Report No.: SZ13080159S01

SAR TEST REPORT

Issued to

ZTE Corporation

For

WCDMA Digital Mobile Phone

Model Name	:	ZTE V765M
Trade Name	:	ZTE
Brand Name	:	ZTE
FCC ID	:	SRQ-V765M
Standard	:	47CFR 2.1093
		ANSI C95.1-1999
		IEEE 1528-2003
MAX SAR	:	Head: 0.679W/kg
		Body: 1.021W/kg
Test date	:	2013-9-2 to 2013-9-4
Issue date	:	2013-9-17

Shenzhen MORLAB Communication Technology Co., Ltd.

Tested by Zou Jian	*Approved by* Zeng Dexin	*Review by* Zhu Zhan
Zou Jian	Zeng Dexin	Zhu Zhan
(Test Engineer)	*(Technical Manager)*	(SAR *Manager*)
Date 2013.9.17	*Date* 2013.9.17	*Date* 2013.9.17

CTIA Authorized Test Lab LAB CODE 20081223-00 IEEE 1725 OTA OFTA 電訊管理局 ilac-MRA TAF Testing Laboratory GCF Official Observer of Global Certification Forum Bluetooth BQTF FCC Reg. No. 695796

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Change History		
Issue	Date	Reason for change
1.0	Sep. 13, 2013	First edition
1.0	Sep. 17, 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)	2012-9-26	1year
3	Network Analyzer	Agilent(E5071B ,SN:MY42404762)	2012-9-26	1year
4	Voltmeter	Keithley (2000, SN:1000572)	2012-9-24	1year
5	Signal Generator	Rohde&Schwarz (SMP_02)	2012-9-24	1year
6	Power Amplifier	PRANA (Ap32 SV125AZ)	2012-9-24	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)	2012-9-24	1year
10	Probe	Satimo (SN:SN 37/08 EP80)	2012-10-04	1year
11	Dielectric Probe Kit	Agilent (85033E)	2012-9-24	1year
12	Phantom	Satimo (SN:SN_36_08_SAM62)	2012-9-24	1year
13	Liquid	Satimo(Last Calibration: 2013-9-2 to 2013-9-4)	N/A	N/A
14	Dipole 835MHz	Satimo (SN 36/08 DIPC 99)	2012-10-05	1year
15	Dipole 1900MHz	Satimo (SN 36/08 DIPF 102)	2012-10-05	1year
16	Dipole 2450MHz	Satimo (SN 36/08 DIPJ 103)	2012-10-05	1year

2. Technical Information

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

2.1. Identification of Applicant

Company Name:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Shenzhen, China

2.2. Identification of Manufacturer

Company Name:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Shenzhen, China

2.3. Equipment Under Test (EUT)

Model Name:	ZTE V765M
Trade Name:	ZTE
Brand Name:	ZTE
Hardware Version:	V765M_V1BMB_B
Software Version:	V765M_Z7_6SOOI14300F010
Frequency Bands:	GSM 850MHz / PCS 1900MHz; WCDMA 850MHZ/ 1900MHz; (Band II, V) Bluetooth; Wifi802.11B/G/N (2.4GHz)
Modulation Mode:	GSM/GPRS: GMSK; EDGE:8PSK; WCDMA/HSDPA/HSUPA: QPSK; WIFI802.11B: DSSS; WIFI802.11G: OFDM WIFI 802.11N: OFDM; BT: GFSK/Π/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:	N/A
Battery specification:	N/A
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.

EUT Identity	Hardware Version	Software Version
1#	V765M_V1BMB_B	V765M_Z7_6SOOI14300F010

2.4. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	**47 CFR§2.1093**	Radiofrequency Radiation Exposure Evaluation: Portable Devices
2	**ANSI C95.1-1999**	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz
3	**IEEE 1528-2003**	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.
4	**KDB 447498 D1**	General RF Exposure Guidance v05
5	**KDB 648474 D1**	SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas
6	**KDB 248227 D1**	SAR Measurement Procedures for 802.11 a/b/g Transmitters
7	**KDB 941225 D1**	SAR Measurement Procedures for 3G Devices
8	**KDB 941225 D6**	Hot Spot SAR v01
9	**KDB 865664 D1**	SAR Measurement 100 MHz to 6 GHz v01
10	**KDB 865664 D2**	SAR Reporting v01

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; WCDMA 850MHz/WCDMA 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) WCDMA 850MHz Maximum output power(All up bits) WCDMA 1900MHz Maximum output power(All up bits) 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 9262, 9400 and 9538 respectively in the case of WCDMA 1900, or to 4175, 4175 and 4233 respectively in the case of WCDMA 850MHz, 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.

(ρ). The equation description is as below:

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

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be either related to the temperature elevation in tissue by,

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

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

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

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

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

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

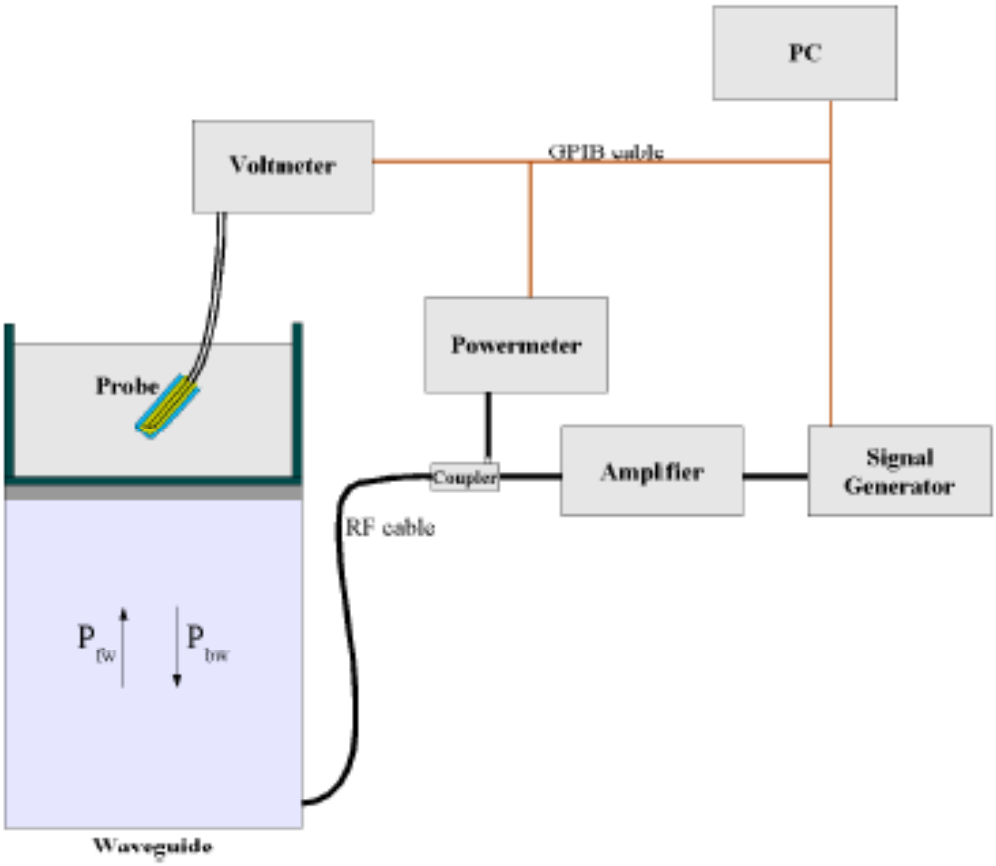
For the measurements the Specific Dosimetric E-Field Probe SN 37/08 EP80 with Following specifications is used

- 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:1ess than 30°

Probe calibration is realized, in compliance with CENELEC EN 62209 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN 622091 annex technique using reference guide at the five frequencies.



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

Where :
Pfw = Forward Power
Pbw = Backward Power
a and b = Waveguide dimensions
ı = 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)/Vlin(N) (N=1,2,3)

The linearised output voltage Vlin(N) is obtained from the displayed output voltage V(N) using

Vlin(N)=V(N)*(1+V(N)/DCP(N)) (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/cm2) 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/cm2.

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.

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

Where:

δt = exposure time (30 seconds),

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

δT = temperature increase due to RF exposure.

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

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

Where:

σ = simulated tissue conductivity,

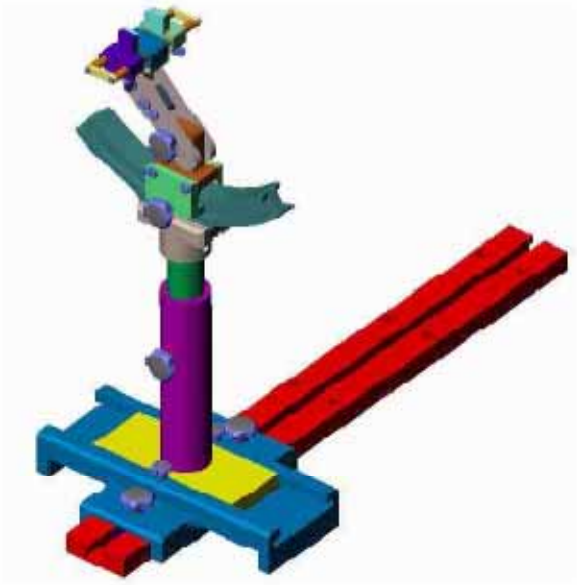
ρ = Tissue density (1.25 g/cm3 for brain tissue)

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	
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±(%)**
2013/9/2	Head 835	Relative Permittivity(εr):	42.52	41.5	2.46	5
		Conductivity(σ):	0.92	0.90	2.22	5
	Body 835	Relative Permittivity(εr):	55.14	55.2	-0.11	5
		Conductivity(σ):	0.95	0.97	-2.06	5
2013/9/3	Head 1900	Relative Permittivity(εr):	41.27	40	3.18	5
		Conductivity(σ):	1.41	1.40	0.71	5
	Body 1900	Relative Permittivity(εr):	53.21	53.3	-0.17	5
		Conductivity(σ):	1.51	1.52	-0.66	5

2013/9/4	Head 2450	Relative Permittivity(εr):	40.15	39.2	2.42	5
		Conductivity(σ):	1.76	1.80	-2.22	5
	Body2450	Relative Permittivity(εr):	52.49	52.7	-0.40	5
		Conductivity(σ):	1.90	1.95	-2.56	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
Measurement System									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.76	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.01	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.62	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∞
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Test sample Related									
Test sample positioning	E.4.2.1	0.03	N	1	1	1	0.03	0.03	N-1
Device Holder Uncertainty	E.4.1.1	5.00	N	1	1	1	5.00	5.00	N-1
Output power Power drift - SAR drift measurement	6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.33	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞

Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.13	∞
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	M
Liquid permittivity - deviation from target value	E.3.2	3.69	R	$\sqrt{3}$	0.6	0.49	1.28	1.04	∞
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M
Combined Standard Uncertainty			RSS				11.55	10.67	
Expanded Uncertainty (95% Confidence interval)			K=2				23.11	21.33	

6.2. UNCERTAINTY FOR SYSTEM PERFORMANCE CHECK

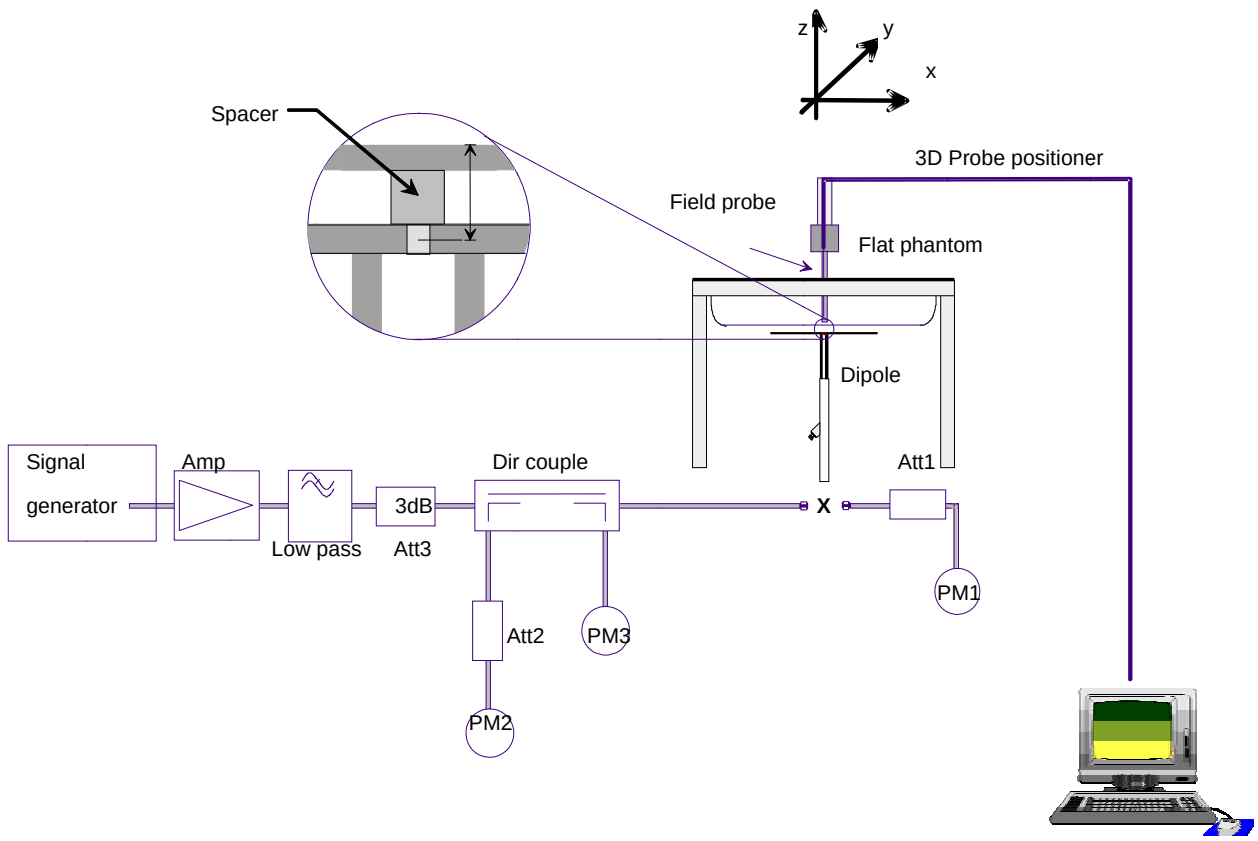
a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	Vi
Measurement System									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.76	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.01	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.62	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∞
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	$\sqrt{3}$	1	1	0.58	0.58	∞

Input power and SAR drift measurement	8,6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.33	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.13	∞
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	∞
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 %.

Frequency	835MHz(H)	835MHz(B)	1900MHz(H)	1900MHz(B)
Target value (1g)	9.740 W/Kg	9.880 W/Kg	40.320 W/Kg	38.530 W/Kg
Test value (1g 250 mW input)	2.432 W/Kg (9.2)	2.446 W/Kg (9. 2)	9.749 W/Kg (9. 3)	9.681 W/Kg (9. 3)
Normalized value (1g)	9.728 W/Kg	9.784W/Kg	38.996 W/Kg	38.724 W/Kg

Frequency	2450MHz(H)	2450MHz(B)
Target value (1g)	50.450 W/Kg	53.590 W/Kg
Test value (1g 250 mW input)	12.251 W/Kg (9. 4)	12.862 W/Kg (9. 4)
Normalized value (1g)	49.004 W/Kg	51.448 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.

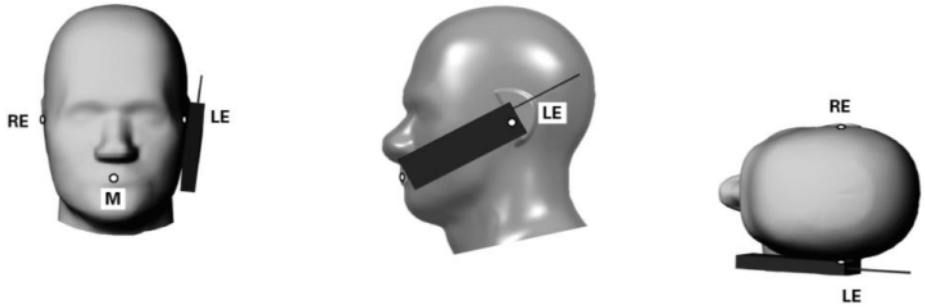


Illustration for Cheek Position

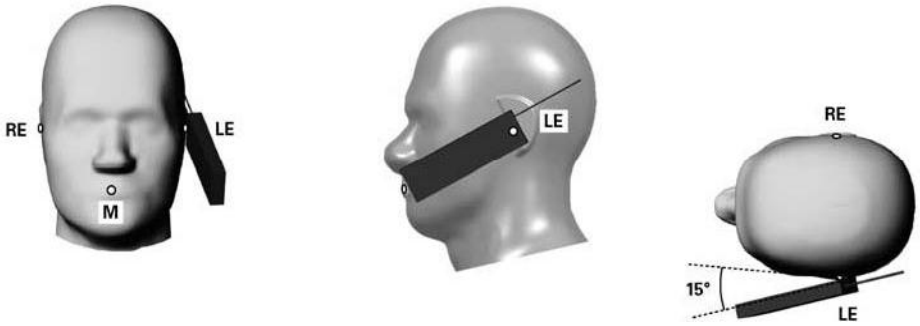


Illustration for Tilted Position

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.

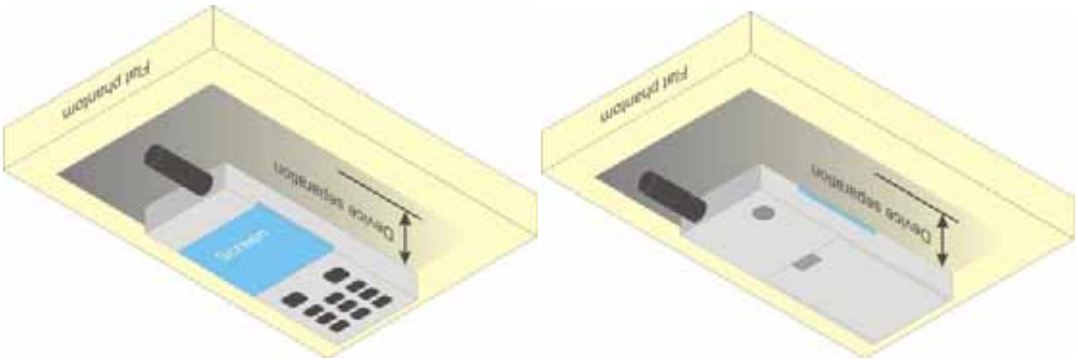


Illustration for Body Worn Position

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 to16 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. WCDMA Conducted peak output power

Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4175	4175	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	24.62	24.69	24.72	23.62	23.67	23.76
HSDPA	1	24.58	24.63	24.69	23.58	23.63	23.73
	2	24.53	24.61	24.67	23.53	23.61	23.71
	3	24.07	24.15	24.13	23.09	23.15	23.25
	4	24.04	24.12	24.11	23.05	23.12	23.22
HSUPA	1	24.57	24.61	24.65	23.51	23.52	23.72
	2	22.66	22.72	22.67	21.49	21.54	21.75
	3	23.58	23.69	23.66	22.53	22.56	22.69
	4	22.63	22.71	22.63	21.49	21.53	21.72
	5	24.55	24.61	24.63	23.49	23.51	23.71
HSPA+	1	24.55	24.59	24.62	23.49	23.50	23.69
Note: The Conducted RF Output Power test of WCDMA /HSDPA /HSUPA was tested by power meter.							

2. GSM Conducted peak output power

Band	Channel	Frequency (MHz)	Output Power (dBm)
GSM 850	128	824.2	32.73
	190	836.6	32.89
	251	848.8	32.93
PCS 1900	512	1850.2	29.34
	661	1880.0	28.82
	810	1909.8	28.44

3. 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	32.12	28.52	27.31	26.48
	190	836.6	32.24	28.51	27.33	26.52
	251	848.8	32.23	28.49	27.40	26.55
PCS 1900	512	1850.2	27.71	25.36	24.13	23.71
	661	1880.0	27.64	25.41	24.12	23.80
	810	1909.8	27.52	25.37	24.09	23.72

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	23.12	22.50	23.05	23.47
	190	836.6	23.24	22.49	23.07	23.51
	251	848.8	23.23	22.47	23.14	23.54
PCS 1900	512	1850.2	18.71	19.34	19.87	20.70
	661	1880.0	18.64	19.39	19.86	20.79
	810	1909.8	18.52	19.35	19.83	20.71

4. 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	31.98	28.13	27.27	26.11
	190	836.6	32.09	28.17	27.31	26.22
	251	848.8	32.09	28.22	27.26	26.17
PCS 1900	512	1850.2	27.59	25.29	24.22	23.51
	661	1880.0	27.52	25.12	24.18	23.42
	810	1909.8	27.36	25.41	24.09	23.41

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	22.98	22.11	23.01	23.10
	190	836.6	23.09	22.15	23.05	23.21
	251	848.8	23.09	22.20	23.00	23.16
PCS 1900	512	1850.2	18.59	19.27	19.96	20.50
	661	1880.0	18.52	19.10	19.92	20.41
	810	1909.8	18.36	19.39	19.83	20.40

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

5. Wifi peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			802.11B (DSSS)	802.11G (OFDM)	802.11N20 (OFDM)
Wifi	1	2412	19.21	12.28	12.33
	6	2437	19.22	14.59	14.77
	11	2462	19.18	12.51	12.46

Band	Channel	Frequency (MHz)	Output Power(dBm)
			802.11N40 (OFDM)
Wifi	3	2422	11.00
	6	2437	14.07
	9	2452	11.33

6. Bluetooth peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			GFSK	Π/4-DQPSK	8-DPSK
BT	0	2402	3.928	2.868	2.868
	39	2441	3.795	3.779	3.790
	78	2480	3.359	2.757	2.793

Band	Channel	Frequency (MHz)	Output Power(dBm)
			GFSK
BT	0	2402	-2.489
	19	2440	-2.264
	39	2480	-2.290

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	190	0.587	1.026	0.602
		Ear/Tilt		0.386		0.396
Left Side Of Head		Cheek/Touch		0.619		0.635
		Ear/Tilt		0.361		0.370
Body (10mm Separation)	GSM	Back upward		0.688		0.706
		Front upward		0.434		0.445
	GPRS	Back upward	128	0.971	1.052	1.021
			190	0.802	1.042	0.836
			251	0.934	1.035	0.967
		Front upward	190	0.707	1.042	0.737
		Edge A		0.395		0.412
		Edge B		0.594		0.619
		Edge C		0.376		0.392
	EDGE	Back upward		0.706	1.066	0.753

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	512	0.311	1.038	0.323
		Ear/Tilt		0.071		0.074
Left Side Of Head		Cheek/Touch		0.217		0.225
		Ear/Tilt		0.060		0.062
Body (10mm Separation)	GSM	Back upward		0.392		0.407
		Front upward		0.288		0.299
	GPRS	Back upward	661	0.495	1.047	0.518
		Front upward		0.225		0.236
		Edge A		0.337		0.353
		Edge B		0.197		0.206
		Edge C		0.378		0.396
	EDGE	Back upward		0.435	1.067	0.464

Note:

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

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

Summary of Measurement Results (WCDMA 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	4175	0.464	1.074	0.498
	Ear/Tilt		0.321		0.345
Left Side Of Head	Cheek/Touch		0.510		0.548
	Ear/Tilt		0.291		0.313
Body (10mm Separation)	Back upward		0.719		0.772
	Front upward		0.411		0.441
	Edge A		0.618		0.664
	Edge B		0.479		0.514
	Edge C		0.076		0.082

Summary of Measurement Results (WCDMA 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	9400	0.629	1.079	0.679
	Ear/Tilt		0.111		0.120
Left Side Of Head	Cheek/Touch		0.356		0.384
	Ear/Tilt		0.098		0.106
	Back upward		0.733		0.791
	Front upward		0.390		0.421
	Edge A		0.191		0.206
	Edge B		0.178		0.192
	Edge C		0.422		0.455

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	6	0.100	1.067	0.107
	Ear/Tilt		0.039		0.042
Left Side Of Head	Cheek/Touch		0.117		0.125
	Ear/Tilt		0.035		0.037
Body (10mm Separation)	Back upward		0.287		0.306
	Front upward		0.220		0.235
	Edge C		0.013		0.014

Note:

1.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 v05)

≤ 0.8 W/kg and transmission band ≤ 100 MHz

≤ 0.6 W/kg and, 100 MHz < transmission bandwidth ≤ 200 MHz

≤ 0.4 W/kg and transmission band > 200 MHz

2. 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 > ½ dB, instead of the middle channel, the highest output power channel must be used.

3.The WCDMA mode is test with 12.2kbps RMC and TPC set to all "1", if maximum SAR for 12.2kbps RMC is ≤ 75% of the SAR limit (i.e. 1.2W/Kg 1g) and maximum average output of each RF channel with HSDPA/HSUPA active is less than 1/4 dB Middle than that measured without HSDPA/HSUPA using 12.2kbps RMC, according to KDB 941225D01v02, SAR is not required for this handset with HSPA capabilities.

4.After pre-scan test，the SIM Card 1 was the worst case，so we did the testing and recorded the results according to SIM card 1.

5.This module supports 3GPP release R7 HSPA+ using QPSK only without 16QAM in the up link, so PBA is not required.

6. 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.

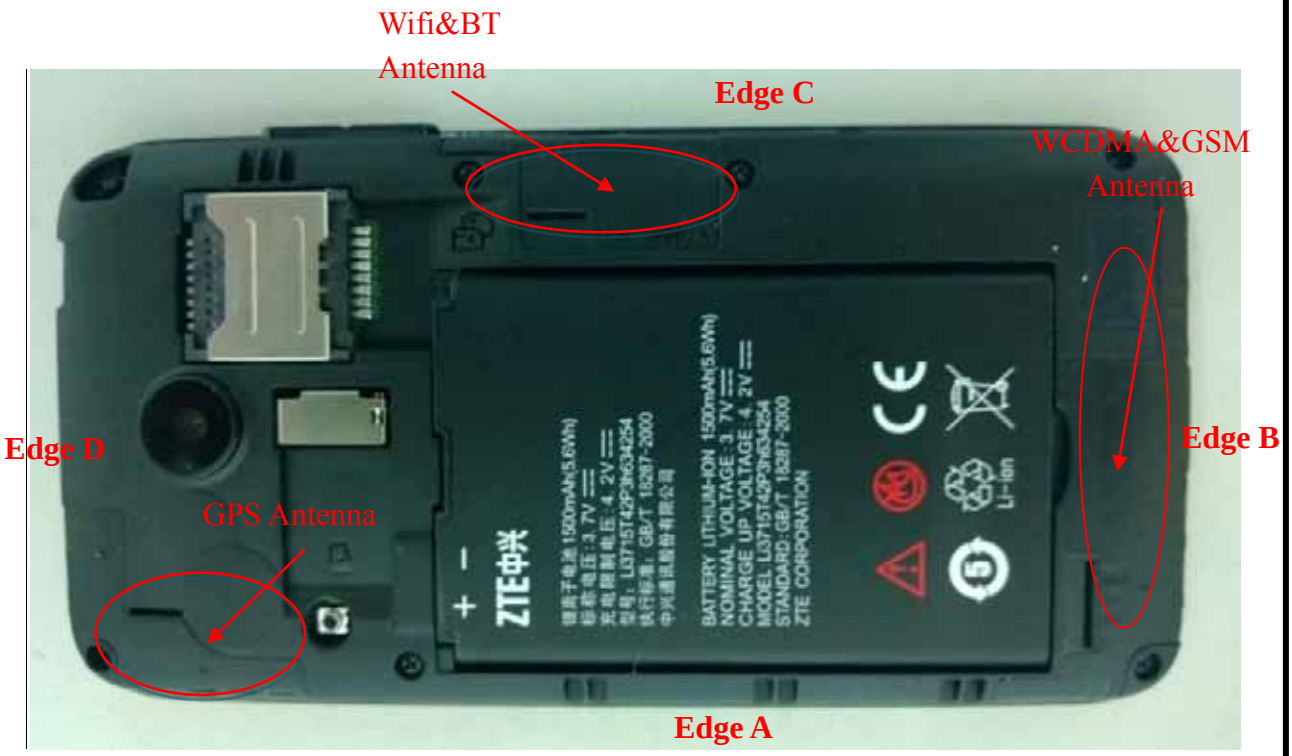
7. Scaling Factor calculation

Band	**Tune-up power tolerance (dBm)**	**SAR test channel Power (dBm)**	**Scaling Factor**
GSM 850	PCL = 5, PWR = 32.5+-0.5	32.89	1.026
GPRS 850	PCL = 5, PWR =26.2+-0.5(4 slots)	26.48	1.052
		26.52	1.042
		26.55	1.035
EDGE 850	PCL = 5, PWR =26+-0.5(4 slots)	26.22	1.066
PCS 1900	PCL = 0, PWR = 29+-0.5	29.34	1.038
GPRS 1900	PCL=0, PWR= 23.5+-0.5(4 slots)	23.80	1.047
EDGE 1900	PCL=0, PWR= 23.2+-0.5(4 slots)	23.42	1.067
WCDMA 850	Max output power =24(+1/-2)	24.69	1.074
WCDMA 1900	Max output power =23 (+1/-2)	23.67	1.079
802.11(2.4GHz)	Max output power =19+-0.5	19.22	1.067

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.

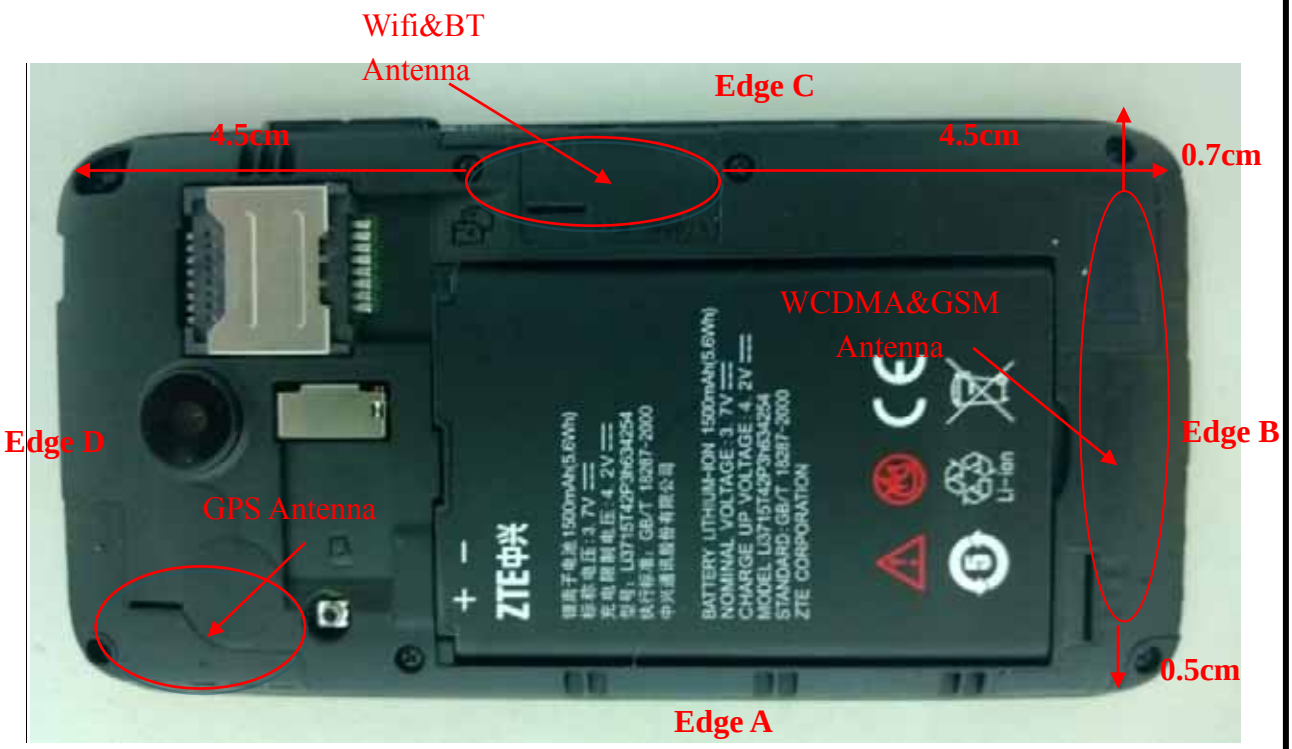
1. SAR must be tested for all surfaces and edges (side) with a transmitting antenna with in 2.5 cm from that surface or edge, at a test separation distance of 10 mm, in the wireless modes that support wireless routing.
2. Edge configurations:



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

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 D01v05**	**Highest power(mW)** **Per tune up**
WIFI(2.4G)	**10**	89
BT	**10**	3

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:
(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance,mm*)]·[√ f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm;
where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
(Max power= 3 mW(per tune up) ; *min. test separation distance*=5mm for head, 10mm for body;

f=2.4GHz)

BT estimated Head SAR = 0.124 W/Kg (1g); BT estimated Body SAR = 0.062W/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	**Note 1**
2	WCDMA(Voice)+WCDMA(Data)	**Yes**	**Yes**	
3	GSM(Voice)+WCDMA(Data)	No	No	
4	WCDMA(Voice)+GSM(Data)	No	No	
5	GSM(Data)+WCDMA(Voice)	No	No	
6	GSM(Voice)+WCDMA(Voice)	No	No	
7	GSM(Voice)+WiFi (/ BT)	**Yes**	No	**Note 2**
8	WCDMA(Voice)+WiFi (/BT)	**Yes**	No	
9	WCDMA(Voice)+WCDMA(Data)+WiFi	**Yes**	**Yes**	**Note 3**
10	GSM(Data)+WiFi	**Yes**	**Yes**	
11	WCDMA(Data)+WiFi	**Yes**	**Yes**	

Not applicable	Applicable	Head	Body-worn	Hotspot
1,3,4,5,6	2,7,8,9,10,11	2,7,8,9	2,7,8,9	2,9,10,11

Note:

1. EUT system architecture does not support simultaneous voice and data (except on WCDMA), 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. WCDMA supports voice and data transmission 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**,**8**,**9**,**11**, WCDMA and WiFi is tested separately, the WCDMA mode is test with 12.2kbps RMC and TPC set to all "1", if maximum SAR for 12.2kbps RMC is ≤ 75% of the SAR

limit (i.e. 1.2W/Kg 1g) and maximum average output of each RF channel with HSDPA/HSUPA active is less than 1/4 dB Middle than that measured without HSDPA/HSUPA using 12.2kbps RMC, according to KDB 941225D01v02, SAR is not required for this handset with HSPA capabilities.

9. For Scenario **No.7**,**10**, 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.

10. Applicable Multiple Scenario Evaluation

Test Position	WCDMA&GSM SAR_{Max} (W/Kg)	Bluetooth SAR(W/Kg)	WiFi SAR_{Max}(W/Kg)	∑1-g SAR_{Max}(W/Kg)	
				BT&Main Ant	WiFi&Main Ant
Head SAR	0.679	0.124	0.125	0.803	0.804
Body SAR	1.021	0.062	0.306	1.083	1.327

Simultaneous Transmission SAR evaluation is not required for Wifi and WCDMA&GSM, because the sum of 1g SAR_{Max} is **1.327**W/Kg < 1.6W/Kg for Wifi and WCDMA&GSM.
Simultaneous Transmission SAR evaluation is not required for BT and WCDMA&GSM, because the sum of 1g SAR_{Max} is **1.083**W/Kg < 1.6W/Kg for BT and WCDMA&GSM.
(According to KDB 447498D01v05, 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

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

	Measurement 21: Flat Plane with Body device position on Middle Channel in GPRS mode Measurement 22: Flat Plane with Body device position on Middle Channel in GPRS mode Measurement 23: Flat Plane with Body device position on Middle Channel in GPRS mode Measurement 24: Flat Plane with Body device position on Middle Channel in EDGE mode
WCDMA 850	Measurement 25: Right Head with Cheek device position on Middle Channel in WCDMA mode Measurement 26: Right Head with Tilt device position on Middle Channel in WCDMA mode Measurement 27: Left Head with Cheek device position on Middle Channel in WCDMA mode Measurement 28: Left Head with Tilt device position on Middle Channel in WCDMA mode Measurement 29: Flat Plane with Body device position on Middle Channel in WCDMA mode Measurement 30: Flat Plane with Body device position on Middle Channel in WCDMA mode Measurement 31: Flat Plane with Body device position on Middle Channel in WCDMA mode Measurement 32: Flat Plane with Body device position on Middle Channel in WCDMA mode Measurement 33: Flat Plane with Body device position on Middle Channel in WCDMA mode
WCDMA 1900	Measurement 34: Right Head with Cheek device position on Middle Channel in WCDMA mode Measurement 35: Right Head with Tilt device position on Middle Channel in WCDMA mode Measurement 36: Left Head with Cheek device position on Middle Channel in WCDMA mode Measurement 37: Left Head with Tilt device position on Middle Channel in WCDMA mode Measurement 39: Flat Plane with Body device position on Middle Channel in WCDMA mode Measurement 41: Flat Plane with Body device position on Middle Channel in WMA mode Measurement 42: Flat Plane with Body device position on Middle Channel in WCDMA mode Measurement 43: Flat Plane with Body device position on Middle Channel in WCDMA mode Measurement 44: Flat Plane with Body device position on Middle Channel in WCMA mode

802.11B (2450)	Measurement 45: Right Head with Cheek device position on Middle Channel in DSSS mode Measurement 46: Right Head with Tilt device position on Middle Channel in DSSS mode Measurement 47: Left Head with Cheek device position on Middle Channel in DSSS mode Measurement 48: Left Head with Tilt device position on Middle Channel in DSSS mode Measurement 49: Flat Plane with Body device position on Middle Channel in DSSS mode Measurement 50: Flat Plane with Body device position on Middle Channel in DSSS mode Measurement 51: Flat Plane with Body device position on Middle Channel in DSSS mode

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: 2013.9.2
Measurement duration: 7 minutes 49 seconds

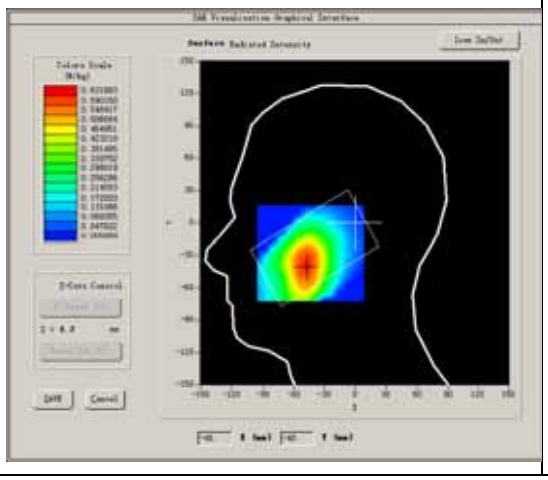
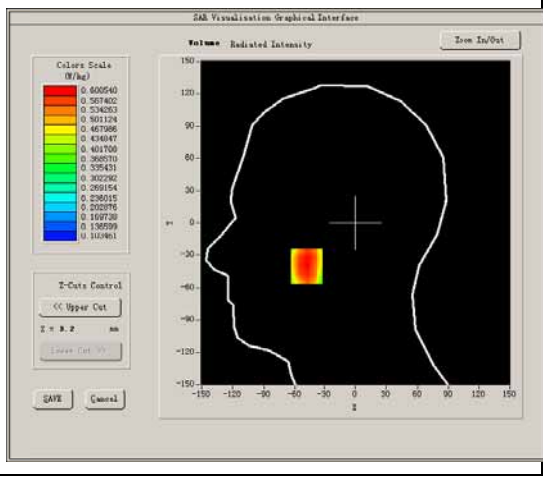
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	GSM850
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 190):

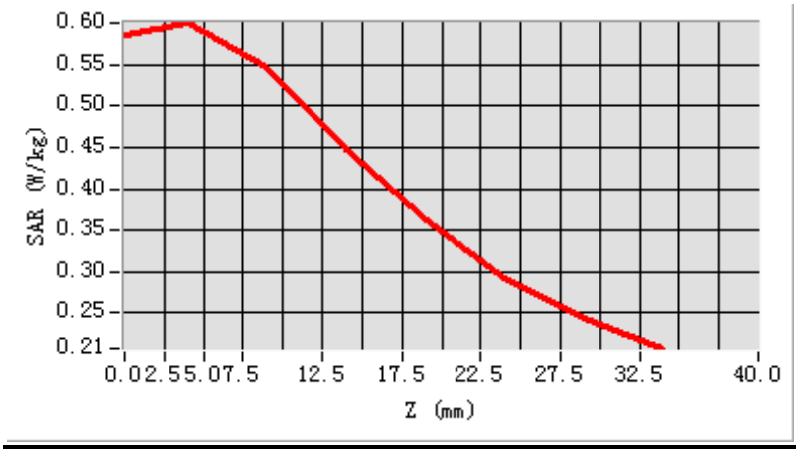
Frequency (MHz)	836.600000
Relative permittivity (real part)	42.522765
Conductivity (S/m)	0.918504
Power drift (%)	-0.620000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.479,25.214,27.19
Crest factor:	1:8

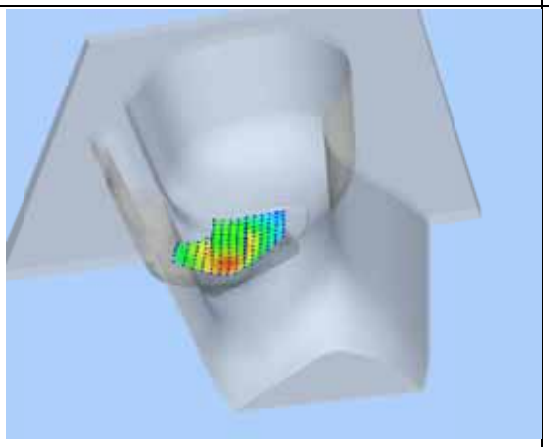
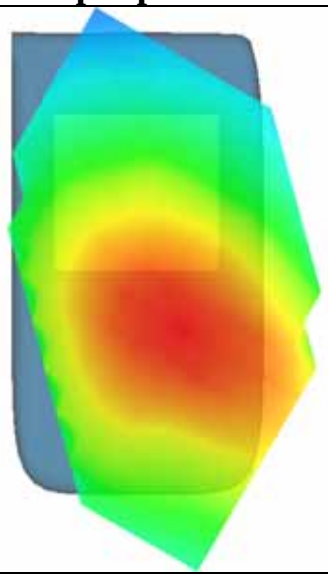
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-48.00, Y=-40.00
SAR Peak: 0.72 W/kg

SAR 10g (W/Kg)	0.470712
SAR 1g (W/Kg)	0.587276

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 2

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 7 minutes 33 seconds

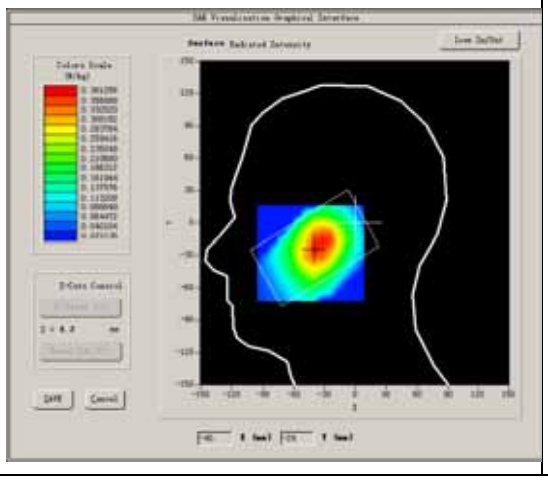
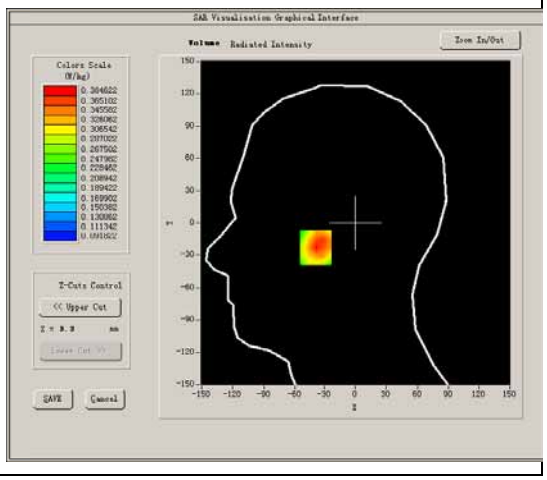
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	GSM850
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 190):

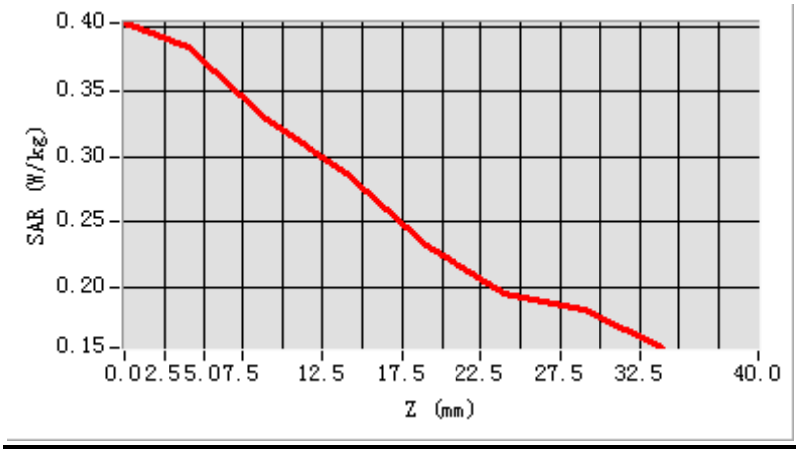
Frequency (MHz)	836.600000
Relative permittivity (real part)	42.522765
Conductivity (S/m)	0.918504
Power drift(%)	-0.570000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.479,25.214,27.19
Crest factor:	1:8

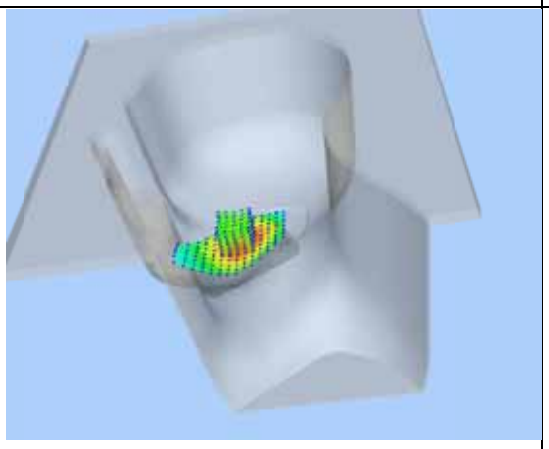
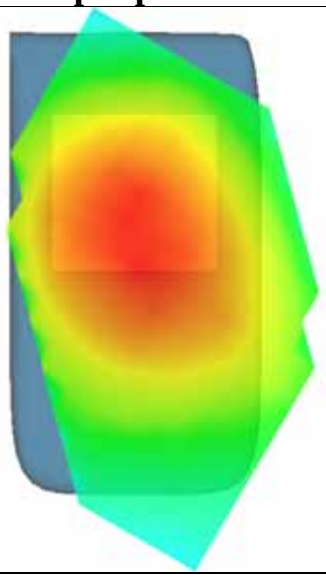
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-39.00, Y=-23.00
SAR Peak: 0.44 W/kg

SAR 10g (W/Kg)	0.292561
SAR 1g (W/Kg)	0.364755

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 3

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 7 minutes 28 seconds

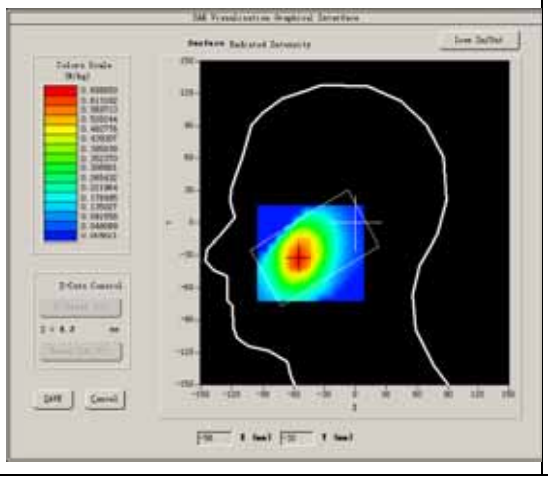
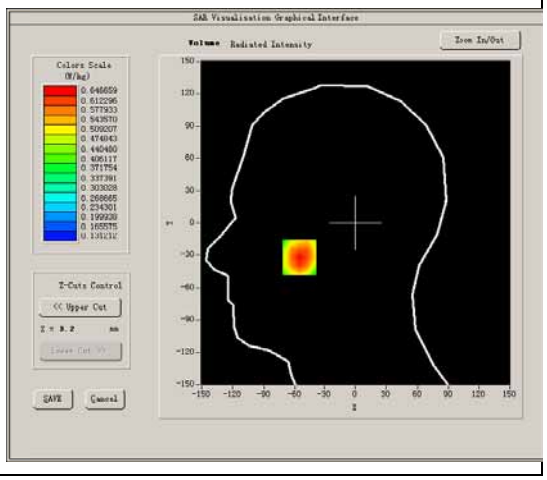
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM850
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 190):

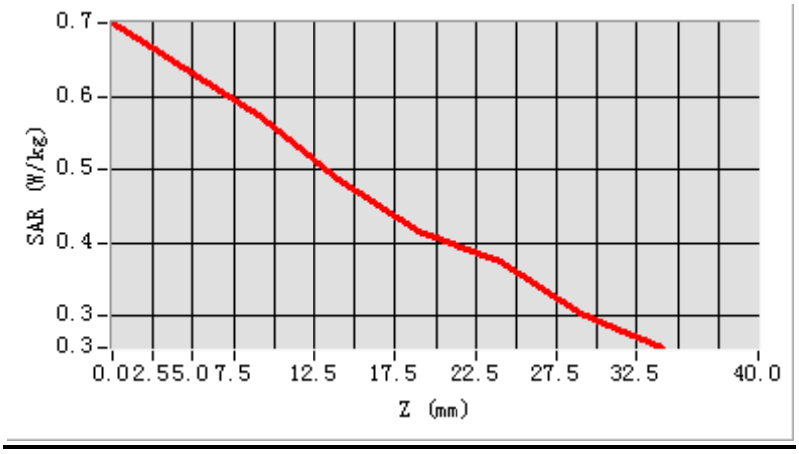
Frequency (MHz)	836.600000
Relative permittivity (real part)	42.522765
Conductivity (S/m)	0.918504
Power drift (%)	-0.680000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.479,25.214,27.19
Crest factor:	1:8

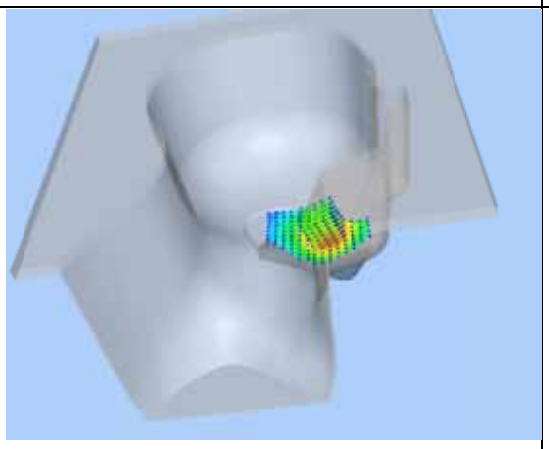
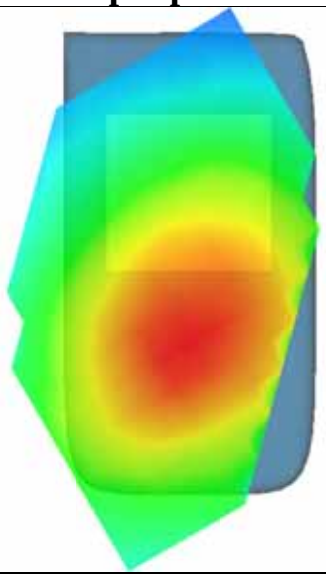
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-56.00, Y=-32.00
SAR Peak: 0.73 W/kg

SAR 10g (W/Kg)	0.498749
SAR 1g (W/Kg)	0.618857

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 4

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 8 minutes 33 seconds

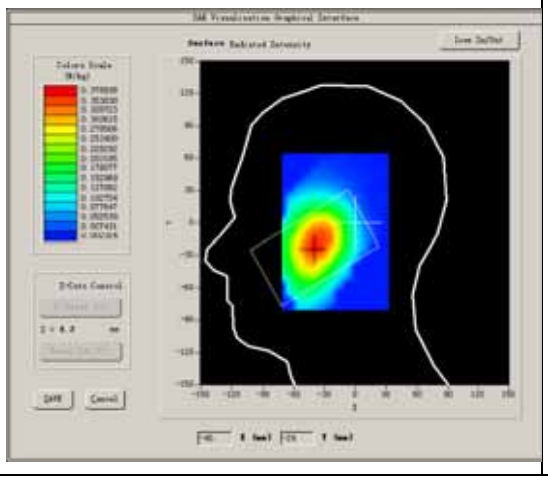
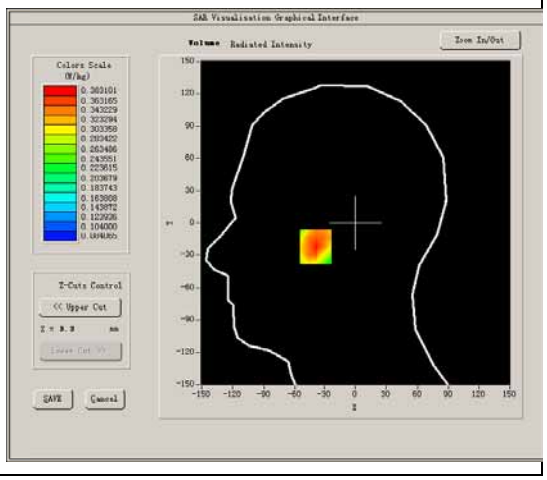
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	GSM850
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 190):

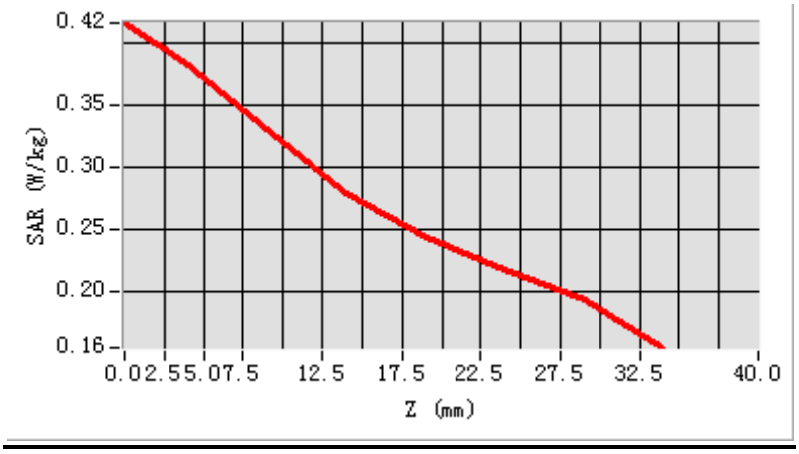
Frequency (MHz)	836.600000
Relative permittivity (real part)	42.522765
Conductivity (S/m)	0.918504
Power drift(%)	-0.760000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.479,25.214,27.19
Crest factor:	1:8

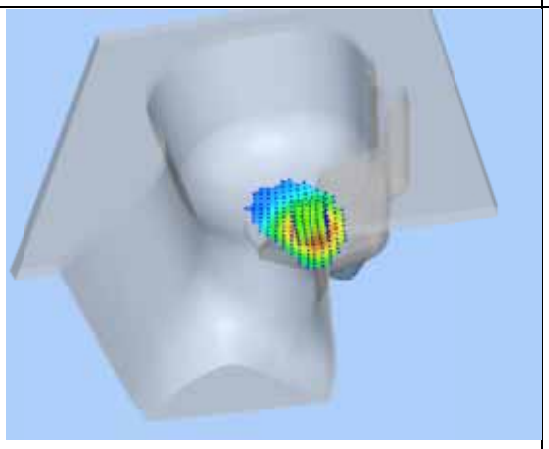
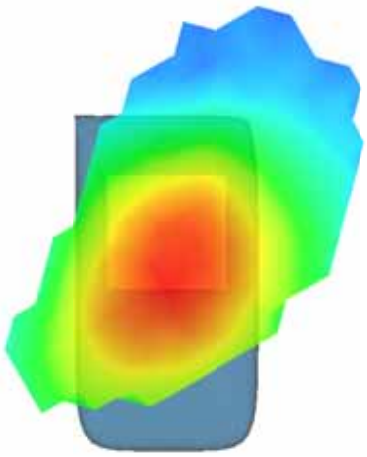
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-39.00, Y=-22.00
SAR Peak: 0.45 W/kg

SAR 10g (W/Kg)	0.290149
SAR 1g (W/Kg)	0.361010

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 5

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 11 seconds

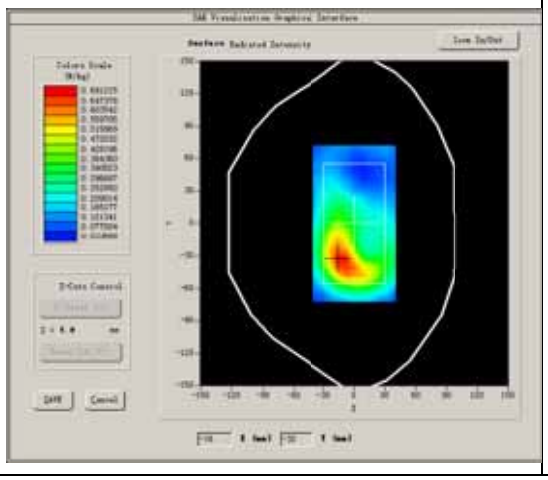
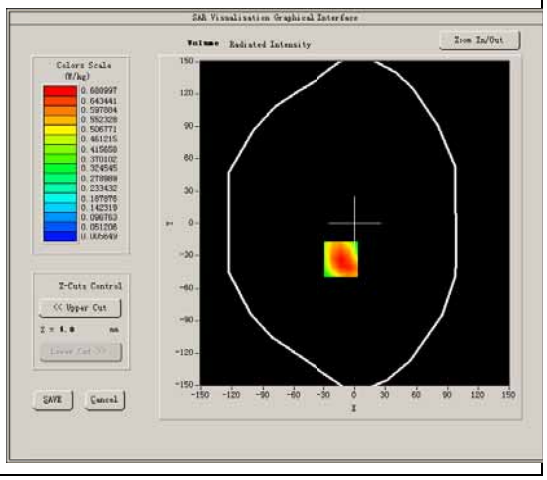
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 190):

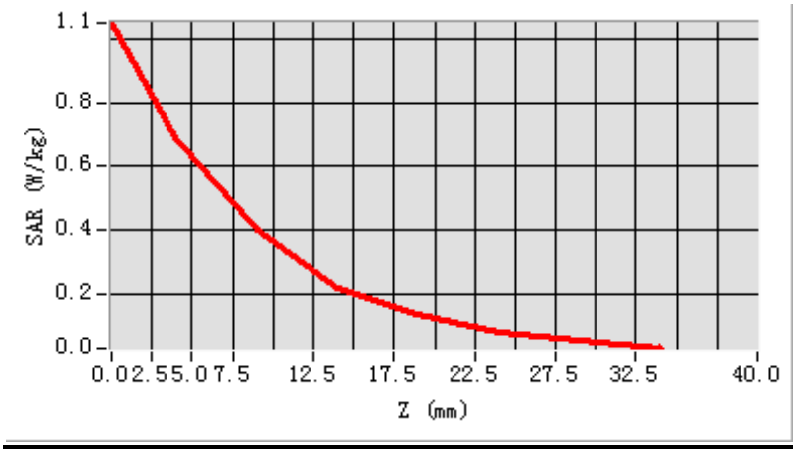
Frequency (MHz)	836.600000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift (%)	-0.540000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:8

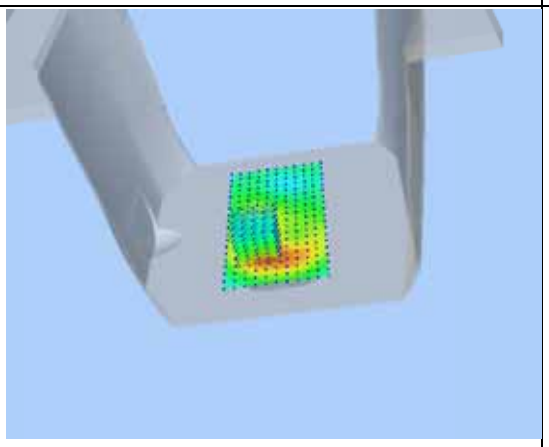
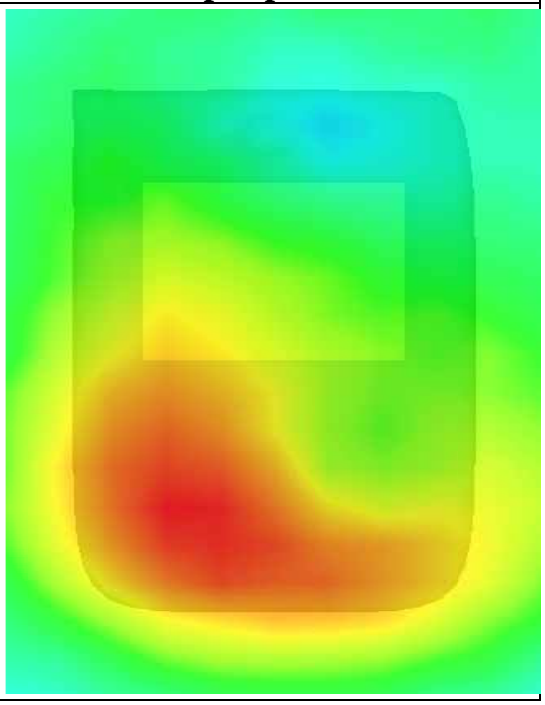
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-13.00, Y=-33.00
SAR Peak: 1.11 W/kg

SAR 10g (W/Kg)	0.381776
SAR 1g (W/Kg)	0.688104

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: 2013.9.2
Measurement duration: 9 minutes 10 seconds

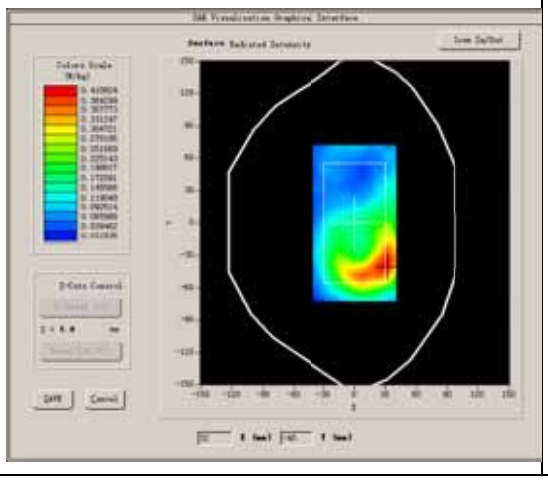
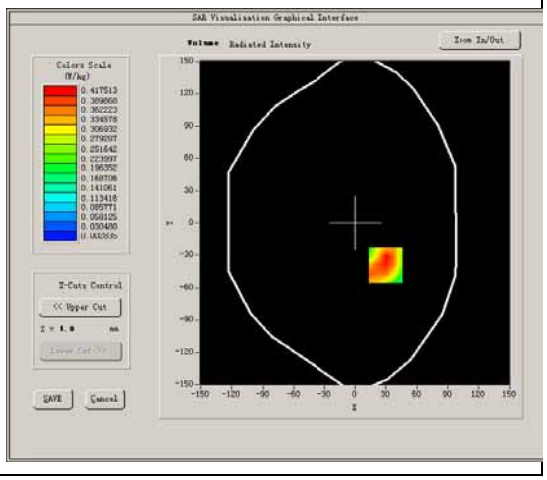
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 190):

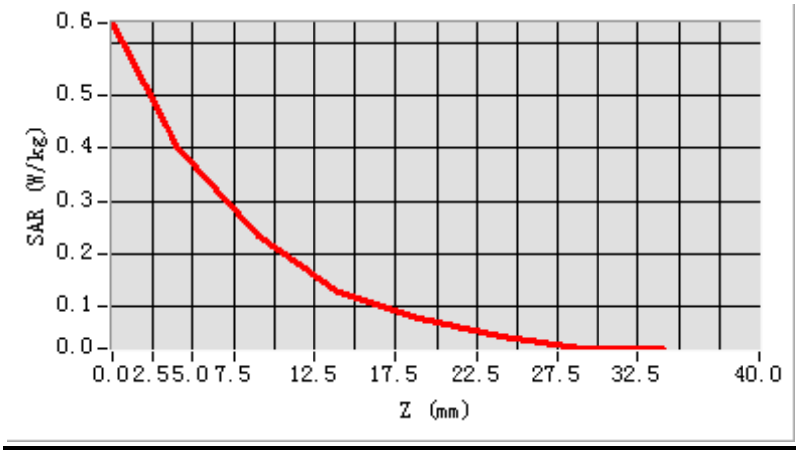
Frequency (MHz)	836.600000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift(%)	-1.350000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:8

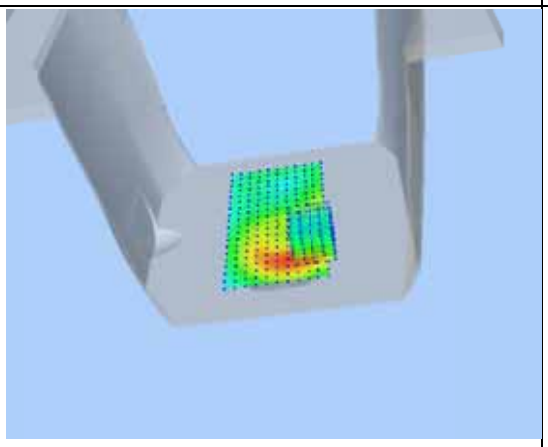
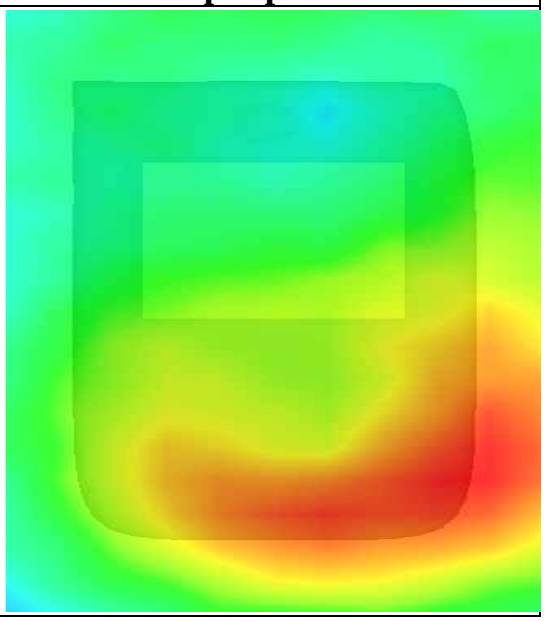
SURFACE SAR	VOLUME SAR
	

Maximum location: X=30.00, Y=-39.00
SAR Peak: 0.74 W/kg

SAR 10g (W/Kg)	0.238547
SAR 1g (W/Kg)	0.434457

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 7

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 11 seconds

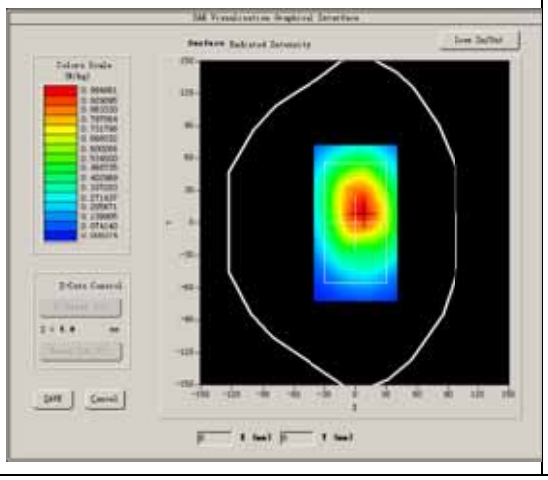
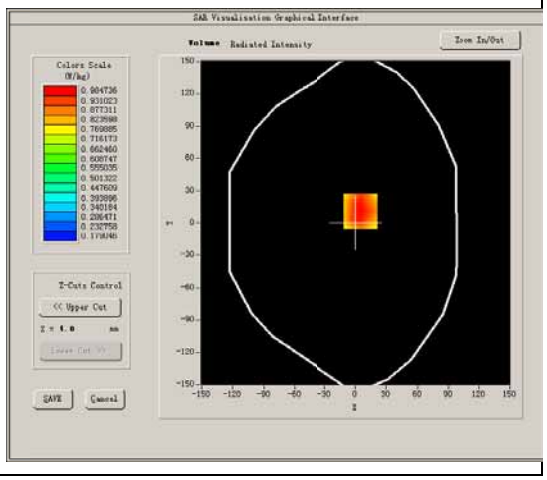
A. Experimental conditions.

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

B. SAR Measurement Results

Lower Band SAR (Channel 128):

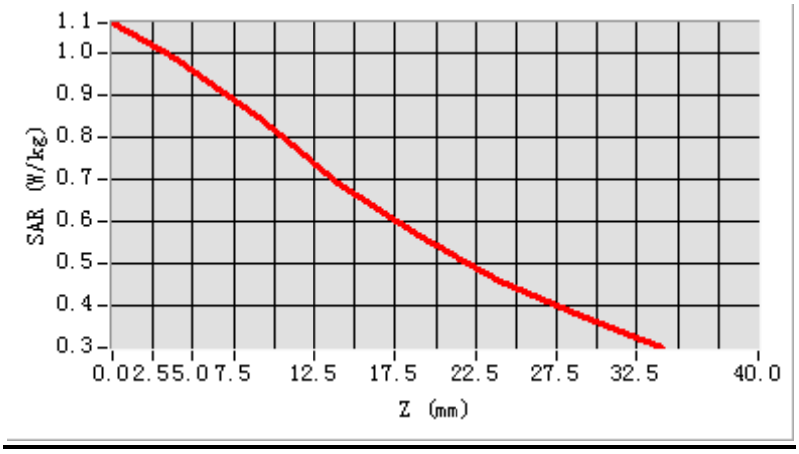
Frequency (MHz)	824.200000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift(%)	-0.710000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

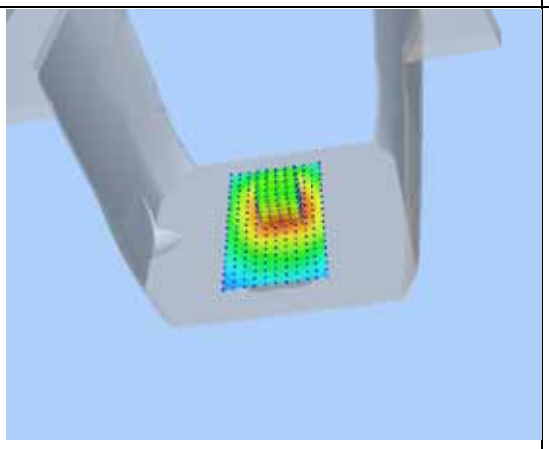
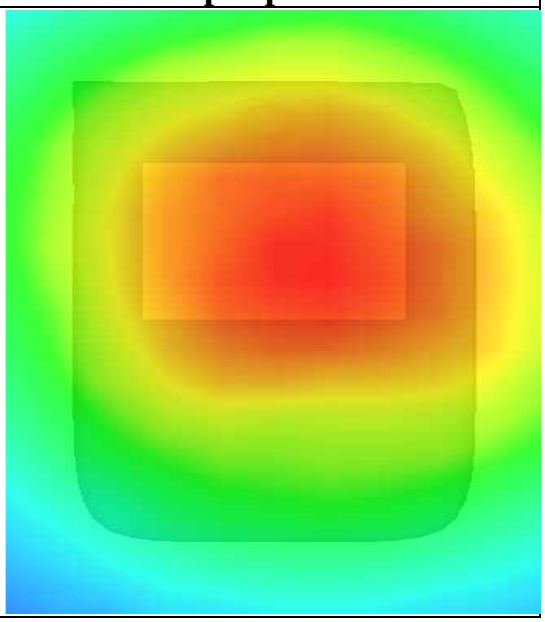
SURFACE SAR	VOLUME SAR
	

Maximum location: X=5.00, Y=11.00
SAR Peak: 1.18 W/kg

SAR 10g (W/Kg)	0.753445
SAR 1g (W/Kg)	0.970534

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: 2013.9.2
Measurement duration: 9 minutes 11 seconds

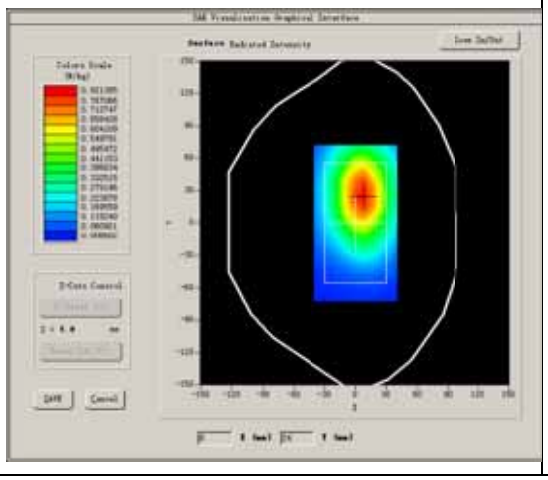
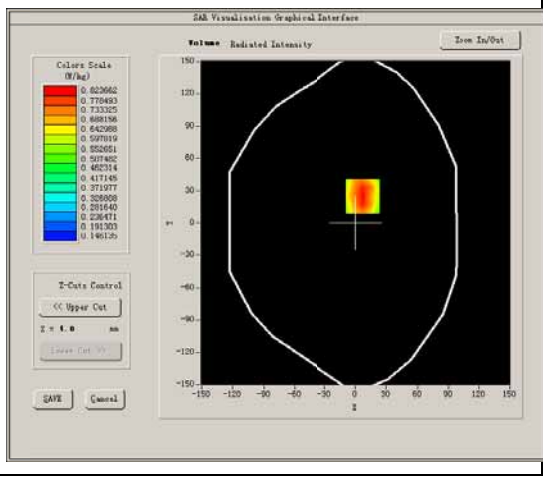
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

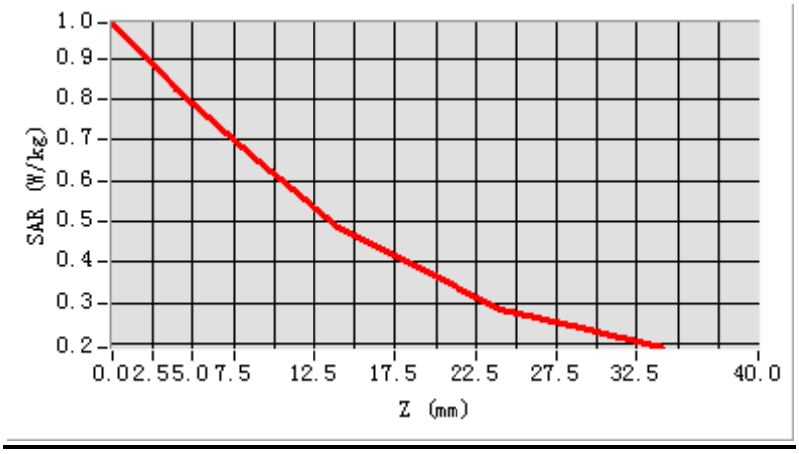
Frequency (MHz)	836.600000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift(%)	-0.610000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

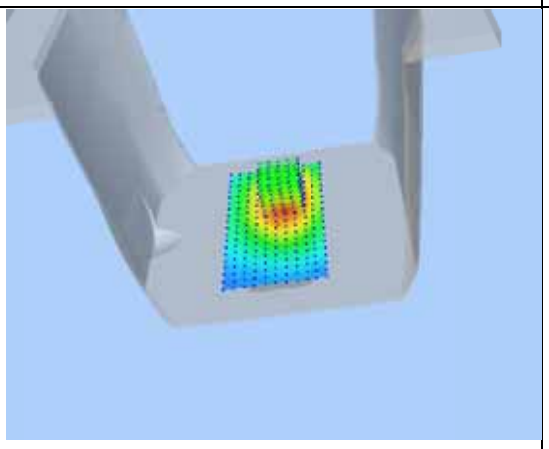
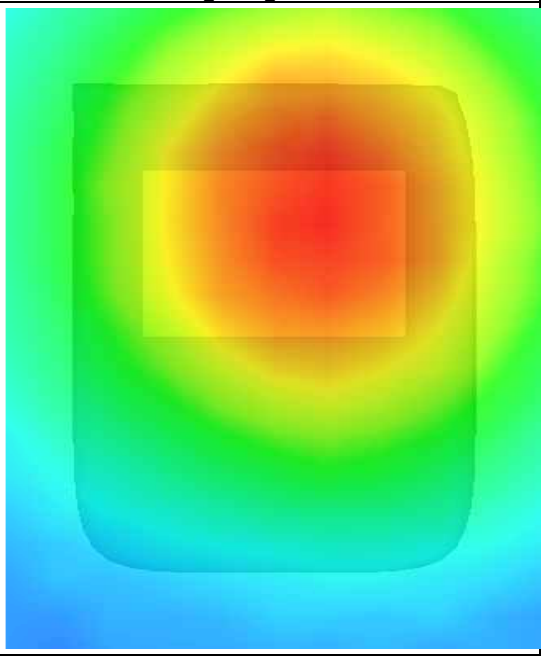
SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=25.00
SAR Peak: 1.08 W/kg

SAR 10g (W/Kg)	0.569256
SAR 1g (W/Kg)	0.802184

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: 2013.9.2
Measurement duration: 9 minutes 11 seconds

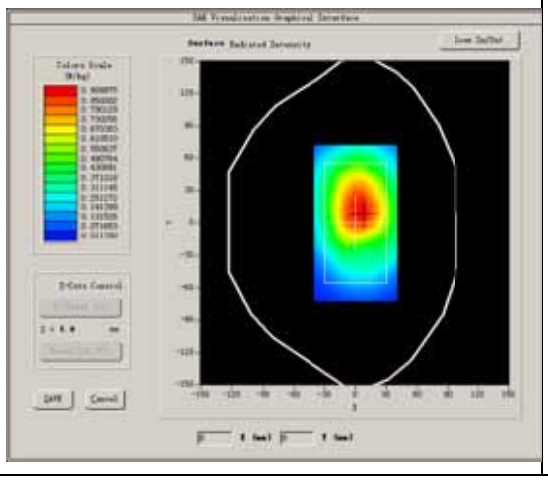
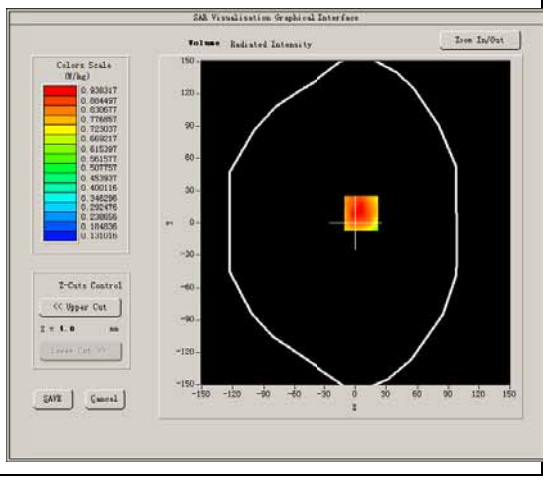
A. Experimental conditions.

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

B. SAR Measurement Results

Higher Band SAR (Channel 251):

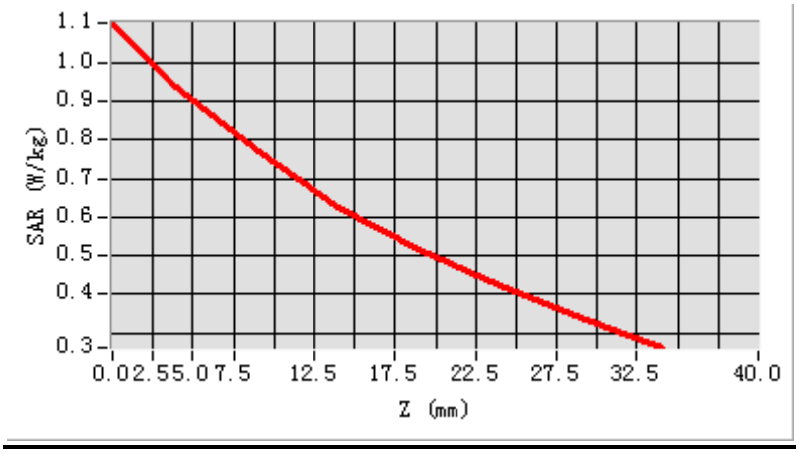
Frequency (MHz)	848.800000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift(%)	-0.820000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

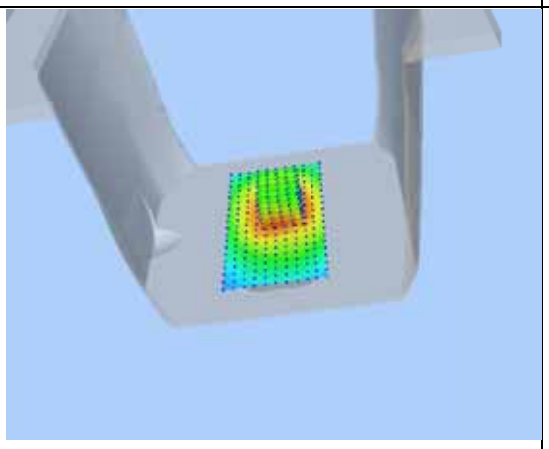
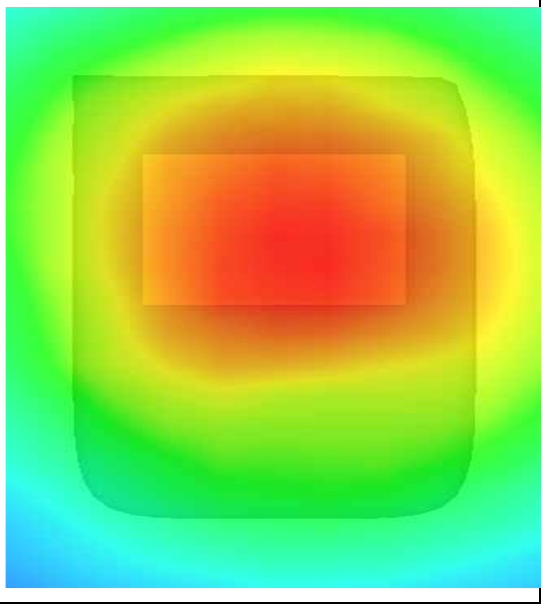
SURFACE SAR	VOLUME SAR
	

Maximum location: X=6.00, Y=9.00
SAR Peak: 1.17 W/kg

SAR 10g (W/Kg)	0.709065
SAR 1g (W/Kg)	0.934262

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 10

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 11 seconds

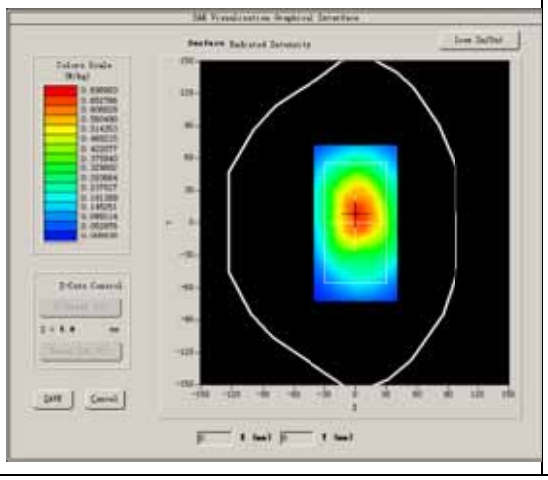
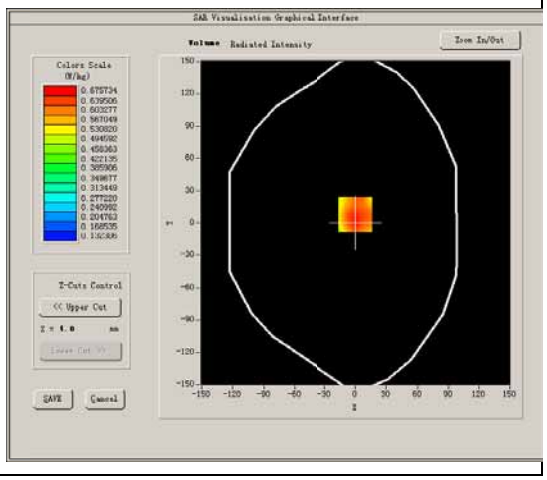
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

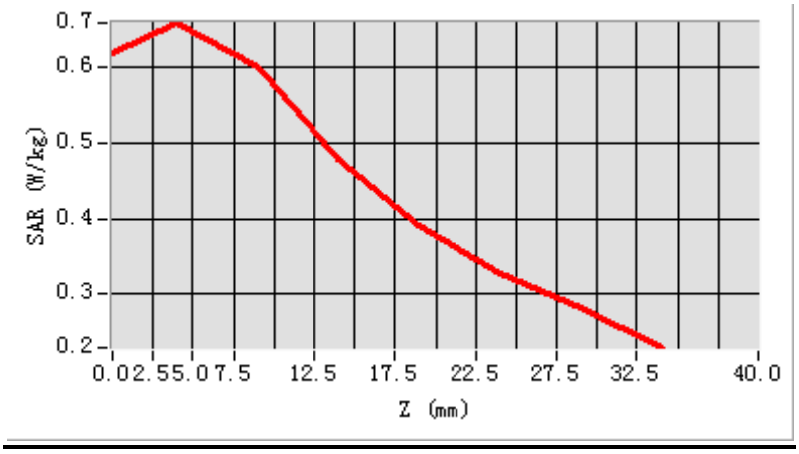
Frequency (MHz)	836.600000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift(%)	-0.450000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

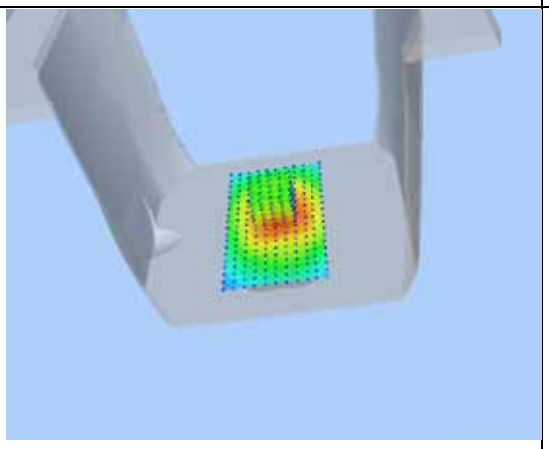
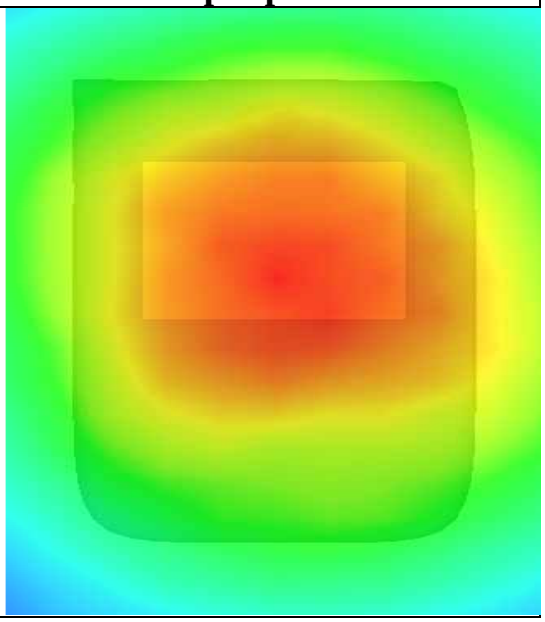
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=8.00
SAR Peak: 0.88 W/kg

SAR 10g (W/Kg)	0.558436
SAR 1g (W/Kg)	0.707433

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: 2013.9.2
Measurement duration: 9 minutes 10 seconds

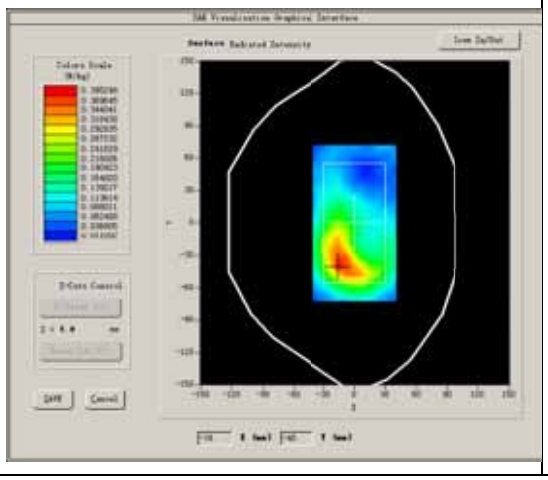
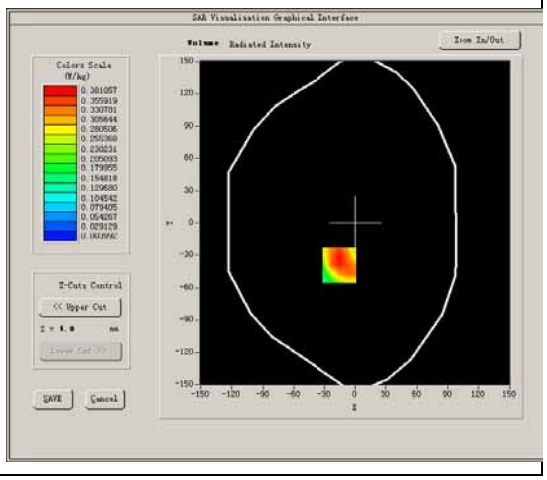
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

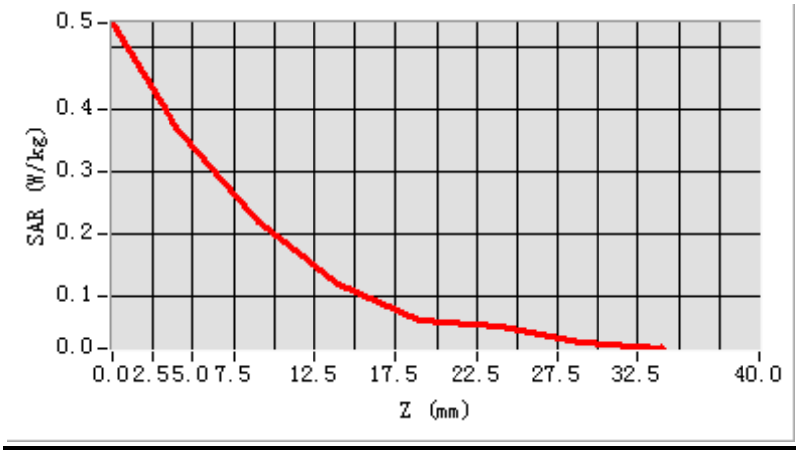
Frequency (MHz)	836.600000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift(%)	-0.780000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

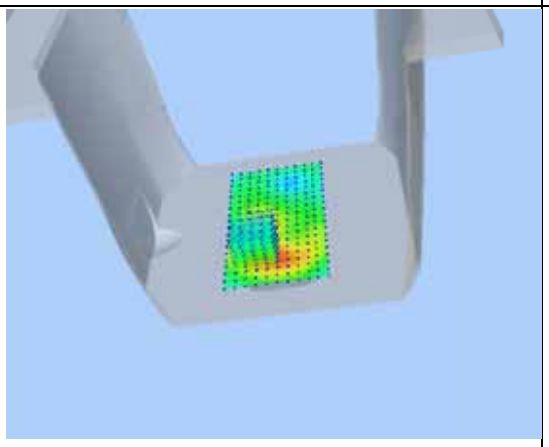
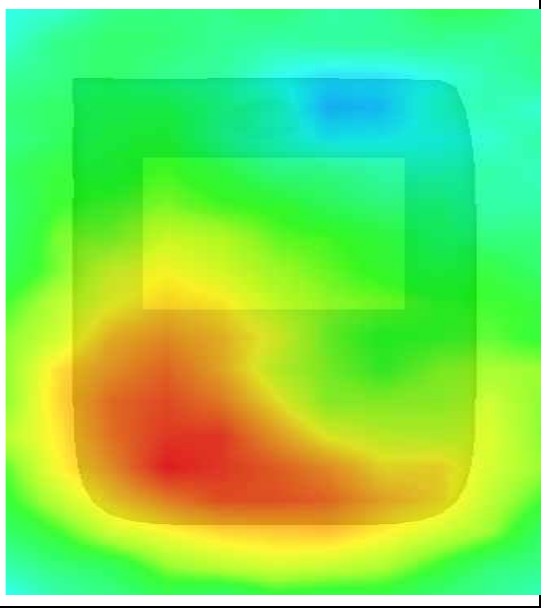
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-15.00, Y=-39.00
SAR Peak: 0.64 W/kg

SAR 10g (W/Kg)	0.224798
SAR 1g (W/Kg)	0.395195

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 12

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 10 seconds

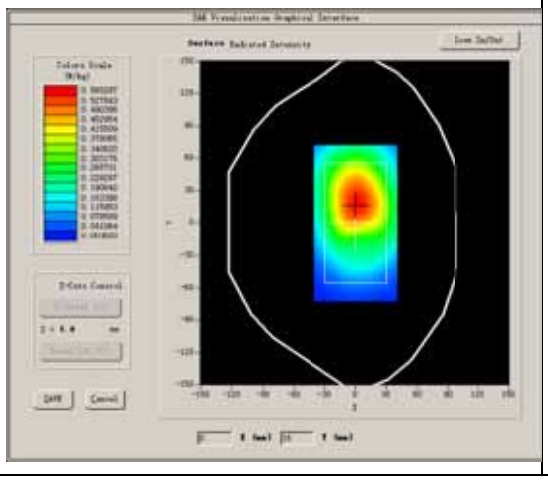
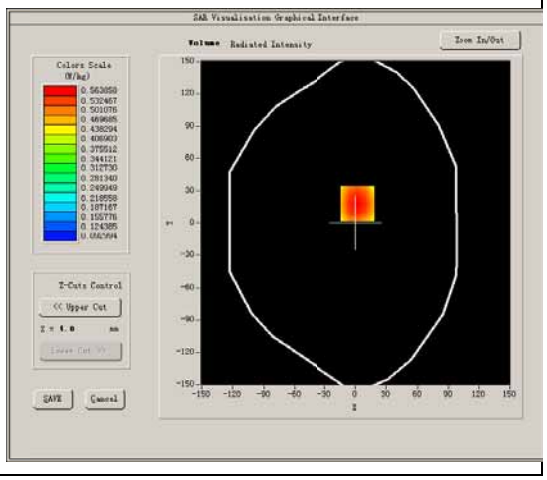
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

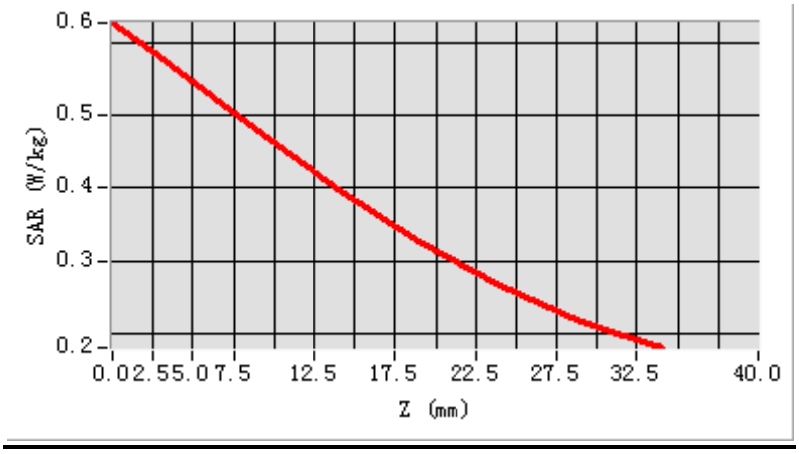
Frequency (MHz)	836.600000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift(%)	-1.090000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

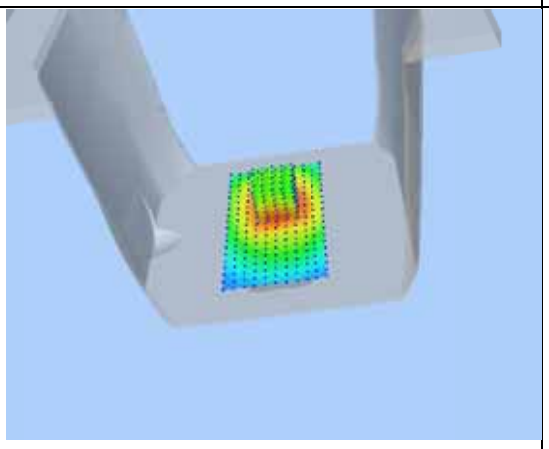
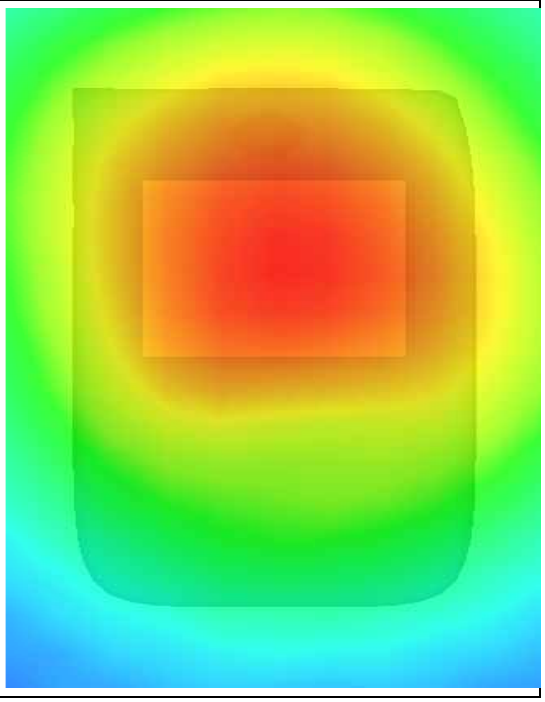
SURFACE SAR	VOLUME SAR
	

Maximum location: X=2.00, Y=18.00
SAR Peak: 0.70 W/kg

SAR 10g (W/Kg)	0.469789
SAR 1g (W/Kg)	0.593645

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 13

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 10 seconds

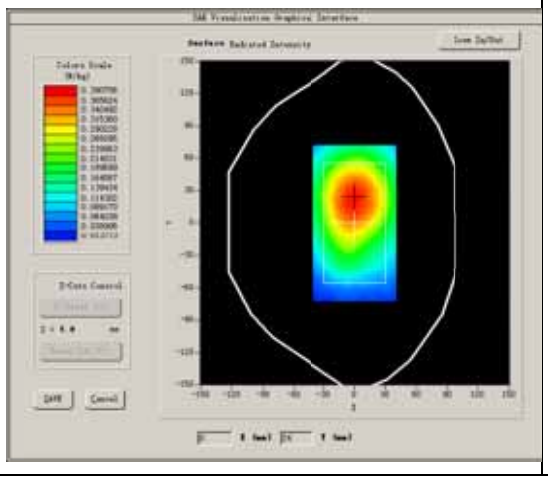
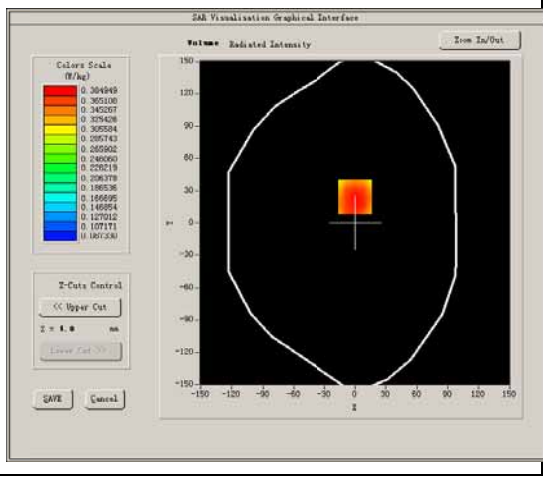
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

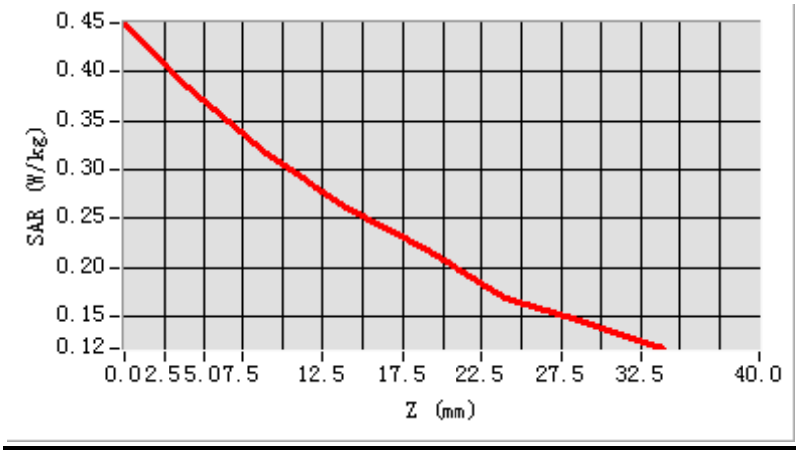
Frequency (MHz)	836.600000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift(%)	-0.520000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

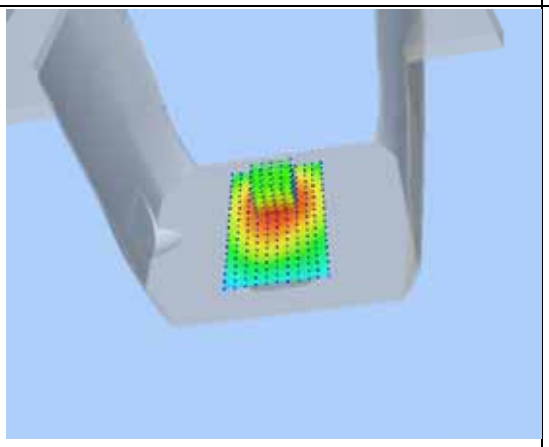
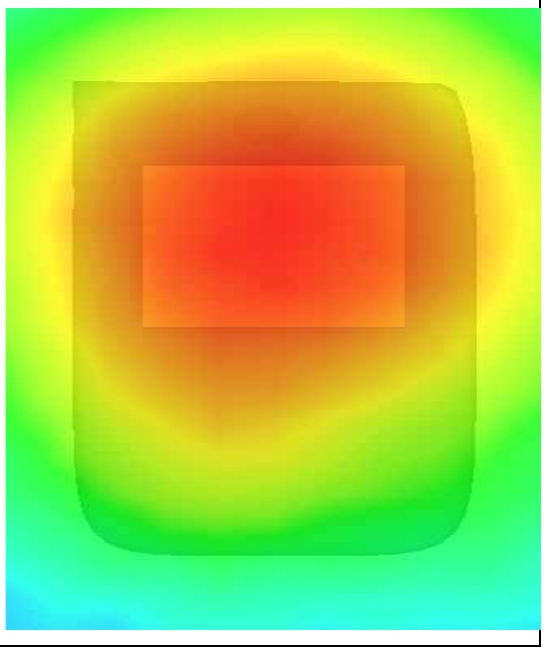
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=24.00
SAR Peak: 0.47 W/kg

SAR 10g (W/Kg)	0.292170
SAR 1g (W/Kg)	0.376296

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 14

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 10 seconds

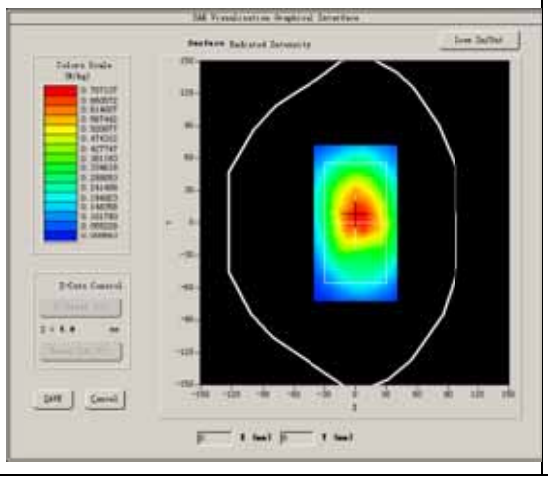
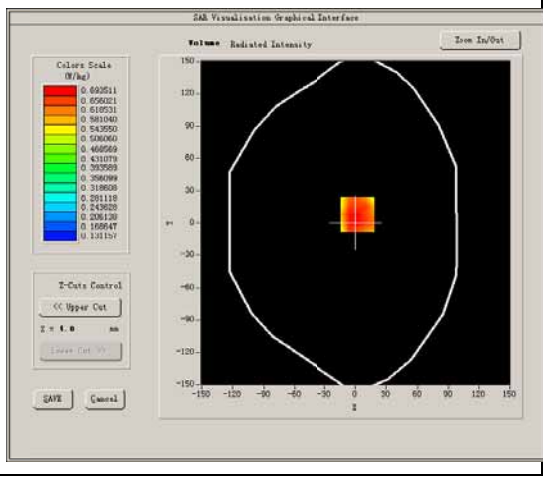
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	EDGE

B. SAR Measurement Results

Middle Band SAR (Channel 190):

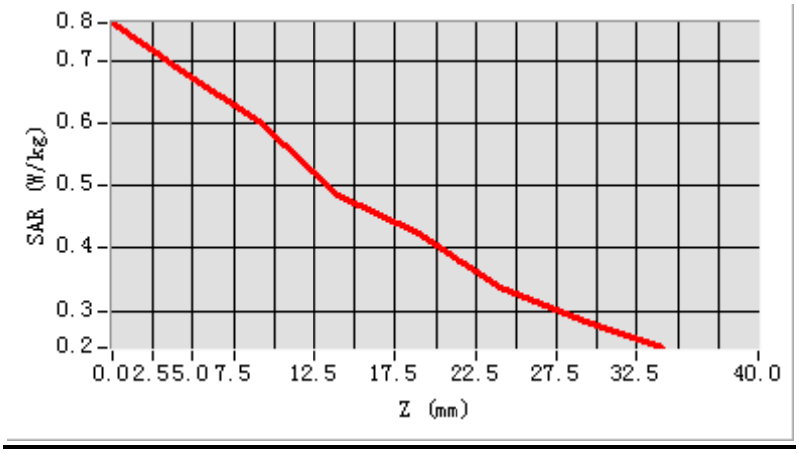
Frequency (MHz)	836.600000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift(%)	-0.810000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

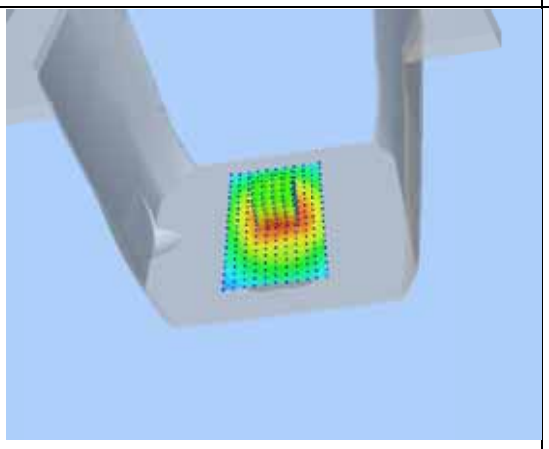
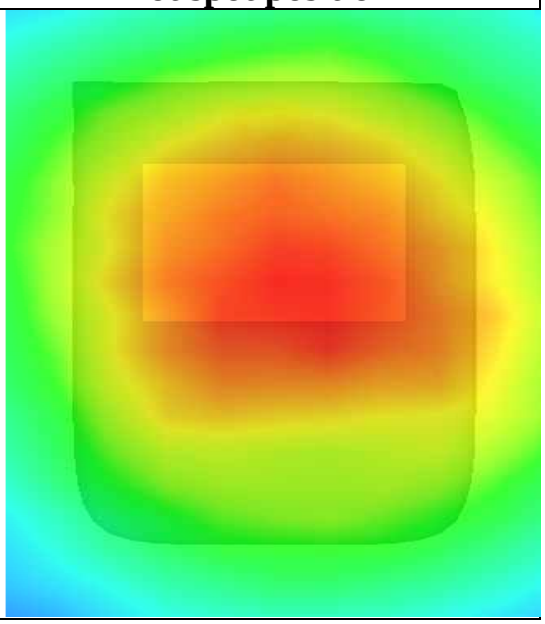
SURFACE SAR	VOLUME SAR
	

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

SAR 10g (W/Kg)	0.575287
SAR 1g (W/Kg)	0.705716

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: 2013.9.3
Measurement duration: 7 minutes 52 seconds

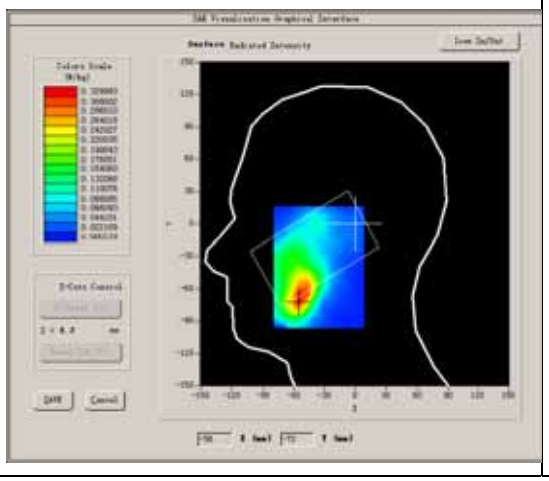
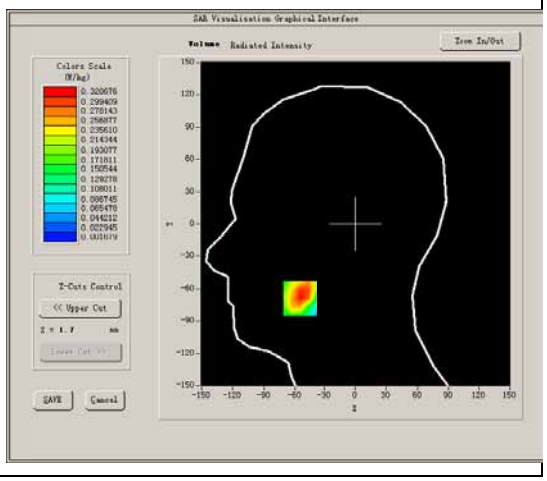
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	GSM1900
Channels	Low
Signal	GSM

B. SAR Measurement Results

Lower Band SAR (Channel 512):

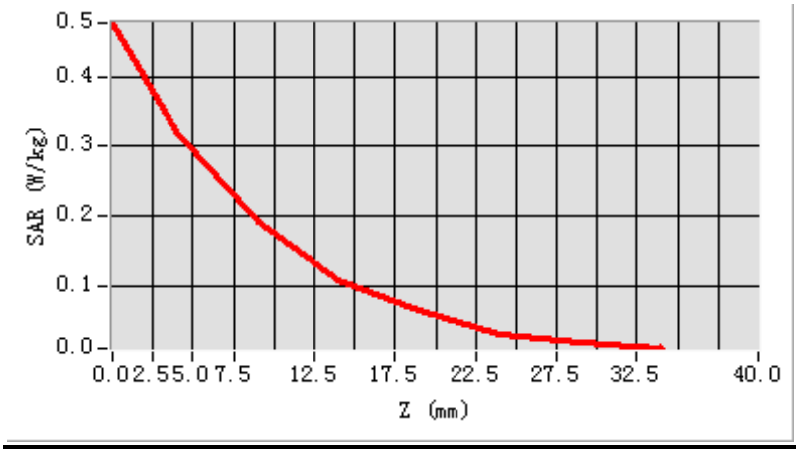
Frequency (MHz)	1850.200000
Relative permittivity (real part)	41.267921
Conductivity (S/m)	1.406817
Power drift(%)	-0.730000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

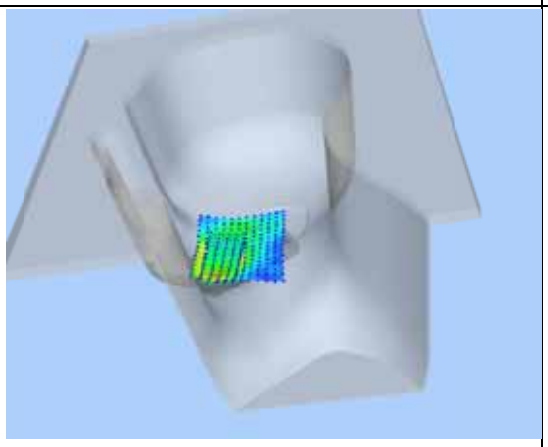
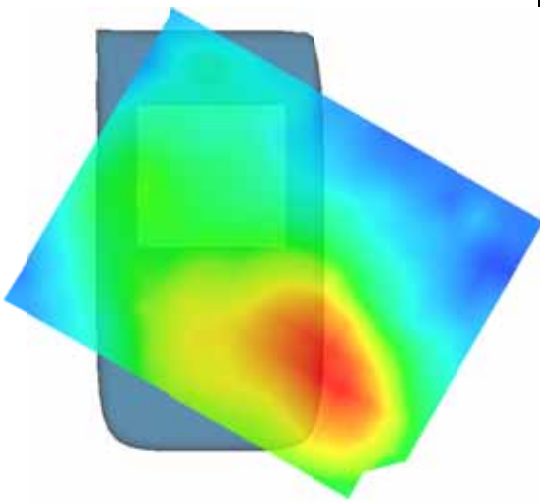
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-55.00, Y=-69.00
SAR Peak: 0.52 W/kg

SAR 10g (W/Kg)	0.164457
SAR 1g (W/Kg)	0.311119

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 16

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 8 minutes 33 seconds

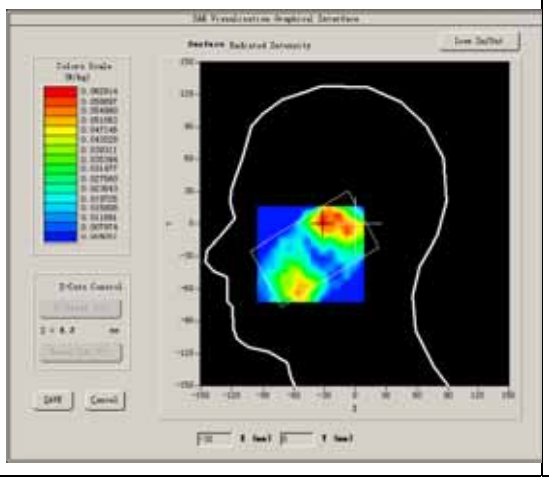
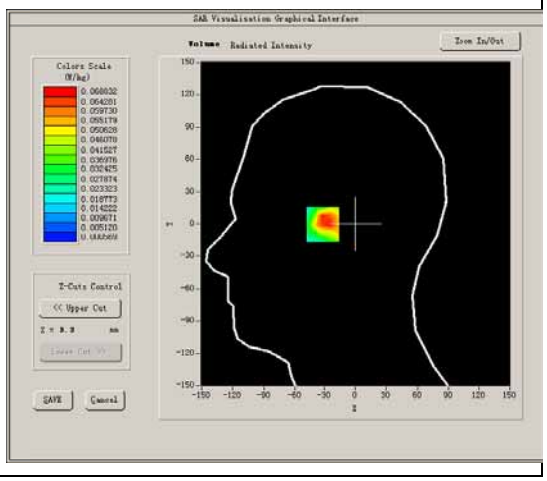
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	GSM1900
Channels	Low
Signal	GSM

B. SAR Measurement Results

Lower Band SAR (Channel 512):

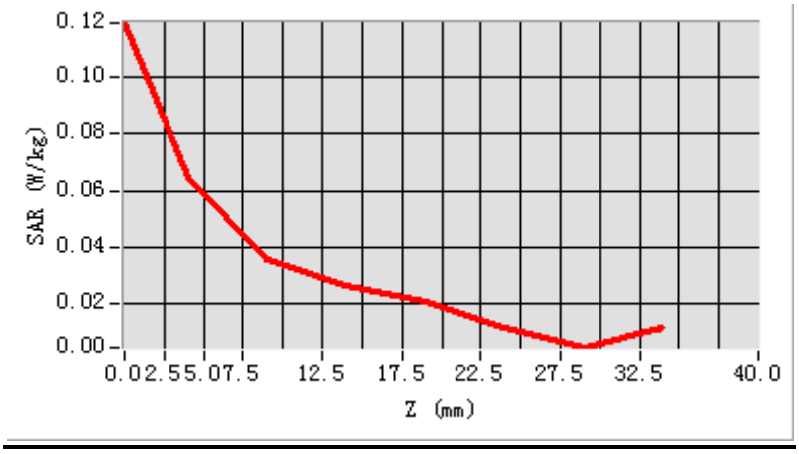
Frequency (MHz)	1850.200000
Relative permittivity (real part)	41.267921
Conductivity (S/m)	1.406817
Power drift(%)	-1.430000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

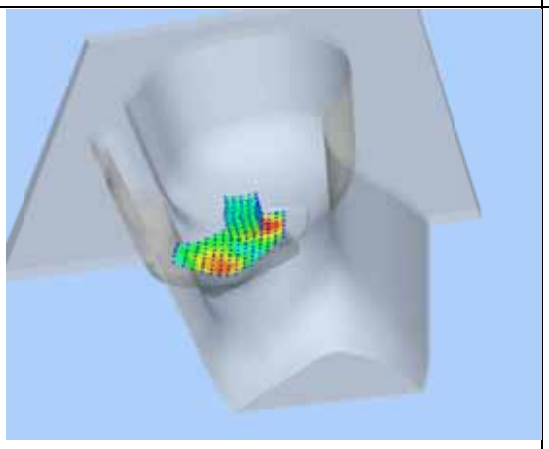
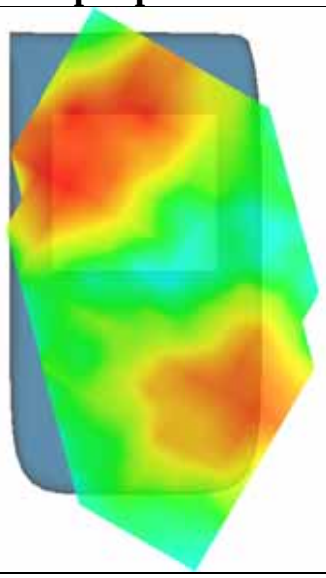
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-31.00, Y=2.00
SAR Peak: 0.13 W/kg

SAR 10g (W/Kg)	0.037137
SAR 1g (W/Kg)	0.070951

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 17

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 8 minutes 24 seconds

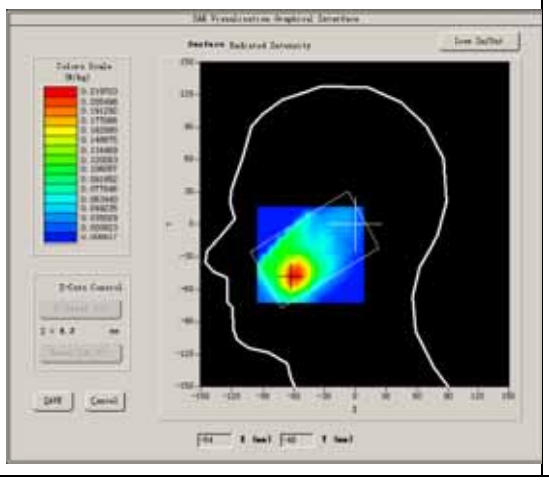
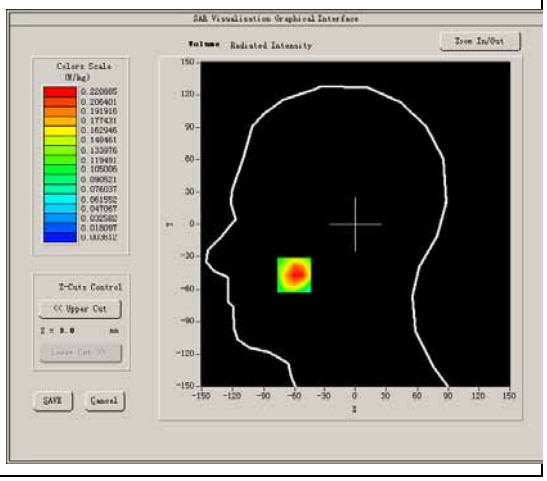
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM1900
Channels	Low
Signal	GSM

B. SAR Measurement Results

Low Band SAR (Channel 512):

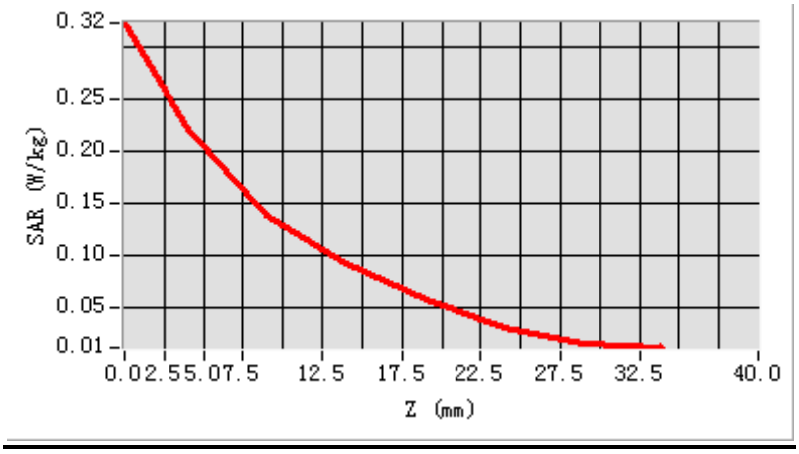
Frequency (MHz)	1850.200000
Relative permittivity (real part)	41.267921
Conductivity (S/m)	1.406817
Power drift(%)	-0.590000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

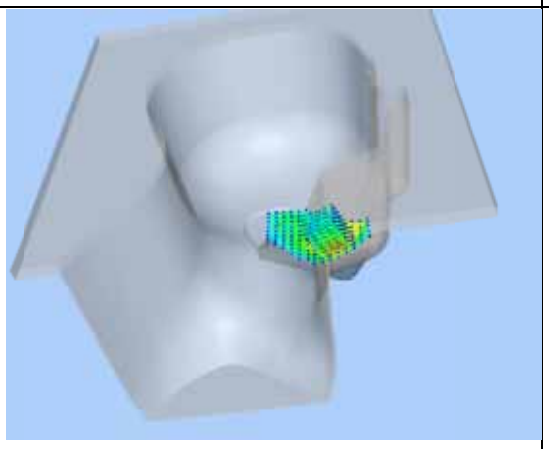
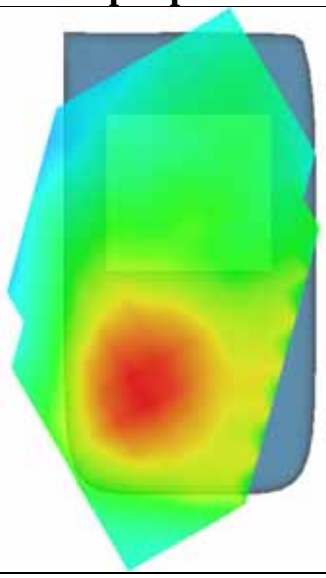
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-61.00, Y=-47.00
SAR Peak: 0.35 W/kg

SAR 10g (W/Kg)	0.120892
SAR 1g (W/Kg)	0.216885

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 18

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 7 minutes 18 seconds

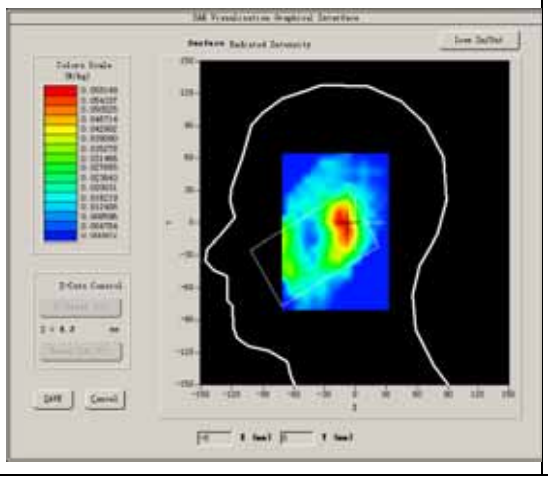
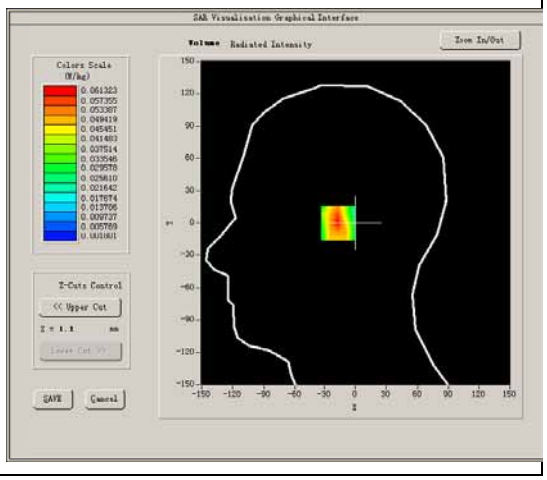
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	GSM1900
Channels	Low
Signal	GSM

B. SAR Measurement Results

Lower Band SAR (Channel 512):

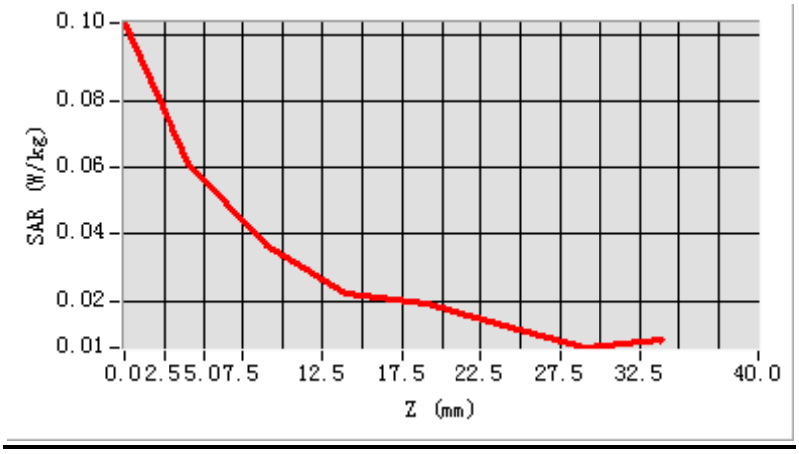
Frequency (MHz)	1880.000000
Relative permittivity (real part)	41.267921
Conductivity (S/m)	1.406817
Power drift(%)	-0.290000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

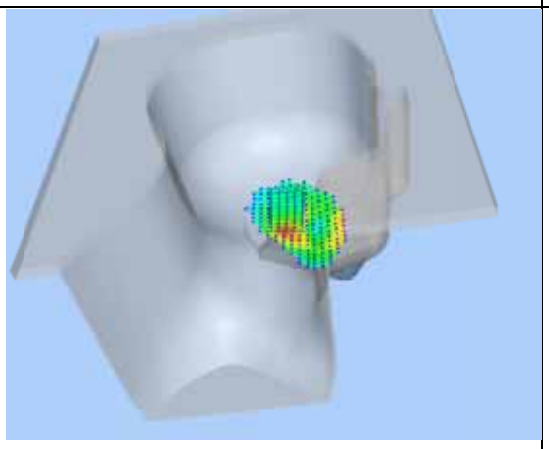
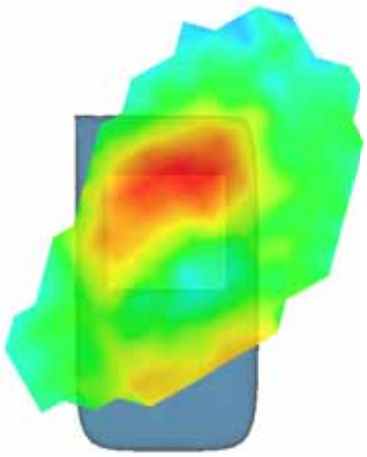
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-11.00, Y=0.00
SAR Peak: 0.10 W/kg

SAR 10g (W/Kg)	0.033634
SAR 1g (W/Kg)	0.059951

Z axis scan



3D screen shot	Hot spot position
	

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: 2013.9.3
Measurement duration: 9 minutes 8 seconds

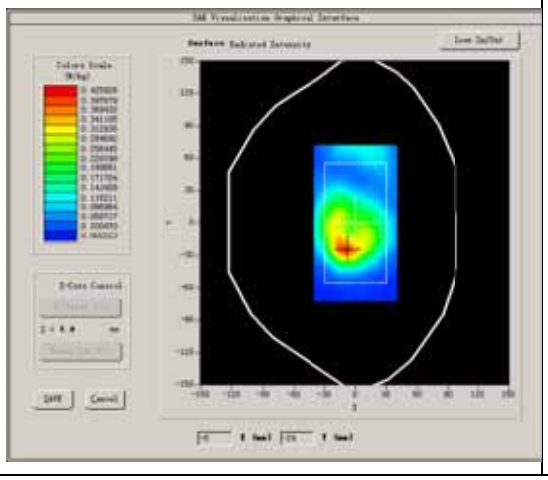
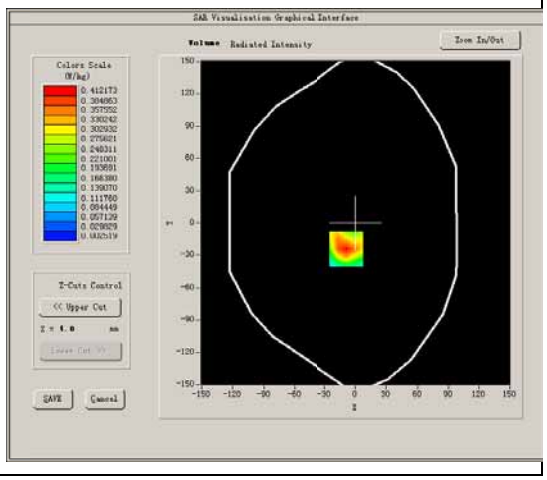
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	GSM

B. SAR Measurement Results

Low Band SAR (Channel 512):

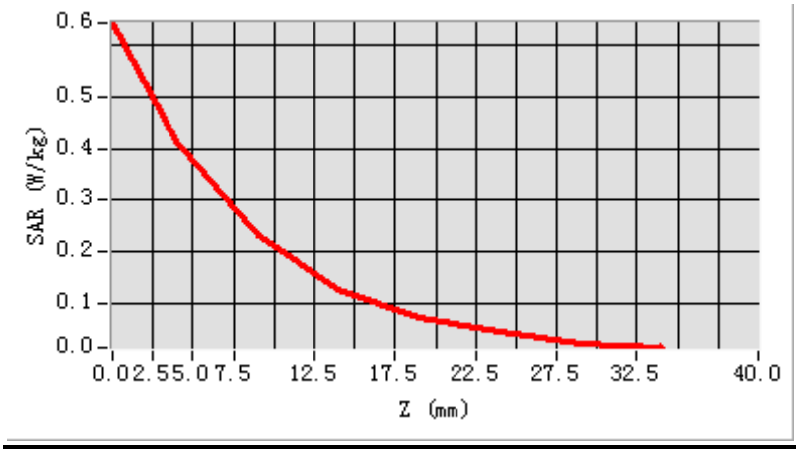
Frequency (MHz)	1850.200000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift(%)	-2.320000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:8

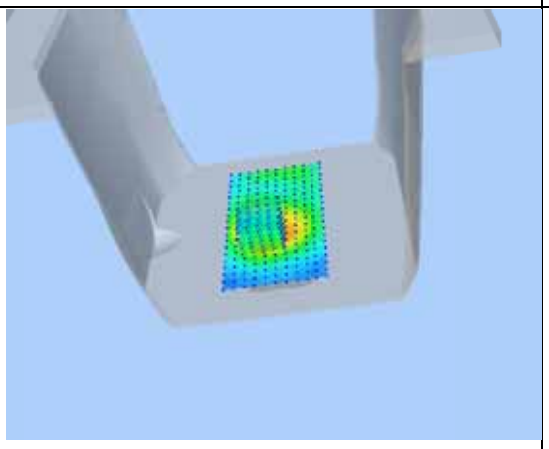
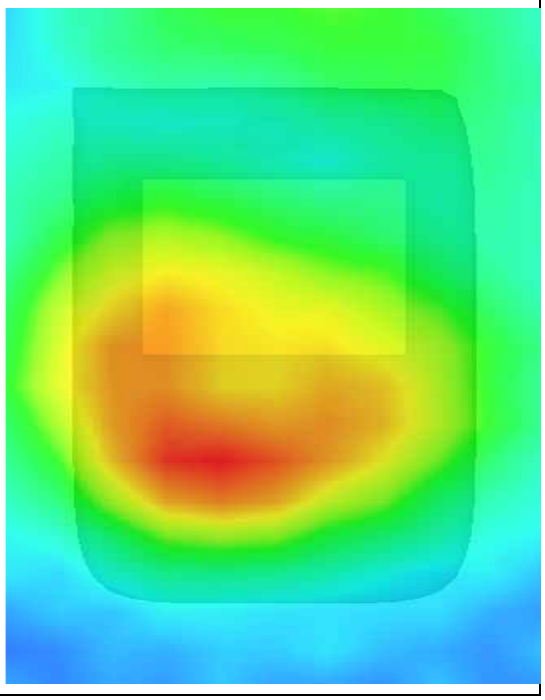
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-9.00, Y=-24.00
SAR Peak: 0.67 W/kg

SAR 10g (W/Kg)	0.200574
SAR 1g (W/Kg)	0.391575

Z axis scan



3D screen shot	Hot spot position
	

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: 2013.9.3
Measurement duration: 9 minutes 9 seconds

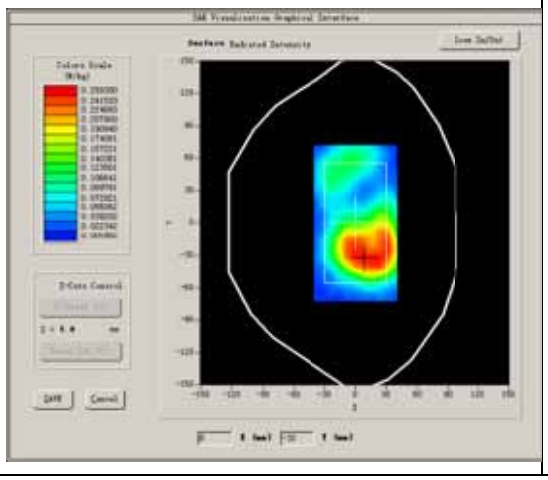
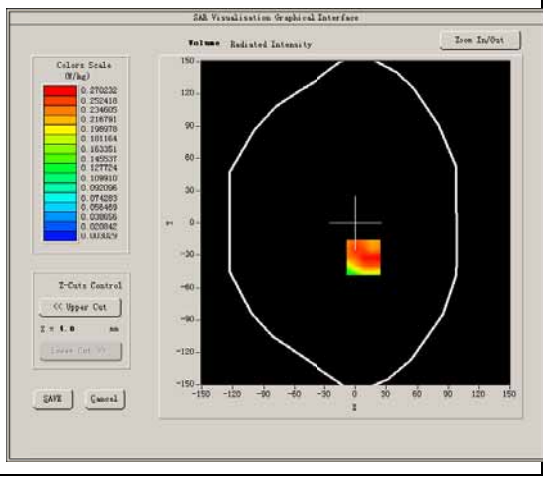
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	GSM

B. SAR Measurement Results

Lower Band SAR (Channel 512):

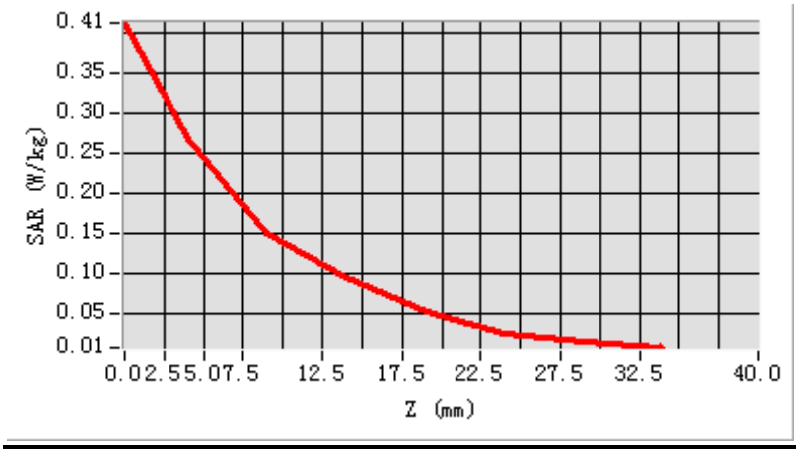
Frequency (MHz)	1850.200000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift(%)	0.110000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:8

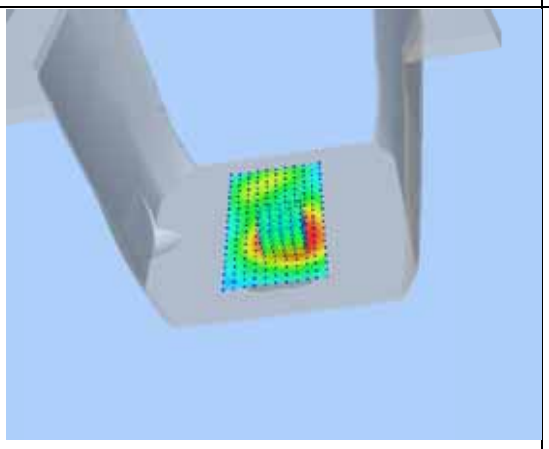
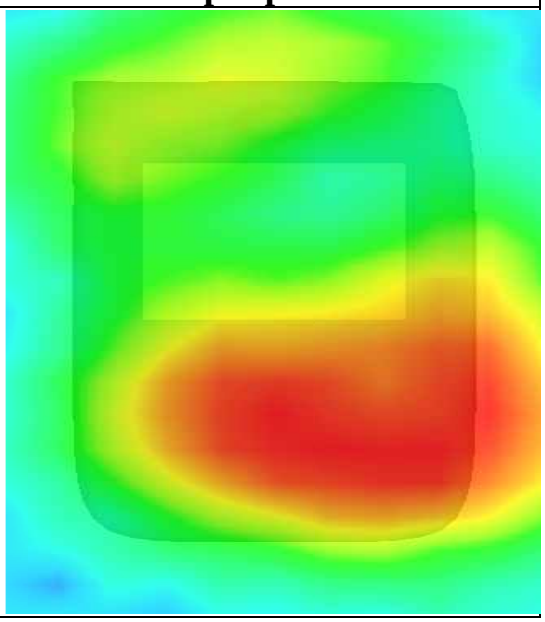
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=-32.00
SAR Peak: 0.50 W/kg

SAR 10g (W/Kg)	0.165191
SAR 1g (W/Kg)	0.288083

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: 2013.9.3
Measurement duration: 9 minutes 8 seconds

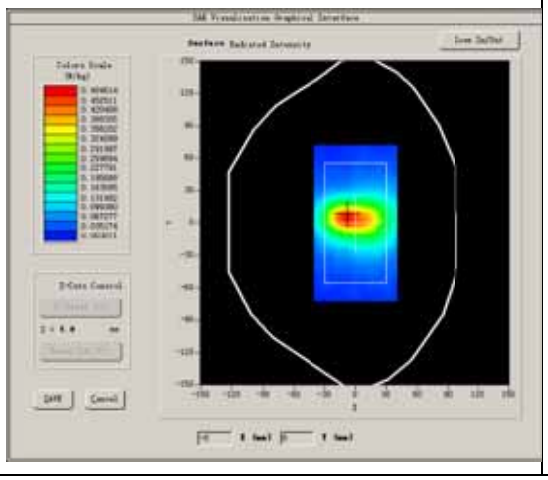
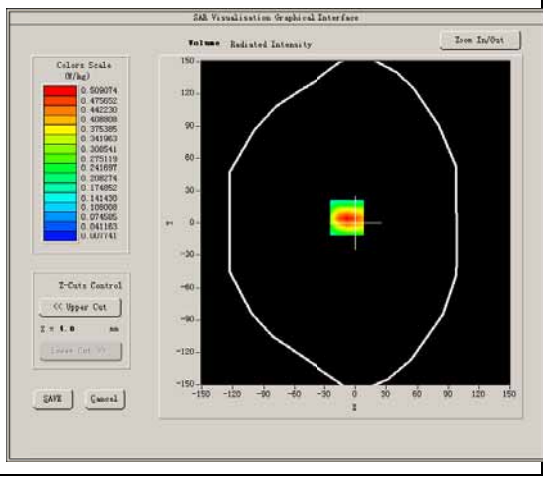
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

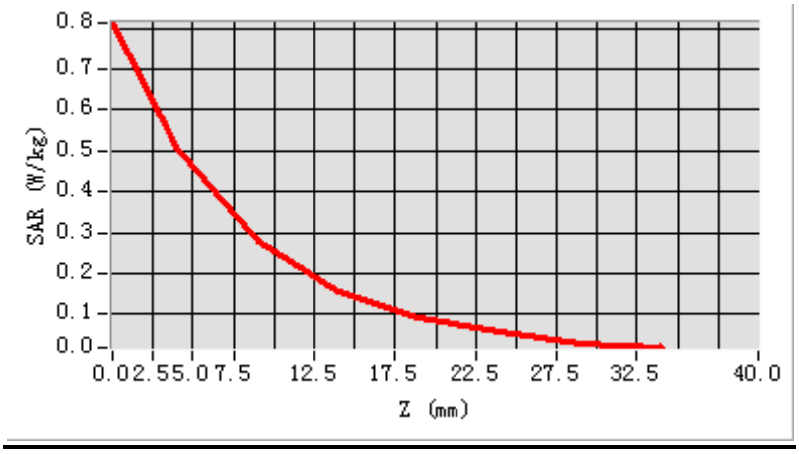
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift(%)	-0.710000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

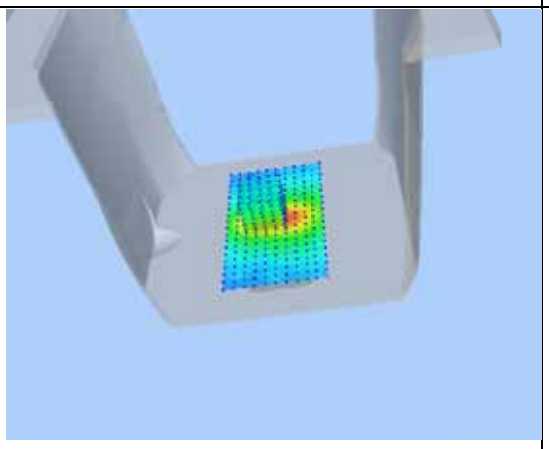
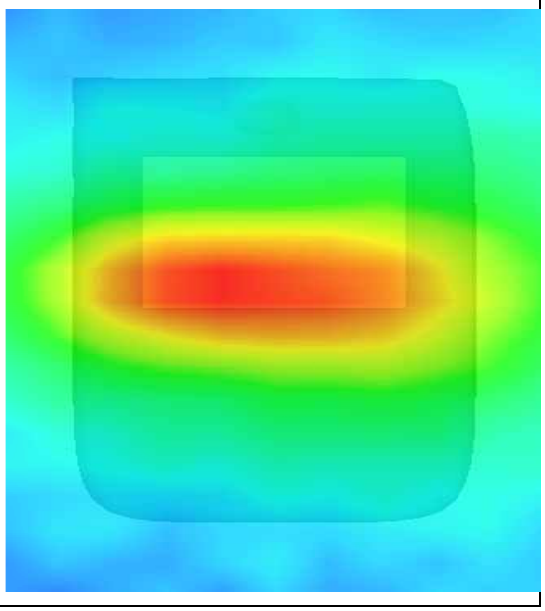
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-8.00, Y=5.00
SAR Peak: 0.82 W/kg

SAR 10g (W/Kg)	0.257290
SAR 1g (W/Kg)	0.494897

Z axis scan



3D screen shot	Hot spot position
	

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: 2013.9.3
Measurement duration: 9 minutes 8 seconds

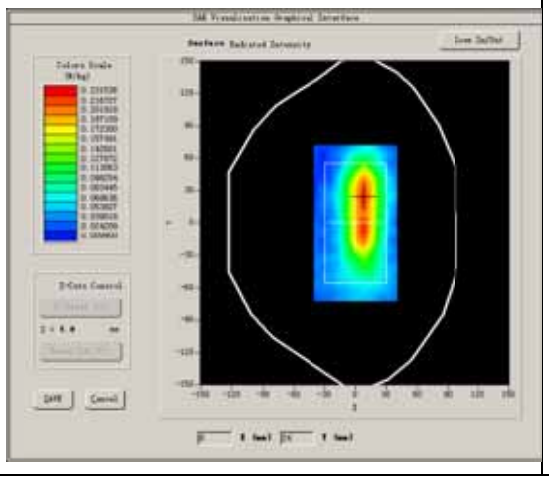
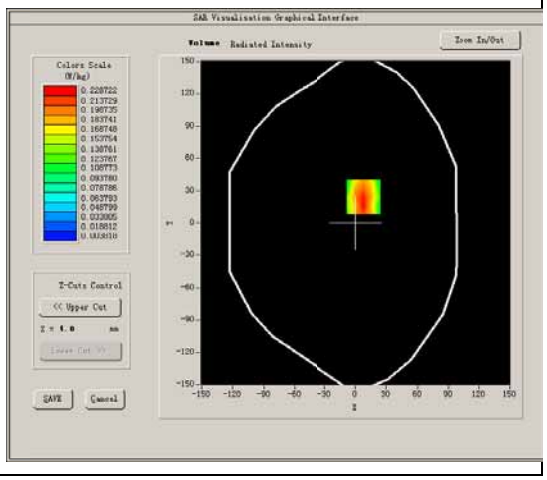
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

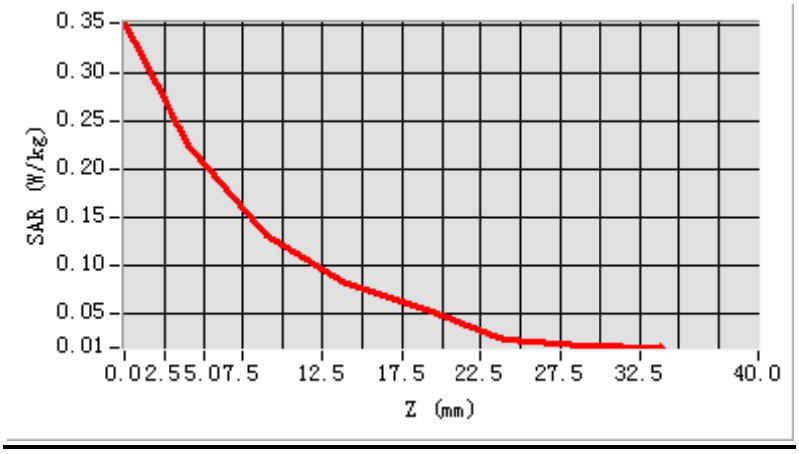
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift(%)	-0.860000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

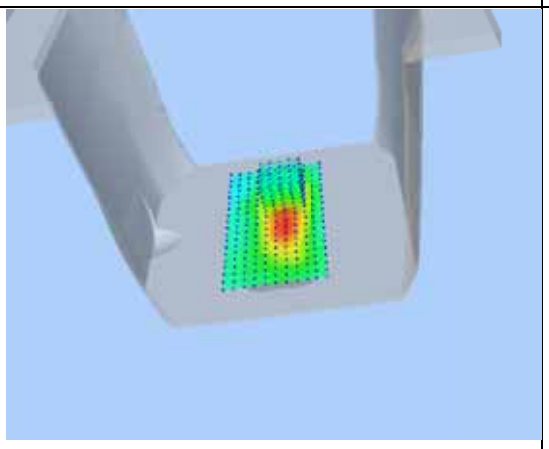
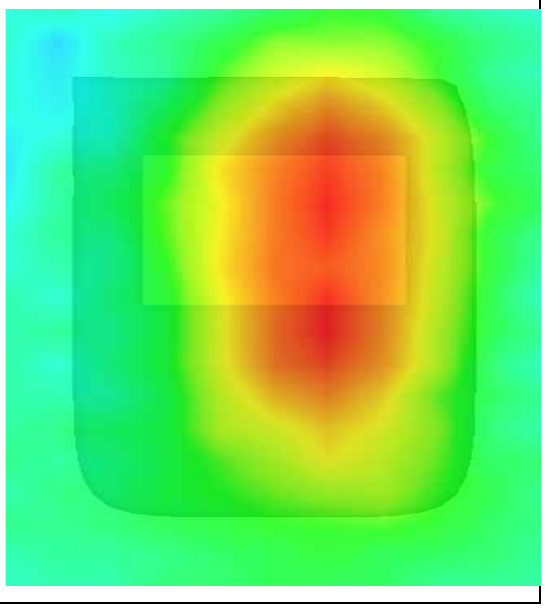
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=24.00
SAR Peak: 0.38 W/kg

SAR 10g (W/Kg)	0.125556
SAR 1g (W/Kg)	0.225438

Z axis scan



3D screen shot	Hot spot position
	

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: 2013.9.3
Measurement duration: 9 minutes 8 seconds

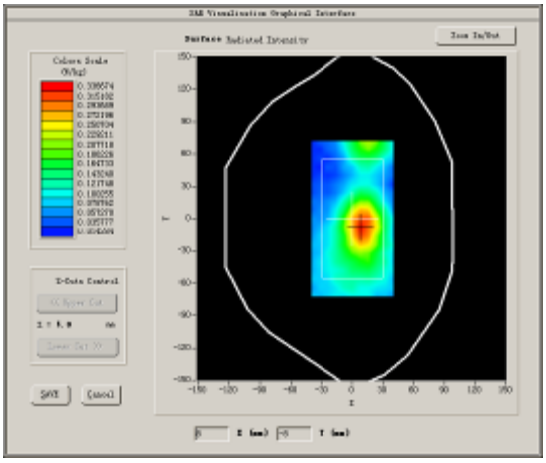
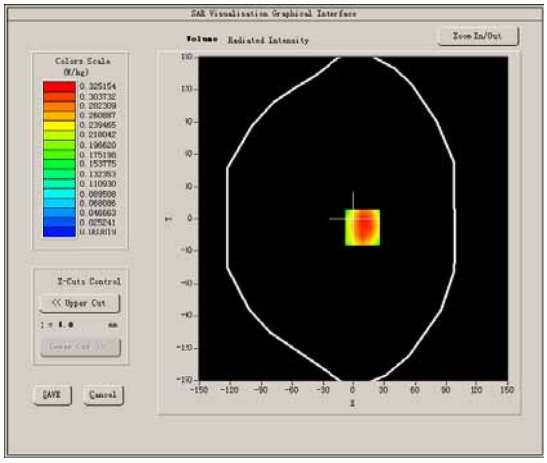
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

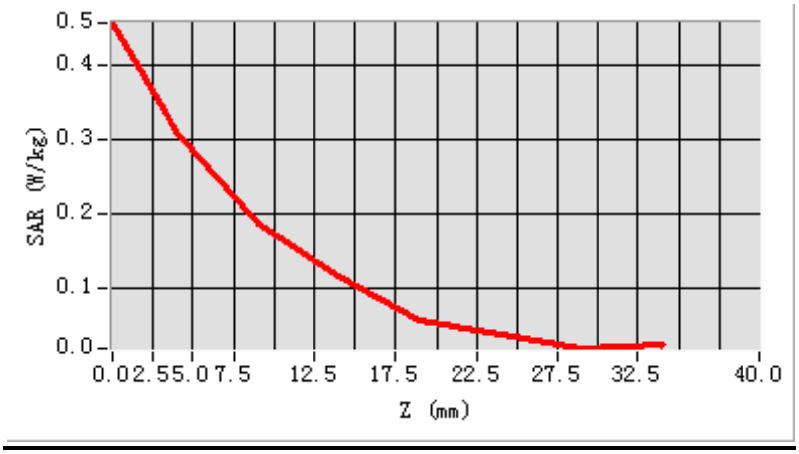
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift(%)	0.130000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

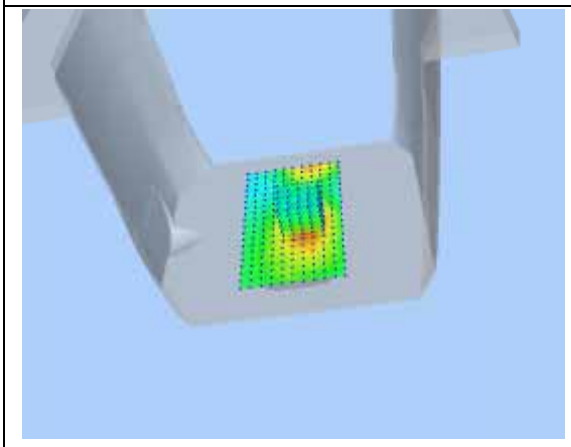
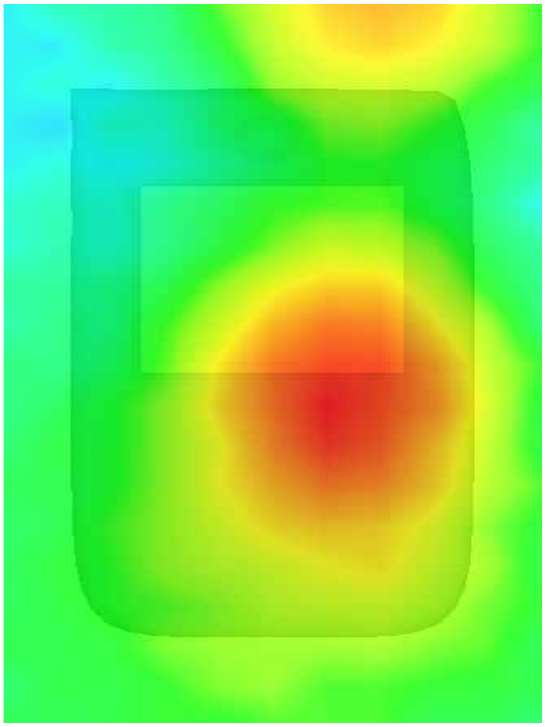
SURFACE SAR	VOLUME SAR
	

Maximum location: X=9.00, Y=-8.00
SAR Peak: 0.53 W/kg

SAR 10g (W/Kg)	0.180931
SAR 1g (W/Kg)	0.337107

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: 2013.9.3
Measurement duration: 9 minutes 9 seconds

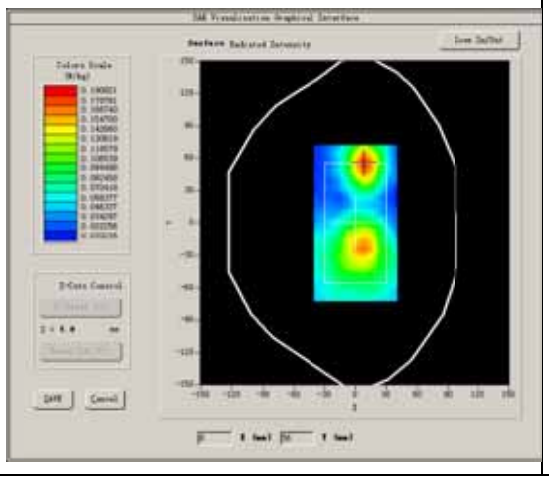
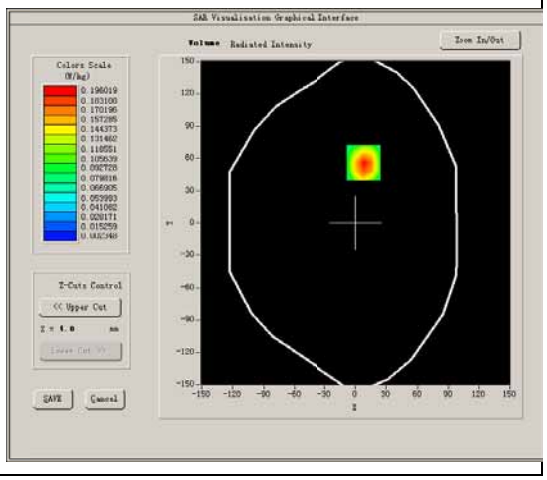
A. Experimental conditions.

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

B. SAR Measurement Result

Middle Band SAR (Channel 661):

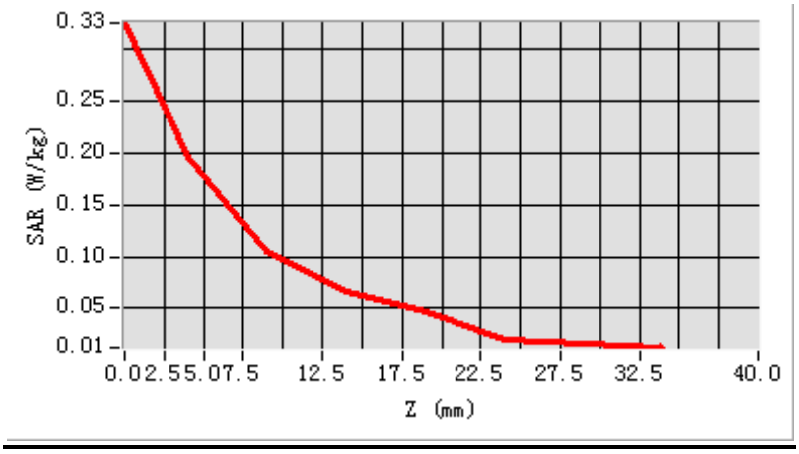
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift(%)	0.320000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

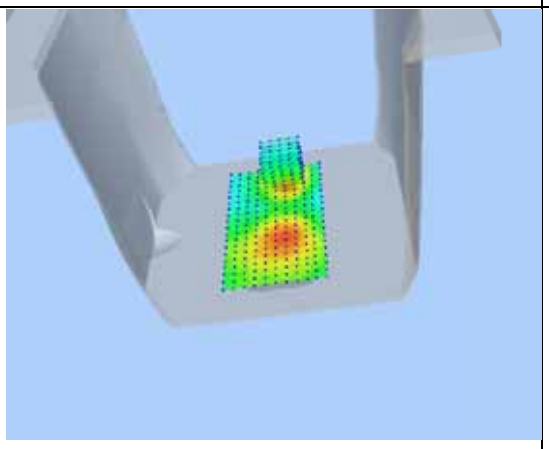
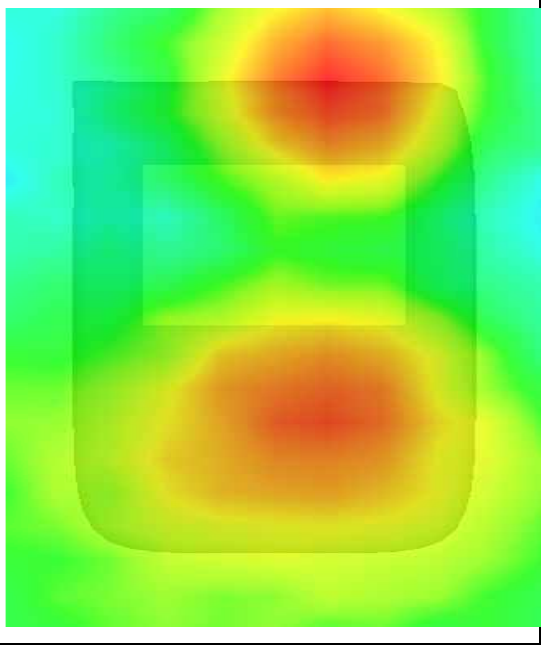
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=56.00
SAR Peak: 0.33 W/kg

SAR 10g (W/Kg)	0.102820
SAR 1g (W/Kg)	0.196631

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 25

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 9 minutes 9 seconds

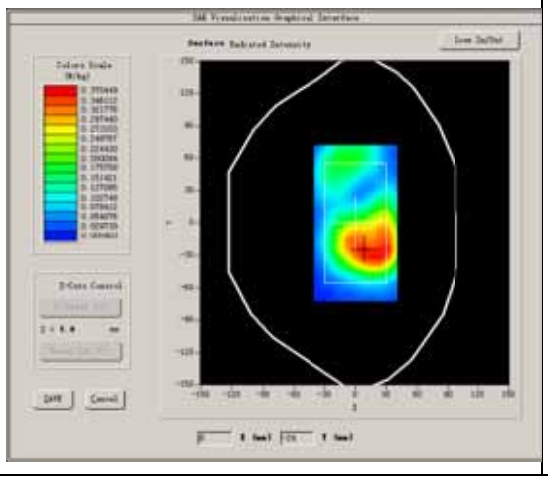
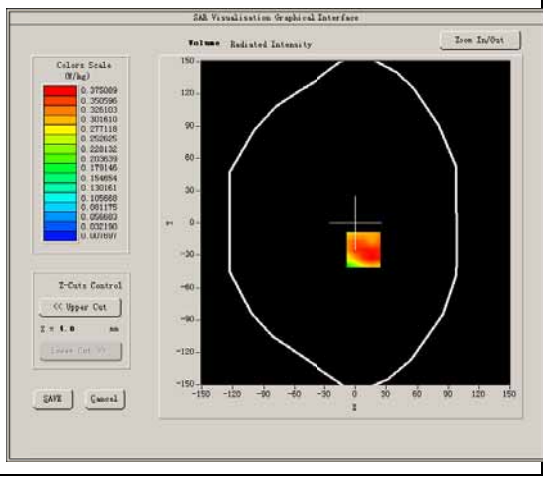
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

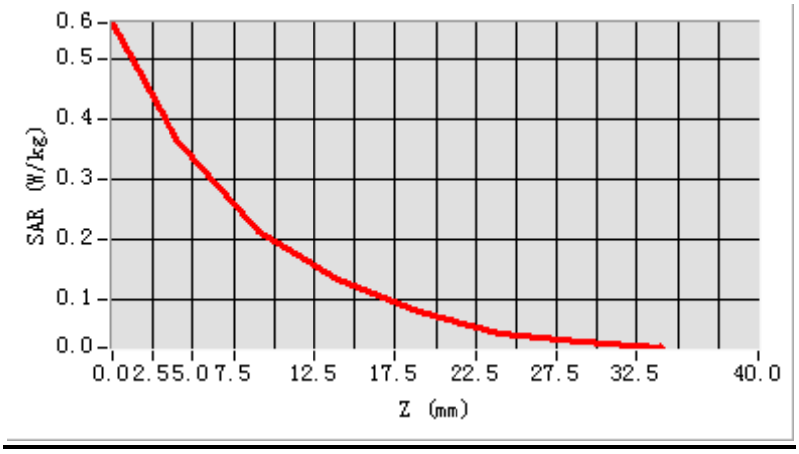
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift(%)	-0.800000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

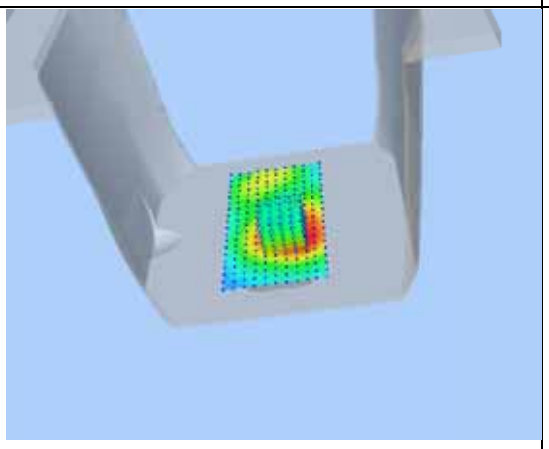
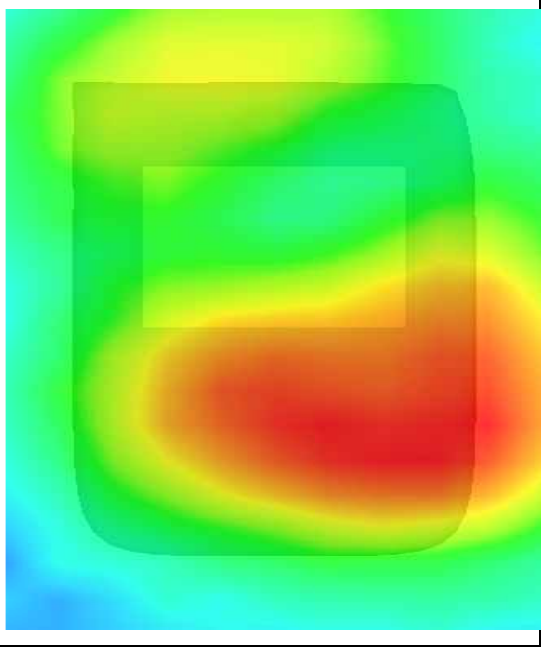
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=-25.00
SAR Peak: 0.59 W/kg

SAR 10g (W/Kg)	0.214217
SAR 1g (W/Kg)	0.377685

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 26

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 9 minutes 9 seconds

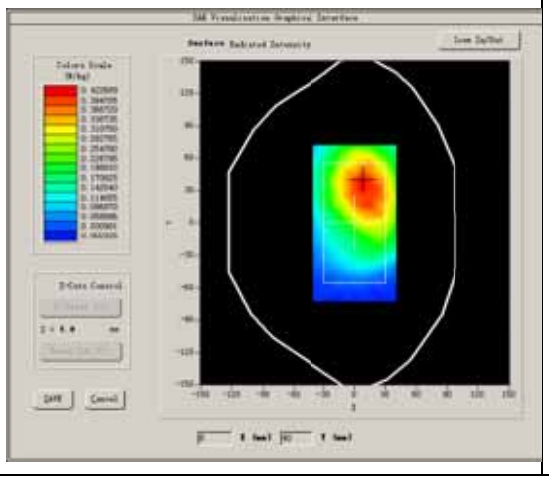
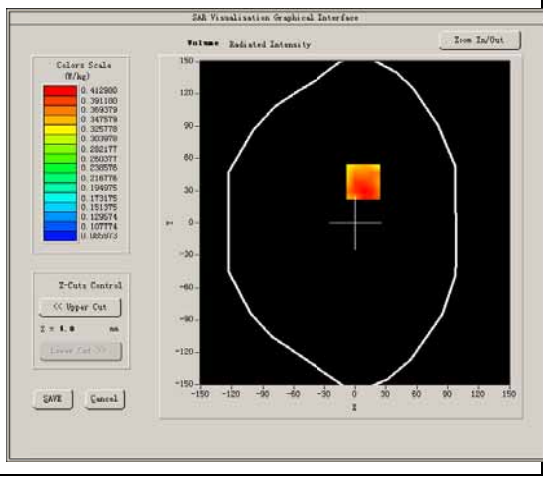
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

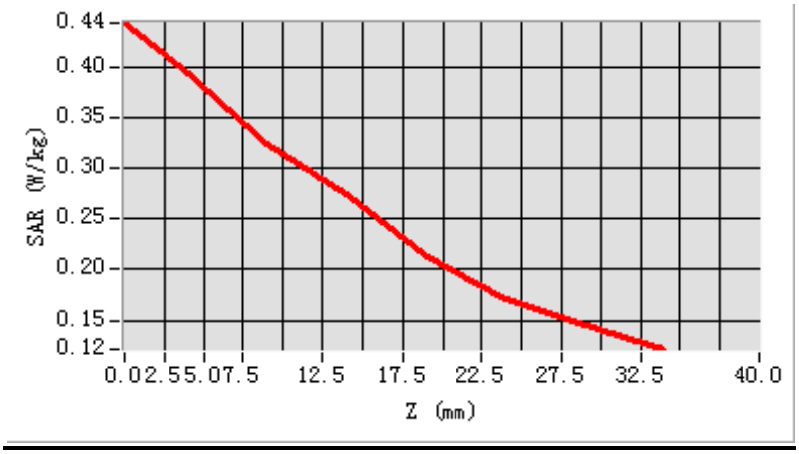
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift(%)	-0.950000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

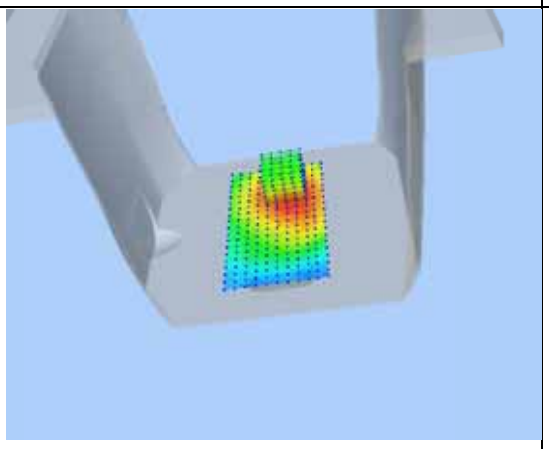
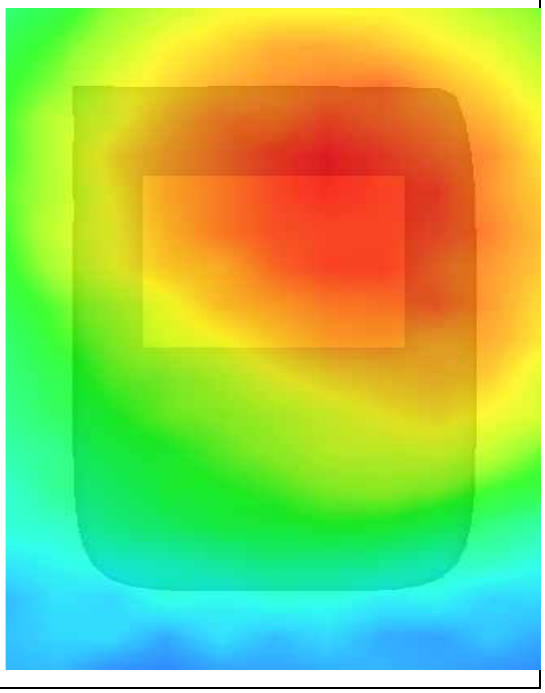
SURFACE SAR	VOLUME SAR
	

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

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 27

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 7 minutes 59 seconds

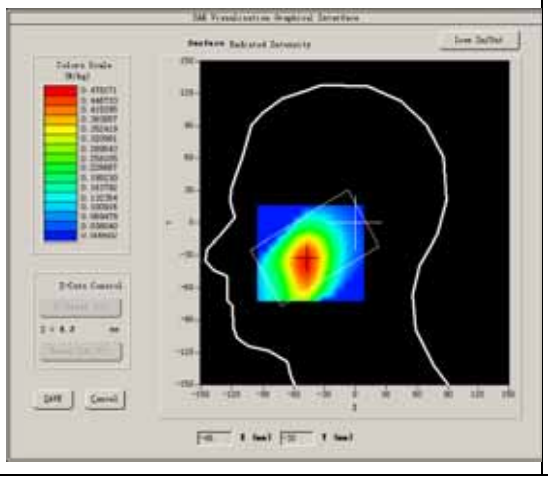
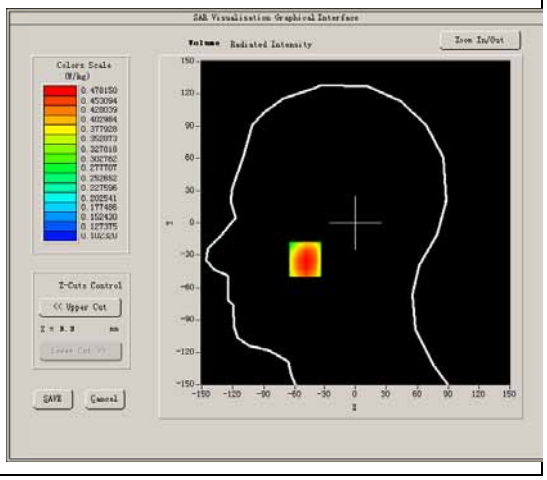
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	WCDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

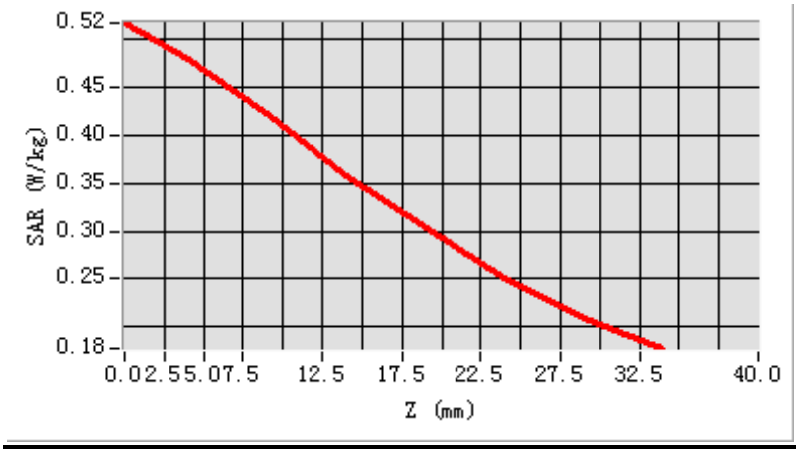
Frequency (MHz)	835.000000
Relative permittivity (real part)	42.522765
Conductivity (S/m)	0.918504
Power drift (%)	-0.320000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.479, 25.214, 27.196
Crest factor:	1:1

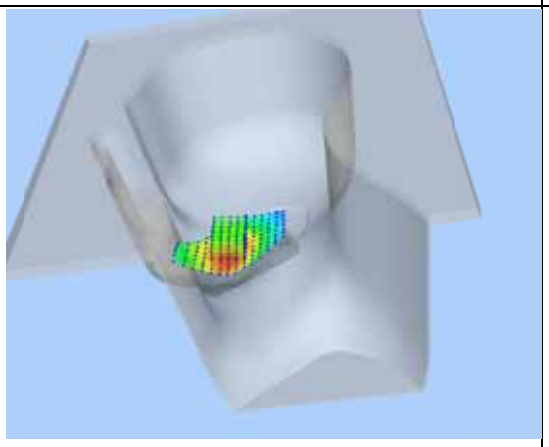
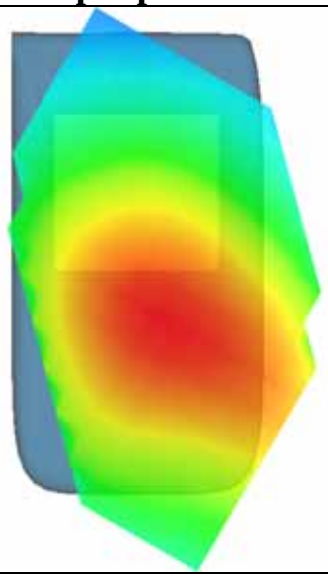
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-49.00, Y=-34.00
SAR Peak: 0.53 W/kg

SAR 10g (W/Kg)	0.370255
SAR 1g (W/Kg)	0.464071

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 28

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 7 minutes 41 seconds

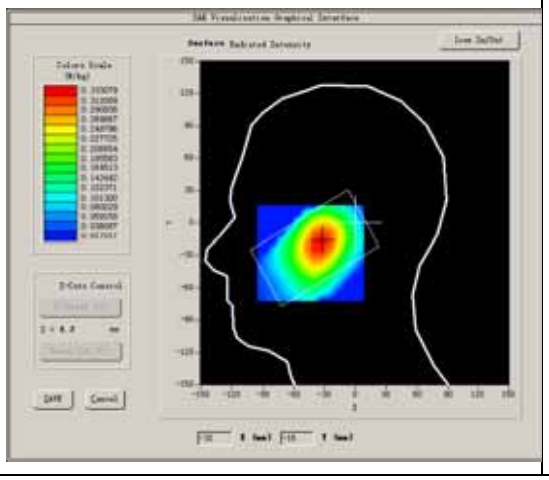
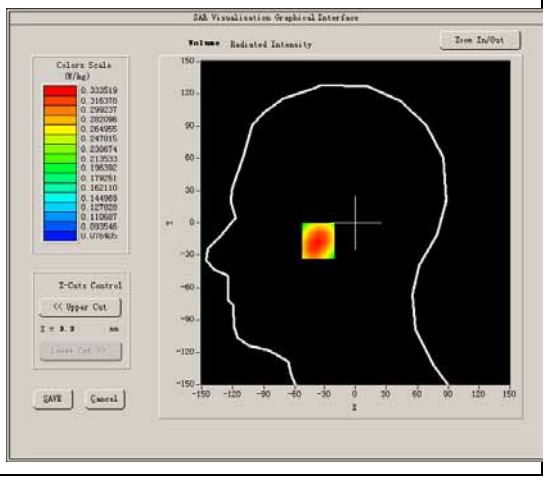
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	WCDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

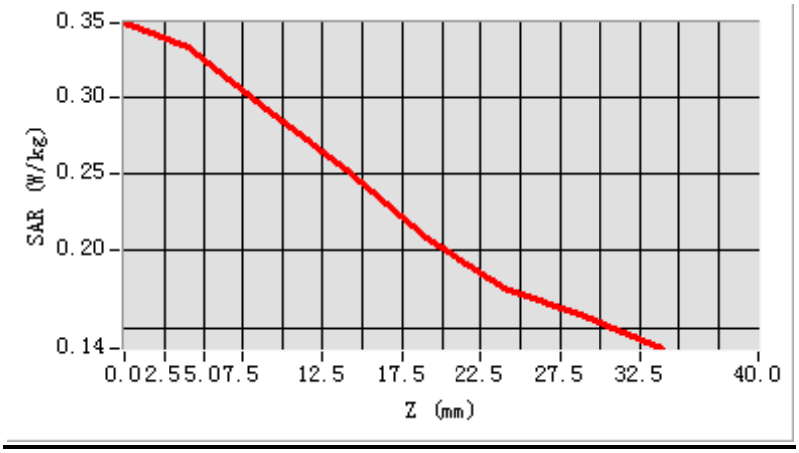
Frequency (MHz)	835.000000
Relative permittivity (real part)	42.522765
Conductivity (S/m)	0.918504
Power drift (%)	-0.320000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.479, 25.214, 27.196
Crest factor:	1:1

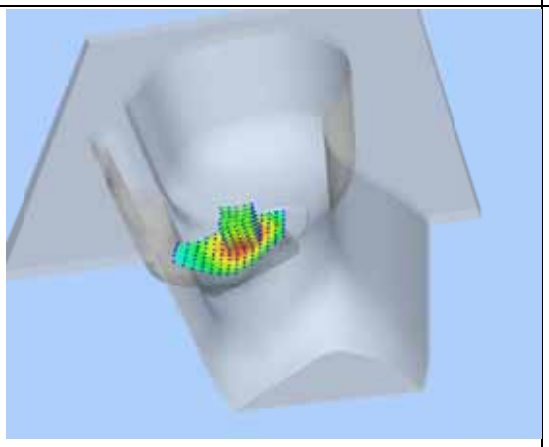
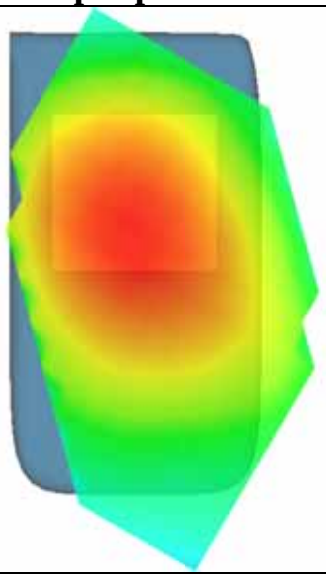
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-33.00, Y=-17.00
SAR Peak: 0.36 W/kg

SAR 10g (W/Kg)	0.259834
SAR 1g (W/Kg)	0.321303

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 29

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 7 minutes 53 seconds

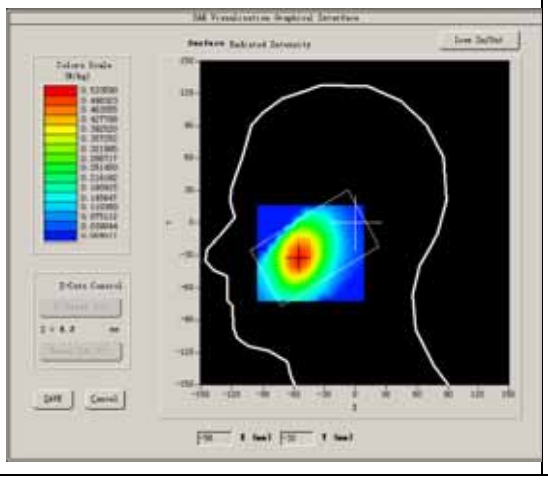
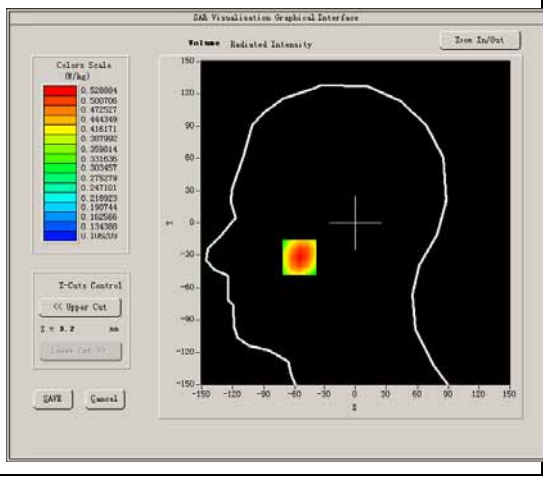
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	WCDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

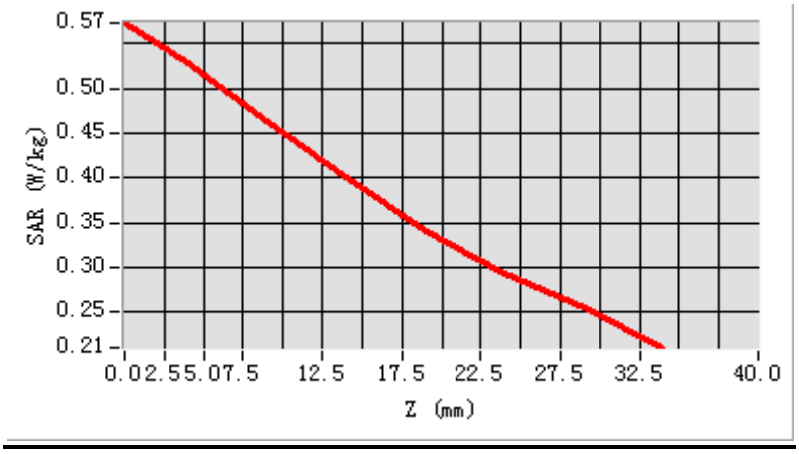
Frequency (MHz)	835.000000
Relative permittivity (real part)	42.522765
Conductivity (S/m)	0.918504
Power drift (%)	-0.080000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.479, 25.214, 27.196
Crest factor:	1:1

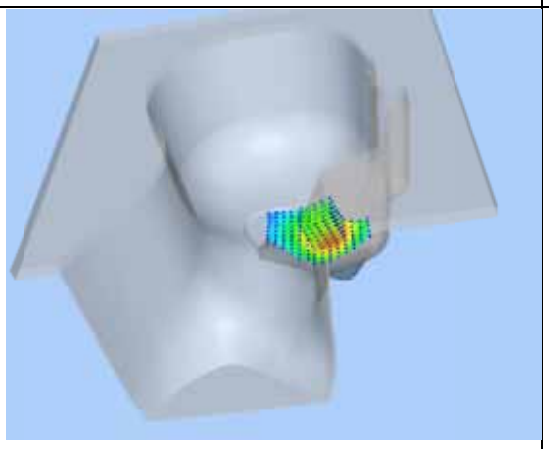
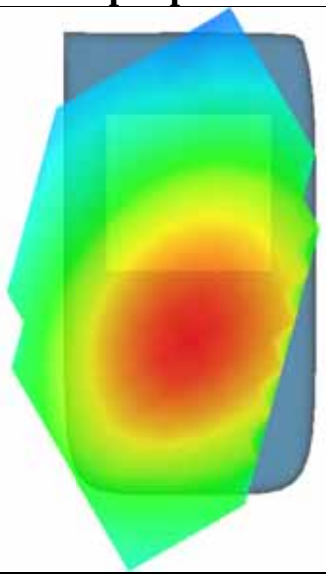
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-56.00, Y=-32.00
SAR Peak: 0.58 W/kg

SAR 10g (W/Kg)	0.409573
SAR 1g (W/Kg)	0.509557

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 30

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 7 minutes 40 seconds

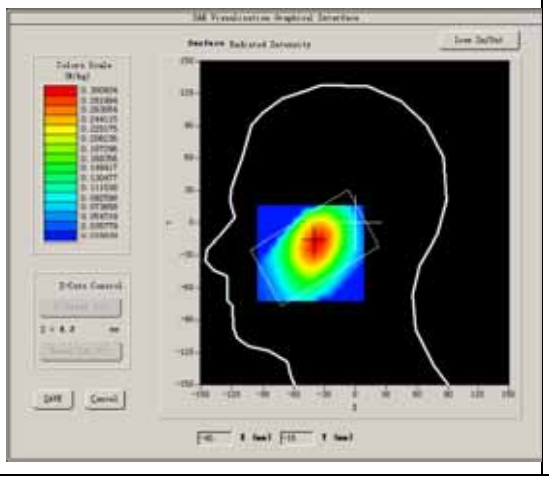
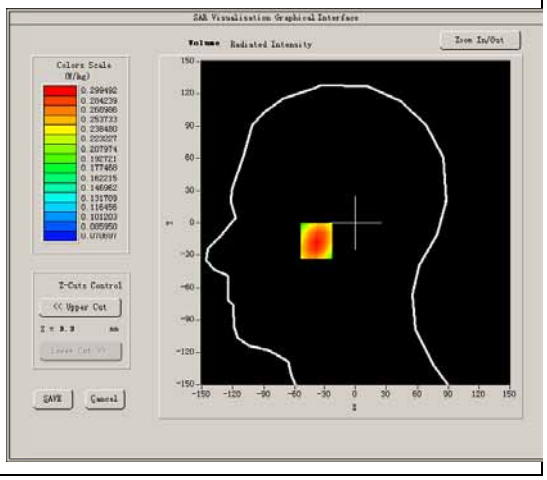
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	WCDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

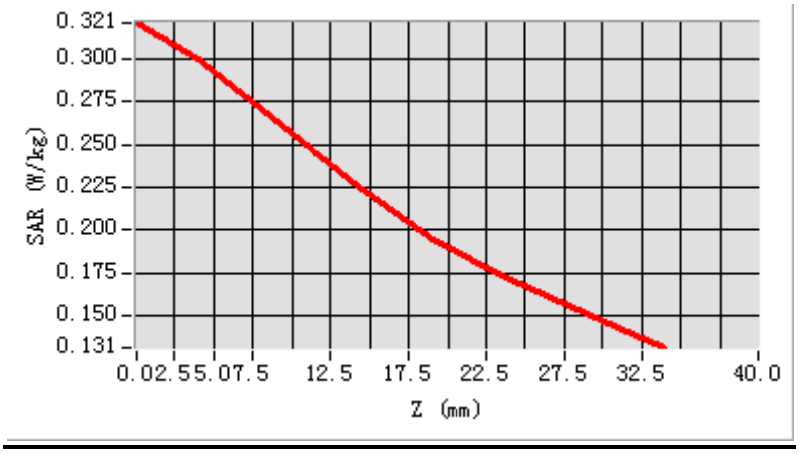
Frequency (MHz)	835.000000
Relative permittivity (real part)	42.522765
Conductivity (S/m)	0.918504
Power drift (%)	-0.410000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.479, 25.214, 27.196
Crest factor:	1:1

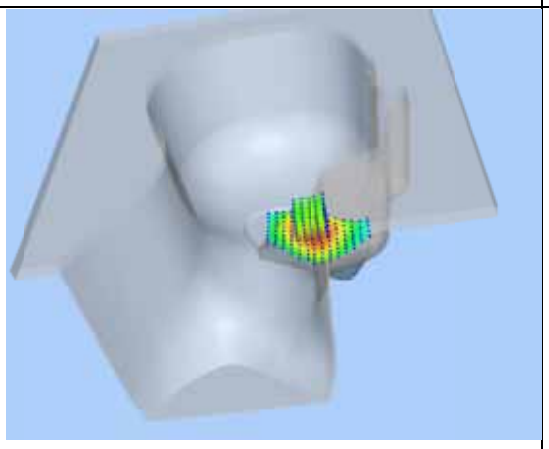
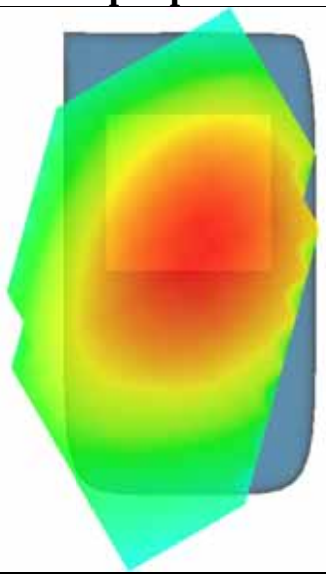
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-38.00, Y=-17.00
SAR Peak: 0.34 W/kg

SAR 10g (W/Kg)	0.236104
SAR 1g (W/Kg)	0.290603

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 31

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 15 seconds

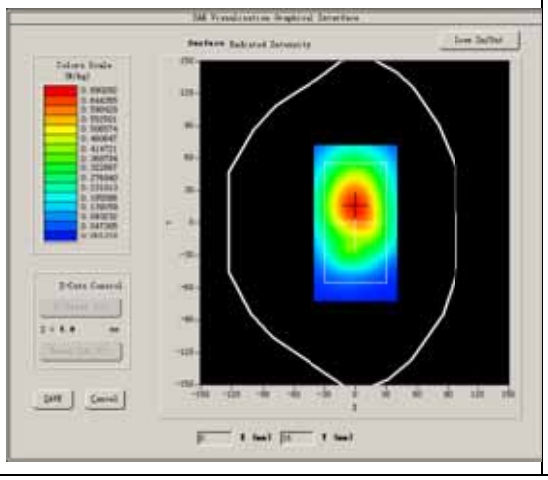
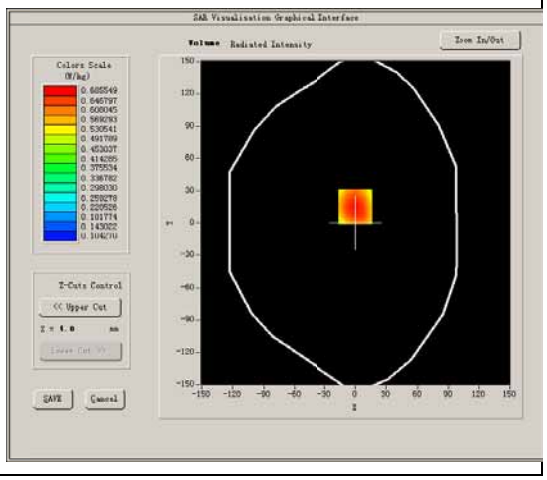
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

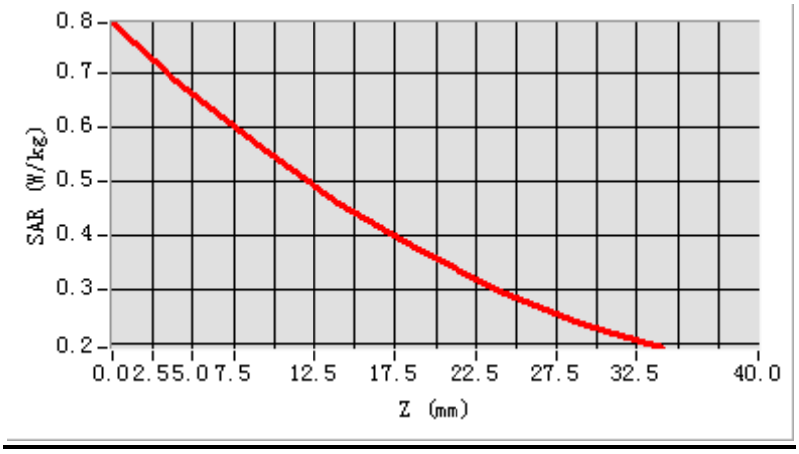
Frequency (MHz)	835.000000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift (%)	-0.130000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559, 25.681, 27.588
Crest factor:	1:1

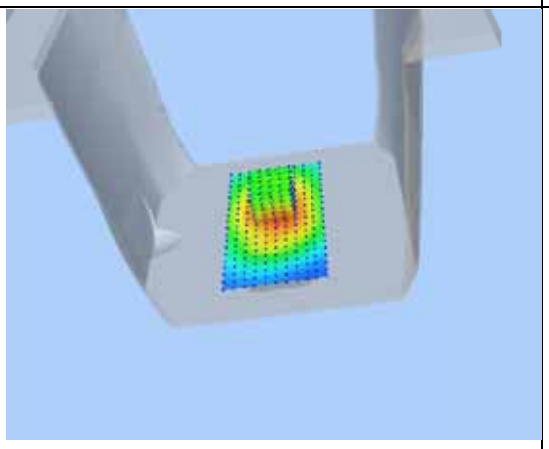
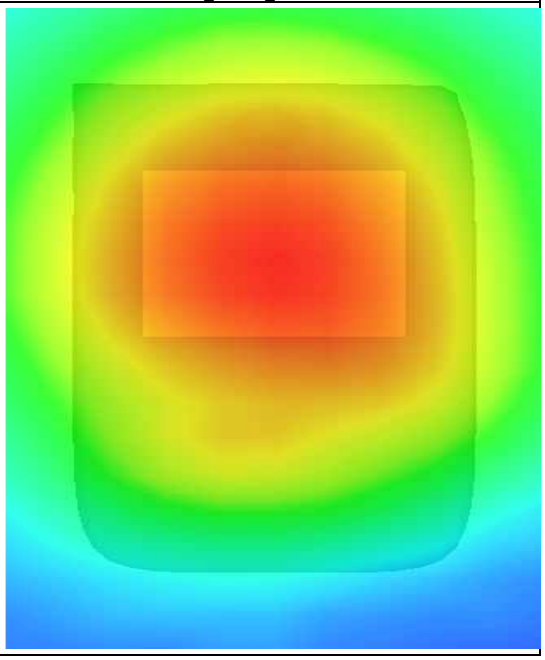
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=15.00
SAR Peak: 0.87 W/kg

SAR 10g (W/Kg)	0.563871
SAR 1g (W/Kg)	0.718702

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=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 16 seconds

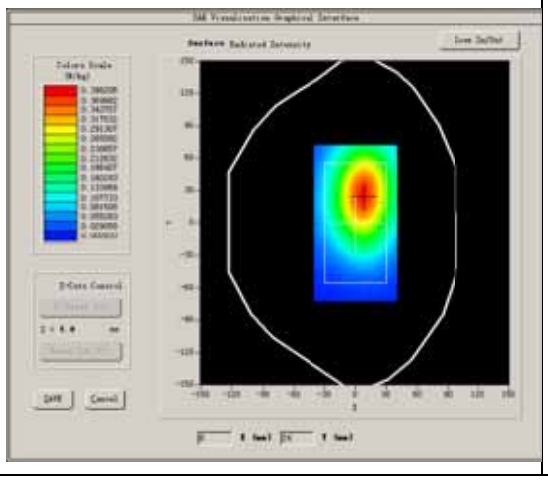
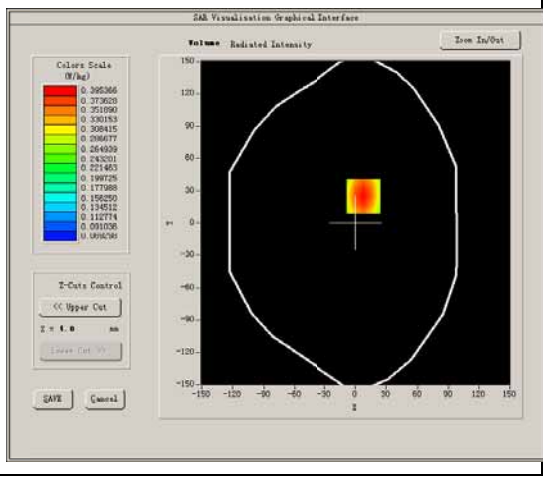
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

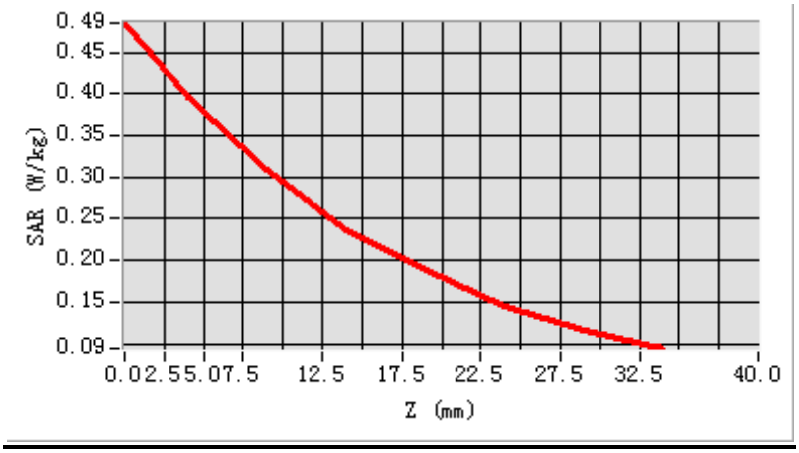
Frequency (MHz)	835.000000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift (%)	0.060000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559, 25.681, 27.588
Crest factor:	1:1

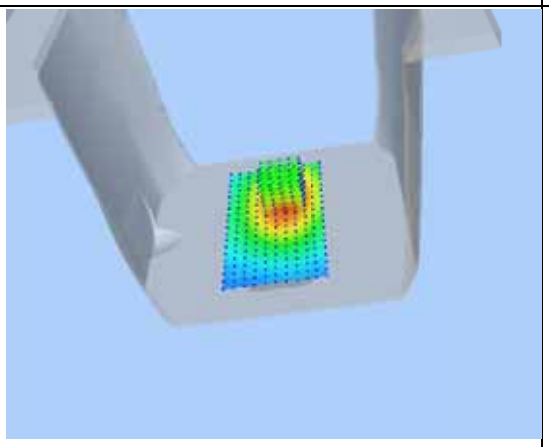
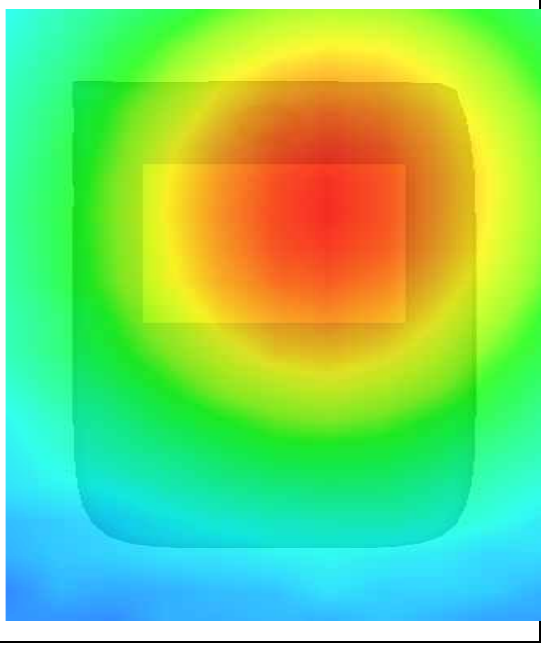
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=25.00
SAR Peak: 0.53 W/kg

SAR 10g (W/Kg)	0.301802
SAR 1g (W/Kg)	0.410872

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 33

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 16 seconds

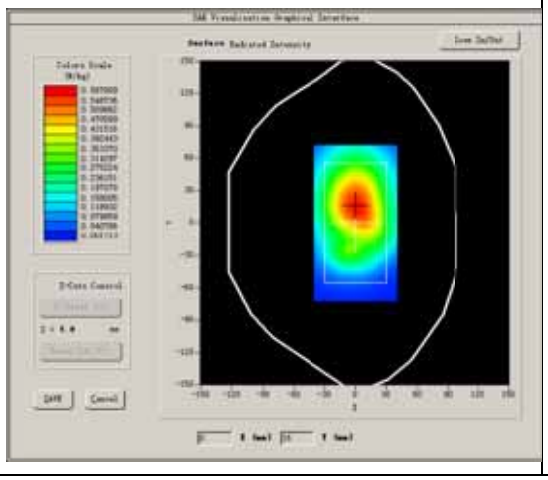
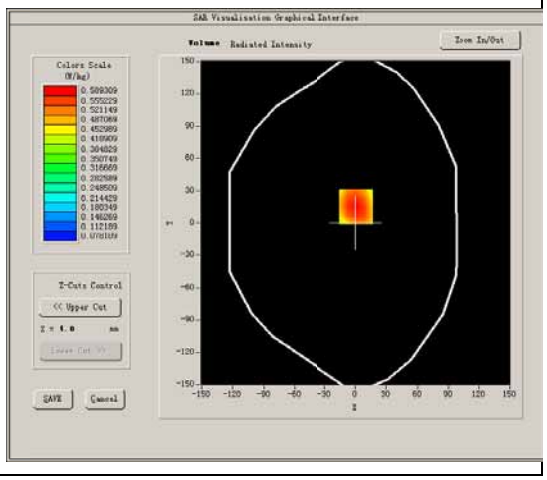
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

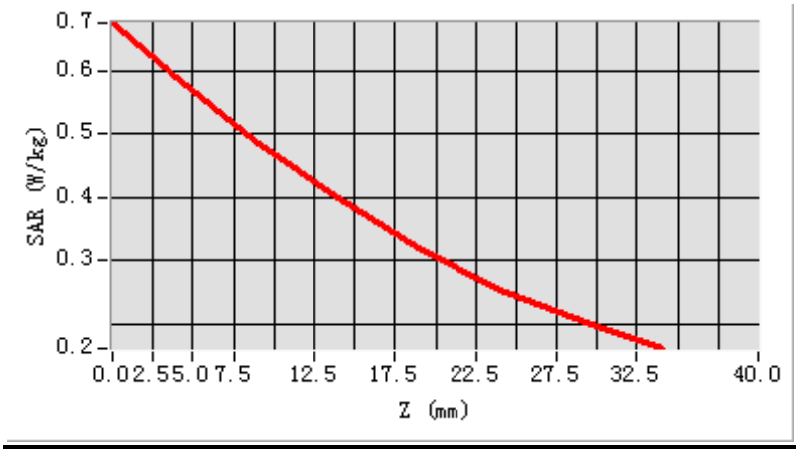
Frequency (MHz)	835.000000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift (%)	0.070000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559, 25.681, 27.588
Crest factor:	1:1

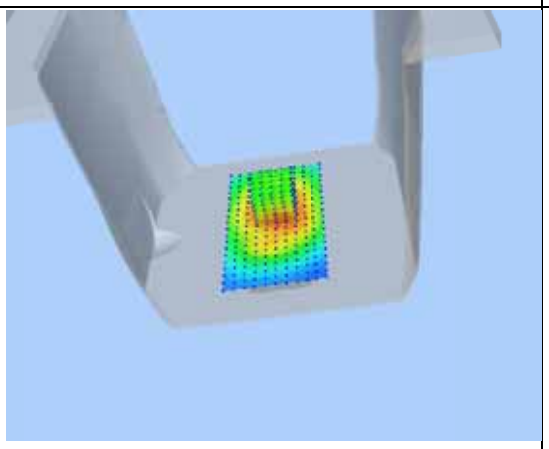
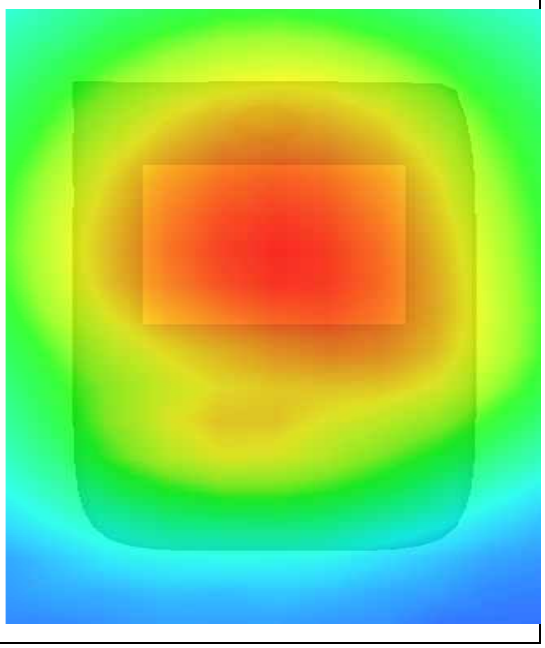
SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=15.00
SAR Peak: 0.76 W/kg

SAR 10g (W/Kg)	0.477208
SAR 1g (W/Kg)	0.618000

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 34

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 16 seconds

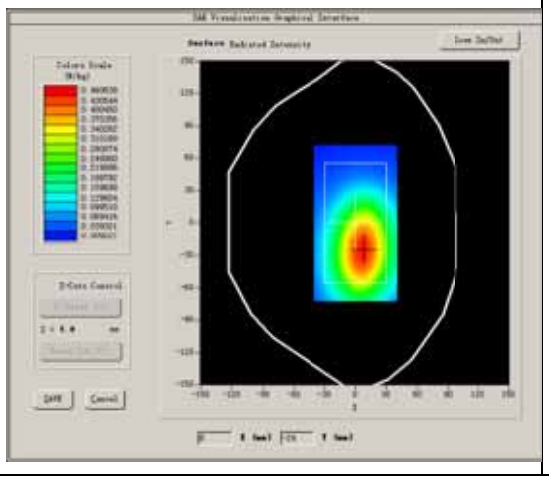
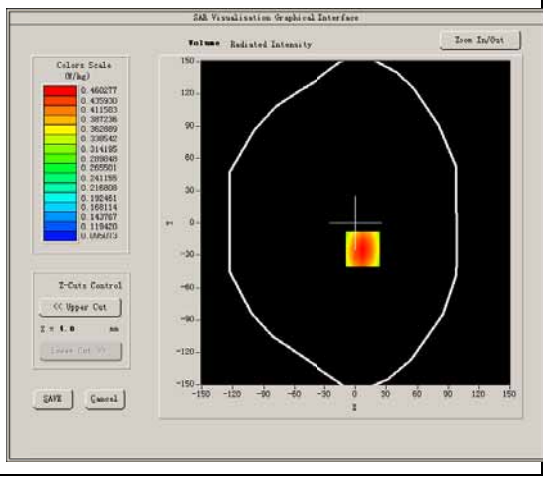
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

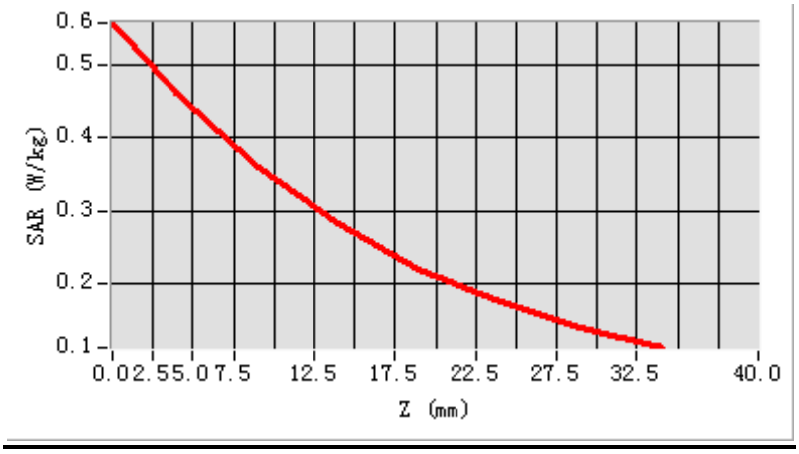
Frequency (MHz)	835.000000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift (%)	-1.230000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559, 25.681, 27.588
Crest factor:	1:1

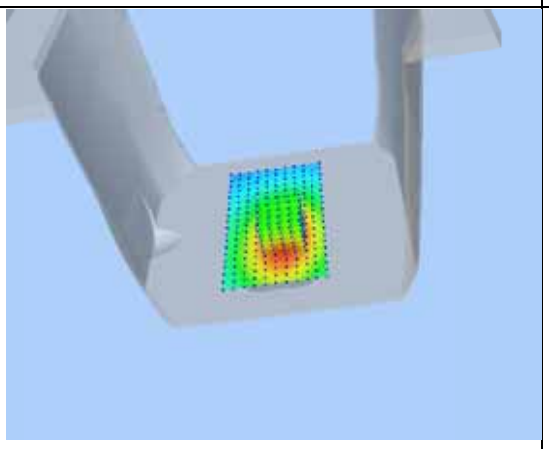
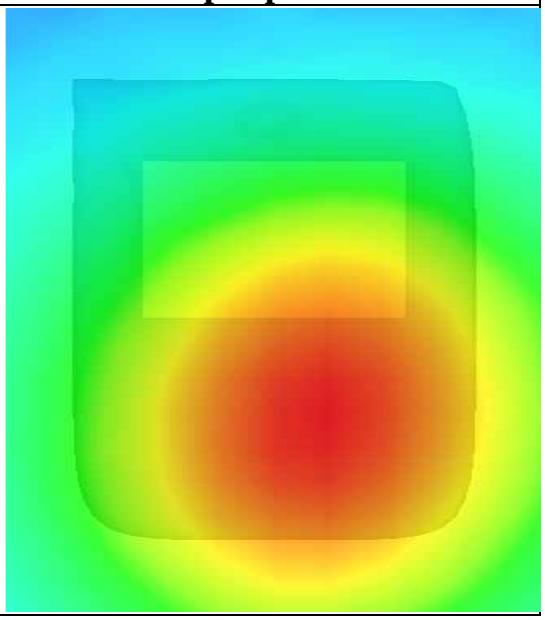
SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=-24.00
SAR Peak: 0.60 W/kg

SAR 10g (W/Kg)	0.356400
SAR 1g (W/Kg)	0.479427

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 35

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.2
Measurement duration: 9 minutes 16 seconds

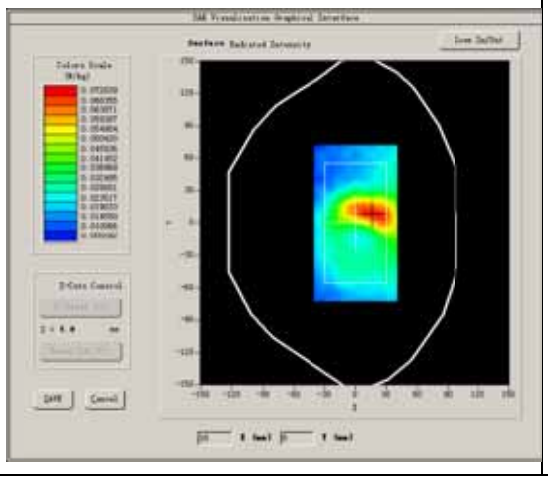
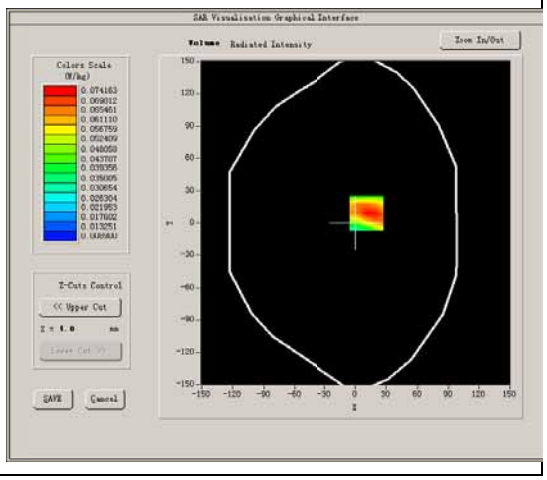
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

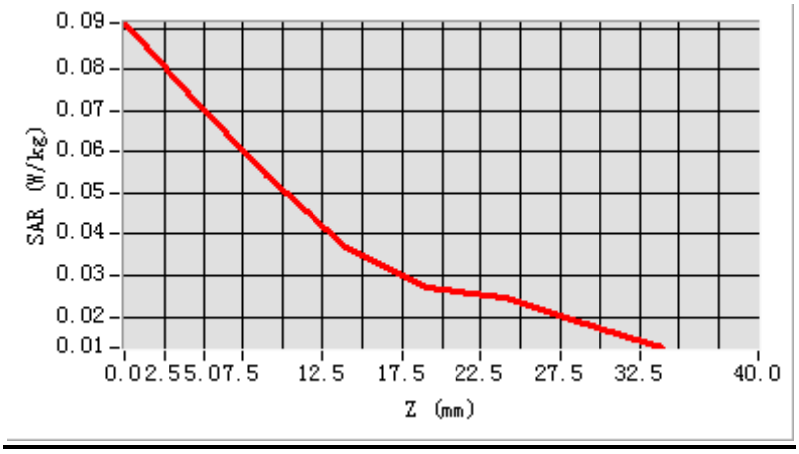
Frequency (MHz)	835.000000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift (%)	0.160000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559, 25.681, 27.588
Crest factor:	1:1

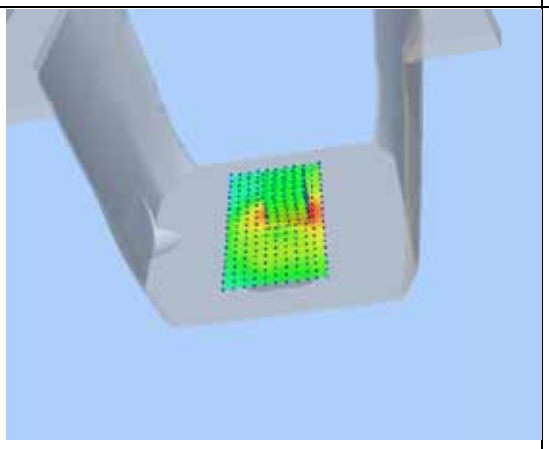
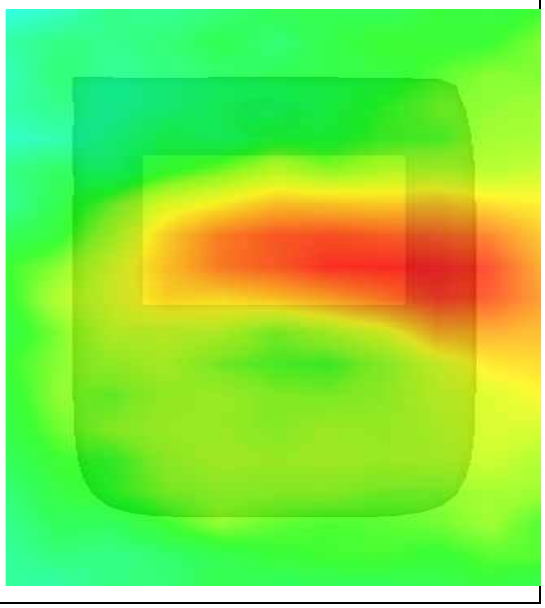
SURFACE SAR	VOLUME SAR
	

Maximum location: X=11.00, Y=9.00
SAR Peak: 0.10 W/kg

SAR 10g (W/Kg)	0.051022
SAR 1g (W/Kg)	0.075712

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 36

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 8 minutes 9 seconds

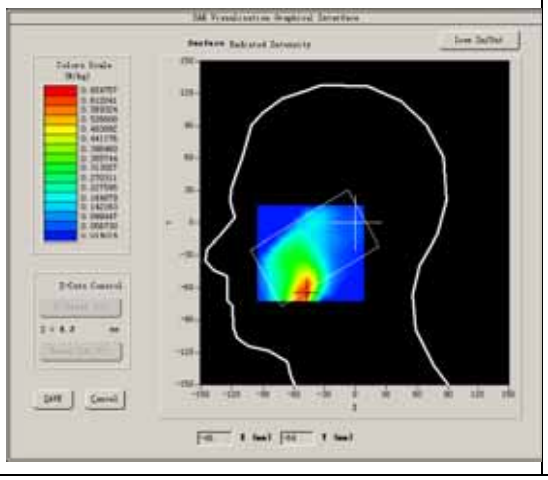
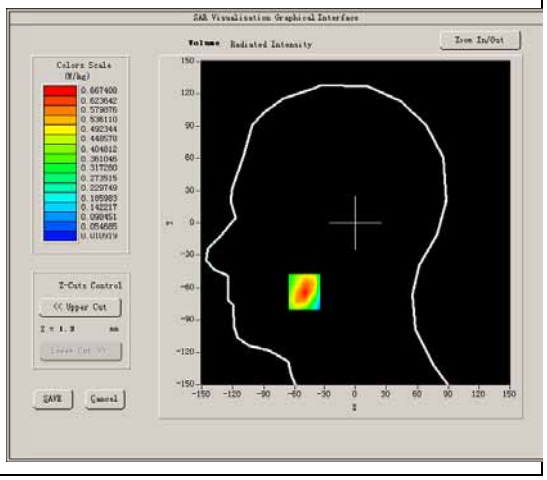
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	WCDMA1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

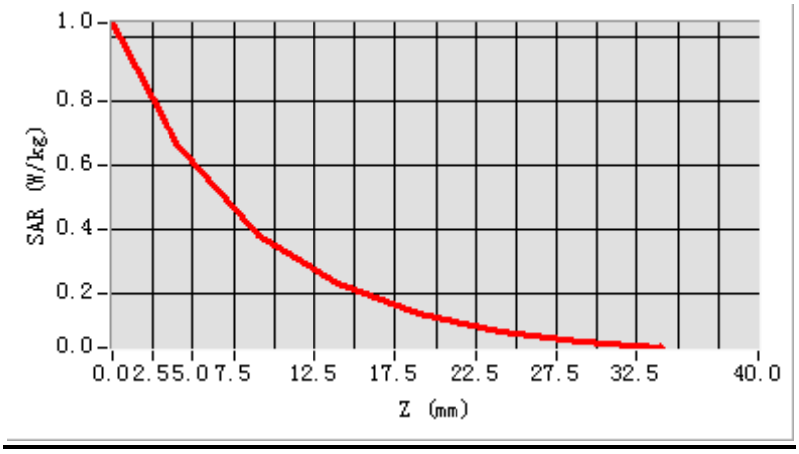
Frequency (MHz)	1880.000000
Relative permittivity (real part)	41.267921
Conductivity (S/m)	1.406817
Power drift (%)	0.350000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

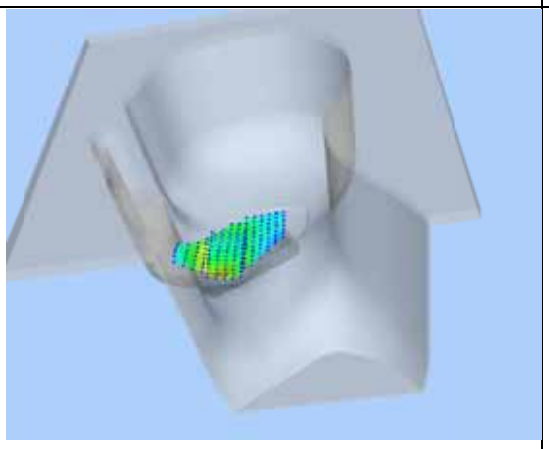
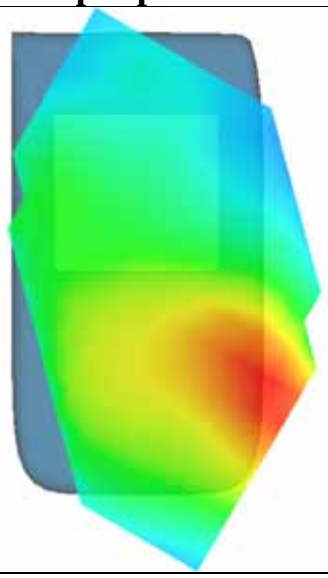
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-50.00, Y=-64.00
SAR Peak: 1.03 W/kg

SAR 10g (W/Kg)	0.340829
SAR 1g (W/Kg)	0.629263

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 37

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 7 minutes 28 seconds

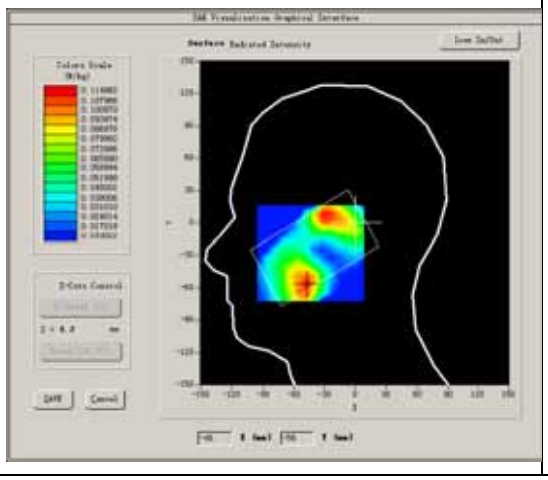
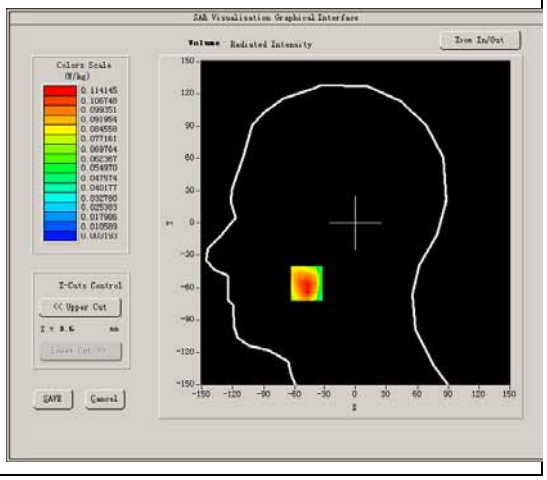
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	WCDMA1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

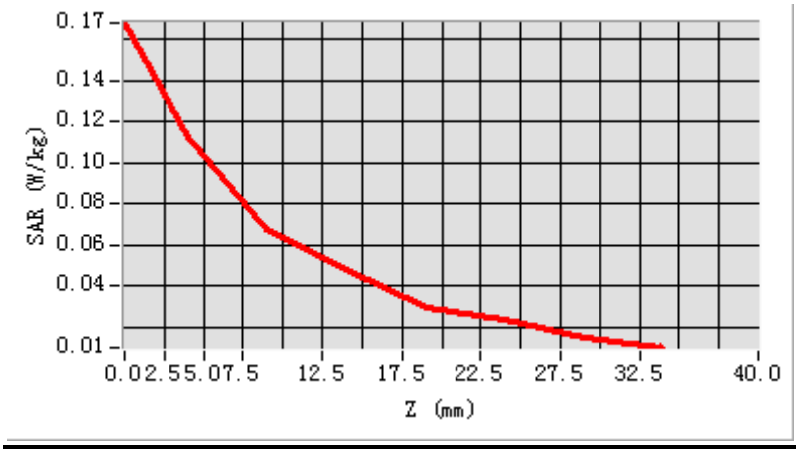
Frequency (MHz)	1880.000000
Relative permittivity (real part)	41.267921
Conductivity (S/m)	1.406817
Power drift (%)	0.850000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

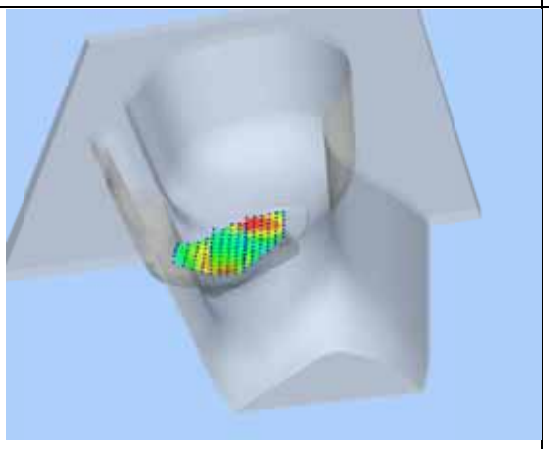
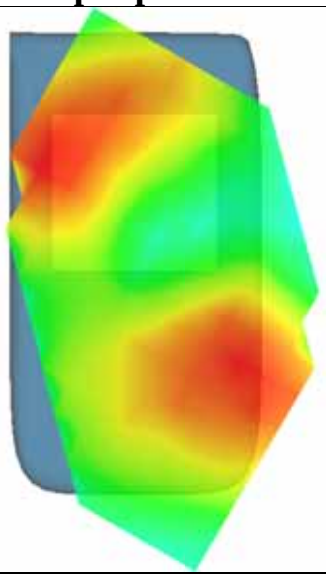
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-48.00, Y=-56.00
SAR Peak: 0.17 W/kg

SAR 10g (W/Kg)	0.065104
SAR 1g (W/Kg)	0.110673

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 38

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 8 minutes 7 seconds

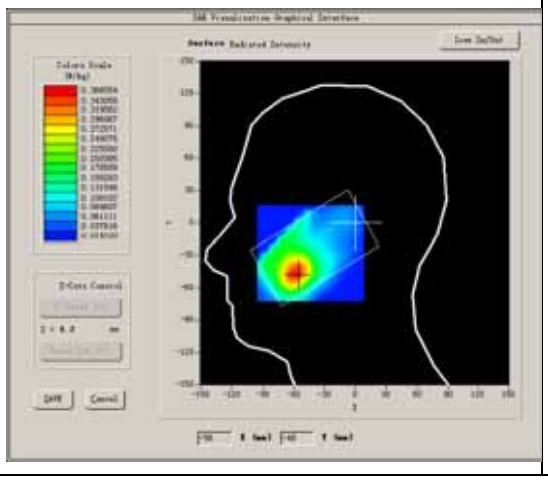
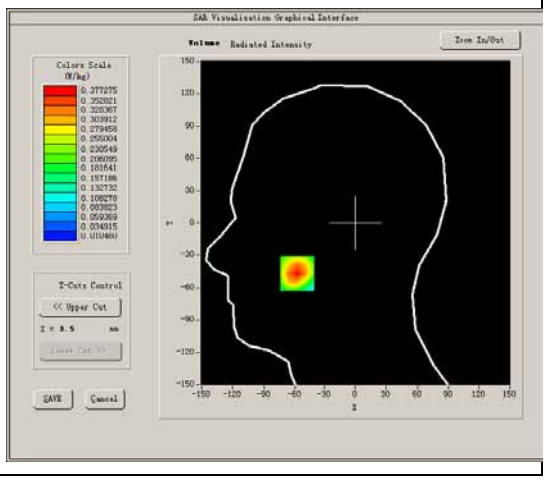
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	WCDMA1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

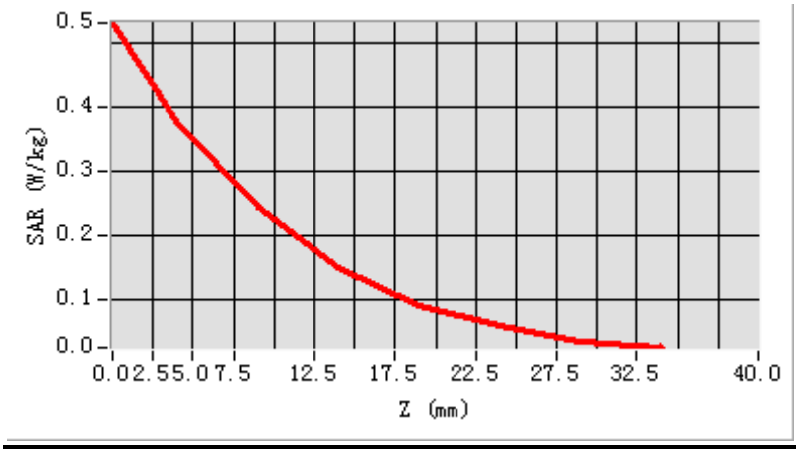
Frequency (MHz)	1880.000000
Relative permittivity (real part)	41.267921
Conductivity (S/m)	1.406817
Power drift (%)	-0.040000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

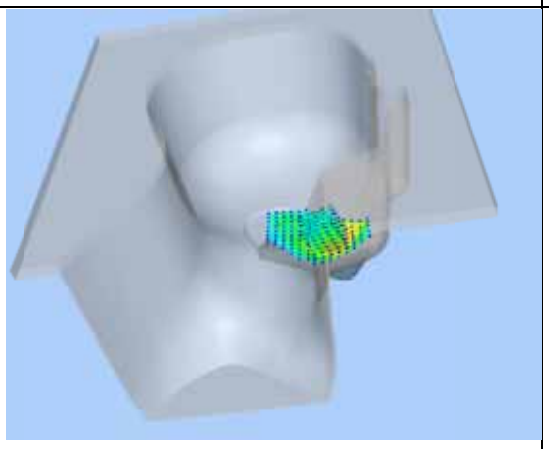
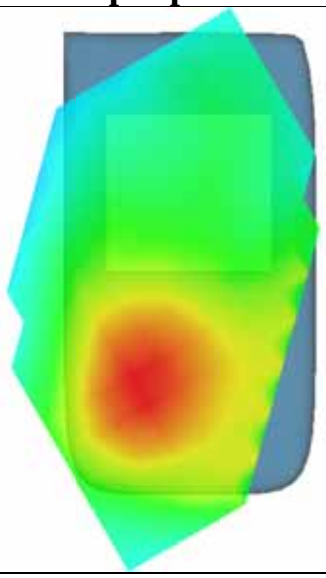
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-58.00, Y=-47.00
SAR Peak: 0.53 W/kg

SAR 10g (W/Kg)	0.205387
SAR 1g (W/Kg)	0.355986

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 39

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 7 minutes 30 seconds

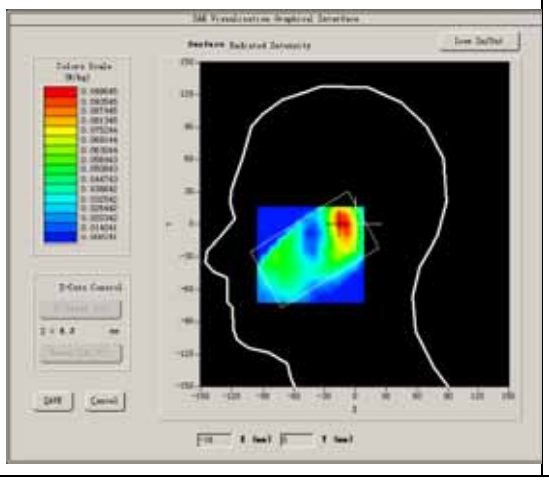
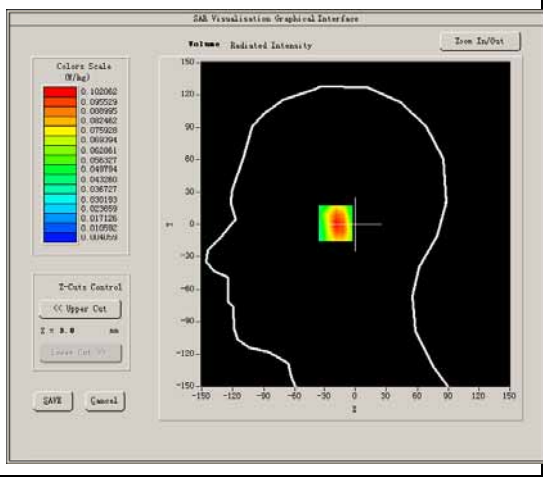
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	WCDMA1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

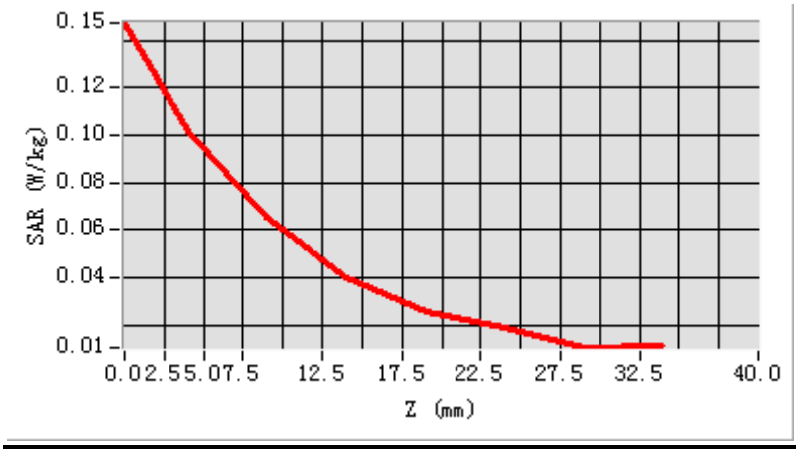
Frequency (MHz)	1880.000000
Relative permittivity (real part)	41.267921
Conductivity (S/m)	1.406817
Power drift (%)	-0.040000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

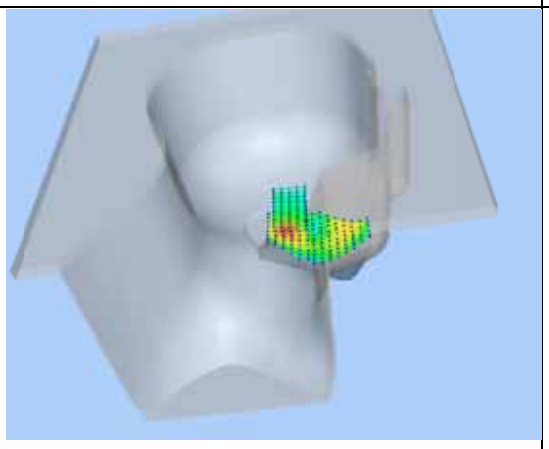
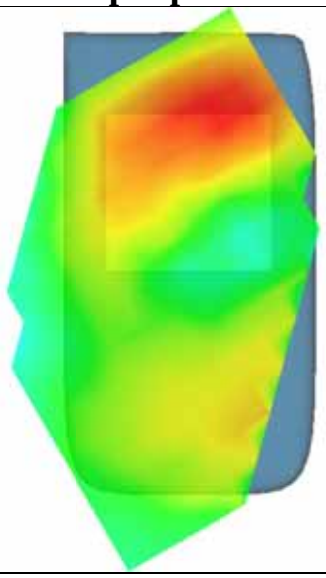
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-14.00, Y=1.00
SAR Peak: 0.15 W/kg

SAR 10g (W/Kg)	0.055869
SAR 1g (W/Kg)	0.097525

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 40

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 9 minutes 14 seconds

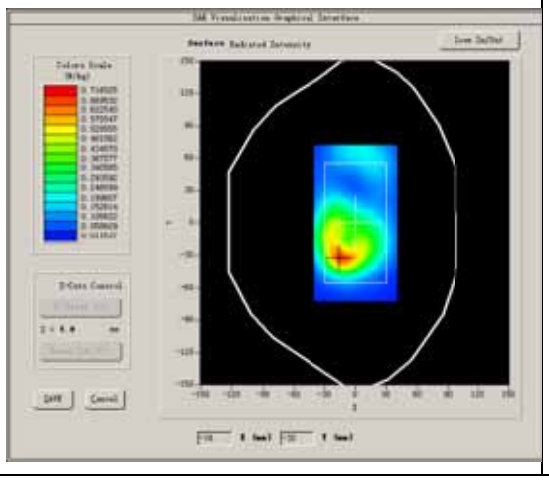
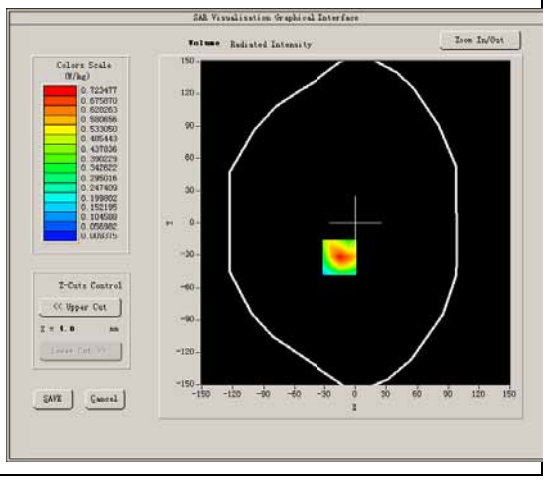
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

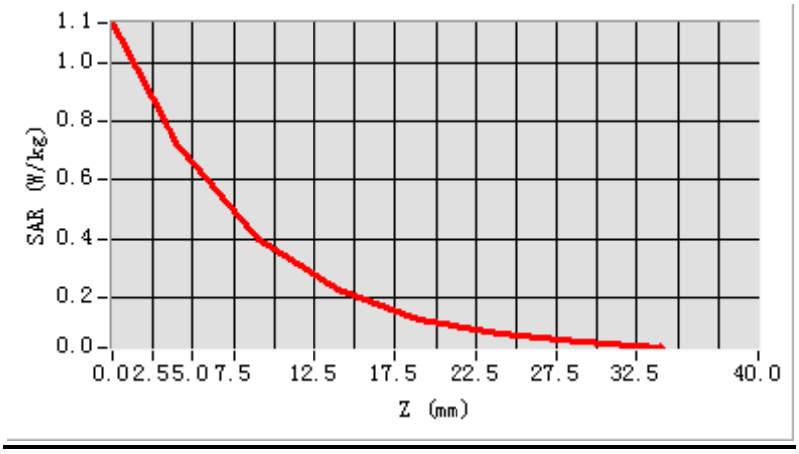
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift (%)	-0.480000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

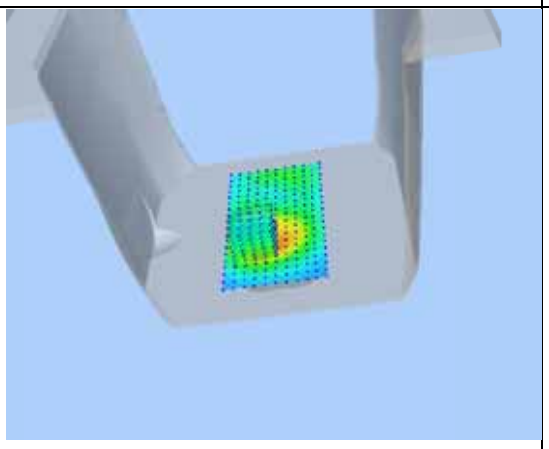
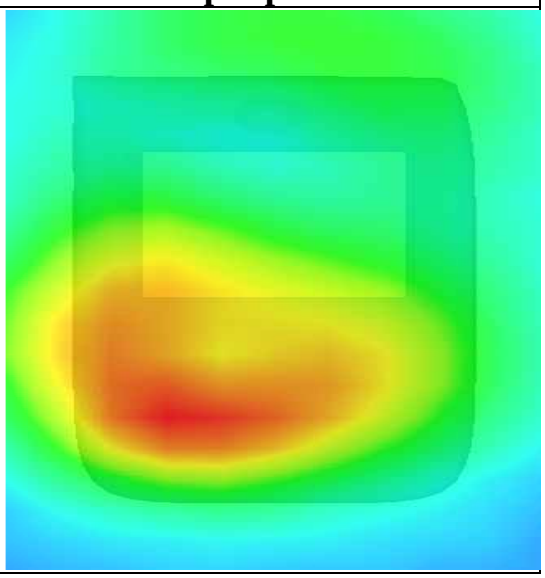
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-15.00, Y=-32.00
SAR Peak: 1.22 W/kg

SAR 10g (W/Kg)	0.390345
SAR 1g (W/Kg)	0.732558

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 41

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 9 minutes 14 seconds

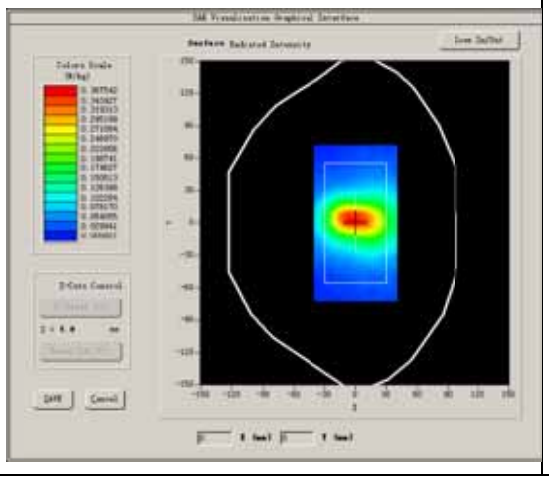
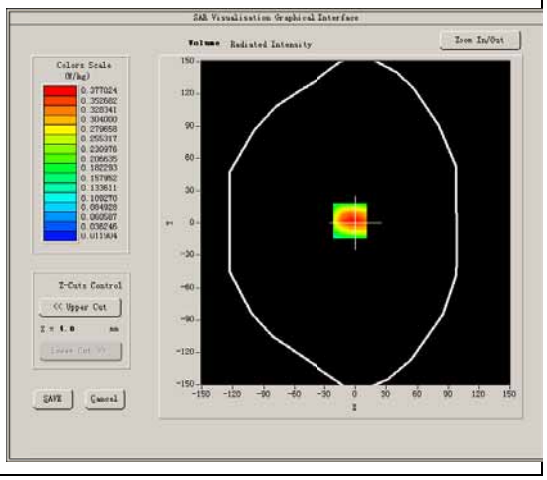
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

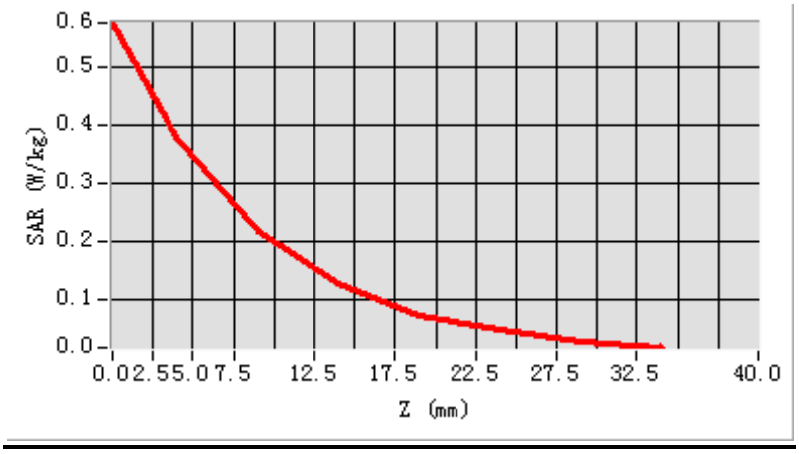
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift (%)	-1.120000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

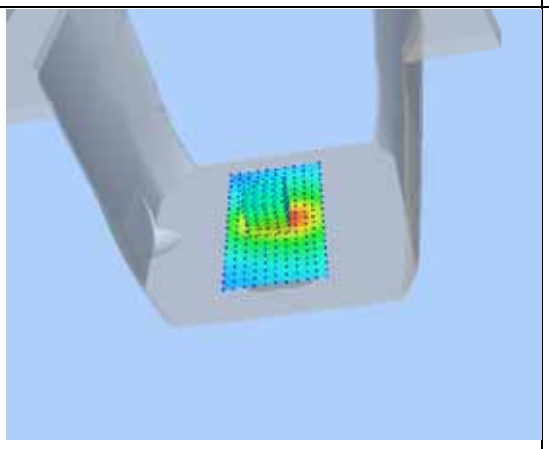
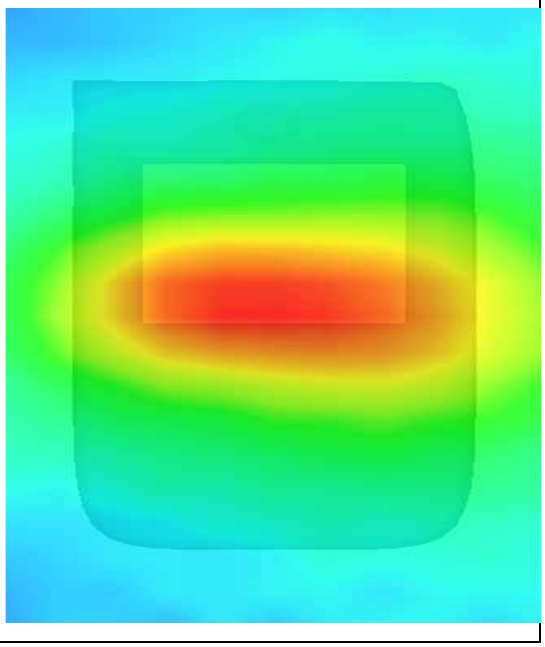
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-5.00, Y=2.00
SAR Peak: 0.63 W/kg

SAR 10g (W/Kg)	0.219552
SAR 1g (W/Kg)	0.390064

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 42

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 9 minutes 14 seconds

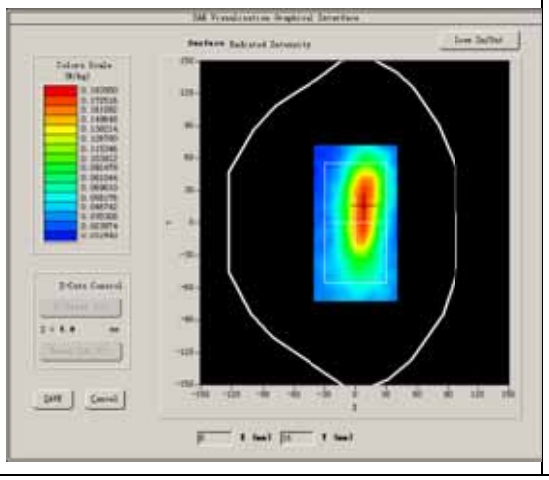
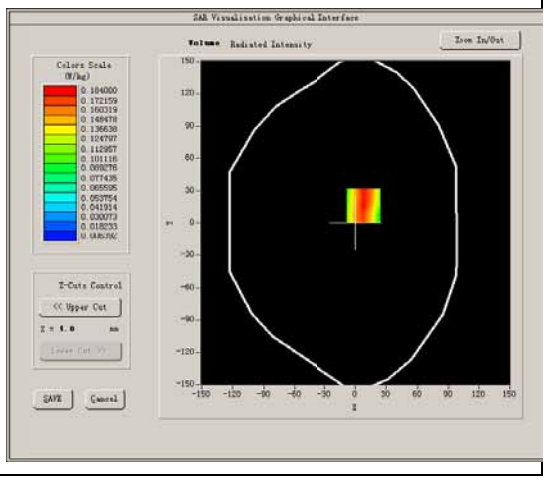
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

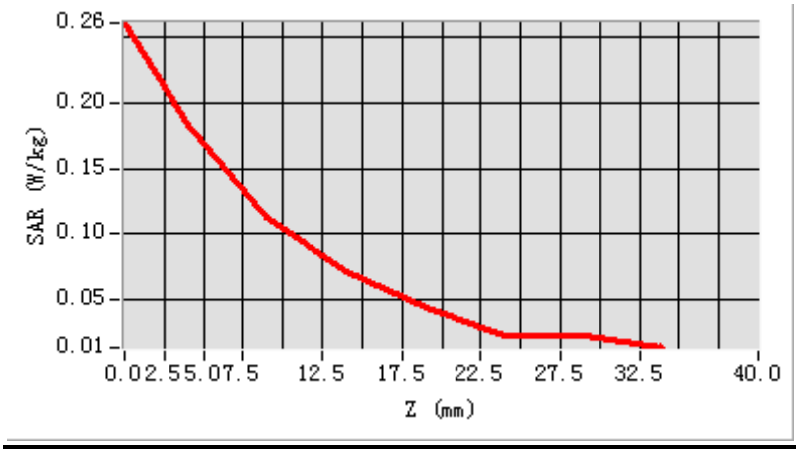
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift (%)	-0.480000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

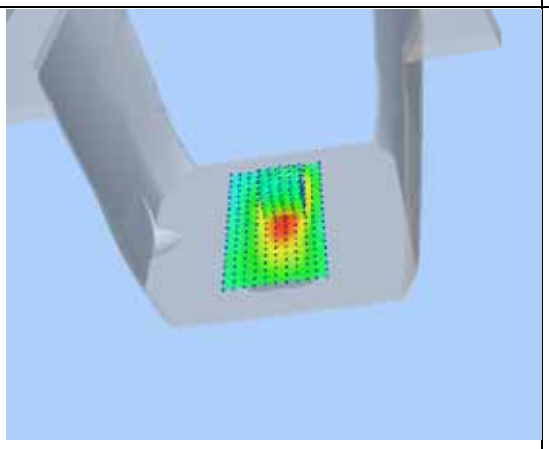
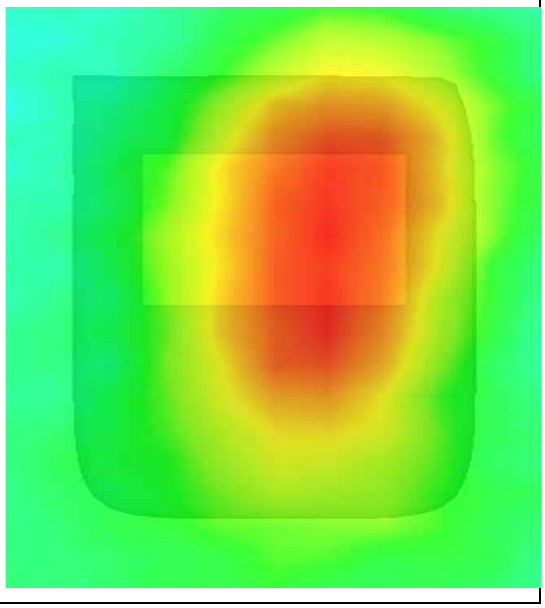
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=16.00
SAR Peak: 0.31 W/kg

SAR 10g (W/Kg)	0.113370
SAR 1g (W/Kg)	0.190751

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 43

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 9 minutes 14 seconds

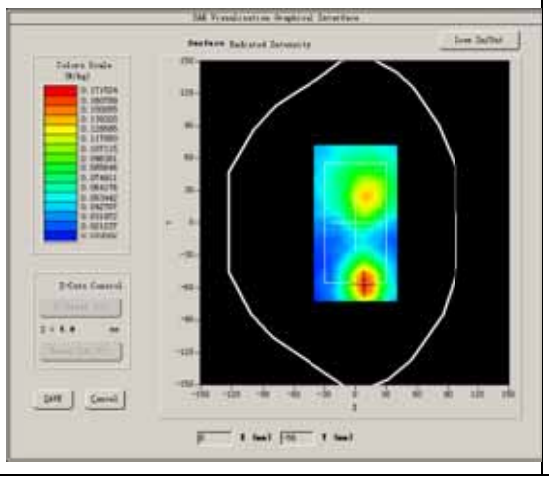
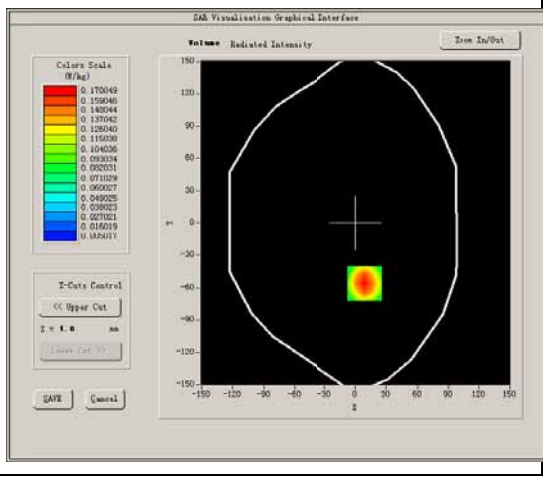
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

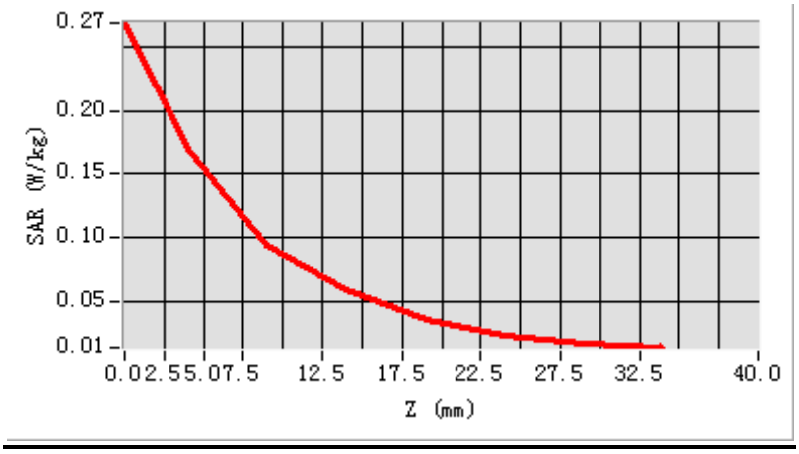
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift (%)	-0.920000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

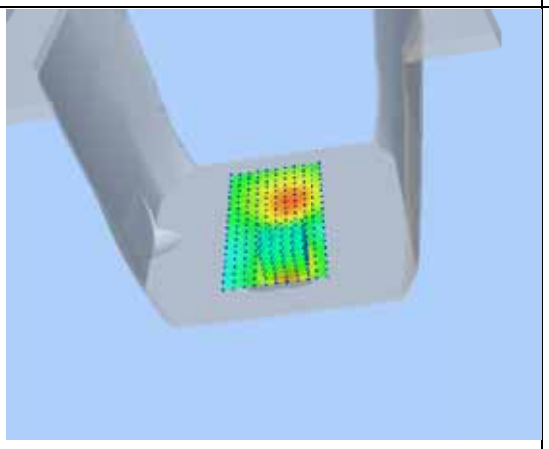
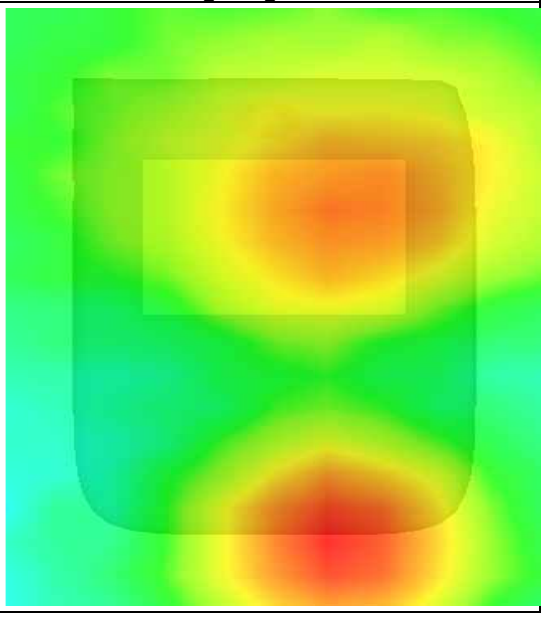
SURFACE SAR	VOLUME SAR
	

Maximum location: X=9.00, Y=-56.00
SAR Peak: 0.29 W/kg

SAR 10g (W/Kg)	0.098770
SAR 1g (W/Kg)	0.177549

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 44

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2013.9.3
Measurement duration: 9 minutes 14 seconds

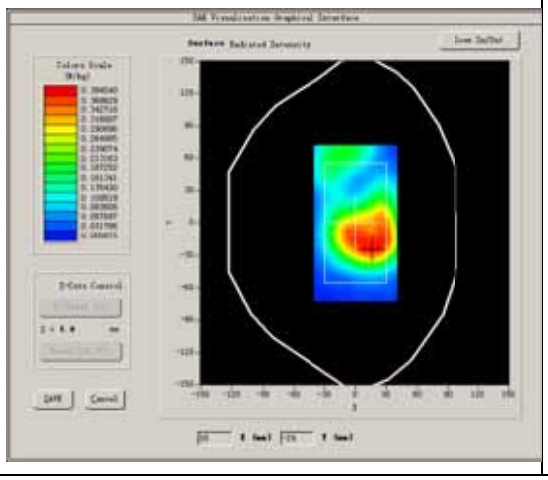
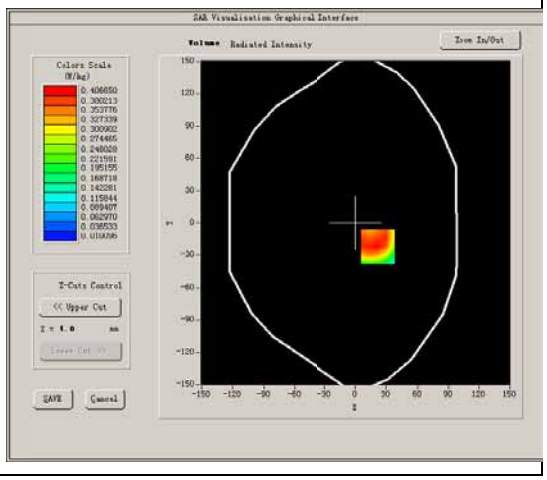
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

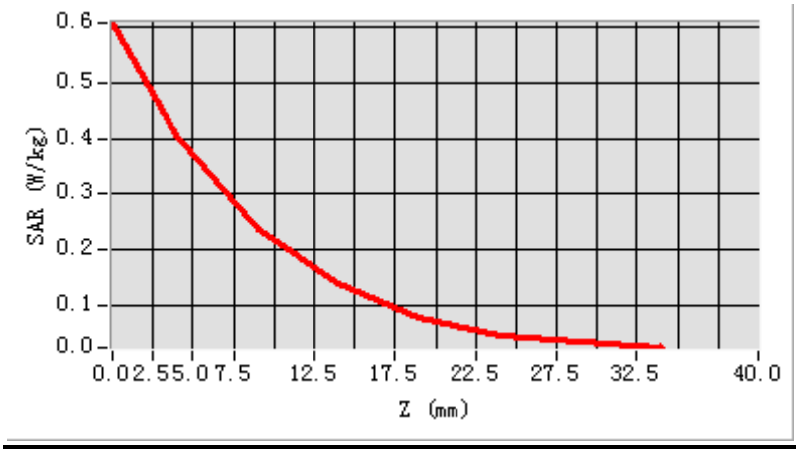
Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift (%)	-1.230000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

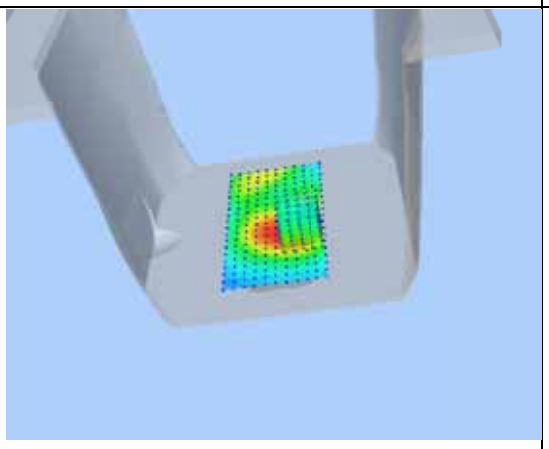
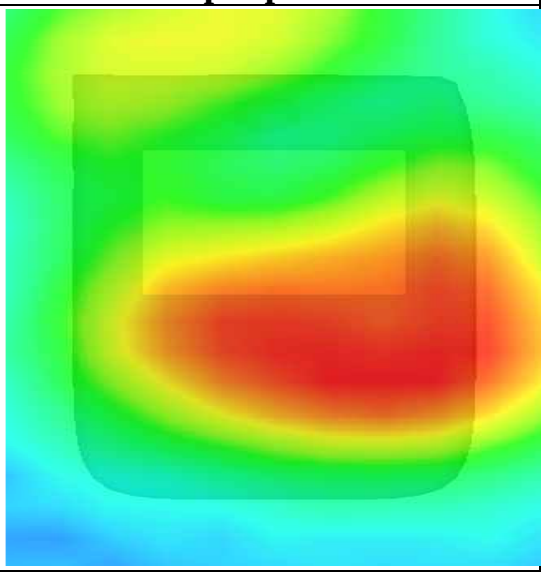
SURFACE SAR	VOLUME SAR
	

Maximum location: X=22.00, Y=-22.00
SAR Peak: 0.70 W/kg

SAR 10g (W/Kg)	0.245938
SAR 1g (W/Kg)	0.422181

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 45

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm
Date of measurement: 2013.9.4
Measurement duration: 8 minutes 17 seconds

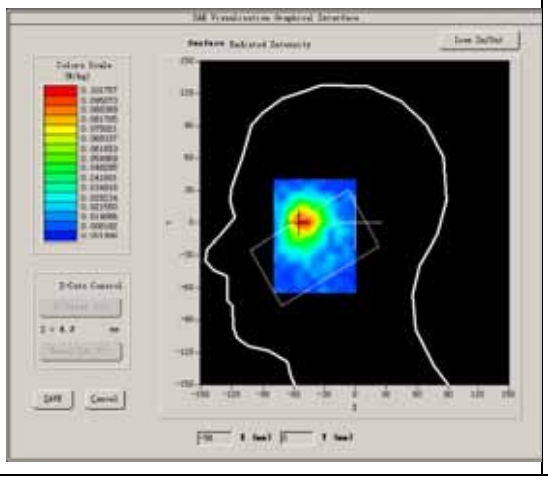
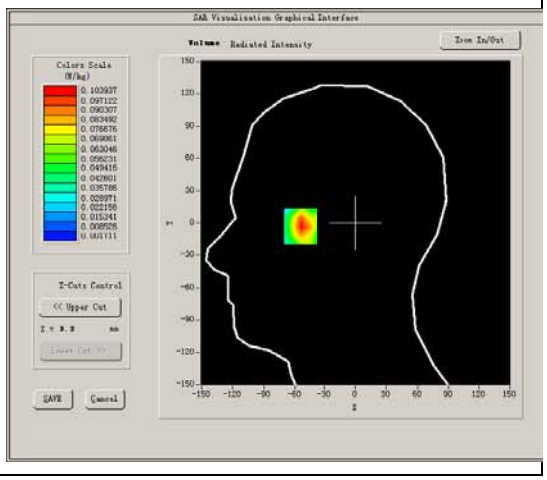
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Right head
Device Position	Cheek
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

Middle Band SAR (Channel 6)

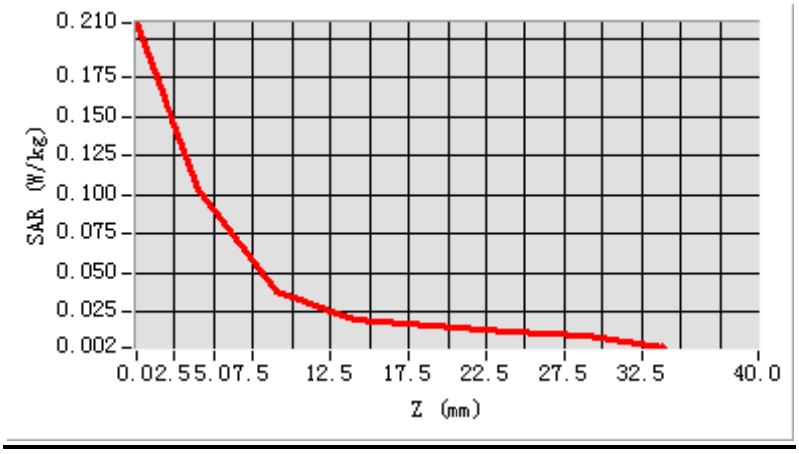
Frequency (MHz)	2437.000000
Relative permittivity (real part)	40.1487921
Conductivity (S/m)	1.760123
Power drift (%)	-0.480000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1

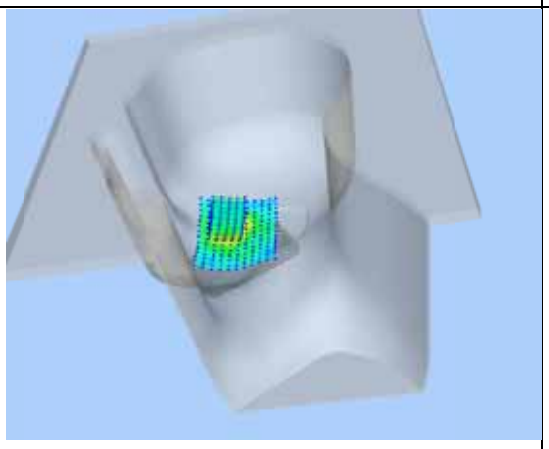
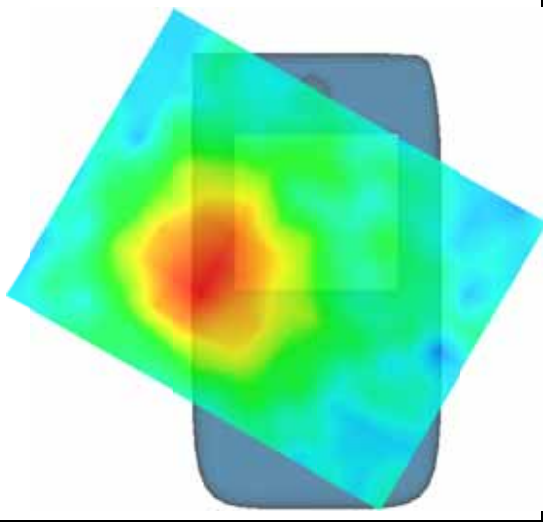
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-54.00, Y=1.00
SAR Peak: 0.20 W/kg

SAR 10g (W/Kg)	0.046391
SAR 1g (W/Kg)	0.100250

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 46

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm
Date of measurement: 2013.9.4
Measurement duration: 8 minutes 15 seconds

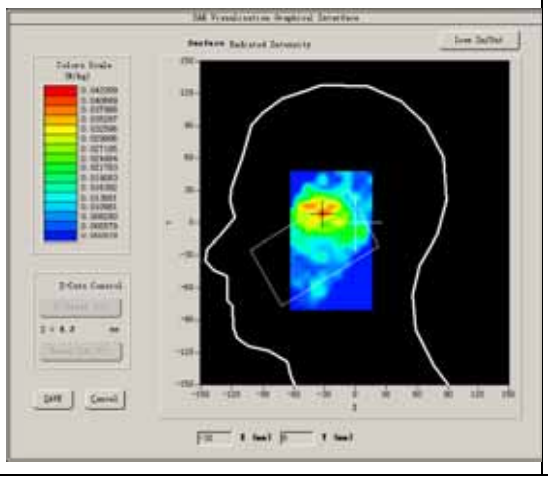
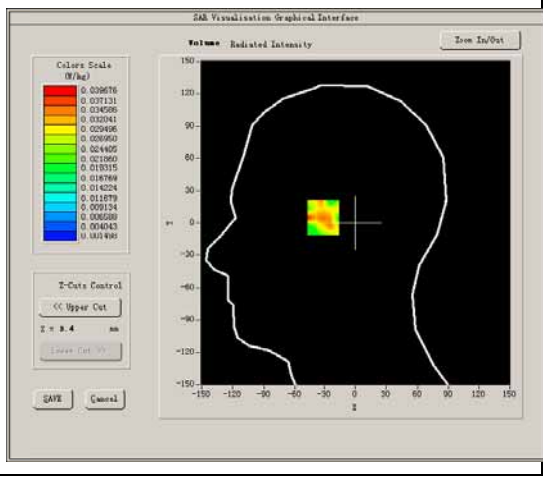
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Right head
Device Position	Tilt
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

Middle Band SAR (Channel 6)

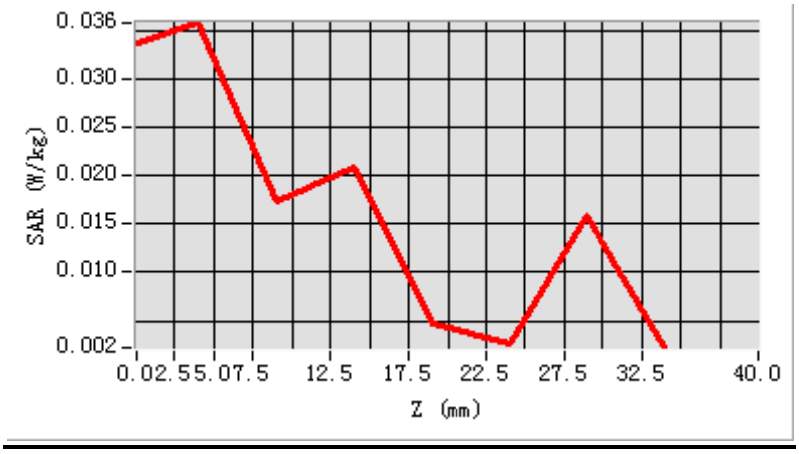
Frequency (MHz)	2437.000000
Relative permittivity (real part)	40.1487921
Conductivity (S/m)	1.760123
Power drift (%)	-0.310000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1

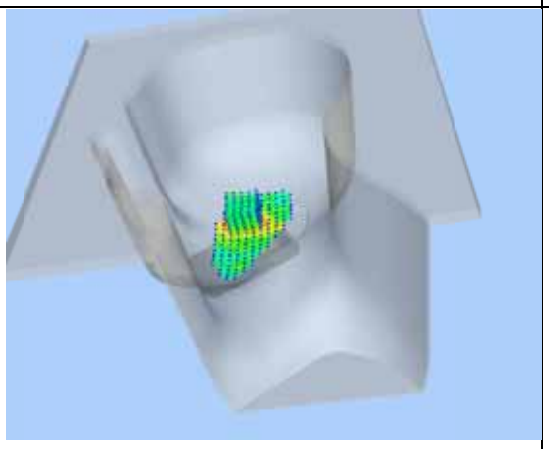
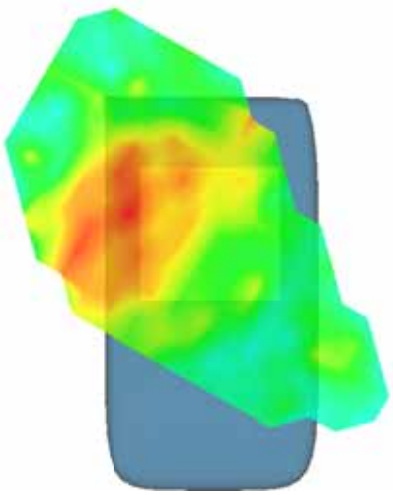
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-32.00, Y=8.00
SAR Peak: 0.09 W/kg

SAR 10g (W/Kg)	0.019908
SAR 1g (W/Kg)	0.039106

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 47

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm
Date of measurement: 2013.9.4
Measurement duration: 8 minutes 17 seconds

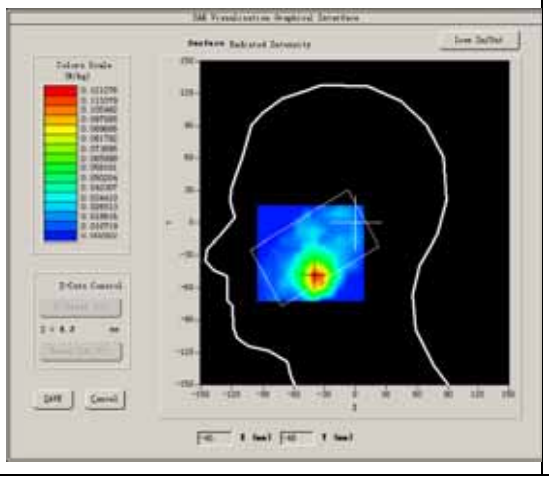
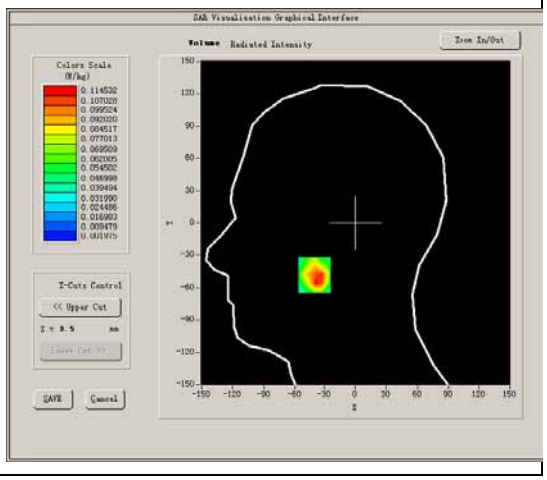
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Left head
Device Position	Cheek
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

Middle Band SAR (Channel 6)

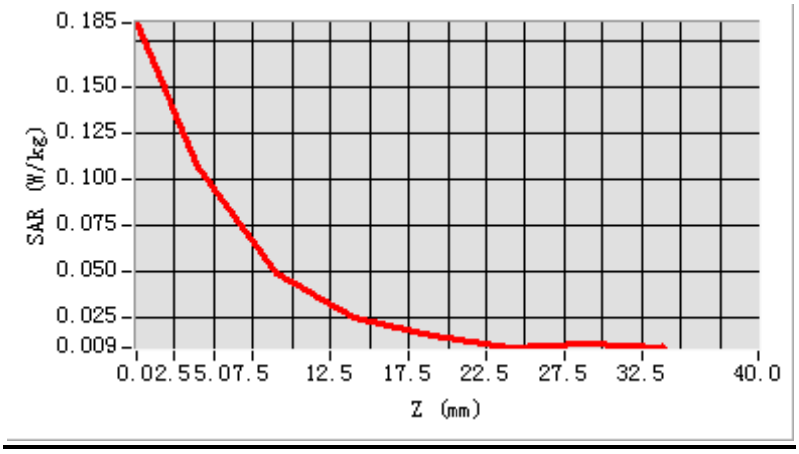
Frequency (MHz)	2437.000000
Relative permittivity (real part)	40.1487921
Conductivity (S/m)	1.760123
Power drift (%)	-1.600000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1

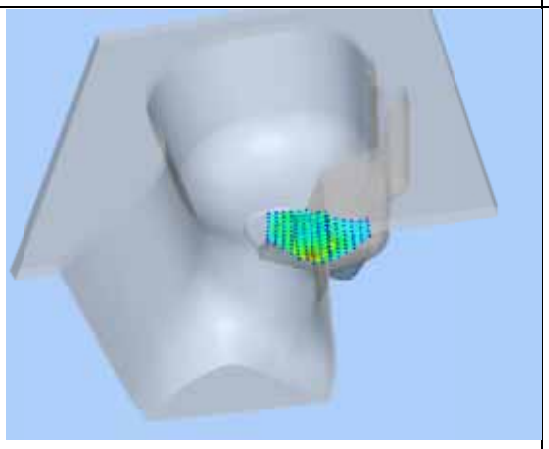
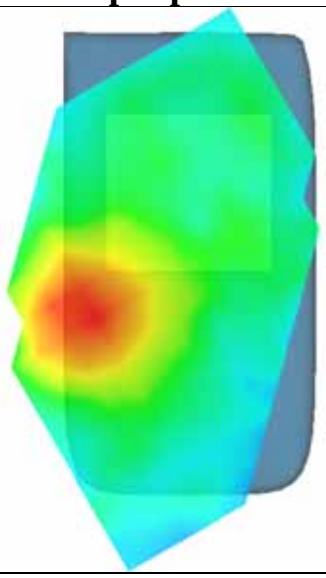
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-39.00, Y=-48.00
SAR Peak: 0.23 W/kg

SAR 10g (W/Kg)	0.051649
SAR 1g (W/Kg)	0.117123

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 48

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm
Date of measurement: 2013.9.4
Measurement duration: 8 minutes 17 seconds

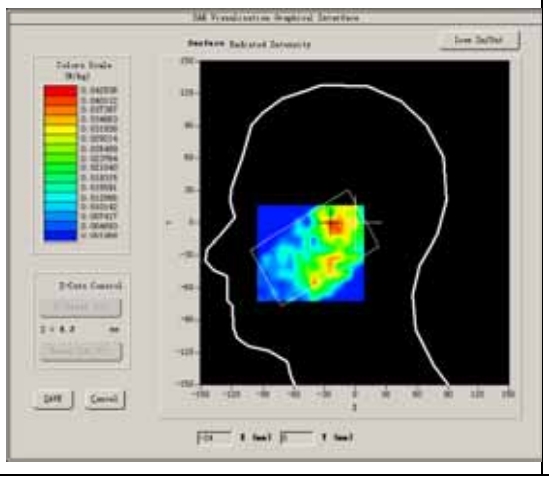
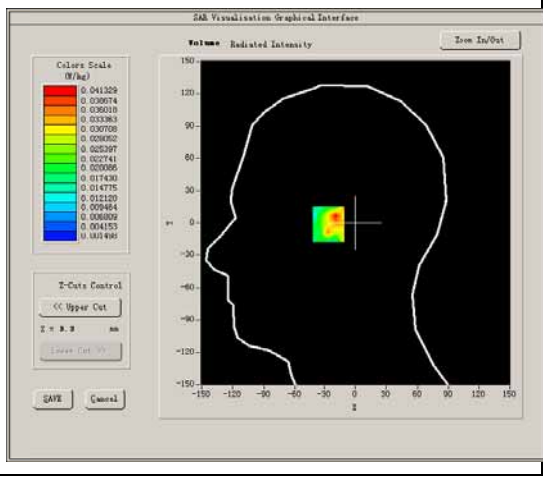
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Left head
Device Position	Tilt
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

Middle Band SAR (Channel 6)

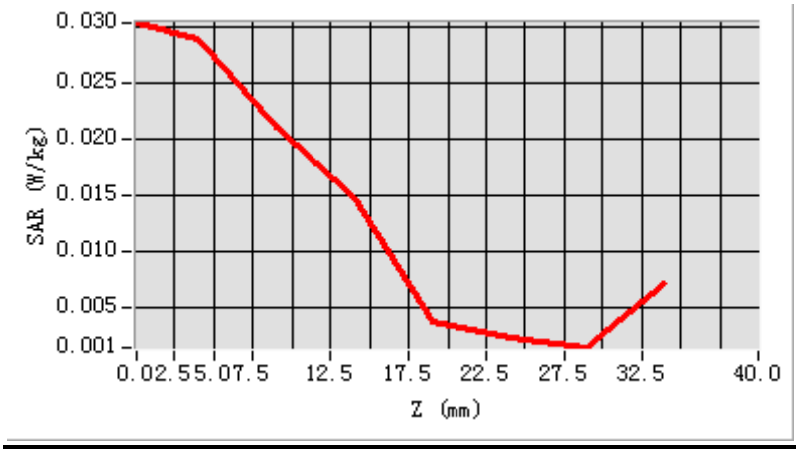
Frequency (MHz)	2437.000000
Relative permittivity (real part)	40.1487921
Conductivity (S/m)	1.760123
Power drift (%)	-0.910000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1

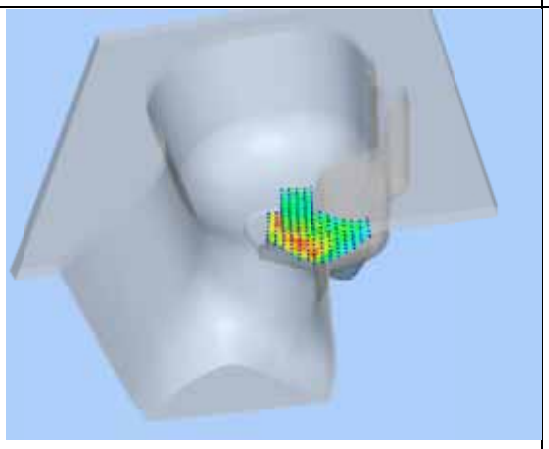
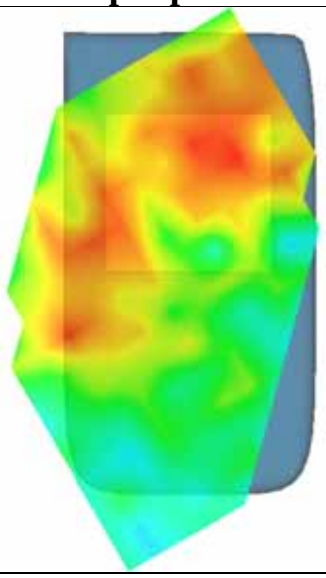
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-23.00, Y=-1.00
SAR Peak: 0.07 W/kg

SAR 10g (W/Kg)	0.018394
SAR 1g (W/Kg)	0.034644

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 49

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm
Date of measurement: 2013.9.4
Measurement duration: 9 minutes 10 seconds

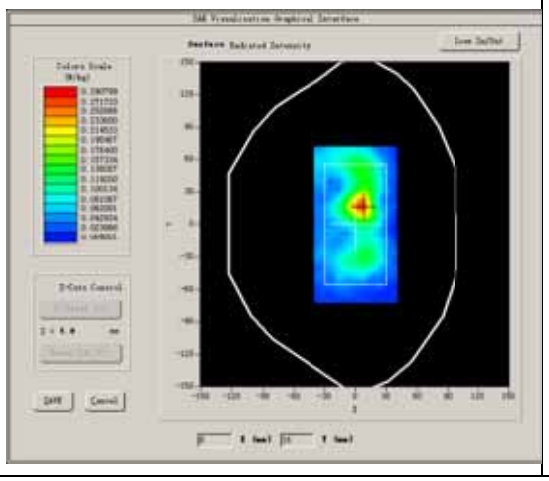
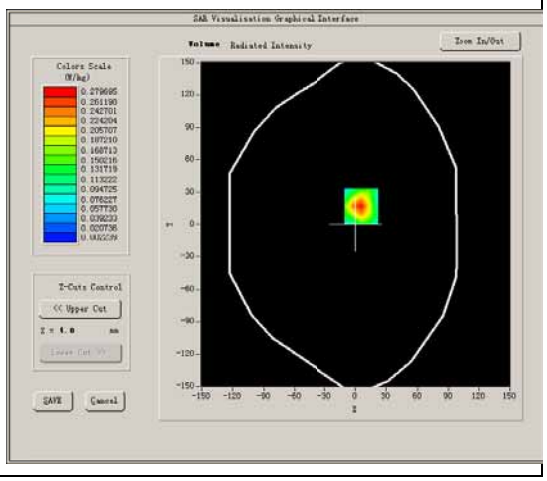
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

Middle Band SAR (Channel 6)

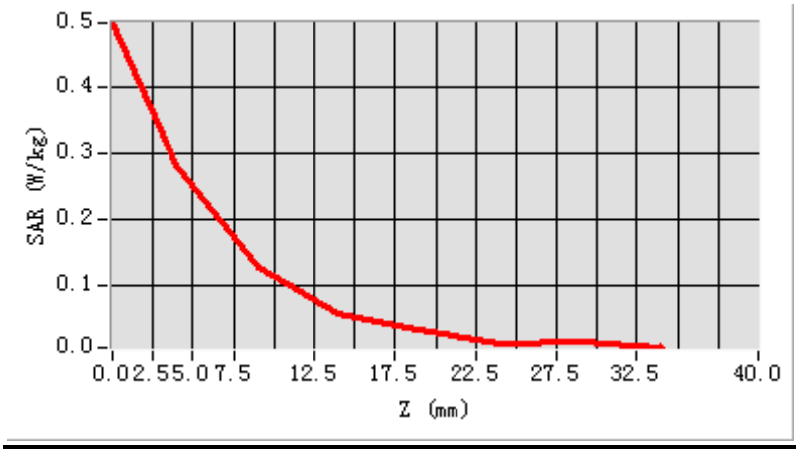
Frequency (MHz)	2437.000000
Relative permittivity (real part)	52.487031
Conductivity (S/m)	1.895902
Power drift (%)	-1.330000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	39.772,33.946,37.835
Crest factor:	1:1

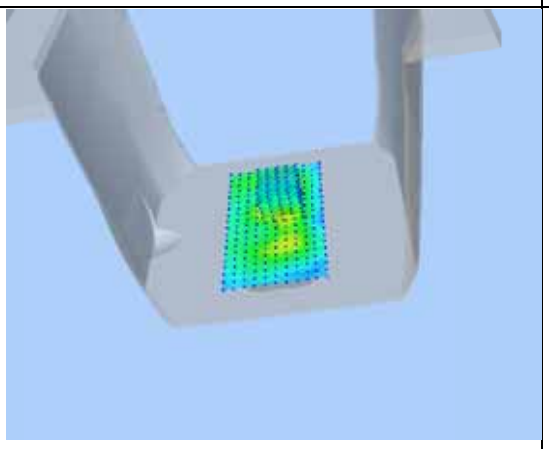
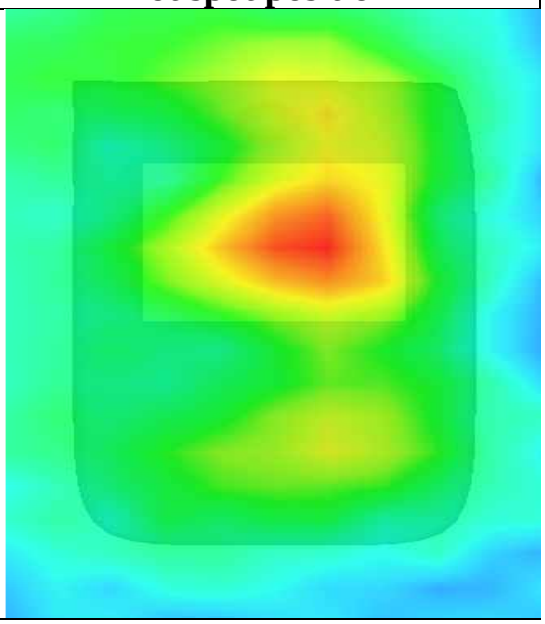
SURFACE SAR	VOLUME SAR
	

Maximum location: X=6.00, Y=17.00
SAR Peak: 0.54 W/kg

SAR 10g (W/Kg)	0.130881
SAR 1g (W/Kg)	0.286828

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 50

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm
Date of measurement: 2013.9.4
Measurement duration: 9 minutes 10 seconds

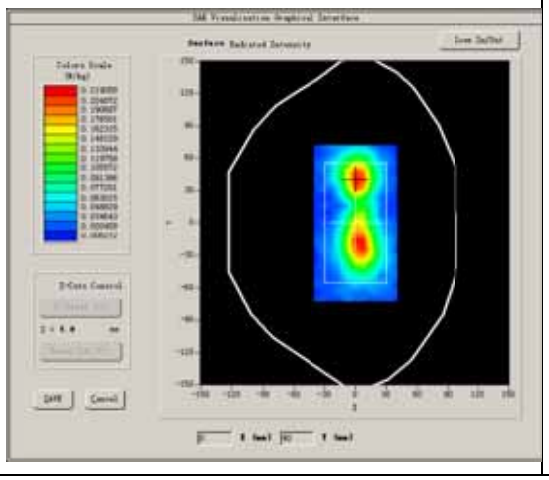
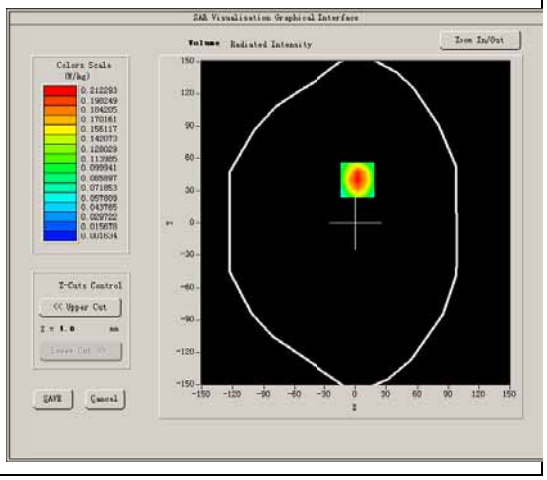
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

Middle Band SAR (Channel 6)

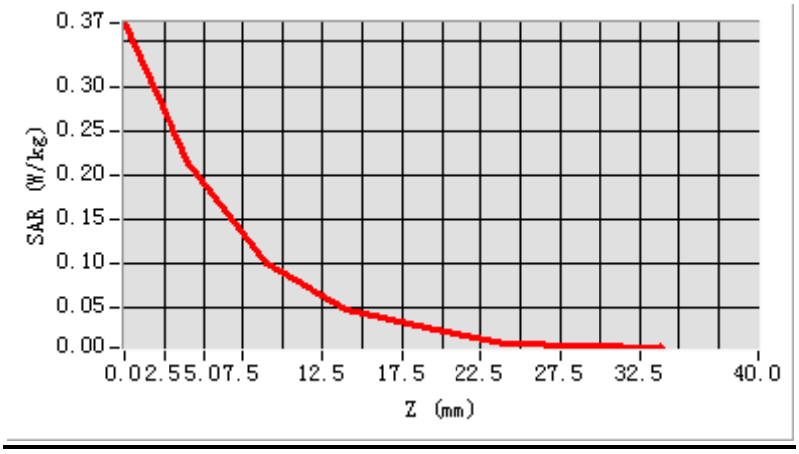
Frequency (MHz)	2437.000000
Relative permittivity (real part)	52.487031
Conductivity (S/m)	1.895902
Power drift (%)	-1.490000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	39.772,33.946,37.835
Crest factor:	1:1

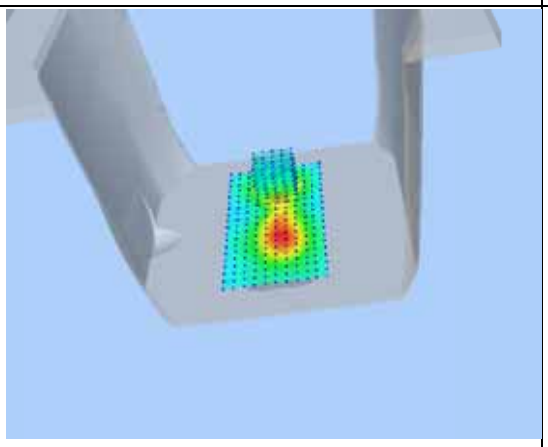
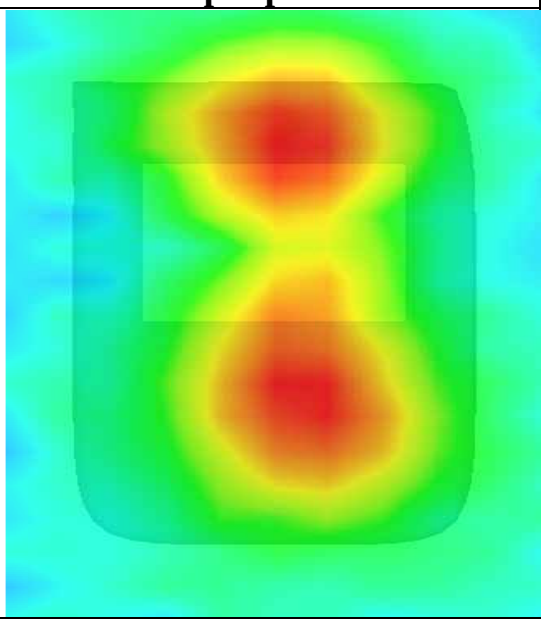
SURFACE SAR	VOLUME SAR
	

Maximum location: X=2.00, Y=40.00
SAR Peak: 0.40 W/kg

SAR 10g (W/Kg)	0.104856
SAR 1g (W/Kg)	0.219717

Z axis scan



3D screen shot	Hot spot position
	

MEASUREMENT 51

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=5mm, dy=5mm, dz=5mm
Date of measurement: 2013.9.4
Measurement duration: 9 minutes 10 seconds

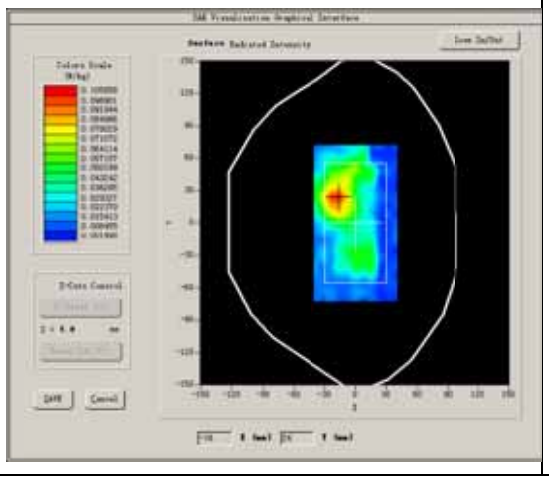
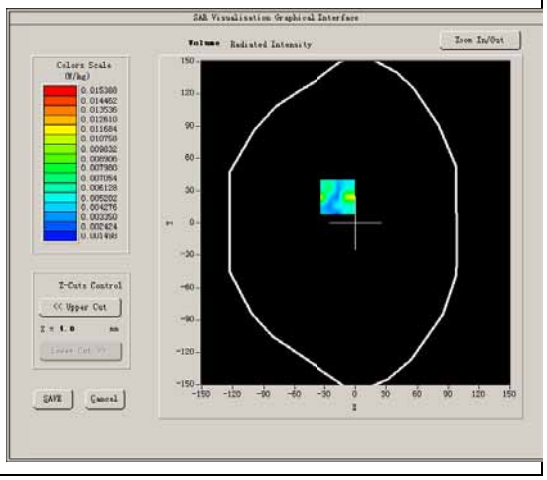
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

Middle Band SAR (Channel 6)

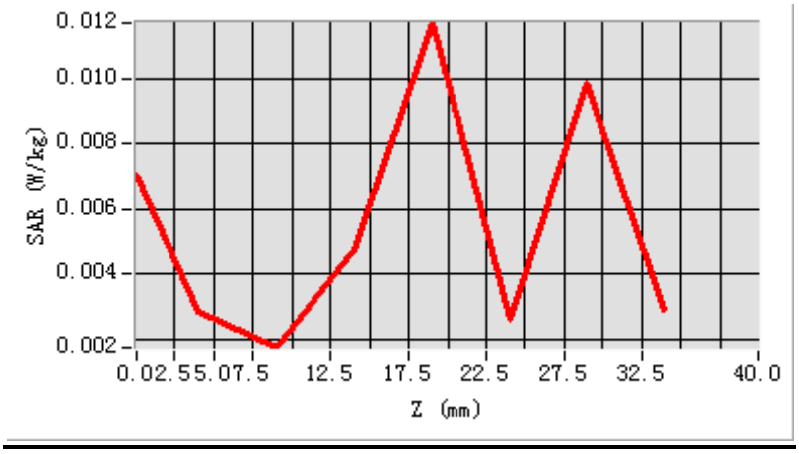
Frequency (MHz)	2437.000000
Relative permittivity (real part)	52.487031
Conductivity (S/m)	1.895902
Power drift (%)	-2.110000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	39.772,33.946,37.835
Crest factor:	1:1

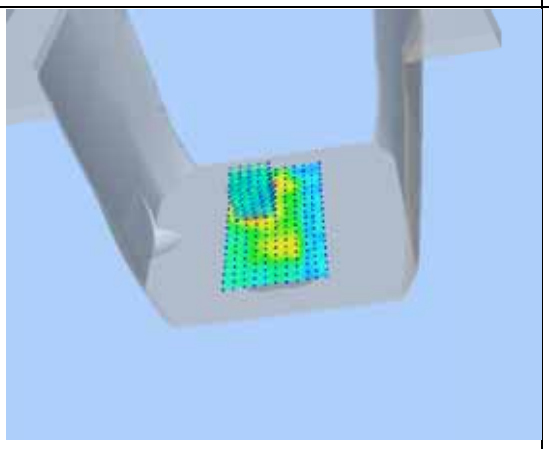
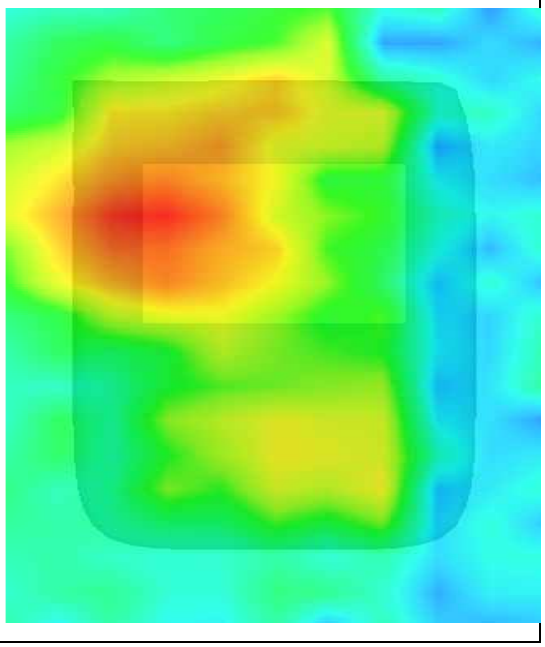
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-17.00, Y=24.00
SAR Peak: 0.03 W/kg

SAR 10g (W/Kg)	0.007514
SAR 1g (W/Kg)	0.013027

Z axis scan



3D screen 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: 2013.9.2
Measurement duration: 13 minutes 27 seconds

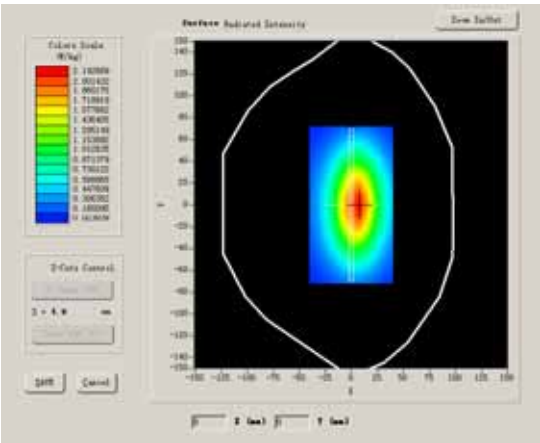
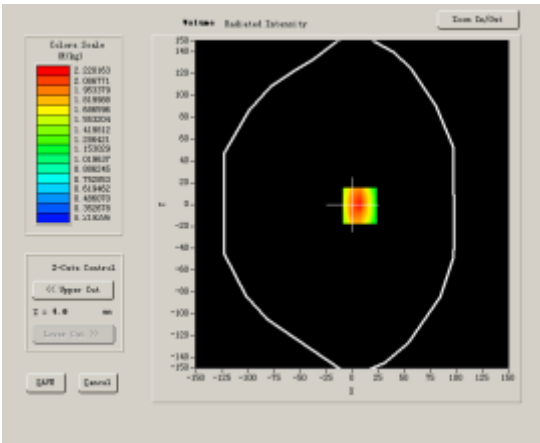
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	
Band	835MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

Frequency (MHz)	835.000000
Relative permittivity (real part)	42.522765
Conductivity (S/m)	0.918504
Power drift (%)	-0.310000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1

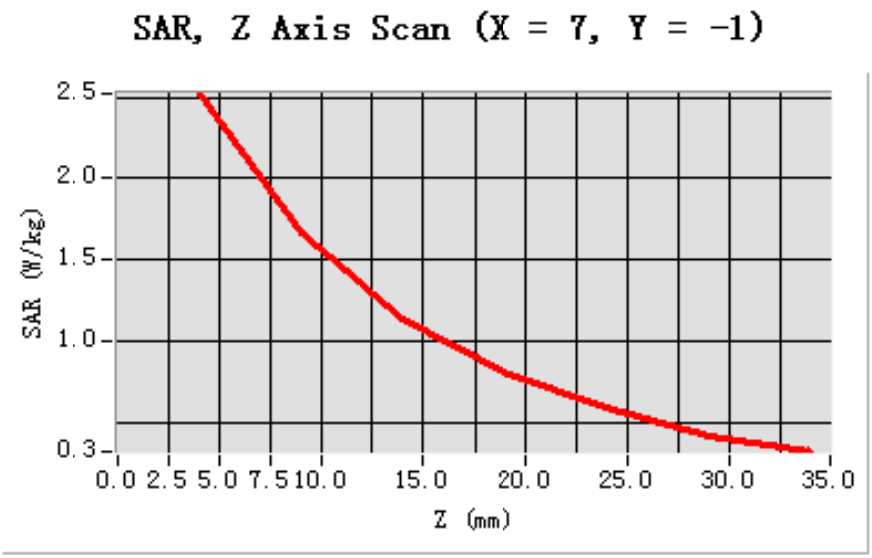
SURFACE SAR	VOLUME SAR
	

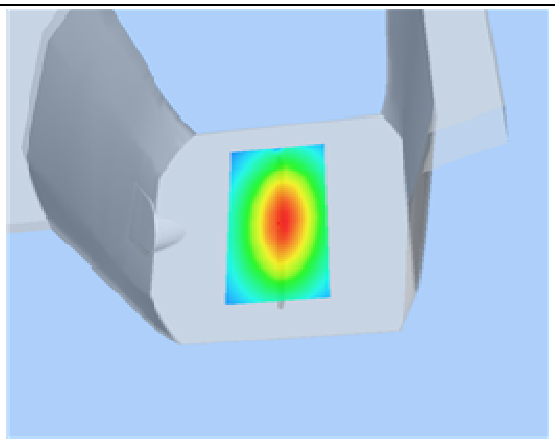
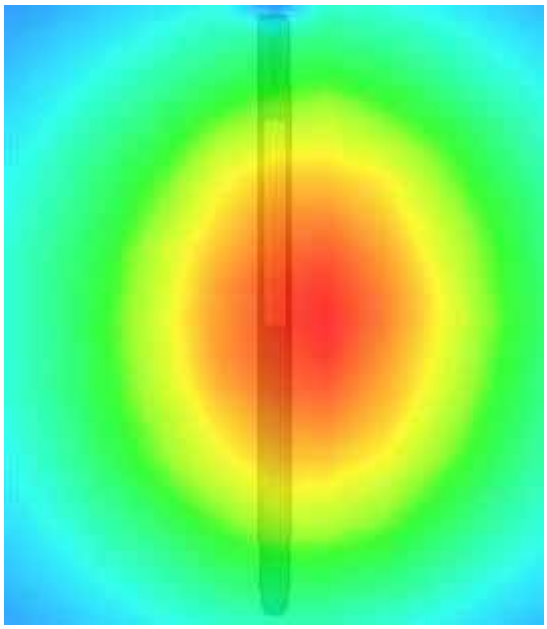
Maximum location: X=7.00, Y=-1.00

SAR 10g (W/Kg)	1.548473
SAR 1g (W/Kg)	2.432445

Z Axis Scan

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



3D sceen 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: 2013.9.2
Measurement duration: 13 minutes 27 seconds

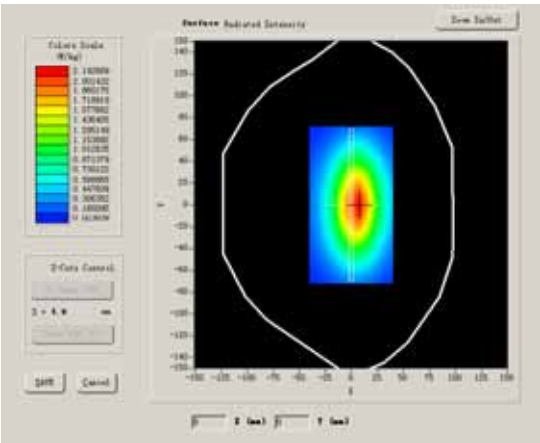
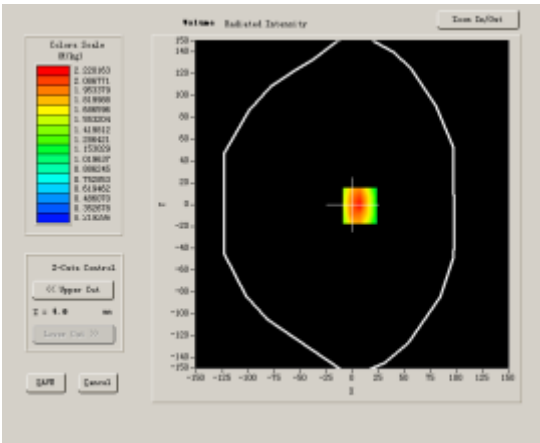
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	
Band	835MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

Frequency (MHz)	835.000000
Relative permittivity (real part)	55.140974
Conductivity (S/m)	0.950681
Power drift (%)	-1.700000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

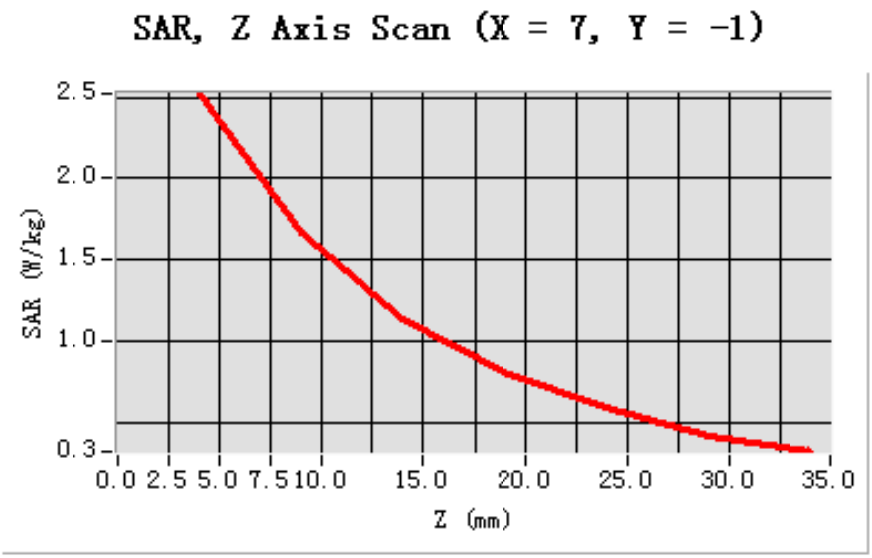
SURFACE SAR	VOLUME SAR
	

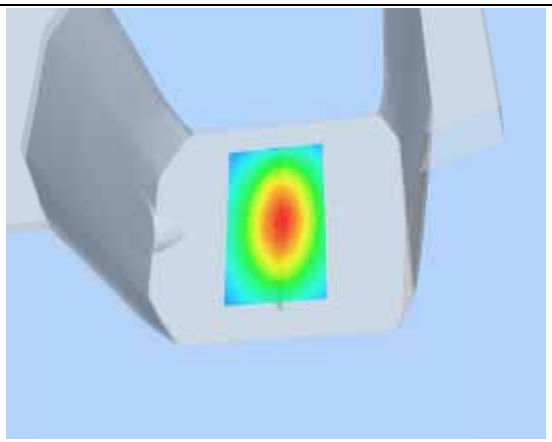
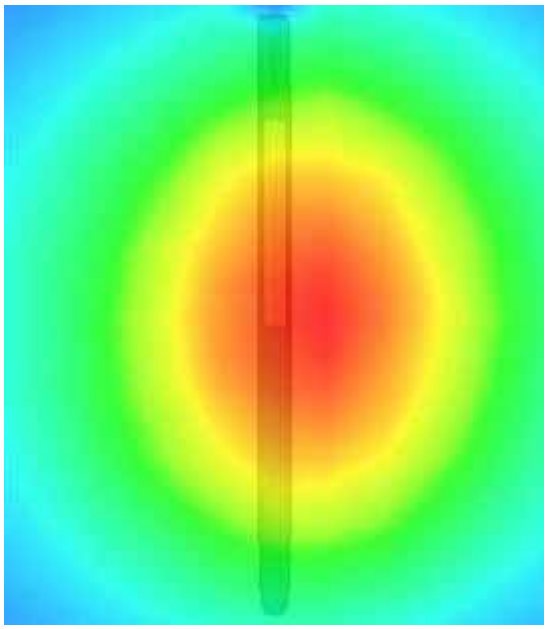
Maximum location: X=7.00, Y=-1.00

SAR 10g (W/Kg)	1.567132
SAR 1g (W/Kg)	2.446425

Z Axis Scan

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



3D sceen 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: 2013.9.3
Measurement duration: 13 minutes 27 seconds

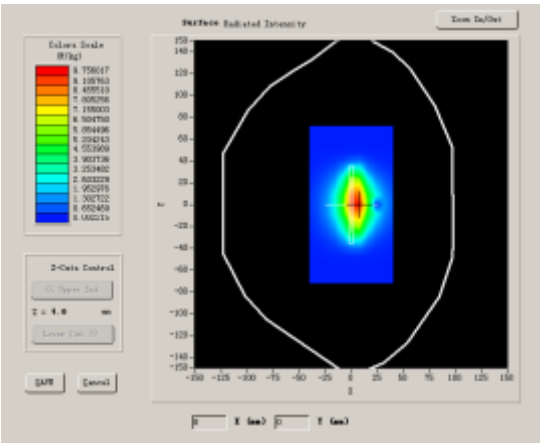
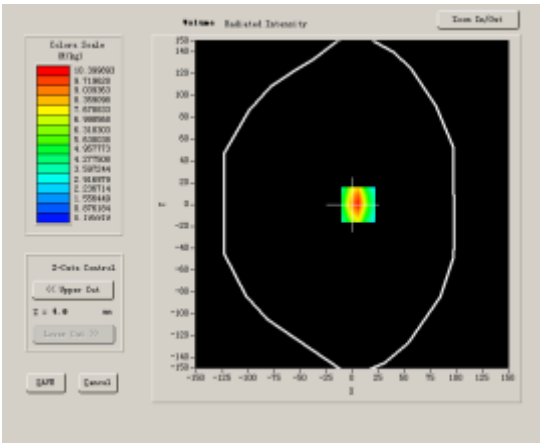
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	
Band	1900MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

Frequency (MHz)	1900.000000
Relative permittivity (real part)	41.267921
Conductivity (S/m)	1.406817
Power drift (%)	-0.290000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

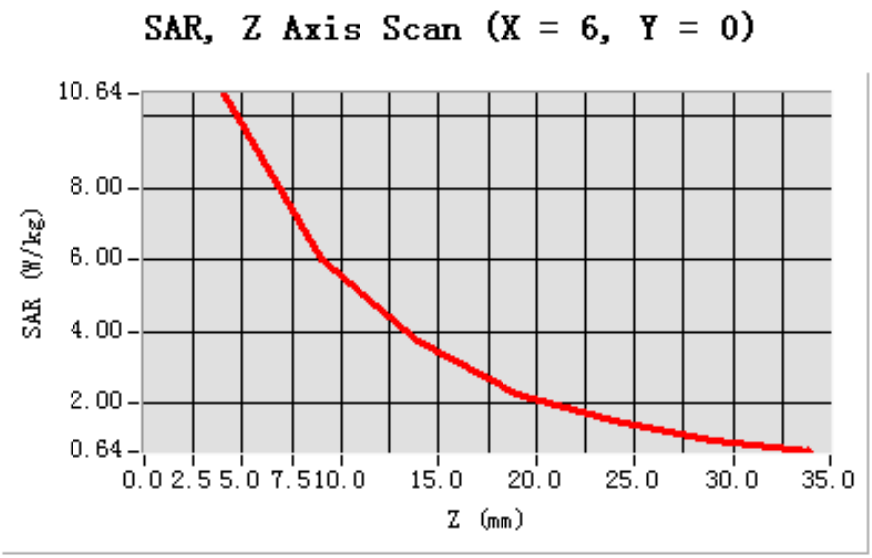
SURFACE SAR	VOLUME SAR
	

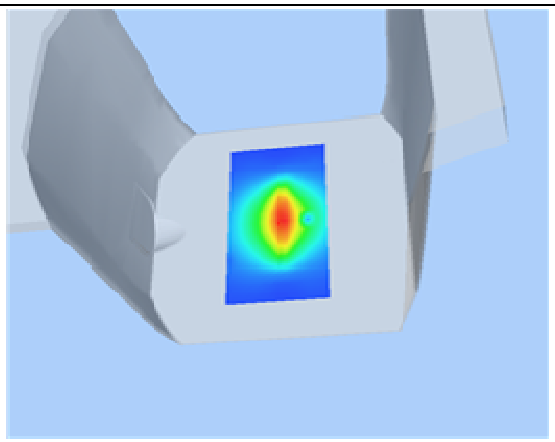
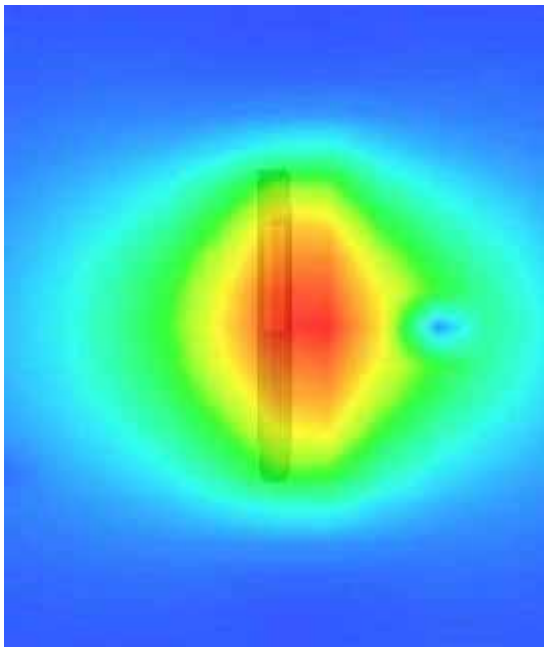
Maximum location: X=6.00, Y=0.00

SAR 10g (W/Kg)	6.325211
SAR 1g (W/Kg)	9.749043

Z Axis Scan

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



3D sceen 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: 2013.9.3
Measurement duration: 13 minutes 26 seconds

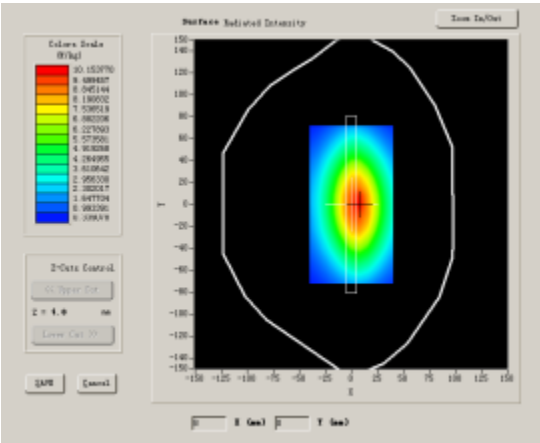
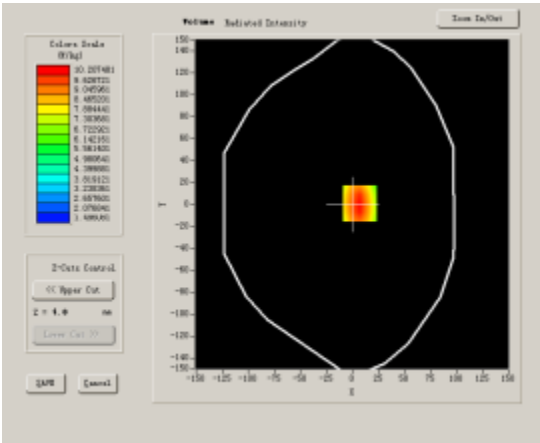
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	
Band	1900MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

Frequency (MHz)	1900.000000
Relative permittivity (real part)	53.207082
Conductivity (S/m)	1.510328
Power drift (%)	-0.520000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

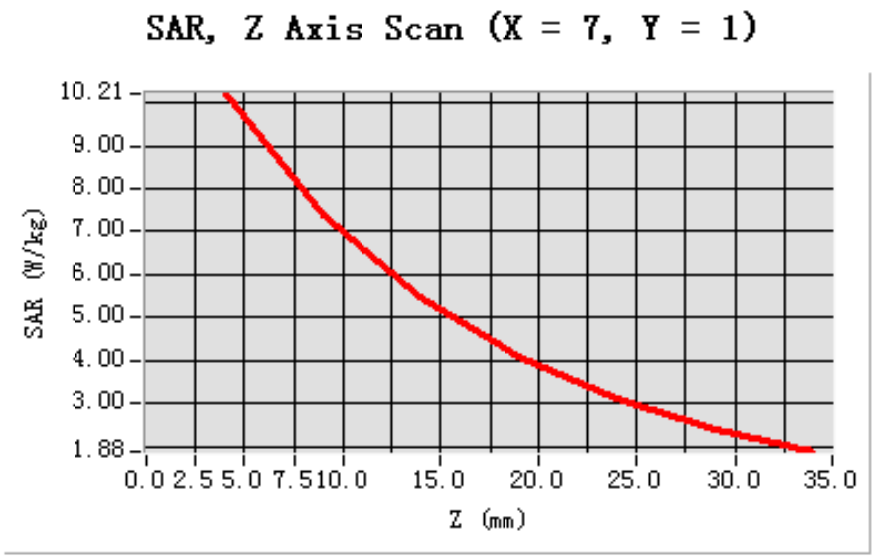
SURFACE SAR	VOLUME SAR
	

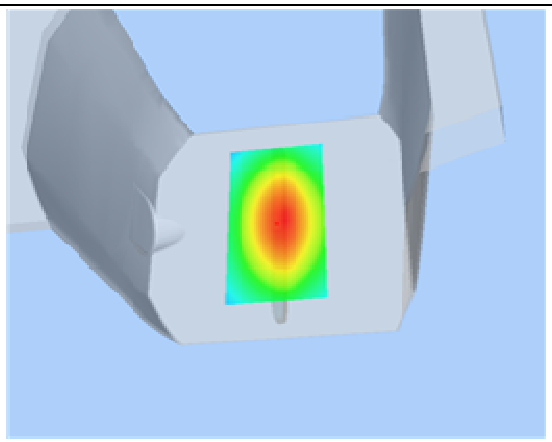
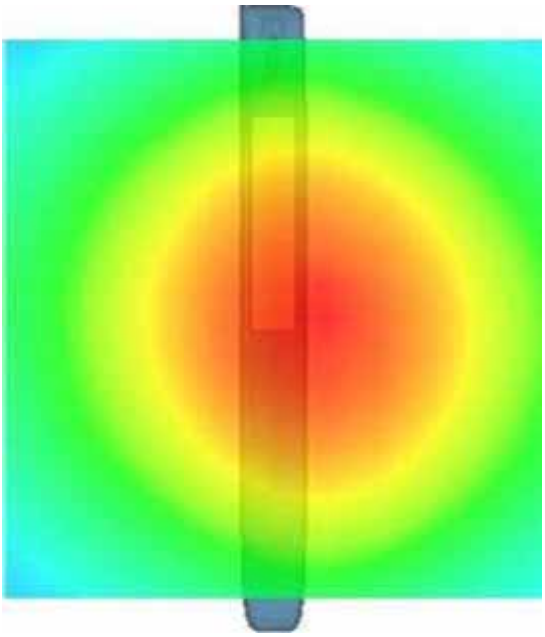
Maximum location: X=7.00, Y=1.00

SAR 10g (W/Kg)	6.478518
SAR 1g (W/Kg)	9.681012

Z Axis Scan

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



3D sceen 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: 2013.9.4
Measurement duration: 13 minutes 27 seconds

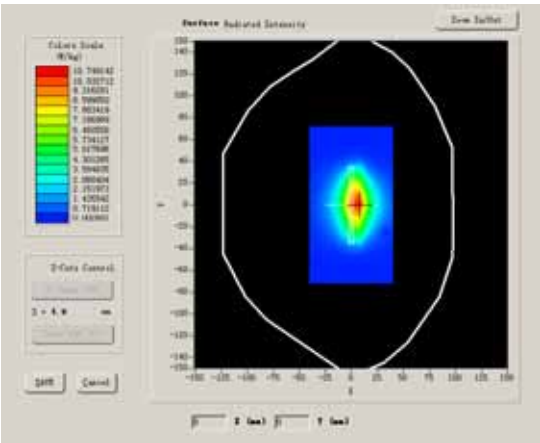
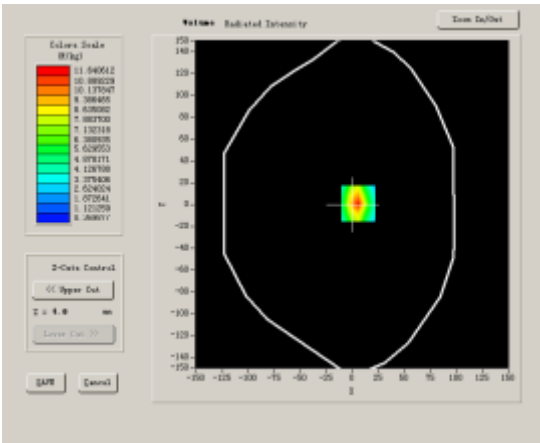
A. Experimental conditions.

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

B. SAR Measurement Results

Band SAR

Frequency (MHz)	2450.000000
Relative permittivity (real part)	40.1487921
Conductivity (S/m)	1.760123
Power Drift (%)	-0.720000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1

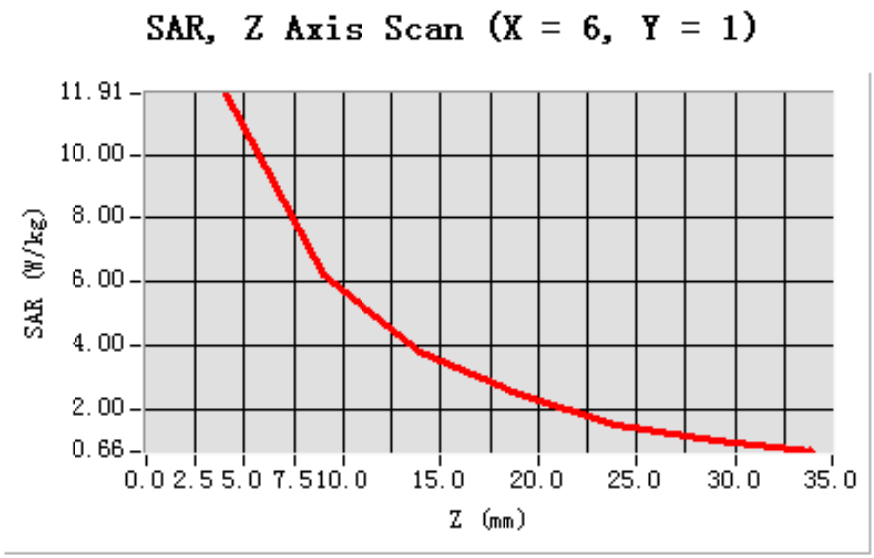
SURFACE SAR	VOLUME SAR
	

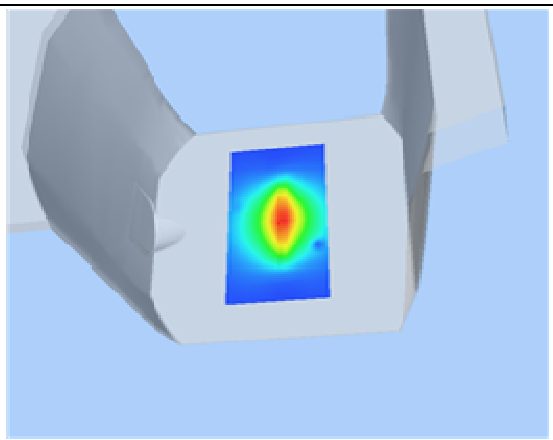
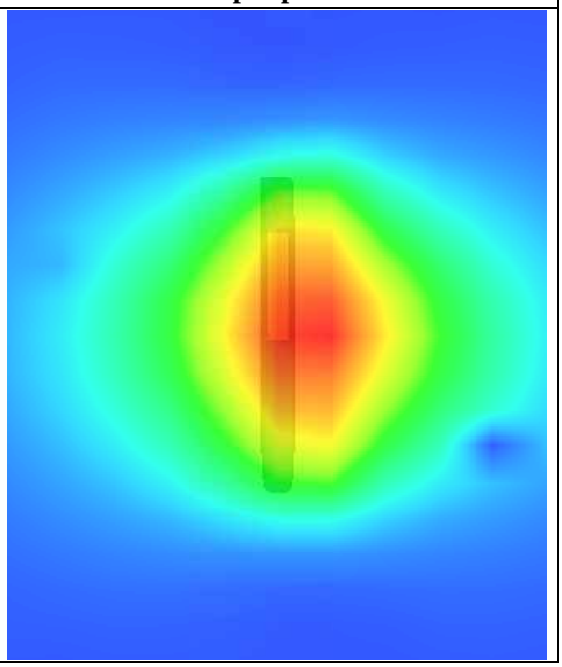
Maximum location: X=6.00, Y=1.00

SAR 10g (W/Kg)	7.659478
SAR 1g (W/Kg)	12.251492

Z Axis Scan

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



3D sceen 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: 2013.9.4
Measurement duration: 13 minutes 27 seconds

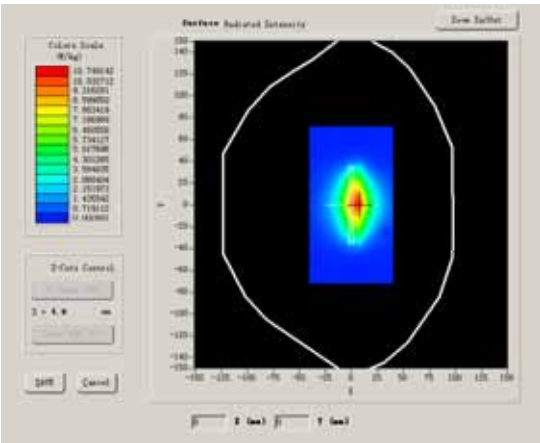
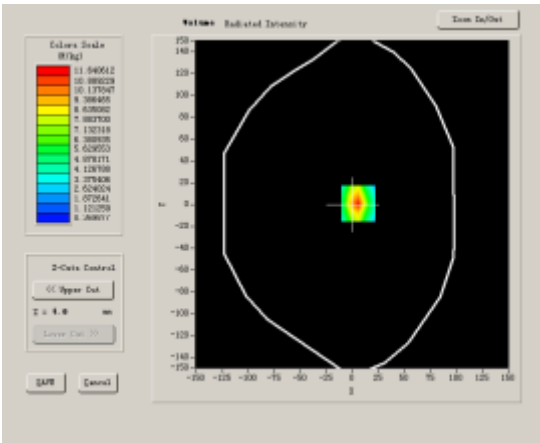
A. Experimental conditions.

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

B. SAR Measurement Results

Band SAR

Frequency (MHz)	2450.000000
Relative permittivity (real part)	52.487031
Conductivity (S/m)	1.895902
Power Drift (%)	-1.170000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.1°C
ConvF:	39.772,33.946,37.835
Crest factor:	1:1

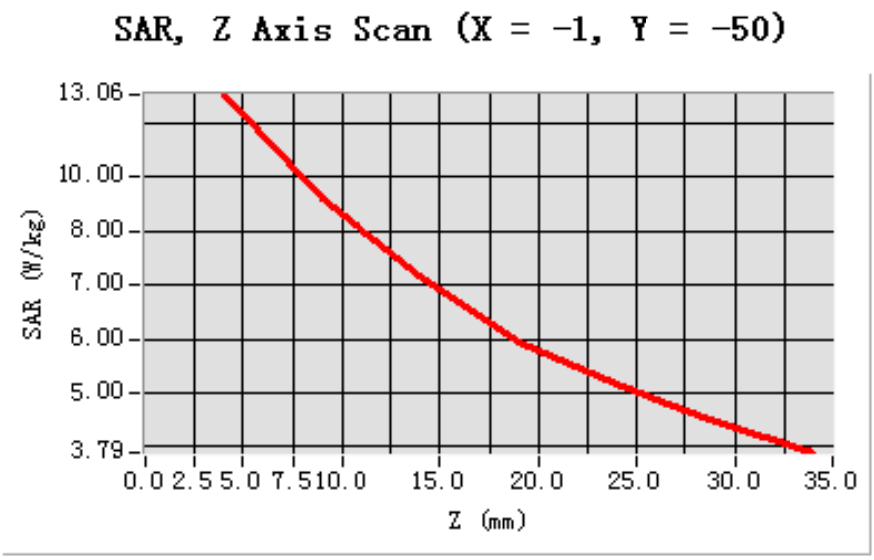
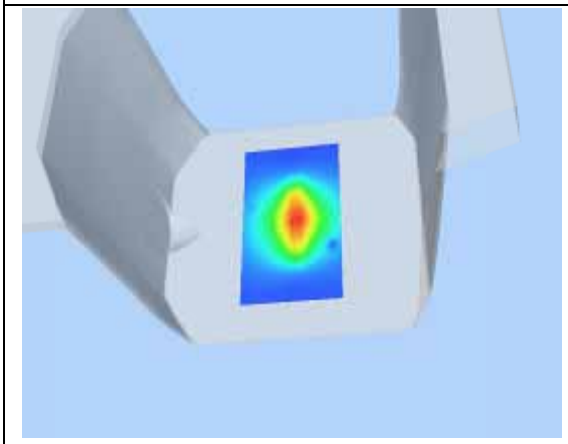
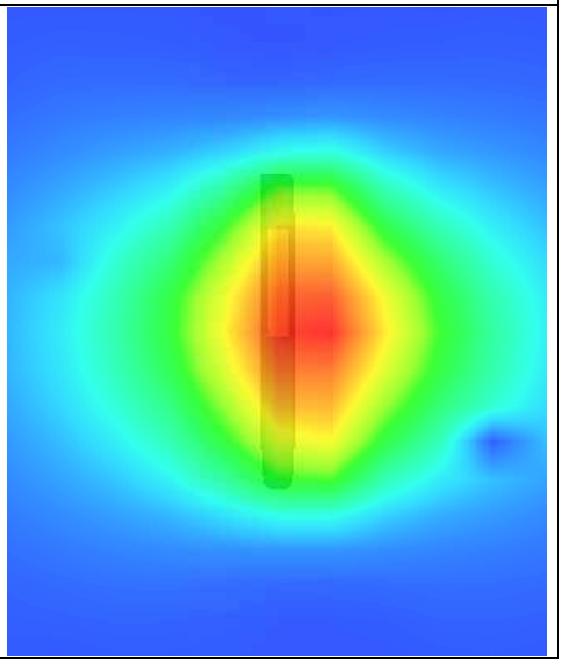
SURFACE SAR	VOLUME SAR
	

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

SAR 10g (W/Kg)	7.176873
SAR 1g (W/Kg)	12.862461

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	13.1279	6.8312	3. 5991	1.3473



3D sceen shot	Hot spot position