



SAR TEST REPORT

Issued to

Senior Tech LLC

For

GSM Mobile Phone

Model Name : ez TWO-A
 Trade Name : Snapfon
 Brand Name : Snapfon
 FCC ID : ZXLEZTWOA
 Standard : FCC Oet65 Supplement C Jun.2001
 47CFR 2.1093
 ANSI C95.1-1999
 IEEE 1528-2003
 MAX SAR : Head: 0.428W/kg
 Body: 1.400W/kg
 Test date : 2011-8-25
 Issue date : 2011-9-2

Shenzhen MORLAB Communication Technology Co., Ltd.

Tested by Samuel Peng
Samuel Peng
Date 2011.9.2



Approved by Zeng Dexin
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Date 2011.9.2
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Li Lei
Date 2011.9.2

CTIA Authorized Test Lab
 LAB CODE 29881223-00
 IEEE 1725 OFTA 3C
 OTA 電訊管理局



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DIRECTORY

1. TESTING LABORATORY	4
1.1. Identification of the Responsible Testing Laboratory	4
1.2. Identification of the Responsible Testing Location	4
1.3. Accreditation Certificate	4
1.4. List of Test Equipments	4
2. TECHNICAL INFORMATION	5
2.1. Identification of Applicant	5
2.2. Identification of Manufacturer	5
2.3. Equipment Under Test (EUT).....	5
2.3.1. Photographs of the EUT	5
2.3.2. Identification of all used EUT	5
2.4. Applied Reference Documents	6
2.5. Device Category and SAR Limits	6
2.6. Test Environment/Conditions	7
3. SPECIFIC ABSORPTION RATE (SAR)	8
3.1. Introduction	8
3.2. SAR Definition.....	8
4. SAR MEASUREMENT SETUP	9
4.1. The Measurement System	9
4.2. Probe	9
4.3. Phantom	11
4.4. Device Holder	11
5. TISSUE SIMULATING LIQUIDS	12
6. UNCERTAINTY ASSESSMENT	14
6.1. UNCERTAINTY EVALUATION FOR HANDSET SAR TEST	14
6.2. UNCERTAINTY FOR SYSTEM PERFORMANCE CHECK	15
7. SAR MEASUREMENT EVALUATION	17
7.1. System Setup.....	17
7.2. Validation Results.....	17
8. OPERATIONAL CONDITIONS DURING TEST	18
8.1. Informations on the testing	18

8.2. Body-worn Configurations.....	18
8.3. Measurement procedure.....	19
8.4. Description of interpolation/extrapolation scheme	19
9. TEST RESULTS LIST.....	21
ANNEX A EUT SETUP PHOTOS.....	22
ANNEX B GRAPH TEST RESULTS	25

Change History		
Issue	Date	Reason for change
1.0	2011-9-2	First edition

1. Testing Laboratory

1.1. Identification of the Responsible Testing Laboratory

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

1.2. Identification of the Responsible Testing Location

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

1.3. Accreditation Certificate

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

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)	2010-9-26	1year
3	Voltmeter	Keithley (2000, SN:1000572)	2010-9-24	1year
4	Synthetizer	Rohde&Schwarz (SML_03, SN:101868)	2010-9-24	1year
5	Amplifier	Nucl udes (ALB216, SN:10800)	2010-9-24	1year
6	Power Meter	Rohde&Schwarz (NRVD, SN:101066)	2010-9-24	1year
7	Probe	Satimo (SN:SN_3708_EP80)	2010-9-24	1year
8	Phantom	Satimo (SN:SN_36_08_SAM62)	2010-9-24	1year
9	Liquid	Satimo (Last Calibration:21 08 08)	2010-8-21	1year
10	Dipole 835MHz	Satimo (SN 36/08 DIPC 99)	2010-9-23	1year
11	Dipole 1900MHz	Satimo (SN 36/08 DIPF 102)	2010-9-23	1year

2. Technical Information

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

2.1. Identification of Applicant

Company Name: Senior Tech LLC
Address: 1222 Tremont Street, Suite 100 Chattanooga, TN 37405, USA

2.2. Identification of Manufacturer

Company Name: Hong Kong DO COM Products Limited
Address: MSC3183, RM1007,10F., HOKING CENTER, NO.2-16 FA YUEN STREET MONGKOK, KOWLOON, HONG KONG

2.3. Equipment Under Test (EUT)

Brand Name: Snapfon
Type Name: Snapfon
Marking Name: ez TWO-A
Hardware Version: V2.1
Software Version: V2.1
Frequency Bands: GSM 850MHz / GSM 1900MHz
Modulation Mode: GSM: GMSK
Multislot Class: GSM: Class 12; EDGE: N/A
Antenna type: Fixed Internal Antenna
Development Stage: Identical prototype
Battery Model: V1
Battery specification: 800mAh3.7V

2.3.1. Photographs of the EUT

Please see for photographs of the EUT.

2.3.2. Identification of all used EUT

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

EUT Identity	Hardware Version	Software Version
1#	V2.1	V2.1

2.4. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
2	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 Techuiques.

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

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 128, 190 and 251 respectively in the case of GSM 850 MHz, or to 512, 661 and 810 respectively in the case of GSM 1900 MHz, The EUT, 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.

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:

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

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

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

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

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

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

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

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

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

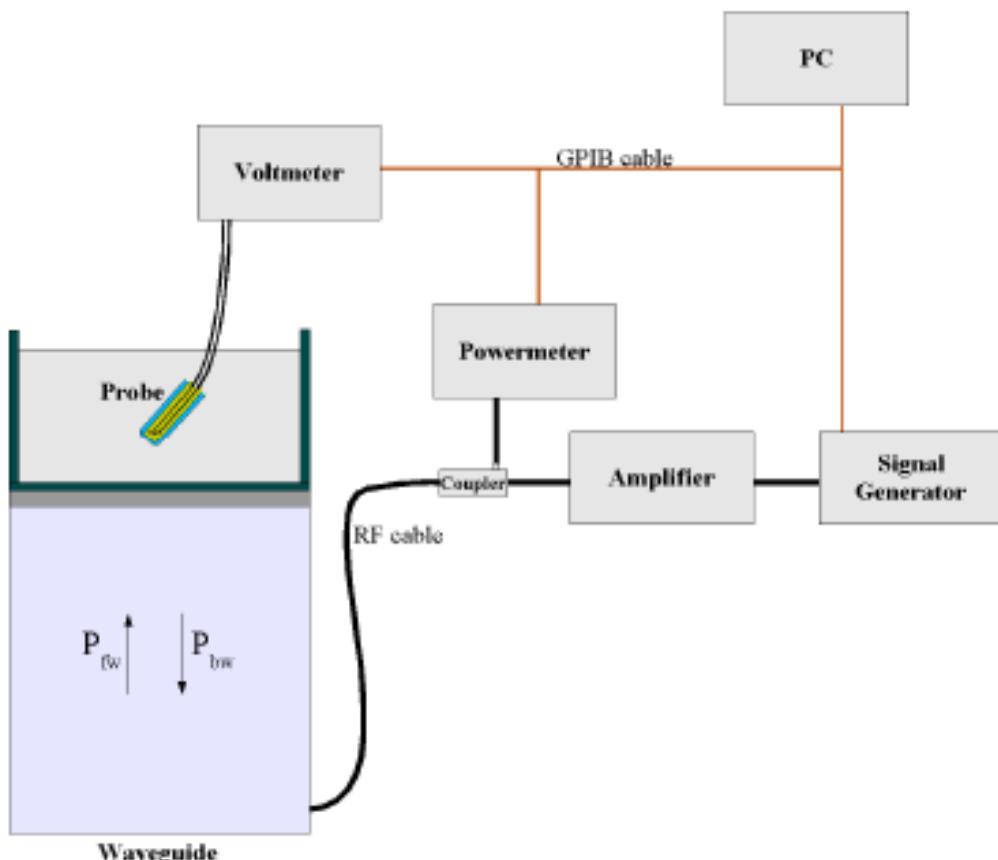
For the measurements the Specific Dosimetric E-Field Probe SN 37/08 EP80 with following specifications is used

- 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: 835 to 2500MHz for head & body simulating liquid.

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

Probe calibration is realized, in compliance with CENELEC EN 62209 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN62209 annex technique using reference guide at the five frequencies.



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

Where :

Pfw = Forward Power
 Pbw = Backward Power
 a and b = Waveguide dimensions
 δ = Skin depth

Keithley configuration:

Rate = Medium; Filter =ON; RDGS=10; FILTER TYPE =MOVING AVERAGE; RANGE AUTO
 After each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

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

$$CF(N) = SAR(N)/Vlin(N) \quad (N=1,2,3)$$

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

$$Vlin(N) = V(N) * (1 + V(N)/DCP(N)) \quad (N=1,2,3)$$

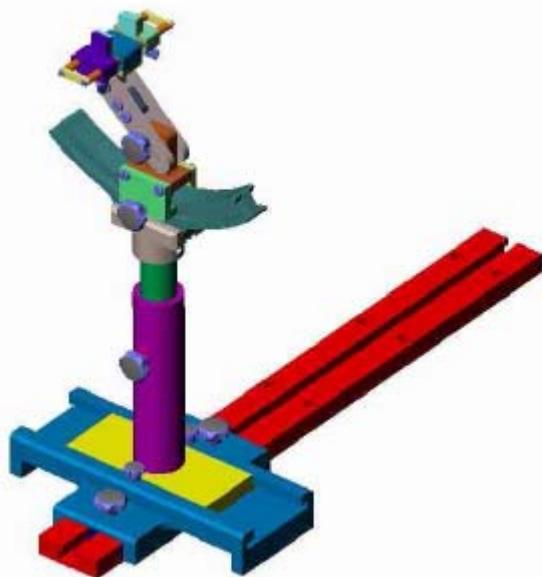
where DCP is the diode compression point in mV.

4.3. Phantom

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

4.4. Device Holder

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



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

5. Tissue Simulating Liquids

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

Gives 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		Frequency Band	
	835MHz		1900MHz	
Tissue Type	Head	Body	Head	Body
Water	41.45	52.4	55.36	40.4
Salt(NaCl)	1.45	1.4	0.35	0.5
Sugar	56.0	45.0	30.45	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	13.84	0.0
Acticide SPX	0.0	0.0	0.0	0.0
Dielectric Constant	42.45	56.1	41.00	54.0
Conductivity (S/m)	0.91	0.95	1.38	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.

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 1: Dielectric Performance of Head Tissue Simulating Liquid

Temperature: 23.0~23.8°C, humidity: 54~60%.			
/	Frequency	Permittivity ϵ	Conductivity σ (S/m)
Target value	835 MHZ	41. 5	0. 90
Validation value (Aug. 25)	835 MHZ	40. 758464	0. 897457
Target value	1900 MHZ	40	1. 40

Validation value (Aug. 25)	1900 MHZ	39. 987574	1. 398754
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For body-worn measurements, the device was tested against flat phantom representing the user body. Under measurement phone was put on in the belt holder.

Table 2: Dielectric Performance of Body Tissue Simulating Liquid

Temperature: 23.0~23.8°C, humidity: 54~60%.

/	Frequency	Permittivity ϵ	Conductivity σ (S/m)
Target value	835 MHz	55. 2	0. 97
Validation value (Aug. 25)	835 MHz	55. 245743	0. 975745
Target value	1900 MHz	53. 3	1. 52
Validation value (Aug. 25)	1900 MHz	53. 357457	1. 524785

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 (+-%)	V i
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	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	
Output power Power drift - SAR drift measurement	6.6.2	2.74	R	$\sqrt{3}$	1	1	1.58	1.58	
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				12.52	11.71	
Expanded Uncertainty (95% Confidence interval)			k				25.05	23.42	

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 (+-%)	V i
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	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	N - 1
Input power and SAR drift measurement	8,6.6.2	2.74	R	$\sqrt{3}$	1	1	1.58	1.58	

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				11.50	10.61	
Expanded Uncertainty (95% Confidence interval)			k				23.00	21.21	

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

Equipments :

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

7.2. Validation Results

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

Frequency	835MHz	1900MHz
Target value (1g)	9. 5 W/Kg	38. 1 W/Kg
250 mW input power	2. 496 W/Kg (head)	9. 893 W/Kg (head)
Test value (1g)	9. 987 W/Kg (head)	39. 574 W/Kg (head)

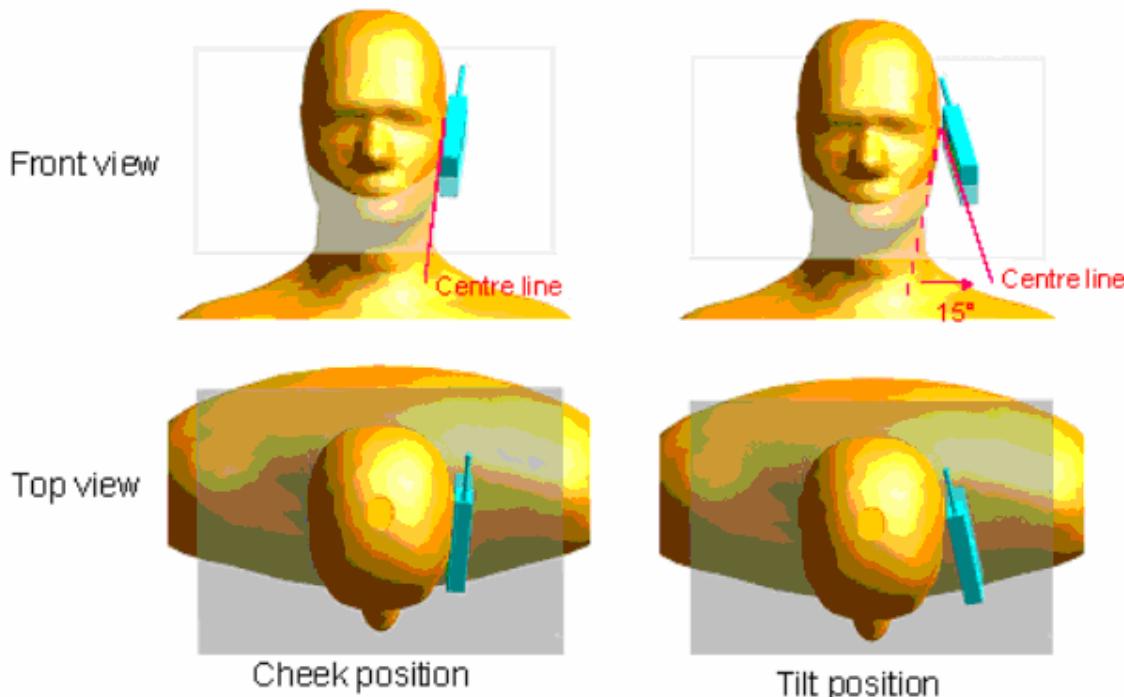
Note: System checks the specific test data please see page 61-69.

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 mouth by an angle of 15 degrees or until contact with the ear lost.

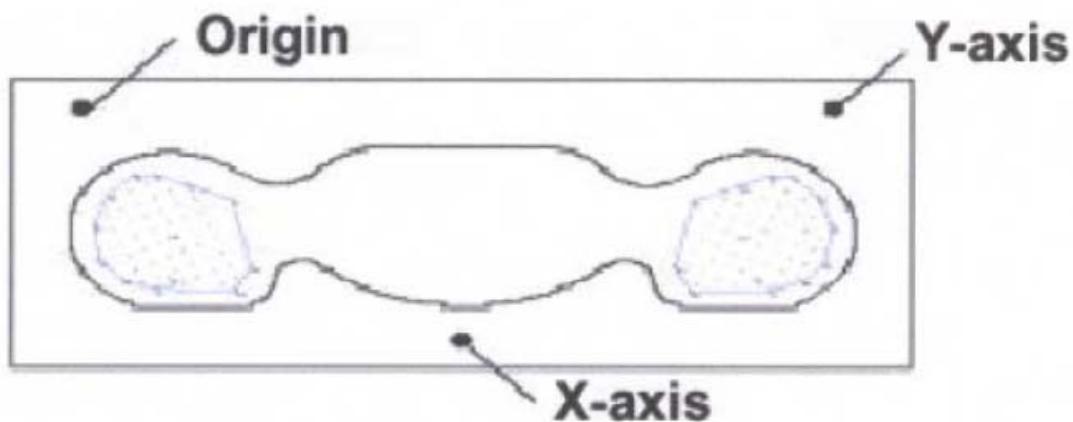
Remark: Please refer to Appendix B for the test setup photos.

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 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors can not directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8 * 4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

8.4. Description of interpolation/extrapolation scheme

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

An extrapolation is used to determine these 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. Test Results List

Summary of Measurement Results (GSM 850MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Antenna Type	SAR(W/Kg)		
			Device Test channel, Frequency and Power		
			Channel 128	Channel 192	Channel 251
			824.2MHz	836.6MHz	848.8MHz
Right Side Of Head	Cheek/Touch	Internal	/	0.168	/
	Ear/Tilt	Internal	/	0.116	/
Left Side Of Head	Cheek/Touch	Internal	/	0.158	/
	Ear/Tilt	Internal	/	0.276	/
Body (GSM)	Back upward	Extended	/	0.461	/
	Keyboard Upward	Extended	/	0.128	/
Body (GPRS)	Back upward	Extended	1.235	1.336	1.400
	Keyboard Upward	Extended	/	/	0.366

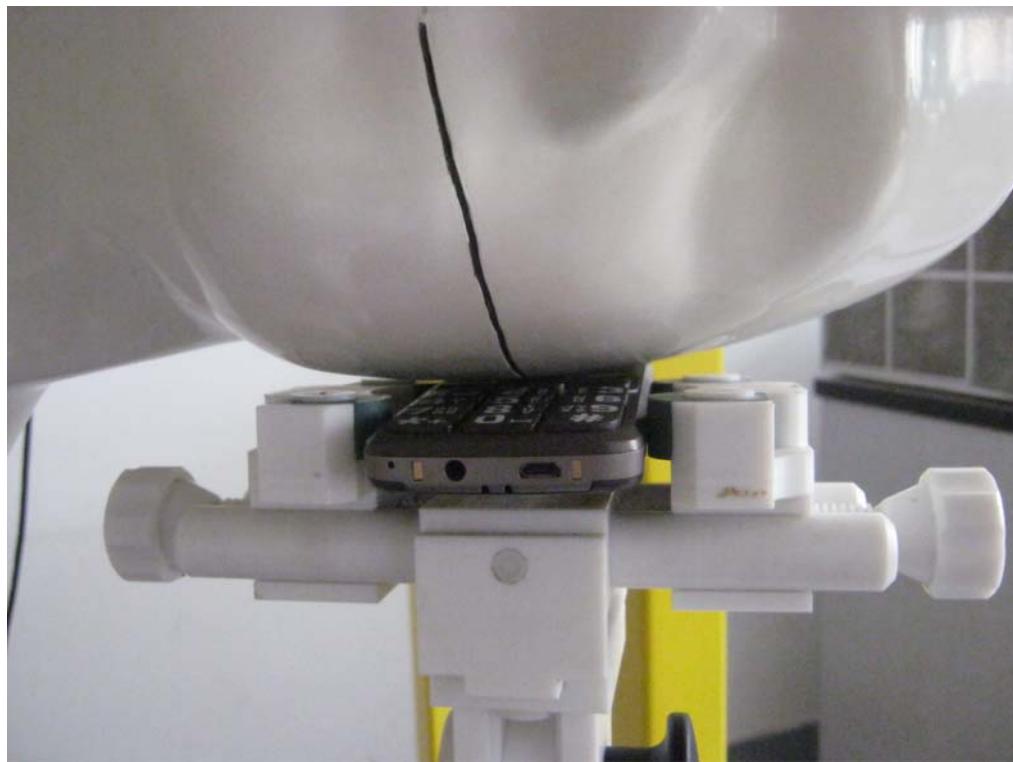
Summary of Measurement Results (GSM 1900MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Antenna Type	SAR(W/Kg)		
			Device Test channel, Frequency and Power		
			Channel 512	Channel 661	Channel 810
			1850.2MHz	1880.0MHz	1909.8MHz
Right Side Of Head	Cheek/Touch	Internal	/	0.428	/
	Ear/Tilt	Internal	/	0.070	/
Left Side Of Head	Cheek/Touch	Internal	/	0.277	/
	Ear/Tilt	Internal	/	0.086	/
Body (GSM)	Back upward	Extended	/	0.291	/
	Keyboard Upward	Extended	/	0.244	/
Body (GPRS)	Back upward	Extended	1.014	0.821	0.692
	Keyboard Upward	Extended	0.288	/	/

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

Annex A EUT Setup Photos

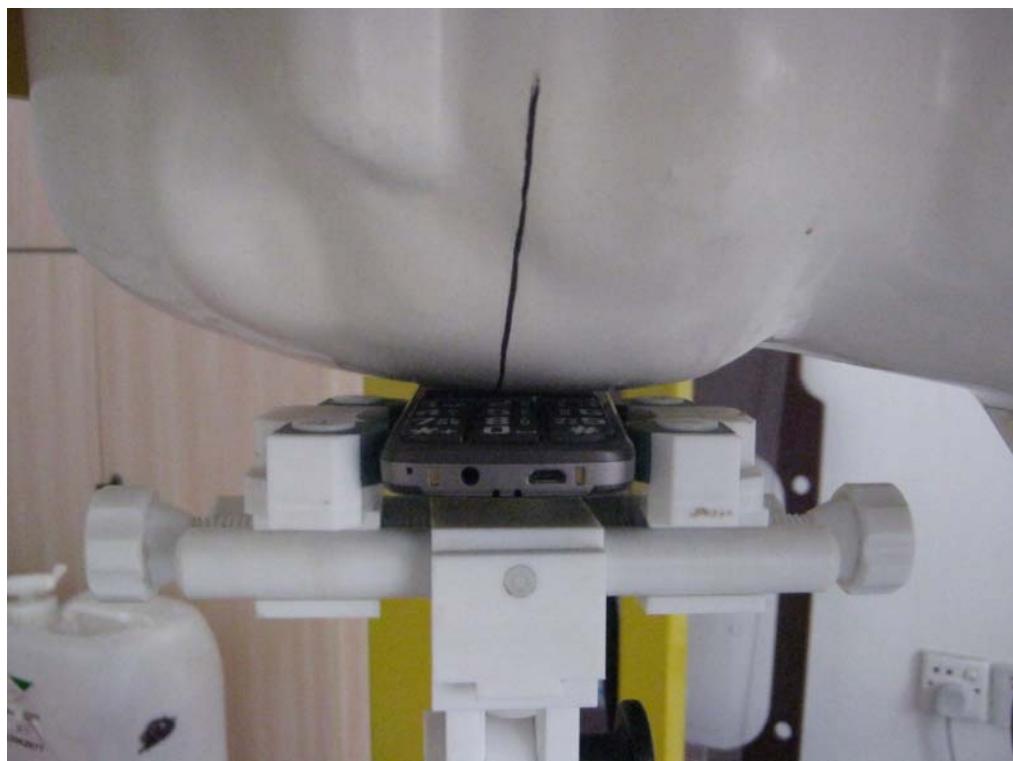
1. EUT Left Head Touch Cheek Position



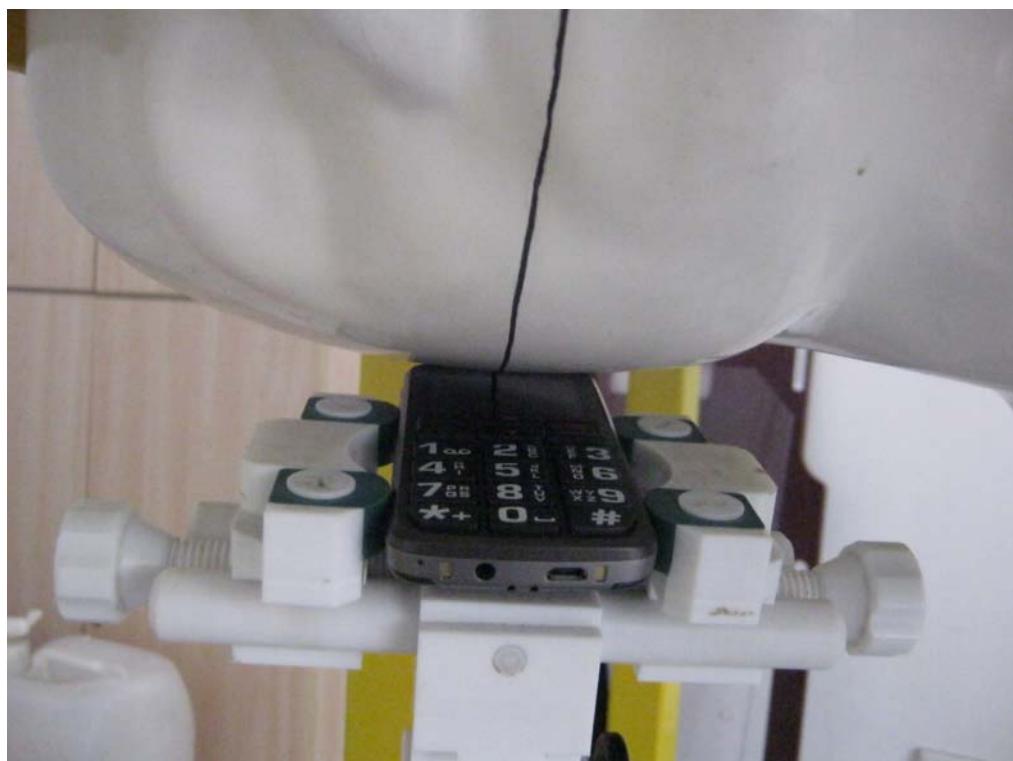
2. EUT Left Head Tilt15 Position



3. EUT Right Head Touch Cheek Position



4. EUT Right Head Tilt15 Position



5 Side Position



6. Liquid Level Photo



Annex B Graph Test Results

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

MEASUREMENT 1

Type: Phone measurement (Complete)

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

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

Date of measurement: 25/8/2011

Measurement duration: 7 minutes 49 seconds

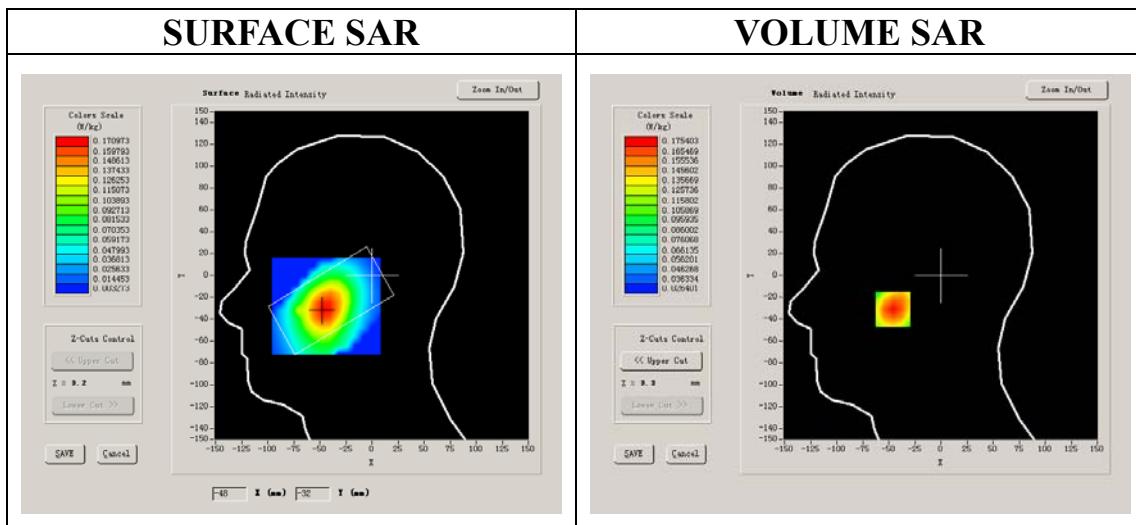
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	40.669998
Relative permittivity	19.120001
Conductivity (S/m)	0.888655
Power Drift (%)	-0.160000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:8



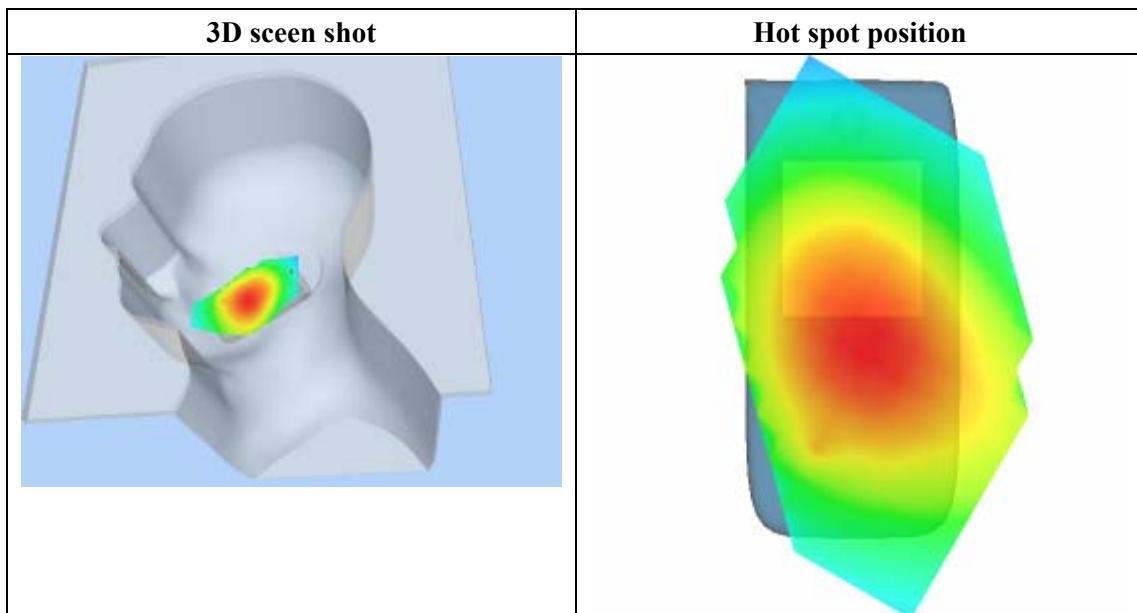
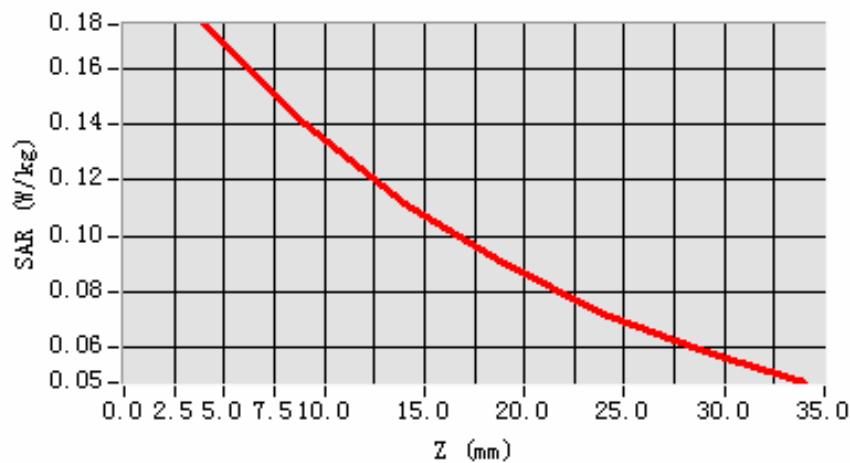
Maximum location: X=-46.00, Y=-31.00

SAR 10g (W/Kg)	0.125382
SAR 1g (W/Kg)	0.168314

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1754	0.1398	0.1116	0.0899	0.0718	0.0583

SAR, Z Axis Scan (X = -46, Y = -31)



MEASUREMENT 2

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 7 minutes 30 seconds

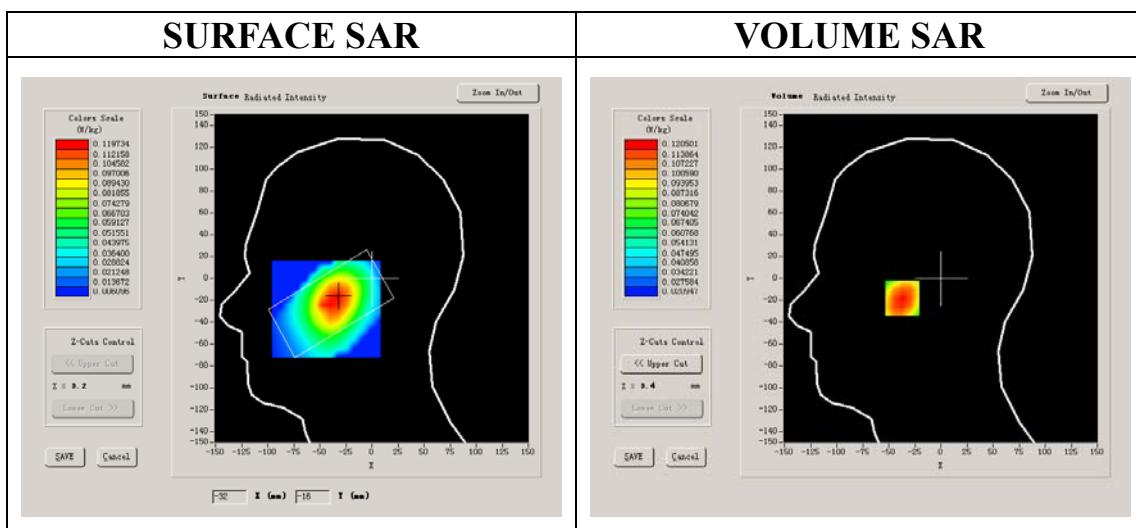
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	40.669998
Relative permittivity	19.120001
Conductivity (S/m)	0.888655
Power Drift (%)	-0.220000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:8



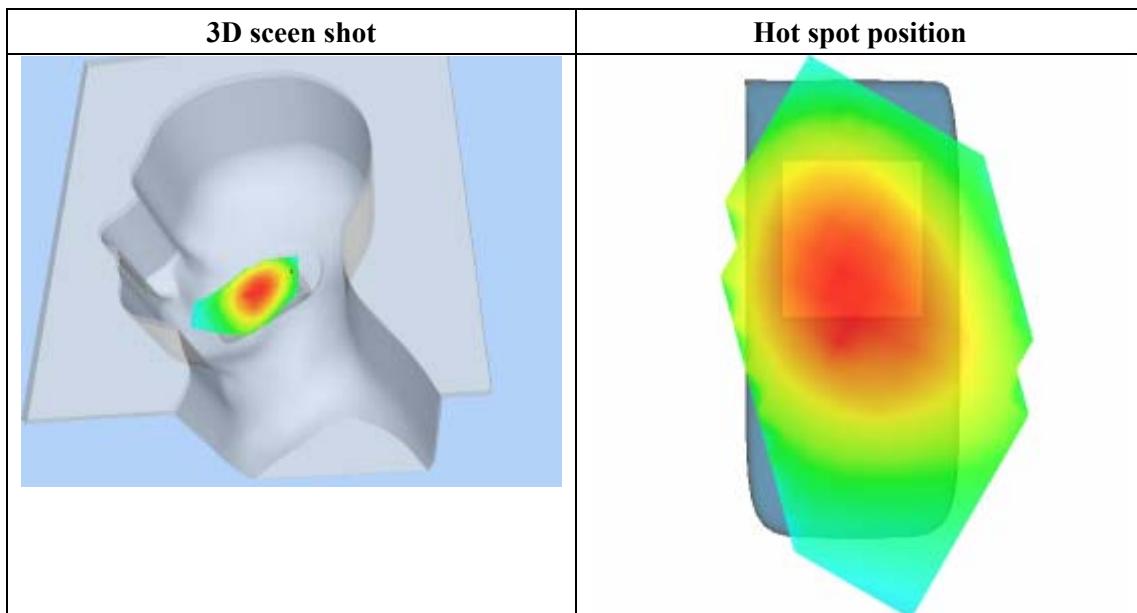
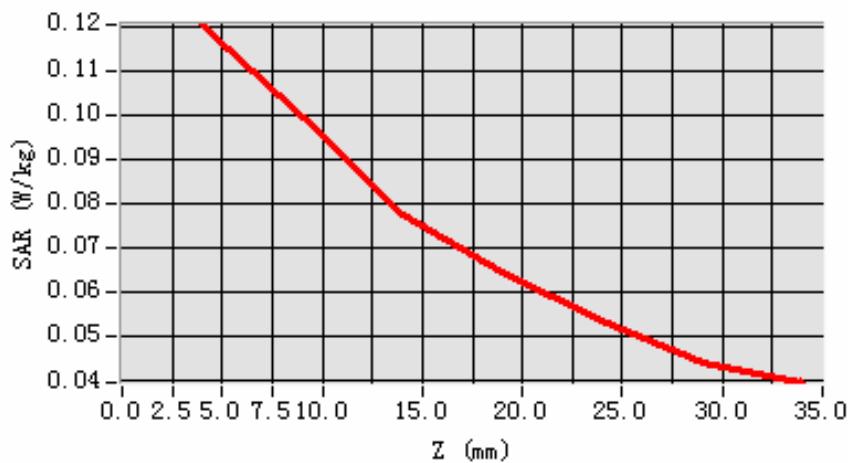
Maximum location: X=-34.00, Y=-18.00

SAR 10g (W/Kg)	0.088377
SAR 1g (W/Kg)	0.116306

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1205	0.0993	0.0778	0.0647	0.0538	0.0445

SAR, Z Axis Scan (X = -34, Y = -18)



MEASUREMENT 3

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 7 minutes 23 seconds

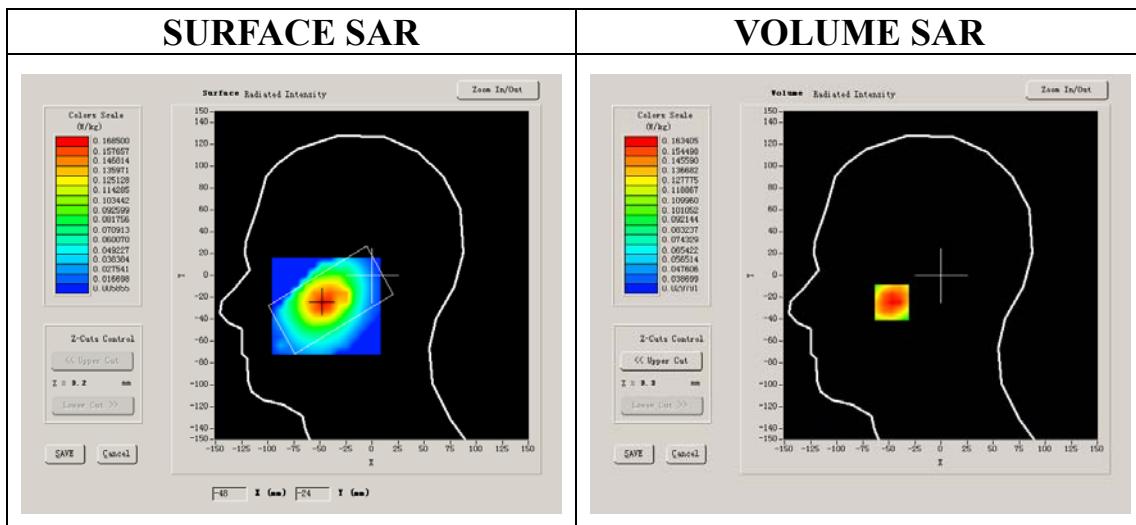
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	40.669998
Relative permittivity	19.120001
Conductivity (S/m)	0.888655
Power Drift (%)	1.120000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:8



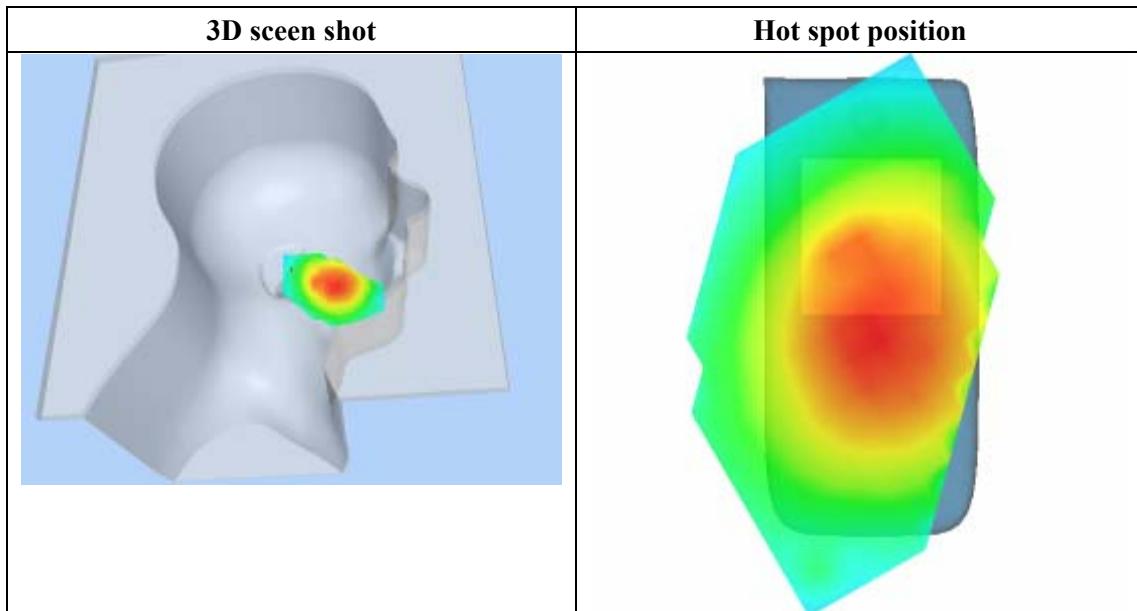
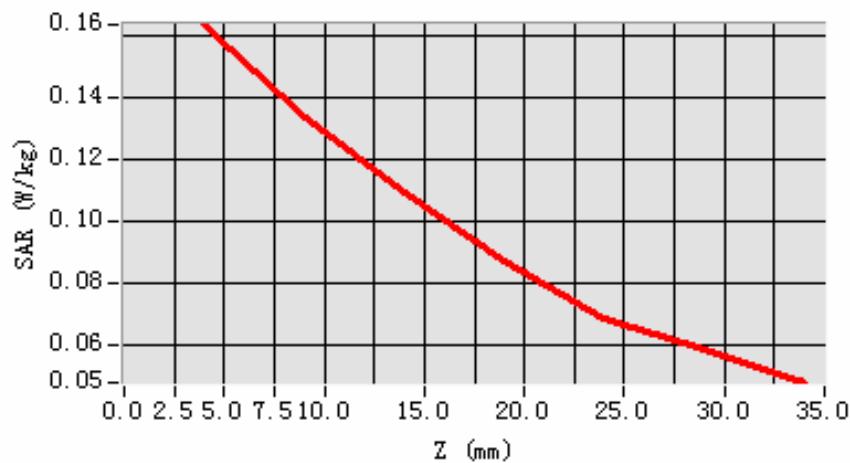
Maximum location: X=-47.00, Y=-25.00

SAR 10g (W/Kg)	0.119030
SAR 1g (W/Kg)	0.158475

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1634	0.1336	0.1093	0.0868	0.0685	0.0586

SAR, Z Axis Scan (X = -47, Y = -25)



MEASUREMENT 4

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 5 minutes 59 seconds

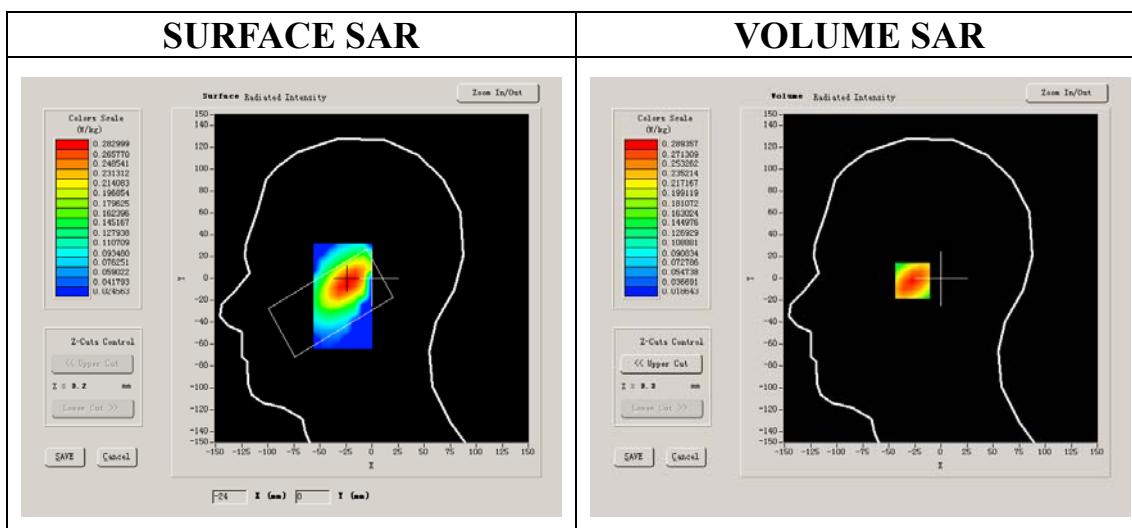
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	40.669998
Relative permittivity	19.120001
Conductivity (S/m)	0.888655
Power Drift (%)	-1.040000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:8



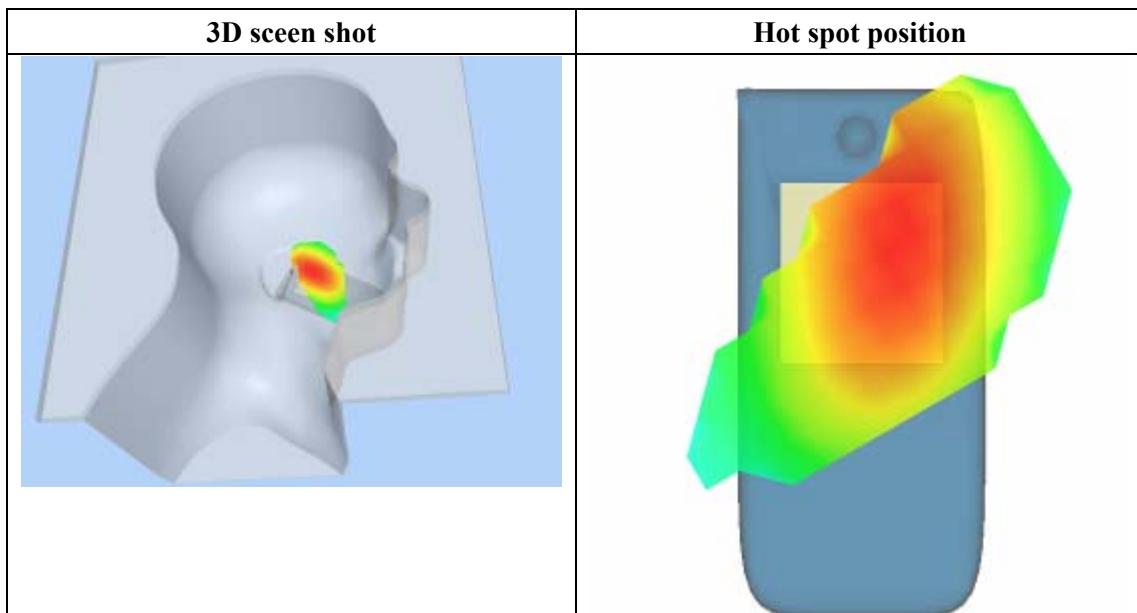
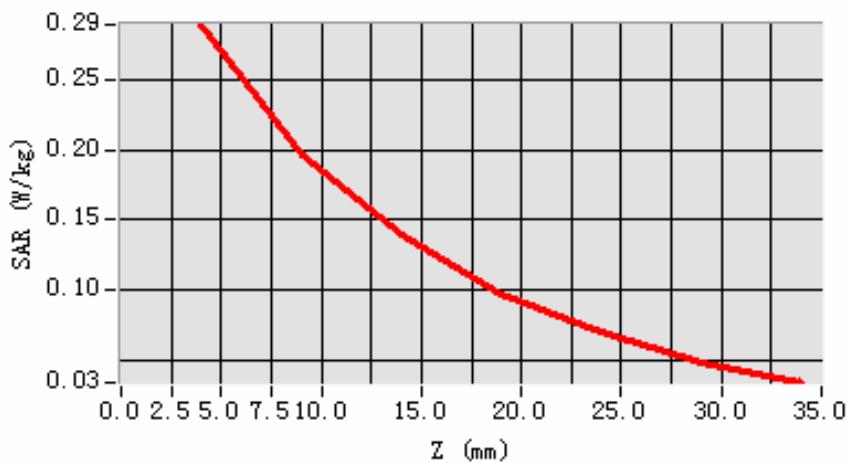
Maximum location: X=-23.00, Y=-2.00

SAR 10g (W/Kg)	0.181910
SAR 1g (W/Kg)	0.276199

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2894	0.1961	0.1401	0.0973	0.0709	0.0485

SAR, Z Axis Scan (X = -23, Y = -2)



MEASUREMENT 5

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 9 minutes 8 seconds

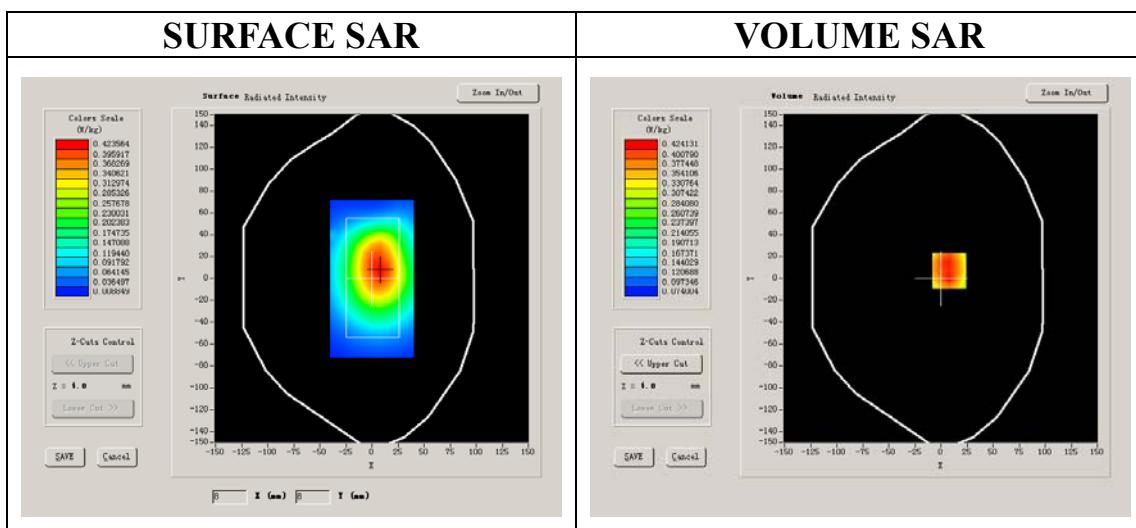
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power Drift (%)	-0.130000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:8



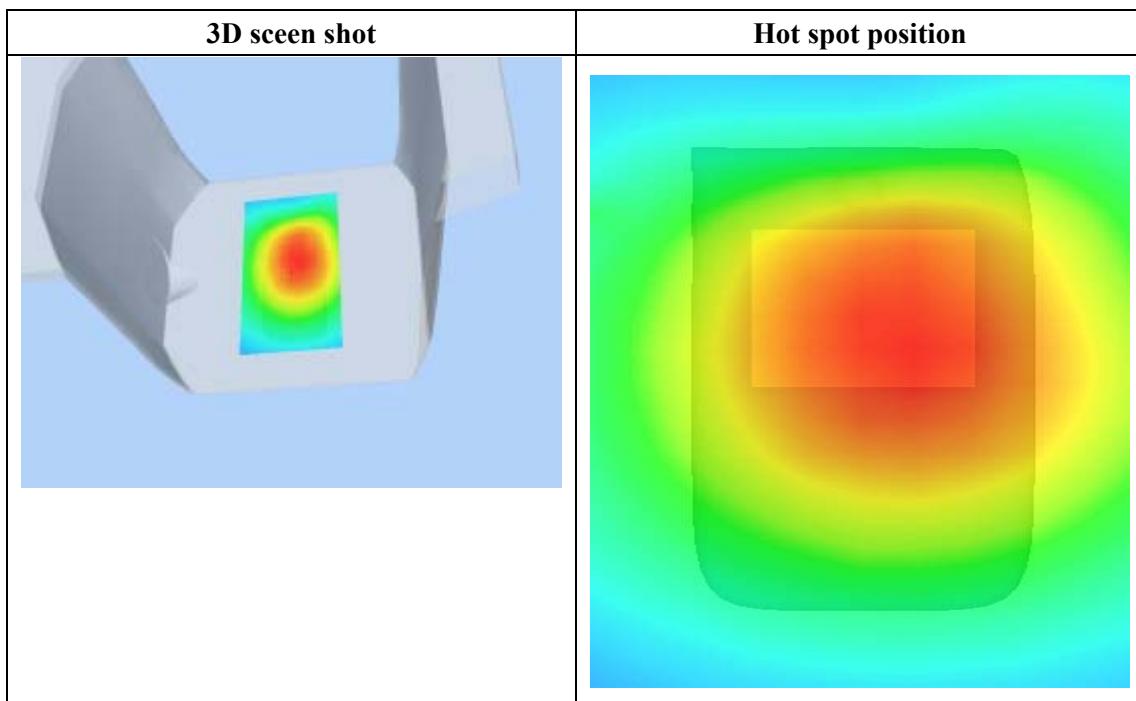
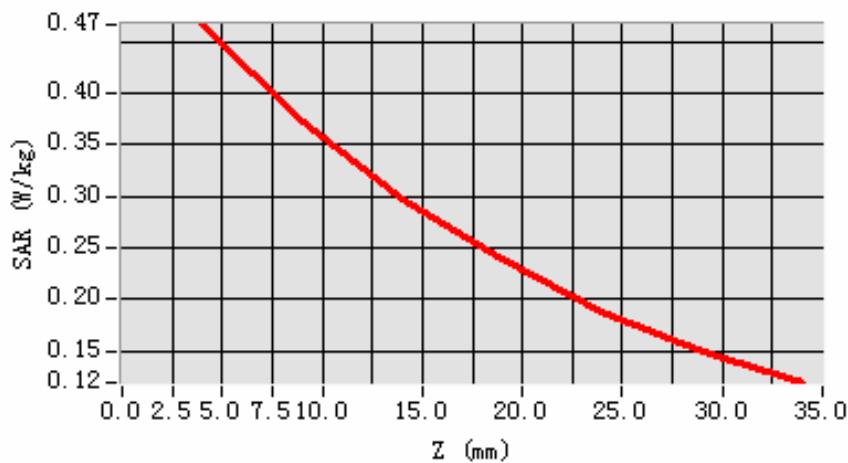
Maximum location: X=8.00, Y=7.00

SAR 10g (W/Kg)	0.345448
SAR 1g (W/Kg)	0.461048

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4670	0.3734	0.2973	0.2389	0.1882	0.1489

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



MEASUREMENT 6

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 9 minutes 7 seconds

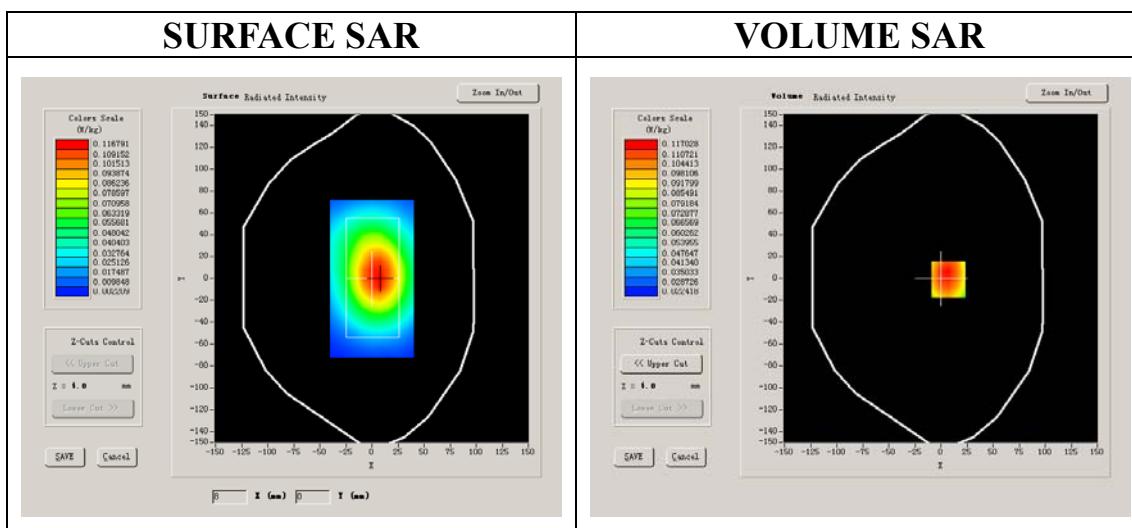
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power Drift (%)	-0.210000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:8



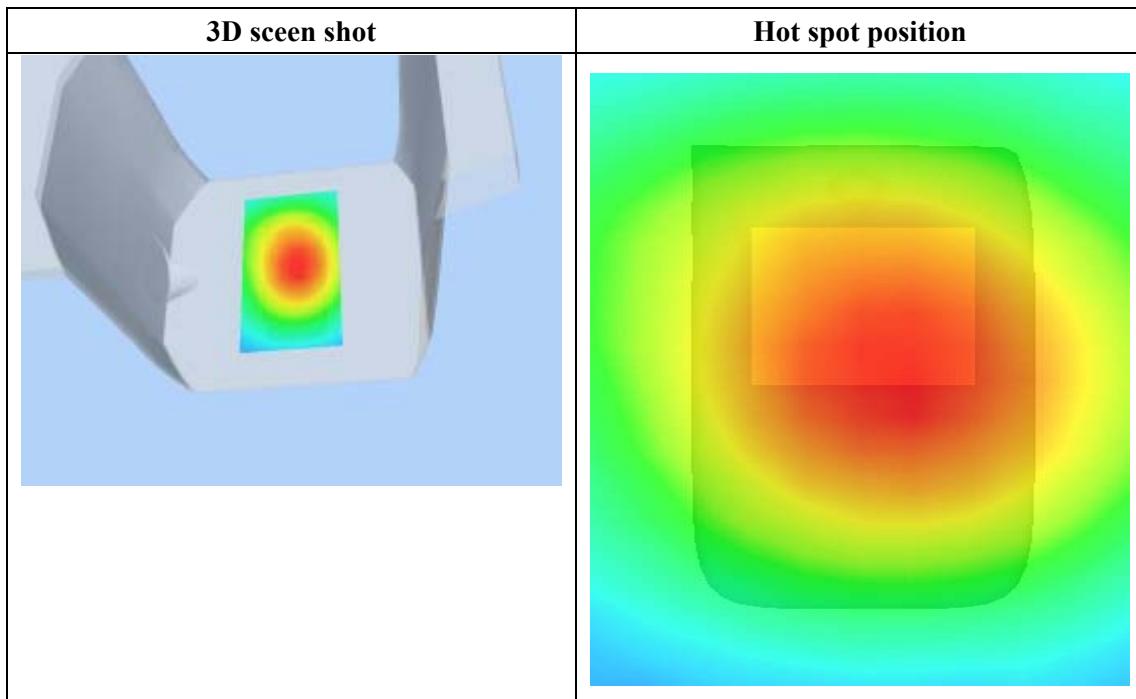
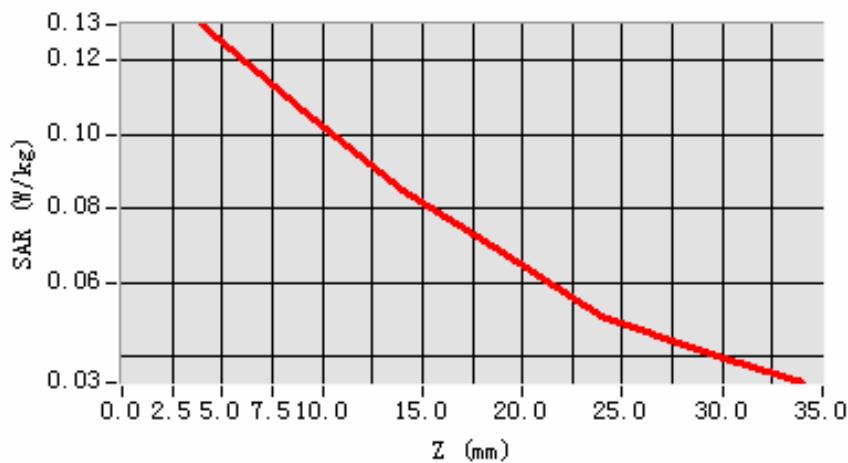
Maximum location: X=7.00, Y=-1.00

SAR 10g (W/Kg)	0.097108
SAR 1g (W/Kg)	0.128245

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1296	0.1062	0.0846	0.0681	0.0507	0.0416

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



MEASUREMENT 7

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 9 minutes 6 seconds

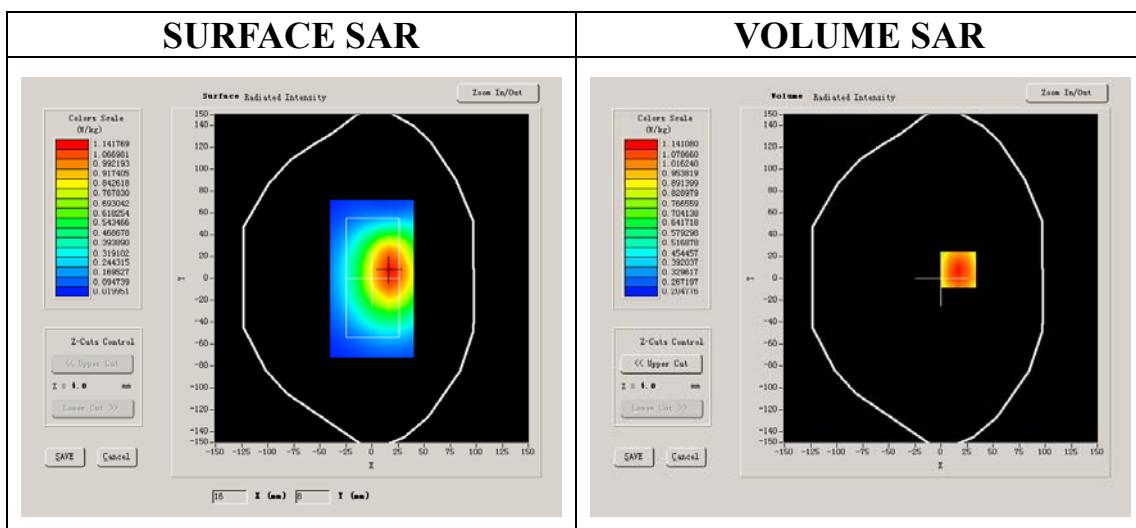
A. Experimental conditions.

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)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power Drift (%)	-1.150000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2



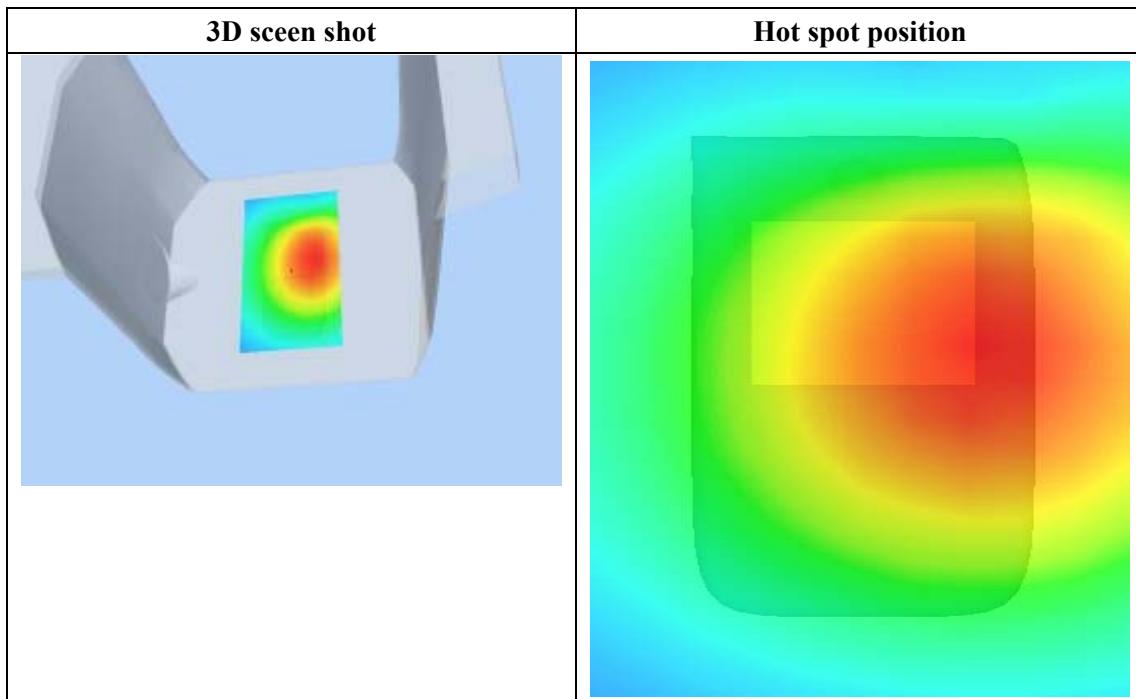
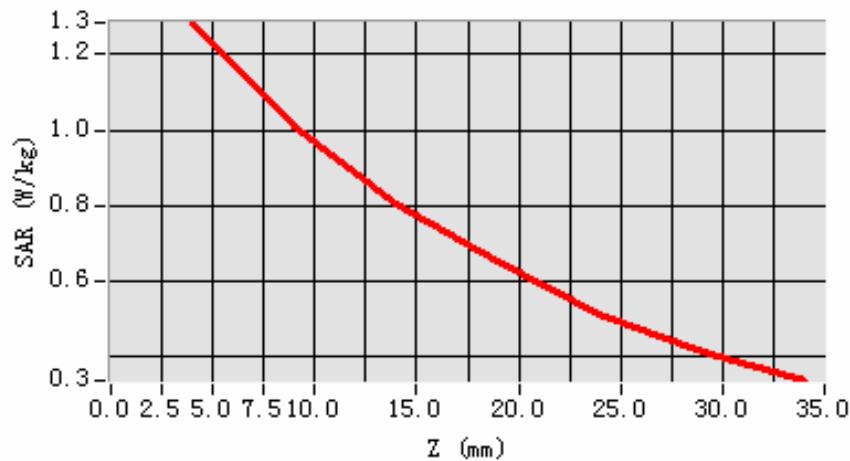
Maximum location: X=17.00, Y=8.00

SAR 10g (W/Kg)	0.933202
SAR 1g (W/Kg)	1.235150

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.2833	1.0096	0.8077	0.6545	0.5113	0.4137

SAR, Z Axis Scan (X = 17, Y = 8)



MEASUREMENT 8

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 9 minutes 8 seconds

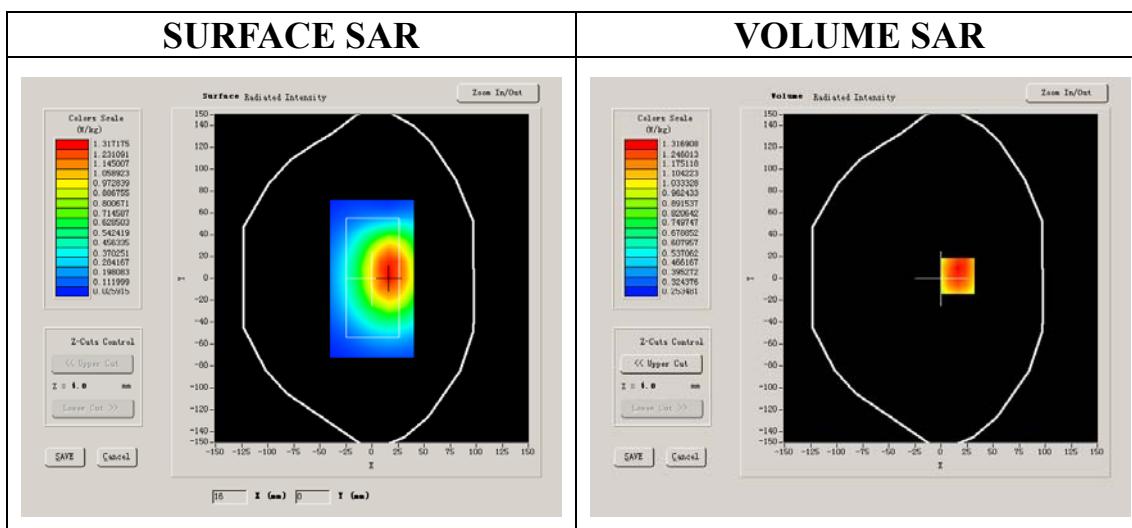
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power Drift (%)	-0.030000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2



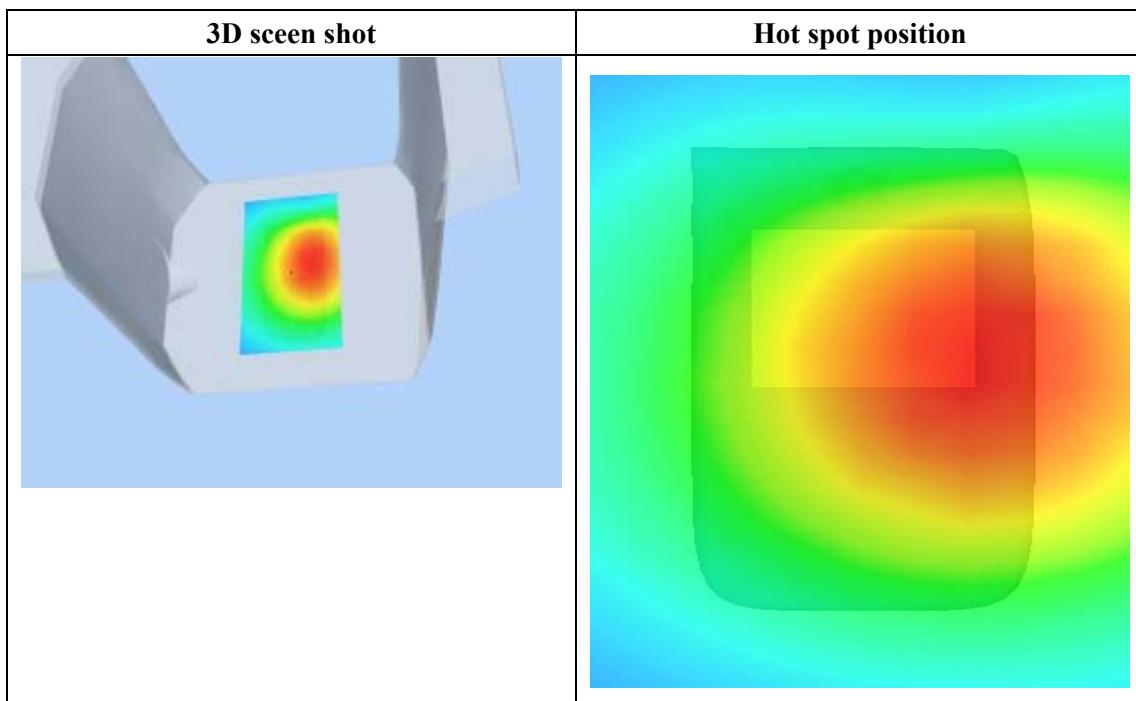
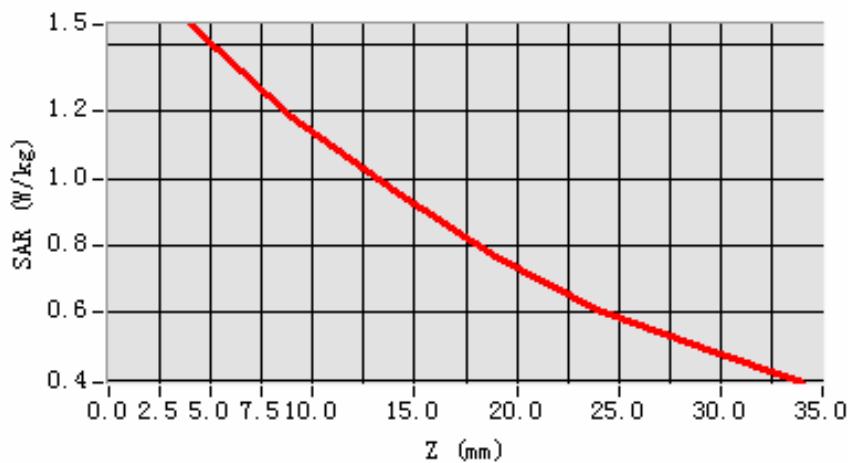
Maximum location: X=16.00, Y=2.00

SAR 10g (W/Kg)	0.898205
SAR 1g (W/Kg)	1.336392

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.4581	1.1818	0.9666	0.7681	0.6080	0.4950

SAR, Z Axis Scan (X = 16, Y = 2)



MEASUREMENT 9

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 9 minutes 6 seconds

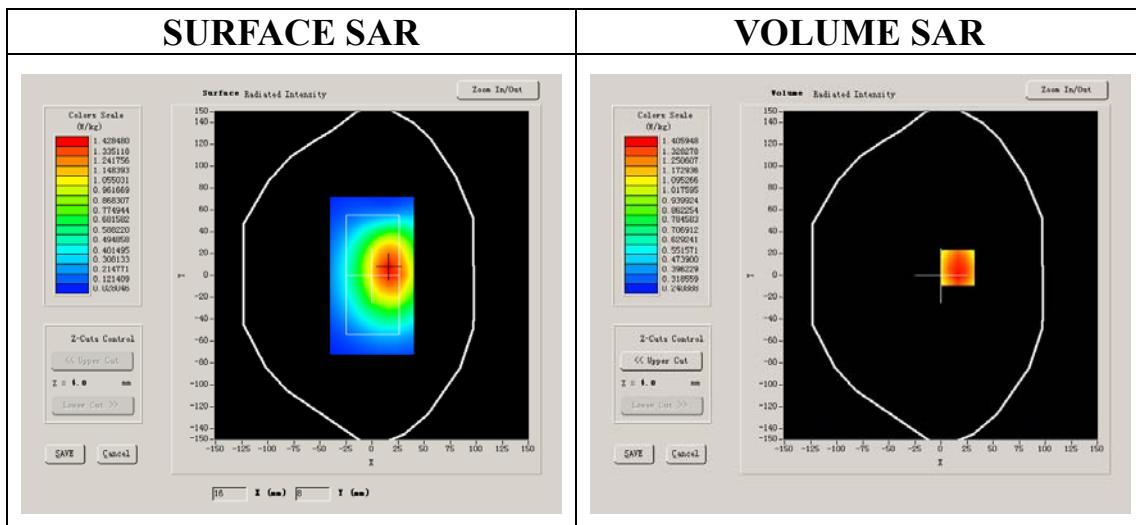
A. Experimental conditions.

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

B. SAR Measurement Results

Higher Band SAR (Channel 251):

Frequency (MHz)	848.799988
Relative permittivity (real part)	54.014999
Relative permittivity	21.332850
Conductivity (S/m)	1.005962
Power Drift (%)	-1.730000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2



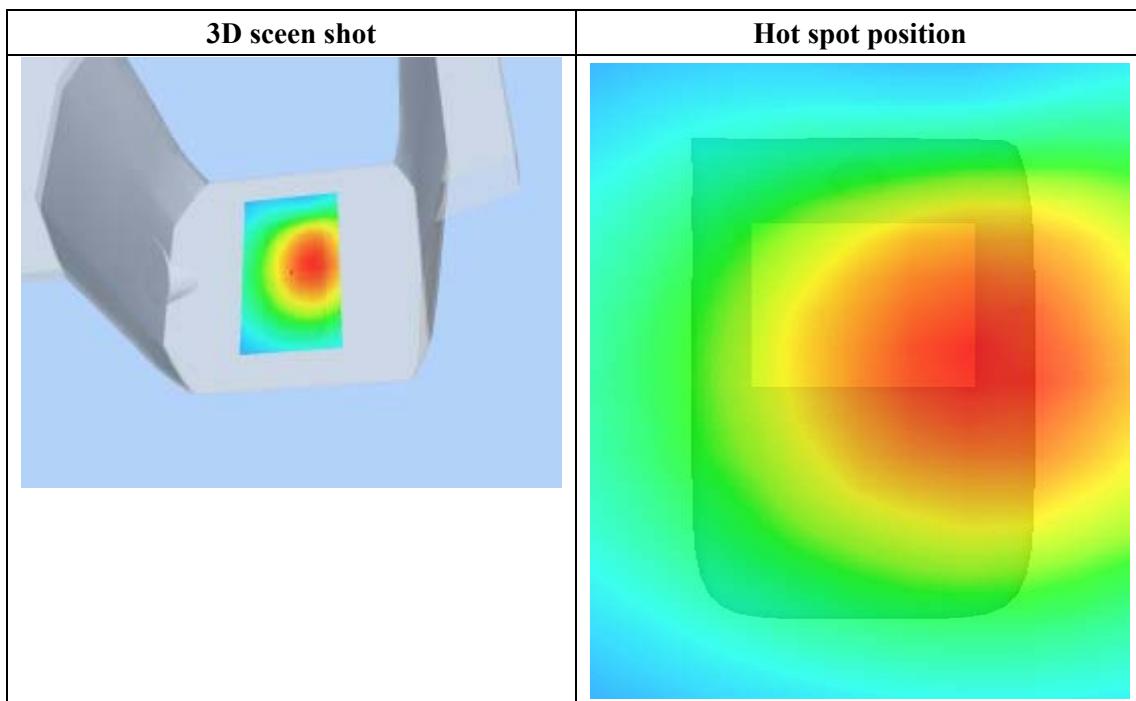
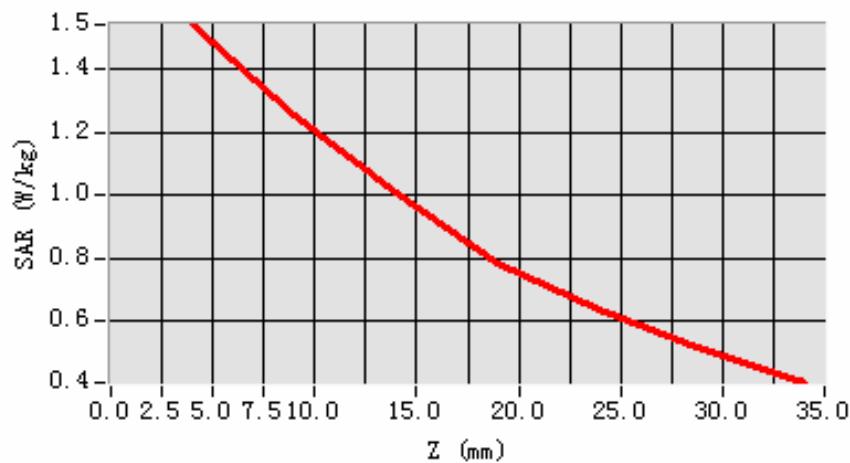
Maximum location: X=16.00, Y=7.00

SAR 10g (W/Kg)	0.954733
SAR 1g (W/Kg)	1.399123

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.5437	1.2529	1.0074	0.7828	0.6383	0.5086

SAR, Z Axis Scan (X = 16, Y = 7)



MEASUREMENT 10

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 9 minutes 10 seconds

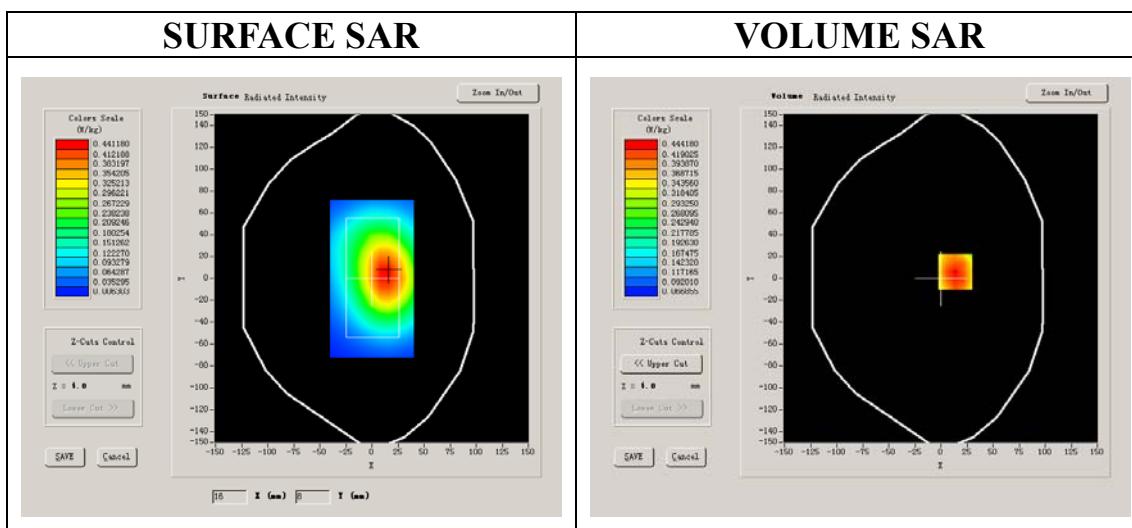
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 251):

Frequency (MHz)	848.799988
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power Drift (%)	-1.440000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2



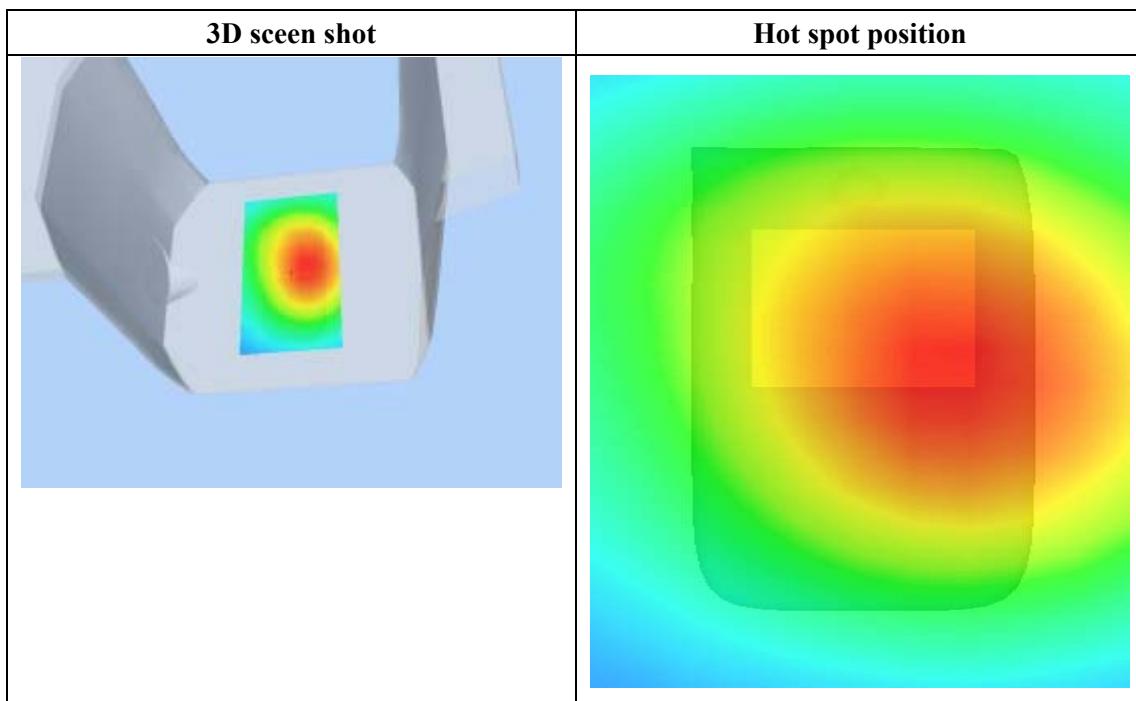
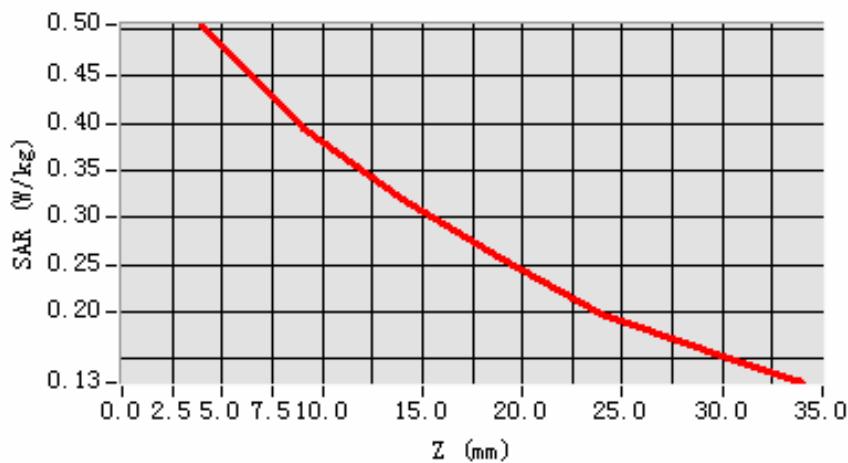
Maximum location: X=14.00, Y=6.00

SAR 10g (W/Kg)	0.366929
SAR 1g (W/Kg)	0.488116

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5043	0.3937	0.3187	0.2564	0.1968	0.1595

SAR, Z Axis Scan (X = 14, Y = 6)



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: 25/8/2011

Measurement duration: 7 minutes 57 seconds

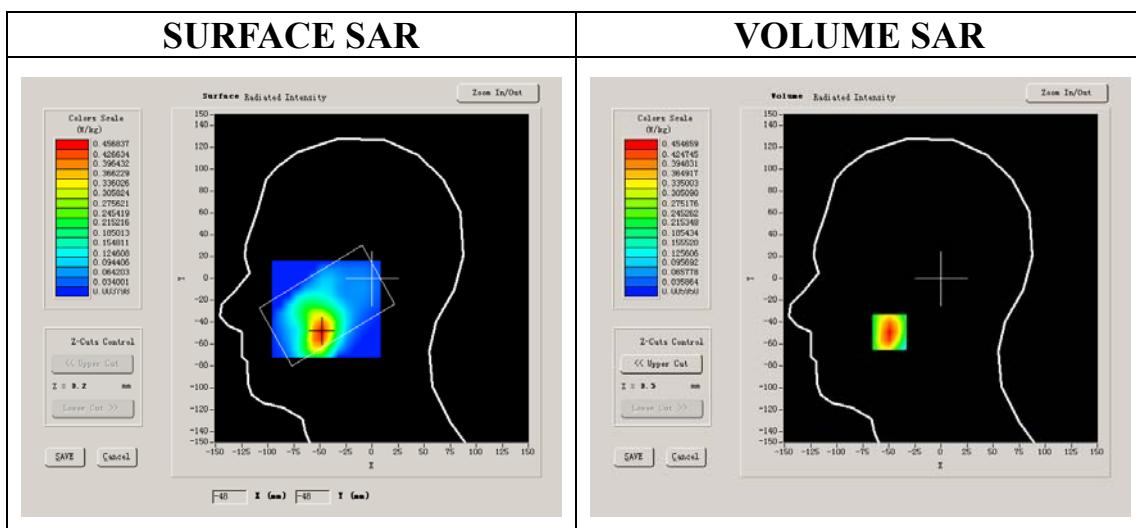
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.509998
Relative permittivity	13.750000
Conductivity (S/m)	1.436111
Power Drift (%)	0.100000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8



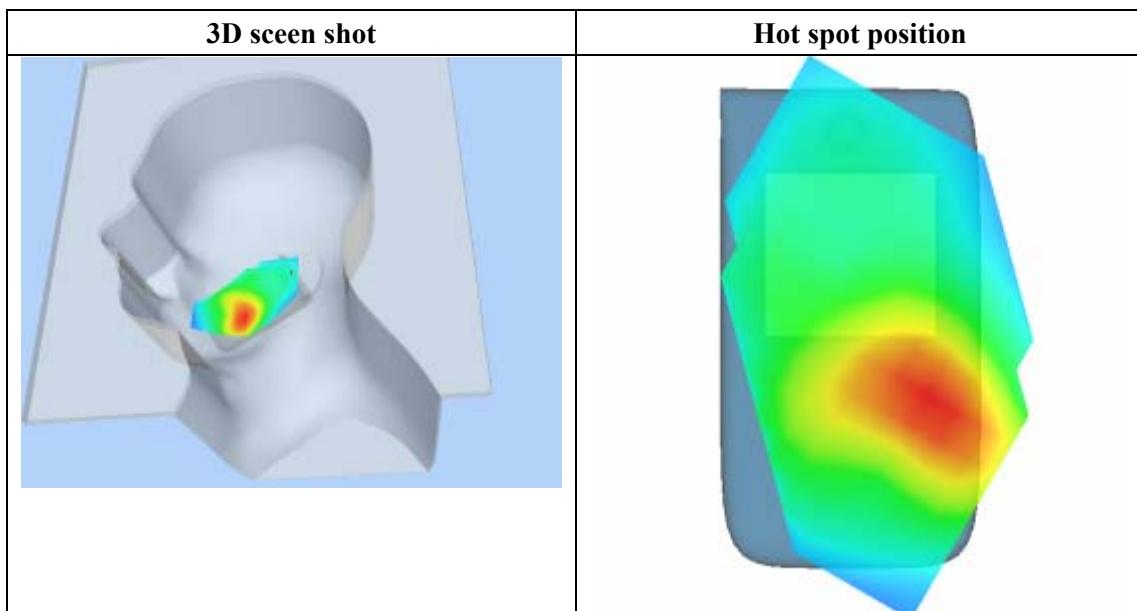
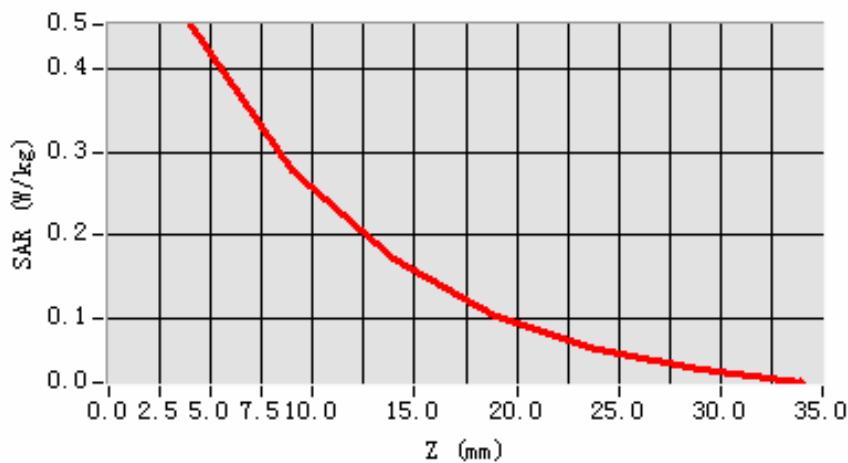
Maximum location: X=-49.00, Y=-49.00

SAR 10g (W/Kg)	0.241977
SAR 1g (W/Kg)	0.427926

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4547	0.2789	0.1715	0.1024	0.0628	0.0380

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



MEASUREMENT 12

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 7 minutes 23 seconds

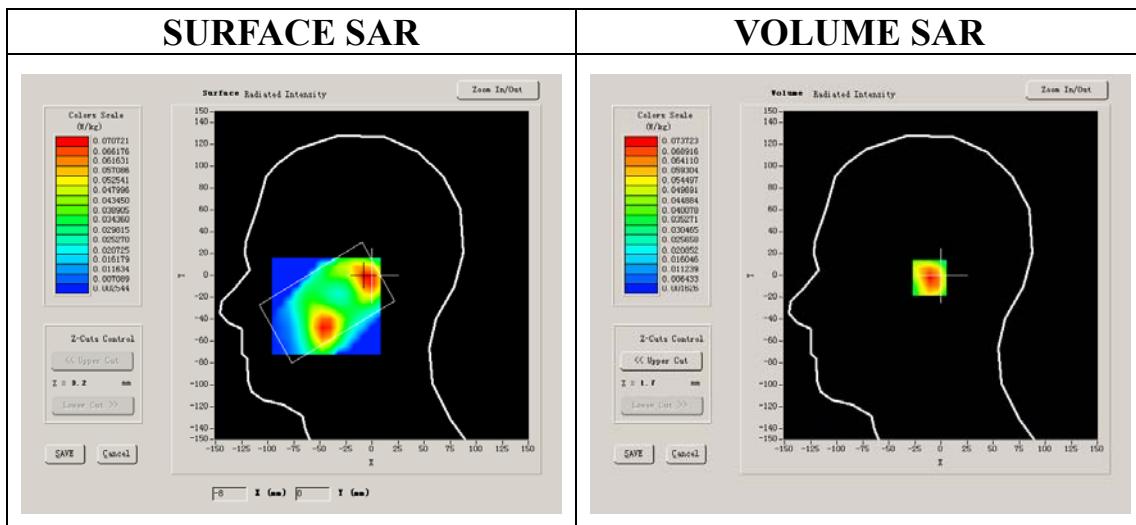
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.509998
Relative permittivity	13.750000
Conductivity (S/m)	1.436111
Power Drift (%)	-1.870000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8



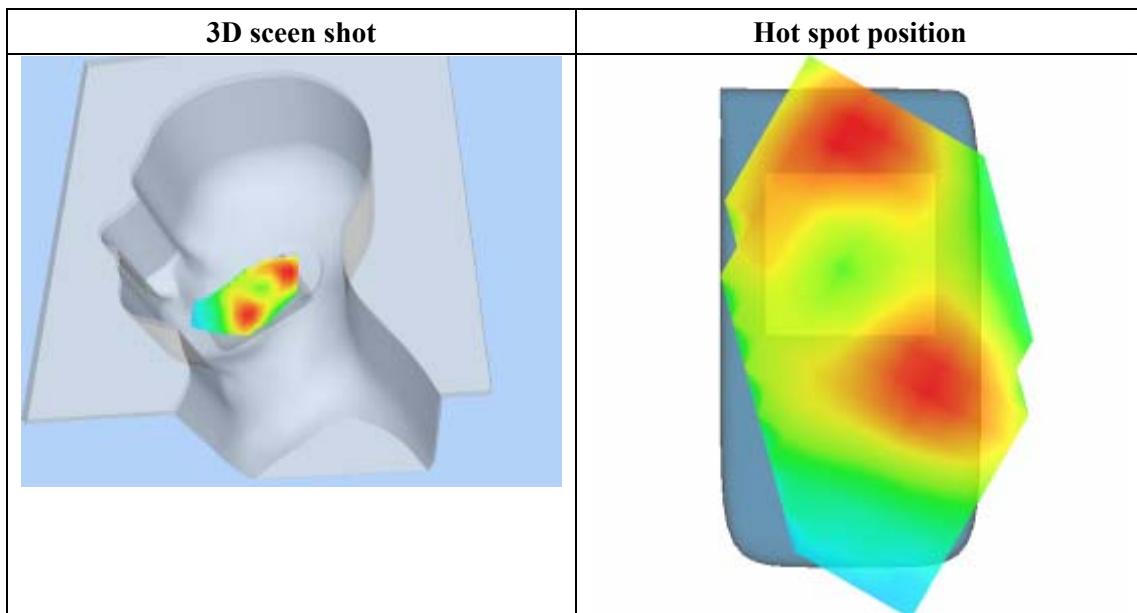
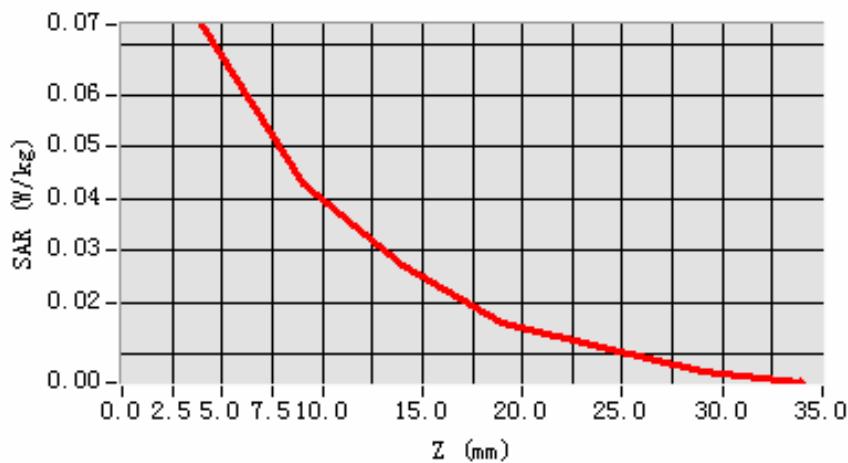
Maximum location: X=-5.00, Y=-2.00

SAR 10g (W/Kg)	0.040223
SAR 1g (W/Kg)	0.069838

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0737	0.0429	0.0271	0.0159	0.0111	0.0065

SAR, Z Axis Scan (X = -5, Y = -2)



MEASUREMENT 13

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 8 minutes 2 seconds

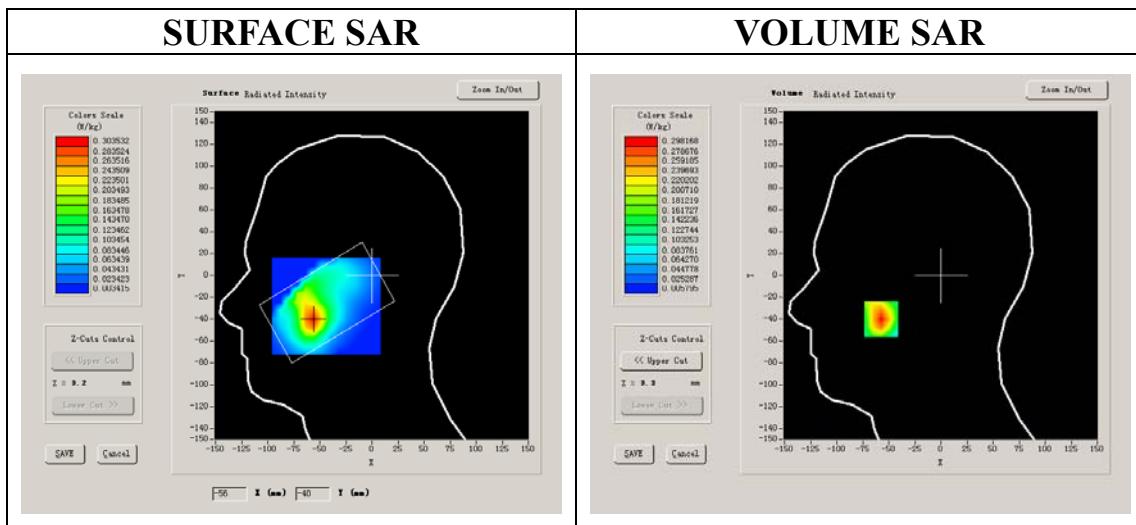
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.509998
Relative permittivity	13.750000
Conductivity (S/m)	1.436111
Power Drift (%)	-1.160000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8



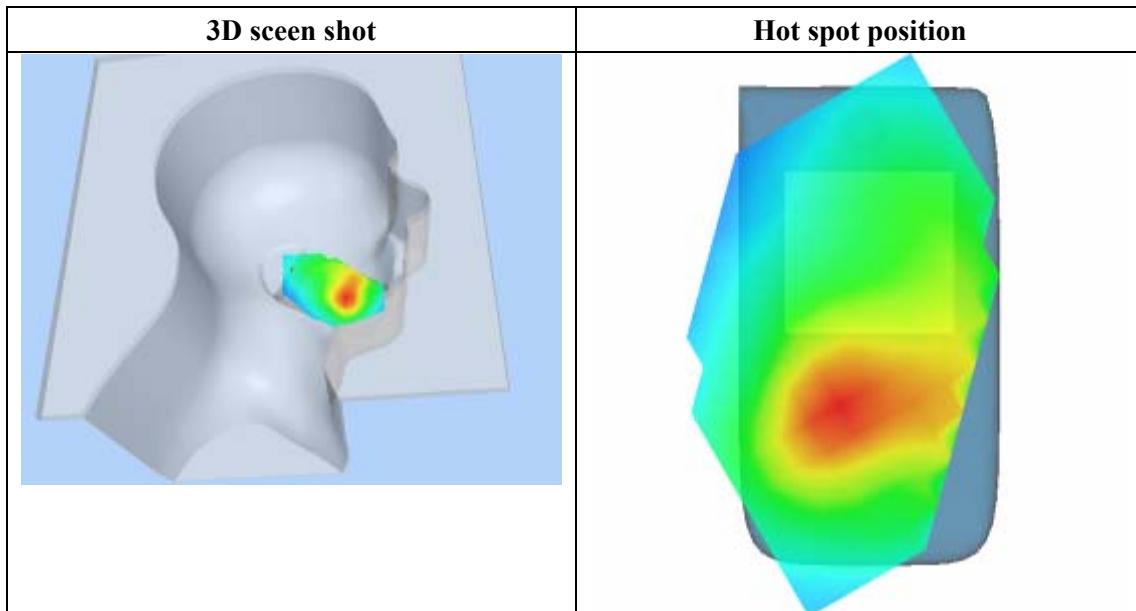
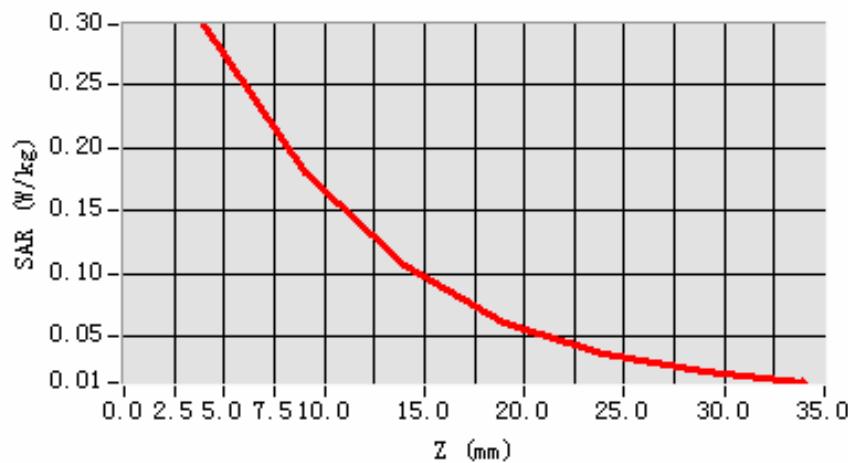
Maximum location: X=-57.00, Y=-40.00

SAR 10g (W/Kg)	0.153833
SAR 1g (W/Kg)	0.276823

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2982	0.1803	0.1061	0.0611	0.0355	0.0223

SAR, Z Axis Scan (X = -57, Y = -40)



MEASUREMENT 14

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 7 minutes 25 seconds

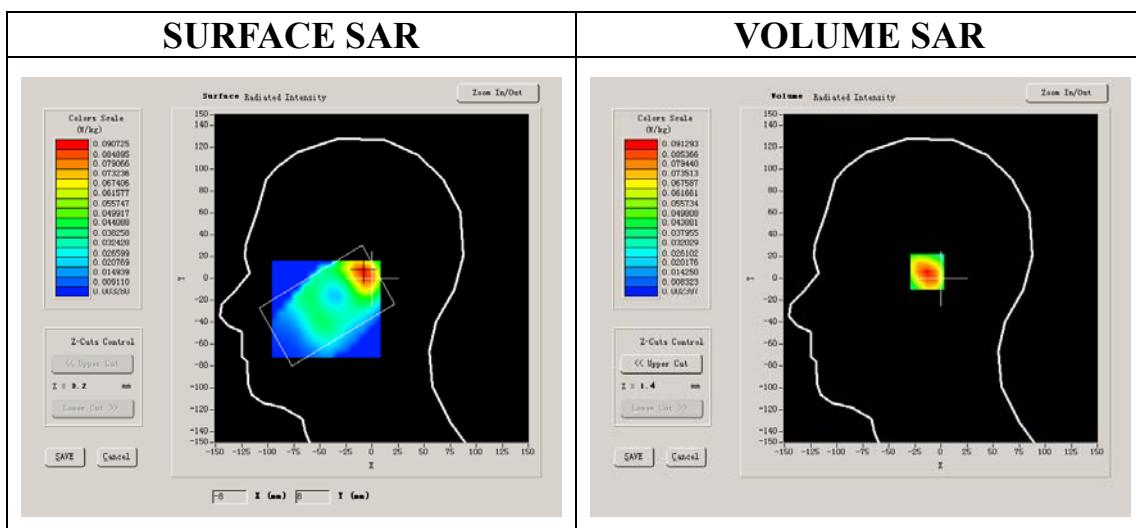
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.509998
Relative permittivity	13.750000
Conductivity (S/m)	1.436111
Power Drift (%)	-1.880000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8



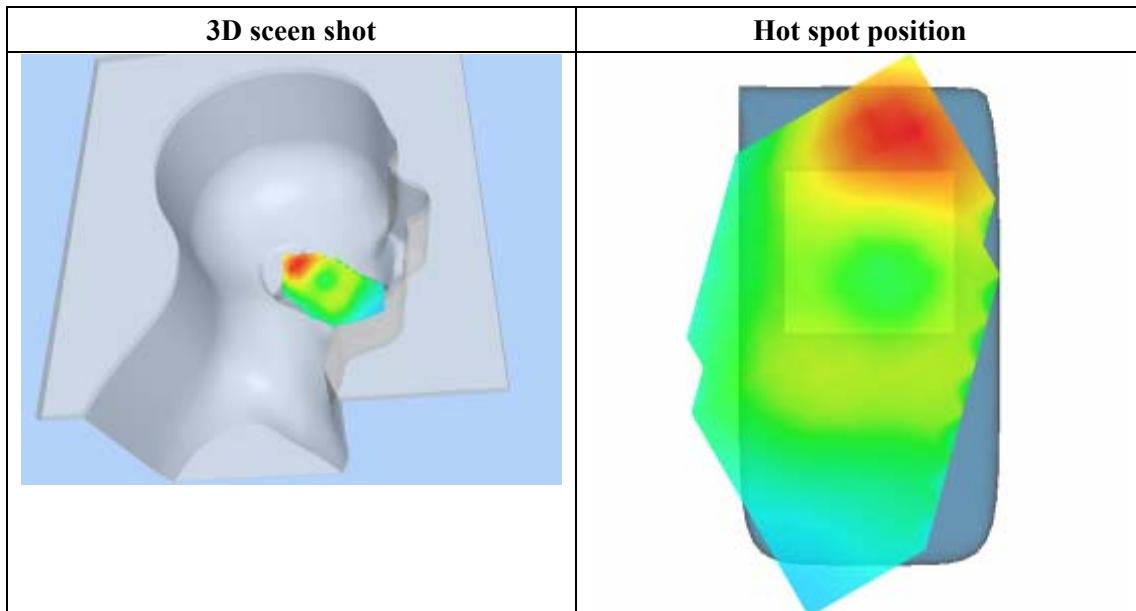
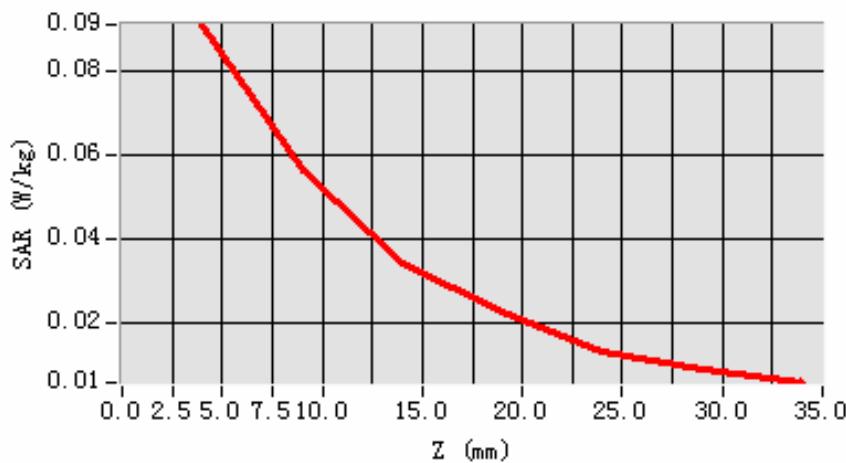
Maximum location: X=-8.00, Y=6.00

SAR 10g (W/Kg)	0.051135
SAR 1g (W/Kg)	0.086170

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0913	0.0565	0.0343	0.0227	0.0132	0.0085

SAR, Z Axis Scan (X = -8, Y = 6)



MEASUREMENT 15

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 22/8/2011

Measurement duration: 9 minutes 5 seconds

Mobile Phone IMEI number: --

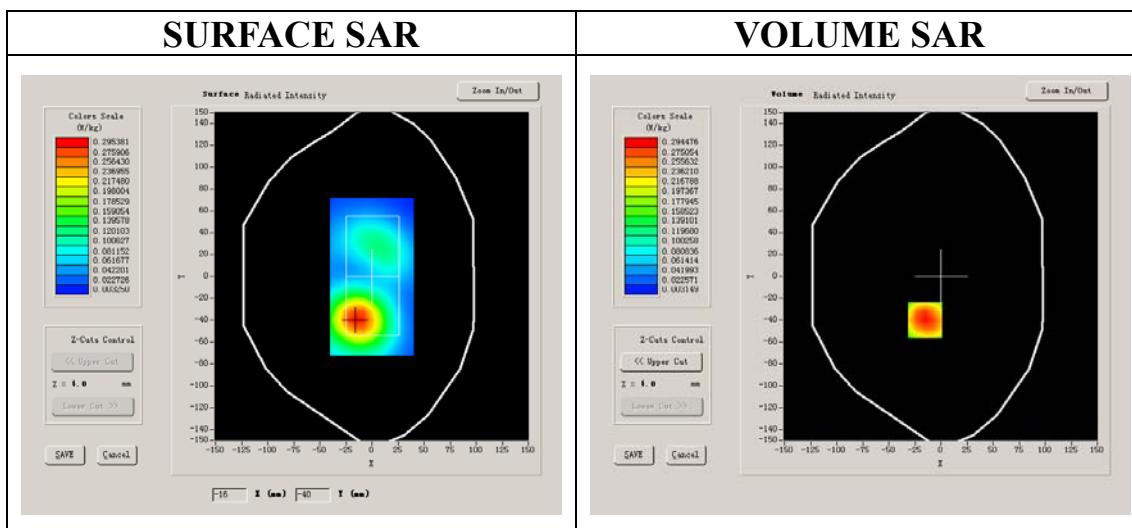
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.469533
Power Drift (%)	0.120000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8



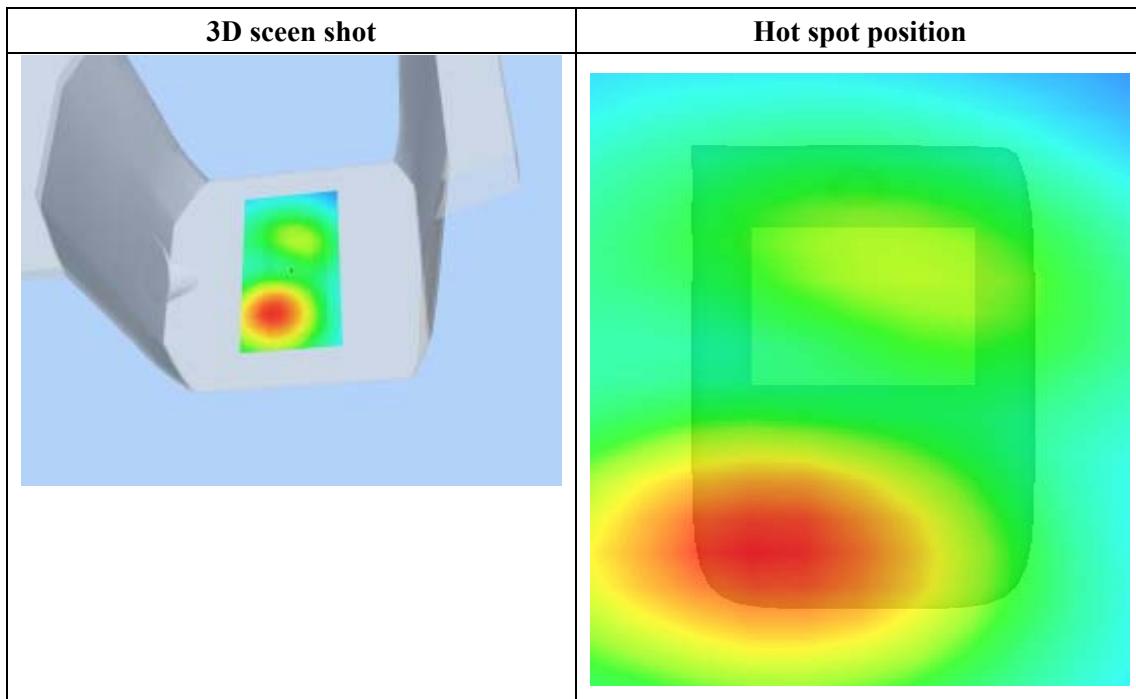
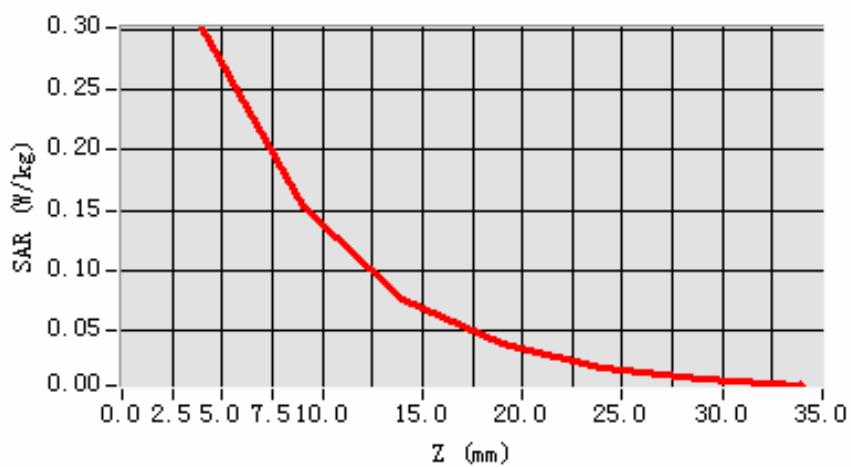
Maximum location: X=-15.00, Y=-40.00

SAR 10g (W/Kg)	0.157287
SAR 1g (W/Kg)	0.290565

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3013	0.1538	0.0759	0.0385	0.0199	0.0102

SAR, Z Axis Scan (X = -15, Y = -40)



MEASUREMENT 16

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 9 minutes 9 seconds

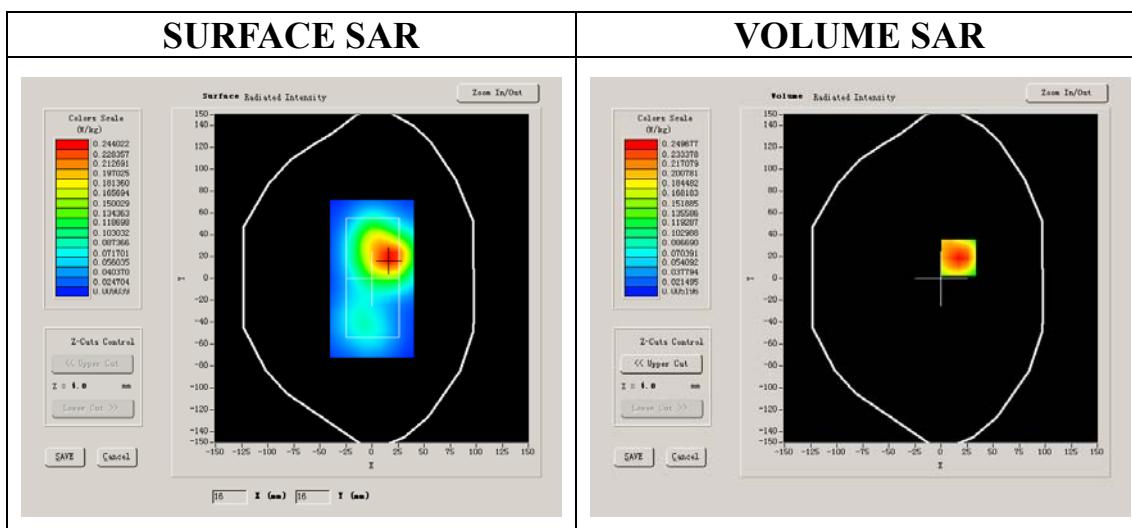
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.469533
Power Drift (%)	-1.150000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:8



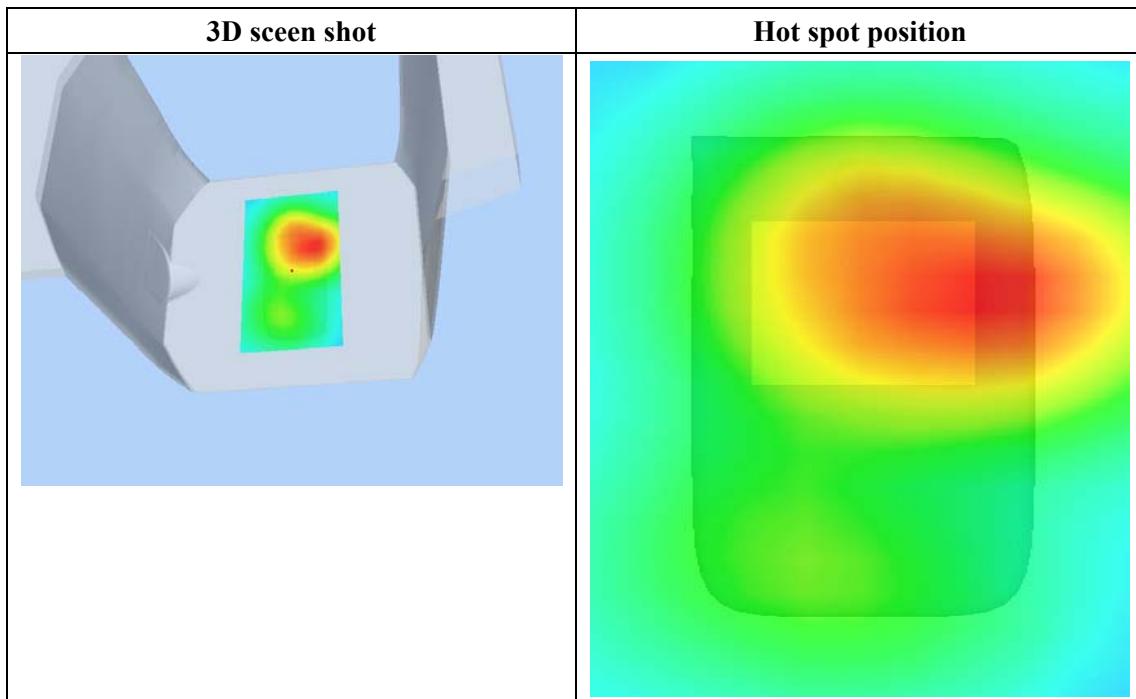
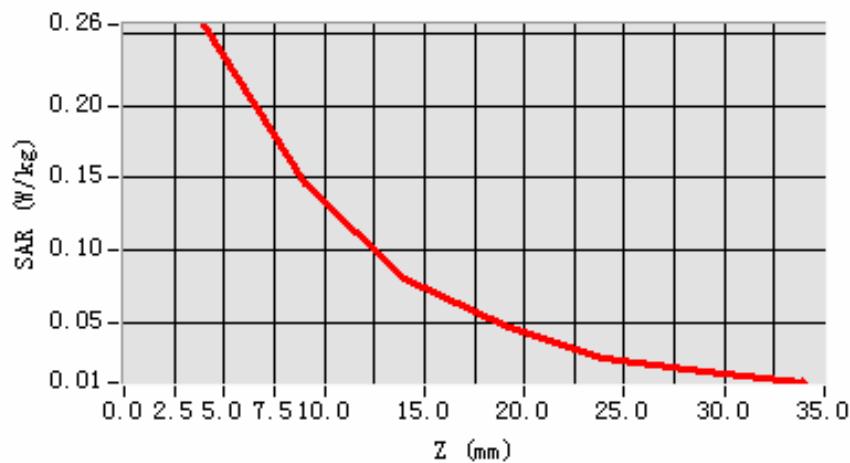
Maximum location: X=17.00, Y=19.00

SAR 10g (W/Kg)	0.140000
SAR 1g (W/Kg)	0.244386

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2555	0.1467	0.0806	0.0486	0.0267	0.0167

SAR, Z Axis Scan (X = 17, Y = 19)



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: 25/8/2011

Measurement duration: 9 minutes 7 seconds

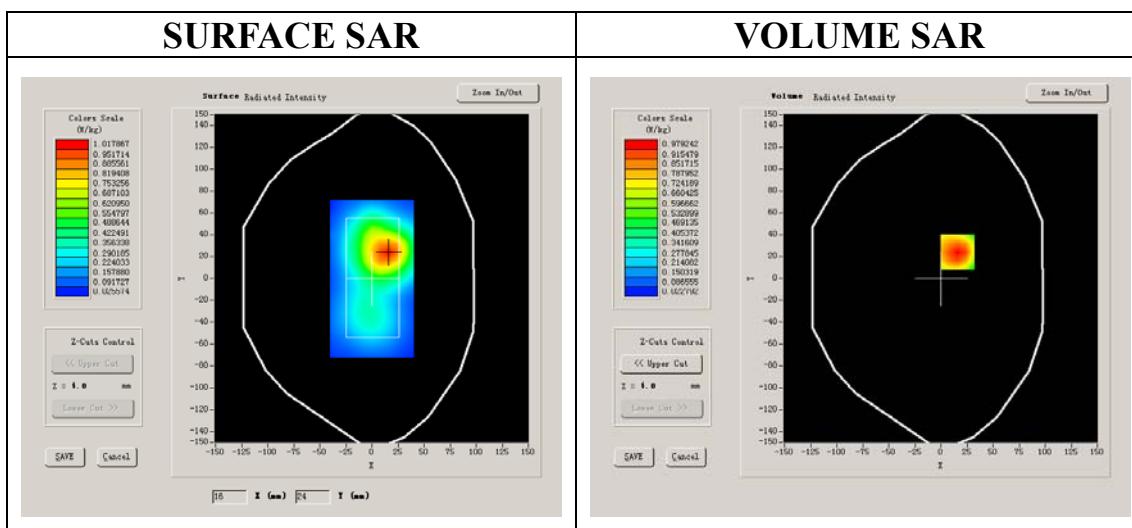
A. Experimental conditions.

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 (%)	-2.460000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:2



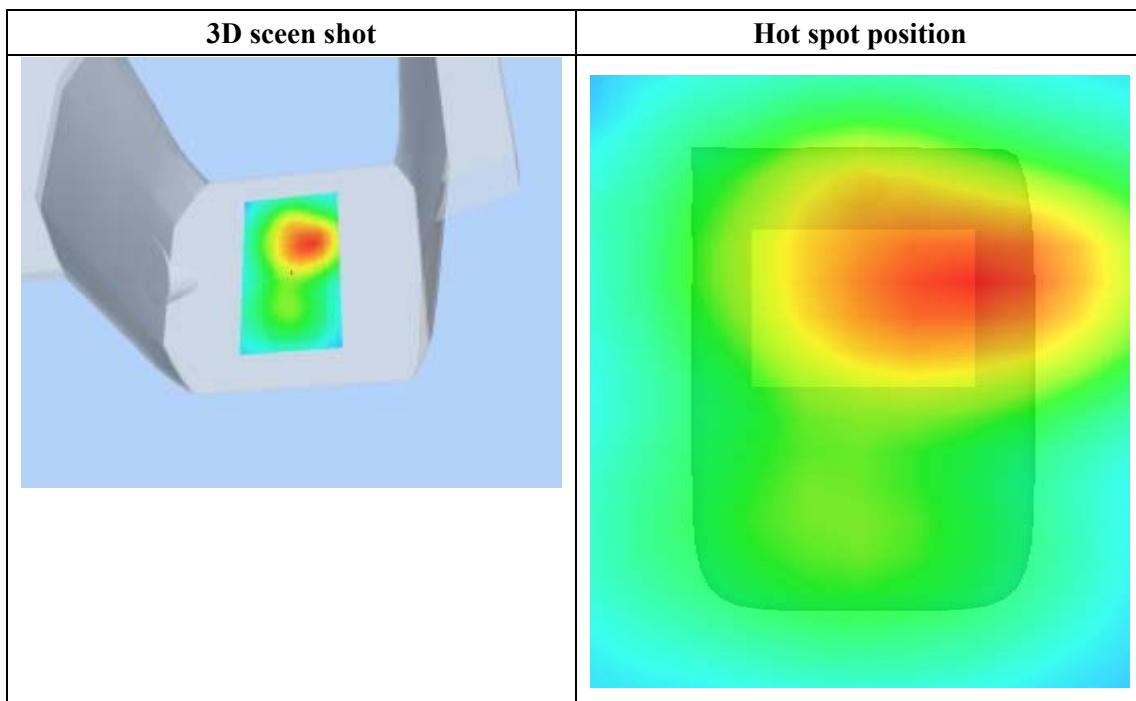
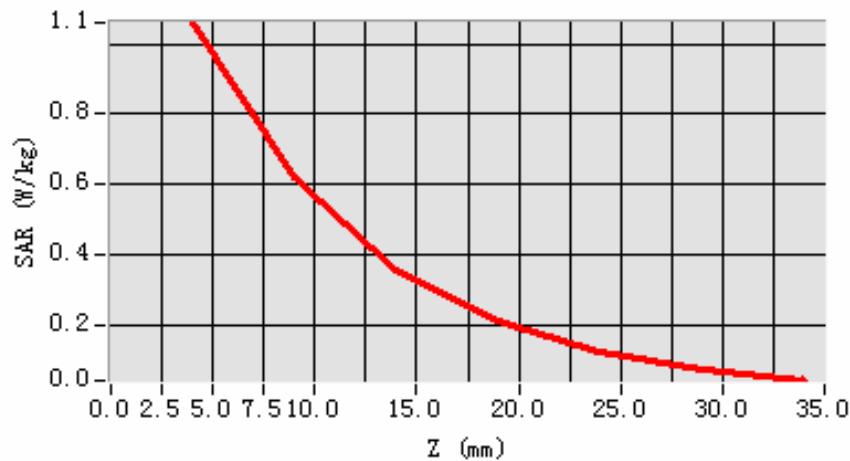
Maximum location: X=16.00, Y=24.00

SAR 10g (W/Kg)	0.586026
SAR 1g (W/Kg)	1.014176

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.0605	0.6187	0.3561	0.2095	0.1218	0.0718

SAR, Z Axis Scan (X = 16, Y = 24)



MEASUREMENT 18

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 8 minutes 37 seconds

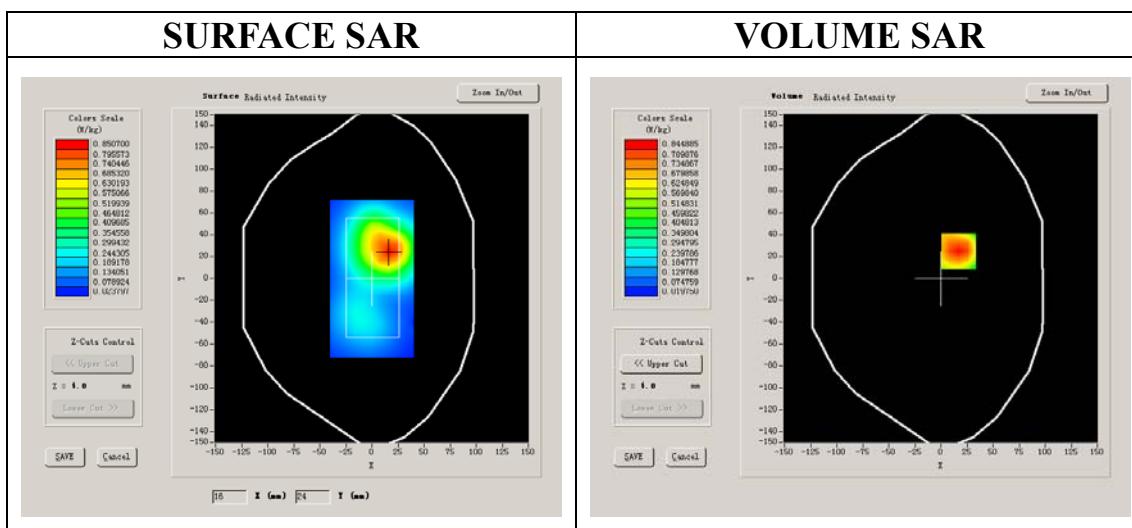
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.469533
Power Drift (%)	-1.430000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:2



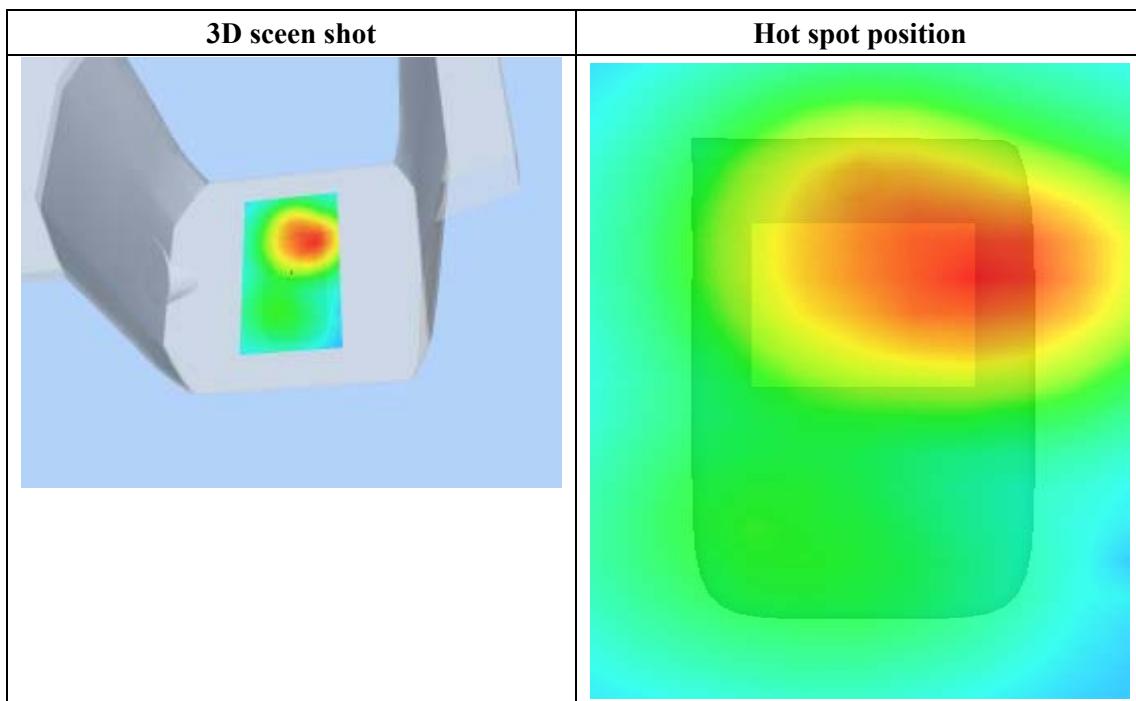
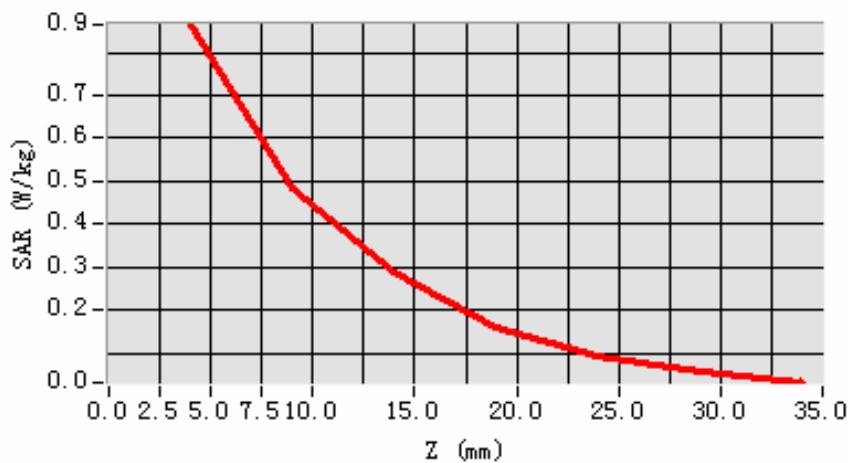
Maximum location: X=17.00, Y=25.00

SAR 10g (W/Kg)	0.475936
SAR 1g (W/Kg)	0.821463

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.8645	0.4833	0.2899	0.1596	0.0958	0.0591

SAR, Z Axis Scan (X = 17, Y = 25)



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: 25/8/2011

Measurement duration: 8 minutes 37 seconds

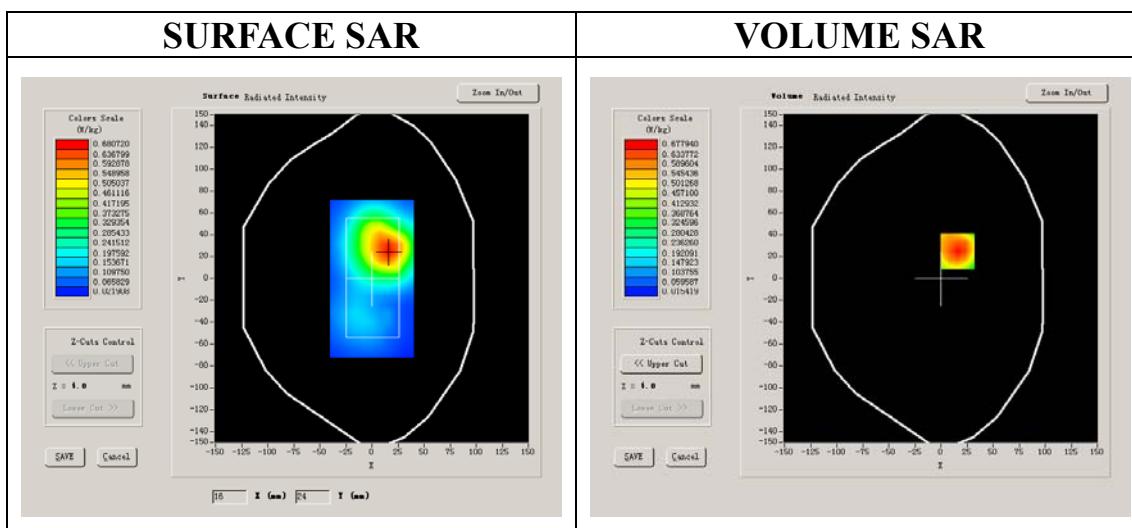
A. Experimental conditions.

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

B. SAR Measurement Results

Higher Band SAR (Channel 810):

Frequency (MHz)	1909.800049
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.492827
Power Drift (%)	-0.630000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:2



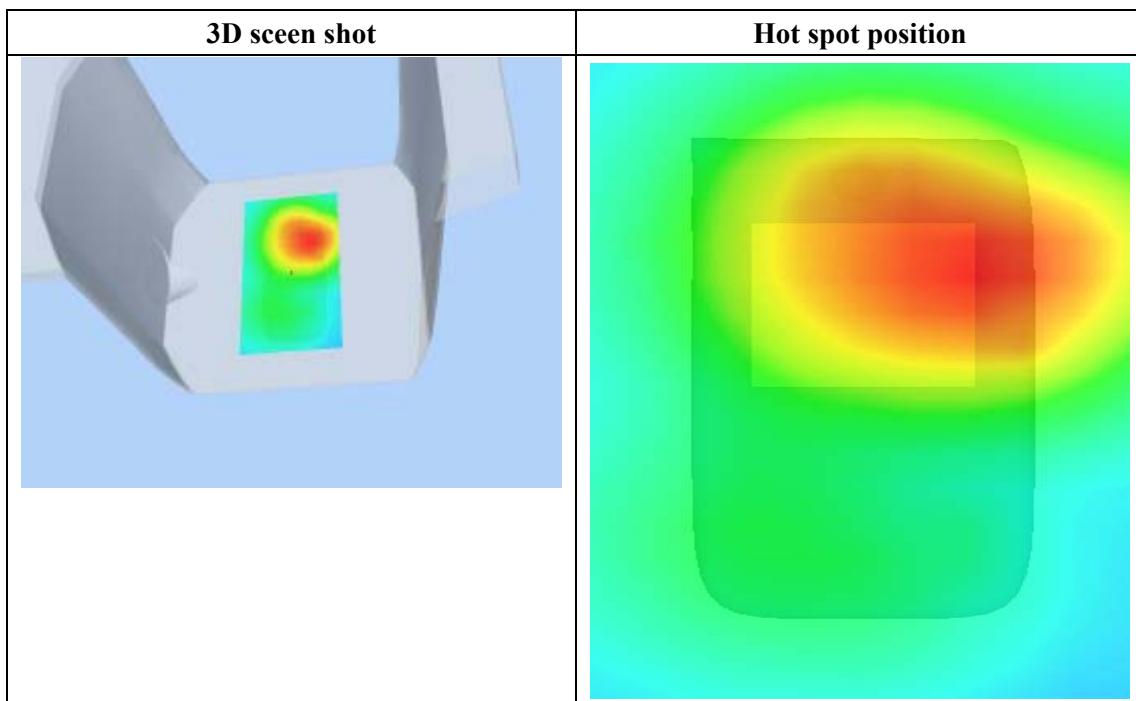
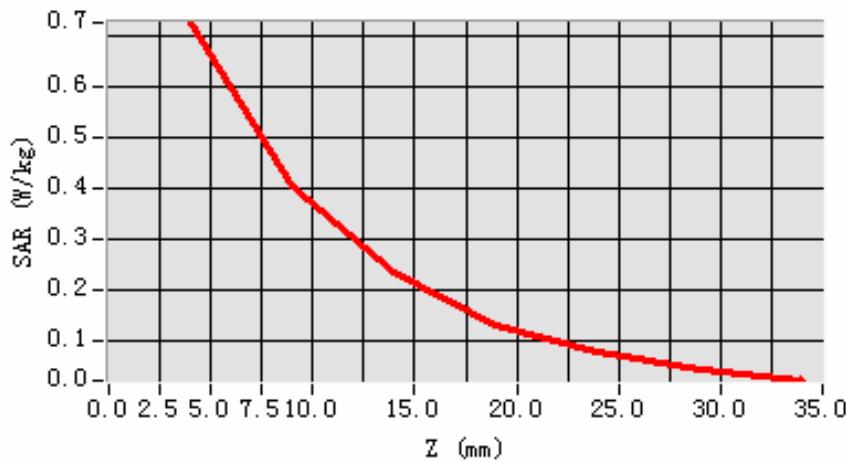
Maximum location: X=16.00, Y=25.00

SAR 10g (W/Kg)	0.400914
SAR 1g (W/Kg)	0.692572

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.7250	0.4037	0.2348	0.1331	0.0797	0.0449

SAR, Z Axis Scan (X = 16, Y = 25)



MEASUREMENT 20

Type: Phone measurement (Complete)

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

Zoom scan resolution: $dx=8\text{mm}, dy=8\text{mm}, dz=5\text{mm}$

Date of measurement: 25/8/2011

Measurement duration: 8 minutes 37 seconds

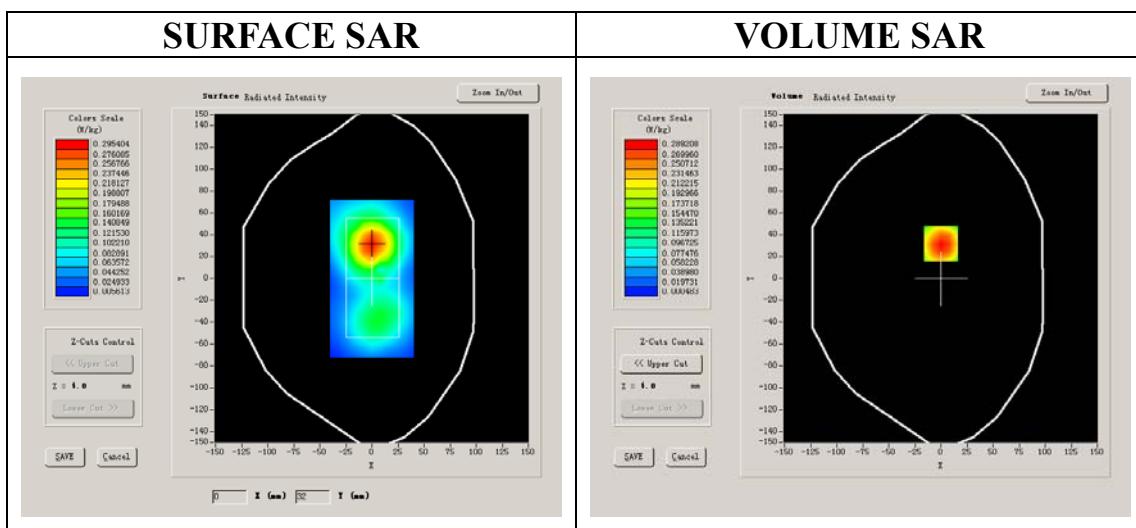
A. Experimental conditions.

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

B. SAR Measurement Results

Middle Band SAR (Channel 251):

Frequency (MHz)	1850.199951
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.469533
Power Drift (%)	0.130000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:2



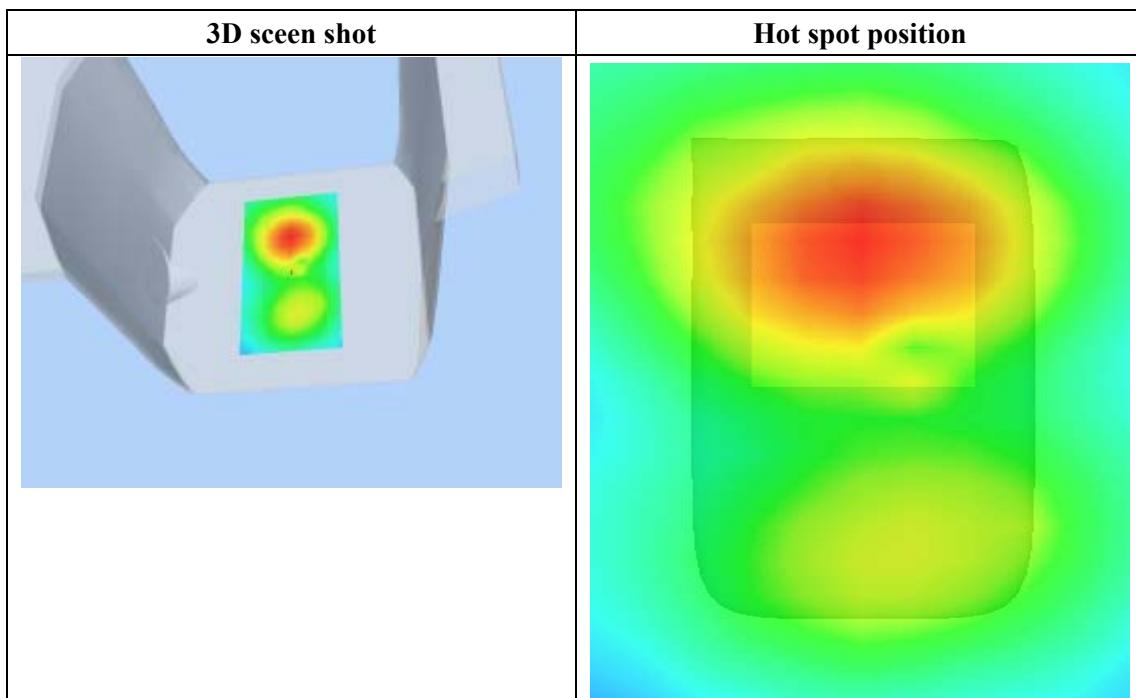
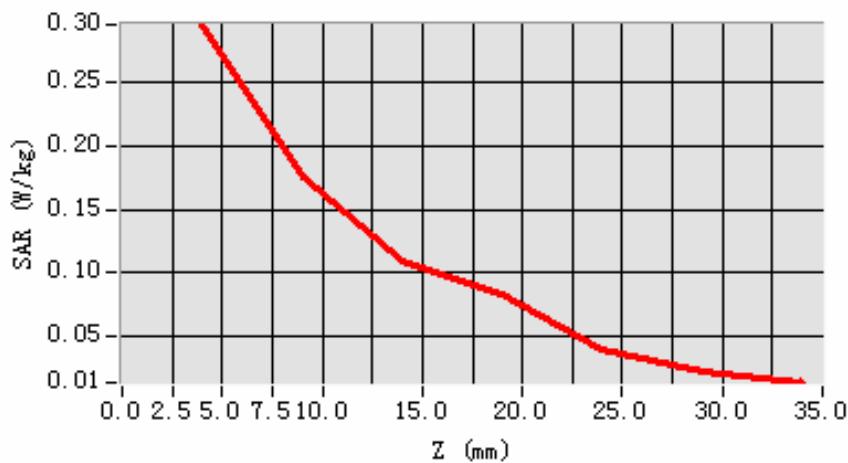
Maximum location: X=0.00, Y=32.00

SAR 10g (W/Kg)	0.167169
SAR 1g (W/Kg)	0.287884

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2959	0.1754	0.1099	0.0825	0.0398	0.0210

SAR, Z Axis Scan (X = 0, Y = 32)



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: 25/8/2011

Measurement duration: 13 minutes 27 seconds

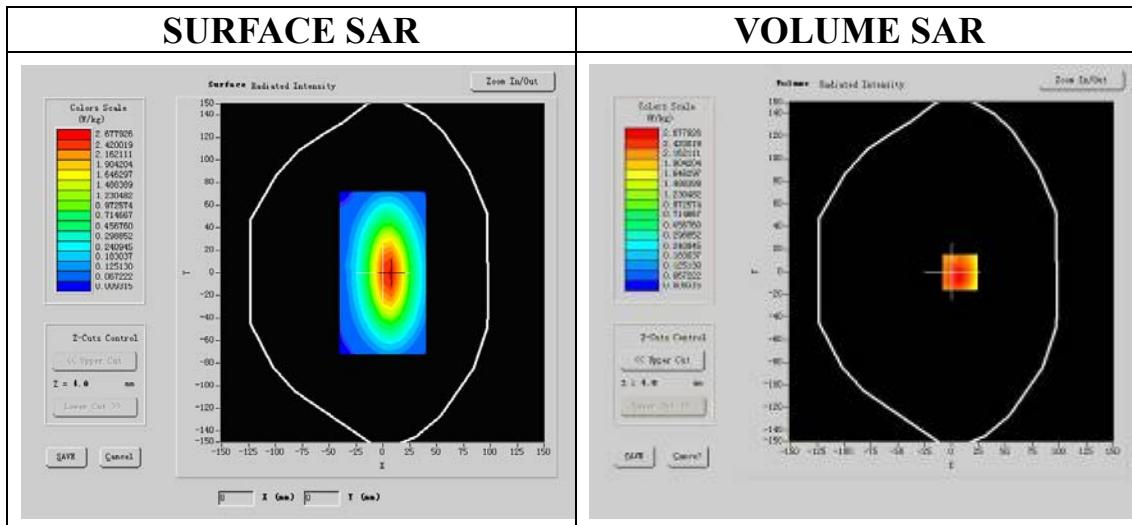
A. Experimental conditions.

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)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	-0.050000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1



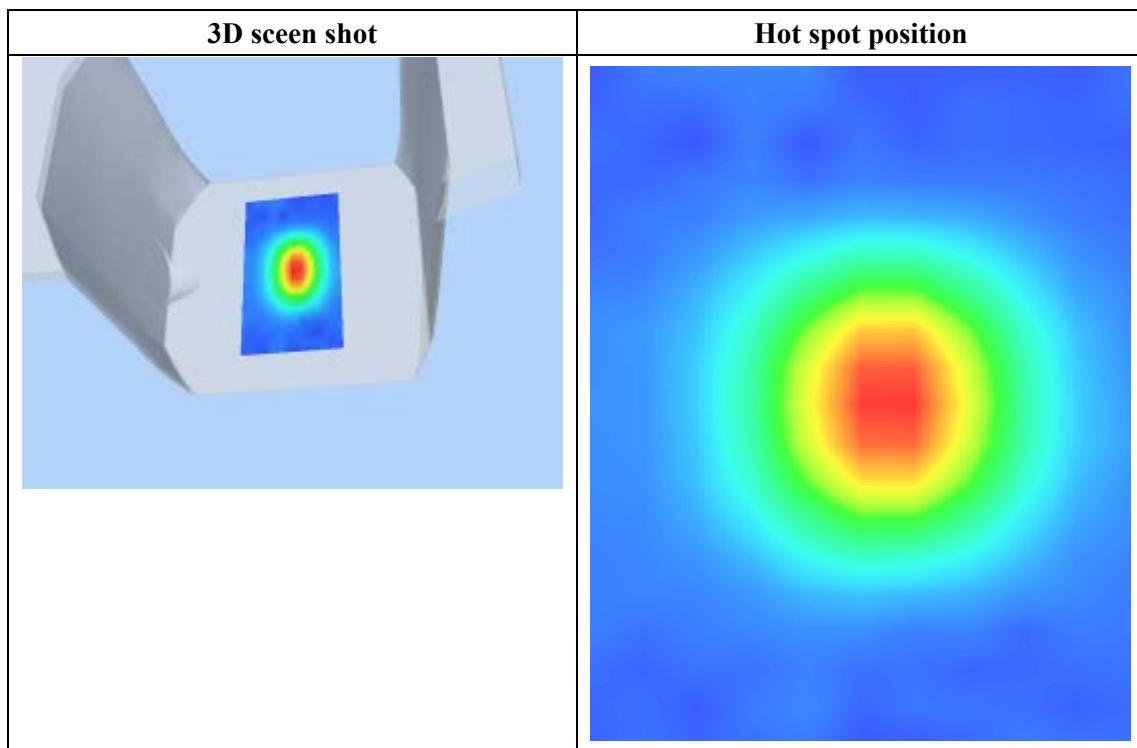
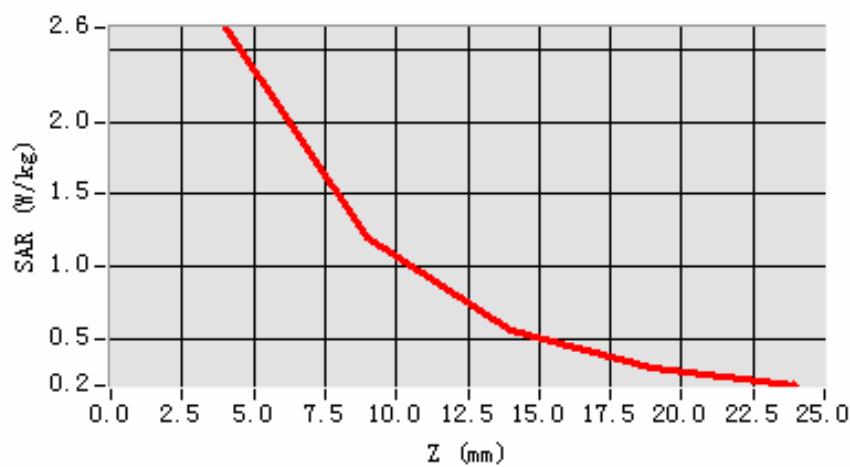
Maximum location: X=5.00, Y=1.00

SAR 10g (W/Kg)	1.715223
SAR 1g (W/Kg)	2.677926

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	2.6486	1.2069	0.5583	0.3002

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



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: 25/8/2011

Measurement duration: 13 minutes 27 seconds

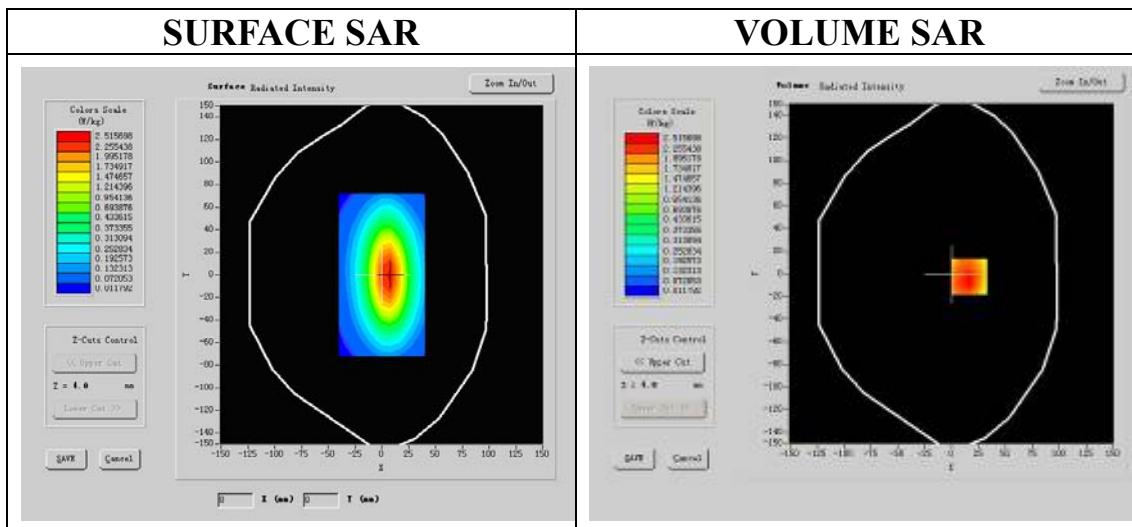
A. Experimental conditions.

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)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.492827
Power drift (%)	-0.140000
Ambient Temperature:	22.9°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1



Maximum location: X=5.00, Y=1.00

SAR 10g (W/Kg)	4.910003
SAR 1g (W/Kg)	9.846247

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	9.0536	7.3061	4.6041	2.3211

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

