



# SAR TEST REPORT

Issued to

**Fairphone B.V.**

For

**Mobile Phone**

Model Name : FP1  
 Trade Name : Fairphone  
 Brand Name : Fairphone  
 FCC ID : 2AA2QFP1V1  
 Standard : 47CFR 2.1093  
                   ANSI C95.1-1999  
                   IEEE 1528-2003  
 MAX SAR : Head: 0.354W/kg  
                   Body: 1.160W/kg  
 Test date : 2013-9-16 to 2013-9-18  
 Issue date : 2013-10-31

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



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Date 2013.10.31

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Change History		
Issue	Date	Reason for change
1.0	Oct.31,2013	First edition
2.0	Nov. 13,2013	Second edition

## 1. Testing Laboratory

### 1.1. Identification of the Responsible Testing Location

Name: Shenzhen Morlab Communications Technology Co., Ltd.  
Morlab Laboratory

Address: FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China 518101

### 1.2. Accreditation Certificate

Accredited Testing Laboratory: No. CNAS L3572

### 1.3. 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	Aglient (8960, SN:10752)	2013-9-26	1year
3	Network Analyzer	Agilent(E5071B ,SN:MY42404762 )	2013-9-26	1year
4	Voltmeter	Keithley (2000, SN:1000572)	2013-9-24	1year
5	Signal Generator	Rohde&Schwarz (SMP_02 )	2013-9-24	1year
6	Power Amplifier	PRANA (Ap32 SV125AZ)	2013-9-24	1year
7	Power Meter	Agilent (E4416A, SN:MY45102093)	2013-5-07	1year
8	Power Sensor	Agilent (N8482A, SN:MY41091706)	2013-5-07	1year
9	Directional coupler	Giga-tronics(SN:1829112)	2013-9-24	1year
10	Probe	Satimo (SN:SN 37/08 EP80)	2013-10-04	1year
11	Dielectric Probe Kit	Agilent (85033E )	2013-9-24	1year
12	Phantom	Satimo (SN:SN_36_08_SAM62)	2013-9-24	1year
13	Liquid	Satimo(Last Calibration: 2013-9-16 to 2013-9-18)	N/A	N/A
14	Dipole 835MHz	Satimo (SN 36/08 DIPC 99)	2013-10-05	1year
15	Dipole 1900MHz	Satimo (SN 36/08 DIPF 102)	2013-10-05	1year
16	Dipole 2450MHz	Satimo (SN 36/08 DIPJ 103)	2013-10-05	1year

## 2. Technical Information

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

### 2.1. Identification of Applicant

Company Name: Fairphone B.V.  
Address: Nieuwmarkt 4, 1012CR Amsterdam, The Netherlands

### 2.2. Identification of Manufacturer

Company Name: Chongqing Guohong Technology Development Company Limited  
Address: NO.1.building 4, Rongzhi Buiding, Technology Lnnovation Center.NO.8.Yuma Road, Nan an District, Chongqing.

### 2.3. Equipment Under Test (EUT)

Model Name: FP1  
Trade Name: Fairphone  
Brand Name: Fairphone  
Hardware Version: N/A  
Software Version: N/A  
Frequency Bands: GSM 850MHz / PCS 1900MHz;  
Bluetooth; Wifi802.11B/G/N (2.4GHz)  
Modulation Mode: GSM/GPRS: GMSK; EDGE:8PSK;  
WIFI802.11B: DSSS; WIFI802.11G: OFDM  
WIFI 802.11N: OFDM; BT: GFSK/ $\pi$ /4-DQPSK /8-DPSK  
Multislot Class: GPRS:Class 12; EDGE:Class 12  
GPRS Class: Class B  
DTM: Not support  
Antenna type: Fixed Internal Antenna  
Development Stage: Identical prototype  
Battery Model: F1B101  
Battery specification: 2000mAh3.7V  
3GPP Version: Release 7  
Hotspot function: Support

#### 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.

<b>EUT Identity</b>	<b>Hardware Version</b>	<b>Software Version</b>
1#	N/A	N/A

### 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>ANSI C95.1-1999</b>	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz
3	<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.
4	<b>KDB 447498 D01v05r01</b>	General RF Exposure Guidance
5	<b>KDB 648474 D04v01r01</b>	SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas
6	<b>KDB 248227 D01v01r02</b>	SAR Measurement Procedures for 802.11 a/b/g Transmitters
7	<b>KDB 941225 D06v01r01</b>	Hot Spot SAR
8	<b>KDB 865664 D01v01r01</b>	SAR Measurement 100 MHz to 6 GHz
9	<b>KDB 865664 D02v01r01</b>	SAR Reporting

### 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:	GSM 850MHz /PCS 1900MHz; 802.11B(2.4GHz);
Operation mode:	Call established
Power Level:	GSM 850 MHz Maximum output power(level 5) PCS 1900 MHz Maximum output power(level 0) 802.11B Maximum output power(2.4GHz)

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 allocated to 125, 190 and 251 respectively in the case of GSM 850 MHz, or to 512, 661 and 810 respectively in the case of PCS 1900 MHz, or to 1, 6, 11 respectively in the case of 802.11B (2.4GHz). 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 Middle than the output power level of the handset by at least 35 dB.

### 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 Middle 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:

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

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

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

$$\mathbf{SAR} = C \left( \frac{\delta T}{\delta t} \right)$$

Where  $C$  is the specific head capacity,  $\delta T$  is the temperature rise and  $\delta t$  the exposure duration, or related to the electrical field in the tissue by

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

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

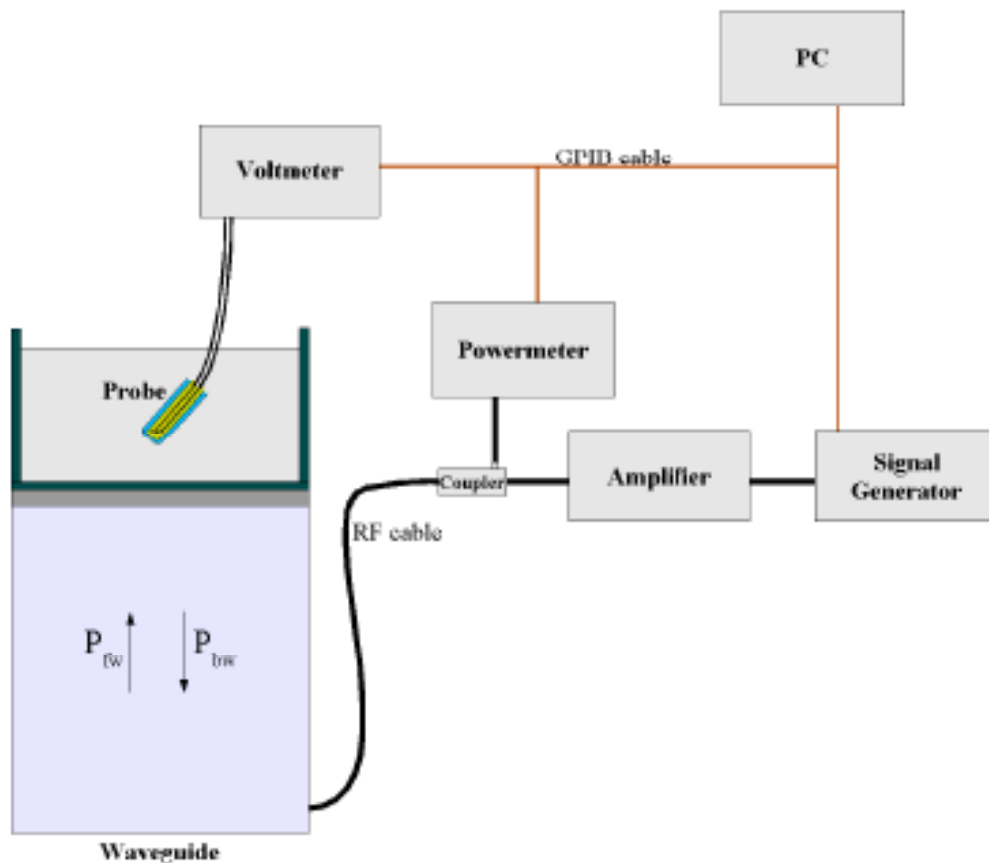
For the measurements the Specific Dosimetric E-Field Probe SN 37/08 EP80 with Following specifications is used

- 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 annex 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 simulating 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:

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

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

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

$$SAR = C \left( \frac{\delta T}{\delta t} \right)$$

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.

Where:

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

$\sigma$  = simulated tissue conductivity,

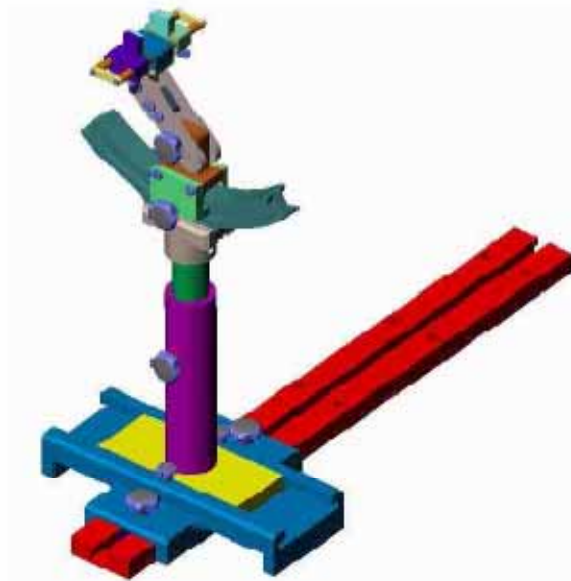
$\rho$  = Tissue density (1.25 g/cm<sup>3</sup> for brain tissue)

#### 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 Middle than 1°.



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

## 5. Tissue Simulating Liquids

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in below table.

The following table gives the recipes for tissue simulating liquids

Ingredients (% by weight)	Frequency Band 835MHz		Frequency Band 1900MHz		Frequency Band 2450MHz	
	Head	Body	Head	Body	Head	Body
Tissue Type	Head	Body	Head	Body	Head	Body
Water	41.45	52.4	54.9	40.4	62.7	73.2
Salt(NaCl)	1.45	1.4	0.18	0.5	0.5	0.04
Sugar	56.0	45.0	0.0	58.0	0.0	0.0
HEC	1.0	1.0	0.0	1.0	0.0	0.0
Bactericide	0.1	0.1	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	44.92	0.0	36.8	0.0
Acticide SPX	0.0	0.0	0.0	0.0	0.0	26.7
Dielectric Constant	41.50	55.2	40.0	53.3	39.2	52.7
Conductivity (S/m)	0.90	0.97	1.40	1.52	1.80	1.97

The dielectric properties of the tissue simulating 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 Tissue Simulating Liquid**

Temperature: 22.0~23.8°C, humidity: 54~60%.						
Date	Freq.(MHz)	Liquid Parameters	Meas.	Target	Delta(%)	Limit±(%)
2013/9/16	Head 835	Relative Permittivity( $\epsilon_r$ ):	42.45	41.5	2.29	5
		Conductivity( $\sigma$ ):	0.93	0.90	3.33	5
	Body 835	Relative Permittivity( $\epsilon_r$ ):	55.17	55.2	-0.05	5
		Conductivity( $\sigma$ ):	0.96	0.97	-1.03	5
2013/9/17	Head 1900	Relative Permittivity( $\epsilon_r$ ):	41.15	40	2.88	5
		Conductivity( $\sigma$ ):	1.42	1.40	1.43	5
	Body 1900	Relative Permittivity( $\epsilon_r$ ):	53.23	53.3	-0.13	5
		Conductivity( $\sigma$ ):	1.50	1.52	-1.32	5

2013/9/18	Head 2450	Relative Permittivity( $\epsilon_r$ ):	40.12	39.2	2.35	5
		Conductivity( $\sigma$ ):	1.77	1.80	-1.67	5
	Body2450	Relative Permittivity( $\epsilon_r$ ):	52.46	52.7	-0.46	5
		Conductivity( $\sigma$ ):	1.92	1.95	-1.54	5

## 6. Uncertainty Assessment

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

### 6.1. UNCERTAINTY EVALUATION FOR EUT 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 (+-%)	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	$\infty$

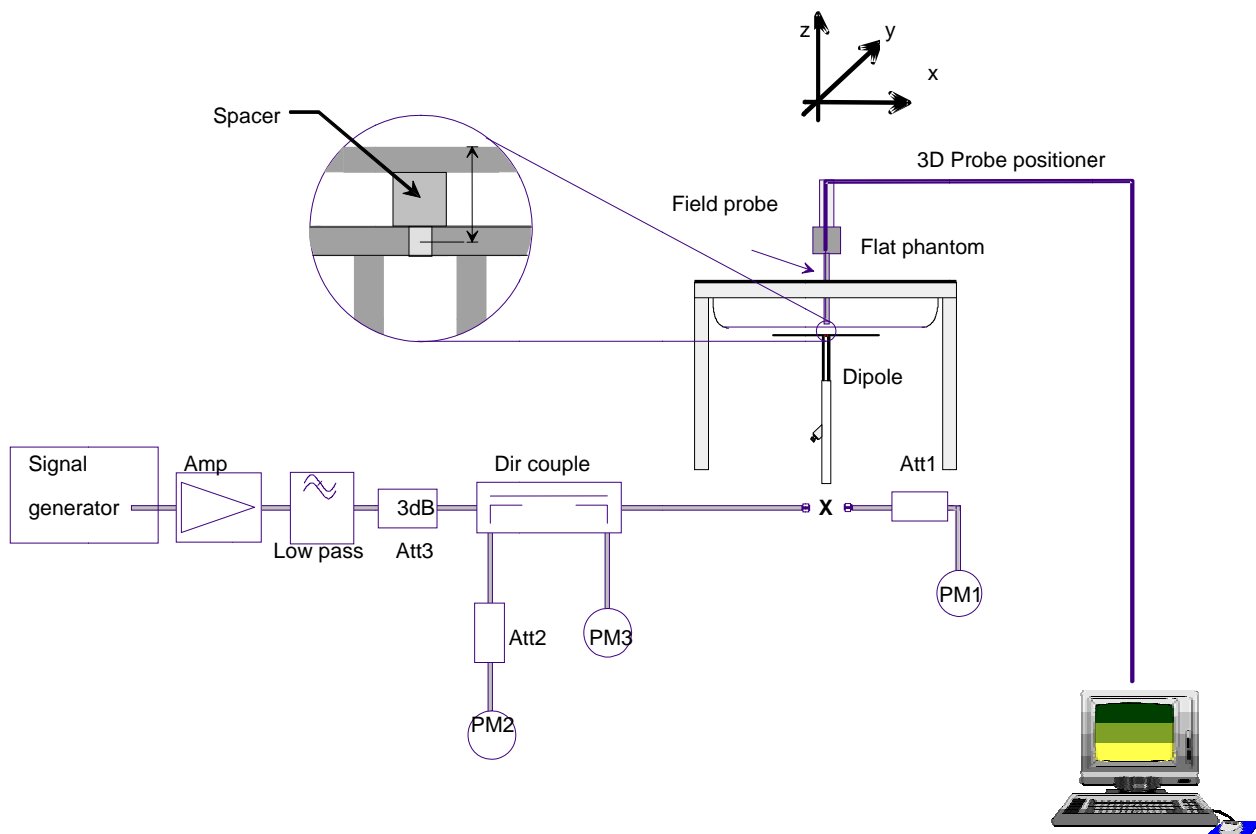


Input power and SAR drift measurement	8,6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.33	$\infty$
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	$\infty$
Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	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. 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. The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below.



The validation dipole is placed beneath the flat phantom with the specific spacer in place. The distance spacer is touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The power meter PM1 measures the forward power at the location of the system check dipole connector. The signal generator is adjusted for the desired forward power (250 mW is used for 700 MHz to 3 GHz, 100 mW is used for 3.5 GHz to 6 GHz) at the dipole connector and the power meter PM2 is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2.

## 7.2. Validation Results

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10 %.

<b>Frequency</b>	835MHz(H)	835MHz(B)	1900MHz(H)	1900MHz(B)
<b>Target value (1g)</b>	9.740 W/Kg	9.880 W/Kg	40.320 W/Kg	38.530 W/Kg
<b>Test value (1g 250 mW input)</b>	2.451 W/Kg (9.16)	2.437 W/Kg (9.16)	9.749 W/Kg (9.17)	9.676 W/Kg (9.17)
<b>Normalized value (1g)</b>	9.804 W/Kg	9.748W/Kg	38.996 W/Kg	38.704 W/Kg

<b>Frequency</b>	2450MHz(H)	2450MHz(B)
<b>Target value (1g)</b>	50.450 W/Kg	53.590 W/Kg
<b>Test value (1g 250 mW input)</b>	12.253 W/Kg (9.18)	12.875 W/Kg (9.18)
<b>Normalized value (1g)</b>	49.012 W/Kg	51.500 W/Kg

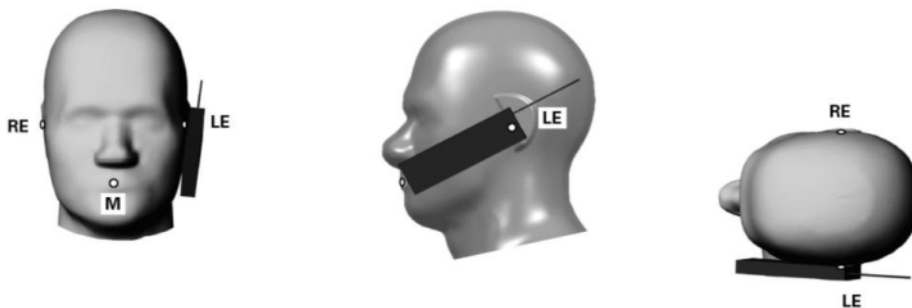
**Note:** System checks the specific test data please see page 139~150

## 8. Operational Conditions During Test

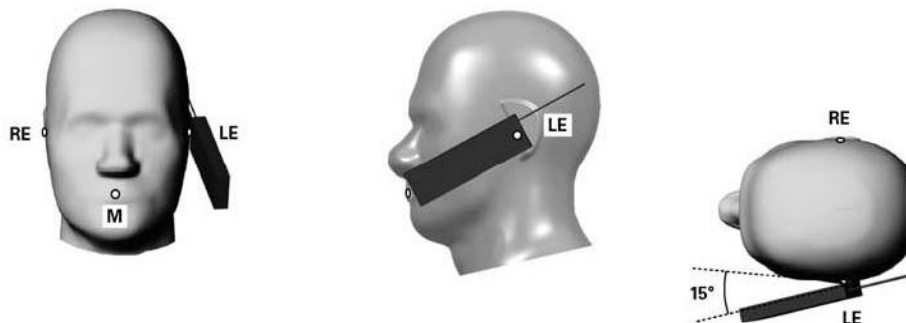
### 8.1. Information on the testing

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.



**Illustration for Cheek Position**



**Illustration for Tilted Position**

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.

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.

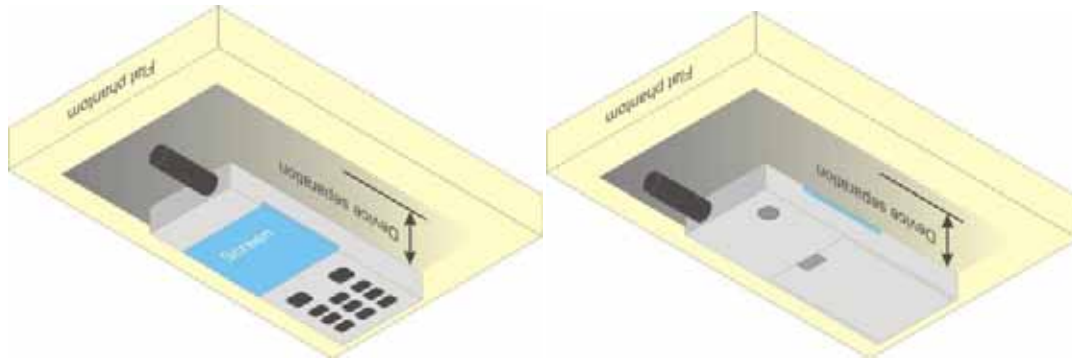


Illustration for Body Worn Position

## 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 Of Conducted Peak output power

### 1. GSM Conducted peak output power

Band	Channel	Frequency (MHz)	Output Power (dBm)
GSM 850	128	824.2	30.22
	190	836.6	30.25
	251	848.8	30.38
PCS 1900	512	1850.2	30.65
	661	1880.0	30.92
	810	1909.8	29.91

### 2. GPRS Mode Conducted peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	30.22	28.90	28.12	27.61
	190	836.6	30.25	28.93	28.15	27.64
	251	848.8	30.38	29.06	28.28	27.77
PCS 1900	512	1850.2	30.65	29.33	28.55	28.04
	661	1880.0	30.92	29.60	28.82	28.31
	810	1909.8	29.93	28.61	27.83	27.32

### GPRS Time-based Average Power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	21.22	22.88	23.86	24.60
	190	836.6	21.25	22.91	23.89	24.63
	251	848.8	21.38	23.04	24.02	24.76
PCS 1900	512	1850.2	21.65	23.31	24.29	25.03
	661	1880.0	21.92	23.58	24.56	25.30
	810	1909.8	20.93	22.59	23.57	24.31

## 3. EGPRS Mode Conducted peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	30.22	28.99	28.21	27.73
	190	836.6	30.26	29.03	28.25	27.77
	251	848.8	30.39	29.16	28.38	27.90
PCS 1900	512	1850.2	30.65	29.42	28.64	28.16
	661	1880.0	30.90	29.67	28.89	28.41
	810	1909.8	29.08	27.85	27.07	26.59

## EGPRS Time-based Average Power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	21.22	22.97	23.95	24.72
	190	836.6	21.26	23.01	23.99	24.76
	251	848.8	21.39	23.14	24.12	24.89
PCS 1900	512	1850.2	21.65	23.40	24.38	25.15
	661	1880.0	21.90	23.65	24.63	25.40
	810	1909.8	20.08	21.83	22.81	23.58

## Timeslot consignations:

No. Of Slots	Slot 1	Slot 2	Slot 3	Slot 4
Slot Consignation	1Up4Down	2Up2Down	3Up2Down	4Up1Down
Duty Cycle	1:8	1:2	1:2.67	1:2
Correct Factor	-9.00dB	-6.02dB	-4.26dB	-3.01dB



## 4. Wifi peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			802.11B (DSSS)	802.11G (OFDM)	802.11N20 (OFDM)
Wifi	1	2412	13.78	11.56	11.61
	6	2437	13.61	11.37	11.42
	11	2462	13.63	10.56	10.54

Band	Channel	Frequency (MHz)	Output Power(dBm)
			802.11N40 (OFDM)
Wifi	3	2422	10.66
	6	2437	10.58
	9	2452	10.62

## 5. Bluetooth peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			GFSK	$\Pi/4$ -DQPSK	8-DPSK
BT	0	2402	4.621	3.900	4.147
	39	2441	0.912	0.153	0.264
	78	2480	5.535	4.905	5.048

Band	Channel	Frequency (MHz)	Output Power(dBm)
			GFSK
BT	0	2402	-2.775
	19	2441	-4.341
	39	2480	-1.333

## 10. Test Results List

### Summary of Measurement Results (GSM 850MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.								
Phantom Configurations		Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g		
Right Side Of Head		Cheek/Touch	251	0.301	1.028	0.309		
		Ear/Tilt		0.248		0.255		
Left Side Of Head		Cheek/Touch		0.344		0.354		
		Ear/Tilt		0.013		0.013		
Body (10mm Separation)	GSM	Back upward		0.762		0.783		
		Front upward		0.433		0.445		
	GPRS	Back upward		128		0.842	1.094	0.921
				190		1.022	1.086	1.110
			251	1.101	1.054	1.160		
		Front upward	251	0.712	1.086	0.773		
		Edge A		0.538		0.584		
	Edge B	0.172		0.187				
EDGE	Back upward	0.766	1.023	0.784				

### Summary of Measurement Results (GSM 1900MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.							
Phantom Configurations		Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	
Right Side Of Head		Cheek/Touch	661	0.181	1.019	0.184	
		Ear/Tilt		0.042		0.043	
Left Side Of Head		Cheek/Touch		0.111		0.113	
		Ear/Tilt		0.032		0.033	
Body (10mm Separation)	GSM	Back upward		0.374		0.381	
		Front upward		0.161		0.164	
	GPRS	Back upward		0.415		1.045	0.434
		Front upward		0.272			0.284
		Edge A	0.116	0.121			
		Edge B	0.484	0.506			
	EDGE	Back upward	0.435	1.021	0.444		

Note:

1. GPRS/EDGE test Scenario(Based on the Max. Time-based Average Power)

Band	Channel	Slots	Power level	Duty Cycle
<b>GPRS850</b>	190	4	5	1:2
<b>EDGE850</b>	190	4	5	1:2
<b>GPRS1900</b>	661	4	0	1:2
<b>EDGE1900</b>	661	4	0	1:2

Summary of Measurement Results (WLAN 802.11B Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g
Right Side Of Head	Cheek/Touch	1	0.236	1.052	0.248
	Ear/Tilt		0.237		0.249
Left Side Of Head	Cheek/Touch		0.244		0.257
	Ear/Tilt		0.261		0.275
Body (10mm Separation)	Back upward		0.131		0.138
	Front upward		0.101		0.106
	Edge C		0.075		0.079
	Edge D		0.168		0.177

Note:

- When the 1-g SAR for the mid-band channel or the channel with the Highest output power satisfy the Following conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v05r01)
  - $\leq 0.8$  W/kg and transmission band  $\leq 100$  MHz
  - $\leq 0.6$  W/kg and,  $100$  MHz < transmission bandwidth  $\leq 200$  MHz
  - $\leq 0.4$  W/kg and transmission band > 200 MHz
- After per-scan test, the SIM Card was the worst case, so we did the testing and recorded the results according to SIM card 1.
- Per KDB447498, Supplement C 01-01 and IEEE Std 1528-2003 require the middle channel to be tested first. This generally applies to wireless devices that are designed to operate in technologies with tight tolerances for maximum output power variations across channels in the band. When the maximum output power variation across the required test channels is  $> \frac{1}{2}$  dB, instead of the middle channel, the highest output power channel must be used.
- During 802.11b(2.4GHz) testing, engineering testing software installed on the EUT can provide continuous transmitting RF signal.The RF signal utilized in SAR measurement has almost 100% duty cycle, and its crest factor is 1.

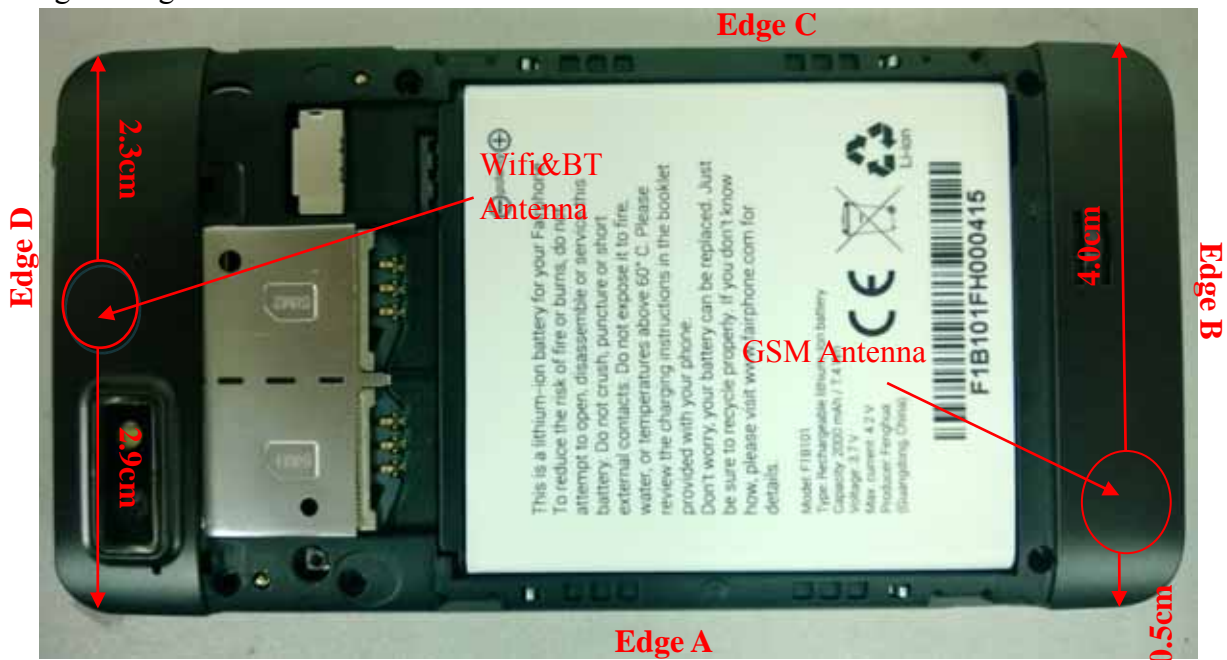
## 5. Scaling Factor calculation

<b>Band</b>	<b>Tune-up power tolerance (dBm)</b>	<b>SAR test channel Power (dBm)</b>	<b>Scaling Factor</b>
<b>GSM 850</b>	PCL = 5, PWR = 30+-0.5	30.38	1.028
<b>GPRS 850</b>	PCL = 5, PWR =27.5+-0.5(4 slots)	27.61	1.094
		27.64	1.086
		27.77	1.054
<b>EDGE 850</b>	PCL = 5, PWR =27.5+-0.5(4 slots)	27.90	1.023
<b>PCS 1900</b>	PCL = 0, PWR = 30.5+-0.5	30.92	1.019
<b>GPRS 1900</b>	PCL=0, PWR= 28+-0.5(4 slots)	28.31	1.045
<b>EDGE 1900</b>	PCL=0, PWR= 28+-0.5(4 slots)	28.41	1.021
<b>802.11(2.4GHz)</b>	Max output power =13.5+-0.5	13.78	1.052

## 11. Hotspot Mode Evaluation Procedure

The SAR evaluation procedures for Portable Devices with Wireless Router function is according to KDB 941225 D06 Hot Spot SAR v01.

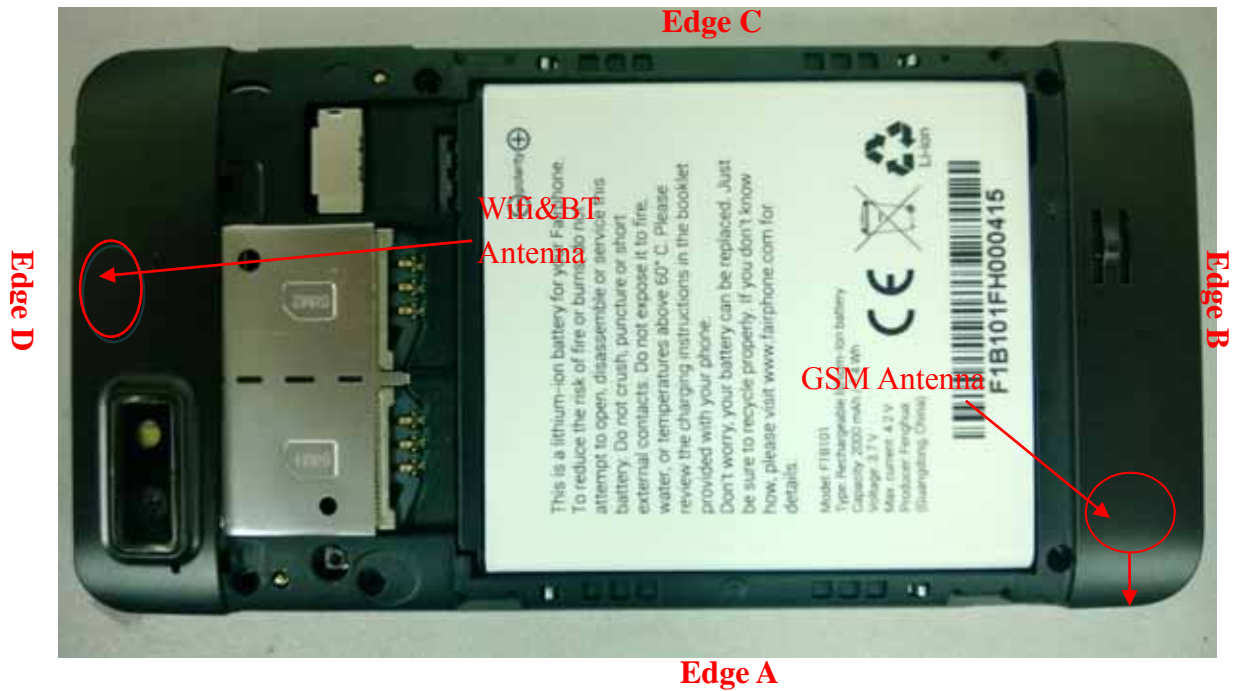
- SAR must be tested for all surfaces and edges (side) with a transmitting antenna within 2.5 cm from that surface or edge, at a test separation distance of 10 mm, in the wireless modes that support wireless routing.
- Edge configurations:



Assessment	Hotspot side for SAR					
	Test distance: 10mm					
Antennas	Back	Front	Edge A	Edge B	Edge C	Edge D
GSM	Yes	Yes	Yes	Yes	No	No
WLAN&BT	Yes	Yes	No	No	Yes	Yes

## 12. Multiple Transmitters Evaluation

The are three transmitters build in EUT, as following:



### Stand-alone SAR

Test distance: 5mm		
Band	SAR Test Exclusion Threshold(mW) Per KDB 447498 D01v05r01	Highest power(mW) Per tune up
WIFI(2.4G)	10	25.119
BT	10	2.239

According to the chart above, WIFI2.4G is required for Stand-alone SAR test, BT is not required.

The SAR test for 802.11b(2.4GHz) is required, 802.11g/HT20/HT40 is not required, for the maximum average output power is less than 1/4 dB Higher than measured on the corresponding 802.11b channels. As per KDB 248227

The SAR test for BT is not required for highest power is not exceed the power threshold for 2450MHz at the test distance of 5mm.

The BT stand-alone SAR is not required, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

$(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})/x}] \text{ W/kg}$  for test separation distances  $\leq 50 \text{ mm}$ ;

where  $x = 7.5$  for 1-g SAR, and  $x = 18.75$  for 10-g SAR.

( Max power= 2.239 mW(per tune up) ; min. test separation distance=5mm for head, 10mm for body;  $f=2.4\text{GHz}$  )

BT estimated Head SAR = 0.092 W/Kg (1g); BT estimated Body SAR = 0.046W/Kg (1g)

### Simultaneous SAR

#### Description of Simultaneous Transmit Capabilities

No.	Transmitter Combinations	Scenario Supported?	Supported for Mobile Hotspot?	Explanation
1	GSM(Voice)+GSM(Data)	No	No	<b>Note 1</b>
2	GSM(Voice)+WiFi (/ BT)	<b>Yes</b>	No	<b>Note 2</b>
3	GSM(Data)+WiFi	<b>Yes</b>	<b>Yes</b>	

Not applicable	Applicable	Head	Body-worn	Hotspot
1	3	2	2	3

Note:

1. EUT system architecture does not support simultaneous voice and data, multiple voice channels, or multiple data channels during a single session on the cellular net work.
2. Supported for voice plus background data.
3. Support for mobile hotspot operation.
4. When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WiFi transmitter and another licensed transmitter. Both transmitter often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. The "Portable Hotspot" feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.
5. The hotspot SAR result may overlap with the body-worn accessory SAR requirements, per KDB 941225 D06, the more conservative configurations can be considered, thus excluding some unnecessary body-worn accessory SAR tests.
6. GSM supports voice and data transmission, though not simultaneously.
7. Simultaneous Transmission SAR evaluation is not required for BT and WiFi, because the software mechanism have been incorporated to guarantee that the WLAN and Bluetooth transmitters would not simultaneously operate.
8. For Scenario **No.2,3**, GSM and WiFi is tested separately, the GSM mode do not supports voice and data transmission simultaneously, voice (GSM) and data (GPRS/EDGE) is tested separately.

#### 9.Applicable Multiple Scenario Evaluation

Test Position	GSM SAR <sub>Max</sub> (W/Kg)	Bluetooth SAR(W/Kg)	WiFi SAR <sub>Max</sub> (W/Kg)	∑1-g SAR <sub>Max</sub> (W/Kg)	
				BT&Main Ant	WiFi&Main Ant
Head SAR	0.354	0.092	0.275	0.446	0.629
Body SAR	1.160	0.046	0.177	1.206	1.337

Simultaneous Transmission SAR evaluation is not required for Wifi and GSM, because the sum of 1g SAR<sub>Max</sub> is **1.337W/Kg** < 1.6W/Kg for Wifi and GSM.

Simultaneous Transmission SAR evaluation is not required for BT and GSM, because the sum of 1g

SAR<sub>Max</sub> is **1.206**W/Kg < 1.6W/Kg for BT and GSM.

(According to KDB 447498D01v05r01, the sum of the Highest reported SAR of each antenna does not exceed the limit, simultaneous transmission SAR evaluation is not required.)



## Annex A Graph Test Results

<b>BAND</b>	<b><u>PARAMETERS</u></b>
<b><u>GSM850</u></b>	<p><u>Measurement 1:</u> Right Head with Cheek device position on High Channel in GSM mode</p> <p><u>Measurement 2:</u> Right Head with Tilt device position on High Channel in GSM mode</p> <p><u>Measurement 3:</u> Left Head with Cheek device position on High Channel in GSM mode</p> <p><u>Measurement 4:</u> Left Head with Tilt device position on High Channel in GSM mode</p> <p><u>Measurement 5:</u> Flat Plane with Body device position on High Channel in GSM mode</p> <p><u>Measurement 6:</u> Flat Plane with Body device position on High Channel in GSM mode</p> <p><u>Measurement 7:</u> Flat Plane with Body device position on Low Channel in GPRS mode</p> <p><u>Measurement 8:</u> Flat Plane with Body device position on Middle Channel in GPRS mode</p> <p><u>Measurement 9:</u> Flat Plane with Body device position on High Channel in GPRS mode</p> <p><u>Measurement 10:</u> Flat Plane with Body device position on High Channel in GPRS mode</p> <p><u>Measurement 11:</u> Flat Plane with Body device position on High Channel in GPRS mode</p> <p><u>Measurement 12:</u> Flat Plane with Body device position on High Channel in GPRS mode</p> <p><u>Measurement 13:</u> Flat Plane with Body device position on High Channel in EDGE mode</p>
<b><u>GSM1900</u></b>	<p><u>Measurement 14:</u> Right Head with Cheek device position on Middle Channel in GSM mode</p> <p><u>Measurement 15:</u> Right Head with Tilt device position on Middle Channel in GSM mode</p> <p><u>Measurement 16:</u> Left Head with Cheek device position on Middle Channel in GSM mode</p> <p><u>Measurement 17:</u> Left Head with Tilt device position on Middle Channel in GSM mode</p> <p><u>Measurement 18:</u> Flat Plane with Body device position Middle Channel in GSM mode</p> <p><u>Measurement 19:</u> Flat Plane with Body device position on Middle Channel in GSM mode</p> <p><u>Measurement 20:</u> Flat Plane with Body device position on Middle Channel in GPRS mode</p>

	<p><u>Measurement 21:</u> Flat Plane with Body device position on Middle Channel in GPRS mode</p> <p><u>Measurement 22:</u> Flat Plane with Body device position on Middle Channel in GPRS mode</p> <p><u>Measurement 23:</u> Flat Plane with Body device position on Middle Channel in GPRS mode</p> <p><u>Measurement 24:</u> Flat Plane with Body device position on Middle Channel in EDGE mode</p>
<p><b><u>802.11B</u></b> <b><u>(2450)</u></b></p>	<p><u>Measurement 25:</u> Right Head with Cheek device position on Low Channel in DSSS mode</p> <p><u>Measurement 26:</u> Right Head with Tilt device position on Low Channel in DSSS mode</p> <p><u>Measurement 27:</u> Left Head with Cheek device position on Low Channel in DSSS mode</p> <p><u>Measurement 28:</u> Left Head with Tilt device position on Low Channel in DSSS mode</p> <p><u>Measurement 29:</u> Flat Plane with Body device position on Low Channel in DSSS mode</p> <p><u>Measurement 30:</u> Flat Plane with Body device position on Low Channel in DSSS mode</p> <p><u>Measurement 31:</u> Flat Plane with Body device position on Low Channel in DSSS mode</p> <p><u>Measurement 32:</u> Flat Plane with Body device position on Low Channel in DSSS 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: 2013.9.16

Measurement duration: 8 minutes 49 seconds

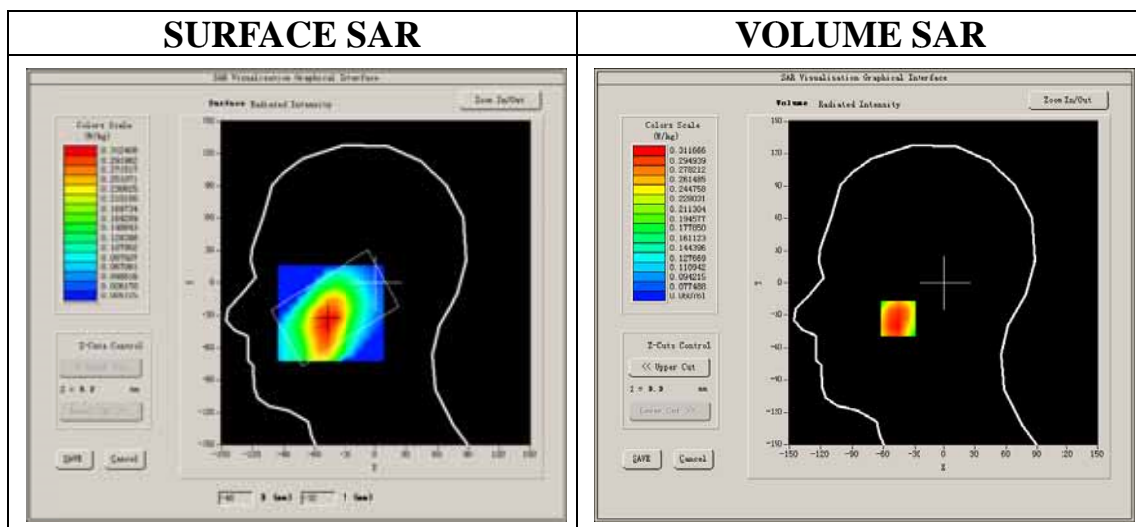
## A. Experimental conditions.

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Cheek
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GSM

## B. SAR Measurement Results

High Band SAR (Channel 251):

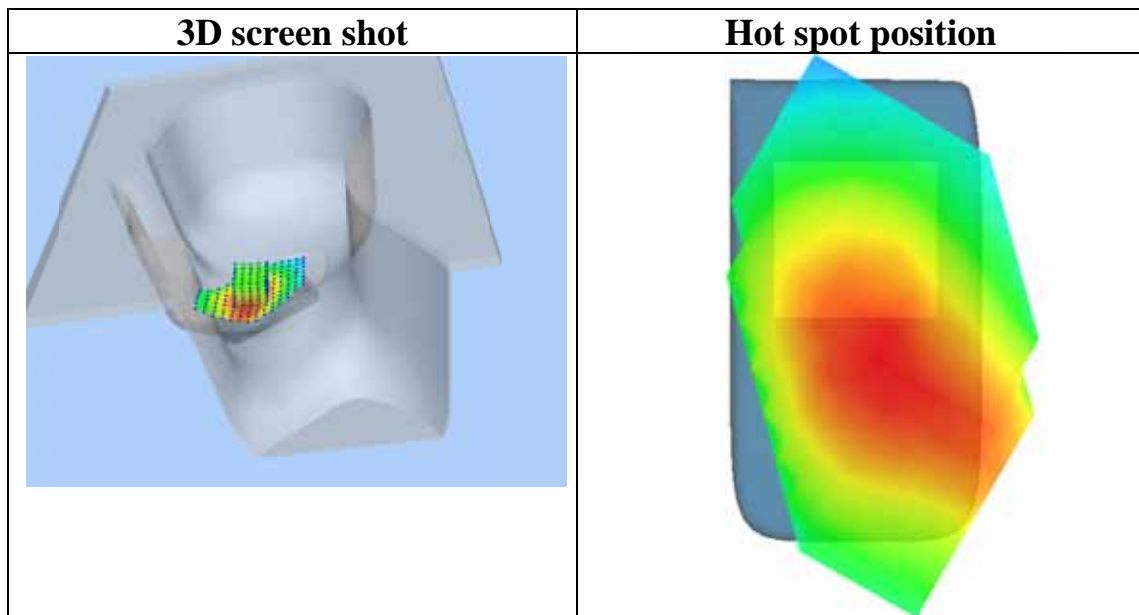
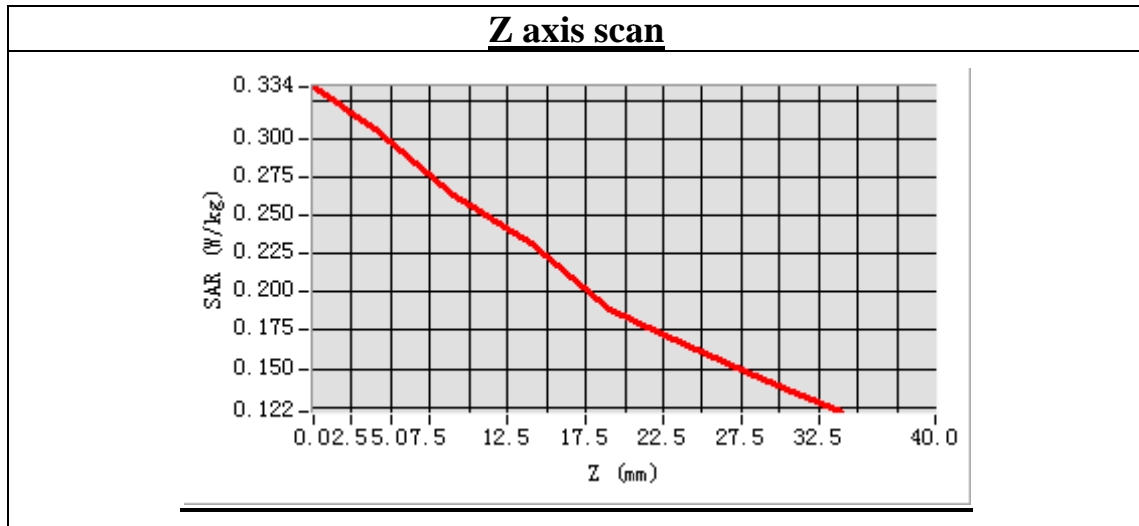
<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	42.452764
<b>Conductivity (S/m)</b>	0.928510
<b>Power drift (%)</b>	1.620000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:8



**Maximum location: X=-46.00, Y=-33.00**

**SAR Peak: 0.37 W/kg**

<b>SAR 10g (W/Kg)</b>	0.239038
<b>SAR 1g (W/Kg)</b>	0.300956



## 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: 2013.9.16

Measurement duration: 8 minutes 33 seconds

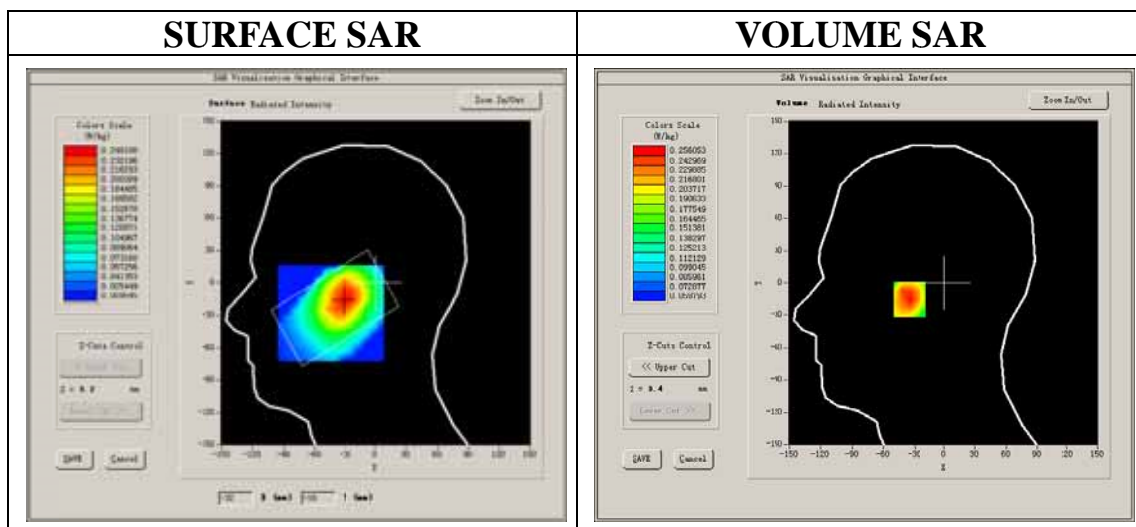
### A. Experimental conditions.

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Tilt
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GSM

### B. SAR Measurement Results

High Band SAR (Channel 251):

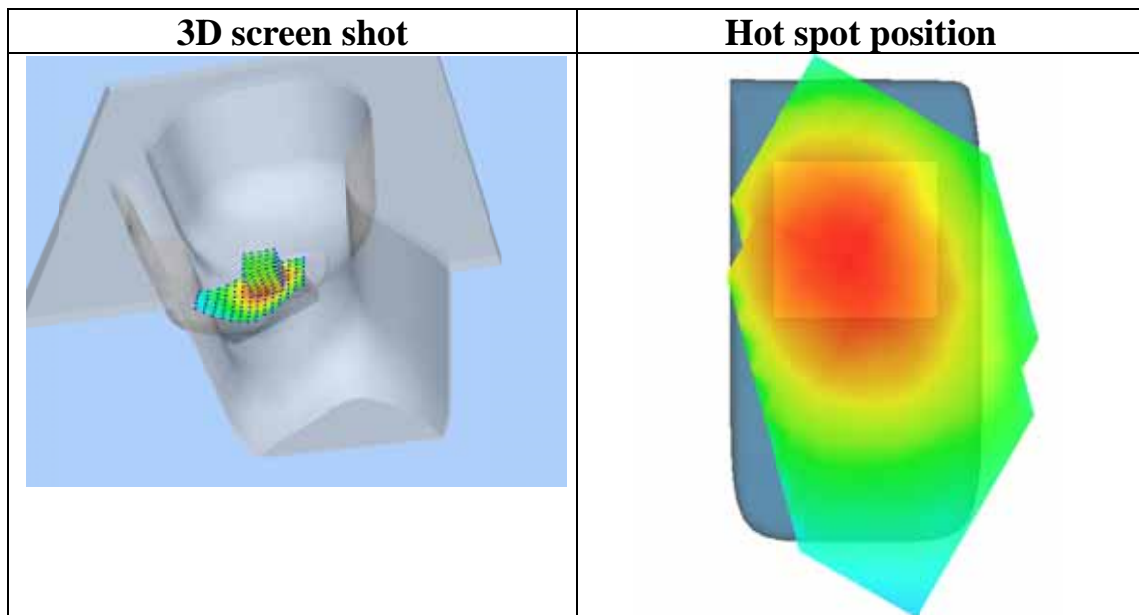
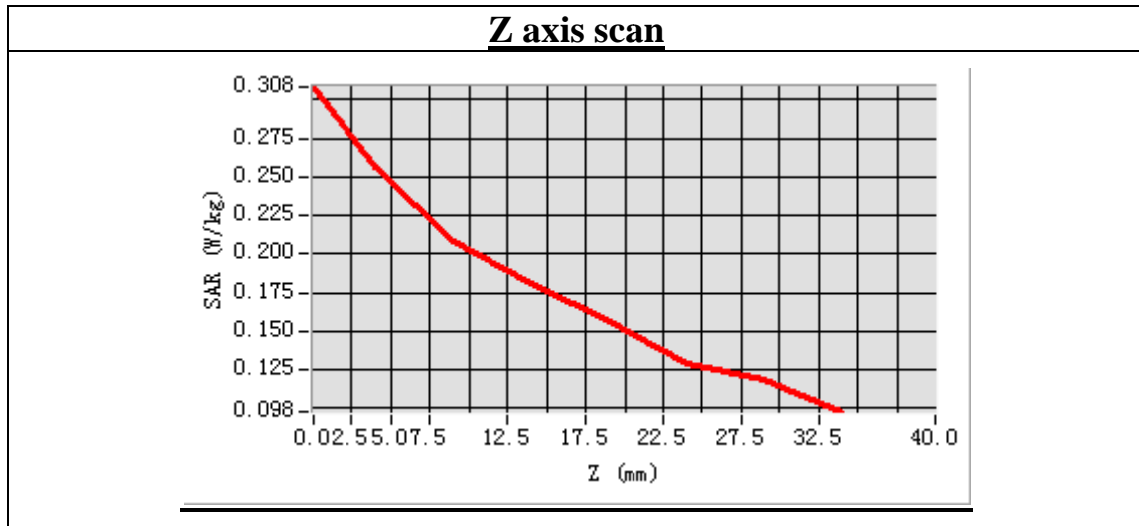
<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	42.452764
<b>Conductivity (S/m)</b>	0.928510
<b>Power drift(%)</b>	-3.570000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:8



**Maximum location: X=-29.00, Y=-15.00**

**SAR Peak: 0.33 W/kg**

<b>SAR 10g (W/Kg)</b>	0.189646
<b>SAR 1g (W/Kg)</b>	0.247970



## 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: 2013.9.16

Measurement duration: 8 minutes 28 seconds

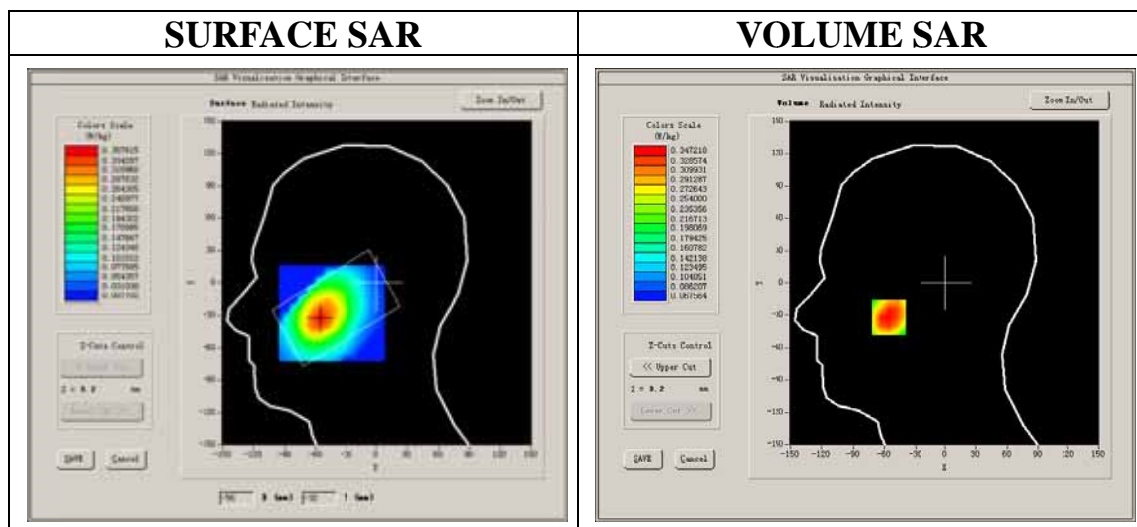
### A. Experimental conditions.

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GSM

### B. SAR Measurement Results

High Band SAR (Channel 251):

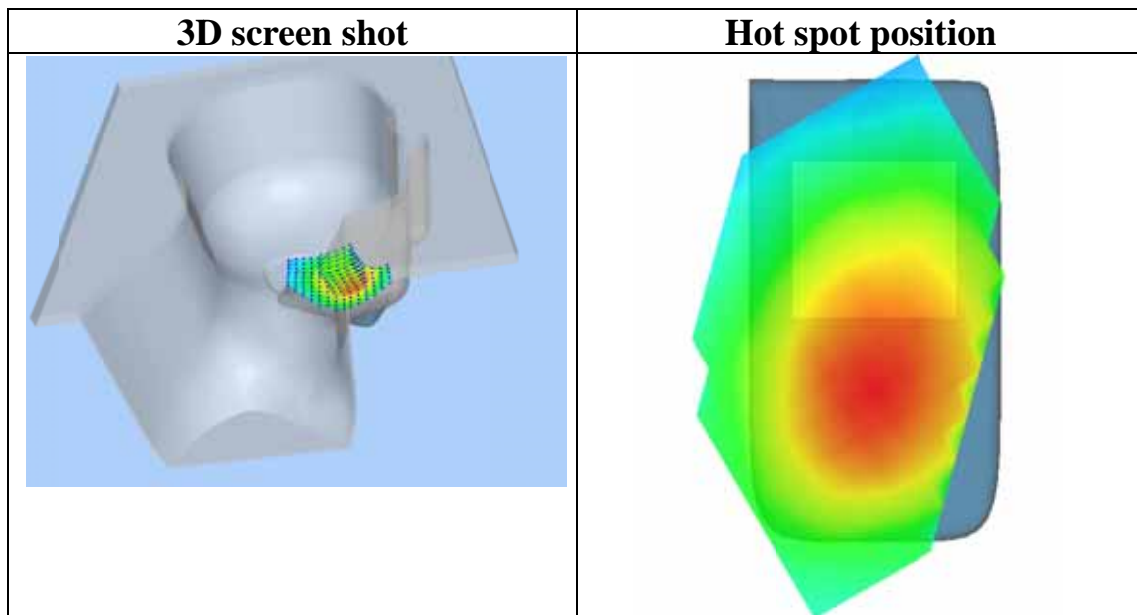
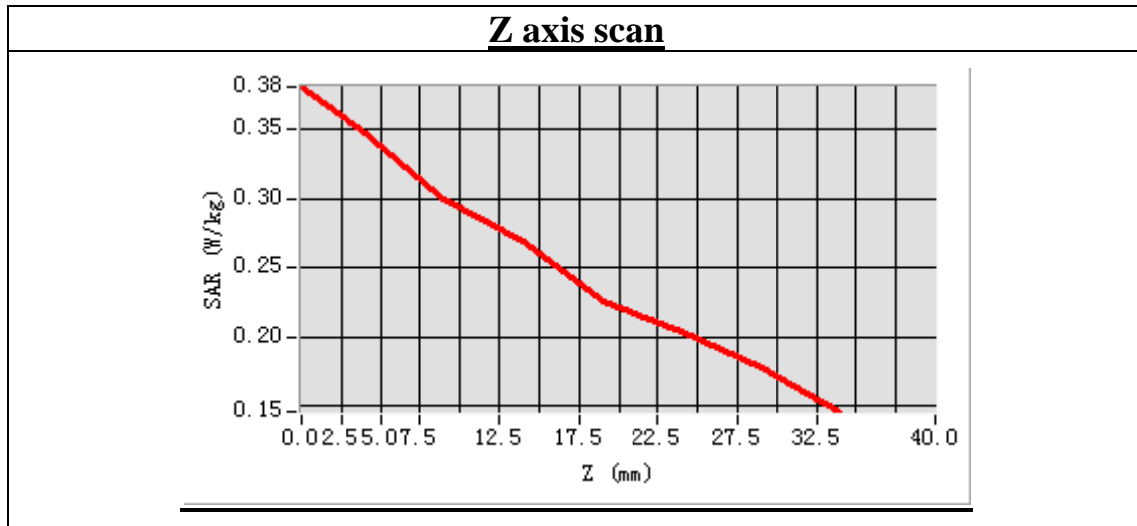
<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	42.452764
<b>Conductivity (S/m)</b>	0.928510
<b>Power drift (%)</b>	-3.680000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:8



**Maximum location: X=-56.00, Y=-32.00**

**SAR Peak: 0.44 W/kg**

<b>SAR 10g (W/Kg)</b>	0.271496
<b>SAR 1g (W/Kg)</b>	0.344099





## 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: 2013.9.16

Measurement duration: 8 minutes 33 seconds

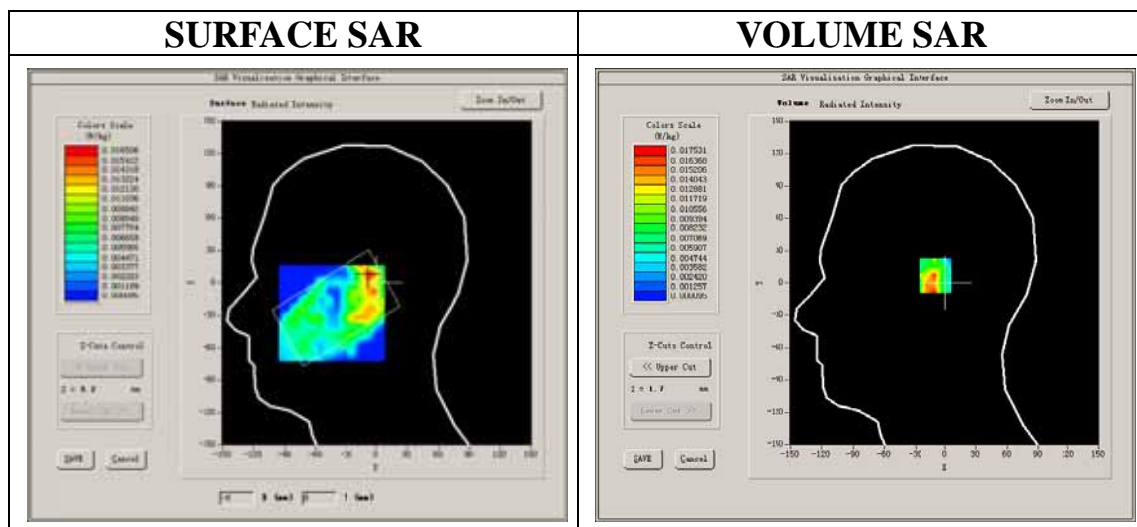
### A. Experimental conditions.

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Tilt
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GSM

### B. SAR Measurement Results

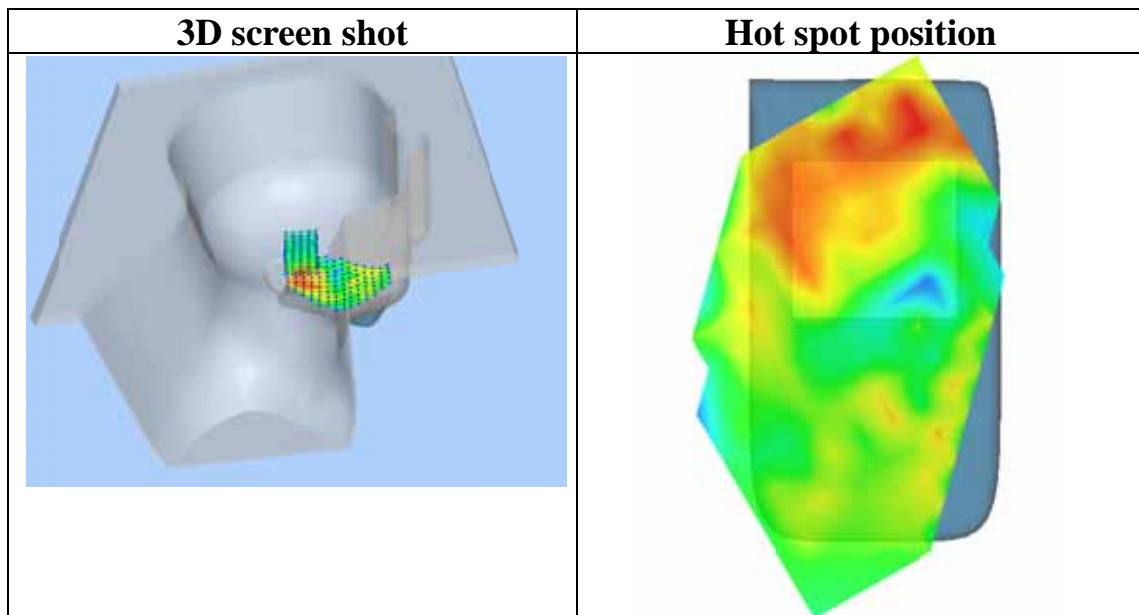
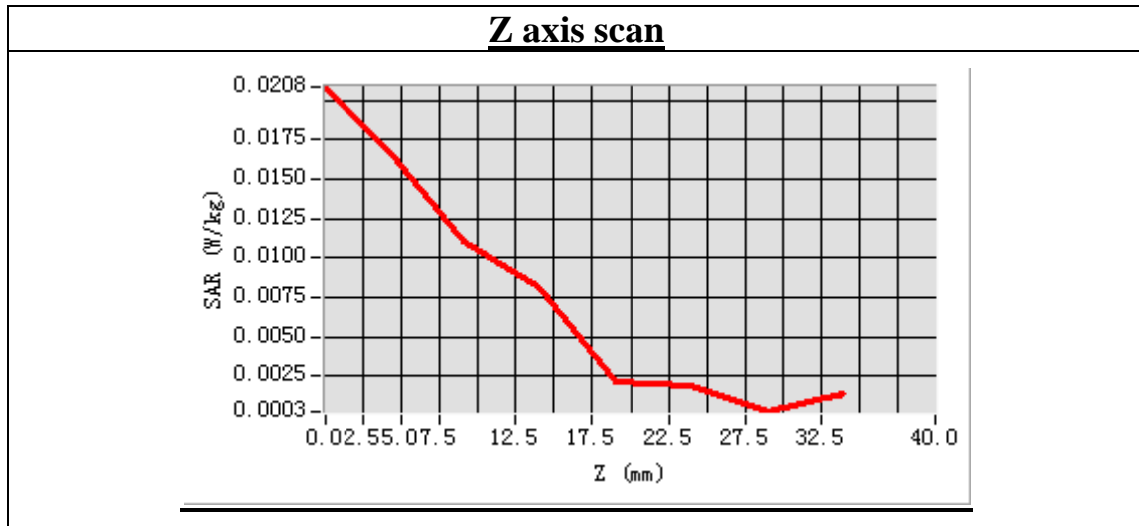
High Band SAR (Channel 251):

<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	42.452764
<b>Conductivity (S/m)</b>	0.928510
<b>Power drift(%)</b>	-0.760000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.479,25.214,27.19
<b>Crest factor:</b>	1:8



**Maximum location: X=-5.00, Y=7.00**  
**SAR Peak: 0.03 W/kg**

<b>SAR 10g (W/Kg)</b>	0.008019
<b>SAR 1g (W/Kg)</b>	0.012630



## 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: 2013.9.16

Measurement duration: 9 minutes 11 seconds

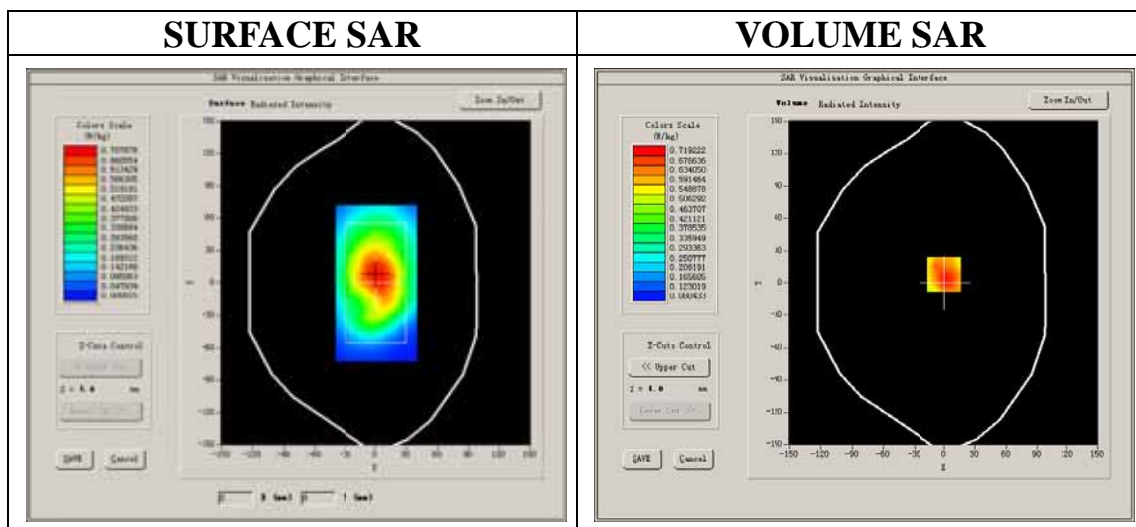
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GSM

### B. SAR Measurement Results

High Band SAR (Channel 251):

<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift (%)</b>	3.540000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:8

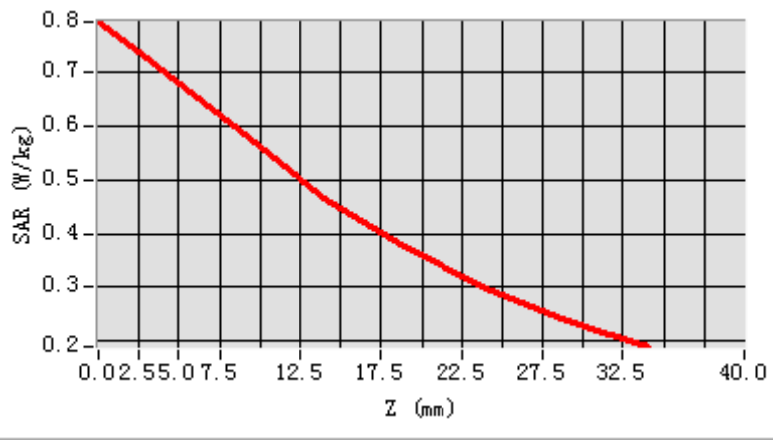


**Maximum location: X=0.00, Y=8.00**

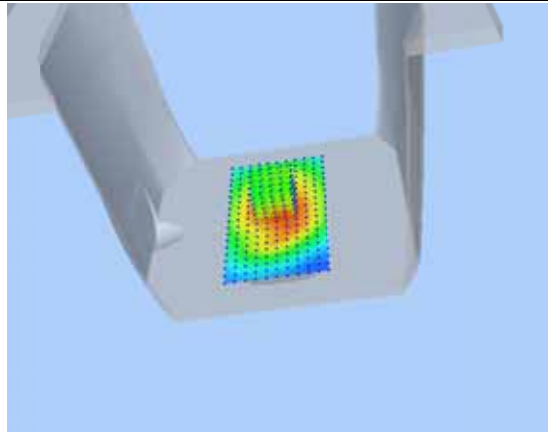
**SAR Peak: 1.01 W/kg**

<b>SAR 10g (W/Kg)</b>	0.567413
<b>SAR 1g (W/Kg)</b>	0.761628

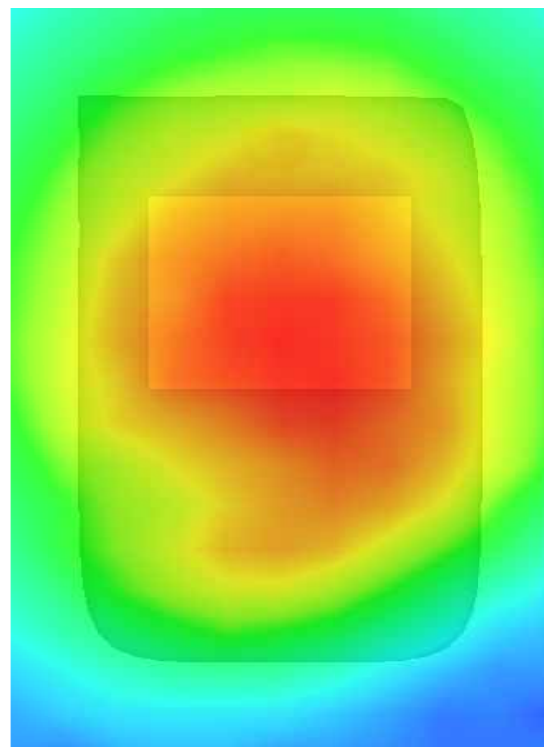
**Z axis scan**



**3D screen 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: 2013.9.16

Measurement duration: 9 minutes 10 seconds

### A. Experimental conditions.

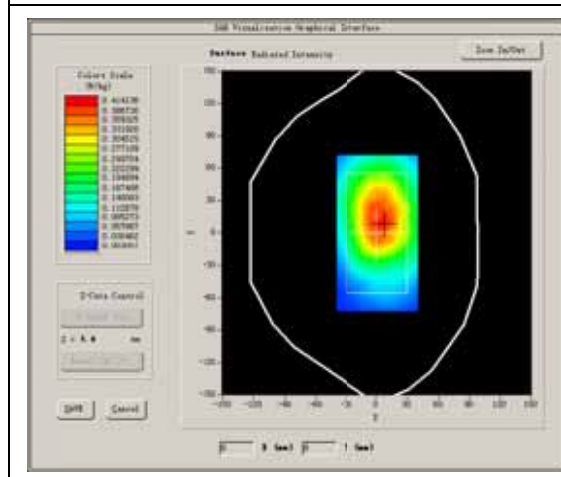
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GSM

### B. SAR Measurement Results

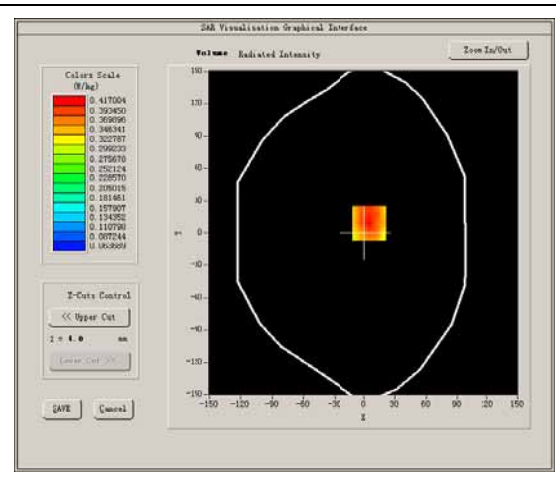
High Band SAR (Channel 251):

<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift(%)</b>	1.350000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:8

#### SURFACE SAR



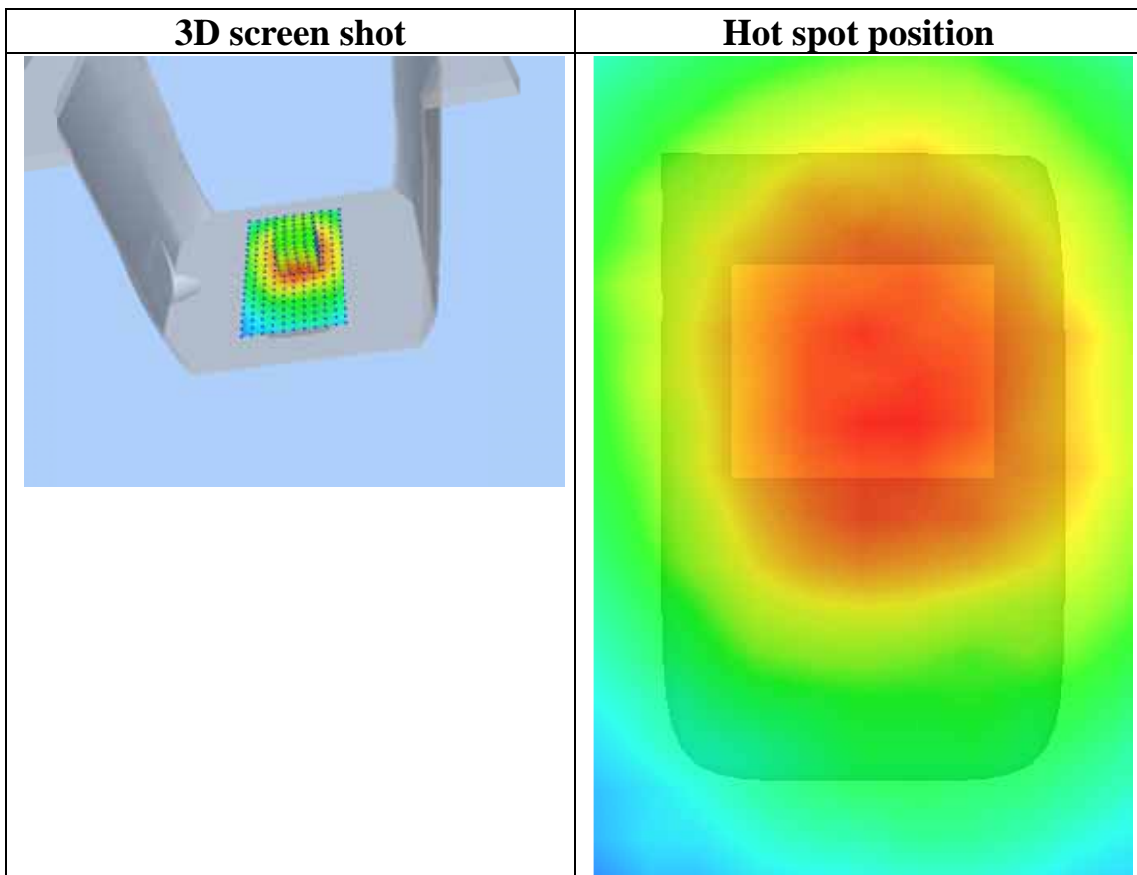
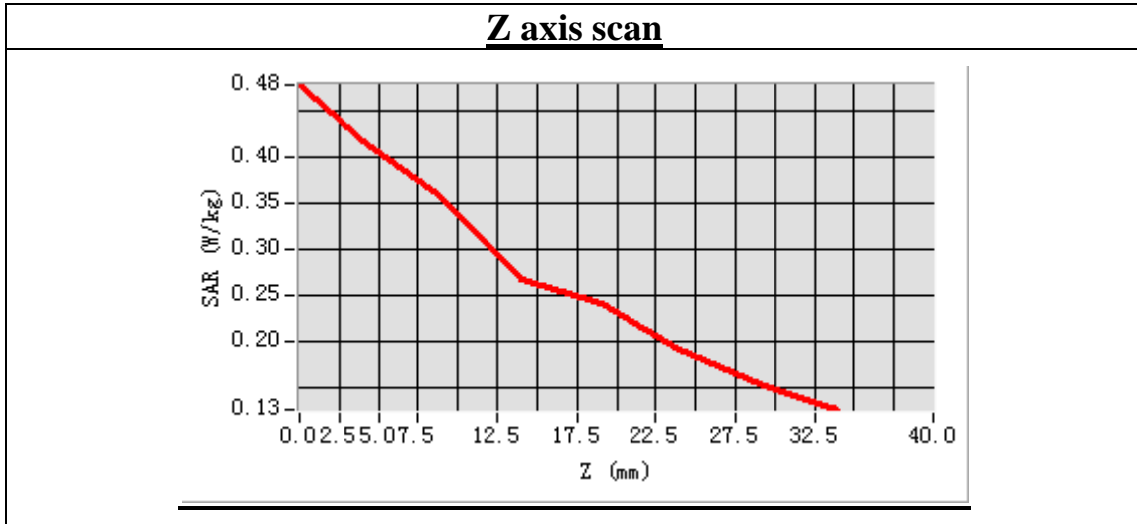
#### VOLUME SAR



**Maximum location: X=5.00, Y=9.00**

**SAR Peak: 0.53 W/kg**

<b>SAR 10g (W/Kg)</b>	0.337103
<b>SAR 1g (W/Kg)</b>	0.432808



# 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: 2013.9.16

Measurement duration: 9 minutes 11 seconds

## A. Experimental conditions.

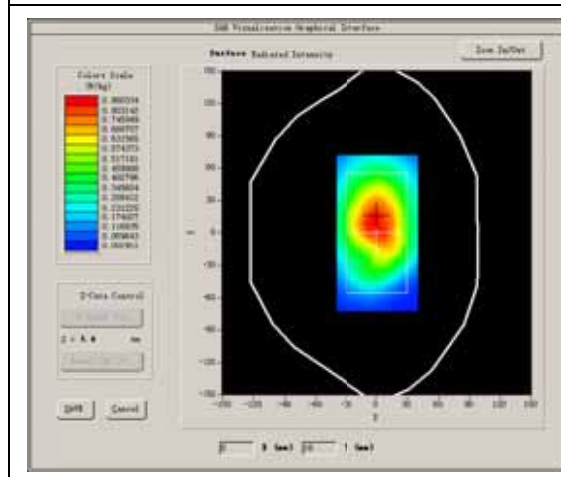
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM850
<b>Channels</b>	Low
<b>Signal</b>	GPRS

## B. SAR Measurement Results

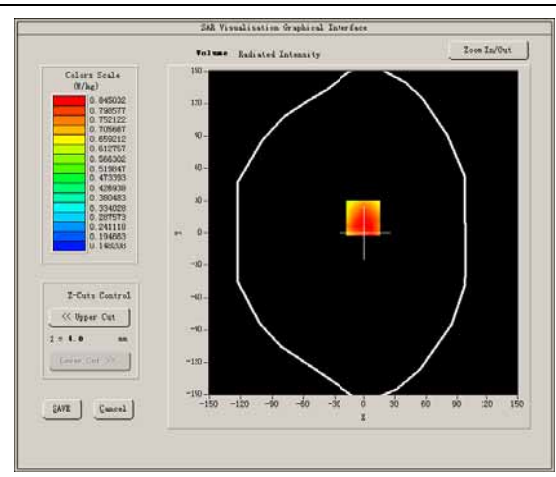
Low Band SAR (Channel 251):

<b>Frequency (MHz)</b>	824.200000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift(%)</b>	-2.710000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:2

### SURFACE SAR



### VOLUME SAR

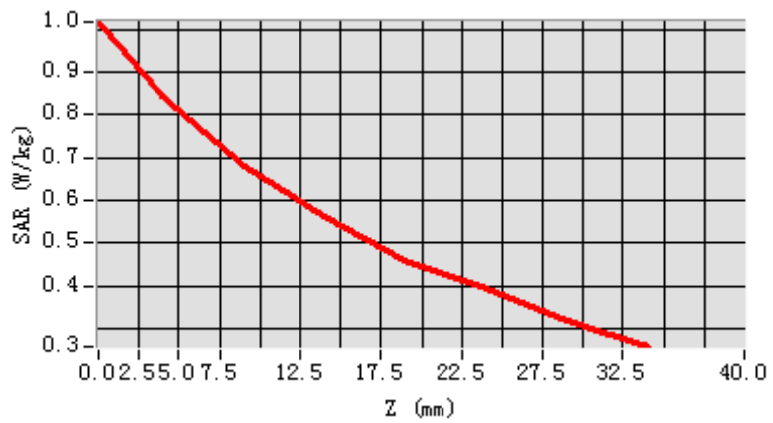


**Maximum location: X=-1.00, Y=14.00**

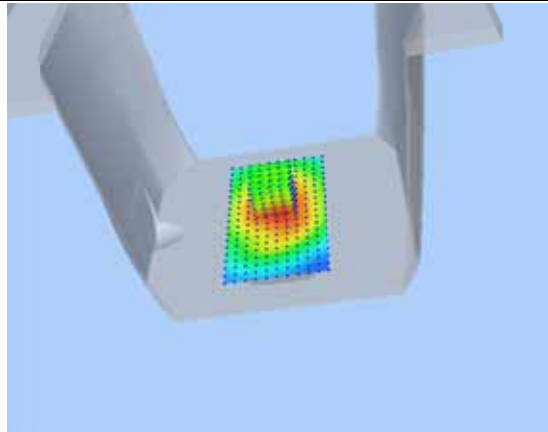
**SAR Peak: 1.04 W/kg**

<b>SAR 10g (W/Kg)</b>	0.645158
<b>SAR 1g (W/Kg)</b>	0.841812

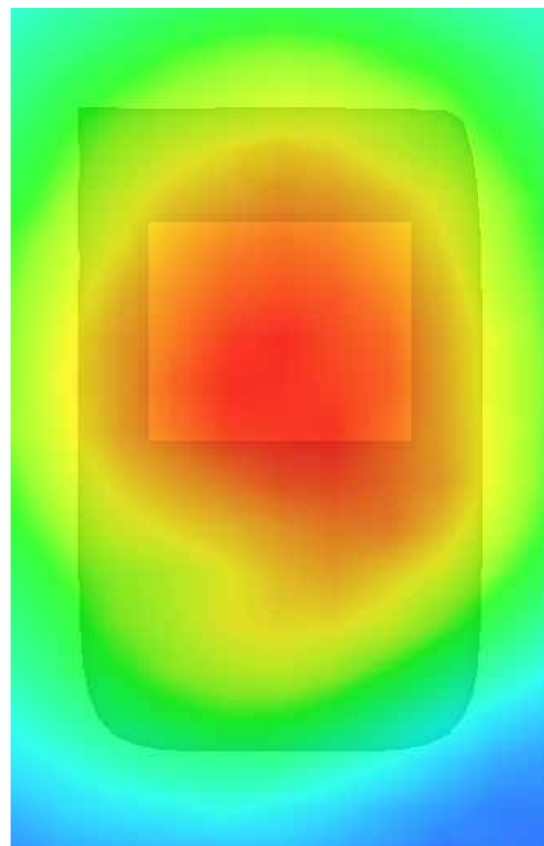
**Z axis scan**



**3D screen 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: 2013.9.16

Measurement duration: 9 minutes 11 seconds

### A. Experimental conditions.

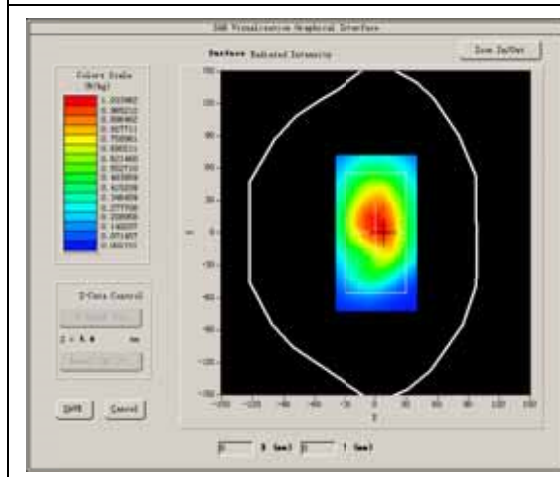
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM850
<b>Channels</b>	Middle
<b>Signal</b>	GPRS

### B. SAR Measurement Results

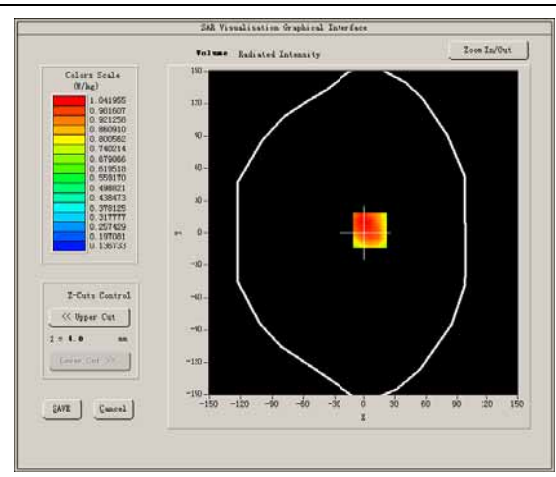
Middle Band SAR (Channel 190):

<b>Frequency (MHz)</b>	836.600000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift(%)</b>	-1.610000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:2

#### SURFACE SAR



#### VOLUME SAR

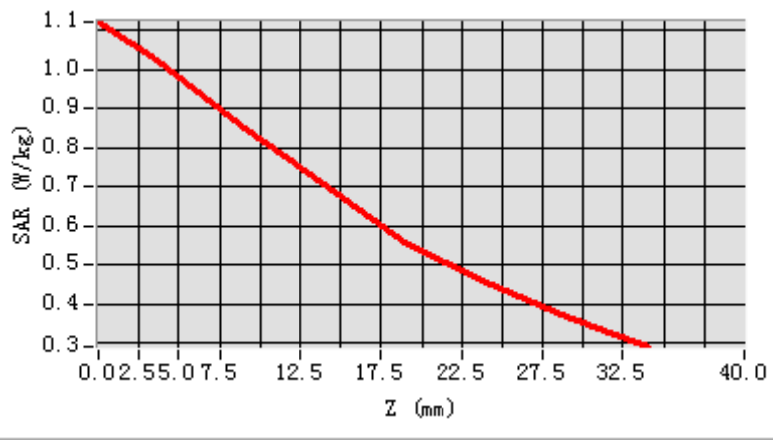


**Maximum location: X=6.00, Y=3.00**

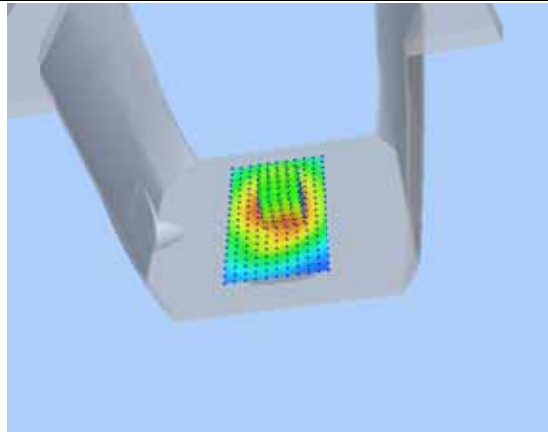
**SAR Peak: 1.21 W/kg**

<b>SAR 10g (W/Kg)</b>	0.791271
<b>SAR 1g (W/Kg)</b>	1.021880

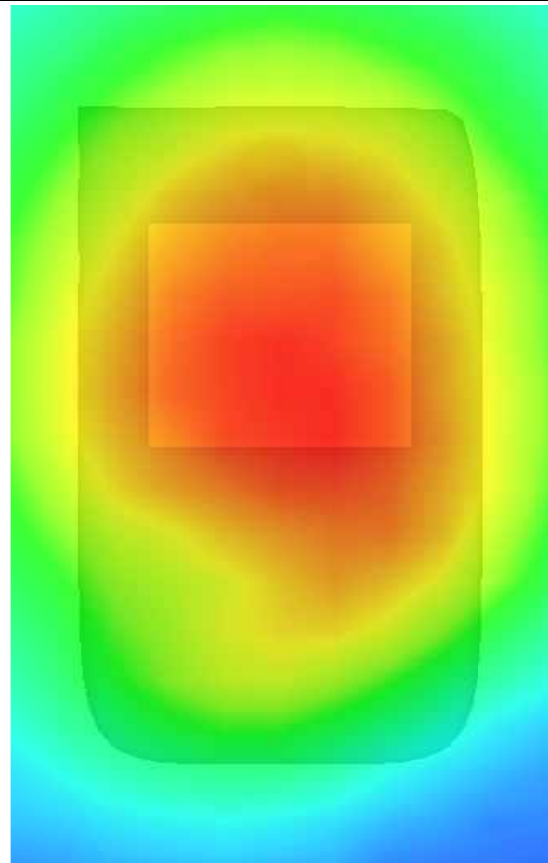
**Z axis scan**



**3D screen 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: 2013.9.16

Measurement duration: 9 minutes 11 seconds

### A. Experimental conditions.

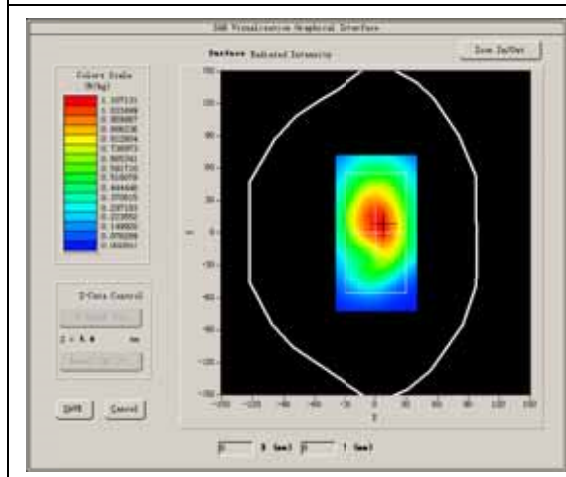
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GPRS

### B. SAR Measurement Results

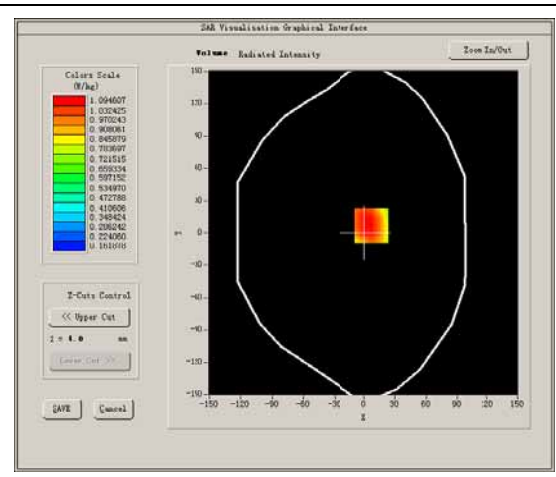
Higher Band SAR (Channel 251):

<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift(%)</b>	-1.130000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:2

#### SURFACE SAR

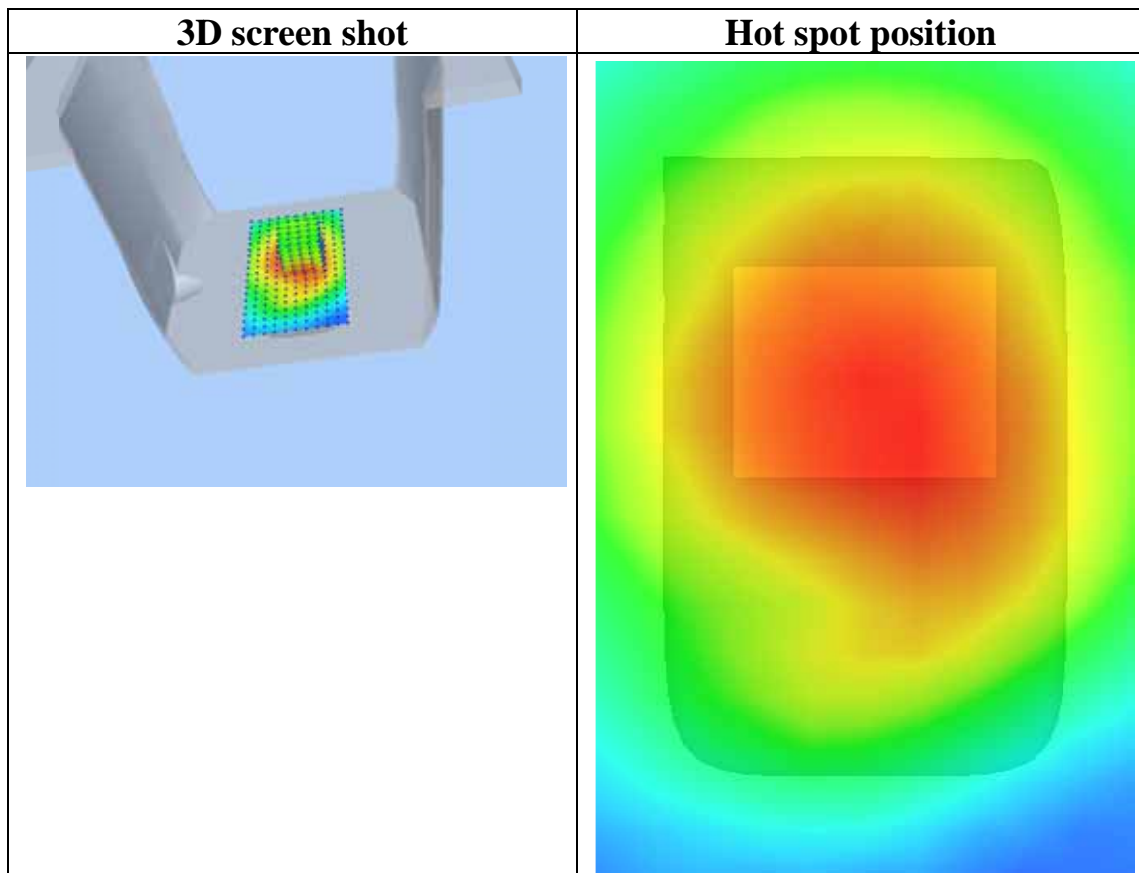
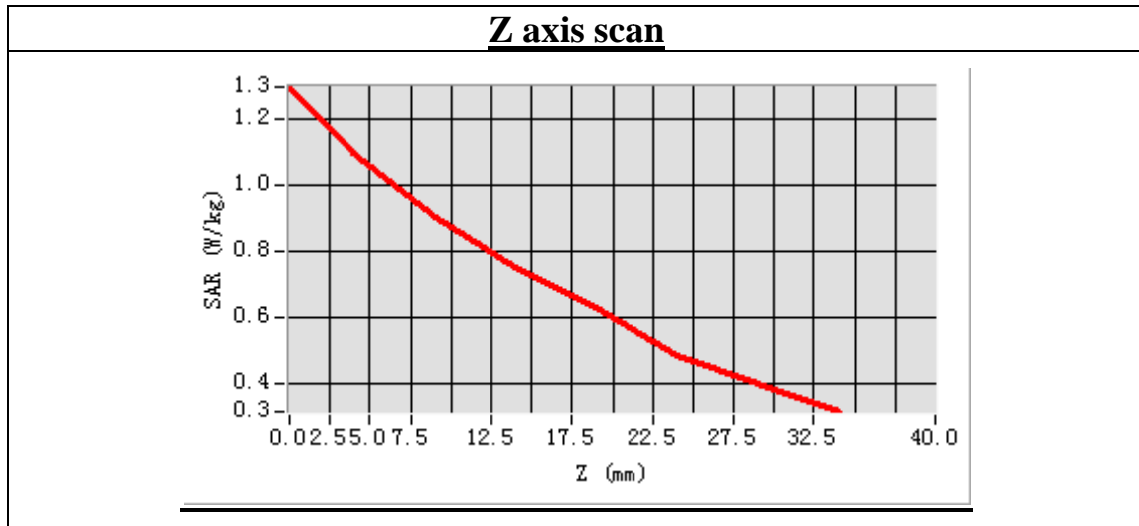


#### VOLUME SAR



**Maximum location: X=7.00, Y=7.00**  
**SAR Peak: 1.37 W/kg**

<b>SAR 10g (W/Kg)</b>	0.837511
<b>SAR 1g (W/Kg)</b>	1.100588



## 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: 2013.9.16

Measurement duration: 9 minutes 11 seconds

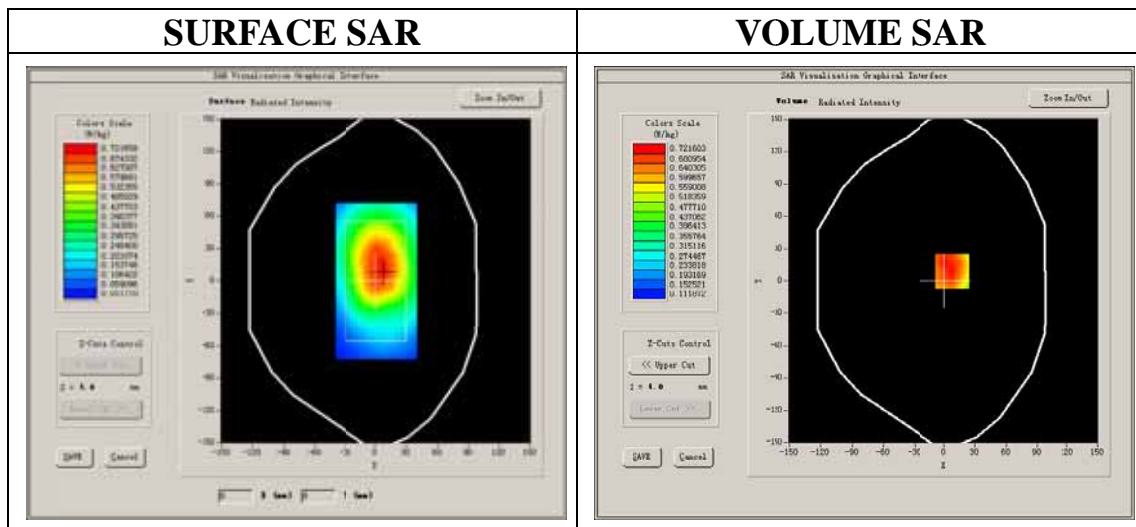
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GPRS

### B. SAR Measurement Results

High Band SAR (Channel 251):

<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift(%)</b>	0.800000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:2

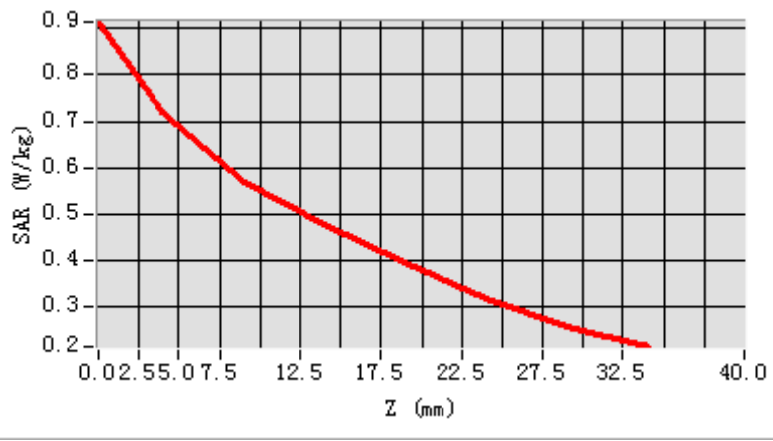


**Maximum location: X=8.00, Y=9.00**

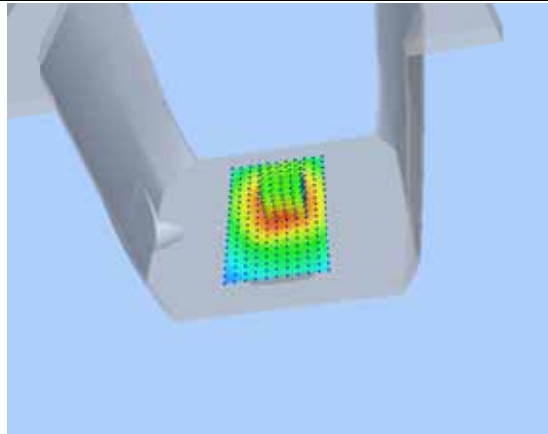
**SAR Peak: 0.91 W/kg**

<b>SAR 10g (W/Kg)</b>	0.549511
<b>SAR 1g (W/Kg)</b>	0.712195

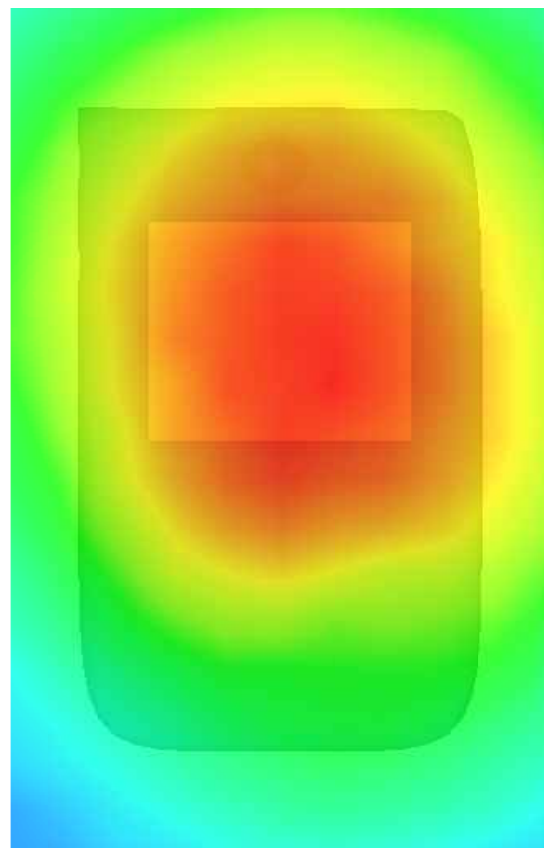
**Z axis scan**



**3D screen 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: 2013.9.16

Measurement duration: 9 minutes 10 seconds

## A. Experimental conditions.

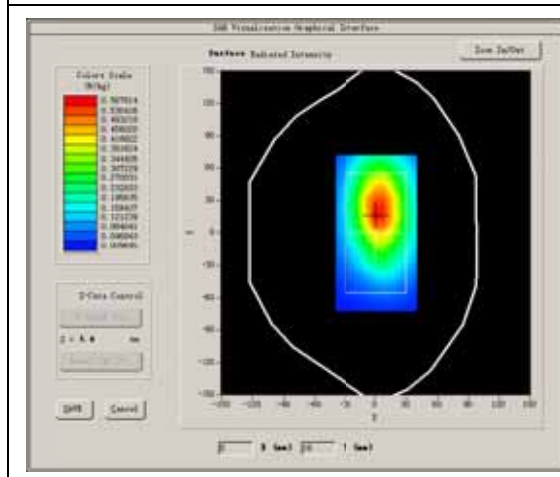
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GPRS

## B. SAR Measurement Results

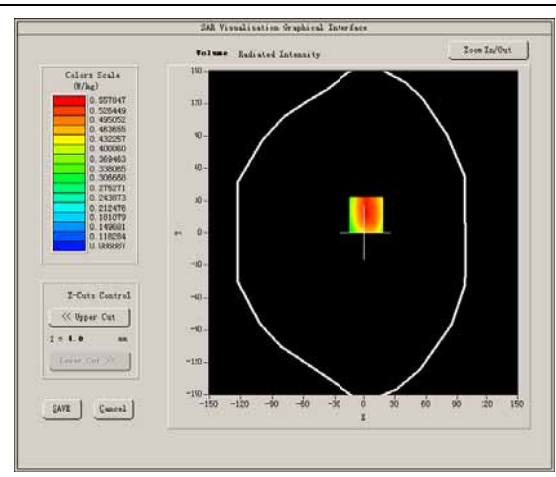
High Band SAR (Channel 251):

<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift(%)</b>	-1.780000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:2

### SURFACE SAR

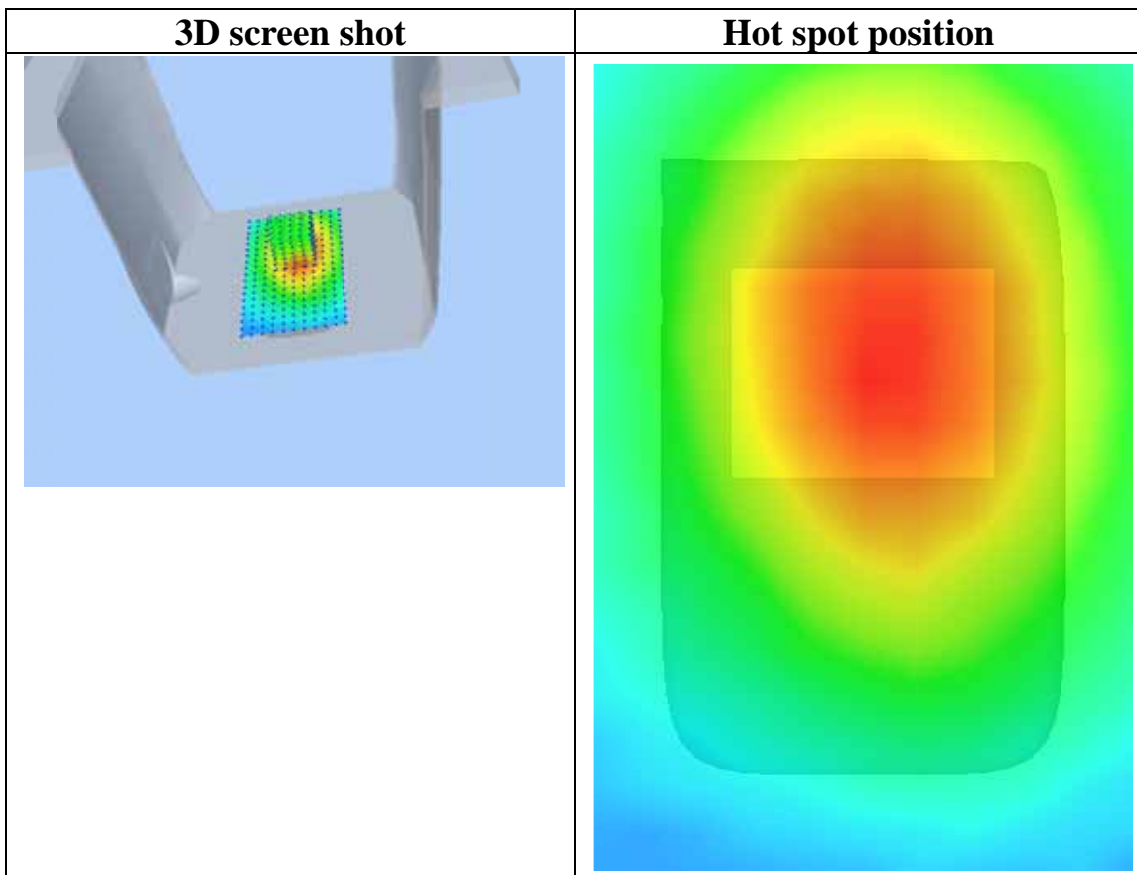
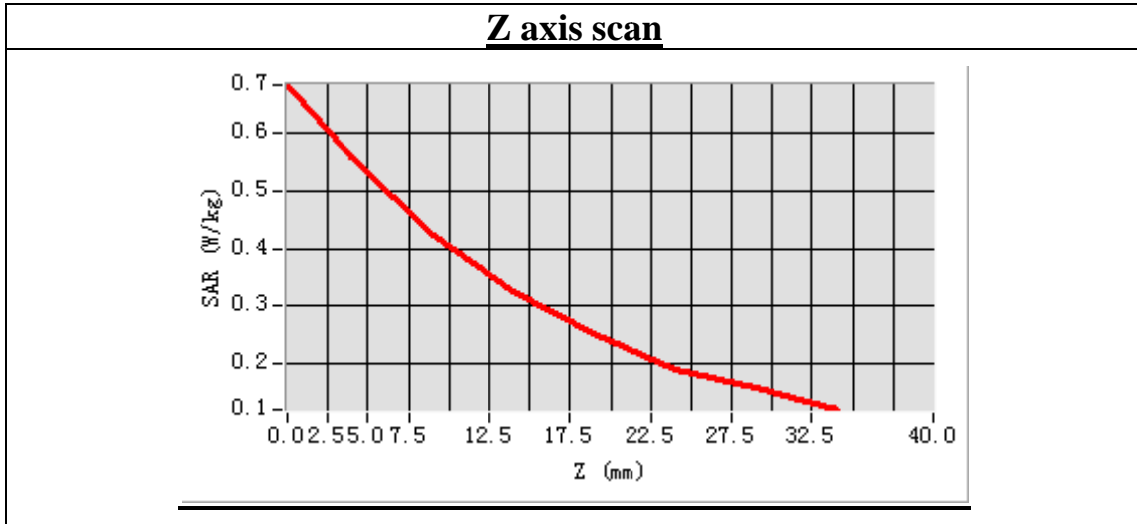


### VOLUME SAR



**Maximum location: X=2.00, Y=17.00**  
**SAR Peak: 0.72 W/kg**

<b>SAR 10g (W/Kg)</b>	0.388720
<b>SAR 1g (W/Kg)</b>	0.538088





## 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: 2013.9.16

Measurement duration: 9 minutes 10 seconds

### A. Experimental conditions.

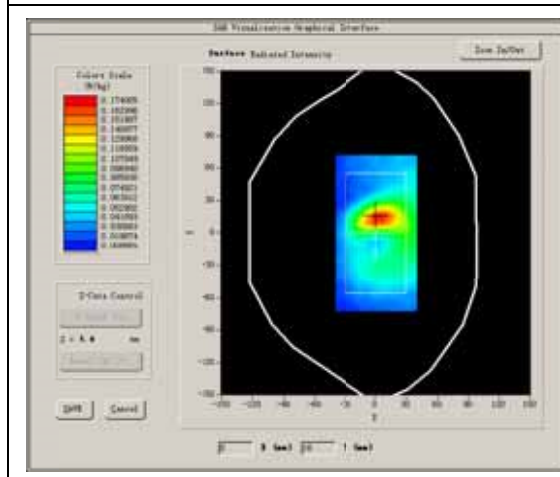
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	GPRS

### B. SAR Measurement Results

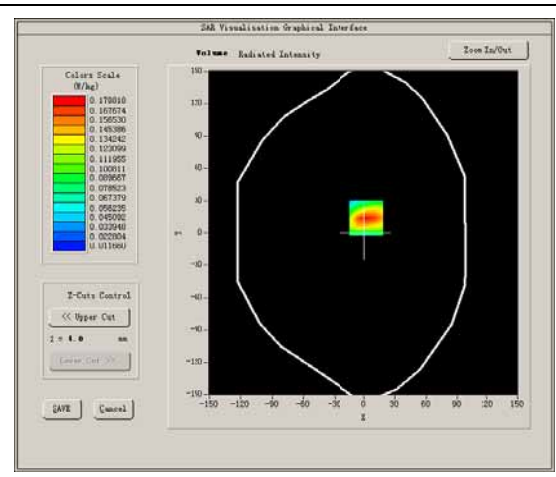
High Band SAR (Channel 251):

<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift(%)</b>	-1.090000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:2

#### SURFACE SAR



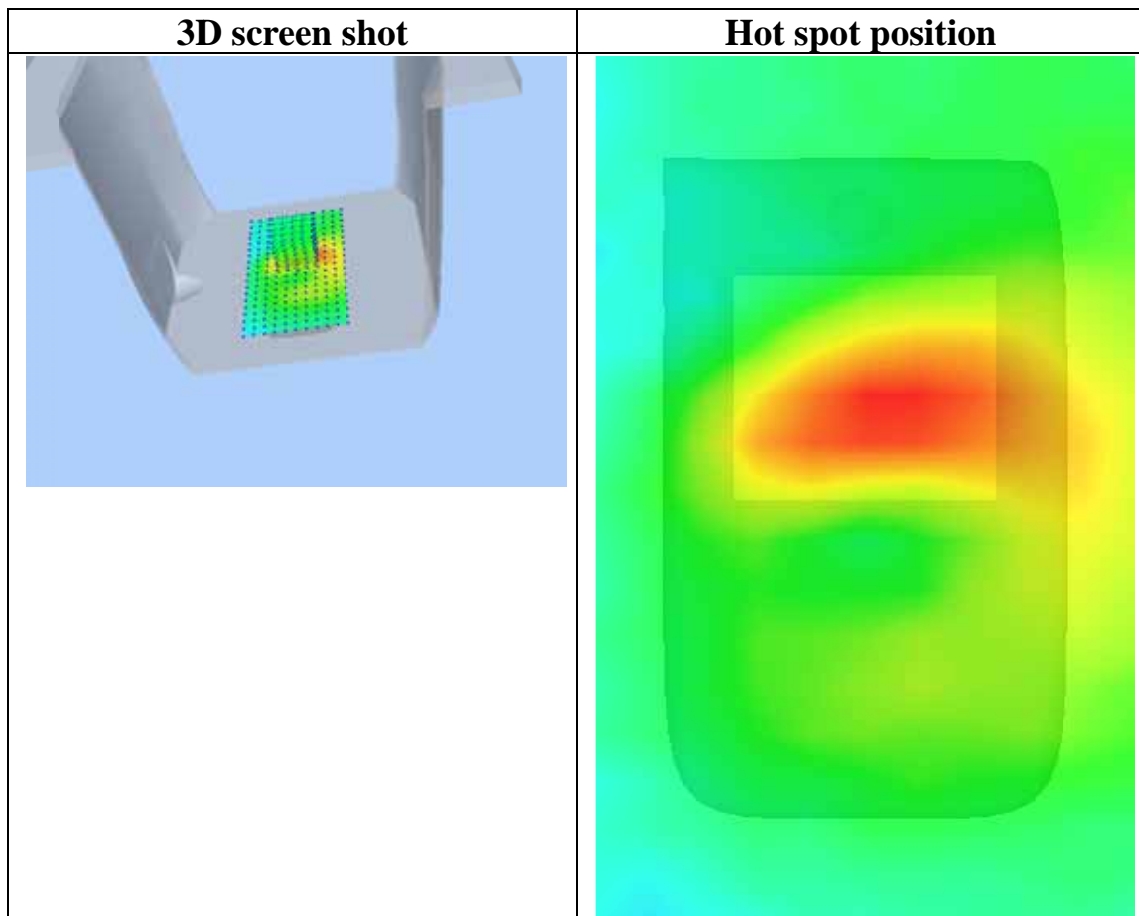
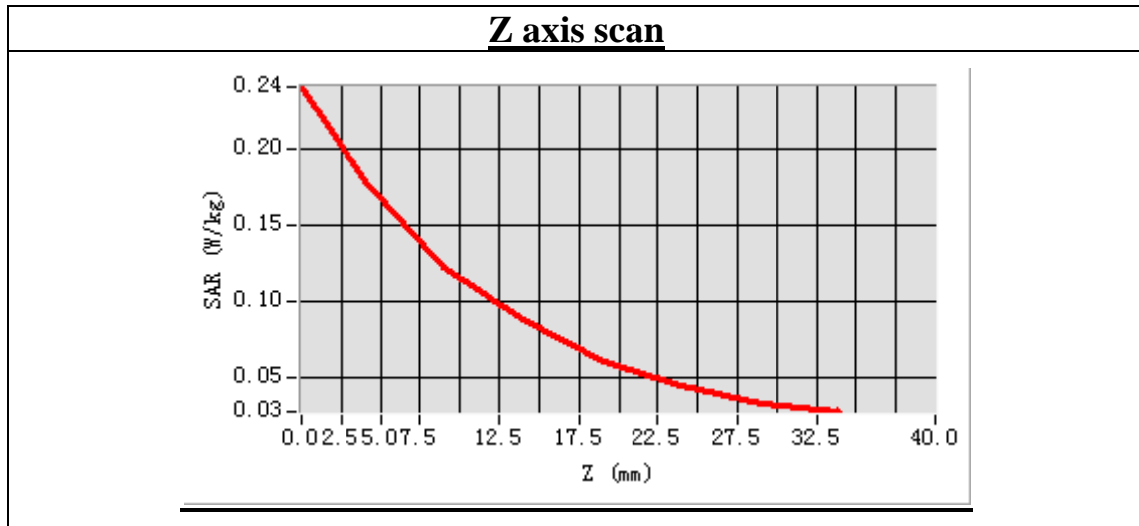
#### VOLUME SAR



**Maximum location: X=2.00, Y=14.00**

**SAR Peak: 0.26 W/kg**

<b>SAR 10g (W/Kg)</b>	0.104051
<b>SAR 1g (W/Kg)</b>	0.171628



## 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: 2013.9.16

Measurement duration: 9 minutes 10 seconds

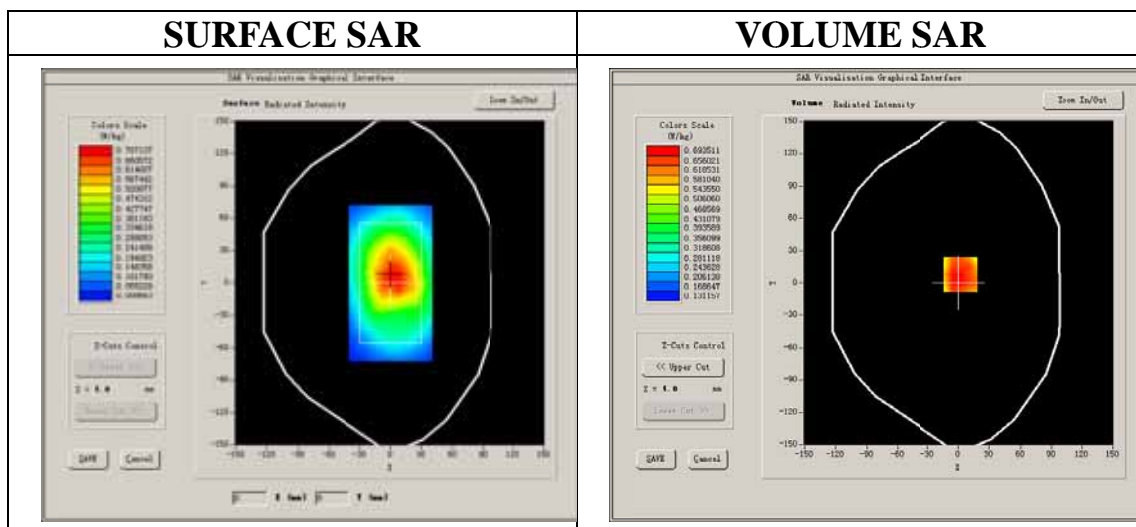
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM850
<b>Channels</b>	High
<b>Signal</b>	EDGE

### B. SAR Measurement Results

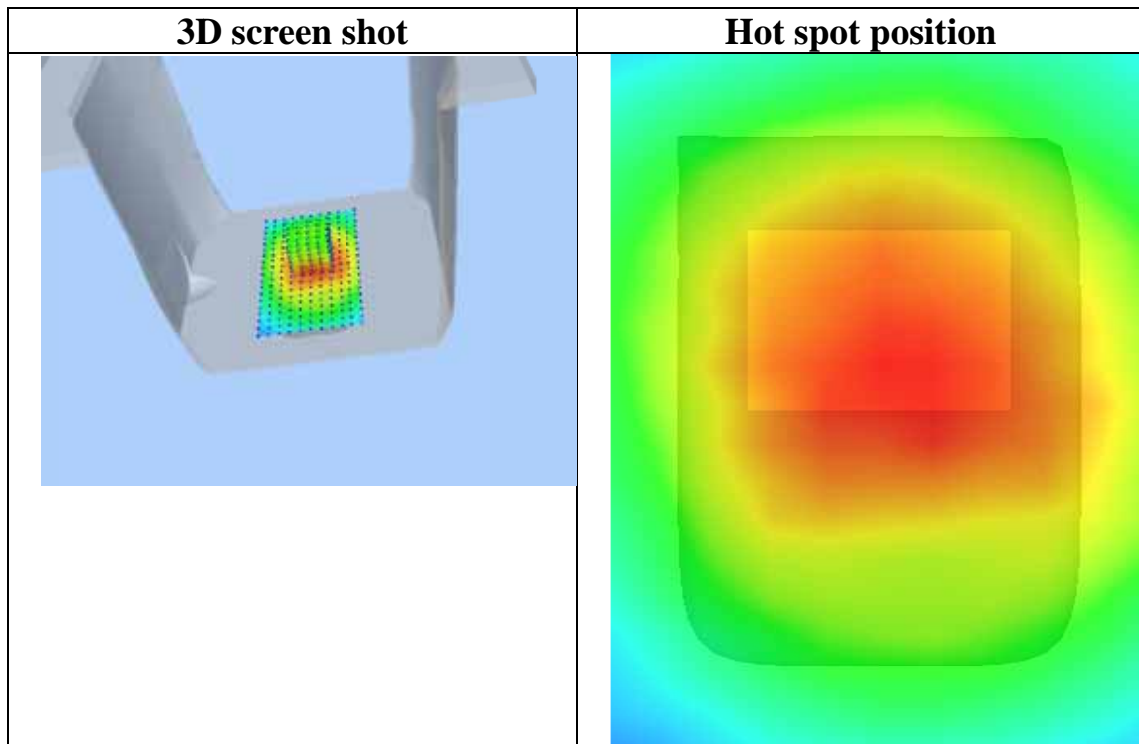
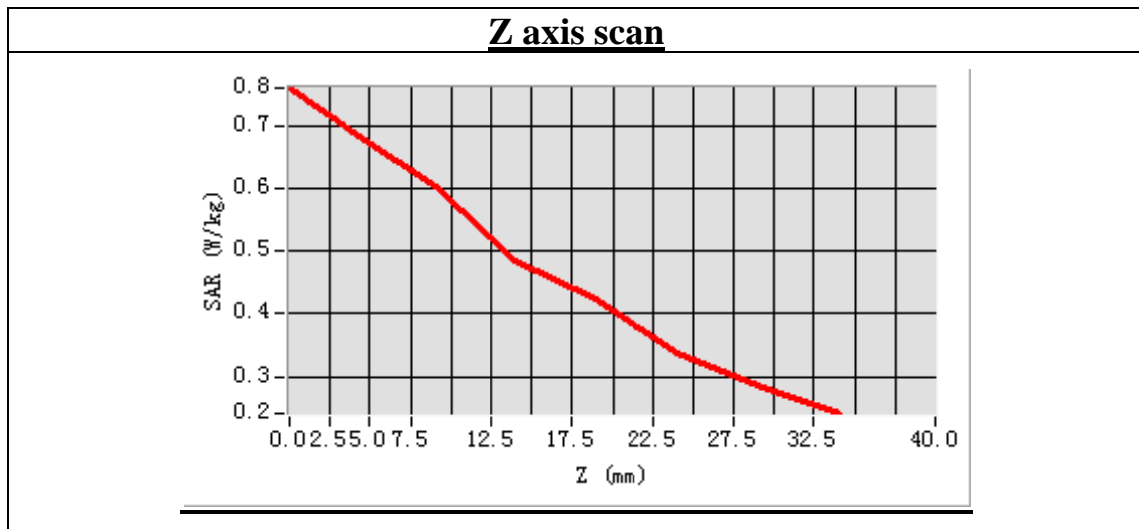
High Band SAR (Channel 251):

<b>Frequency (MHz)</b>	848.800000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift(%)</b>	-0.810000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:2



Maximum location: X=2.00, Y=8.00  
 SAR Peak: 0.88 W/kg

SAR 10g (W/Kg)	0.595287
SAR 1g (W/Kg)	0.765716



## 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: 2013.9.17

Measurement duration: 8 minutes 52 seconds

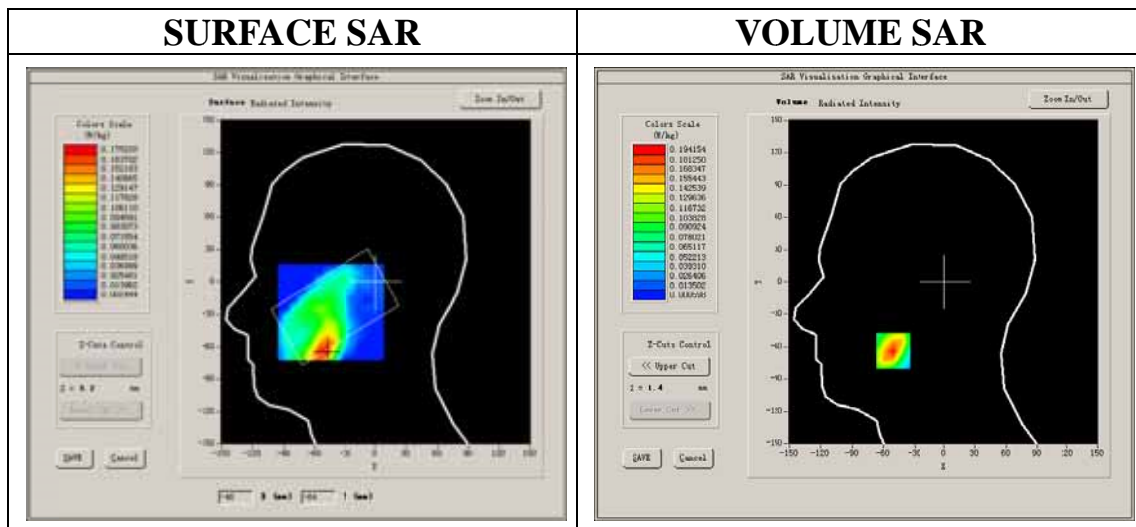
### A. Experimental conditions.

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Cheek
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GSM

### B. SAR Measurement Results

Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.00000
<b>Relative permittivity (real part)</b>	41.147921
<b>Conductivity (S/m)</b>	1.416814
<b>Power drift(%)</b>	-0.730000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:8

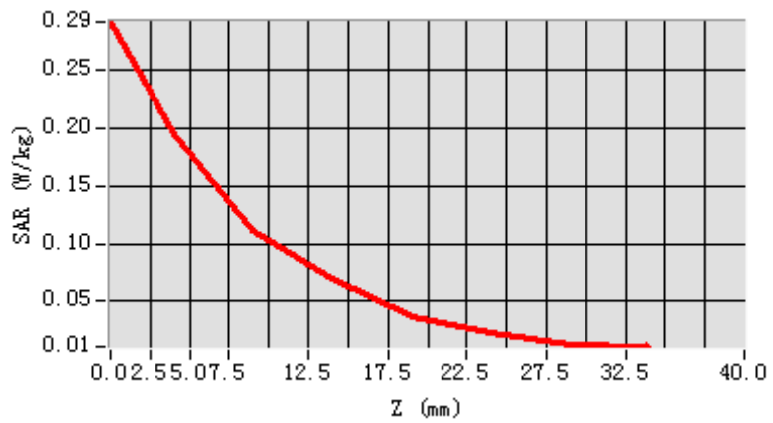


**Maximum location: X=-51.00, Y=-64.00**

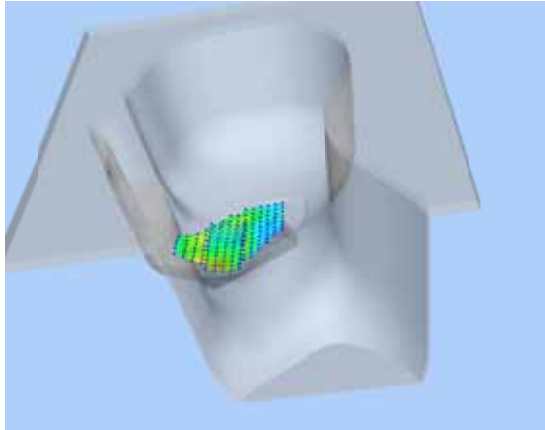
**SAR Peak: 0.30 W/kg**

<b>SAR 10g (W/Kg)</b>	0.094445
<b>SAR 1g (W/Kg)</b>	0.181090

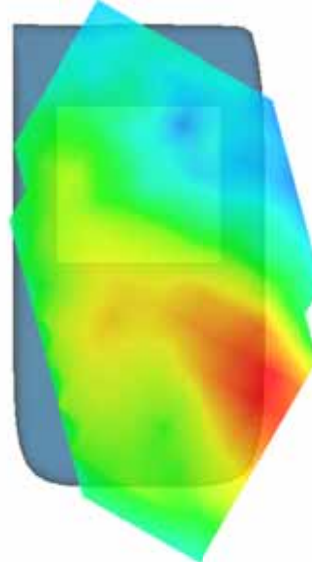
**Z axis scan**



**3D screen 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: 2013.9.17

Measurement duration: 8 minutes 33 seconds

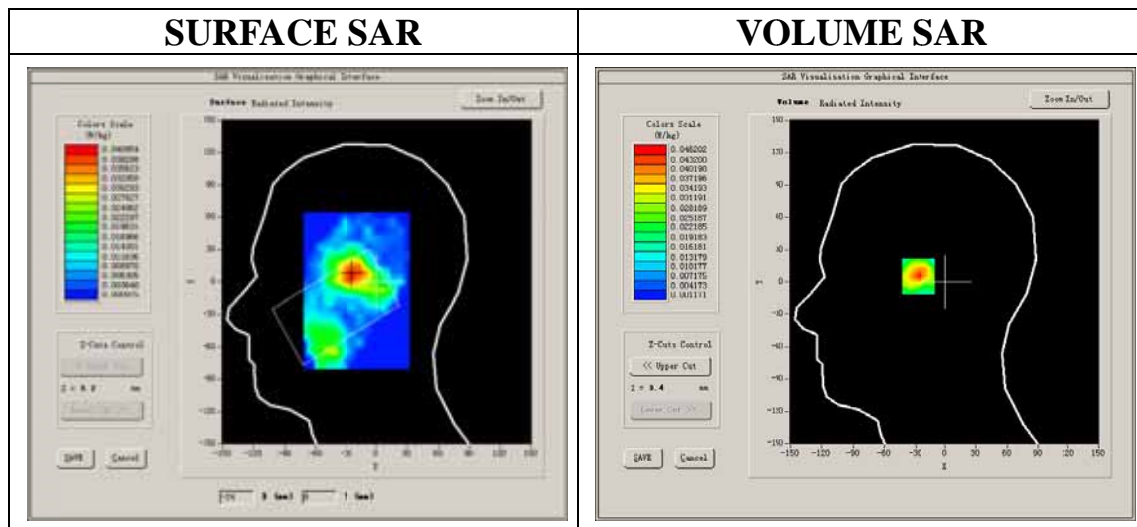
### A. Experimental conditions.

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Tilt
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GSM

### B. SAR Measurement Results

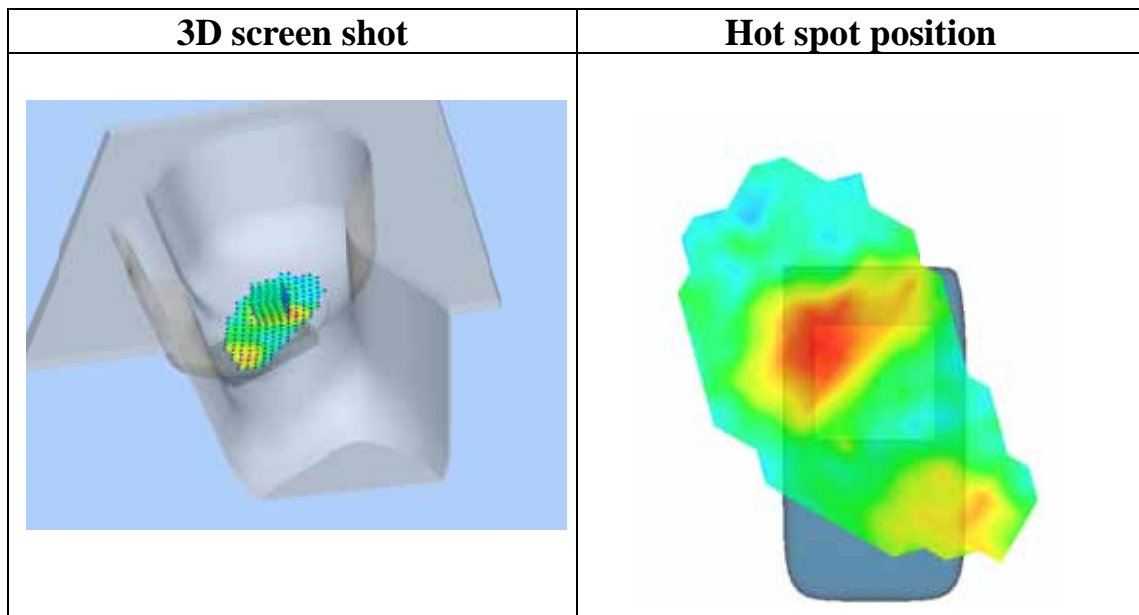
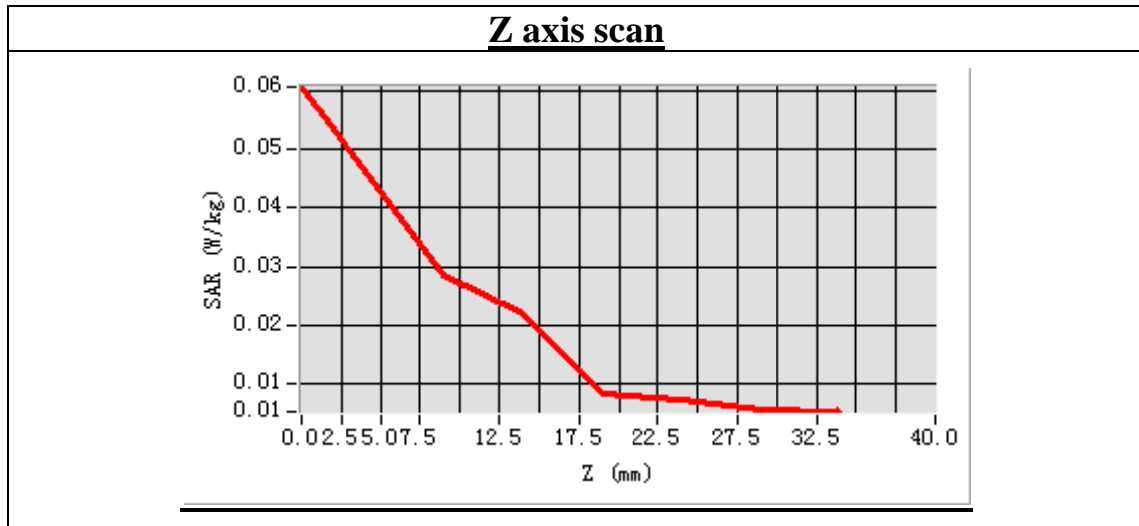
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.00000
<b>Relative permittivity (real part)</b>	41.147921
<b>Conductivity (S/m)</b>	1.416814
<b>Power drift(%)</b>	1.030000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:8



Maximum location: X=-24.00, Y=7.00  
 SAR Peak: 0.07 W/kg

SAR 10g (W/Kg)	0.023071
SAR 1g (W/Kg)	0.042118





## 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: 2013.9.17

Measurement duration: 8 minutes 24 seconds

### A. Experimental conditions.

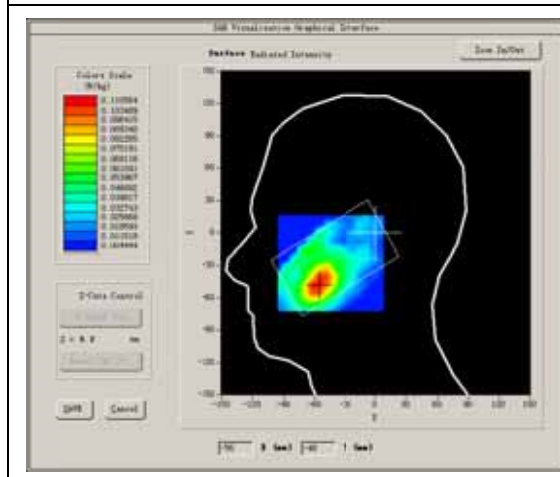
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GSM

### B. SAR Measurement Results

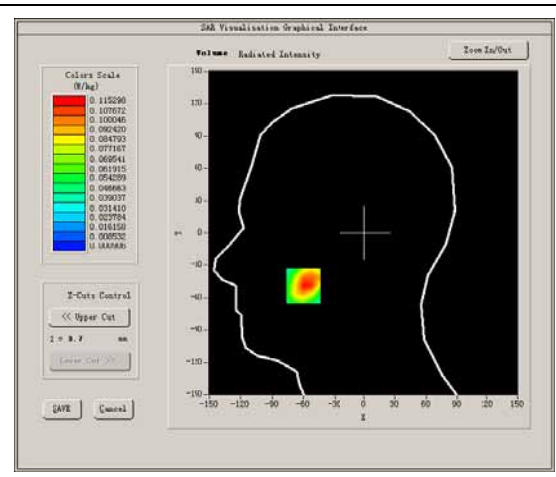
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.00000
<b>Relative permittivity (real part)</b>	41.147921
<b>Conductivity (S/m)</b>	1.416814
<b>Power drift(%)</b>	-0.590000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:8

#### SURFACE SAR



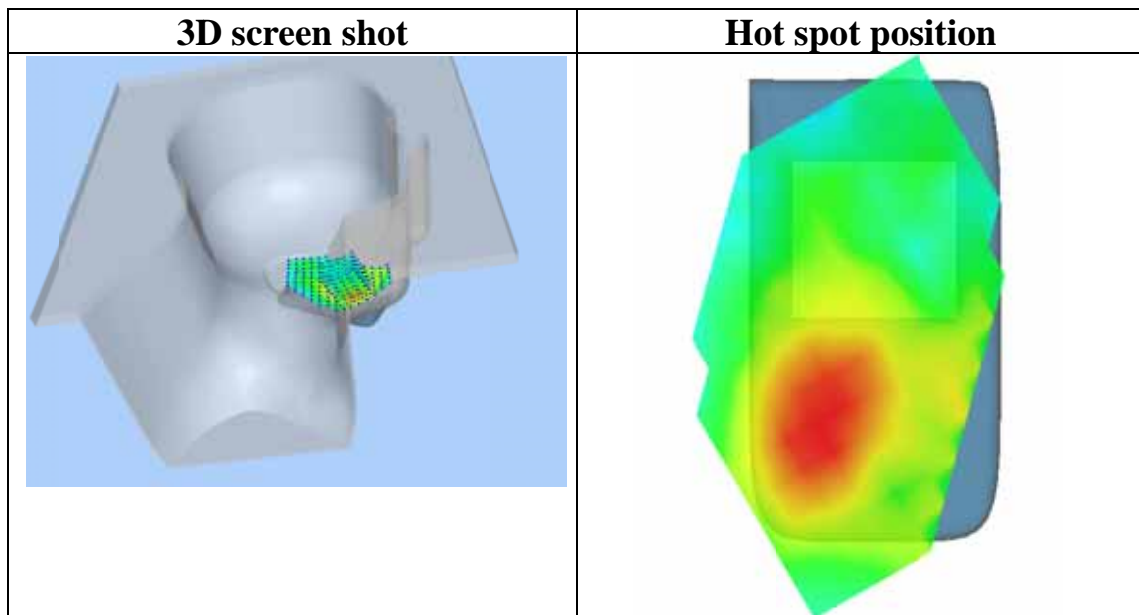
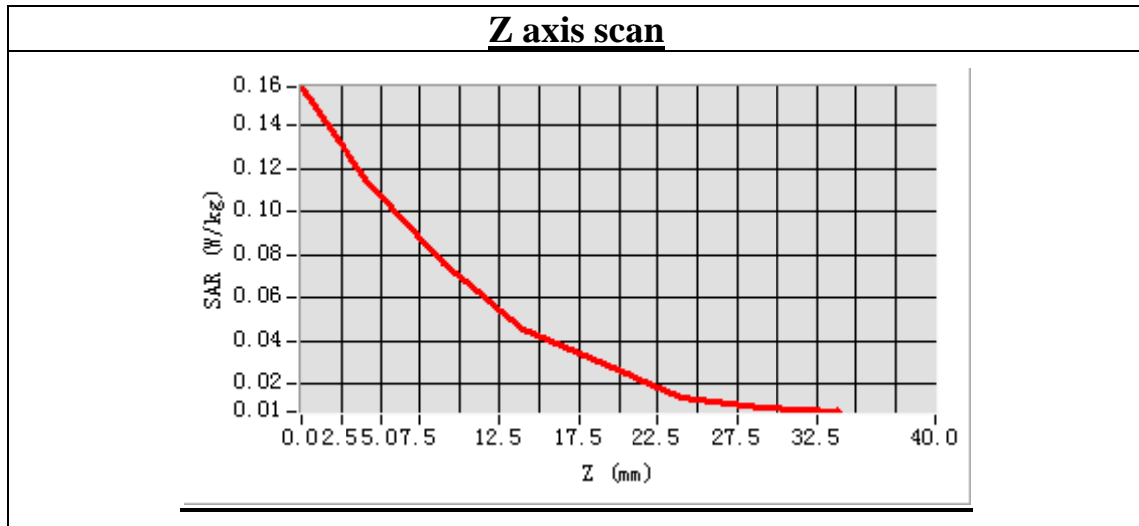
#### VOLUME SAR



**Maximum location: X=-60.00, Y=-49.00**

**SAR Peak: 0.18 W/kg**

<b>SAR 10g (W/Kg)</b>	0.061790
<b>SAR 1g (W/Kg)</b>	0.111480



## 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: 2013.9.17

Measurement duration: 7 minutes 18 seconds

### A. Experimental conditions.

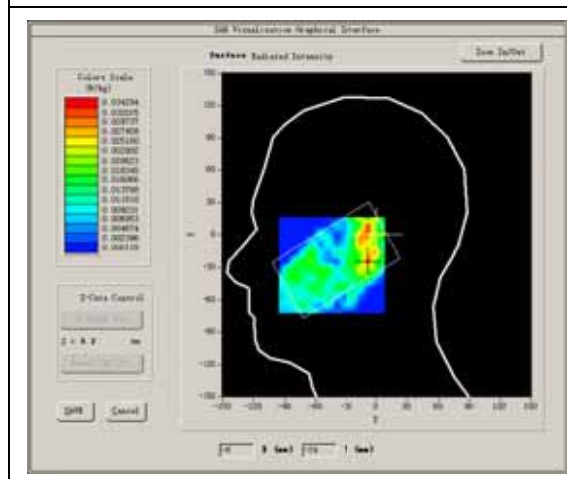
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Tilt
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GSM

### B. SAR Measurement Results

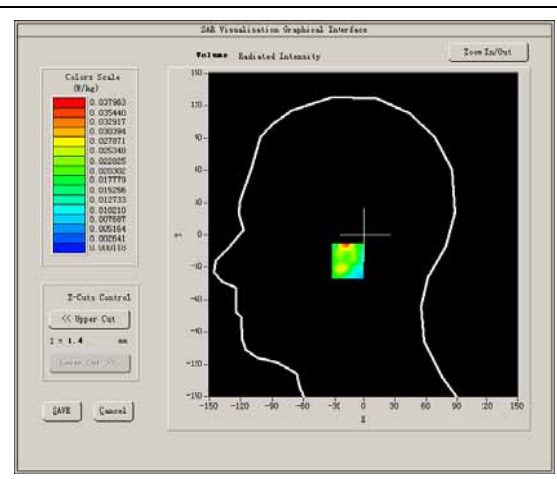
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.000000
<b>Relative permittivity (real part)</b>	41.147921
<b>Conductivity (S/m)</b>	1.416814
<b>Power drift(%)</b>	-0.290000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:8

#### SURFACE SAR

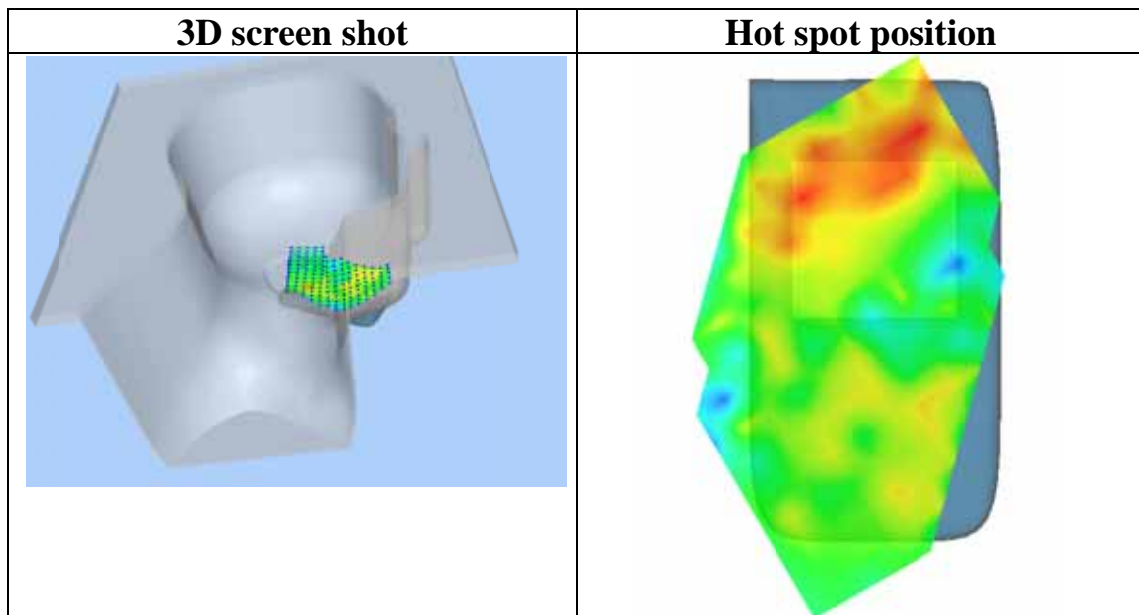
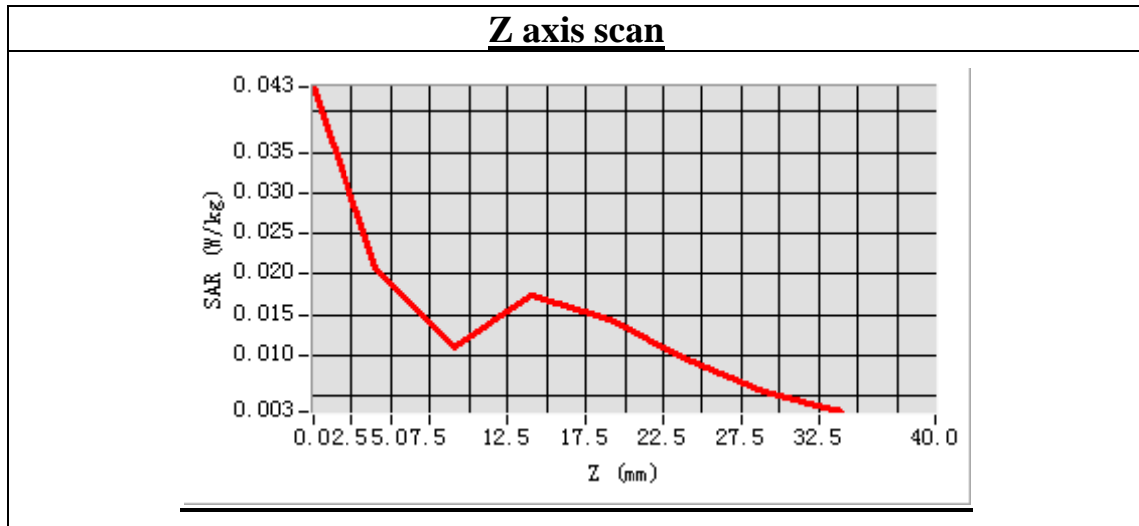


#### VOLUME SAR



**Maximum location: X=-8.00, Y=-24.00**  
**SAR Peak: 0.07 W/kg**

<b>SAR 10g (W/Kg)</b>	0.015763
<b>SAR 1g (W/Kg)</b>	0.032313



# 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: 2013.9.17

Measurement duration: 9 minutes 8 seconds

## A. Experimental conditions.

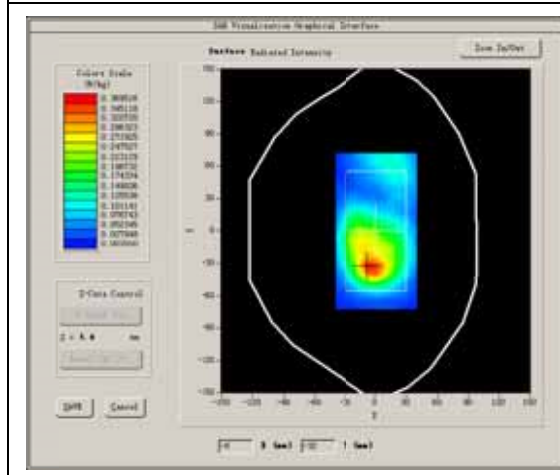
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GSM

## B. SAR Measurement Results

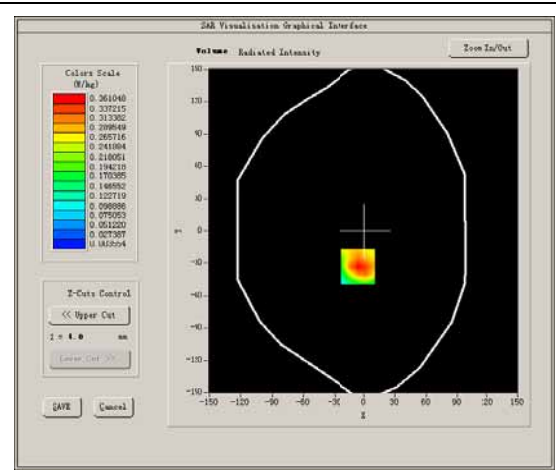
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.00000
<b>Relative permittivity (real part)</b>	53.227042
<b>Conductivity (S/m)</b>	1.500328
<b>Power drift(%)</b>	2.320000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.625,34.773,38.535
<b>Crest factor:</b>	1:8

### SURFACE SAR

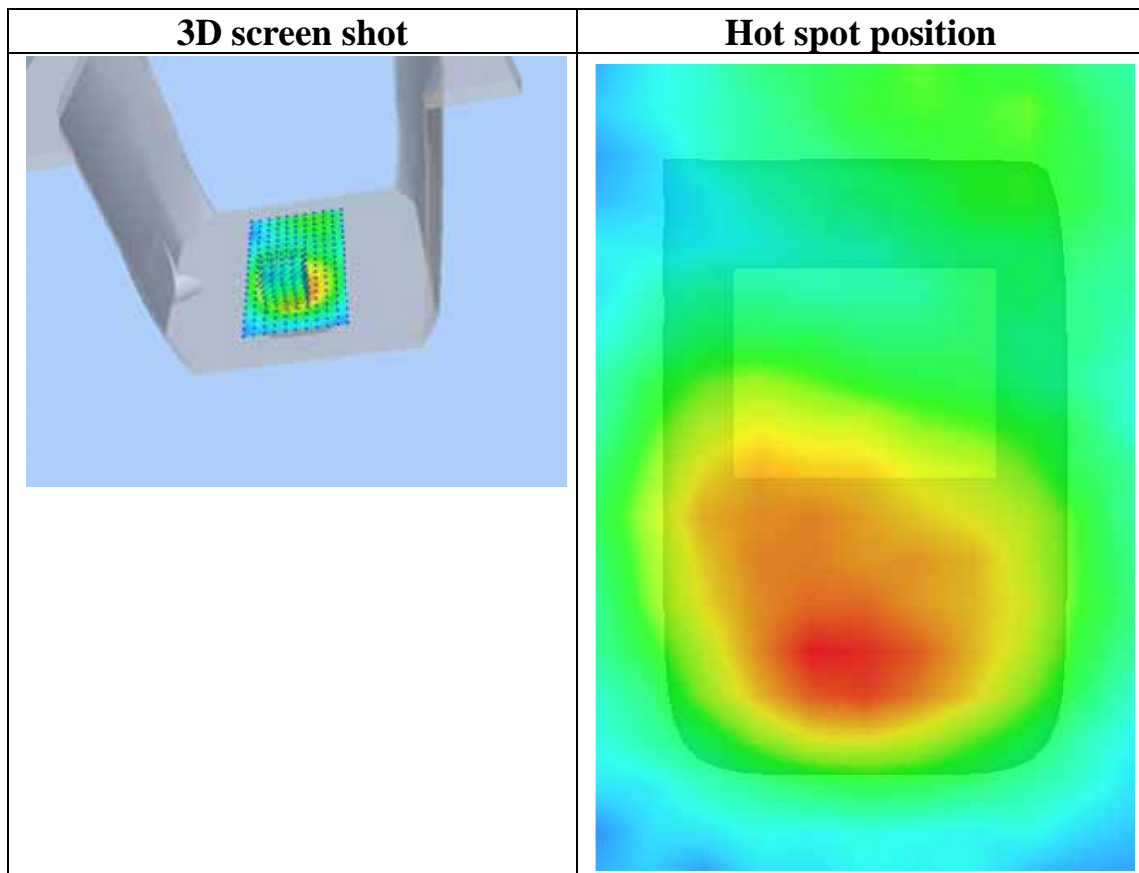
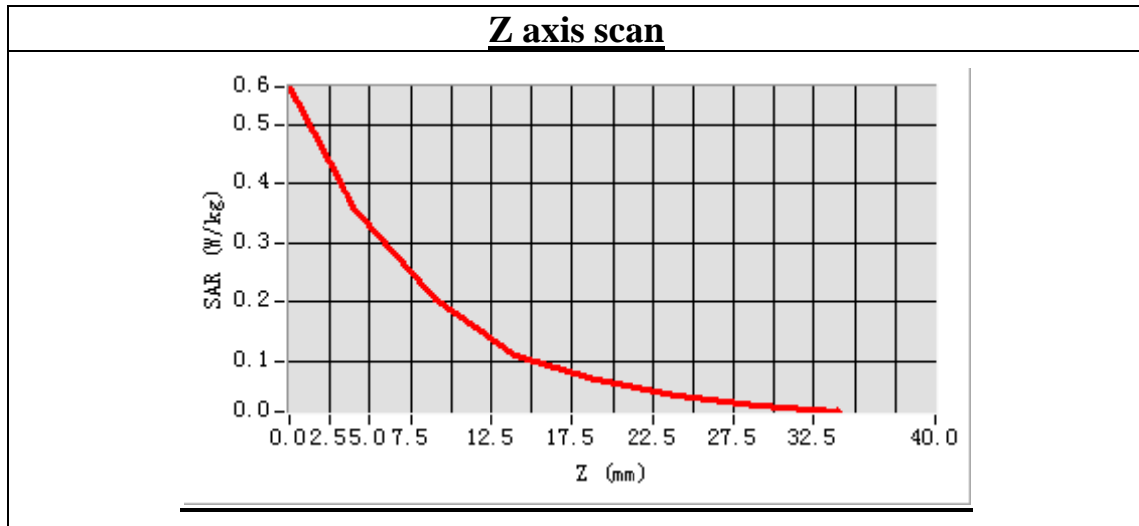


### VOLUME SAR



Maximum location: X=-6.00, Y=-33.00  
 SAR Peak: 0.63 W/kg

SAR 10g (W/Kg)	0.200543
SAR 1g (W/Kg)	0.373996



## MEASUREMENT 19

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.17

Measurement duration: 9 minutes 9 seconds

### A. Experimental conditions.

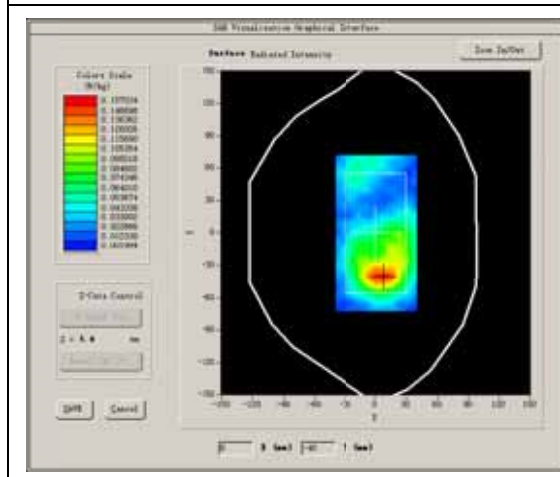
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GSM

### B. SAR Measurement Results

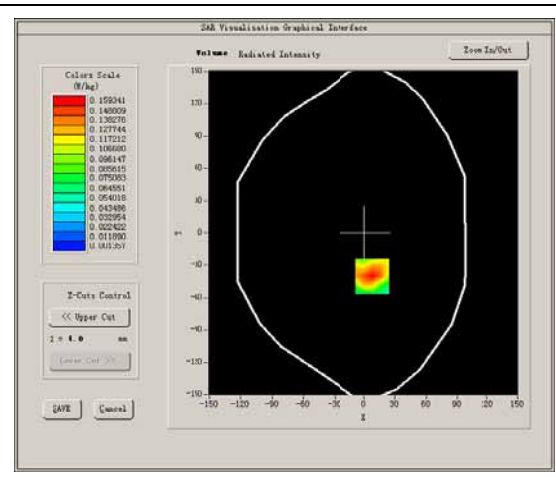
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.00000
<b>Relative permittivity (real part)</b>	53.227042
<b>Conductivity (S/m)</b>	1.500328
<b>Power drift(%)</b>	0.110000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.625,34.773,38.535
<b>Crest factor:</b>	1:8

#### SURFACE SAR

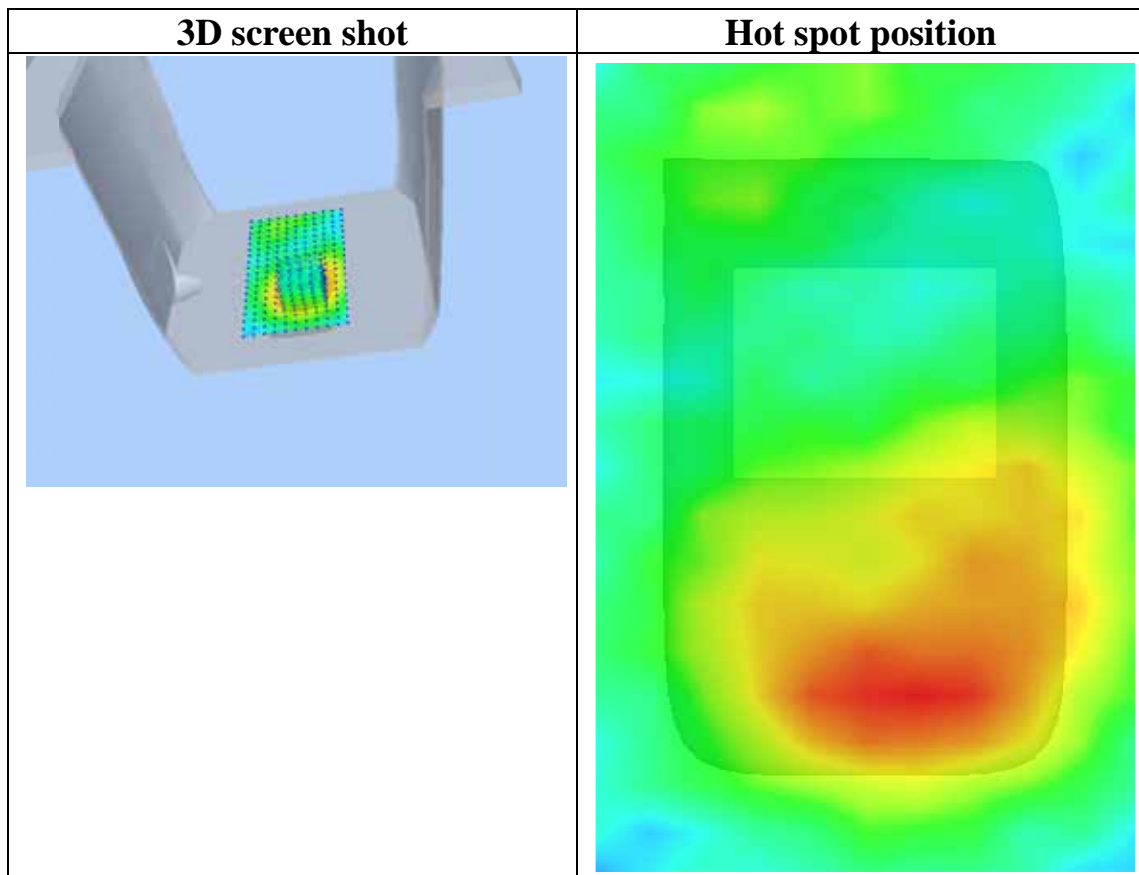
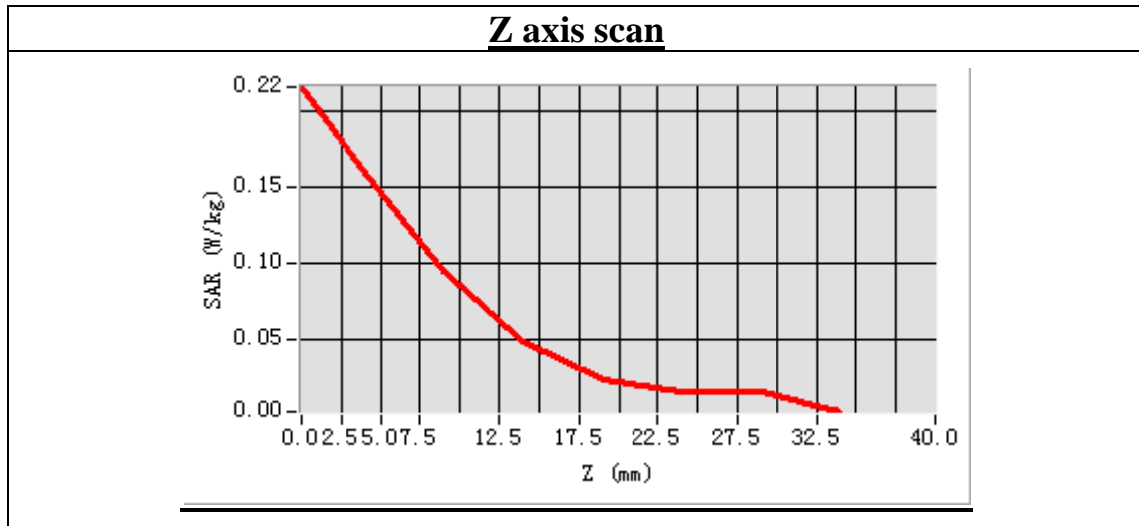


#### VOLUME SAR



**Maximum location: X=8.00, Y=-40.00**  
**SAR Peak: 0.27 W/kg**

<b>SAR 10g (W/Kg)</b>	0.088303
<b>SAR 1g (W/Kg)</b>	0.160965





## MEASUREMENT 20

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.17

Measurement duration: 9 minutes 8 seconds

### A. Experimental conditions.

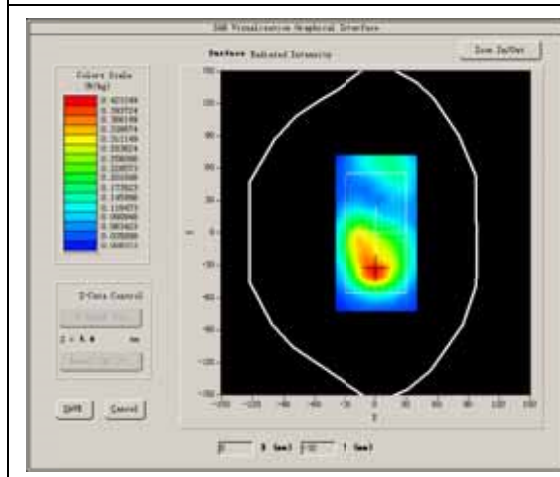
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GPRS

### B. SAR Measurement Results

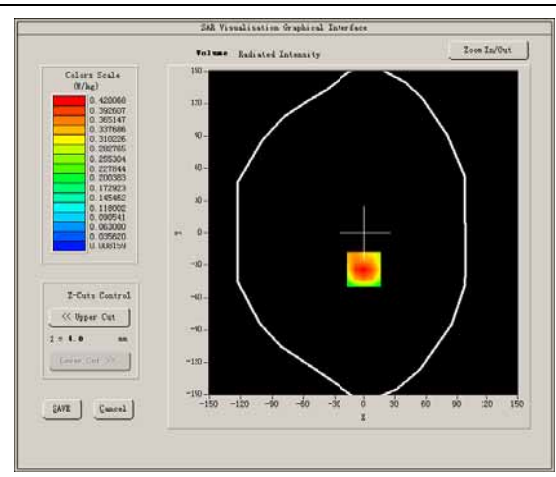
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.000000
<b>Relative permittivity (real part)</b>	53.227042
<b>Conductivity (S/m)</b>	1.500328
<b>Power drift(%)</b>	-2.710000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.625,34.773,38.535
<b>Crest factor:</b>	1:2

**SURFACE SAR**



**VOLUME SAR**

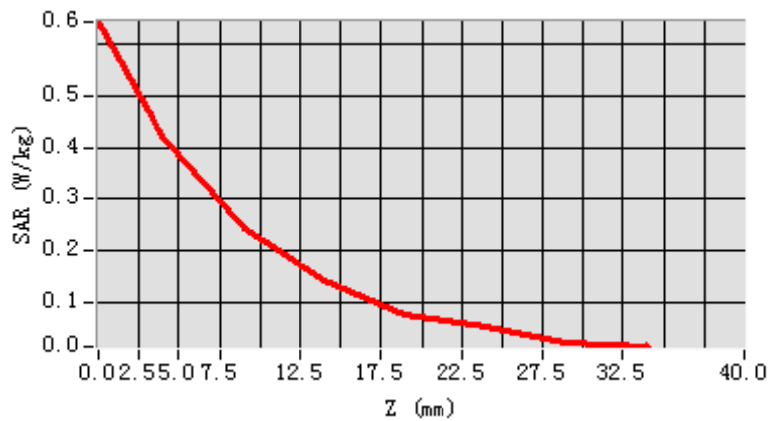


**Maximum location: X=0.00, Y=-34.00**

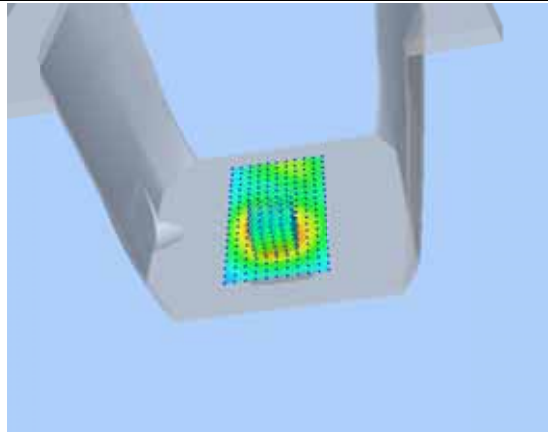
**SAR Peak: 0.66 W/kg**

<b>SAR 10g (W/Kg)</b>	0.228303
<b>SAR 1g (W/Kg)</b>	0.415321

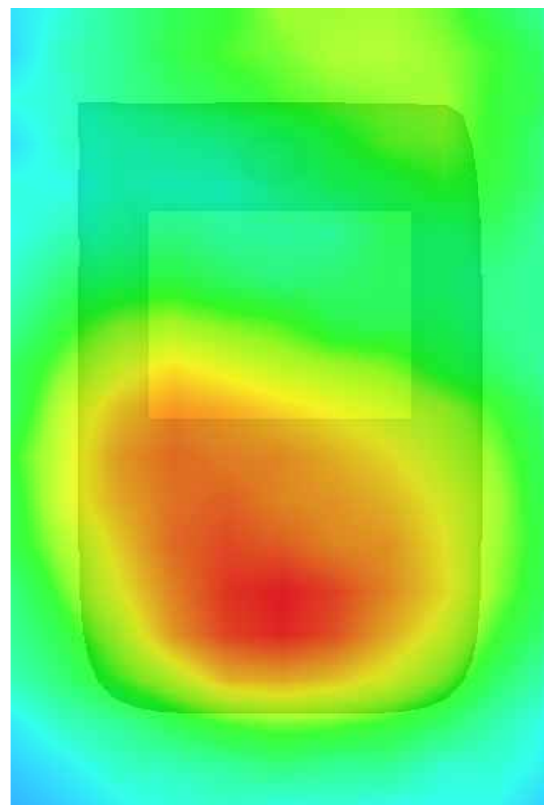
**Z axis scan**



**3D screen shot**



**Hot spot position**



## MEASUREMENT 21

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.17

Measurement duration: 9 minutes 8 seconds

### A. Experimental conditions.

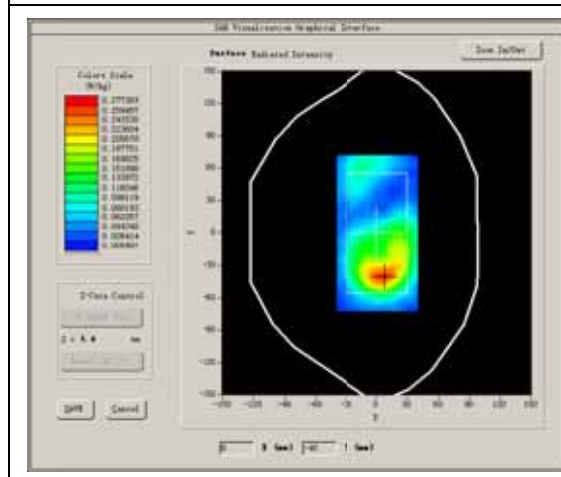
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GPRS

### B. SAR Measurement Results

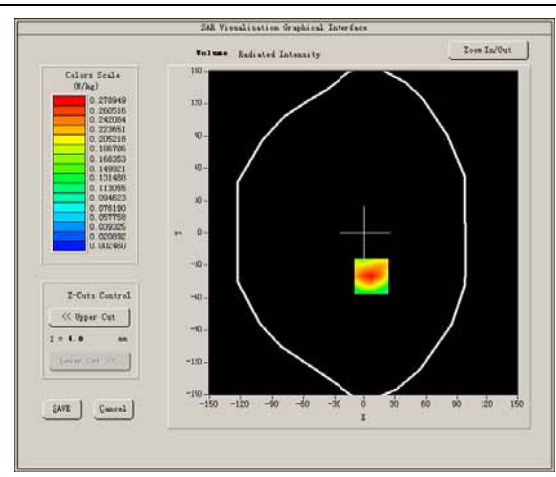
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.000000
<b>Relative permittivity (real part)</b>	53.227042
<b>Conductivity (S/m)</b>	1.500328
<b>Power drift(%)</b>	1.200000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.625,34.773,38.535
<b>Crest factor:</b>	1:2

#### SURFACE SAR



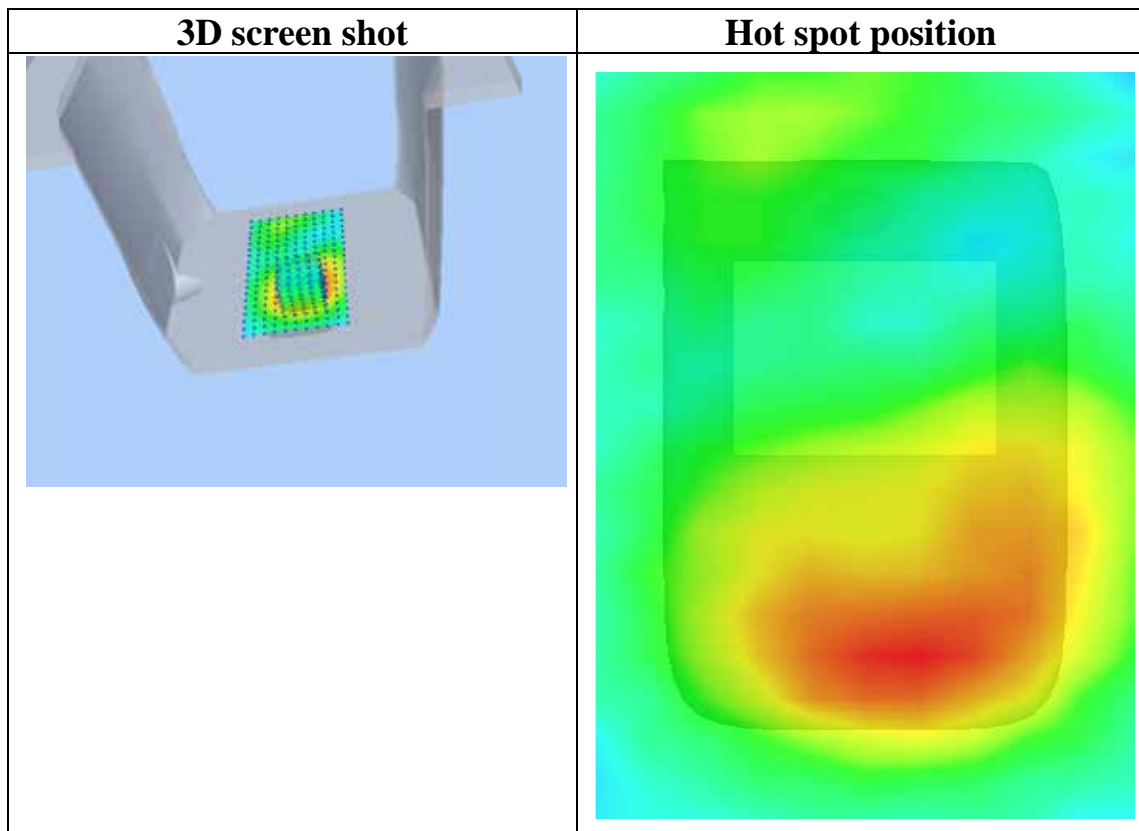
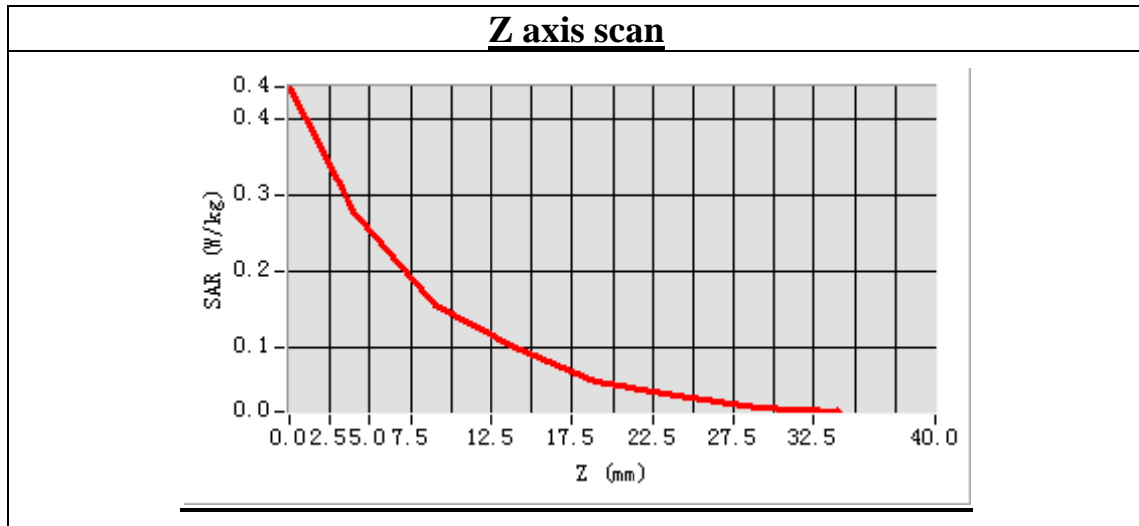
#### VOLUME SAR



**Maximum location: X=7.00, Y=-40.00**

**SAR Peak: 0.44 W/kg**

<b>SAR 10g (W/Kg)</b>	0.148198
<b>SAR 1g (W/Kg)</b>	0.271798



## MEASUREMENT 22

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.17

Measurement duration: 9 minutes 8 seconds

### A. Experimental conditions.

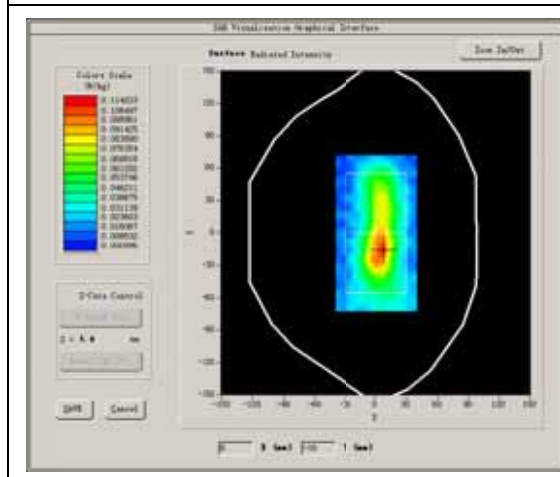
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GPRS

### B. SAR Measurement Results

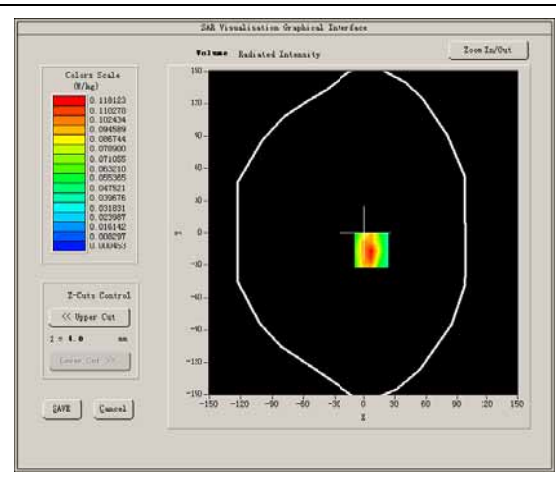
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.000000
<b>Relative permittivity (real part)</b>	53.227042
<b>Conductivity (S/m)</b>	1.500328
<b>Power drift(%)</b>	-0.560000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.625,34.773,38.535
<b>Crest factor:</b>	1:2

#### SURFACE SAR

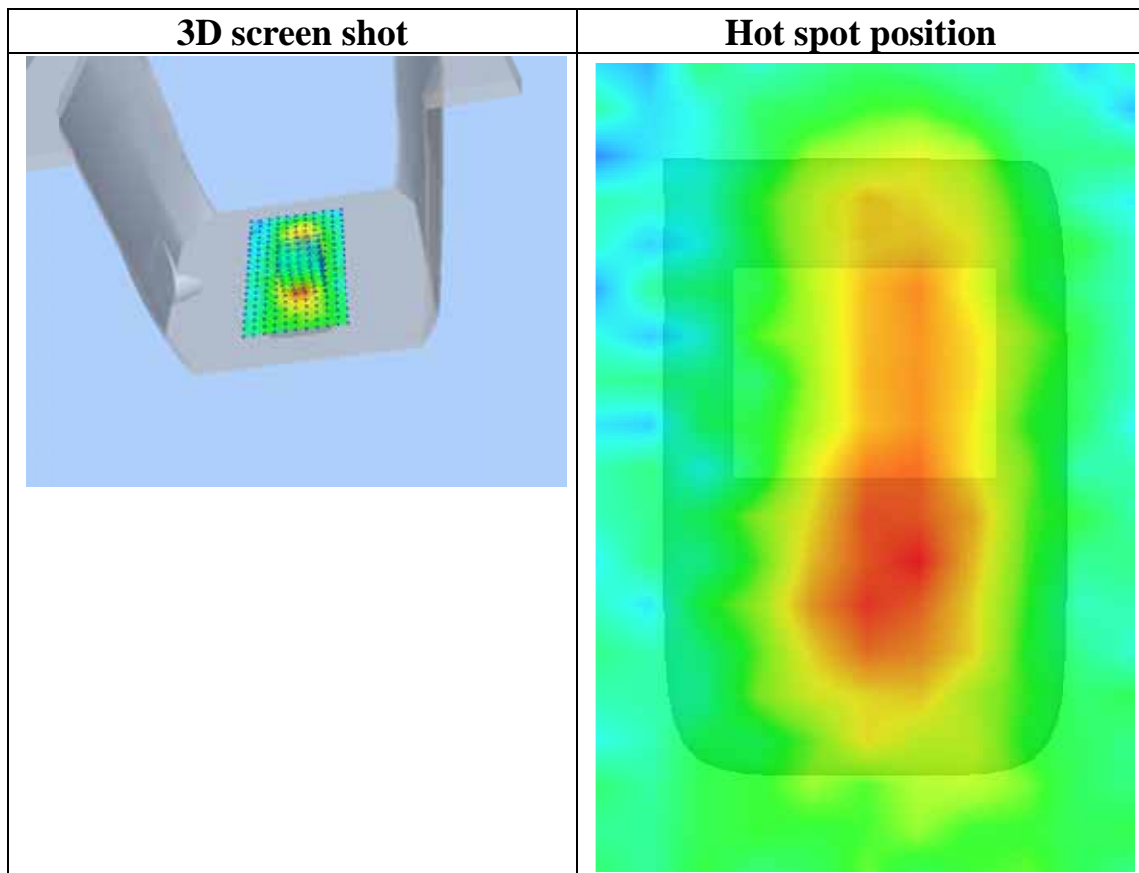
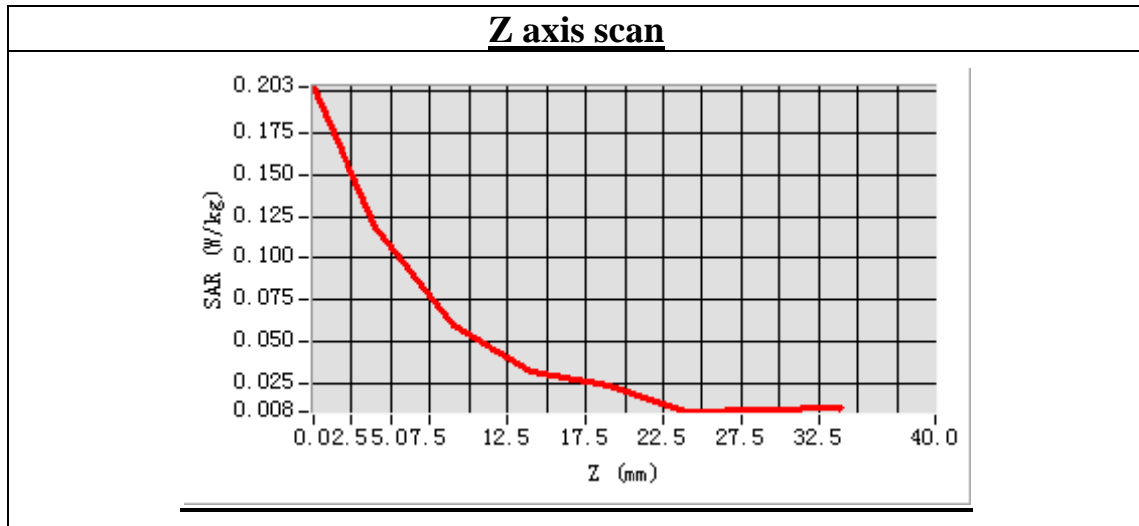


#### VOLUME SAR



**Maximum location: X=7.00, Y=-16.00**  
**SAR Peak: 0.21 W/kg**

<b>SAR 10g (W/Kg)</b>	0.059371
<b>SAR 1g (W/Kg)</b>	0.116108



## MEASUREMENT 23

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.17

Measurement duration: 9 minutes 9 seconds

### A. Experimental conditions.

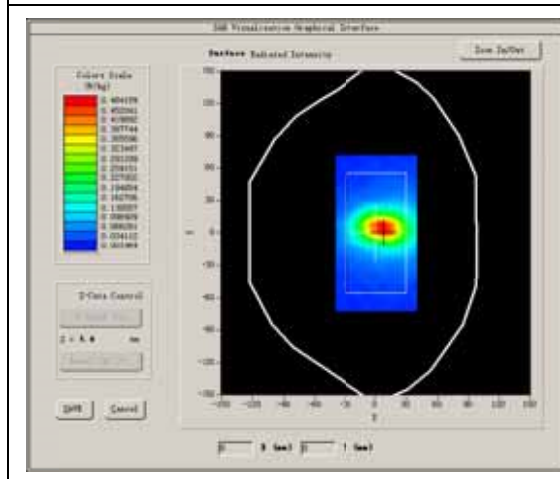
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	GPRS

### B. SAR Measurement Result

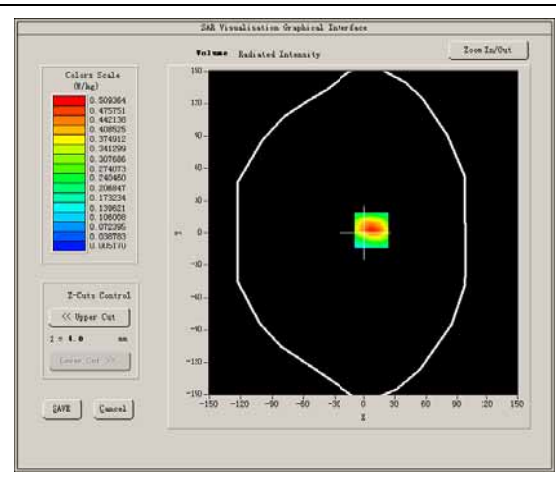
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.000000
<b>Relative permittivity (real part)</b>	53.227042
<b>Conductivity (S/m)</b>	1.500328
<b>Power drift(%)</b>	1.700000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.625,34.773,38.535
<b>Crest factor:</b>	1:2

#### SURFACE SAR



#### VOLUME SAR

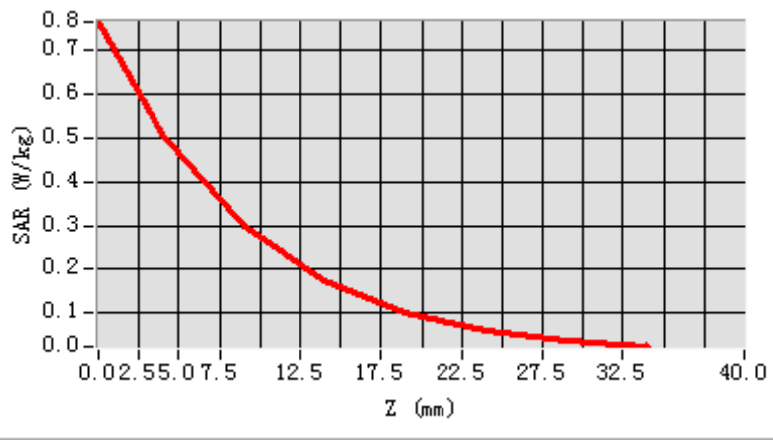


**Maximum location: X=7.00, Y=3.00**

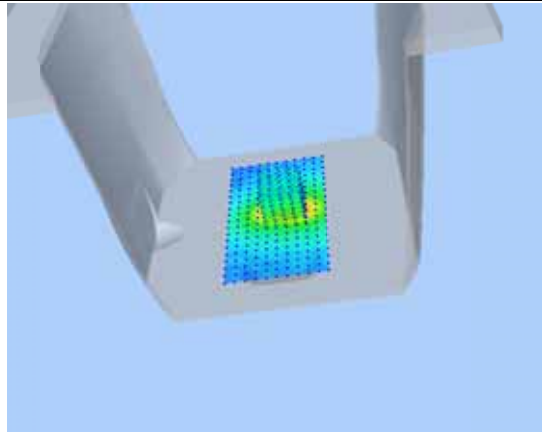
**SAR Peak: 0.77 W/kg**

<b>SAR 10g (W/Kg)</b>	0.255139
<b>SAR 1g (W/Kg)</b>	0.483930

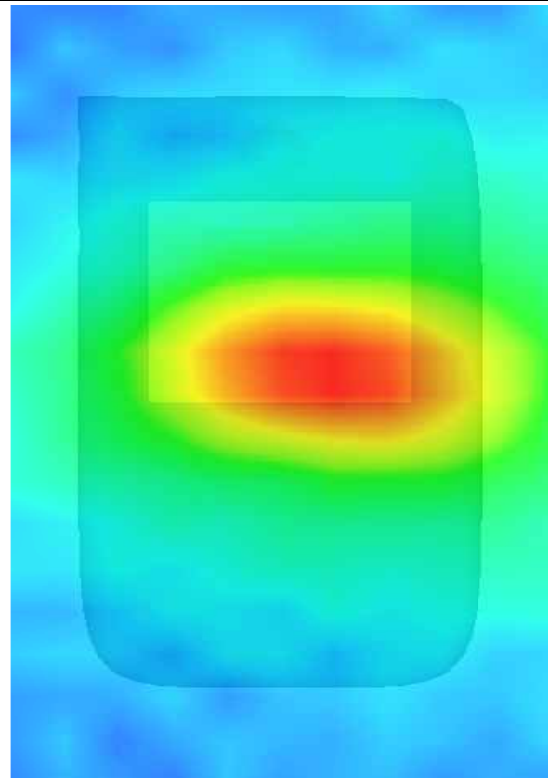
**Z axis scan**



**3D screen shot**



**Hot spot position**





## MEASUREMENT 24

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.17

Measurement duration: 9 minutes 9 seconds

### A. Experimental conditions.

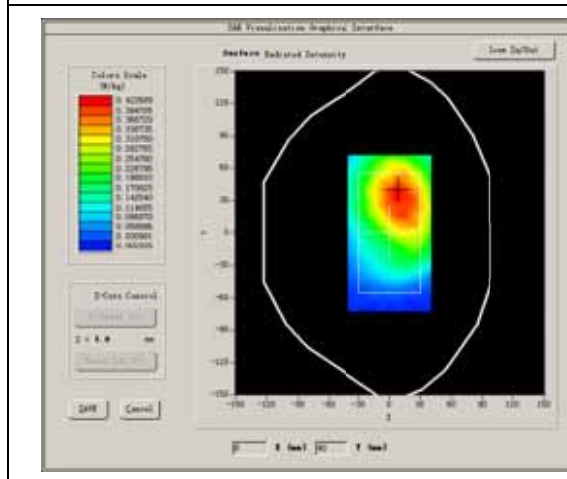
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	Body
<b>Band</b>	GSM1900
<b>Channels</b>	Middle
<b>Signal</b>	EDGE

### B. SAR Measurement Results

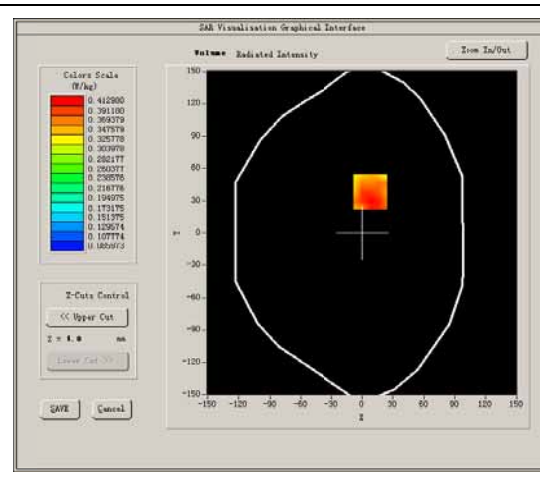
Middle Band SAR (Channel 661):

<b>Frequency (MHz)</b>	1880.000000
<b>Relative permittivity (real part)</b>	53.227042
<b>Conductivity (S/m)</b>	1.500328
<b>Power drift(%)</b>	-0.950000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.625,34.773,38.535
<b>Crest factor:</b>	1:2

#### SURFACE SAR

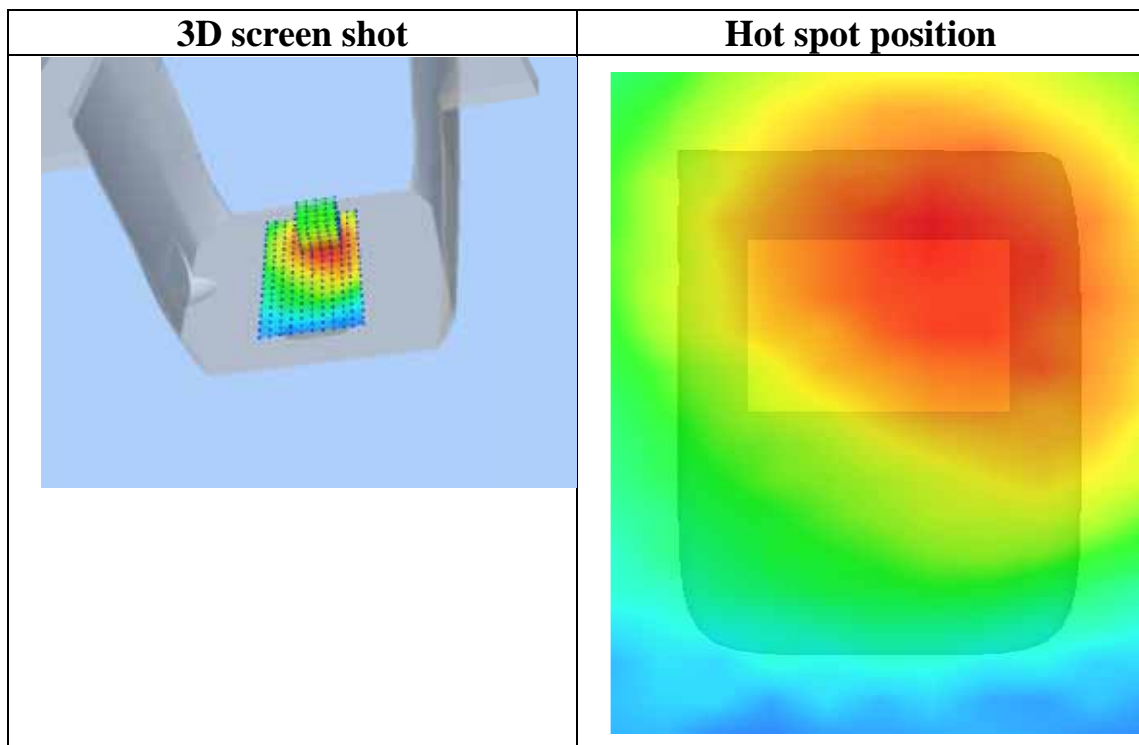
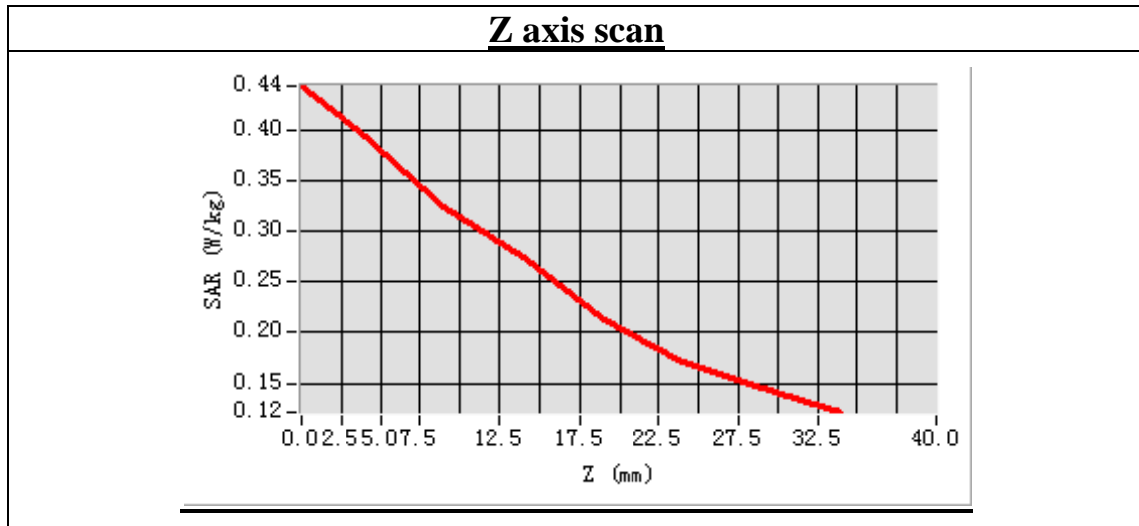


#### VOLUME SAR



Maximum location: X=8.00, Y=38.00  
 SAR Peak: 0.60 W/kg

SAR 10g (W/Kg)	0.329303
SAR 1g (W/Kg)	0.435155



## MEASUREMENT 25

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.18

Measurement duration: 8 minutes 17 seconds

### A. Experimental conditions.

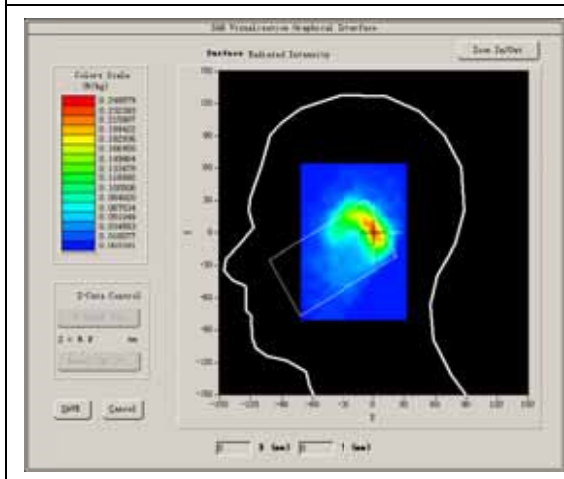
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Cheek
<b>Band</b>	802.11B
<b>Channels</b>	Low
<b>Signal</b>	DSSS

### B. SAR Measurement Results

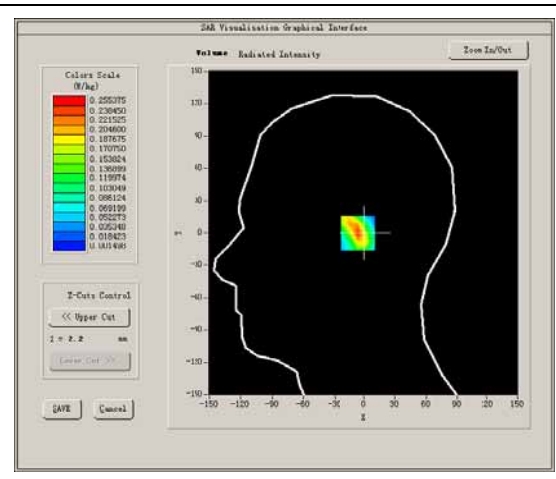
Low Band SAR (Channel 1)

<b>Frequency (MHz)</b>	2412.000000
<b>Relative permittivity (real part)</b>	40.1187904
<b>Conductivity (S/m)</b>	1.768142
<b>Power drift (%)</b>	-2.480000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.563,33.614,37.677
<b>Crest factor:</b>	1:1

#### SURFACE SAR

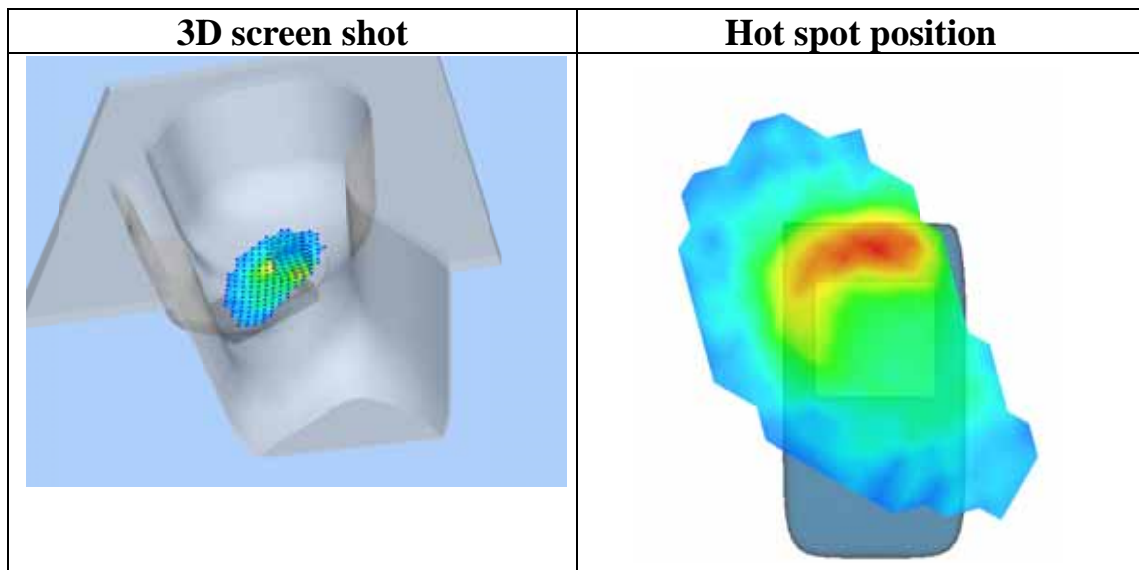
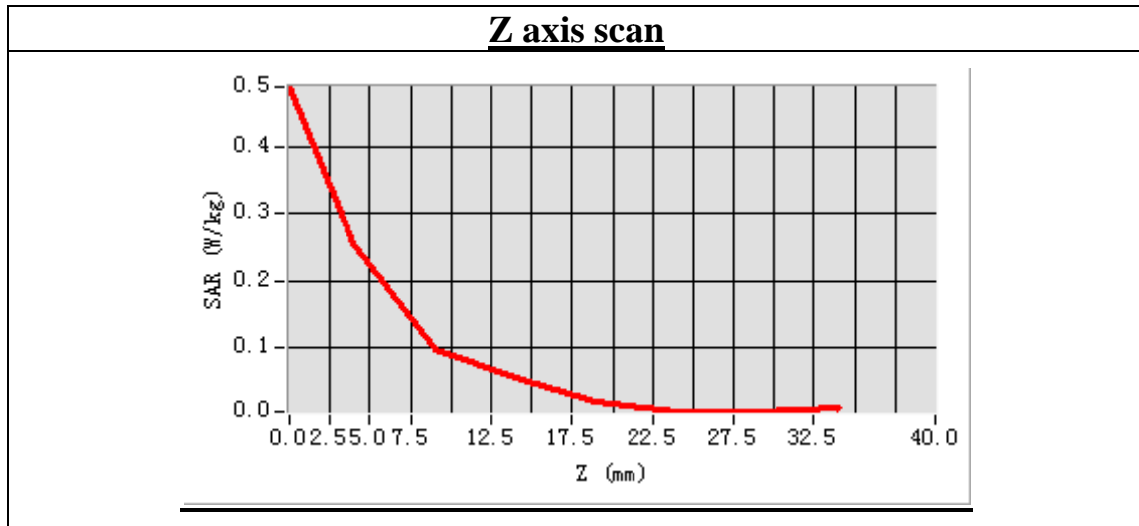


#### VOLUME SAR



**Maximum location: X=1.00, Y=0.00**  
**SAR Peak: 0.48 W/kg**

<b>SAR 10g (W/Kg)</b>	0.101286
<b>SAR 1g (W/Kg)</b>	0.236189



## MEASUREMENT 26

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.18

Measurement duration: 8 minutes 15 seconds

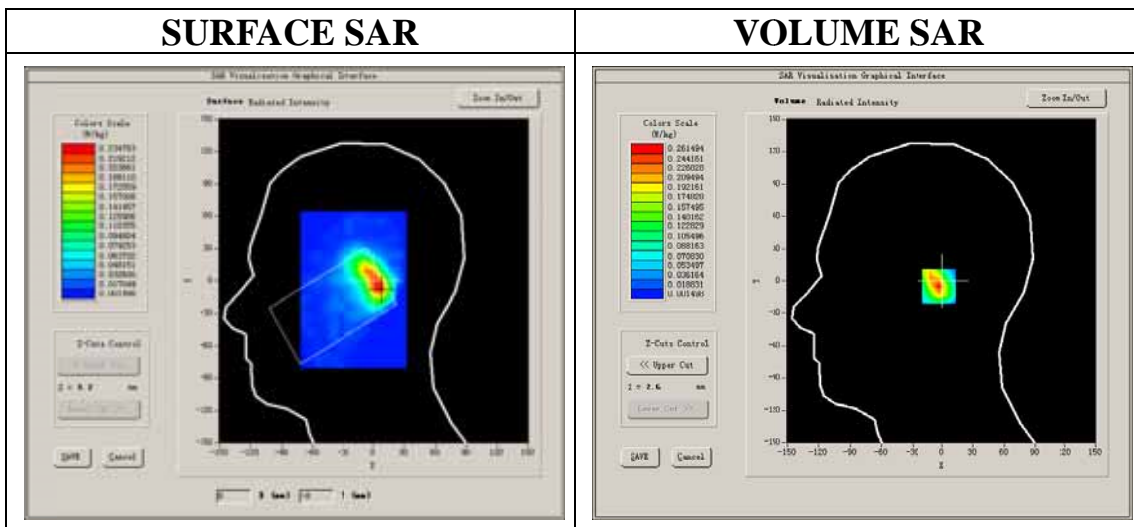
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Right head
<b>Device Position</b>	Tilt
<b>Band</b>	802.11B
<b>Channels</b>	Low
<b>Signal</b>	DSSS

### B. SAR Measurement Results

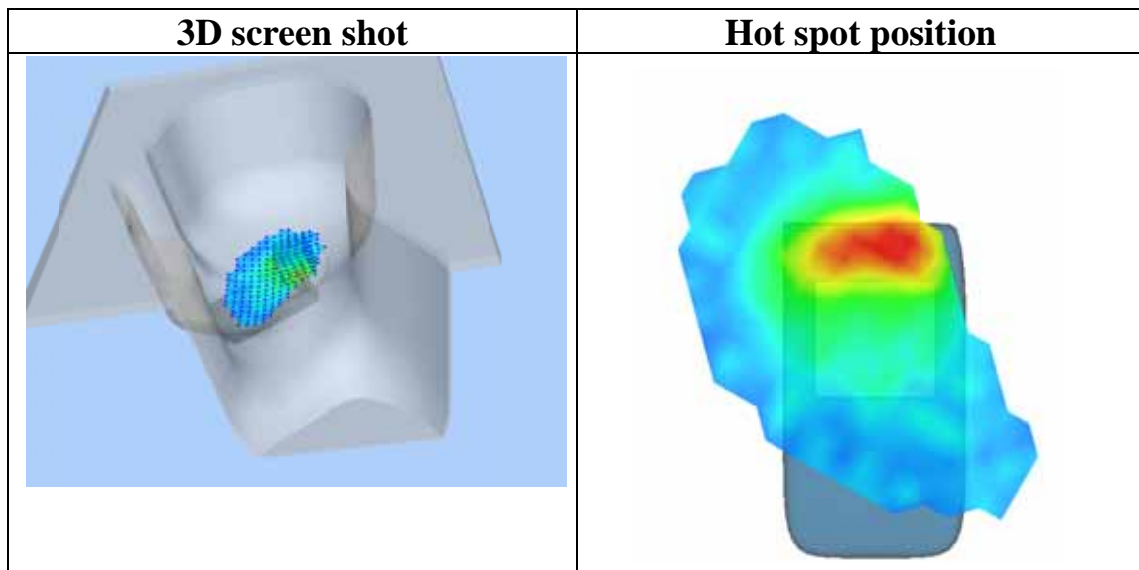
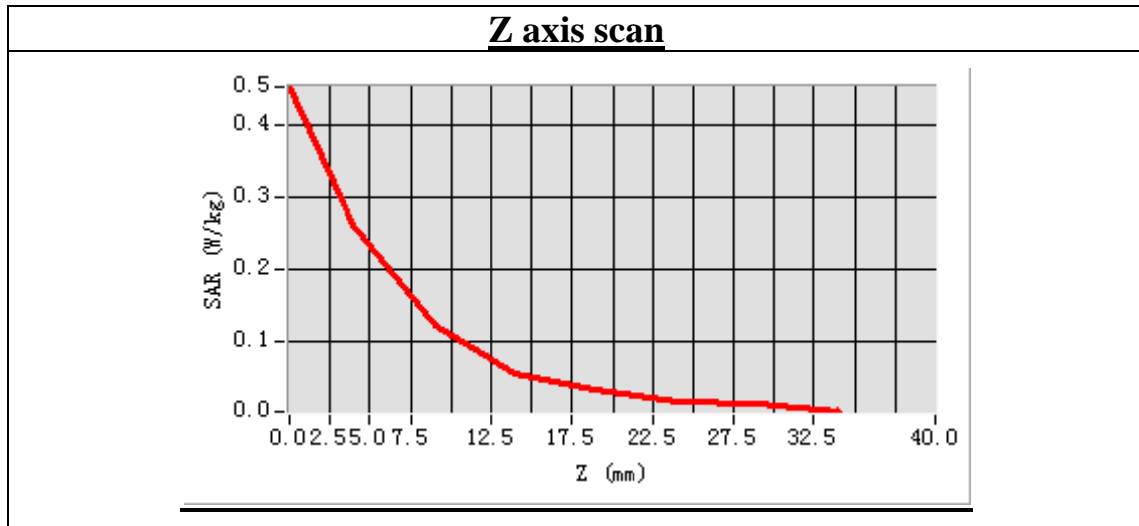
LowBand SAR (Channel 1)

<b>Frequency (MHz)</b>	2412.000000
<b>Relative permittivity (real part)</b>	40.1187904
<b>Conductivity (S/m)</b>	1.768142
<b>Power drift (%)</b>	3.140000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.563,33.614,37.677
<b>Crest factor:</b>	1:1



Maximum location: X=5.00, Y=-5.00  
 SAR Peak: 0.45 W/kg

SAR 10g (W/Kg)	0.106222
SAR 1g (W/Kg)	0.237466



## MEASUREMENT 27

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.18

Measurement duration: 8 minutes 17 seconds

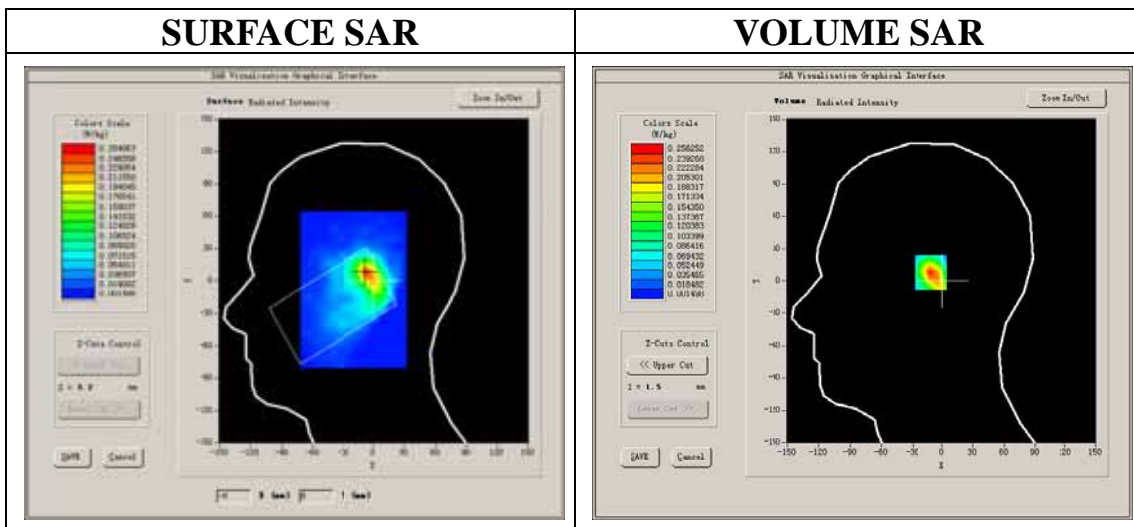
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	802.11B
<b>Channels</b>	Low
<b>Signal</b>	DSSS

### B. SAR Measurement Results

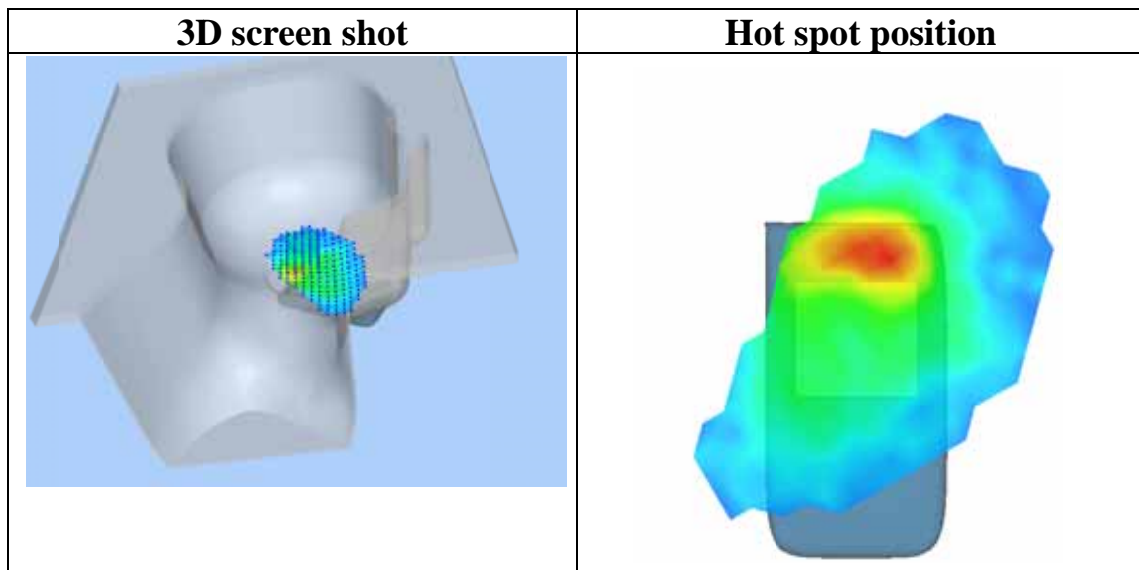
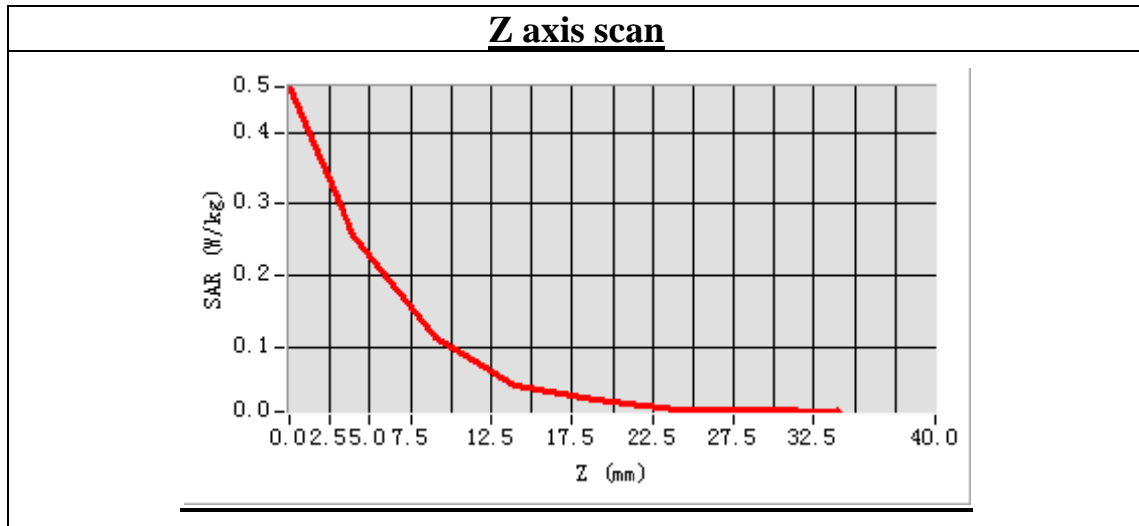
Low Band SAR (Channel 1)

<b>Frequency (MHz)</b>	2412.000000
<b>Relative permittivity (real part)</b>	40.1187904
<b>Conductivity (S/m)</b>	1.768142
<b>Power drift (%)</b>	1.600000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.563,33.614,37.677
<b>Crest factor:</b>	1:1



**Maximum location: X=-7.00, Y=8.00**  
**SAR Peak: 0.48 W/kg**

<b>SAR 10g (W/Kg)</b>	0.105369
<b>SAR 1g (W/Kg)</b>	0.244090





## MEASUREMENT 28

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.18

Measurement duration: 8 minutes 17 seconds

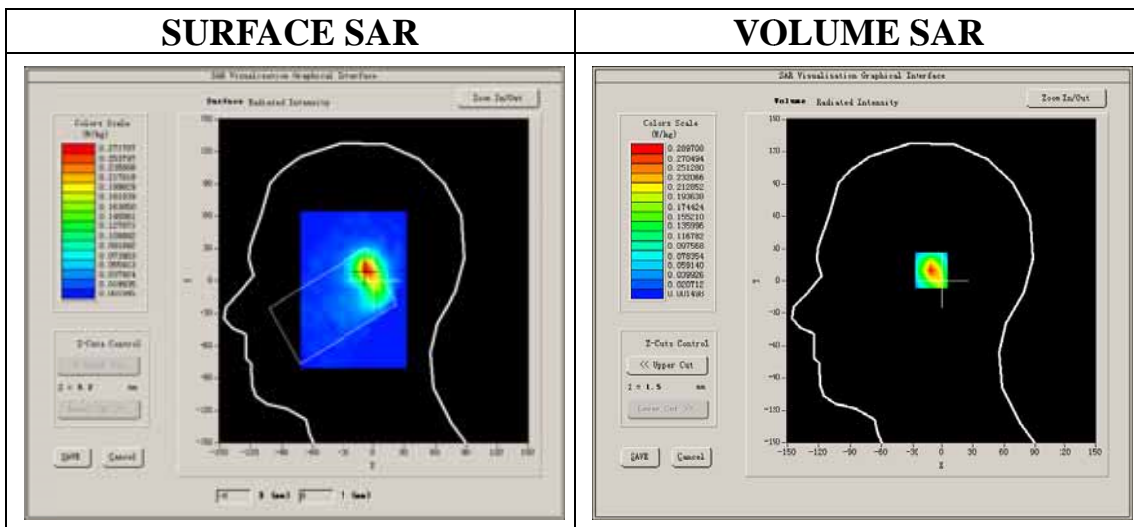
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Tilt
<b>Band</b>	802.11B
<b>Channels</b>	Low
<b>Signal</b>	DSSS

### B. SAR Measurement Results

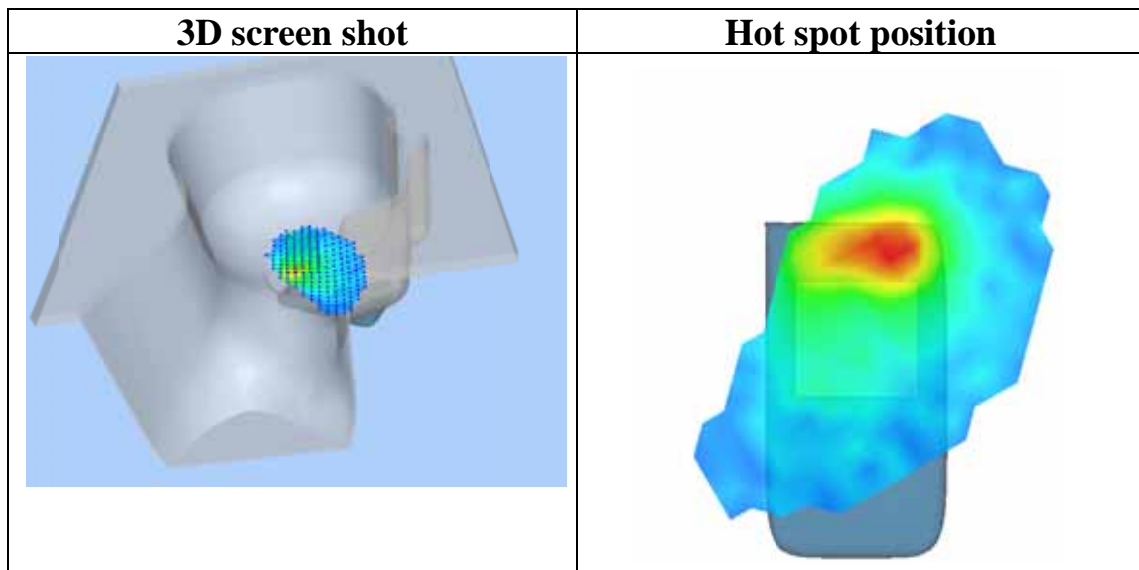
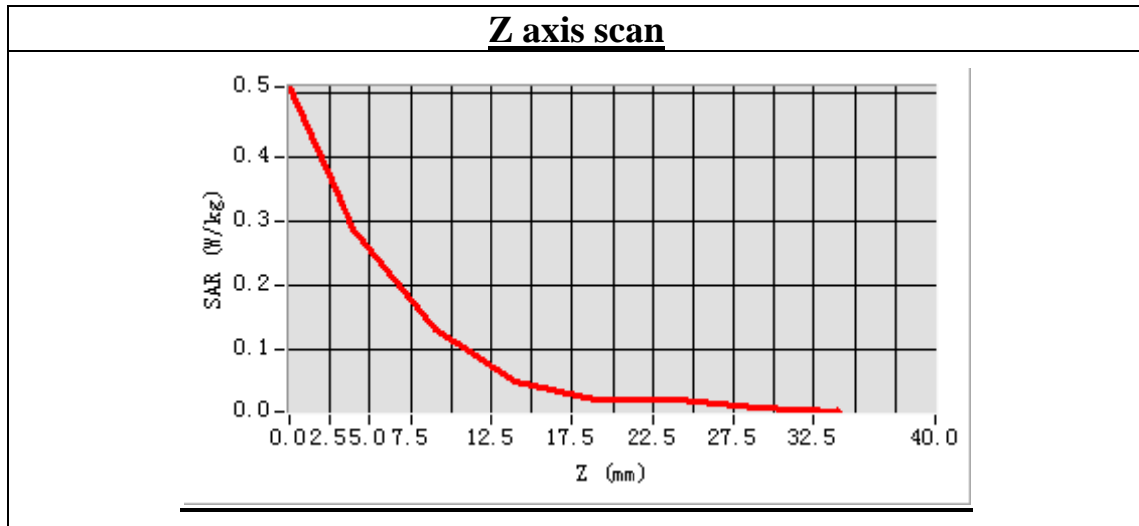
Low Band SAR (Channel 1)

<b>Frequency (MHz)</b>	2412.000000
<b>Relative permittivity (real part)</b>	40.1187904
<b>Conductivity (S/m)</b>	1.768142
<b>Power drift (%)</b>	2.470000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.563,33.614,37.677
<b>Crest factor:</b>	1:1



**Maximum location: X=-7.00, Y=10.00**  
**SAR Peak: 0.51 W/kg**

<b>SAR 10g (W/Kg)</b>	0.111579
<b>SAR 1g (W/Kg)</b>	0.260864



## MEASUREMENT 29

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.18

Measurement duration: 9 minutes 10 seconds

### A. Experimental conditions.

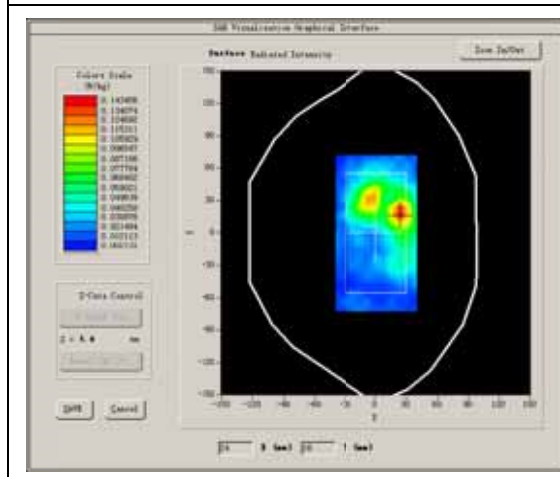
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	802.11B
<b>Channels</b>	Low
<b>Signal</b>	DSSS

### B. SAR Measurement Results

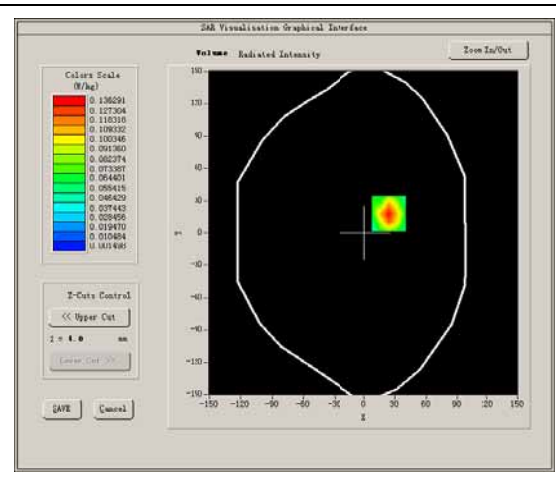
Low Band SAR (Channel 1)

<b>Frequency (MHz)</b>	2412.000000
<b>Relative permittivity (real part)</b>	52.457030
<b>Conductivity (S/m)</b>	1.915902
<b>Power drift (%)</b>	1.330000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.772,33.946,37.835
<b>Crest factor:</b>	1:1

#### SURFACE SAR

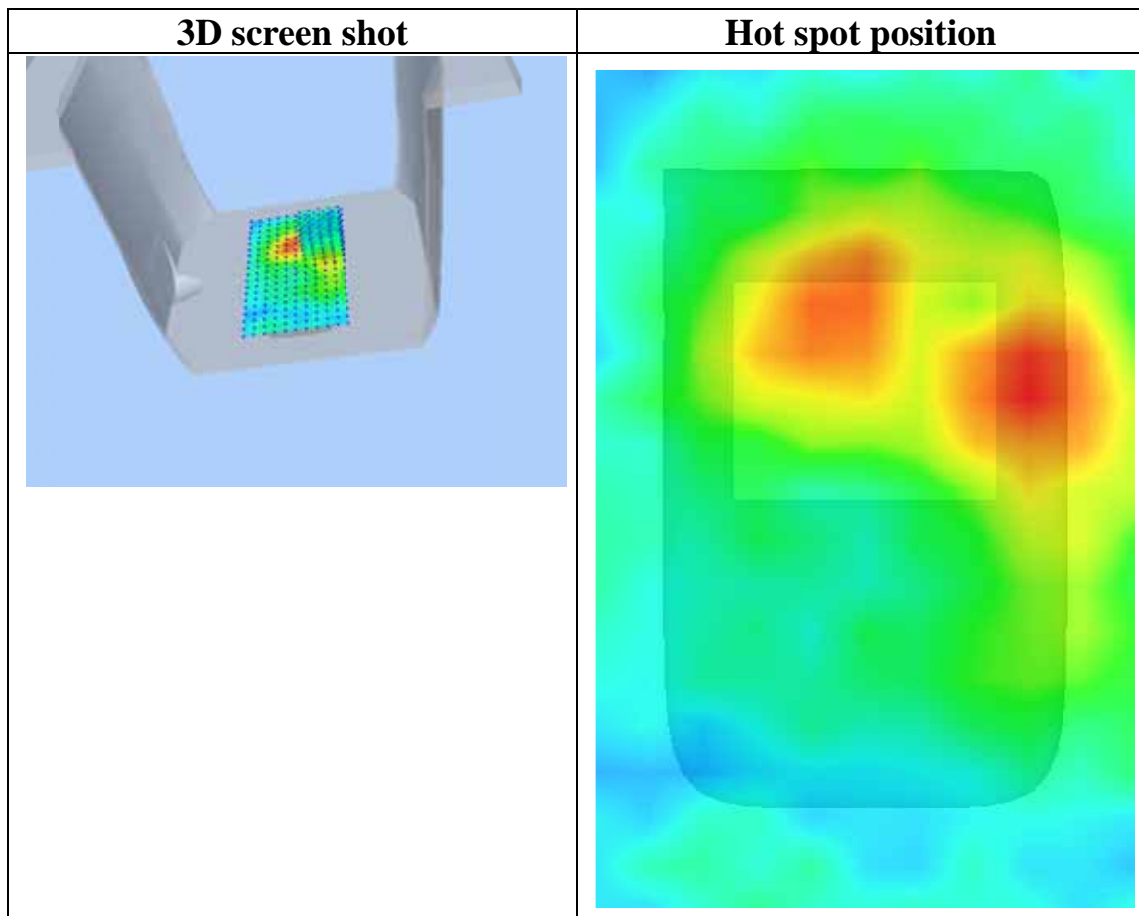
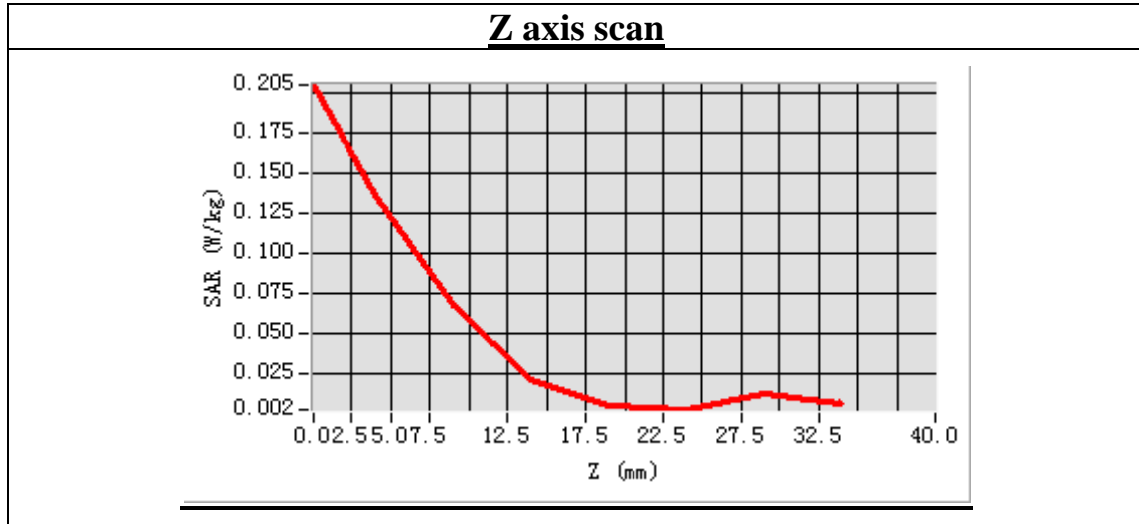


#### VOLUME SAR



Maximum location: X=24.00, Y=18.00  
 SAR Peak: 0.25 W/kg

SAR 10g (W/Kg)	0.063556
SAR 1g (W/Kg)	0.131281



## MEASUREMENT 30

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.18

Measurement duration: 9 minutes 10 seconds

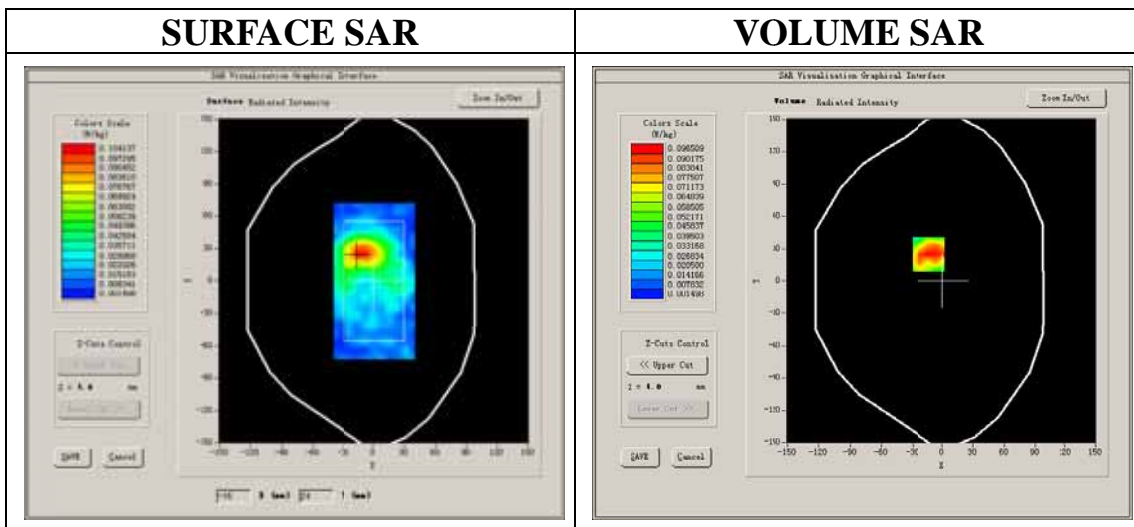
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	802.11B
<b>Channels</b>	Low
<b>Signal</b>	DSSS

### B. SAR Measurement Results

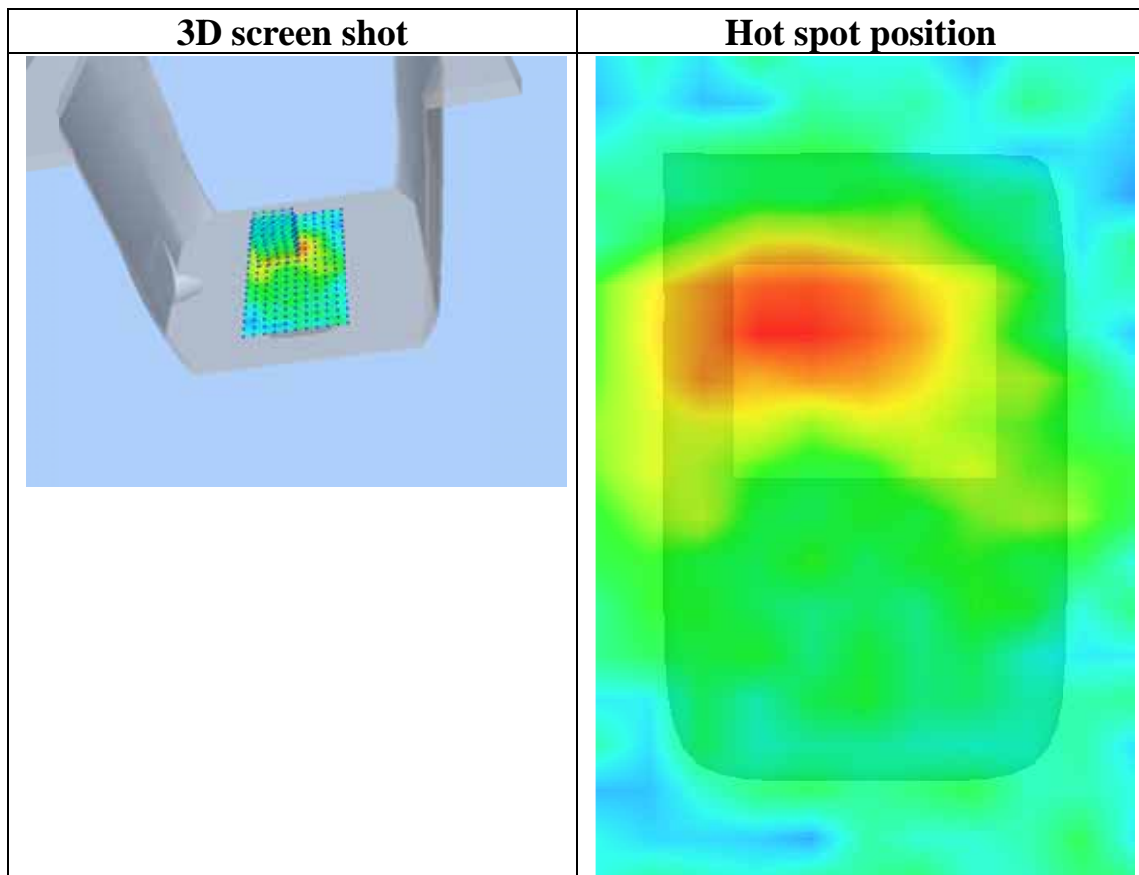
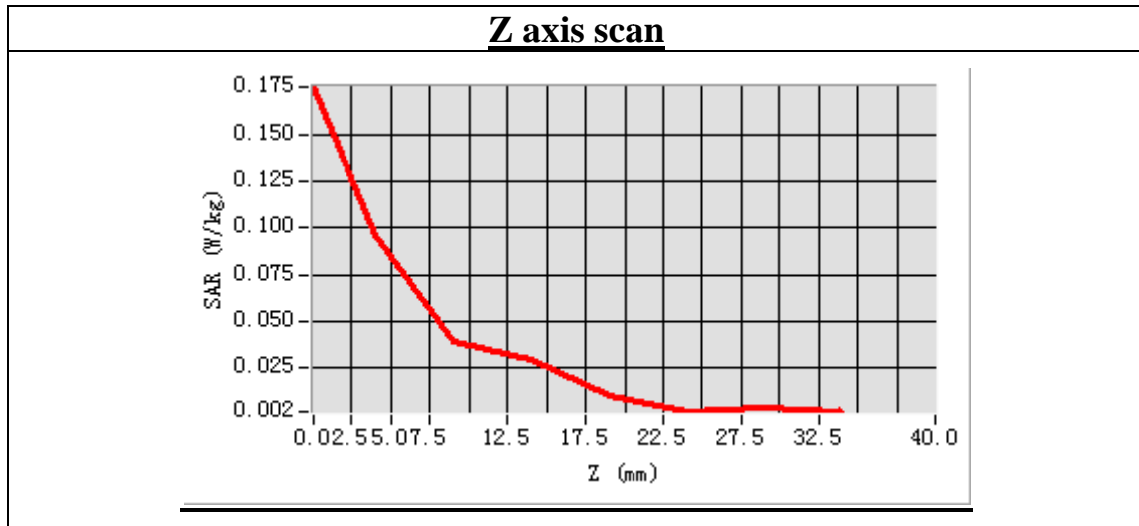
Low Band SAR (Channel 1)

<b>Frequency (MHz)</b>	2412.000000
<b>Relative permittivity (real part)</b>	52.457030
<b>Conductivity (S/m)</b>	1.915902
<b>Power drift (%)</b>	-1.490000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.772,33.946,37.835
<b>Crest factor:</b>	1:1



Maximum location: X=-14.00, Y=25.00  
 SAR Peak: 0.19 W/kg

SAR 10g (W/Kg)	0.051045
SAR 1g (W/Kg)	0.100780



## MEASUREMENT 31

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.18

Measurement duration: 9 minutes 10 seconds

### A. Experimental conditions.

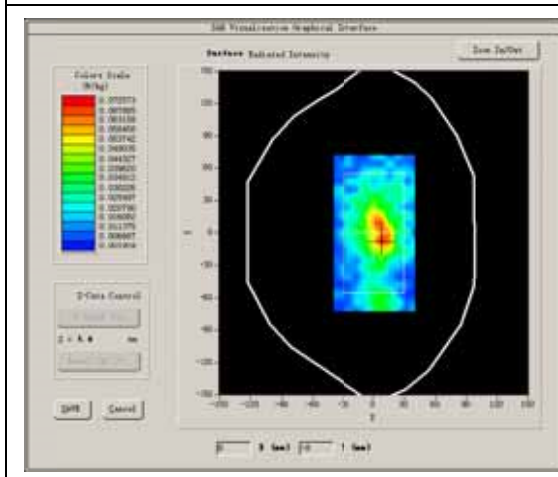
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	802.11B
<b>Channels</b>	Low
<b>Signal</b>	DSSS

### B. SAR Measurement Results

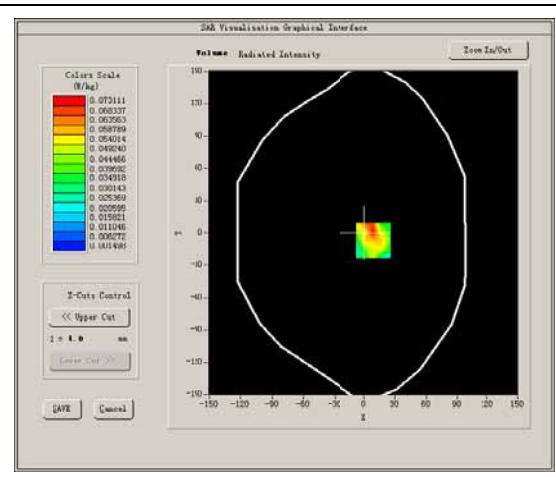
Low Band SAR (Channel 1)

<b>Frequency (MHz)</b>	2412.000000
<b>Relative permittivity (real part)</b>	52.457030
<b>Conductivity (S/m)</b>	1.915902
<b>Power drift (%)</b>	4.050000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.772,33.946,37.835
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR

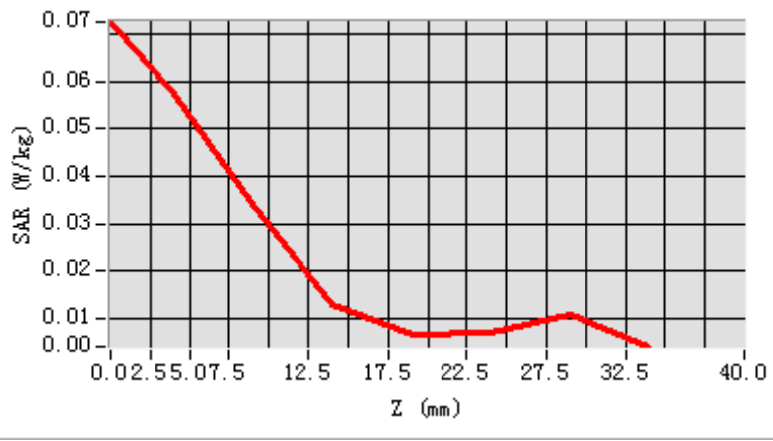


**Maximum location: X=9.00, Y=-7.00**

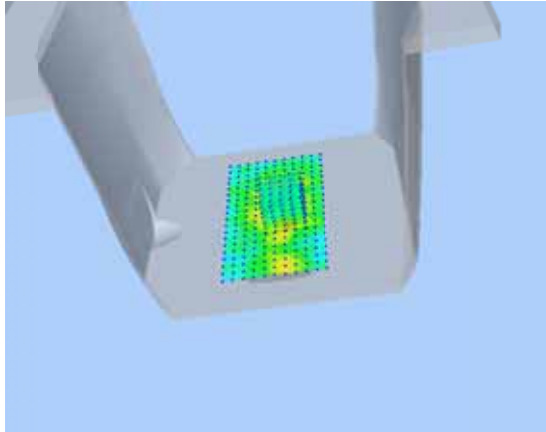
**SAR Peak: 0.16 W/kg**

<b>SAR 10g (W/Kg)</b>	0.034848
<b>SAR 1g (W/Kg)</b>	0.075313

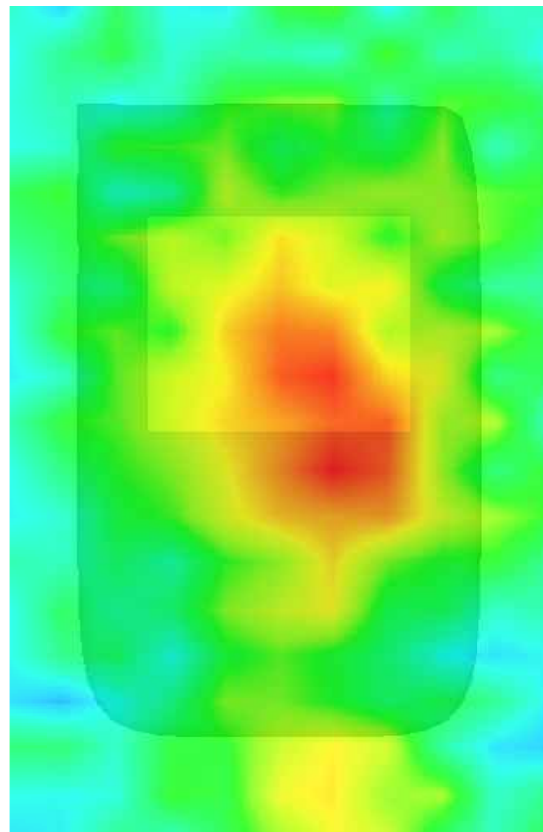
**Z axis scan**



**3D screen shot**



**Hot spot position**





## MEASUREMENT 32

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.18

Measurement duration: 9 minutes 10 seconds

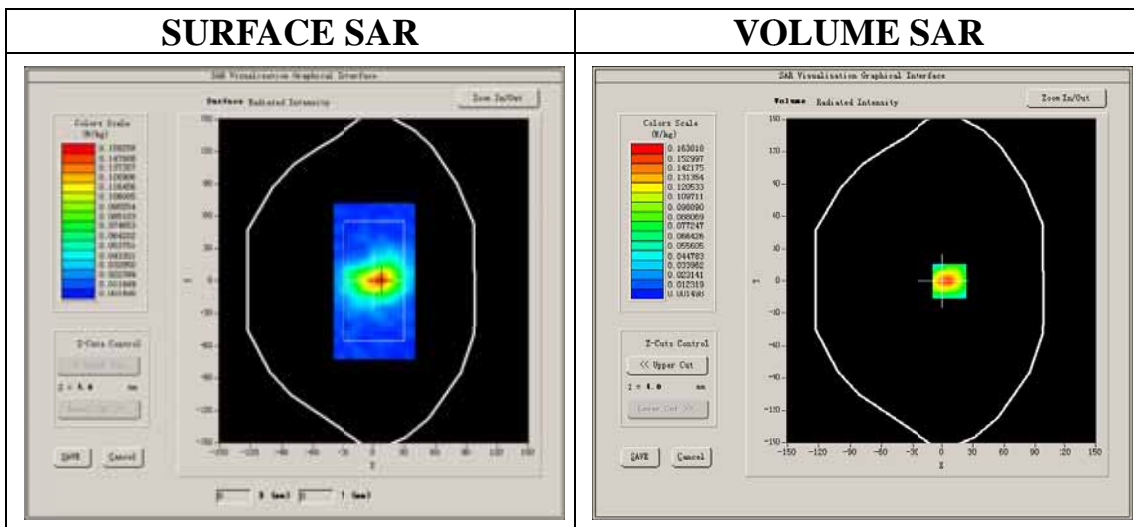
### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	Body
<b>Band</b>	802.11B
<b>Channels</b>	Low
<b>Signal</b>	DSSS

### B. SAR Measurement Results

Low Band SAR (Channel 1)

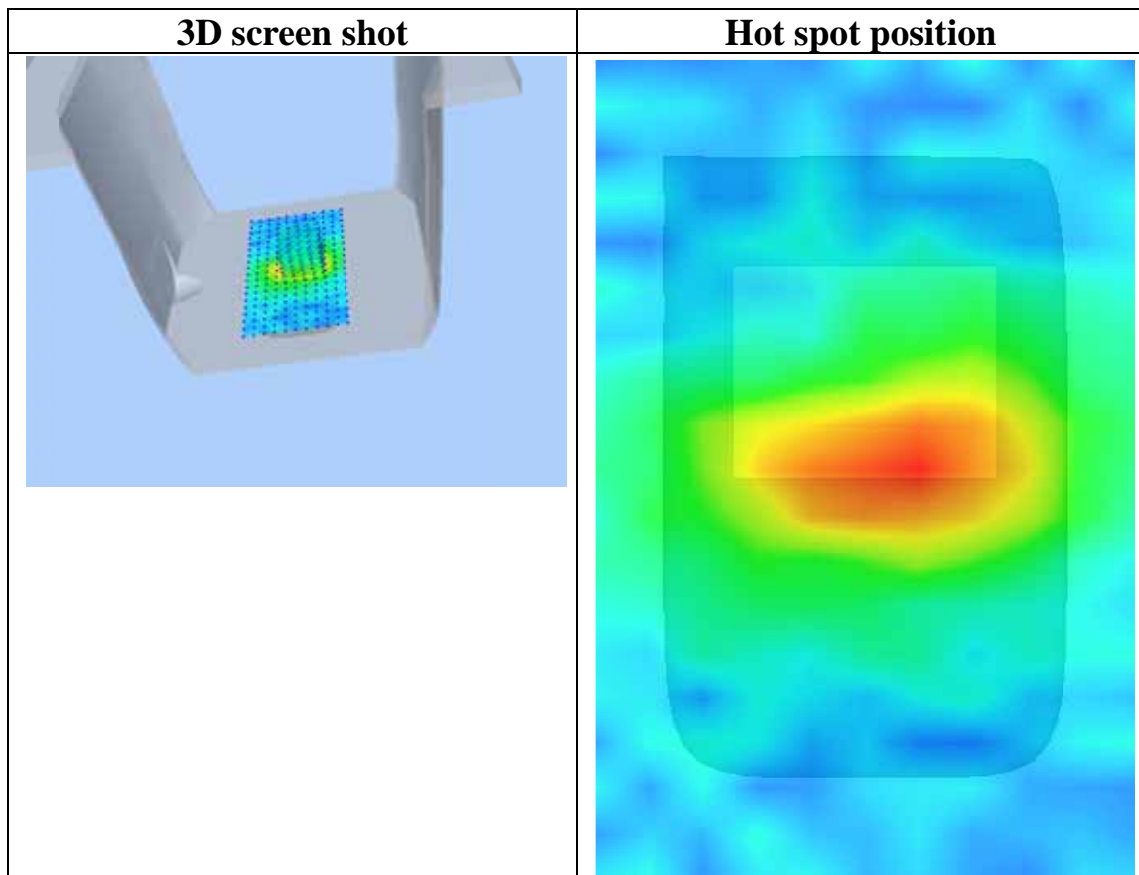
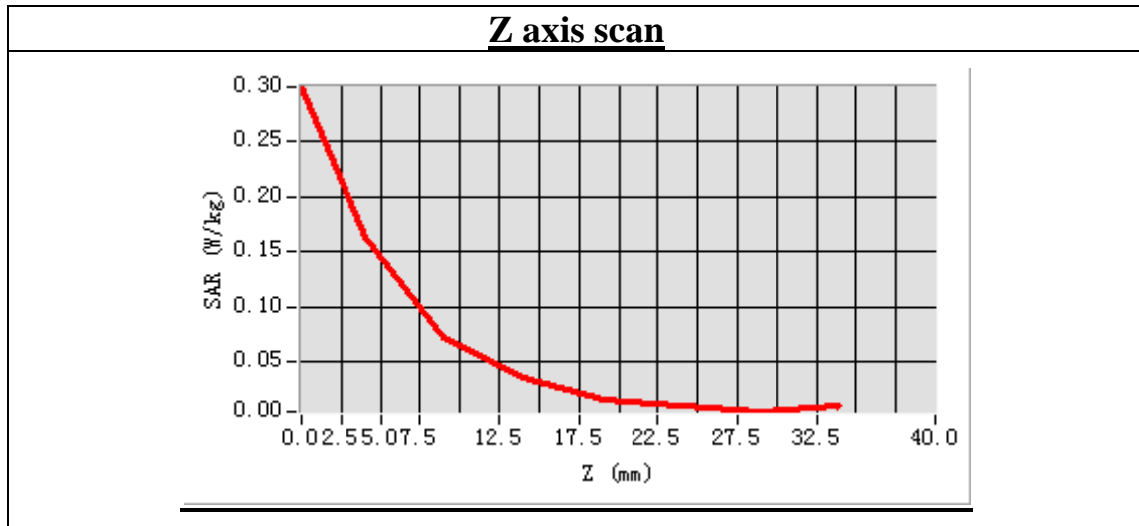
<b>Frequency (MHz)</b>	2412.000000
<b>Relative permittivity (real part)</b>	52.457030
<b>Conductivity (S/m)</b>	1.915902
<b>Power drift (%)</b>	-2.110000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.772,33.946,37.835
<b>Crest factor:</b>	1:1



**Maximum location: X=7.00, Y=0.00**

**SAR Peak: 0.33 W/kg**

<b>SAR 10g (W/Kg)</b>	0.076230
<b>SAR 1g (W/Kg)</b>	0.167798



## 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: 2013.9.16

Measurement duration: 13 minutes 27 seconds

### A. Experimental conditions.

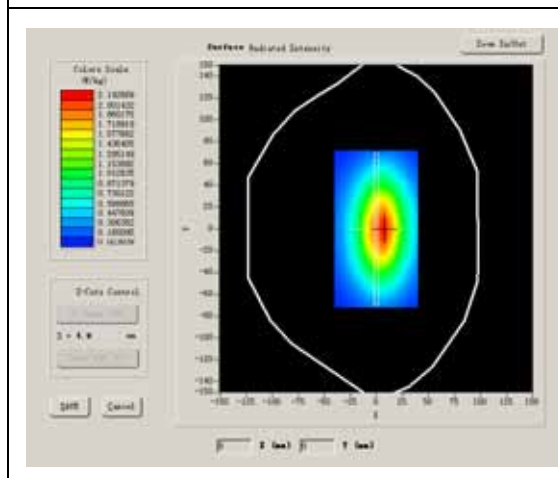
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	
<b>Band</b>	835MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

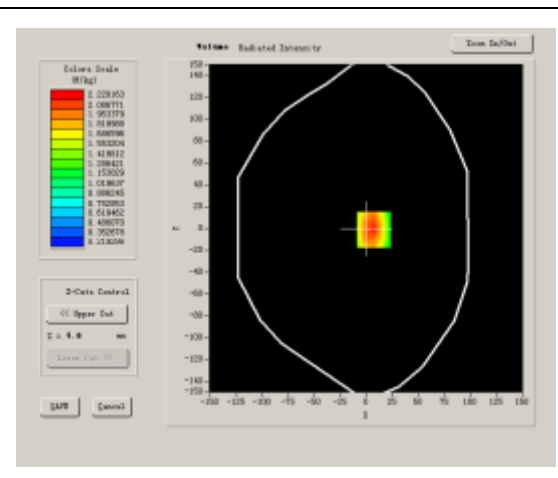
#### Band SAR

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	42.452764
<b>Conductivity (S/m)</b>	0.928510
<b>Power drift (%)</b>	-0.310000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.479,25.214,27.196
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



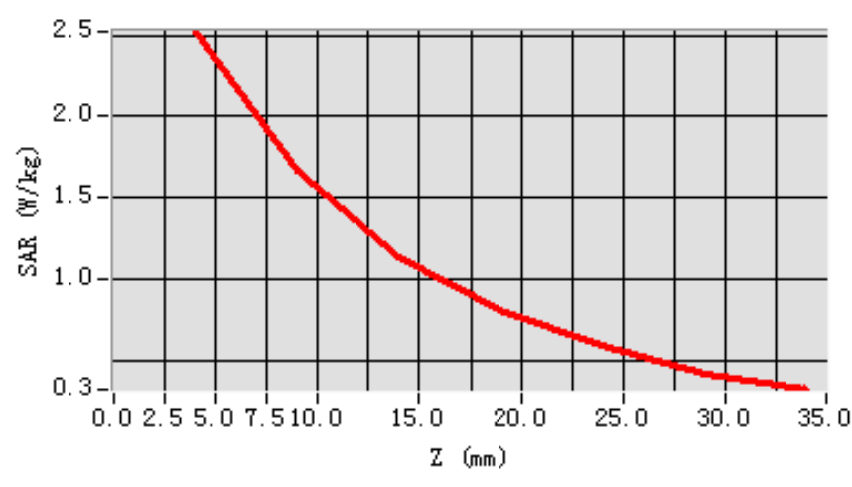
**Maximum location: X=7.00, Y=-1.00**

<b>SAR 10g (W/Kg)</b>	1.548473
<b>SAR 1g (W/Kg)</b>	2.451445

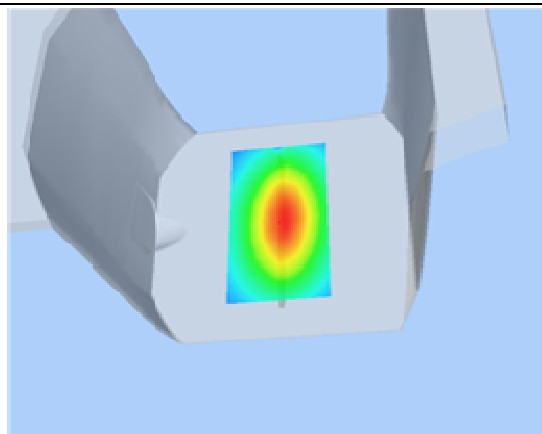
**Z Axis Scan**

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

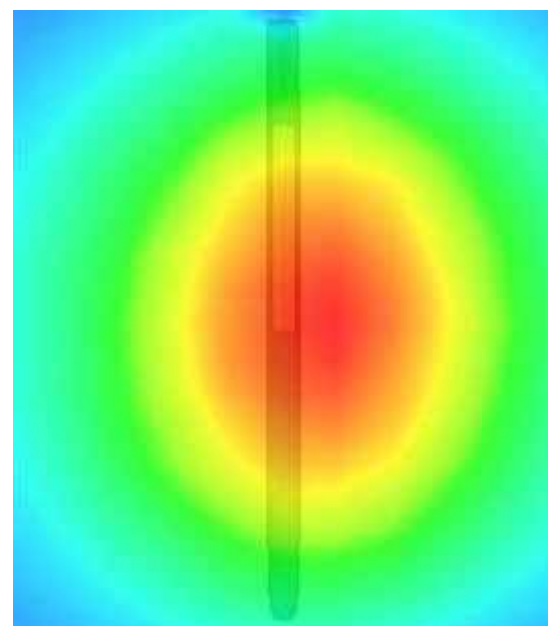
**SAR, Z Axis Scan (X = 7, Y = -1)**



**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: 2013.9.16

Measurement duration: 13 minutes 27 seconds

### A. Experimental conditions.

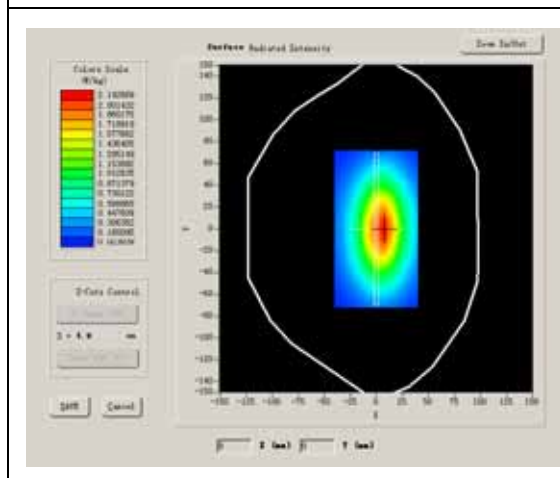
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	
<b>Band</b>	835MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

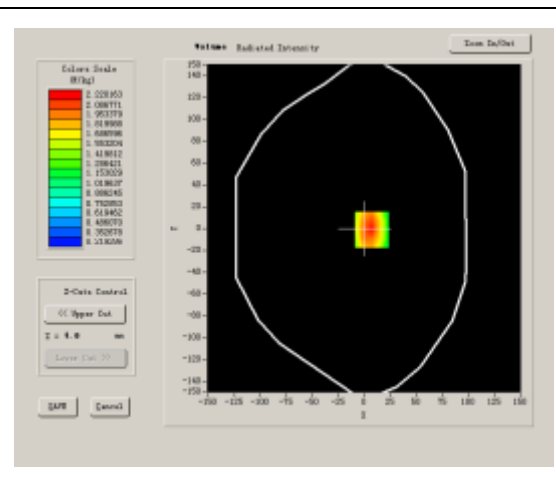
#### Band SAR

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	55.170954
<b>Conductivity (S/m)</b>	0.960482
<b>Power drift (%)</b>	-1.700000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



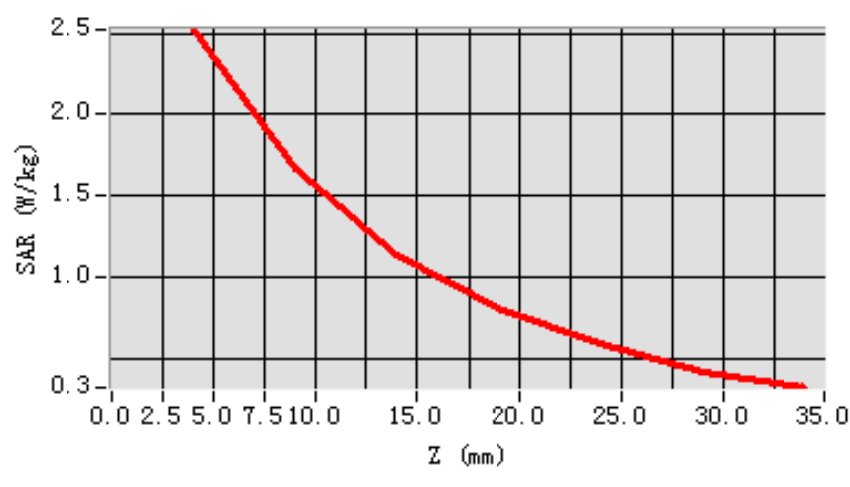
**Maximum location: X=7.00, Y=-1.00**

<b>SAR 10g (W/Kg)</b>	1.567132
<b>SAR 1g (W/Kg)</b>	2.437425

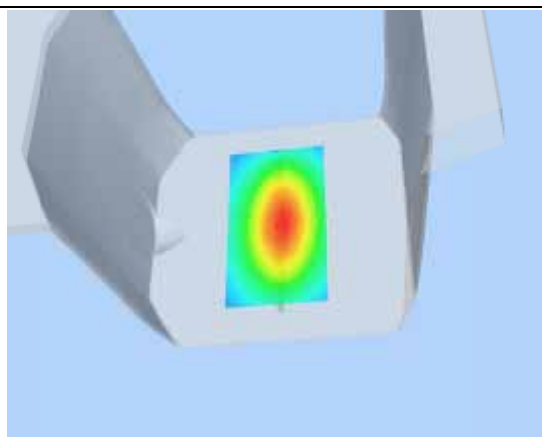
**Z Axis Scan**

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

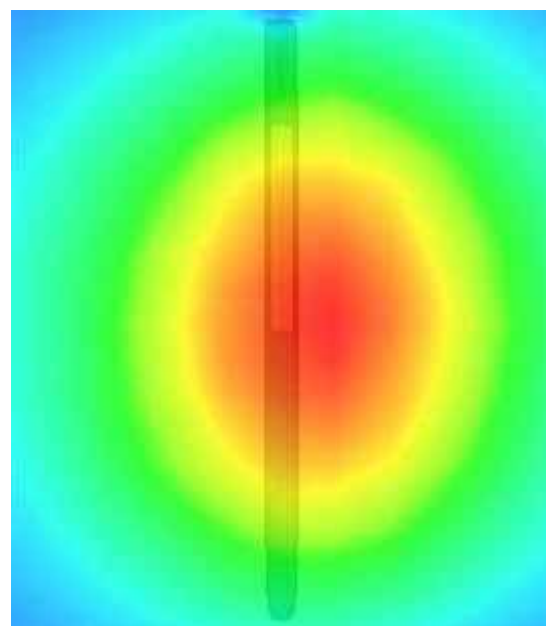
**SAR, Z Axis Scan (X = 7, Y = -1)**



**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: 2013.9.17

Measurement duration: 13 minutes 27 seconds

### A. Experimental conditions.

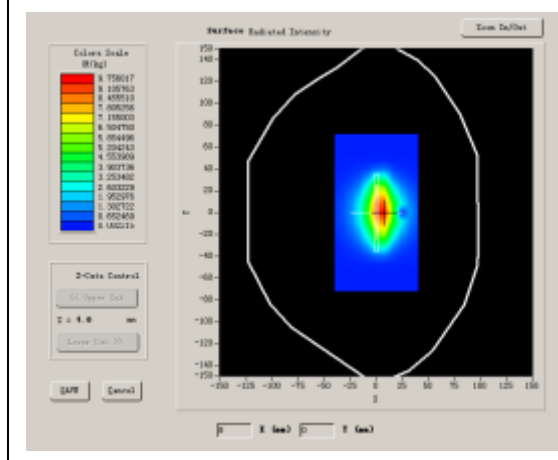
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	
<b>Band</b>	1900MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

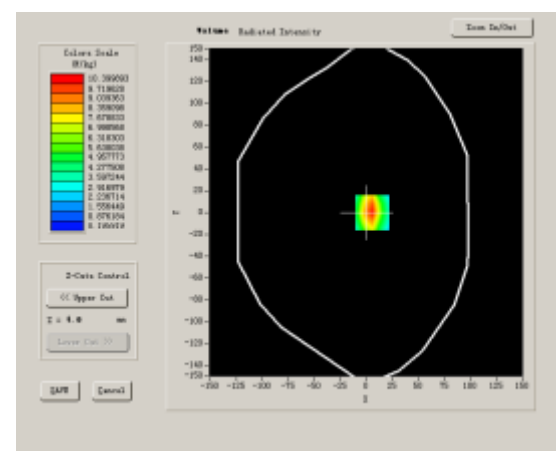
#### Band SAR

<b>Frequency (MHz)</b>	1900.000000
<b>Relative permittivity (real part)</b>	41.147921
<b>Conductivity (S/m)</b>	1.416814
<b>Power drift (%)</b>	-0.290000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



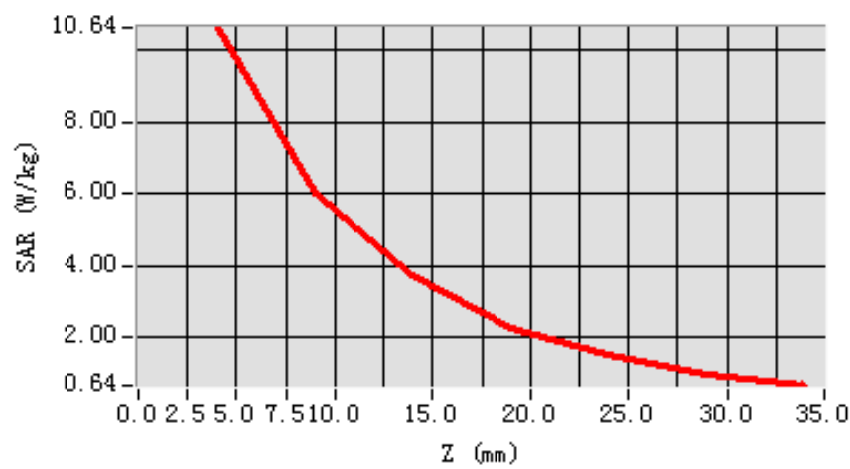
**Maximum location: X=6.00, Y=0.00**

<b>SAR 10g (W/Kg)</b>	6.325211
<b>SAR 1g (W/Kg)</b>	9.749043

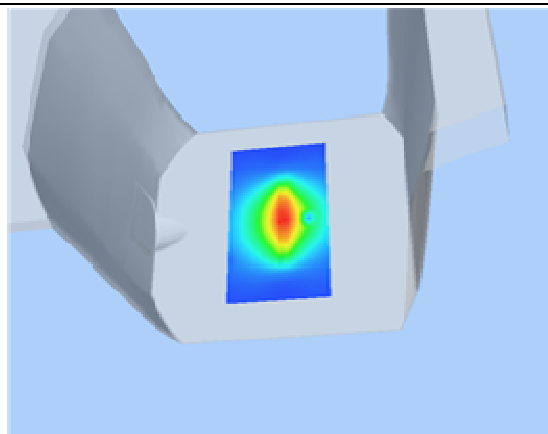
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	10.6419	6.0043	3.7297	2.2606	1.5119	0.9792

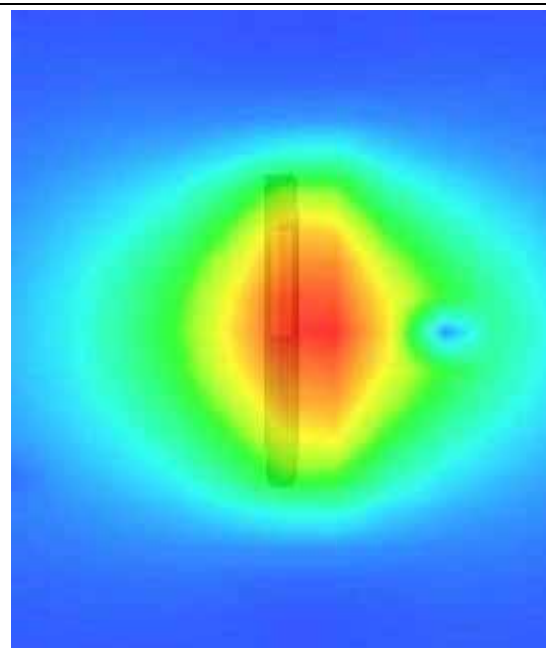
**SAR, Z Axis Scan (X = 6, Y = 0)**



**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: 2013.9.17

Measurement duration: 13 minutes 26 seconds

### A. Experimental conditions.

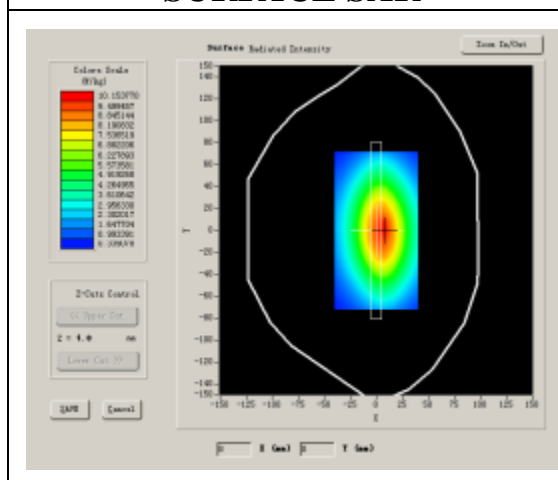
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat Plane
<b>Device Position</b>	
<b>Band</b>	1900MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

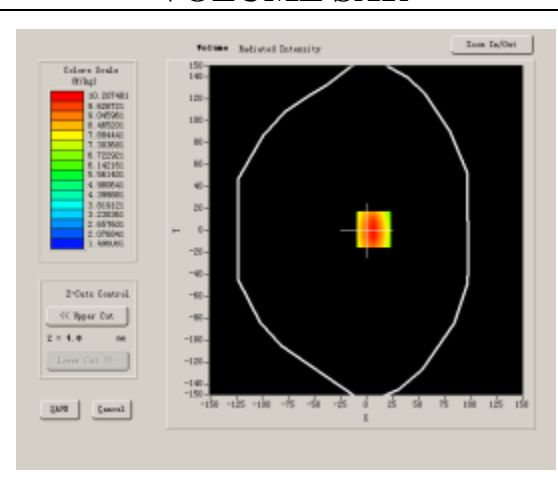
#### Band SAR

<b>Frequency (MHz)</b>	1900.000000
<b>Relative permittivity (real part)</b>	53.227042
<b>Conductivity (S/m)</b>	1.500328
<b>Power drift (%)</b>	-0.520000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	40.625,34.773,38.535
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



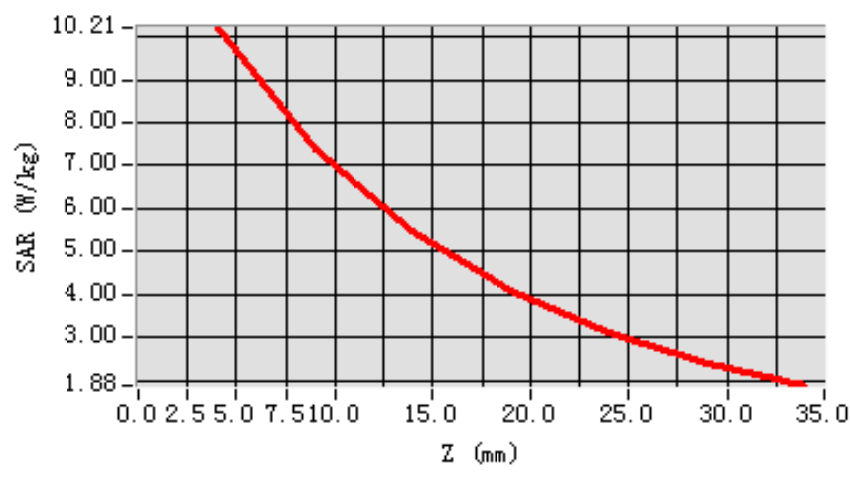
**Maximum location: X=7.00, Y=1.00**

<b>SAR 10g (W/Kg)</b>	6.478518
<b>SAR 1g (W/Kg)</b>	9.676012

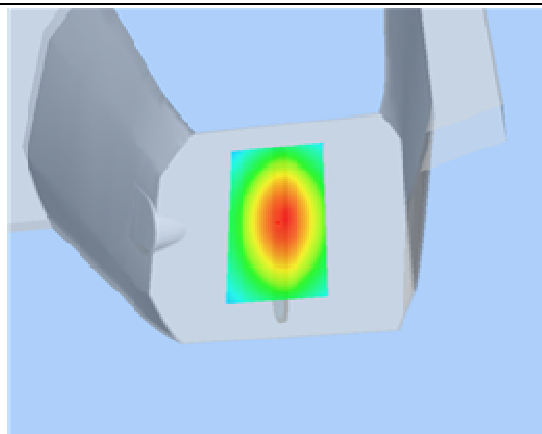
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	10.2075	7.3996	5.4654	4.1101	3.1286	2.4128

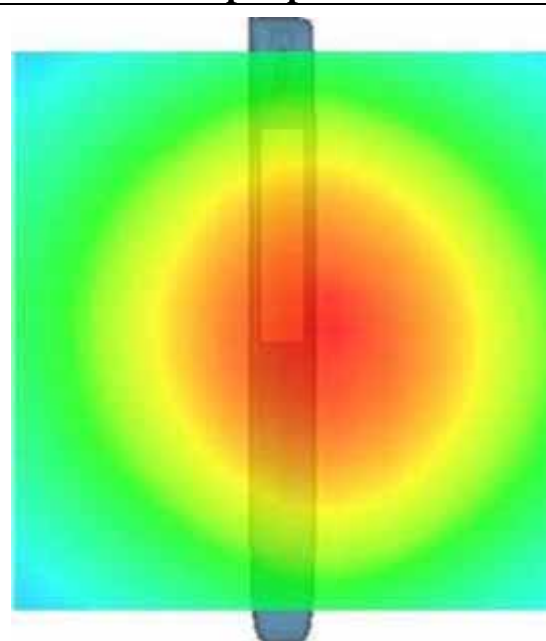
**SAR, Z Axis Scan (X = 7, Y = 1)**



**3D scene shot**



**Hot spot position**



## System Performance Check Data(Head)

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.9.18

Measurement duration: 13 minutes 27 seconds

### A. Experimental conditions.

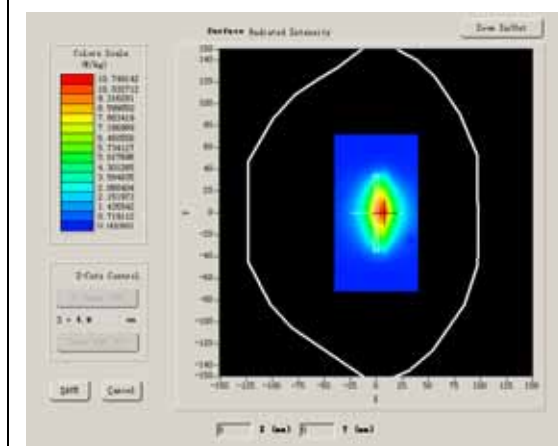
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	
<b>Band</b>	2450MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

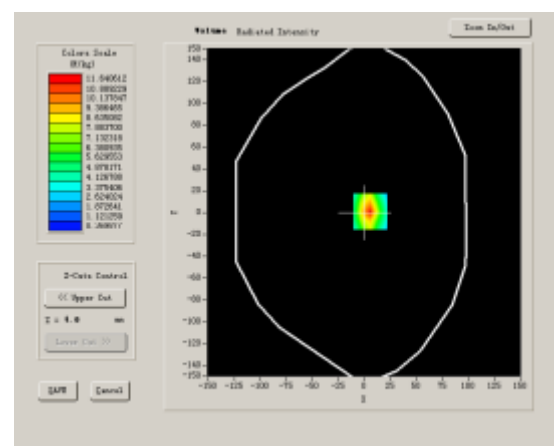
#### Band SAR

<b>Frequency (MHz)</b>	2450.000000
<b>Relative permittivity (real part)</b>	40.1187904
<b>Conductivity (S/m)</b>	1.768142
<b>Power Drift (%)</b>	-0.720000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.563,33.614,37.677
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



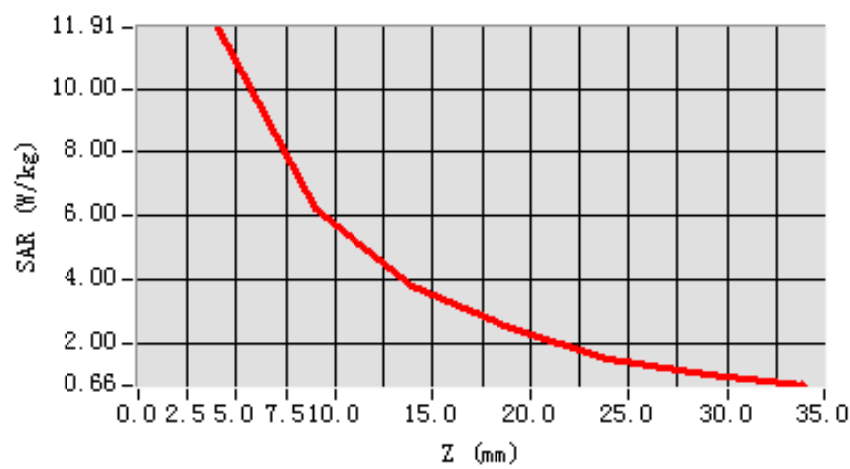
**Maximum location: X=6.00, Y=1.00**

<b>SAR 10g (W/Kg)</b>	7.659478
<b>SAR 1g (W/Kg)</b>	12.253492

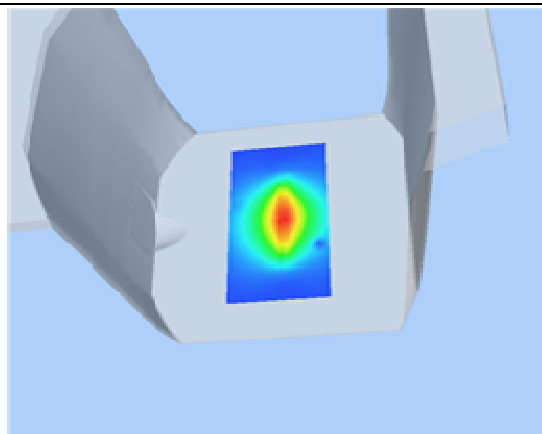
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	11.9115	6.2096	3.8187	2.4504	1.5036	1.0219

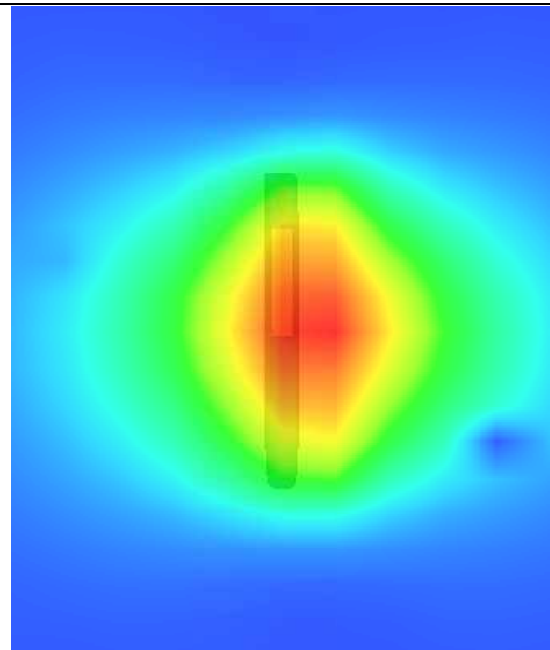
**SAR, Z Axis Scan (X = 6, Y = 1)**



**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=5mm, dy=5mm, dz=5mm

Date of measurement: 2013.9.18

Measurement duration: 13 minutes 27 seconds

### A. Experimental conditions.

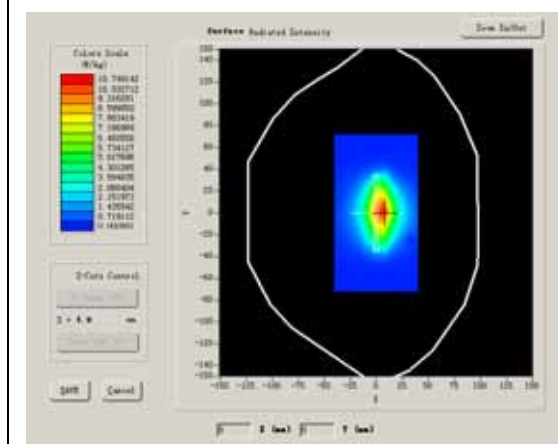
<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Validation plane
<b>Device Position</b>	
<b>Band</b>	2450MHz
<b>Channels</b>	
<b>Signal</b>	CW

### B. SAR Measurement Results

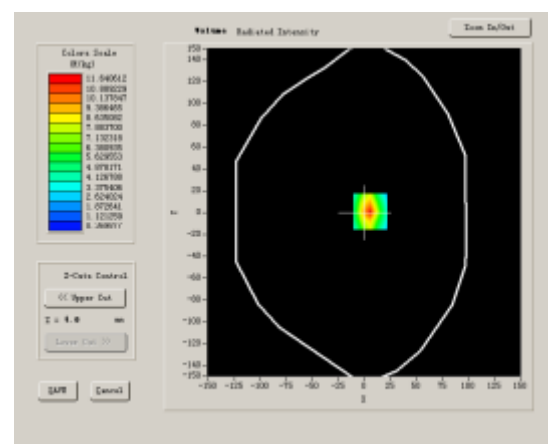
#### Band SAR

<b>Frequency (MHz)</b>	2450.000000
<b>Relative permittivity (real part)</b>	52.457030
<b>Conductivity (S/m)</b>	1.915902
<b>Power Drift (%)</b>	-1.170000
<b>Ambient Temperature:</b>	22.9°C
<b>Liquid Temperature:</b>	22.1°C
<b>ConvF:</b>	39.772,33.946,37.835
<b>Crest factor:</b>	1:1

#### SURFACE SAR



#### VOLUME SAR



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

<b>SAR 10g (W/Kg)</b>	7.176873
<b>SAR 1g (W/Kg)</b>	12.875461

**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>13.1279</b>	<b>6.8312</b>	<b>3.5991</b>	<b>1.3473</b>

