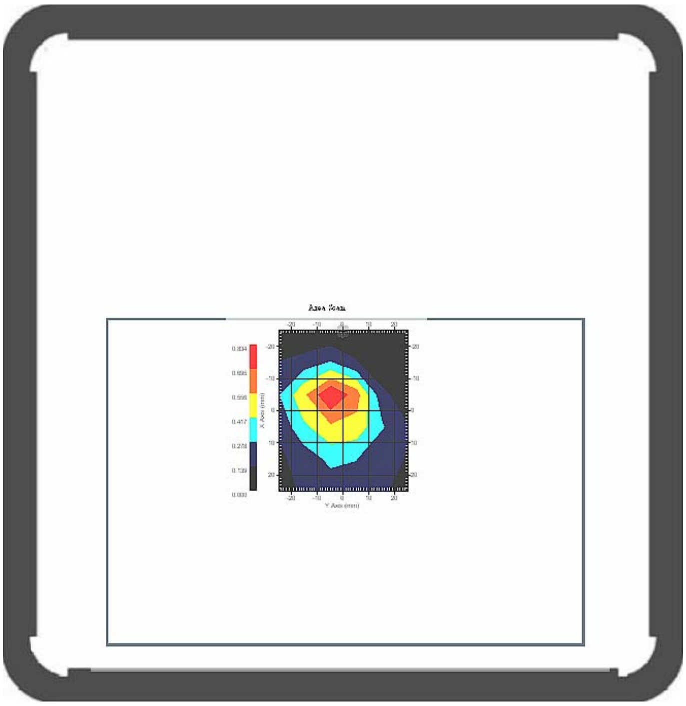
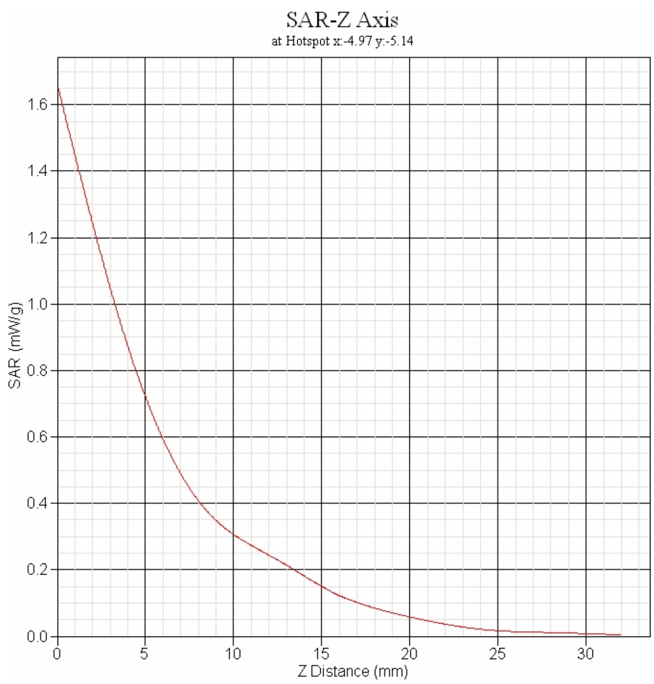
Assistant antenna:

Band	802.11b			802.11g		
Channel	1	6	11	1	6	11
Frequency(MHz)	2412	2437	2462	2412	2437	2462
Average Power	-1.78	-0.77	-0.29	-0.09	1.92	2.33
Peak Power	3.8	4.82	4.1	8.2	7.84	9.01

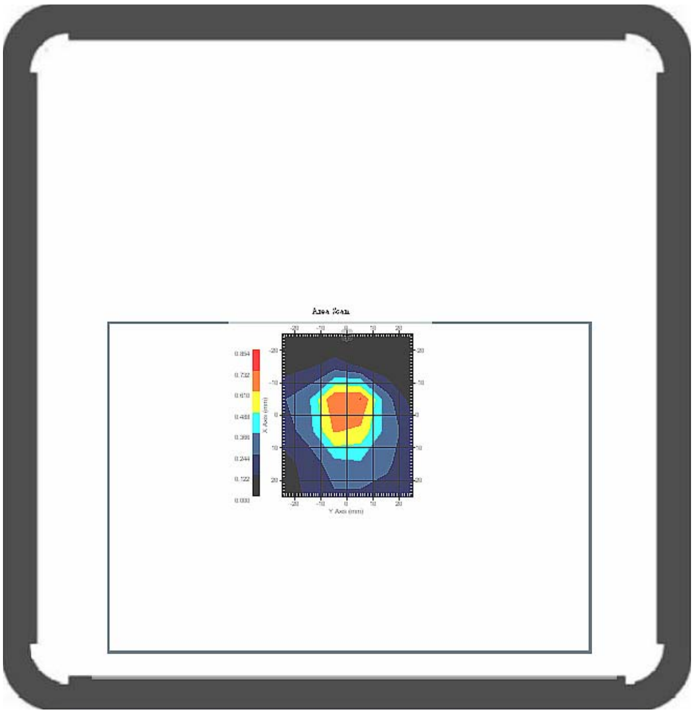
Band	802.11n(BW 20MHz)			802.11n(BW 40MHz)		
Channel	1	6	11	3	6	9
Frequency(MHz)	2412	2437	2462	2422	2437	2452
Average Power	-0.02	1.01	2.61	-1.12	-0.83	0.46
Peak Power	8.49	9.27	10.83	9.98	11.16	9.09

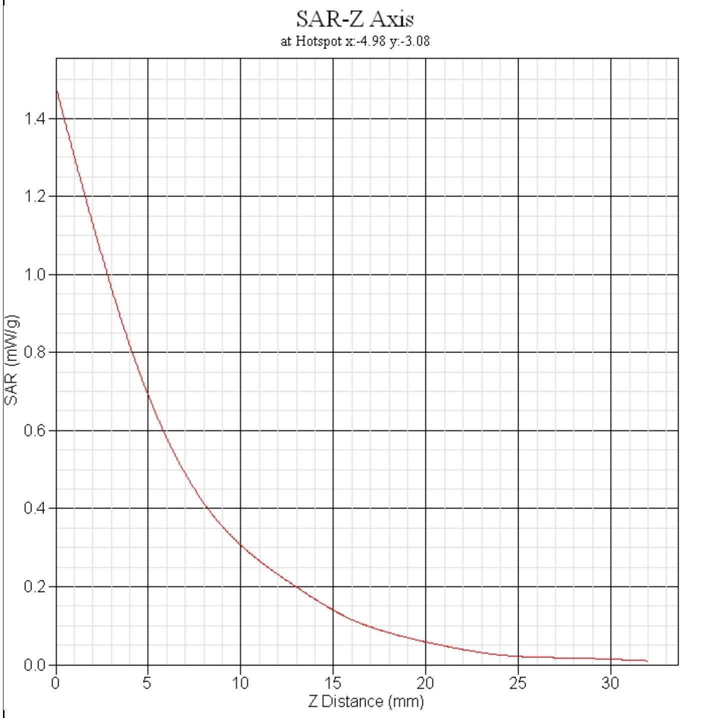
8.3. SAR Measurement Data

802.11b bottom flated CH1	
Frequency(MHz)	2412
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	-0.069
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.571
SAR 10g(W/Kg)	0.238

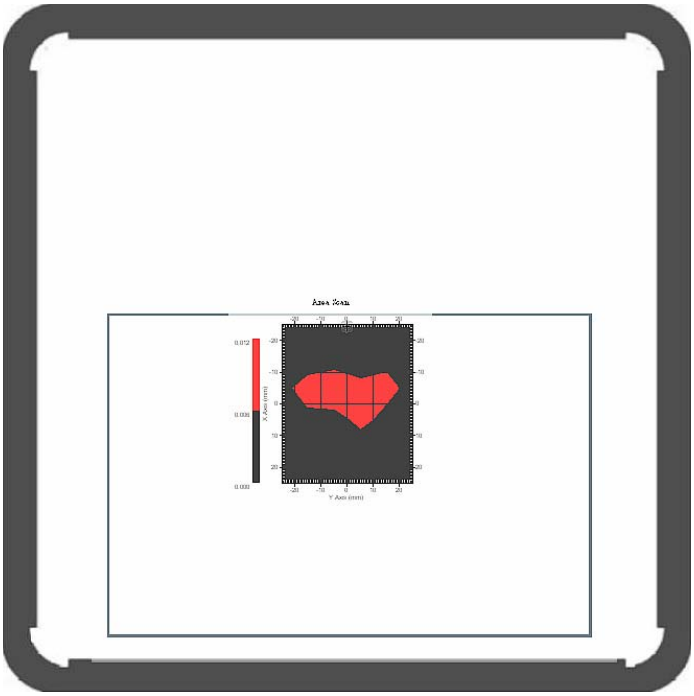
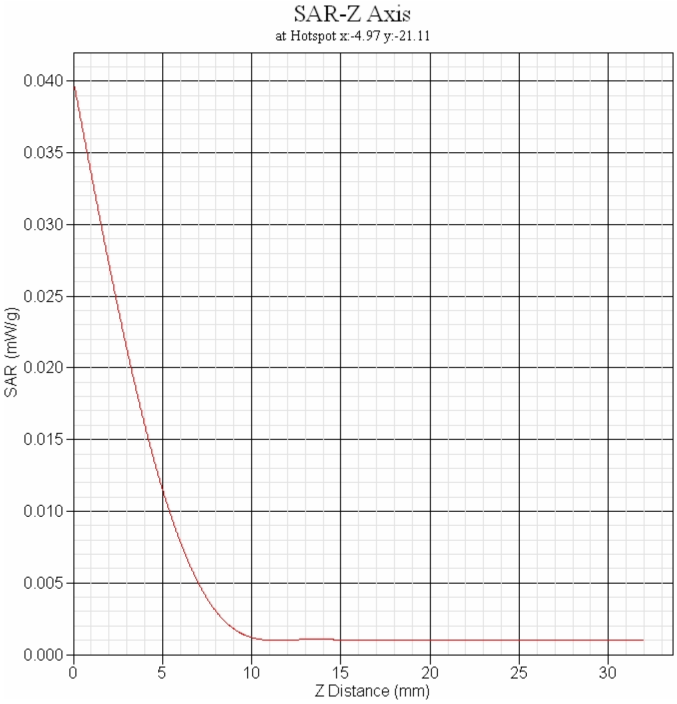
802.11b bottom flated CH6	
Frequency(MHz)	2437
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	3.562
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.728
SAR 10g(W/Kg)	0.315

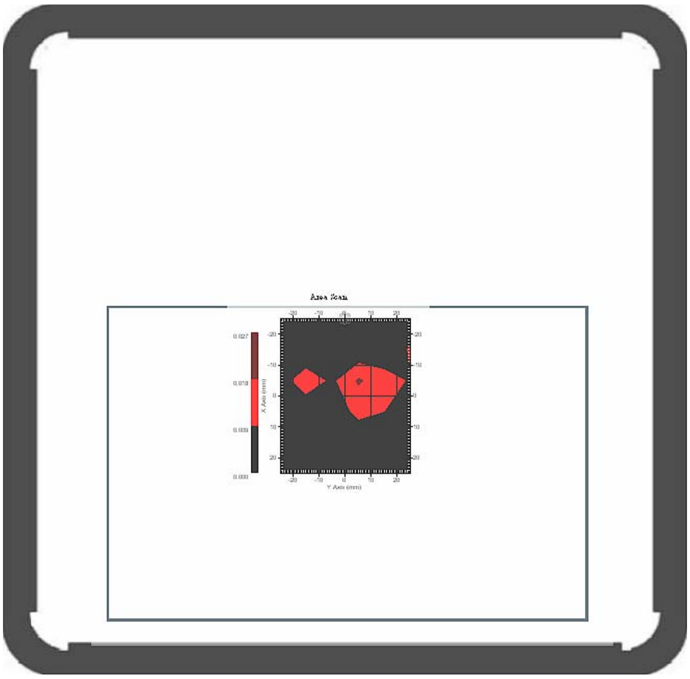
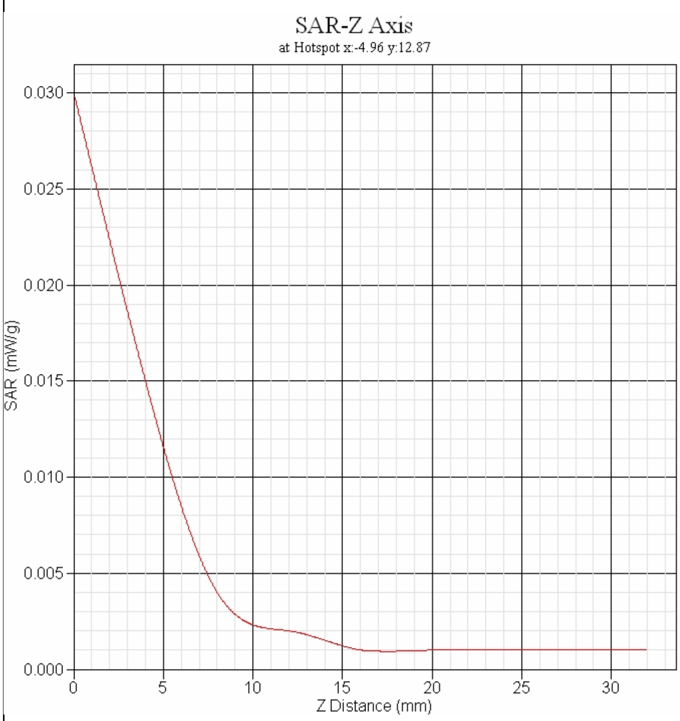
802.11b bottom flated CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	0.628
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12

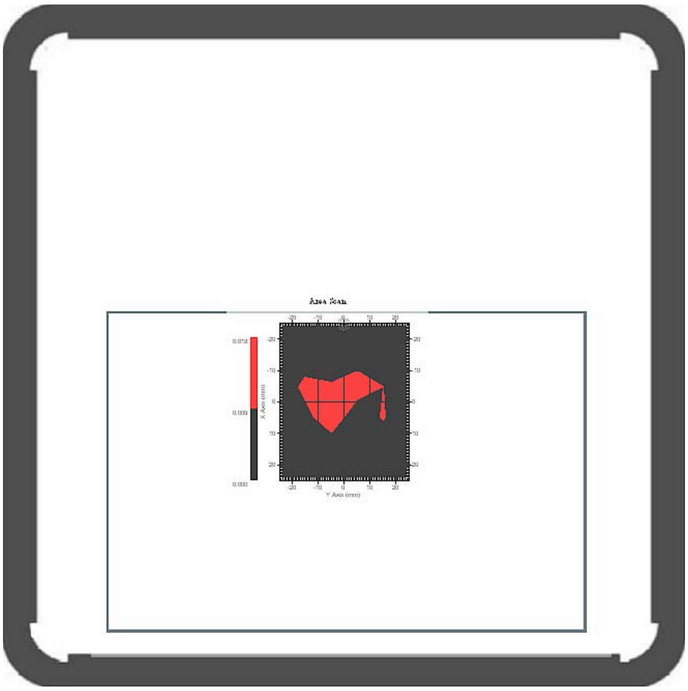
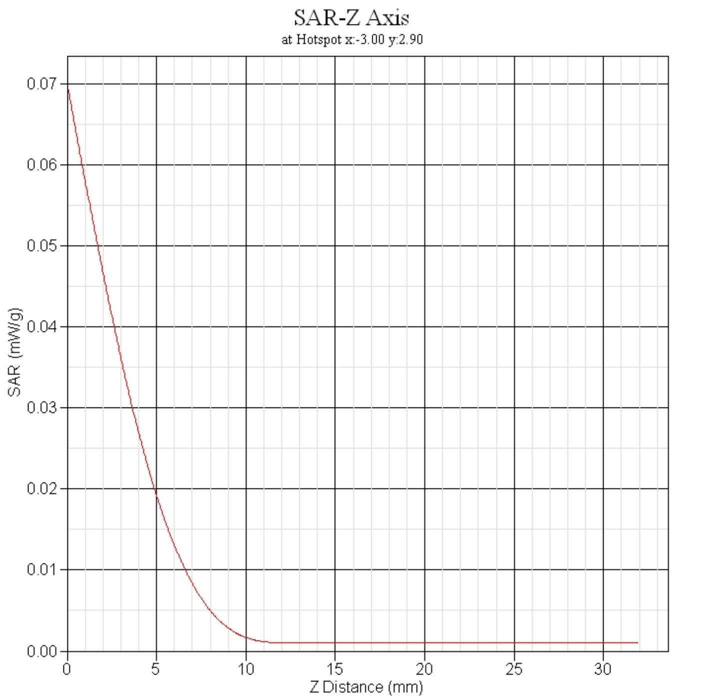


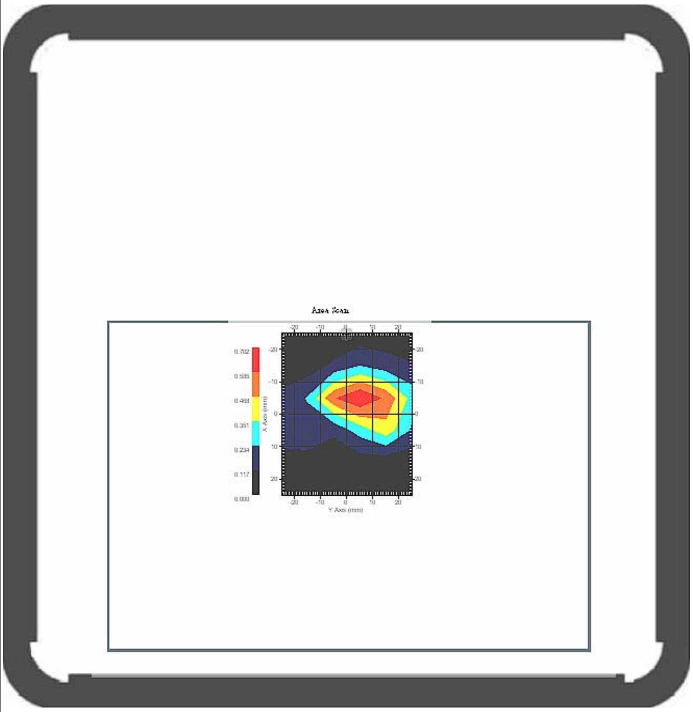
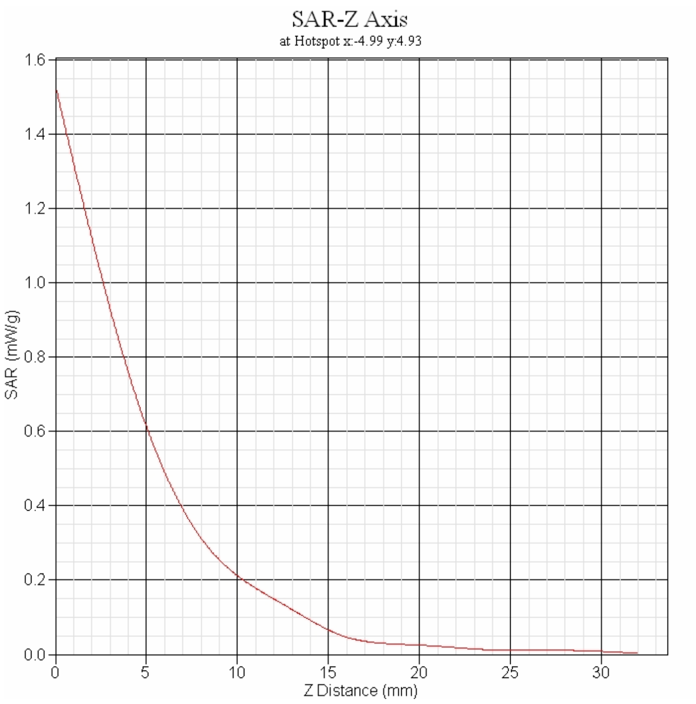


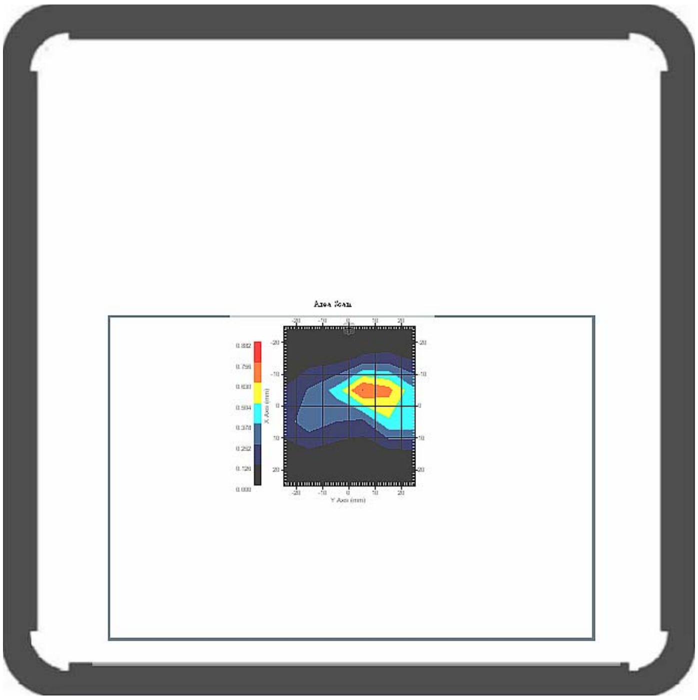
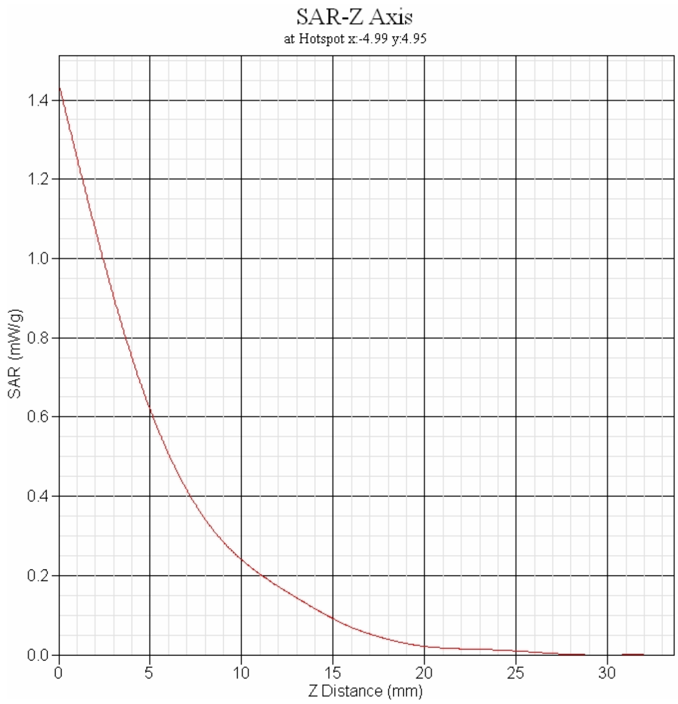
SAR 1g(W/Kg)	0.659
SAR 10g(W/Kg)	0.281

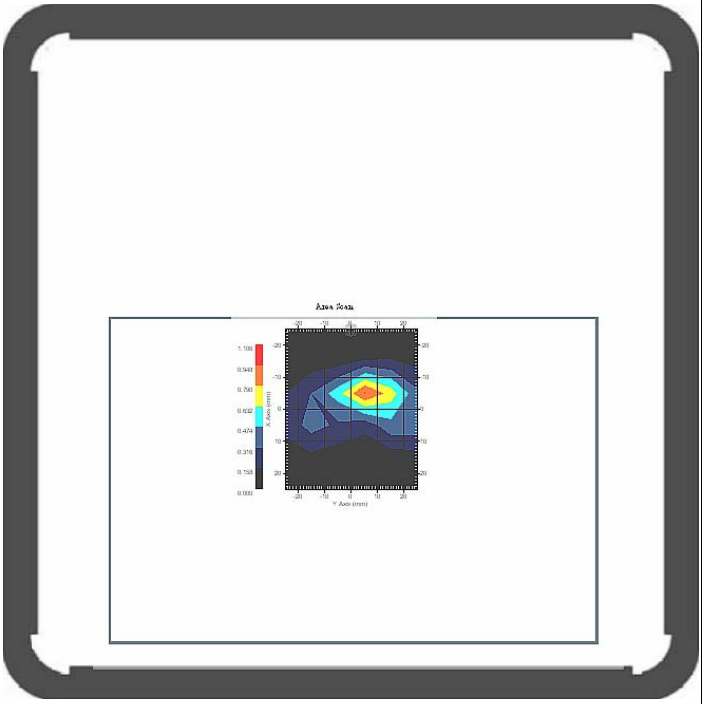
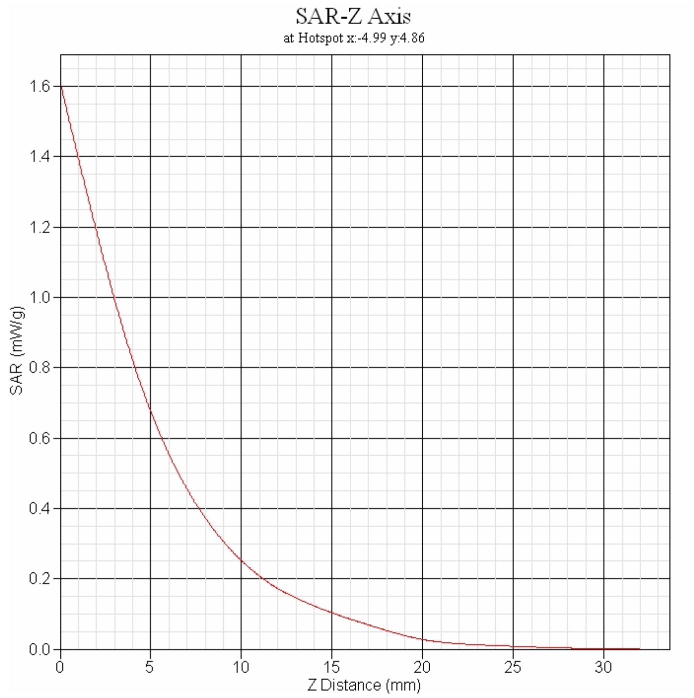
802.11b left edge CH1	
Frequency(MHz)	2412
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	4.207
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.014
SAR 10g(W/Kg)	0.005

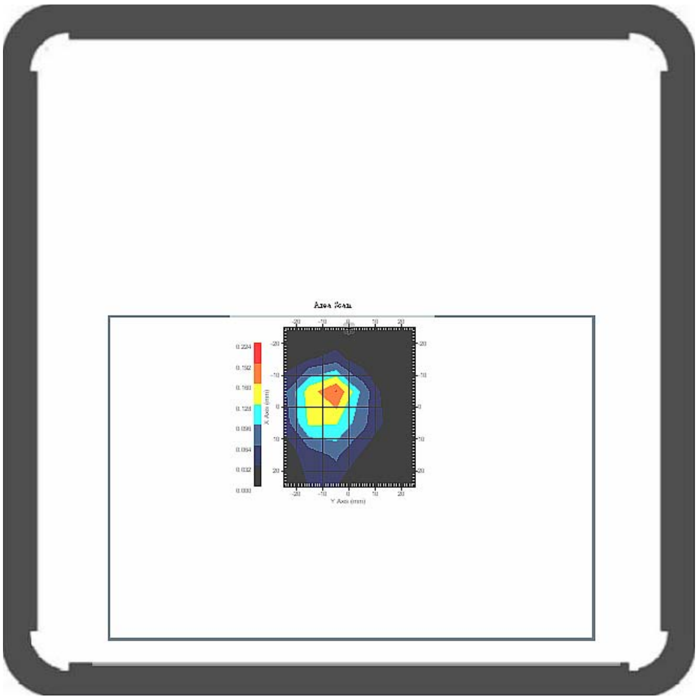
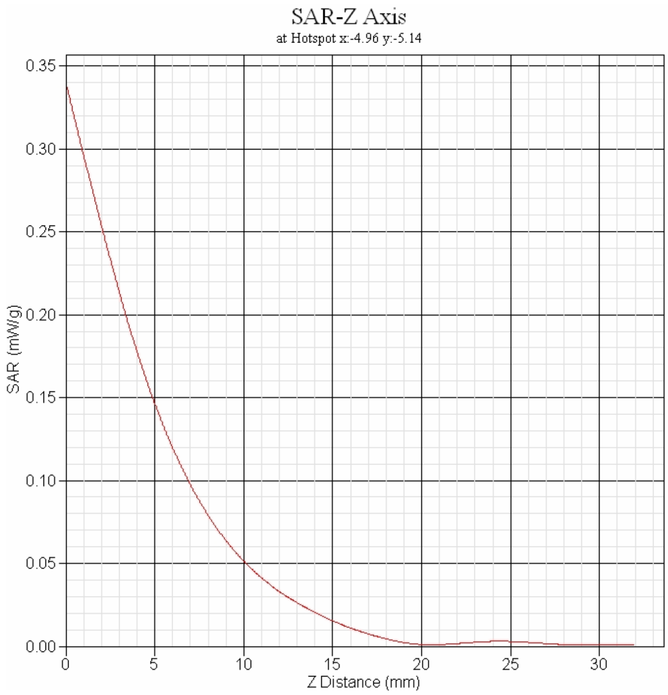
802.11b left edge CH6	
Frequency(MHz)	2437
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	3.029
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-03-30
	
SAR 1g(W/Kg)	0.011
SAR 10g(W/Kg)	0.004

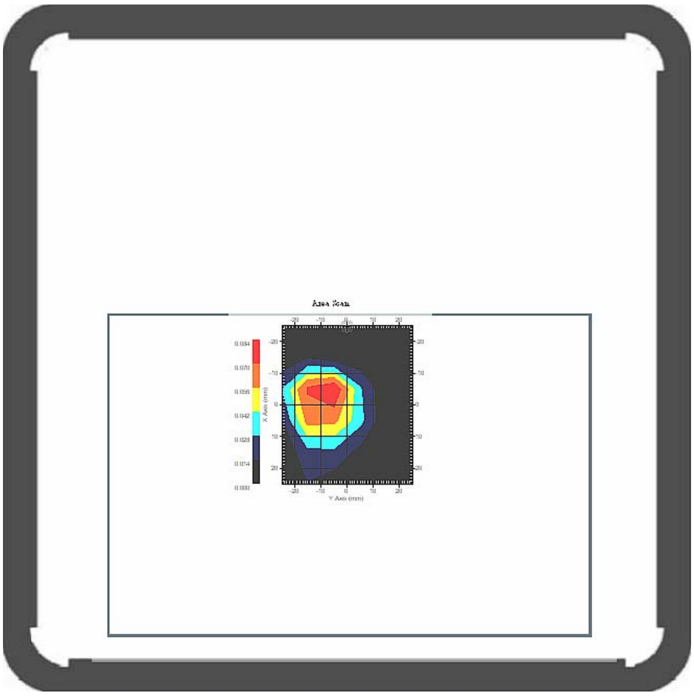
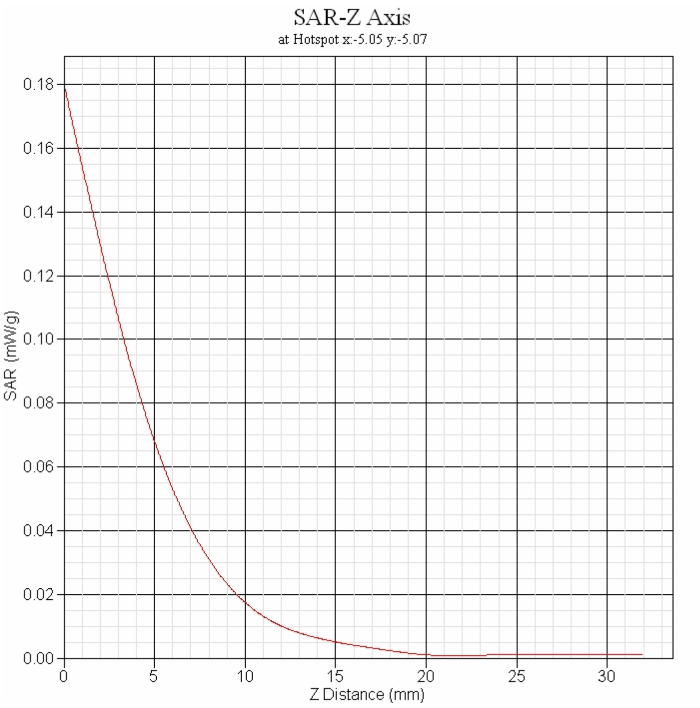
802.11b left edge CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	0.345
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.021
SAR 10g(W/Kg)	0.007

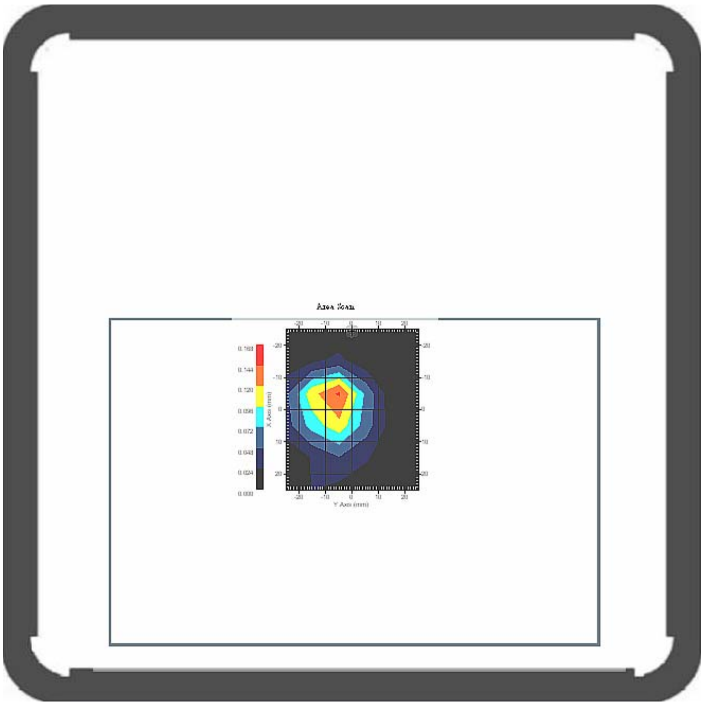
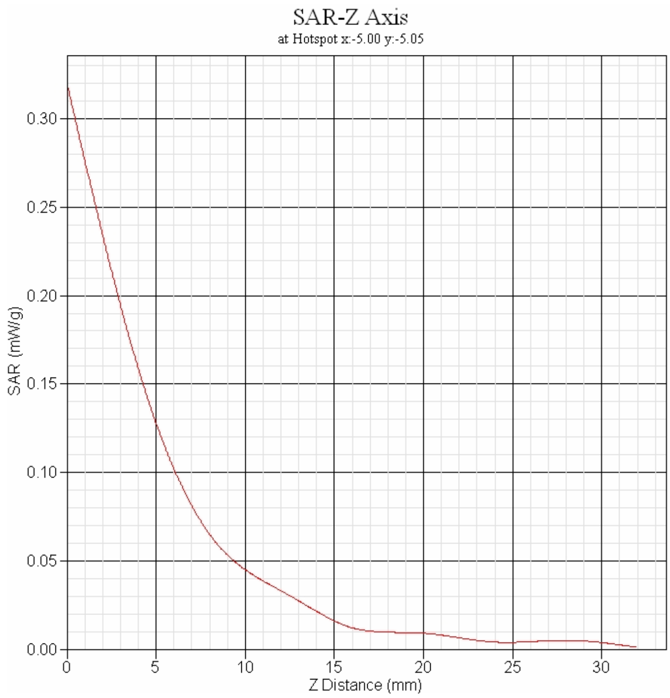
802.11b top edge CH1	
Frequency(MHz)	2412
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	3.035
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.615
SAR 10g(W/Kg)	0.236

802.11b top edge CH6	
Frequency(MHz)	2437
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	-2.631
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.575
SAR 10g(W/Kg)	0.222

802.11b top edge CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	-0.834
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.631
SAR 10g(W/Kg)	0.241

802.11g bottom flated CH6	
Frequency(MHz)	2437
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	-3.936
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.147
SAR 10g(W/Kg)	0.060

802.11n bottom flated (BW 20MHz) CH6	
Frequency(MHz)	2437
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	4.555
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.064
SAR 10g(W/Kg)	0.022

802.11n bottom flated (BW 40MHz) CH6	
Frequency(MHz)	2437
Relative permittivity(real part)	51.81
Conductivity(S/m)	1.92
Variation(%)	2.432
Duty Cycle Factor	1
Crest factor	1
Conversion Fator	3.6
Probe Sensitivity	1.20 1.20 1.20 μV/(V/m)2
Data	2011-04-12
	
SAR 1g(W/Kg)	0.131
SAR 10g(W/Kg)	0.051