



Report No.: SZ12030133S01



# SAR TEST REPORT

Issued to

**Qingdao Haier Telecom Co., Ltd**

For

**Mobile Phone**

Model Name : HC-C380  
 Trade Name : Haier  
 Brand Name : Haier  
 FCC ID : SG71204HC-C380  
 Standard : FCC Oet65 Supplement C Jun.2001  
 47CFR 2.1093  
 ANSI C95.1-1999  
 IEEE 1528-2003  
 MAX SAR : Head: 1.042W/kg  
 Body:0.879W/kg  
 Test date : 2012-4-23  
 Issue date : 2012-4-28

**Shenzhen MORLAB Communication Technology Co., Ltd.**



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 Date 2012.4.28

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 Date 2012-4-28



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Change History		
Issue	Date	Reason for change
1.0	Apr. 28, 2012	First edition

## 1. Testing Laboratory

### 1.1. 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

### 1.2. 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

### 1.3. Accreditation Certificate

Accredited Testing Laboratory: No. CNAS L3572

### 1.4. 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)	2011-9-26	1year
3	Voltmeter	Keithley (2000, SN:1000572)	2011-9-24	1year
4	Synthetizer	Rohde&Schwarz (SML_03, SN:101868)	2011-9-24	1year
5	Amplifier	Nucl udes (ALB216, SN:10800)	2011-9-24	1year
6	Power Meter	Rohde&Schwarz (NRVD, SN:101066)	2011-9-24	1year
7	Probe	Satimo (SN:SN_3708_EP80)	2011-9-24	1year
8	Phantom	Satimo (SN:SN_36_08_SAM62)	2011-9-24	1year
9	Liquid	Satimo (Last Calibration:2012-04-23)	NA	NA
10	Dipole 835MHz	Satimo (SN 36/08 DIPC 99)	2011-9-23	1year
11	Dipole 1800MHz	Satimo (SN 36/08 DIPF 101)	2011-9-23	1year
12	Dipole 1900MHz	Satimo (SN 36/08 DIPF 102)	2011-9-23	1year
13	Dipole 2450MHz	Satimo (SN 36/08 DIPF 103)	2011-9-23	1year

## 2. Technical Information

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

### 2.1. Identification of Applicant

Company Name: Qingdao Haier Telecom Co.,Ltd  
Address: No.1,Haier Road,Hi-tech Zone,Qingdao,266101,P.R.China

### 2.2. Identification of Manufacturer

Company Name: Qingdao Haier Telecom Co.,Ltd  
Address: No.1,Haier Road,Hi-tech Zone,Qingdao,266101,P.R.China

### 2.3. Equipment Under Test (EUT)

Model Name: HC-C380  
Trade Name: Haier  
Brand Name: Haier  
Hardware Version: SP  
Software Version: HC-C380\_C-S010  
Frequency Bands: CDMA 800MHz / CDMA 1900MHz  
Modulation Mode: CDMA : CDMA  
Antenna type: Fixed Internal Antenna  
Development Stage: Identical prototype  
Battery Model: H15132  
Battery specification: 1000mAh 3.7V

#### 2.3.1. Photographs of the EUT

Please see for photographs of the EUT.

#### 2.3.2. Identification of all used EUT

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#	SP	HC-C380_C-S010

## 2.4. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	<b>47 CFR § 2. 1093</b>	Radiofrequency Radiation Exposure Evaluation: Portable Devices
2	<b>FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)</b>	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
3	<b>ANSI C95.1-1999</b>	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz
4	<b>IEEE 1528-2003</b>	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.
5	<b>KDB 447498 D1</b>	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies

## 2.5. 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.

## 2.6. Test Environment/Conditions

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa
Test frequency:	CDMA 800MHz ; CDMA 1900MHz
Operation mode:	Call established
Power Level:	CDMA Maximum output power

During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established.

The Absolute Radio Frequency Channel Number (ARFCN) is 1013, 384 and 777 respectively in the case of CDMA 800MHz, or is allocated to 25, 600 and 1175 respectively in the case of CDMA 1900MHz. The EUT is commanded to operate at maximum transmitting power.

The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the manufacturer. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset.

The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the handset by at least 35 dB.

For SAR testing, EUT is in CDMA link mode, its crest factor is 1.

### 3. Specific Absorption Rate (SAR)

#### 3.1. 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.

#### 3.2. 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 ( $\rho$ ). 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,  $\delta T$  is the temperature rise and  $\delta t$  the exposure duration, or related to the electrical field in the tissue by

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

, where  $\sigma$  is the conductivity of the tissue,  $\rho$  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.



## 4. SAR Measurement Setup

### 4.1. 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.

### 4.2. Probe

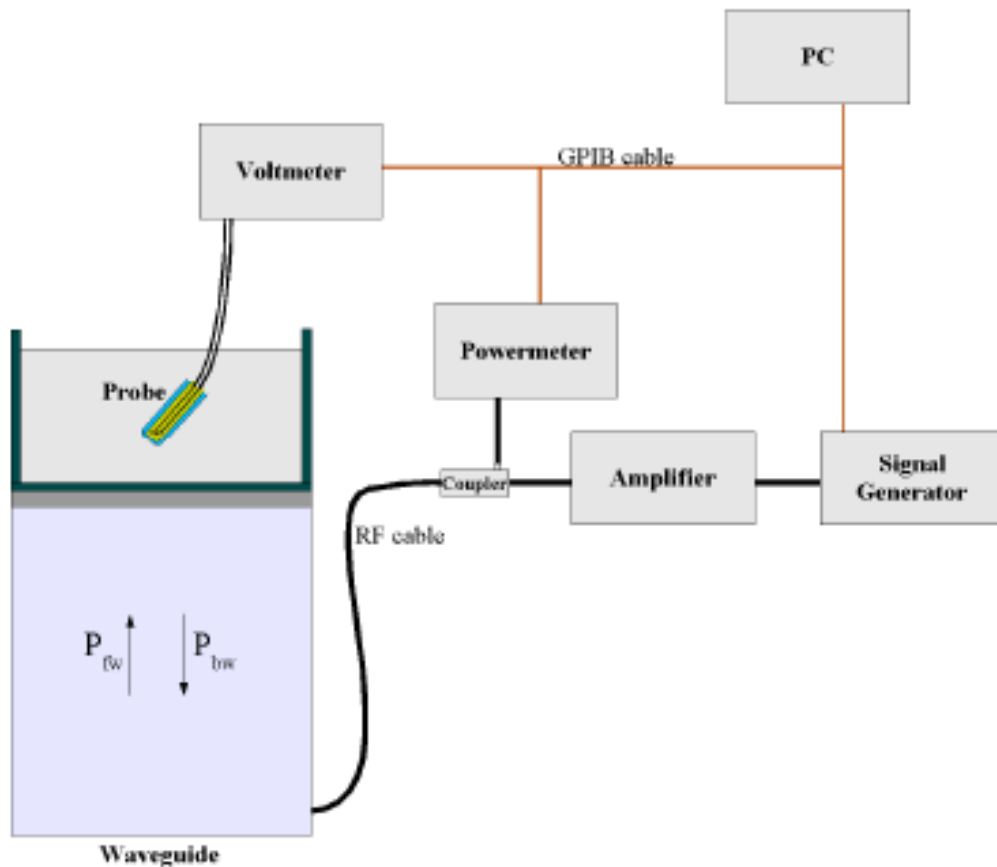
For the measurements the Specific Dosimetric E-Field Probe SN 37/08 EP80 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Tip Diameter : 6.5 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, Antenna proprietary calibration system. The calibration is performed with the EN 622091 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

$\delta$  = 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.

### 4.3. Probe Calibration Process

#### 4.3.1 Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. SATIMO Probe calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm<sup>2</sup>) using an with CALISAR, Antenna proprietary calibration system.

#### 4.3.2 Free Space Assessment Procedure

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm<sup>2</sup>.

#### 4.3.2 Temperature Assessment Procedure

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

Where:

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

$\Delta t$  = exposure time (30 seconds),

$C$  = heat capacity of tissue (brain or muscle),

$\Delta T$  = temperature increase due to RF exposure.

SAR is proportional to  $\Delta T / \Delta t$ , the initial rate of tissue heating, before thermal diffusion takes place. The electric field in the simulated tissue can be used to estimate SAR by equating the thermally derived SAR to that with the E- field component.

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

Where:

$\sigma$  = simulated tissue conductivity,

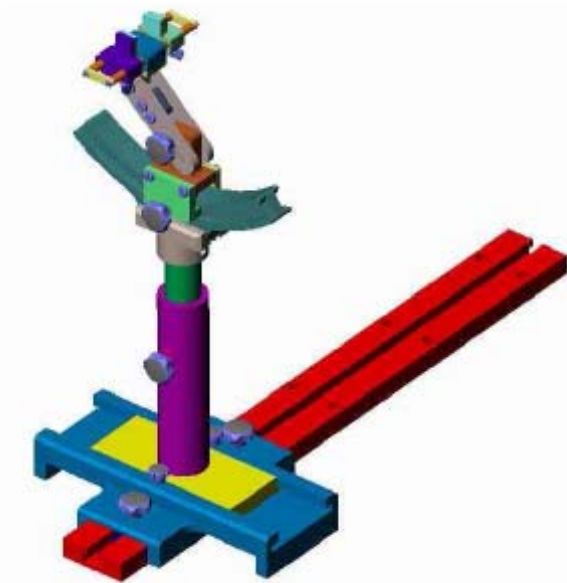
$\rho$  = Tissue density (1.25 g/cm<sup>3</sup> for brain tissue)

#### 4.4. 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.

#### 4.5. 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

## 5. Tissue Simulating Liquids

Simulant liquids that are used for testing at frequencies of GSM 850MHz PCS 1900MHz, 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 25 litres for a horizontal bath phantom. The liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is (head SAR) or from the flat phantom to the liquid top surface (body SAR) is 15cm.

Following is the recipes for one liter of head and body tissue simulating liquid for frequency band 835 MHz ,1900 MHz and 2450MHz.

Ingredients (% by weight )	Frequency Band 835MHz		Frequency Band 1900MHz	
	Head	Body	Head	Body
Tissue Type				
Water	41.45	52.4	54.9	40.4
Salt(NaCl)	1.49	1.4	0.18	0.5
Sugar	46.78	45.0	0.0	58.0
HEC	0.52	1.0	0.0	1.0
Bactericide	0.05	0.1	0.0	0.1
Triton	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	44.92	0.0
Acticide SPX	0.0	0.0	0.0	0.0
Dielectric Constant	42.54	56.1	39.9	54.0
Conductivity (S/m)	0.91	0.95	1.42	1.45

### 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 Head Tissue Simulating Liquid**

Temperature: 22.0~23.8°C, humidity: 54~60%.			
Frequency	Description	Permittivity $\epsilon$	Conductivity $\sigma$ (S/m)
835 MHz	Reference result $\pm 5\%$ window	41.5 39.425 to 43.575	0.90 0.855 to 0.945
	Validation value (Apr. 23)	41.675999	0.894409
1900 MHz	Reference result $\pm 5\%$ window	40 38 to 42	1.40 1.33 to 1.47
	Validation value (Apr. 23)	38.509998	1.436111

For body-worn measurements, the device was tested against flat phantom representing the user body. Under measurement phone was put on in the phone holder.

**Table 2: Dielectric Performance of Body Tissue Simulating Liquid**

<b>Temperature: 22.0~23.8°C, humidity: 54~60%.</b>			
<b>Frequency</b>	<b>Description</b>	<b>Permittivity <math>\epsilon</math></b>	<b>Conductivity <math>\sigma</math> (S/m)</b>
835 MHz	<b>Reference result <math>\pm 5\%</math> window</b>	55.2 52.44 to 57.96	0.97 0.9215 to 1.0185
835 MHz	<b>Validation value (Apr. 23)</b>	55.709999	0.9809033
1900 MHz	<b>Reference result <math>\pm 5\%</math> window</b>	53.3 50.635 to 55.965	1.52 1.444 to 1.596
1900 MHz	<b>Validation value (Apr. 23)</b>	52.548876	1.553978

## 6. Uncertainty Assessment

The following table includes the uncertainty table of the IEEE 1528.

### 6.1. 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)	lg Ui (+-%)	10g Ui (+-%)	Vi
<b>Measurement System</b>									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.76	$\infty$
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.01	$\infty$
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.62	$\infty$
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	$\infty$
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	$\infty$
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	$\infty$
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	$\infty$
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	$\infty$
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	$\infty$
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	$\infty$
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	$\infty$
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	$\infty$
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	$\infty$
<b>Test sample Related</b>									
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	N-1
Output power Power drift - SAR drift measurement	6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.33	$\infty$
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	$\infty$

Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.13	$\infty$
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	$\sqrt{3}$	0.6	0.49	1.28	1.04	$\infty$
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M
Combined Standard Uncertainty			RSS				11.55	10.67	
Expanded Uncertainty (95% Confidence interval)			K=2				23.11	21.33	

## 6.2. 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 (+-%)	Vi
<b>Measurement System</b>									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.76	$\infty$
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.01	$\infty$
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.62	$\infty$
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	$\infty$
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	$\infty$
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	$\infty$
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	$\infty$
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	$\infty$
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	$\infty$
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	$\infty$
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	$\infty$
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	$\infty$
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	$\infty$
<b>Dipole</b>									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	$\sqrt{3}$	1	1	0.58	0.58	$\infty$



Input power and SAR drift measurement	8,6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.33	$\infty$
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	$\infty$
Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.13	$\infty$
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	$\sqrt{3}$	0.64	0.43	1.85	1.24	M
Liquid permittivity - deviation from target value	E.3.2	3.69	R	$\sqrt{3}$	0.6	0.49	1.28	1.04	$\infty$
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	$\sqrt{3}$	0.6	0.49	3.46	2.83	M
Combined Standard Uncertainty			RSS				8.83	8.37	
Expanded Uncertainty (95% Confidence interval)			K=2				17.66	16.73	

## 7. SAR Measurement Evaluation

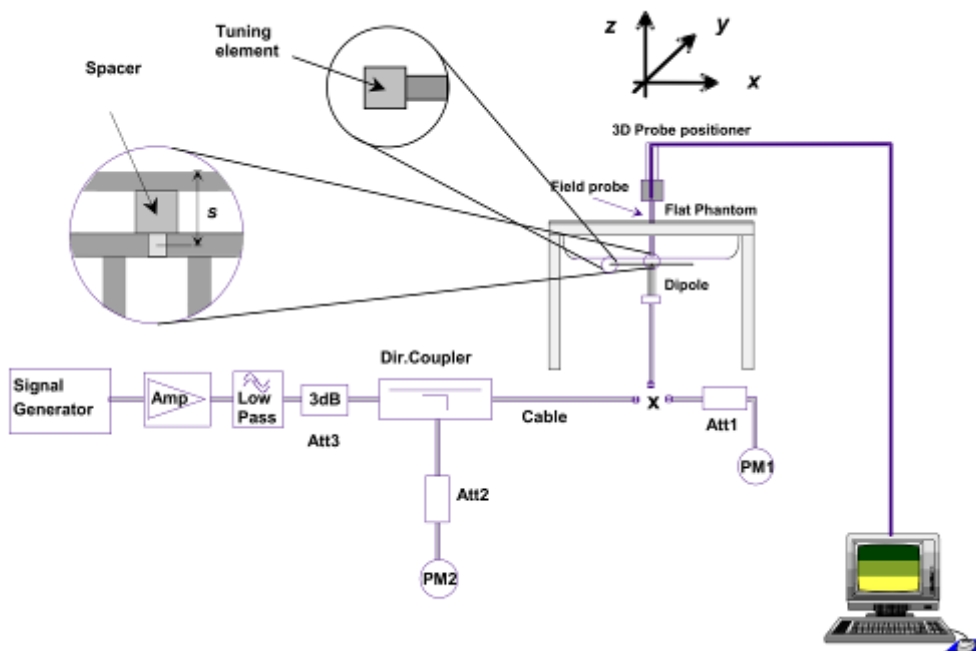
### 7.1. System Setup

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 frequency at 835 MHz, 1700MHz and 1900 MHz. 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	835MHz:SN 36/08 DIPC 99 1900MHz:SN 36/08 DIPF 102

System Verification Setup Block Diagram



## 7.2. Validation Results

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

Frequency	Description	SAR[W/Kg] 1g	
		Head	Body
835 MHz	Reference result ±5% window	9.714 8.743 to 10.685	9.714 8.743 to 10.685
835 MHz	Validation value (Apr. 23)	9.912	9.544
1900 MHz	Reference result ±5% window	39.890 35.901 to 43.879	39.890 35.901 to 43.879
1900 MHz	Validation value (Apr.23)	37.820	38.960

All SAR Validation values are normalized from 250mW to 1W forward power.

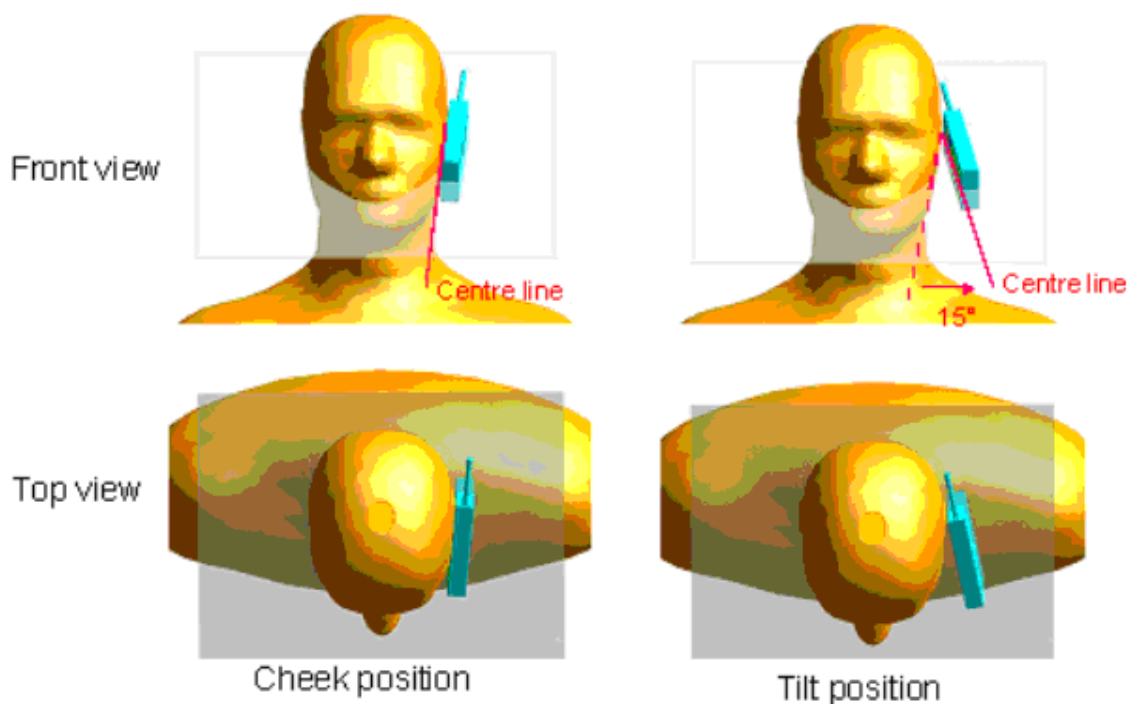
**Note:** System checks the specific test data please see page 71-74.

## 8. Operational Conditions During Test

### 8.1. 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.

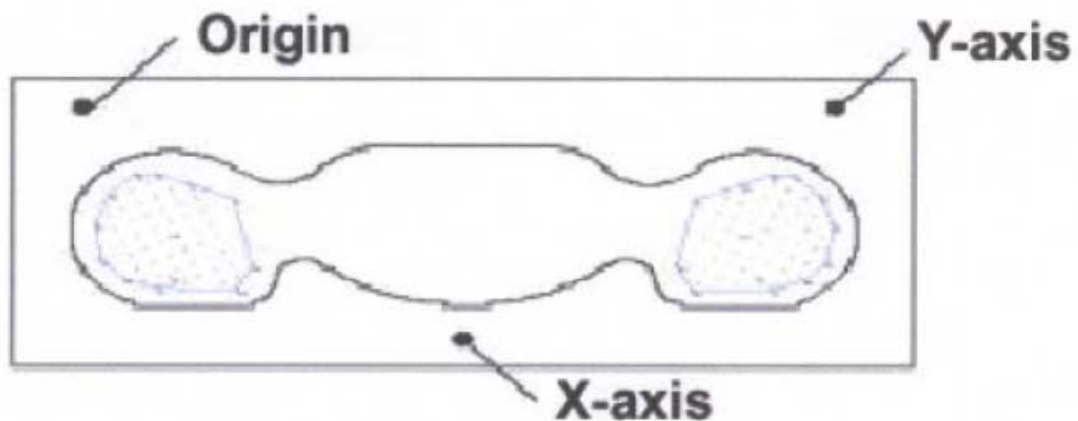
Remark: Please refer to Appendix B for the test setup photos.

### 8.2. 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 5mm(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

### 8.3. 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.

### 8.4. 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.

## **9. MEASUREMENT PROCEDURES**

### **9.1. Procedures Used To Establish Test Signal**

The handset was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing SAR and are recommended for evaluating SAR. SAR measurements were taken with a fully charged battery. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR measurement software calculates a reference point at the start and end of the test to check for power drifts. If conducted power deviations of more than 5% occurred, the tests were repeated.

### **9.2. SAR Measurement Conditions for CDMA**

These procedures were followed according to FCC "SAR Measurement Procedures for 3G Devices", October 2007 (Revised).

### **9.3. Output Power Verification**

See 3GPP2 C.S0011/TIA-98-E as recommended by "SAR Measurement Procedures for 3G Devices", October 2007 (Revised).

Maximum output power is verified on the High, Middle and Low channels according to procedures in section 3.1.2.3.4 of 3GPP2 C.S0033-0/TIA-866 for Rev. 0 and section 4.3.4 of 3GPP2 C.S0033-A for Rev. A. For Rev. A, maximum output power for both Subtype 0/1 and Subtype 2 Physical Layer configurations should be measured. The device operating configurations under TAP/ETAP should be documented in the test report; including power control, code channel and RF channel output power levels. The measurement results should be tabulated in the SAR report with any measurement difficulties and equipment limitations clearly identified.

### **9.4. SAR Measurement**

SAR is measured using FTAP/RTAP and FETAP/RETAP respectively for Rev. 0 and Rev. A devices. The AT is tested with a Reverse Data Channel rate of 153.6 kbps in Subtype 0/1 Physical Layer configurations; and a Reverse Data Channel payload size of 4096 bits and Termination Target of 16 slots in Subtype 2 Physical Layer configurations. Both FTAP and FETAP are configured with a Forward Traffic Channel data rate corresponding to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots. AT power control should be in "All Bits Up" conditions for TAP/ETAP.

Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. SAR for Subtype 2 Physical layer configurations is not required for Rev. A when the maximum average output of each RF channels is less than that measured in Subtype 0/1 Physical layer configurations. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for that RF channels in Rev. 0.17 Head SAR is required for Ev-Do devices that support operations next to the ear; for example, with VOIP, using Subtype 2 Physical Layer configurations according to the required handset configurations.

### 9.5. Measurement Of Conducted Peak Output Power.

Band	Channel	Frequency (MHz)	Output Power (dBm)	Power Drift (%)
CDMA 800	1013	824.7	26.34	0.47
	384	836.52	26.84	-0.12
	777	848.31	27.01	3.06
CDMA 1900	25	1850.2	25.64	-3.08
	600	1880.0	24.50	/
	1175	1909.8	24.23	/



## 10. Test Results List

### Summary of Measurement Results (CDMA 800 Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Description		SAR(W/Kg), 1g Peak	Scaling factor	Scaled SAR
	Device position	Test channel			
Right Side Of Head	Cheek	1013	0.823	1.247	1.026
		384	0.916	1.112	1.085
		777	0.960	1.069	1.026
	Tilt	0.413	0.441		
Left Side Of Head	Cheek	1013	0.920	1.247	1.147
		384	1.001	1.112	1.113
		777	1.042	1.069	1.114
	Tilt	0.451	0.482		
Body	Back upward	1013	0.762	1.247	0.950
		384	0.879	1.112	0.977
		777	0.811	1.069	0.867
	Face upward	0.483	0.516		

### Summary of Measurement Results (CDMA 1900 Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Description		SAR(W/Kg), 1g Peak	Scaling factor	Scaled SAR
	Device position	Test channel			
Right Side Of Head	Cheek	25	0.675	1.086	0.733
	Tilt		0.259		0.281
Left Side Of Head	Cheek		0.722		0.784
	Tilt		0.268		0.291
Body	Back upward		0.539		0.585
	Face upward		0.363		0.394

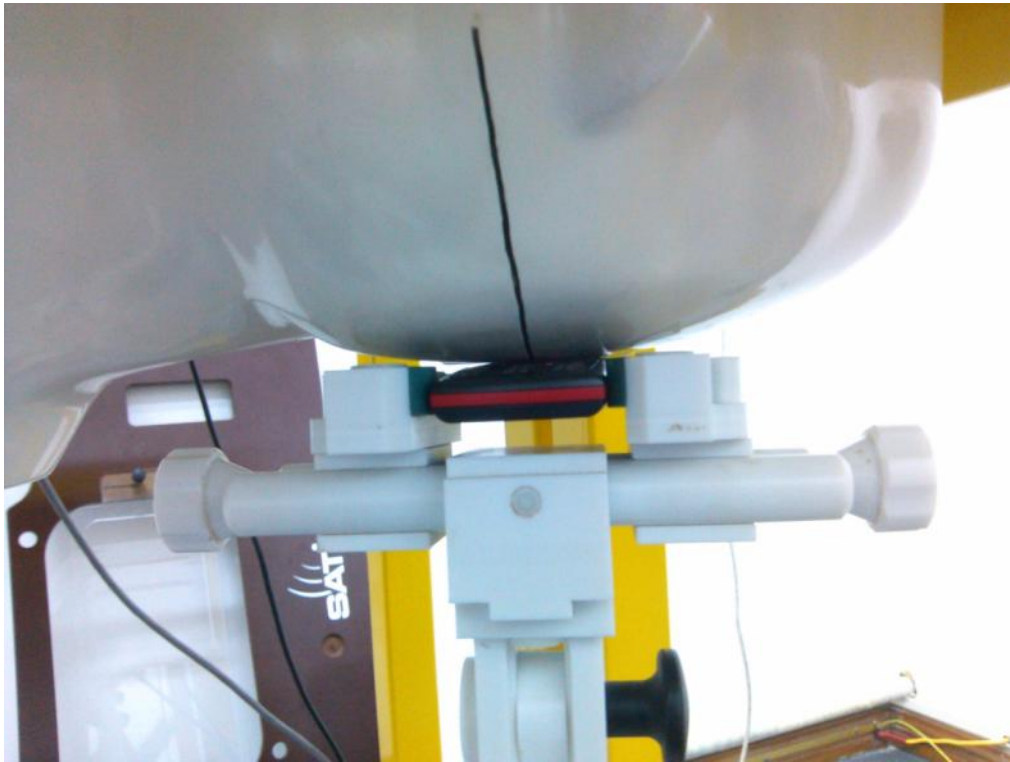
**Note:** 1. Refer KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is  $\leq 100$  MHz, testing for the other channels is not required.

## 4. Scaled SAR calculation

Band	Tune-up power tolerance (dBm)	SAR test channel Power (dBm)	Scaling Factor
CDMA800	Max output power <27.3	26.34	1.247
		26.84	1.112
		27.01	1.069
CDMA1900	Max output power <26	25.64	1.086

## Annex A Photographs of the EUT

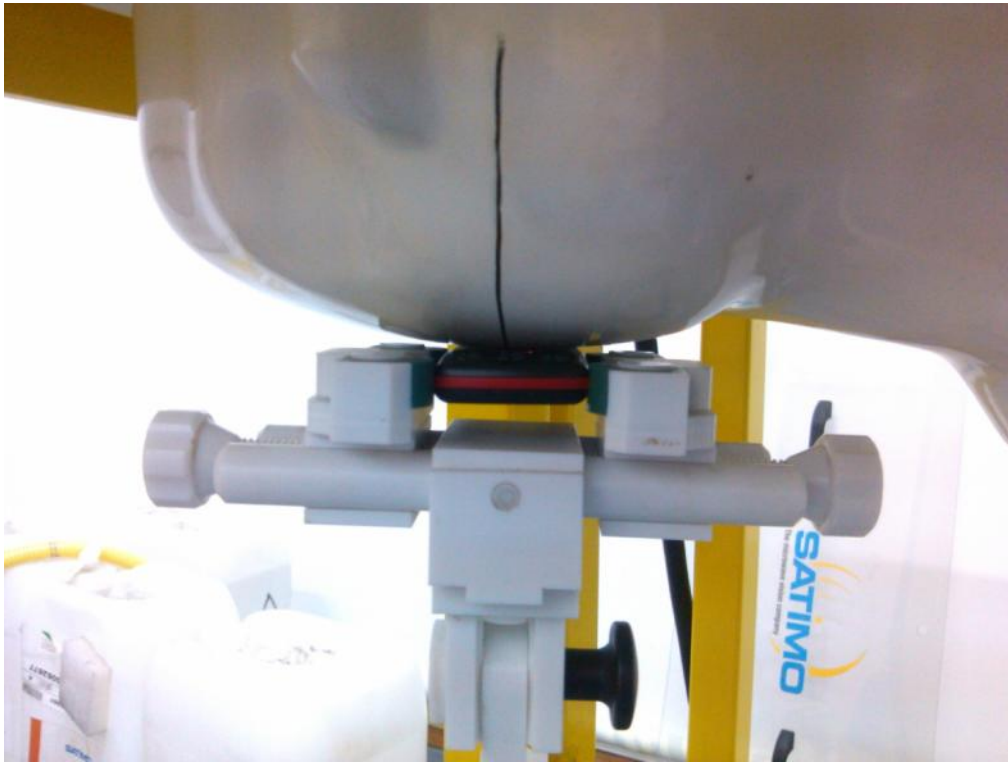
### 1 EUT Left Head Touch Cheek Position



### 2 EUT Left Head Tilt15 Position



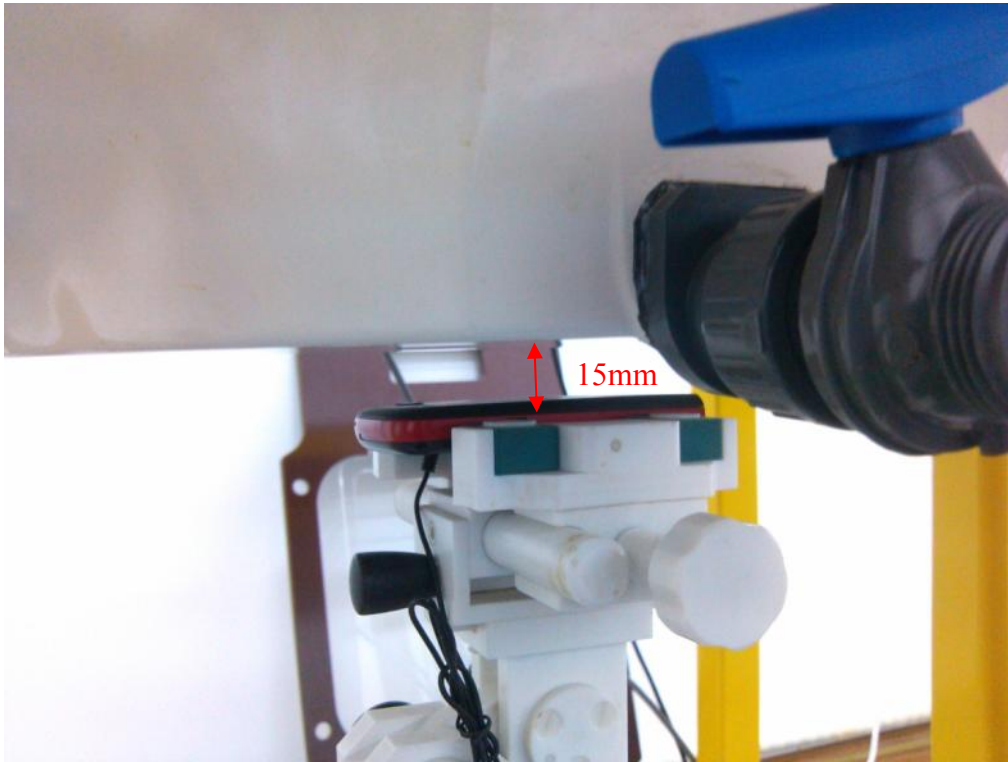
3 EUT Right Head Touch Cheek Position



4 EUT Right Head Tilt15 Position



5 Side Position (with Headphone)



Liquid Level Photo



## Annex C Graph Test Results

<b>BAND</b>	<b><u>PARAMETERS</u></b>
<p style="text-align: center;"><b><u>CDMA</u></b> <b><u>800</u></b></p>	<p><u>Measurement 1:</u> Right Head with Cheek device position on Low Channel in CDMA mode</p> <p><u>Measurement 2:</u> Right Head with Cheek device position on Middle Channel in CDMA mode</p> <p><u>Measurement 3:</u> Right Head with Cheek device position on High Channel in CDMA mode</p> <p><u>Measurement 4:</u> Right Head with Tilt device position on High Channel in CDMA mode</p> <p><u>Measurement 5:</u> Left Head with Cheek device position on Low Channel in CDMA mode</p> <p><u>Measurement 6:</u> Left Head with Cheek device position on Middle Channel in CDMA mode</p> <p><u>Measurement 7:</u> Left Head with Cheek device position on High Channel in CDMA mode</p> <p><u>Measurement 8:</u> Left Head with Tilt device position on High Channel in CDMA mode</p> <p><u>Measurement 9:</u> Left Head with Tilt device position on Low Channel in CDMA mode</p> <p><u>Measurement 10:</u> Validation Plane with Body device position on Middle Channel in CDMA mode</p> <p><u>Measurement 11:</u> Validation Plane with Body device position on High Channel in CDMA mode</p> <p><u>Measurement 12:</u> Validation Plane with Body device position on High Channel in CDMA mode</p>
<p style="text-align: center;"><b><u>CDMA</u></b> <b><u>1900</u></b></p>	<p><u>Measurement 13:</u> Right Head with Cheek device position on Low Channel in CDMA mode</p> <p><u>Measurement 14:</u> Right Head with Tilt device position on Low Channel in CDMA mode</p> <p><u>Measurement 15:</u> Left Head with Cheek device position on Low Channel in CDMA mode</p> <p><u>Measurement 16:</u> Left Head with Tilt device position on Low Channel in CDMA mode</p> <p><u>Measurement 17:</u> Validation Plane with Body device position on Low Channel in CDMA mode</p> <p><u>Measurement 18:</u> Validation Plane with Body device position on Low Channel in CDMA mode</p>

# MEASUREMENT 1

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 50 seconds

## A. Experimental conditions.

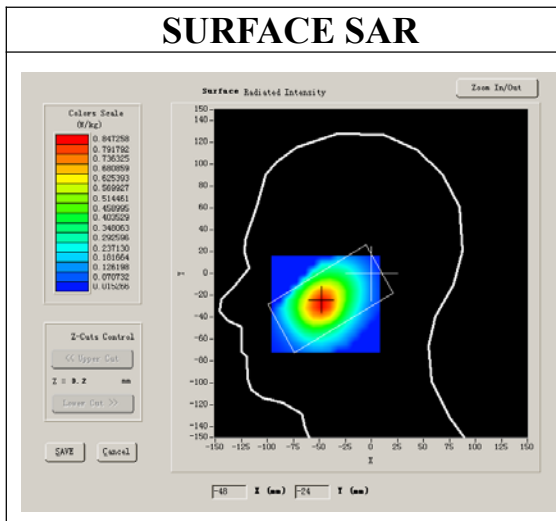
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Cheek
<b>Band</b>	CDMA800
<b>Channels</b>	Low
<b>Signal</b>	CDMA

## B. SAR Measurement Results

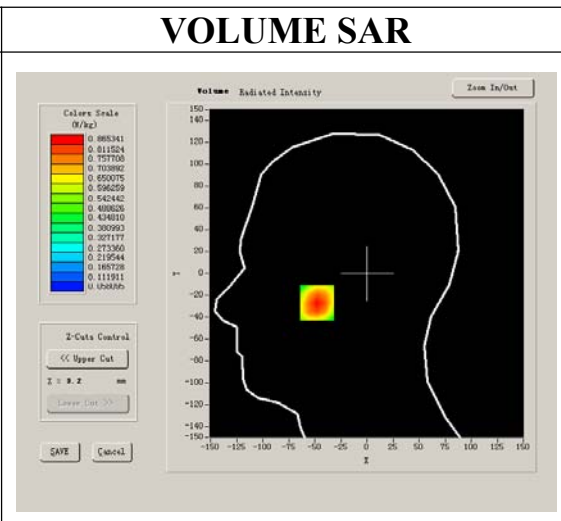
Lower Band SAR (Channel 1013):

<b>Frequency (MHz)</b>	824.700012
<b>Relative permittivity (real part)</b>	41.790001
<b>Relative permittivity</b>	18.926250
<b>Conductivity (S/m)</b>	0.867138
<b>Power drift (%)</b>	0.470000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:1

### SURFACE SAR



### VOLUME SAR



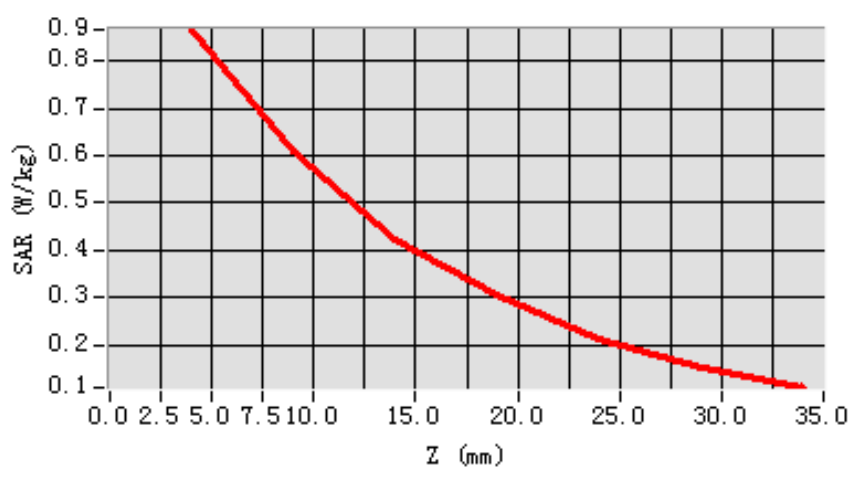
**Maximum location: X=-48.00, Y=-27.00**

<b>SAR 10g (W/Kg)</b>	0.543739
<b>SAR 1g (W/Kg)</b>	0.823674

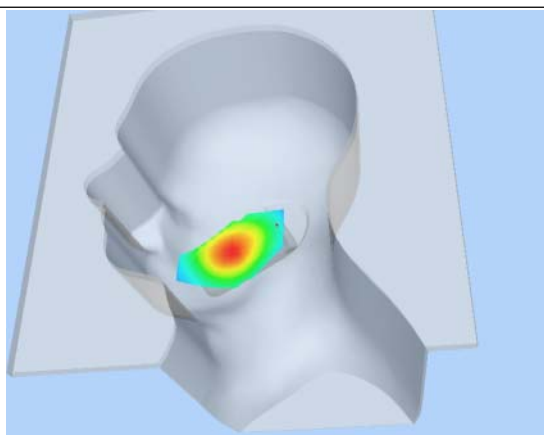
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.8653</b>	<b>0.6085</b>	<b>0.4249</b>	<b>0.3062</b>	<b>0.2154</b>	<b>0.1552</b>

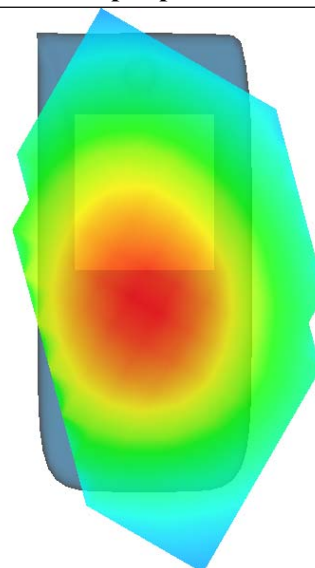
**SAR, Z Axis Scan (X = -48, Y = -27)**



**3D scen shot**



**Hot spot position**





## MEASUREMENT 2

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 51 seconds

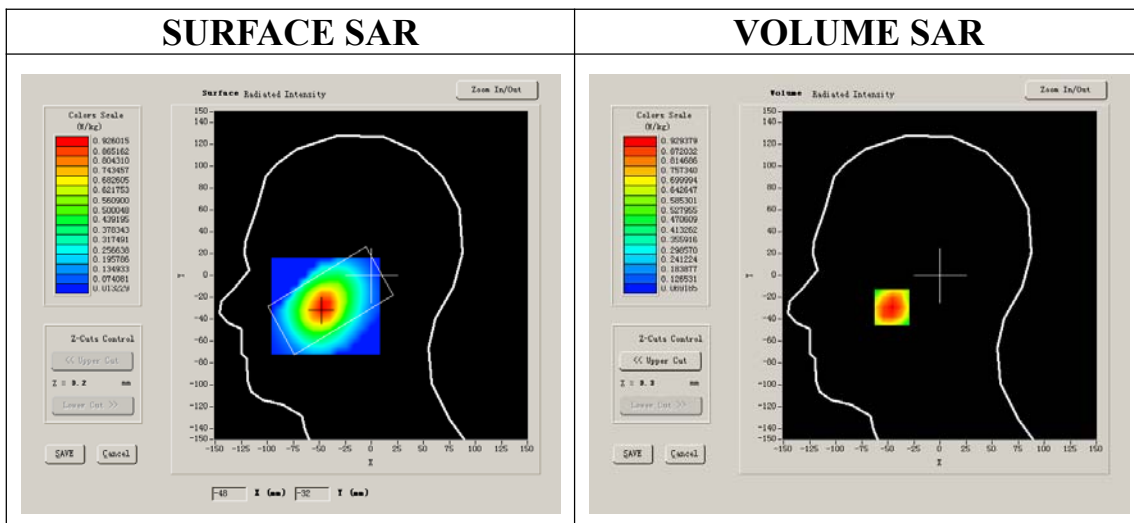
### A. Experimental conditions.

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Cheek
<b>Band</b>	CDMA800
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

### B. SAR Measurement Results

Middle Band SAR (Channel 384):

<b>Frequency (MHz)</b>	836.520020
<b>Relative permittivity (real part)</b>	41.790001
<b>Relative permittivity</b>	18.926250
<b>Conductivity (S/m)</b>	0.879566
<b>Power drift (%)</b>	-0.120000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:1



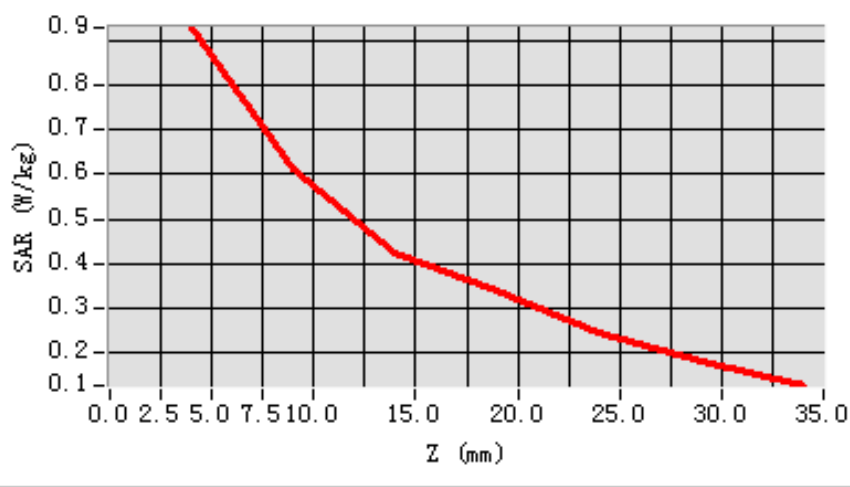
**Maximum location: X=-46.00, Y=-29.00**

<b>SAR 10g (W/Kg)</b>	0.593451
<b>SAR 1g (W/Kg)</b>	0.916156

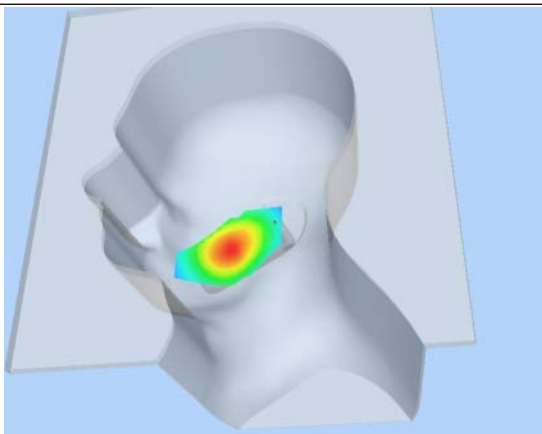
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.9294</b>	<b>0.6114</b>	<b>0.4220</b>	<b>0.3373</b>	<b>0.2472</b>	<b>0.1809</b>

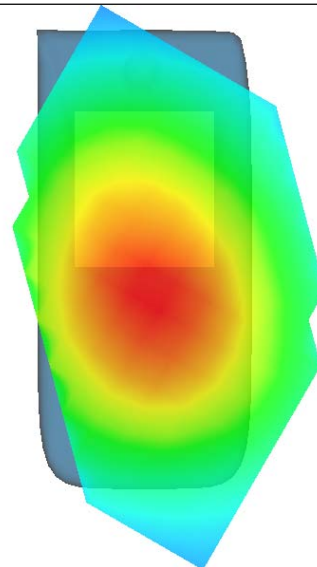
**SAR, Z Axis Scan (X = -46, Y = -29)**



**3D scen shot**



**Hot spot position**



## MEASUREMENT 3

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 55 seconds

### A. Experimental conditions.

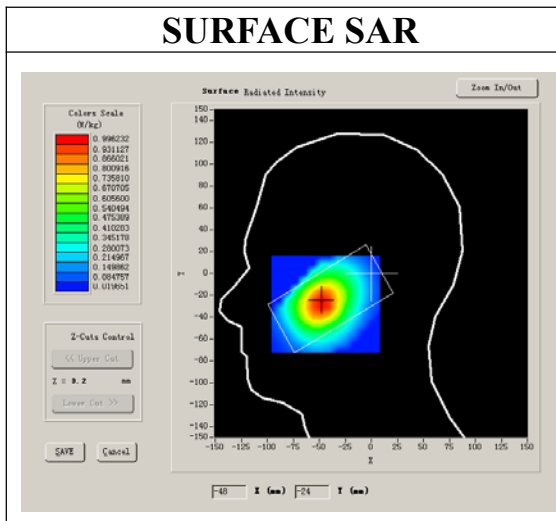
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Cheek
<b>Band</b>	CDMA800
<b>Channels</b>	High
<b>Signal</b>	CDMA

### B. SAR Measurement Results

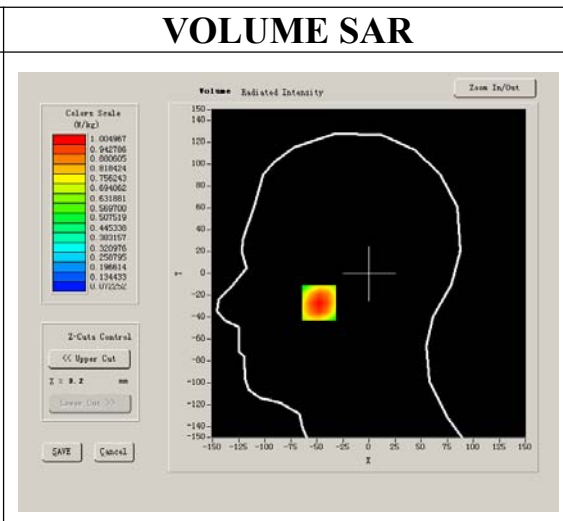
Higher Band SAR (Channel 777):

<b>Frequency (MHz)</b>	848.309998
<b>Relative permittivity (real part)</b>	41.790001
<b>Relative permittivity</b>	18.926250
<b>Conductivity (S/m)</b>	0.891963
<b>Power drift (%)</b>	3.060000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



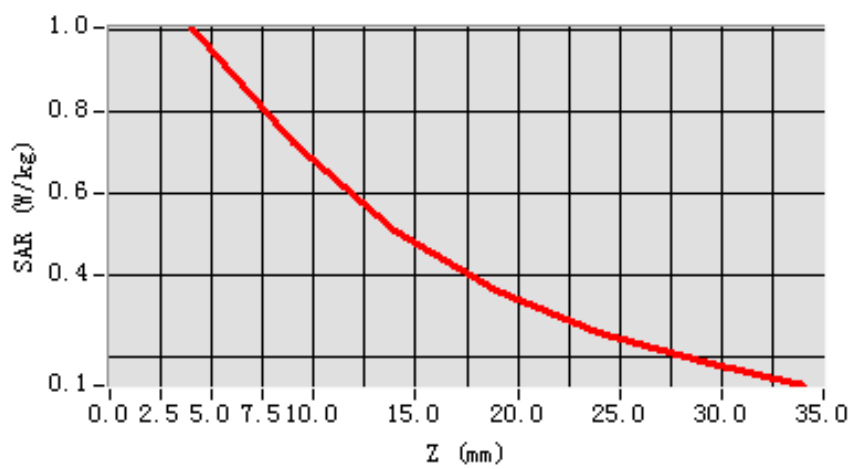
**Maximum location: X=-48.00, Y=-27.00**

<b>SAR 10g (W/Kg)</b>	0.645089
<b>SAR 1g (W/Kg)</b>	0.959722

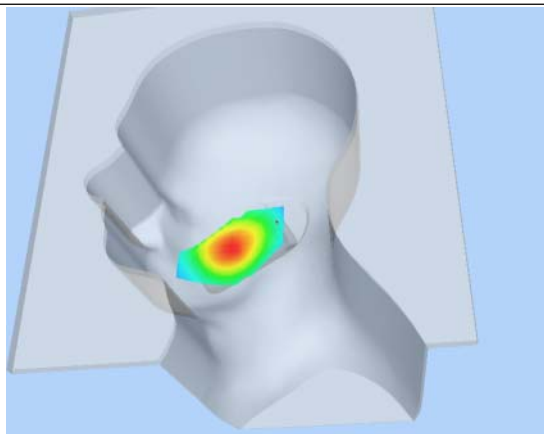
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>1.0050</b>	<b>0.7273</b>	<b>0.5113</b>	<b>0.3626</b>	<b>0.2620</b>	<b>0.1896</b>

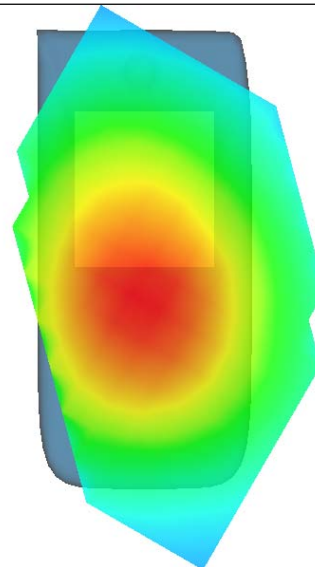
**SAR, Z Axis Scan (X = -48, Y = -27)**



**3D scen shot**



**Hot spot position**



## MEASUREMENT 4

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 39 seconds

### A. Experimental conditions.

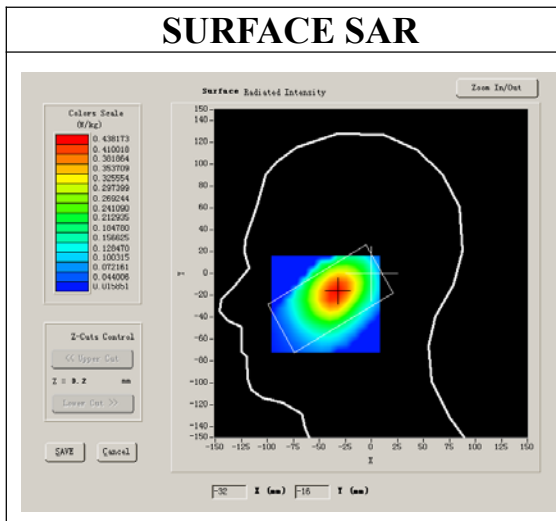
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Tilt
<b>Band</b>	CDMA800
<b>Channels</b>	High
<b>Signal</b>	CDMA

### B. SAR Measurement Results

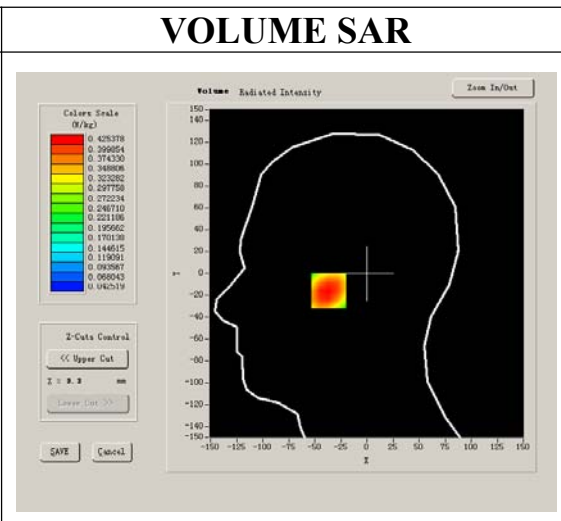
Higher Band SAR (Channel 777):

<b>Frequency (MHz)</b>	848.309998
<b>Relative permittivity (real part)</b>	41.790001
<b>Relative permittivity</b>	18.926250
<b>Conductivity (S/m)</b>	0.879566
<b>Power drift (%)</b>	-2.010000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



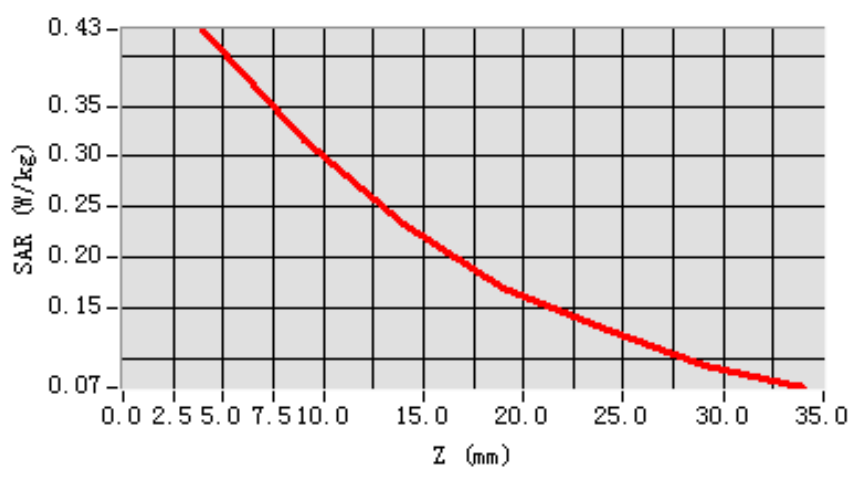
**Maximum location: X=-33.00, Y=-16.00**

<b>SAR 10g (W/Kg)</b>	0.286634
<b>SAR 1g (W/Kg)</b>	0.412955

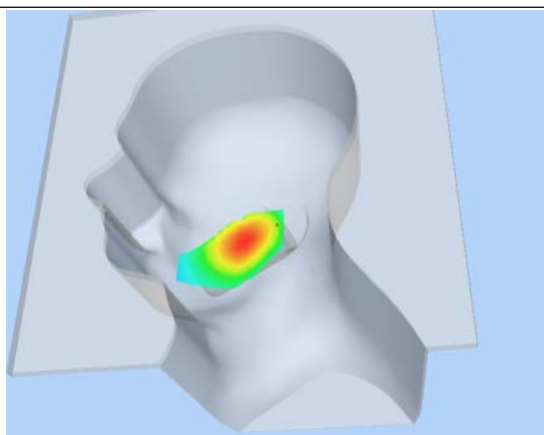
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.4254</b>	<b>0.3164</b>	<b>0.2332</b>	<b>0.1699</b>	<b>0.1303</b>	<b>0.0944</b>

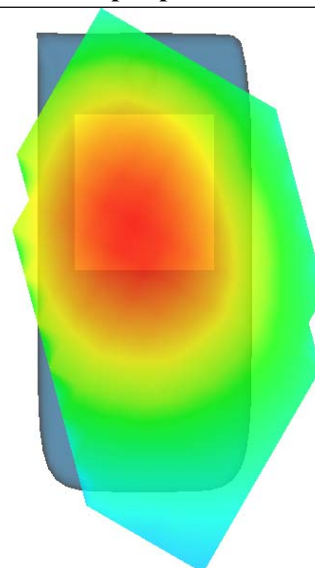
**SAR, Z Axis Scan (X = -33, Y = -16)**



**3D scen shot**



**Hot spot position**



## MEASUREMENT 5

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 43 seconds

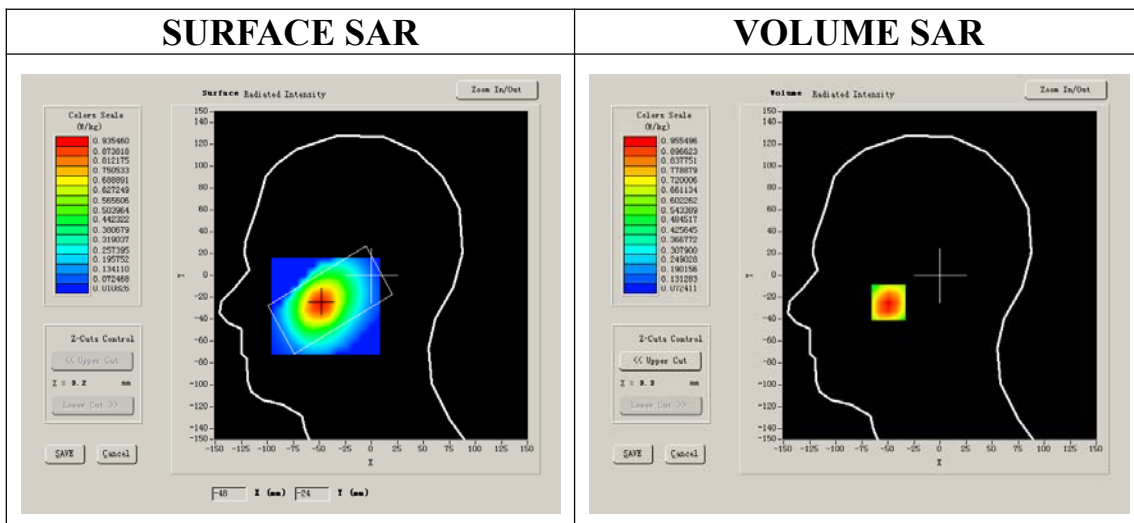
### A. Experimental conditions.

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	CDMA800
<b>Channels</b>	Low
<b>Signal</b>	CDMA

### B. SAR Measurement Results

Lower Band SAR (Channel 1013):

<b>Frequency (MHz)</b>	824.700012
<b>Relative permittivity (real part)</b>	41.790001
<b>Relative permittivity</b>	18.926250
<b>Conductivity (S/m)</b>	0.867138
<b>Power drift (%)</b>	-1.290000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:1



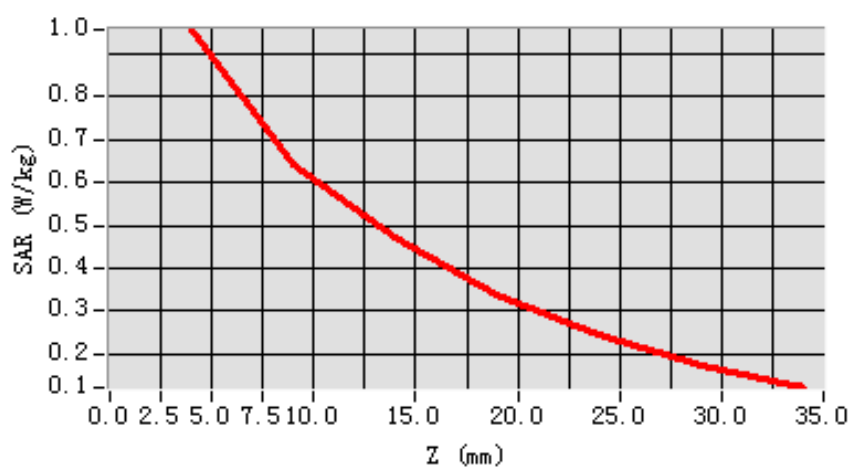
**Maximum location: X=-49.00, Y=-25.00**

<b>SAR 10g (W/Kg)</b>	0.603976
<b>SAR 1g (W/Kg)</b>	0.920483

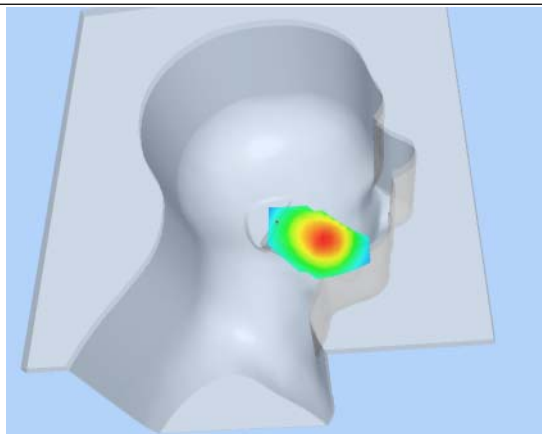
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.9555</b>	<b>0.6398</b>	<b>0.4716</b>	<b>0.3384</b>	<b>0.2441</b>	<b>0.1734</b>

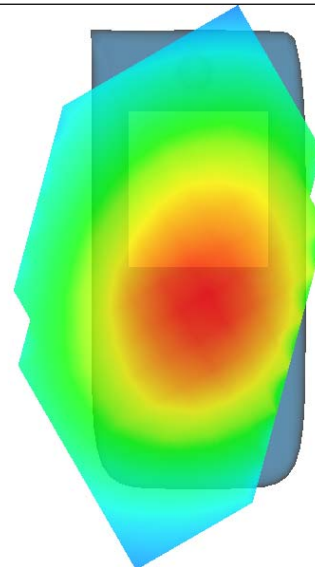
**SAR, Z Axis Scan (X = -49, Y = -25)**



**3D scen shot**



**Hot spot position**





## MEASUREMENT 6

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 43 seconds

### A. Experimental conditions.

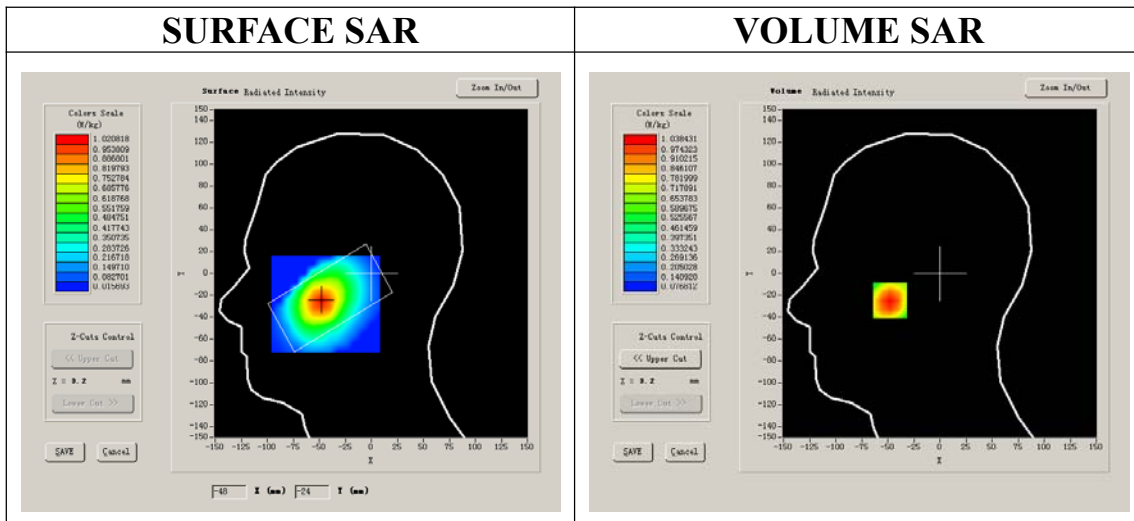
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	CDMA800
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

### B. SAR Measurement Results

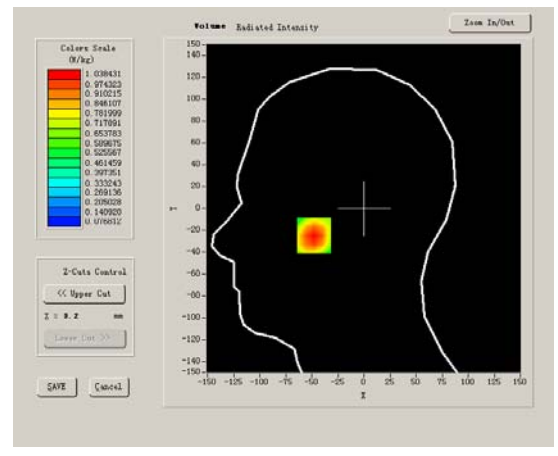
Middle Band SAR (Channel 384):

<b>Frequency (MHz)</b>	836.520020
<b>Relative permittivity (real part)</b>	41.790001
<b>Relative permittivity</b>	18.926250
<b>Conductivity (S/m)</b>	0.879566
<b>Power drift (%)</b>	-0.140000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



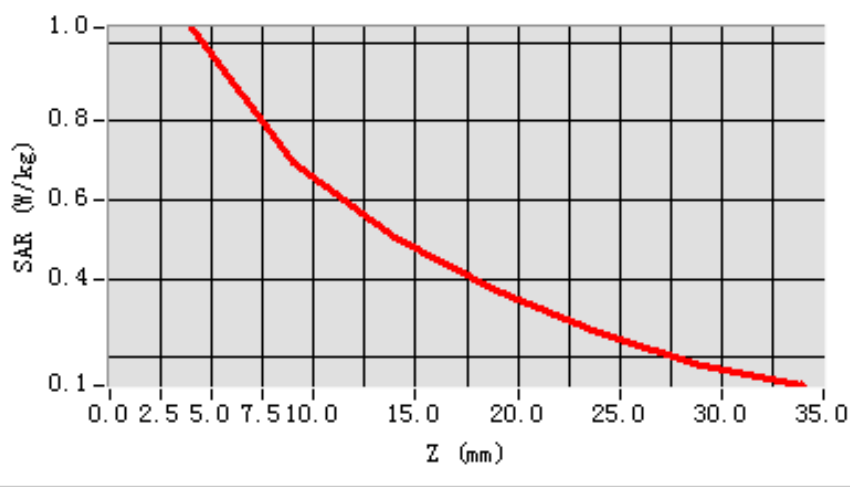
**Maximum location: X=-48.00, Y=-25.00**

<b>SAR 10g (W/Kg)</b>	0.653580
<b>SAR 1g (W/Kg)</b>	1.000578

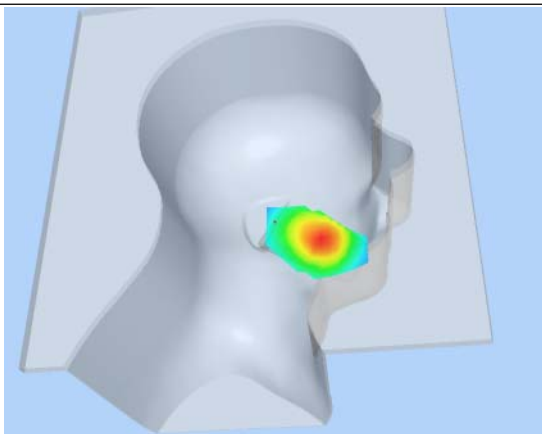
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>1.0384</b>	<b>0.6929</b>	<b>0.5052</b>	<b>0.3683</b>	<b>0.2626</b>	<b>0.1782</b>

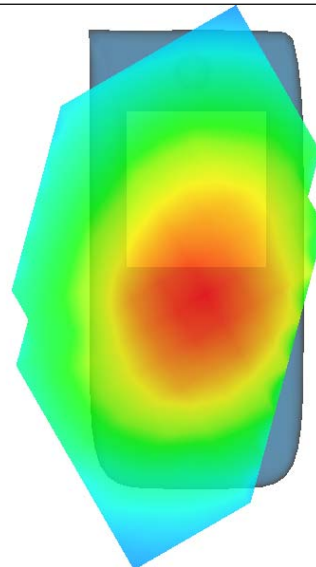
**SAR, Z Axis Scan (X = -48, Y = -25)**



**3D scen shot**



**Hot spot position**



## MEASUREMENT 7

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 45 seconds

### A. Experimental conditions.

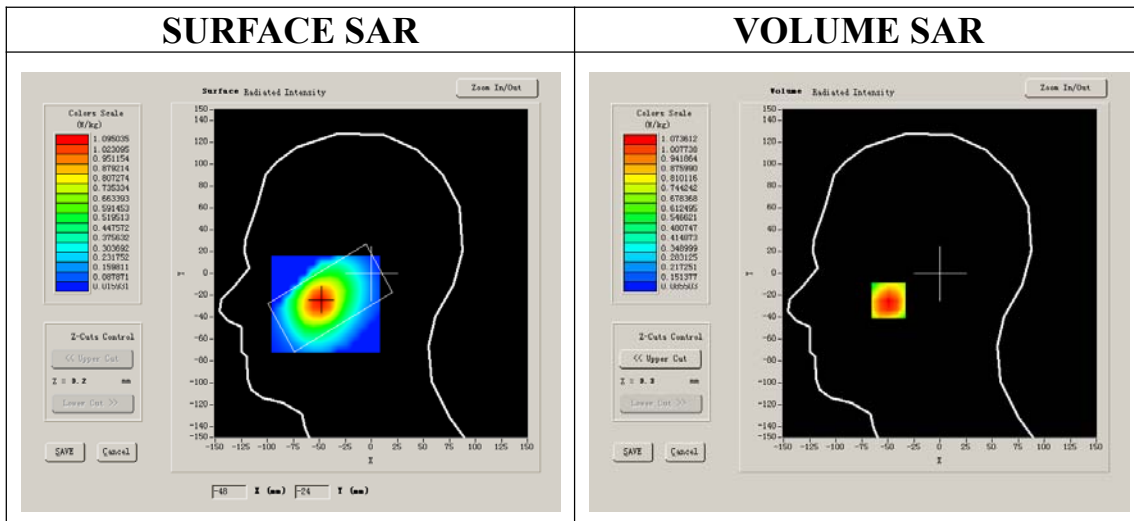
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	CDMA800
<b>Channels</b>	High
<b>Signal</b>	CDMA

### B. SAR Measurement Results

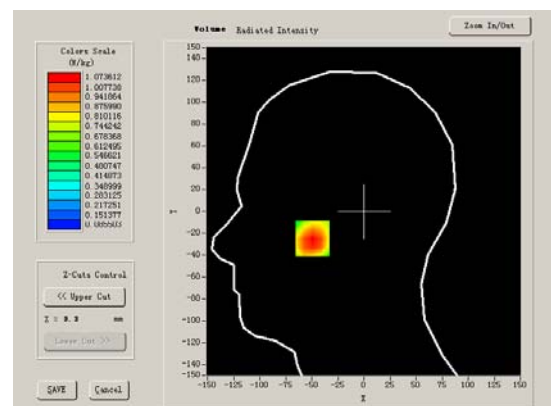
Higher Band SAR (Channel 777):

<b>Frequency (MHz)</b>	848.309998
<b>Relative permittivity (real part)</b>	41.790001
<b>Relative permittivity</b>	18.926250
<b>Conductivity (S/m)</b>	0.891963
<b>Power drift (%)</b>	-1.220000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



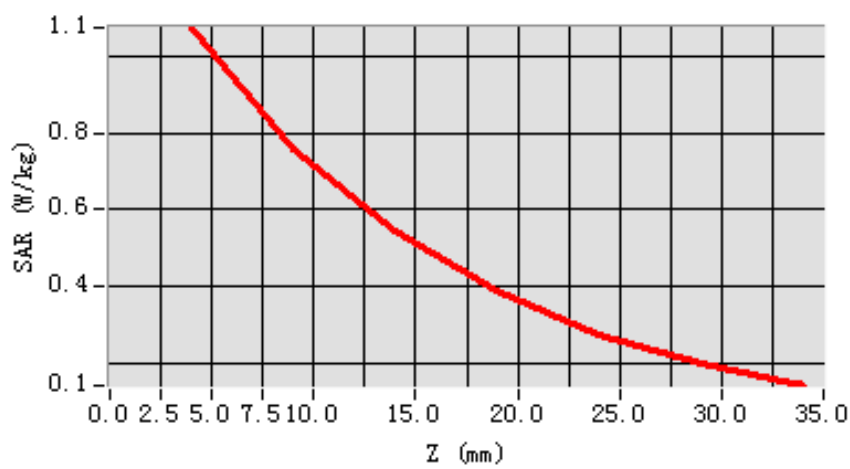
**Maximum location: X=-49.00, Y=-25.00**

<b>SAR 10g (W/Kg)</b>	0.687492
<b>SAR 1g (W/Kg)</b>	1.042170

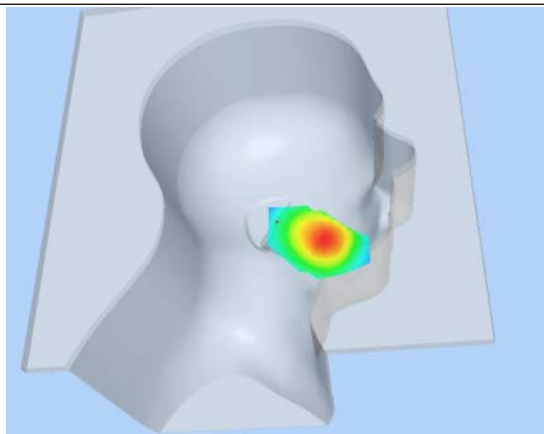
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>1.0736</b>	<b>0.7602</b>	<b>0.5442</b>	<b>0.3894</b>	<b>0.2772</b>	<b>0.1983</b>

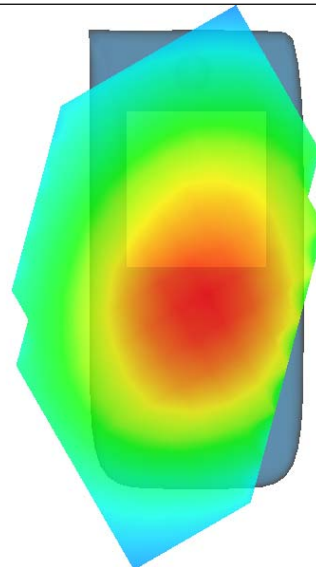
**SAR, Z Axis Scan (X = -49, Y = -25)**



**3D scen shot**



**Hot spot position**



## MEASUREMENT 8

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 36 seconds

### A. Experimental conditions.

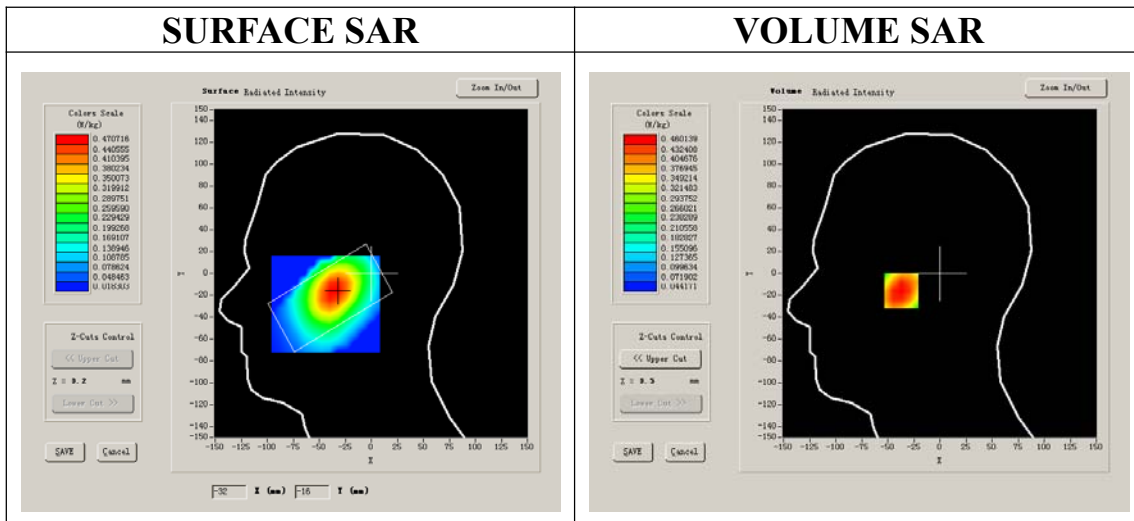
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Tilt
<b>Band</b>	CDMA800
<b>Channels</b>	High
<b>Signal</b>	CDMA

### B. SAR Measurement Results

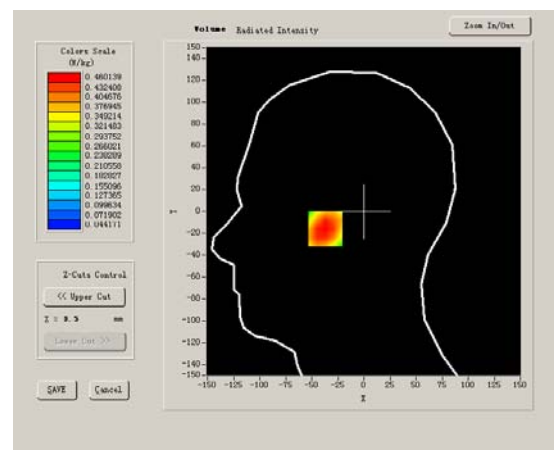
Higher Band SAR (Channel 777):

<b>Frequency (MHz)</b>	848.309998
<b>Relative permittivity (real part)</b>	41.790001
<b>Relative permittivity</b>	18.926250
<b>Conductivity (S/m)</b>	0.879566
<b>Power drift (%)</b>	-0.240000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



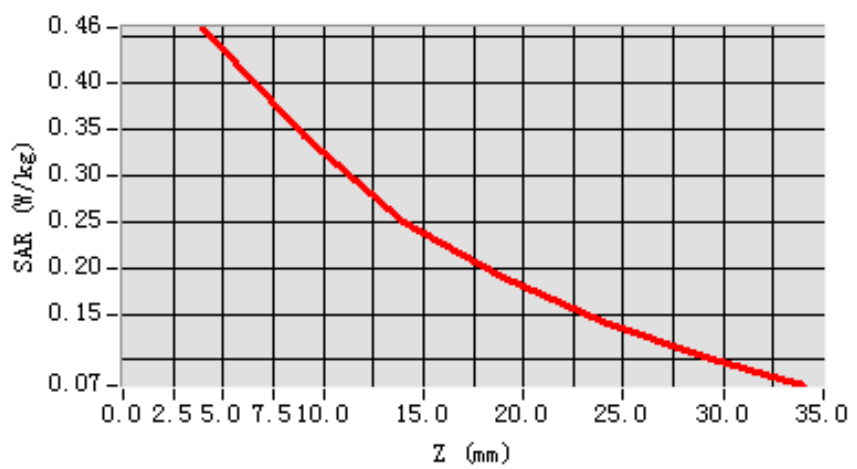
**Maximum location: X=-35.00, Y=-16.00**

<b>SAR 10g (W/Kg)</b>	0.311861
<b>SAR 1g (W/Kg)</b>	0.450772

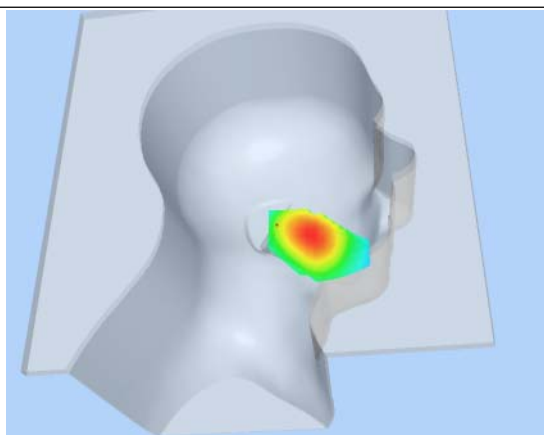
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.4601</b>	<b>0.3425</b>	<b>0.2505</b>	<b>0.1897</b>	<b>0.1409</b>	<b>0.1033</b>

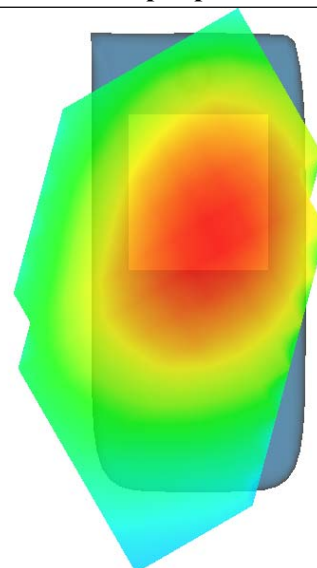
**SAR, Z Axis Scan (X = -35, Y = -16)**



**3D scen shot**



**Hot spot position**



## MEASUREMENT 9

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 9 minutes 16 seconds

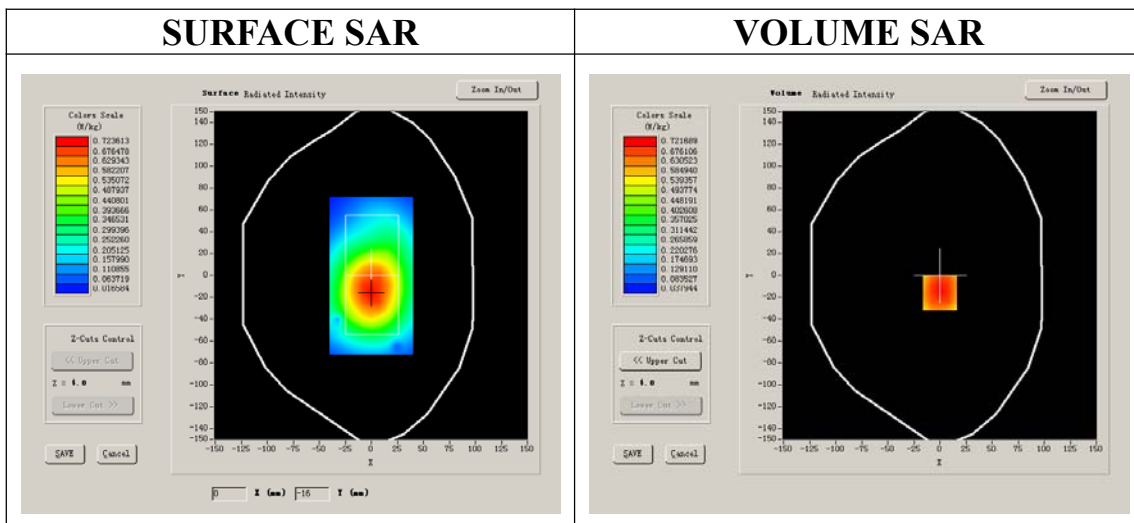
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	CDMA850
<b>Channels</b>	Low
<b>Signal</b>	CDMA

### B. SAR Measurement Results

Lower Band SAR (Channel 1013):

<b>Frequency (MHz)</b>	824.700012
<b>Relative permittivity (real part)</b>	54.116001
<b>Relative permittivity</b>	21.284550
<b>Conductivity (S/m)</b>	0.975187
<b>Power drift (%)</b>	-0.030000
<b>Ambient Temperature:</b>	22.2°C
<b>Liquid Temperature:</b>	21.5C
<b>ConvF:</b>	28.479,25.214,27.196
<b>Crest factor:</b>	1:1



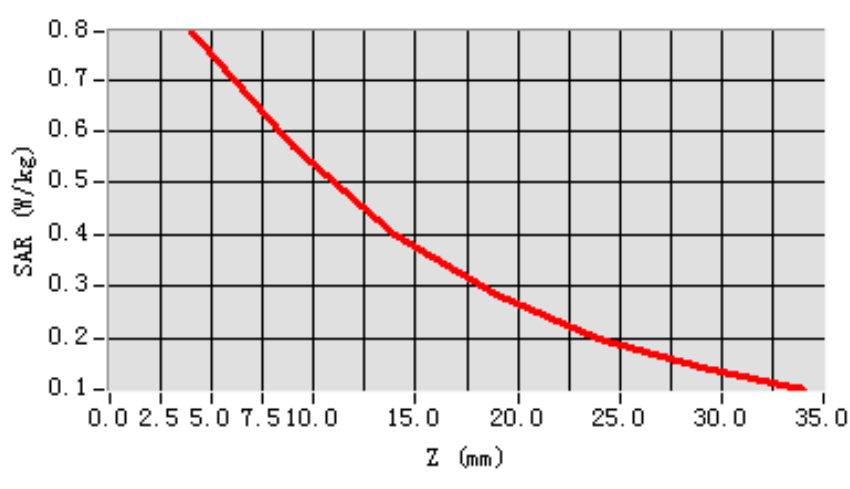
**Maximum location: X=0.00, Y=-16.00**

<b>SAR 10g (W/Kg)</b>	0.527181
<b>SAR 1g (W/Kg)</b>	0.761670

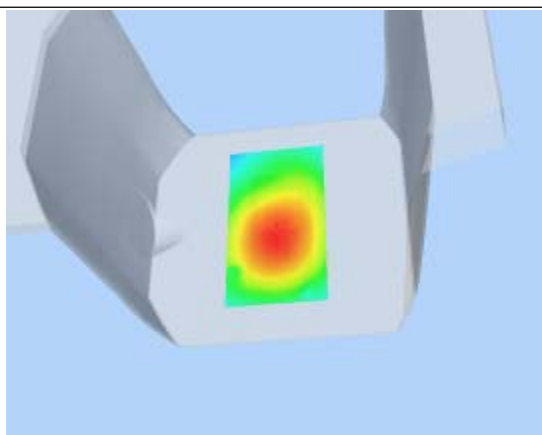
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	0.7923	0.5712	0.3971	0.2826	0.1988	0.1435

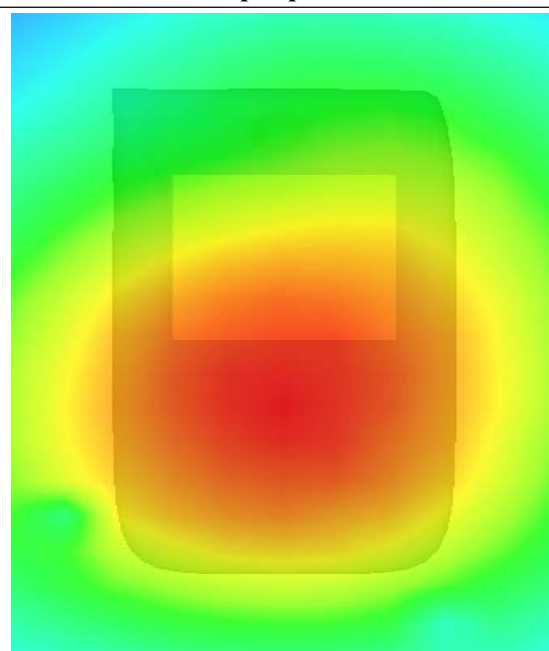
**SAR, Z Axis Scan (X = 0, Y = -16)**



**3D scen shot**



**Hot spot position**





# MEASUREMENT 10

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 9 minutes 11 seconds

## A. Experimental conditions.

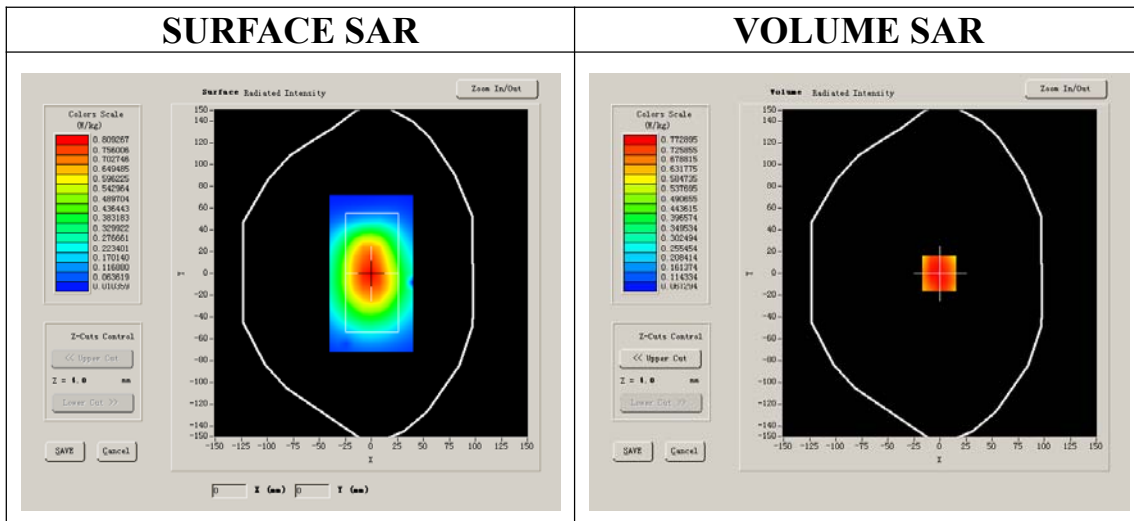
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	CDMA850
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

## B. SAR Measurement Results

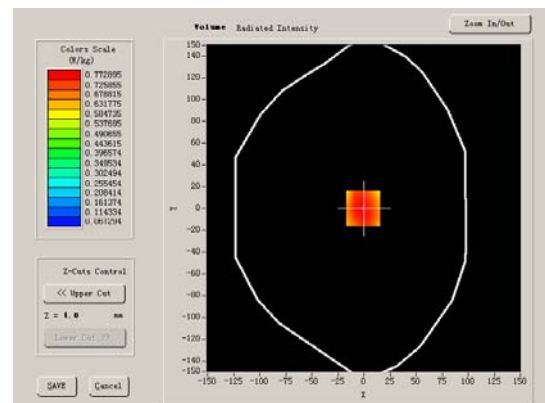
Middle Band SAR (Channel 384):

<b>Frequency (MHz)</b>	836.520020
<b>Relative permittivity (real part)</b>	54.116001
<b>Relative permittivity</b>	21.284550
<b>Conductivity (S/m)</b>	0.989164
<b>Power drift (%)</b>	-1.350000
<b>Ambient Temperature:</b>	22.2°C
<b>Liquid Temperature:</b>	21.5C
<b>ConvF:</b>	28.479,25.214,27.196
<b>Crest factor:</b>	1:1

### SURFACE SAR



### VOLUME SAR



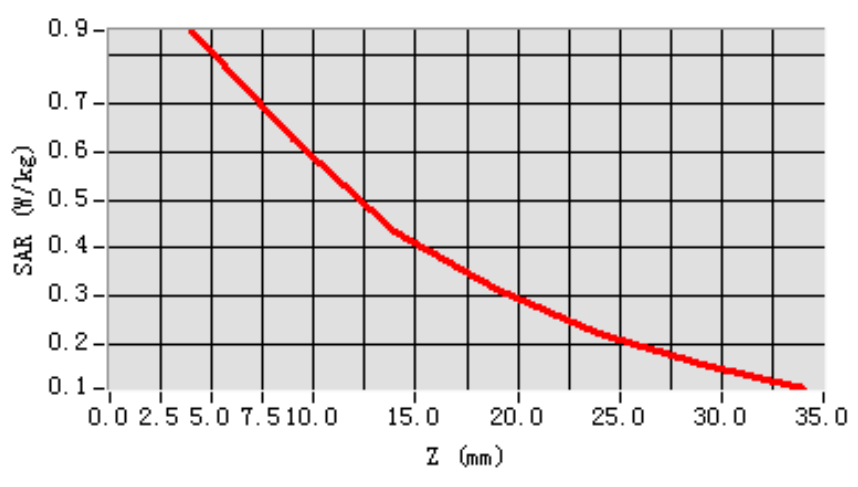
**Maximum location: X=-1.00, Y=0.00**

<b>SAR 10g (W/Kg)</b>	0.623649
<b>SAR 1g (W/Kg)</b>	0.878996

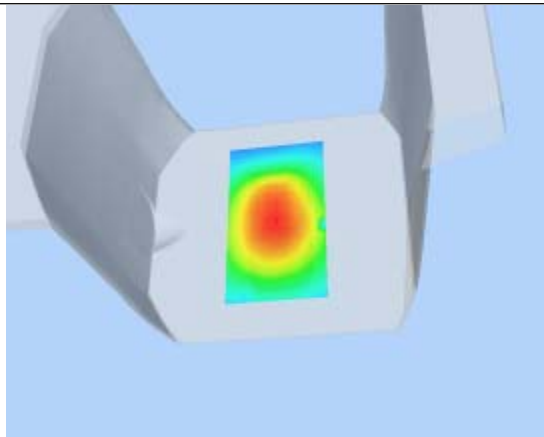
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.8529</b>	<b>0.6263</b>	<b>0.4342</b>	<b>0.3124</b>	<b>0.2194</b>	<b>0.1550</b>

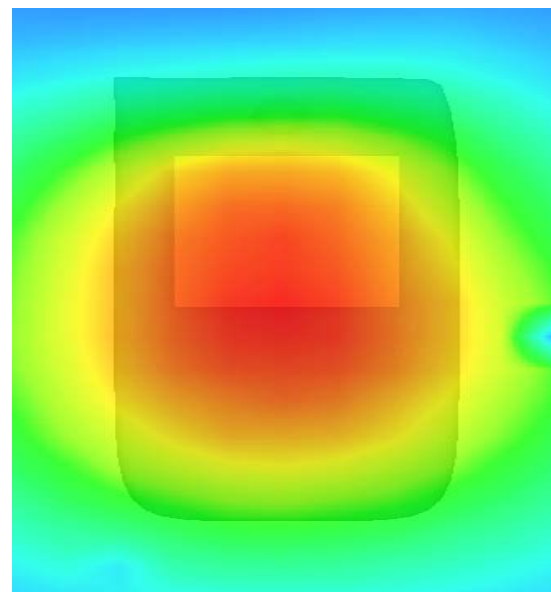
**SAR, Z Axis Scan (X = -1, Y = 0)**



**3D scen shot**



**Hot spot position**



# MEASUREMENT 11

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 9 minutes 16 seconds

## A. Experimental conditions.

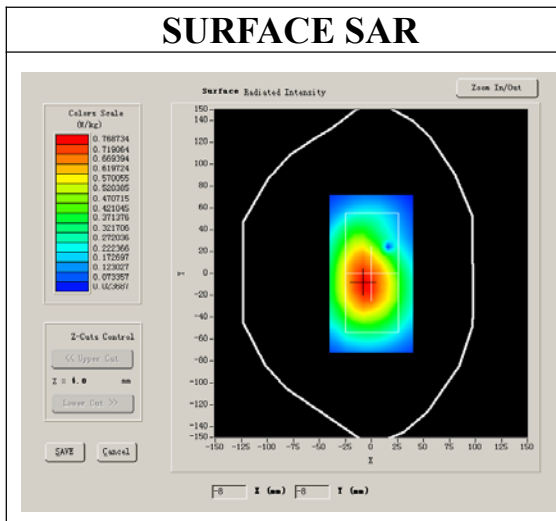
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	CDMA850
<b>Channels</b>	High
<b>Signal</b>	CDMA

## B. SAR Measurement Results

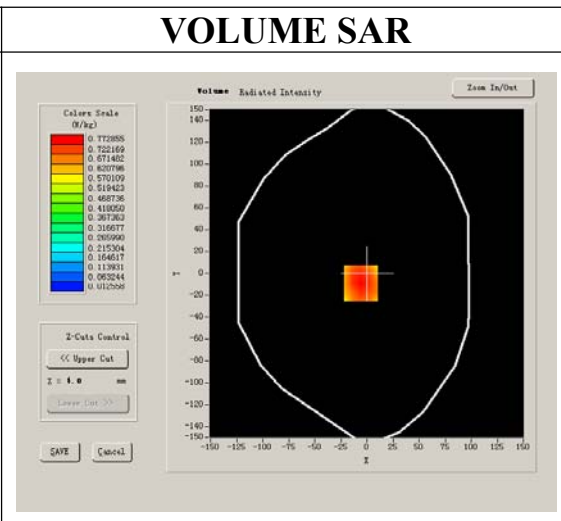
Higher Band SAR (Channel 777):

<b>Frequency (MHz)</b>	848.309998
<b>Relative permittivity (real part)</b>	54.116001
<b>Relative permittivity</b>	21.284550
<b>Conductivity (S/m)</b>	1.003105
<b>Power drift (%)</b>	-0.170000
<b>Ambient Temperature:</b>	22.2°C
<b>Liquid Temperature:</b>	21.5C
<b>ConvF:</b>	28.479,25.214,27.196
<b>Crest factor:</b>	1:1

### SURFACE SAR



### VOLUME SAR



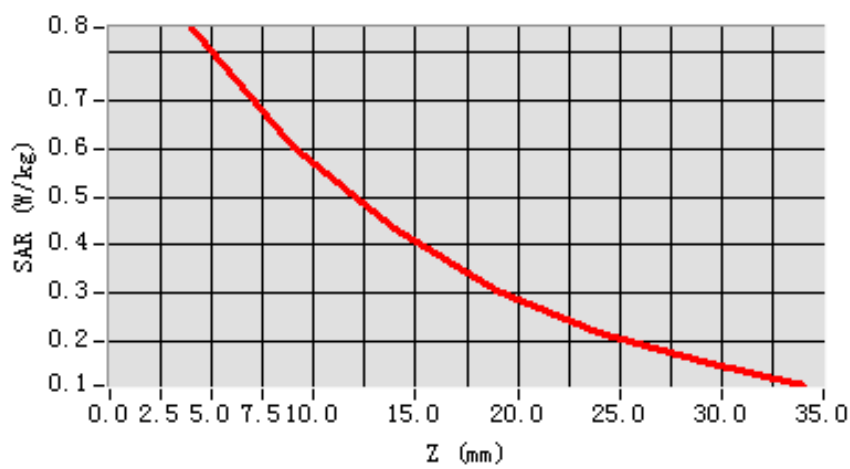
**Maximum location: X=-6.00, Y=-9.00**

<b>SAR 10g (W/Kg)</b>	0.549283
<b>SAR 1g (W/Kg)</b>	0.810675

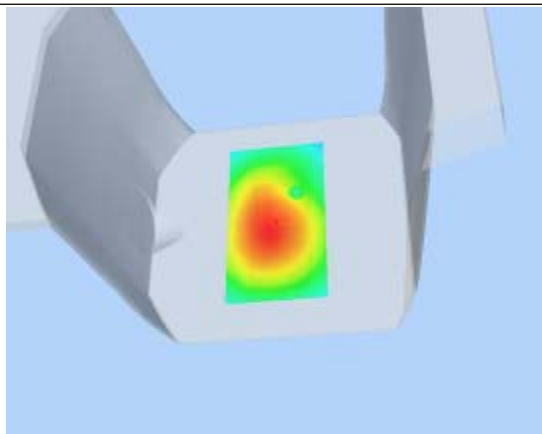
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.8485</b>	<b>0.6021</b>	<b>0.4334</b>	<b>0.3065</b>	<b>0.2218</b>	<b>0.1619</b>

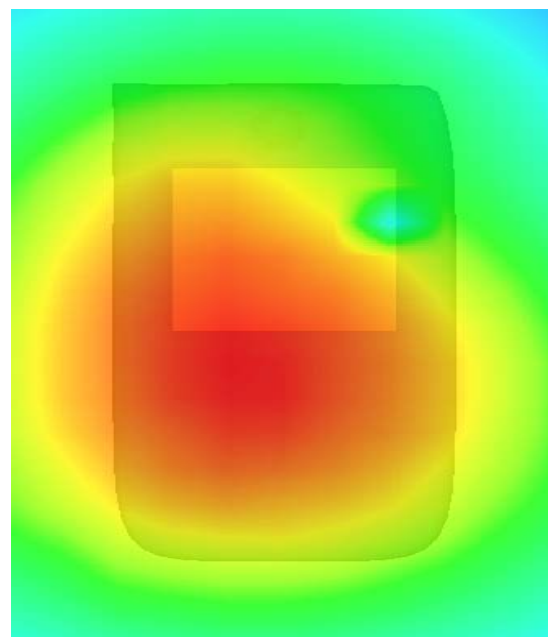
**SAR, Z Axis Scan (X = -6, Y = -9)**



**3D scen shot**



**Hot spot position**



## MEASUREMENT 12

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 9 minutes 11 seconds

### A. Experimental conditions.

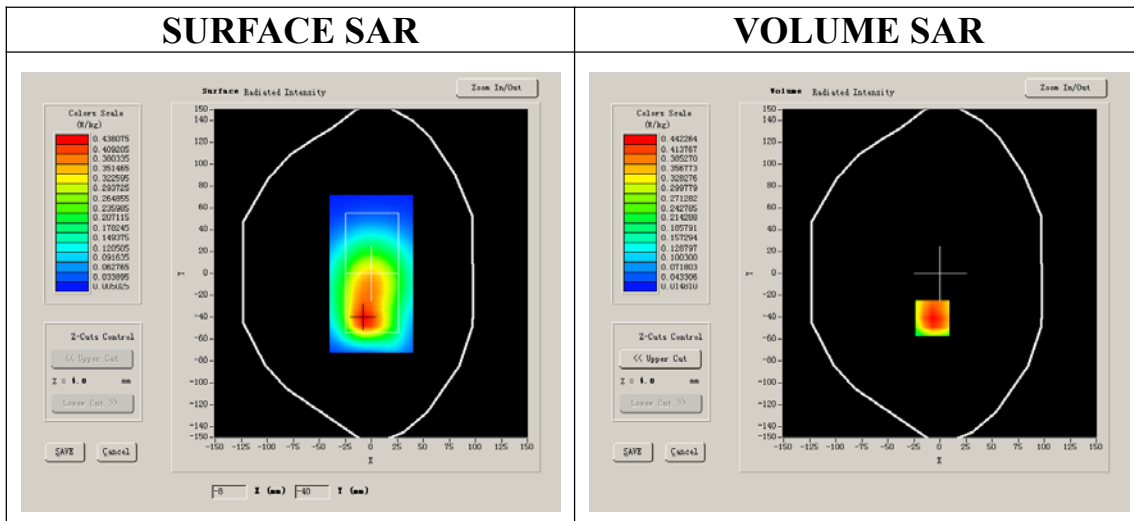
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	CDMA850
<b>Channels</b>	High
<b>Signal</b>	CDMA

### B. SAR Measurement Results

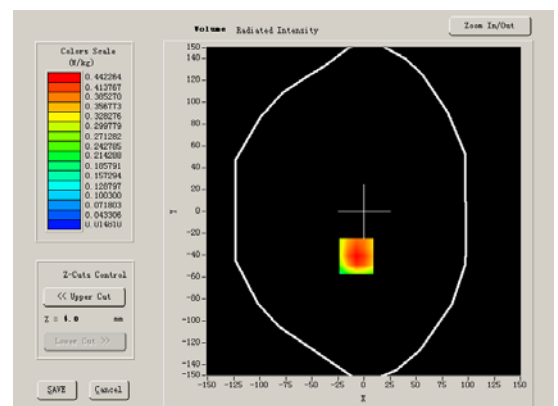
Higher Band SAR (Channel 777):

<b>Frequency (MHz)</b>	848.309998
<b>Relative permittivity (real part)</b>	54.116001
<b>Relative permittivity</b>	21.284550
<b>Conductivity (S/m)</b>	0.989164
<b>Power drift (%)</b>	-1.350000
<b>Ambient Temperature:</b>	22.2°C
<b>Liquid Temperature:</b>	21.5C
<b>ConvF:</b>	28.479,25.214,27.196
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



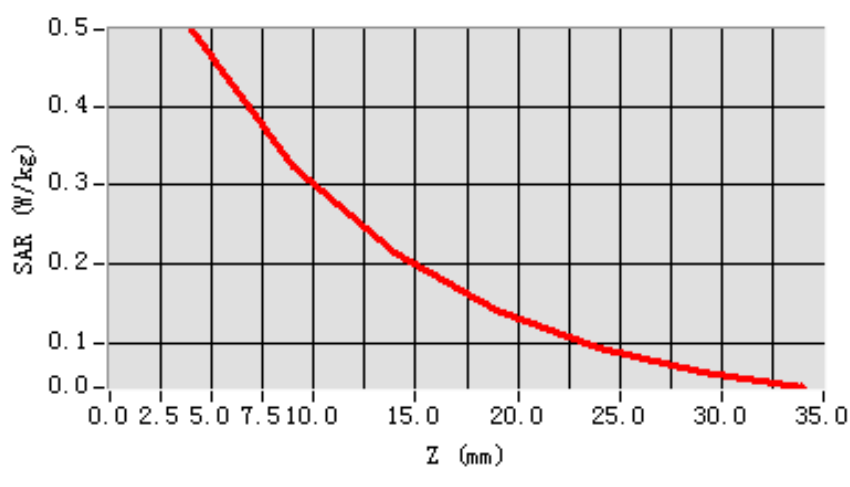
**Maximum location: X=-7.00, Y=-41.00**

<b>SAR 10g (W/Kg)</b>	0.308533
<b>SAR 1g (W/Kg)</b>	0.483495

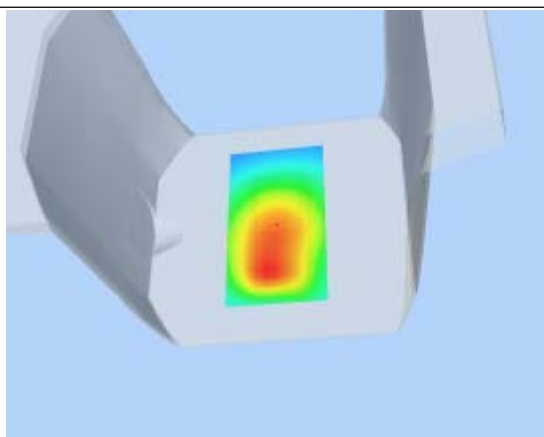
**Z Axis Scan**

(mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	0.4974	0.3227	0.2136	0.1422	0.0943	0.0636

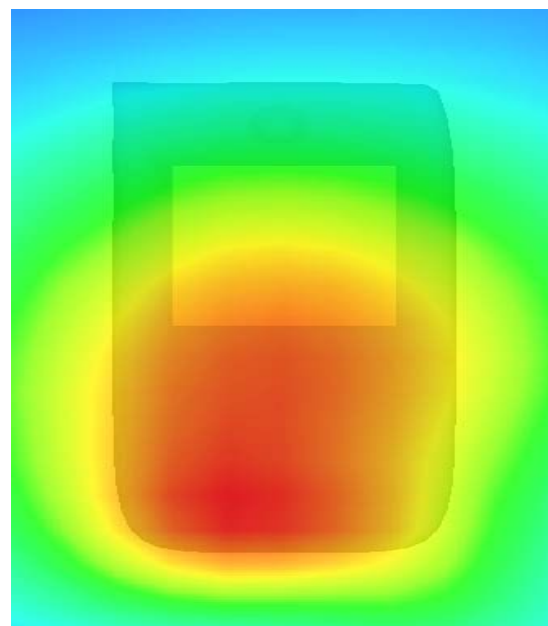
**SAR, Z Axis Scan (X = -7, Y = -41)**



**3D scen shot**



**Hot spot position**



# MEASUREMENT 13

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 8 minutes 4 seconds

## A. Experimental conditions.

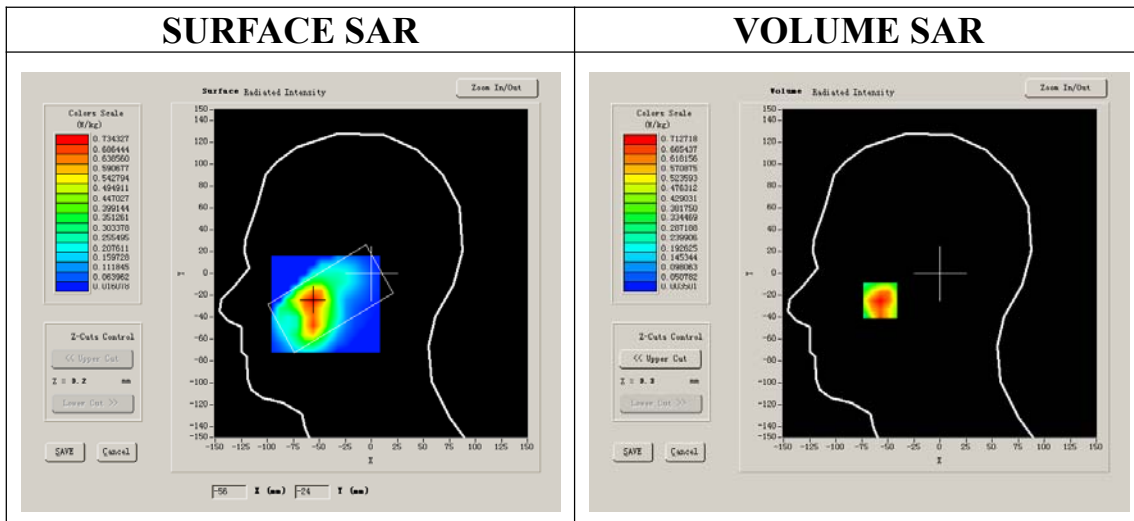
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Cheek
<b>Band</b>	CDMA1900
<b>Channels</b>	Low
<b>Signal</b>	CDMA

## B. SAR Measurement Results

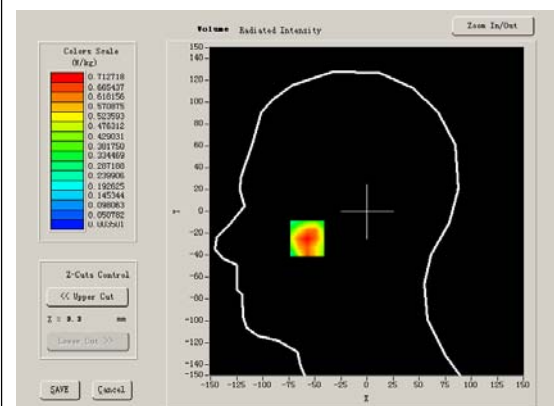
Lower Band SAR (Channel 25):

<b>Frequency (MHz)</b>	1850.200000
<b>Relative permittivity (real part)</b>	38.209000
<b>Relative permittivity</b>	13.915650
<b>Conductivity (S/m)</b>	1.431186
<b>Power drift (%)</b>	-2.320000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1

### SURFACE SAR



### VOLUME SAR



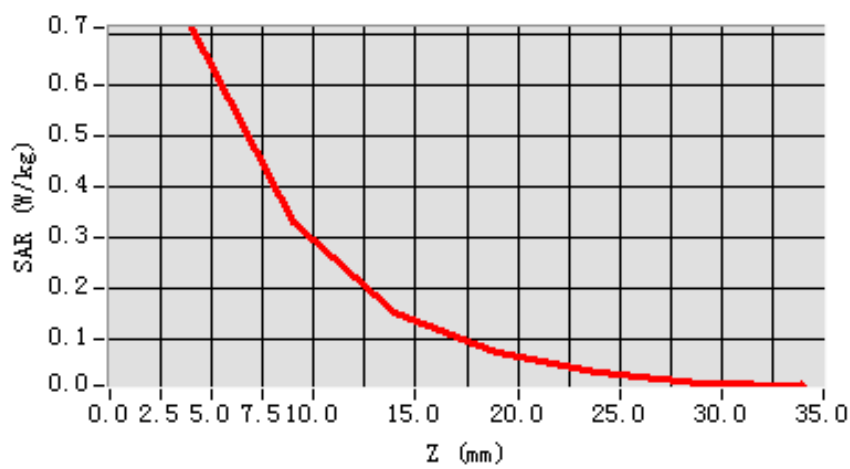
**Maximum location: X=-57.00, Y=-25.00**

<b>SAR 10g (W/Kg)</b>	0.342292
<b>SAR 1g (W/Kg)</b>	0.675476

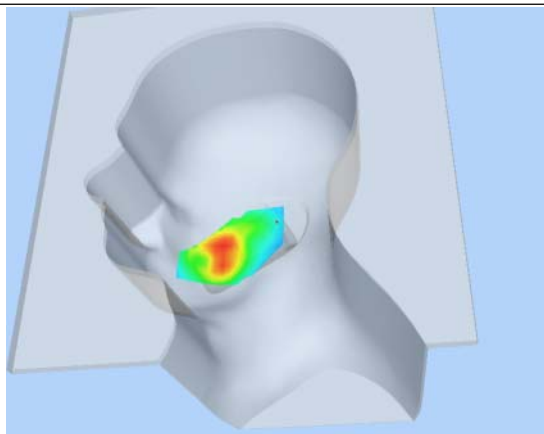
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.7127</b>	<b>0.3297</b>	<b>0.1541</b>	<b>0.0743</b>	<b>0.0348</b>	<b>0.0172</b>

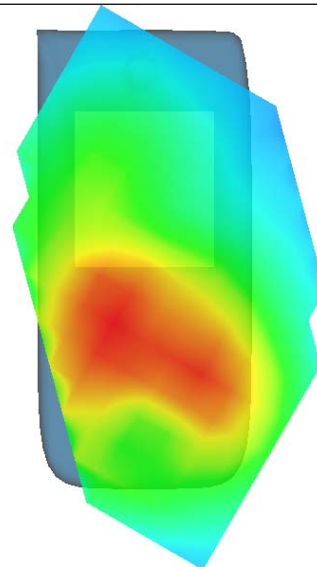
**SAR, Z Axis Scan (X = -57, Y = -25)**



**3D scen shot**



**Hot spot position**





# MEASUREMENT 14

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 28 seconds

## A. Experimental conditions.

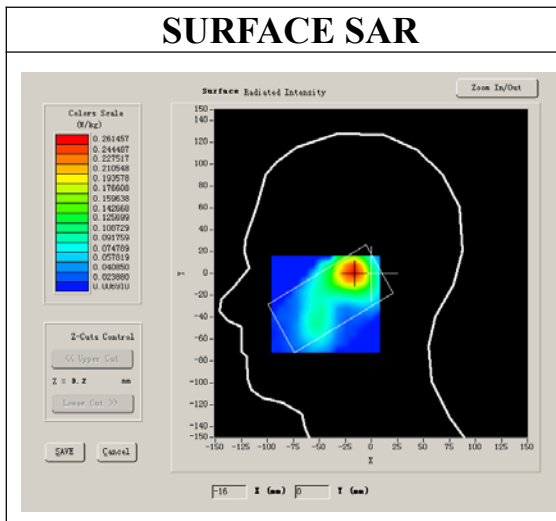
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Tilt
<b>Band</b>	CDMA1900
<b>Channels</b>	Low
<b>Signal</b>	CDMA

## B. SAR Measurement Results

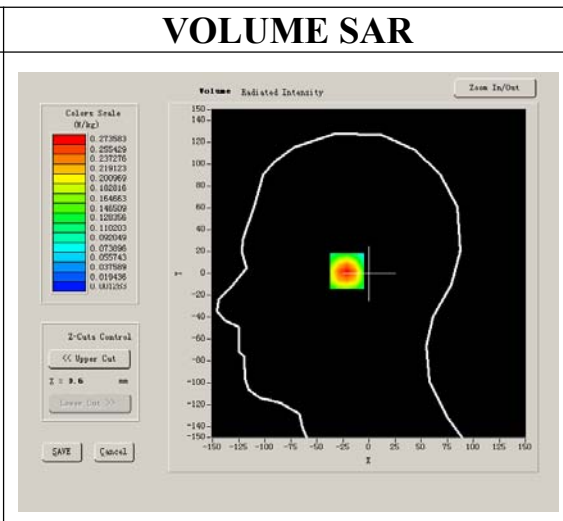
Lower Band SAR (Channel 25):

<b>Frequency (MHz)</b>	1850.200000
<b>Relative permittivity (real part)</b>	38.209000
<b>Relative permittivity</b>	13.915650
<b>Conductivity (S/m)</b>	1.453412
<b>Power drift (%)</b>	0.370000
<b>Ambient Temperature:</b>	22.6°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1

### SURFACE SAR



### VOLUME SAR



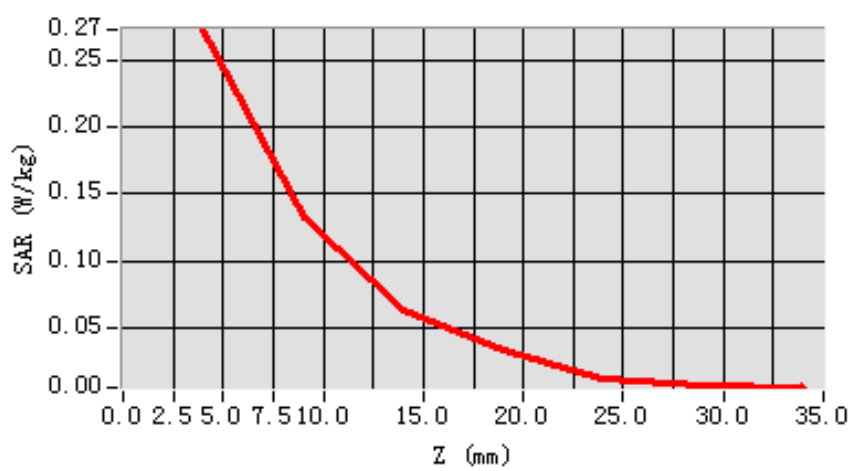
**Maximum location: X=-17.00, Y=2.00**

<b>SAR 10g (W/Kg)</b>	0.130571
<b>SAR 1g (W/Kg)</b>	0.259485

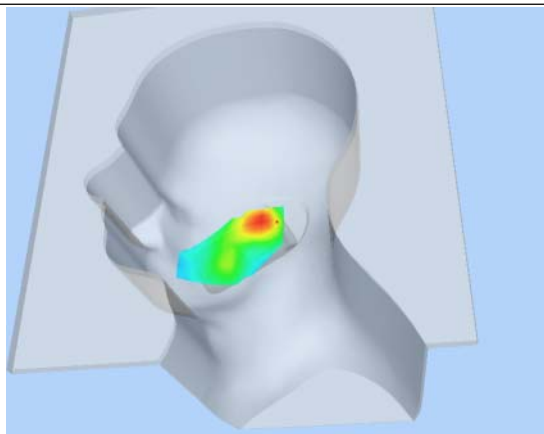
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.2736</b>	<b>0.1321</b>	<b>0.0626</b>	<b>0.0325</b>	<b>0.0117</b>	<b>0.0059</b>

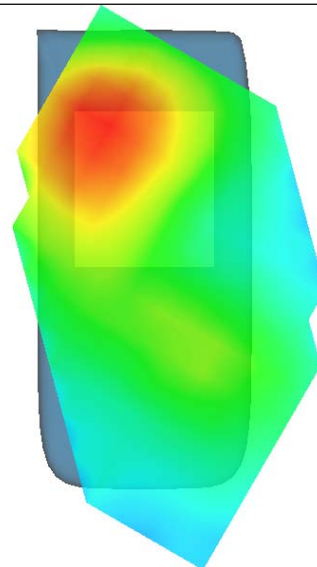
**SAR, Z Axis Scan (X = -17, Y = 2)**



**3D scen shot**



**Hot spot position**



## MEASUREMENT 15

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 8 minutes 0 seconds

### A. Experimental conditions.

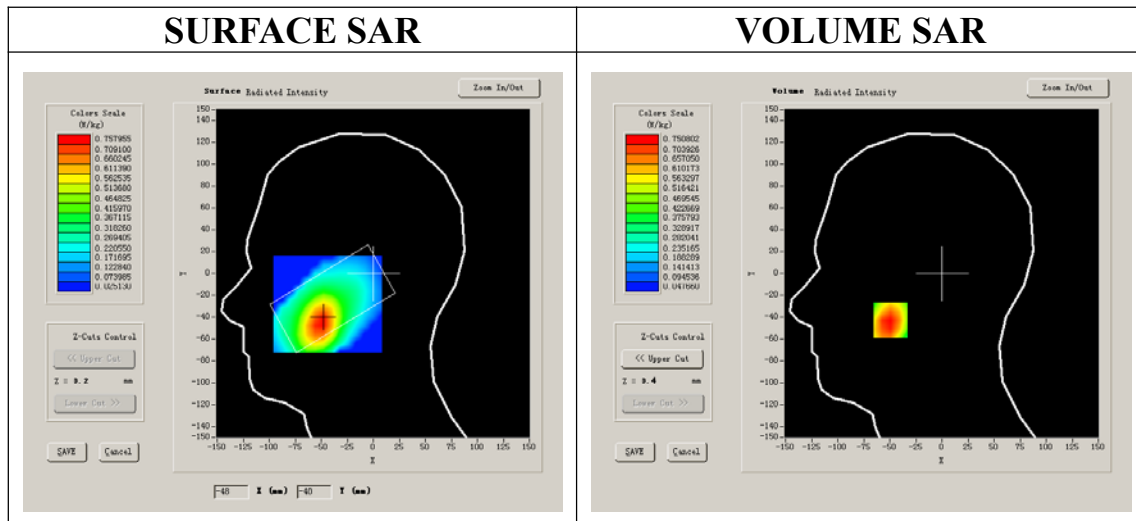
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	CDMA1900
<b>Channels</b>	Low
<b>Signal</b>	CDMA

### B. SAR Measurement Results

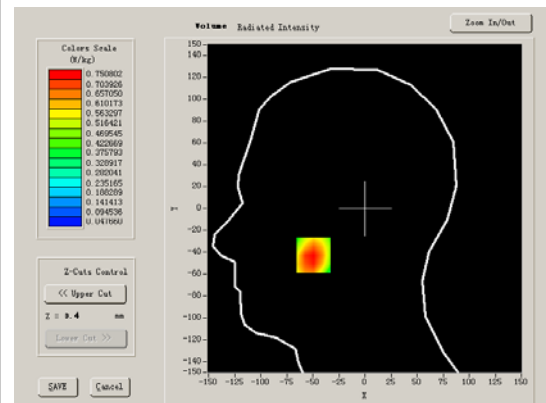
Lower Band SAR (Channel 25):

<b>Frequency (MHz)</b>	1850.200000
<b>Relative permittivity (real part)</b>	38.209000
<b>Relative permittivity</b>	13.915650
<b>Conductivity (S/m)</b>	1.431186
<b>Power drift (%)</b>	-3.080000
<b>Ambient Temperature:</b>	22.6°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



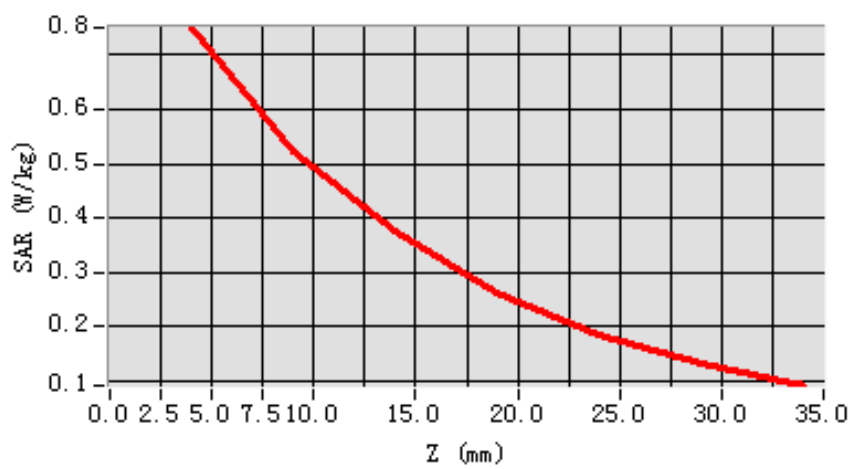
**Maximum location: X=-49.00, Y=-43.00**

<b>SAR 10g (W/Kg)</b>	0.476133
<b>SAR 1g (W/Kg)</b>	0.721986

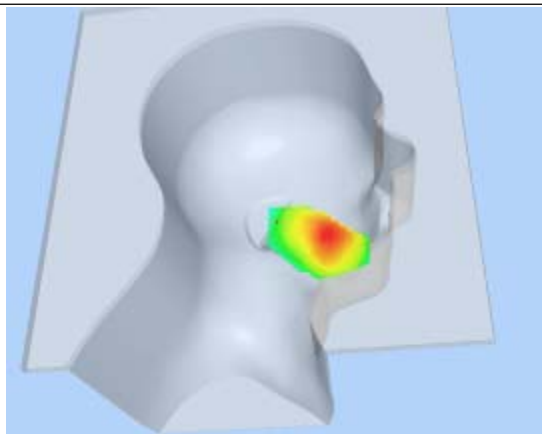
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.7508</b>	<b>0.5221</b>	<b>0.3747</b>	<b>0.2617</b>	<b>0.1857</b>	<b>0.1309</b>

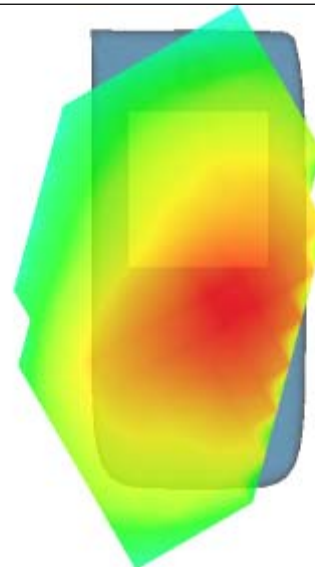
**SAR, Z Axis Scan (X = -49, Y = -43)**



**3D scen shot**



**Hot spot position**



## MEASUREMENT 16

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 7 minutes 59 seconds

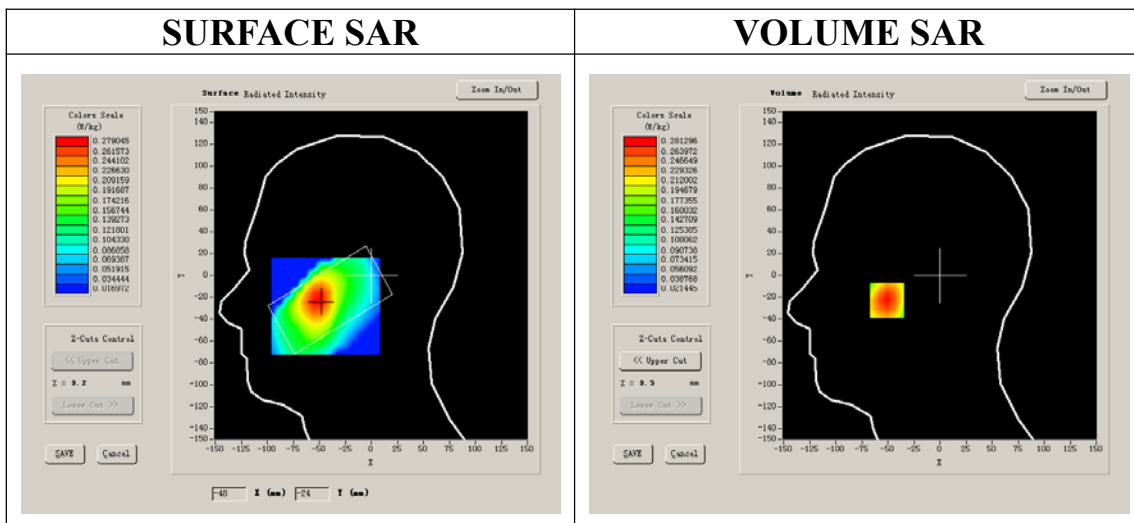
### A. Experimental conditions.

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Tilt
<b>Band</b>	CDMA1900
<b>Channels</b>	Low
<b>Signal</b>	CDMA

### B. SAR Measurement Results

Lower Band SAR (Channel 25):

<b>Frequency (MHz)</b>	1850.200000
<b>Relative permittivity (real part)</b>	38.209000
<b>Relative permittivity</b>	13.915650
<b>Conductivity (S/m)</b>	1.453412
<b>Power drift (%)</b>	-0.820000
<b>Ambient Temperature:</b>	22.6°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



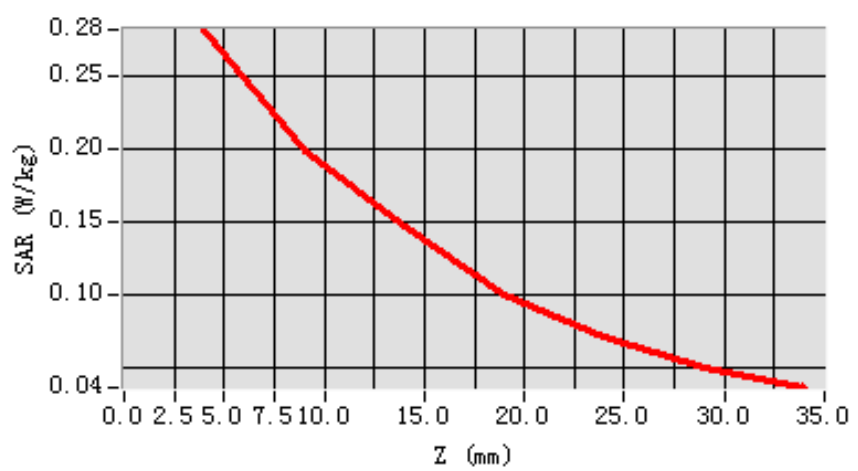
**Maximum location: X=-51.00, Y=-23.00**

<b>SAR 10g (W/Kg)</b>	0.181882
<b>SAR 1g (W/Kg)</b>	0.268362

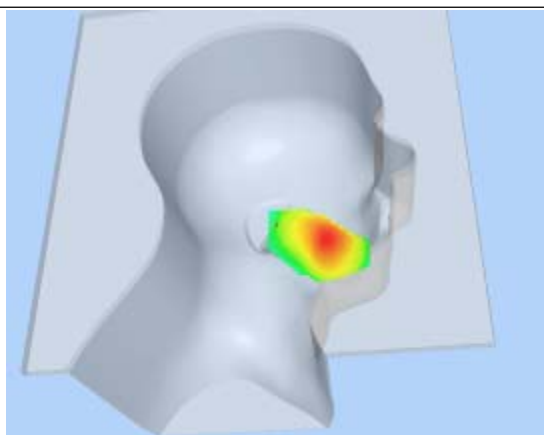
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.2813</b>	<b>0.1979</b>	<b>0.1467</b>	<b>0.1011</b>	<b>0.0722</b>	<b>0.0512</b>

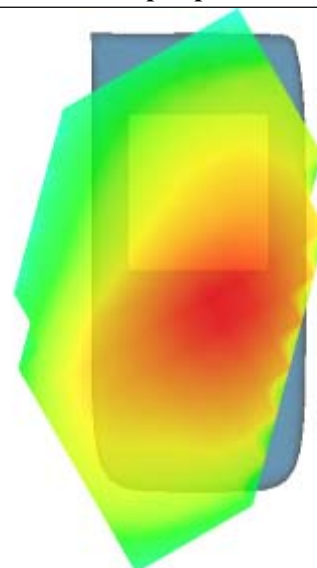
**SAR, Z Axis Scan (X = -51, Y = -23)**



**3D scen shot**



**Hot spot position**



# MEASUREMENT 17

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 9 minutes 8 seconds

## A. Experimental conditions.

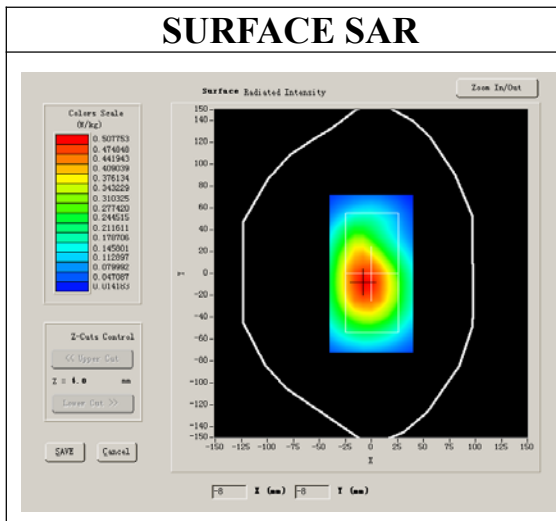
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	CDMA1900
<b>Channels</b>	Low
<b>Signal</b>	CDMA

## B. SAR Measurement Results

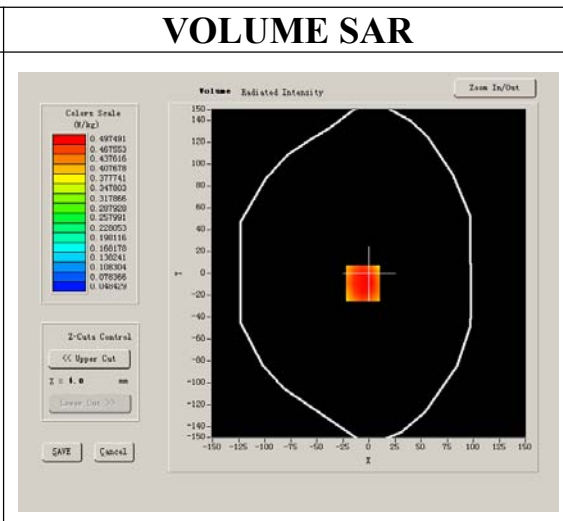
Lower Band SAR (Channel 25):

<b>Frequency (MHz)</b>	1850.200000
<b>Relative permittivity (real part)</b>	51.903000
<b>Relative permittivity</b>	14.817600
<b>Conductivity (S/m)</b>	1.523949
<b>Power drift (%)</b>	-1.470000
<b>Ambient Temperature:</b>	22.0°C
<b>Liquid Temperature:</b>	21.7C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1

### SURFACE SAR



### VOLUME SAR



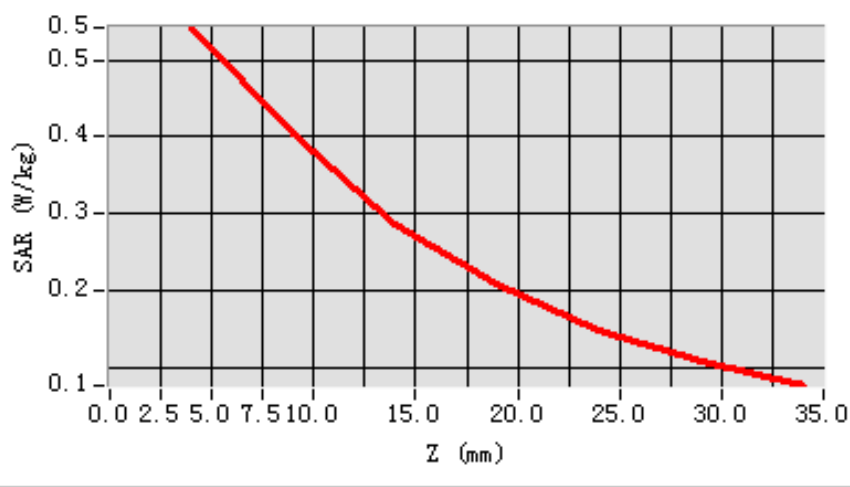
**Maximum location: X=-6.00, Y=-9.00**

<b>SAR 10g (W/Kg)</b>	0.372207
<b>SAR 1g (W/Kg)</b>	0.529727

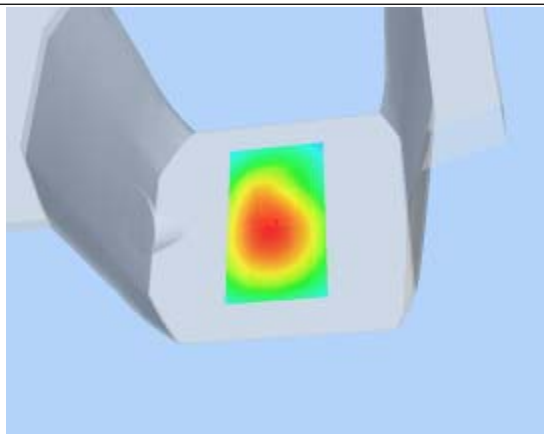
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	0.5415	0.4047	0.2879	0.2092	0.1501	0.1087

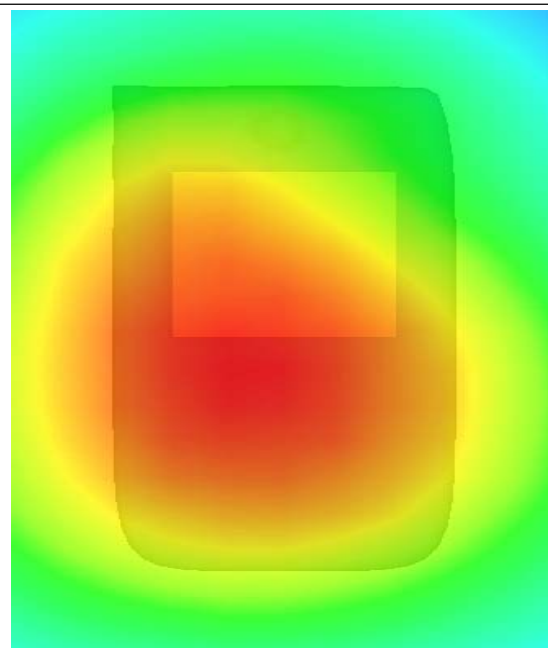
**SAR, Z Axis Scan (X = -6, Y = -9)**



**3D scen shot**



**Hot spot position**





# MEASUREMENT 18

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 9 minutes 8 seconds

## A. Experimental conditions.

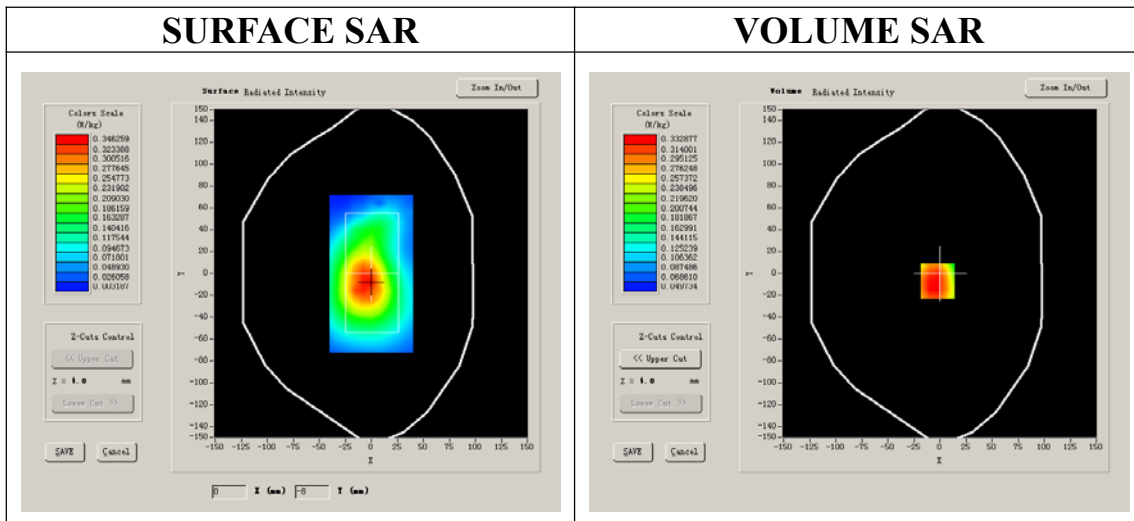
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	CDMA1900
<b>Channels</b>	Low
<b>Signal</b>	CDMA

## B. SAR Measurement Results

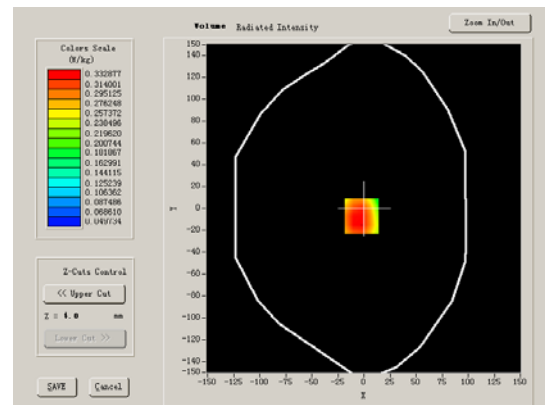
Lower Band SAR (Channel 25):

<b>Frequency (MHz)</b>	1850.200000
<b>Relative permittivity (real part)</b>	51.903000
<b>Relative permittivity</b>	14.817600
<b>Conductivity (S/m)</b>	1.523949
<b>Power drift (%)</b>	0.330000
<b>Ambient Temperature:</b>	22.0°C
<b>Liquid Temperature:</b>	21.7C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1

### SURFACE SAR



### VOLUME SAR



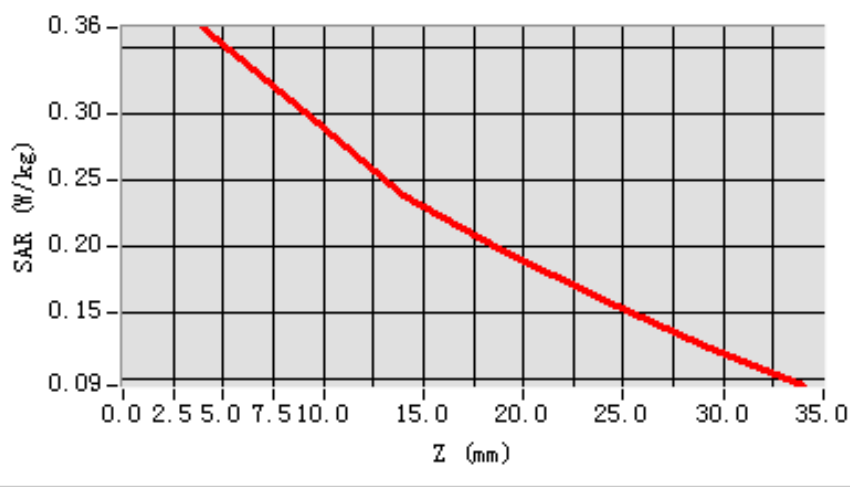
**Maximum location: X=-2.00, Y=-7.00**

<b>SAR 10g (W/Kg)</b>	0.275871
<b>SAR 1g (W/Kg)</b>	0.362573

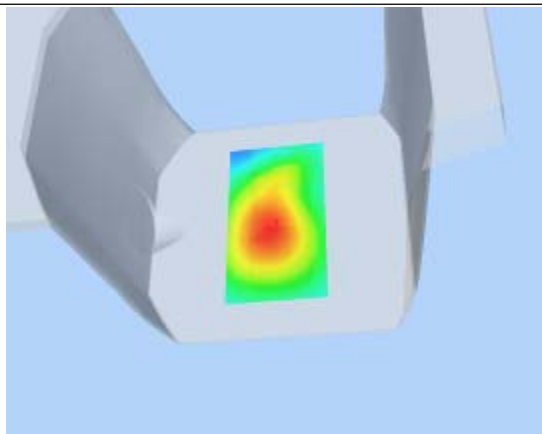
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	0.3643	0.3005	0.2380	0.1962	0.1597	0.1237

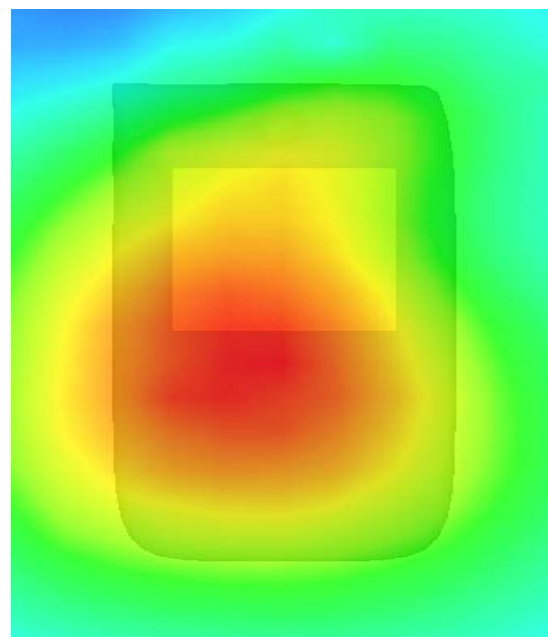
**SAR, Z Axis Scan (X = -2, Y = -7)**



**3D scen shot**



**Hot spot position**



## System Performance Check Data(Head)

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 13 minutes 27 seconds

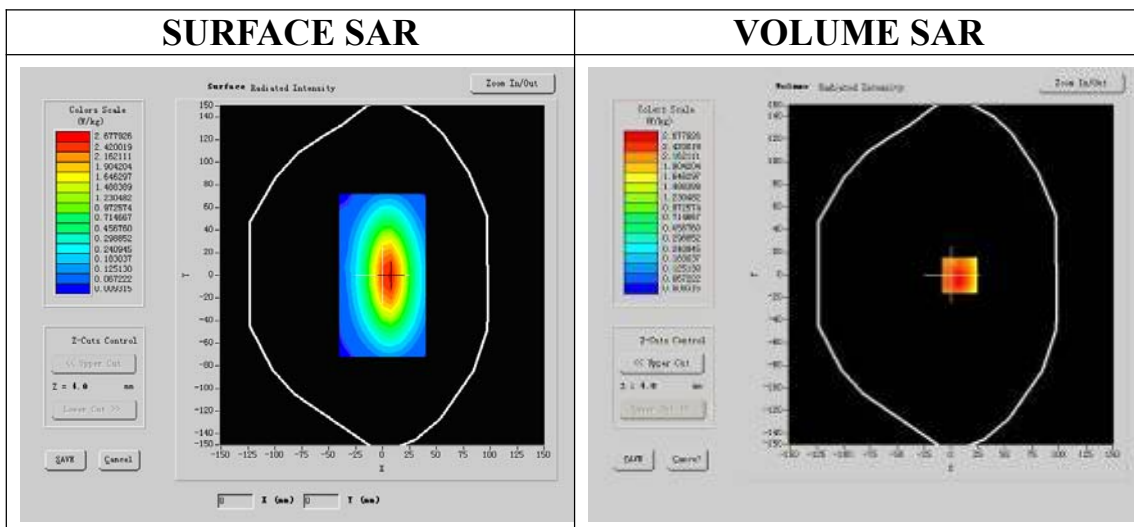
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	
<b>Band</b>	835MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

#### Band SAR

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	41.675999
<b>Relative permittivity</b>	15.070000
<b>Conductivity (S/m)</b>	0.894409
<b>Power drift (%)</b>	-0.050000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	21.5°C
<b>ConvF:</b>	28.479,25.214,27.196
<b>Crest factor:</b>	1:1



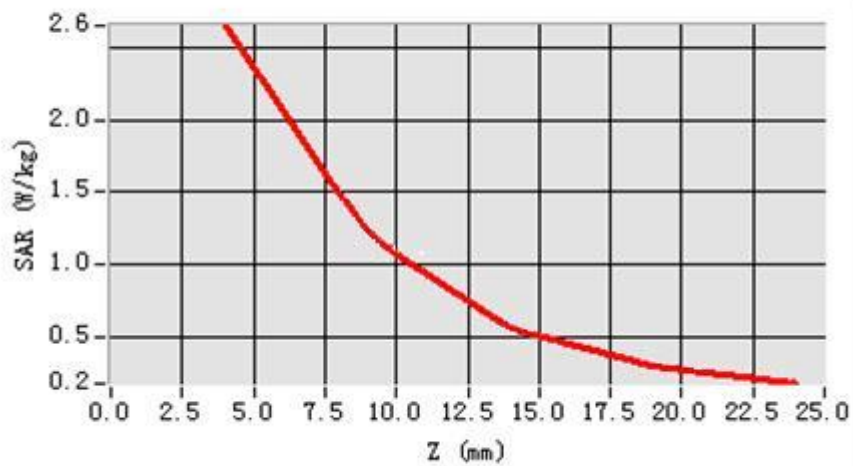
**Maximum location: X=5.00, Y=1.00**

<b>SAR 10g (W/Kg)</b>	1.685732
<b>SAR 1g (W/Kg)</b>	2.478462

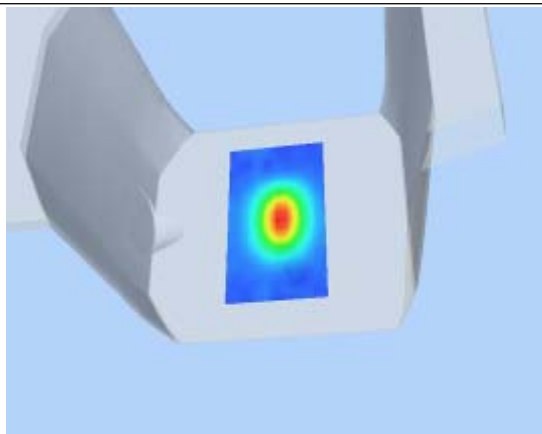
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>2.4754</b>	<b>1.2251</b>	<b>0.5257</b>	<b>0.2114</b>

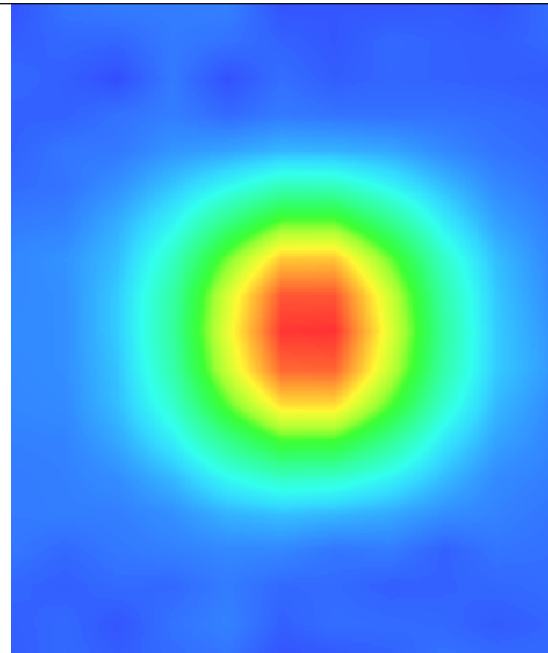
**SAR, Z Axis Scan (X = 5, Y = 1)**



**3D scene shot**



**Hot spot position**



## System Performance Check Data(Body)

Type: Phone measurement (Complete)

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

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

Date of measurement: 23/4/2012

Measurement duration: 13 minutes 27 seconds

### A. Experimental conditions.

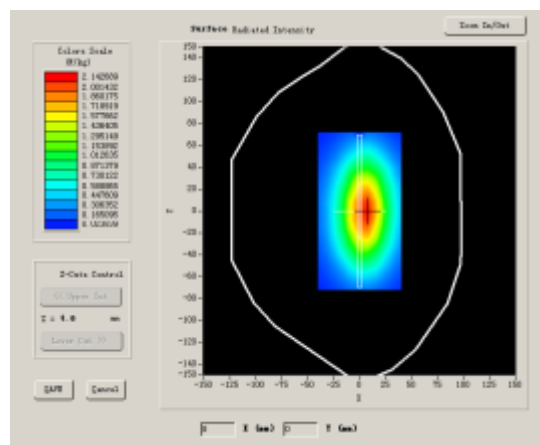
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	
<b>Band</b>	835MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

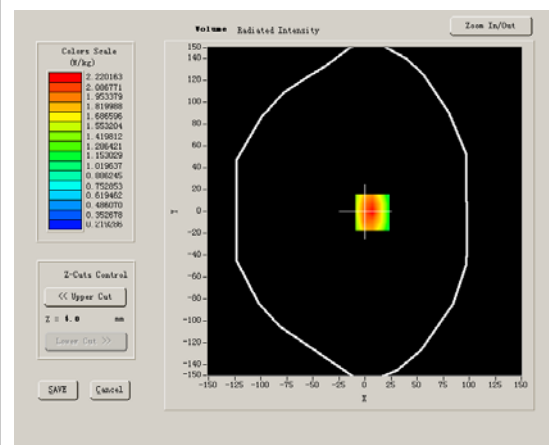
#### Band SAR

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	55.709999
<b>Relative permittivity</b>	21.709999
<b>Conductivity (S/m)</b>	0.9809033
<b>Power drift (%)</b>	-0.170000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	21.5°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



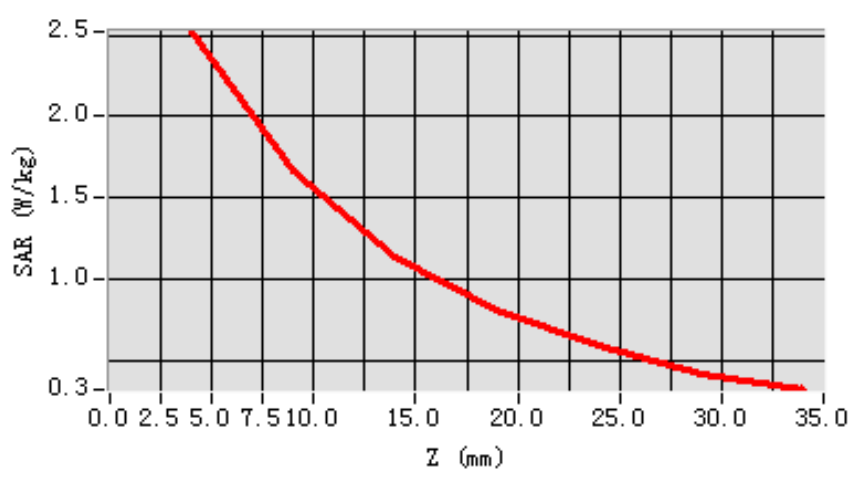
**Maximum location: X=7.00, Y=-1.00**

<b>SAR 10g (W/Kg)</b>	1.539476
<b>SAR 1g (W/Kg)</b>	2.385979

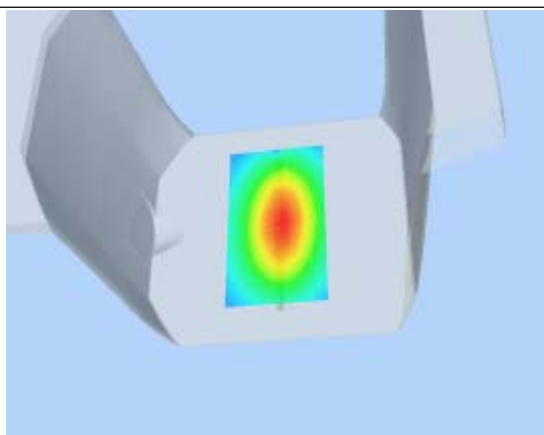
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>2.5209</b>	<b>1.6629</b>	<b>1.1437</b>	<b>0.8075</b>	<b>0.5889</b>	<b>0.4143</b>

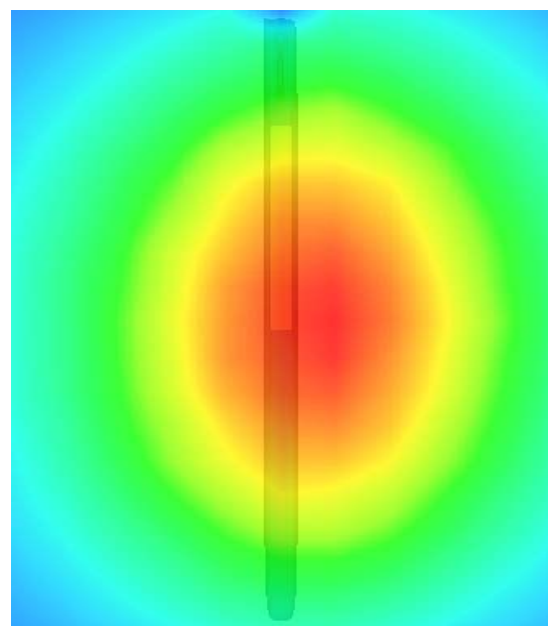
**SAR, Z Axis Scan (X = 7, Y = -1)**



**3D scen shot**



**Hot spot position**



## System Performance Check Data(Head)

Type: Phone measurement (Complete)

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

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

Date of measurement:23/4/2012

Measurement duration: 13 minutes 27 seconds

### A. Experimental conditions.

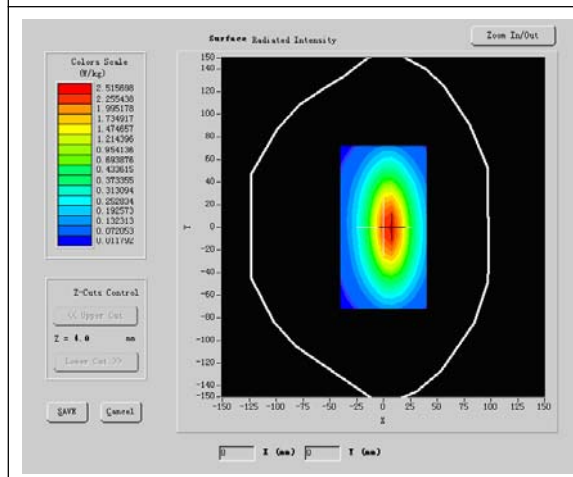
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	
<b>Band</b>	1900MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

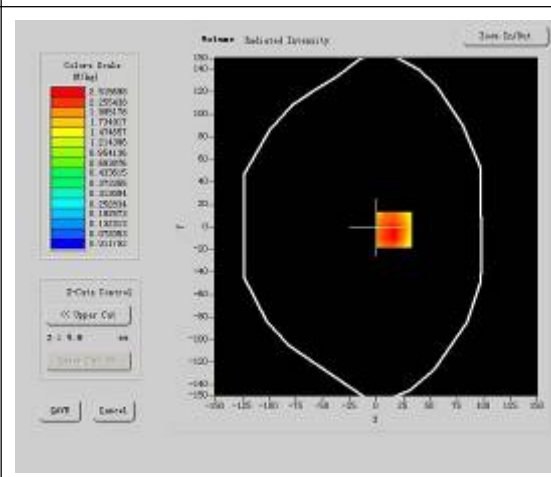
#### Band SAR

<b>Frequency (MHz)</b>	1900.000000
<b>Relative permittivity (real part)</b>	38.509998
<b>Relative permittivity</b>	15.070000
<b>Conductivity (S/m)</b>	1.436111
<b>Power drift (%)</b>	-0.140000
<b>Ambient Temperature:</b>	22.3°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1

#### **SURFACE SAR**



#### **VOLUME SAR**



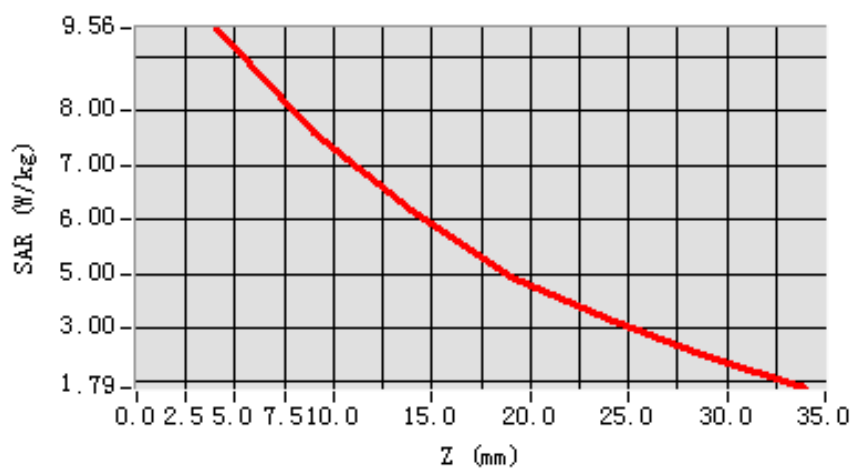
**Maximum location: X=-1.00, Y=-50.00**

<b>SAR 10g (W/Kg)</b>	4.884149
<b>SAR 1g (W/Kg)</b>	9.454628

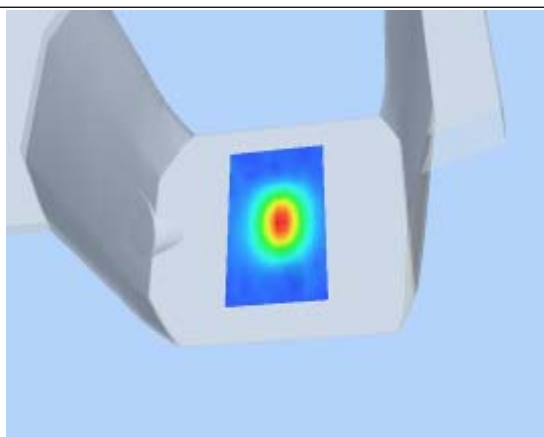
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>9.4148</b>	<b>7.3955</b>	<b>6.3646</b>	<b>4.3955</b>

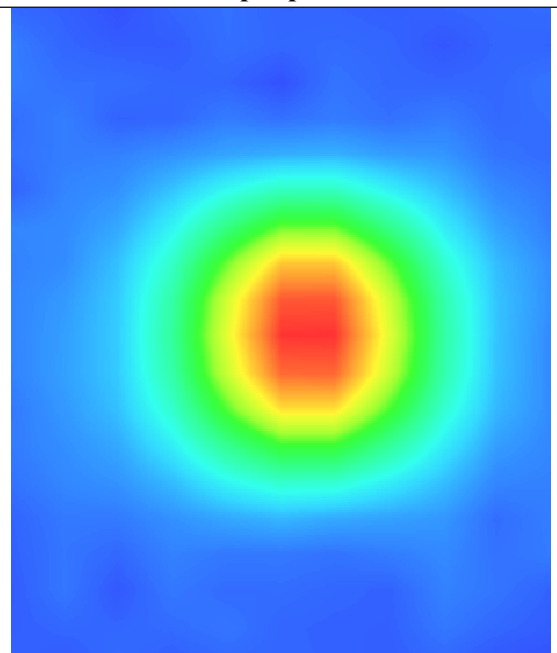
**SAR, Z Axis Scan (X = -1, Y = -50)**



**3D scen shot**



**Hot spot position**





## System Performance Check Data(Body)

Type: Phone measurement (Complete)

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

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

Date of measurement:23/4/2012

Measurement duration: 13 minutes 26 seconds

### A. Experimental conditions.

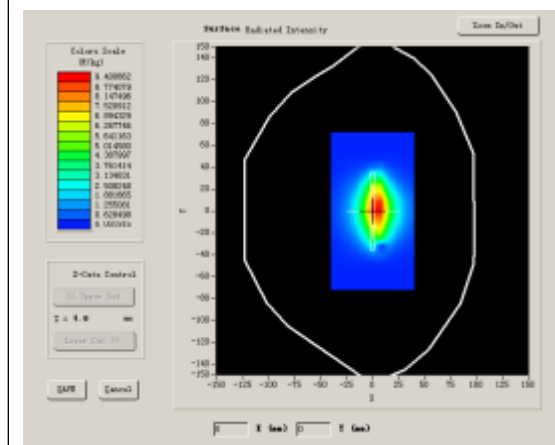
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	
<b>Band</b>	1900MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

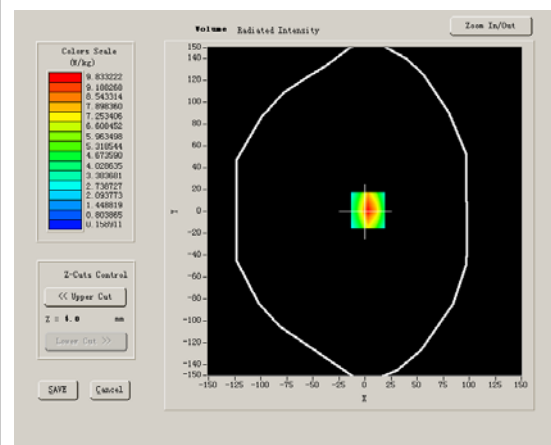
#### Band SAR

<b>Frequency (MHz)</b>	1900.000000
<b>Relative permittivity (real part)</b>	52.548876
<b>Relative permittivity</b>	14.070000
<b>Conductivity (S/m)</b>	1.553978
<b>Power drift (%)</b>	-0.030000
<b>Ambient Temperature:</b>	22.3°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	40.625,34.773,38.535
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



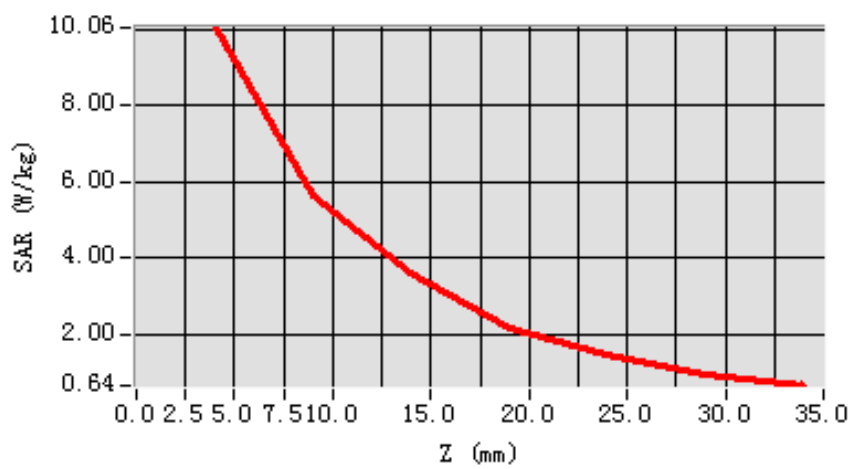
**Maximum location: X=3.00, Y=1.00**

<b>SAR 10g (W/Kg)</b>	4.981611
<b>SAR 1g (W/Kg)</b>	9.740177

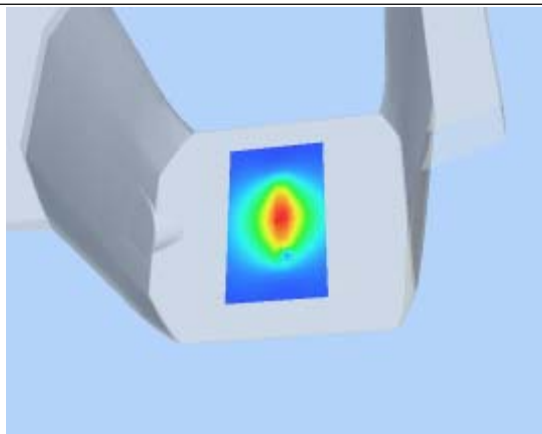
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>10.0621</b>	<b>5.6445</b>	<b>3.6226</b>	<b>2.1642</b>	<b>1.4521</b>	<b>0.9078</b>

**SAR, Z Axis Scan (X = 3, Y = 1)**



**3D scen shot**



**Hot spot position**

