

# SAR TEST REPORT



Issued to

**cellsafe & panasales PTY LTD**

For

**UNIVERSAL CHIP for Android**

Model Name : android-001  
Trade Name : cellsafe  
Brand Name : cellsafe  
Standard : EN 50360: 2001  
EN 62209-1: 2006  
Test date : 2014-7-2  
Issue date : 2014-7-12

by

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Change History		
Issue	Date	Reason for change
1.0	Jul. 12, 2014	First edition



## 1. TESTING LABORATORY

### 1.1 Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China 518101

### 1.2 Accreditation Certificate

Accredited Testing Laboratory: No. CNAS L3572

### 1.3 List of Test Equipments

No.	Instrument	Type	Cal. Date	Cal. Due
1	PC	Dell (Pentium IV 2.4GHz, SN:X10-23533)	(n.a)	(n.a)
2	Network Emulator	Agilent(8960, SN:10752)	2013-9-26	1year
3	Voltmeter	Keithley (2000, SN:1000572)	2013-9-24	1year
4	Synthesizer	Rohde&Schwarz (SML_03, SN:101868)	2013-9-24	1year
5	Amplifier	Nucl udes (ALB216, SN:10800)	2013-9-24	1year
6	Power Meter	Rohde&Schwarz (NRVD, SN:101066)	2013-9-24	1year
7	Probe	Satimo (SN 37/08 EP80)	2013-10-4	1year
8	Phantom	Satimo (SN_36_08_SAM62)	2013-9-24	1year
9	Liquid	Satimo (Last Calibration:2013-9-29)	NA	NA
11	Dipole 1800MHz	Satimo (SN 36/08 DIPF 101)	2013-10-5	1year

## 2. TECHNICAL INFORMATION

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

### 2.1 Identification of Applicant

Company Name:	cellsafe & panasales PTY LTD
Address:	N/A

### 2.2 Identification of Manufacturer

Company Name:	Shenzhen xinjida technology co.,ltd
Address:	weiyecheng industrial xintian village guanlan town baoan shenzhen China

### 2.3 Equipment Under Test (EUT)

Model Name:	android-001
Trade Name:	cellsafe
Brand Name:	cellsafe

#### 2.3.1 Photographs of the EUT

Please see for photographs of the EUT.

### 2.4 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	<b>EN 50360: 2001</b>	Product standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from GSM Mobile phones.
2	<b>EN 62209-1: 2006</b>	Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)

## 2.5 Test Environment/Conditions

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa
Test frequency:	LTE Band 3 (1800MHz) WCDMA Band 1 (2100MHz)
Operation mode:	Call established
Power Level:	LTE Band 3 Max output power WCDMA Band 1 Max 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 1870, 1890 and 1910 respectively in the case of LTE Band3, or to 9612, 9750 and 9888 respectively in the case of WCDMA Band1. 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 Middle than the limits for general population/uncontrolled.

#### 3.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy ( $dW$ ) absorbed by (dissipated in) an incremental mass ( $dm$ ) contained in a volume element ( $dv$ ) of a given density ( $\rho$ ).

The equation description is as below:

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

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

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

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

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

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

Where  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of the tissue and  $|E|$  is the rms electrical field strength.

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

## 4. SAR MEASUREMENT SETUP

### 4.1 The Measurement System

Comosar is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The Comosar system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.



The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The OpenSAR software computes the results to give a SAR value in a 1g or 10g mass.

### 4.2 Probe

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

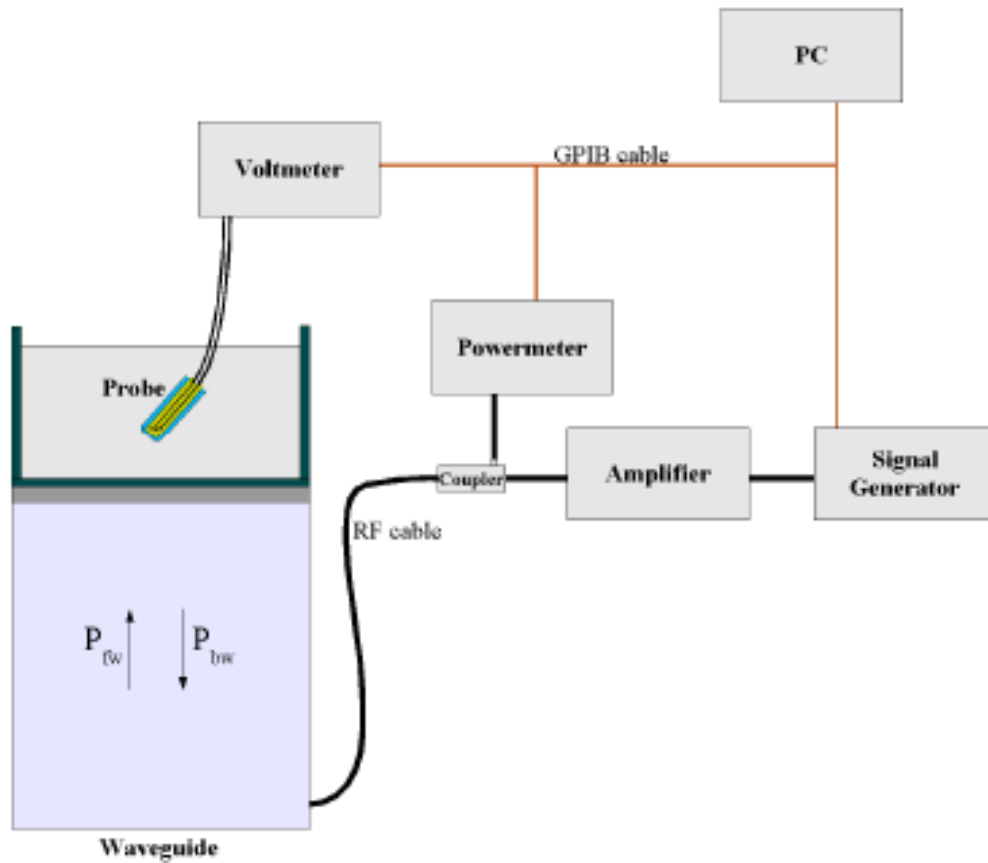
- Dynamic range: 0.01-100 W/kg
- Tip Diameter : 6.5 mm
- Distance between probe tip and sensor center: 2.5mm



- Distance between sensor center and the inner phantom surface: 4 mm  
(repeatability better than +/- 1mm)
- Probe linearity: <0.25 dB
- Axial Isotropy: <0.25 dB
- Spherical Isotropy: <0.25 dB
- Calibration range: 835to 2500MHz for head & body simulating liquid.

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

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



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

Where :

P<sub>fw</sub> = Forward Power

P<sub>bw</sub> = Backward Power

a and b = Waveguide dimensions

l = Skin depth

Keithley configuration:

Rate = Medium; Filter =ON; RDGS=10; FILTER TYPE =MOVING AVERAGE; RANGE AUTO

After each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

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

$$CF(N)=SAR(N)/V_{lin}(N) \quad (N=1,2,3)$$

The linearised output voltage  $V_{lin}(N)$  is obtained from the displayed output voltage  $V(N)$  using

$$V_{lin}(N)=V(N)*(1+V(N)/DCP(N)) \quad (N=1,2,3)$$

where DCP is the diode compression point in mV.

### 4.3 Probe Calibration Process

#### 4.3.1 Dosimetric Assessment Procedure

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

#### 4.3.2 Free Space Assessment Procedure

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

#### 4.3.3 Temperature Assessment Procedure

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

Where:

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

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

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

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

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

Where:

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

$\sigma$  = simulated tissue conductivity,

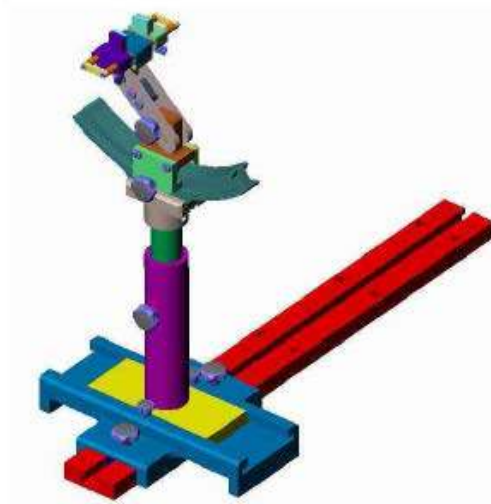
$\rho$  = Tissue density (1.25 g/cm<sup>3</sup> for brain tissue)

#### 4.4 Phantom

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

#### 4.5 Device Holder

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



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

## 5. TISSUE SIMULATING LIQUIDS

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

The following table gives the recipes for tissue simulating liquids.

Ingredients (% by weight )	Frequency Band	Frequency Band
	835MHz	1800MHz
Water	41.45	55.36
Salt(NaCl)	1.45	0.35
Sugar	56.0	30.45
HEC	1.0	0.0
Bactericide	0.1	0.0
Diethyenglycol monohexylether	0.0	0.0
Triton X-100	0.0	0.0
DGBE	0.0	13.84
Acticide SPX	0.0	0.0
Dielectric Constant	42.45	41.00
Conductivity (S/m)	0.91	1.38

Recipes for Tissue Simulating Liquid

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

**Table 1: Dielectric Performance of Head Tissue Simulating Liquid**

Temperature: 23.0~23.8°C, humidity: 54~60%.			
/	Frequency	Permittivity $\epsilon$	Conductivity $\sigma$ (S/m)
<b>Target value</b>	835 MHZ	41.5	0.90
<b>Validation value (Jul. 2)</b>	835 MHZ	41.675999	0.894409
<b>Target value</b>	1800 MHZ	40	1.40
<b>Validation value (Jul. 2)</b>	1800 MHZ	38.509998	1.436111

## 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
<b>Measurement System</b>									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.7	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.0	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.6	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.5	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.8	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.5	∞
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.0	∞
Response Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.7	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.1	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.7	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.1 5	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.0 3	∞
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.8 9	∞
<b>Test sample Related</b>									
Test sample positioning	E.4.2. 1	0.03	N	1	1	1	0.03	0.0 3	N- 1
Device Holder Uncertainty	E.4.1. 1	5.00	N	1	1	1	5.00	5.0 0	N- 1
Output power Power drift -	6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.3	∞

SAR drift measurement								3	
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	$\infty$
Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.13	$\infty$
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	M
Liquid permittivity - deviation from target value	E.3.2	3.69	R	$\sqrt{3}$	0.6	0.49	1.28	1.04	$\infty$
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M
Combined Standard Uncertainty			RSS				11.55	10.67	
Expanded Uncertainty (95% Confidence interval)			K=2				23.11	21.33	

## 6.2 UNCERTAINTY FOR SYSTEM PERFORMANCE CHECK

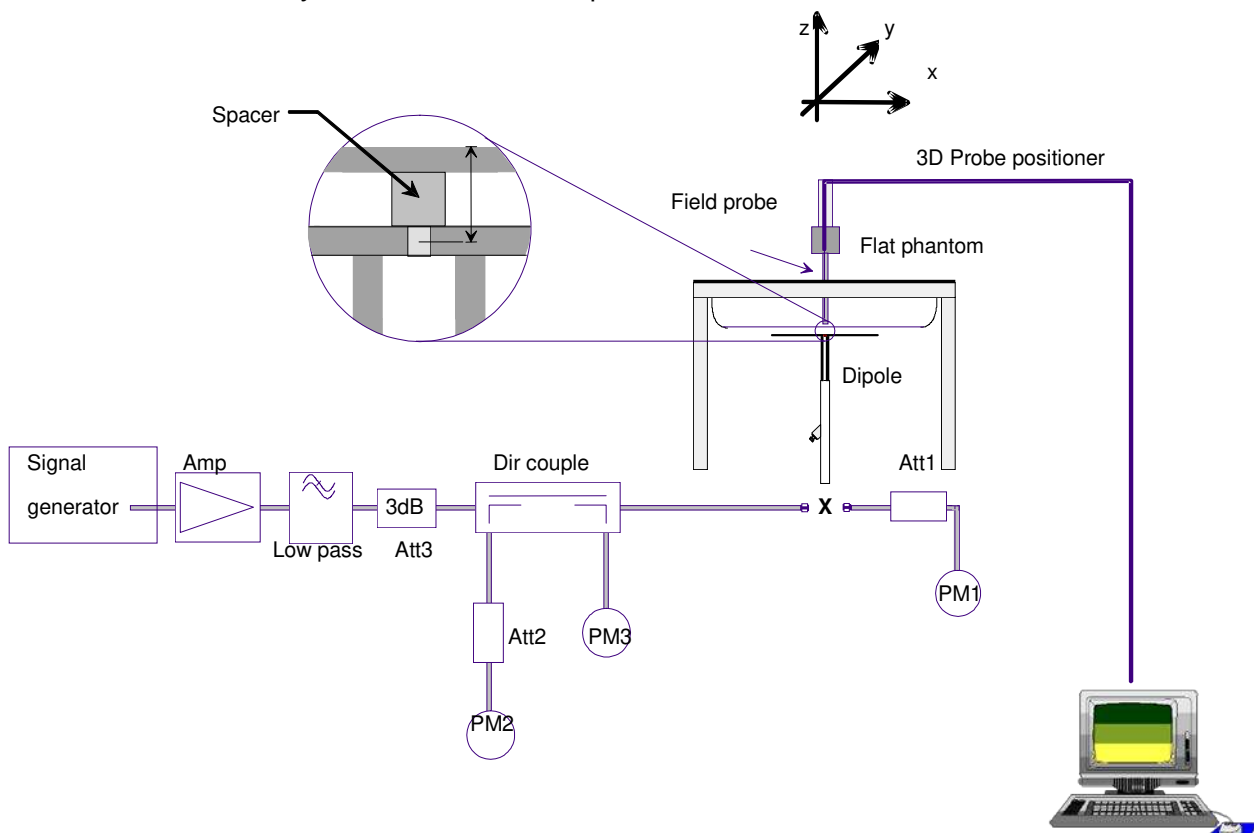
a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/ e	k
Uncertainty Component	Sec.	Tol (+-%)	Prob Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	Vi
<b>Measurement System</b>									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.7	$\infty$
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.0	$\infty$
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.6	$\infty$
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.5	$\infty$
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.8	$\infty$
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.5	$\infty$
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.0	$\infty$
Response Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.7	$\infty$
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.1	$\infty$
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.7	$\infty$

Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	$\infty$
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	$\infty$
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	$\infty$
<b>Dipole</b>									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	$\sqrt{3}$	1	1	0.58	0.58	$\infty$
Input power and SAR drift measurement	8,6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.33	$\infty$
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	$\infty$
Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.69	$\infty$
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	$\sqrt{3}$	0.64	0.43	1.85	1.85	M
Liquid permittivity - deviation from target value	E.3.2	3.69	R	$\sqrt{3}$	0.6	0.49	1.28	1.28	$\infty$
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	$\sqrt{3}$	0.6	0.49	3.46	3.46	M
Combined Standard Uncertainty			RSS				8.83	8.83	
Expanded Uncertainty (95% Confidence interval)			K=2				17.66	17.66	

## 7. SAR MEASUREMENT EVALUATION

### 7.1 System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave which comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below



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



## 7.2 Validation Results

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

Frequency	835MHz	1800MHz
Target value(10g)	6.41 W/Kg	19.8 W/Kg
250 mW input power	1.539 W/Kg	4.971 W/Kg
Test value(10g)	6.156 W/Kg	19.884 W/Kg

## 8. OPERATIONAL CONDITIONS DURING TEST

### 8.1 Information on the testing

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

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

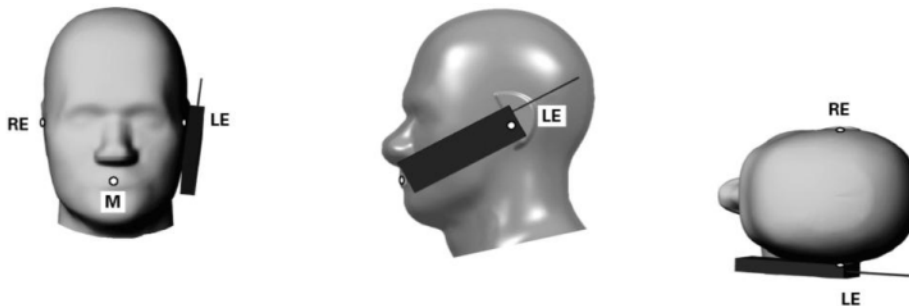


Illustration for Cheek Position

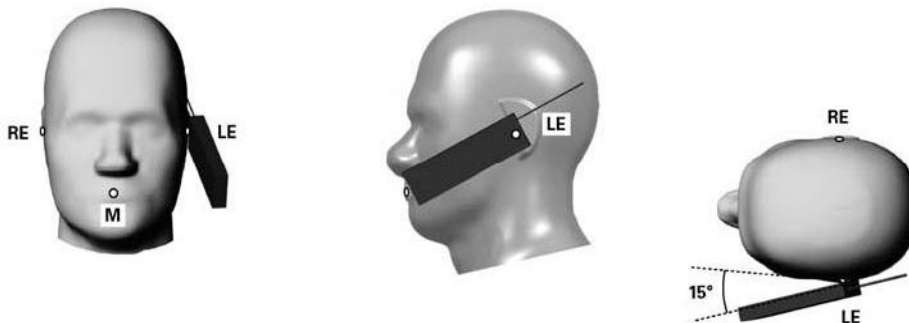


Illustration for Tilted Position

Description of the “cheek” position:

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

Description of the “tilted” position:

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

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

## 8.2 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.

## 8.3 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. TEST RESULTS LIST

### samsung galaxy s4

#### LTE Band 1(2100MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s4	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s4	18300	0.547
	Cheek/Touch	CS-chip	18300	0.136

#### LTE Band 3(1800MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s4	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s4	19575	0.419
	Cheek/Touch	CS-chip	19575	0.132

#### WCDMA Band 1(2100MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s4	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s4	9750	0.444
	Cheek/Touch	CS-chip	9750	0.069

#### WCDMA Band 5(850MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s4	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s4	4175	0.506
	Cheek/Touch	CS-chip	4175	0.084

WCDMA Band8( 900MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s4	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s4	2787	0.512
	Cheek/Touch	CS-chip	2787	0.129

samsung galaxy s5

LTE Band 1(2100MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s5	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s5	18300	0.325
	Cheek/Touch	CS-chip	18300	0.076

LTE Band 3(1800MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s5	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s5	19575	0.294
	Cheek/Touch	CS-chip	19575	0.045

WCDMA Band 1(2100MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s5	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s5	9750	0.381
	Cheek/Touch	CS-chip	9750	0.071

WCDMA Band 5(850MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s5	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s5	4175	0.512
	Cheek/Touch	CS-chip	4175	0.080

WCDMA Band8( 900MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with galaxy s5	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	samsung galaxy s5	2787	0.298
	Cheek/Touch	CS-chip	2787	0.053

HTC ONE M8

LTE Band 1(2100MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with HTC ONE M8	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	HTC ONE M8	18300	0.403
	Cheek/Touch	CS-chip	18300	0.097

LTE Band 3(1800MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with HTC ONE M8	Channel	SAR(W/Kg)
				10g
51Left Side Of Head	Cheek/Touch	HTC ONE M8	19575	0.514
	Cheek/Touch	CS-chip	19575	0.119

**WCDMA Band 1(2100MHz)**

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with HTC ONE M8	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	HTC ONE M8	9750	0.273
	Cheek/Touch	CS-chip	9750	0.097

**WCDMA Band 5(850MHz)**

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with HTC ONE M8	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	HTC ONE M8	4175	0.343
	Cheek/Touch	CS-chip	4175	0.020

**WCDMA Band 8(900MHz)**

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with HTC ONE M8	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	HTC ONE M8	2787	0.218
	Cheek/Touch	CS-chip	2787	0.017

**Blackberry 8700**
**WCDMA Band 1(2100MHz)**

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with Blackberry 8700	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	Blackberry 8700	9750	0.807
	Cheek/Touch	CS-chip	9750	0.128

## NOKIA XL

WCDMA Band 1(2100MHz)

Temperature: 21.0~23.8°C, humidity: 54~60%.				
Phantom Configurations	Device Test Positions	Accessory to be tested with NOKIA XL	Channel	SAR(W/Kg)
				10g
Left Side Of Head	Cheek/Touch	NOKIA XL	9750	0.443
	Cheek/Touch	CS-chip	9750	0.109



## ANNEX A PHOTOGRAPHS OF THE EUT

### 1. EUT Left Head Touch/Cheek Position(samsung galaxy s4)



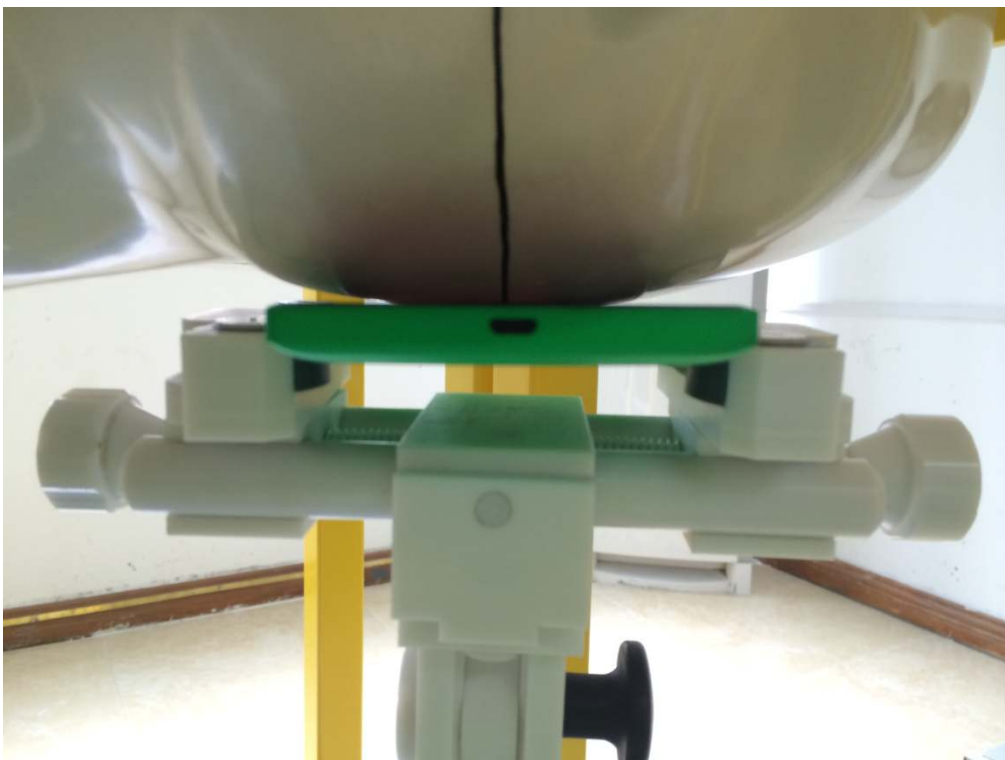
### 2. EUT Left Head Touch/Cheek Position(samsung galaxy s5)



3. ETU Left Head Touch/Cheek Position (Blackberry 8700)



4. ETU Left Head Touch/Cheek Position (NOKIA XL)



5. ETU Left Head Touch/Cheek Position (HTC ONE M8)



6. EUT Photo(samsung galaxy s4)



7. EUT Photo(samsung galaxy s5)



8. EUT Left Head Touch/Cheek Position (HTC ONE M8)



9. ETU Left Head Touch/Cheek Position (Blackberry 8700)



10. ETU Left Head Touch/Cheek Position (NOKIA XL)



Liquid Level Photo



## ANNEX B GRAPH TEST RESULTS

<b>BAND</b>	<b><u>PARAMETERS</u></b>
<b><u>LTE Band 1</u></b>	<p><u>Measurement 1:</u> Left Head with Cheek device position on Middle Channel in LTE mode (galaxy s4 test alone)</p> <p><u>Measurement 2:</u> Left Head with Cheek device position on Middle Channel in LTE mode (galaxy s4 test with CS-chip)</p>
<b><u>LTE Band 3</u></b>	<p><u>Measurement 3:</u> Left Head with Cheek device position on Middle Channel in LTE mode (galaxy s4 test alone)</p> <p><u>Measurement 4:</u> Left Head with Cheek device position on Middle Channel in LTE mode (galaxy s4 test with CS-chip)</p>
<b><u>WCDMA Band 1</u></b>	<p><u>Measurement 5:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s4 test alone)</p> <p><u>Measurement 6:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s4 test with CS-chip)</p>
<b><u>WCDMA Band 5</u></b>	<p><u>Measurement 7:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s4 test alone)</p> <p><u>Measurement 8:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s4 test with CS-chip)</p>
<b><u>WCDMA Band 8</u></b>	<p><u>Measurement 9:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s4 test alone)</p> <p><u>Measurement 10:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s4 test with CS-chip)</p>
<b><u>LTE Band 1</u></b>	<p><u>Measurement 11:</u> Left Head with Cheek device position on Middle Channel in LTE mode (galaxy s5 test alone)</p> <p><u>Measurement 12:</u> Left Head with Cheek device position on Middle Channel in LTE mode (galaxy s5 test with CS-chip)</p>
<b><u>LTE Band 3</u></b>	<p><u>Measurement 13:</u> Left Head with Cheek device position on Middle Channel in LTE mode (galaxy s5 test alone)</p> <p><u>Measurement 14:</u> Left Head with Cheek device position on Middle Channel in LTE mode (galaxy s5 test with CS-chip)</p>
<b><u>WCDMA Band 1</u></b>	<p><u>Measurement 15:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s5 test alone)</p> <p><u>Measurement 16:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s5 test with CS-chip)</p>
<b><u>WCDMA Band 5</u></b>	<p><u>Measurement 17:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s5 test alone)</p> <p><u>Measurement 18:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s5 test with CS-chip)</p>

<p><b><u>WCDMA</u></b> <b><u>Band 8</u></b></p>	<p><u>Measurement 19:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s5 test alone) <u>Measurement 20:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (galaxy s5 test with CS-chip)</p>
<p><b><u>LTE Band 1</u></b></p>	<p><u>Measurement 21:</u> Left Head with Cheek device position on Middle Channel in LTE mode (HTC ONE M8 test alone) <u>Measurement 22:</u> Left Head with Cheek device position on Middle Channel in LTE mode (HTC ONE M8 test with CS-chip)</p>
<p><b><u>LTE Band 3</u></b></p>	<p><u>Measurement 23:</u>Left Head with Cheek device position on Middle Channel in LTE mode (HTC ONE M8 test alone) <u>Measurement 24:</u> Left Head with Cheek device position on Middle Channel in LTE mode (HTC ONE M8 test with CS-chip)</p>
<p><b><u>WCDMA</u></b> <b><u>Band 1</u></b></p>	<p><u>Measurement 25:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (HTC ONE M8 test alone) <u>Measurement 26:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (HTC ONE M8 test with CS-chip)</p>
<p><b><u>WCDMA</u></b> <b><u>Band 5</u></b></p>	<p><u>Measurement 27:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (HTC ONE M8 test alone) <u>Measurement 28:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (HTC ONE M8 test with CS-chip)</p>
<p><b><u>WCDMA</u></b> <b><u>Band 8</u></b></p>	<p><u>Measurement 29:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (HTC ONE M8 test alone) <u>Measurement 30:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (HTC ONE M8 test with CS-chip)</p>
<p><b><u>WCDMA</u></b> <b><u>Band 1</u></b></p>	<p><u>Measurement 31:</u>Left Head with Cheek device position on Middle Channel in LTE mode (Blackberry 8700 test alone) <u>Measurement 32:</u> Left Head with Cheek device position on Middle Channel in LTE mode (Blackberry 8700 test with CS-chip)</p>
<p><b><u>WCDMA</u></b> <b><u>Band 1</u></b></p>	<p><u>Measurement 33:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (NOKIA XL test alone) <u>Measurement 34:</u> Left Head with Cheek device position on Middle Channel in WCDMA mode (NOKIA XL test with CS-chip)</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: 2014.7.2

Measurement duration: 7 minutes 59 seconds

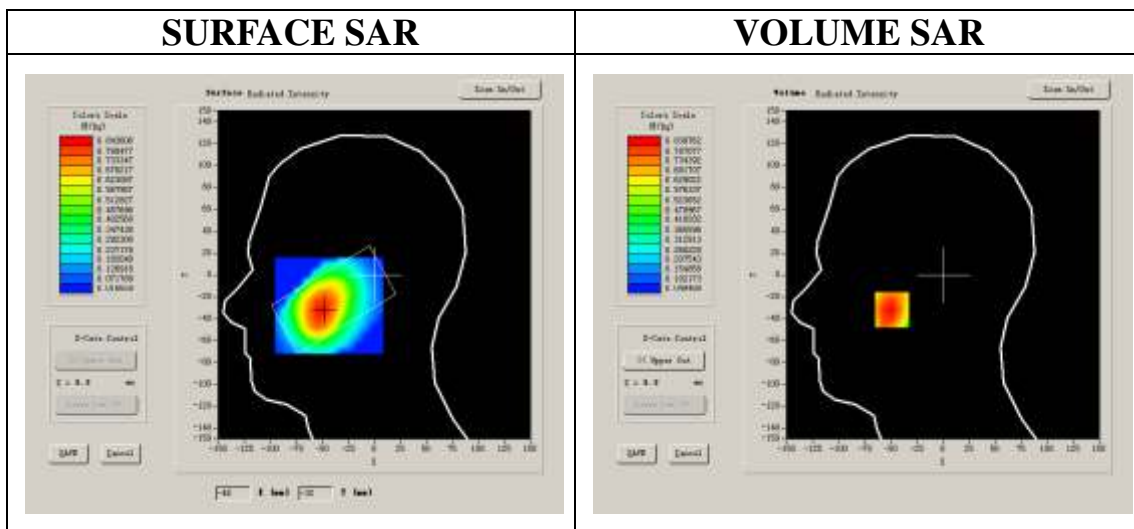
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 1
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

Middle Band SAR (Channel 18300):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.410000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



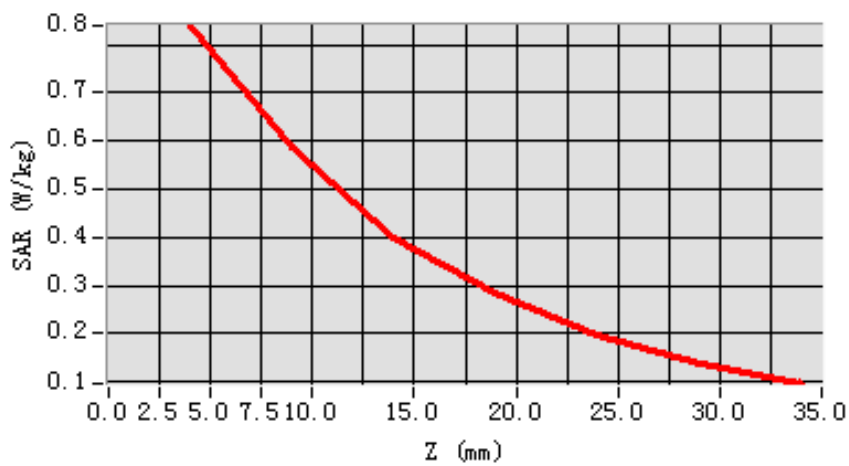
Maximum location: X=-49.00, Y=-32.00

SAR 10g (W/Kg)	0.547352
SAR 1g (W/Kg)	0.802479

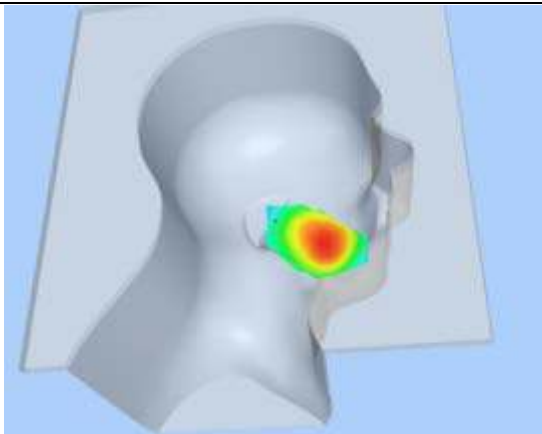
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.8398	0.5867	0.4003	0.2822	0.1948	0.1368

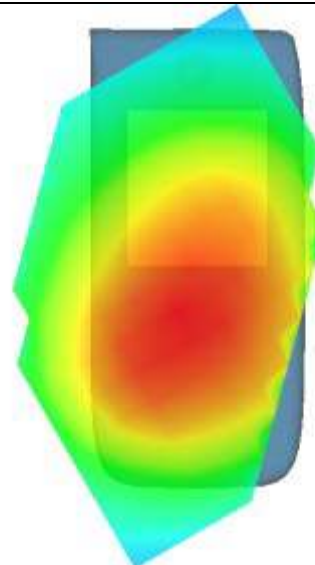
SAR, Z Axis Scan (X = -49, Y = -32)



3D scen shot



Hot spot position



**MEASUREMENT 2**

Type: Phone measurement (Complete)

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

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

Date of measurement: 2014.7.2

Measurement duration: 7 minutes 41 seconds

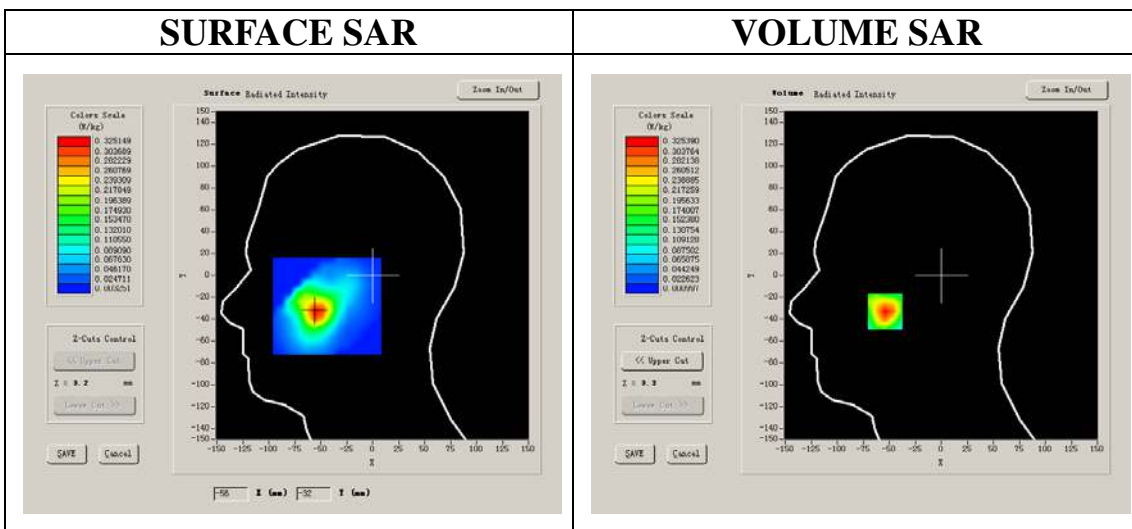
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 1
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

Middle Band SAR (Channel 18300):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.590000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



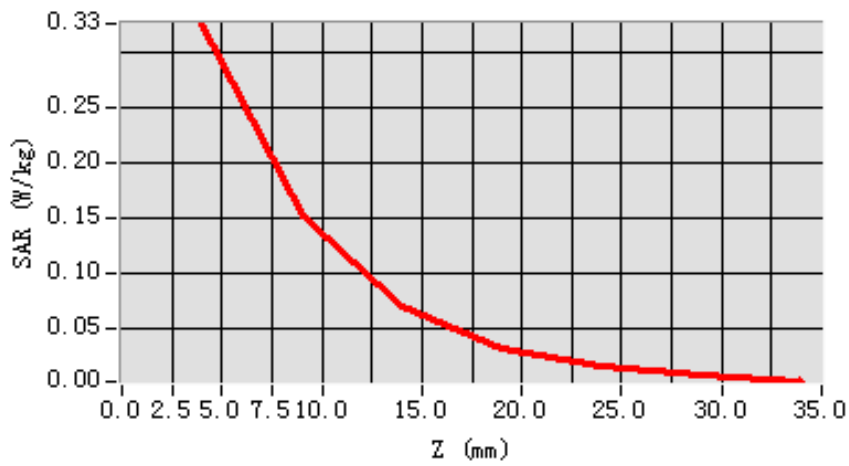
**Maximum location: X=-54.00, Y=-33.00**

<b>SAR 10g (W/Kg)</b>	0.136438
<b>SAR 1g (W/Kg)</b>	0.309196

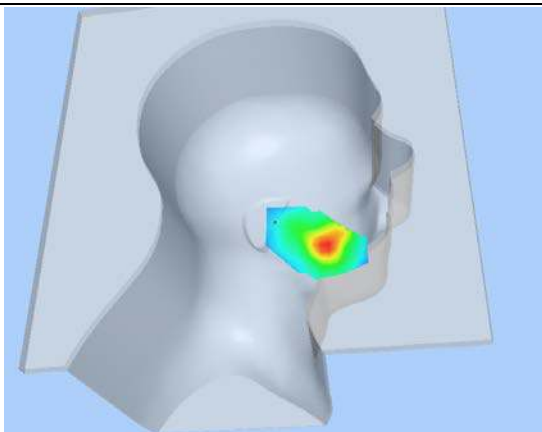
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.3254</b>	<b>0.1526</b>	<b>0.0703</b>	<b>0.0314</b>	<b>0.0153</b>	<b>0.0083</b>

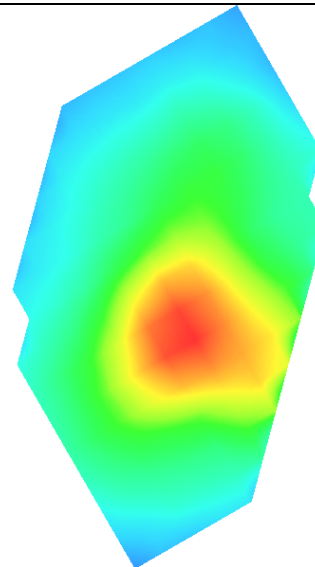
**SAR, Z Axis Scan (X = -54, Y = -33)**



**3D scene 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: 2014.7.2

Measurement duration: 7 minutes 59 seconds

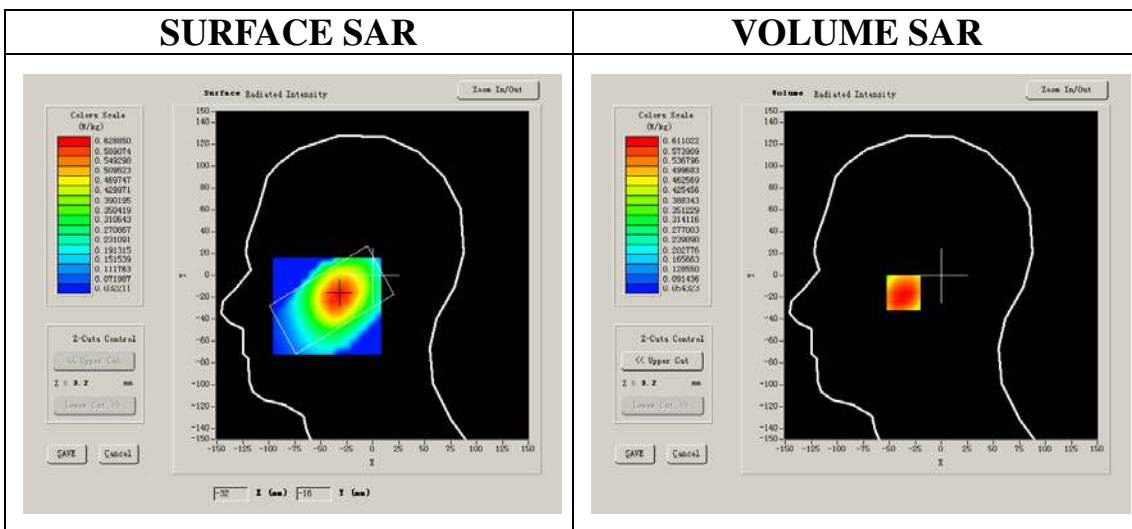
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 3
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

Middle Band SAR (Channel 19575):

<b>Frequency (MHz)</b>	1747.500000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.410000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1

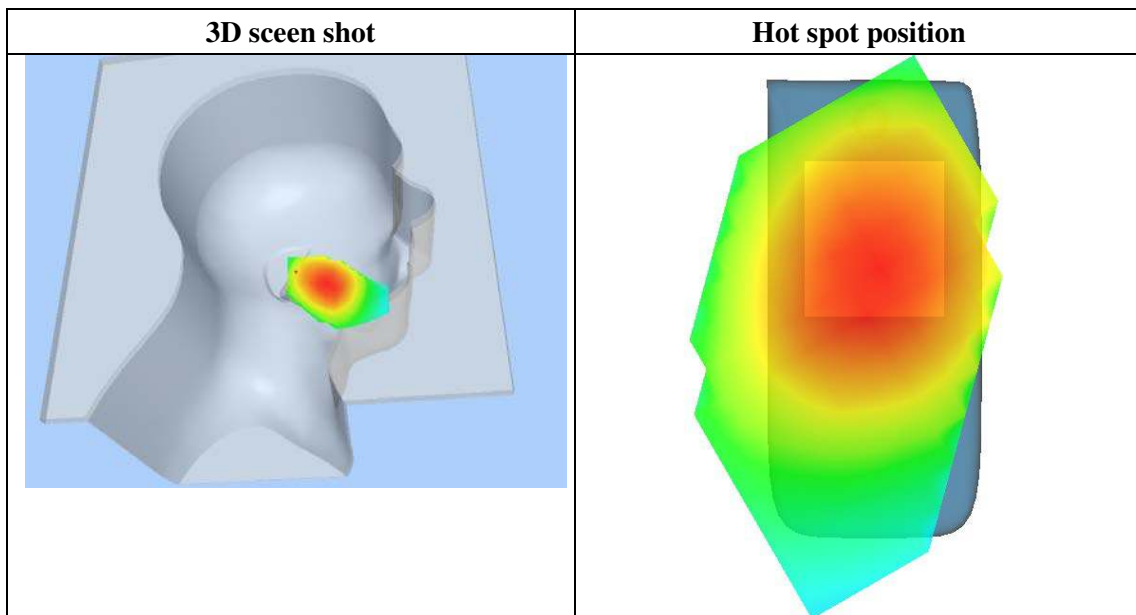
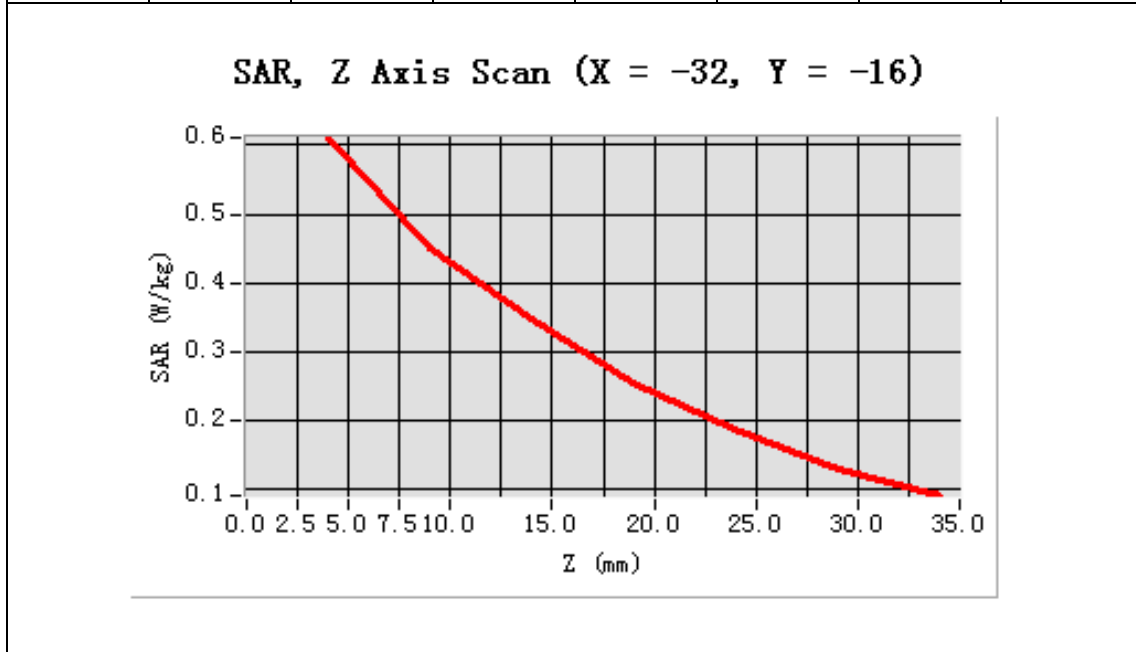


**Maximum location: X=-32.00, Y=-16.00**

<b>SAR 10g (W/Kg)</b>	0.419347
<b>SAR 1g (W/Kg)</b>	0.594912

**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.6110</b>	<b>0.4499</b>	<b>0.3460</b>	<b>0.2535</b>	<b>0.1855</b>	<b>0.1291</b>



**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: 2014.7.2

Measurement duration: 7 minutes 41 seconds

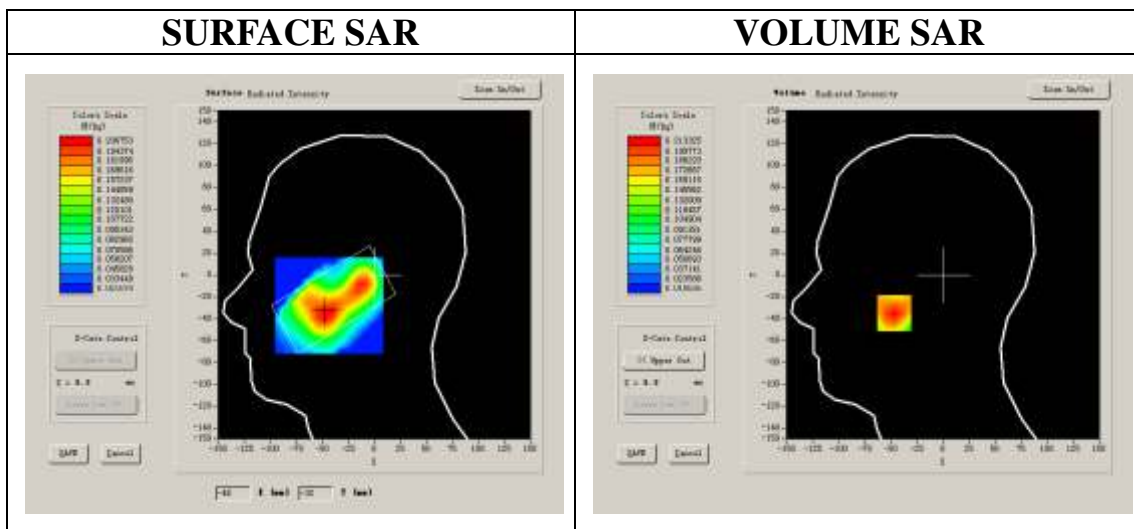
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 3
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

Middle Band SAR (Channel 19575):

<b>Frequency (MHz)</b>	1747.500000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.590000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



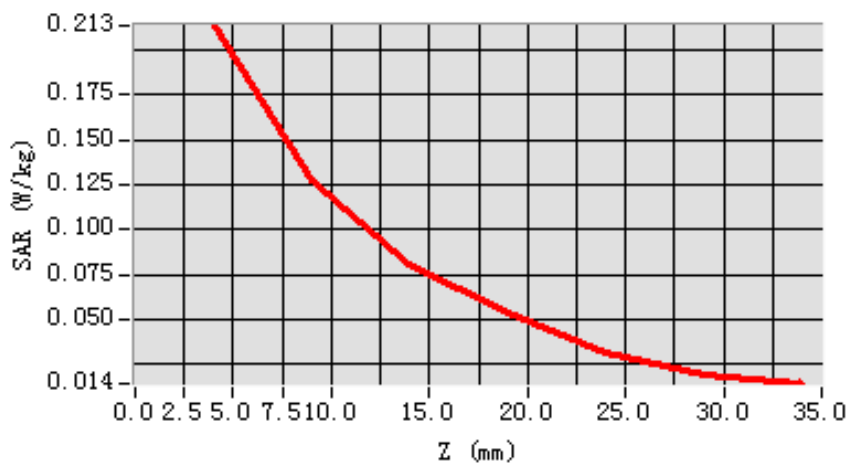
Maximum location: X=-47.00, Y=-35.00

<b>SAR 10g (W/Kg)</b>	0.132184
<b>SAR 1g (W/Kg)</b>	0.204286

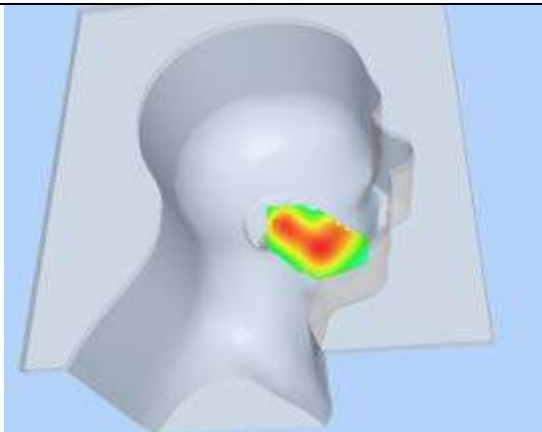
### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.2133</b>	<b>0.1279</b>	<b>0.0808</b>	<b>0.0533</b>	<b>0.0320</b>	<b>0.0197</b>

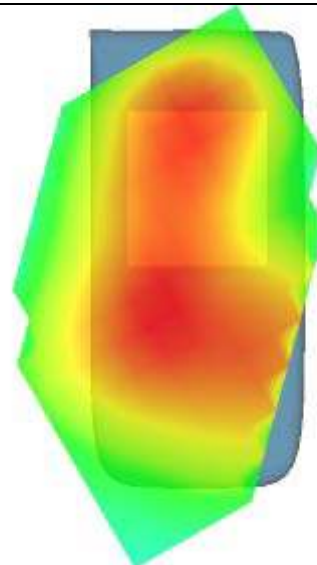
SAR, Z Axis Scan (X = -47, Y = -35)



3D scene 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: 2014.7.2  
 Measurement duration: 8 minutes 51 seconds

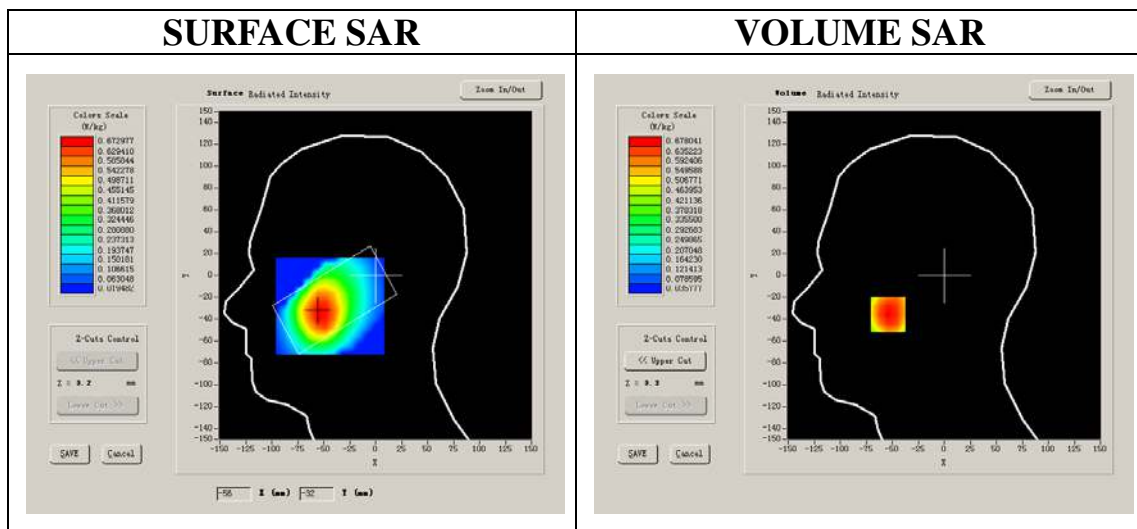
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-1.170000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



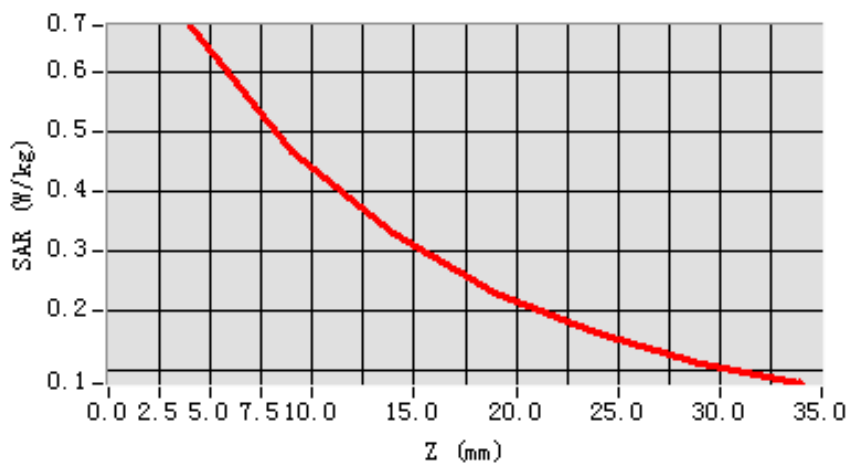
Maximum location: X=-54.00, Y=-36.00

SAR 10g (W/Kg)	0.443713
SAR 1g (W/Kg)	0.656091

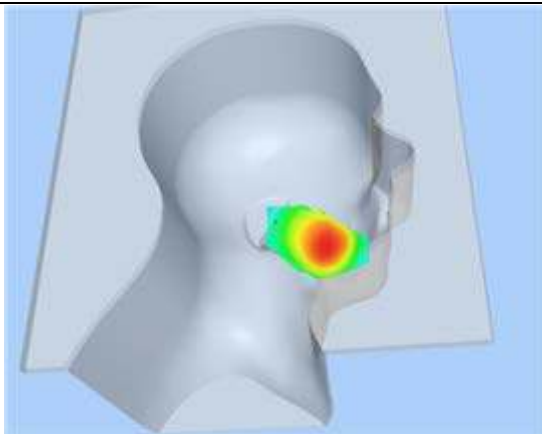
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.6780	0.4687	0.3310	0.2289	0.1640	0.1127

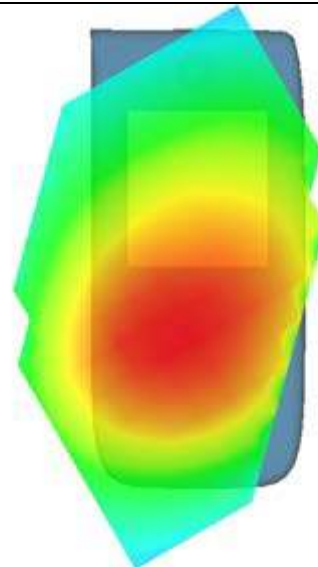
SAR, Z Axis Scan (X = -54, Y = -36)



3D scen shot



Hot spot position



**MEASUREMENT 6**

Type: Phone measurement (Complete)

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

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

Date of measurement: 2014.7.2

Measurement duration: 8 minutes 22 seconds

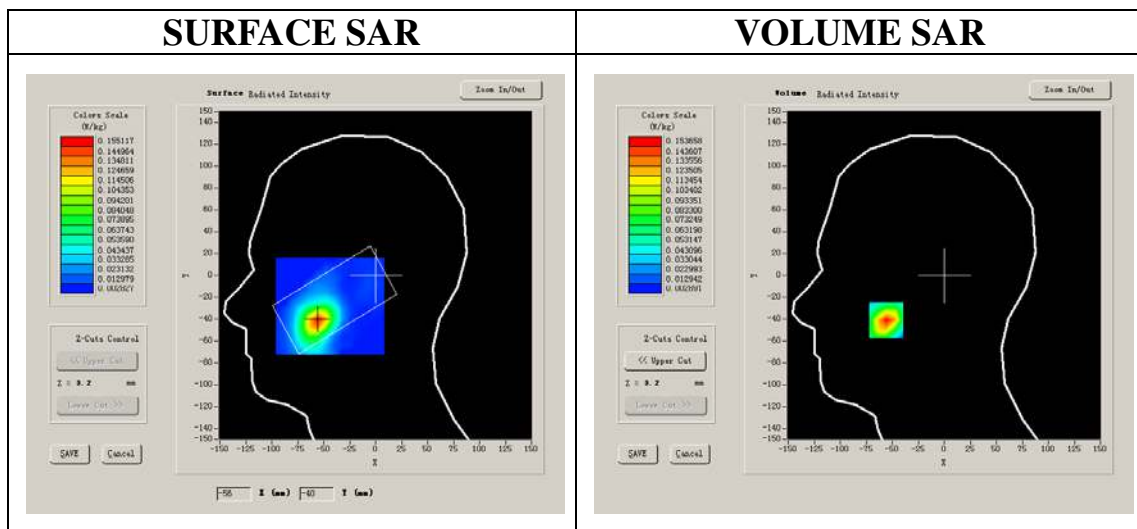
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-0.390000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



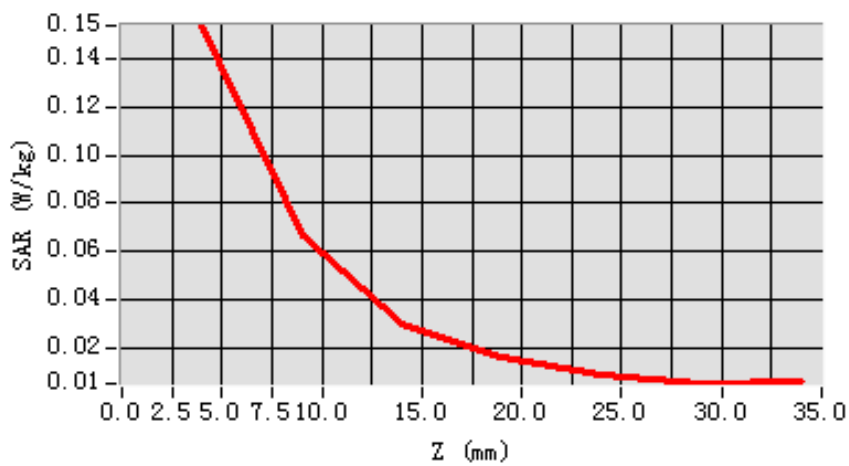
Maximum location: X=-56.00, Y=-41.00

SAR 10g (W/Kg)	0.069259
SAR 1g (W/Kg)	0.143478

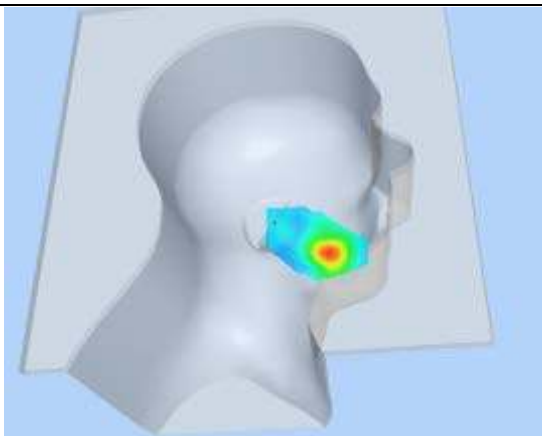
### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1537	0.0668	0.0299	0.0165	0.0094	0.0054

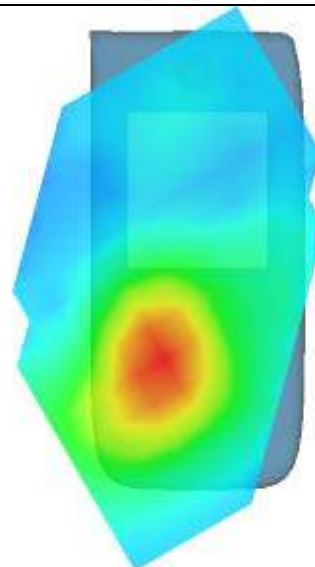
SAR, Z Axis Scan (X = -56, Y = -41)



3D scen shot



Hot spot position



**MEASUREMENT 7**

Type: Phone measurement (Complete)

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

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

Date of measurement: 2014.7.2

Measurement duration: 8 minutes 4 seconds

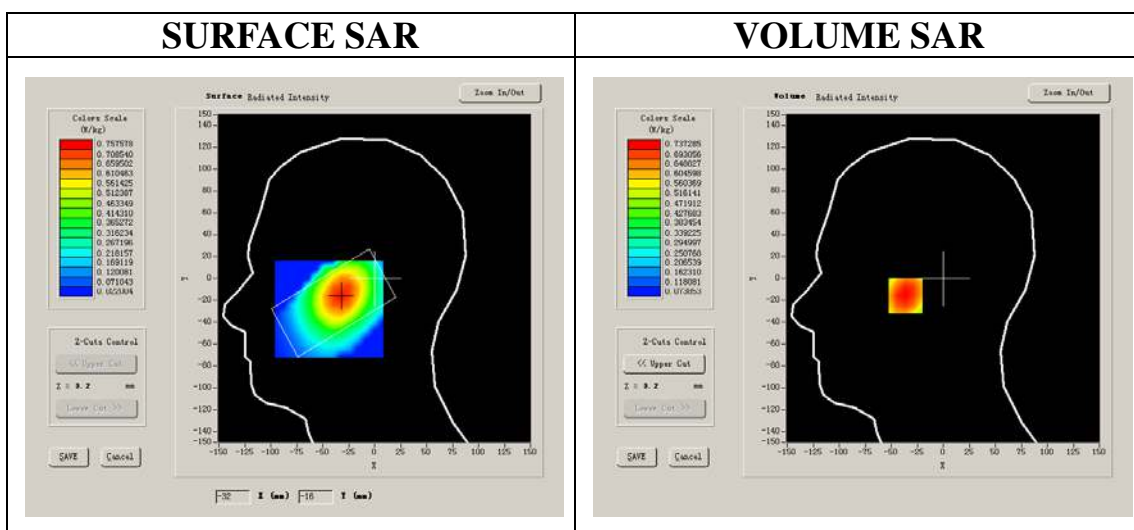
**A. Experimental conditions.**

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

**B. SAR Measurement Results**

Middle Band SAR (Channel 4175):

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	39.910000
<b>Conductivity (S/m)</b>	0.409395
<b>Power drift (%)</b>	0.850000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	22.8°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1



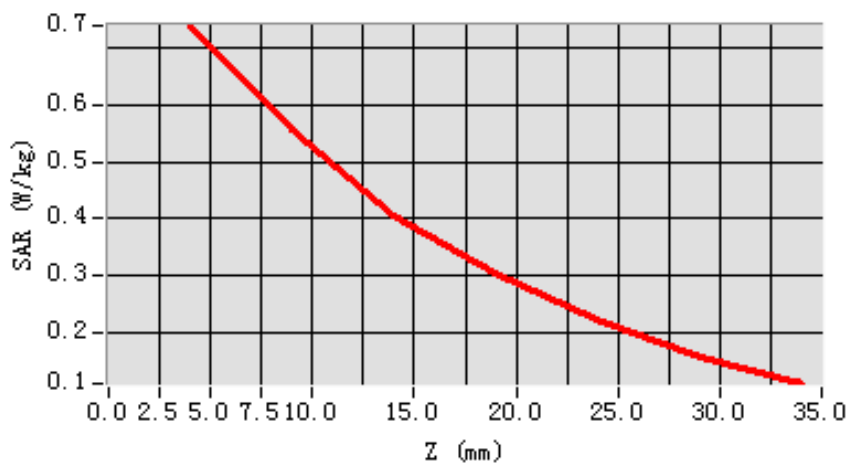
Maximum location: X=-32.00, Y=-16.00

SAR 10g (W/Kg)	0.505633
SAR 1g (W/Kg)	0.714773

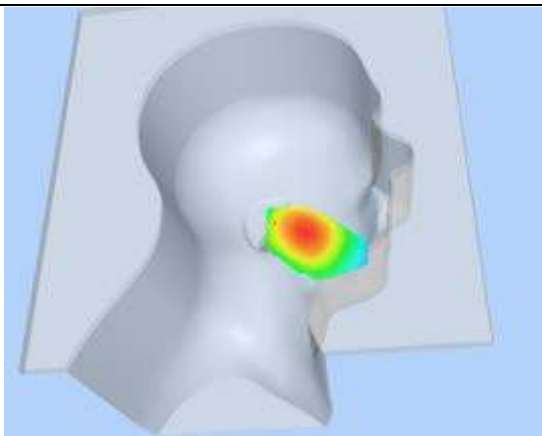
### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.7373	0.5576	0.4070	0.3059	0.2264	0.1605

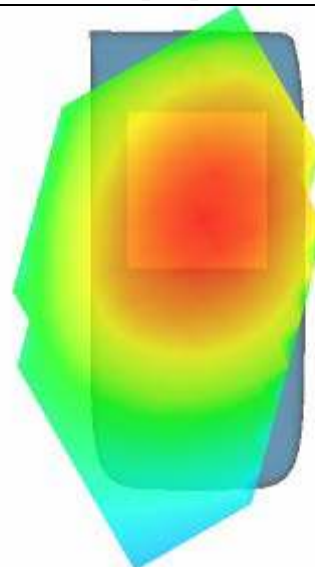
SAR, Z Axis Scan (X = -32, Y = -16)



3D scen shot



Hot spot position



**MEASUREMENT 8**

Type: Phone measurement (Complete)

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

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

Date of measurement: 2014.7.2

Measurement duration: 7 minutes 31 seconds

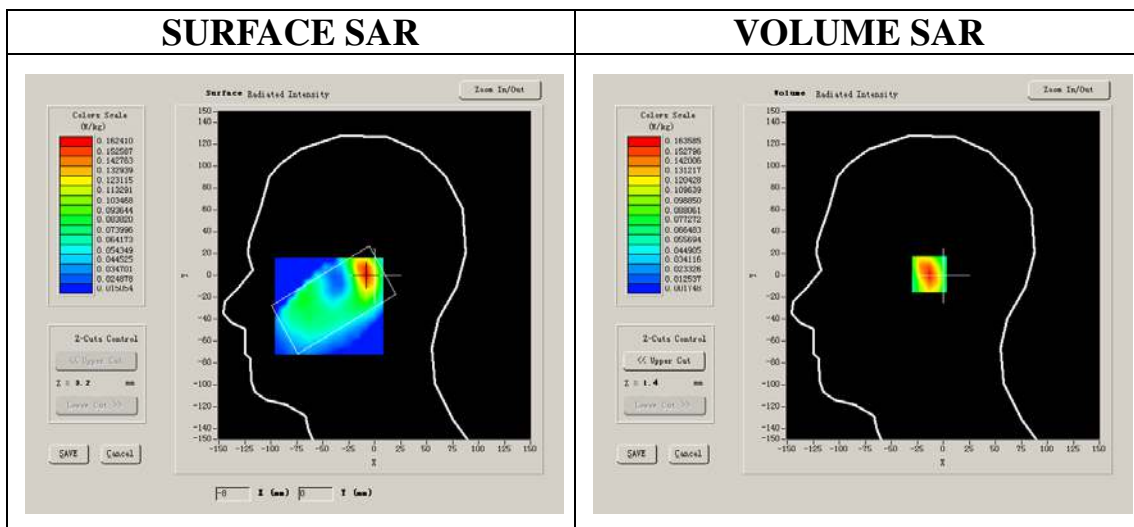
**A. Experimental conditions.**

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

**B. SAR Measurement Results**

Middle Band SAR (Channel 4175):

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	39.910000
<b>Conductivity (S/m)</b>	0.409395
<b>Power drift (%)</b>	1.070000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	22.8°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1

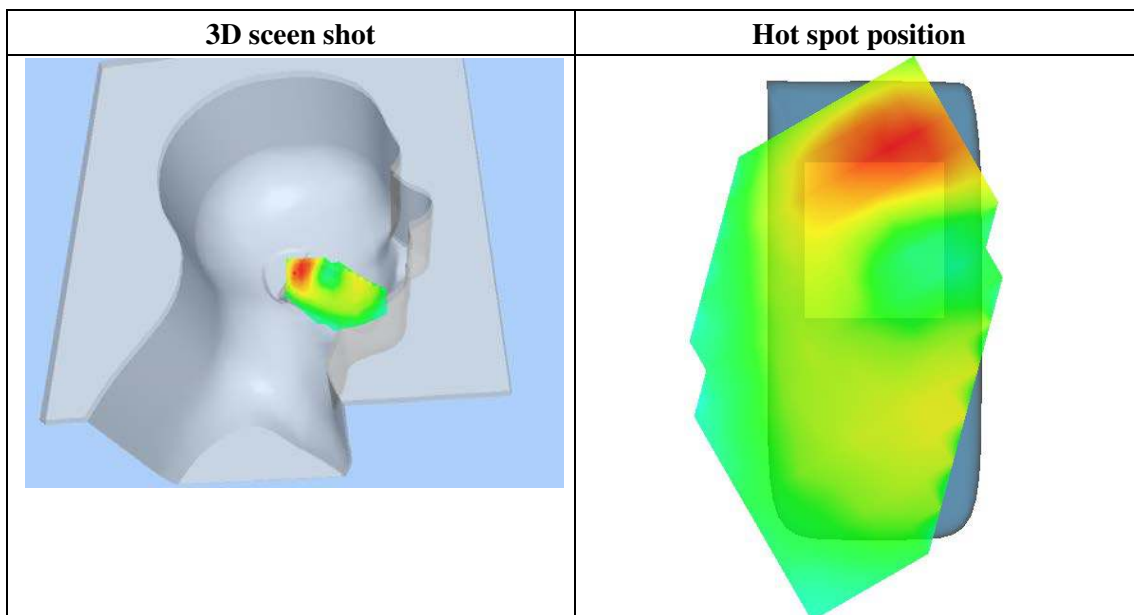
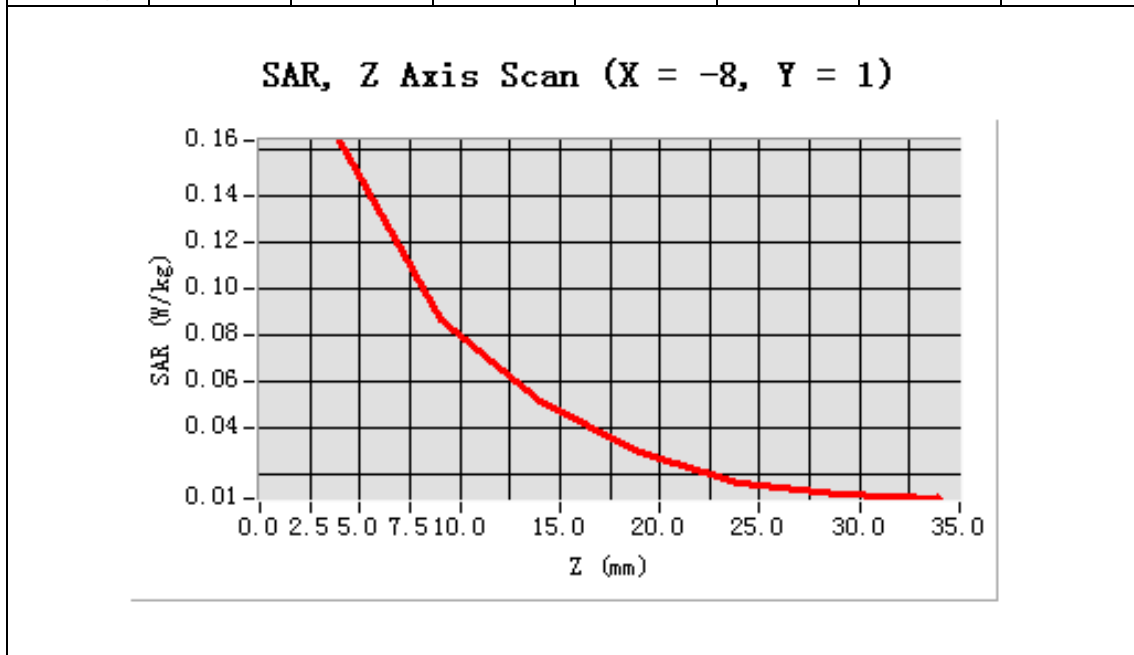


**Maximum location: X=-8.00, Y=1.00**

<b>SAR 10g (W/Kg)</b>	0.084091
<b>SAR 1g (W/Kg)</b>	0.151915

**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	0.1636	0.0868	0.0513	0.0292	0.0161	0.0118





**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: 2014.7.2

Measurement duration: 8 minutes 4 seconds

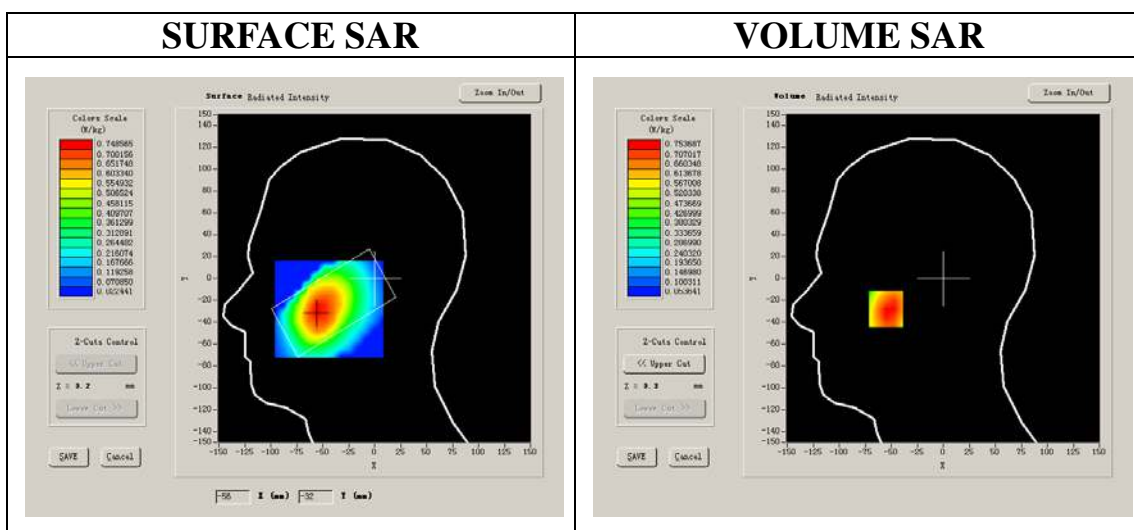
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA900
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 2787):

<b>Frequency (MHz)</b>	897.000000
<b>Relative permittivity (real part)</b>	39.910000
<b>Conductivity (S/m)</b>	0.409395
<b>Power drift (%)</b>	0.850000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	22.8°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1



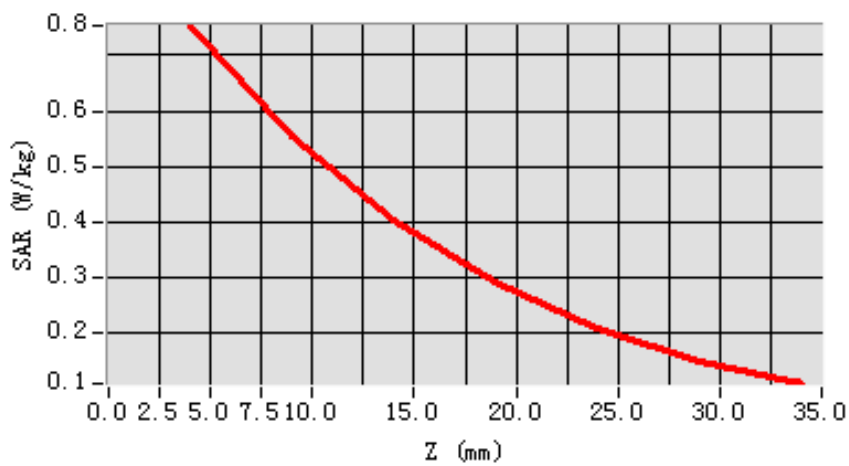
Maximum location: X=-55.00, Y=-28.00

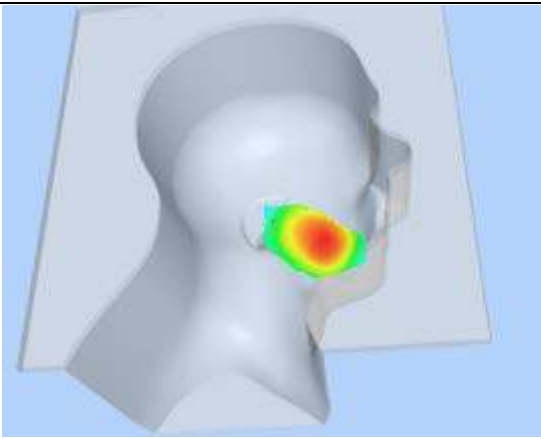
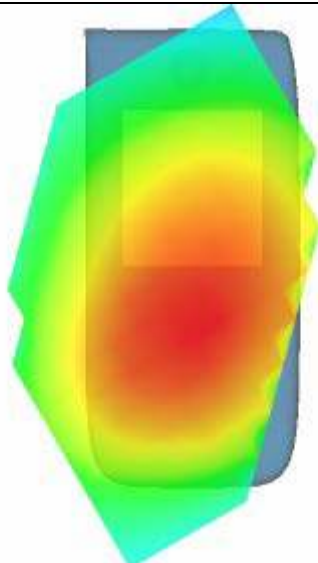
SAR 10g (W/Kg)	0.511646
SAR 1g (W/Kg)	0.732492

**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.7537	0.5528	0.4046	0.2895	0.2092	0.1491

SAR, Z Axis Scan (X = -55, Y = -28)



<p style="text-align: center;"><b>3D scen shot</b></p> 	<p style="text-align: center;"><b>Hot spot position</b></p> 
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**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: 2014.7.2

Measurement duration: 7 minutes 31 seconds

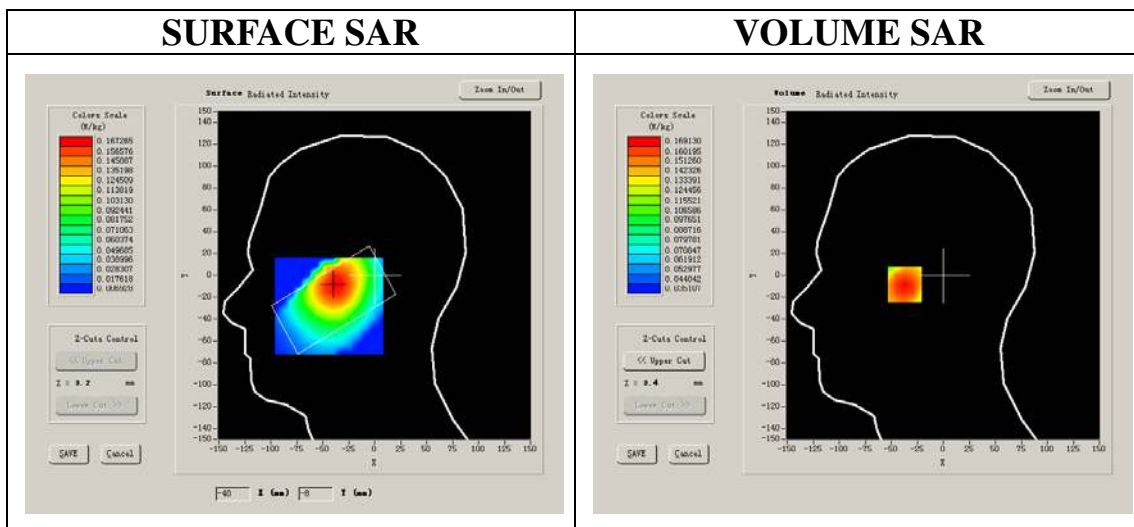
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA900
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 2787):

<b>Frequency (MHz)</b>	897.000000
<b>Relative permittivity (real part)</b>	39.910000
<b>Conductivity (S/m)</b>	0.409395
<b>Power drift (%)</b>	1.070000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	22.8°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1

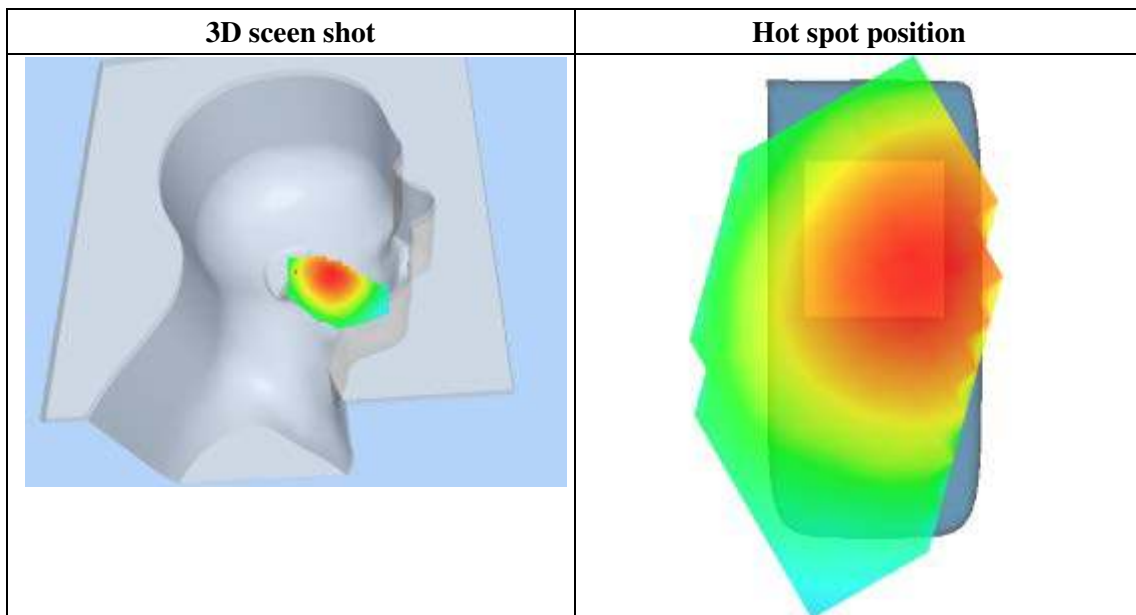
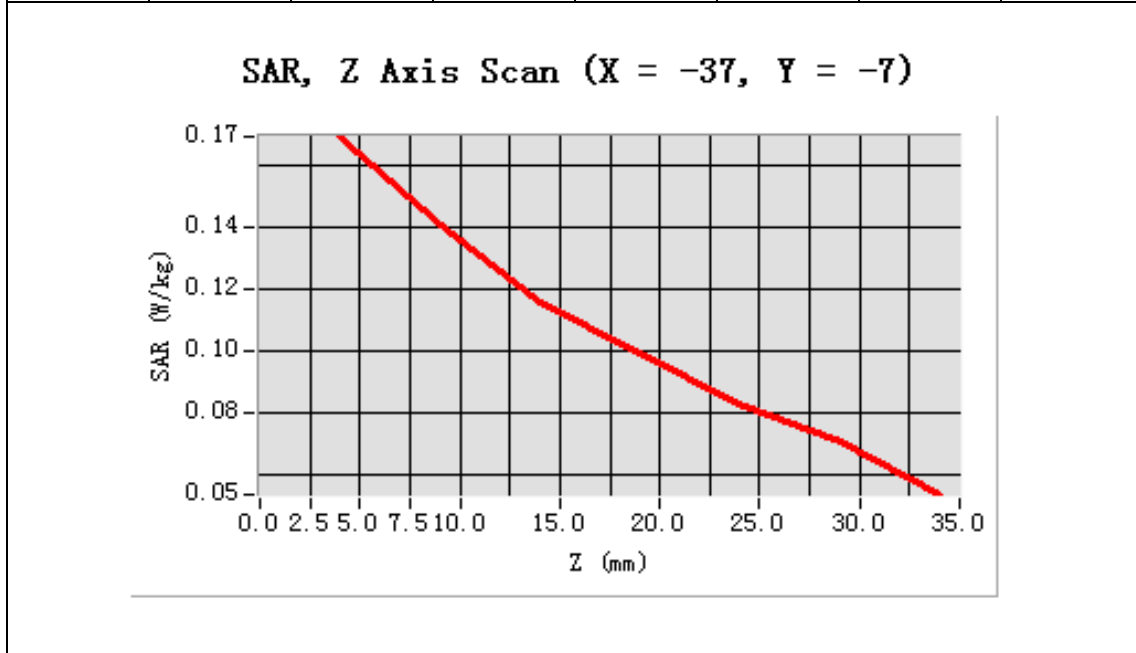


**Maximum location: X=-37.00, Y=-7.00**

<b>SAR 10g (W/Kg)</b>	0.129459
<b>SAR 1g (W/Kg)</b>	0.164045

**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.1691</b>	<b>0.1406</b>	<b>0.1159</b>	<b>0.0991</b>	<b>0.0830</b>	<b>0.0708</b>



**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: 2014.7.2

Measurement duration: 7 minutes 59 seconds

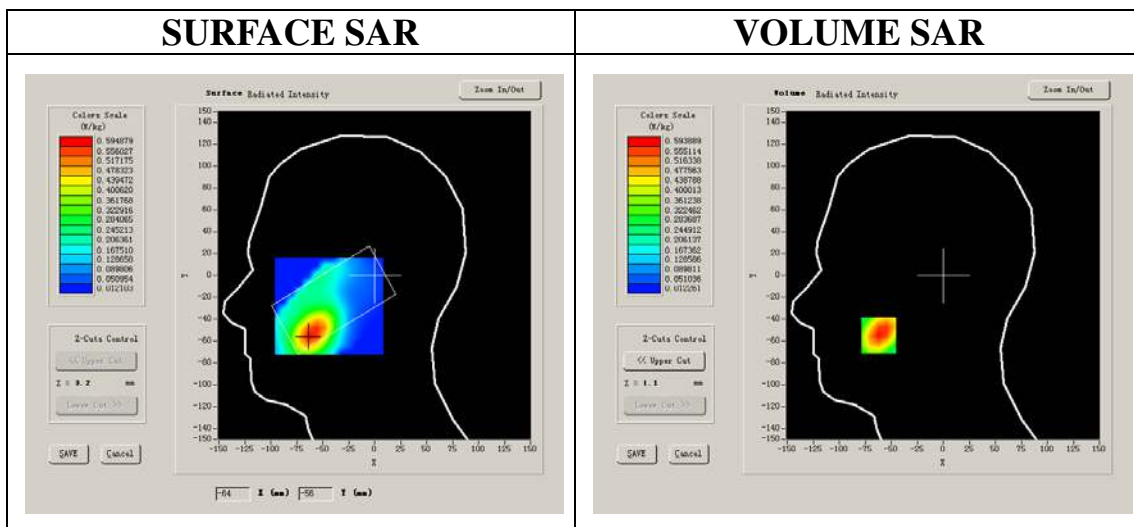
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 1
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

Middle Band SAR (Channel 18300):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.410000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



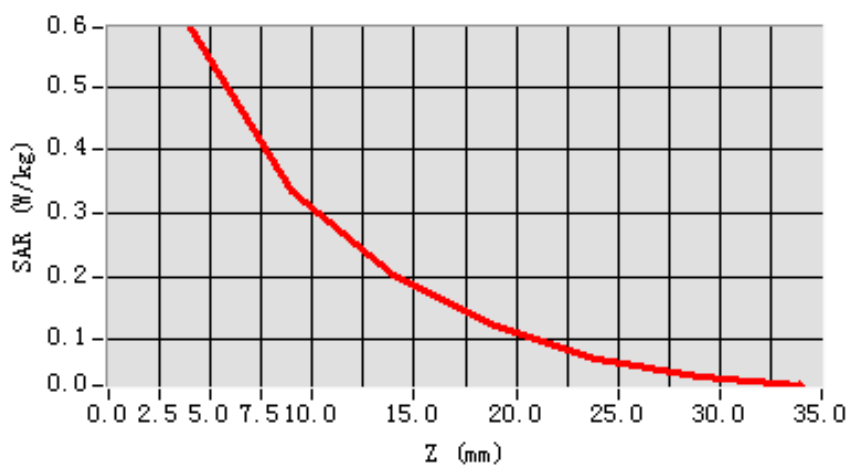
Maximum location: X=-62.00, Y=-55.00

SAR 10g (W/Kg)	0.324533
SAR 1g (W/Kg)	0.572348

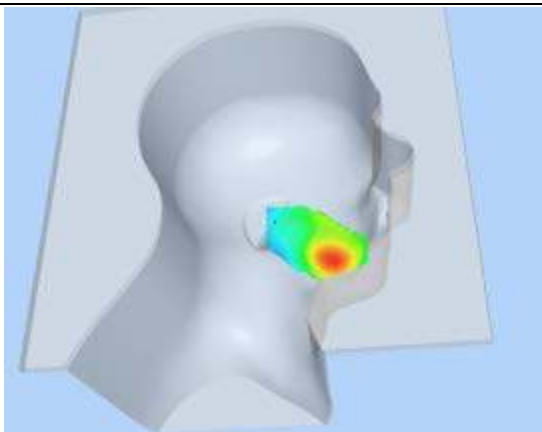
### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5939	0.3354	0.2028	0.1209	0.0694	0.0420

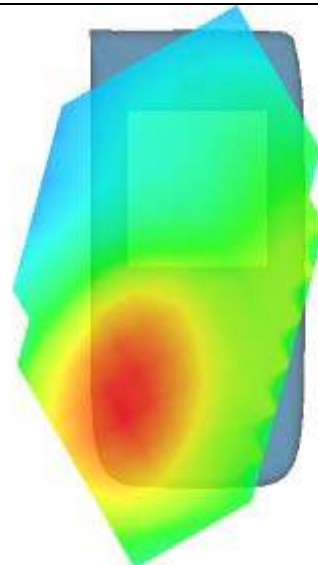
SAR, Z Axis Scan (X = -62, Y = -55)



3D scene 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: 2014.7.2

Measurement duration: 7 minutes 41 seconds

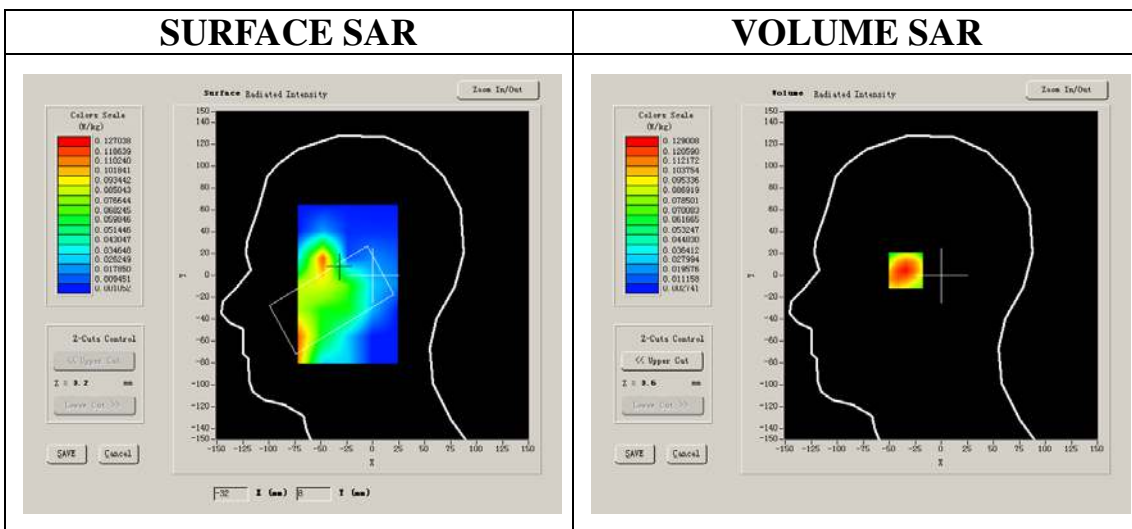
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 1
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

Middle Band SAR (Channel 18300):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.590000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1

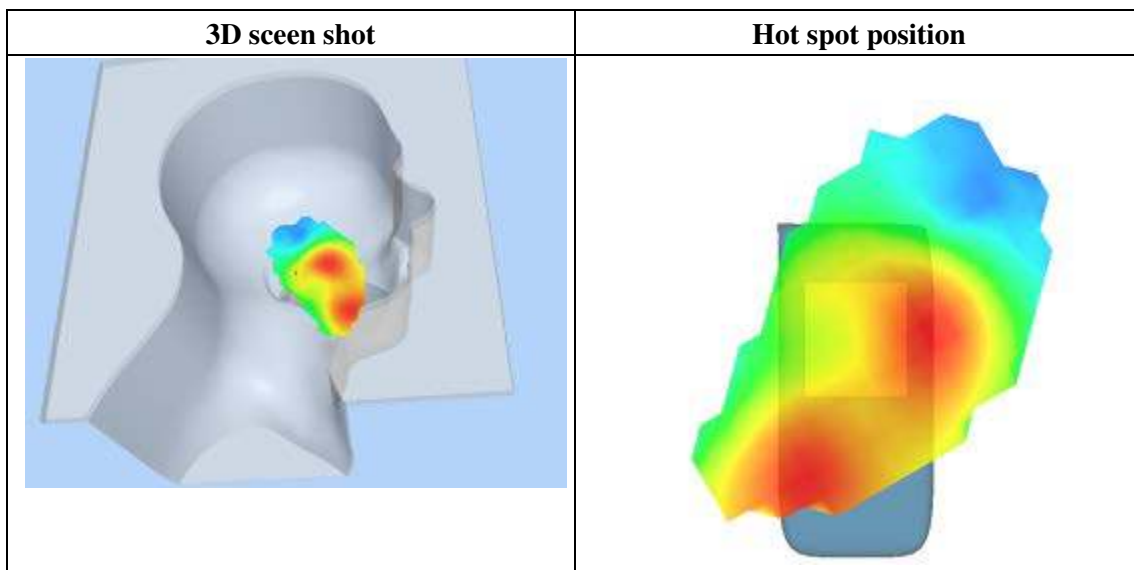
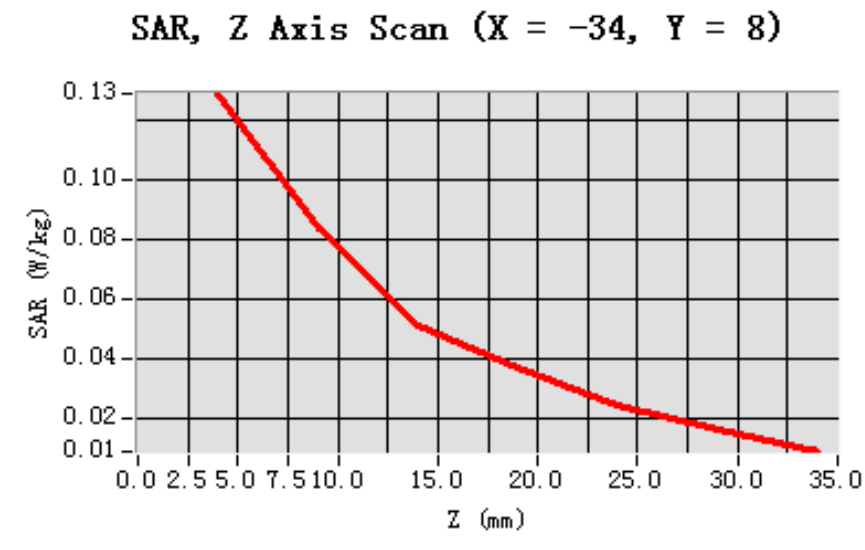


Maximum location: X=-34.00, Y=8.00

SAR 10g (W/Kg)	0.075875
SAR 1g (W/Kg)	0.123881

### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1290	0.0833	0.0509	0.0366	0.0240	0.0158





**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: 2014.7.2

Measurement duration: 7 minutes 59 seconds

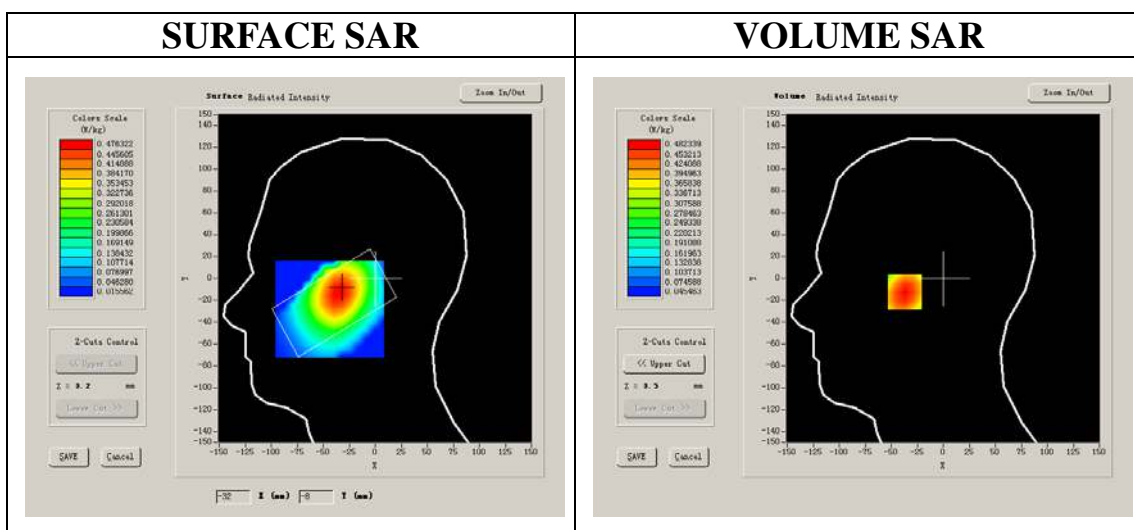
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 3
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

Middle Band SAR (Channel 19575):

<b>Frequency (MHz)</b>	1747.500000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.410000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



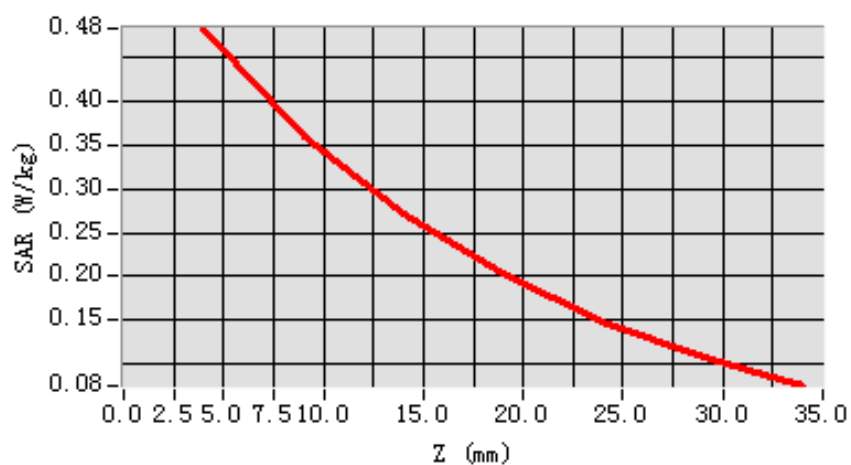
Maximum location: X=-35.00, Y=-12.00

SAR 10g (W/Kg)	0.294053
SAR 1g (W/Kg)	0.414982

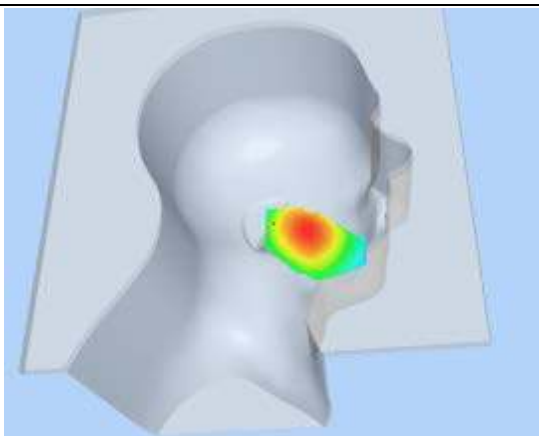
### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4823	0.3589	0.2715	0.2034	0.1488	0.1071

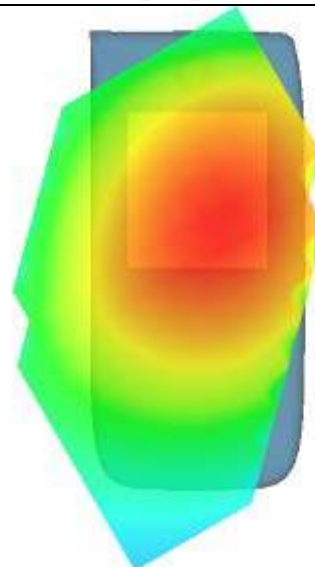
SAR, Z Axis Scan (X = -35, Y = -12)



3D scen shot



Hot spot position



**MEASUREMENT 14**

Type: Phone measurement (Complete)

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

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

Date of measurement: 2014.7.2

Measurement duration: 7 minutes 41 seconds

**A. Experimental conditions.**

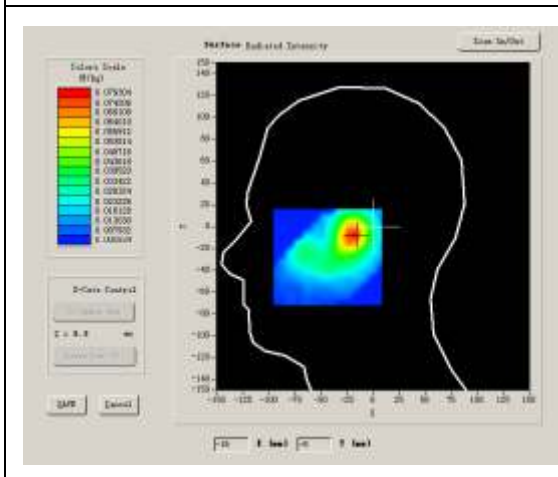
<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 3
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

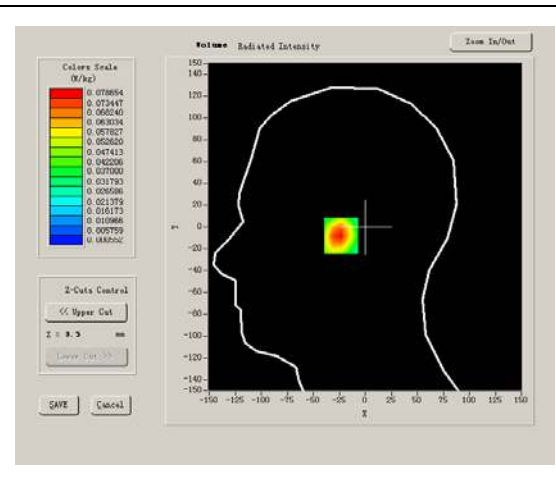
Middle Band SAR (Channel 19575):

<b>Frequency (MHz)</b>	1747.500000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.590000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1

**SURFACE SAR**



**VOLUME SAR**

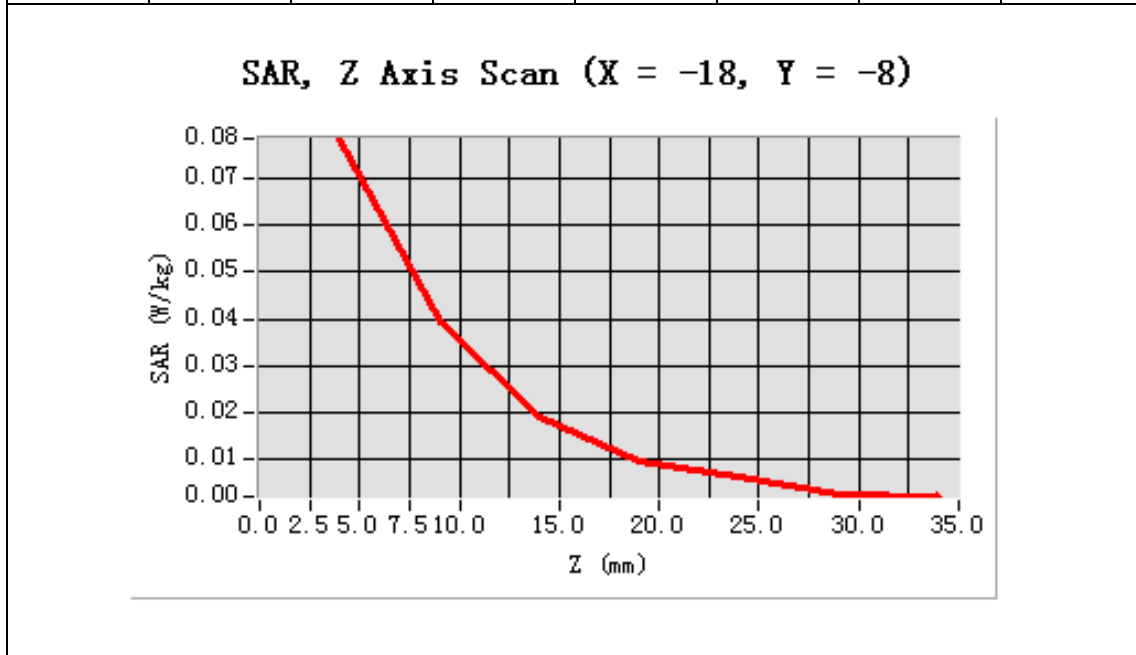


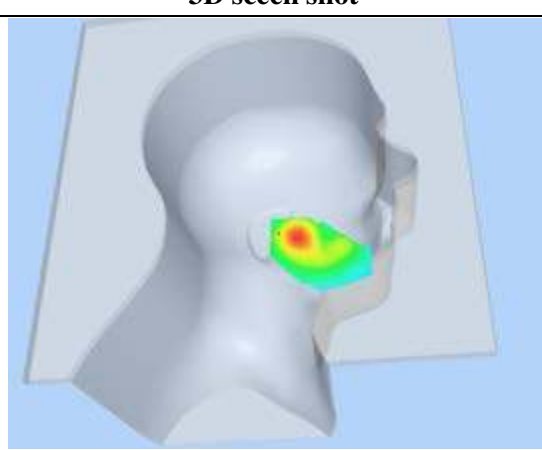
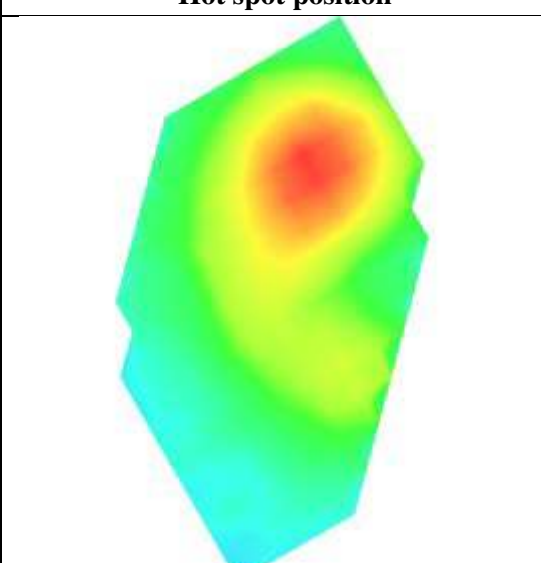
**Maximum location: X=-18.00, Y=-8.00**

<b>SAR 10g (W/Kg)</b>	0.045014
<b>SAR 1g (W/Kg)</b>	0.075255

**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.0787</b>	<b>0.0391</b>	<b>0.0190</b>	<b>0.0096</b>	<b>0.0064</b>	<b>0.0025</b>



<b>3D scene shot</b>	<b>Hot spot position</b>
	

**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: 2014.7.2

Measurement duration: 8 minutes 51 seconds

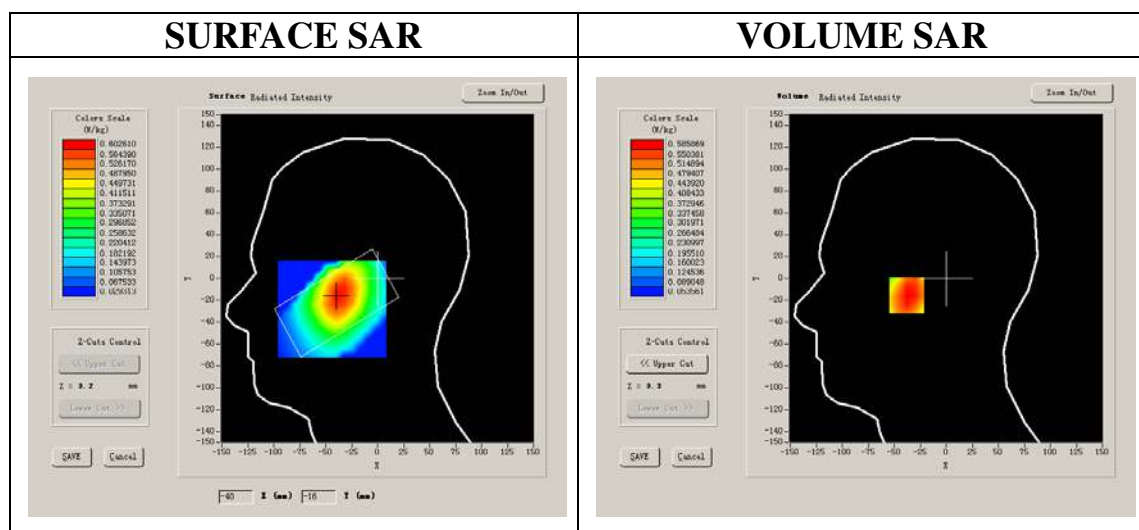
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-1.170000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1

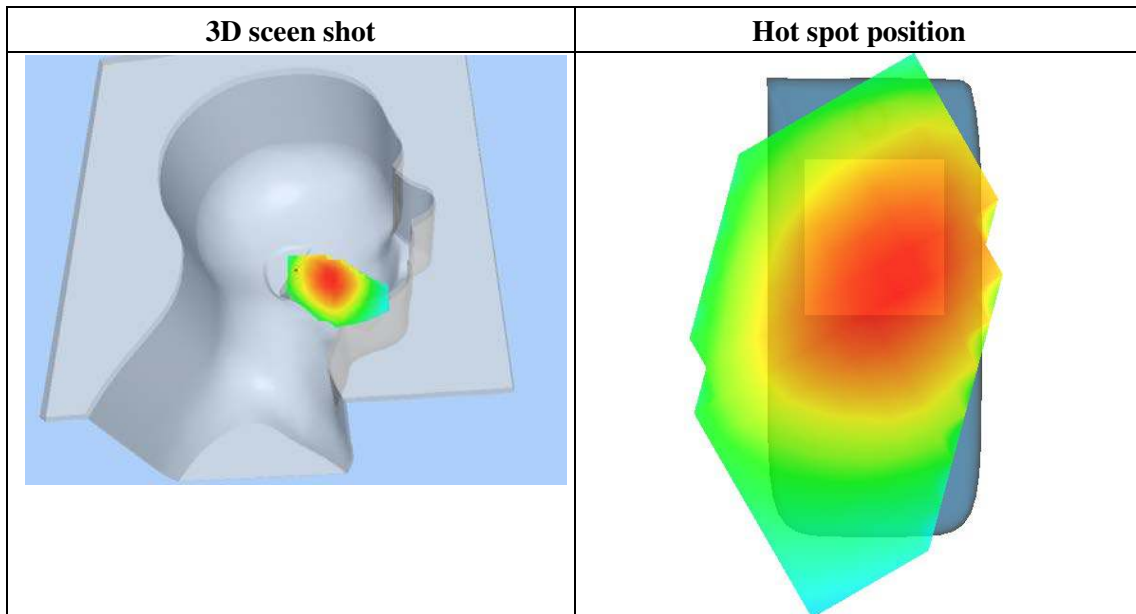
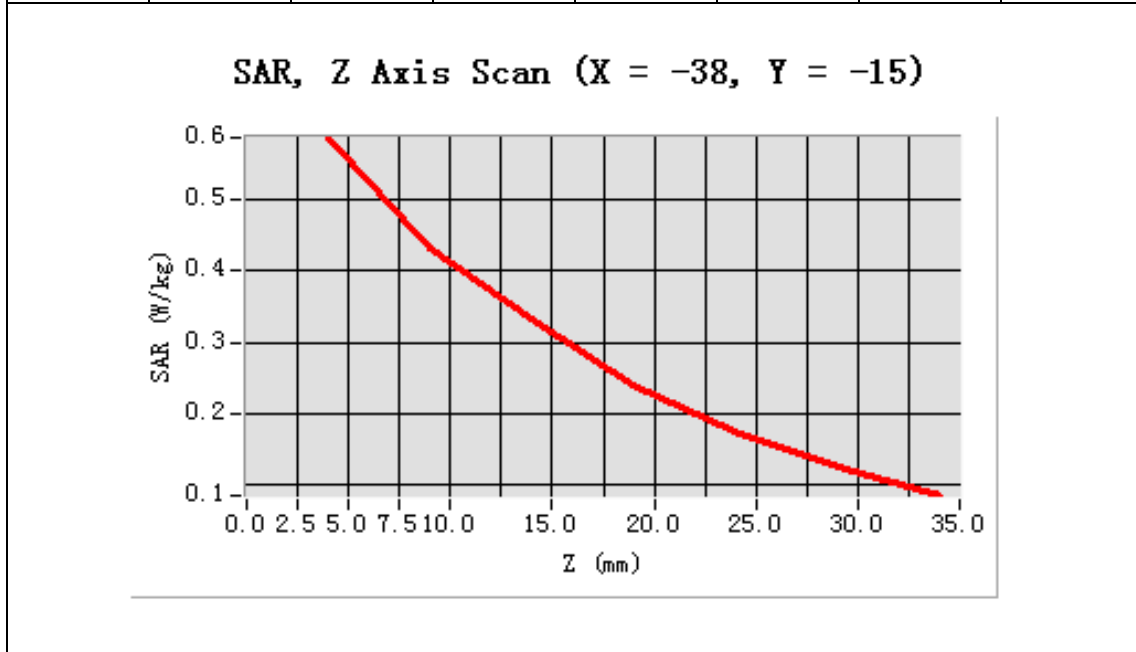


Maximum location: X=-38.00, Y=-15.00

SAR 10g (W/Kg)	0.380644
SAR 1g (W/Kg)	0.557202

**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5859	0.4320	0.3336	0.2406	0.1753	0.1256



**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: 2014.7.2

Measurement duration: 8 minutes 22 seconds

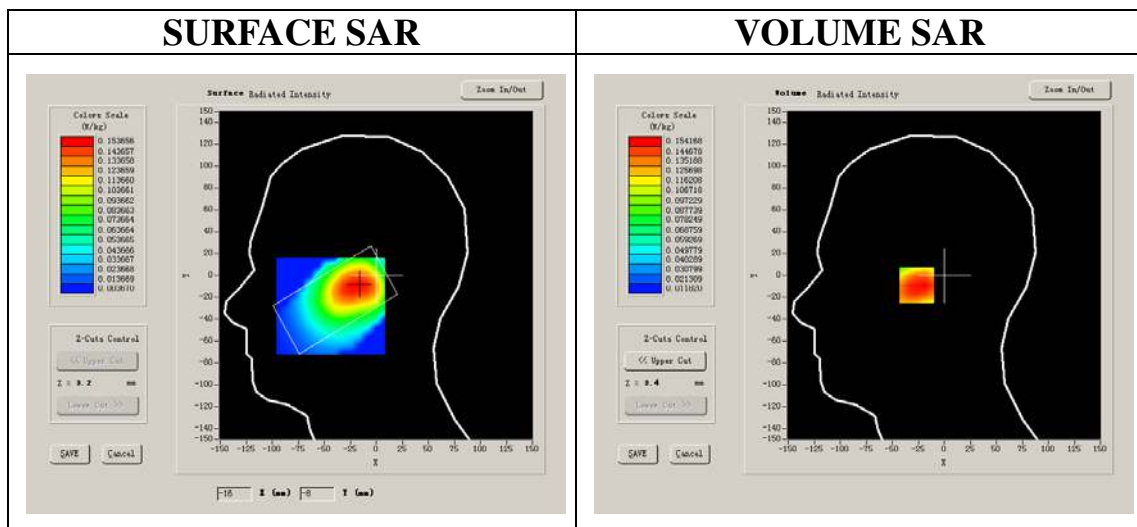
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-0.390000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



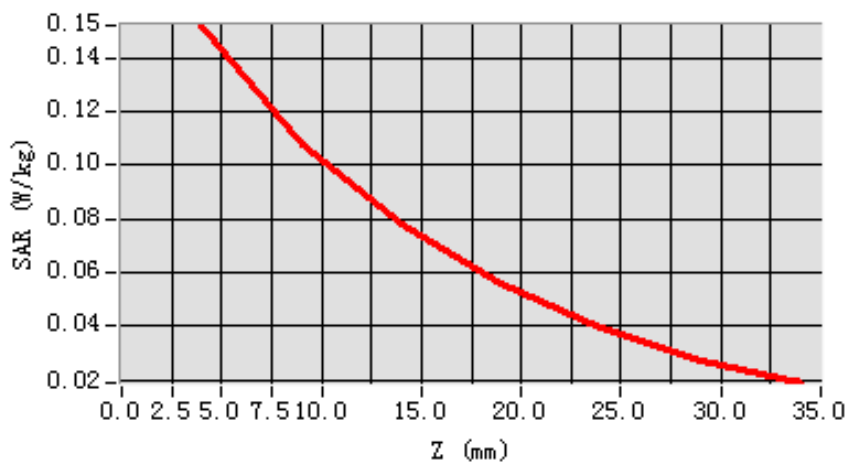
**Maximum location: X=-21.00, Y=-9.00**

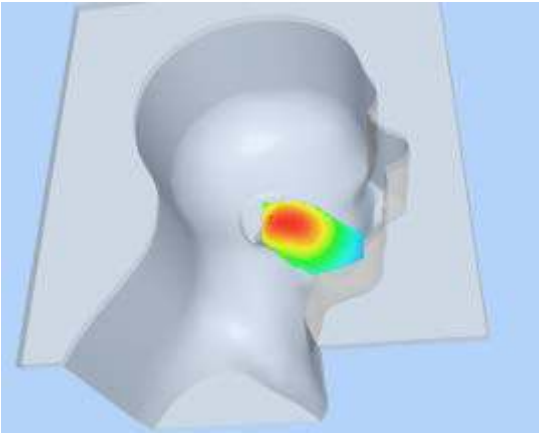
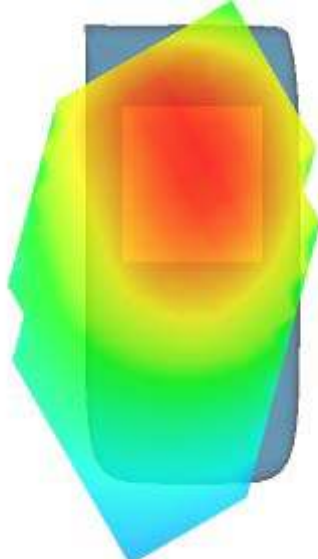
<b>SAR 10g (W/Kg)</b>	0.070844
<b>SAR 1g (W/Kg)</b>	0.133169

**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.1520</b>	<b>0.1074</b>	<b>0.0781</b>	<b>0.0560</b>	<b>0.0393</b>	<b>0.0270</b>

**SAR, Z Axis Scan (X = -21, Y = -9)**



<p><b>3D scen shot</b></p> 	<p><b>Hot spot position</b></p> 
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**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: 2014.7.2

Measurement duration: 8 minutes 51 seconds

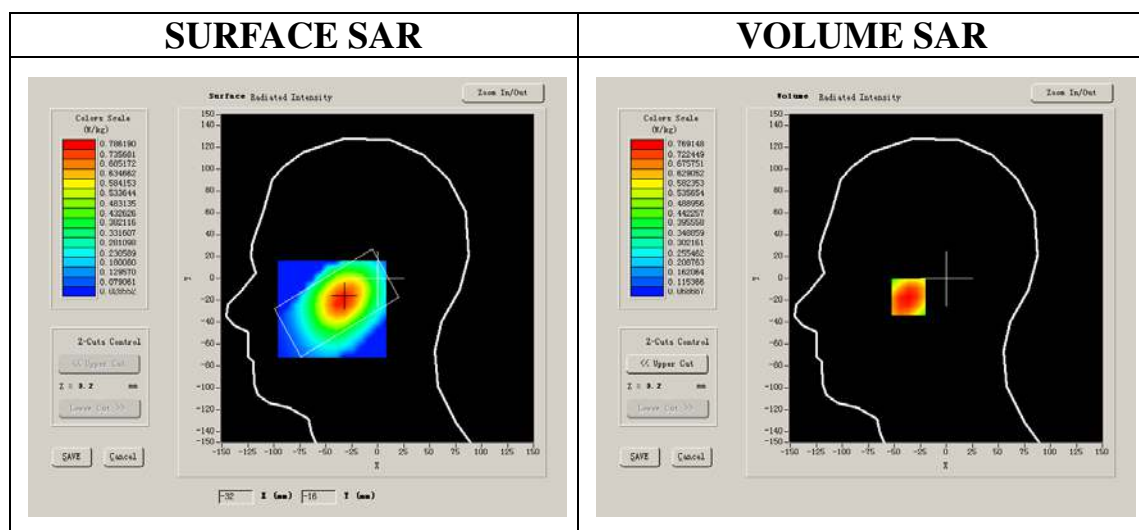
**A. Experimental conditions.**

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

**B. SAR Measurement Results**

Middle Band SAR (Channel 4175):

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	0.614460
<b>Power drift (%)</b>	-1.170000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	28.479,25.214,27.196
<b>Crest factor:</b>	1:1



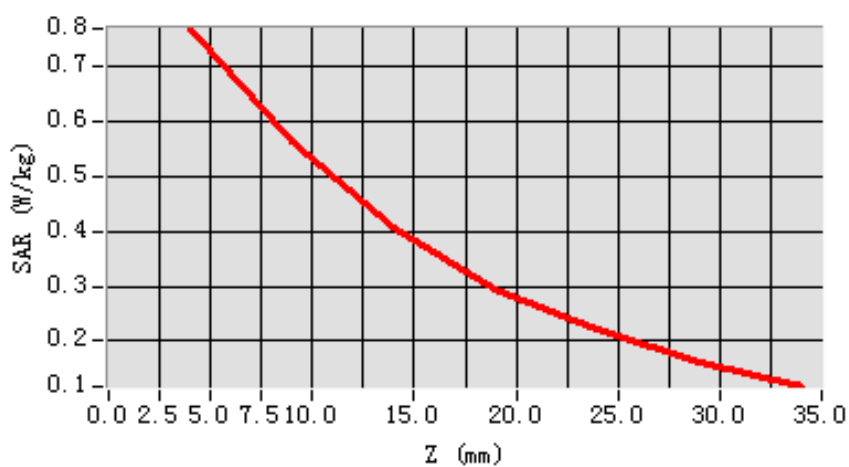
Maximum location: X=-32.00, Y=-17.00

<b>SAR 10g (W/Kg)</b>	0.512370
<b>SAR 1g (W/Kg)</b>	0.746515

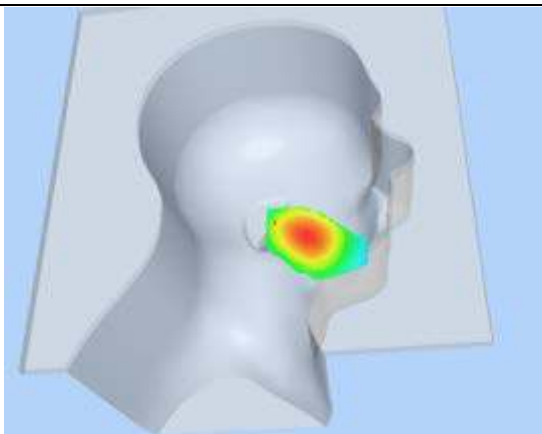
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	0.7691	0.5648	0.4088	0.2932	0.2215	0.1601

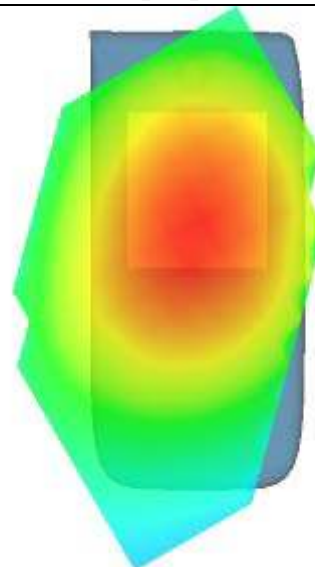
**SAR, Z Axis Scan (X = -32, Y = -17)**



**3D scen shot**



**Hot spot position**



**MEASUREMENT 18**

Type: Phone measurement (Complete)

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

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

Date of measurement: 2014.7.2

Measurement duration: 8 minutes 22 seconds

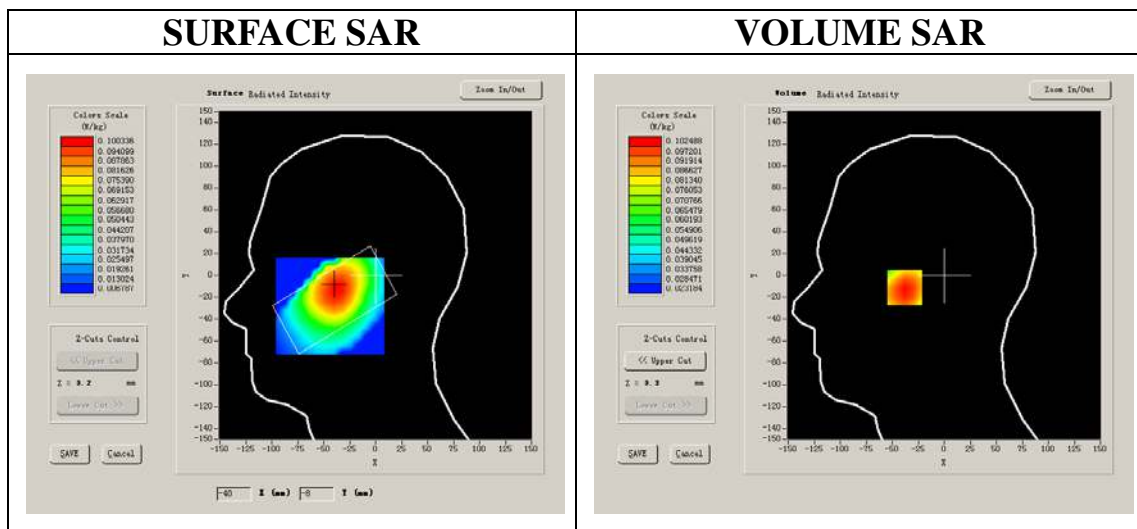
**A. Experimental conditions.**

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

**B. SAR Measurement Results**

Middle Band SAR (Channel 4175):

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	0.614460
<b>Power drift (%)</b>	-0.390000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1

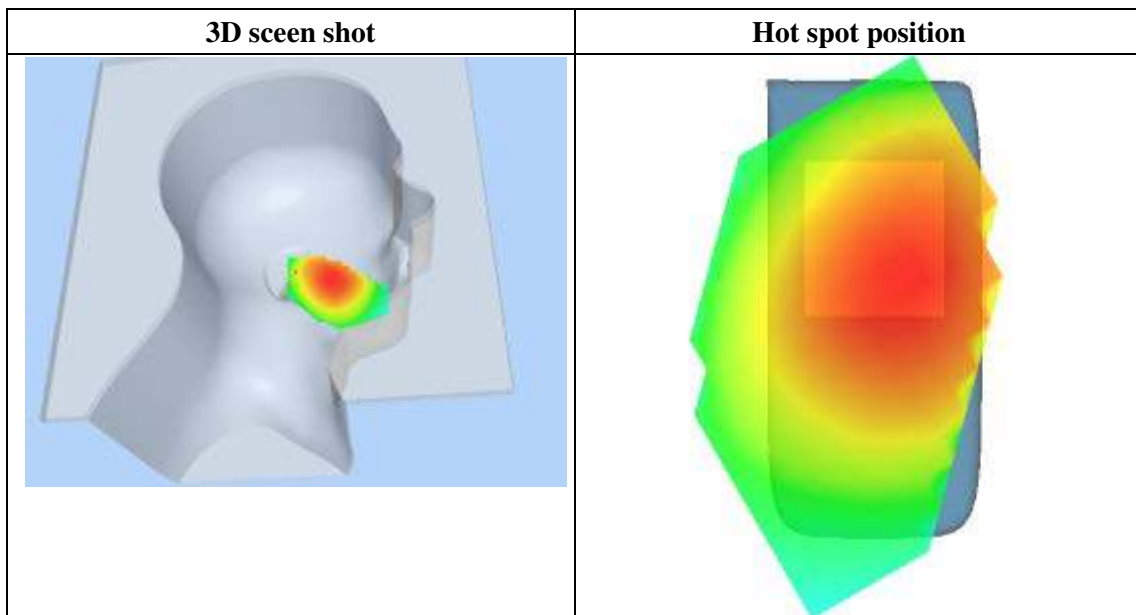
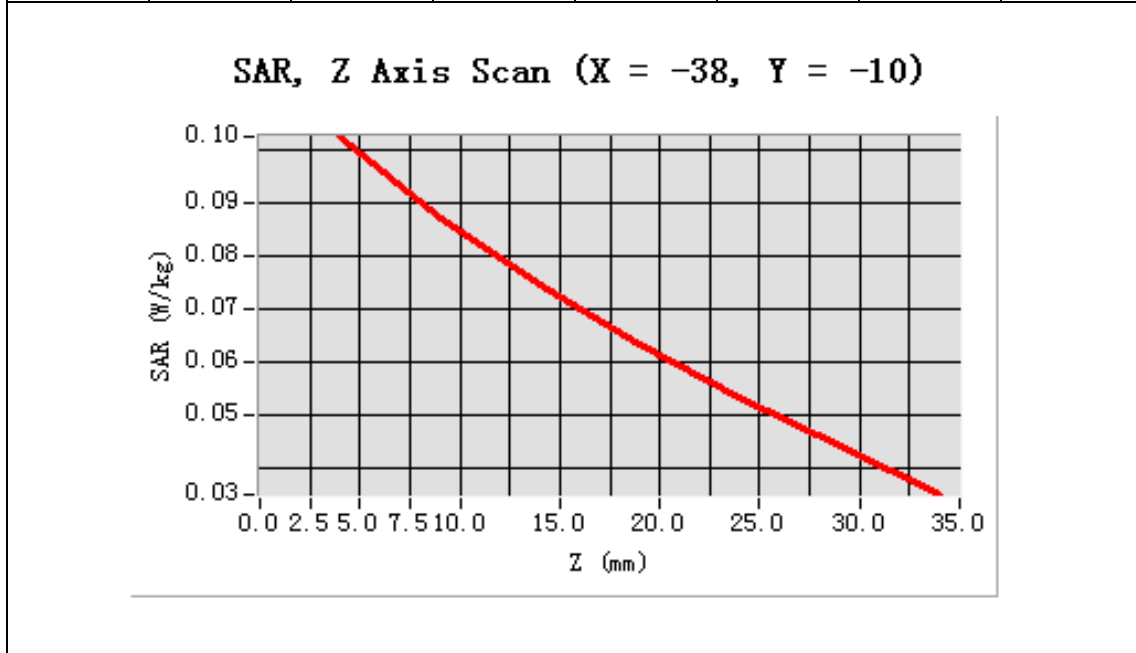


**Maximum location: X=-38.00, Y=-10.00**

<b>SAR 10g (W/Kg)</b>	0.080435
<b>SAR 1g (W/Kg)</b>	0.099517

**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.1025</b>	<b>0.0869</b>	<b>0.0747</b>	<b>0.0634</b>	<b>0.0534</b>	<b>0.0443</b>



**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: 2014.7.2

Measurement duration: 8 minutes 4 seconds

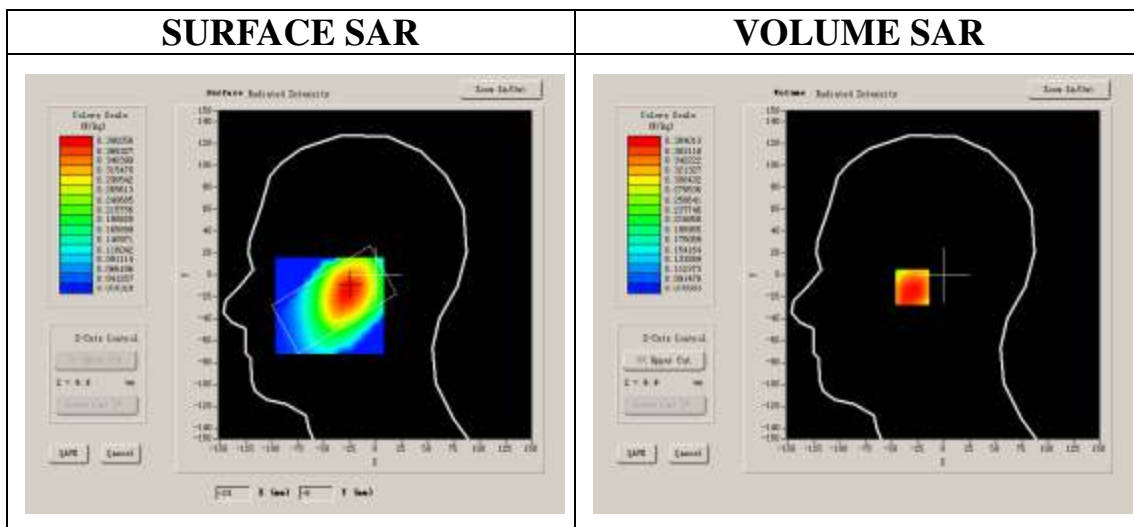
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA900
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 2787):

<b>Frequency (MHz)</b>	897.000000
<b>Relative permittivity (real part)</b>	39.910000
<b>Conductivity (S/m)</b>	0.409395
<b>Power drift (%)</b>	0.850000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	22.8°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1



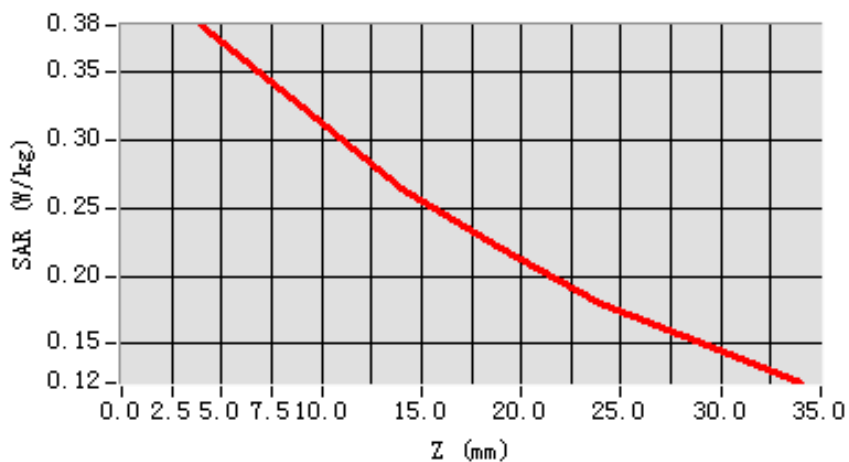
Maximum location: X=-25.00, Y=-11.00

SAR 10g (W/Kg)	0.298068
SAR 1g (W/Kg)	0.377069

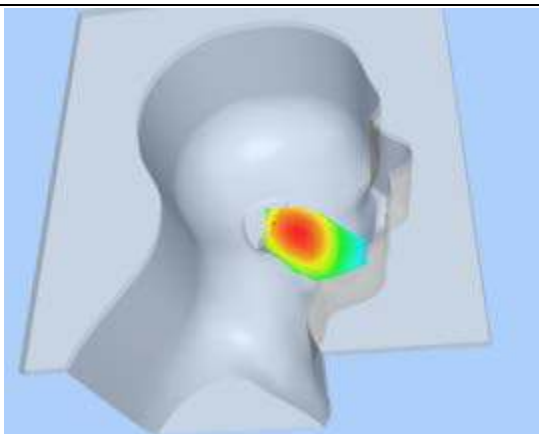
### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3840	0.3242	0.2639	0.2208	0.1804	0.1514

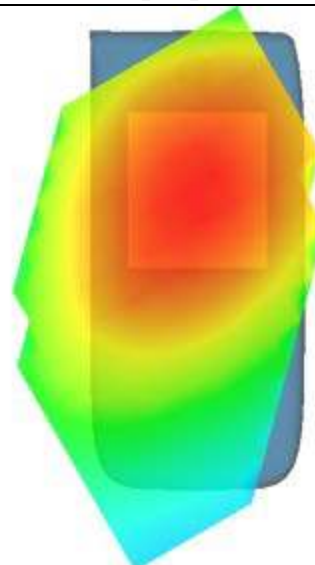
SAR, Z Axis Scan (X = -25, Y = -11)



3D scen 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: 2014.7.2

Measurement duration: 7 minutes 31 seconds

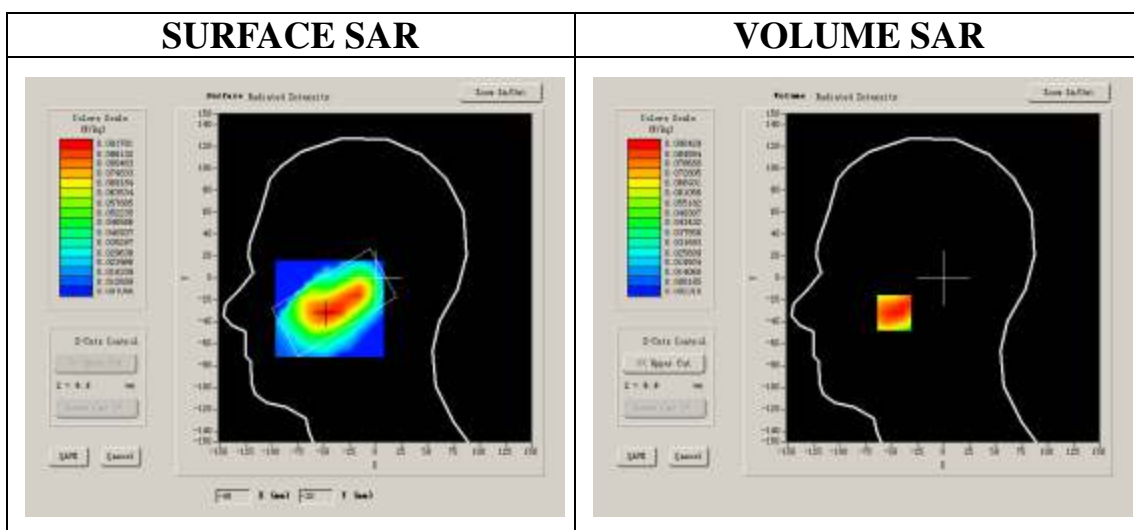
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA900
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 2787):

<b>Frequency (MHz)</b>	897.000000
<b>Relative permittivity (real part)</b>	39.910000
<b>Conductivity (S/m)</b>	0.409395
<b>Power drift (%)</b>	1.070000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	22.8°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1



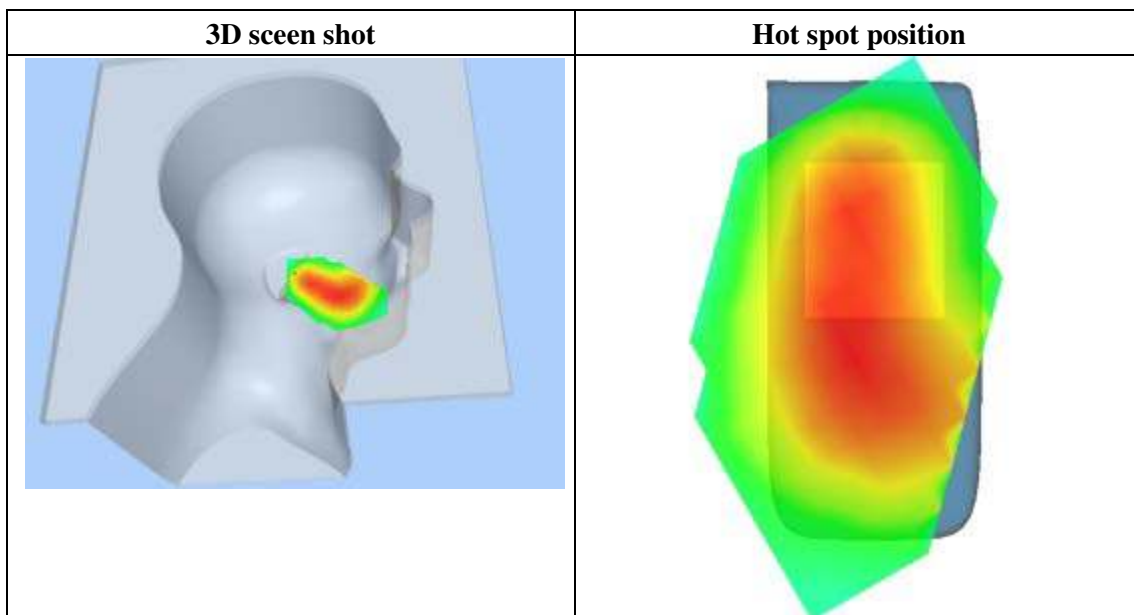
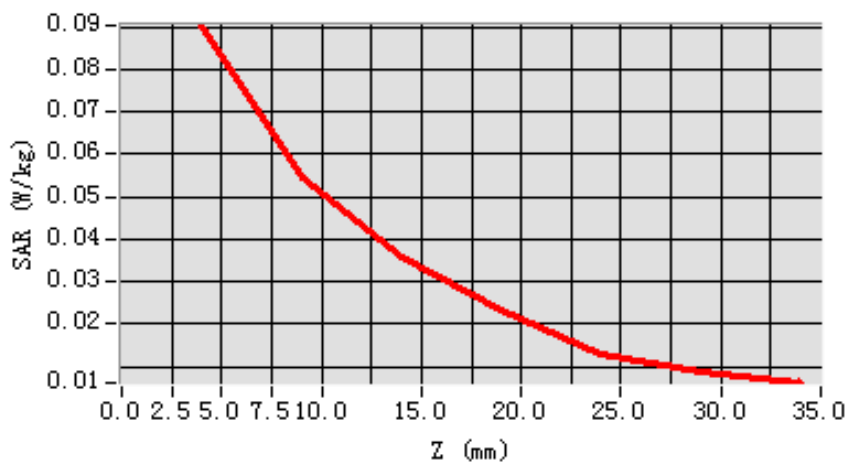
Maximum location: X=-47.00, Y=-32.00

<b>SAR 10g (W/Kg)</b>	0.053373
<b>SAR 1g (W/Kg)</b>	0.087697

### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	0.0904	0.0544	0.0359	0.0232	0.0128	0.0086

SAR, Z Axis Scan (X = -47, Y = -32)





**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: 2014.7.2

Measurement duration: 7 minutes 59 seconds

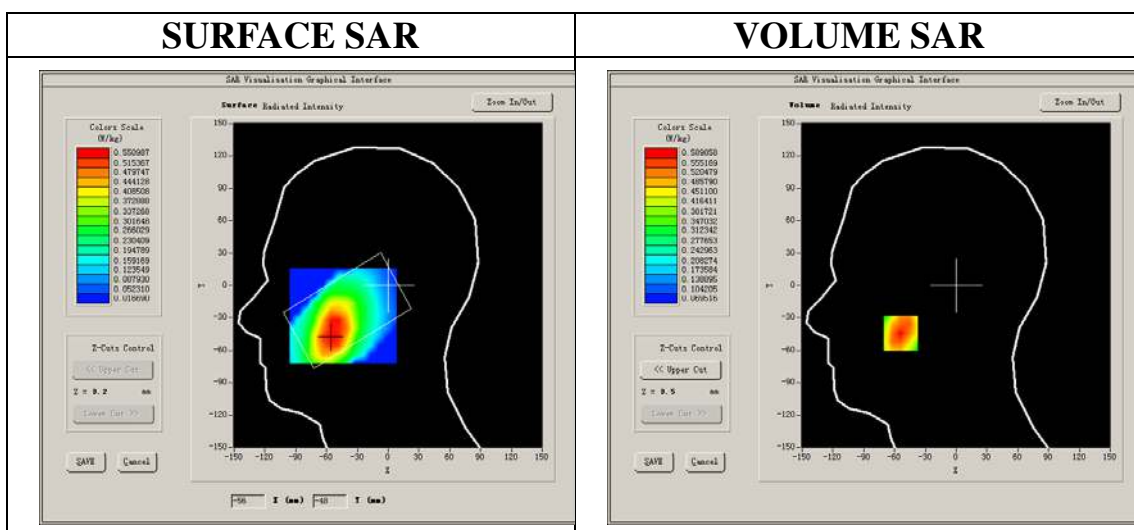
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 1
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

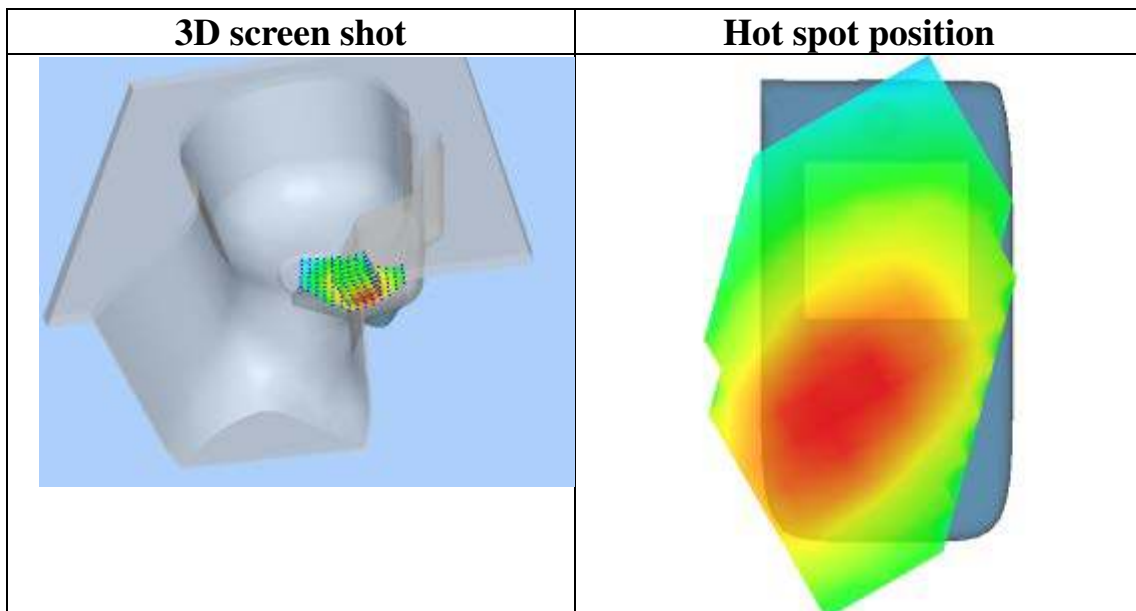
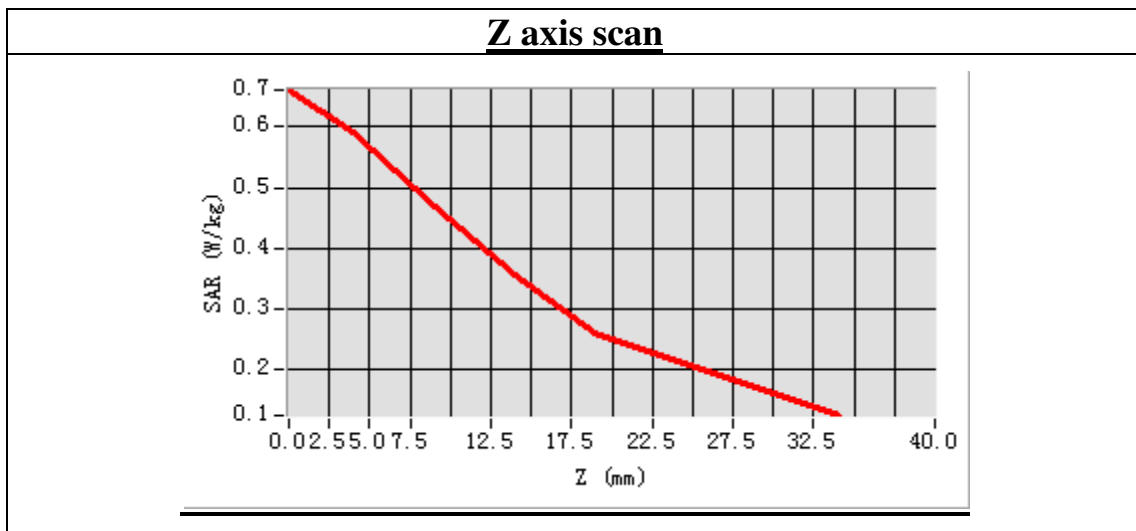
Middle Band SAR (Channel 18300):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.410000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



**Maximum location: X=-54.00, Y=-44.00**  
**SAR Peak: 0.72 W/kg**

<b>SAR 10g (W/Kg)</b>	0.402682
<b>SAR 1g (W/Kg)</b>	0.556039



**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: 2014.7.2

Measurement duration: 7 minutes 41 seconds

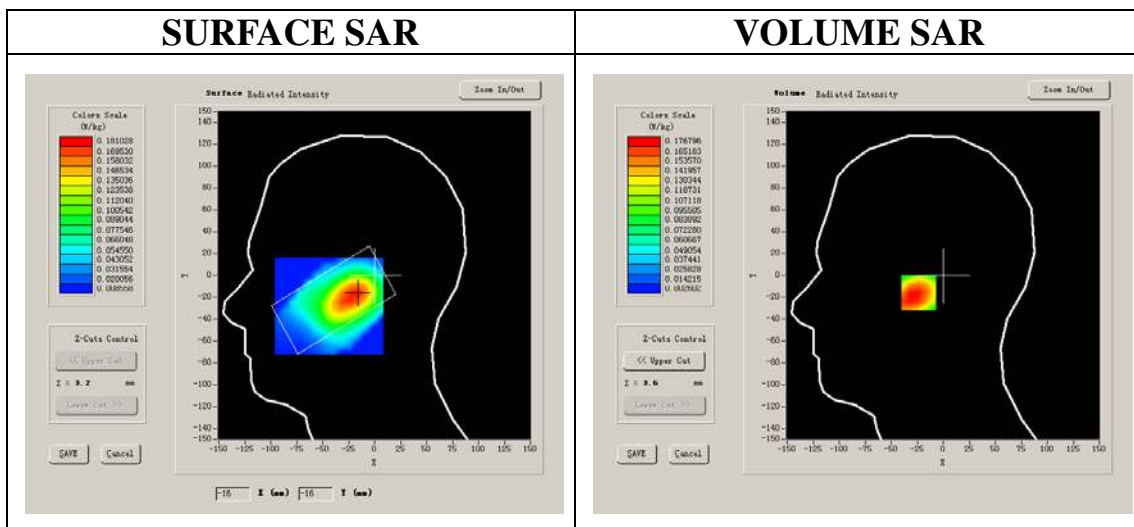
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 1
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

Middle Band SAR (Channel 18300):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.590000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



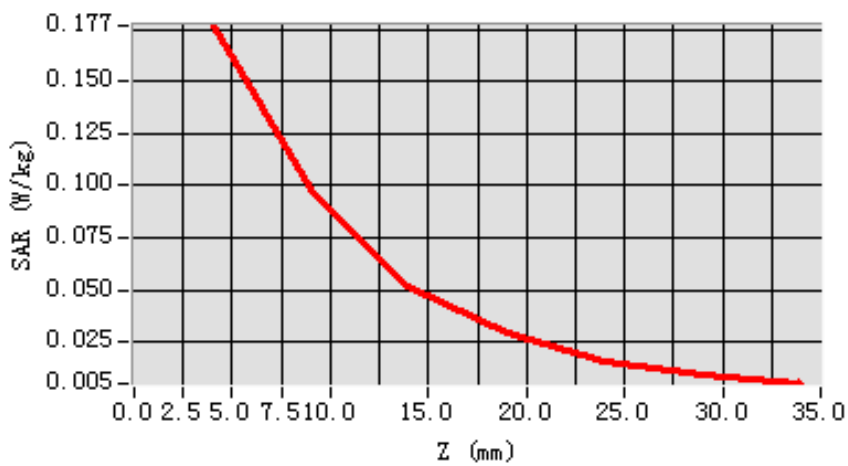
Maximum location: X=-17.00, Y=-16.00

<b>SAR 10g (W/Kg)</b>	0.097494
<b>SAR 1g (W/Kg)</b>	0.173363

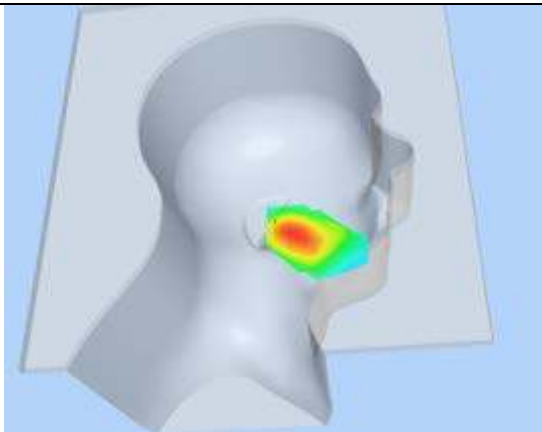
**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.1768</b>	<b>0.0980</b>	<b>0.0520</b>	<b>0.0288</b>	<b>0.0160</b>	<b>0.0095</b>

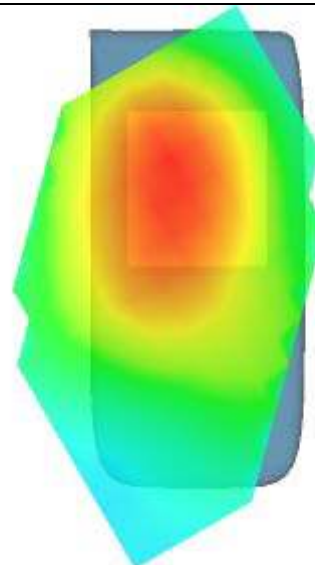
**SAR, Z Axis Scan (X = -17, Y = -16)**



**3D scene 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: 2014.7.2

Measurement duration: 7 minutes 59 seconds

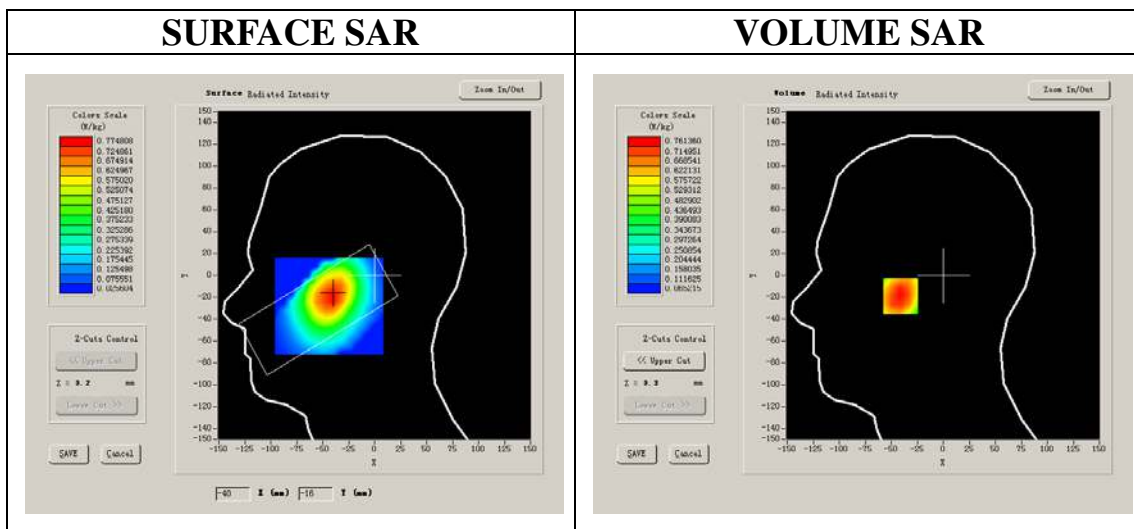
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 3
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

Middle Band SAR (Channel 19575):

<b>Frequency (MHz)</b>	1747.500000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.410000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



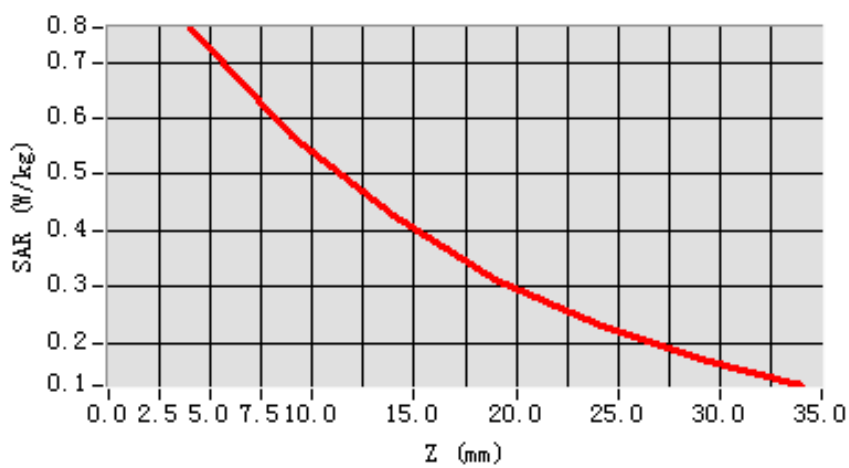
**Maximum location: X=-41.00, Y=-19.00**

<b>SAR 10g (W/Kg)</b>	0.513848
<b>SAR 1g (W/Kg)</b>	0.732731

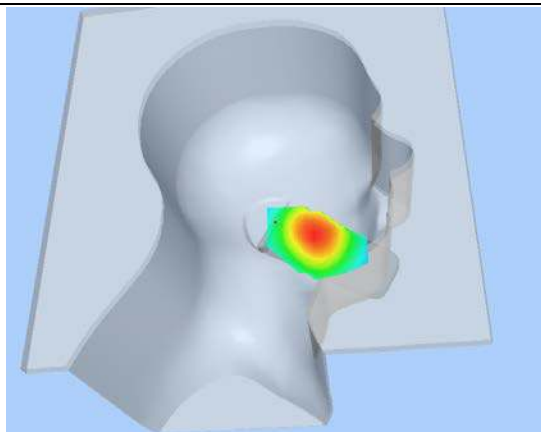
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	0.7614	0.5689	0.4259	0.3144	0.2330	0.1717

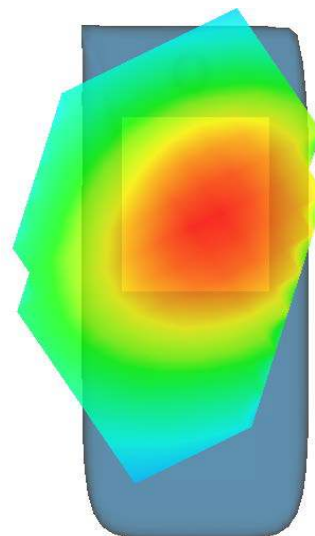
**SAR, Z Axis Scan (X = -41, Y = -19)**



**3D scene 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: 2014.7.2

Measurement duration: 7 minutes 41 seconds

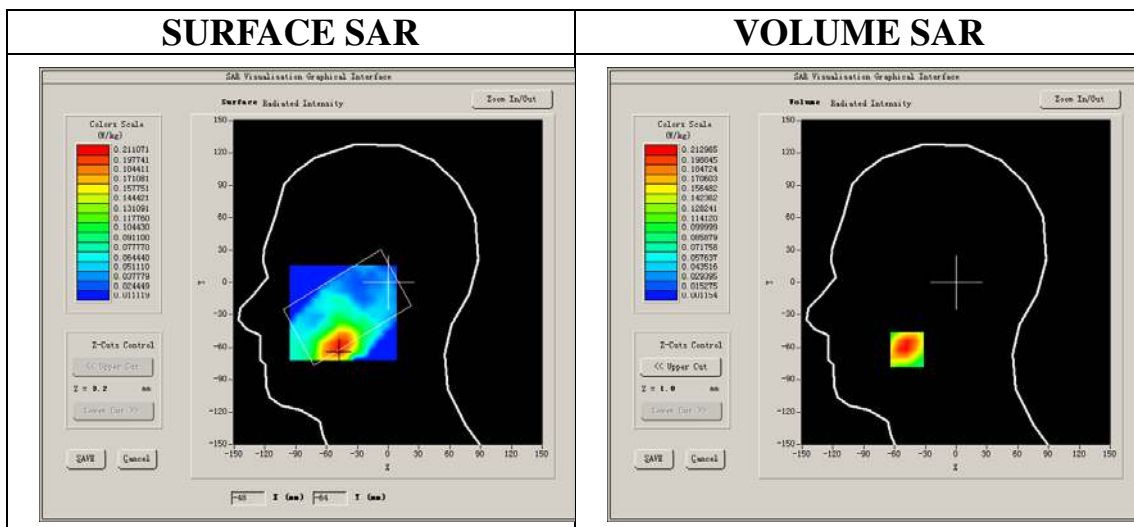
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	LTE BAND 3
<b>Channels</b>	Middle
<b>Signal</b>	QPSK_20MHz_50RB

**B. SAR Measurement Results**

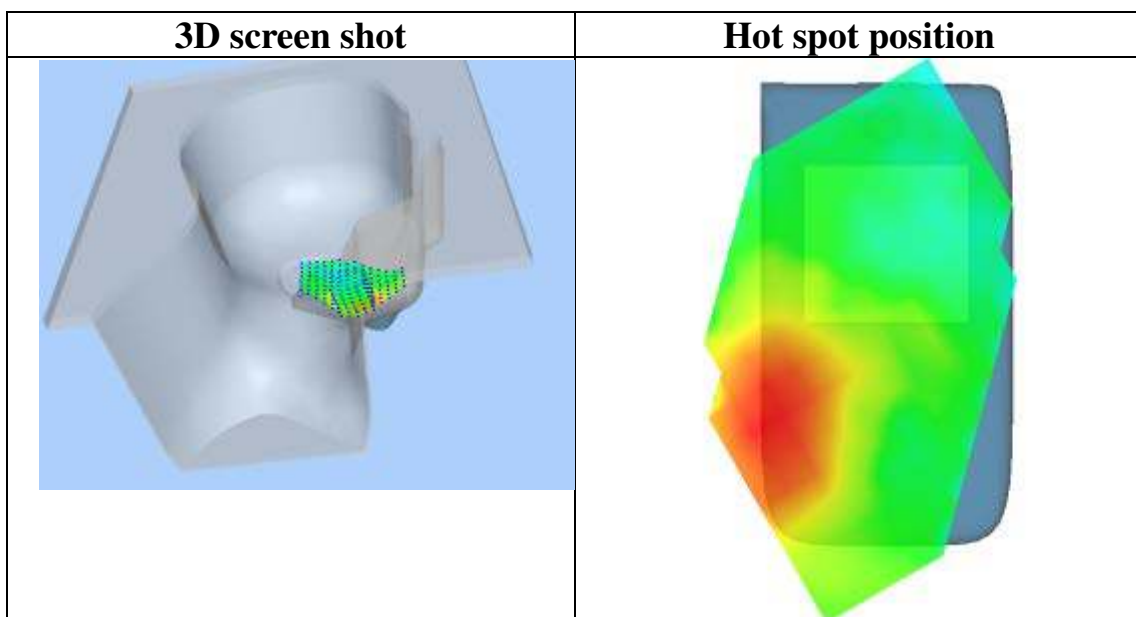
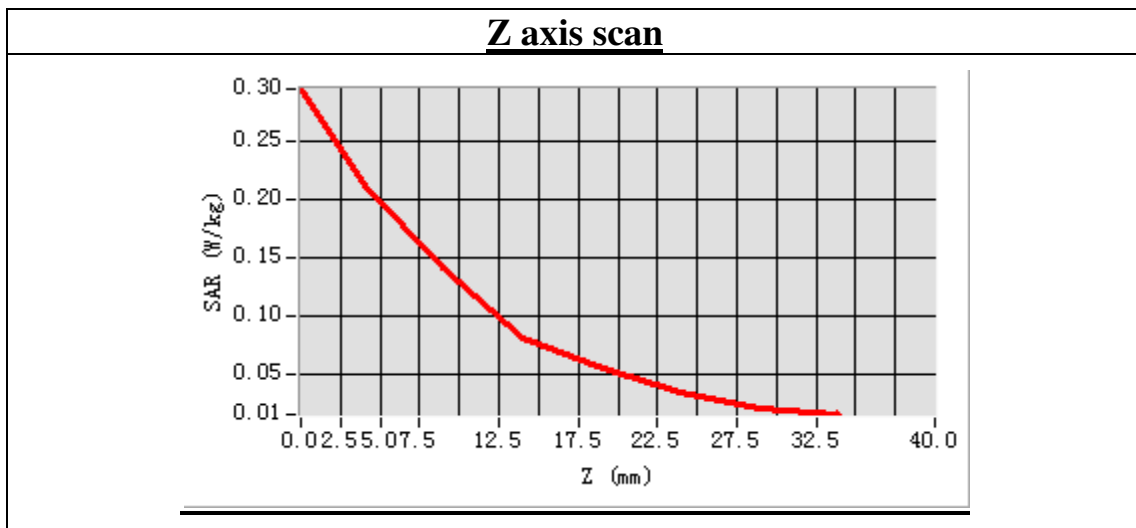
Middle Band SAR (Channel 19575):

<b>Frequency (MHz)</b>	1747.500000
<b>Relative permittivity (real part)</b>	41.269851
<b>Conductivity (S/m)</b>	1.420357
<b>Power drift (%)</b>	-0.590000
<b>Ambient Temperature:</b>	22.7°C
<b>Liquid Temperature:</b>	22.3°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



**Maximum location: X=-48.00, Y=-62.00**  
**SAR Peak: 0.33 W/kg**

<b>SAR 10g (W/Kg)</b>	0.119105
<b>SAR 1g (W/Kg)</b>	0.206924





**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: 2014.7.2

Measurement duration: 8 minutes 51 seconds

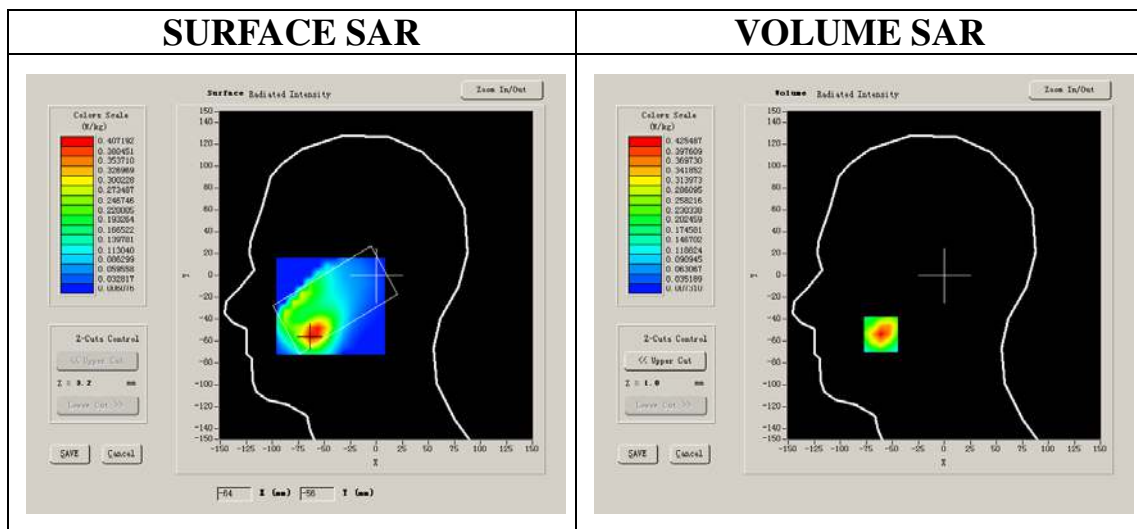
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-1.170000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



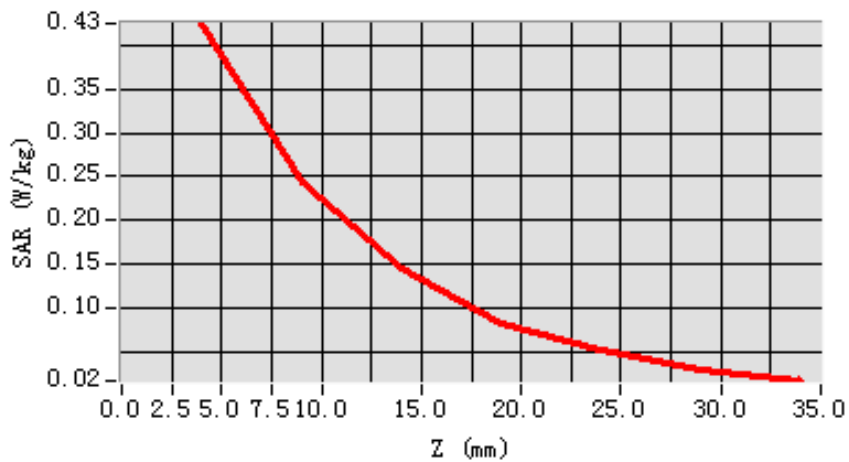
Maximum location: X=-61.00, Y=-54.00

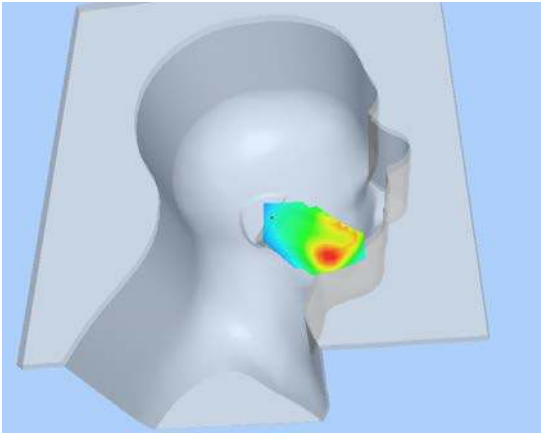
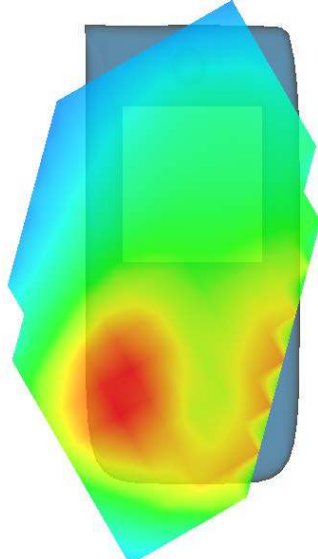
<b>SAR 10g (W/Kg)</b>	0.273043
<b>SAR 1g (W/Kg)</b>	0.396169

**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	0.0000	0.4255	0.2435	0.1444	0.0822	0.0506	0.0282

**SAR, Z Axis Scan (X = -61, Y = -54)**



3D scen 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: 2014.7.2

Measurement duration: 8 minutes 22 seconds

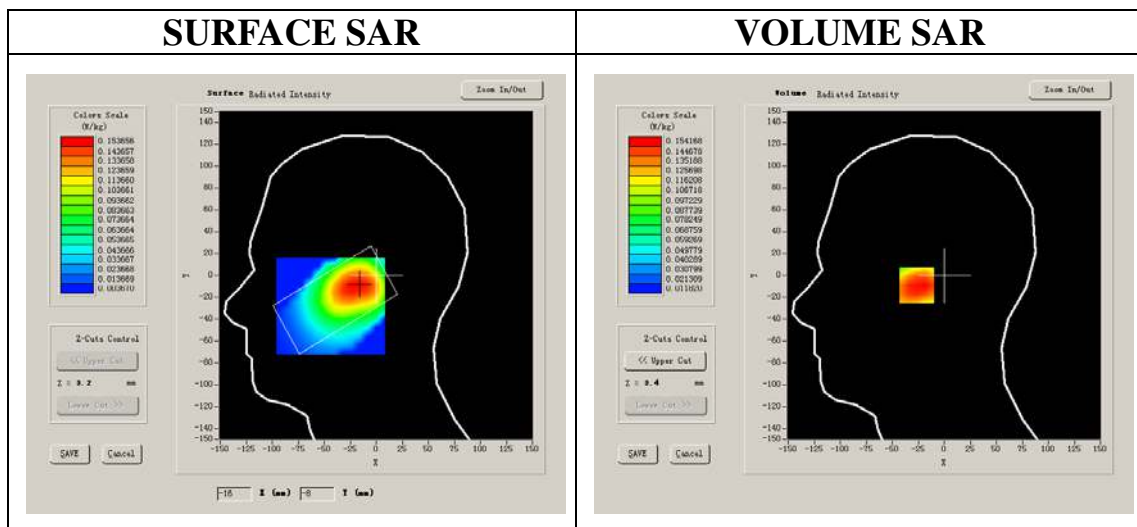
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-0.390000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



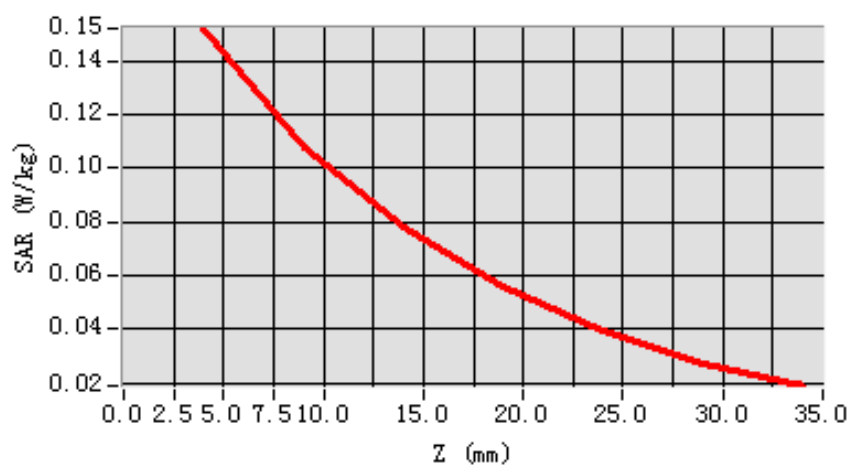
Maximum location: X=-21.00, Y=-9.00

SAR 10g (W/Kg)	0.097444
SAR 1g (W/Kg)	0.149169

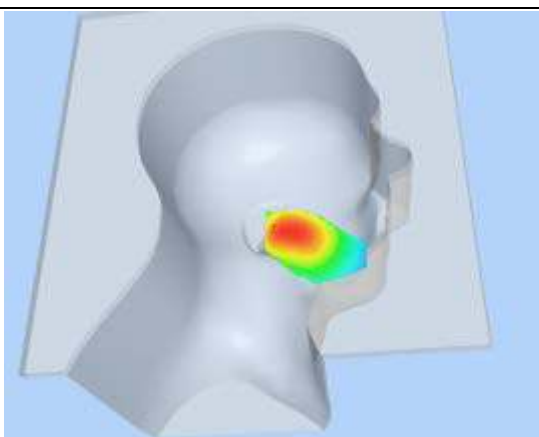
### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1520	0.1074	0.0781	0.0560	0.0393	0.0270

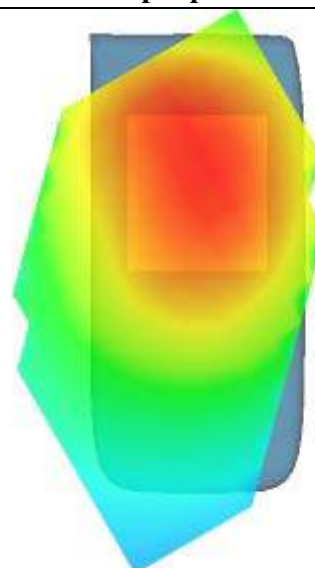
SAR, Z Axis Scan (X = -21, Y = -9)



3D scen 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: 2014.7.2

Measurement duration: 8 minutes 51 seconds

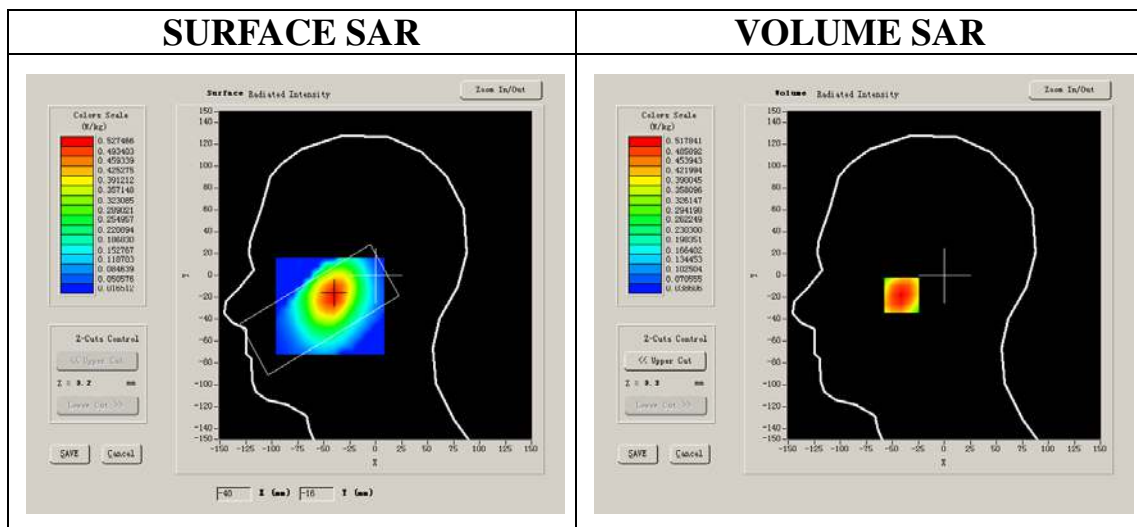
**A. Experimental conditions.**

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

**B. SAR Measurement Results**

Middle Band SAR (Channel 4175):

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	0.614460
<b>Power drift (%)</b>	-1.170000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	28.479,25.214,27.196
<b>Crest factor:</b>	1:1



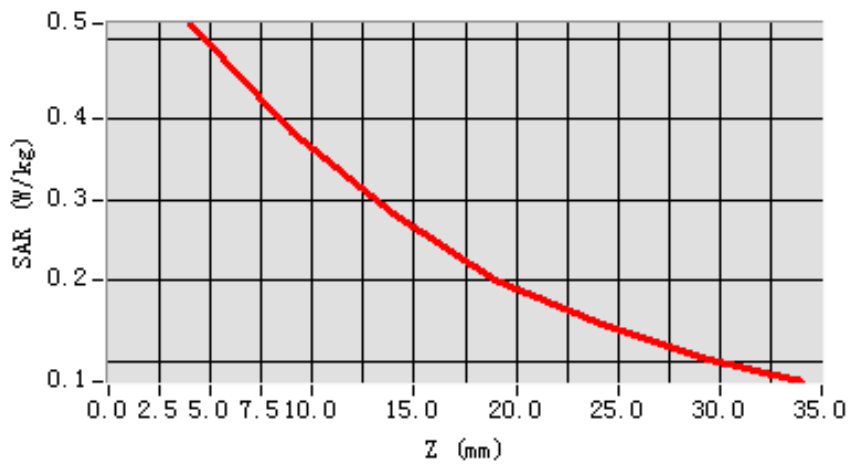
**Maximum location: X=-41.00, Y=-18.00**

<b>SAR 10g (W/Kg)</b>	0.342768
<b>SAR 1g (W/Kg)</b>	0.497829

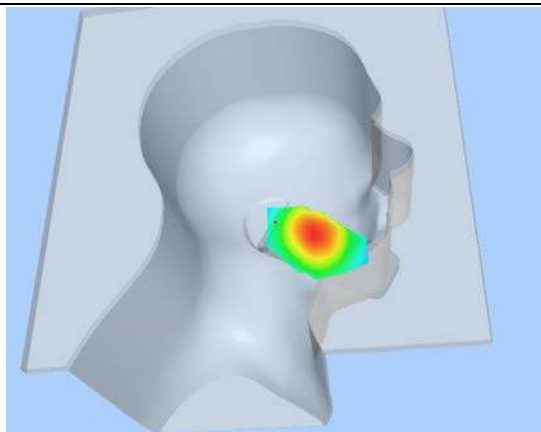
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.5178</b>	<b>0.3827</b>	<b>0.2840</b>	<b>0.2010</b>	<b>0.1477</b>	<b>0.1063</b>

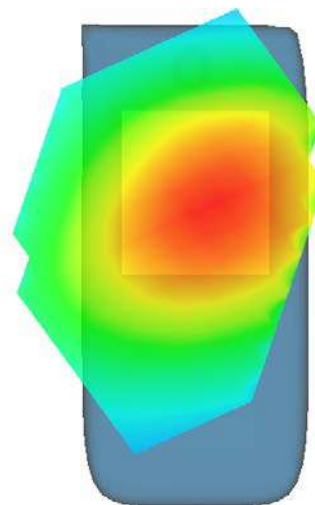
**SAR, Z Axis Scan (X = -41, Y = -18)**



**3D scene 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: 2014.7.2

Measurement duration: 8 minutes 22 seconds

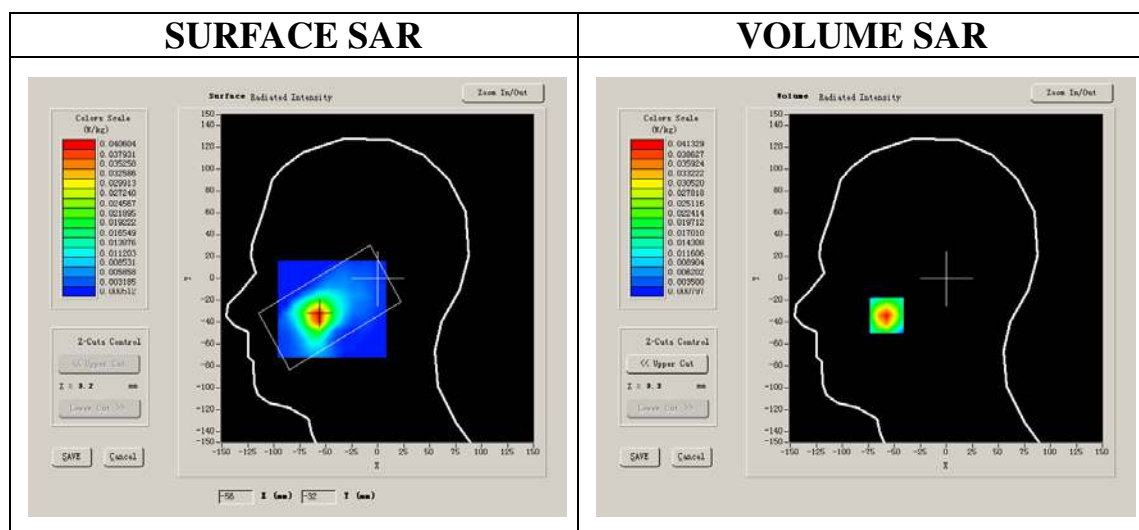
**A. Experimental conditions.**

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

**B. SAR Measurement Results**

Middle Band SAR (Channel 4175):

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	0.614460
<b>Power drift (%)</b>	-0.390000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1



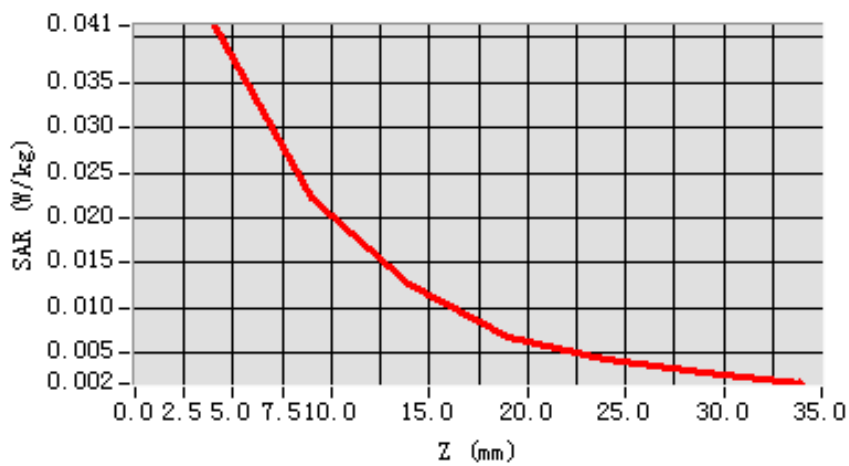
Maximum location: X=-57.00, Y=-34.00

SAR 10g (W/Kg)	0.019530
SAR 1g (W/Kg)	0.038260

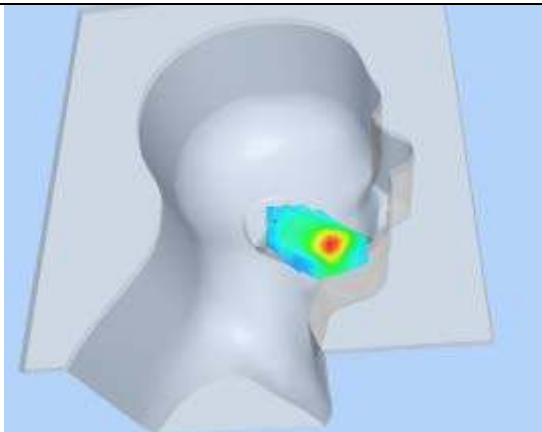
### Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0413	0.0223	0.0127	0.0067	0.0043	0.0028

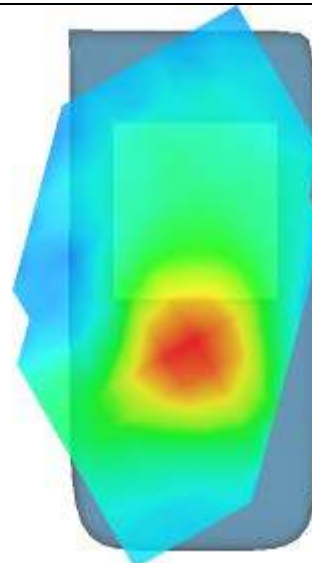
SAR, Z Axis Scan (X = -57, Y = -34)



3D scene 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: 2014.7.2

Measurement duration: 8 minutes 4 seconds

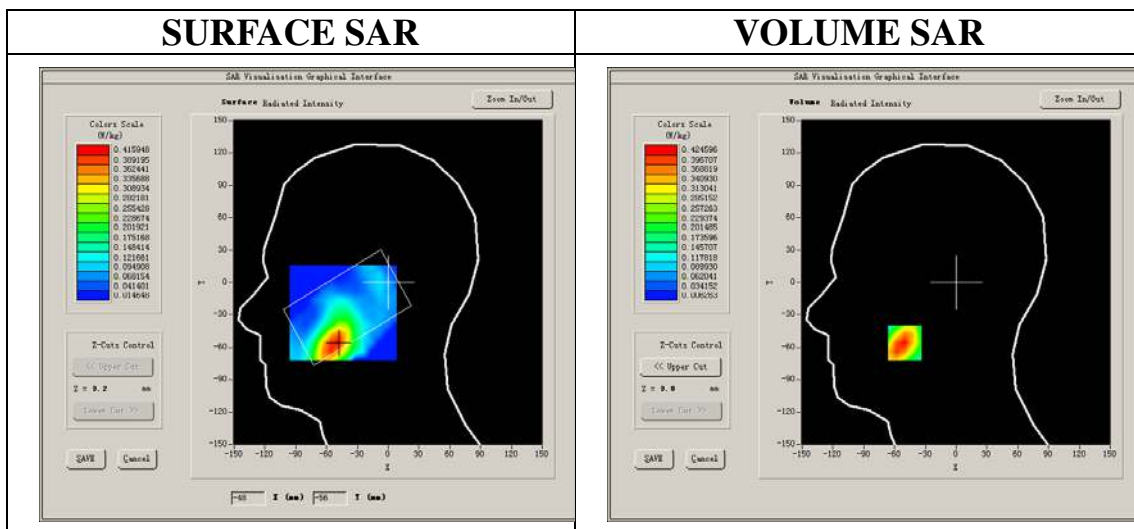
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA900
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

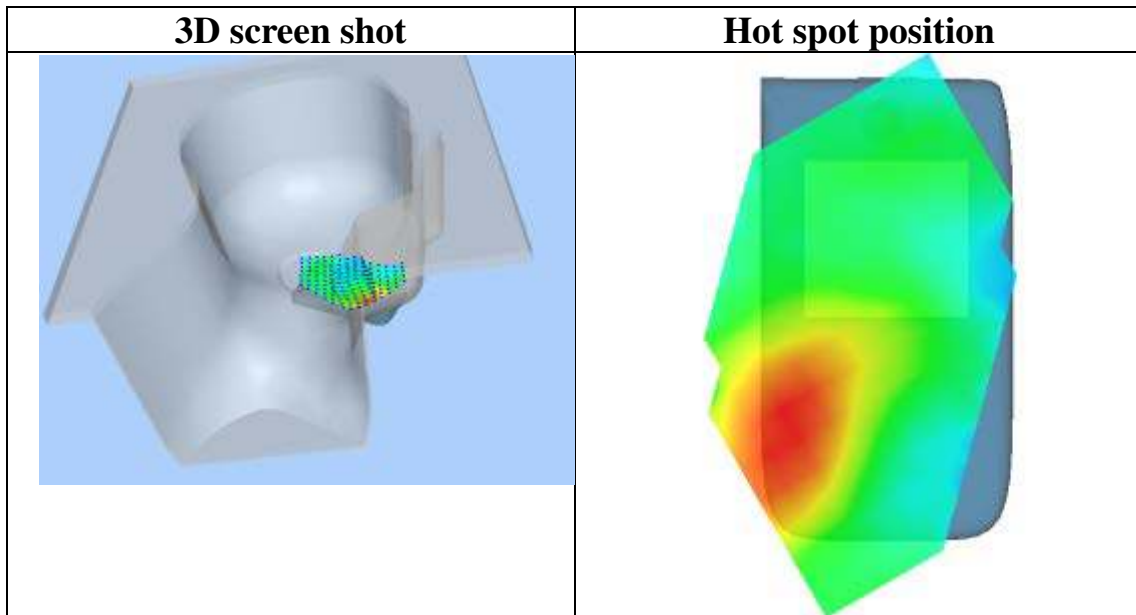
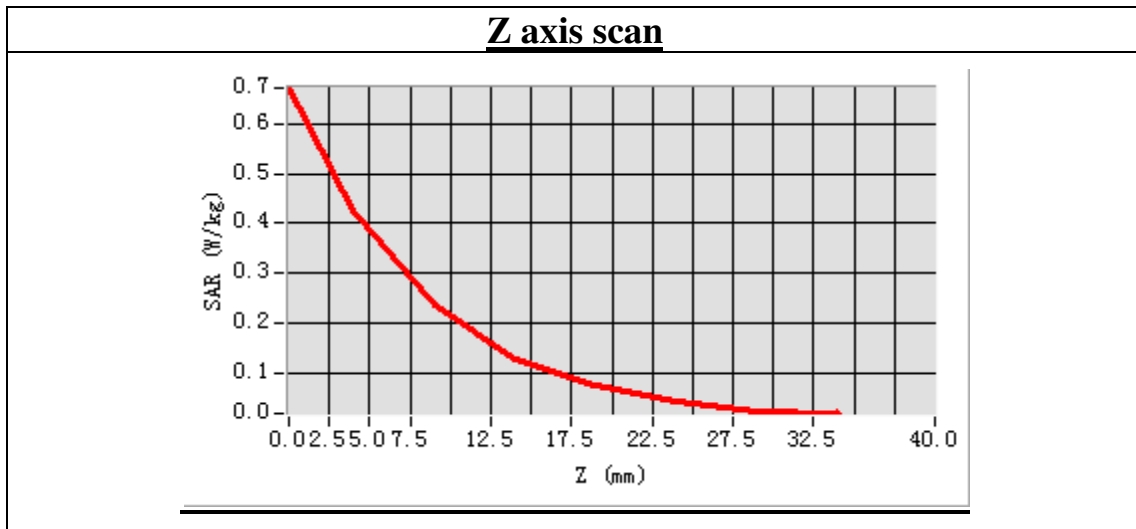
Middle Band SAR (Channel 2787):

<b>Frequency (MHz)</b>	897.000000
<b>Relative permittivity (real part)</b>	39.910000
<b>Conductivity (S/m)</b>	0.409395
<b>Power drift (%)</b>	0.850000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	22.8°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1



**Maximum location: X=-50.00, Y=-56.00**  
**SAR Peak: 0.68 W/kg**

<b>SAR 10g (W/Kg)</b>	0.218499
<b>SAR 1g (W/Kg)</b>	0.409051



**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: 2014.7.2

Measurement duration: 7 minutes 31 seconds

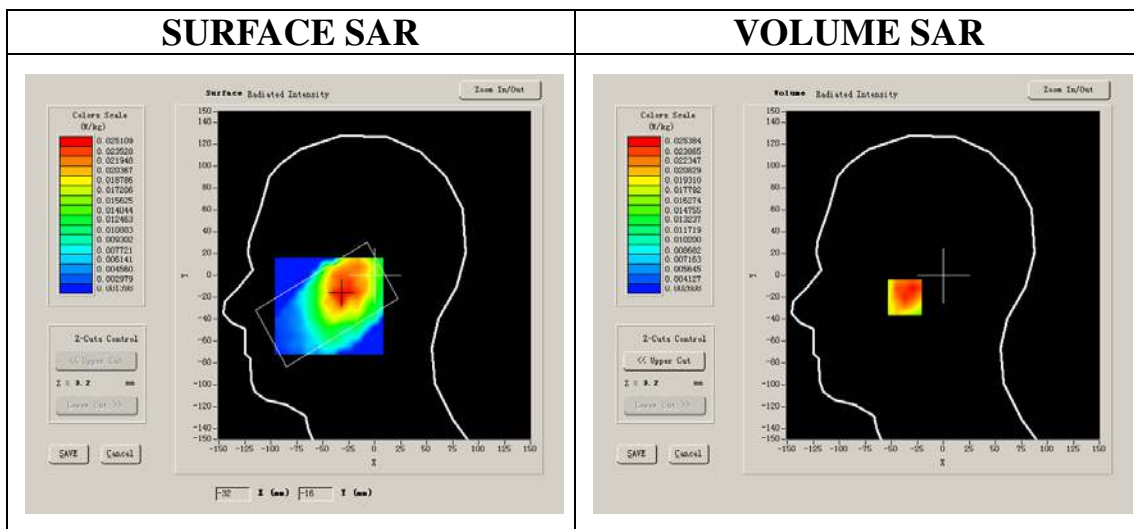
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA900
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 2787):

<b>Frequency (MHz)</b>	897.000000
<b>Relative permittivity (real part)</b>	39.910000
<b>Conductivity (S/m)</b>	0.409395
<b>Power drift (%)</b>	1.070000
<b>Ambient Temperature:</b>	22.4°C
<b>Liquid Temperature:</b>	22.8°C
<b>ConvF:</b>	28.479, 25.214, 27.196
<b>Crest factor:</b>	1:1

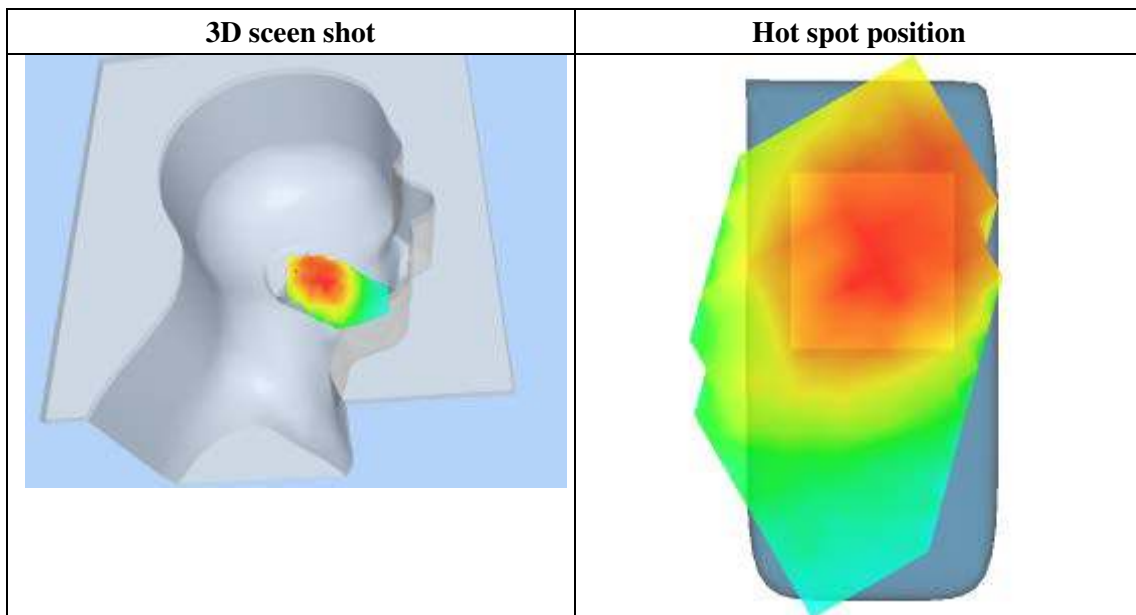
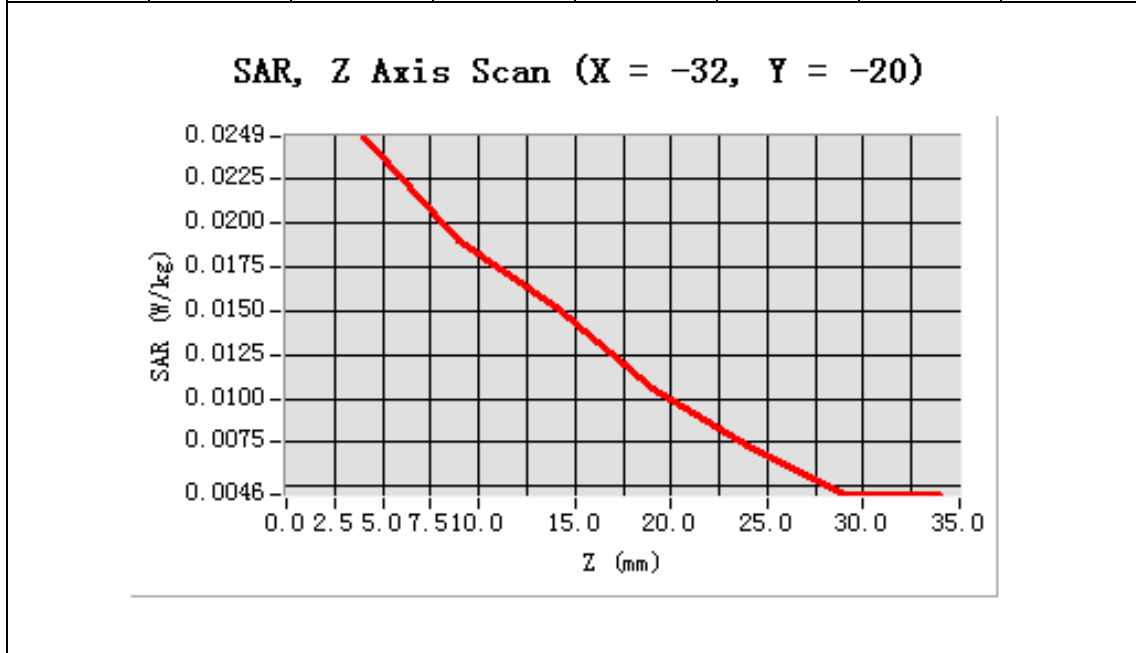


**Maximum location: X=-32.00, Y=-20.00**

<b>SAR 10g (W/Kg)</b>	0.017499
<b>SAR 1g (W/Kg)</b>	0.024736

**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>0.0249</b>	<b>0.0190</b>	<b>0.0152</b>	<b>0.0105</b>	<b>0.0074</b>	<b>0.0046</b>



**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: 2014.7.2

Measurement duration: 8 minutes 51 seconds

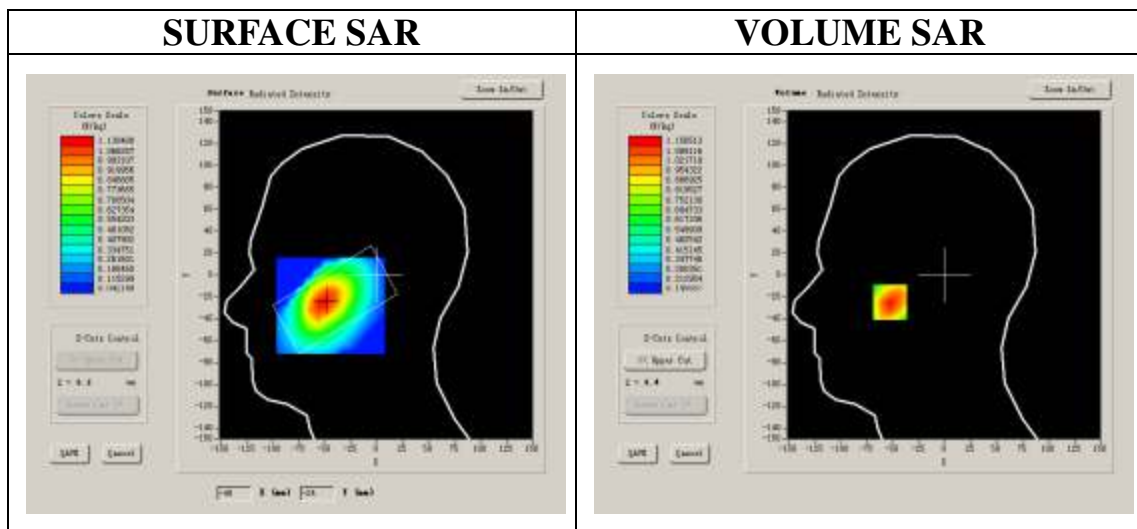
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-1.170000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



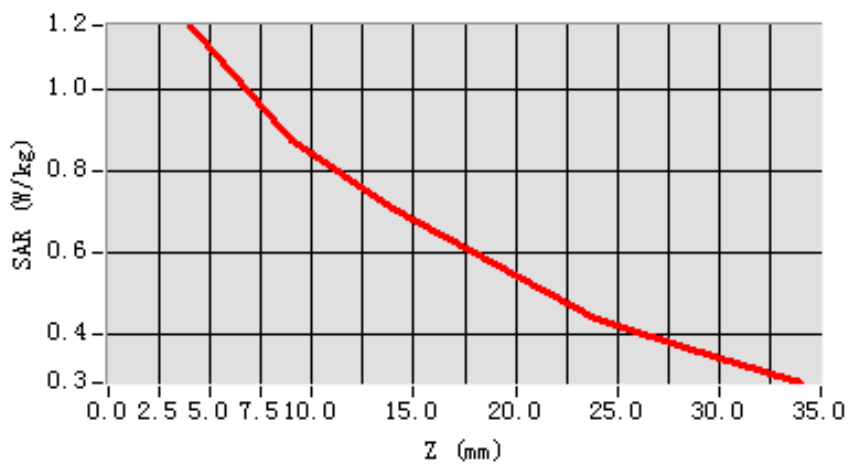
Maximum location: X=-52.00, Y=-25.00

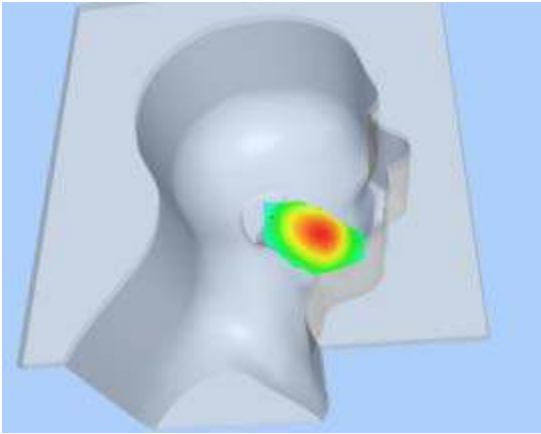
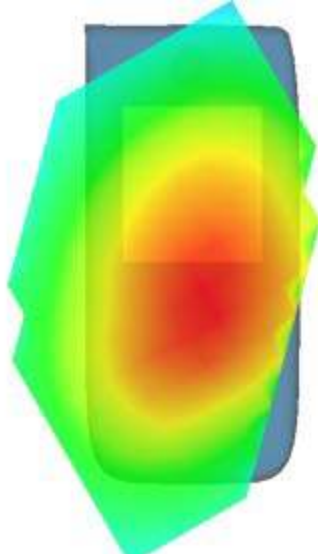
<b>SAR 10g (W/Kg)</b>	0.807362
<b>SAR 1g (W/Kg)</b>	1.109413

**Z Axis Scan**

<b>Z (mm)</b>	<b>0.00</b>	<b>4.00</b>	<b>9.00</b>	<b>14.00</b>	<b>19.00</b>	<b>24.00</b>	<b>29.00</b>
<b>SAR (W/Kg)</b>	<b>0.0000</b>	<b>1.1565</b>	<b>0.8724</b>	<b>0.7051</b>	<b>0.5712</b>	<b>0.4355</b>	<b>0.3537</b>

**SAR, Z Axis Scan (X = -52, Y = -25)**



<b>3D scen shot</b>	<b>Hot spot position</b>
	

**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: 2014.7.2

Measurement duration: 8 minutes 22 seconds

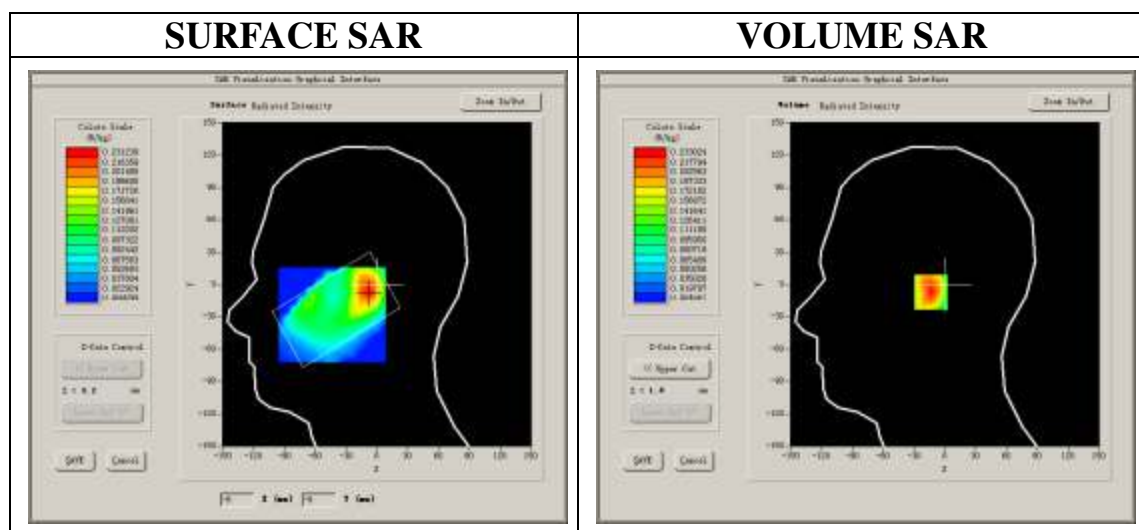
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

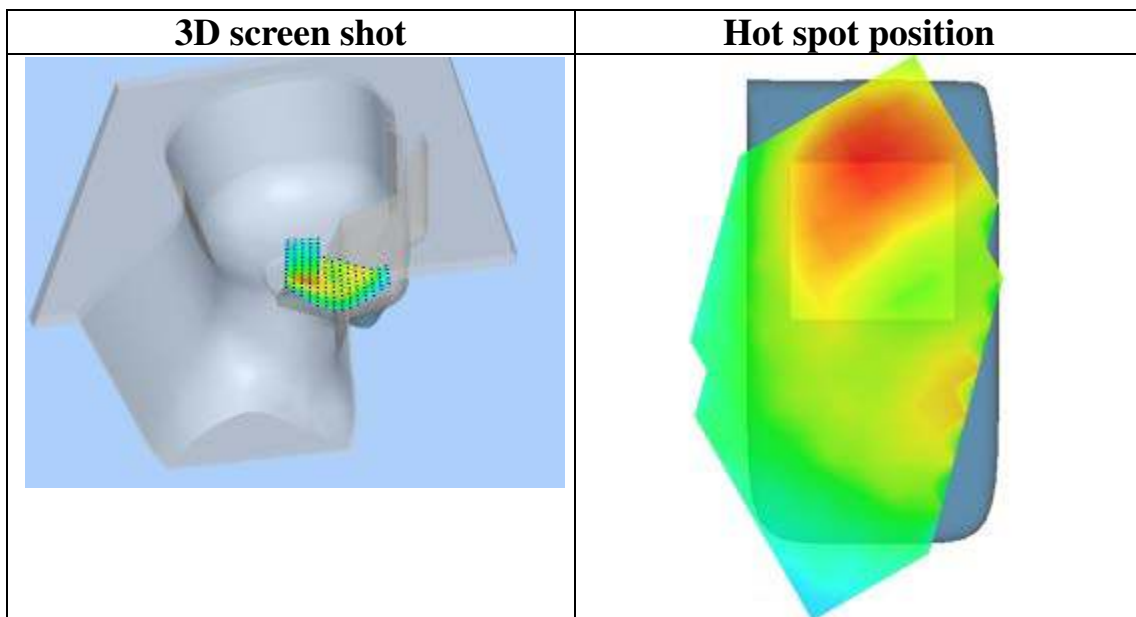
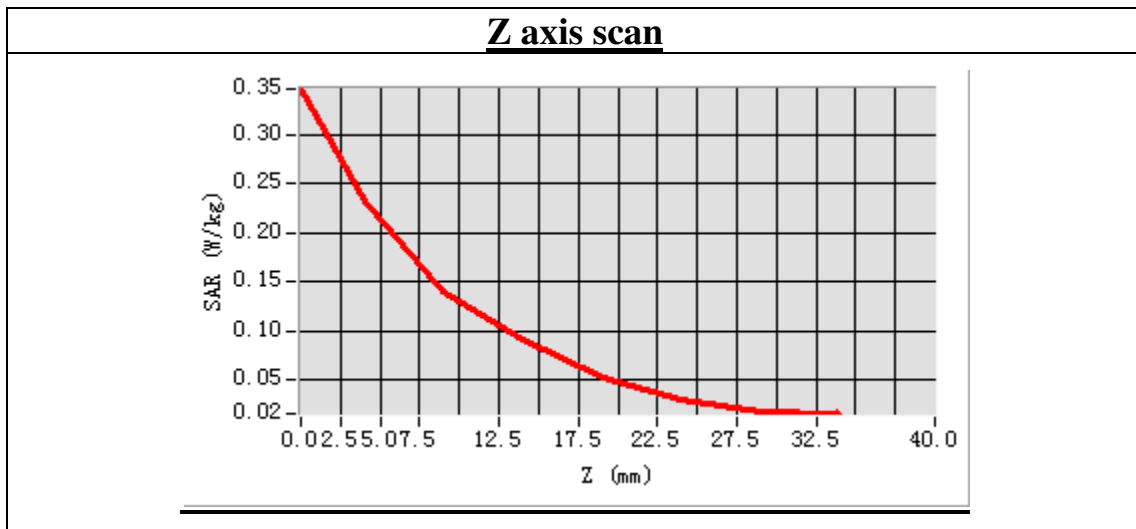
Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-0.390000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



**Maximum location: X=-8.00, Y=-7.00**

<b>SAR 10g (W/Kg)</b>	0.128079
<b>SAR 1g (W/Kg)</b>	0.222225





**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: 2014.7.2

Measurement duration: 8 minutes 51 seconds

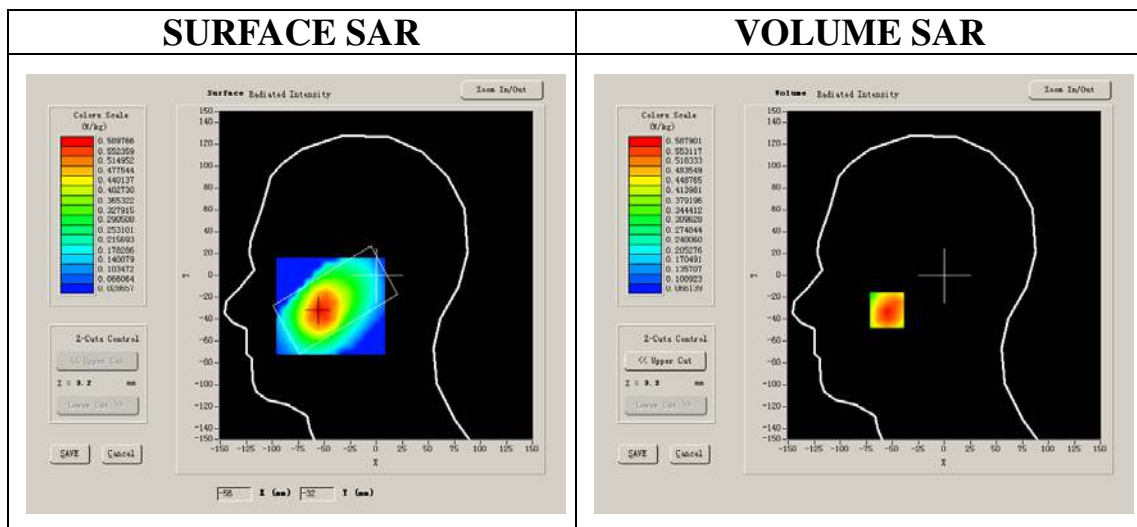
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-1.170000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



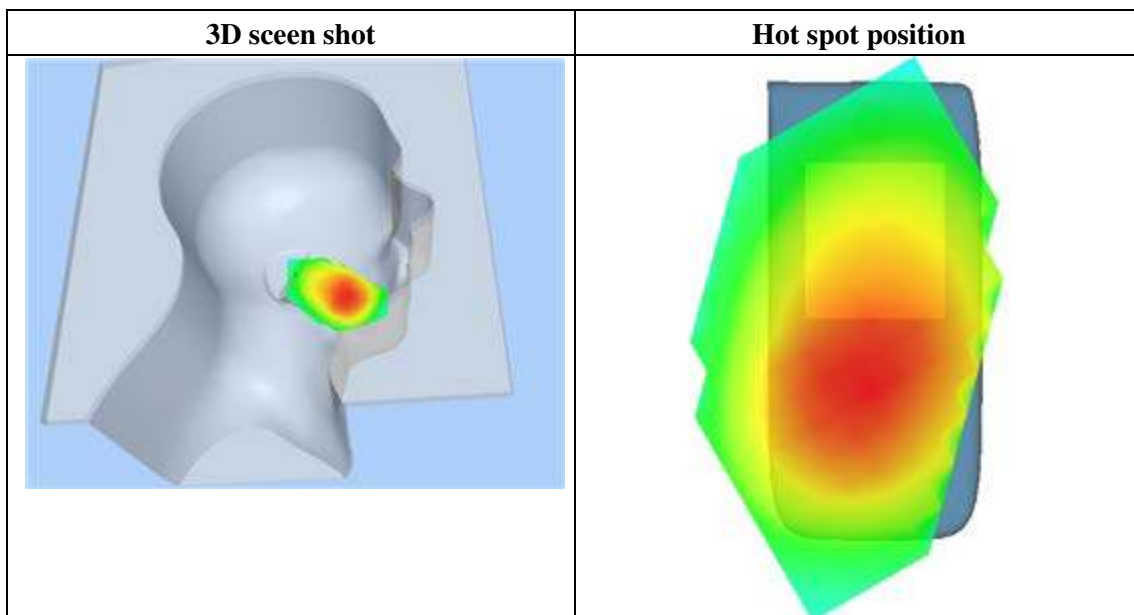
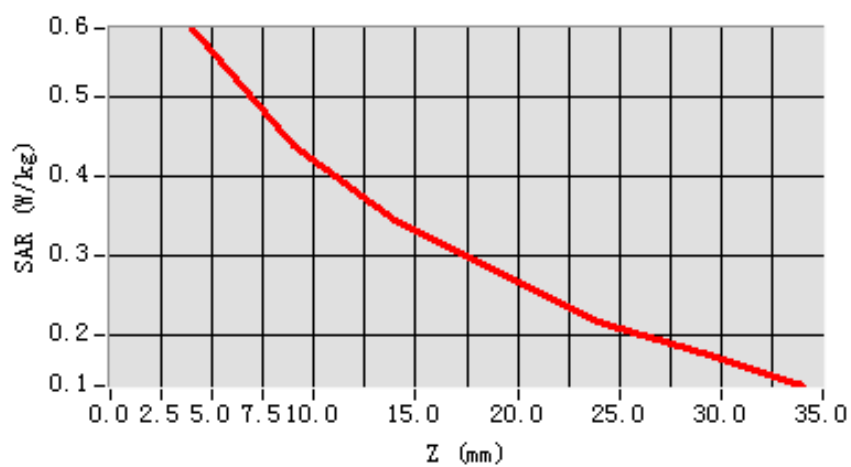
Maximum location: X=-55.00, Y=-32.00

SAR 10g (W/Kg)	0.443455
SAR 1g (W/Kg)	0.565689

**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5879	0.4400	0.3440	0.2812	0.2152	0.1779

SAR, Z Axis Scan (X = -55, Y = -32)



**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: 2014.7.2

Measurement duration: 8 minutes 22 seconds

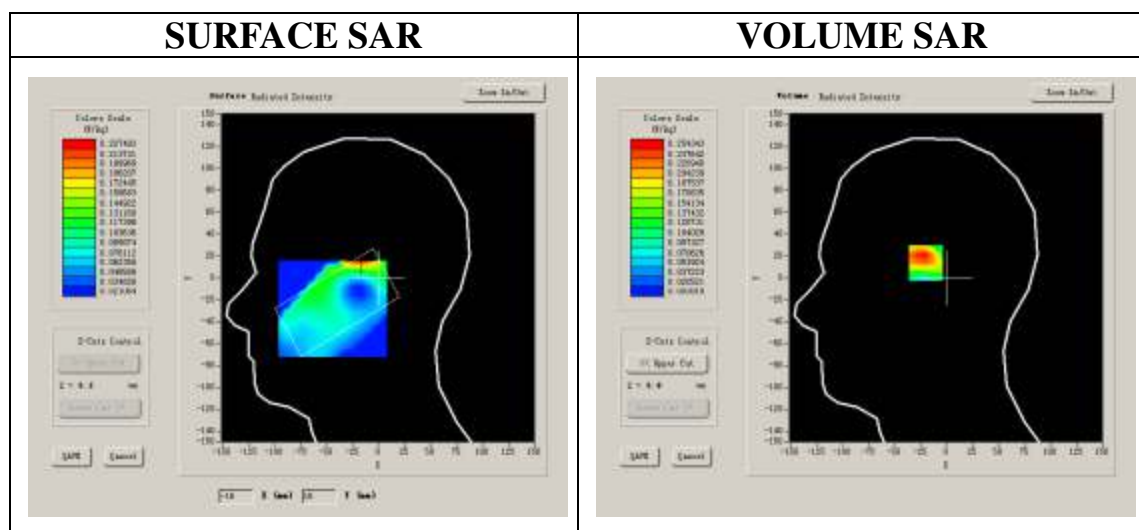
**A. Experimental conditions.**

<b>Phantom File</b>	sam_direct_droit2_surf8mm.txt
<b>Phantom</b>	Left head
<b>Device Position</b>	Cheek
<b>Band</b>	WCDMA2100
<b>Channels</b>	Middle
<b>Signal</b>	CDMA

**B. SAR Measurement Results**

Middle Band SAR (Channel 9750):

<b>Frequency (MHz)</b>	1950.000000
<b>Relative permittivity (real part)</b>	39.513290
<b>Conductivity (S/m)</b>	1.386672
<b>Power drift (%)</b>	-0.390000
<b>Ambient Temperature:</b>	22.8°C
<b>Liquid Temperature:</b>	22.7°C
<b>ConvF:</b>	40.136,34.843,38.721
<b>Crest factor:</b>	1:1



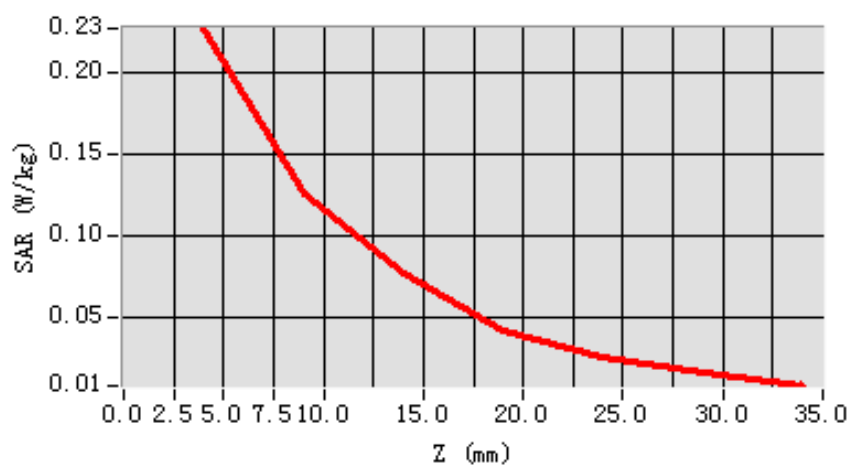
Maximum location: X=-17.00, Y=16.00

SAR 10g (W/Kg)	0.109020
SAR 1g (W/Kg)	0.243319

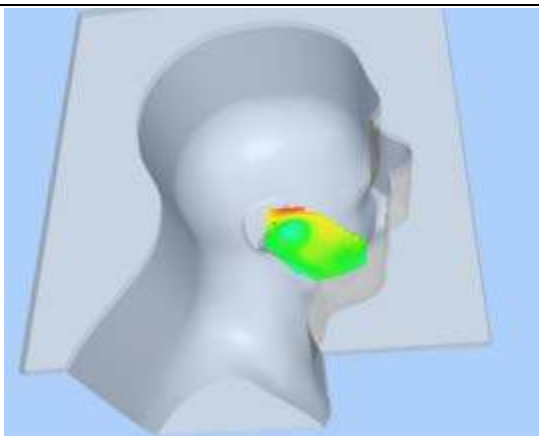
**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2264	0.1248	0.0763	0.0413	0.0257	0.0162

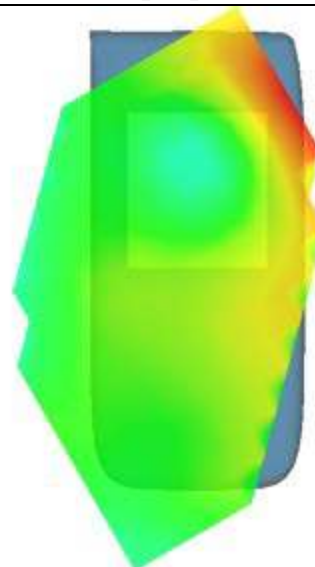
SAR, Z Axis Scan (X = -17, Y = 16)



3D scen shot



Hot spot position



**System Performance Check Data(835MHz)**

Type: Phone measurement (Complete)  
 Area scan resolution: dx=8mm,dy=8mm  
 Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm  
 Date of measurement: 2014.7.2  
 Measurement duration: 13 minutes 27 seconds

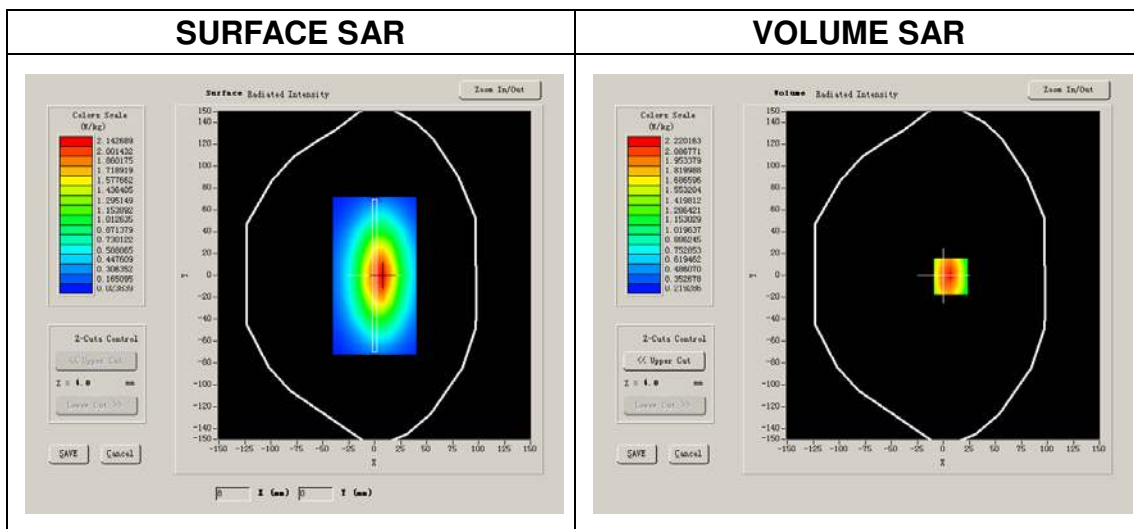
**A. Experimental conditions.**

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

**B. SAR Measurement Results**

Band SAR

<b>Frequency (MHz)</b>	835.000000
<b>Relative permittivity (real part)</b>	41.675999
<b>Conductivity (S/m)</b>	0.894409
<b>Power drift (%)</b>	-0.170000
<b>Ambient Temperature:</b>	22.6°C
<b>Liquid Temperature:</b>	21.2°C
<b>ConvF:</b>	28.559,25.681,27.588
<b>Crest factor:</b>	1:1

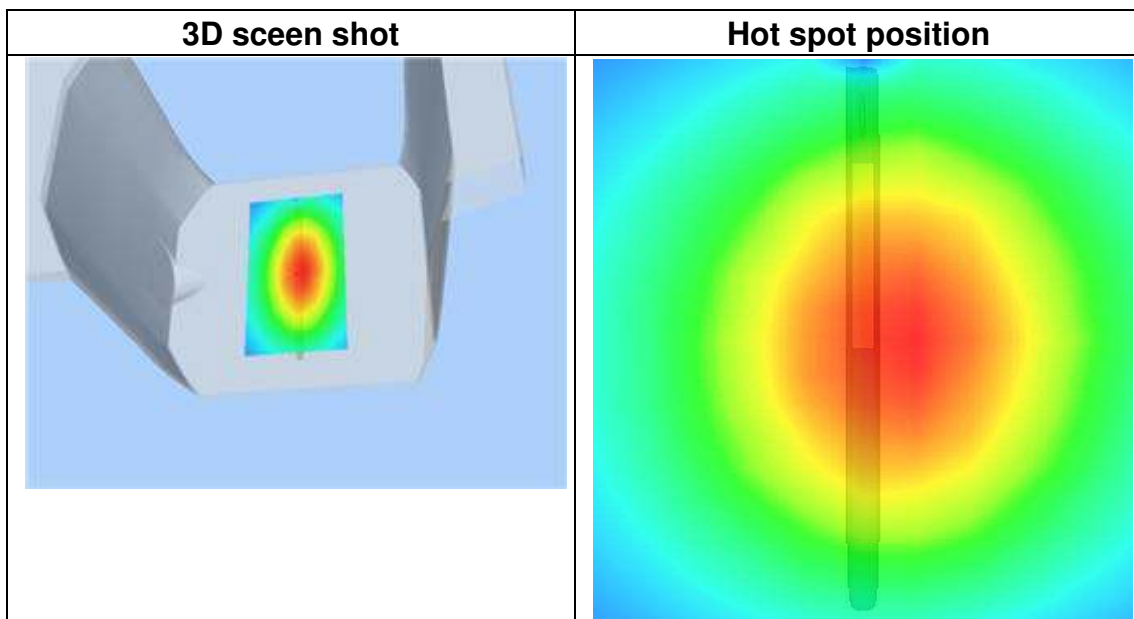
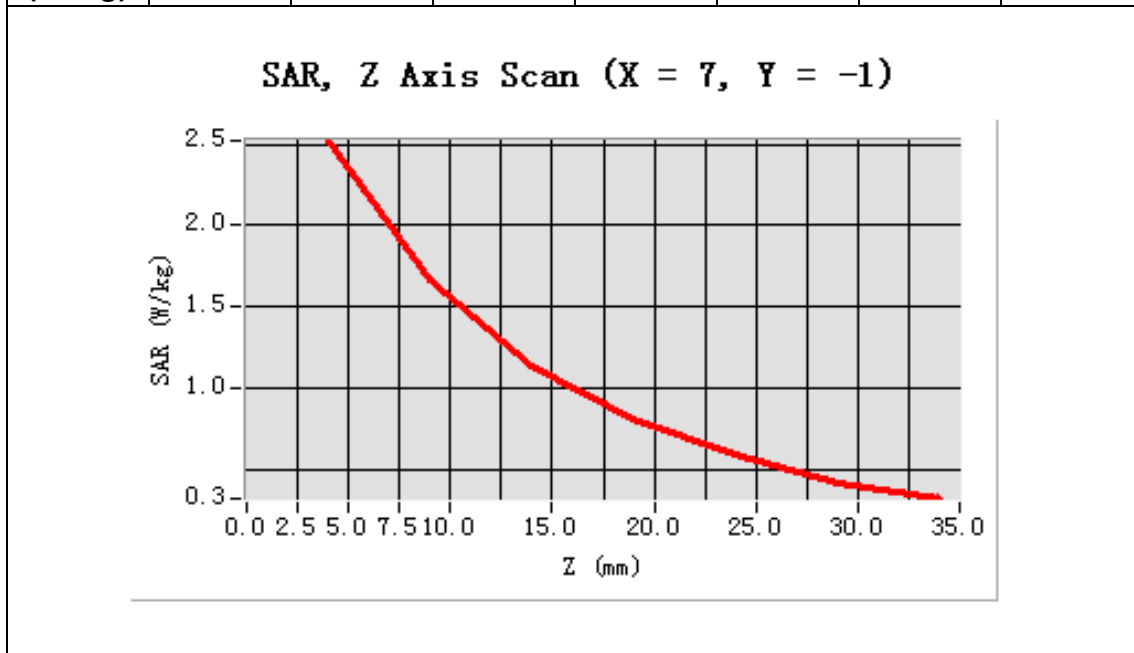


Maximum location: X=7.00, Y=-1.00

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



### System Performance Check Data(1800MHz)

Type: Phone measurement (Complete)

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

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

Date of measurement: 2014.7.2

Measurement duration: 13 minutes 27 seconds

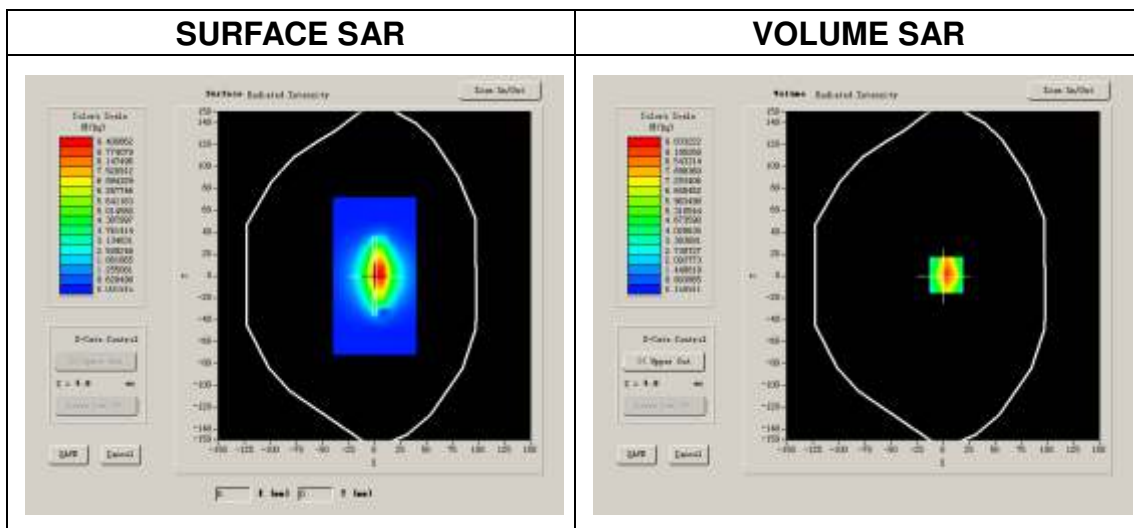
#### A. Experimental conditions.

<b>Phantom File</b>	surf_sam_plan.txt
<b>Phantom</b>	Flat
<b>Device Position</b>	
<b>Band</b>	1800MHz
<b>Channels</b>	
<b>Signal</b>	CW

#### B. SAR Measurement Results

##### Band SAR

<b>Frequency (MHz)</b>	1800.000000
<b>Relative permittivity (real part)</b>	38.930000
<b>Relative permittivity</b>	15.070000
<b>Conductivity (S/m)</b>	1.436111
<b>Power drift (%)</b>	-0.140000
<b>Ambient Temperature:</b>	22.3°C
<b>Liquid Temperature:</b>	22.6°C
<b>ConvF:</b>	42.533, 36.791, 41.019
<b>Crest factor:</b>	1:1



Maximum location: X=3.00, Y=1.00

SAR 10g (W/Kg)	4.971021
SAR 1g (W/Kg)	9.530270

**Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	10.0584	5.6351	3.6143	2.1598	1.4418	0.9132

