Report No.: SZ12040059S01

TESTING
CNAS L3572

SAR TEST REPORT

Issued to

CORPORATIVO LANIX S.A. DE C.V.

For

GSM Android Mobile Phone

Model Name	:	ilium S100
Trade Name	:	Telcel
Brand Name	:	Telcel
FCC ID	:	ZC4S100
Standard	:	FCC Oet65 Supplement C Jun.2001 47CFR 2.1093 ANSI C95.1-1999 IEEE 1528-2003
MAX SAR	:	Head: 1.076W/kg Body: 1.036W/kg
Test date	:	2012-4-26
Issue date	:	2012-5-16

Shenzhen MORLAB Communication Technology Co., Ltd.

Tested by	Zhu Zhan	*Approved by*	Wei Yanquan	*Review by*	Samuel. Peng
	Zhu Zhan		Wei Yanquan		Samuel. Peng
Date	2012.5.16	*Date*	2012.5.16	*Date*	2012.5.16

CTIA Authorized Test Lab LAB CODE 20081223-00 IEEE 1725 OTA

OFTA 電訊管理局

FCC Reg. No. 741109

DIRECTORY

Change History		
Issue	Date	Reason for change
1.0	May 16, 2012	First edition

Testing Laboratory

1.1. Identification of the Responsible Testing Laboratory

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

1.2. Identification of the Responsible Testing Location

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

1.3. Accreditation Certificate

Accredited Testing Laboratory:	No. CNAS L3572

1.4. List of Test Equipments

No.	Instrument	Type	Cal. Date	Cal. Due
1	PC	Dell (Pentium IV 2.4GHz, SN:X10-23533)	(n.a)	(n.a)
2	Network Emulator	Rohde&Schwarz (CMU200, SN:105894)	2011-9-26	1year
3	Voltmeter	Keithley (2000, SN:1000572)	2011-9-24	1year
4	Synthetizer	Rohde&Schwarz (SML_03, SN:101868)	2011-9-24	1year
5	Amplifier	Nucl udes (ALB216, SN:10800)	2011-9-24	1year
6	Power Meter	Rohde&Schwarz (NRVD, SN:101066)	2011-9-24	1year
7	Probe	Satimo (SN:SN_3708_EP80)	2011-9-24	1year
8	Phantom	Satimo (SN:SN_36_08_SAM62)	2011-9-24	1year
9	Liquid	Satimo (Last Calibration: 2012-4-26)	N/A	N.A
10	Dipole 835MHz	Satimo (SN 36/08 DIPC 99)	2011-9-24	1year
11	Dipole 1900MHz	Satimo (SN 36/08 DIPF 102)	2011-9-24	1year

2. Technical Information

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

2.1. Identification of Applicant

Company Name:	CORPORATIVO LANIX S.A. DE C.V.
Address:	CARRETERA INTERNACIONAL A NOGALES KM 8.5 C.P. 83160 HERMOSILLO SONORA, MEXICO

2.2. Identification of Manufacturer

Company Name:	Shanghai Huaqin Telecom Technology Co.,Ltd.
Address:	NO.1 Building,399 Keyuan Road,Zhangjiang Hi-Tech Park,Pudong New Area,Shanghai,China 201203

2.3. Equipment Under Test (EUT)

Model Name:	ilium S100
Trade Name:	Telcel
Brand Name:	Telcel
Hardware Version:	N/A
Software Version:	Ilium S100_TELCEL_SW_01
Frequency Bands:	GSM 850MHz / PCS 1900MHz; WCDMA 850MHz/1900MHz; WIFI802.11 B/G/N; Bluetooth
Modulation Mode:	GSM/GPRS: GMSK; EDGE: 8PSK WIFI802.11B: DSSS; WIFI802.11G: OFDM WIFI 802.11N: OFDM WCDMA/HSDPA/HSUPA:QPSK BT: GFSK/Π/4-DQPSK/8-DPSK
Multislot Class	GPRS: Multislot Class 12; EDGE: Multislot Class 12
Antenna type:	Fixed Internal Antenna
Development Stage:	Identical prototype
Battery Model:	S100-BAT
Battery specification:	1400mAh3.7V
WCDMA release:	Release 6

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#	N/A	Ilium S100_TELCEL_SW_01

2.4. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	**47 CFR§2.1O93**	Radiofrequency Radiation Exposure Evaluation: Portable Devices
2	**FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)**	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
3	**ANSI C95.1-1999**	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz
4	**IEEE 1528-2003**	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.
5	**KDB 648474 D1**	SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas
6	**KDB941225D1 v02**	SAR Measurement Procedures for 3G Devices
7	**KDB 941225 D6**	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
8	**KDB 2484227**	SAR Measurement Procedures for 802.11 a/b/g Transmitters

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 WCDMA1900MHz
Operation mode:	Call established
Power Level:	GSM 850 MHz Maximum output power(level 5)
	PCS 1900 MHz Maximum output power(level 0)
	WCDMA Maximum output power

During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established.
The Absolute Radio Frequency Channel Number (ARFCN) is 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 19000, or to 4132, 4175 and 4233 respectively in the case of WCDMA 850. The EUT is commanded to operate at maximum transmitting power.
The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the manufacturer. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset.
The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the handset by at least 35 dB.
For SAR testing, EUT is in GPRS/EDGE or WCDMA link mode. In GPRS/EDGE link mode, its crest factor is 2, because EUT is set in GPRS/EDGE multi-slot class 12 with 4 uplink slots. In WCDMA and WIFI mode, its crest factor is 1.

3. Specific Absorption Rate (SAR)

3.1. Introduction

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

3.2. SAR Definition

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

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

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

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

, where C is the specific head capacity, δ T is the temperature rise and δ t the exposure duration, or related to the electrical field in the tissue by

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

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

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

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

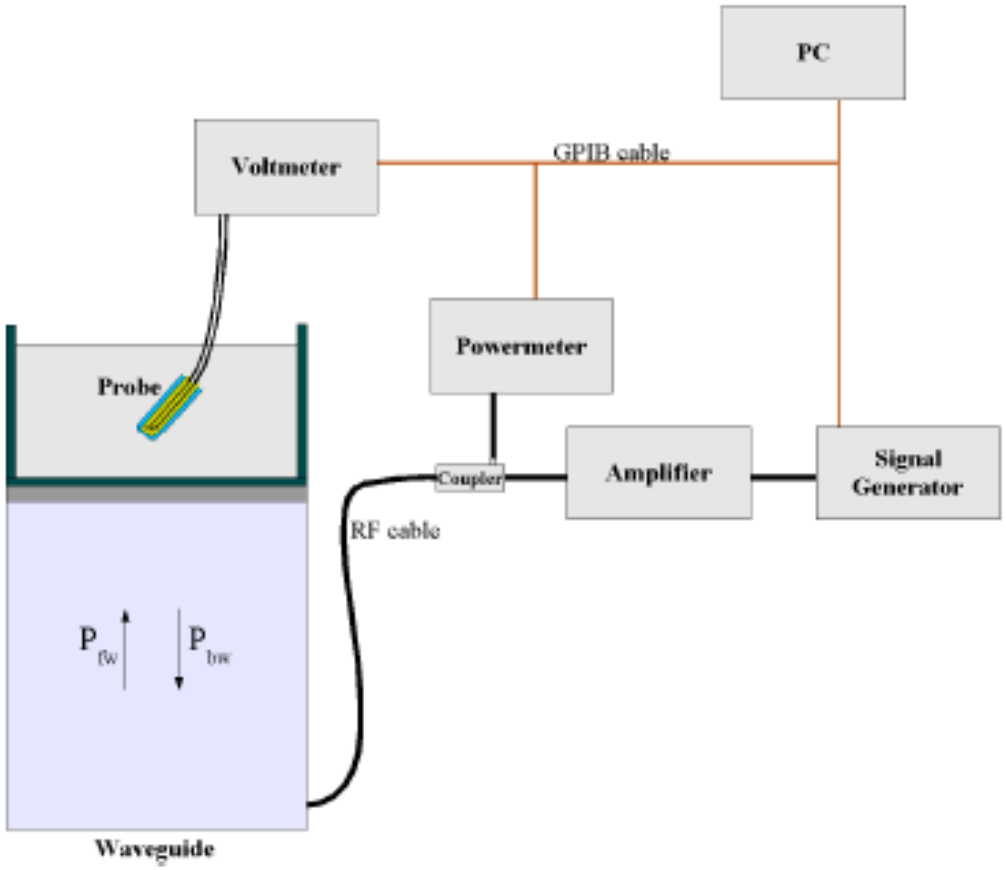
For the measurements the Specific Dosimetric E-Field Probe SN 37/08 EP80 with following specifications is used

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

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

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.

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

Where:

σ = simulated tissue conductivity,

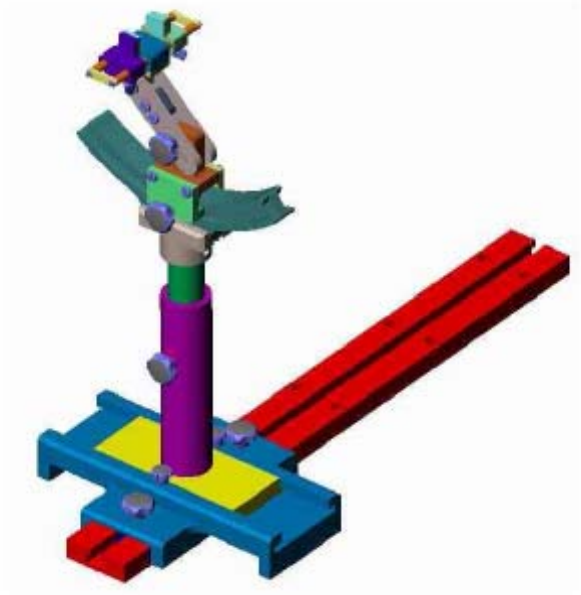
ρ = Tissue density (1.25 g/cm3 for brain tissue)

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 lower than 1°.



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

5. Tissue Simulating Liquids

Simulant liquids that are used for testing at frequencies of 850 and 1900MHz . which are made mainly of sugar, salt and water solutions may be left in the phantoms. Approximately 20litres are needed for an upright head compared to about 25 litres for a horizontal bath phantom. The liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is or from the flat phantom to the liquid top surface is 15cm.
Following are the recipes for one liter of head and body tissue simulating liquid for frequency band 835 MHz and 1900 MHz .

Ingredients (% by weight)	Frequency Band 835MHz		Frequency Band 1900MHz	
Tissue Type	Head	Body	Head	Body
Water	41.45	52.4	54.9	40.4
Salt(NaCl)	1.45	1.4	0.18	0.5
Sugar	56.0	45.0	0.0	58.0
HEC	1.0	1.0	0.0	1.0
Bactericide	0.1	0.1	0.0	0.1
Triton	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	44.92	0.0
Acticide SPX	0.0	0.0	0.0	0.0
Dielectric Constant	42.45	56.1	39.9	54.0
Conductivity (S/m)	0.91	0.95	1.42	1.45

Recipes for Tissue Simulating Liquid

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

Table 1: Dielectric Performance of Head Tissue Simulating Liquid

Temperature: 22.0~23.8°C, humidity: 54~60%.			
Frequency	**Description**	**Permittivity ε**	**Conductivity σ (S/m)**
835 MHz	**Reference result ±5% window**	41.5 39.425 to 43.575	0.90 0.855 to 0.945
835 MHz	**Validation value (Apr. 26)**	41.675999	0.894409
1900 MHz	**Reference result ±5% window**	40 38 to 42	1.40 1.33 to 1.47
1900 MHz	**Validation value (Apr. 26)**	38.509998	1.436111

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

Table 2: Dielectric Performance of Body Tissue Simulating Liquid

Temperature: 22.0~23.8°C, humidity: 54~60%.			
Frequency	**Description**	**Permittivity ε**	**Conductivity σ (S/m)**
835 MHz	**Reference result ±5% window**	55.2 52.44 to 57.96	0.97 0.9215 to 1.0185
835 MHz	**Validation value (Apr. 26)**	55.709999	0.9809033
1900 MHz	**Reference result ±5% window**	53.3 50.635 to 55.965	1.52 1.444 to 1.596
1900 MHz	**Validation value (Apr. 26)**	52.548876	1.553978

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 HANDSET SAR TEST

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/ e	k
Uncertainty Component	Sec.	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+- %)	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

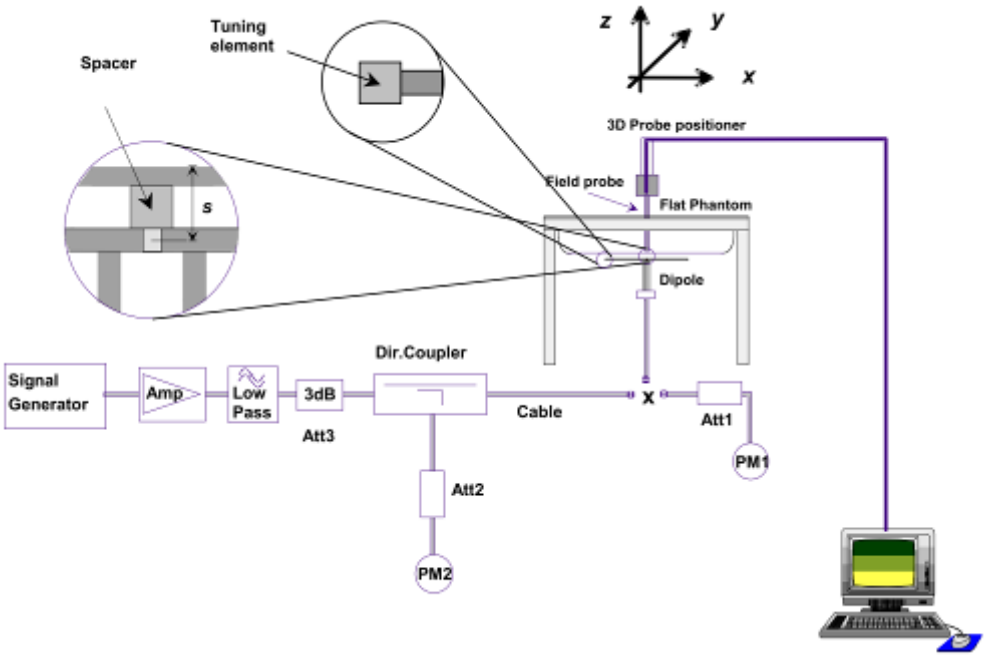
7.1. System Setup

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 at frequency 835 MHz, 1900 MHz and 2450MHz. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom.

Equipments:

name	Type and specification
Signal generator	E4433B
Directional coupler	450MHz-3GHz
Amplifier	3W 502(10-2500MHz)
Reference dipole	835MHz:SN 36/08 DIPC 99 1900MHz:SN 36/08 DIPF 102

System Verification Setup Block Diagram



7.2. Validation Results

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

Frequency	Description	SAR[W/Kg] 1g	
		Head	Body
835 MHz	**Reference result ±5% window**	9.714 8.743 to 10.685	9.714 8.743 to 10.685
835 MHz	**Validation value (Apr. 26)**	9.912	9.544
1900 MHz	**Reference result ±5% window**	39.890 35.901 to 43.879	39.890 35.901 to 43.879
1900 MHz	**Validation value (Apr. 26)**	37.820	38.960

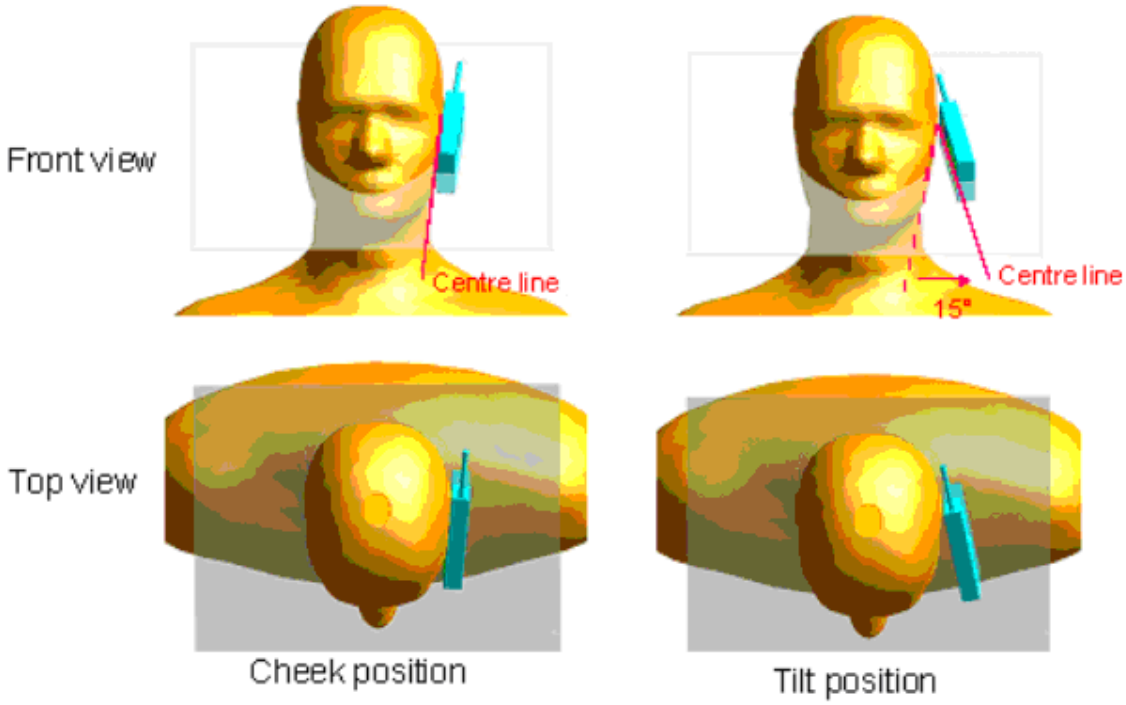
Note: System checks the specific test data please see page 134~141

8. Operational Conditions During Test

8.1. Informations on the testing

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

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



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

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

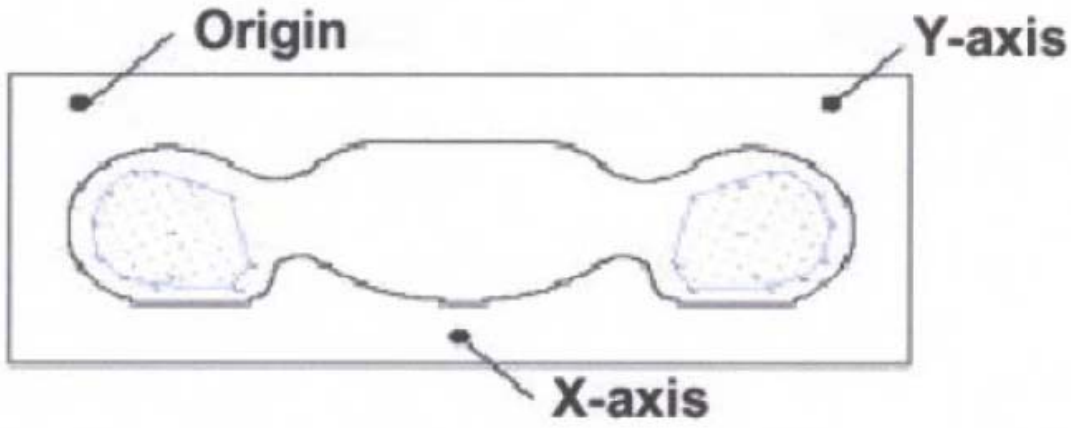
Remark: Please refer to Appendix B for the test setup photos.

8.2. Body-worn Configurations

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

The depth of the body tissue was 15.1cm. The distance between the back of the device and the bottom of the flat phantom is 1.5cm(taking into account of the IEEE 1528 and the place of the antenna)

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



SAR Measurement Points in Area Scan

8.3. Measurement procedure

The following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 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. 3G MEASUREMENT PROCEDURES

9.1.WCDMA Handsets Test Configuration

The following procedures are applicable to WCDMA handsets operating under 3GPP Release 99, Release 5 and Release 6. The default test configuration is to measure SAR with an established radio link between the DUT and a communication test set using a 12.2kbps RMC (refer measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations (DPCCH & DPDCHn), HSDPA and HSPA(HSDPA/HSUPA) modes according to output power, exposure conditions and device operating capabilities. Both uplink and downlink should be configured with same RMC or AMR, when required. SAR for Release 5 HSDPA and Release 6 HSPA are measured using the applicable FRC (fised reference channel) and E-DCH reference channek configurations. Maximum output power is verified according to applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. When Maximum Power Reduction (MPR) is not implemented according to Cubic Metric (CM) requirements for Release 6 HSPA, the following procedures do not apply.

9.2. Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC(transmit power control) set to all "1's" for WCDMA/HSDPA or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCH and spreading codes) should be tabulated in the test report. All configurations that are not supported by the EUT or cannot be measured due to technical or equipment limitations should be clearly identified.
If Maximum SAR for 12.2kbps RMC is ≤ 75% of the SAR limit and maximum average output of each RF channel with HSUPA/HSDPA active is less than 1/4 dB higher than that measured without HSUPA/HSDPA using 12.2kbps RMC, according to KDB 941225D01v02, SAR is not required for this handset with HSPA capabilities.

9.3. Head SAR measurements

SAR for head exposure configurations in voice mode is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2 kbps AMR is less than 1/4 dB higher than that measured without HSUPA/HSDPA using 12.2kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75% of the SAR limit. Otherwise, SAR is measured on the maximum output channel in 12.2 kbps AMR with a 3.4 kbps SRB (signaling radio bearer) using the exposure configuration that result in the highest SAR 12.2 kbps RMC for that RF channel.

9.4. Body SAR measurements

SAR for body exposure configurations in voice and data modes is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". SAR for other spreading codes and multiple DPDCHn, when

supported by the DUT, are not required when the maximum average output of each RF channek, for spreading codes and multiple DPDCHn configuration are less than 1/4 dB higher than those measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel with an applicable RMC configuration for the corresponding spreading code or DPDCHn using the exposure configuration that results in the highest SAR with 12.2 kbps RMC. When more than 2 DPDCHn are supported by the DUT, it may be necessary to configure additional DPDCHn for a DUT using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

9.5. Handsets with Release 6 HSPA(HSDPA/HSUPA)

Body SAR is not required for handsets with HSPA capabilities when the maximum average output of each RF channel with HSUPA/HSDPA active is less than 1/4 dB higher than that measured without HSUPA/HSDPA using 12.2 kbps RMC and maximum SAR for 12.2 kbps RMC is ≤ 75% of the SAR limit. Otherwise, SAR is measured for HSPA using the additional body SAR procedures in the "Release 6 HSPA Data Devices" section of this document, on the maximum output channel with the body exposure configuration that results in the highest SAR in 12.2 kbps RMC for that RF channel. When VOIP is applicable for head exposure in HSPA, SAR is not required when the maximum output of each RF channel with HSPA is less than 1/4 dB higher than that measured without HSUPA/HSDPA using 12.2kbps RMC; otherwise, the same HSPA configuration used for body measurement should be tested for head exposure.

9.6. Measurement Of Conducted Peak Output Power.

1. WCDMA Conducted peak output power

Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4132	4175	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	22.17	22.32	22.16	22.78	22.55	22.58
HSDPA	1	22.16	22.24	22.08	22.69	22.25	22.18
	2	22.15	22.25	22.09	22.55	22.21	22.17
	3	21.66	21.73	21.52	22.01	21.71	21.65
	4	21.65	21.72	21.48	22.03	21.73	21.69
HSUPA	1	22.17	22.25	22.12	22.66	21.21	21.17
	2	20.15	20.57	20.11	20.65	19.44	19.43
	3	21.15	21.27	21.11	21.55	20.19	20.29
	4	20.16	20.51	20.09	20.59	19.32	19.25
	5	22.16	22.22	22.12	22.65	21.19	21.16

2. GSM Conducted peak output power

Band	Channel	Frequency (MHz)	Output Power (dBm)
GSM 850	128	824.2	32.35
	190	836.6	32.29
	251	848.8	32.17
PCS 1900	512	1850.2	28.19
	661	1880.0	27.83
	810	1909.8	27.96

2. GPRS Mode Conducted peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	31.64	31.72	31.75	31.80
	190	836.6	31.76	31.64	31.77	31.70
	251	848.8	31.63	31.50	31.41	31.69
PCS 1900	512	1850.2	27.25	27.21	27.16	27.20
	661	1880.0	26.91	26.82	26.83	26.80
	810	1909.8	26.31	26.98	26.73	26.93

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	22.64	25.70	27.49	28.79
	190	836.6	22.76	25.62	27.51	28.69
	251	848.8	22.63	25.48	27.15	28.68
PCS 1900	512	1850.2	18.25	21.19	22.90	24.19
	661	1880.0	17.91	20.80	22.57	23.79
	810	1909.8	17.31	20.96	22.47	23.92

3. EDGE 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	31.72	31.69	31.80	31.70
	190	836.6	31.67	31.53	31.54	31.60
	251	848.8	31.20	31.41	31.15	31.65
PCS 1900	512	1850.2	26.22	26.61	26.40	26.92
	661	1880.0	26.48	26.64	25.97	26.50
	810	1909.8	26.75	26.93	26.91	26.51

EDGE Time-based Average Power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	22.72	25.67	27.54	28.69
	190	836.6	22.67	25.51	27.28	28.59
	251	848.8	22.20	25.39	26.89	28.64
PCS 1900	512	1850.2	17.22	20.59	22.14	23.91
	661	1880.0	17.48	20.62	21.71	23.49
	810	1909.8	17.75	20.91	22.65	23.50

Timeslot consignations:

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

Note: 1. Correct Factor=10*log (Duty Cycle)
2. Average Power= Peak Power+ Correct Factor

4. Wifi peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			802.11B (DSSS)	802.11G (OFDM)	802.11N20 (OFDM)
WiFi	1	2412	12.81	9.32	9.46
	6	2437	12.84	9.34	9.53
	11	2462	12.73	9.54	9.41

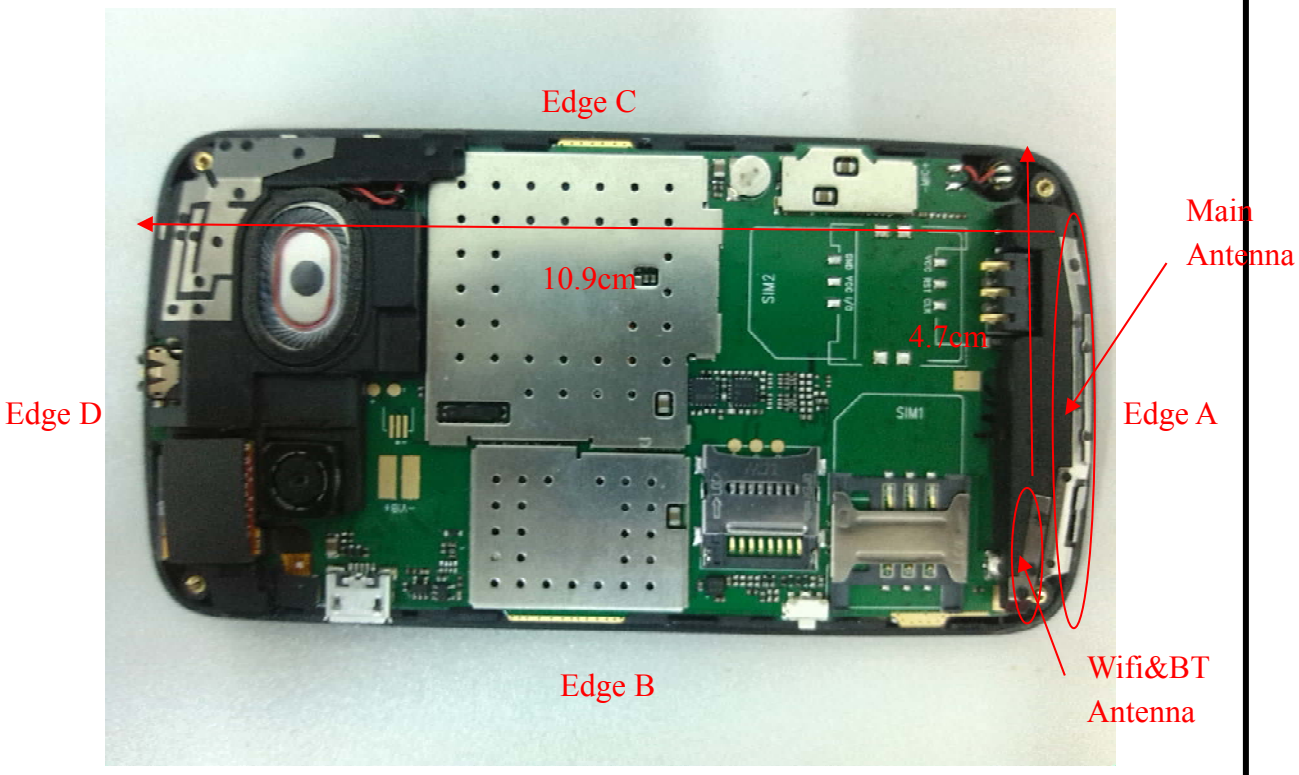
5. Bluetooth peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			GFSK	Π/4-DQPSK	8-DPSK
BT	0	2402	5.577	3.990	3.969
	38	2441	5.401	2.145	2.131
	79	2480	4.111	2.029	2.404

10.Wireless Hot Spot SAR Evaluation Procedures

This Portable Devices with Wireless Router function. And the SAR evaluation procedures accord with 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:



3. WCDMA&GSM antenna is located at edge A, the distance between WCDMA&GSM antenna and edge D is 10.9cm larger than 2.5cm. acording with KDB941225 D06, the SAR measurement of edge D of WCDMA and GSM are not required.

4. Wifi antenna is located at edge A, the distance between wifi antenna and edge C is larger than 2.5cm. acording with KDB941225 D06, the SAR measurement of edge C, is not required, so is Edge B.

11. 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
Right Side Of Head		Cheek	128	0.554	1.035	0.573
		Ear		0.335		0.347
Left Side Of Head		Cheek		0.643		0.666
		Ear		0.393		0.407
Body (10mm Separation)	GSM	Back upward		0.663		0.686
		Face Upward		0.563		0.583
	GPRS	Back upward		0.216	1.047	0.226
		Face Upward		0.198		0.207
		Edge A		0.039		0.041
		Edge B		0.201		0.210
		Edge C		0.164		0.172
	EDGE	Back upward		0.155	1.072	0.166

Note:

1.The SAR test shall be performed at the high, middle and low frequency channels of each operating mode, when the SAR of highest power channel of each configurations is less than 0.8 W/kg, refer to KDB 648474, testing for the other channels is not required.

2.The main antenna to Edge D is greater than 2.5cm, so the Edge D configuration is not required.

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
Right Side Of Head		Cheek	512	0.423	1.074	0.454
		Ear		0.093		0.100
Left Side Of Head		Cheek		0.418		0.499
		Ear		0.110		0.118
Body (10mm Separation)	GSM	Back upward		0.251		0.270
		Face Upward		0.258		0.277
	GPRS	Back upward		0.081	1.072	0.087
		Face Upward		0.090		0.096
		Edge A		0.139		0.149
		Edge B		0.048		0.051
		Edge C		0.060		0.064
	EDGE	Edge A		0.167	1.067	0.178

Note:

1.The SAR test shall be performed at the high, middle and low frequency channels of each operating mode, when the SAR of highest power channel of each configurations is less than 0.8 W/kg, refer to KDB 648474, testing for the other channels is not required.

2.The main antenna to Edge D is greater than 2.5cm, so the Edge D configuration is not required.

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
Right Side Of Head	Cheek/Touch	4175	0.370	1.042	0.386
	Ear/Tilt		0.377		0.393
Left Side Of Head	Cheek/Touch		0.590		0.615
	Ear/Tilt		0.355		0.370
Body (10mm Separation)	Back upward		0.530		0.552
	Face Upward		0.494		0.515
	Edge A		0.102		0.106
	Edge B		0.537		0.560
	Edge C		0.553		0.576

Note:
1.The SAR test shall be performed at the high, middle and low frequency channels of each operating mode, when the SAR of highest power channel of each configurations is less than 0.8 W/kg, refer to KDB 648474, testing for the other channels is not required.
2.The main antenna to Edge D is greater than 2.5cm, so the Edge D configuration is not required.
3.Maximum SAR for 12.2kbps RMC is 0.392 W/Kg≤ 75% of the SAR limit (i.e. 1.2W/Kg 1g) and maximum average output of each RF channel with HSUPA/HSDPA active is less than 1/4 dB higher than that measured without HSUPA/HSDPA using 12.2kbps RMC (refer to Page 24 of the report), according to KDB 941225D01v02, SAR is not required for this handset with HSPA capabilities.

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
Right Side Of Head	Cheek/Touch	9262	1.076	1.052	1.132
		9400	0.897	1.109	0.995
		9538	0.979	1.102	1.079
	Ear/Tilt	9262	0.249	1.052	0.262
Left Side Of Head	Cheek/Touch		0.799		0.841
	Ear/Tilt		0.183		0.193
Body (10mm Separation)	Back upward		0.484		0.509
	Face Upward		0.522		0.549
	Edge A		1.036		1.090
		9400	0.973	1.109	1.079
		9538	0.823	1.102	0.907
	Edge B	9262	0.298	1.052	0.313
	Edge C	9262	0.341		0.359

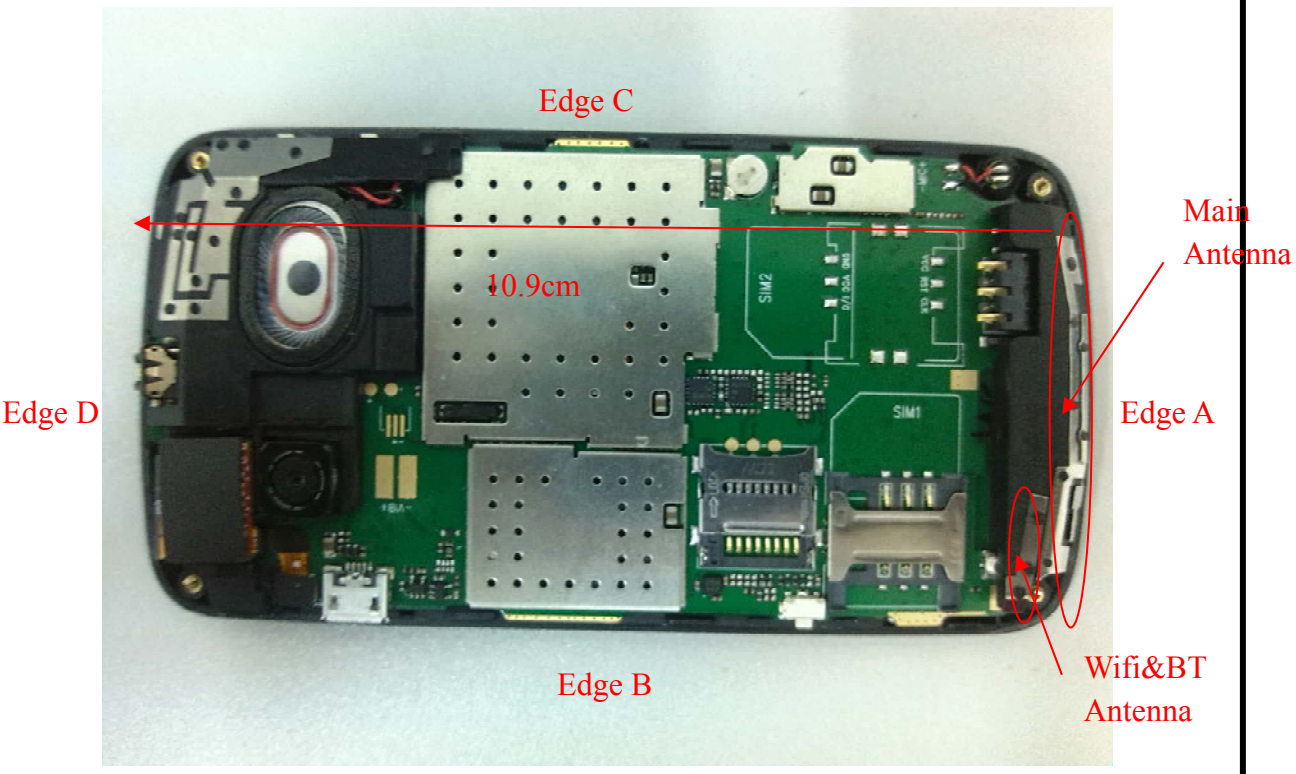
Note:
1.The SAR test shall be performed at the high, middle and low frequency channels of each operating mode, when the SAR of highest power channel of each configurations is less than 0.8 W/kg, refer to KDB 648474, testing for the other channels is not required.
2.The main antenna to Edge D is greater than 2.5cm, so the Edge D configuration is not required.
3.Maximum SAR for 12.2kbps RMC is 1.144 W/Kg≤ 75% of the SAR limit (i.e. 1.2W/Kg 1g) and maximum average output of each RF channel with HSUPA/HSDPA active is less than 1/4 dB higher than that measured without HSUPA/HSDPA using 12.2kbps RMC (refer to Page 24 of the report), according to KDB 941225D01v02, SAR is not required for this handset with HSPA capabilities.

Scaled SAR calculation

Band	Tune-up power tolerance (dBm)	SAR test channel Power (dBm)	Scaling Factor
GSM 850	PCL = 5, PWR = 32±0.5	32.35	1.035
GPRS 850	Max output power <32	31.80	1.047
EDGE 850	Max output power <32	31.70	1.072
PCS 1900	PCL = 0, PWR = 28 ±0.5	28.19	1.074
GPRS 1900	Max output power <27.5	27.20	1.072
EDGE 1900	Max output power <27.2	26.92	1.067
WCDMA 850	Max output power =22 (+0.5/-2)	22.32	1.042
WCDMA 1900	Max output power =22 (+1/-3)	22.78	1.052
		22.55	1.109
		22.58	1.102

12. Multiple Transmitters Evaluation

The are three transmitters build in EUT, As follwing :



Stand-alone SAR

The output power of Wifi transmitter is 12.84 <25mW(13.98dBm) ,stand-alone SAR evaluation is not required for Wifi.

The BT Max. Peak output power is 5.57mW (3.61dBm)≤Pref {Pref= ½*60/f(GHz)},and the distance between BT antenna and main antenna is 0.1 cm ≤ 2.5 cm, and the SARmax for main antenna≤1.2W/Kg, standalone SAR evaluation is not required for Bluetooth antenna .

Simultaneous SAR

The GSM and WCDMA can't simultaneous transmitting.

The BT and Wifi can't simultaneous transmitting.

Test Position	GSM&WCDMA SARMax(W/Kg)	Bluetooth SAR(W/Kg)	WiFi SAR(W/Kg)	∑1-g SARMax(W/Kg)	
				BT&Main Ant	WiFi&Main Ant
Head SAR	1.076	0	0	1.076	1.076
Body SAR	1.036	0	0	1.036	1.036

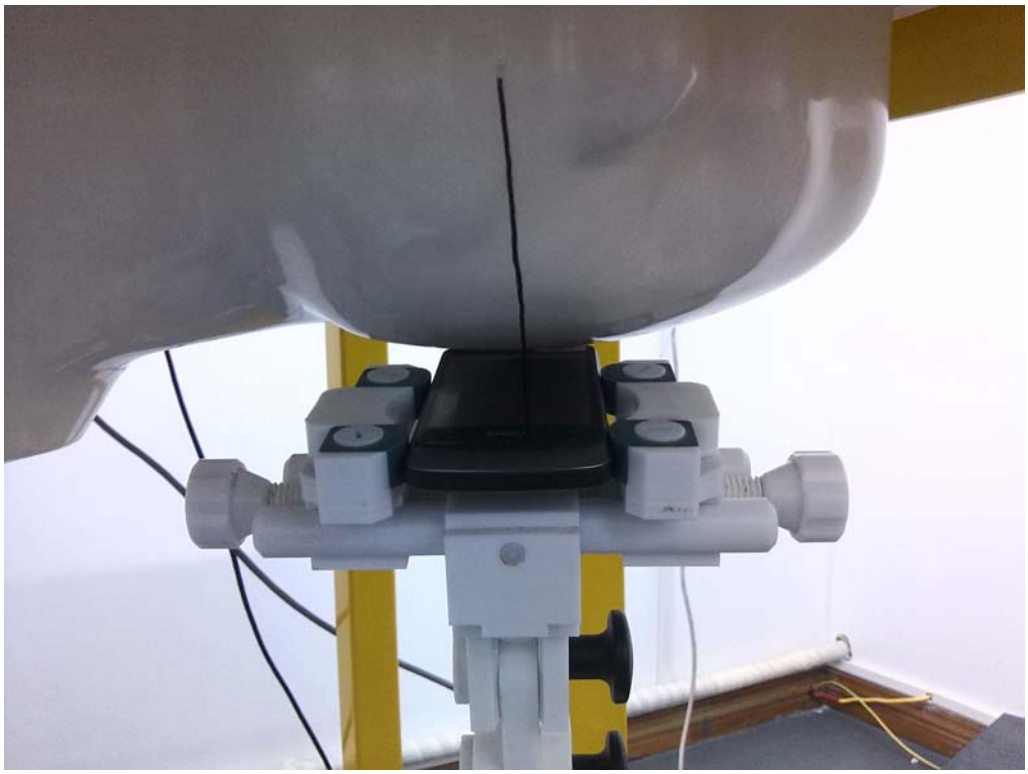
Simultaneous Transmission SAR evaluation is not required for BT and GSM&WCDMA, because the sum of 1g SARMax is 1.036W/Kg < 1.6W/Kg for BT and GSM&WCDMA.

Simultaneous Transmission SAR evaluation is not required for WiFi and GSM&WCDMA, because the sum of 1g SARMax is 1.036W/Kg < 1.6W/Kg for BT and GSM&WCDMA.

Annex A EUT Setup Photos

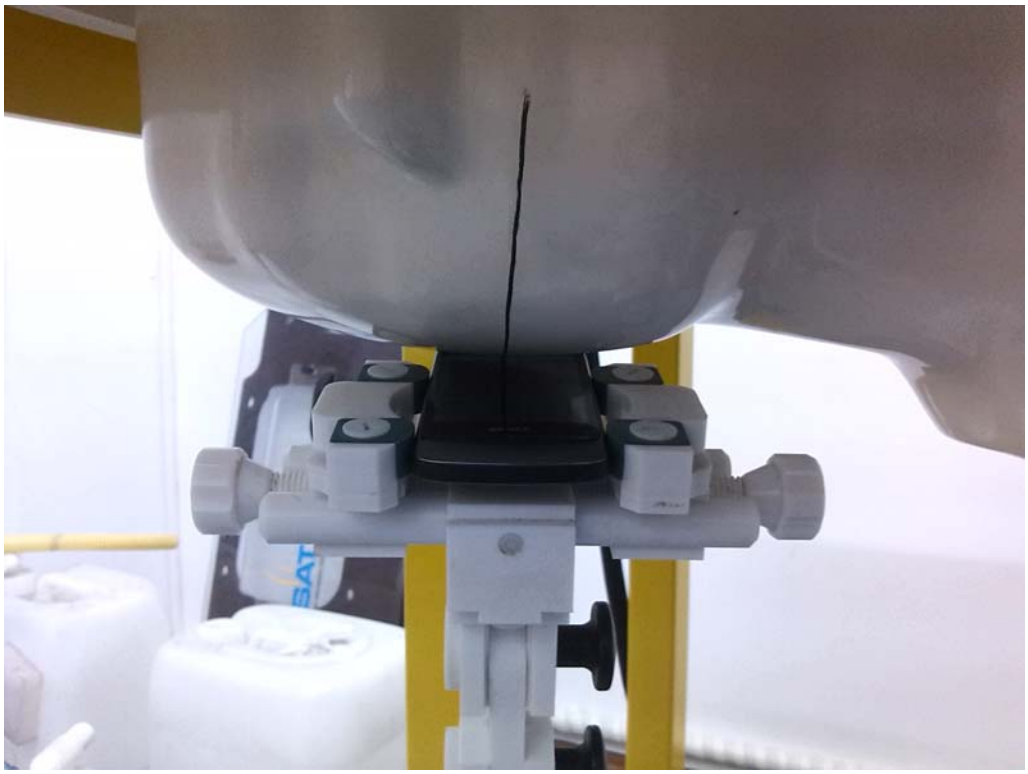
1 EUT Left Head Touch Cheek Position

2 EUT Left Head Tilt15 Position

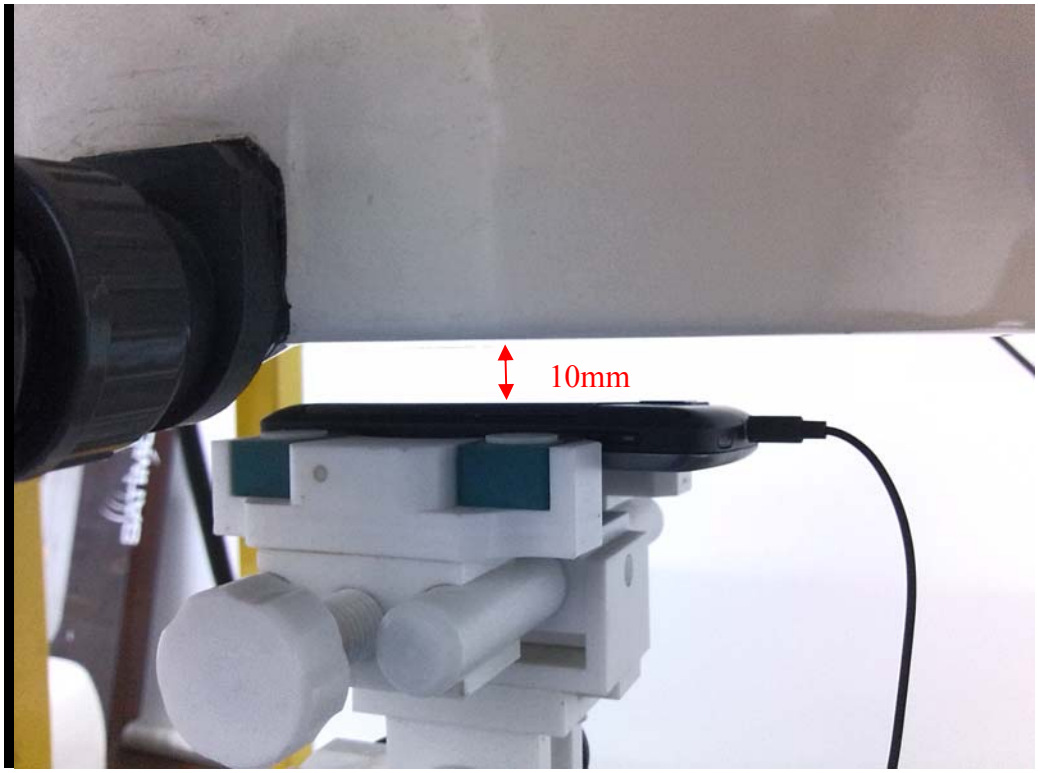


3 EUT Right Head Touch Cheek Position

4 EUT Right Head Tilt15 Position

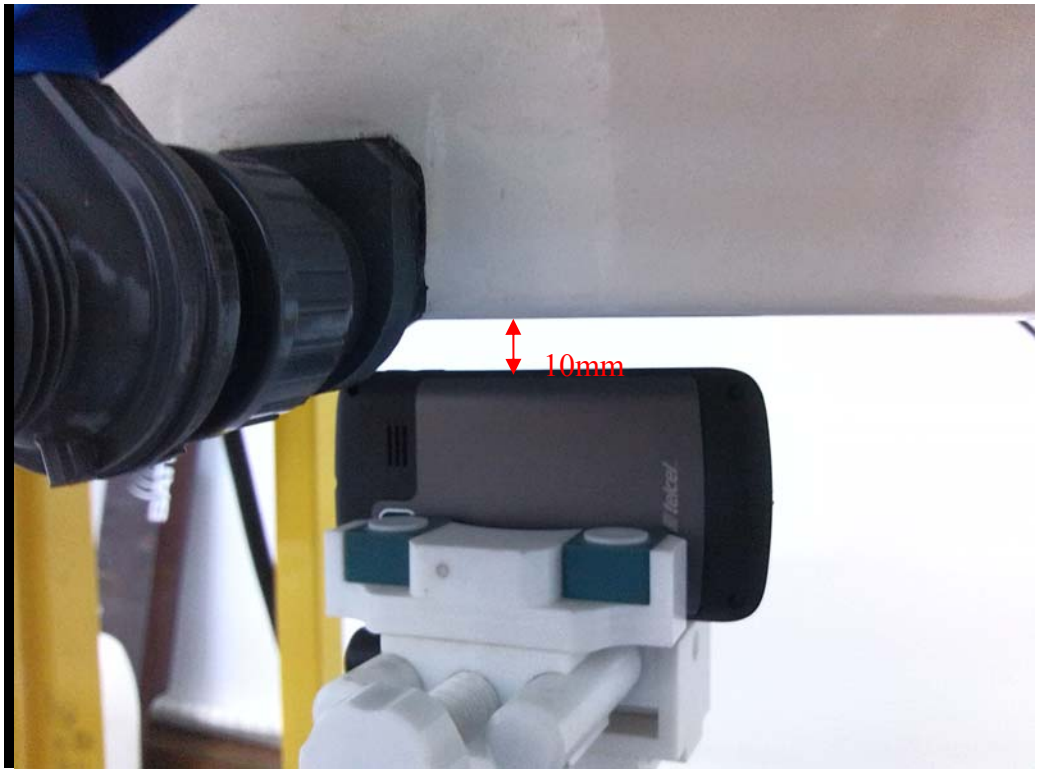


5 Side Position

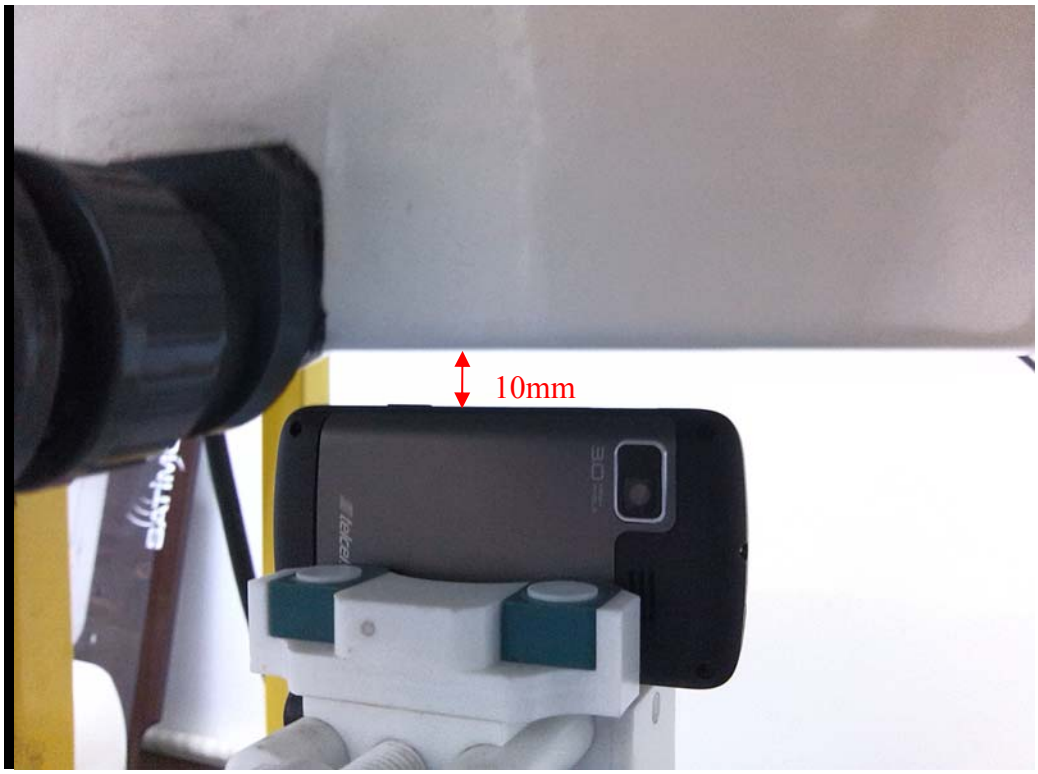


6 Edge A

7 Edge B



8 Edge C



Liquid Level Photo

Annex B Graph Test Results

BAND	PARAMETERS
GSM850	Measurement 1: Right Head with Cheek device position on Low Channel in GSM mode Measurement 2: Right Head with Tilt device position on Low Channel in GSM mode Measurement 3: Left Head with Cheek device position on Low Channel in GSM mode Measurement 4: Left Head with Tilt device position on Low Channel in GSM mode Measurement 5: Validation Plane with Body device position on Low Channel in GSM mode Measurement 6: Validation Plane with Body device position on Low Channel in GSM mode Measurement 7: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 8: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 9: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 10: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 11: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 12: Validation Plane with Body device position on Low 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: Validation Plane with Body device position on Low Channel in GSM mode Measurement 18: Validation Plane with Body device position on Low Channel in GSM mode Measurement 19: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 20: Validation Plane with Body device position on Low Channel in GPRS mode

	Measurement 21: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 22: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 23: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 24: Validation Plane with Body device position on Low Channel in EDGE mode
WCDMA 850	Measurement 25: Right Head with Cheek device position on Middle Channel in CDMA mode Measurement 26: Right Head with Tilt device position on Middle Channel in CDMA mode Measurement 27: Left Head with Cheek device position on Middle Channel in CDMA mode Measurement 28: Left Head with Tilt device position on Middle Channel in CDMA mode Measurement 29: Validation Plane with Body device position on Middle Channel in CDMA mode Measurement 30: Validation Plane with Body device position on Middle Channel in CDMA mode Measurement 31: Validation Plane with Body device position on Middle Channel in CDMA mode Measurement 32: Validation Plane with Body device position on Middle Channel in CDMA mode Measurement 33: Validation Plane with Body device position on Middle Channel in CDMA mode
WCDMA 1900	Measurement 34: Right Head with Cheek device position on Low Channel in CDMA mode Measurement 35: Right Head with Cheek device position on Middle Channel in CDMA mode Measurement 36: Right Head with Cheek device position on High Channel in CDMA mode Measurement 37: Right Head with Tilt device position on Low Channel in CDMA mode Measurement 38: Left Head with Cheek device position on Low Channel in CDMA mode Measurement 39: Left Head with Tilt device position on Low Channel in CDMA mode Measurement 40: Validation Plane with Body device position on Low Channel in CDMA mode Measurement 41: Validation Plane with Body device position on Low Channel in CDMA mode Measurement 42: Validation Plane with Body device position on Low Channel in CDMA mode

	Measurement 43: Validation Plane with Body device position on Middle Channel in CDMA mode Measurement 44: Validation Plane with Body device position on High Channel in CDMA mode Measurement 45: Validation Plane with Body device position on Low Channel in CDMA mode Measurement 46: Validation Plane with Body device position on Low Channel in CDMA 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: 26/4/2012
Measurement duration: 8 minutes 10 seconds

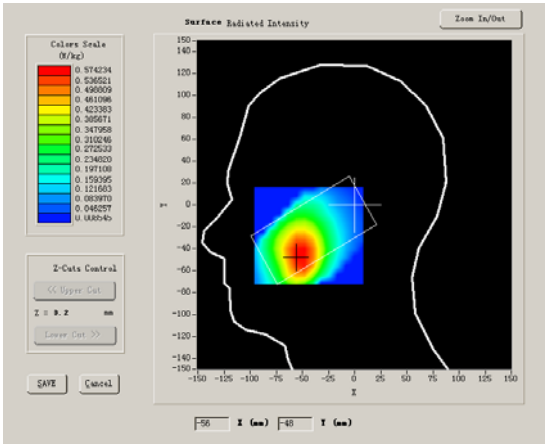
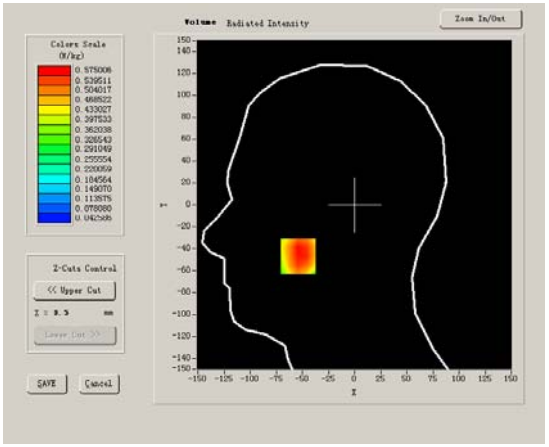
A. Experimental conditions.

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

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200000
Relative permittivity (real part)	40.669998
Relative permittivity	19.120001
Conductivity (S/m)	0.888655
Power drift(%)	-1.010000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.479,25.214,27.19
Crest factor:	1:8

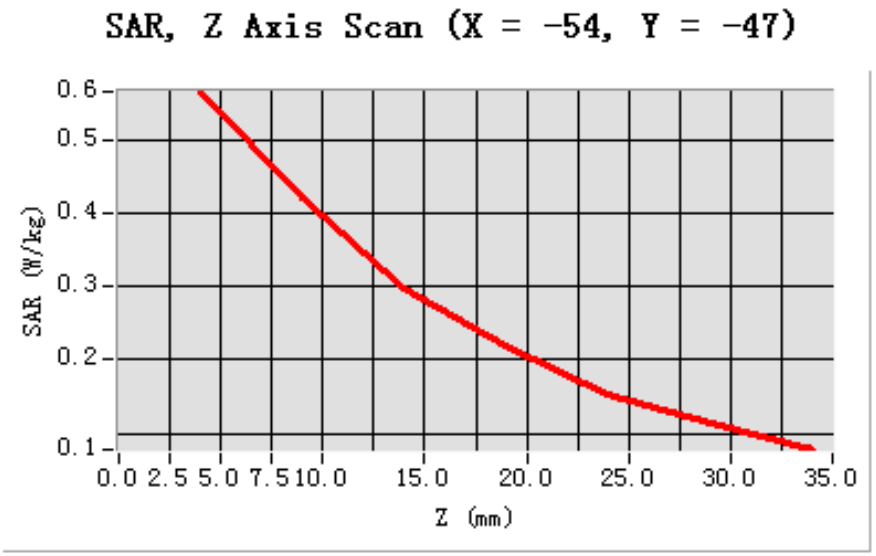
SURFACE SAR	VOLUME SAR
	

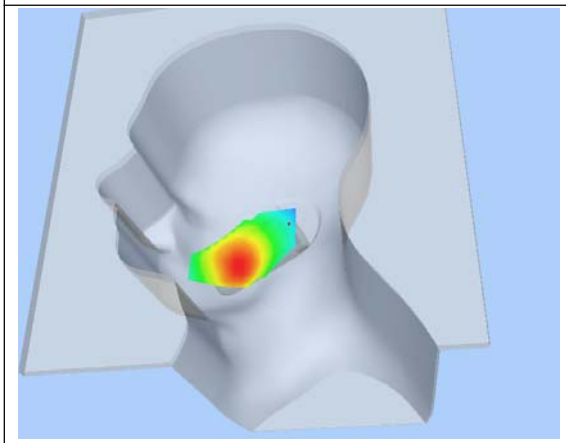
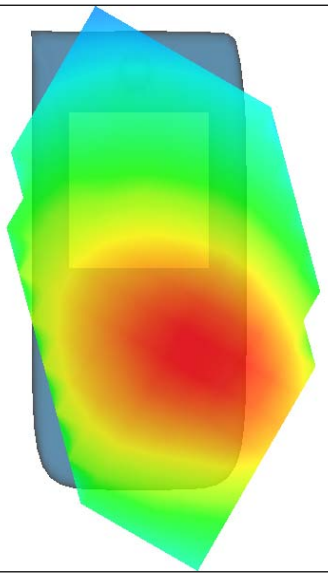
Maximum location: X=-54.00, Y=-47.00

SAR 10g (W/Kg)	0.382778
SAR 1g (W/Kg)	0.553939

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5658	0.4214	0.2978	0.2180	0.1533	0.1133



3D sceen 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: 26/4/2012
Measurement duration: 7 minutes 38 seconds

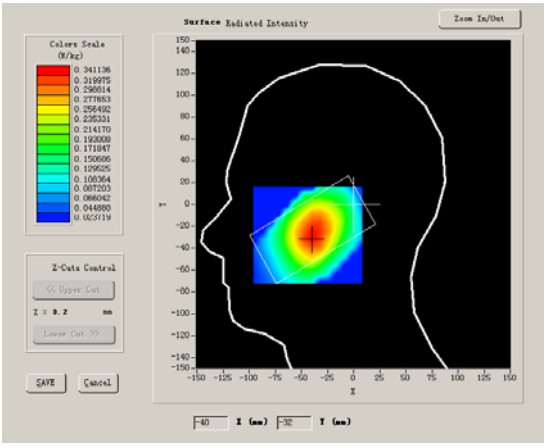
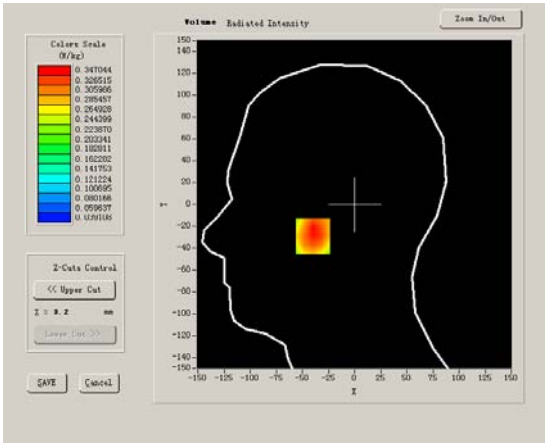
A. Experimental conditions.

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

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200000
Relative permittivity (real part)	40.669998
Relative permittivity	19.120001
Conductivity (S/m)	0.888655
Power drift(%)	-0.950000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.479,25.214,27.19
Crest factor:	1:8

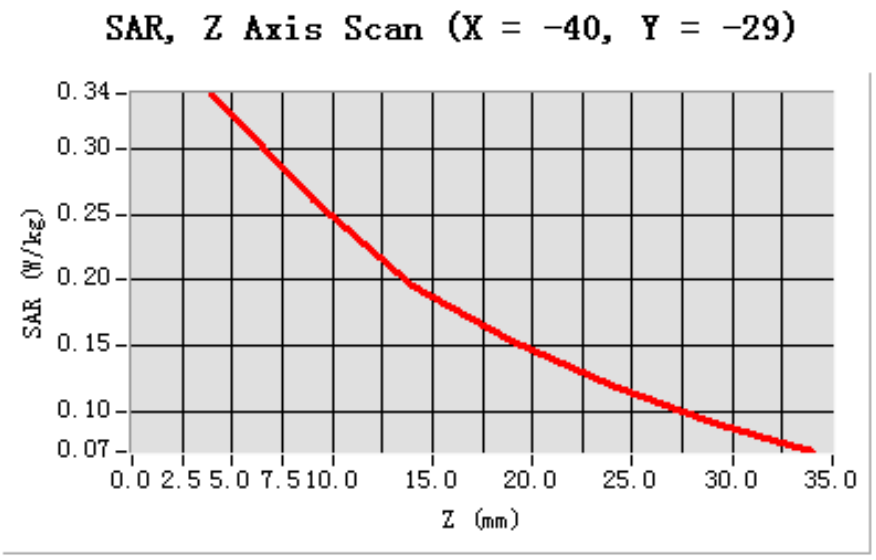
SURFACE SAR	VOLUME SAR
	

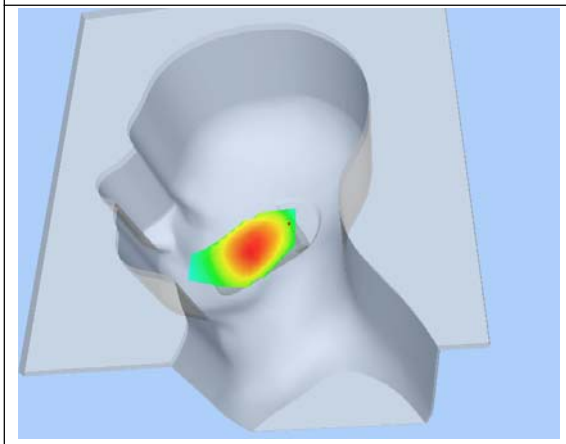
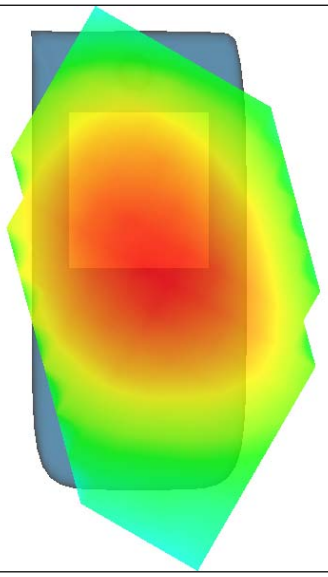
Maximum location: X=-40.00, Y=-29.00

SAR 10g (W/Kg)	0.239612
SAR 1g (W/Kg)	0.334890

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3419	0.2604	0.1959	0.1538	0.1197	0.0912



3D sceen 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: 26/4/2012
Measurement duration: 7 minutes 59 seconds

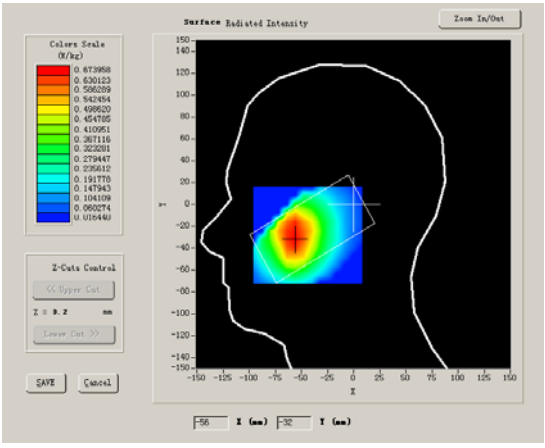
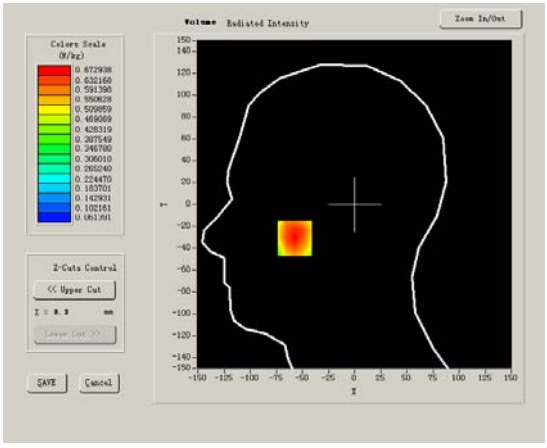
A. Experimental conditions.

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

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	836.599976
Relative permittivity (real part)	40.669998
Relative permittivity	19.120001
Conductivity (S/m)	0.888655
Power drift(%)	-0.750000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.479,25.214,27.19
Crest factor:	1:8

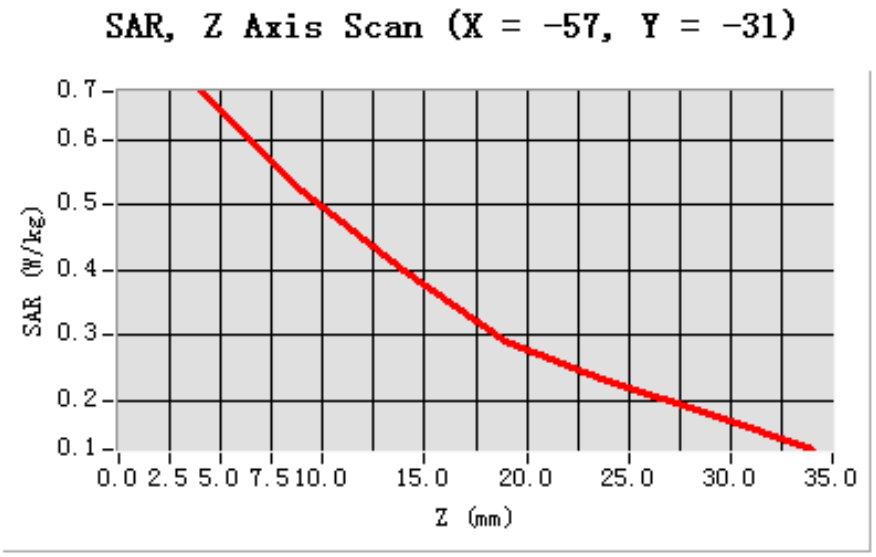
SURFACE SAR	VOLUME SAR
	

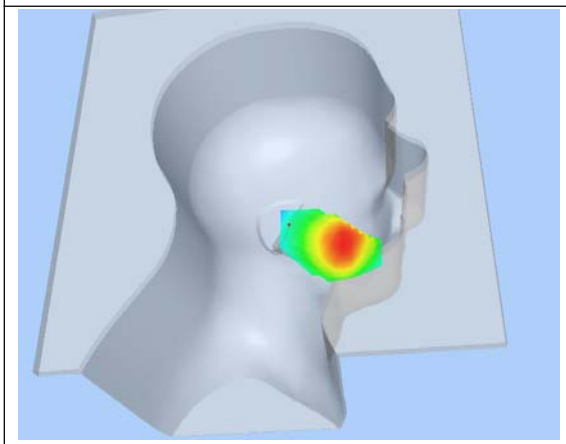
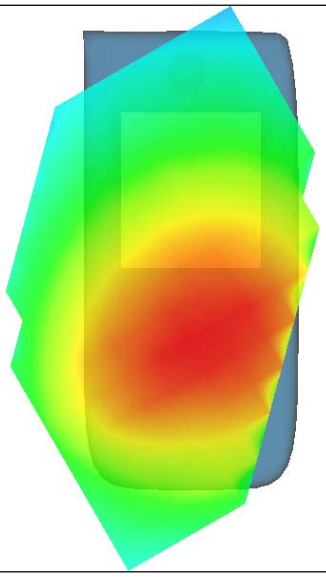
Maximum location: X=-57.00, Y=-31.00

SAR 10g (W/Kg)	0.464147
SAR 1g (W/Kg)	0.642860

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.6729	0.5216	0.3986	0.2906	0.2303	0.1788



3D sceen 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: 26/4/2012
Measurement duration: 7 minutes 31 seconds

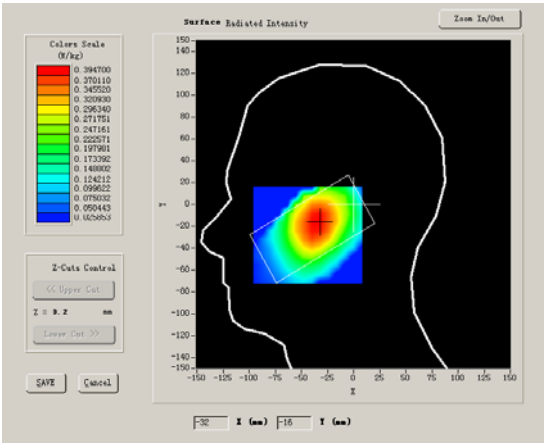
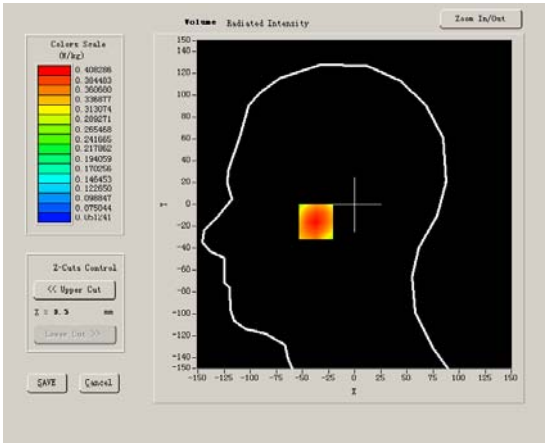
A. Experimental conditions.

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

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200000
Relative permittivity (real part)	40.669998
Relative permittivity	19.120001
Conductivity (S/m)	0.888655
Power drift(%)	-0.680000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.479,25.214,27.19
Crest factor:	1:8

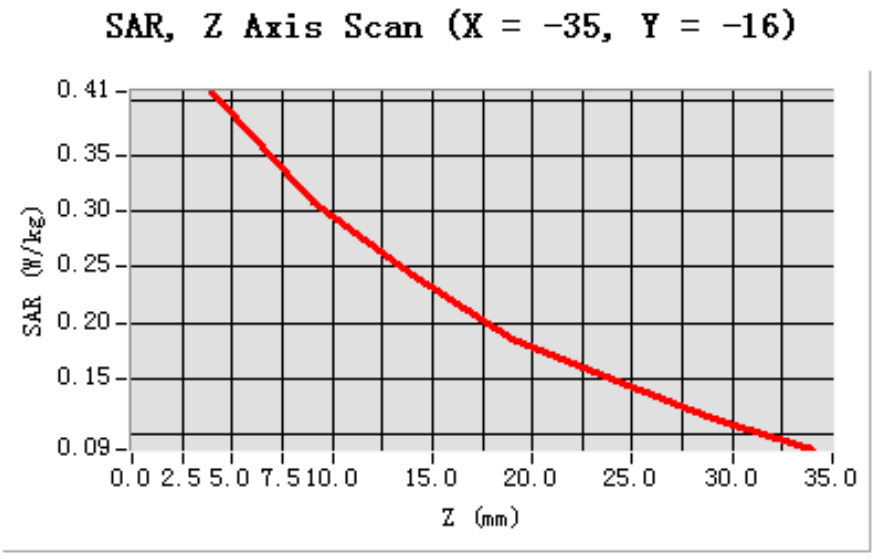
SURFACE SAR	VOLUME SAR
	

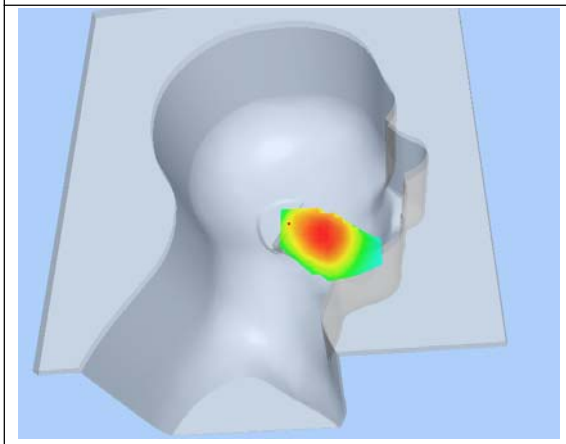
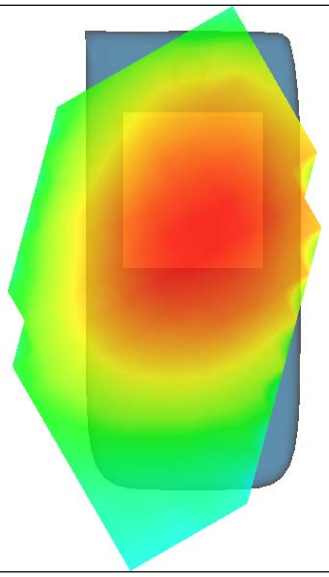
Maximum location: X=-35.00, Y=-16.00

SAR 10g (W/Kg)	0.285892
SAR 1g (W/Kg)	0.392796

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4083	0.3081	0.2420	0.1858	0.1496	0.1131



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 11 seconds

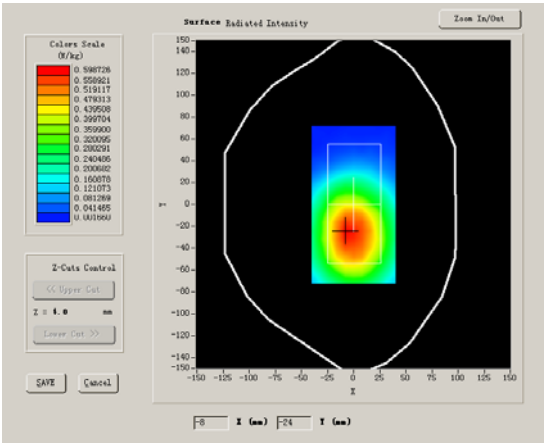
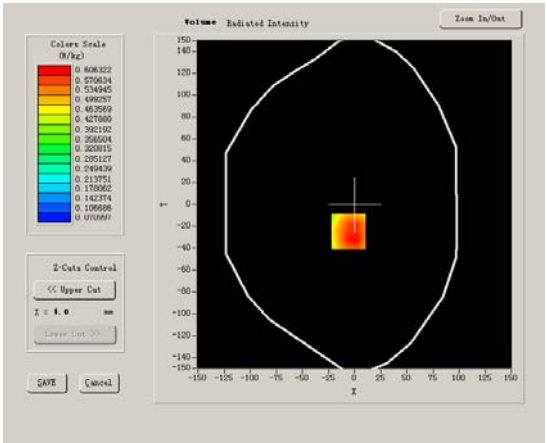
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GSM

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200000
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power drift(%)	-1.890000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:8

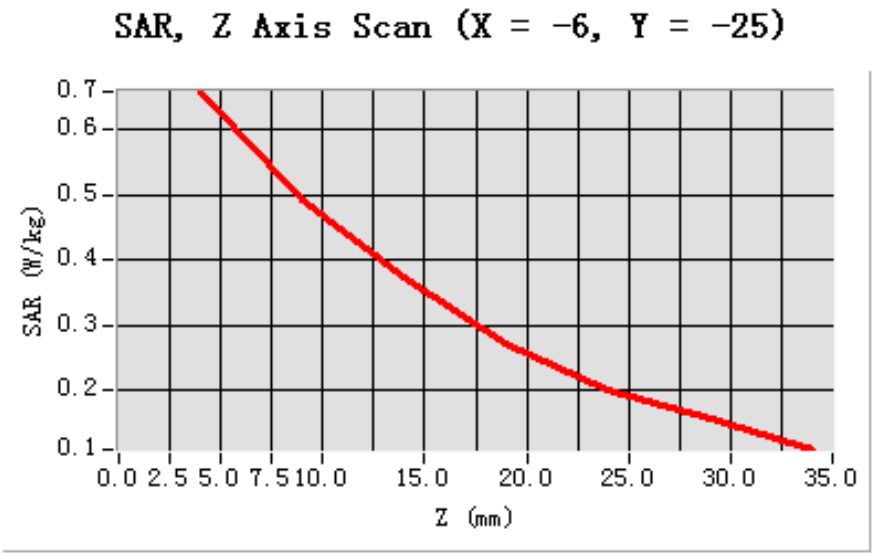
SURFACE SAR	VOLUME SAR
	

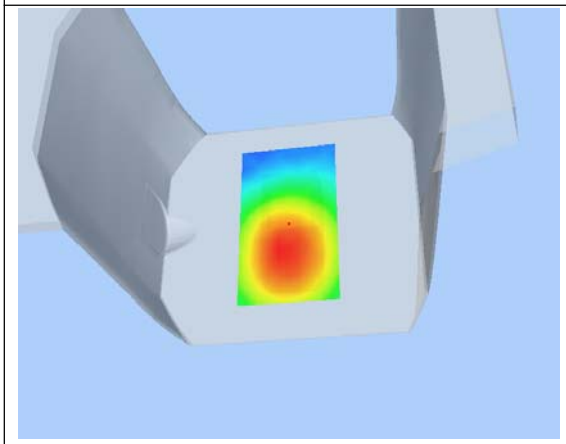
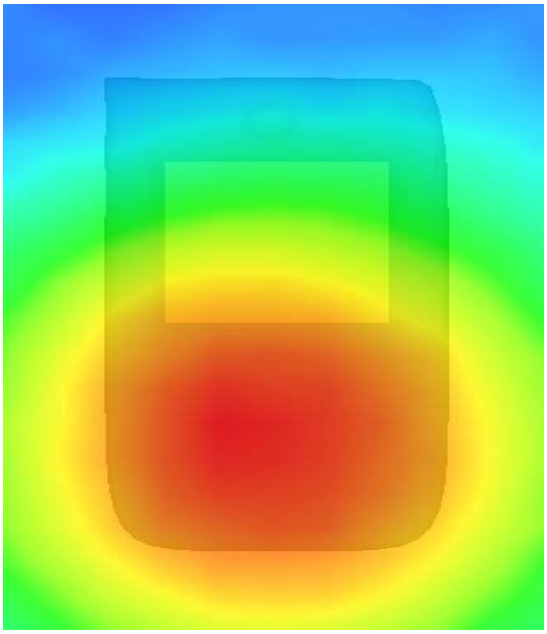
Maximum location: X=-6.00, Y=-25.00

SAR 10g (W/Kg)	0.470259
SAR 1g (W/Kg)	0.663484

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.6581	0.4925	0.3742	0.2729	0.2010	0.1570



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 11 seconds

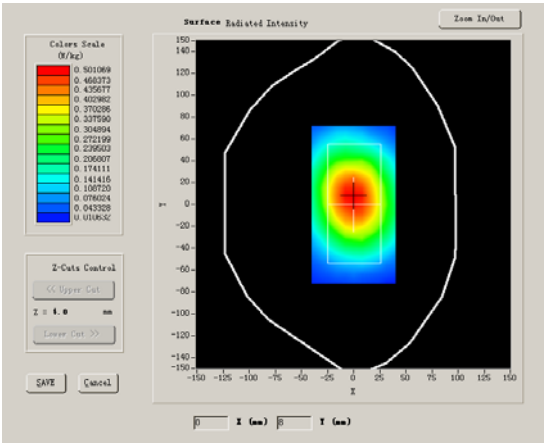
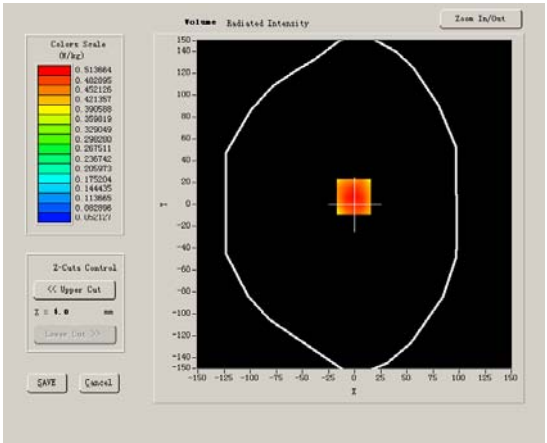
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GSM

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200000
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power drift(%)	-0.140000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:8

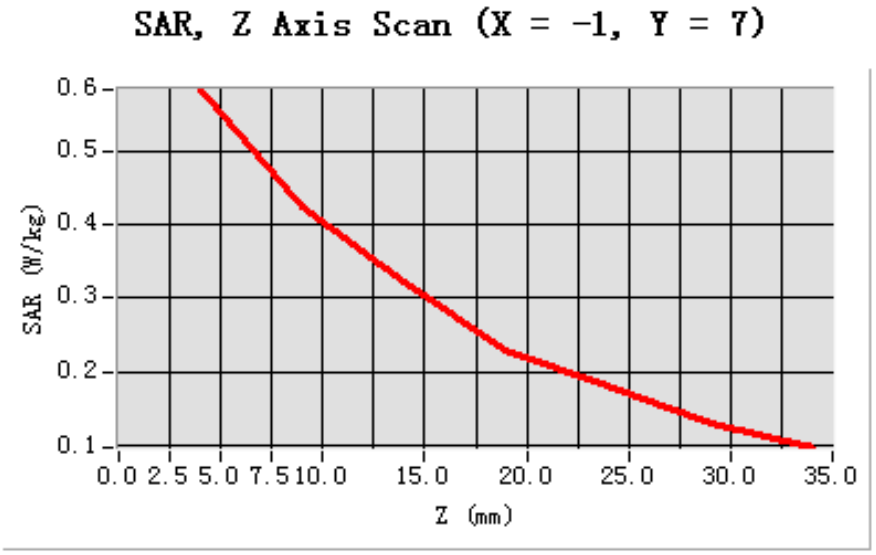
SURFACE SAR	VOLUME SAR
	

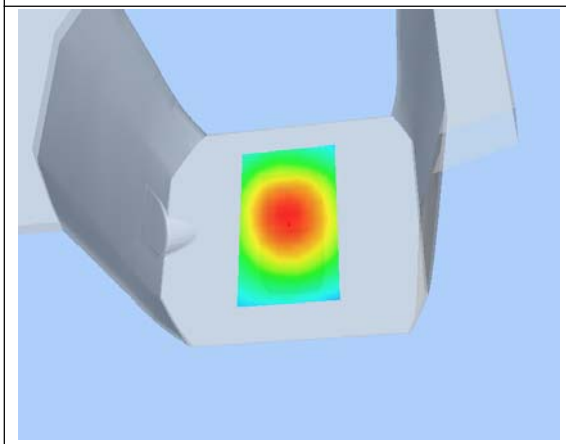
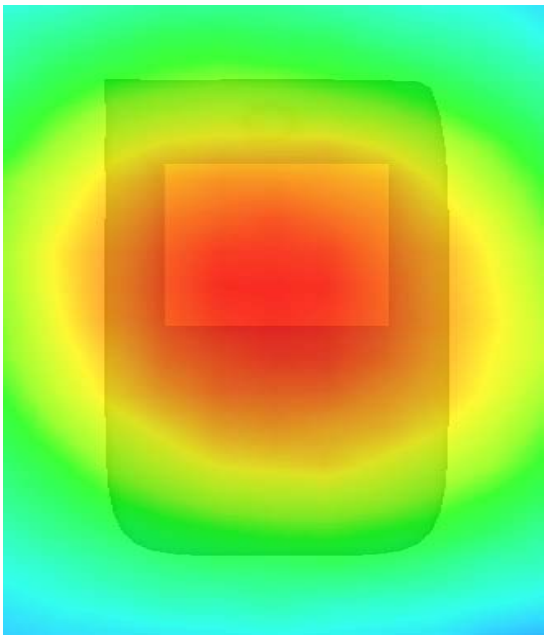
Maximum location: X=-1.00, Y=7.00

SAR 10g (W/Kg)	0.400147
SAR 1g (W/Kg)	0.562517

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5832	0.4241	0.3214	0.2305	0.1813	0.1297



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 10 seconds

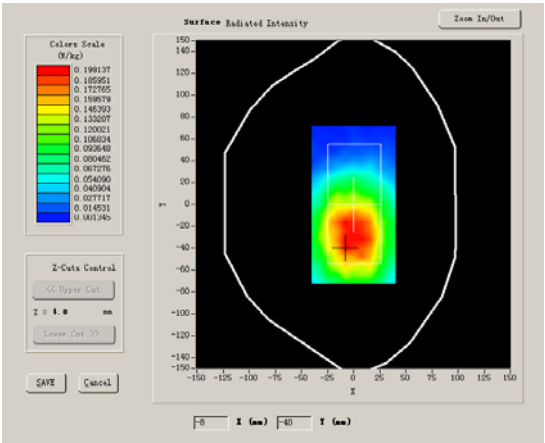
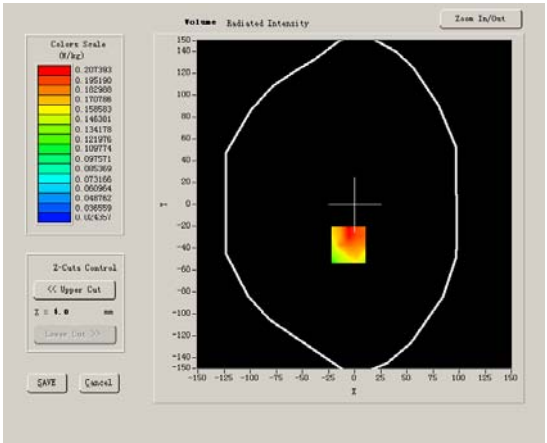
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power drift(%)	-3.820000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

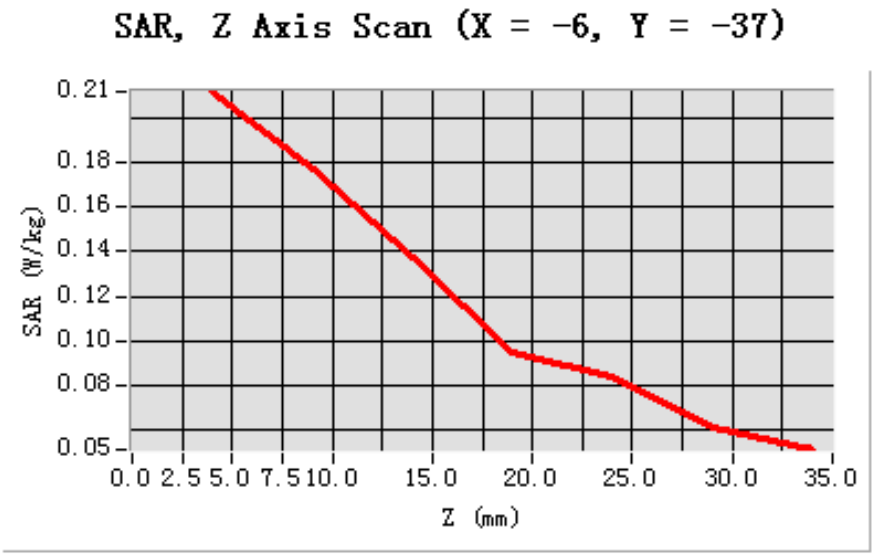
SURFACE SAR	VOLUME SAR
	

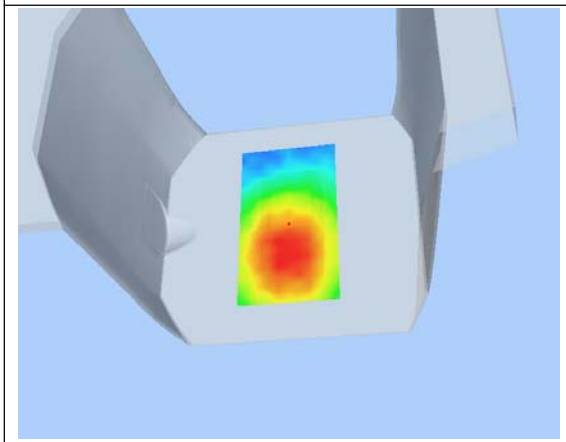
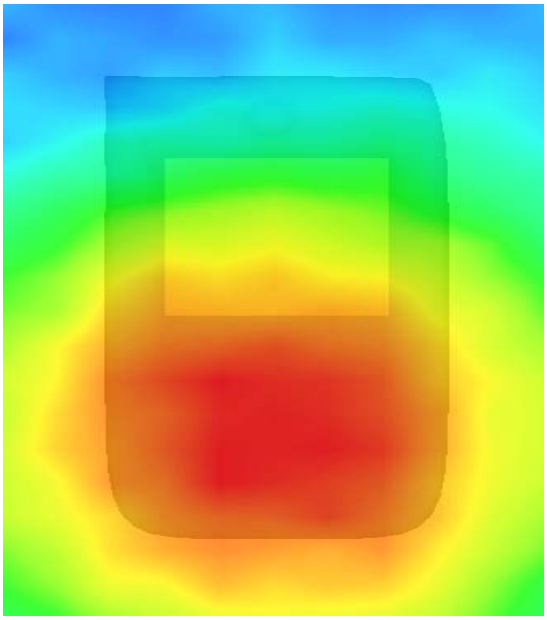
Maximum location: X=-6.00, Y=-37.00

SAR 10g (W/Kg)	0.160811
SAR 1g (W/Kg)	0.216682

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2118	0.1769	0.1372	0.0952	0.0843	0.0609



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 6 seconds

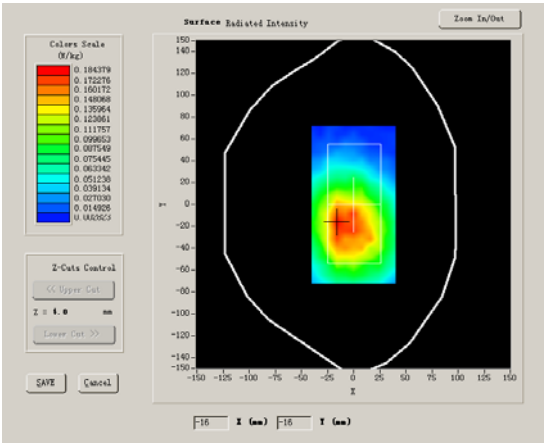
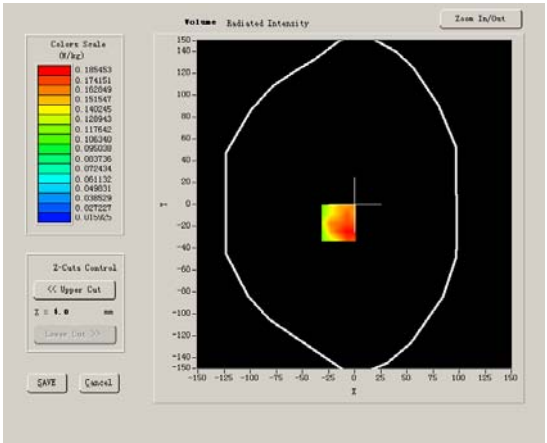
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power drift(%)	-2.730000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

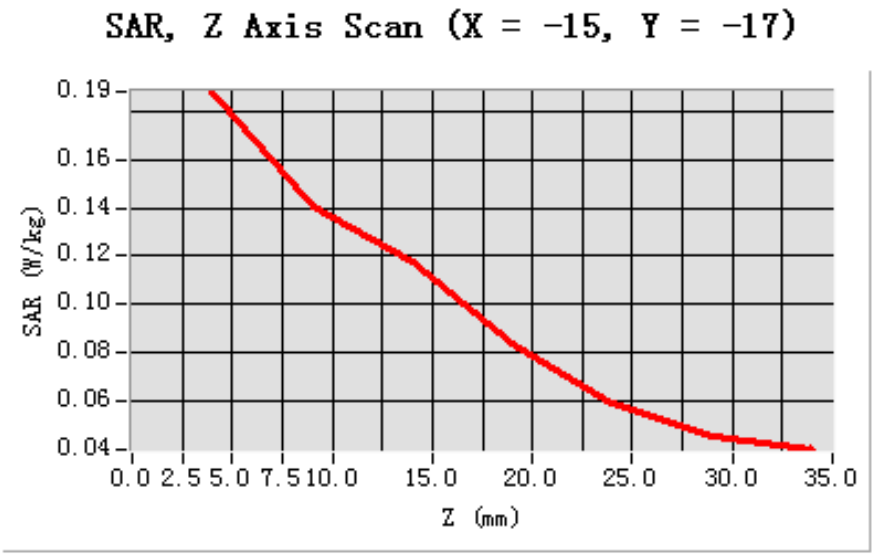
SURFACE SAR	VOLUME SAR
	

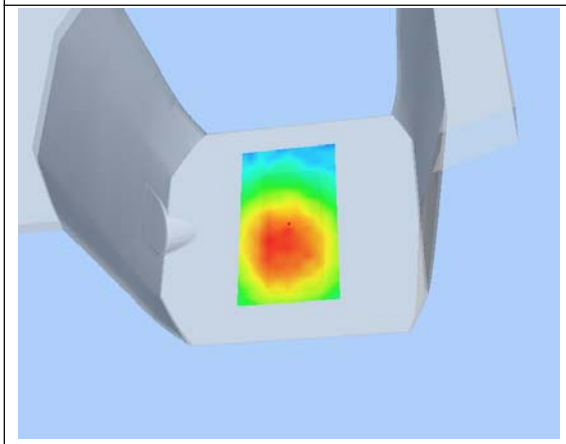
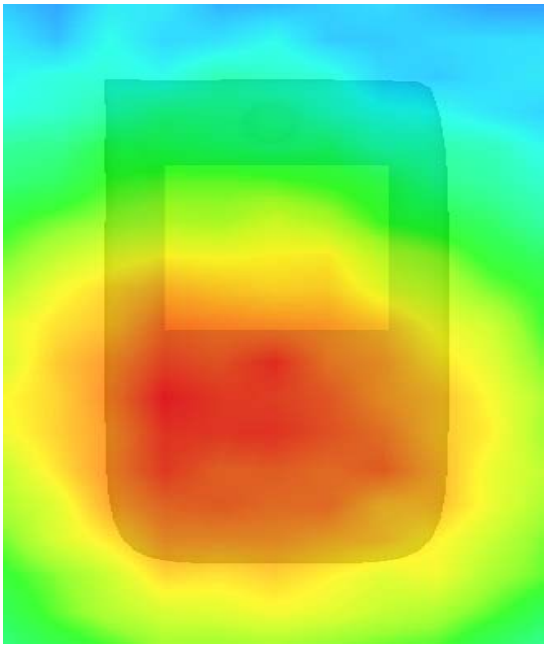
Maximum location: X=-15.00, Y=-17.00

SAR 10g (W/Kg)	0.146647
SAR 1g (W/Kg)	0.197671

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1879	0.1402	0.1177	0.0835	0.0591	0.0455



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 8 seconds

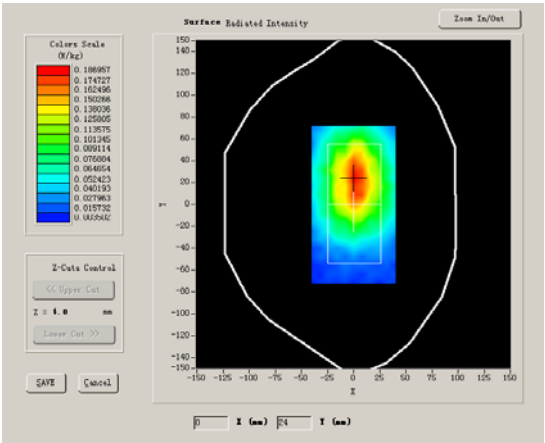
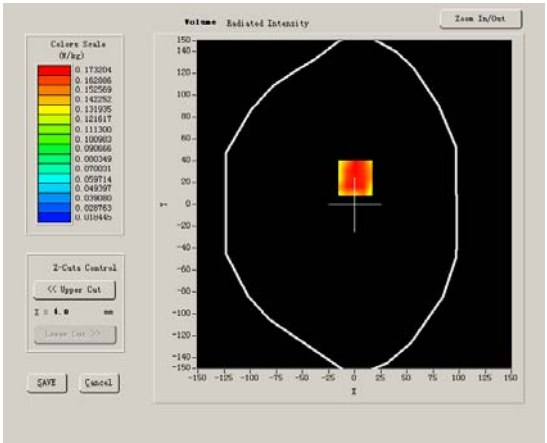
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	-4.450000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

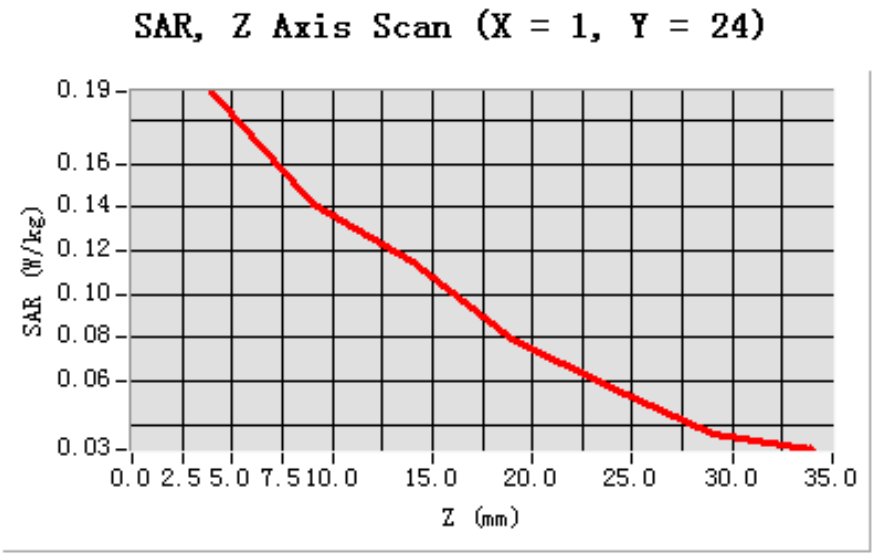
SURFACE SAR	VOLUME SAR
	

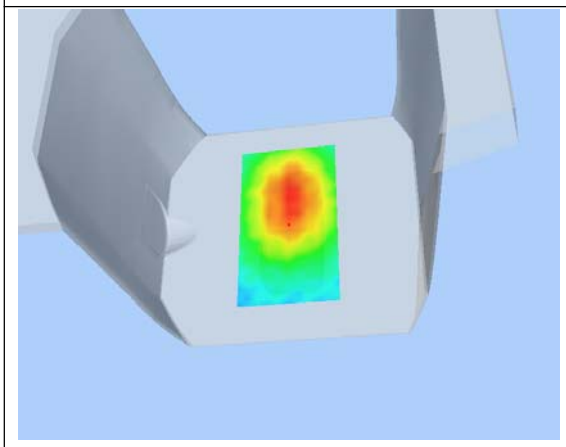
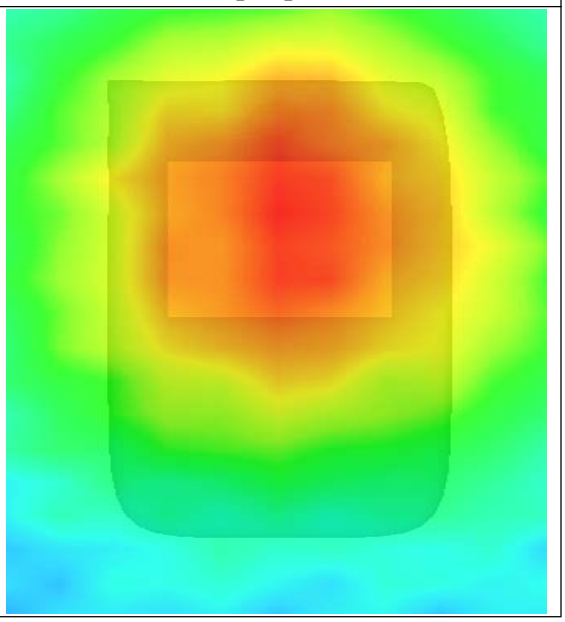
Maximum location: X=1.00, Y=24.00

SAR 10g (W/Kg)	0.138288
SAR 1g (W/Kg)	0.200645

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1934	0.1412	0.1148	0.0791	0.0566	0.0352



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 8 seconds

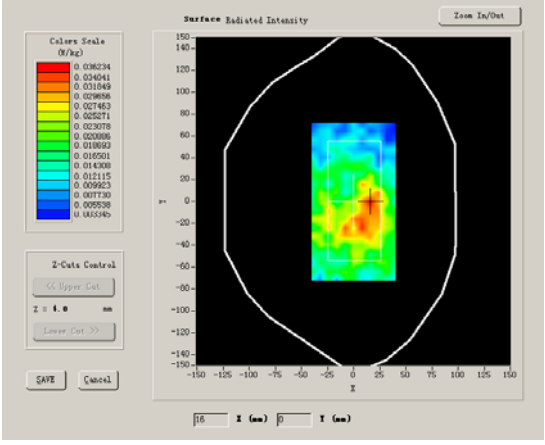
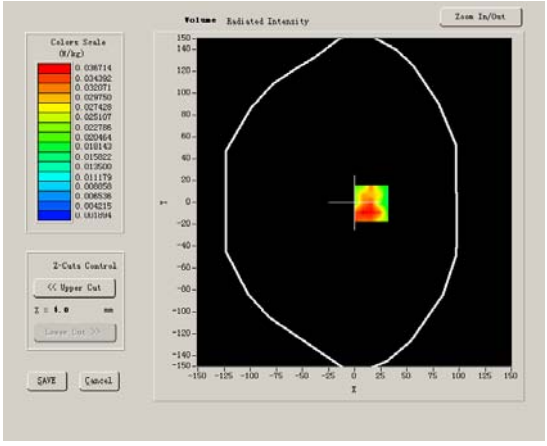
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power drift (%)	-3.390000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

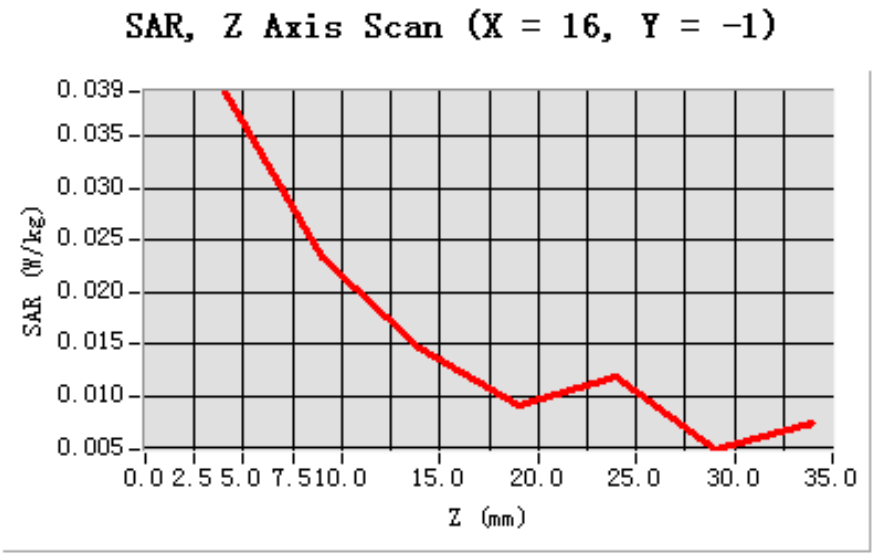
SURFACE SAR	VOLUME SAR
	

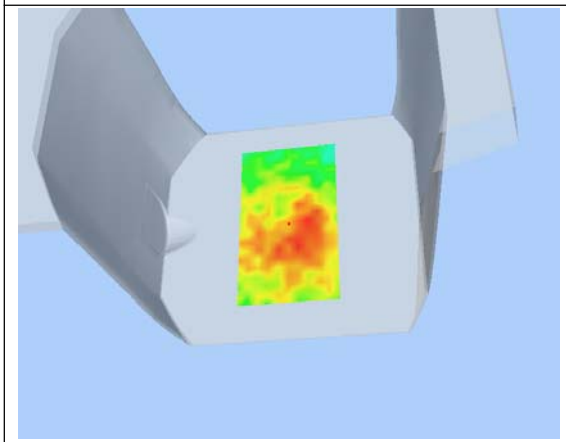
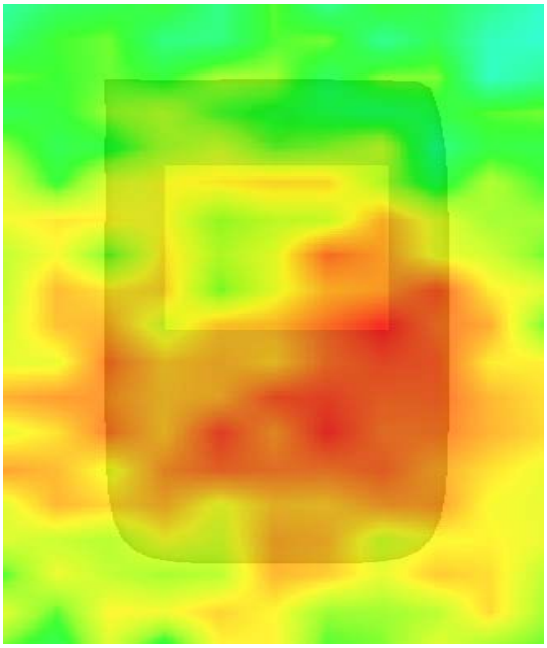
Maximum location: X=16.00, Y=-1.00

SAR 10g (W/Kg)	0.024382
SAR 1g (W/Kg)	0.039199

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0393	0.0233	0.0145	0.0091	0.0119	0.0048



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 9 seconds

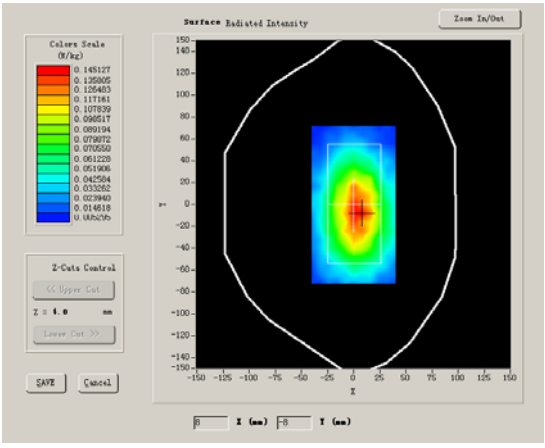
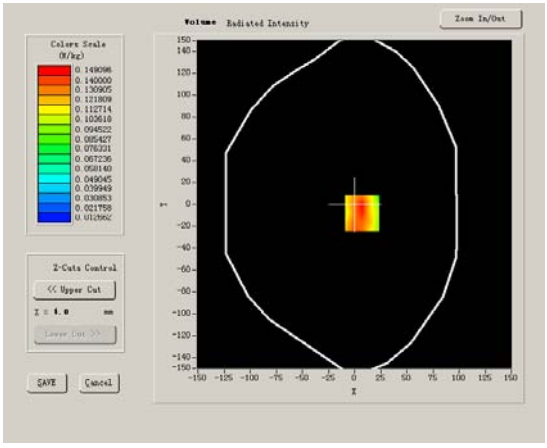
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	-1.390000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

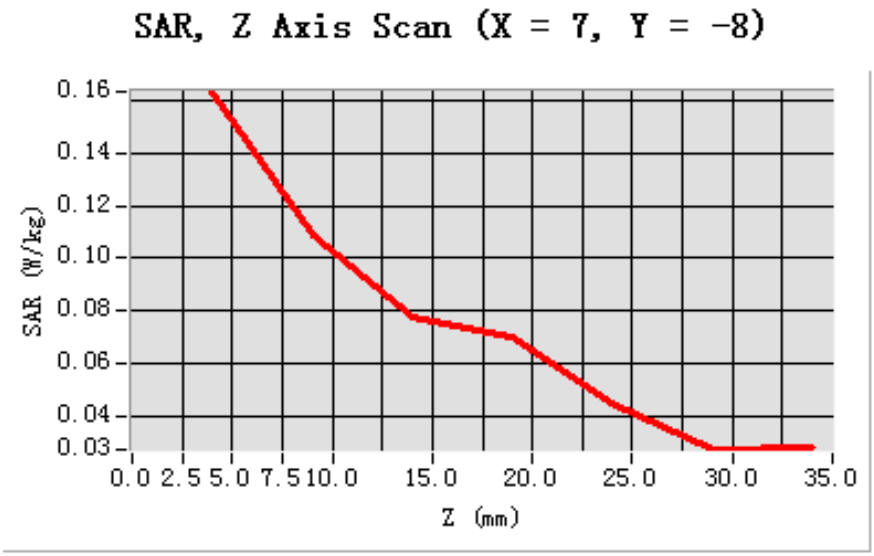
SURFACE SAR	VOLUME SAR
	

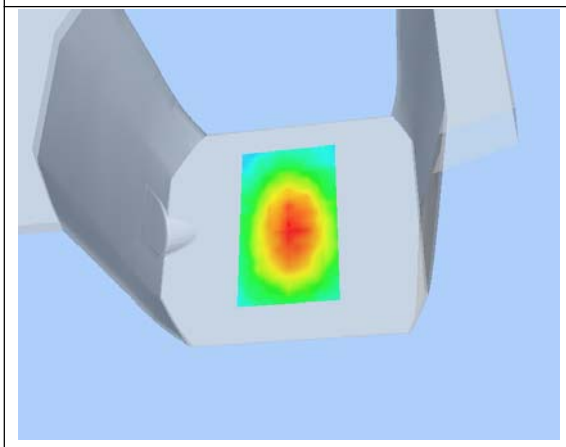
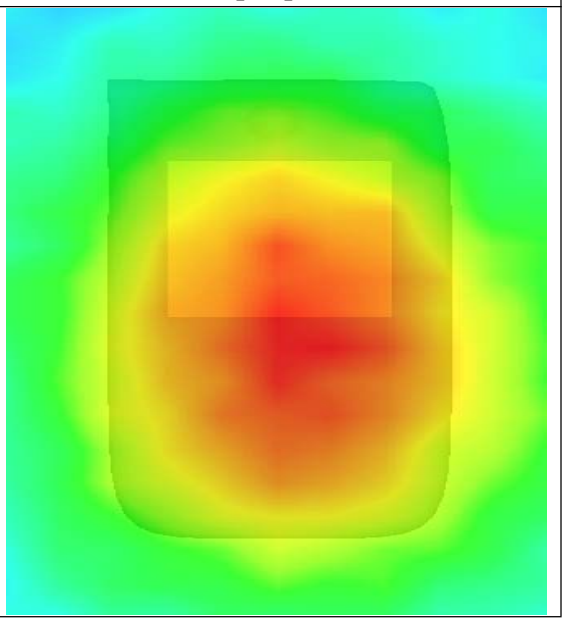
Maximum location: X=7.00, Y=-8.00

SAR 10g (W/Kg)	0.106670
SAR 1g (W/Kg)	0.164156

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1635	0.1084	0.0780	0.0697	0.0448	0.0272



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 9 seconds

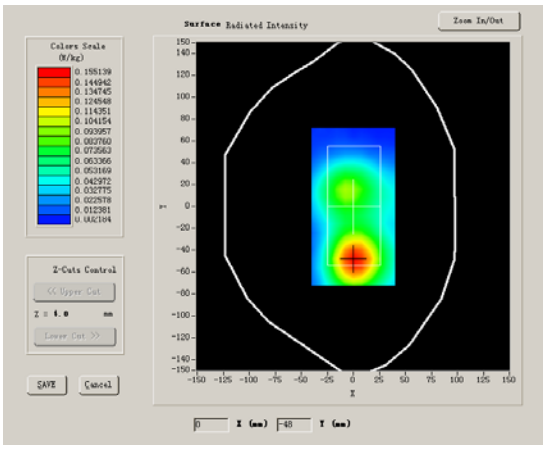
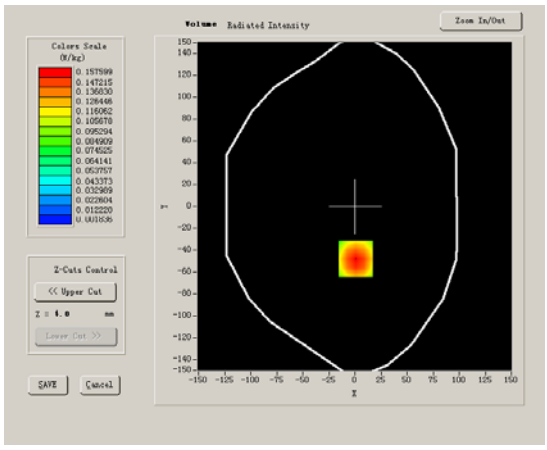
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	EDGE

B. SAR Measurement Results

Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	-0.380000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:2

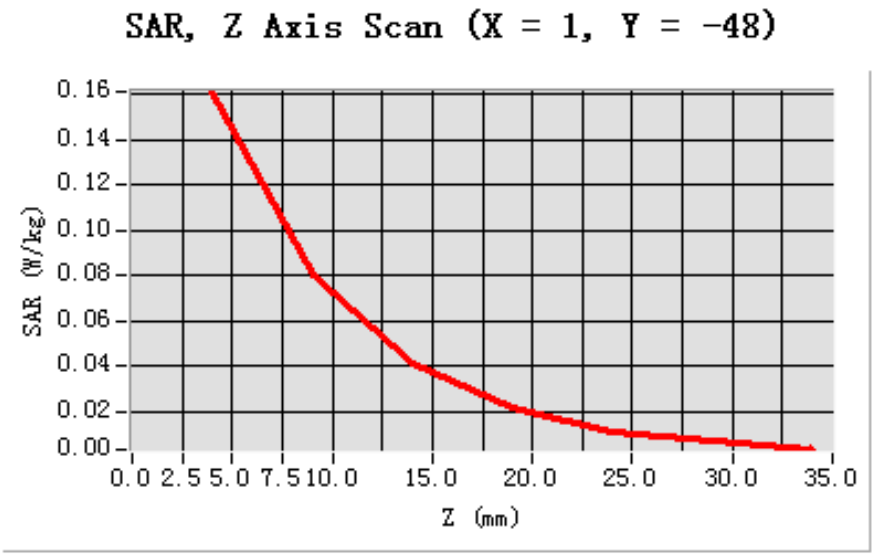
SURFACE SAR	VOLUME SAR
	

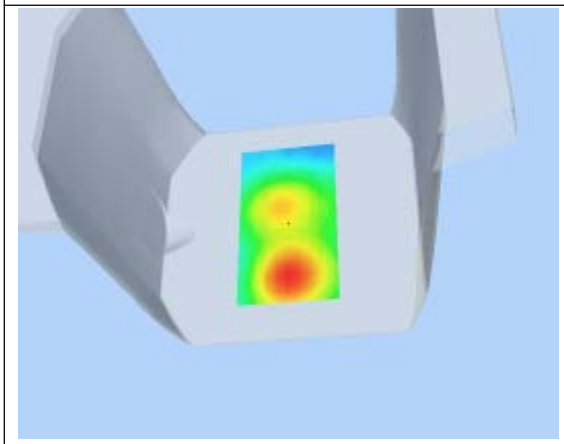
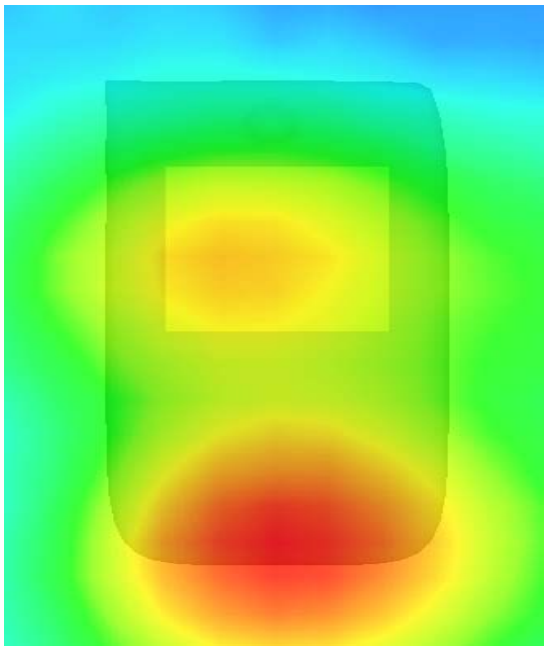
Maximum location: X=1.00, Y=-48.00

SAR 10g (W/Kg)	0.084342
SAR 1g (W/Kg)	0.155475

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1613	0.0798	0.0412	0.0215	0.0112	0.0067



3D sceen 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: 26/4/2012
Measurement duration: 8 minutes 16 seconds

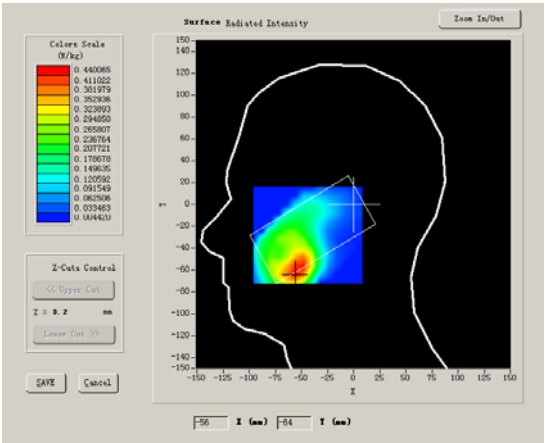
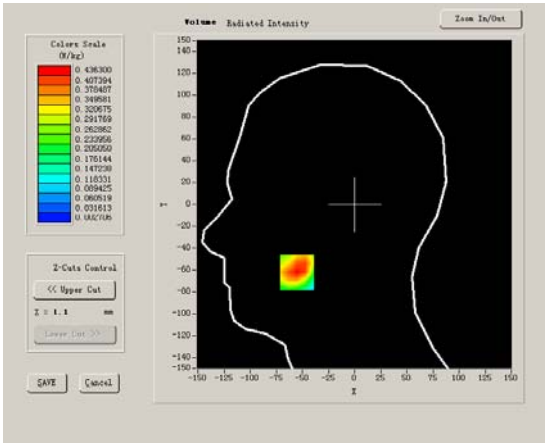
A. Experimental conditions.

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)	38.509998
Relative permittivity	13.750000
Conductivity (S/m)	1.436111
Power drift(%)	0.360000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

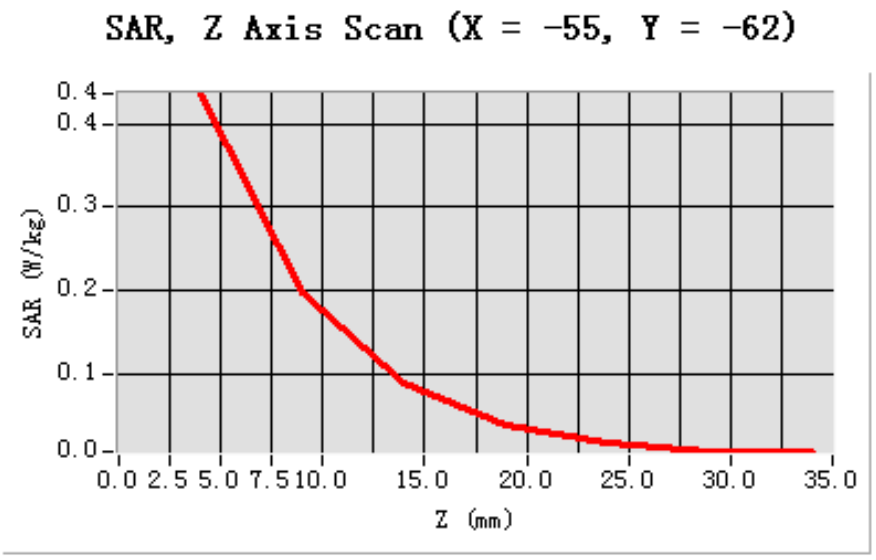
SURFACE SAR	VOLUME SAR
	

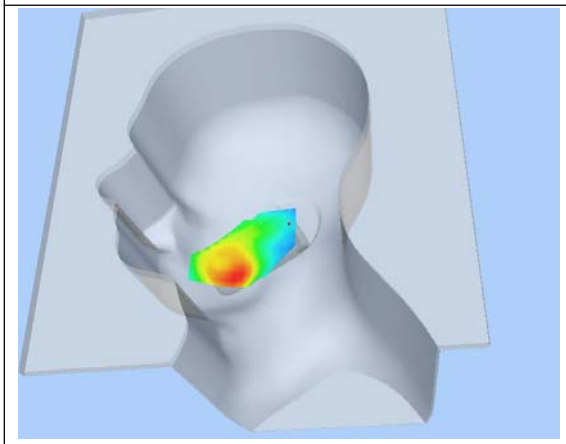
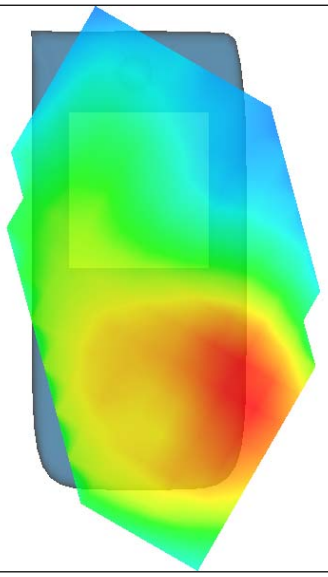
Maximum location: X=-55.00, Y=-62.00

SAR 10g (W/Kg)	0.210024
SAR 1g (W/Kg)	0.422803

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4363	0.1965	0.0896	0.0373	0.0178	0.0066



3D sceen 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: 26/4/2012
Measurement duration: 7 minutes 32 seconds

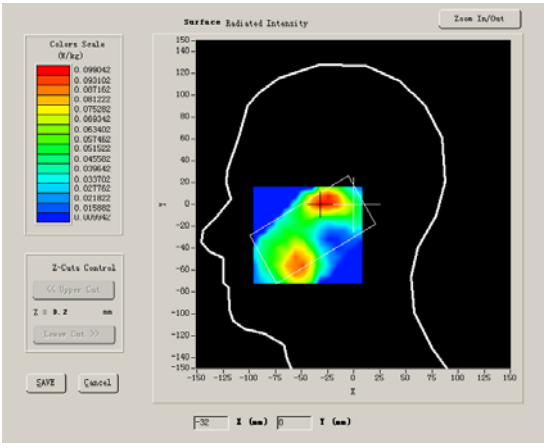
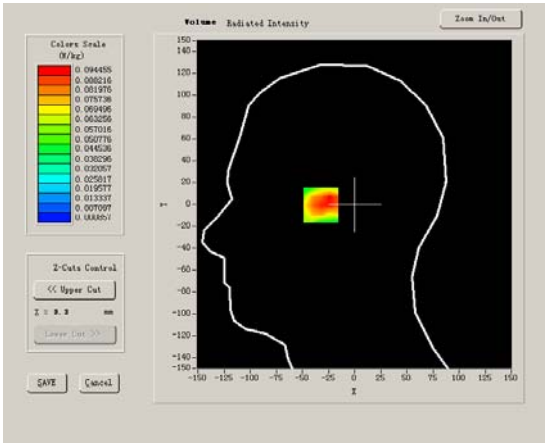
A. Experimental conditions.

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)	38.509998
Relative permittivity	13.750000
Conductivity (S/m)	1.436111
Power drift(%)	-3.510000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

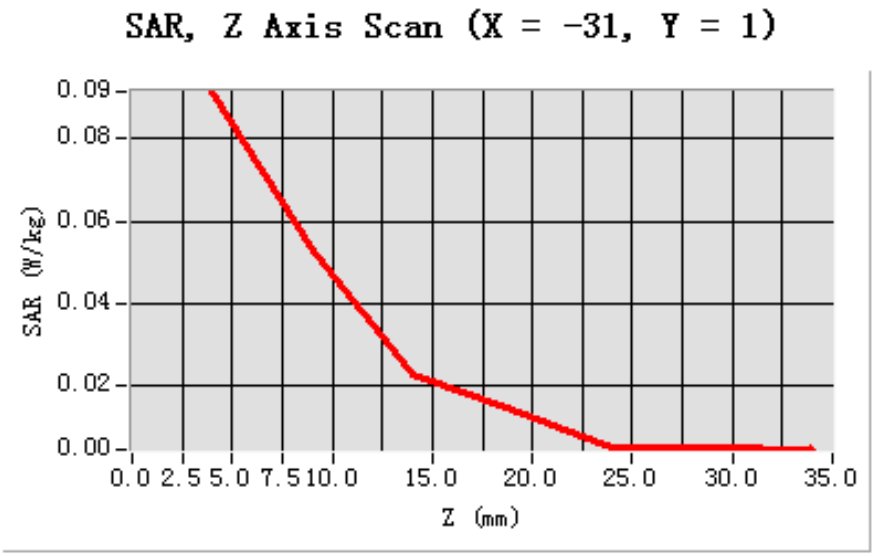
SURFACE SAR	VOLUME SAR
	

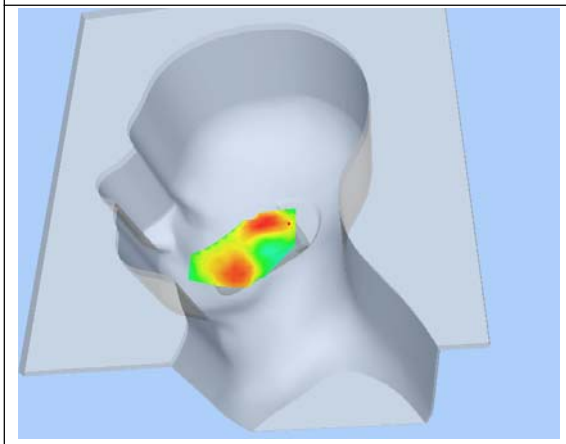
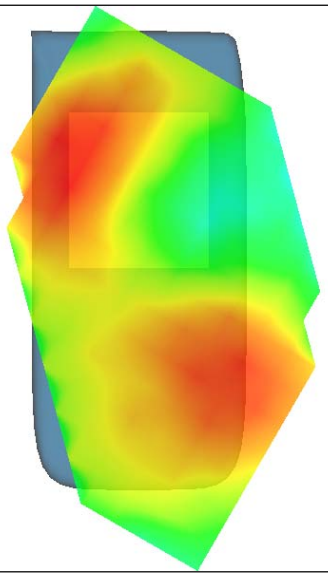
Maximum location: X=-31.00, Y=1.00

SAR 10g (W/Kg)	0.048868
SAR 1g (W/Kg)	0.092509

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0916	0.0526	0.0223	0.0138	0.0044	0.0047



3D sceen 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: 26/4/2012
Measurement duration: 8 minutes 49 seconds

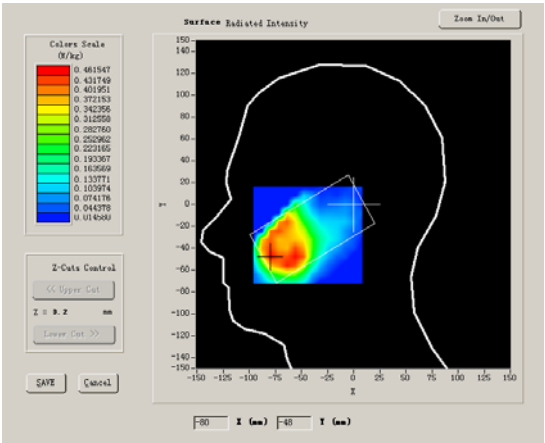
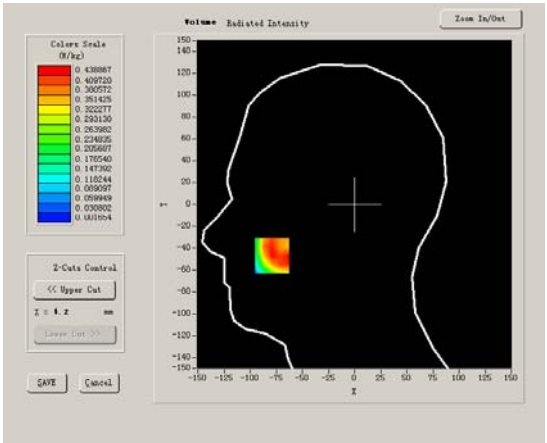
A. Experimental conditions.

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

B. SAR Measurement Results

Lower Band SAR (Channel 512):

Frequency (MHz)	1850.200000
Relative permittivity (real part)	38.509998
Relative permittivity	13.750000
Conductivity (S/m)	1.436111
Power drift(%)	-4.430000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

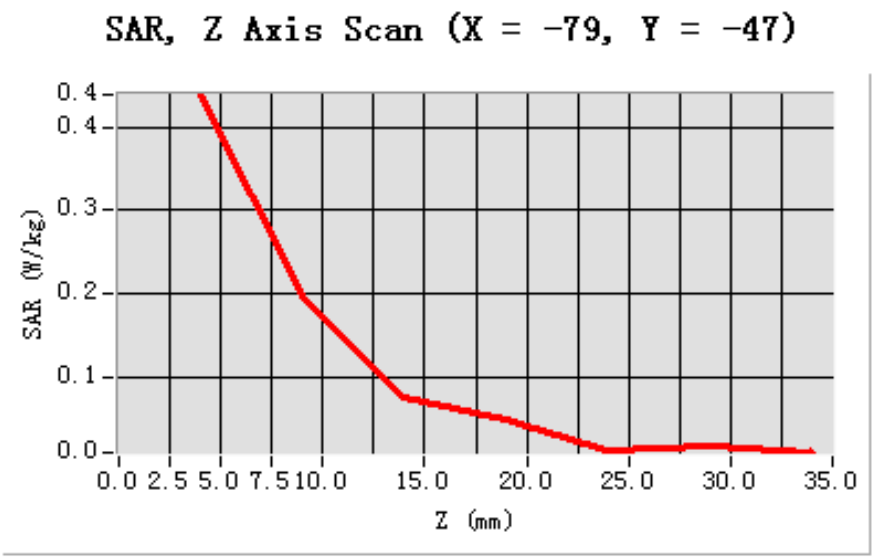
SURFACE SAR	VOLUME SAR
	

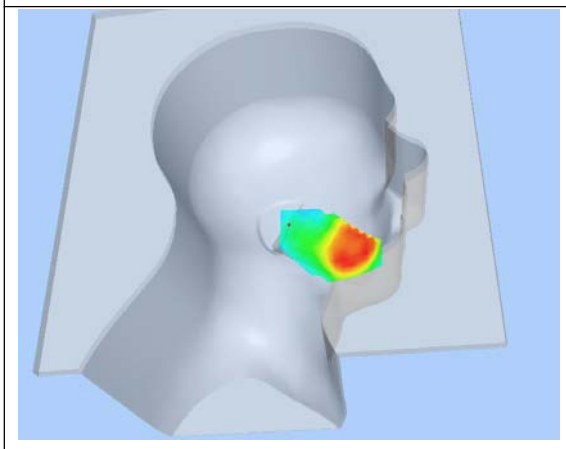
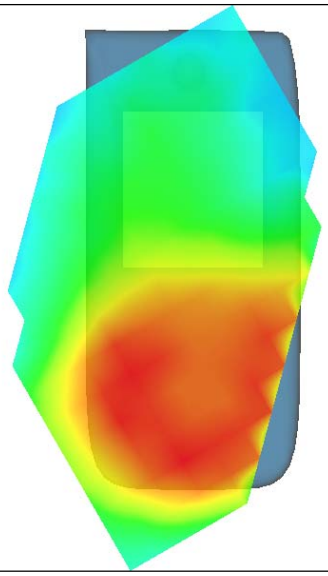
Maximum location: X=-79.00, Y=-47.00

SAR 10g (W/Kg)	0.221168
SAR 1g (W/Kg)	0.418449

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4385	0.1967	0.0764	0.0477	0.0111	0.0171



3D sceen 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: 26/4/2012
Measurement duration: 8 minutes 22 seconds

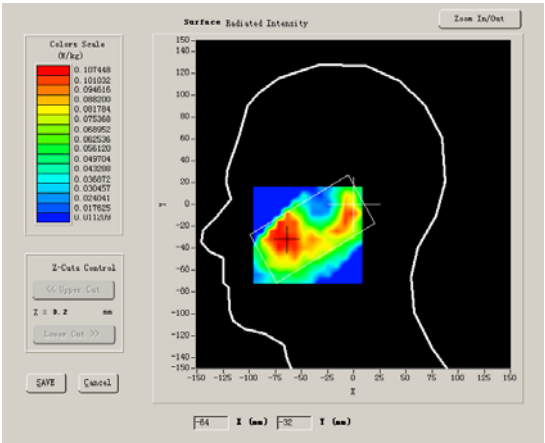
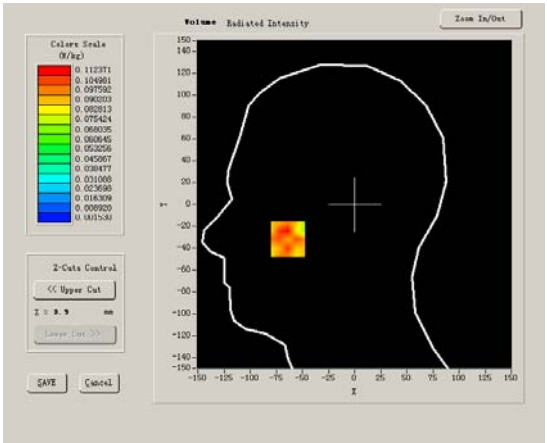
A. Experimental conditions.

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)	1850.200000
Relative permittivity (real part)	38.509998
Relative permittivity	13.750000
Conductivity (S/m)	1.436111
Power drift(%)	2.330000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

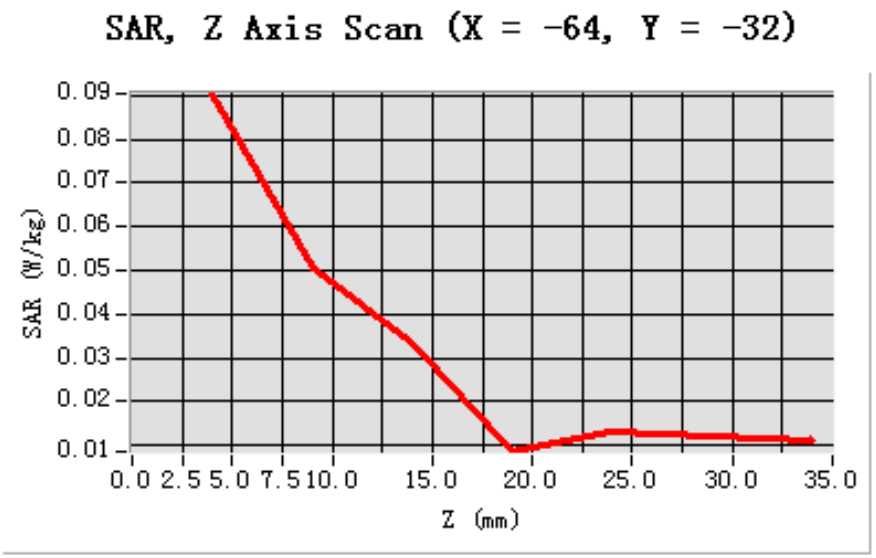
SURFACE SAR	VOLUME SAR
	

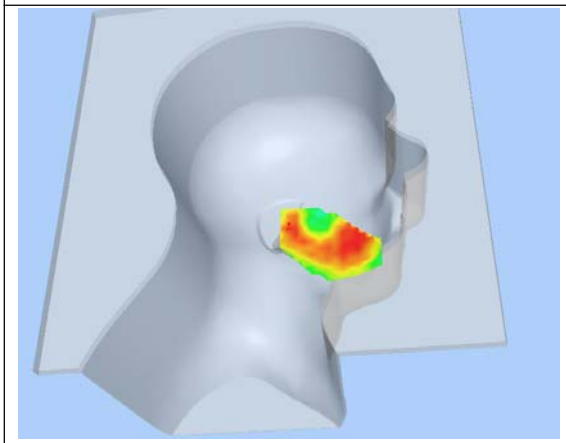
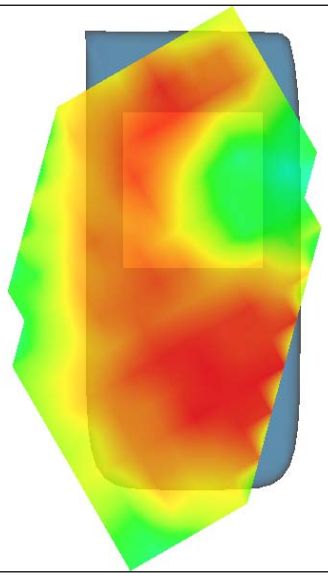
Maximum location: X=-64.00, Y=-32.00

SAR 10g (W/Kg)	0.057110
SAR 1g (W/Kg)	0.109616

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0904	0.0503	0.0335	0.0085	0.0130	0.0122



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 7 seconds

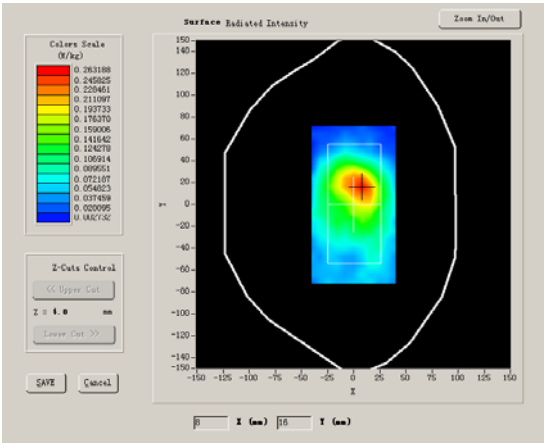
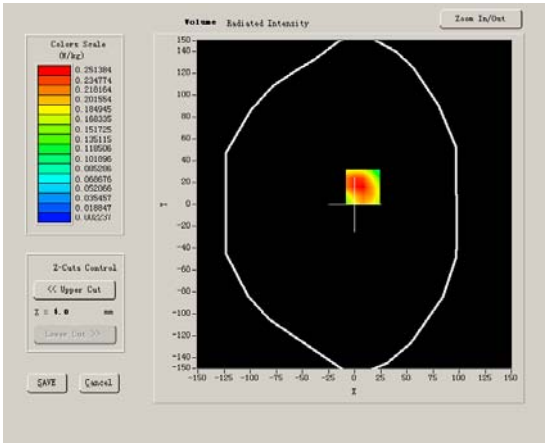
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation 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)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.469533
Power drift(%)	-3.010000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:8

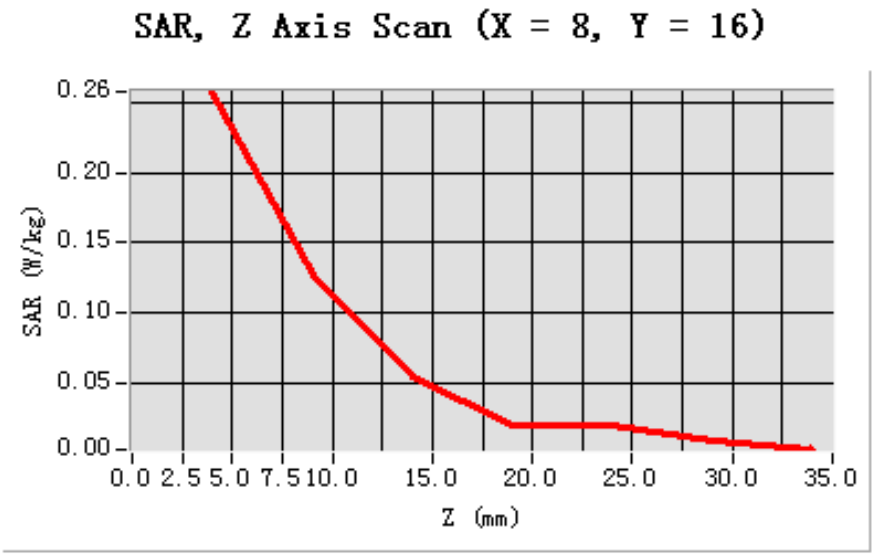
SURFACE SAR	VOLUME SAR
	

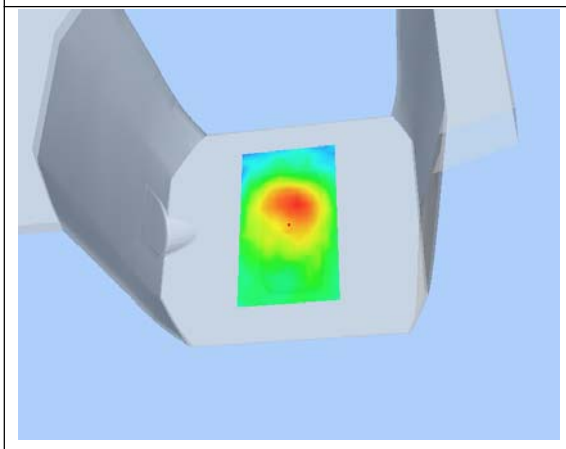
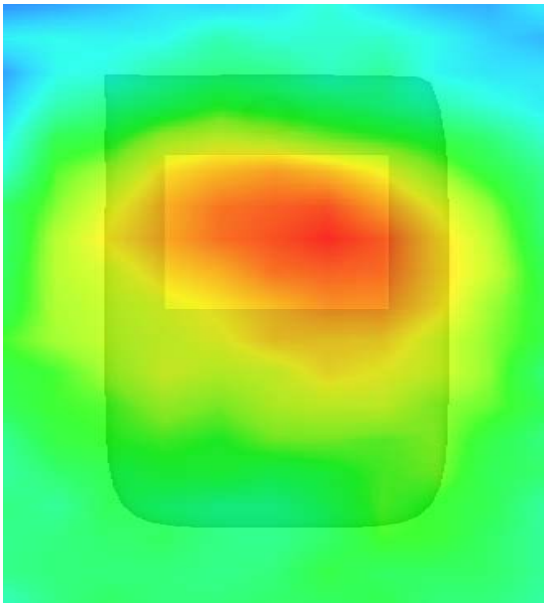
Maximum location: X=8.00, Y=16.00

SAR 10g (W/Kg)	0.128239
SAR 1g (W/Kg)	0.250861

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2572	0.1269	0.0556	0.0211	0.0204	0.0101



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 11 seconds

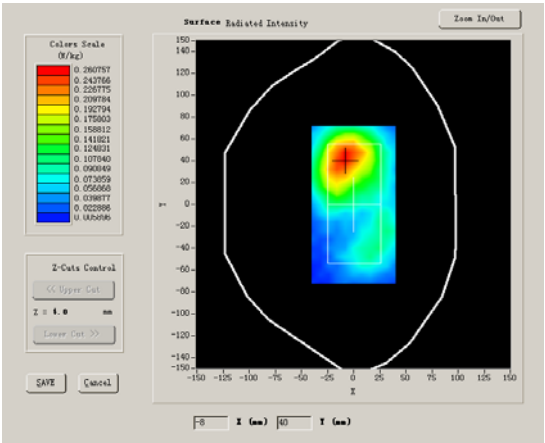
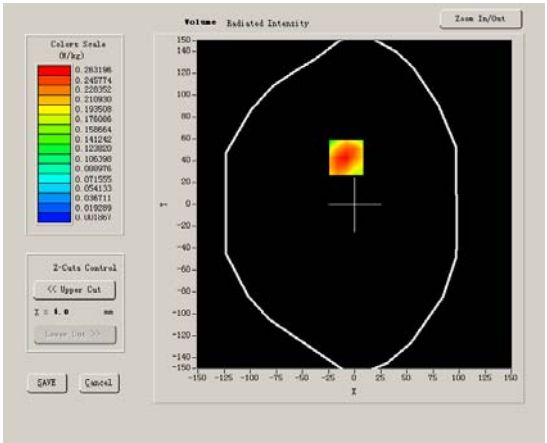
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation 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)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.469533
Power drift(%)	-0.440000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:8

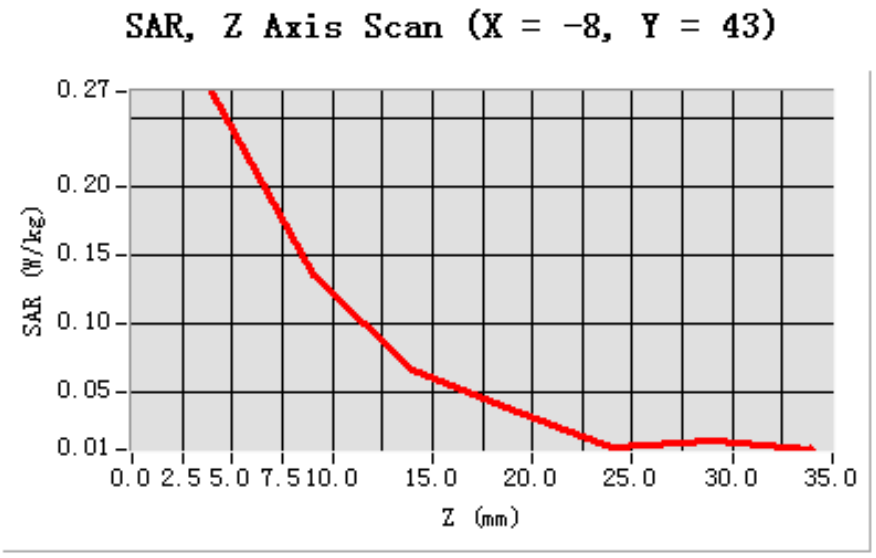
SURFACE SAR	VOLUME SAR
	

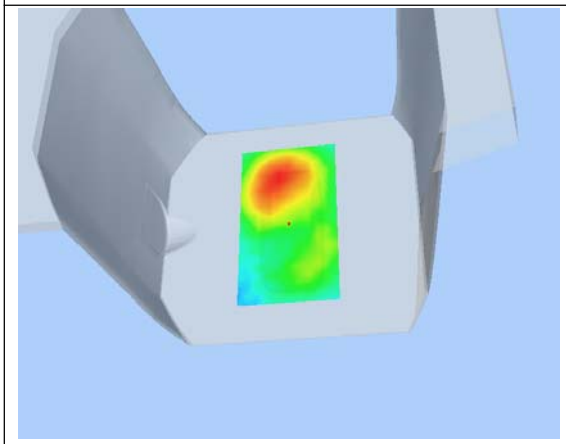
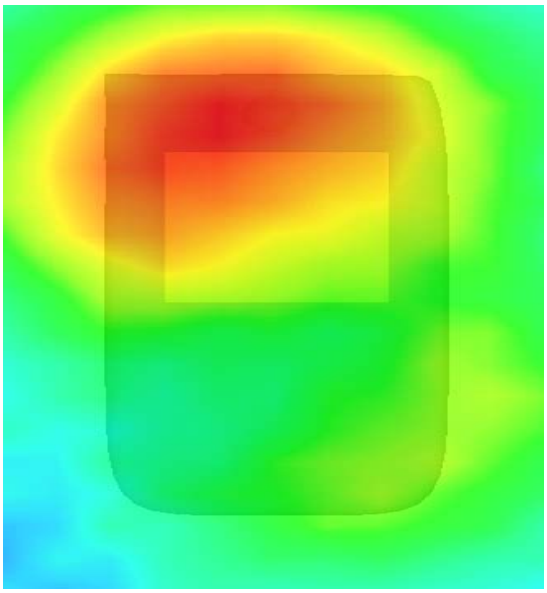
Maximum location: X=-8.00, Y=43.00

SAR 10g (W/Kg)	0.136362
SAR 1g (W/Kg)	0.257896

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2693	0.1351	0.0662	0.0362	0.0085	0.0132



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 9 seconds

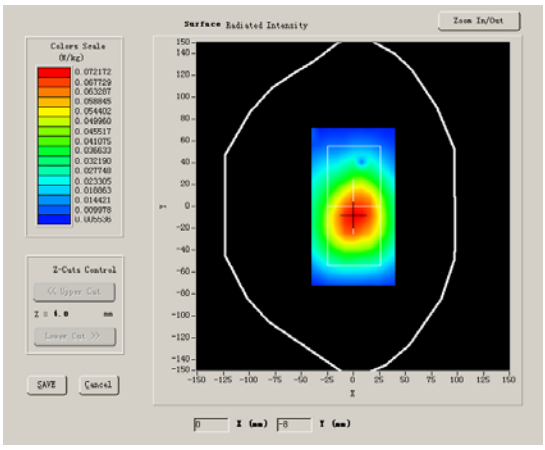
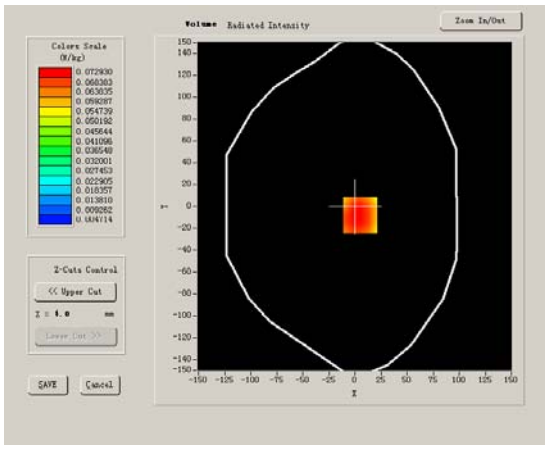
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 512):

Frequency (MHz)	1850.200000
Relative permittivity (real part)	38.509998
Relative permittivity	13.750000
Conductivity (S/m)	1.436111
Power drift(%)	0.330000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

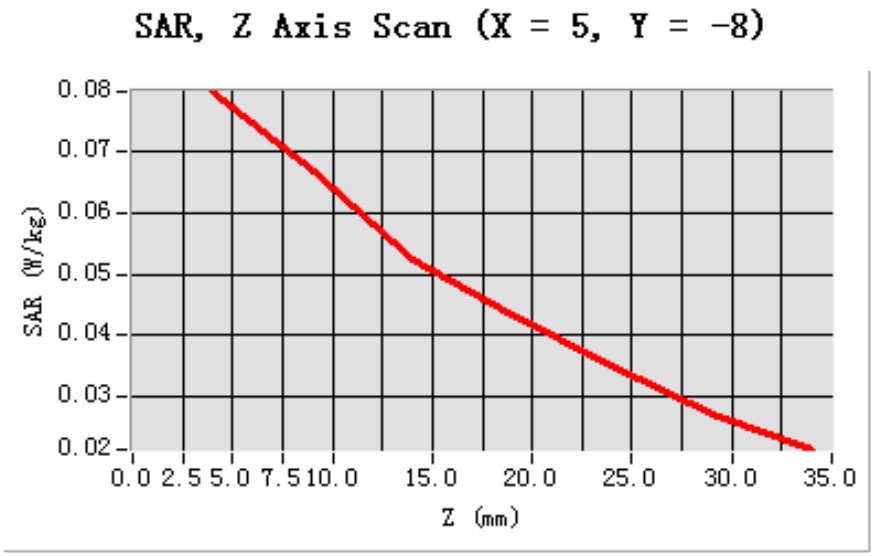
SURFACE SAR	VOLUME SAR
	

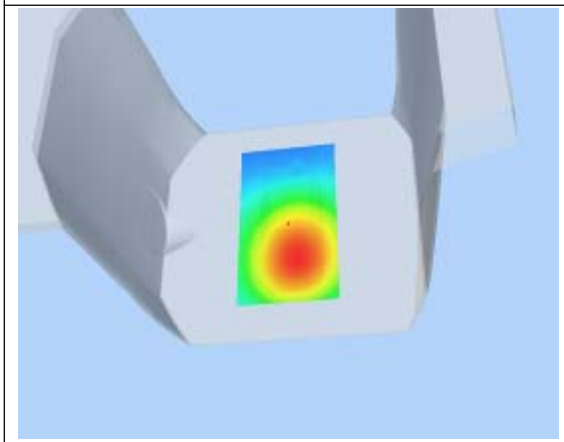
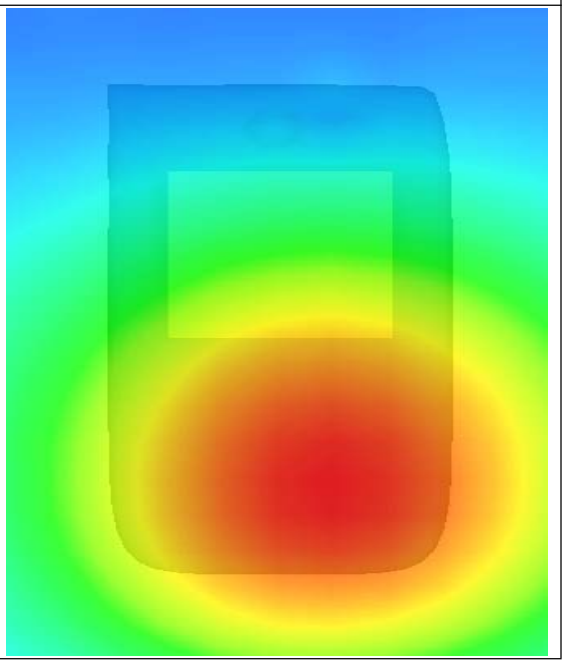
Maximum location: X=5.00, Y=-8.00

SAR 10g (W/Kg)	0.059902
SAR 1g (W/Kg)	0.080876

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0799	0.0670	0.0523	0.0433	0.0352	0.0269



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 10 seconds

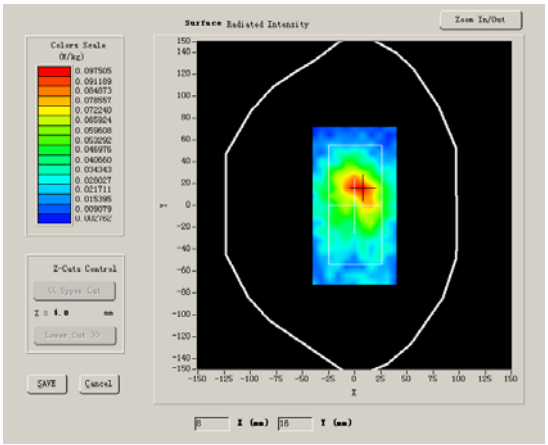
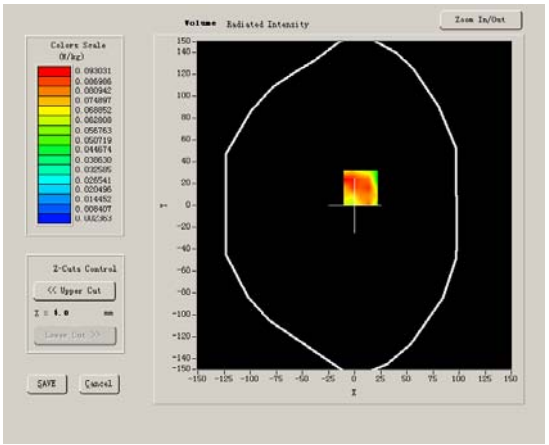
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 512):

Frequency (MHz)	1850.200000
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.469533
Power drift(%)	1.580000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

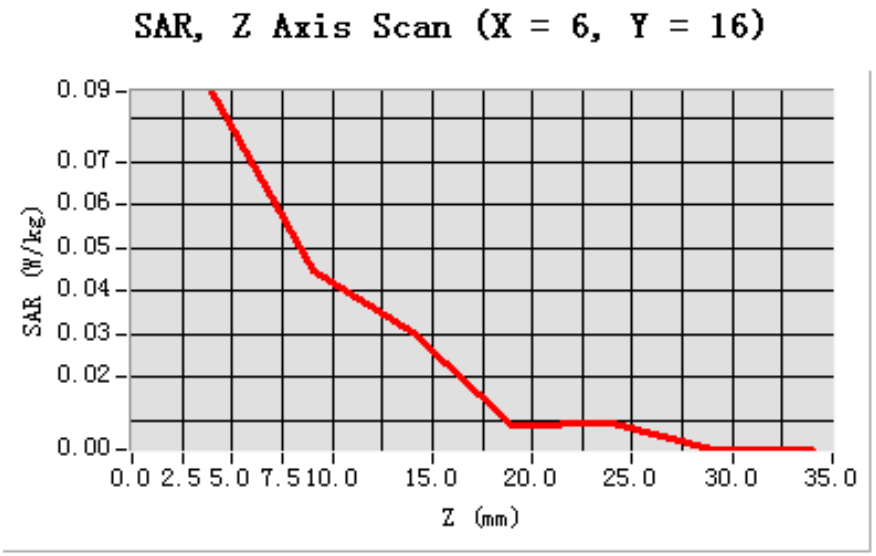
SURFACE SAR	VOLUME SAR
	

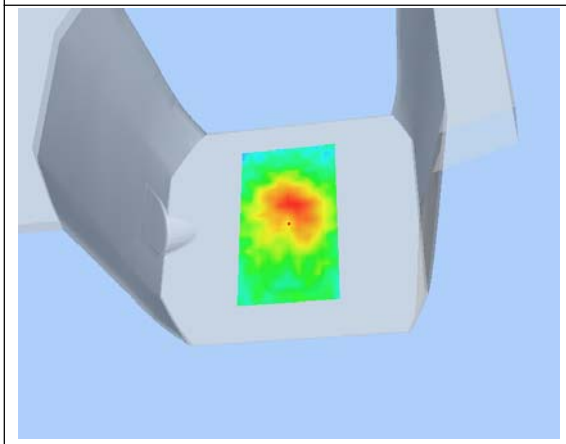
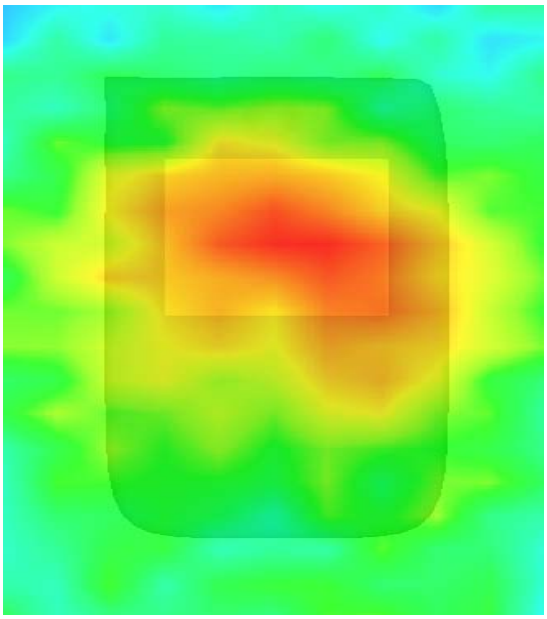
Maximum location: X=6.00, Y=16.00

SAR 10g (W/Kg)	0.049007
SAR 1g (W/Kg)	0.089774

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0862	0.0450	0.0304	0.0087	0.0094	0.0035



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 7 seconds

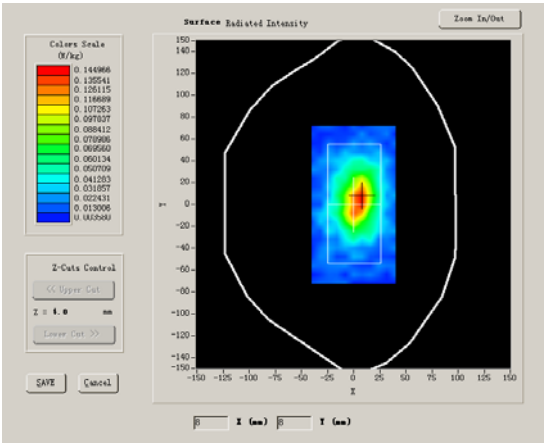
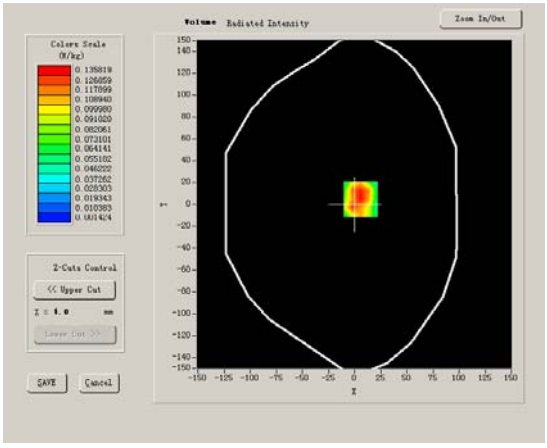
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 512):

Frequency (MHz)	1850.199951
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.446240
Power drift (%)	3.520000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

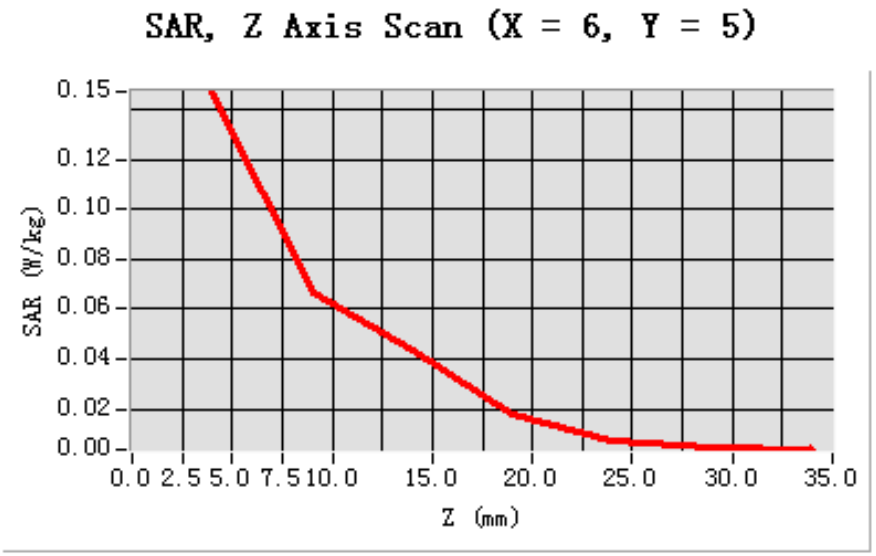
SURFACE SAR	VOLUME SAR
	

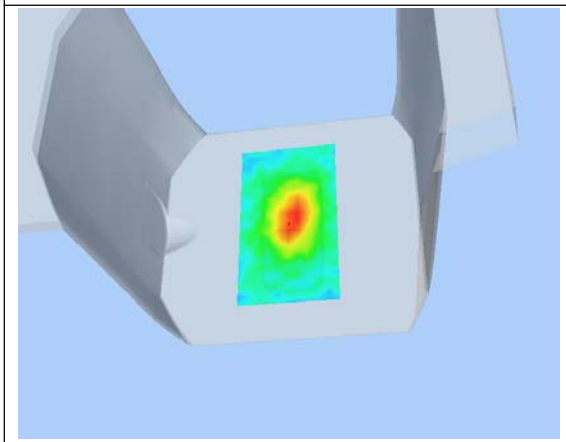
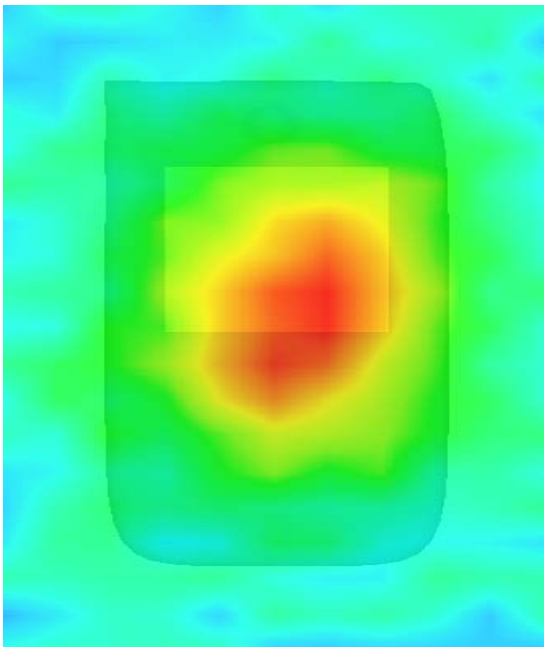
Maximum location: X=6.00, Y=5.00

SAR 10g (W/Kg)	0.071427
SAR 1g (W/Kg)	0.139107

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1471	0.0668	0.0432	0.0181	0.0070	0.0047



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 9 seconds

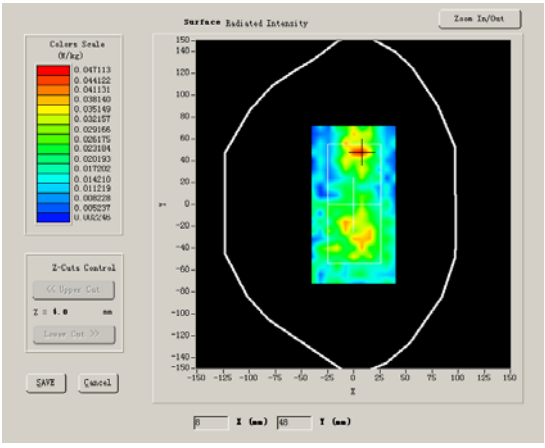
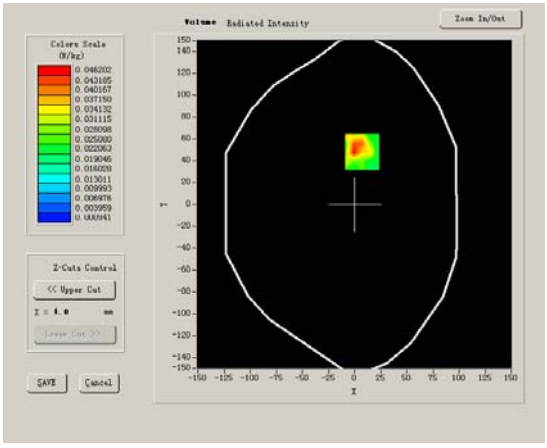
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 512):

Frequency (MHz)	1850.199951
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.446240
Power drift (%)	-5.160000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

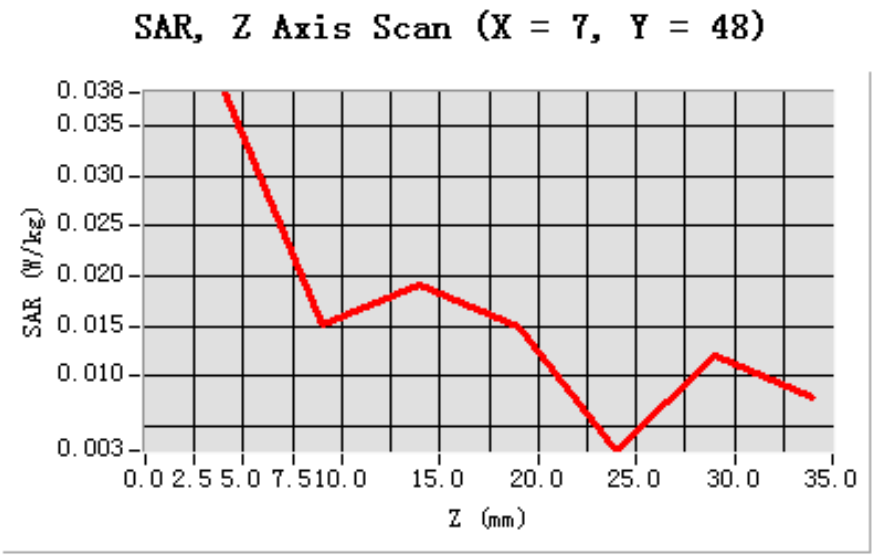
SURFACE SAR	VOLUME SAR
	

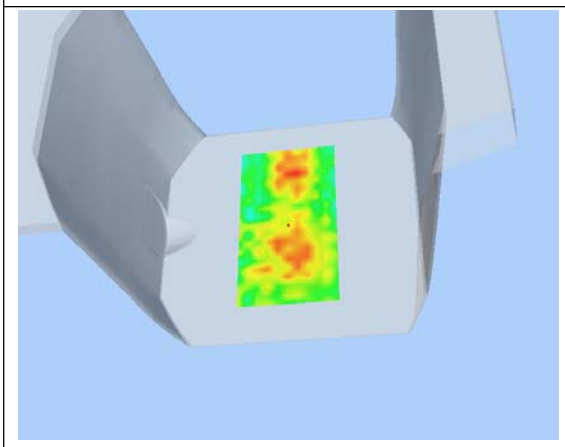
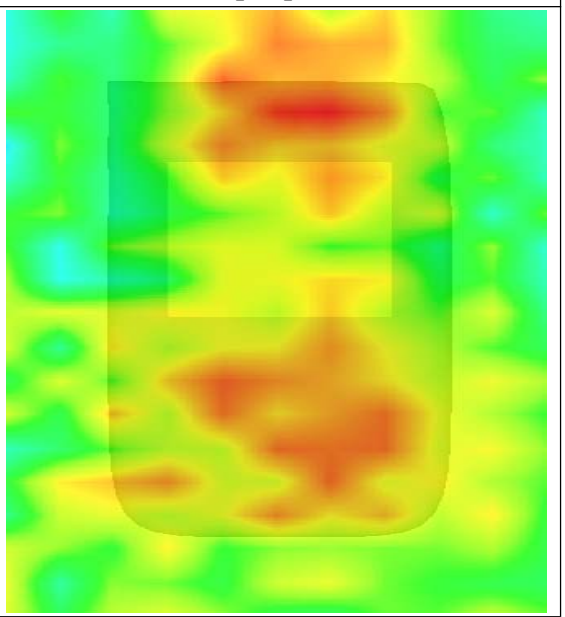
Maximum location: X=7.00, Y=48.00

SAR 10g (W/Kg)	0.023700
SAR 1g (W/Kg)	0.047713

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0384	0.0152	0.0192	0.0149	0.0025	0.0121



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 8 seconds

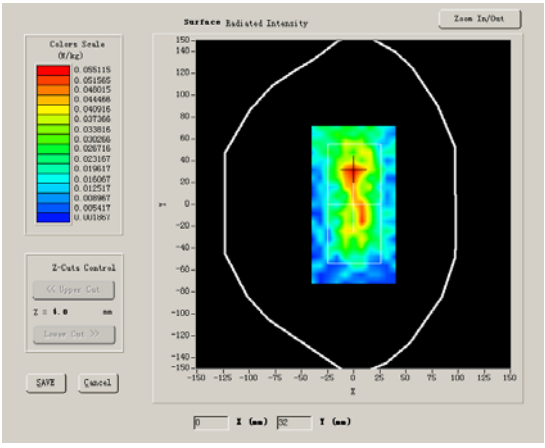
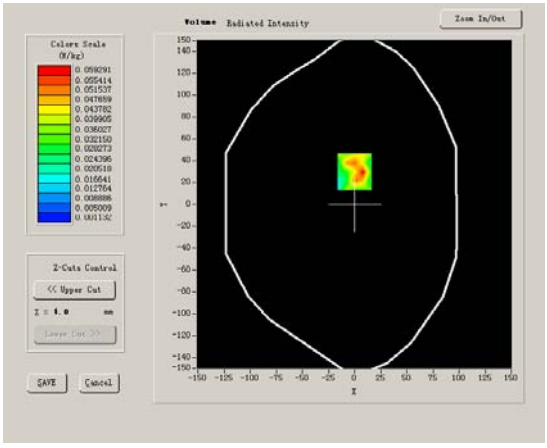
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	GPRS

B. SAR Measurement Results

Lower Band SAR (Channel 512):

Frequency (MHz)	1850.199951
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.446240
Power drift (%)	-1.540000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

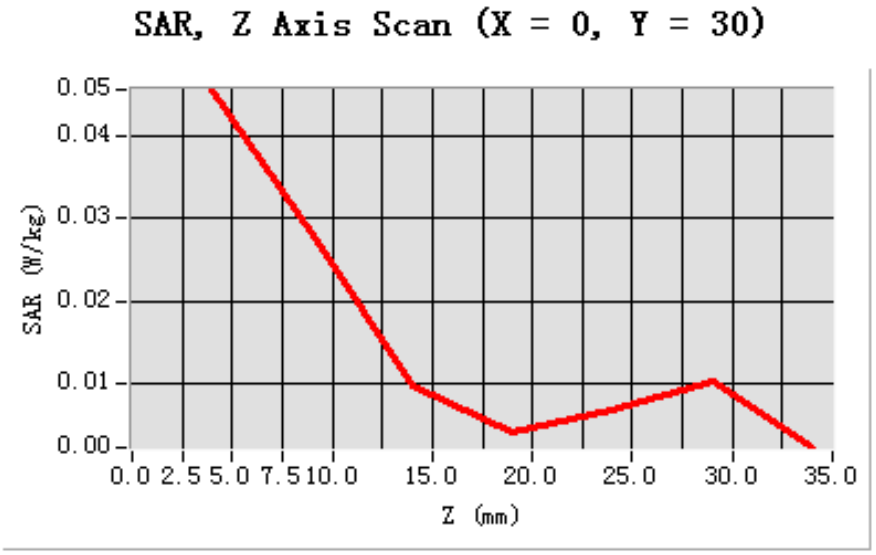
SURFACE SAR	VOLUME SAR
	

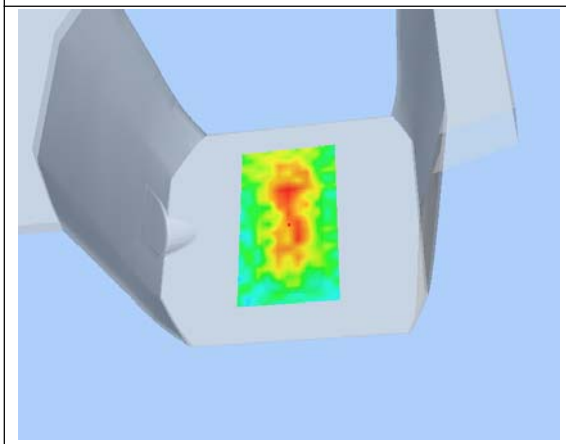
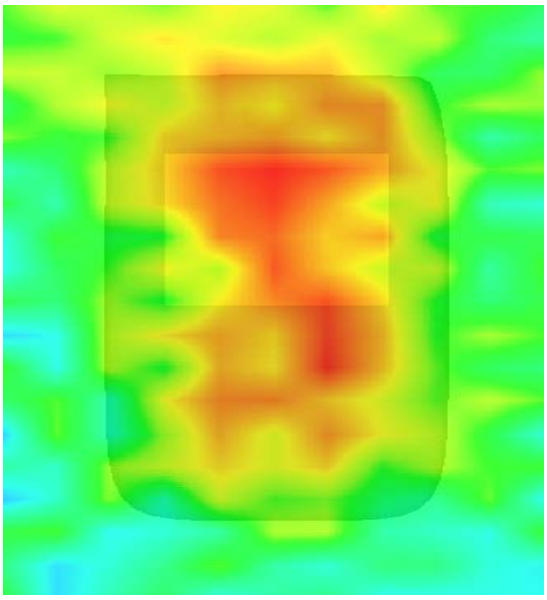
Maximum location: X=0.00, Y=30.00

SAR 10g (W/Kg)	0.028833
SAR 1g (W/Kg)	0.059616

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0456	0.0279	0.0099	0.0042	0.0068	0.0104



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 8 seconds

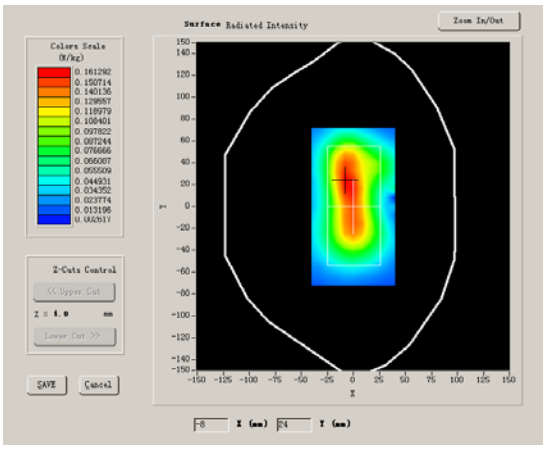
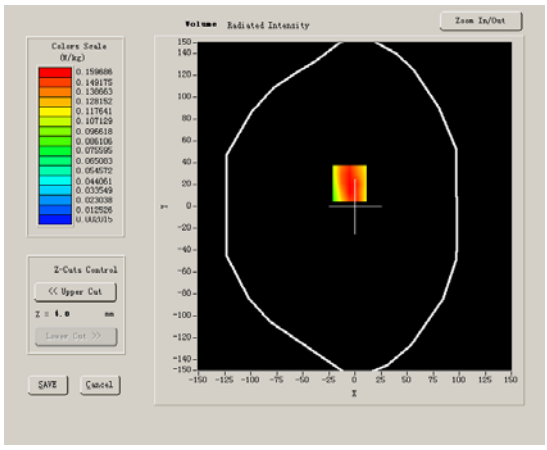
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	EDGE

B. SAR Measurement Results

Lower Band SAR (Channel 512):

Frequency (MHz)	1850.199951
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.446240
Power drift (%)	-0.410000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

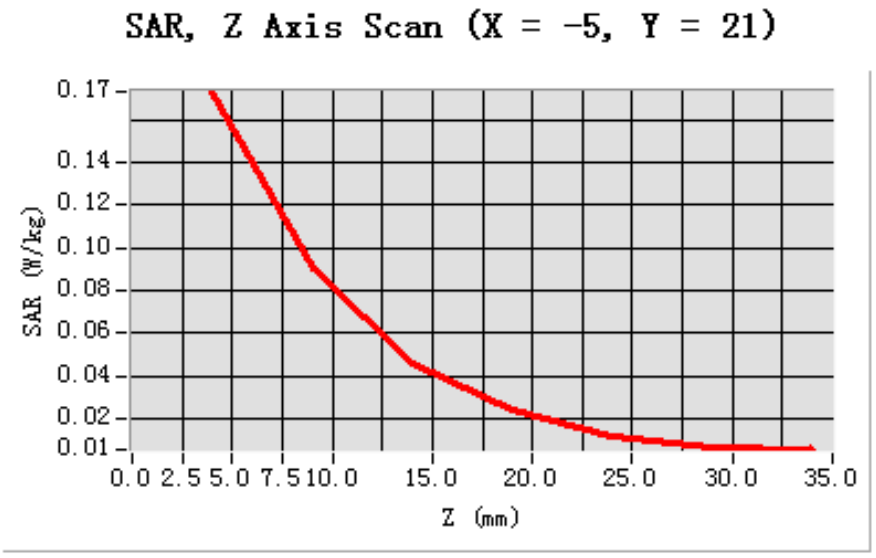
SURFACE SAR	VOLUME SAR
	

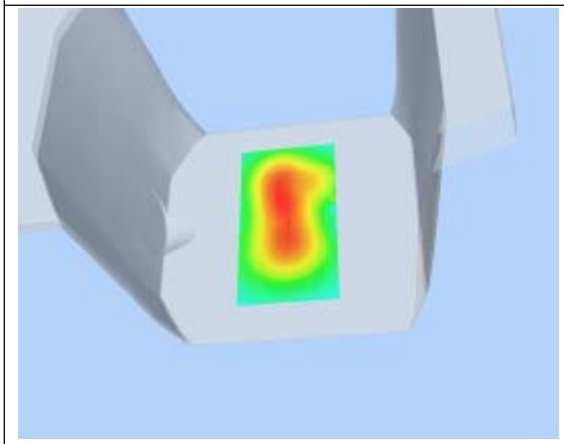
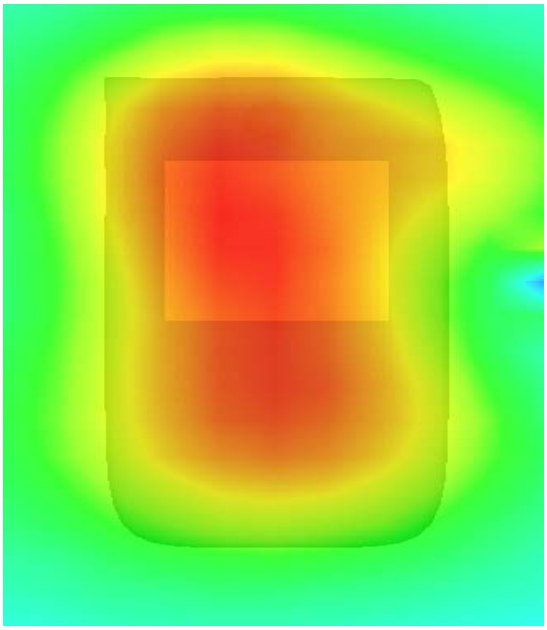
Maximum location: X=-5.00, Y=21.00

SAR 10g (W/Kg)	0.093001
SAR 1g (W/Kg)	0.167806

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1733	0.0903	0.0458	0.0241	0.0113	0.0062



3D sceen 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: 26/4/2012
Measurement duration: 7 minutes 40 seconds

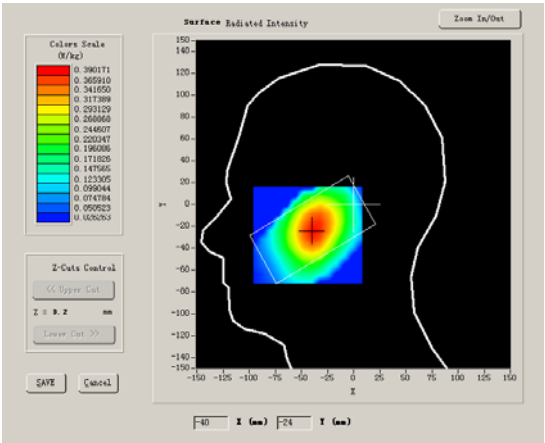
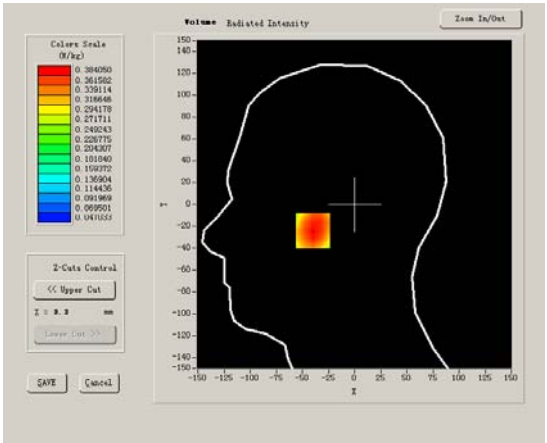
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

Frequency (MHz)	835.000000
Relative permittivity (real part)	39.910000
Relative permittivity	13.230000
Conductivity (S/m)	0.614460
Power drift(%)	-0.780000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

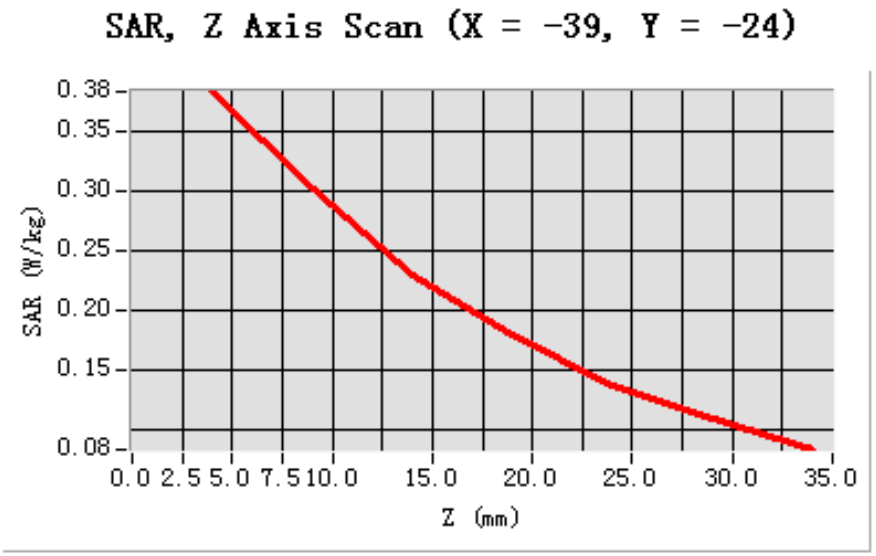
SURFACE SAR	VOLUME SAR
	

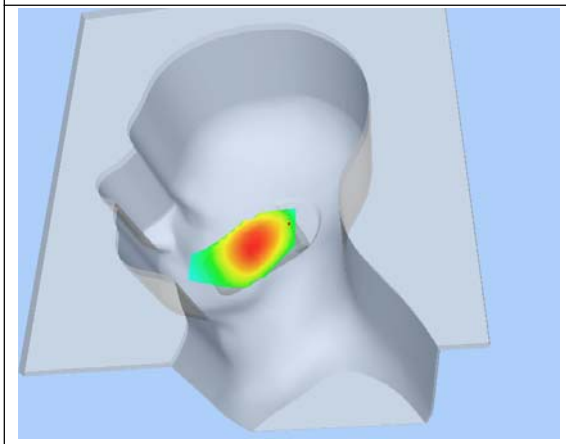
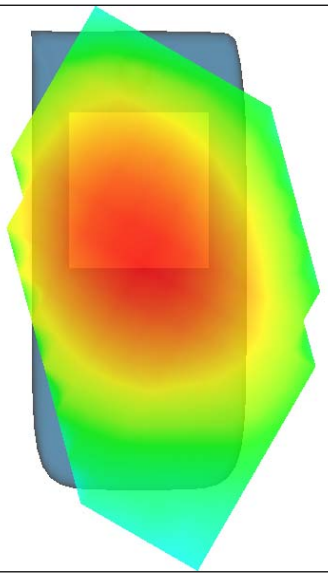
Maximum location: X=-39.00, Y=-24.00

SAR 10g (W/Kg)	0.271949
SAR 1g (W/Kg)	0.369624

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3841	0.3026	0.2304	0.1789	0.1373	0.1091



3D sceen 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: 26/4/2012
Measurement duration: 7 minutes 56 seconds

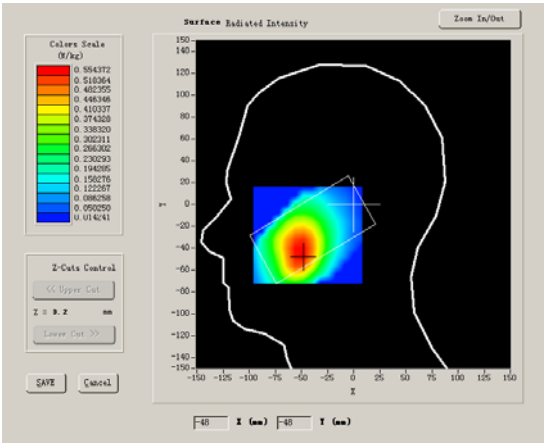
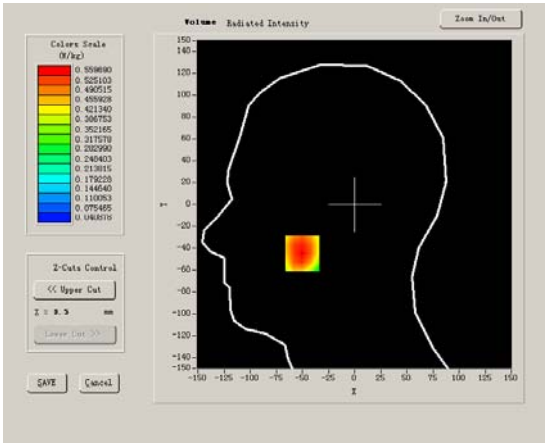
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

Frequency (MHz)	835.000000
Relative permittivity (real part)	39.910000
Relative permittivity	13.230000
Conductivity (S/m)	0.614460
Power drift(%)	-0.210000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

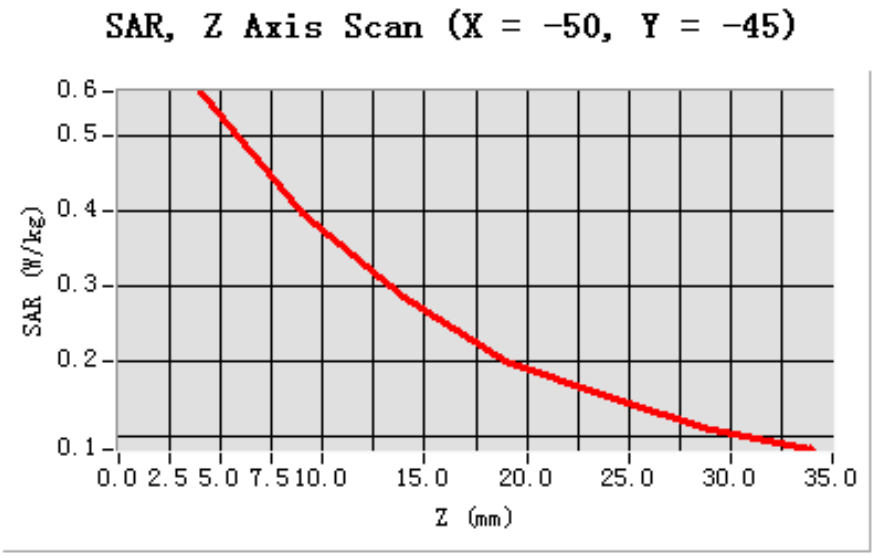
SURFACE SAR	VOLUME SAR
	

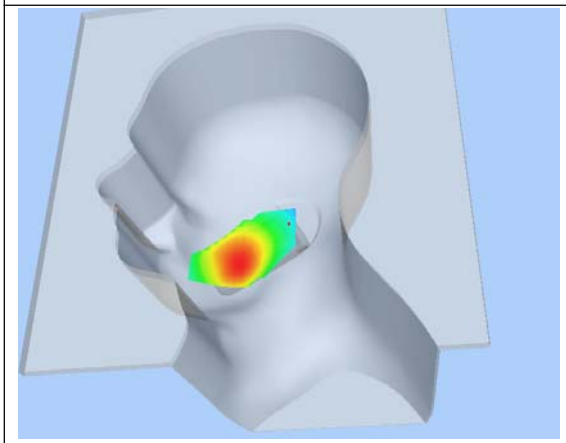
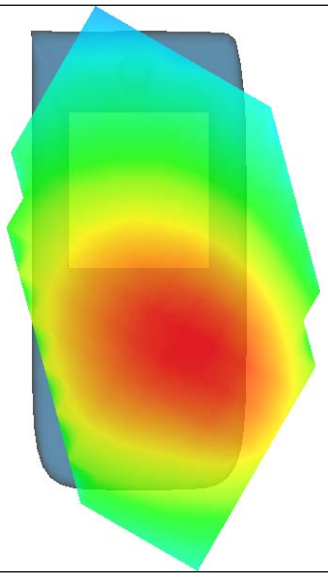
Maximum location: X=-50.00, Y=-45.00

SAR 10g (W/Kg)	0.377077
SAR 1g (W/Kg)	0.542632

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5597	0.3961	0.2866	0.2010	0.1522	0.1079



3D sceen 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: 26/4/2012
Measurement duration: 7 minutes 59 seconds

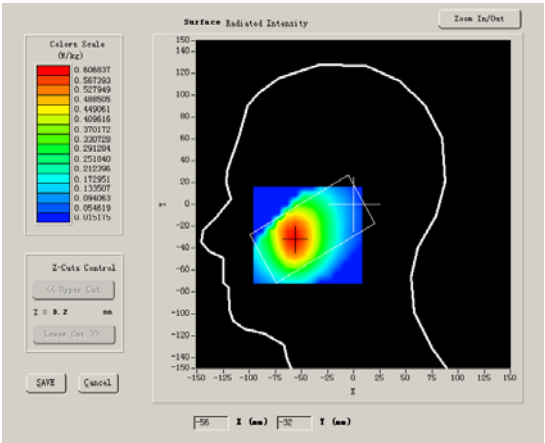
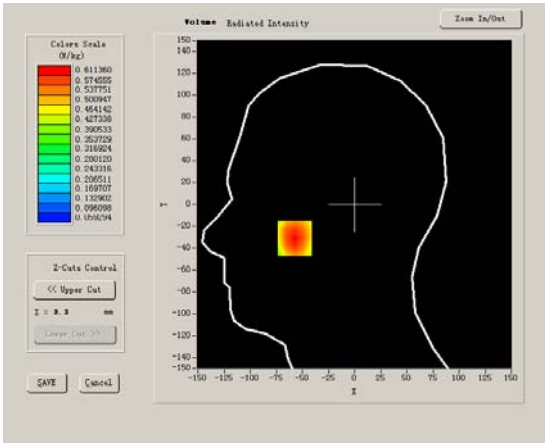
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

Frequency (MHz)	835.000000
Relative permittivity (real part)	39.910000
Relative permittivity	13.230000
Conductivity (S/m)	0.614460
Power drift(%)	-0.690000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

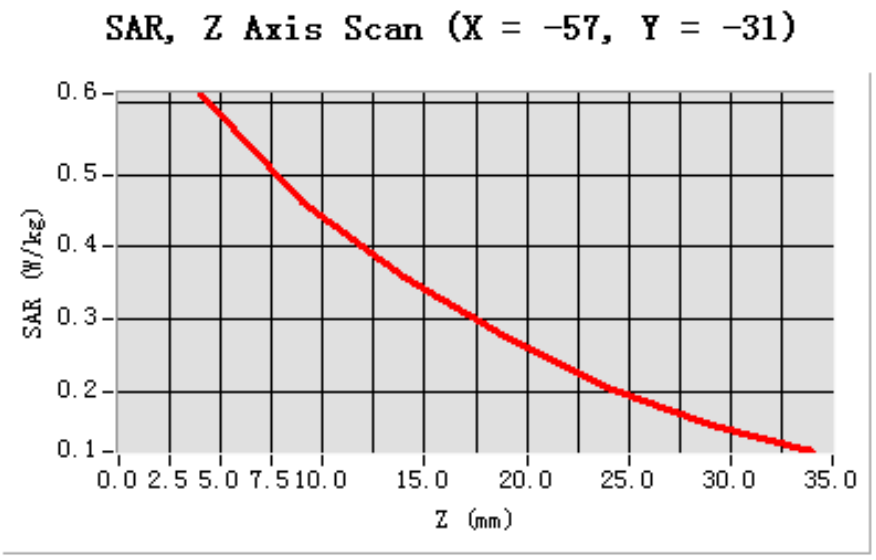
SURFACE SAR	VOLUME SAR
	

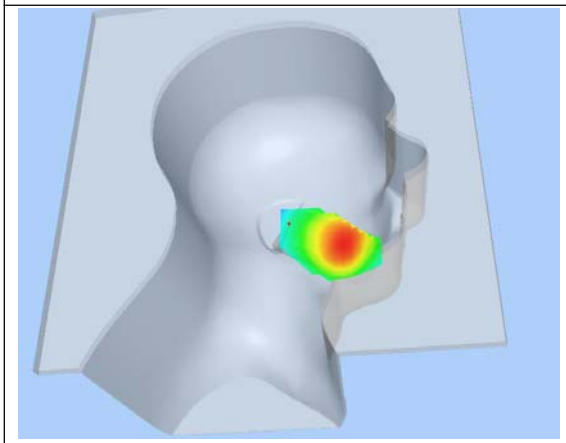
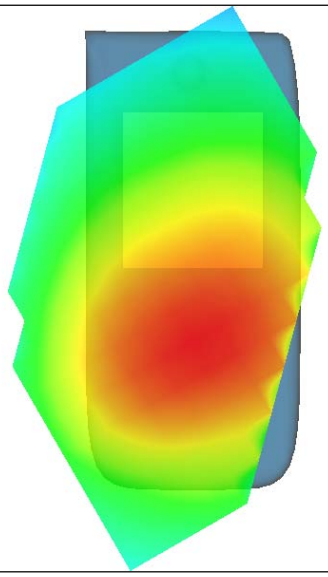
Maximum location: X=-57.00, Y=-31.00

SAR 10g (W/Kg)	0.424760
SAR 1g (W/Kg)	0.590465

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.6114	0.4624	0.3587	0.2764	0.2047	0.1543



3D sceen 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: 26/4/2012
Measurement duration: 7 minutes 41 seconds

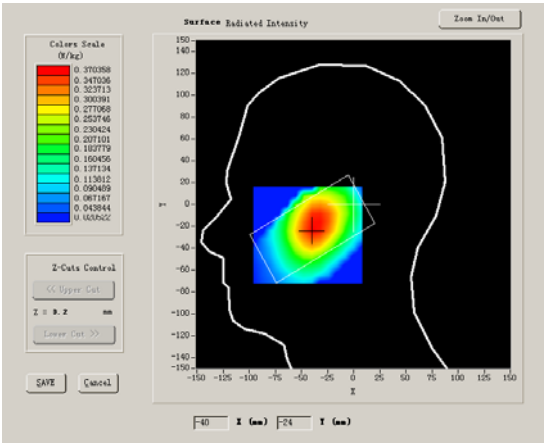
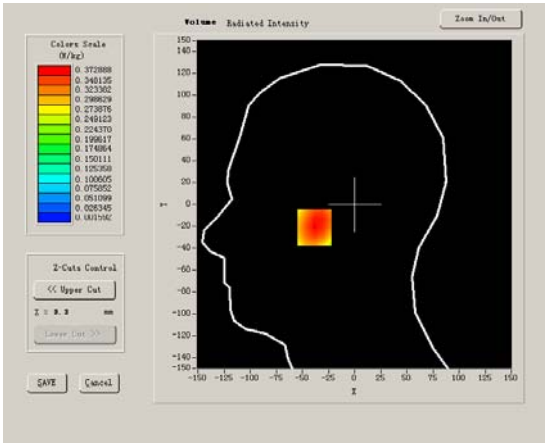
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

Frequency (MHz)	835.000000
Relative permittivity (real part)	39.910000
Relative permittivity	13.230000
Conductivity (S/m)	0.614460
Power drift(%)	-980.059998
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

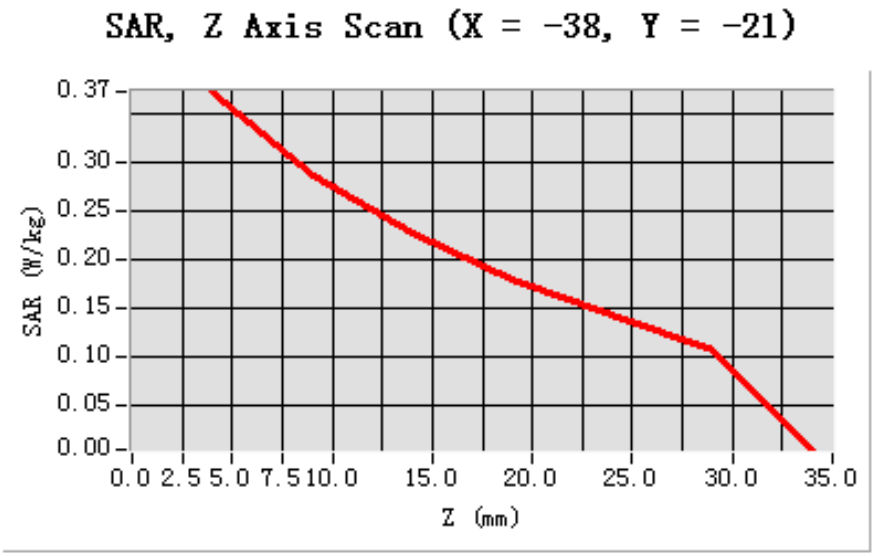
SURFACE SAR	VOLUME SAR
	

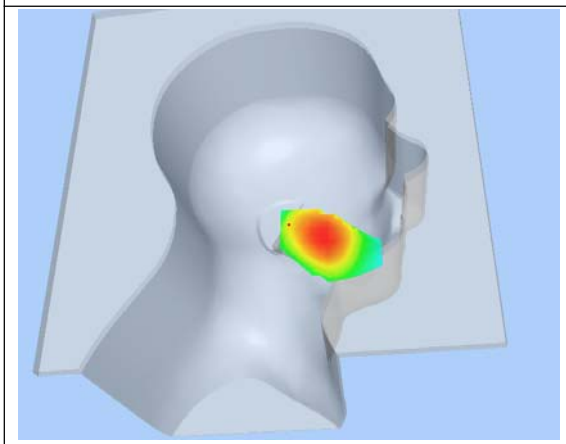
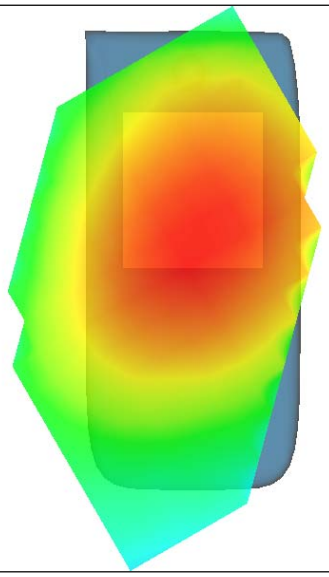
Maximum location: X=-38.00, Y=-21.00

SAR 10g (W/Kg)	0.262802
SAR 1g (W/Kg)	0.354860

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3729	0.2859	0.2276	0.1801	0.1432	0.1064



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 4 seconds

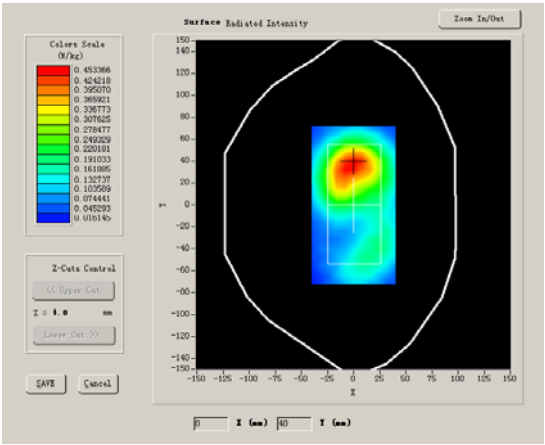
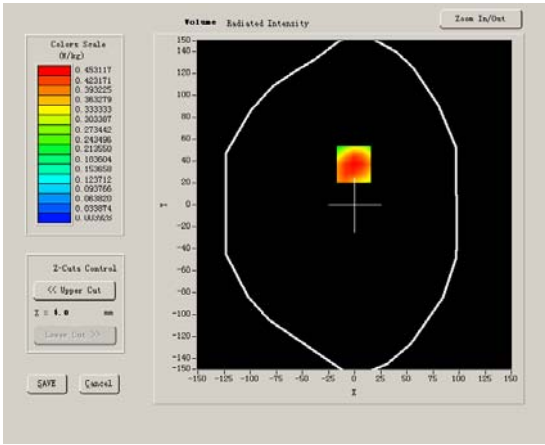
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	835.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.737401
Power drift(%)	0.320000
Ambient Temperature:	22.2°C
Liquid Temperature:	22.6°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:8

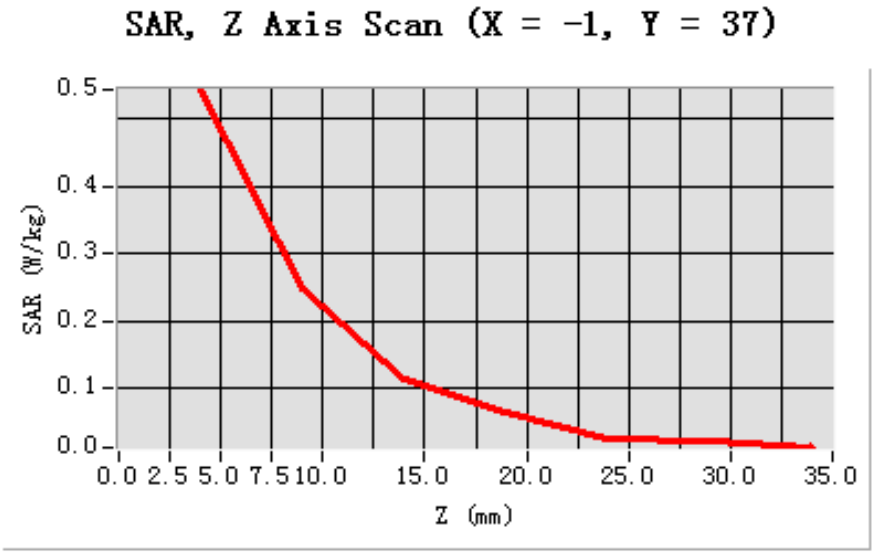
SURFACE SAR	VOLUME SAR
	

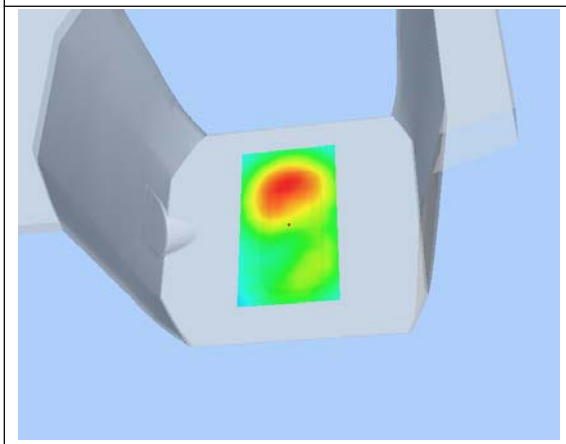
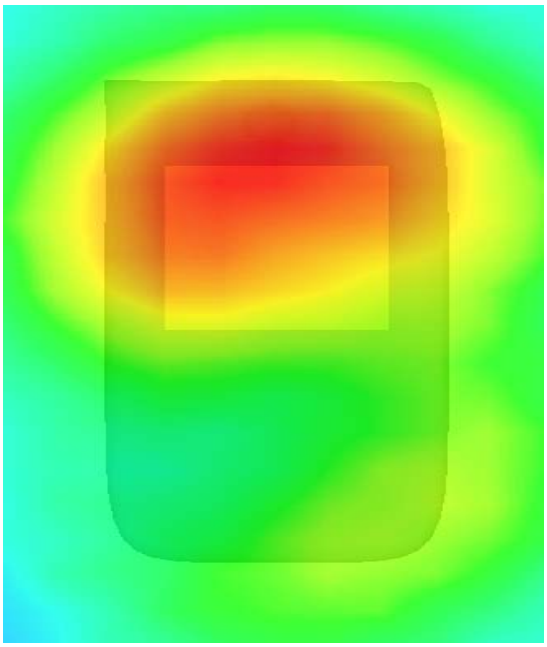
Maximum location: X=-1.00, Y=37.00

SAR 10g (W/Kg)	0.280693
SAR 1g (W/Kg)	0.529940

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5438	0.2502	0.1153	0.0662	0.0275	0.0236



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 8 seconds

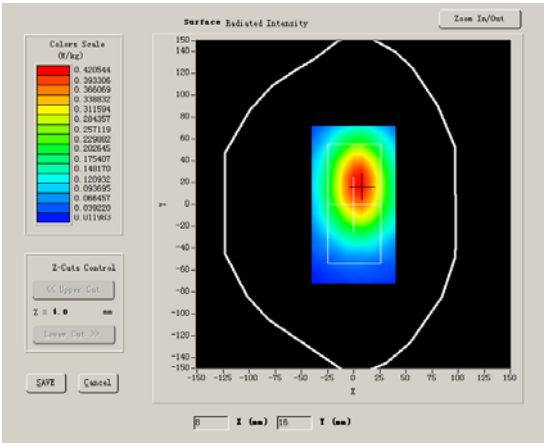
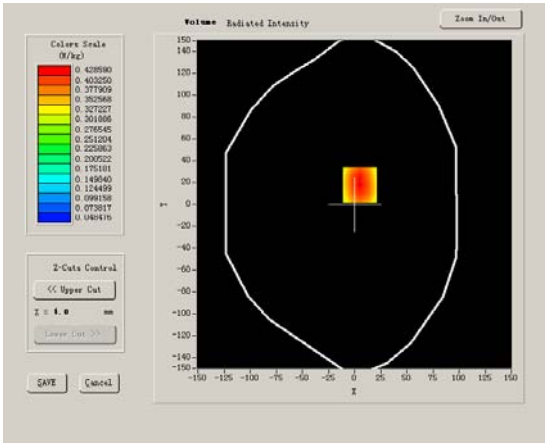
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

Frequency (MHz)	835.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.737401
Power drift(%)	0.590000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:8

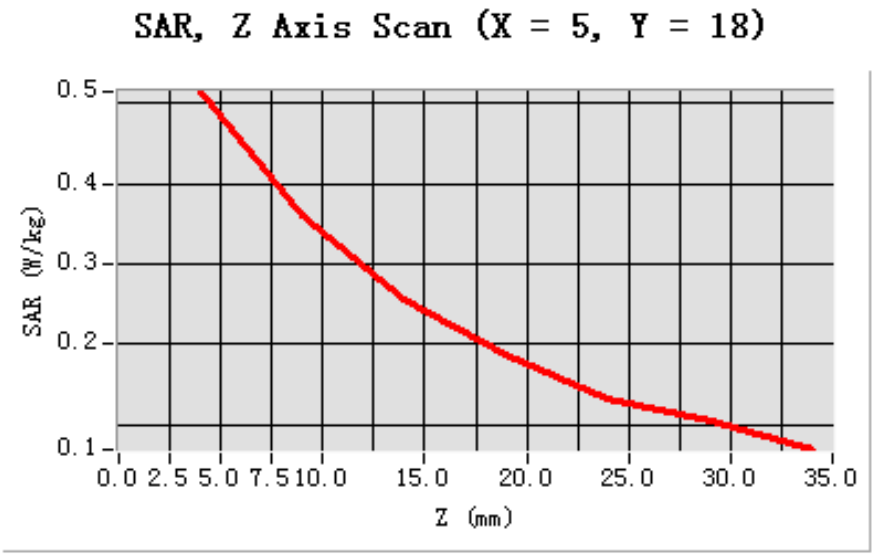
SURFACE SAR	VOLUME SAR
	

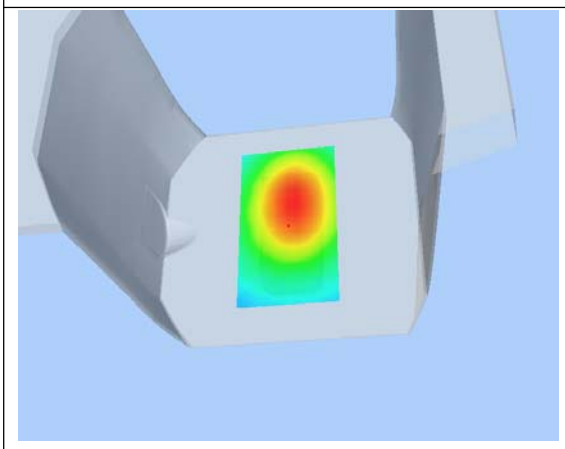
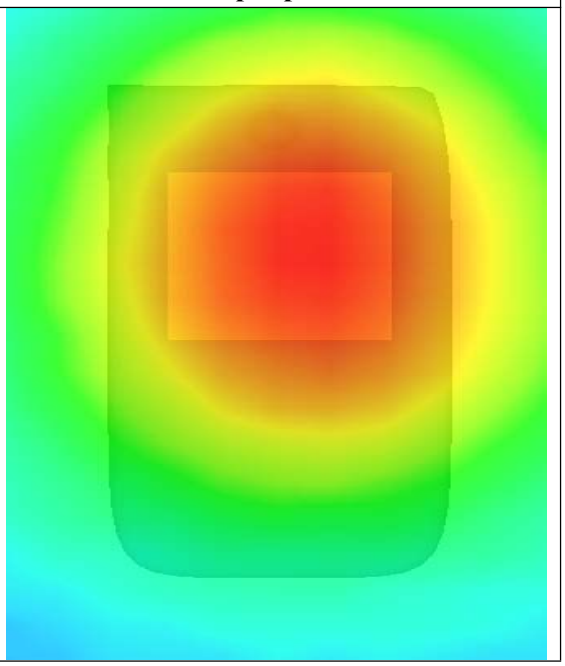
Maximum location: X=5.00, Y=18.00

SAR 10g (W/Kg)	0.337181
SAR 1g (W/Kg)	0.493518

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5143	0.3596	0.2563	0.1865	0.1311	0.1044



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 23 seconds

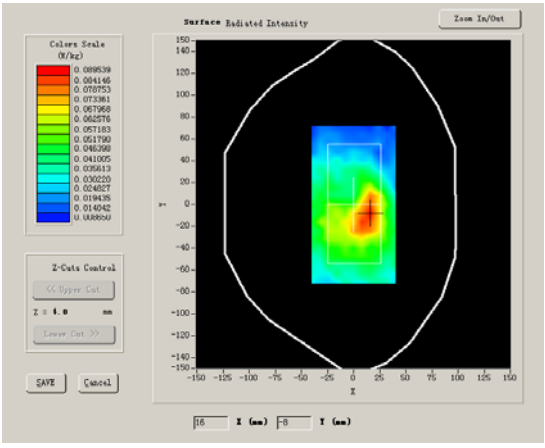
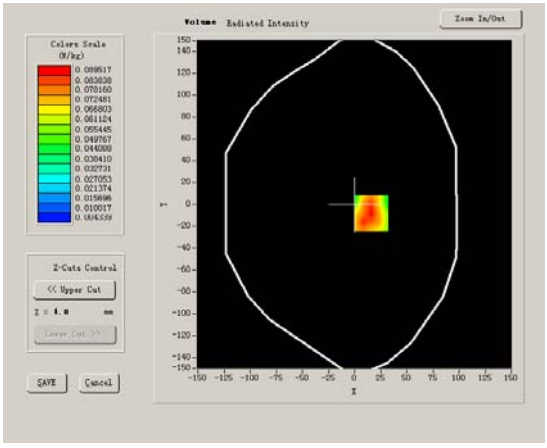
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

Frequency (MHz)	835.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.737401
Power drift (%)	1.520000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

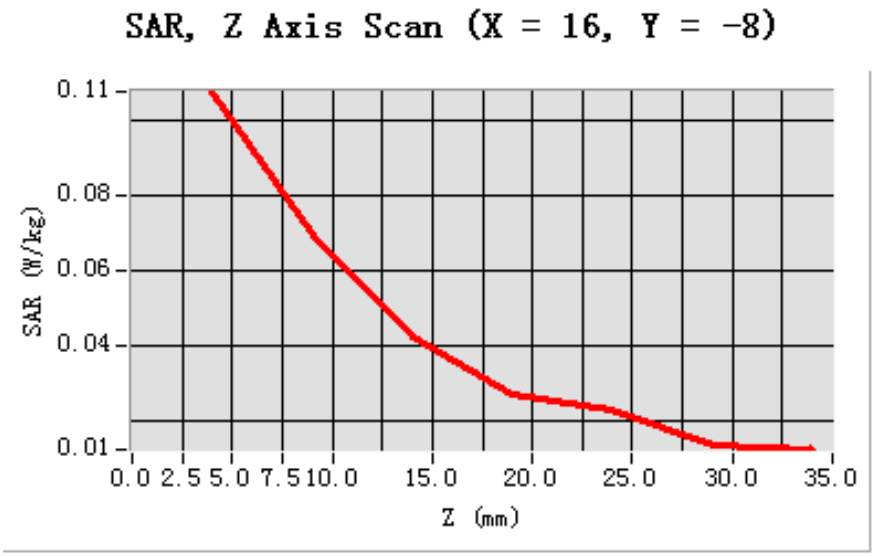
SURFACE SAR	VOLUME SAR
	

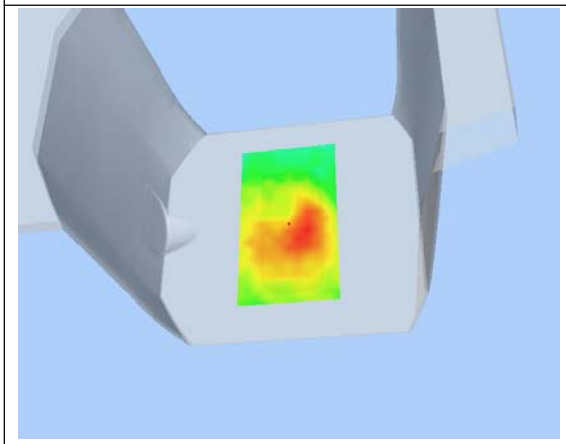
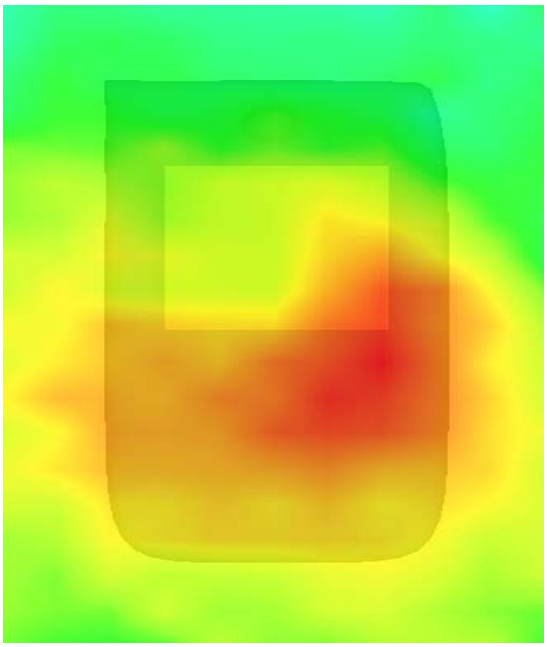
Maximum location: X=16.00, Y=-8.00

SAR 10g (W/Kg)	0.062678
SAR 1g (W/Kg)	0.102229

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1074	0.0692	0.0420	0.0270	0.0230	0.0134



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 11 seconds

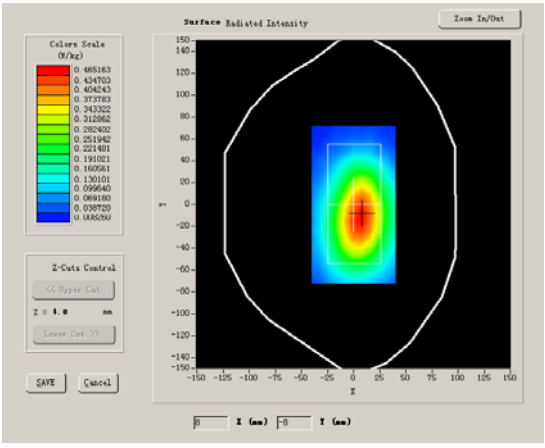
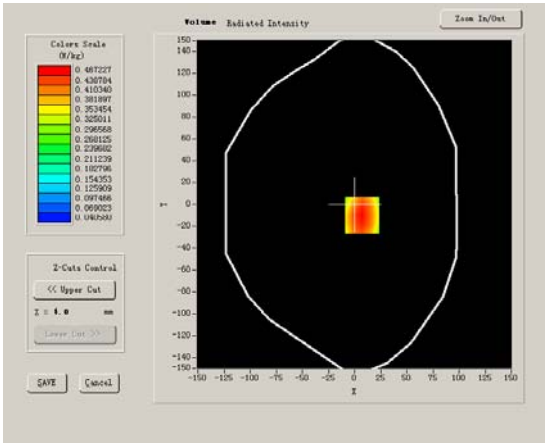
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

Frequency (MHz)	835.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.737401
Power drift (%)	-1.350000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

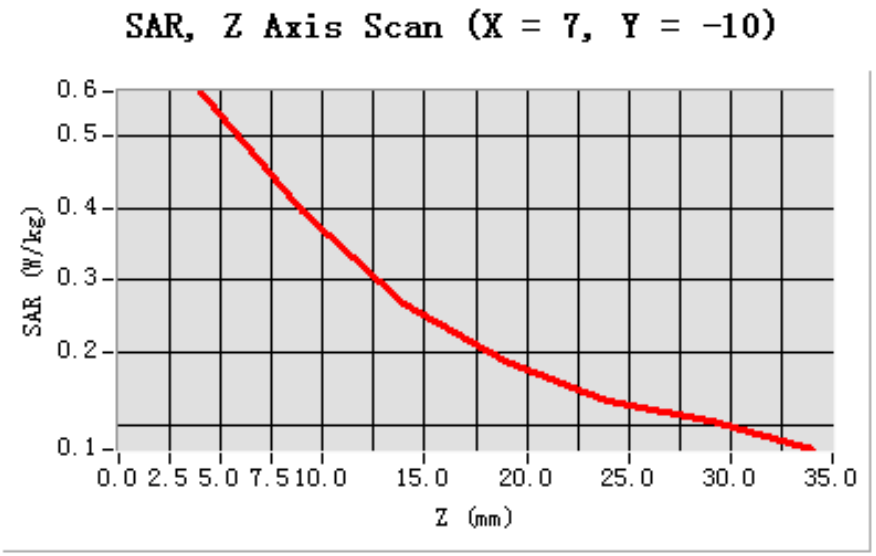
SURFACE SAR	VOLUME SAR
	

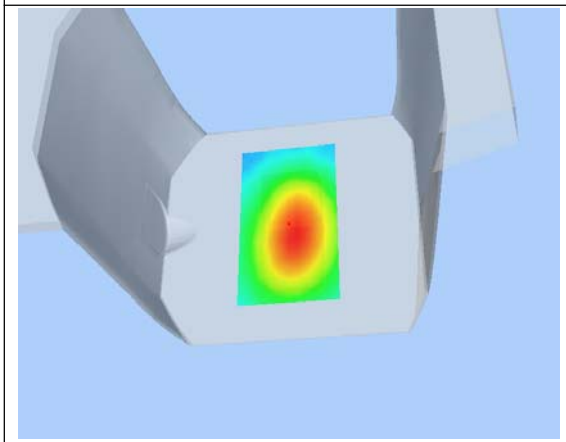
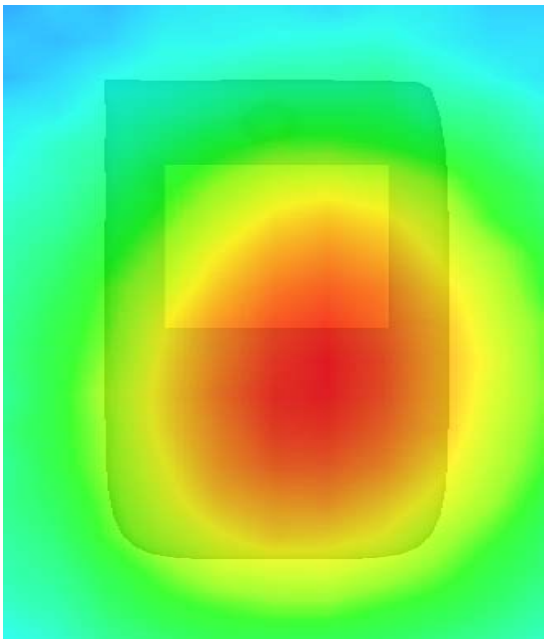
Maximum location: X=7.00, Y=-10.00

SAR 10g (W/Kg)	0.360302
SAR 1g (W/Kg)	0.537271

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5607	0.3945	0.2684	0.1865	0.1334	0.1043



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 23 seconds

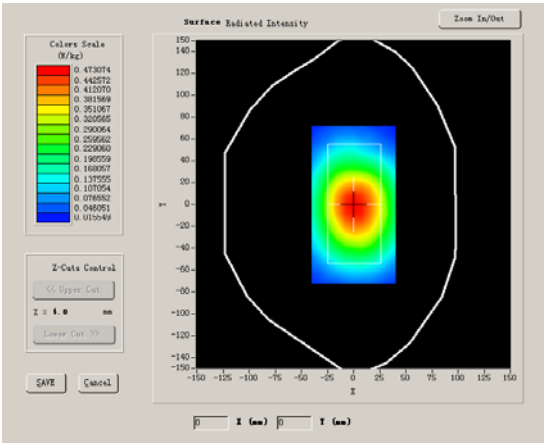
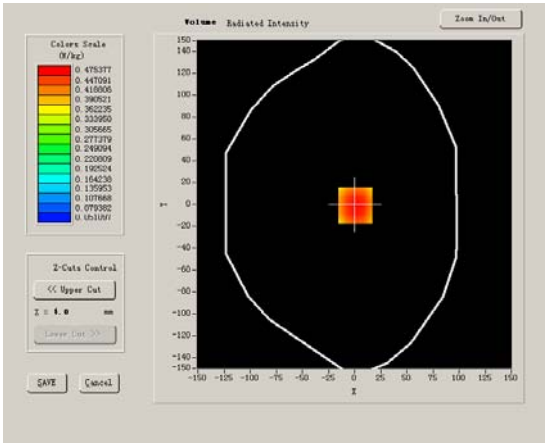
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 4175):

Frequency (MHz)	835.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.737401
Power drift (%)	-0.180000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.7°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

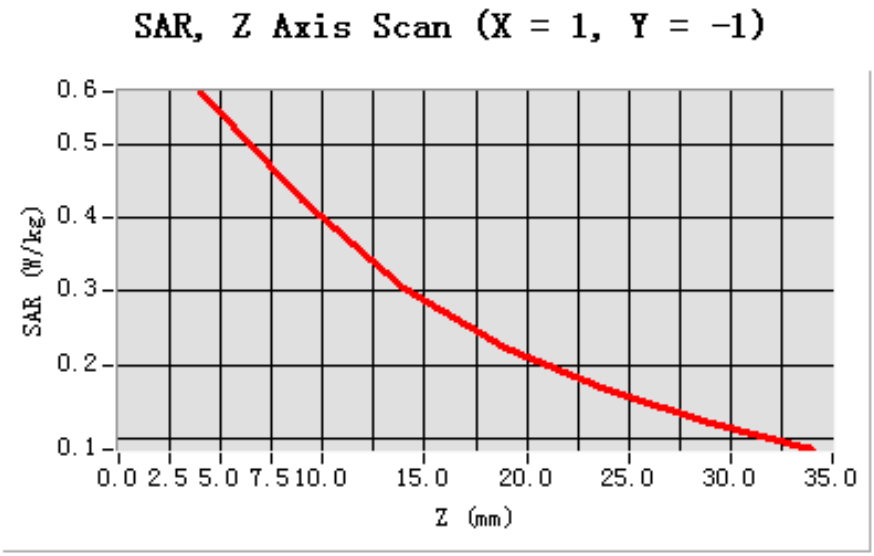
SURFACE SAR	VOLUME SAR
	

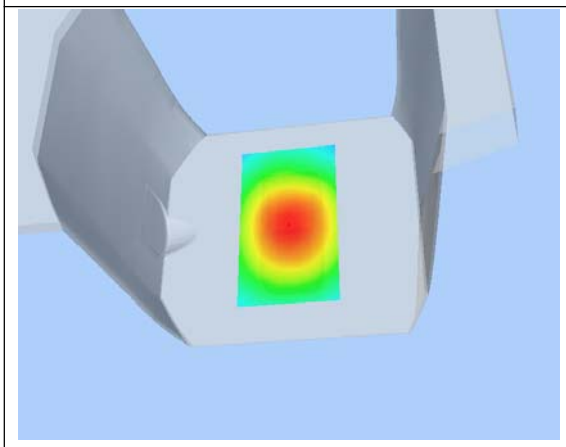
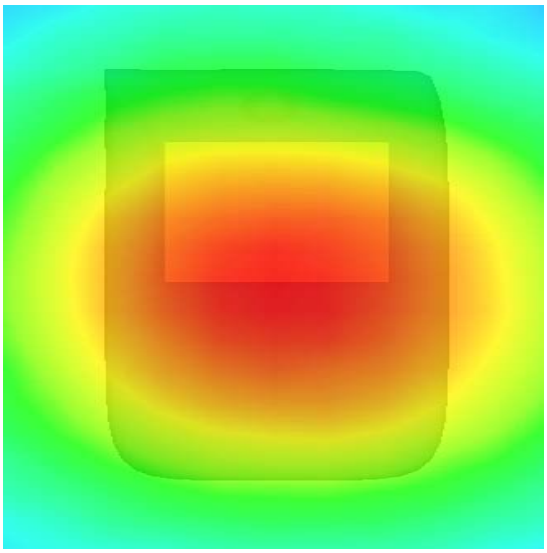
Maximum location: X=1.00, Y=-1.00

SAR 10g (W/Kg)	0.392723
SAR 1g (W/Kg)	0.552530

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5705	0.4226	0.3029	0.2236	0.1666	0.1206



3D sceen 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: 26/4/2012
Measurement duration: 8 minutes 4 seconds

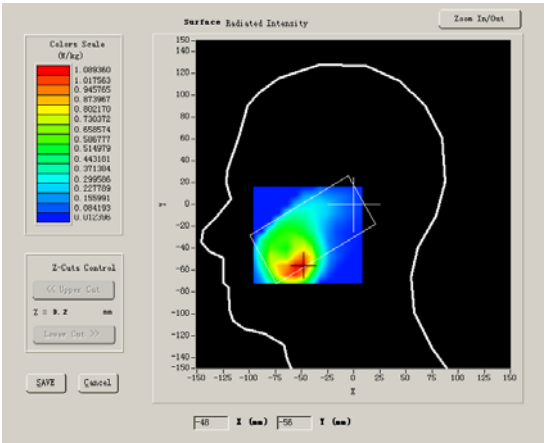
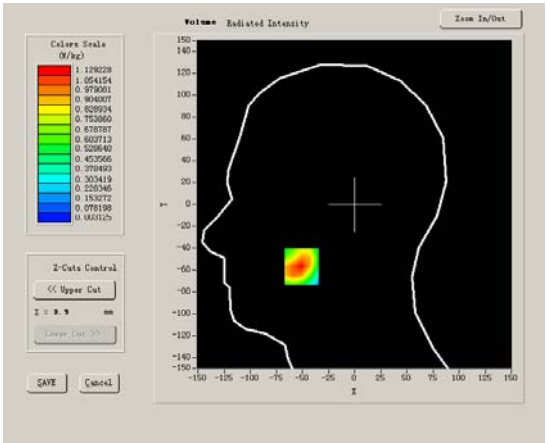
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.400000
Relative permittivity (real part)	39.980000
Relative permittivity	13.170000
Conductivity (S/m)	1.355047
Power drift(%)	-0.030000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

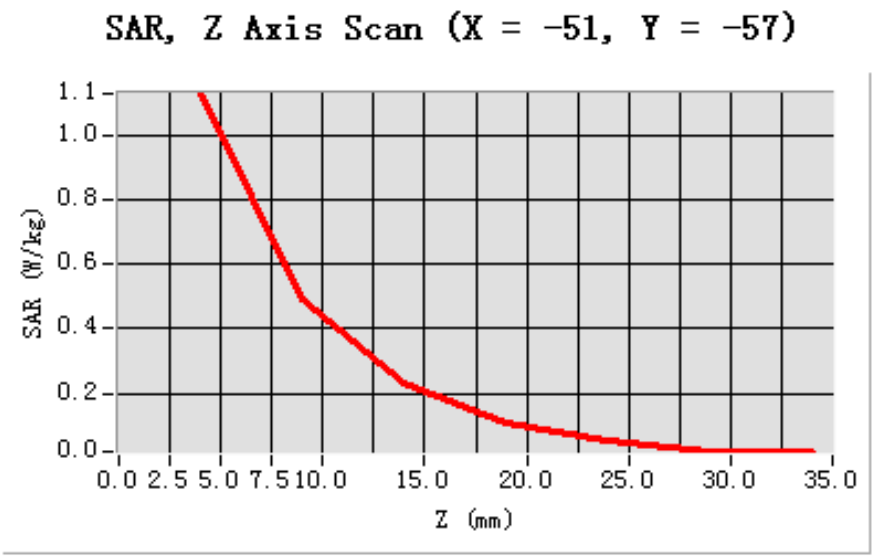
SURFACE SAR	VOLUME SAR
	

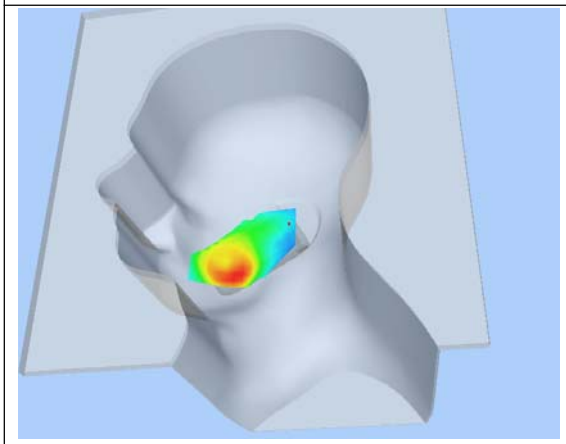
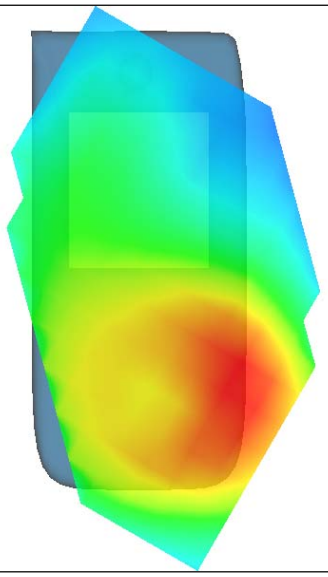
Maximum location: X=-51.00, Y=-57.00

SAR 10g (W/Kg)	0.529841
SAR 1g (W/Kg)	1.075685

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.1292	0.4925	0.2286	0.1098	0.0515	0.0190



3D sceen 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: 26/4/2012
Measurement duration: 8 minutes 3 seconds

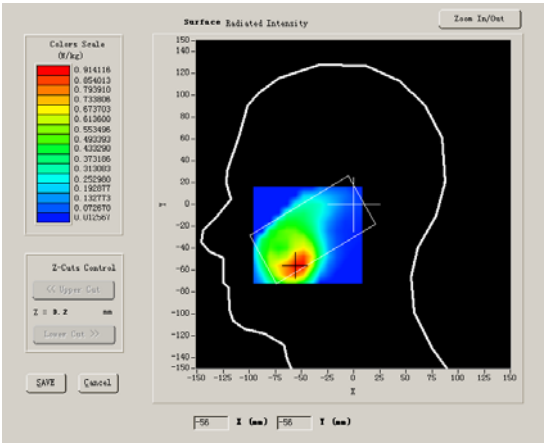
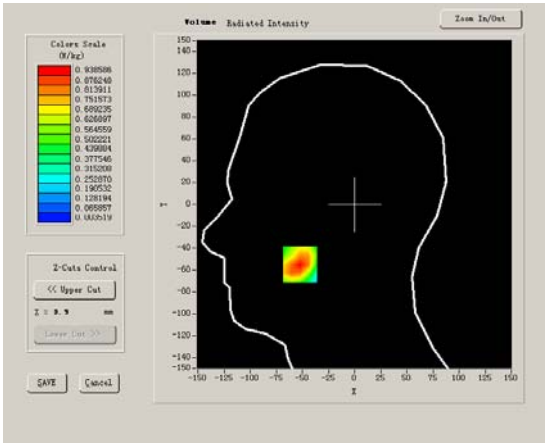
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	39.910000
Relative permittivity	13.230000
Conductivity (S/m)	1.381800
Power drift(%)	0.340000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

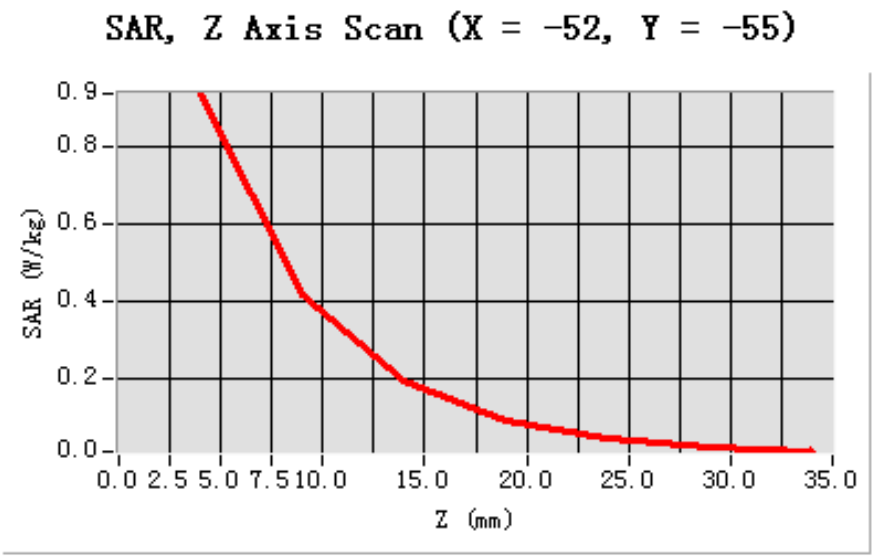
SURFACE SAR	VOLUME SAR
	

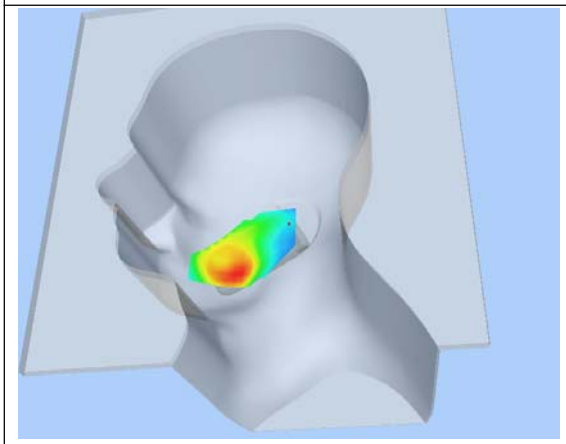
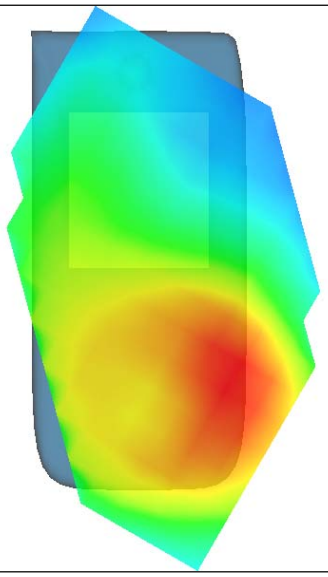
Maximum location: X=-52.00, Y=-55.00

SAR 10g (W/Kg)	0.446458
SAR 1g (W/Kg)	0.896695

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.9386	0.4190	0.1900	0.0897	0.0436	0.0189



3D sceen 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: 26/4/2012
Measurement duration: 8 minutes 8 seconds

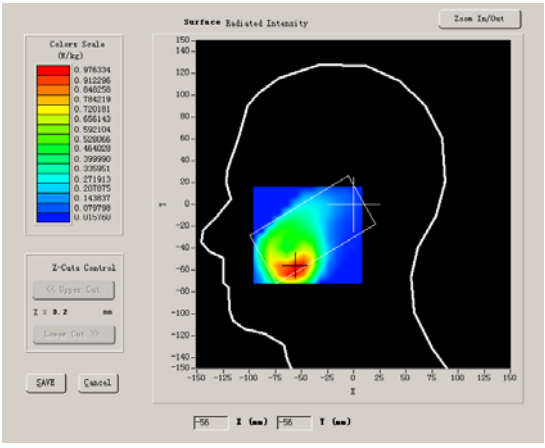
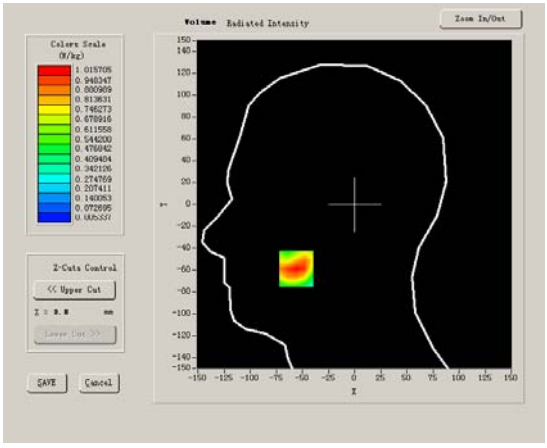
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	WCDMA
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 9538):

Frequency (MHz)	1907.600000
Relative permittivity (real part)	39.799999
Relative permittivity	13.380000
Conductivity (S/m)	1.417537
Power drift(%)	-0.480000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8

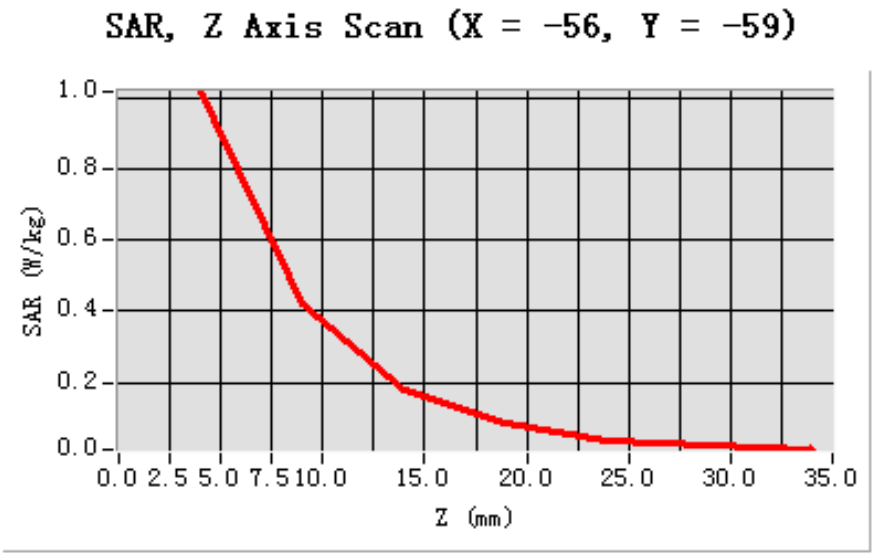
SURFACE SAR	VOLUME SAR
	

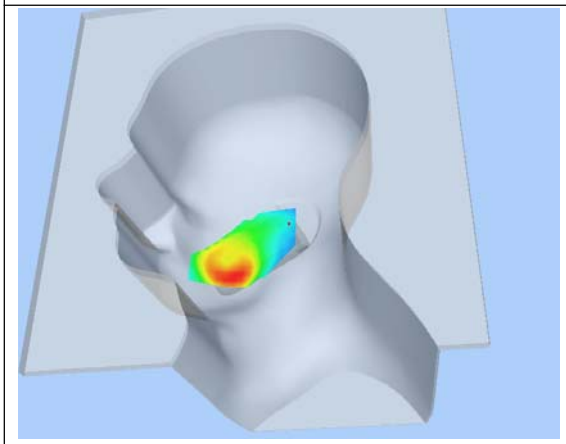
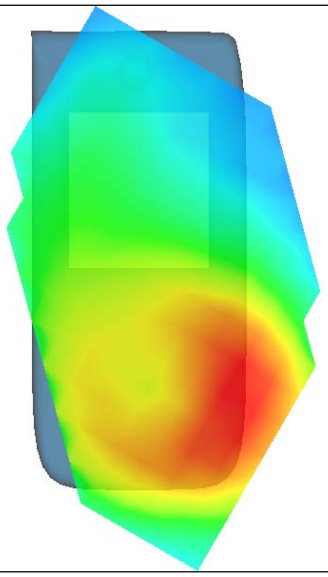
Maximum location: X=-56.00, Y=-59.00

SAR 10g (W/Kg)	0.477721
SAR 1g (W/Kg)	0.979129

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.0157	0.4176	0.1816	0.0843	0.0343	0.0239



3D sceen 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: 26/4/2012
Measurement duration: 7 minutes 58 seconds

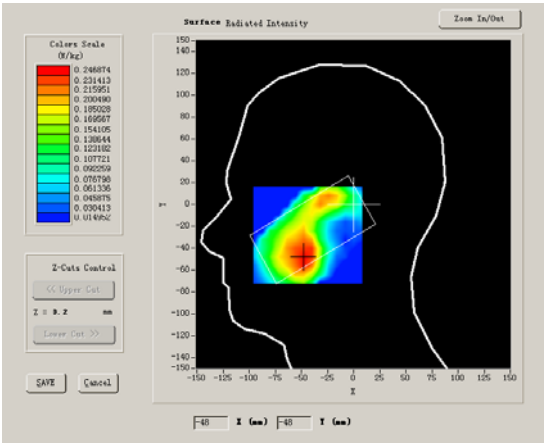
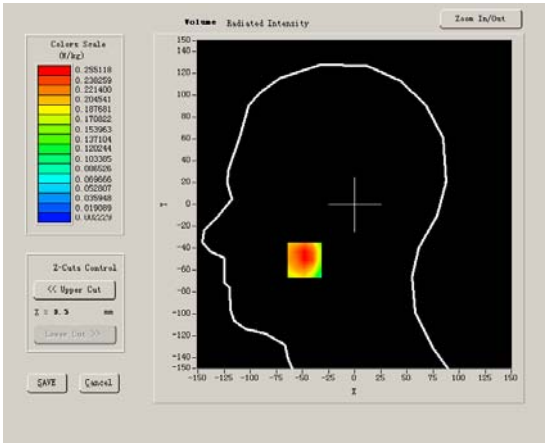
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.400000
Relative permittivity (real part)	39.910000
Relative permittivity	13.230000
Conductivity (S/m)	1.381800
Power drift(%)	2.390000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

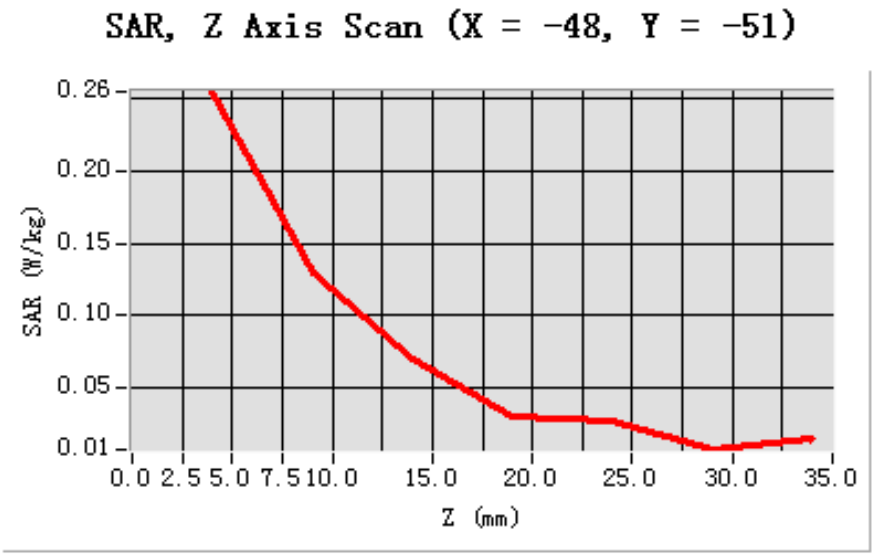
SURFACE SAR	VOLUME SAR
	

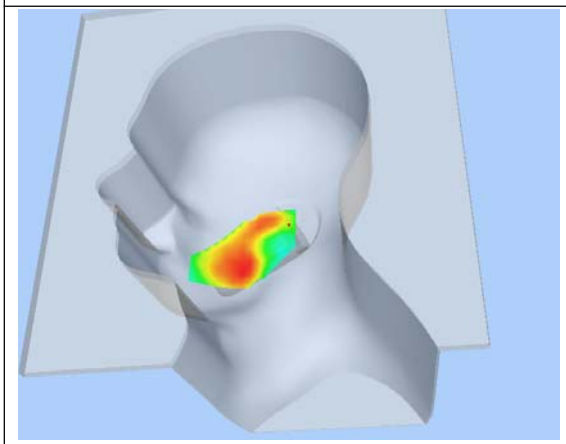
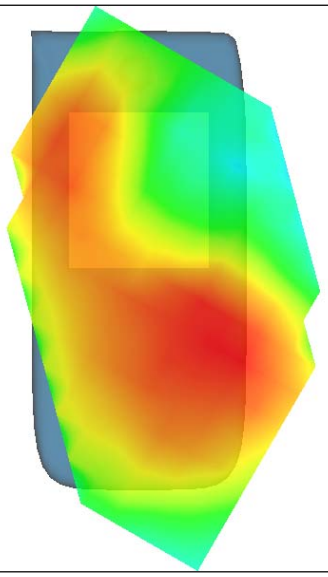
Maximum location: X=-48.00, Y=-51.00

SAR 10g (W/Kg)	0.132118
SAR 1g (W/Kg)	0.249301

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2551	0.1298	0.0701	0.0288	0.0262	0.0066



3D sceen 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: 26/4/2012
Measurement duration: 8 minutes 8 seconds

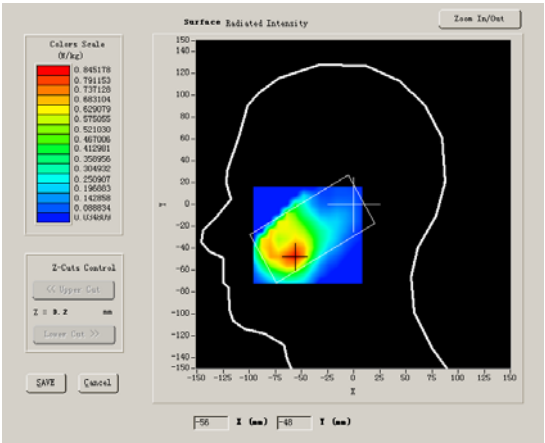
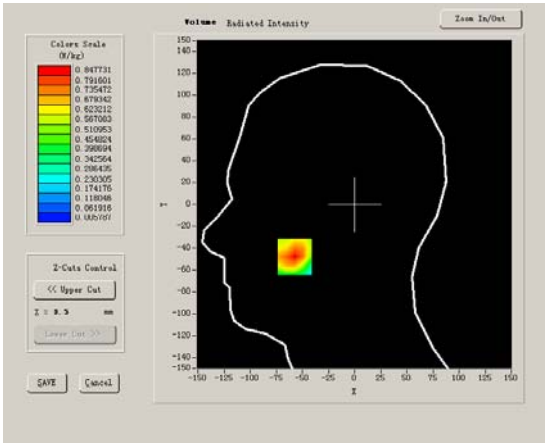
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.400000
Relative permittivity (real part)	39.910000
Relative permittivity	13.230000
Conductivity (S/m)	1.381800
Power drift(%)	-0.690000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

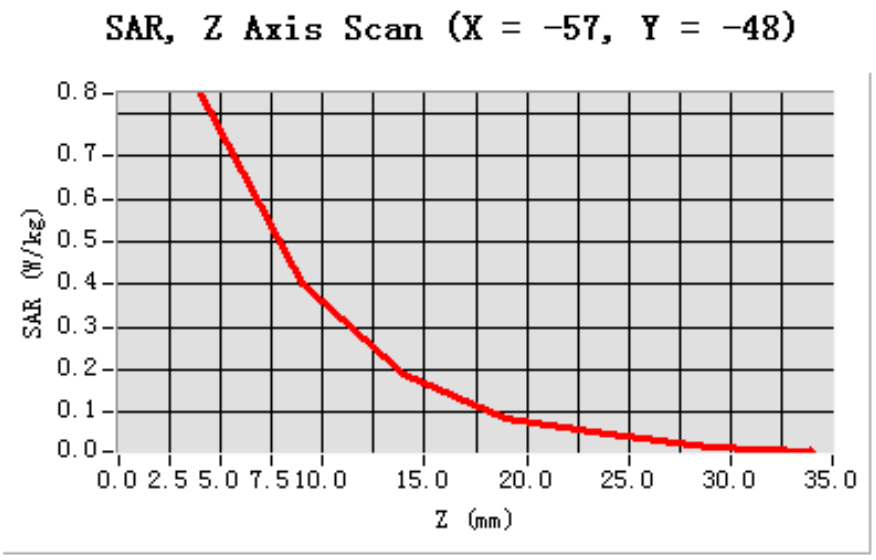
SURFACE SAR	VOLUME SAR
	

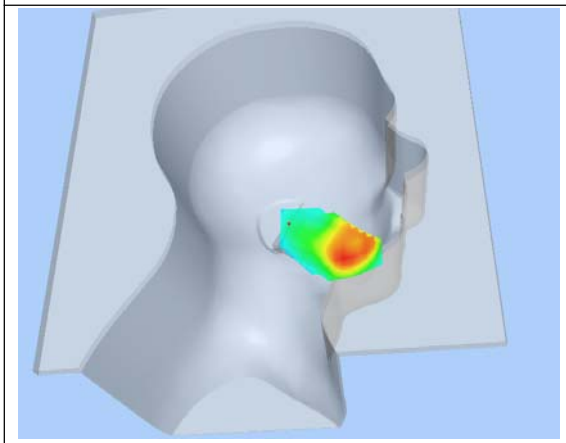
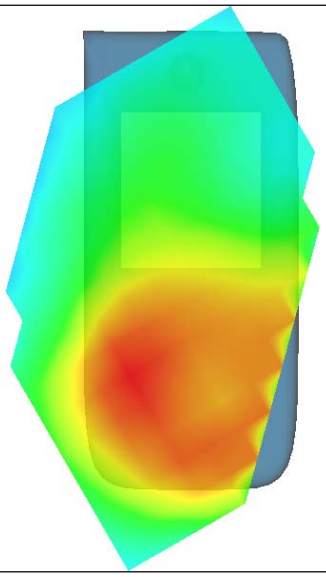
Maximum location: X=-57.00, Y=-48.00

SAR 10g (W/Kg)	0.405275
SAR 1g (W/Kg)	0.799366

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.8477	0.4020	0.1889	0.0844	0.0492	0.0160



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 21 seconds

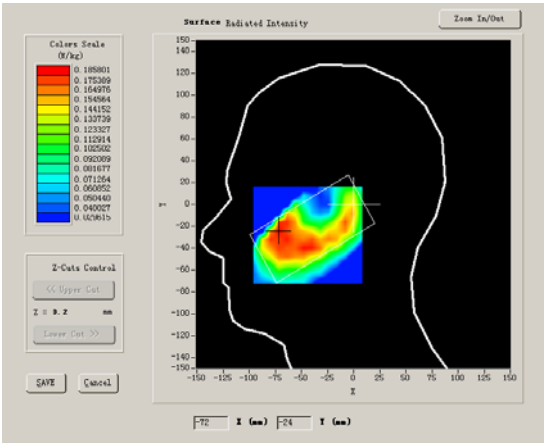
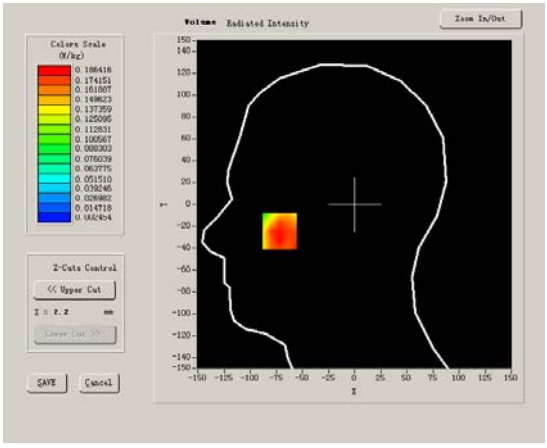
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.400000
Relative permittivity (real part)	39.910000
Relative permittivity	13.230000
Conductivity (S/m)	1.381800
Power drift(%)	-2.770000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

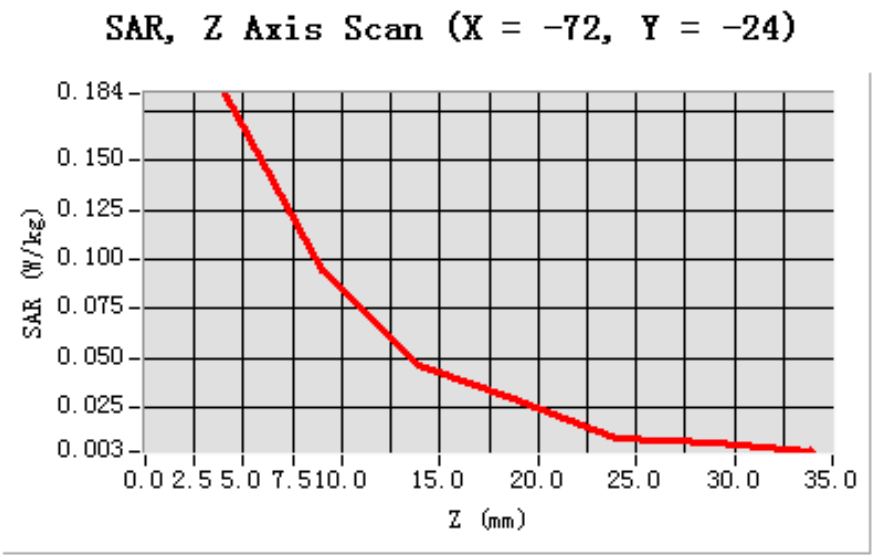
SURFACE SAR	VOLUME SAR
	

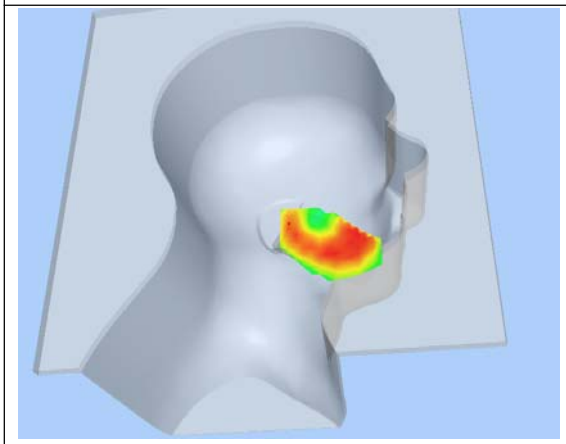
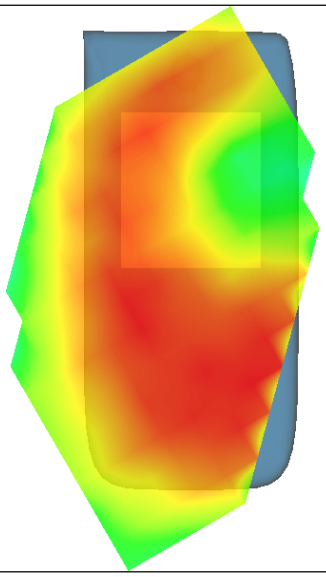
Maximum location: X=-72.00, Y=-24.00

SAR 10g (W/Kg)	0.099135
SAR 1g (W/Kg)	0.183079

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1836	0.0946	0.0461	0.0286	0.0098	0.0078



3D sceen 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: 9/5/2012
Measurement duration: 9 minutes 4 seconds

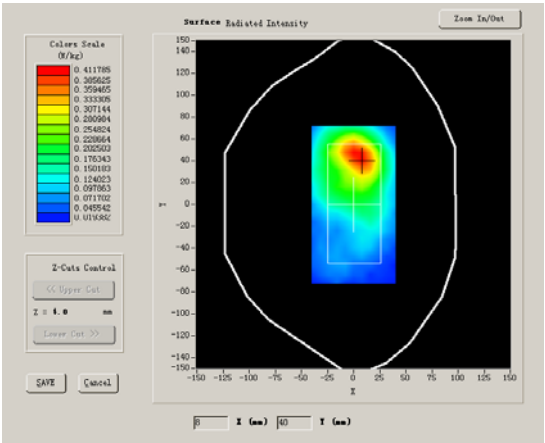
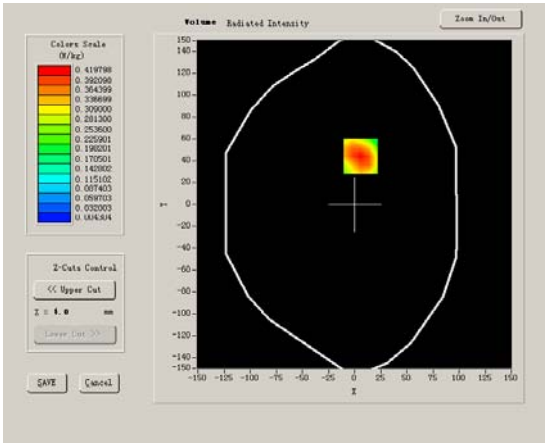
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.400000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.658270
Power drift(%)	-1.850000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

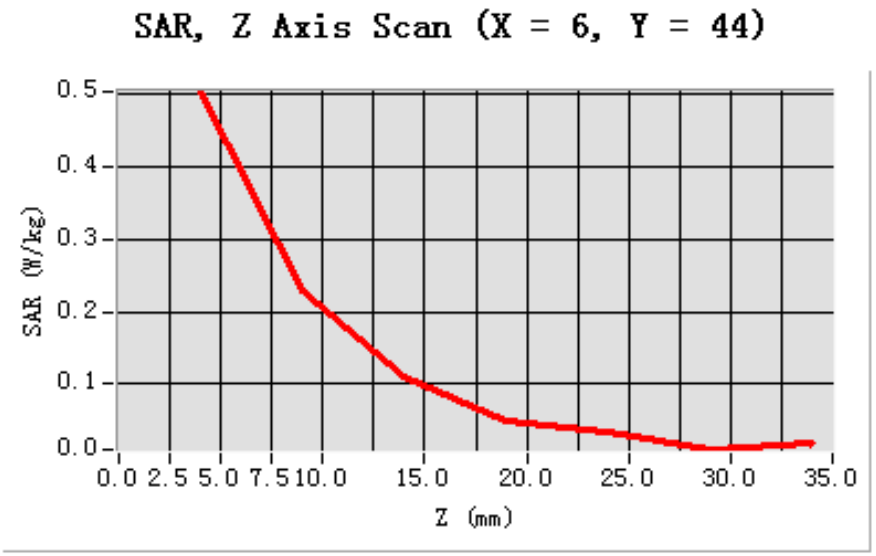
SURFACE SAR	VOLUME SAR
	

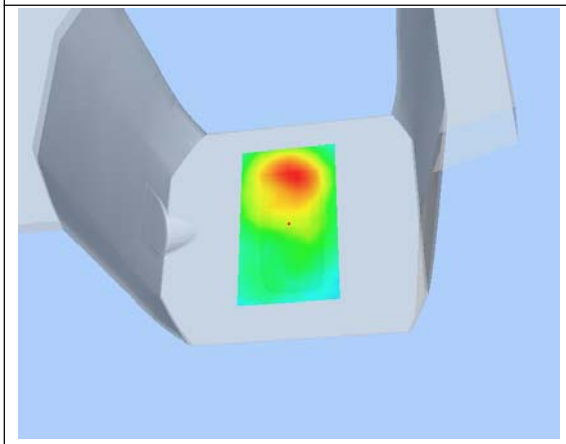
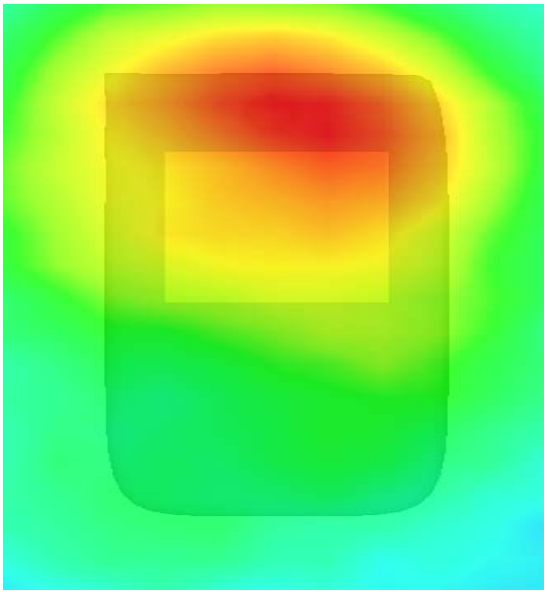
Maximum location: X=6.00, Y=44.00

SAR 10g (W/Kg)	0.251984
SAR 1g (W/Kg)	0.484198

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5038	0.2293	0.1108	0.0497	0.0337	0.0097



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 8 seconds

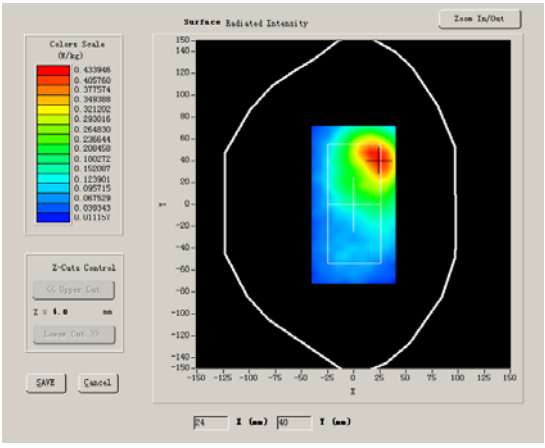
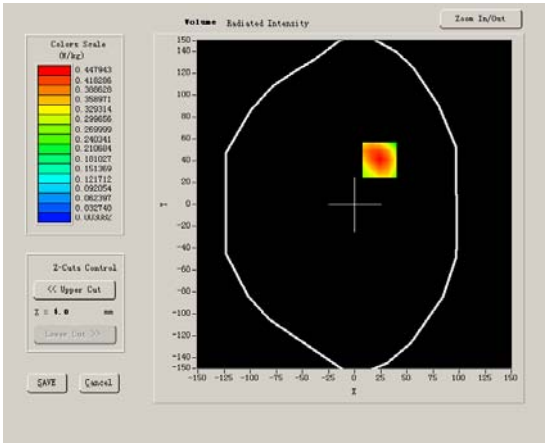
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.400000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.658270
Power drift(%)	0.700000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

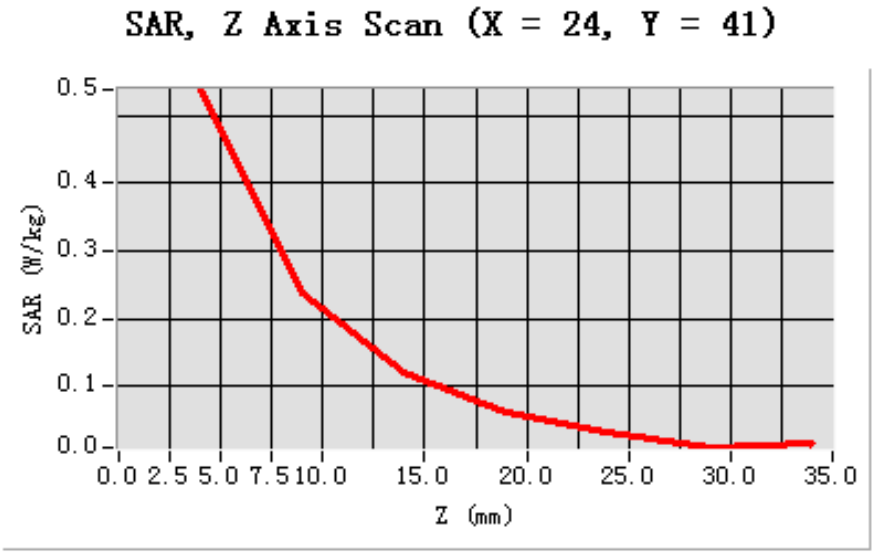
SURFACE SAR	VOLUME SAR
	

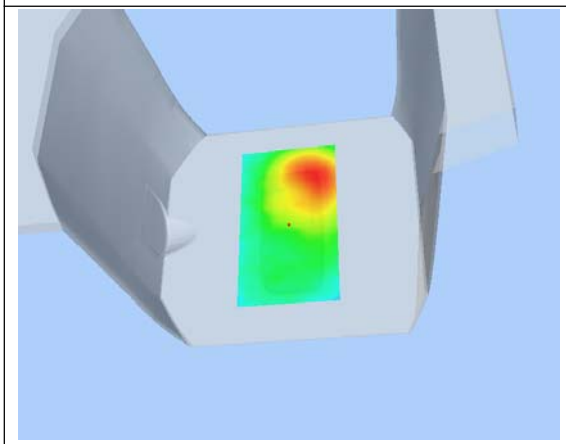
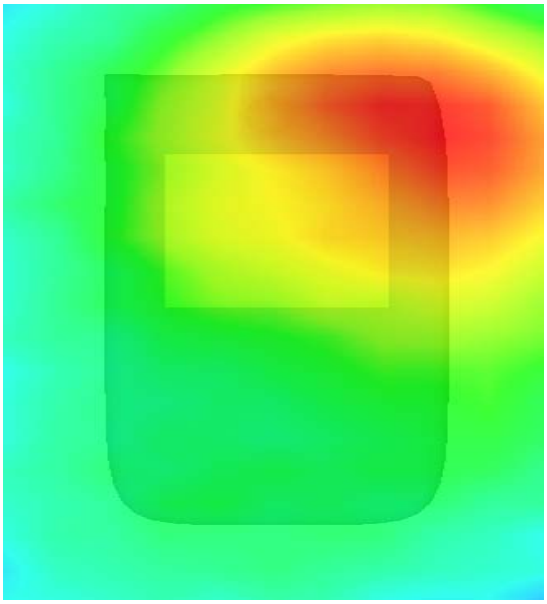
Maximum location: X=24.00, Y=41.00

SAR 10g (W/Kg)	0.271369
SAR 1g (W/Kg)	0.522428

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5376	0.2385	0.1192	0.0636	0.0330	0.0101



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 8 seconds

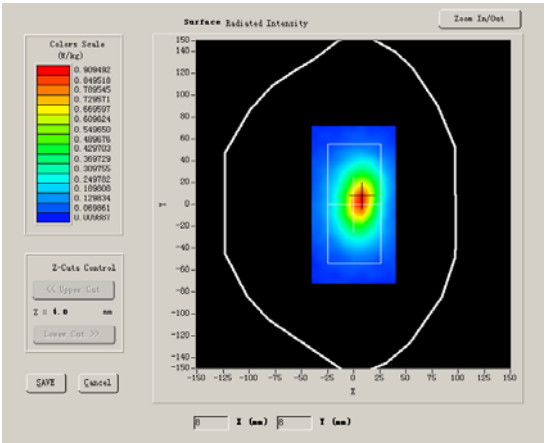
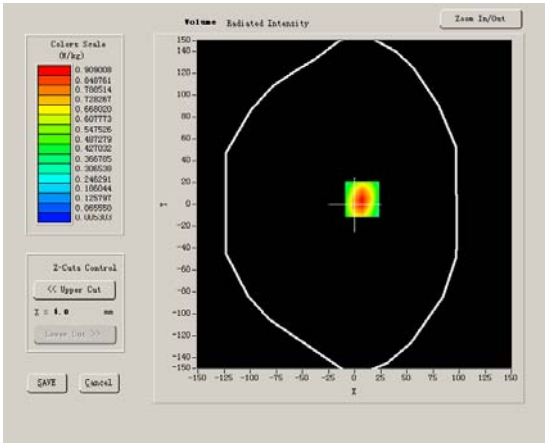
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.400000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.633572
Power drift (%)	-0.790000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

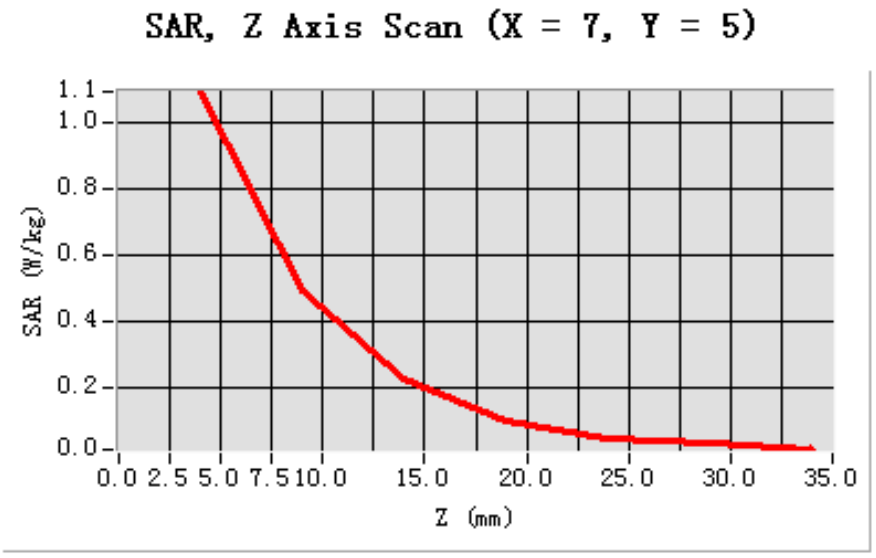
SURFACE SAR	VOLUME SAR
	

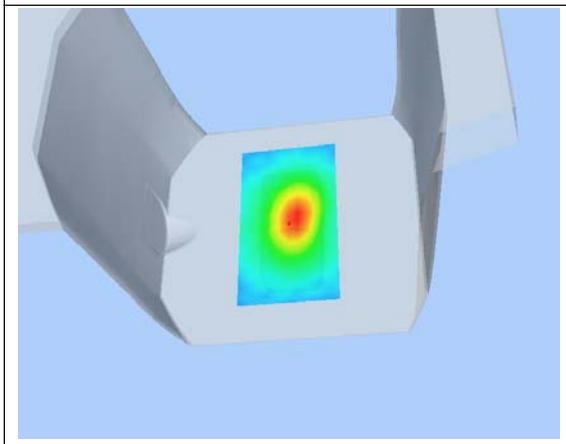
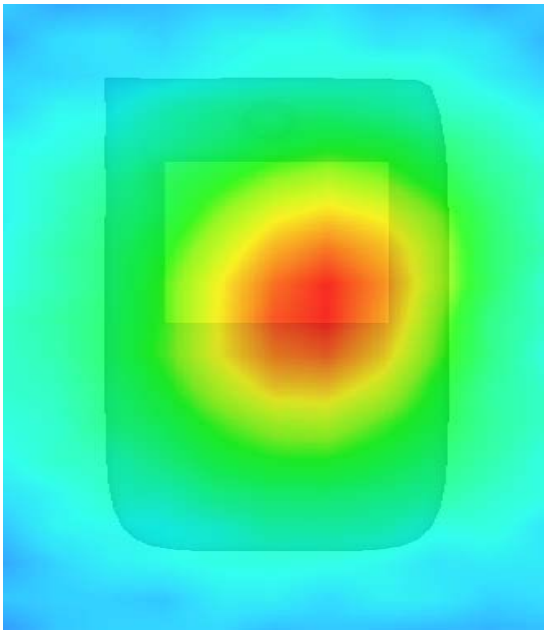
Maximum location: X=7.00, Y=5.00

SAR 10g (W/Kg)	0.511966
SAR 1g (W/Kg)	1.035590

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.0959	0.4931	0.2223	0.0948	0.0431	0.0318



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 25 seconds

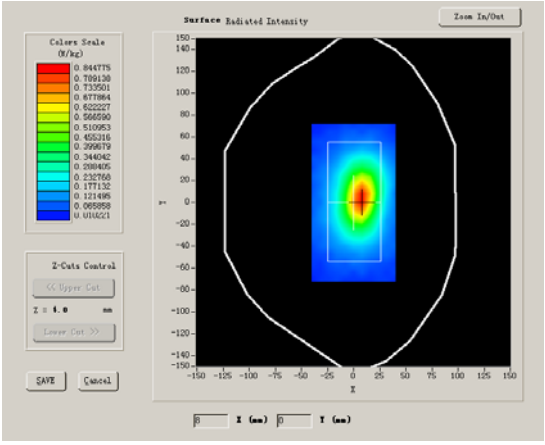
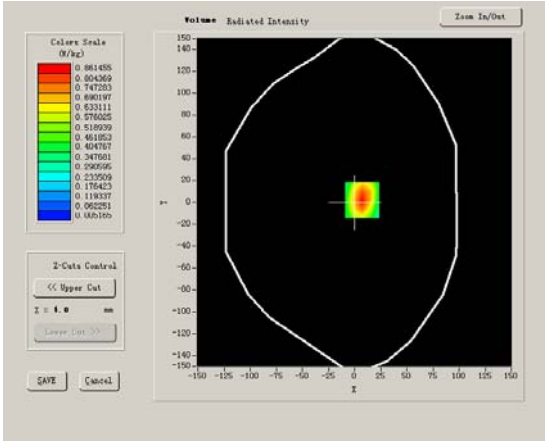
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 9400):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.658270
Power drift (%)	-0.740000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

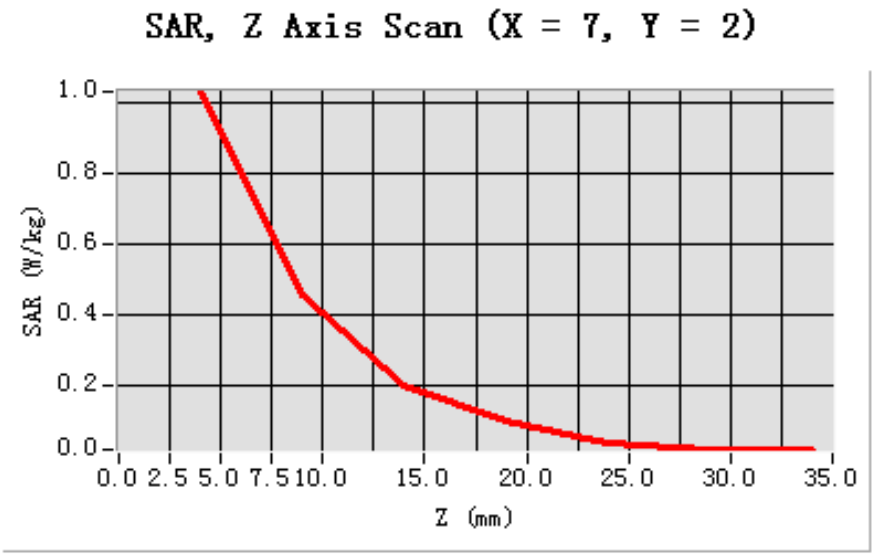
SURFACE SAR	VOLUME SAR
	

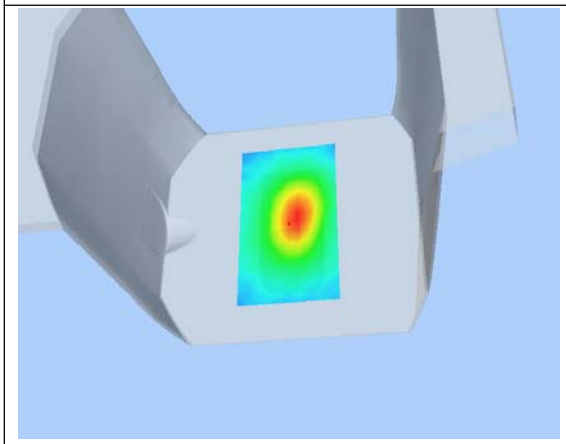
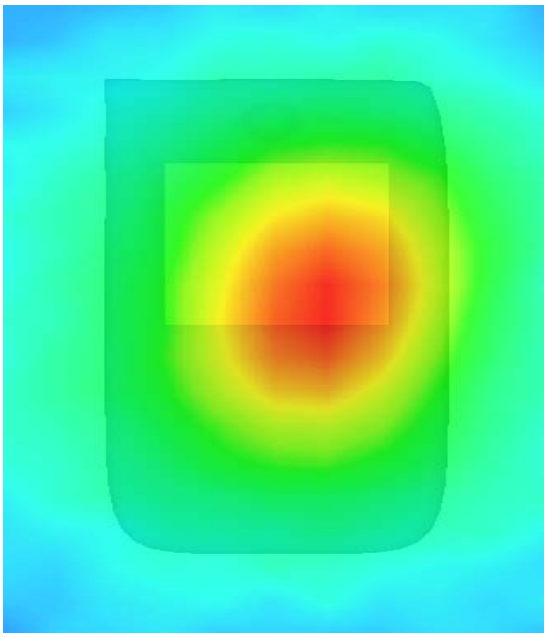
Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	0.478901
SAR 1g (W/Kg)	0.972787

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.0338	0.4592	0.1993	0.0965	0.0370	0.0176



3D sceen 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: 26/4/2012
Measurement duration: 9 minutes 8 seconds

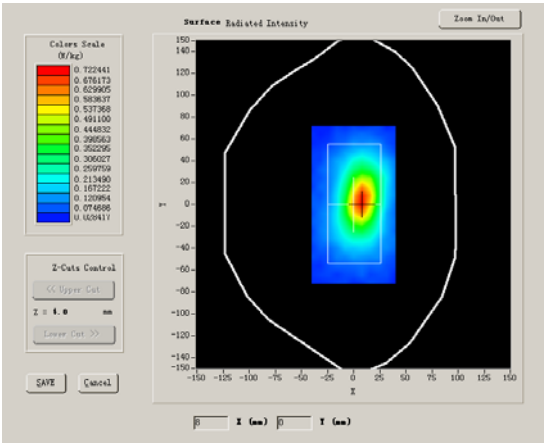
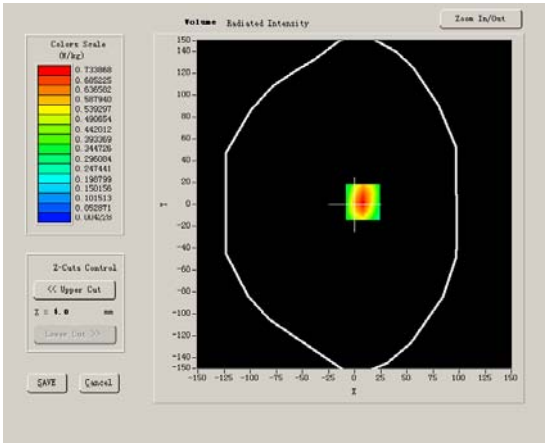
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 9538):

Frequency (MHz)	1907.600000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.682085
Power drift (%)	1.010000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

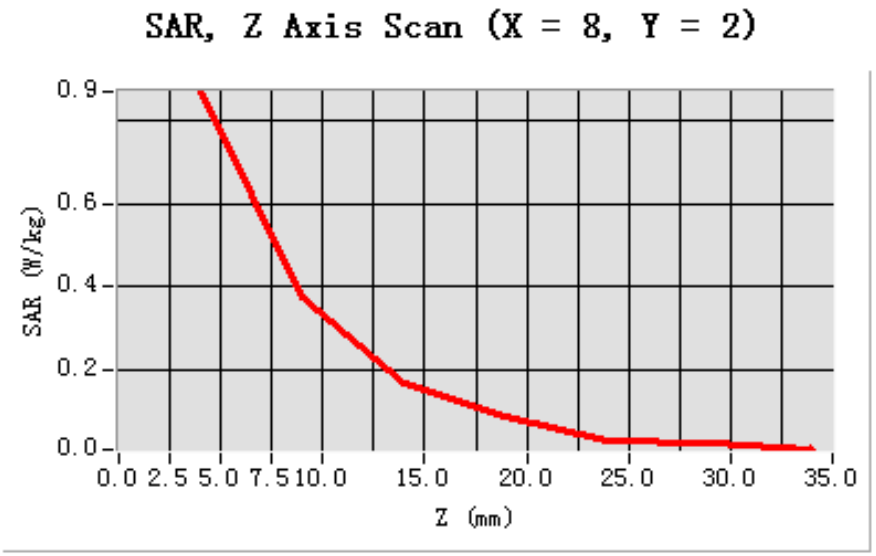
SURFACE SAR	VOLUME SAR
	

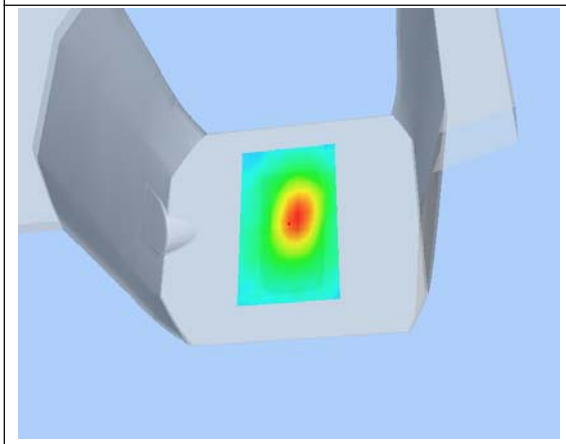
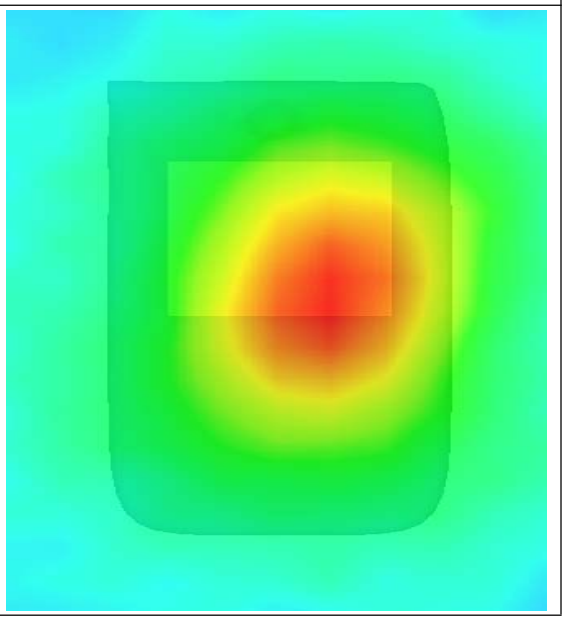
Maximum location: X=8.00, Y=2.00

SAR 10g (W/Kg)	0.400957
SAR 1g (W/Kg)	0.822846

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.8708	0.3731	0.1648	0.0887	0.0308	0.0250



3D sceen shot	Hot spot position
	

MEASUREMENT 45

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 26/4/2012
Measurement duration: 9 minutes 9 seconds

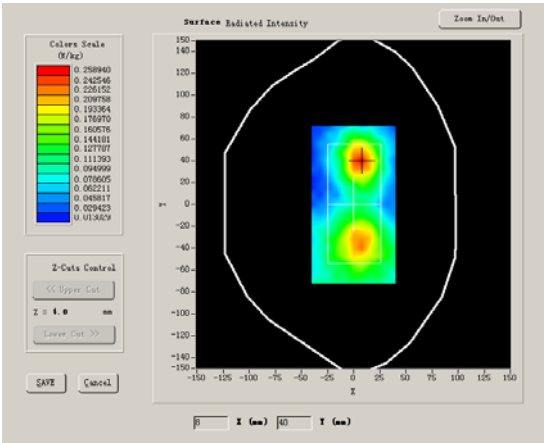
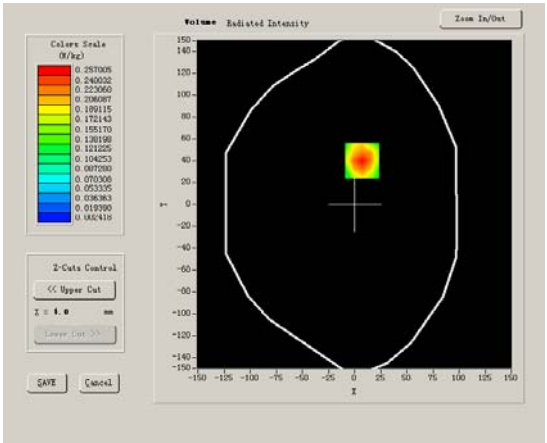
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.400000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.633572
Power drift (%)	-2.890000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

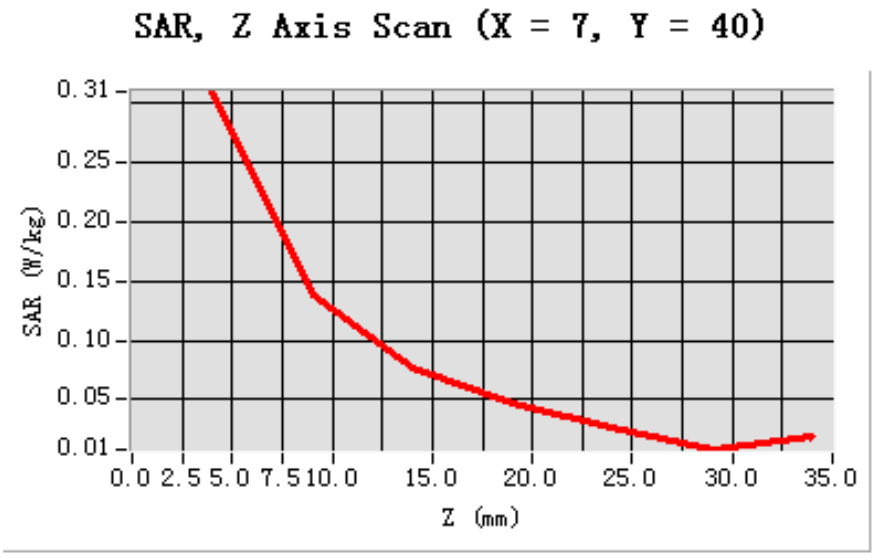
SURFACE SAR	VOLUME SAR
	

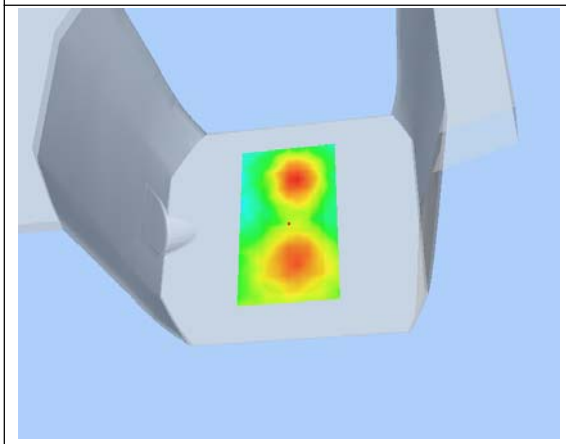
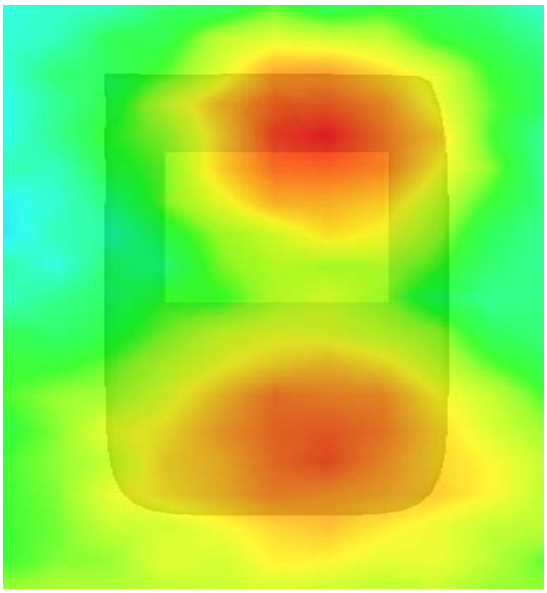
Maximum location: X=7.00, Y=40.00

SAR 10g (W/Kg)	0.152540
SAR 1g (W/Kg)	0.298433

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3098	0.1382	0.0762	0.0469	0.0266	0.0079



3D sceen shot	Hot spot position
	

MEASUREMENT 46

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 26/4/2012
Measurement duration: 9 minutes 8 seconds

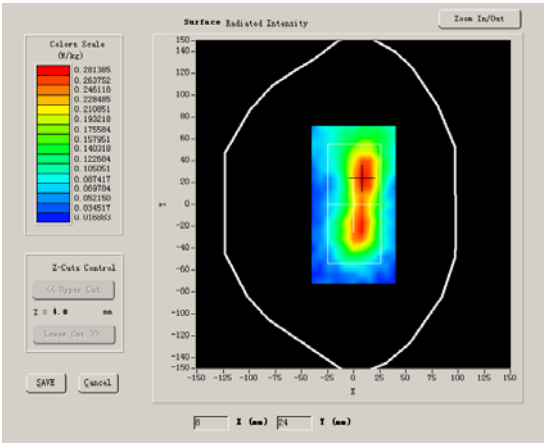
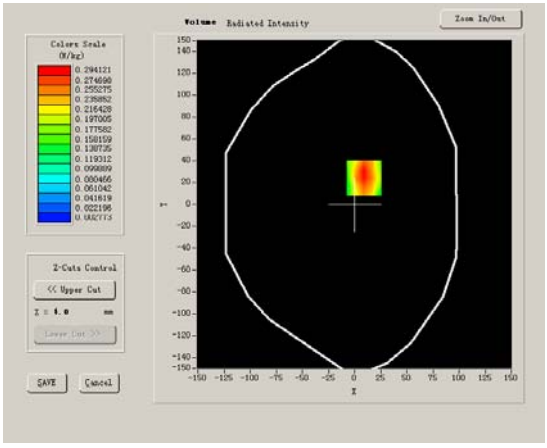
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.400000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.633572
Power drift (%)	-0.330000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

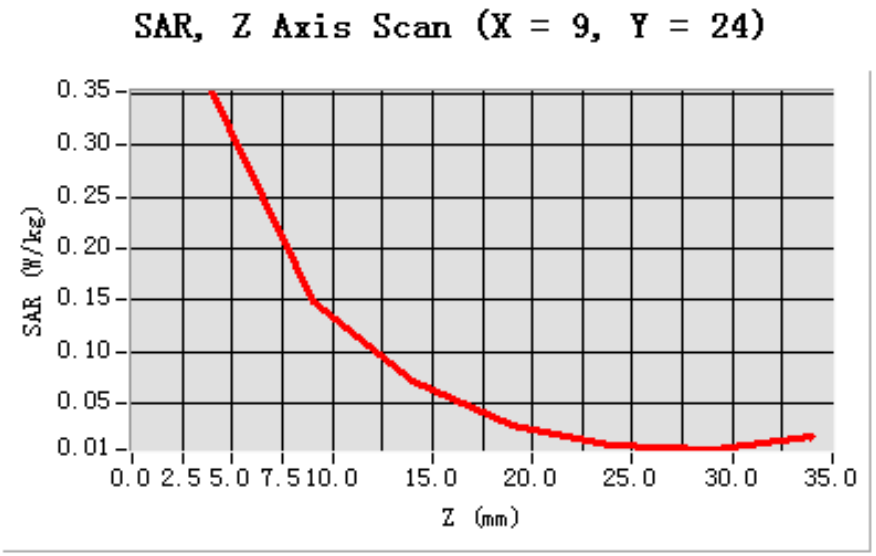
SURFACE SAR	VOLUME SAR
	

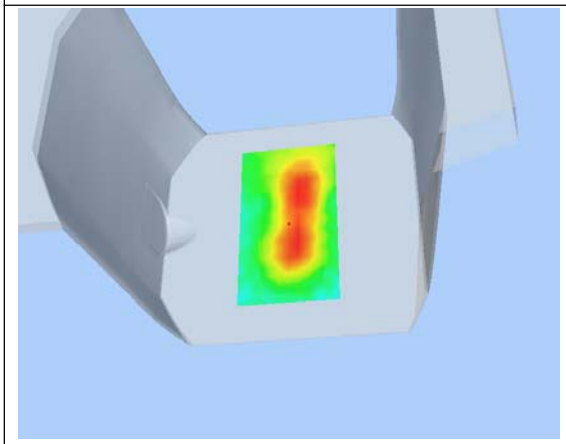
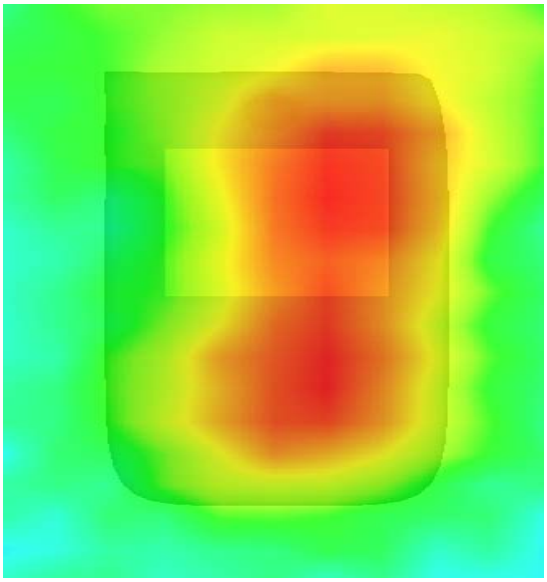
Maximum location: X=9.00, Y=24.00

SAR 10g (W/Kg)	0.170698
SAR 1g (W/Kg)	0.340758

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3512	0.1491	0.0712	0.0286	0.0111	0.0062



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: 26/4/2012
Measurement duration: 13 minutes 27 seconds

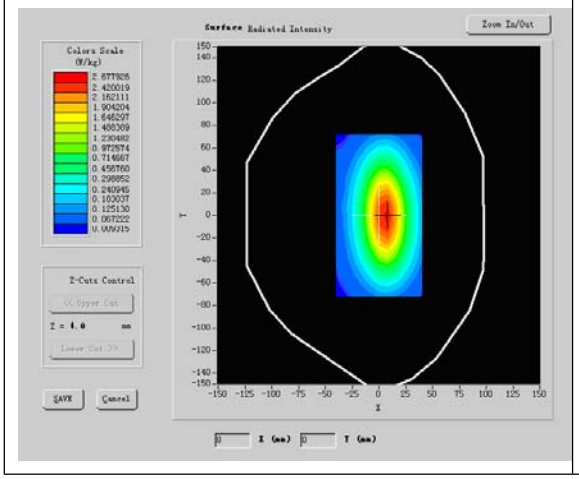
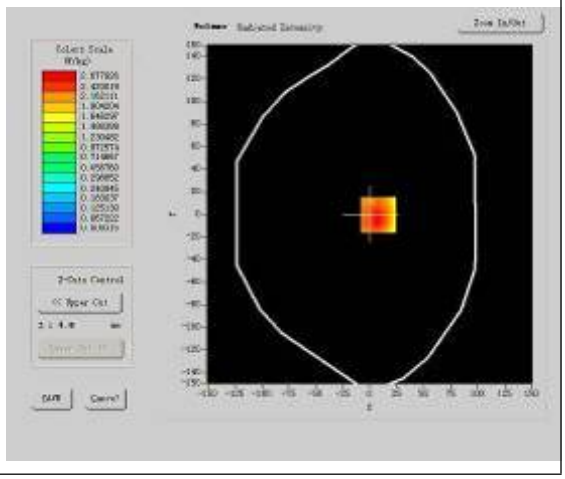
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	
Band	835MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

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

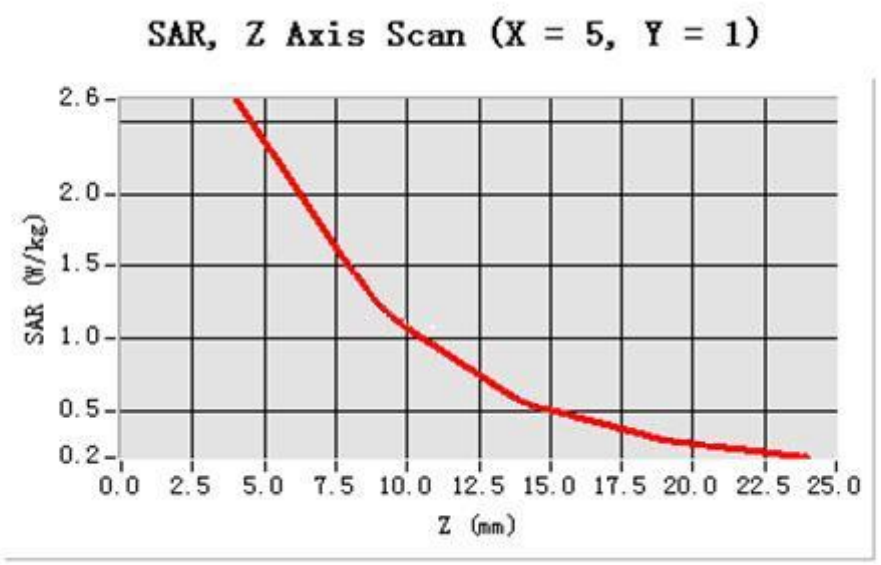
SURFACE SAR	VOLUME SAR
	

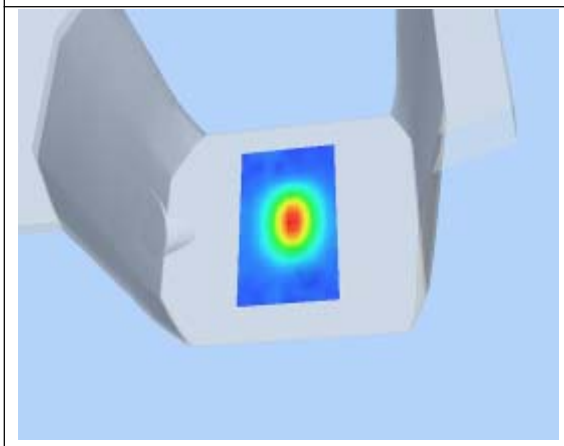
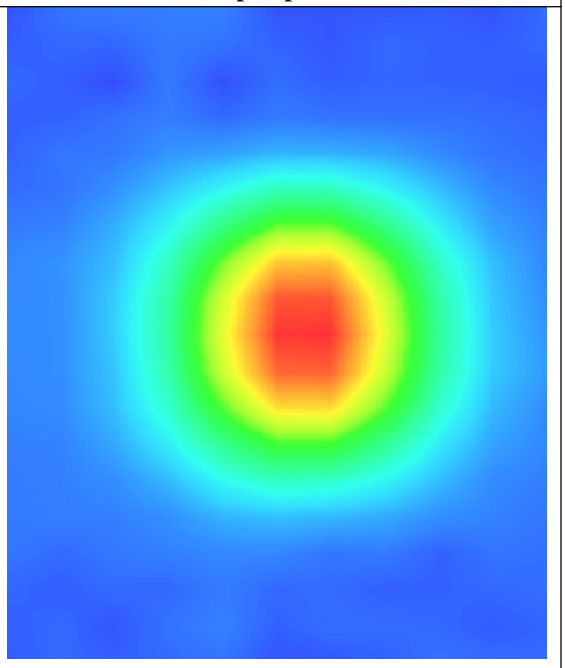
Maximum location: X=5.00, Y=1.00

SAR 10g (W/Kg)	1.685732
SAR 1g (W/Kg)	2.478462

Z Axis Scan

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



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: 26/4/2012
Measurement duration: 13 minutes 27 seconds

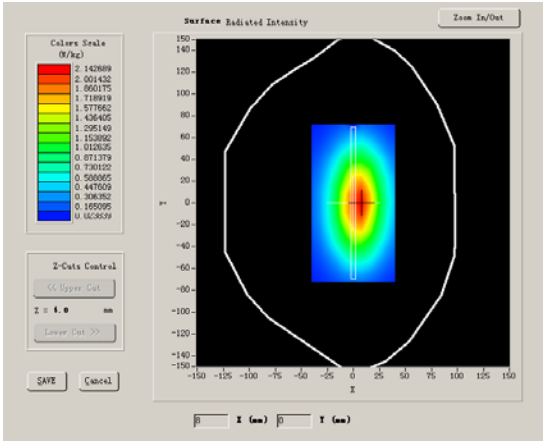
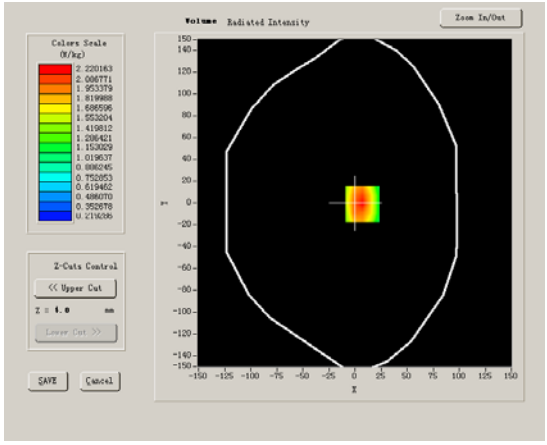
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	
Band	835MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

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

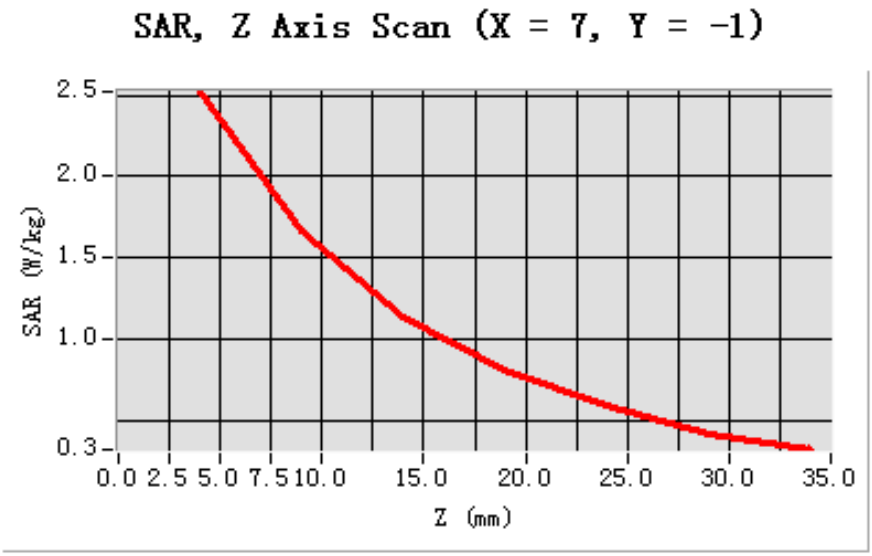
SURFACE SAR	VOLUME SAR
	

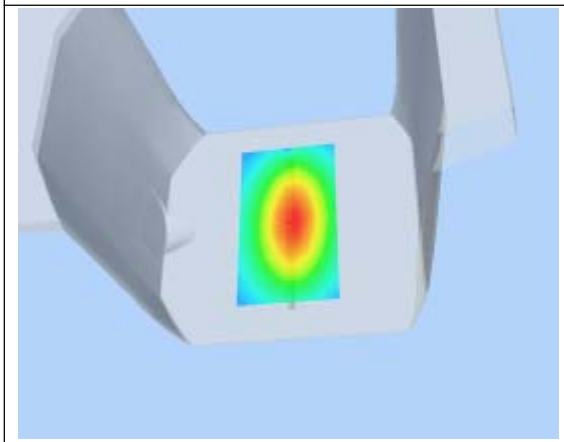
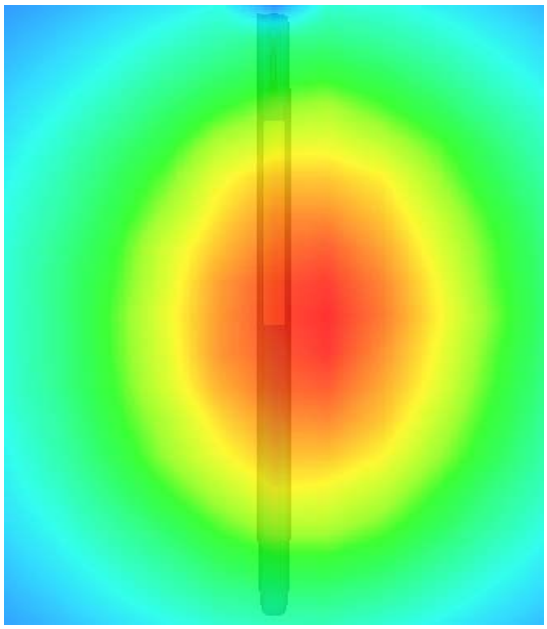
Maximum location: X=7.00, Y=-1.00

SAR 10g (W/Kg)	1.539476
SAR 1g (W/Kg)	2.385979

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: 26/4/2012
Measurement duration: 13 minutes 27 seconds

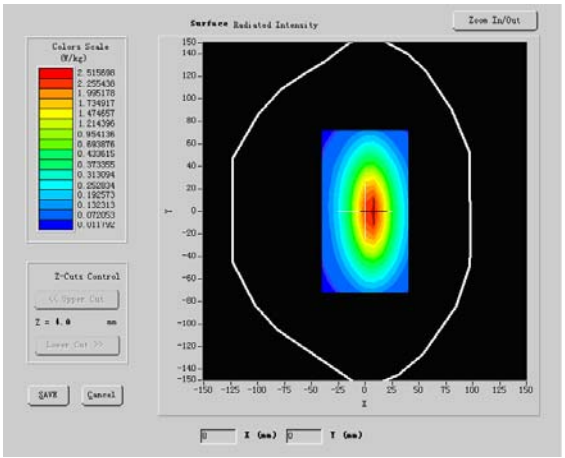
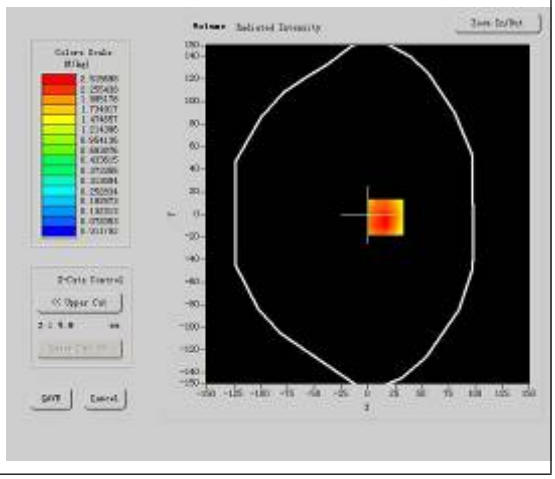
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	
Band	1900MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

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

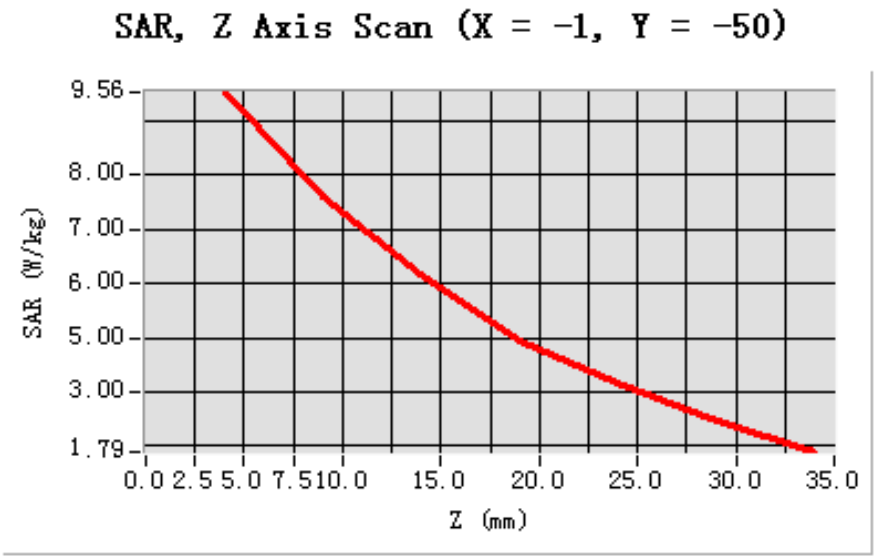
SURFACE SAR	VOLUME SAR
	

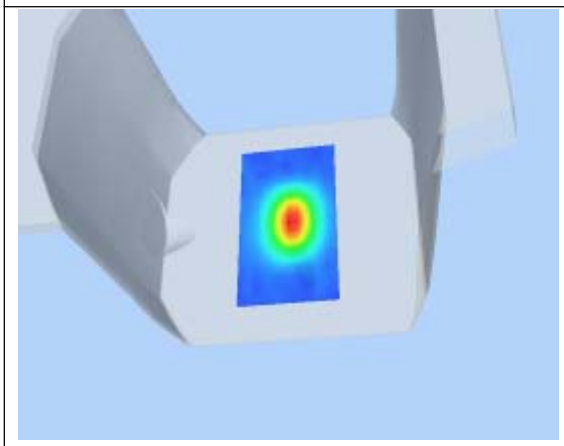
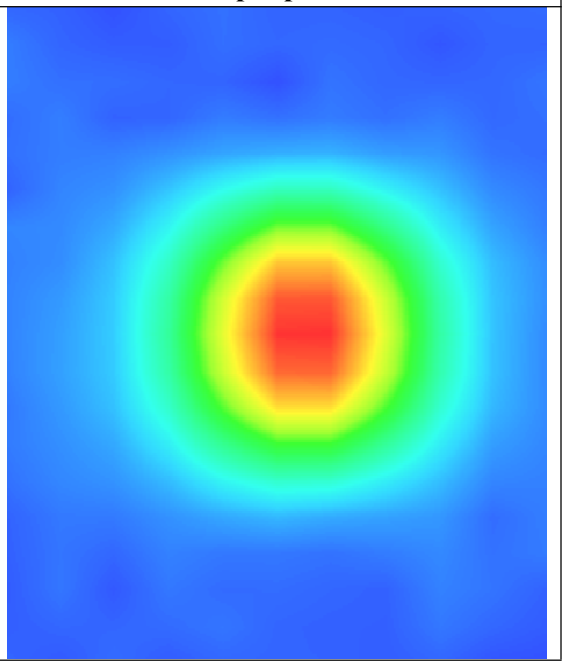
Maximum location: X=-1.00, Y=-50.00

SAR 10g (W/Kg)	4.884149
SAR 1g (W/Kg)	9.454628

Z Axis Scan

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



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: 26/4/2012
Measurement duration: 13 minutes 26 seconds

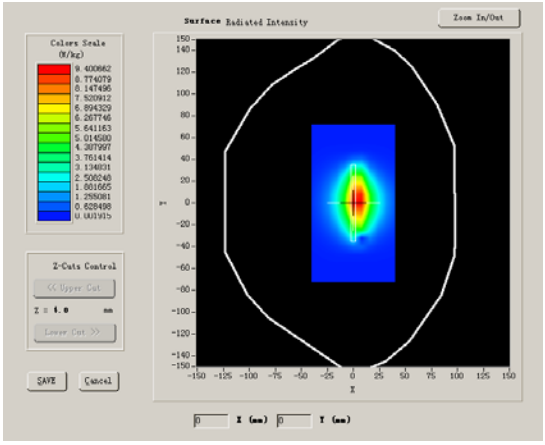
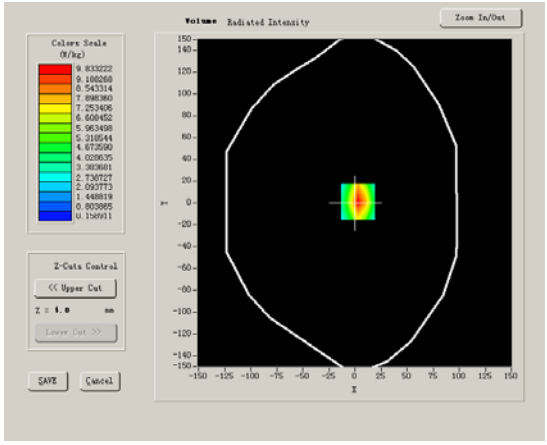
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	
Band	1900MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

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

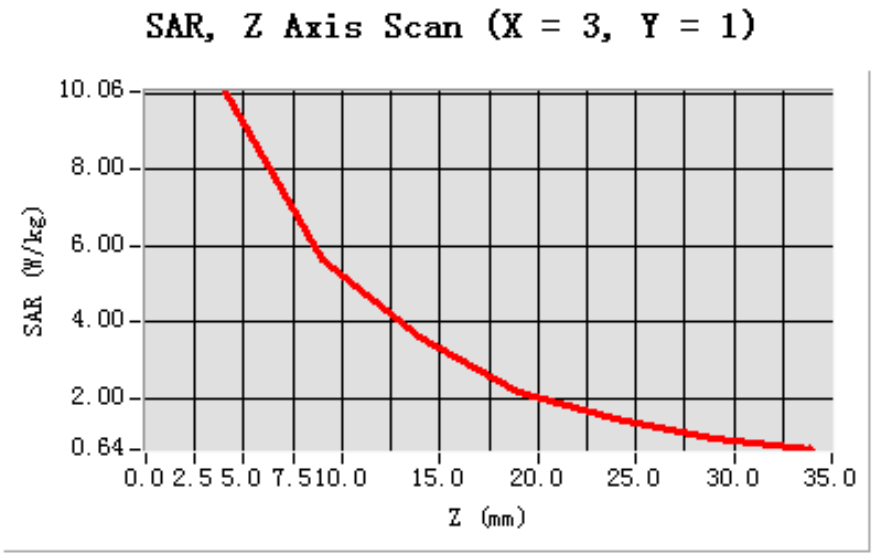
SURFACE SAR	VOLUME SAR
	

Maximum location: X=3.00, Y=1.00

SAR 10g (W/Kg)	4.981611
SAR 1g (W/Kg)	9.740177

Z Axis Scan

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



3D sceen shot	Hot spot position