

FCC SAR

TEST REPORT

of

MID

Model Name: M80VW
Trade Name: (n.a)
Report No.: SZ10080111S02
FCC ID: WED-M80VW

prepared for

Electronics Factory

NO.161,Xinmin Road, Tongluowei Industrial Zone,jinxia,changan Town,dongguan City
Guangdong province,china

Prepared by

Shenzhen Morlab Communications Technology Co., Ltd.

Morlab Laboratory

3/F, Electronic Testing Building, Shahe Road, Xili,
Nanshan District, Shenzhen, 518055 P. R. China

Tel: +86 755 86130398

Fax: +86 755 86130218



NOTE: This test report can be duplicated completely for the legal use with the approval of the applicant; it shall not be reproduced except in full, without the written approval of Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory. Any objections should be raised to us within thirty workdays since the date of issue.

Contents

1. GENERAL INFORMATION.....	4
1.1. Notes	4
1.2. Organization item.....	4
1.3. Conclusion.....	4
2. TESTING LABORATORY	5
2.1. Identification of the Responsible Testing Laboratory.....	5
2.2. Identification of the Responsible Testing Location	5
2.3. Accreditation Certificate	5
2.4. List of Test Equipments	5
3. TECHNICAL INFORMATION	6
3.1. Identification of Applicant.....	6
3.2. Identification of Manufacturer	6
3.3. Equipment Under Test (EUT)	6
3.3.1. Photographs of the EUT	7
3.3.2. Identification of all used EUTs	7
3.4. Applied Reference Documents	7
3.5. Device Category and SAR Limits	7
3.6. Test Environment/Conditions	8
4. SPECIFIC ABSORPTION RATE (SAR)	9
4.1 Introduction	9
4.2 SAR Definition.....	9
5. SAR MEASUREMENT SETUP	10
5.1. The Measurement System	10
5.2. Probe.....	11
5.3. Phantom	13
5.4. Device Holder	13
6. TISSUE SIMULATING LIQUIDS.....	14
7. UNCERTAINTY ASSESSMENT	15
7.1. UNCERTAINTY EVALUATION FOR HANDSET SAR TEST	15
7.2. UNCERTAINTY FOR SYSTEM PERFORMANCE CHECK	16

8. SAR MEASUREMENT EVALUATION	18
8.1. System Setup.....	18
8.2. Validation Results.....	18
9. OPERATIONAL CONDITIONS DURING TEST	19
9.1. Informations on the testing	19
9.2. Body-worn Configurations.....	20
9.3. Measurement procedure.....	20
9.4. Description of interpolation/extrapolation scheme	21
10. TEST RESULTS LIST	22
ANNEX A ACCREDITATION CERTIFICATE.....	24
ANNEX B PHOTOGRAPHS OF THE EUT.....	25
ANNEX C GRAPH TEST RESULTS	27

Change History		
Issue	Date	Reason for change
1.0	Oct. 29, 2010	First edition

1. General Information

1.1. Notes

The test results of this test report relate exclusively to the information specified in section 3.3. Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the identification. The test report may only be reproduced or published in full. Reproduction or publications of extracts from the test report requires the prior written approval of Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory. The test report shall be invalid without all the signatures of testing the Project Manager, the Deputy Project Manager and the Test Lab Manager. Any objections must be raised to Morlab within 30 days since the date when the report is received. It will not be taken into consideration beyond this limit.

1.2. Organization item

Report No.:	SZ10080111S02
Date of Issue:	Oct. 29, 2010
Date of Tests:	Oct. 25, 2010 – Oct. 25, 2010
Responsible for Accreditation:	Shu Luan
Project Manager:	Li Lei
Deputy Project Manager:	Samuel Peng

1.3. Conclusion

Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory has verified that all tests as listed in the section 10 of this report have been performed successfully with the tested equipment.

 Samuel Peng Tested by (Responsible for the Test Report)		 Li Lei Reviewed by (Verification of the Test Report)
 Shu Luan Approved by (Responsible Test Lab Manager)		

2. Testing Laboratory

2.1. Identification of the Responsible Testing Laboratory

Company Name: Shenzhen Morlab Communications Technology Co., Ltd.
Department: Morlab Laboratory
Address: 3/F, Electronic Testing Building, Shahe Road, Nanshan District, Shenzhen, 518055 P. R. China
Responsible Test Lab Manager: Mr. Shu Luan
Telephone: +86 755 86130268
Facsimile: +86 755 86130218

2.2. Identification of the Responsible Testing Location

Name: Shenzhen Morlab Communications Technology Co., Ltd.
Morlab Laboratory
Address: 3/F, Electronic Testing Building, Shahe Road, Nanshan District, Shenzhen, 518055 P. R. China

2.3. Accreditation Certificate

Accredited Testing Laboratory: No. CNAS L3572 (see Annex A)

2.4. List of Test Equipments

No.	Instrument	Type	Cal. Date	Cal. Due
1	PC	Dell (Pentium IV 2.4GHz, SN:X10-23533)	(n.a)	(n.a)
2	Network Emulator	Rohde&Schwarz (CMU200, SN:105894)	2010-9-26	1year
3	Voltmeter	Keithley (2000, SN:1000572)	2010-9-24	1year
4	Synthesizer	Rohde&Schwarz (SML_03, SN:101868)	2010-9-24	1year
5	Amplifier	Nucl udes (ALB216, SN:10800)	2010-9-24	1year
6	Power Meter	Rohde&Schwarz (NRVD, SN:101066)	2010-9-24	1year
7	Probe	Antennessa (SN:SN_3708_EP80)	2010-9-24	1year
8	Phantom	Antennessa (SN:SN_36_08_SAM62)	2010-9-24	1year
9	Liquid	Antennessa (Last Calibration:21 08 08)	2010-8-21	1year

3. Technical Information

Note: the following data is based on the information by the applicant.

3.1. Identification of Applicant

Company Name: Electronics Factory
Address: NO.161,Xinmin Road , Tongluowei Industrial Zone,jinxia,changan
Town,dongguan City Guangdong province,china

3.2. Identification of Manufacturer

Company Name: Electronics Factory
Address: NO.161,Xinmin Road,Tongluowei Industrial Zone,jinxia,changan
Town,dongguan City Guangdong province,china

3.3. Equipment Under Test (EUT)

Brand Name: (n.a)
Type Name: (n.a)
Marking Name: M80VW
Hardware Version: 1.5
Software Version: 2.6.25
Frequency Bands: WIFI 802.11 b/g
Modulation Type: GMSK, DSSS
Data Rate: 802.11b: 11/ 5.5/ 2/ 1Mbps
802.11g: 54/ 48/ 36/ 24/ 18/ 12/ 9/ 6Mbps
Antenna type: Fixed Internal Antenna
Development Stage: Identical prototype
Battery Model: GSP0850110HT
Battery specification: 3900mAh 3.7V

3.3.1. Photographs of the EUT

Please see for photographs of the EUT.

3.3.2. Identification of all used EUTs

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	1.5	2.6.25

3.4. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR § 2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
2	FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
3	ANSI C95.1-1999	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz
4	IEEE 1528-2003	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.

3.5. 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.

3.6. Test Environment/Conditions

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa
Details of Power Supply:	220V/50Hz AC
Extreme Temperature:	Low Temperature (LT) = -10°C
	High Temperature (HT) = 55°C
	Normal Voltage (NV) = 3.70V
Extreme Voltage of the EUT:	Low Voltage (LV) = 3.60V
	High Voltage (HV) = 4.20V

Test frequency: 802.11 b/g

Test tool is Art provided by client. It can control EUT to transmit continuously at specific channel, output power level, data rates and 100 % duty signal.

Comparing output power of all modulations and data rates of each mode can find the lowest data rates has max output power. Therefore, EUT will set under lowest data rates to test.

4. Specific Absorption Rate (SAR)

4.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

4.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density. ρ). The equation description is as below:

$$\text{SAR} = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dv} \right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$\text{SAR} = C \frac{\delta T}{\delta t}$$

, where C is the specific heat capacity, δT is the temperature rise and δt the exposure duration, or related to the electrical field in the tissue by

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

, where σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the rms electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

5. SAR Measurement Setup

5.1. The Measurement System

Comosar is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The Comosar system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.



The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The OpenSAR software computes the results to give a SAR value in a 1g or 10g mass.

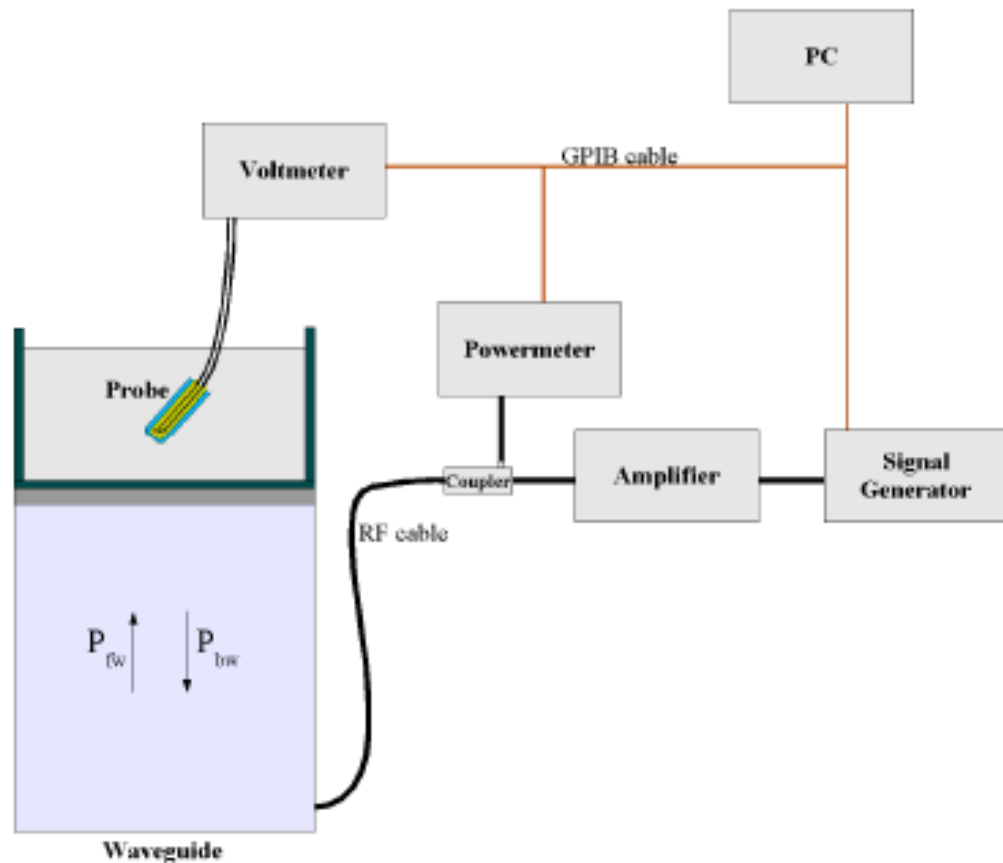
5.2. Probe

For the measurements the Specific Dosimetric E-Field Probe SSE5 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Tip Diameter : 5 mm
- Distance between probe tip and sensor center: 2.5mm
- Distance between sensor center and the inner phantom surface: 4 mm
(repeatability better than +/- 1mm)
- Probe linearity: <0.25 dB
- Axial Isotropy: <0.25 dB
- Spherical Isotropy: <0.25 dB
- Calibration range: 835to 2500MHz for head & body simulating liquid.

Angle between probe axis (evaluation axis) and surface normal line: less than 30°

Probe calibration is realized, in compliance with CENELEC EN 62209 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN 62209 annexe technique using reference guide at the five frequencies.



$$SAR = \frac{4(P_{fw} - P_{bw})}{ab\delta} \cos^2\left(\pi \frac{y}{a}\right) e^{-(2z/\delta)}$$

Where :

P_{fw} = Forward Power

P_{bw} = Backward Power

a and b = Waveguide dimensions

δ = Skin depth

Keithley configuration:

Rate = Medium; Filter =ON; RDGS=10; FILTER TYPE =MOVING AVERAGE; RANGE AUTO

After each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

The calibration factors, CF(N), for the 3 sensors corresponding to dipole 1, dipole 2 and dipole 3 are:

$$CF(N) = SAR(N)/V_{lin}(N) \quad (N=1,2,3)$$

The linearised output voltage V_{lin}(N) is obtained from the displayed output voltage V(N) using

$$V_{lin}(N) = V(N) * (1 + V(N)/DCP(N)) \quad (N=1,2,3)$$

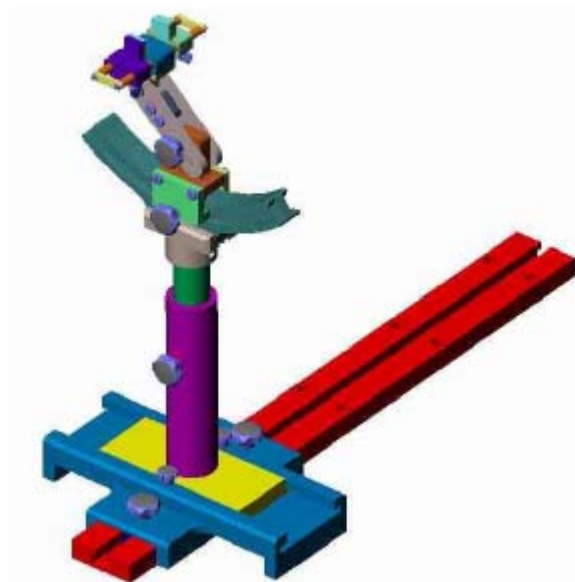
where DCP is the diode compression point in mV.

5.3. Phantom

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.

5.4. Device Holder

The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than 1°.



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

6. Tissue Simulating Liquids

Simulant liquids that are used for testing at frequencies of 2450MHz, which are made mainly of sugar, salt and water solutions may be left in the phantoms. Approximately 20litres are needed for an upright head compared to about 20litres for a horizontal bath phantom.

Recipes for Tissue Simulating Liquid

Ingredients (% by weight)	Frequency Band 2450MHz
Tissue Type	Body
Water	52.4
Salt(NaCl)	1.4
Sugar	45.0
HEC	1.0
Bactericide	0.1
Triton	0.0
DGBE	0.0
Acticide SPX	0.0
Dielectric Constant	52.7
Conductivity (S/m)	1.95

Recipes for Tissue Simulating Liquid

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an Agilent 85033E Dielectric Probe Kit and an Agilent Network Analyzer.

Table 1: Dielectric Performance of Body Tissue Simulating Liquid

Temperature: 22.0~23.8°C, humidity: 54~60%.			
/	Frequency	Permittivity ϵ	Conductivity σ (S/m)
Target value	2450 MHz	52.7	1.95
Validation value (Oct. 25)	2450 MHz	51.562264	1.915574

7. Uncertainty Assessment

The following table includes the uncertainty table of the IEEE 1528. The values are determined by Antennessa.

7.1. UNCERTAINTY EVALUATION FOR HANDSET SAR TEST

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	V i
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	
Axial Isotropy	E.2.2	2.5	R				1.02	1.02	
Hemispherical Isotropy	E.2.2	4.0	R				1.63	1.63	
Boundary effect	E.2.3	1.0	R		1	1	0.58	0.58	
Linearity	E.2.4	5.0	R		1	1	2.89	2.89	
System detection limits	E.2.5	1.0	R		1	1	0.58	0.58	
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	
Reponse Time	E.2.7	3.0	R		1	1	1.73	1.73	
Integration Time	E.2.8	2.0	R		1	1	1.15	1.15	
RF ambient Conditions	E.6.1	3.0	R		1	1	1.73	1.73	
Probe positioner Mechanical Tolerance	E.6.2	2.0	R		1	1	1.15	1.15	
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R		1	1	0.03	0.03	
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	E.5.2	5.0	R		1	1	2.89	2.89	
Test sample Related									
Test sample positioning	E.4.2.1	0.03	N	1	1	1	0.03	0.03	N - 1
Device Holder Uncertainty	E.4.1.1	5.00	N	1	1	1	5.00	5.00	
Output power Variation - SAR drift measurement	6.6.2	4.04	R		1	1	2.33	2.33	
Phantom and Tissue Parameters									

Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R		1	1	0.03	0.03	
Liquid conductivity - deviation from target value	E.3.2	4.57	R		0.64	0.43	1.69	1.13	
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	M
Liquid permittivity - deviation from target value	E.3.2	3.69	R		0.6	0.49	1.28	1.04	
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M
Combined Standard Uncertainty			RSS				11.23	10.70	
Expanded Uncertainty (95% Confidence interval)			k				21.91	20.86	

7.2. UNCERTAINTY FOR SYSTEM PERFORMANCE CHECK

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	V i
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	
Axial Isotropy	E.2.2	2.5	R				1.02	1.02	
Hemispherical Isotropy	E.2.2	4.0	R				1.63	1.63	
Boundary effect	E.2.3	1.0	R		1	1	0.58	0.58	
Linearity	E.2.4	5.0	R		1	1	2.89	2.89	
System detection limits	E.2.5	1.0	R		1	1	0.58	0.58	
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	
Reponse Time	E.2.7	3.0	R		1	1	1.73	1.73	
Integration Time	E.2.8	2.0	R		1	1	1.15	1.15	
RF ambient Conditions	E.6.1	3.0	R		1	1	1.73	1.73	
Probe positioner Mechanical Tolerance	E.6.2	2.0	R		1	1	1.15	1.15	
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R		1	1	0.03	0.03	
Extrapolation, interpolation and integration Algorithms for Max.	E.5.2	5.0	R		1	1	2.89	2.89	

SAR Evaluation									
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N		1	1	0.58	0.58	N - 1
Input power and SAR drift measurement	8,6.6.2	4.04	R		1	1	2.33	2.33	
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R		1	1	0.03	0.03	
Liquid conductivity - deviation from target value	E.3.2	4.57	R		0.64	0.43	1.69	1.13	
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	M
Liquid permittivity - deviation from target value	E.3.2	3.69	R		0.6	0.49	1.28	1.04	
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M
Combined Standard Uncertainty			RSS				10.08	9.47	
Expanded Uncertainty (95% Confidence interval)			k				19.65	18.47	

8. SAR Measurement Evaluation

8.1. System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave which comes from a signal generator at frequency 2450MHz. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom.

Equipments :

name	Type and specification
Signal generator	E4433B
Directional coupler	450MHz-3GHz
Amplifier	3W 502(10-2500MHz)
Reference dipole	2450MHz: SN 36/08 DIPJ103

8.2. Validation Results

Comparing to the original SAR value provided by SPEAG, the validation data should be within its specification of 10 %.

Frequency	2450 MHz
Target value (1g)	52.4 W/Kg
250 mW input power	12.9 W/Kg
Test value (1g)	51.6 W/Kg

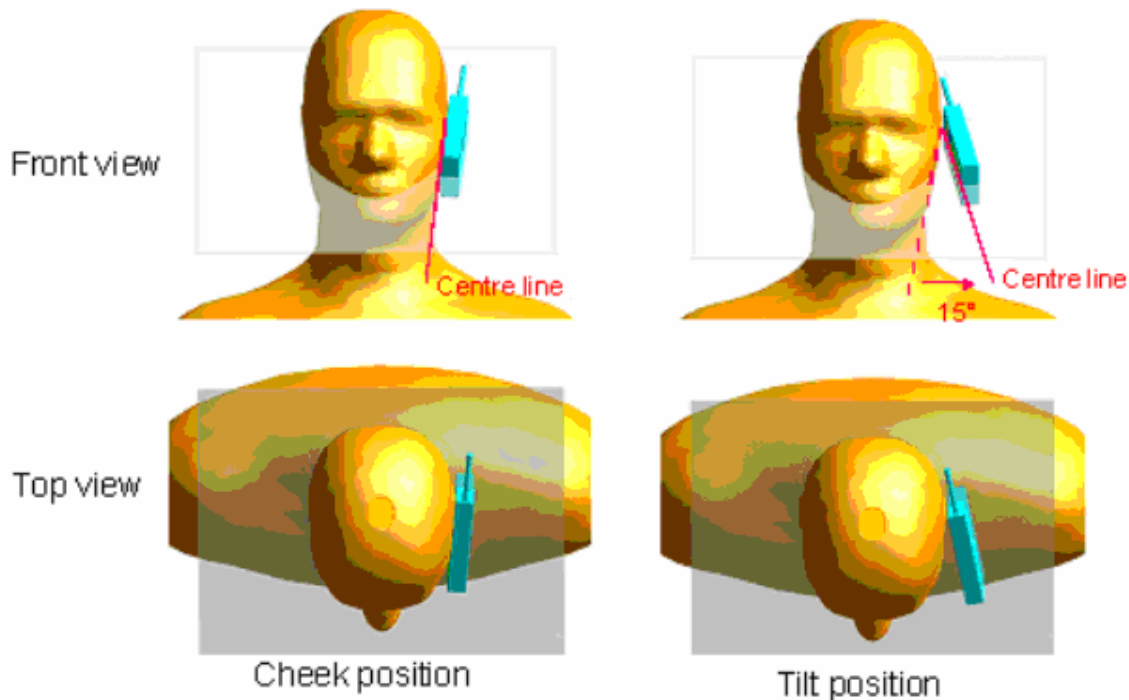
Note: System checks the specific test data please see page 148-153

9. Operational Conditions During Test

9.1. Informations on the testing

The mobile phone antenna and battery are those specified by the manufacturer. The battery is fully charged before each measurement. The output power and frequency are controlled using a base station simulator. The mobile phone is set to transmit at its highest output peak power level.

The mobile phone is test in the “cheek” and “tilted” positions on the left and right sides of the phantom. The mobile phone is placed with the vertical centre line of the body of the mobile phone and the horizontal line crossing the centre of the earpiece in a plane parallel to the sagittal plane of the phantom.



Description of the “cheek” position:

The mobile phone is well placed in the reference plane and the earpiece is in contact with the ear. Then the mobile phone is moved until any point on the front side get in contact with the cheek of the phantom or until contact with the ear is lost.

Description of the “tilted” position:

The mobile phone is well placed in the “cheek” position as described above. Then the mobile phone is moved outward away from the month by an angle of 15 degrees or until contact with the ear lost.

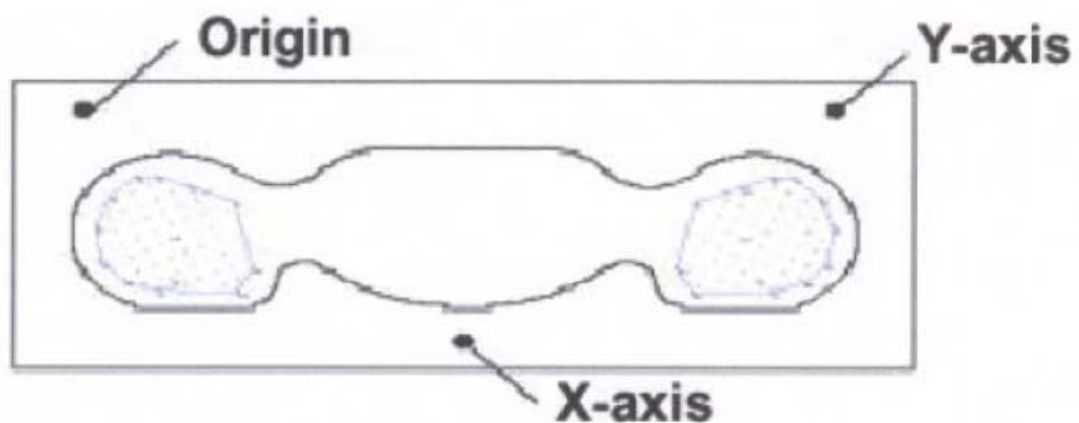
Remark: Please refer to Appendix B for the test setup photos.

9.2. Body-worn Configurations

The body-worn configurations shall be tested with the supplied accessories (belt-clips, holsters, etc.) attached to the device in normal use configuration.

The depth of the body tissue was 15.1cm. The distance between the back of the device and the bottom of the flat phantom is 0cm(taking into account of the IEEE 1528 and the place of the antenna)

For body-worn and other configurations a flat phantom shall be used which is comprised of material with electrical properties similar to the corresponding tissues.



SAR Measurement Points in Area Scan

9.3. Measurement procedure

The following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors can not directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

9.4. Description of interpolation/extrapolation scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

10. Test Results List

Summary of Measurement Results (WIFI 802.11b)

SAR Values (WIFI 802.11b), Measured against the body.

Temperature: 23.0~23.8°C, humidity: 54~60%.		
Limit of SAR (W/kg)	1 g Peak	
	1.6	
Test Case	Measurement Result (W/kg)	
	1g Average (W/kg)	Power level (dBm)
Validation Plane with Body device position on Channel Middle Data Rate 1 (Horizontal-Up)	0.172	10.65
Validation Plane with Body device position on Channel Middle Data Rate 1 (Horizontal-Down)	0.237	10.65
Validation Plane with Body device position on Channel Middle Data Rate 2 (Horizontal-Down)	0.226	10.65
Validation Plane with Body device position on Channel Middle Data Rate 5.5 (Horizontal-Down)	0.211	10.65
Validation Plane with Body device position on Channel Middle Data Rate 11 (Horizontal-Down)	0.206	10.65
Validation Plane with Body device position on Channel Low Data Rate 1 (Horizontal-Down)	0.234	12.67
Validation Plane with Body device position on Channel High Data Rate 1 (Horizontal-Down)	0.246	10.25

Summary of Measurement Results (WIFI 802.11g)

SAR Values (WIFI 802.11g), Measured against the body.

Temperature: 23.0~23.8°C, humidity: 54~60%.		
Limit of SAR (W/kg)	1 g Peak	
	1.6	
Test Case	Measurement Result (W/kg)	
	1g Average (W/kg)	Power level (dBm)
Validation Plane with Body device position on Channel Middle Data Rate 6 (Horizontal-Up)	0.212	7.12
Validation Plane with Body device position on Channel Middle Data Rate 6 (Horizontal-Down)	0.266	7.12
Validation Plane with Body device position on Channel Middle Data Rate 9 (Horizontal-Down)	0.253	7.12
Validation Plane with Body device position on Channel	0.248	7.12

Middle Data Rate 12 (Horizontal-Down)		
Validation Plane with Body device position on Channel Middle Data Rate 18 (Horizontal-Down)	0.236	7.12
Validation Plane with Body device position on Channel Middle Data Rate 24 (Horizontal-Down)	0.224	7.12
Validation Plane with Body device position on Channel Middle Data Rate 36 (Horizontal-Down)	0.216	7.12
Validation Plane with Body device position on Channel Middle Data Rate 48 (Horizontal-Down)	0.201	7.12
Validation Plane with Body device position on Channel Middle Data Rate 54 (Horizontal-Down)	0.189	7.12
Validation Plane with Body device position on Channel Low Data Rate 6 (Horizontal-Down)	0.253	8.07
Validation Plane with Body device position on Channel High Data Rate 6 (Horizontal-Down)	0.272	6.81

Annex A Accreditation Certificate

Annex B Photographs of the EUT

1 EUT Horizontal-Up



2 EUT Horizontal-Down



Liquid Level Photo



Annex C Graph Test Results

<u>TYPE</u>	<u>BAND</u>	<u>PARAMETERS</u>
	<u>802.11 b</u>	<u>Measurement 1:</u> Validation Plane with Body device position on Data Rate 1 (Horizontal-Up) <u>Measurement 2:</u> Validation Plane with Body device position on Data Rate 1 (Horizontal-Down) <u>Measurement 3:</u> Validation Plane with Body device position on Data Rate 2 (Horizontal-Down) <u>Measurement 4:</u> Validation Plane with Body device position on Data Rate 5.5 (Horizontal-Down) <u>Measurement 5:</u> Validation Plane with Body device position on Data Rate 11 (Horizontal-Down) <u>Measurement 6:</u> Validation Plane with Body device position on Data Rate 1 (Horizontal-Down) <u>Measurement 7:</u> Validation Plane with Body device position on Data Rate 1 (Horizontal-Down)
	<u>802.11 g</u>	<u>Measurement 8:</u> Validation Plane with Body device position on Data Rate 6 (Horizontal-Up) <u>Measurement 9:</u> Validation Plane with Body device position on Data Rate 6 (Horizontal-Down) <u>Measurement 10:</u> Validation Plane with Body device position on Data Rate 9 (Horizontal-Down) <u>Measurement 11:</u> Validation Plane with Body device position on Data Rate 12 (Horizontal-Down) <u>Measurement 12:</u> Validation Plane with Body device position on Data Rate 18 (Horizontal-Down) <u>Measurement 13:</u> Validation Plane with Body device position on Data Rate 24 (Horizontal-Down) <u>Measurement 14:</u> Validation Plane with Body device position on Data Rate 36 (Horizontal-Down) <u>Measurement 15:</u> Validation Plane with Body device position on Data Rate 48 (Horizontal-Down) <u>Measurement 16:</u> Validation Plane with Body device position on Data Rate 54 (Horizontal-Down) <u>Measurement 17:</u> Validation Plane with Body device position on Data Rate 6 (Horizontal-Down) <u>Measurement 18:</u> Validation Plane with Body device position on Data Rate 6 (Horizontal-Down)

MEASUREMENT 1

Type: Phone measurement (Complete)

Area scan resolution: $dx=8\text{mm}, dy=8\text{mm}$

Zoom scan resolution: $dx=5\text{mm}, dy=5\text{mm}, dz=5\text{mm}$

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 8 seconds

A. Experimental conditions.

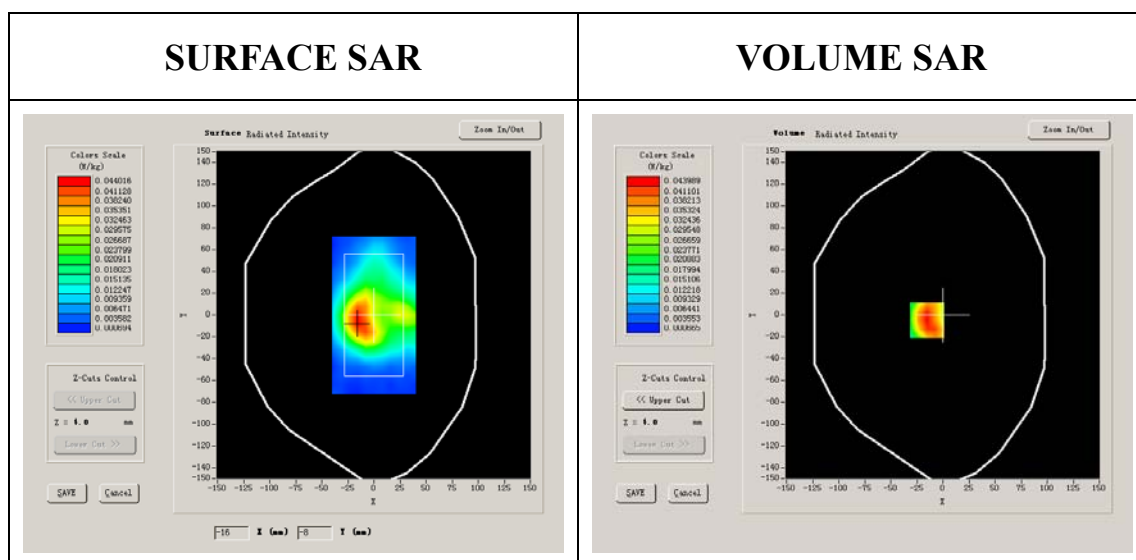
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 b
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	12.000000

Conductivity (S/m)	1.720014
Variation (%)	1.360000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.3°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



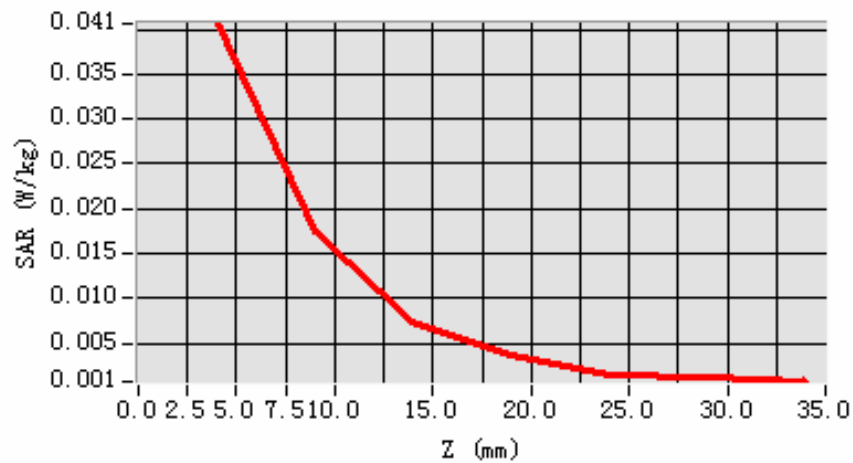
Maximum location: X=-15.00, Y=-5.00

SAR 10g (W/Kg)	0.094734
SAR 1g (W/Kg)	0.172623

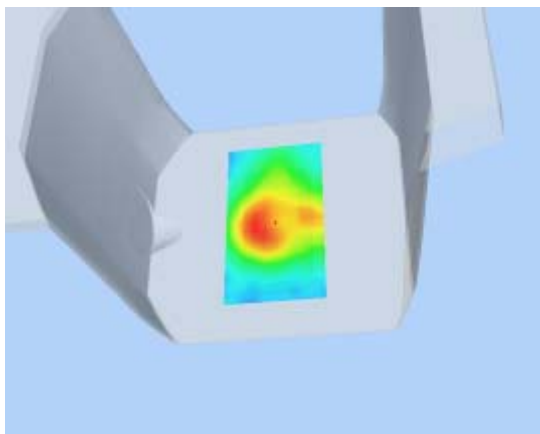
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4274	0.2715	0.1650	0.1015	0.0665	0.0425

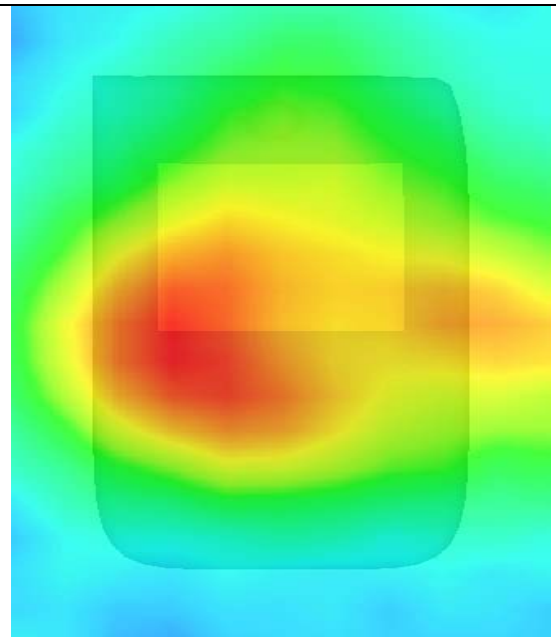
SAR, Z Axis Scan (X = -15, Y = -5)



3D scene shot



Hot spot position



MEASUREMENT 2

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 9 seconds

A. Experimental conditions.

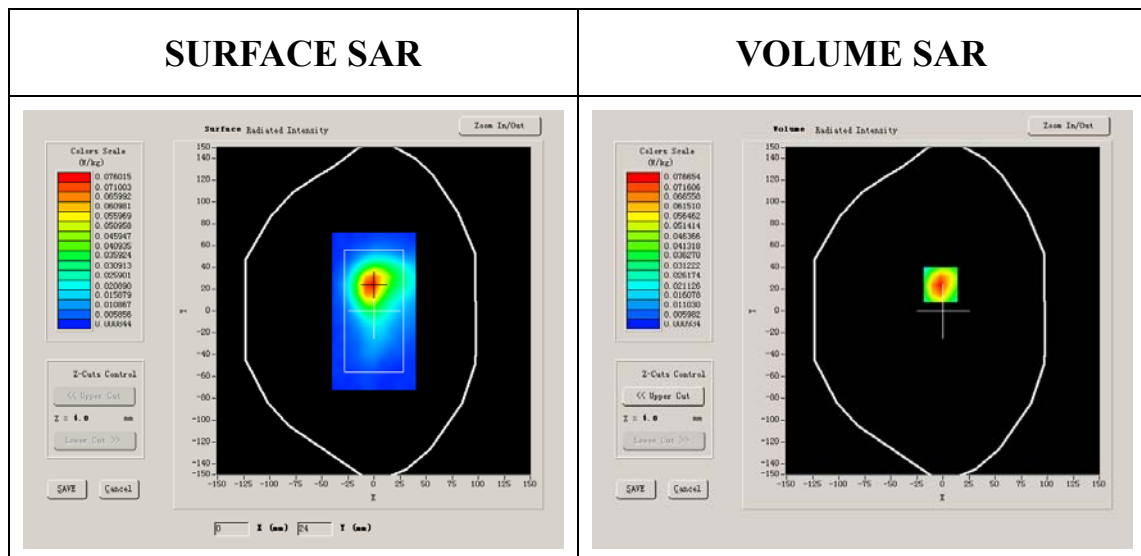
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 b
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	12.000000

Conductivity (S/m)	1.720014
Variation (%)	-3.940000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.3°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



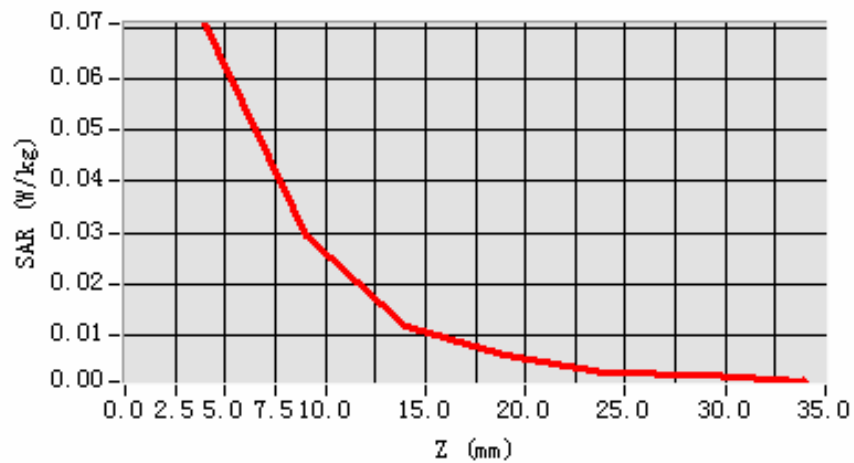
Maximum location: X=-2.00, Y=24.00

SAR 10g (W/Kg)	0.126383
SAR 1g (W/Kg)	0.237245

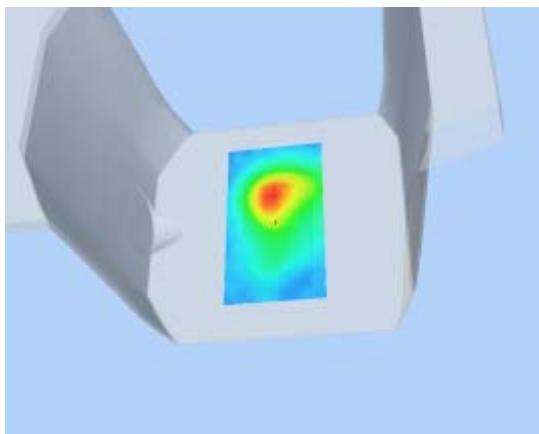
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3461	0.2328	0.1506	0.0969	0.0654	0.0436

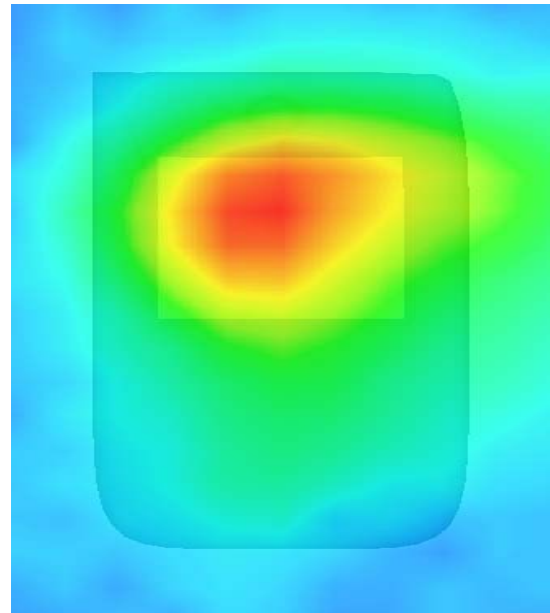
SAR, Z Axis Scan (X = -2, Y = 24)



3D scene shot



Hot spot position



MEASUREMENT 3

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 8 seconds

A. Experimental conditions.

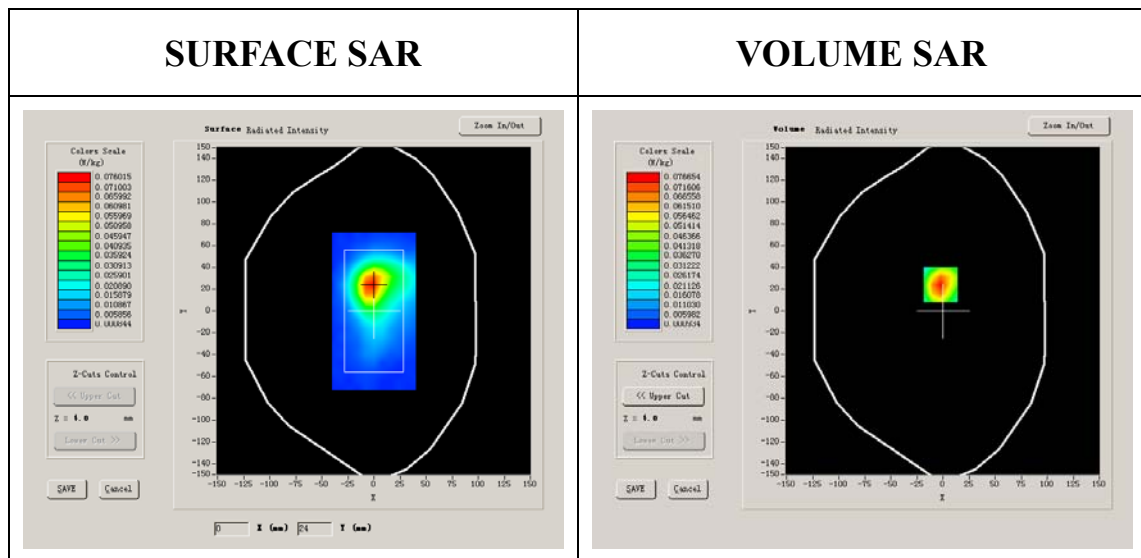
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 b
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	12.000000

Conductivity (S/m)	1.720014
Variation (%)	1.360000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.3°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



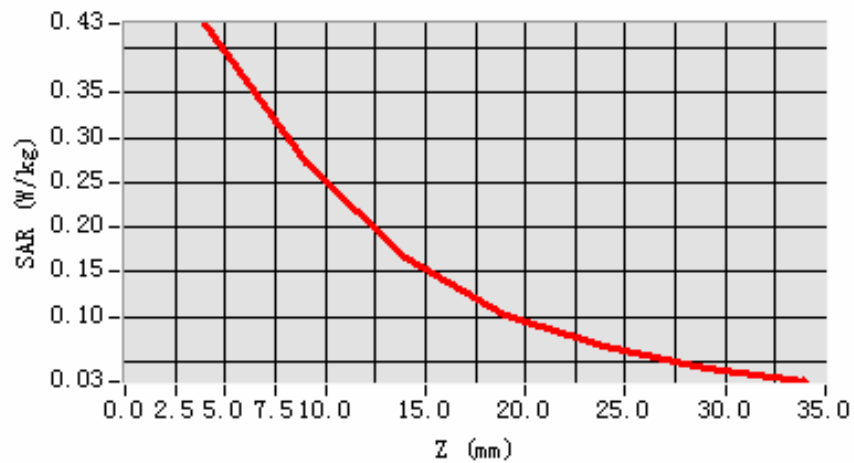
Maximum location: X=-3.00, Y=21.00

SAR 10g (W/Kg)	0.114533
SAR 1g (W/Kg)	0.226247

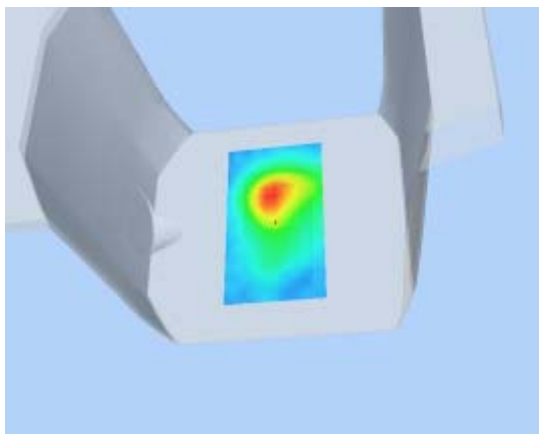
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4274	0.2715	0.1650	0.1015	0.0665	0.0425

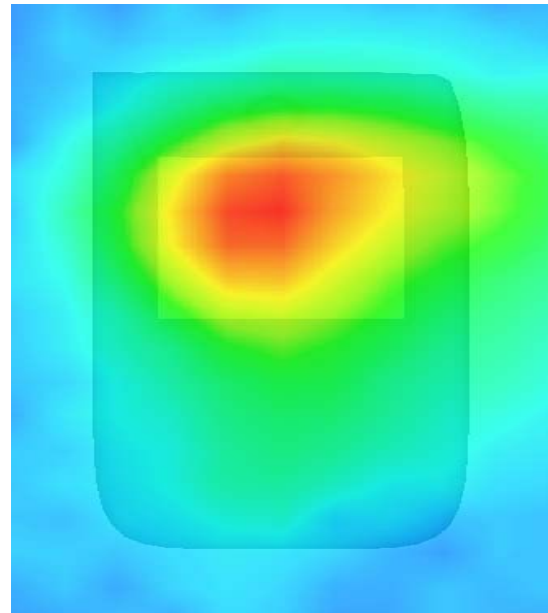
SAR, Z Axis Scan (X = -3, Y = 21)



3D scene shot



Hot spot position



MEASUREMENT 4

Type: Phone measurement (Complete)

Area scan resolution: $dx=8\text{mm}, dy=8\text{mm}$

Zoom scan resolution: $dx=5\text{mm}, dy=5\text{mm}, dz=5\text{mm}$

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 8 seconds

A. Experimental conditions.

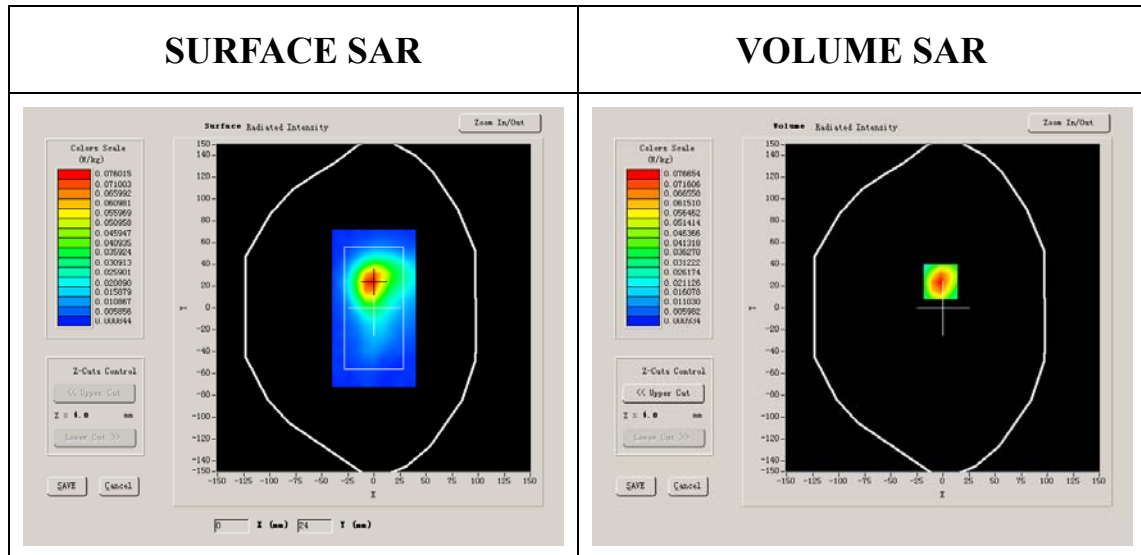
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 b
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	12.000000

Conductivity (S/m)	1.720014
Variation (%)	1.360000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.3°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



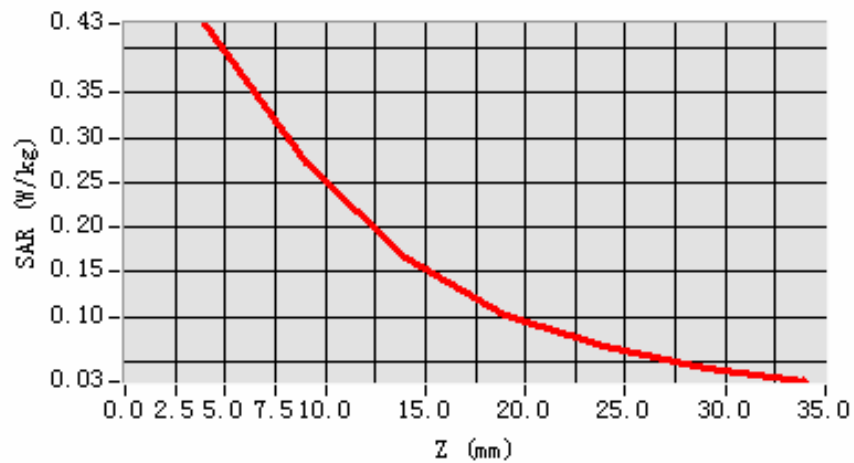
Maximum location: X=-3.00, Y=21.00

SAR 10g (W/Kg)	0.111845
SAR 1g (W/Kg)	0.211624

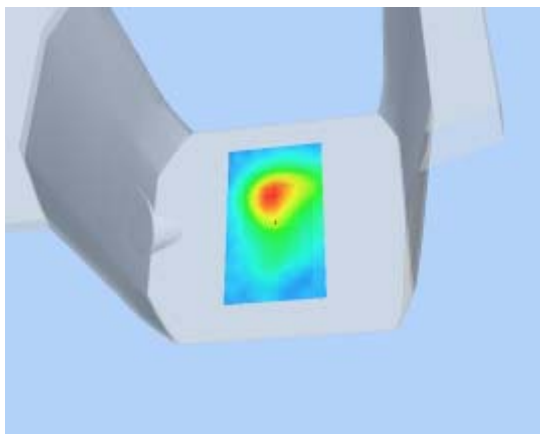
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4274	0.2715	0.1650	0.1015	0.0665	0.0425

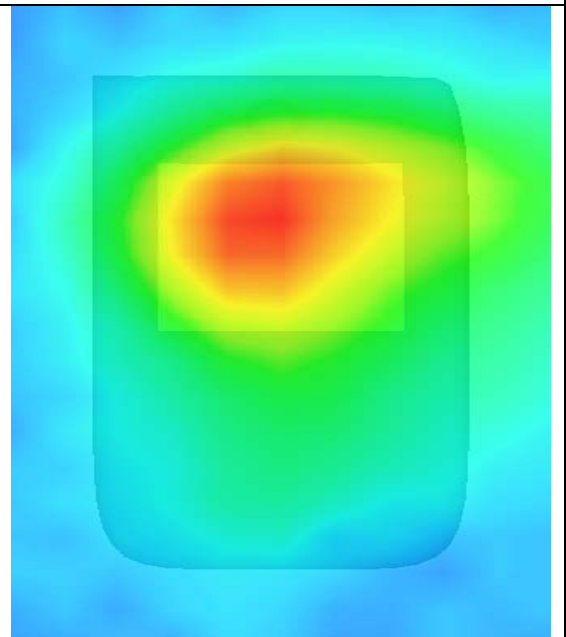
SAR, Z Axis Scan (X = -3, Y = 21)



3D scene shot



Hot spot position



MEASUREMENT 5

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 8 seconds

A. Experimental conditions.

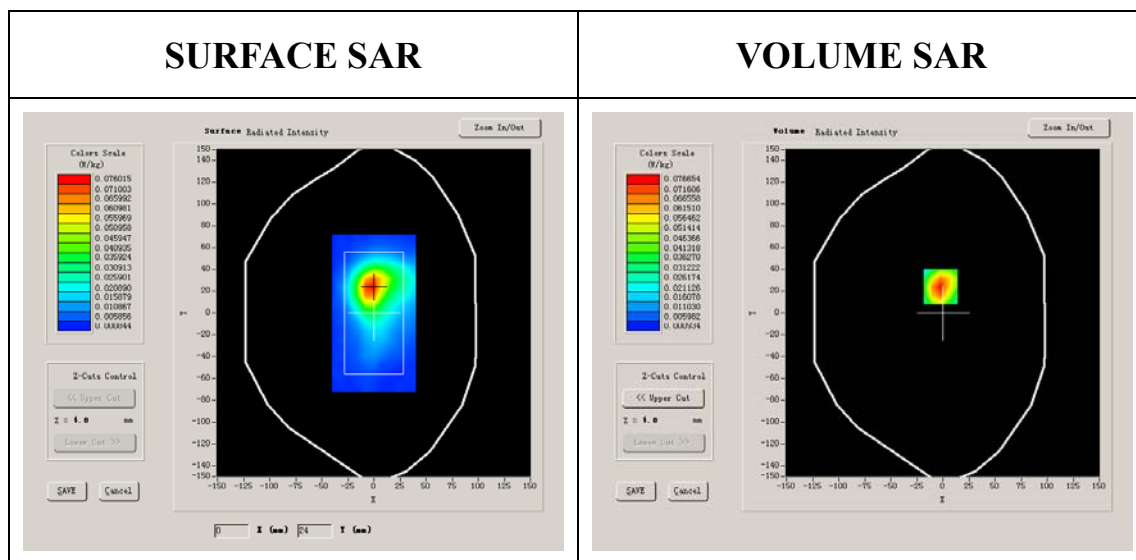
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 b
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	12.000000

Conductivity (S/m)	1.720014
Variation (%)	1.360000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.3°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



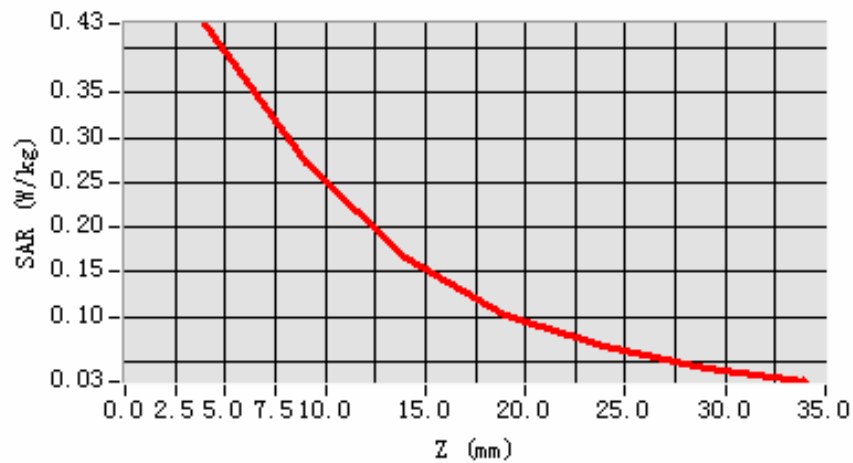
Maximum location: X=-3.00, Y=21.00

SAR 10g (W/Kg)	0.106265
SAR 1g (W/Kg)	0.206166

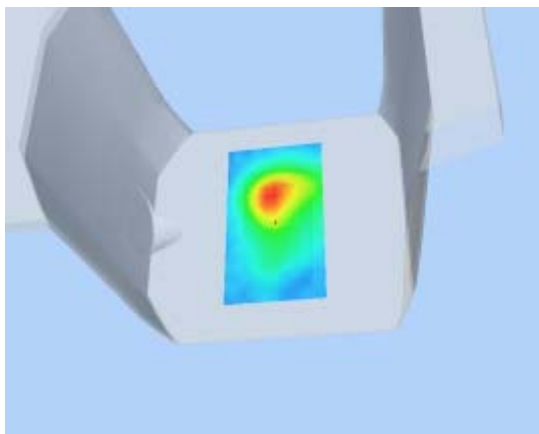
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4274	0.2715	0.1650	0.1015	0.0665	0.0425

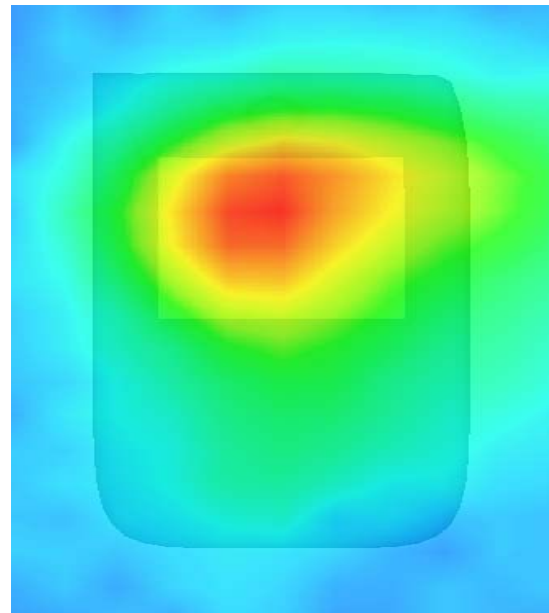
SAR, Z Axis Scan (X = -3, Y = 21)



3D scene shot



Hot spot position



MEASUREMENT 6

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 11/5/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

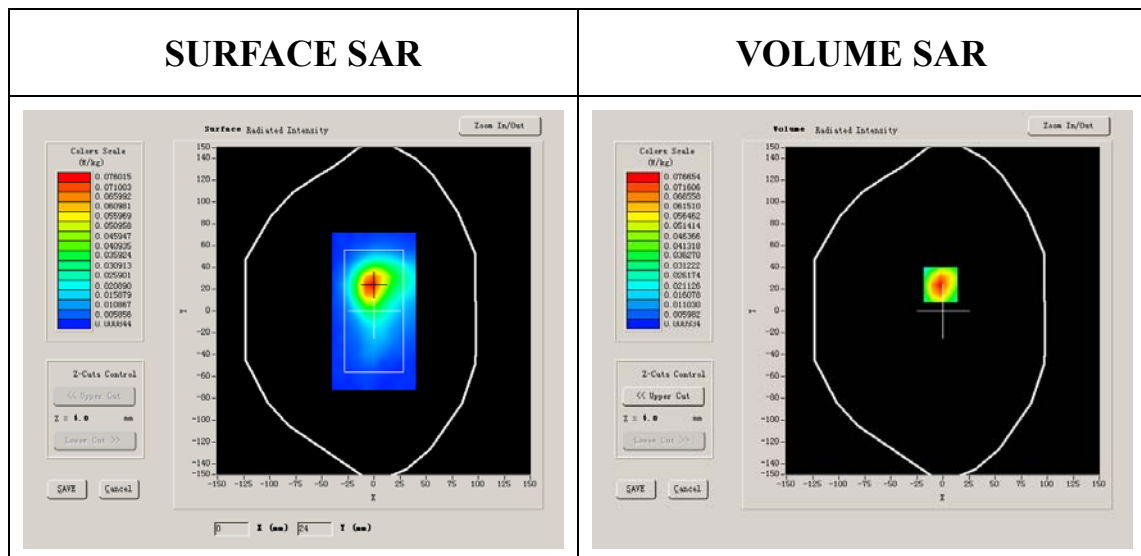
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 b
Channels	Low
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2412.000000
Relative permittivity (real part)	39.548876
Relative permittivity	12.000000

Conductivity (S/m)	1.720014
Variation (%)	-0.790000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.3°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



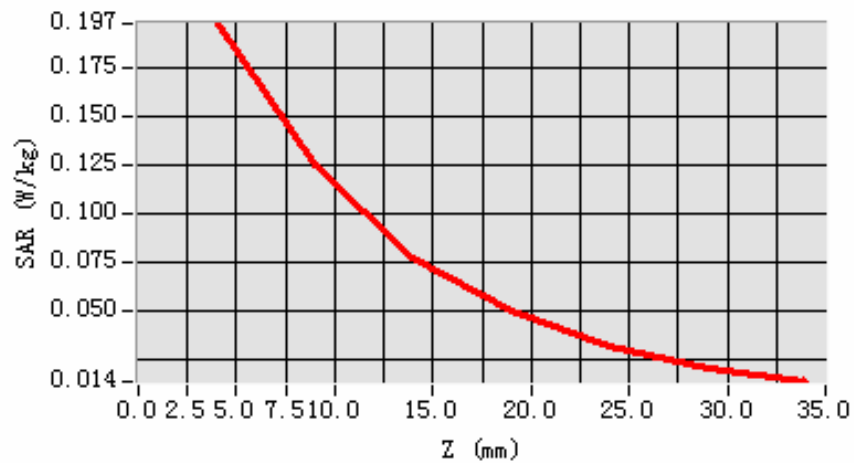
Maximum location: X=3.00, Y=10.00

SAR 10g (W/Kg)	0.121734
SAR 1g (W/Kg)	0.234162

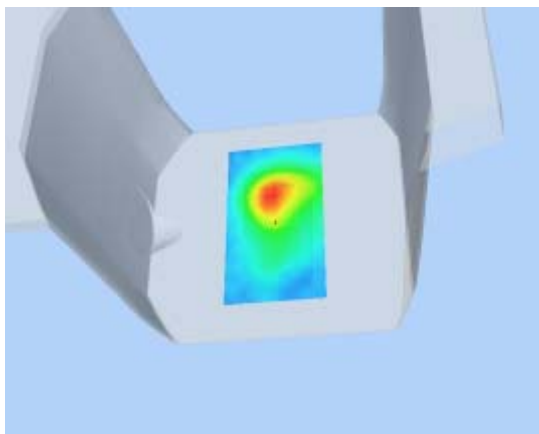
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1970	0.1248	0.0779	0.0503	0.0327	0.0208

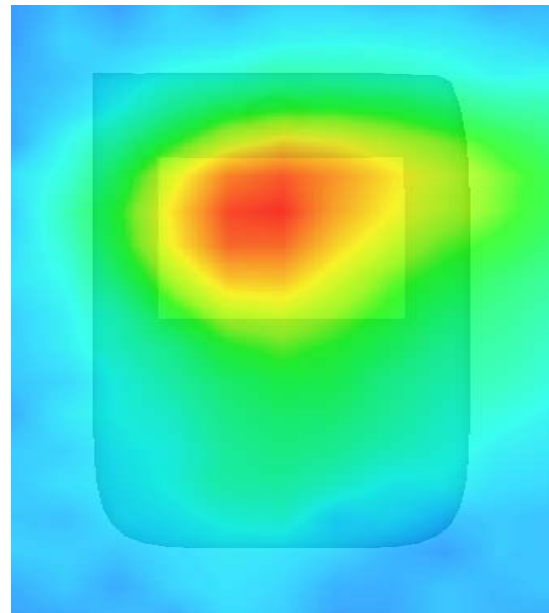
SAR, Z Axis Scan (X = 3, Y = 10)



3D scene shot



Hot spot position



MEASUREMENT 7

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 11/5/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

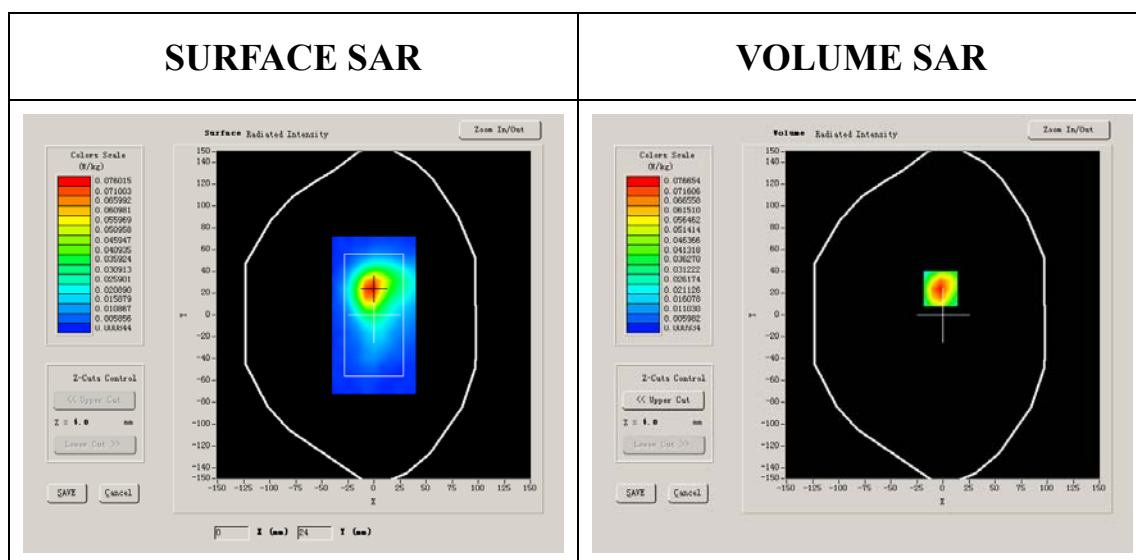
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 b
Channels	High
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2462.000000
Relative permittivity (real part)	39.548876
Relative permittivity	12.000000

Conductivity (S/m)	1.720014
Variation (%)	-0.790000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.3°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



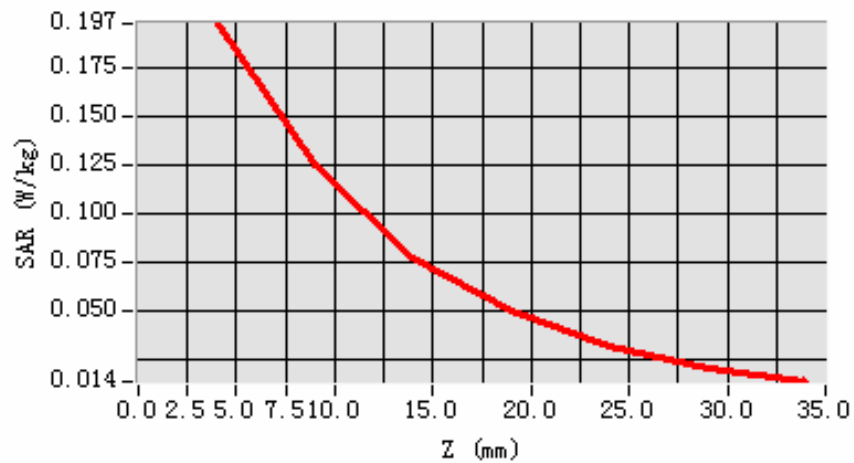
Maximum location: X=3.00, Y=10.00

SAR 10g (W/Kg)	0.131734
SAR 1g (W/Kg)	0.246245

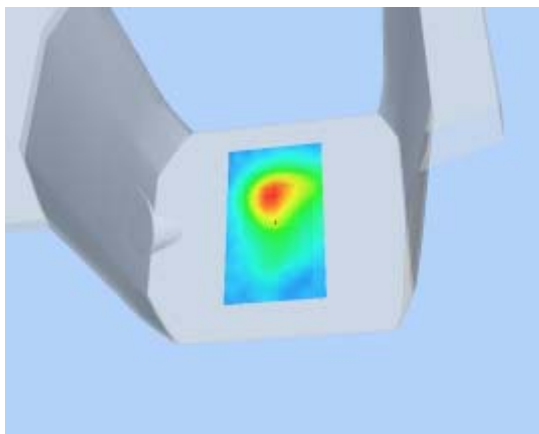
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1970	0.1248	0.0779	0.0503	0.0327	0.0208

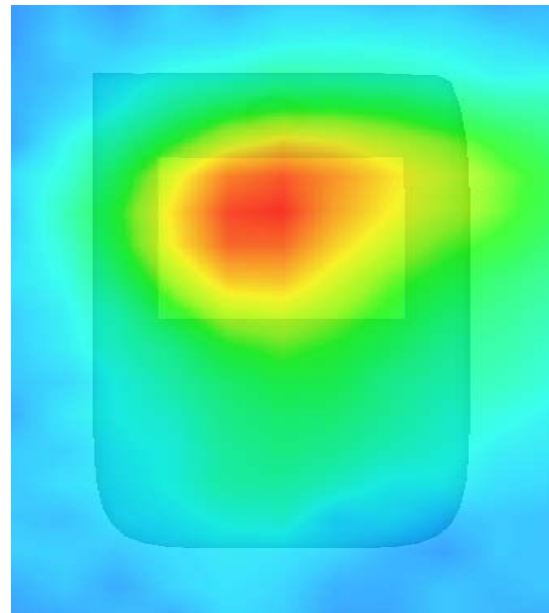
SAR, Z Axis Scan (X = 3, Y = 10)



3D scene shot



Hot spot position



MEASUREMENT 8

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

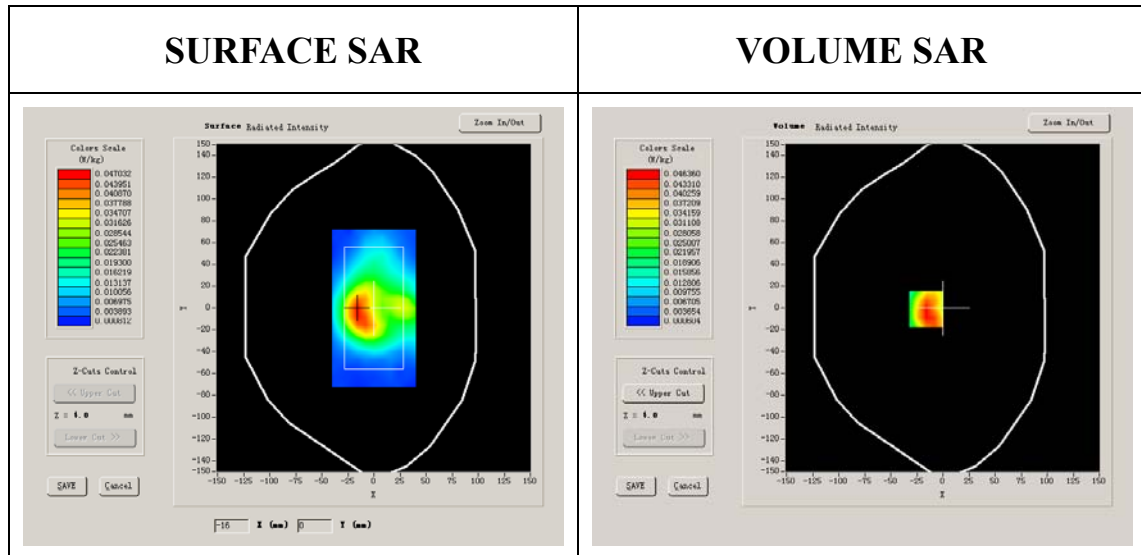
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-1.510000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



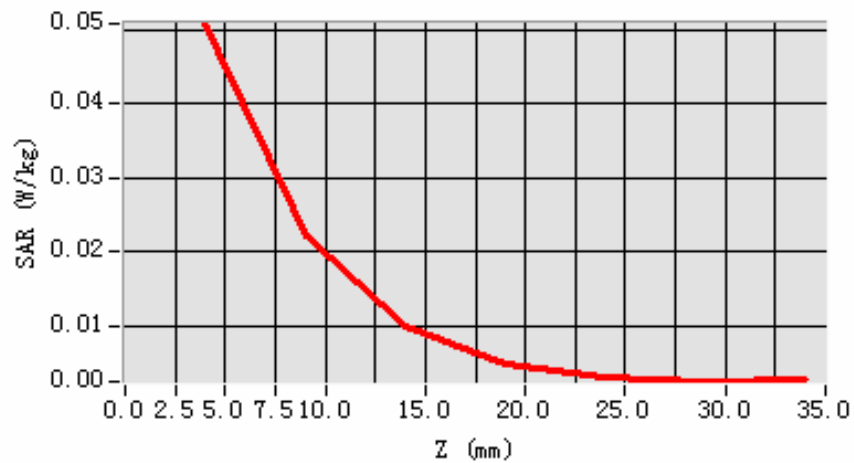
Maximum location: X=-16.00, Y=-1.00

SAR 10g (W/Kg)	0.127345
SAR 1g (W/Kg)	0.212415

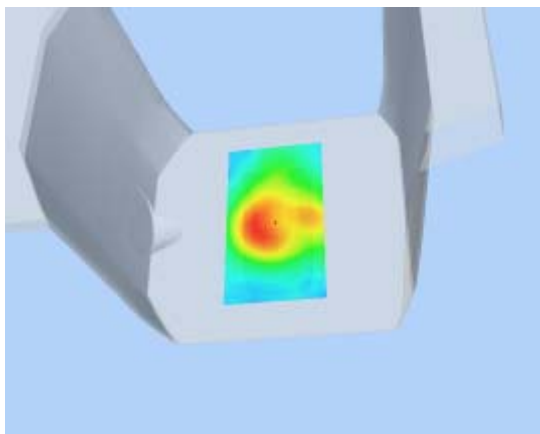
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3149	0.1901	0.1178	0.0726	0.0447	0.0291

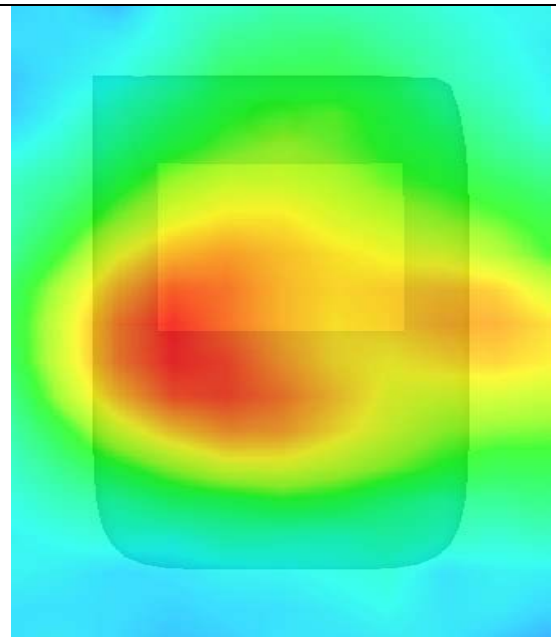
SAR, Z Axis Scan (X = -16, Y = -1)



3D scene shot



Hot spot position



MEASUREMENT 9

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

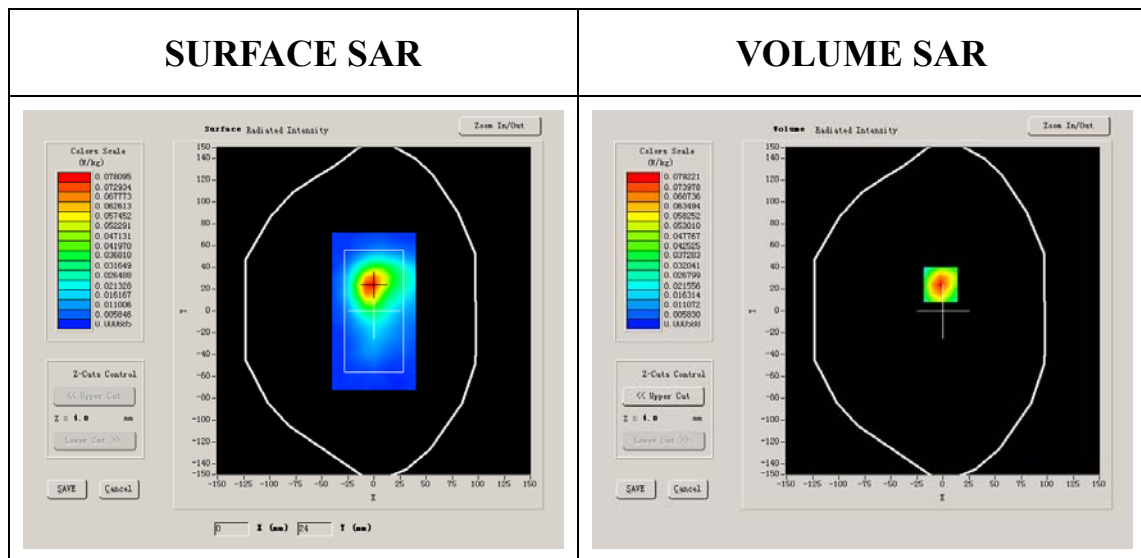
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



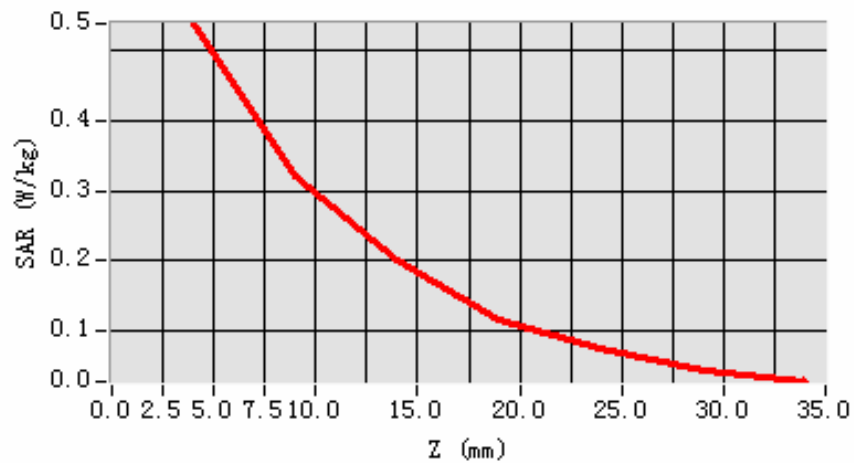
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.138445
SAR 1g (W/Kg)	0.266175

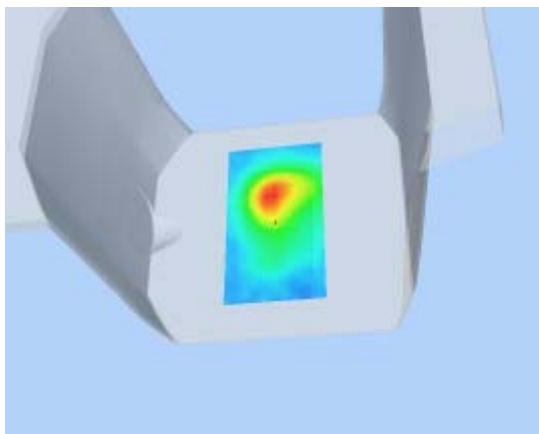
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

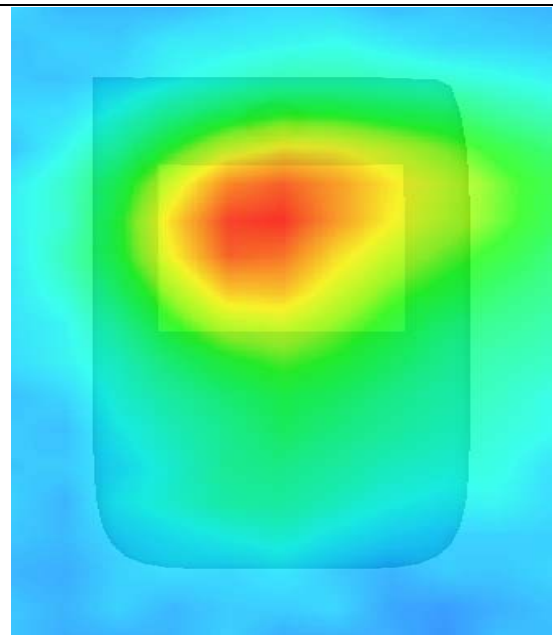
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



MEASUREMENT 10

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

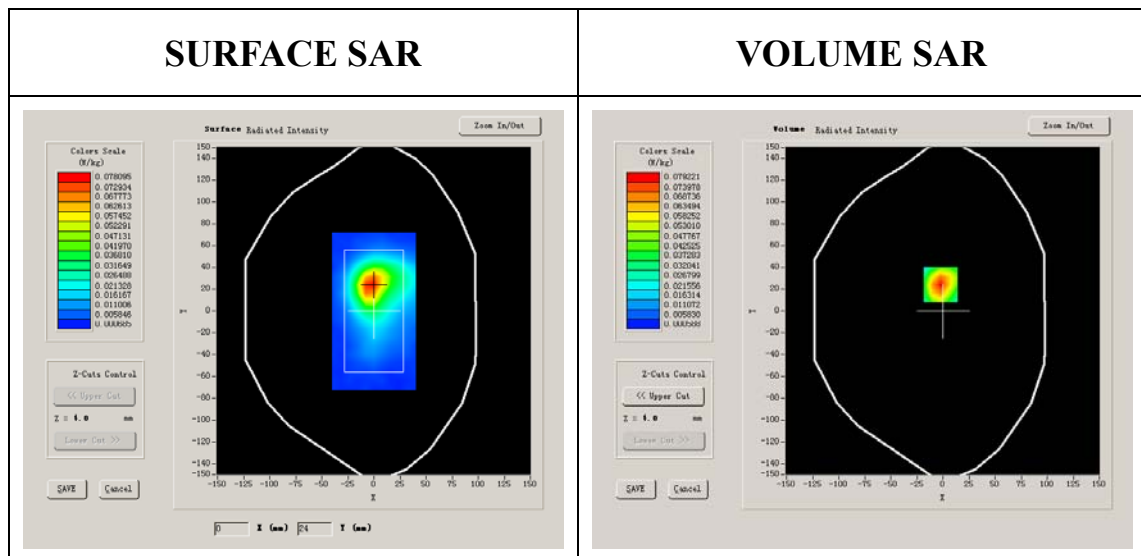
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



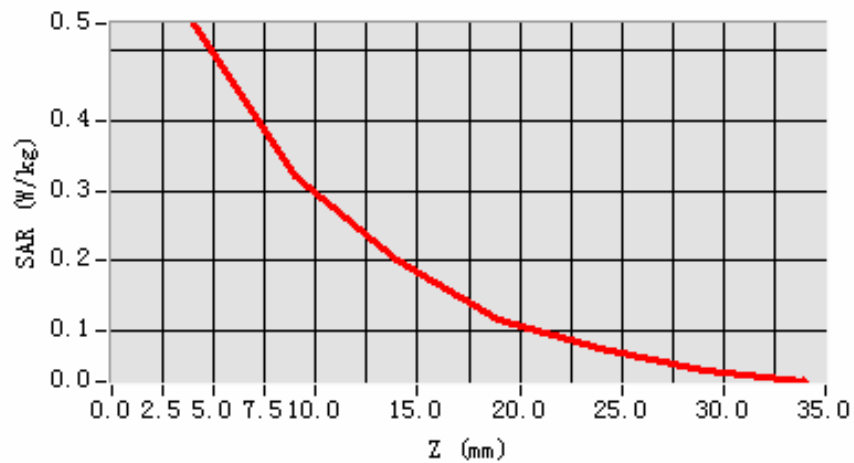
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.123441
SAR 1g (W/Kg)	0.253615

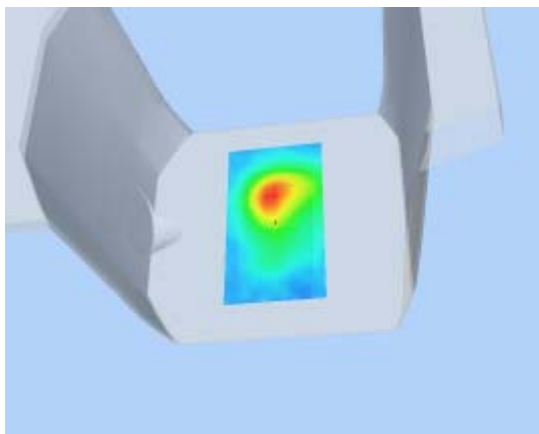
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

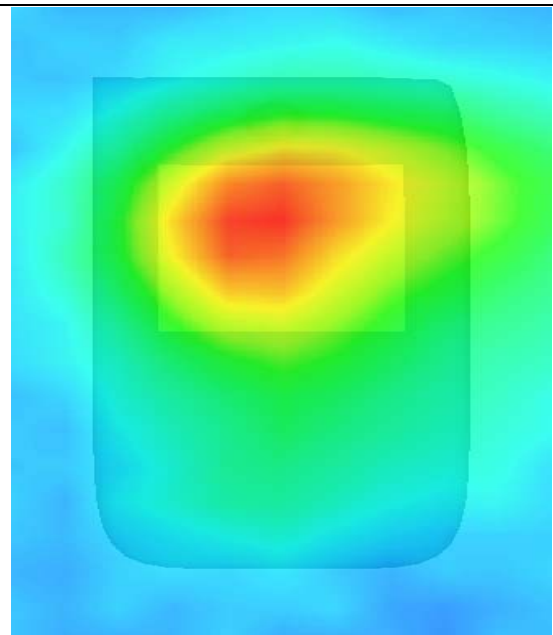
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



MEASUREMENT 11

Type: Phone measurement (Complete)

Area scan resolution: $dx=8\text{mm}, dy=8\text{mm}$

Zoom scan resolution: $dx=5\text{mm}, dy=5\text{mm}, dz=5\text{mm}$

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

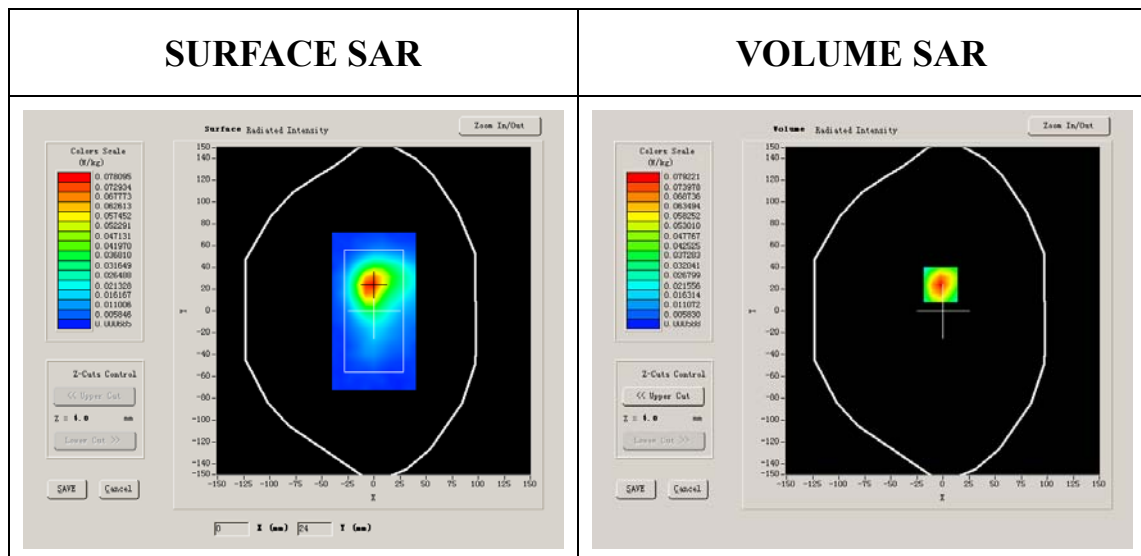
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



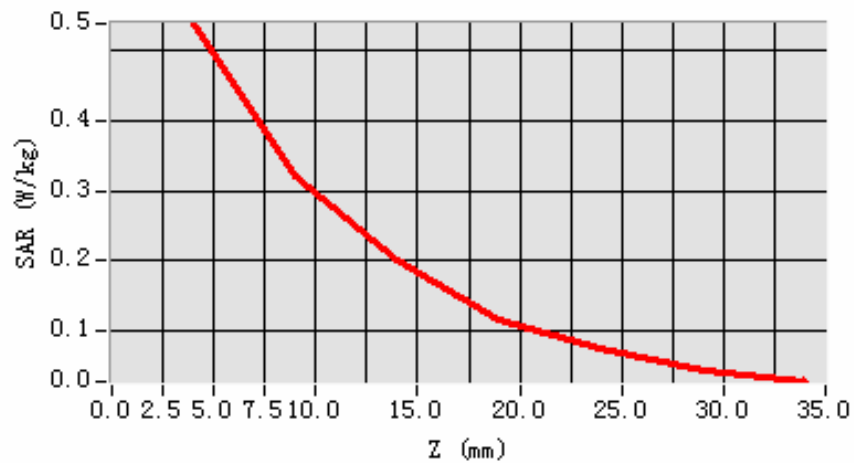
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.124115
SAR 1g (W/Kg)	0.248374

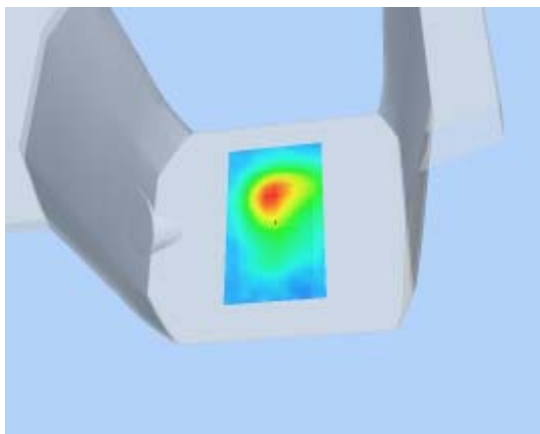
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

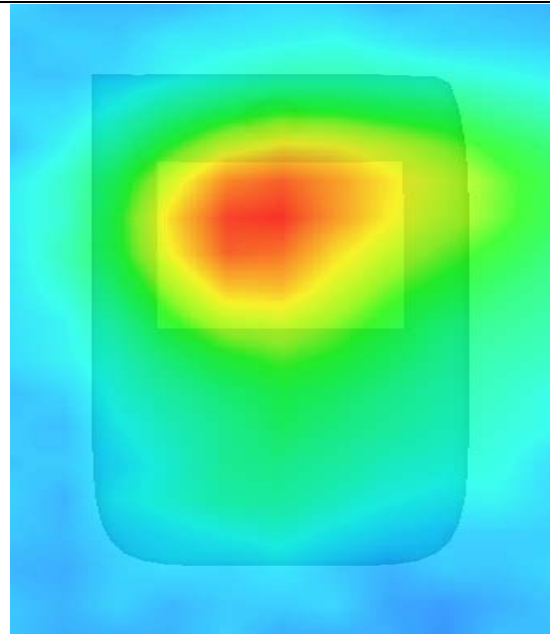
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



MEASUREMENT 12

Type: Phone measurement (Complete)

Area scan resolution: $dx=8\text{mm}, dy=8\text{mm}$

Zoom scan resolution: $dx=5\text{mm}, dy=5\text{mm}, dz=5\text{mm}$

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

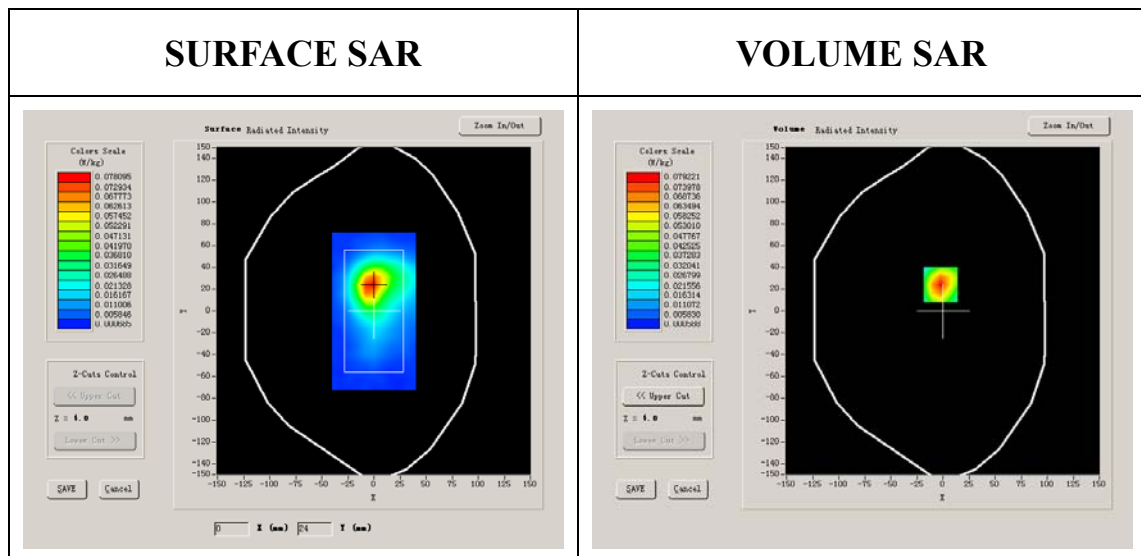
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



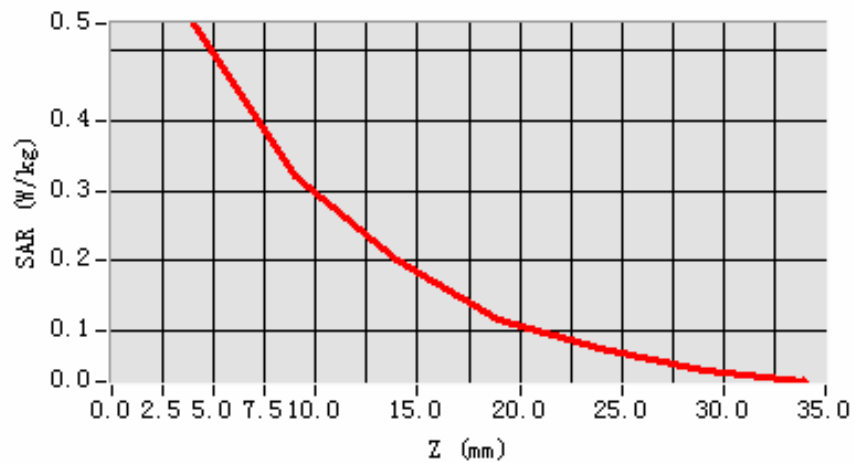
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.119567
SAR 1g (W/Kg)	0.236664

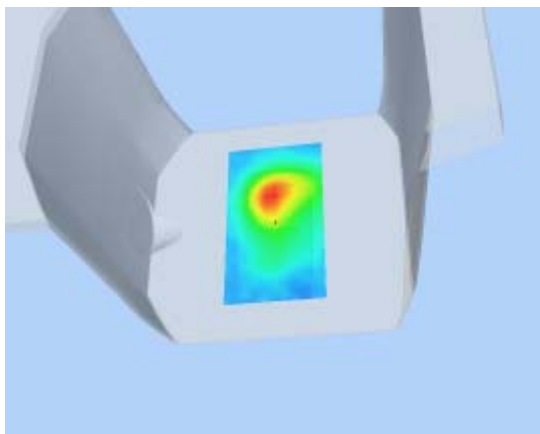
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

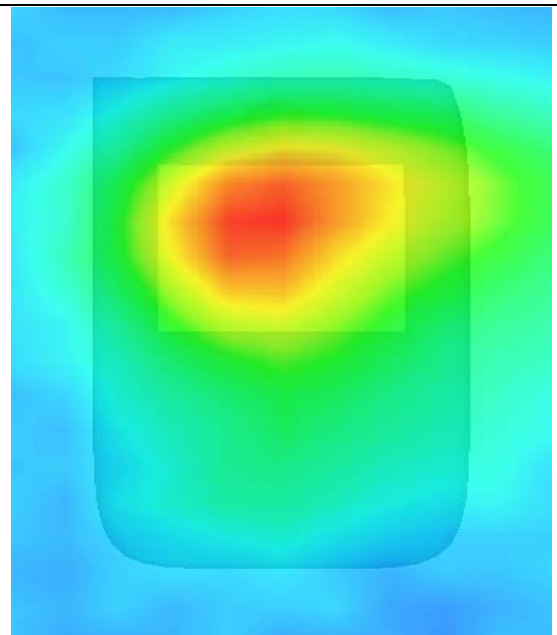
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



MEASUREMENT 13

Type: Phone measurement (Complete)

Area scan resolution: $dx=8\text{mm}, dy=8\text{mm}$

Zoom scan resolution: $dx=5\text{mm}, dy=5\text{mm}, dz=5\text{mm}$

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

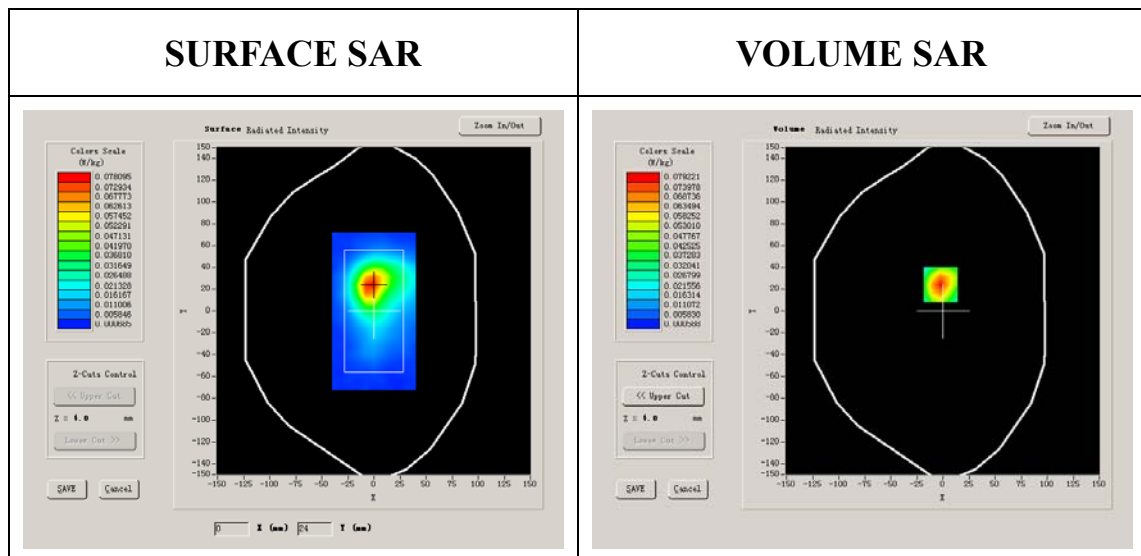
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



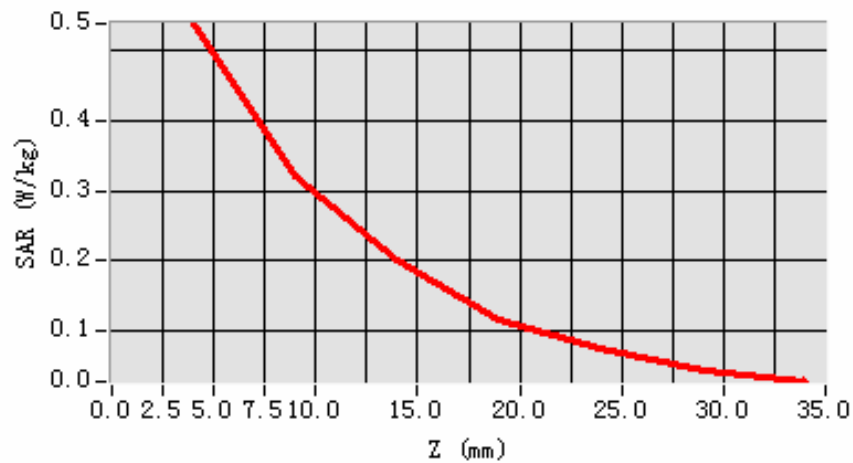
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.110552
SAR 1g (W/Kg)	0.224275

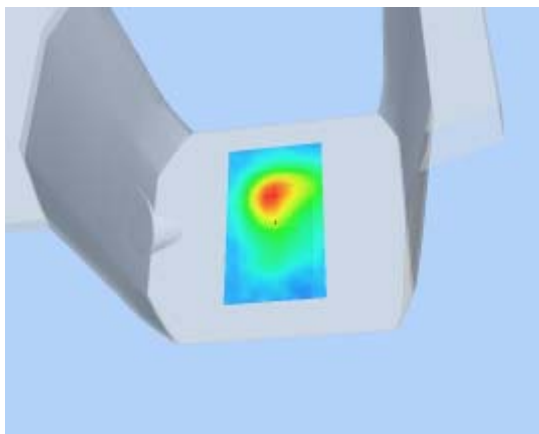
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

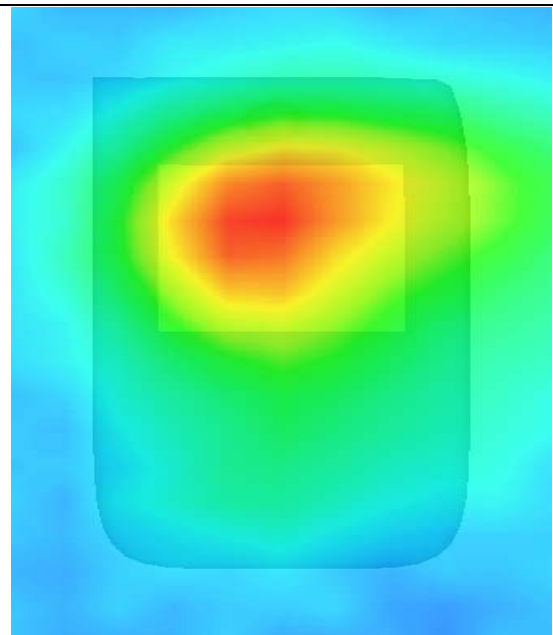
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



MEASUREMENT 14

Type: Phone measurement (Complete)

Area scan resolution: $dx=8\text{mm}, dy=8\text{mm}$

Zoom scan resolution: $dx=5\text{mm}, dy=5\text{mm}, dz=5\text{mm}$

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

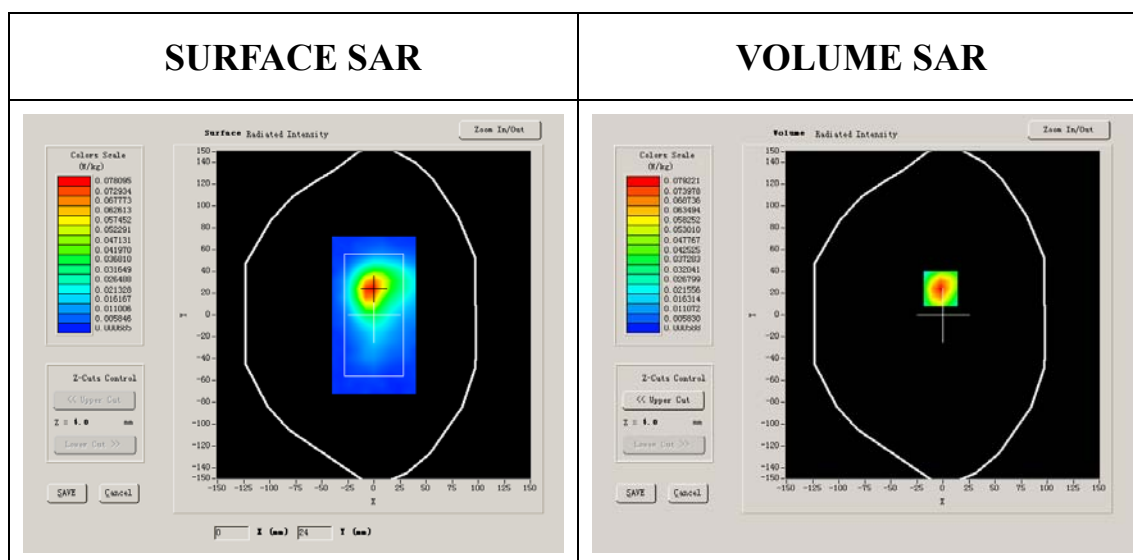
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



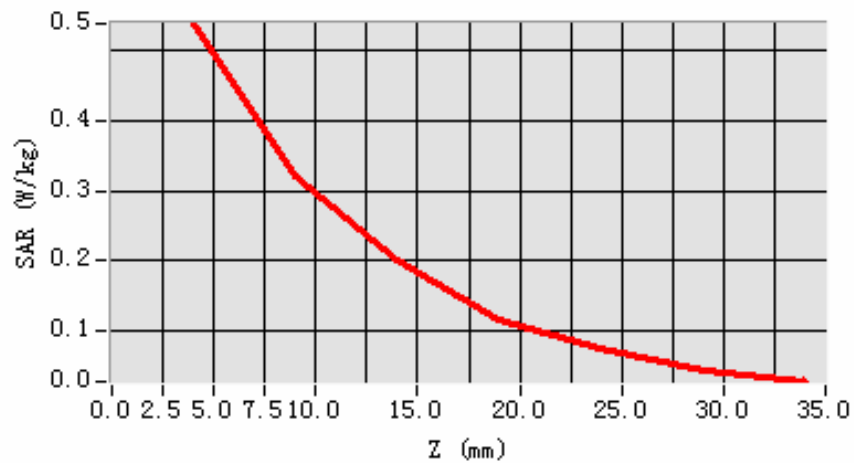
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.108954
SAR 1g (W/Kg)	0.216374

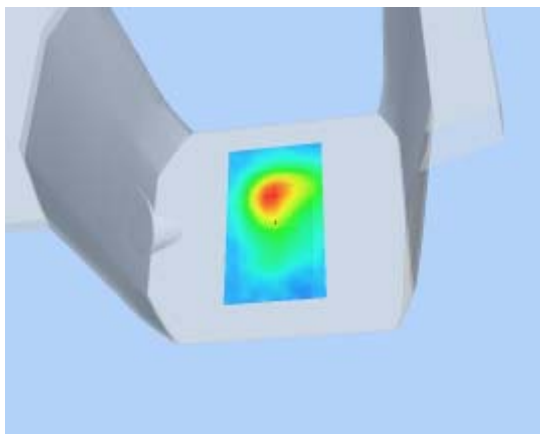
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

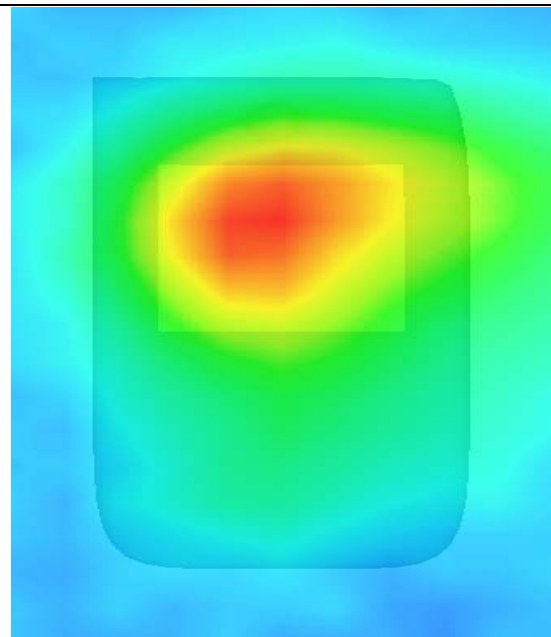
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



MEASUREMENT 15

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

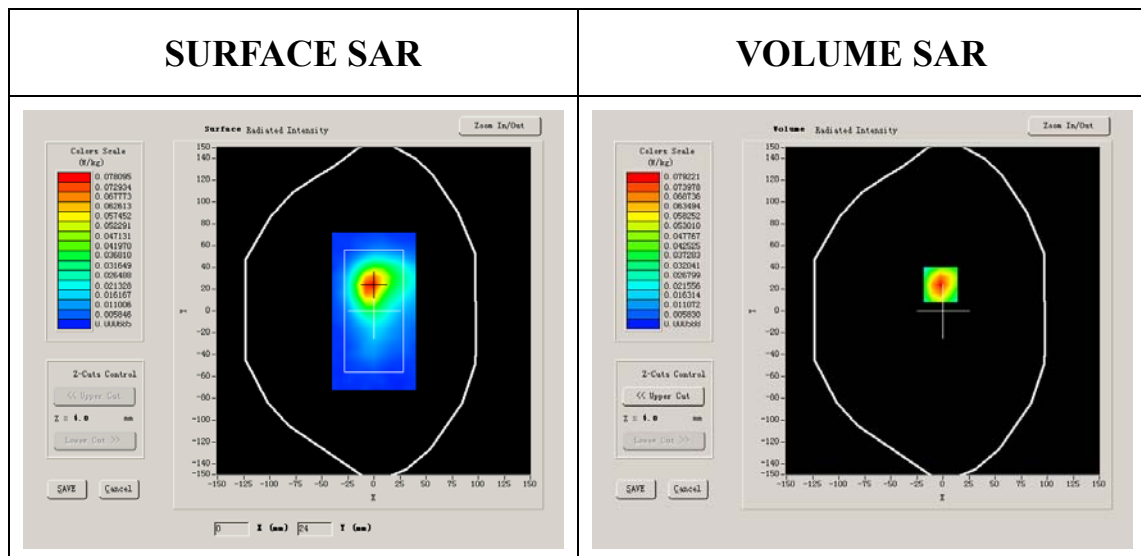
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



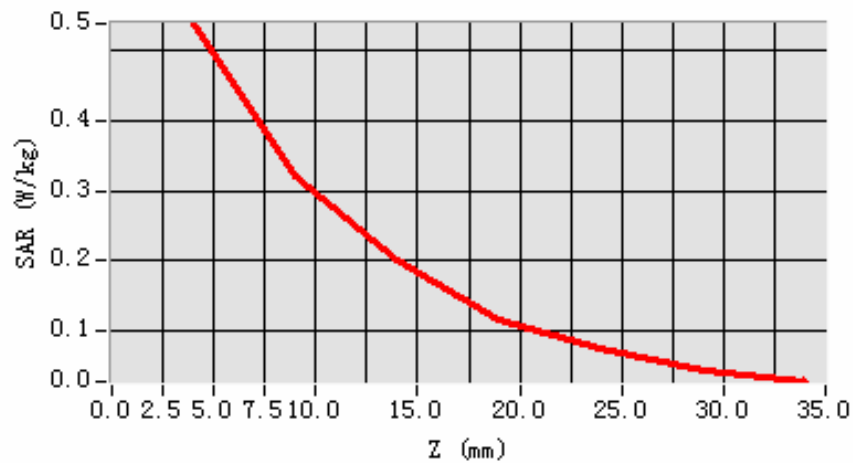
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.101346
SAR 1g (W/Kg)	0.201633

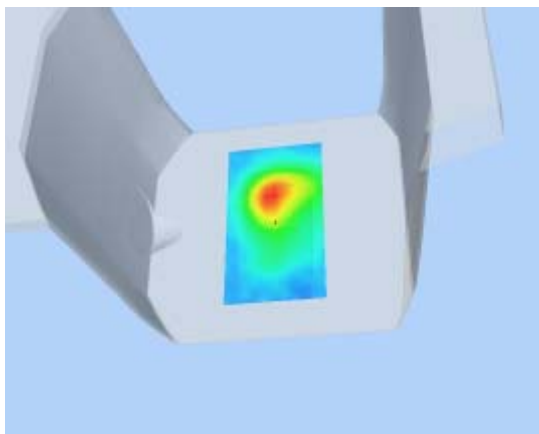
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

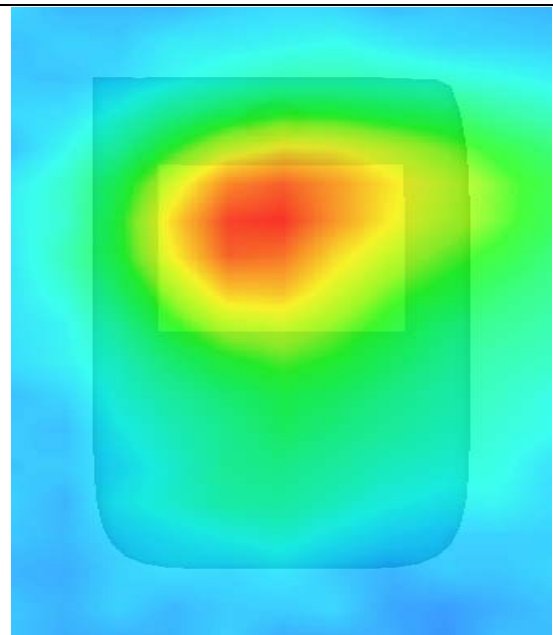
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



MEASUREMENT 16

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

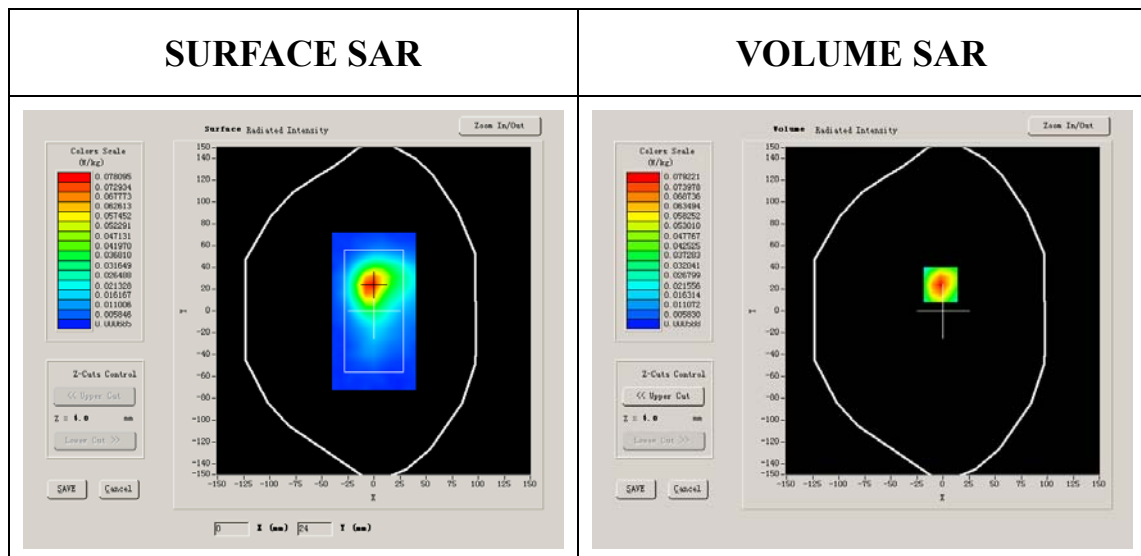
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Middle
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2437.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



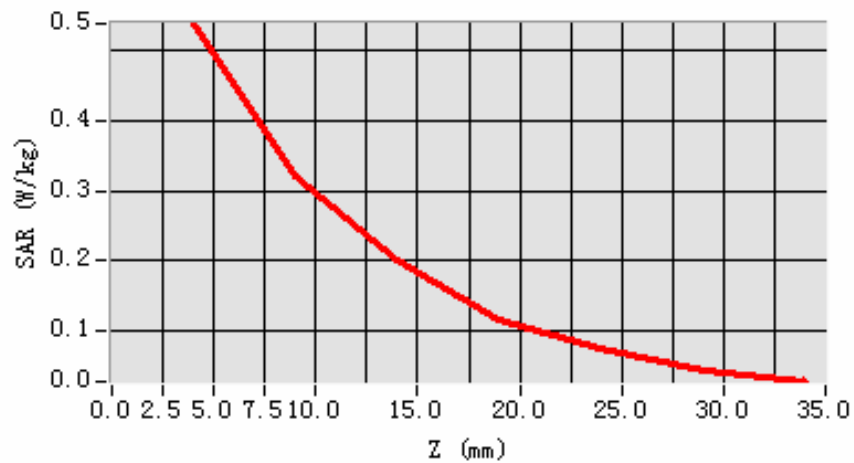
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.095842
SAR 1g (W/Kg)	0.189056

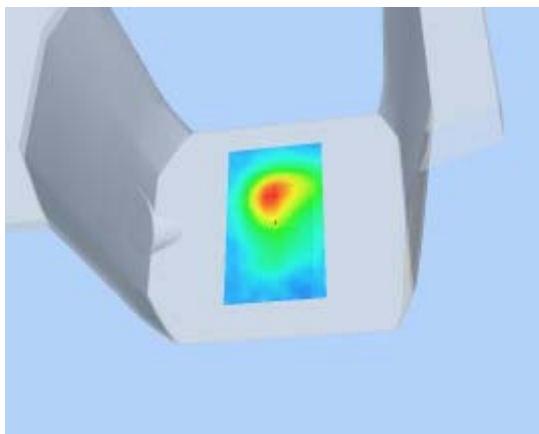
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

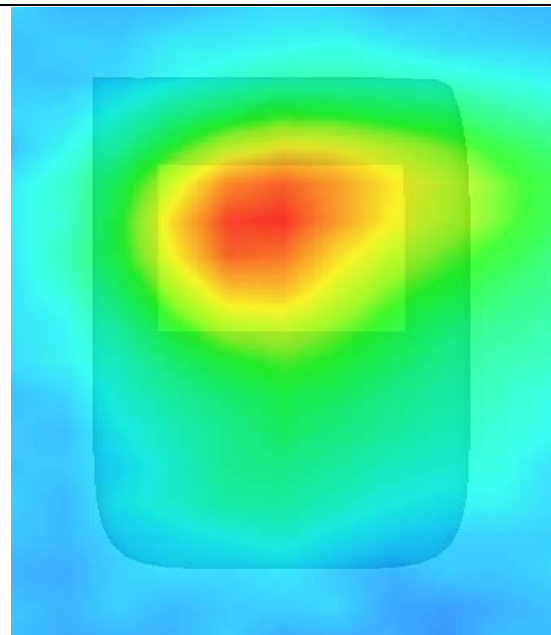
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



MEASUREMENT 17

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 11/5/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

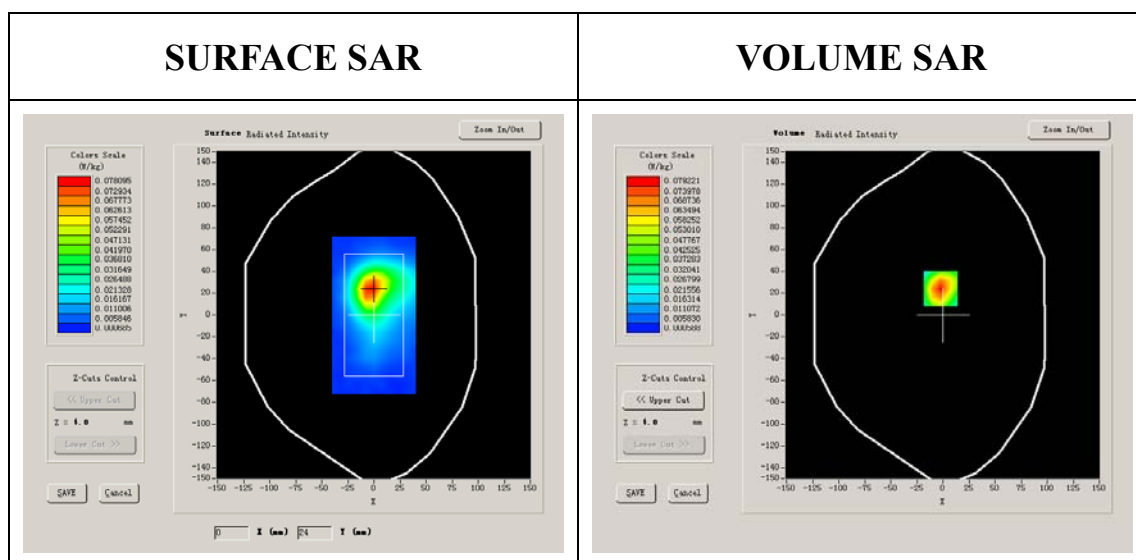
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	Low
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2412.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



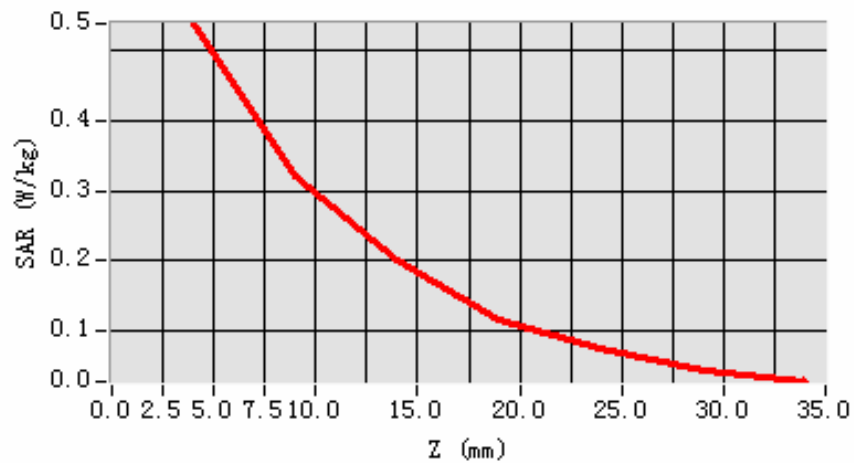
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.124633
SAR 1g (W/Kg)	0.253154

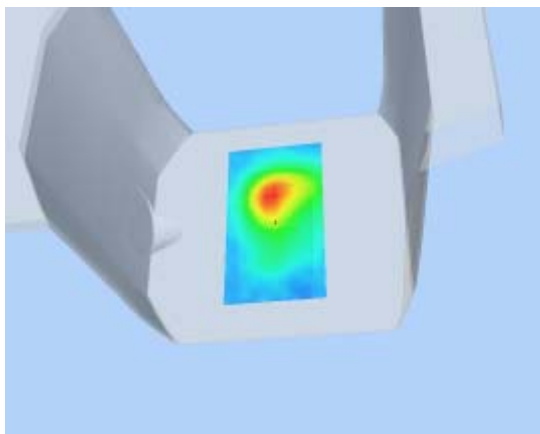
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

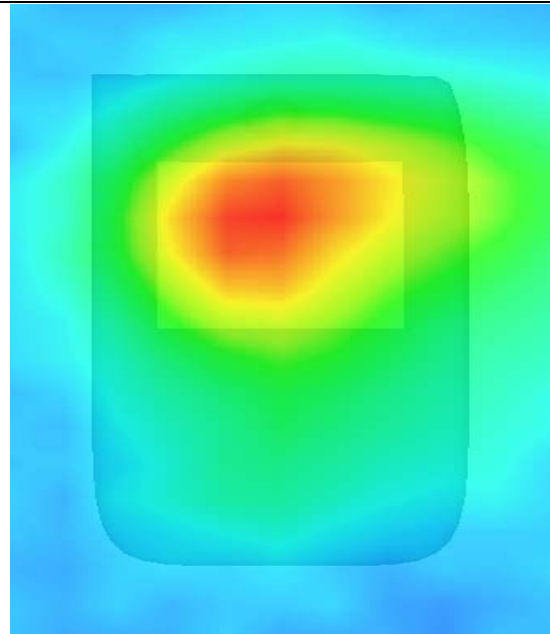
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



MEASUREMENT 18

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm

Date of measurement: 11/5/2010

Measurement duration: 13 minutes 7 seconds

A. Experimental conditions.

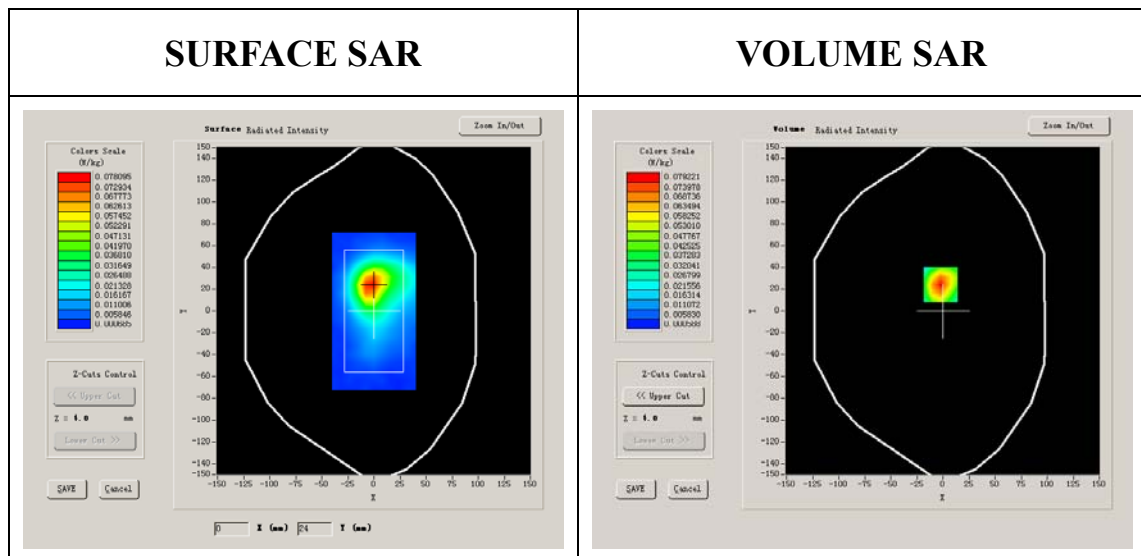
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11 G
Channels	High
Signal	CW

B. SAR Measurement Results

Middle Band SAR:

Frequency (MHz)	2462.000000
Relative permittivity (real part)	39.548876
Relative permittivity	14.820000

Conductivity (S/m)	1.720014
Variation (%)	-2.800000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.4°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



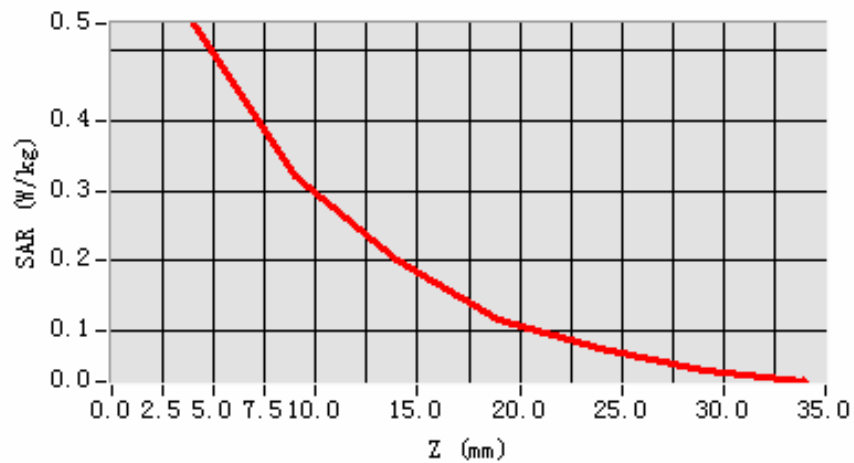
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.142264
SAR 1g (W/Kg)	0.272146

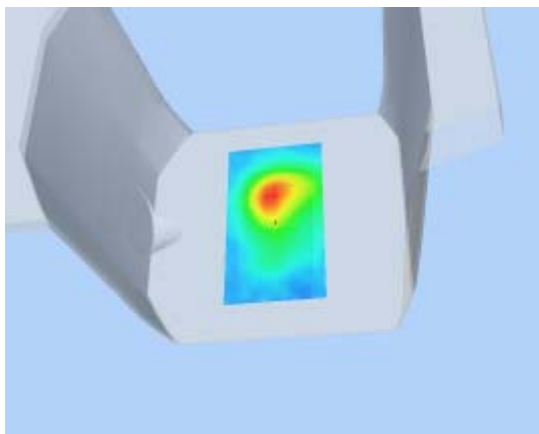
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5388	0.3204	0.2015	0.1166	0.0745	0.0431

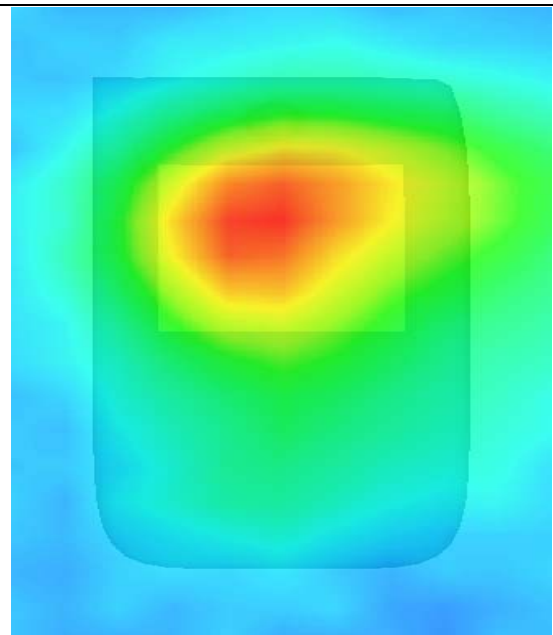
SAR, Z Axis Scan (X = -1, Y = -14)



3D scene shot



Hot spot position



System Performance Check Data

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 25/10/2010

Measurement duration: 13 minutes 27 seconds

A. Experimental conditions.

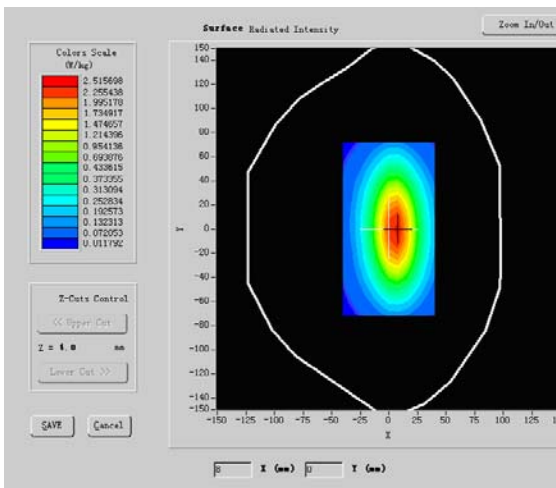
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	
Band	2450MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR:

Frequency (MHz)	2450.000000
Relative permittivity (real part)	51.562264
Relative permittivity	12.991650

Conductivity (S/m)	1.915574
Variation (%)	-0.140000
Ambient Temperature:	22.3°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

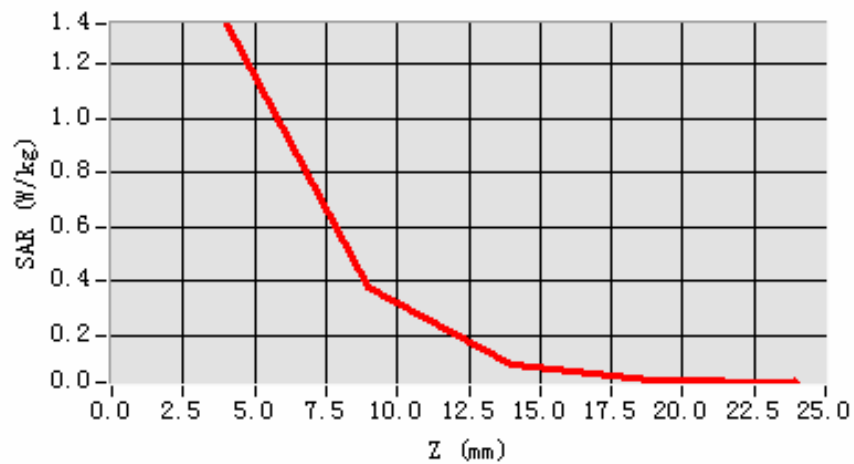
Maximum location: X=5.00, Y=1.00

SAR 10g (W/Kg)	7.077634
SAR 1g (W/Kg)	12.988772

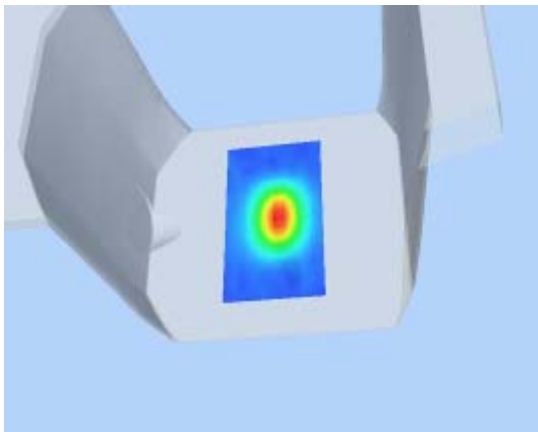
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	2.8536	1.3061	0.6041	0.3211

SAR, Z Axis Scan (X = 7, Y = 8)



3D sceen shot



Hot spot position

