



Report No.: SZ12120168S01



SAR TEST REPORT

Issued to

**SHENZHEN SANGFEI CONSUMER
COMMUNICATIONS CO., LTD**

For

SAF3011

Model Name : SAF3011
Trade Name : N/A
Brand Name : N/A
FCC ID : VQRSAF3011
Standard : FCC Oet65 Supplement C Jun.2001
47CFR 2.1093
ANSI C95.1-1999
IEEE 1528-2003
MAX SAR : Head 0.678 W/kg
Body 0.216 W/kg
Test date : 2013-1-29
Issue date : 2013-1-29



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Date 2013.1.29

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Date 2013.01.29

CTIA Authorized Test Lab
LAB CODE 20081223-00
IEEE 1725

OFTA
電訊管理局



GCF
Official Observer of
Global Certification Forum

Bluetooth
BQTF

FCC
Reg. No.
695796

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Change History		
Issue	Date	Reason for change
1.0	Jan. 29, 2013	First edition

1. Testing Laboratory

1.1. Identification of the Responsible Testing Laboratory

Company Name: Shenzhen Morlab Communications Technology Co., Ltd.
Department: Morlab Laboratory
Address: FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China 518101
Responsible Test Lab Manager: Mr. Shu Luan
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1.2. 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
FCC Registration Number: 695796

1.3. Accreditation Certificate

Accredited Testing Laboratory: No. CNAS L3572

1.4. List of Test Equipments

No.	Instrument	Type	Cal. Date	Cal. Due
1	PC	Dell (Pentium IV 2.4GHz, SN:X10-23533)	(n.a)	(n.a)
2	Network Emulator	Aglient (8960, SN:10752)	2012-9-26	1year
3	Network Analyzer	Agilent(E5071B ,SN:MY42404762)	2012-9-26	1year
4	Voltmeter	Keithley (2000, SN:1000572)	2012-9-24	1year
5	Signal Generator	Rohde&Schwarz (SMP_02)	2012-9-24	1year
6	Power Amplifier	PRANA (Ap32 SV125AZ)	2012-9-24	1year
7	Power Meter	Agilent (E4416A, SN:MY45102093)	2012-5-07	1year
8	Power Sensor	Agilent (N8482A, SN:MY41091706)	2012-5-07	1year
9	Directional coupler	Giga-tronics(SN:1829112)	2012-9-24	1year
10	Probe	Satimo (SN:SN_3708_EP80)	2012-10-04	1year
11	Dielectric Probe Kit	Agilent (85033E)	2012-9-24	1year
12	Phantom	Satimo (SN:SN_36_08_SAM62)	2012-9-24	1year
13	Liquid	Satimo(Last Calibration: 2013-1-7)	N/A	N/A
14	Dipole 835MHz	Satimo (SN 36/08 DIPC 99)	2012-10-05	1year
15	Dipole 1900MHz	Satimo (SN 36/08 DIPF 102)	2012-10-05	1year
16	Dipole 2450MHz	Satimo (SN 36/08 DIPJ 103)	2012-10-05	1year

2. Technical Information

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

2.1. Identification of Applicant

Company Name: SHENZHEN SANGFEI CONSUMER COMMUNICATIONS CO., LTD
Address: 11 Science and Technology Road, Shenzhen Hi-tech industrial Park
Nanshan District.Shenzhen, PRC

2.2. Identification of Manufacturer

Company Name: Shenzhen Sangfei Consumer Communications Co., Ltd.
Address: 11 Science and Technology Road, Shenzhen Hi-tech Industrial Park
Nanshan District, Shenzhen 518057, PRC

2.3. Equipment Under Test (EUT)

Model Name: SAF3011
Trade Name: N/A
Brand Name: N/A
Hardware Version: SAF3011_ V3.0
Software Version: SAF3011_0.0.1075.0079_20121220_SHIP.bin
Frequency Bands: CDMA 800MHZ/ 1900MHz;
Bluetooth; Wifi802.11B/G
Modulation Mode: CDMA: CDMA;
WIFI802.11B: DSSS; WIFI802.11G: OFDM
BT: GFSK/Π/4-DQPSK /8-DPSK
3GPP2 version: CDMA2000 1x EVDO Rev. A
DTM: Not support
Antenna type: Fixed Internal Antenna
Development Stage: Identical prototype
Battery Model: SAF3011
Battery specification: 2000mAh
Hotspot function: Not Support

2.3.1. Photographs of the EUT

Please see for photographs of the EUT.

2.3.2. Identification of all used EUT

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

EUT Identity	Hardware Version	Software Version
1#	SAF3011_ V3.0	SAF3011_0.0.1075.0079_20121220_SHIP.bin

2.4. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
2	FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
3	ANSI C95.1-1999	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz
4	IEEE 1528-2003	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.
5	KDB 447498 D1	General RF Exposure Guidance v05
6	KDB 648474 D1	SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas
7	KDB 248227 D1	SAR Measurement Procedures for 802.11 a/b/g Transmitters
8	KDB 941225 D1	SAR Measurement Procedures for 3G Devices
9	KDB 941225 D6	Hot Spot SAR v01
10	KDB 865664 D1	SAR Measurement 100 MHz to 6 GHz v01
11	KDB 865664 D2	SAR Reporting v01

2.5. Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

2.6. Test Environment/Conditions

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa
Test frequency:	CDMA 800MHz/CDMA 1900MHz; 802.11B(2.4GHz)
Operation mode:	Call established
Power Level:	CDMA 800MHz Maximum output power(All up bits) CDMA 1900MHz Maximum output power(All up bits) 802.11B Maximum output power(2.4GHz)

During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established.

The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 1013, 384 and 777 respectively in the case of CDMA 800 MHz, or to 25, 600 and 1175, 1275 respectively in the case of CDMA 1900 MHz, or to 1, 6, 11 respectively in the case of 802.11B (2.4GHz). The EUT is commanded to operate at maximum transmitting power.

The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the manufacturer. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset.

The signal transmitted by the simulator to the antenna feeding point shall be Higher than the output power level of the handset by at least 35 dB.

3. Specific Absorption Rate (SAR)

3.1. Introduction

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

3.2. SAR Definition

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

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

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

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

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

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

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

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

However for evaluating SAR of High 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

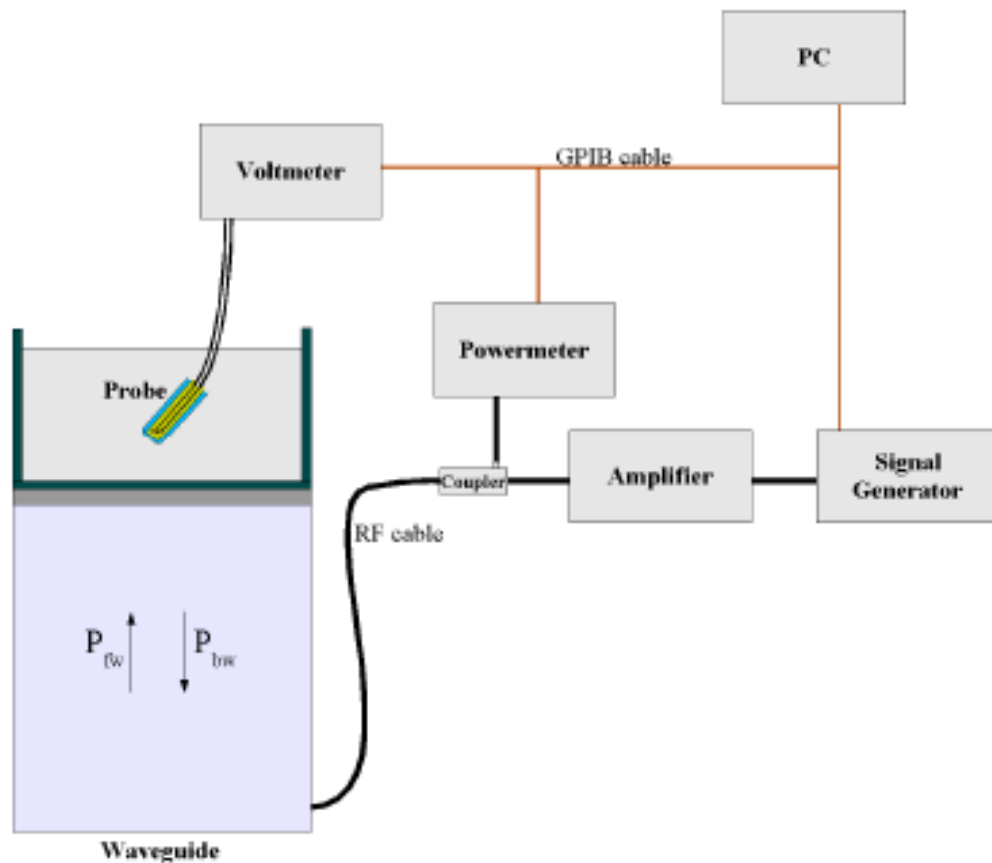
For the measurements the Specific Dosimetric E-Field Probe SN 37/08 EP80 with following specifications is used

- 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 suFront normal line:less than 30°

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



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

Where :

P_{fw} = Forward Power

P_{bw} = Backward Power

a and b = Waveguide dimensions

δ = Skin depth

Keithley configuration:

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

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

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

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

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/cm²) using an with CALISAR, Antenna proprietary calibration system.

4.3.2 Free Space Assessment Procedure

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is beHigh 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm².

4.3.2 Temperature Assessment Procedure

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

Where:

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

Δt = exposure time (30 seconds),

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

ΔT = temperature increase due to RF exposure.

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

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

Where:

σ = simulated tissue conductivity,

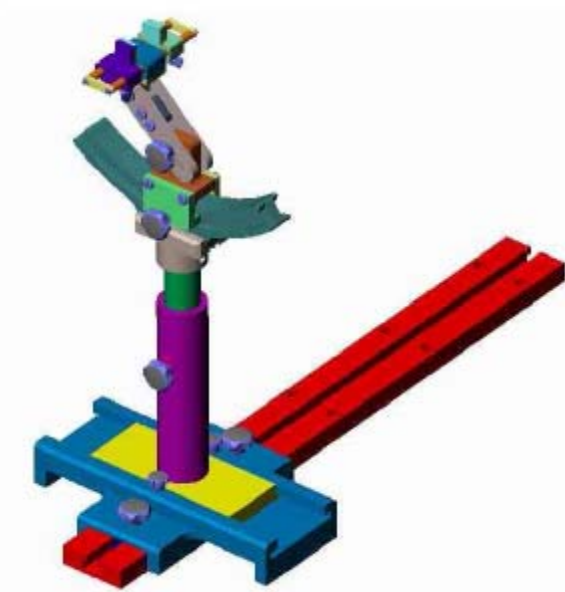
ρ = Tissue density (1.25 g/cm³ for brain tissue)

4.4. Phantom

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

4.5. Device Holder

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



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

5. Tissue Simulating Liquids

Simulant liquids used for testing at frequencies of 835MHz, 1900MHz and 2450MHz, are made mainly of sugar, salt and water solutions may be left in the phantoms. Approximately 20litres are needed for an upright head compared to about 25 litres for a horizontal bath phantom. The liquid height from the ear reference point (ERP) of the phantom to the liquid top surFront is or from the flat phantom to the liquid top surFront is 15cm.

FolHighting are the recipes for head and body tissue simulating liquid for frequency band 835 MHz , 1900 MHz and 2450MHz .

Ingredients (% by weight)	Frequency Band		Frequency Band		Frequency Band	
	835MHz		1800-2000MHz		2450MHz	
Tissue Type	Head	Body	Head	Body	Head	Body
Water	41.45	52.4	54.9	40.4	62.7	73.2
Salt(NaCl)	1.45	1.4	0.18	0.5	0.5	0.04
Sugar	56.0	45.0	0.0	58.0	0.0	0.0
HEC	1.0	1.0	0.0	1.0	0.0	0.0
Bactericide	0.1	0.1	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	44.92	0.0	36.8	0.0
Acticide SPX	0.0	0.0	0.0	0.0	0.0	26.7
Dielectric Constant	42.45	56.1	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.91	0.95	1.42	1.45	1.88	1.97

Table 1: Dielectric Performance of Head Tissue Simulating Liquid

Temperature: 22.0~23.8°C, humidity: 54~60%.			
Frequency	Description	Permittivity ϵ	Conductivity σ (S/m)
835 MHz	Reference result per OET65 $\pm 5\%$ window	41.5 39.425 to 43.575	0.90 0.855 to 0.945
	Reference result per probe calibration $\pm 5\%$ window	41.5 39.425 to 43.575	0.90 0.855 to 0.945
	Validation value (Jan. 7)	41.631854	0.912487
1900MHz	Reference result per OET65 $\pm 5\%$ window	40 38 to 42	1.40 1.33 to 1.47
	Reference result per probe calibration $\pm 5\%$ window	42 39.9 to 44.1	1.40 1.33 to 1.47
	Validation value (Jan. 7)	41.253820	1.415742

2450 MHz	Reference result per OET65 ±5% window	39.2 37.24 to 41.16	1.80 1.71 to 1.89
	Reference result per probe calibration ±5% window	39.2 37.24 to 41.16	1.80 1.71 to 1.89
	Validation value (Jan. 7)	39.723451	1.794326

Table 2: Dielectric Performance of Body Tissue Simulating Liquid

Temperature: 22.0~23.8°C, humidity: 54~60%.			
Frequency	Description	Permittivity ϵ	Conductivity σ (S/m)
835 MHz	Reference result per OET65 ±5% window	55.2 52.44 to 57.96	0.97 0.9215 to 1.0185
	Reference result per probe calibration ±5% window	56.1 53.295 to 58.905	0.95 0.905 to 0.998
	Validation value (Jan. 7)	55.016124	0.951510
1900MHz	Reference result per OET65 ±5% window	53.3 50.635 to 55.965	1.52 1.444 to 1.596
	Reference result per probe calibration ±5% window	54 51.3 to 56.7	1.45 1.378 to 1.523
	Validation value (Jan. 7)	53.283431	1.508114
2450 MHz	Reference result per OET65 ±5% window	52.7 50.635 to 55.965	1.95 1.853 to 2.048
	Reference result per probe calibration ±5% window	52.5 49.875 to 55.125	1.78 1.691 to 1.869
	Validation value (Jan. 7)	53.461064	1.863317

Note:1.The dielectric parameters of the liquids were verified prior to the SAR evaluation using an Agilent 85033E Dielectric Probe Kit and an Agilent Network Analyzer.

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

3.Per KDB 450824 D01, tissue used during test are within 5% tolerances of probe calibration report, and also within 5% of the target dielectric parameters for OET65.

"when the actual tissue dielectric parameters are recorded for the probe calibration, the differences for ϵ and σ between probe calibration and routine measurements should each be $\leq 5\%$ while satisfying the required $\pm 5\%$ tolerances in target dielectric parameters. "(KDB 450824 D01)

6. Uncertainty Assessment

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

6.1. UNCERTAINTY EVALUATION FOR EUT SAR TEST

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	lg Ui (+-%)	10g Ui (+-%)	Vi
Measurement System									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.76	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.01	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.62	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∞
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Test sample Related									
Test sample positioning	E.4.2.1	0.03	N	1	1	1	0.03	0.03	N-1
Device Holder Uncertainty	E.4.1.1	5.00	N	1	1	1	5.00	5.00	N-1
Output power Power drift - SAR drift measurement	6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.33	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞

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

6.2. UNCERTAINTY FOR SYSTEM PERFORMANCE CHECK

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

Input power and SAR drift measurement	8,6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.33	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.13	∞
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	$\sqrt{3}$	0.64	0.43	1.85	1.24	M
Liquid permittivity - deviation from target value	E.3.2	3.69	R	$\sqrt{3}$	0.6	0.49	1.28	1.04	∞
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	$\sqrt{3}$	0.6	0.49	3.46	2.83	M
Combined Standard Uncertainty			RSS				8.83	8.37	
Expanded Uncertainty (95% Confidence interval)			K=2				17.66	16.73	

7. SAR Measurement Evaluation

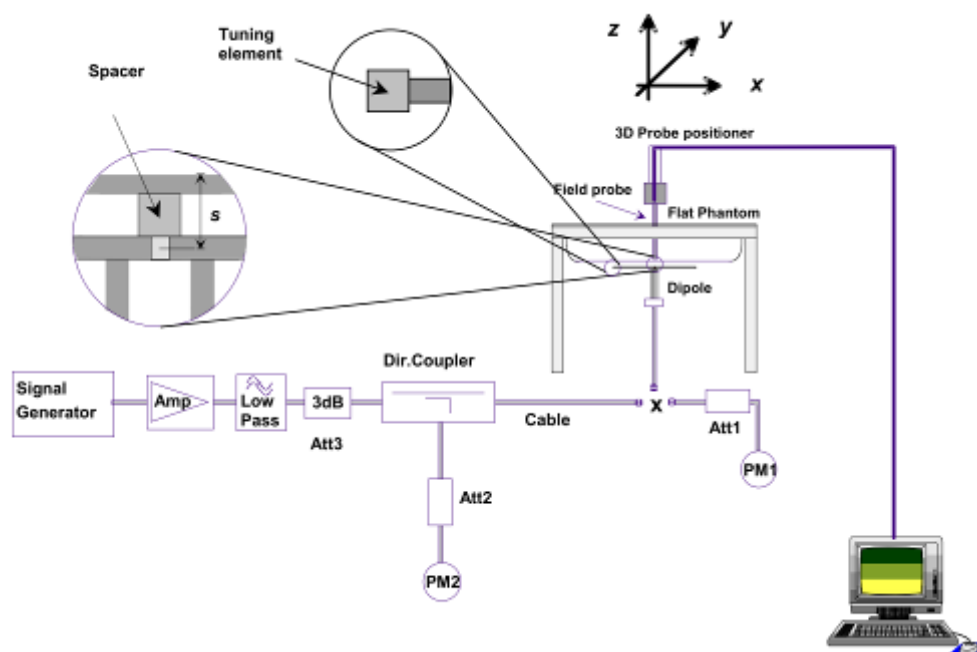
7.1. System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave which comes from a signal generator at frequency 835 MHz , 1900 MHz and 2450MHz. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surFront with a light pressure at the reference marking and be oriented parallel to the long side of the phantom.

Equipments:

name	Type and specification
Signal generator	Rohde&Schwarz (SMP_02)
Directional coupler	Giga-tronics(SN:1829112)
Amplifier	PRANA (Ap32 SV125AZ)
Reference dipole	835MHz:SN 36/08 DIPC 99 1900MHz:SN 36/08 DIPF 102 2450MHz:SN 36/08 DIPJ 103

System Verification Setup Block Diagram



7.2. Validation Results

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

Frequency	835MHz(H)	835MHz(B)	1900MHz(H)	1900MHz(B)
Target value (1g)	9.740 W/Kg	9.880 W/Kg	40.320 W/Kg	38.530 W/Kg
Test value (1g 250 mW input)	2.386 W/Kg	2.380 W/Kg	9.791 W/Kg	9.746 W/Kg
Normalized value (1g)	9.544 W/Kg	9.520W/Kg	39.164 W/Kg	38.984 W/Kg

Frequency	2450MHz(H)	2450MHz(B)
Target value (1g)	50.450 W/Kg	53.590 W/Kg
Test value (1g 250 mW input)	12.044 W/Kg	12.789 W/Kg
Normalized value (1g)	48.176 W/Kg	51.156 W/Kg

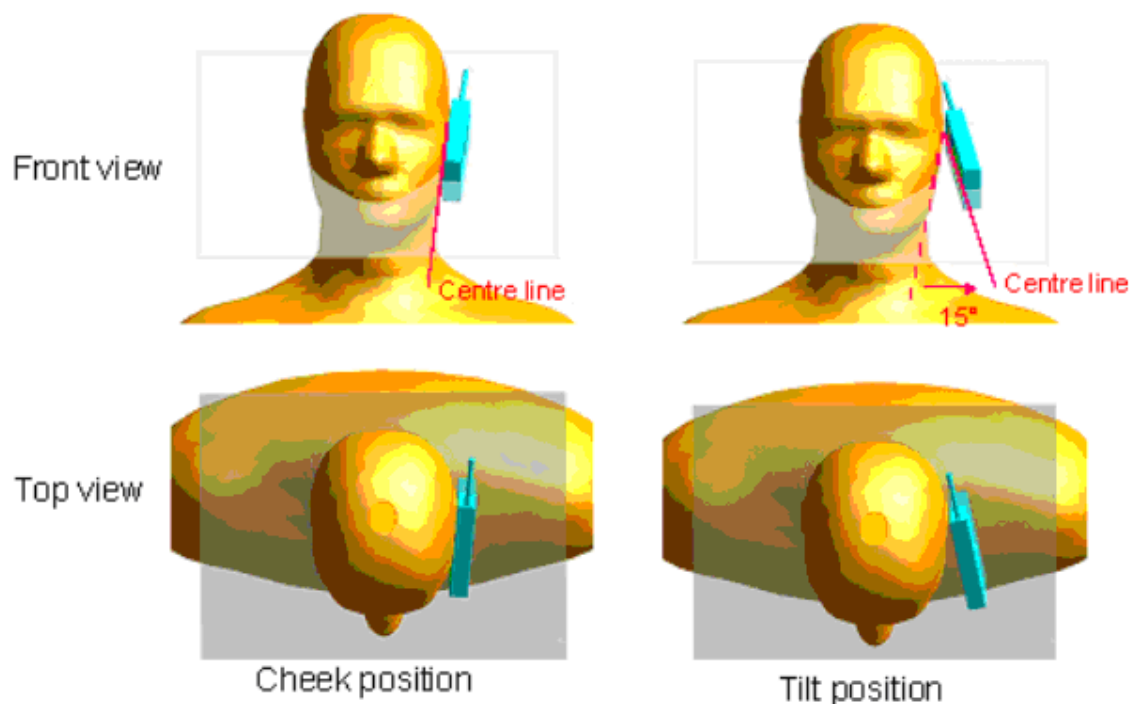
Note: System checks the specific test data please see page 85~96

8. Operational Conditions During Test

8.1. Informations on the testing

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

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



Description of the “cheek” position:

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

Description of the “tilted” position:

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

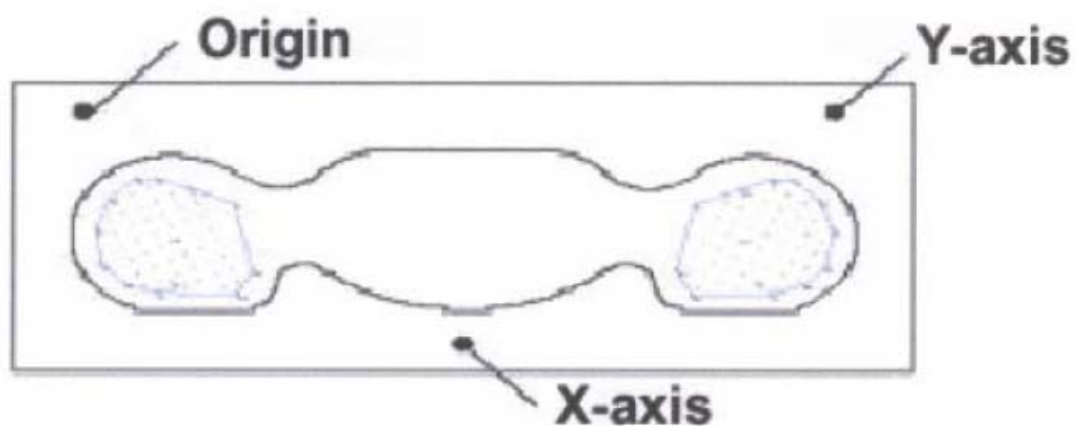
Remark: Please refer to Appendix B for the test setup photos.

8.2. Body-worn Configurations

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

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

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



SAR Measurement Points in Area Scan

8.3. Measurement procedure

The following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors can not directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

8.4. Description of interpolation/extrapolation scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surFront in order to minimize measurements errors, but the highest local SAR will occur at the surFront 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 surFront with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

9. Measurement Of Conducted Peak output power

1. CDMA 1xRTT& EVDO power

Band	Channel	Frequency	SO55 (dBm)		TDSO SO32 (dBm)		1x EVDO Rev. 0 (dBm)	1xEVDO Rev. A (dBm)
	F-RC	(MHz)	RC1	RC3	FCH+SCH	FCH	(RTAP)	(RETAP)
CDMA800	1013	824.7	27.81	27.91	27.86	27.82	26.38	26.32
	384	836.52	28.80	28.86	28.74	28.86	27.16	27.16
	777	848.31	29.30	29.36	29.31	29.30	27.28	27.28
CDMA1900	25	1851.25	27.32	27.42	27.21	27.31	24.83	24.82
	600	1880	28.01	28.11	28.11	28.11	24.73	24.73
	1175	1908.75	28.45	28.55	28.55	28.50	24.00	24.00
G-Block	1275	1913.4	24.05	24.05	24.05	24.05	23.90	23.93

2. WiFi peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)	
			802.11B (DSSS)	802.11G (OFDM)
Wifi	1	2412	14.57	10.58
	6	2437	14.43	10.79
	11	2462	14.57	11.18

3. Bluetooth peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			GFSK	Π/4-DQPSK	8-DPSK
BT	0	2402	-1.598	-1.218	-0.938
	39	2441	-1.068	-0.803	-0.580
	78	2480	-2.351	-2.128	-1.887

10. Test Results List

Summary of Measurement Results (CDMA 800MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g
Right Side Of Head	Cheek/Touch	777	0.527	1.032	0.544
	Ear/Tilt		0.313		0.323
Left Side Of Head	Cheek/Touch		0.657		0.678
	Ear/Tilt		0.435		0.449
Body (15mm)	Back upward	777	0.457	1.047	0.478
	Front upward		0.396		0.415

Summary of Measurement Results (CDMA 1900MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g
Right Side Of Head	Cheek/Touch	1175	0.567	1.109	0.629
	Ear/Tilt		0.381		0.423
Left Side Of Head	Cheek/Touch		0.589		0.653
	Ear/Tilt		0.376		0.417
Body (15mm)	Back upward	1175	0.460	1.122	0.516
	Front upward		0.252		0.283

Summary of Measurement Results (CDMA 1900MHz G-Block Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g
Right Side Of Head	Cheek/Touch	1275	0.566	1.109	0.628
	Ear/Tilt		0.377		0.418
Left Side Of Head	Cheek/Touch		0.590		0.654
	Ear/Tilt		0.216		0.240
Body (15mm)	Back upward	1275	0.451	1.109	0.500
	Front upward		0.304		0.337

Summary of Measurement Results (WLAN 802.11B Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g
Right Side Of Head	Cheek/Touch	11	0.164	1.104	0.181
	Ear/Tilt		0.048		0.053
Left Side Of Head	Cheek/Touch		0.086		0.095
	Ear/Tilt		0.055		0.061
Body (1mm)	Back upward		0.133		0.147
	Front upward		0.099		0.109

Note:

- When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy the following conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v05)
 - ≤ 0.8 W/kg and transmission band ≤ 100 MHz
 - ≤ 0.6 W/kg and, $100 \text{ MHz} < \text{transmission bandwidth} \leq 200 \text{ MHz}$
 - ≤ 0.4 W/kg and transmission band $> 200 \text{ MHz}$
- During 802.11b(2.4GHz) testing, engineering testing software installed on the EUT can provide continuous transmitting RF signal. The RF signal utilized in SAR measurement has almost 100% duty cycle, and its crest factor is 1.

Per KDB publication 941225 D01v02(note 3 to 5):

- SAR for head exposure configurations is measured in RC3 with the DUT configured to transmit at full rate using Loopback Service Option SO55. SAR for RC1 is not required when the maximum average output of each channel is less than 1/4 dB higher than that measured in RC3.
- SAR for body exposure configurations is measured in RC3 with the DUT configured to transmit at full rate on FCH with all other code channels disabled using TDSO / SO32. SAR for multiple code channels (FCH + SCHn) is not required when the maximum average output of each RF channel is less than 1/4 dB higher than that measured with FCH only.
- For handsets with Ev-Do capabilities, when the maximum average output of each channel in Rev. 0 is less than 1/4 dB higher than that measured in RC3 (1x RTT), body SAR for Ev-Do is not required. SAR for Rev. A is not required when the maximum average output of each channel is less than that measured in Rev. 0 or less than 1/4 dB higher than that measured in RC3.

4. Scaling Factor calculation

Band	Tune-up power tolerance (dBm)	SAR test channel Power (dBm)	Scaling Factor
CDMA 800	Max output power =29+-0.5	29.36	1.032
		29.30	1.047
CDMA 1900	Max output power =28.5+-0.5	28.55	1.109
		28.50	1.122
CDMA 1900 G-Block	Max output power =24+-0.5	24.05	1.109
		24.05	1.109
802.11B(2.4GHz)	Max output power =14.5 +-0.5	14.57	1.104

11. Multiple Transmitters Evaluation

The are three transmitters build in EUT, As following Highlighted:



Standalone SAR

TEST distance: 15mm		
Band	SAR Test Exclusion Threshold(mW) Per KDB 447498 D01v05	Highest power including tune-up tolerance(mW)
WIFI(2.4G)	29	31.623
BT	29	0.891

According to the chart above, WIFI2.4G are required for Stand-alone SAR test, BT is not required. The SAR test for 802.11b(2.4GHz) is required, 802.11g is not required, for the maximum average output power is less than 1/4 dB higher than measured on the corresponding 802.11b channels. As per KDB 248227

The SAR test for BT is not required for highest power is not exceed the power threshold for 2450MHz at the test distance of 15mm.

Simultaneous SAR

Applicable Multiple Scenario Evaluation

Test Position	CDMA SAR _{Max} (W/Kg)	Bluetooth SAR(W/Kg)	WiFi SAR _{Max} (W/Kg)	Σ1-g SAR _{Max} (W/Kg)	
				BT&Main Ant	WiFi&Main Ant
Head SAR	0.678	0.037	0.181	0.715	0.859
Body SAR	0.516	0.012	0.147	0.528	0.663

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

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

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

(Max power=0.891 mW(per tune up) ; min. test separation distance=5mm for head and 15mm for body; $f=2.4\text{GHz}$)

BT estimated Head SAR = 0.037 W/Kg (1g) BT estimated Body SAR = 0.012 W/Kg (1g)

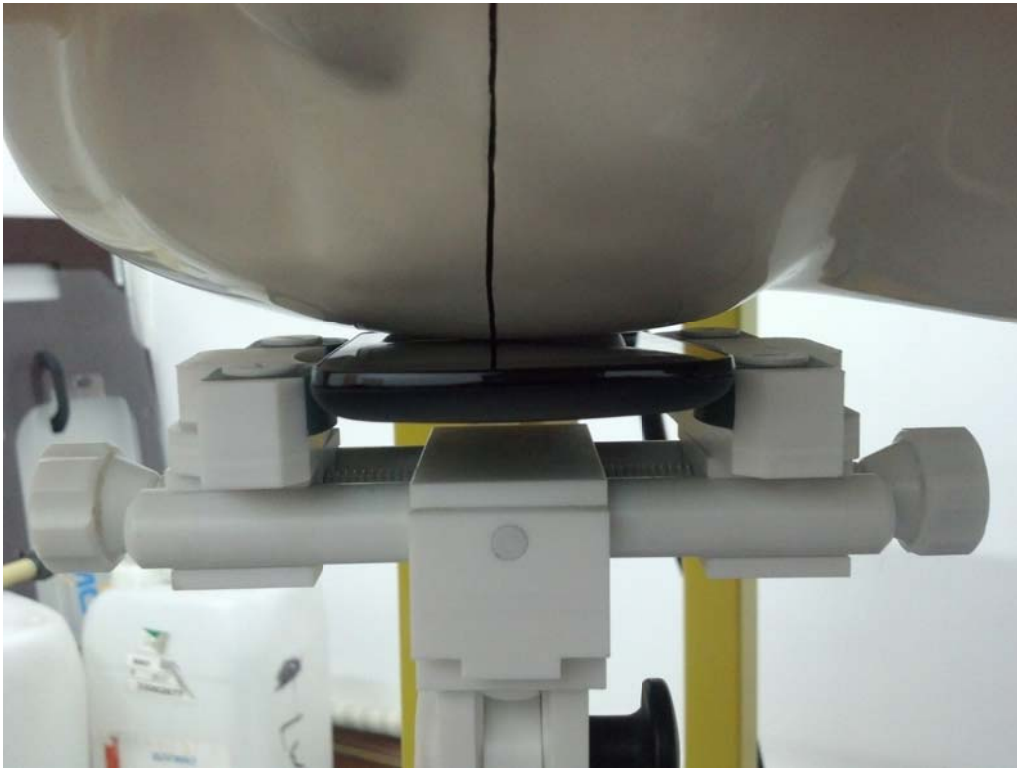
Simultaneous Transmission SAR evaluation is not required for Wifi and CDMA, because the sum of 1g SAR_{Max} is **0.859W/Kg** < 1.6W/Kg for Wifi and CDMA.

Simultaneous Transmission SAR evaluation is not required for BT and CDMA, because the sum of 1g SAR_{Max} is **0.730W/Kg** < 1.6W/Kg for BT and CDMA.

(According to KDB 447498D01v05, the sum of the highest reported SAR of each antenna does not exceed the limit, simultaneous transmission SAR evaluation is not required.)

Annex A EUT Setup Photos

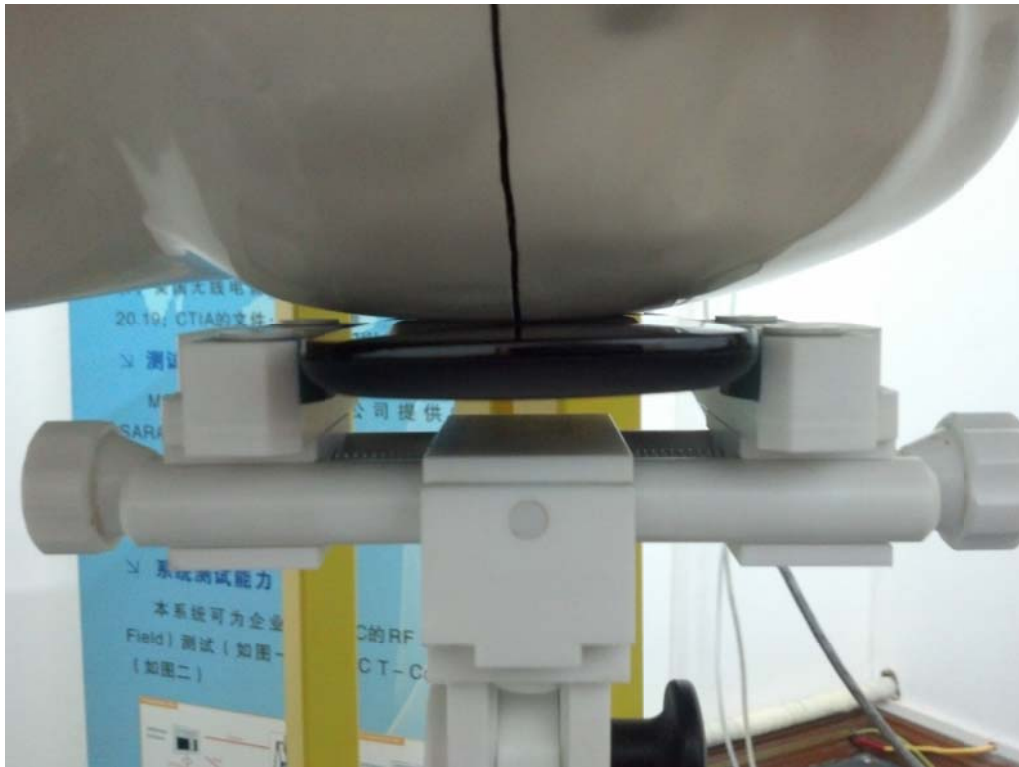
1 EUT Right Head Touch Cheek Position



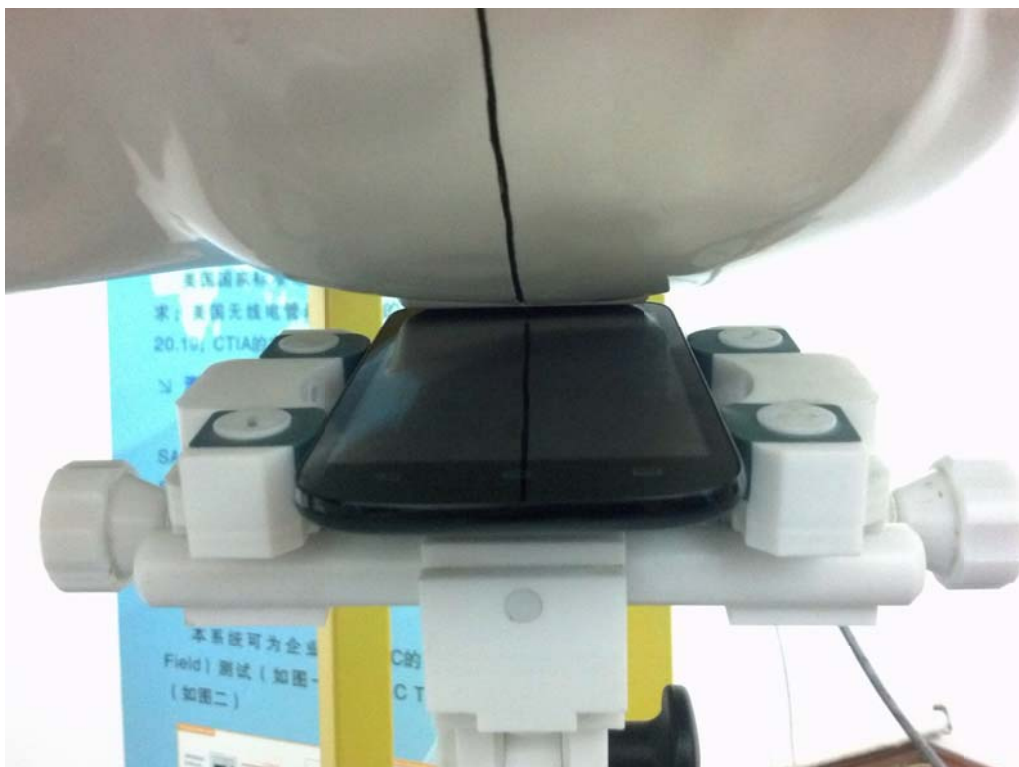
2 EUT Right Head Tilt15 Position



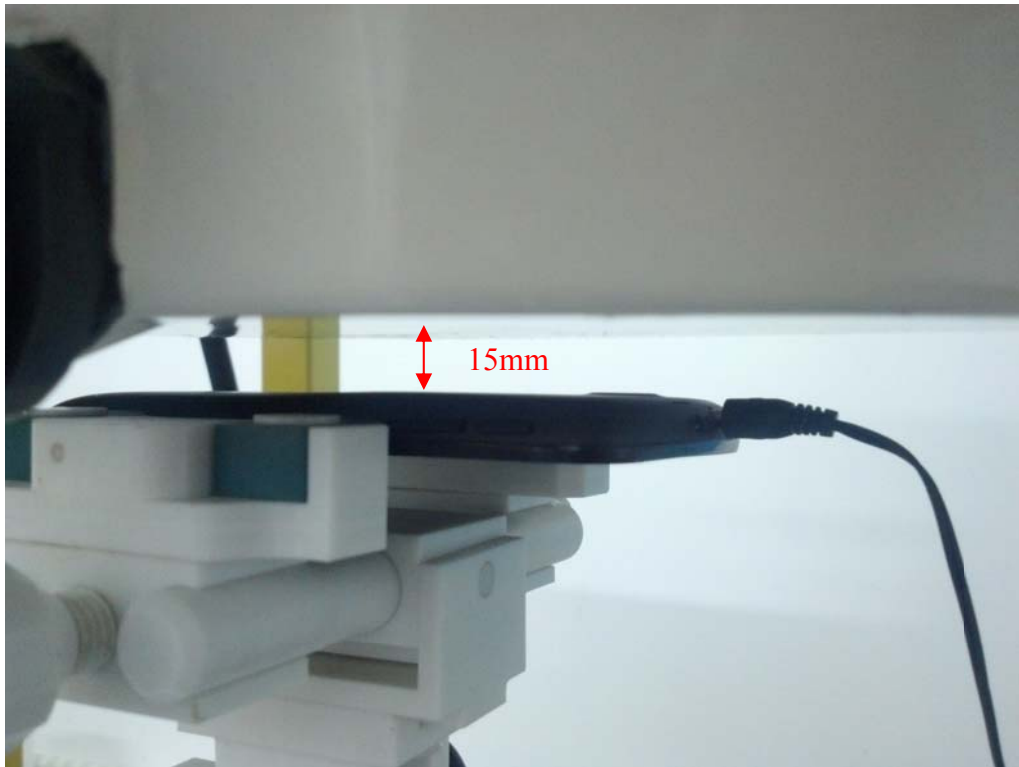
3 EUT Left Head Touch Cheek Position



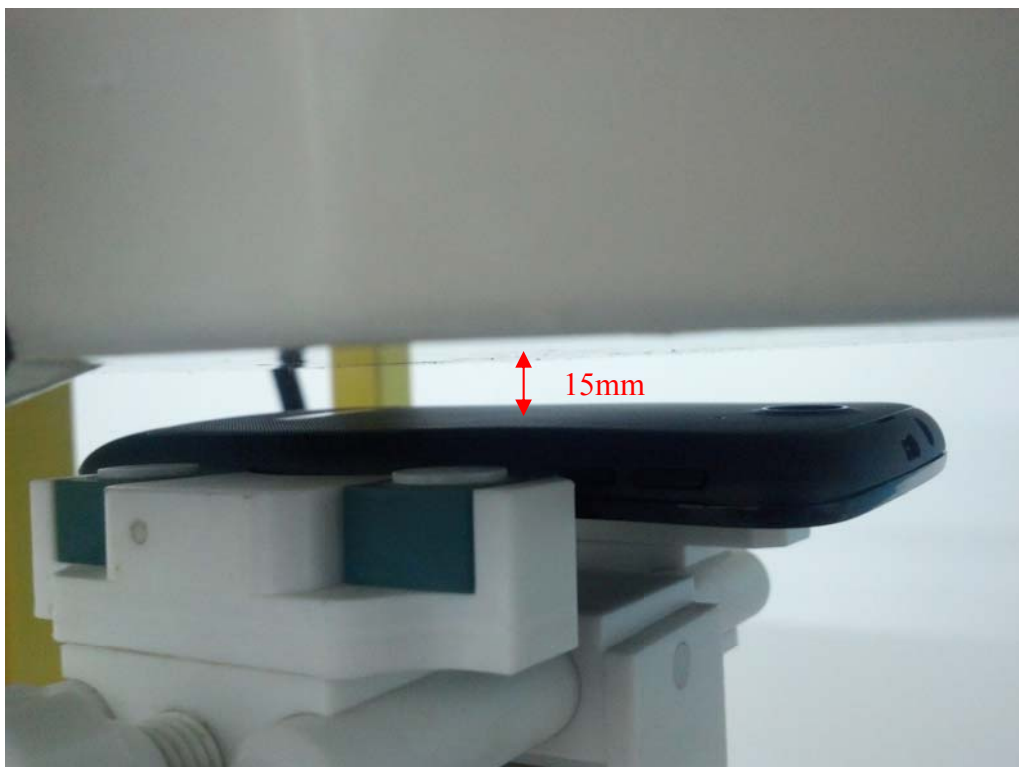
4 EUT Left Head Tilt15 Position



5 Side Position with earphone



6 Side Position



Liquid Level Photo



Liquid depth :15.5cm

Annex B Graph Test Results

BAND	PARAMETERS
<u>CDMA 800</u>	<u>Measurement 1:</u> Right Head with Cheek device position on High Channel in CDMA mode <u>Measurement 2:</u> Right Head with Tilt device position on High Channel in CDMA mode <u>Measurement 3:</u> Left Head with Cheek device position on High Channel in CDMA mode <u>Measurement 4:</u> Left Head with Tilt device position on High Channel in CDMA mode <u>Measurement 5:</u> Flat Plane with Body device position on High Channel in CDMA mode <u>Measurement 6:</u> Flat Plane with Body device position on High Channel in CDMA mode
<u>CDMA 1900</u>	<u>Measurement 7:</u> Right Head with Cheek device position on High Channel in CDMA mode <u>Measurement 8:</u> Right Head with Tilt device position on High Channel in CDMA mode <u>Measurement 9:</u> Left Head with Cheek device position on High Channel in CDMA mode <u>Measurement 10:</u> Left Head with Tilt device position on High Channel in CDMA mode <u>Measurement 11:</u> Flat Plane with Body device position on High Channel in CDMA mode <u>Measurement 12:</u> Flat Plane with Body device position on High Channel in CDMA mode
<u>CDMA 1900 G-Block</u>	<u>Measurement 13:</u> Right Head with Cheek device position in CDMA mode <u>Measurement 14:</u> Right Head with Tilt device position in CDMA mode <u>Measurement 15:</u> Left Head with Cheek device position in CDMA mode <u>Measurement 16:</u> Left Head with Tilt device position in CDMA mode <u>Measurement 17:</u> Flat Plane with Body device position in CDMA mode <u>Measurement 18:</u> Flat Plane with Body device position in CDMA mode
<u>802.11B (2450)</u>	<u>Measurement 19:</u> Right Head with Cheek device position on High Channel in DSSS mode <u>Measurement 20:</u> Right Head with Tilt device position on High Channel in DSSS mode

	<p><u>Measurement 21:</u> Left Head with Cheek device position on High Channel in DSSS mode</p> <p><u>Measurement 22:</u> Left Head with Tilt device position on High Channel in DSSS mode</p> <p><u>Measurement 23:</u> Flat Plane with Body device position on High Channel in DSSS mode</p> <p><u>Measurement 24:</u> Flat Plane with Body device position on High Channel in DSSS mode</p>
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MEASUREMENT 1

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 7 minutes 59 seconds

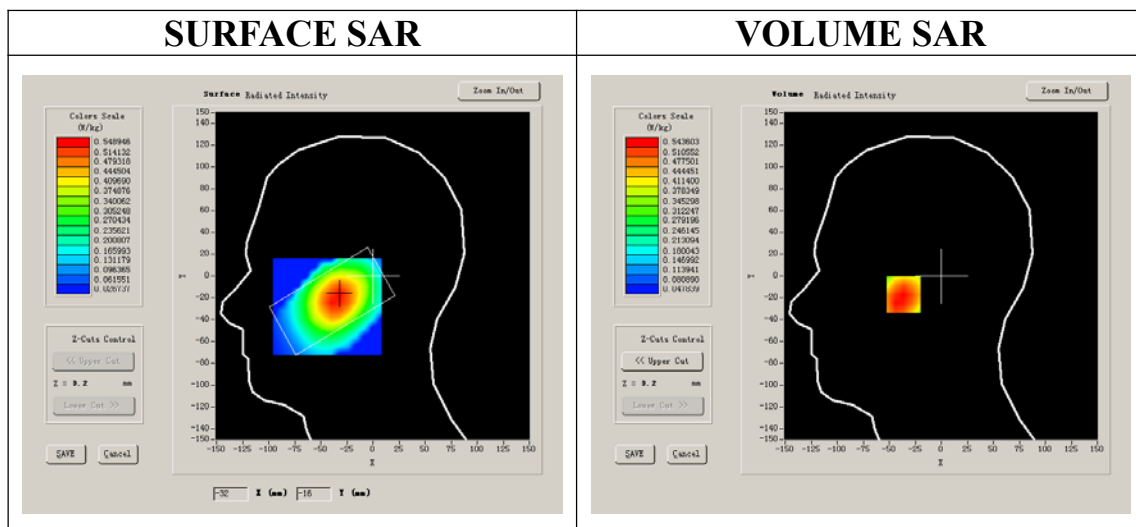
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	CDMA800
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 777):

Frequency (MHz)	848.310000
Relative permittivity (real part)	41.631854
Conductivity (S/m)	0.912487
Power drift (%)	0.450000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
ConvF:	28.479, 25.214, 27.196
Crest factor:	1:1



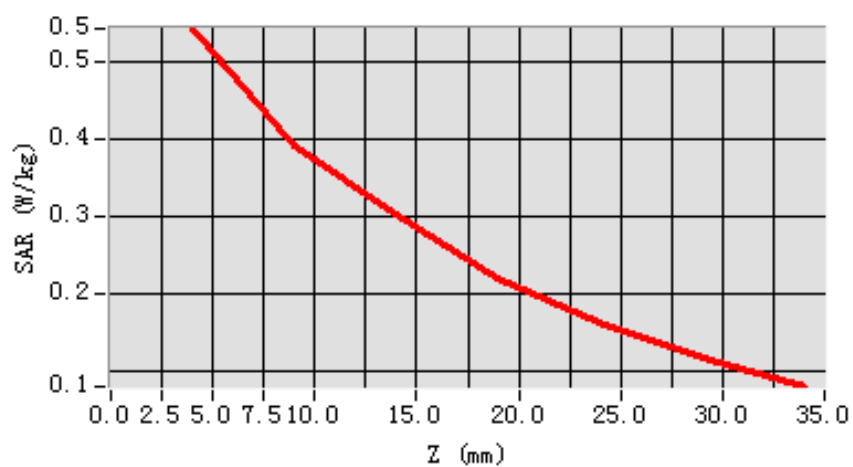
Maximum location: X=-32.00, Y=-17.00

SAR 10g (W/Kg)	0.373048
SAR 1g (W/Kg)	0.527097

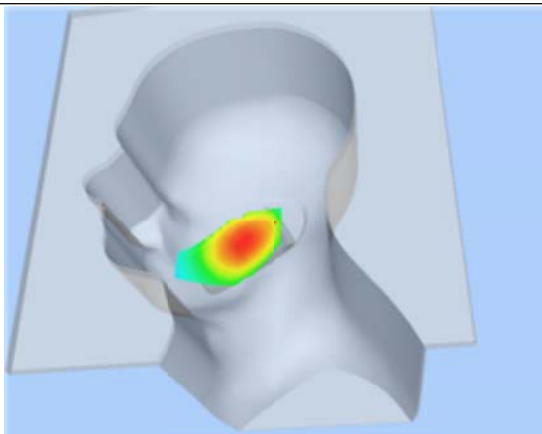
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5436	0.3929	0.3021	0.2201	0.1623	0.1162

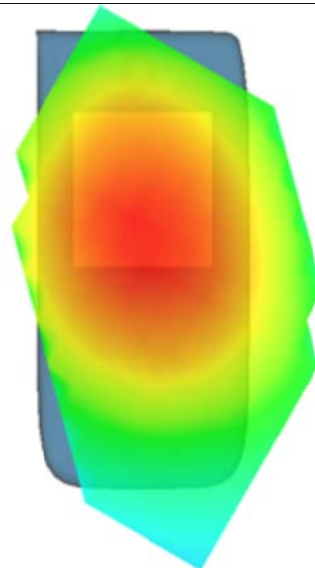
SAR, Z Axis Scan (X = -32, Y = -17)



3D scene shot



Hot spot position



MEASUREMENT 2

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 7 minutes 41 seconds

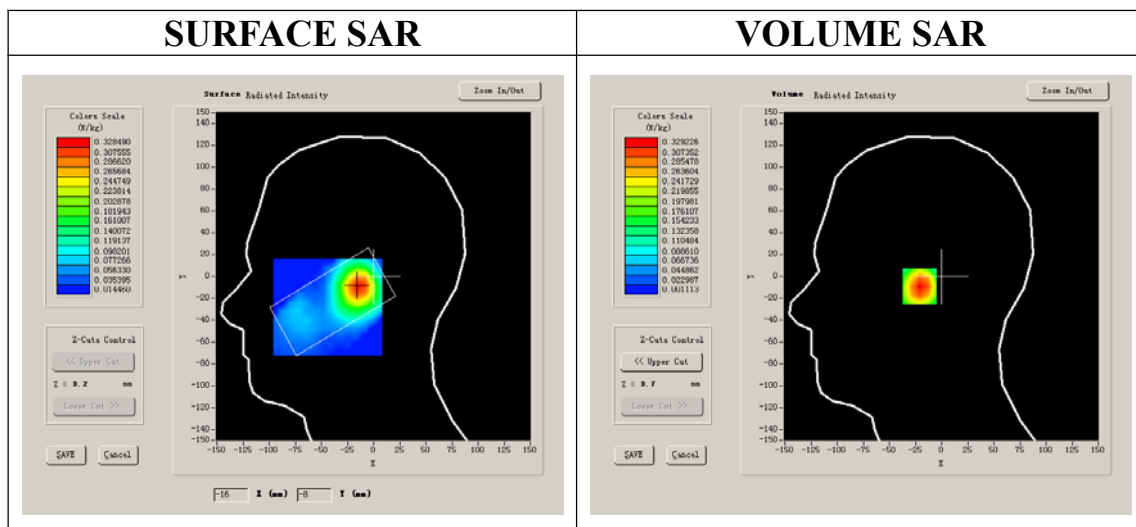
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	CDMA800
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 777):

Frequency (MHz)	848.310000
Relative permittivity (real part)	41.631854
Conductivity (S/m)	0.912487
Power drift (%)	0.020000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
ConvF:	28.479, 25.214, 27.196
Crest factor:	1:1



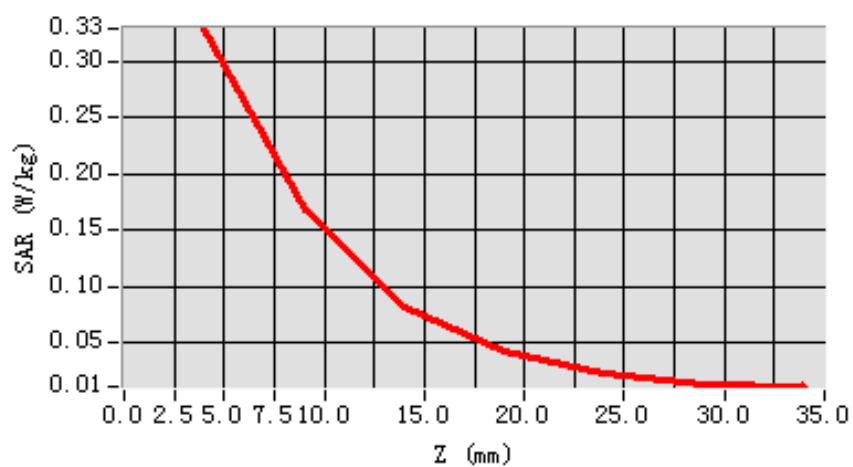
Maximum location: X=-15.00, Y=-9.00

SAR 10g (W/Kg)	0.164379
SAR 1g (W/Kg)	0.313925

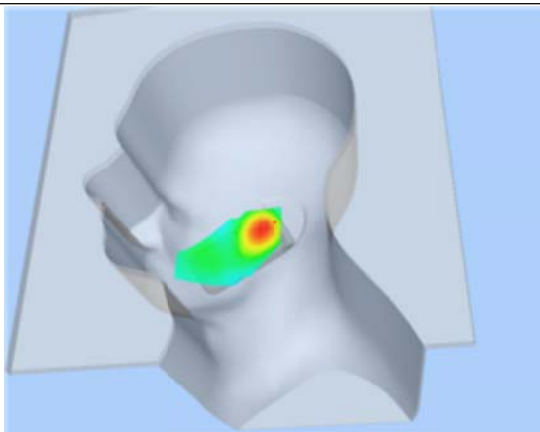
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3292	0.1683	0.0809	0.0413	0.0222	0.0136

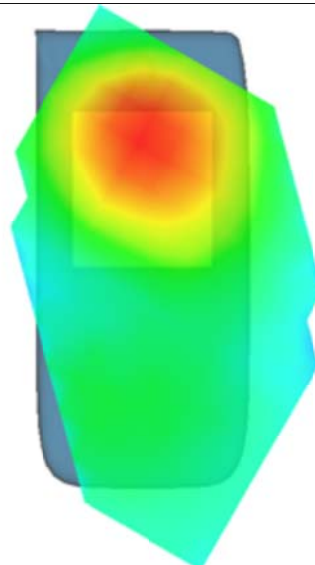
SAR, Z Axis Scan (X = -15, Y = -9)



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: 2013.1.7

Measurement duration: 7 minutes 53 seconds

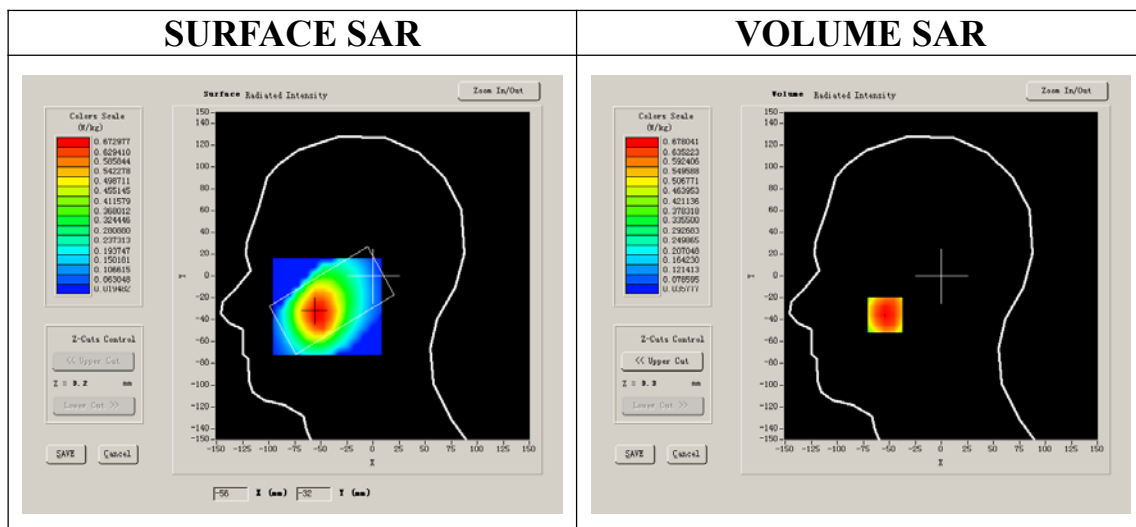
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	CDMA800
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 777):

Frequency (MHz)	848.310000
Relative permittivity (real part)	41.631854
Conductivity (S/m)	0.912487
Power drift (%)	-0.500000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
ConvF:	28.479, 25.214, 27.196
Crest factor:	1:1



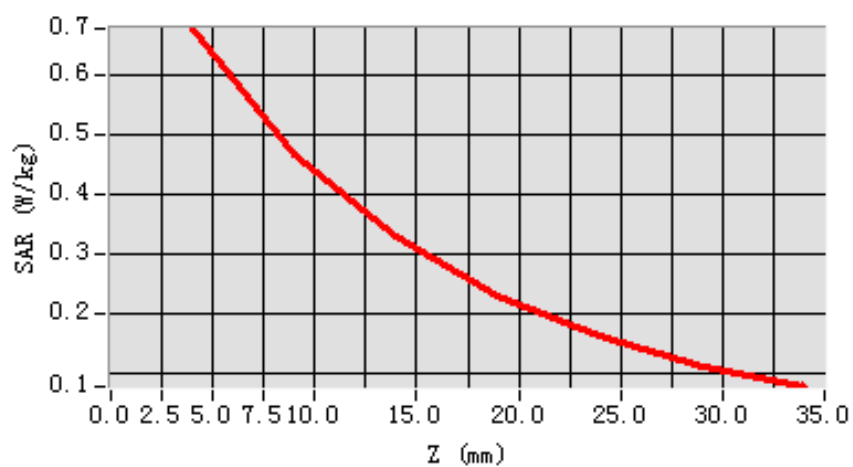
Maximum location: X=-54.00, Y=-36.00

SAR 10g (W/Kg)	0.448873
SAR 1g (W/Kg)	0.657191

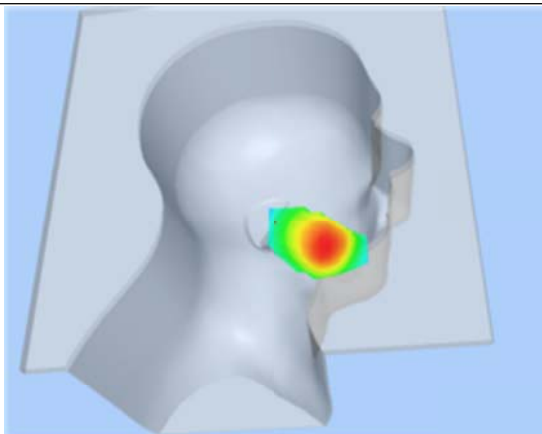
Z Axis Scan

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

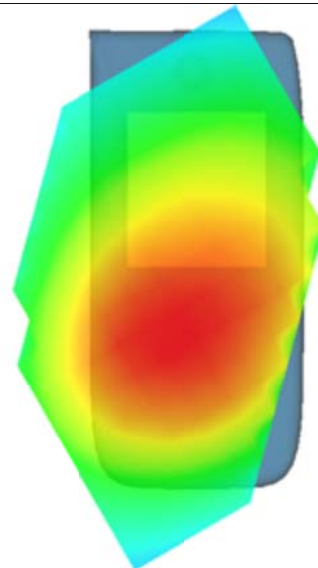
SAR, Z Axis Scan (X = -54, Y = -36)



3D scene shot



Hot spot position



MEASUREMENT 4

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 7 minutes 40 seconds

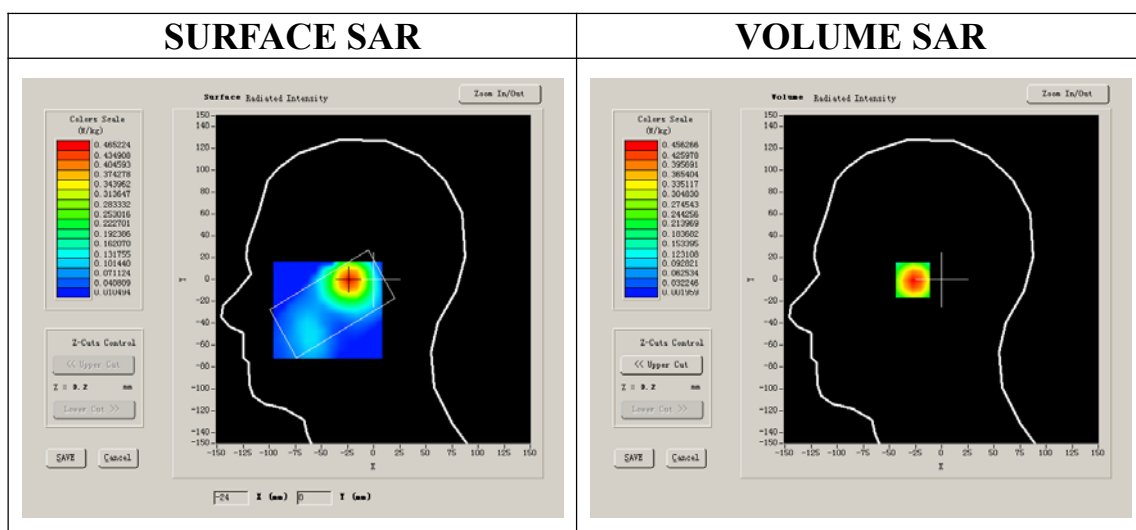
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	CDMA800
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 777):

Frequency (MHz)	848.310000
Relative permittivity (real part)	41.631854
Conductivity (S/m)	0.912487
Power drift (%)	-0.380000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
ConvF:	28.479, 25.214, 27.196
Crest factor:	1:1



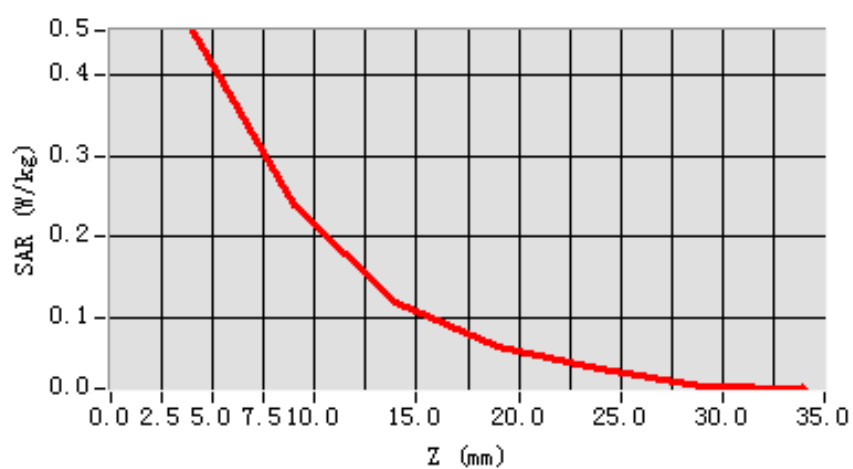
Maximum location: X=-24.00, Y=0.00

SAR 10g (W/Kg)	0.228835
SAR 1g (W/Kg)	0.435056

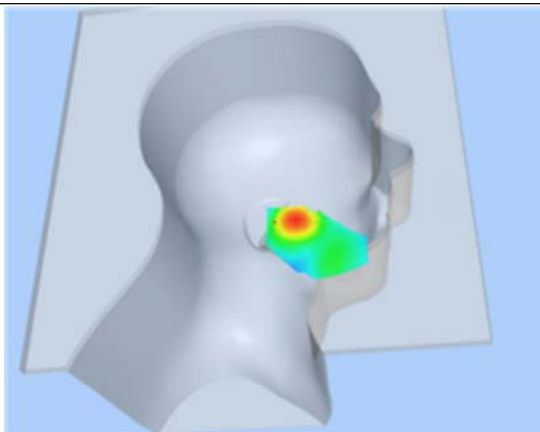
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4563	0.2386	0.1191	0.0640	0.0347	0.0136

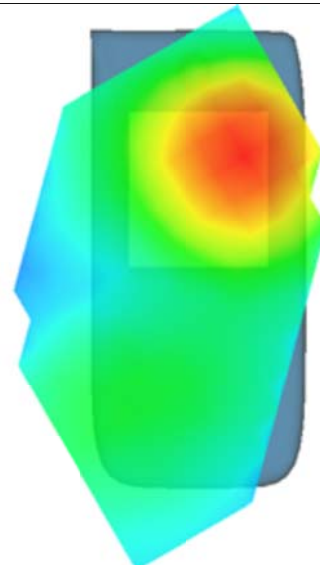
SAR, Z Axis Scan (X = -24, Y = 0)



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: 2013.1.7

Measurement duration: 9 minutes 15 seconds

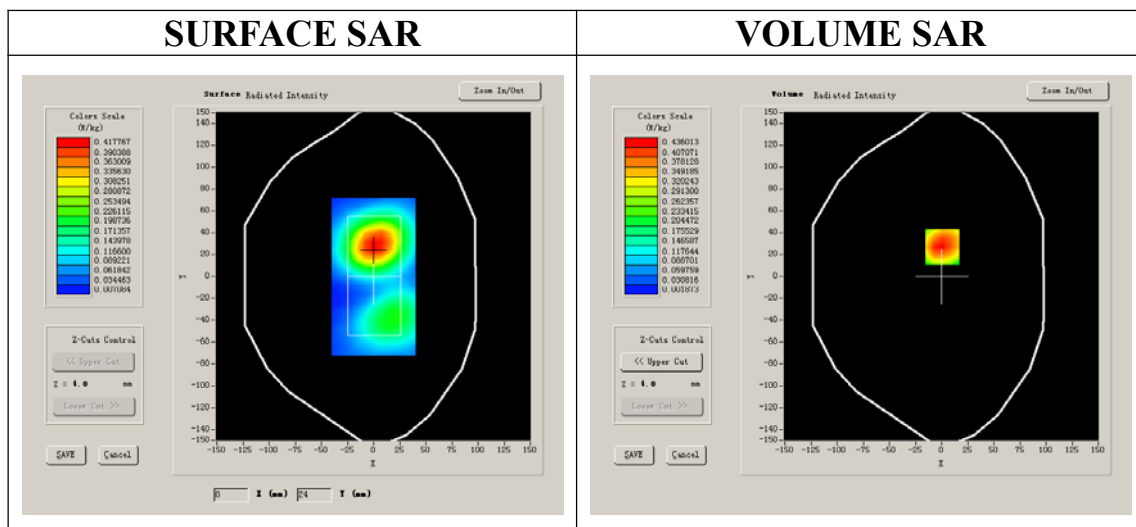
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	CDMA800
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 777):

Frequency (MHz)	848.310000
Relative permittivity (real part)	55.016124
Conductivity (S/m)	0.951510
Power drift (%)	-0.030000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
ConvF:	28.559, 25.681, 27.588
Crest factor:	1:1



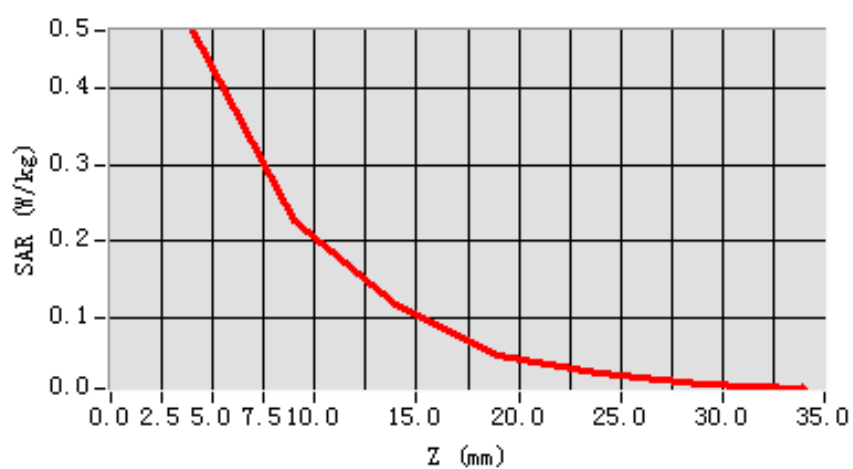
Maximum location: X=1.00, Y=27.00

SAR 10g (W/Kg)	0.240459
SAR 1g (W/Kg)	0.457361

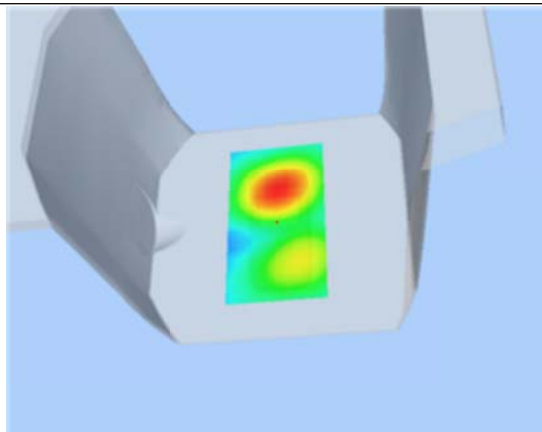
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4748	0.2265	0.1178	0.0499	0.0274	0.0118

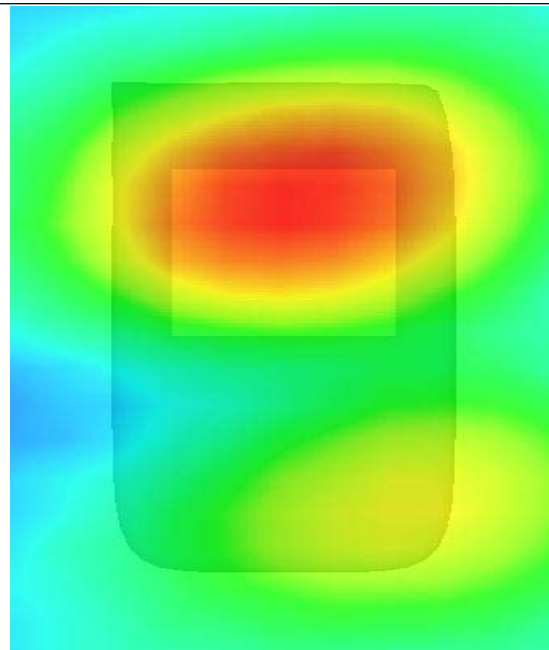
SAR, Z Axis Scan (X = 1, Y = 27)



3D scene shot



Hot spot position



MEASUREMENT 6

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 9 minutes 16 seconds

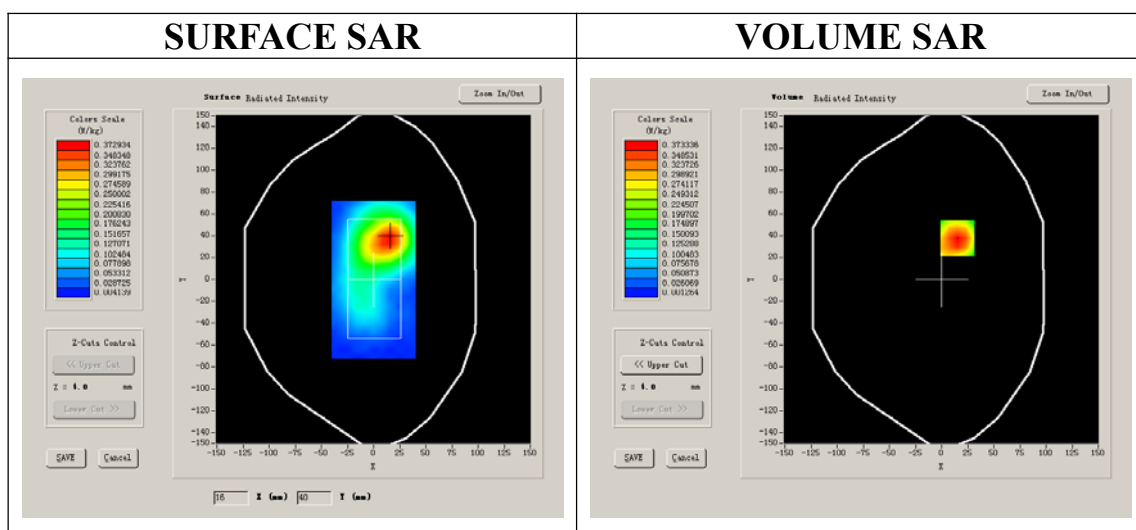
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	CDMA800
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 777):

Frequency (MHz)	848.310000
Relative permittivity (real part)	55.016124
Conductivity (S/m)	0.951510
Power drift (%)	-1.390000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
ConvF:	28.559, 25.681, 27.588
Crest factor:	1:1



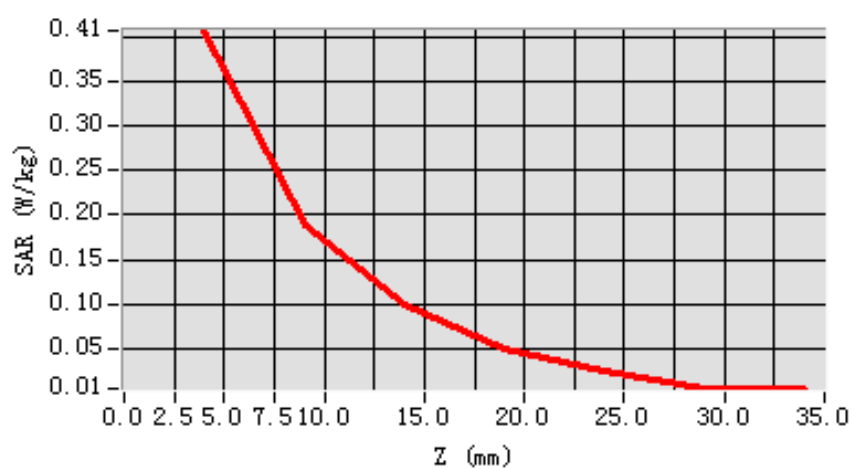
Maximum location: X=15.00, Y=38.00

SAR 10g (W/Kg)	0.205764
SAR 1g (W/Kg)	0.395791

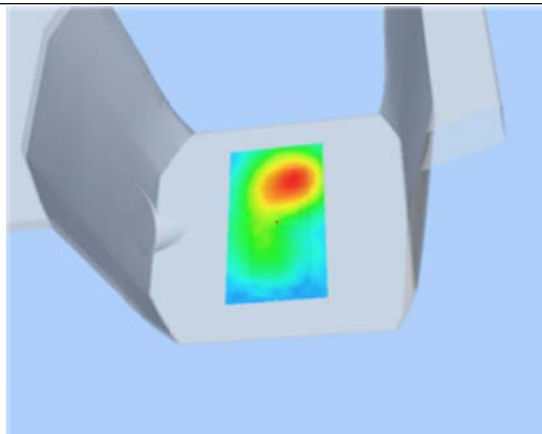
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4065	0.1899	0.0988	0.0496	0.0251	0.0059

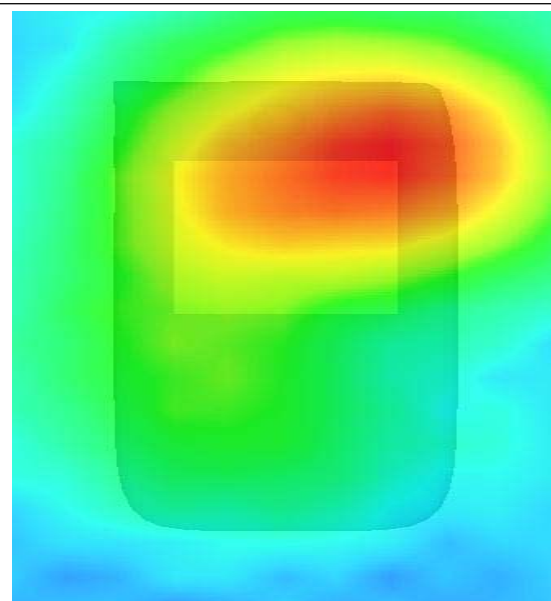
SAR, Z Axis Scan (X = 15, Y = 38)



3D scene shot



Hot spot position



MEASUREMENT 7

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 8 minutes 9 seconds

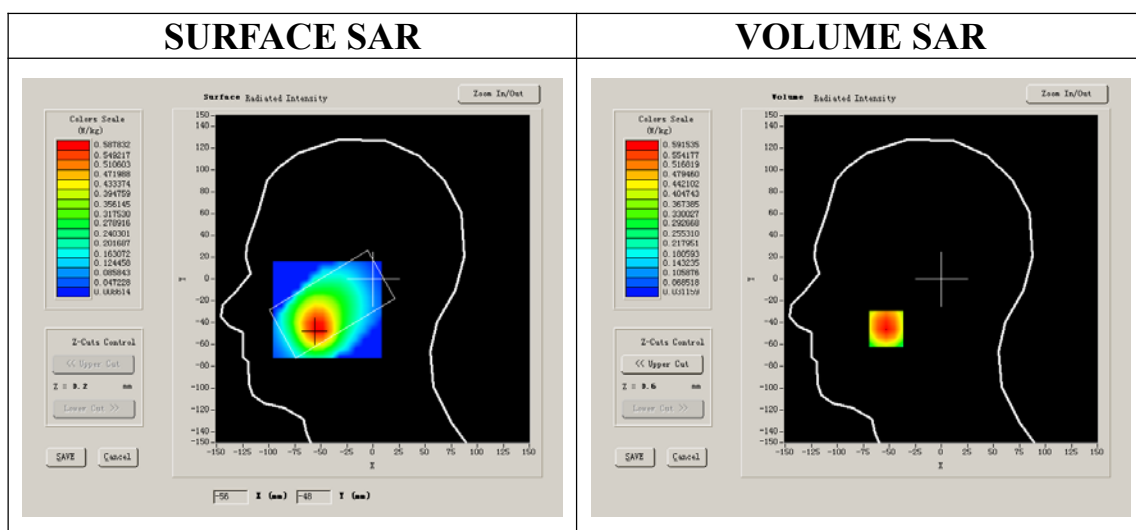
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	CDMA1900
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1175):

Frequency (MHz)	1908.750000
Relative permittivity (real part)	41.253820
Conductivity (S/m)	1.415742
Power drift (%)	0.280000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1



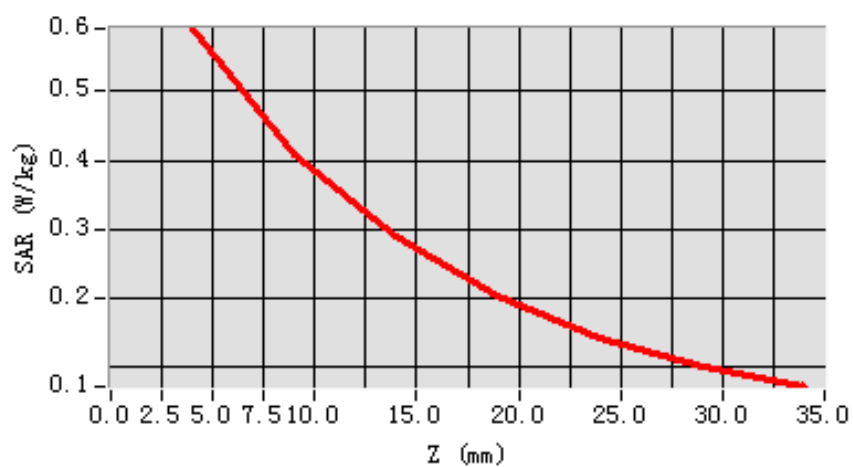
Maximum location: X=-53.00, Y=-46.00

SAR 10g (W/Kg)	0.379388
SAR 1g (W/Kg)	0.567168

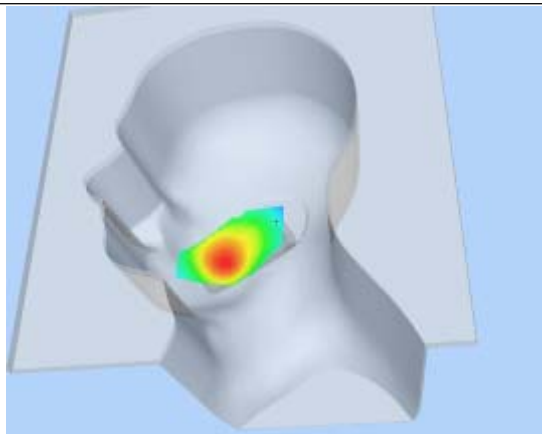
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5915	0.4090	0.2899	0.2006	0.1417	0.0984

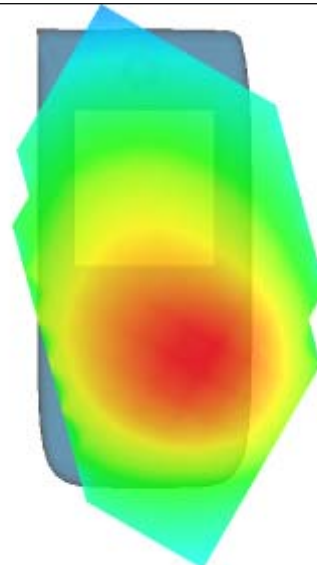
SAR, Z Axis Scan (X = -53, Y = -46)



3D scene shot



Hot spot position



MEASUREMENT 8

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 7 minutes 28 seconds

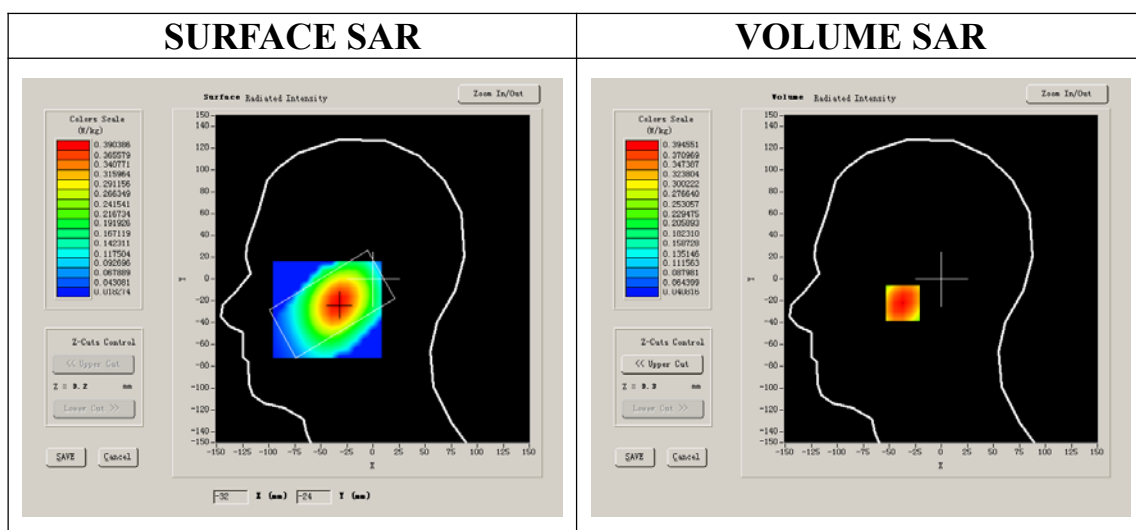
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	CDMA1900
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1175):

Frequency (MHz)	1908.750000
Relative permittivity (real part)	41.253820
Conductivity (S/m)	1.415742
Power drift (%)	-0.160000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1



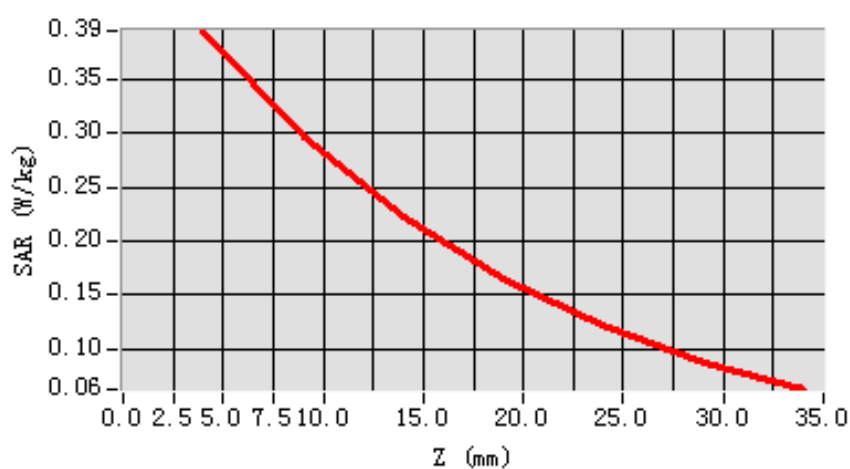
Maximum location: X=-33.00, Y=-22.00

SAR 10g (W/Kg)	0.272636
SAR 1g (W/Kg)	0.380847

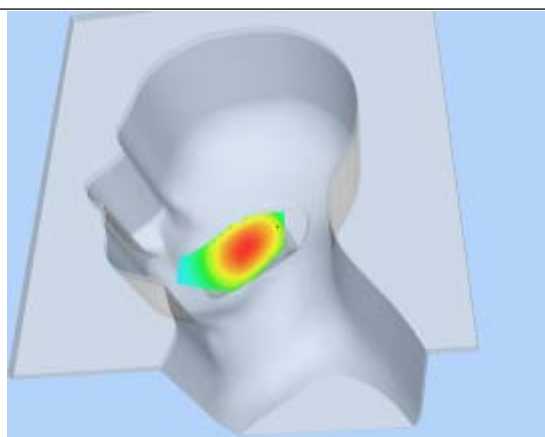
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3946	0.2956	0.2234	0.1651	0.1221	0.0880

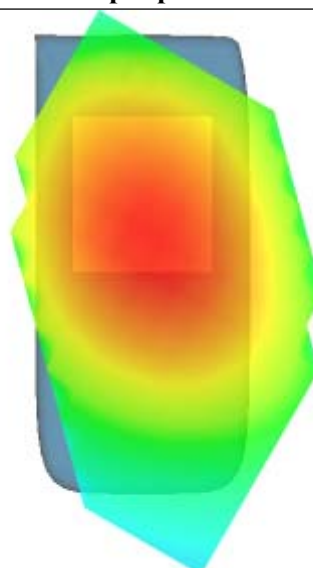
SAR, Z Axis Scan (X = -33, Y = -22)



3D sceen shot



Hot spot position



MEASUREMENT 9

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 8 minutes 7 seconds

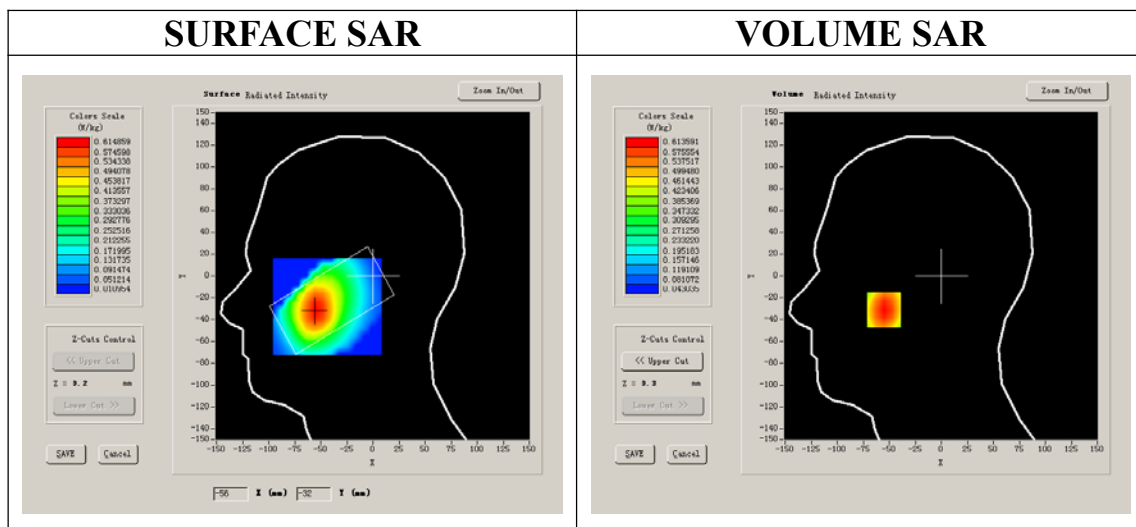
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	CDMA1900
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1175):

Frequency (MHz)	1908.750000
Relative permittivity (real part)	41.253820
Conductivity (S/m)	1.415742
Power drift (%)	-0.500000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1



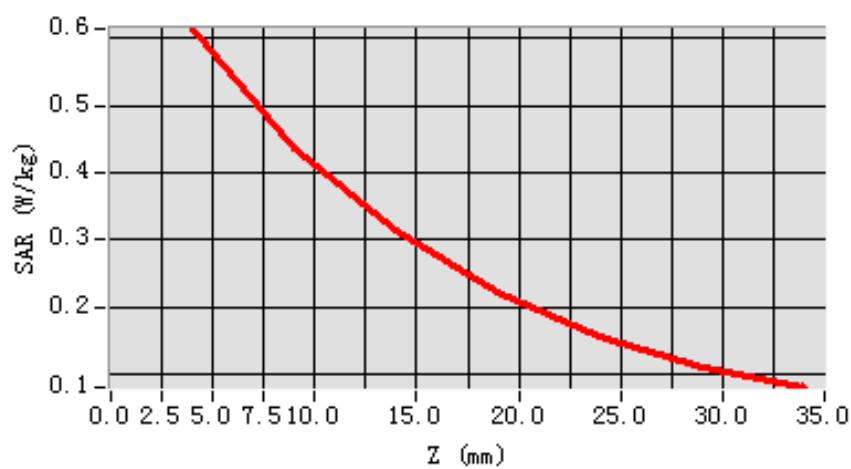
Maximum location: X=-55.00, Y=-31.00

SAR 10g (W/Kg)	0.404004
SAR 1g (W/Kg)	0.588915

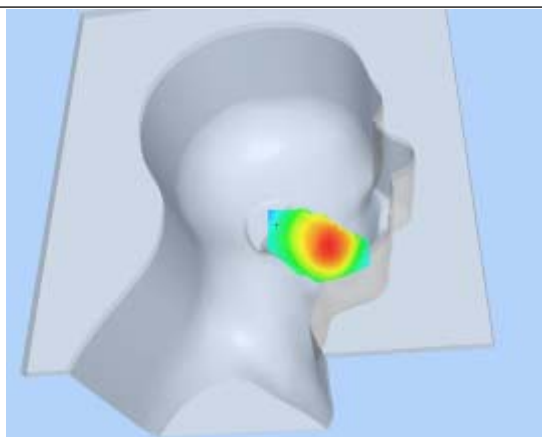
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.6136	0.4371	0.3140	0.2231	0.1574	0.1113

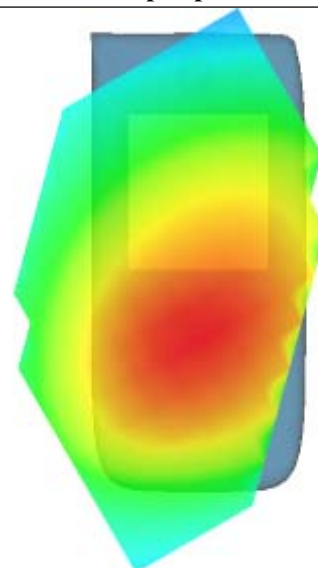
SAR, Z Axis Scan (X = -55, Y = -31)



3D scene shot



Hot spot position



MEASUREMENT 10

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 7 minutes 30 seconds

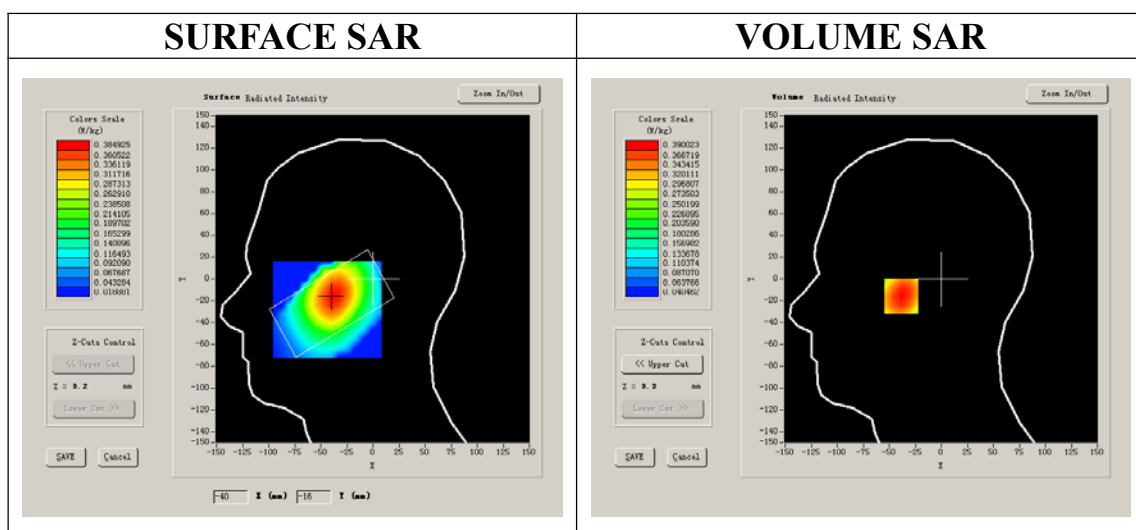
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	CDMA1900
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1175):

Frequency (MHz)	1908.750000
Relative permittivity (real part)	41.253820
Conductivity (S/m)	1.415742
Power drift (%)	0.190000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1



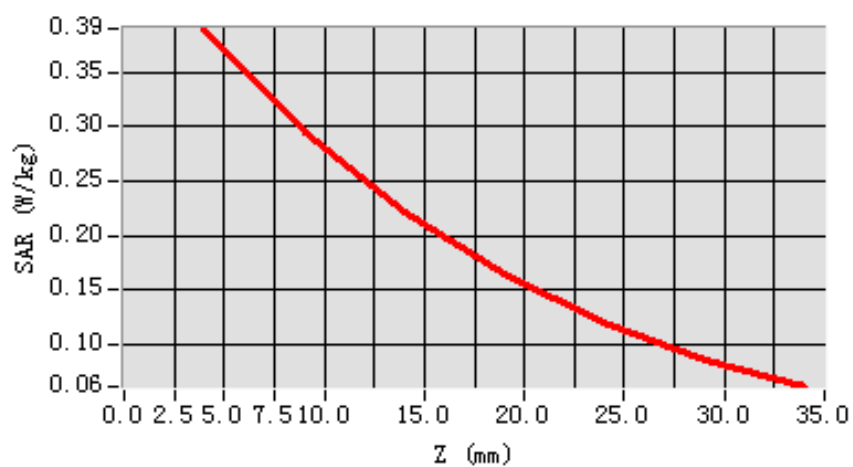
Maximum location: X=-38.00, Y=-16.00

SAR 10g (W/Kg)	0.269316
SAR 1g (W/Kg)	0.375690

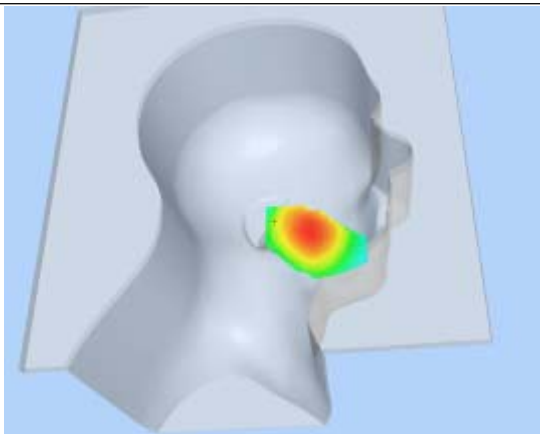
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3900	0.2950	0.2226	0.1644	0.1202	0.0854

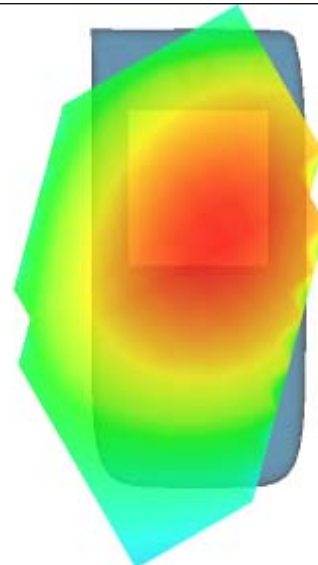
SAR, Z Axis Scan (X = -38, Y = -16)



3D scene shot



Hot spot position



MEASUREMENT 11

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 9 minutes 7 seconds

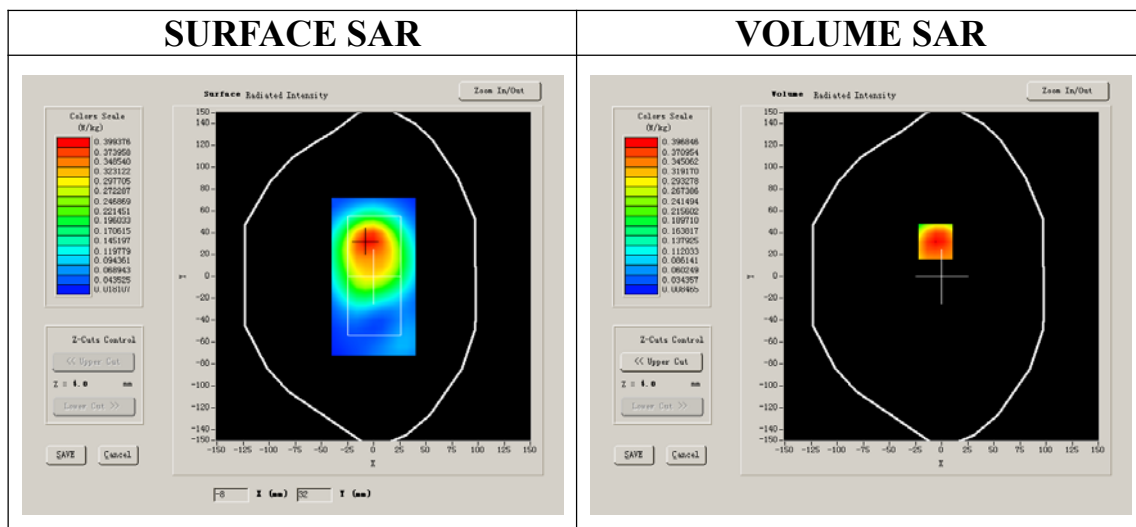
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	CDMA1900
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1175):

Frequency (MHz)	1908.750000
Relative permittivity (real part)	53.283431
Conductivity (S/m)	1.508114
Power drift (%)	0.060000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



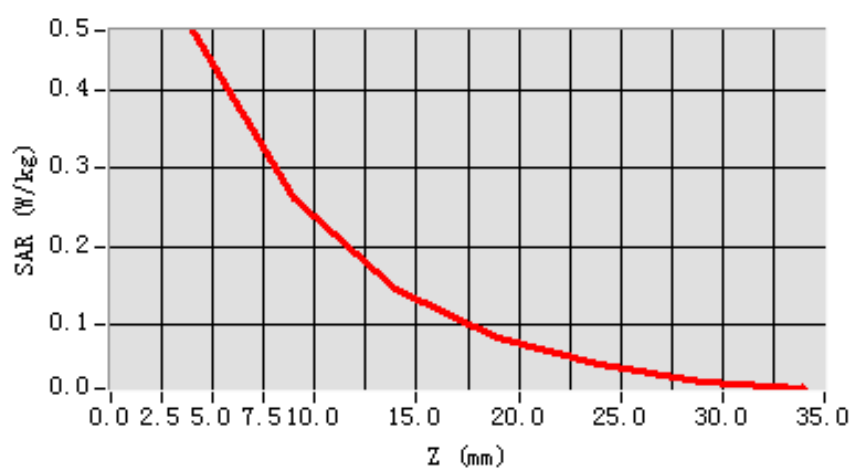
Maximum location: X=-6.00, Y=32.00

SAR 10g (W/Kg)	0.265820
SAR 1g (W/Kg)	0.459689

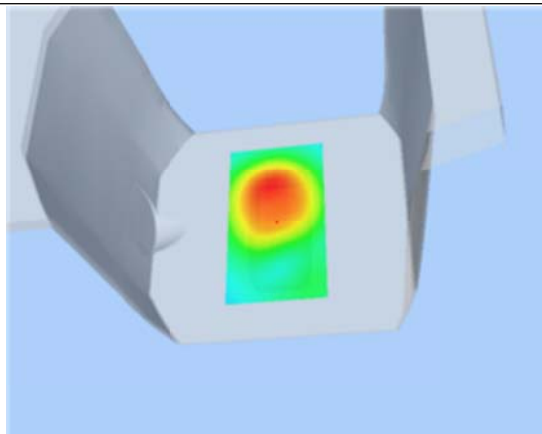
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4762	0.2625	0.1465	0.0841	0.0480	0.0269

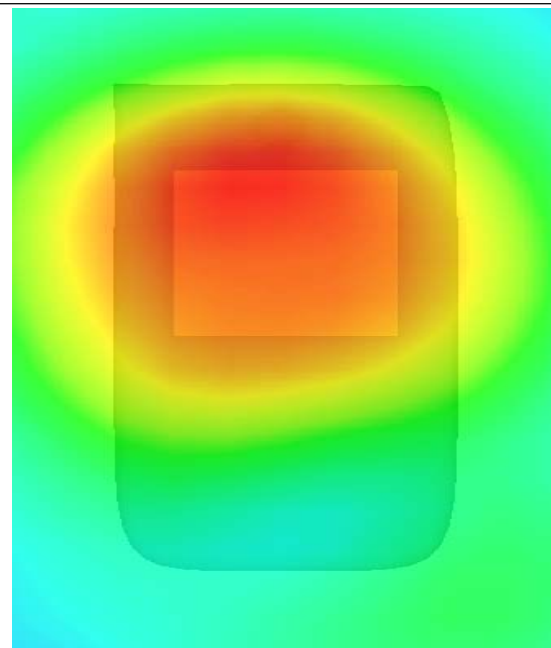
SAR, Z Axis Scan (X = -6, Y = 32)



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: 2013.1.7

Measurement duration: 9 minutes 14 seconds

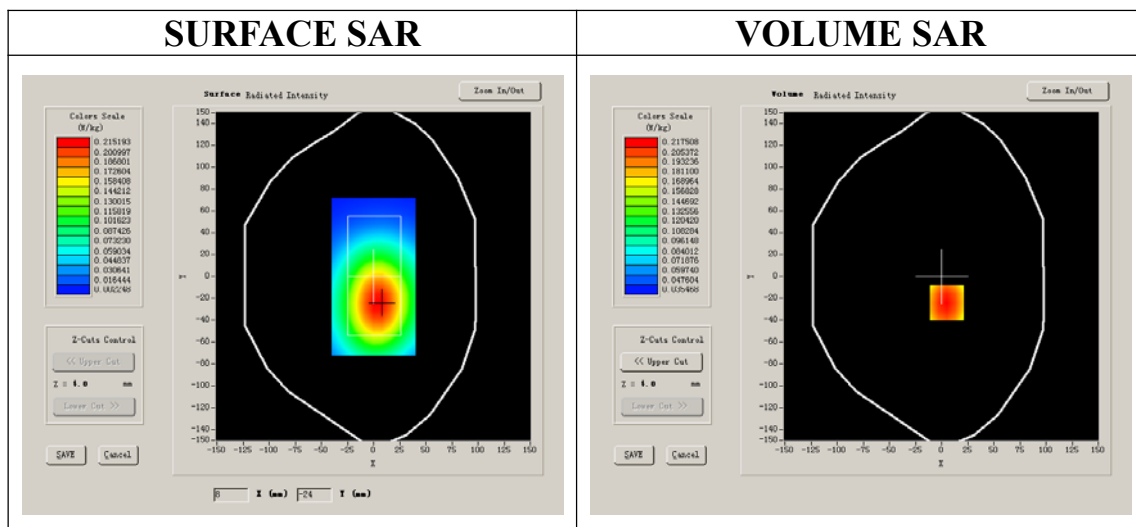
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	CDMA1900
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1175):

Frequency (MHz)	1908.750000
Relative permittivity (real part)	53.283431
Conductivity (S/m)	1.508114
Power drift (%)	0.080000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



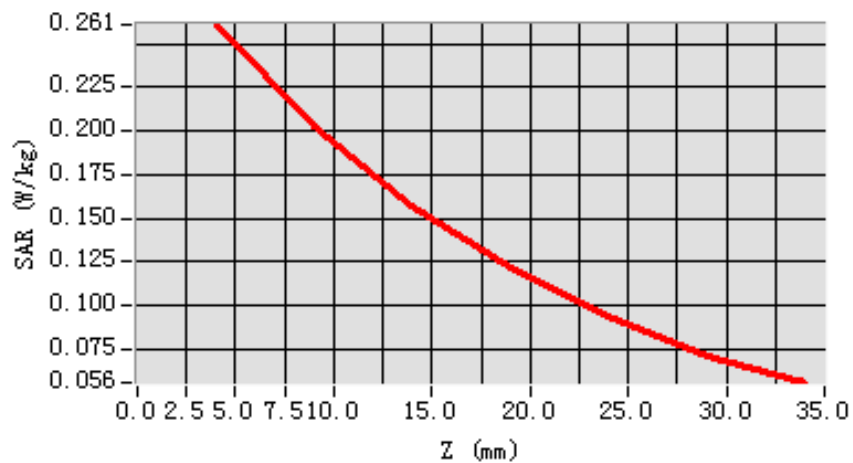
Maximum location: X=5.00, Y=-24.00

SAR 10g (W/Kg)	0.187651
SAR 1g (W/Kg)	0.252383

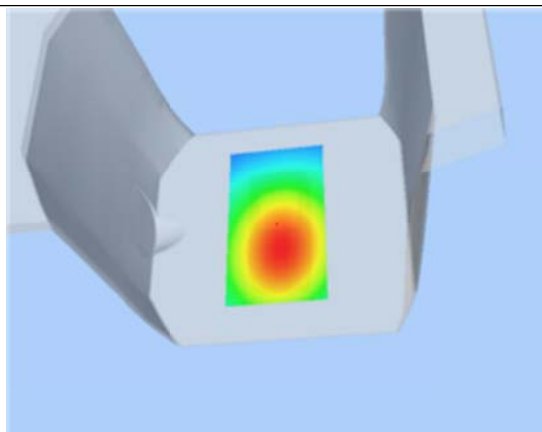
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2610	0.2025	0.1574	0.1215	0.0935	0.0711

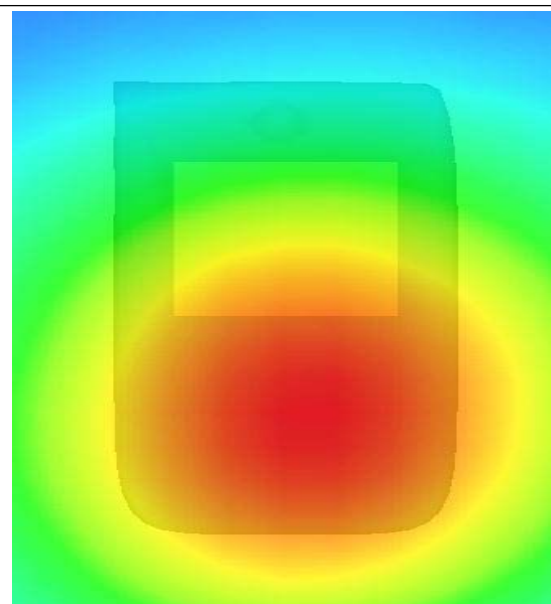
SAR, Z Axis Scan (X = 5, Y = -24)



3D scene shot



Hot spot position



MEASUREMENT 13

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 7 minutes 20 seconds

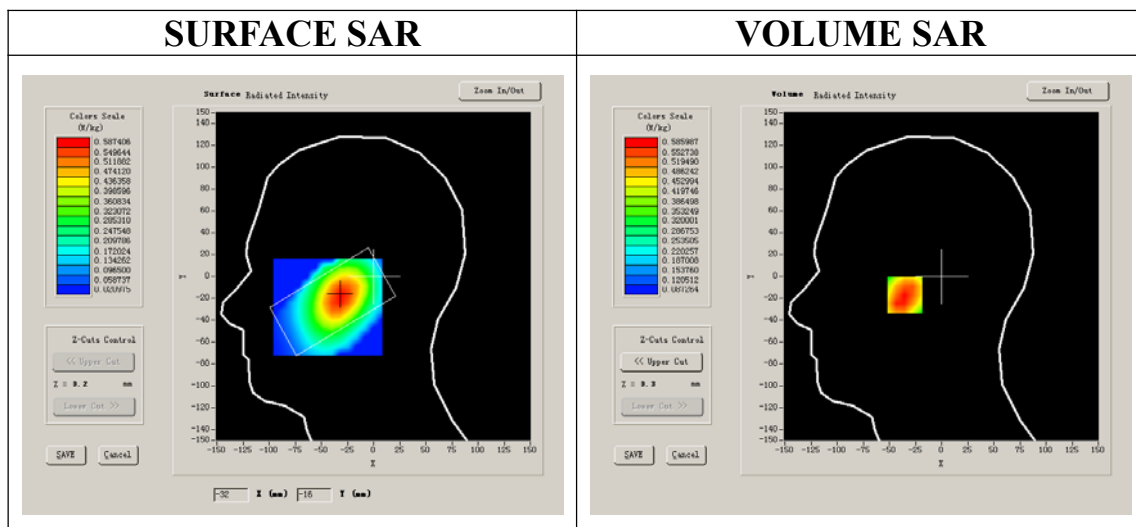
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	US_PCS_G-block
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1275):

Frequency (MHz)	1913.400000
Relative permittivity (real part)	41.253820
Conductivity (S/m)	1.415742
Power drift (%)	-1.310000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1



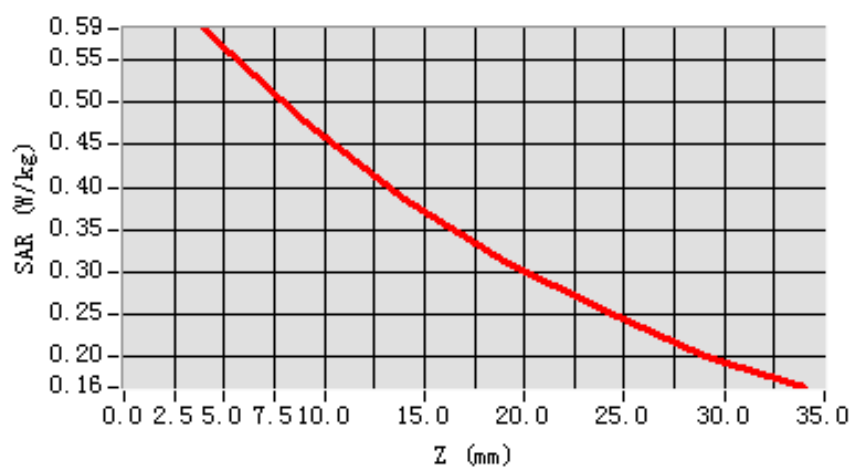
Maximum location: X=-31.00, Y=-17.00

SAR 10g (W/Kg)	0.428350
SAR 1g (W/Kg)	0.565995

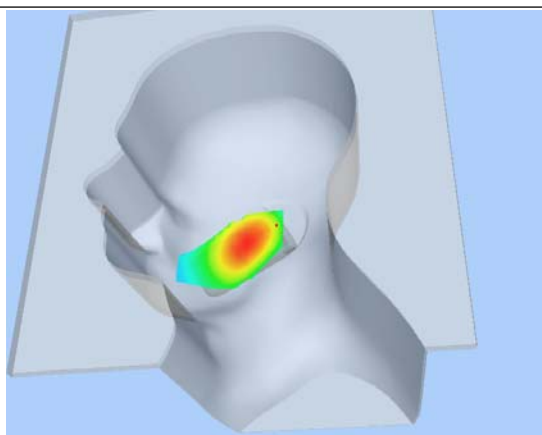
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5860	0.4773	0.3869	0.3122	0.2548	0.2018

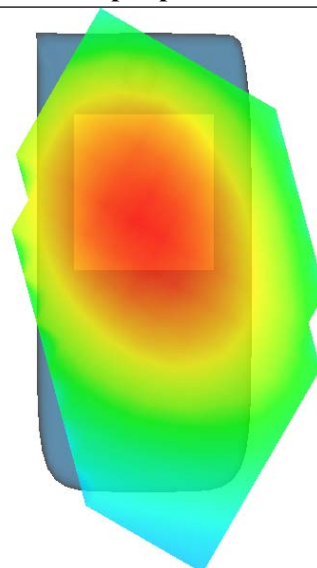
SAR, Z Axis Scan (X = -31, Y = -17)



3D scene shot



Hot spot position



MEASUREMENT 14

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 7 minutes 25 seconds

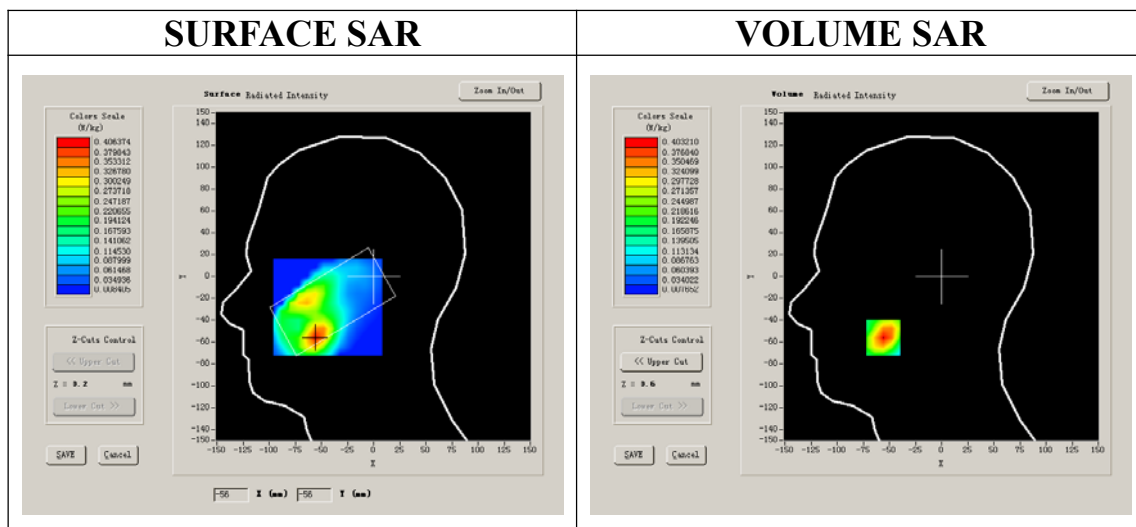
A. Experimental conditions.

Phantom File	zinf3.txt
Phantom	Right head
Device Position	Tilt
Band	US PCS G-block
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1275):

Frequency (MHz)	1913.400000
Relative permittivity (real part)	41.253820
Conductivity (S/m)	1.415742
Power drift (%)	-1.040000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1



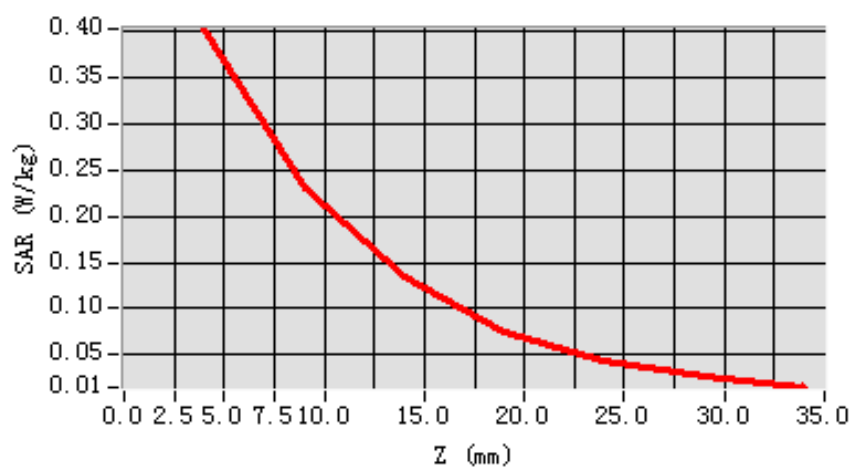
Maximum location: X=-56.00, Y=-56.00

SAR 10g (W/Kg)	0.205400
SAR 1g (W/Kg)	0.377130

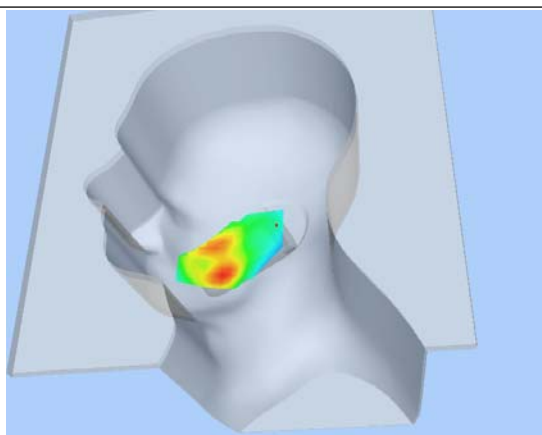
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4032	0.2310	0.1352	0.0751	0.0444	0.0270

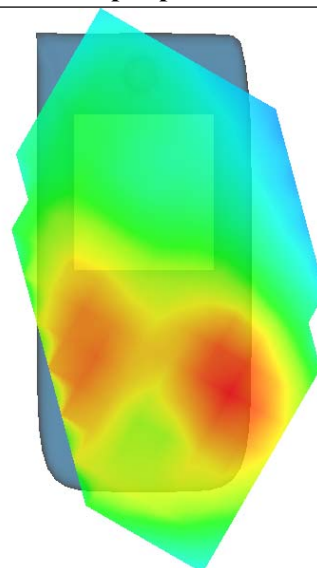
SAR, Z Axis Scan (X = -56, Y = -56)



3D scene shot



Hot spot position



MEASUREMENT 15

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 7 minutes 23 seconds

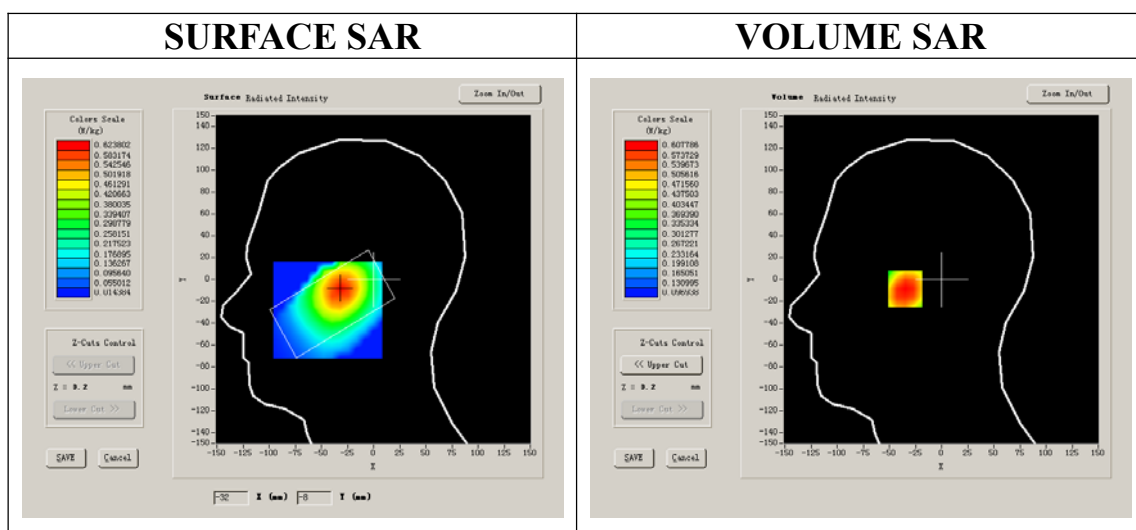
A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	US_PCS_G-block
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1275):

Frequency (MHz)	1913.400000
Relative permittivity (real part)	41.253820
Conductivity (S/m)	1.415742
Power drift (%)	-2.660000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1



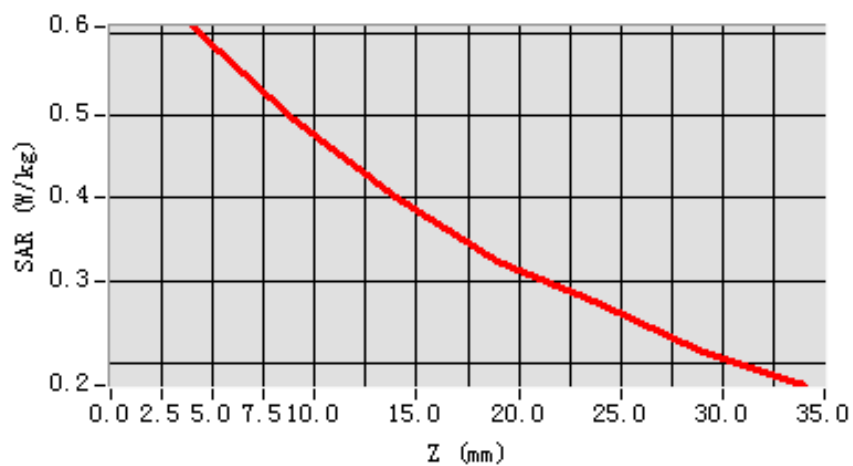
Maximum location: X=-32.00, Y=-8.00

SAR 10g (W/Kg)	0.451092
SAR 1g (W/Kg)	0.589623

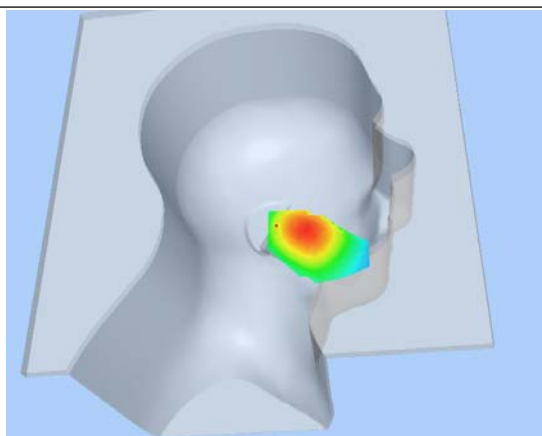
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.6078	0.4947	0.4016	0.3243	0.2712	0.2139

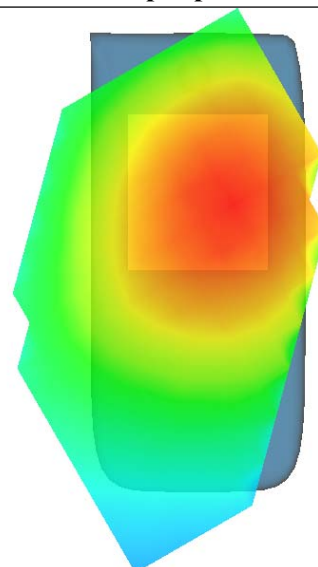
SAR, Z Axis Scan (X = -32, Y = -8)



3D scene shot



Hot spot position



MEASUREMENT 16

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 7 minutes 19 seconds

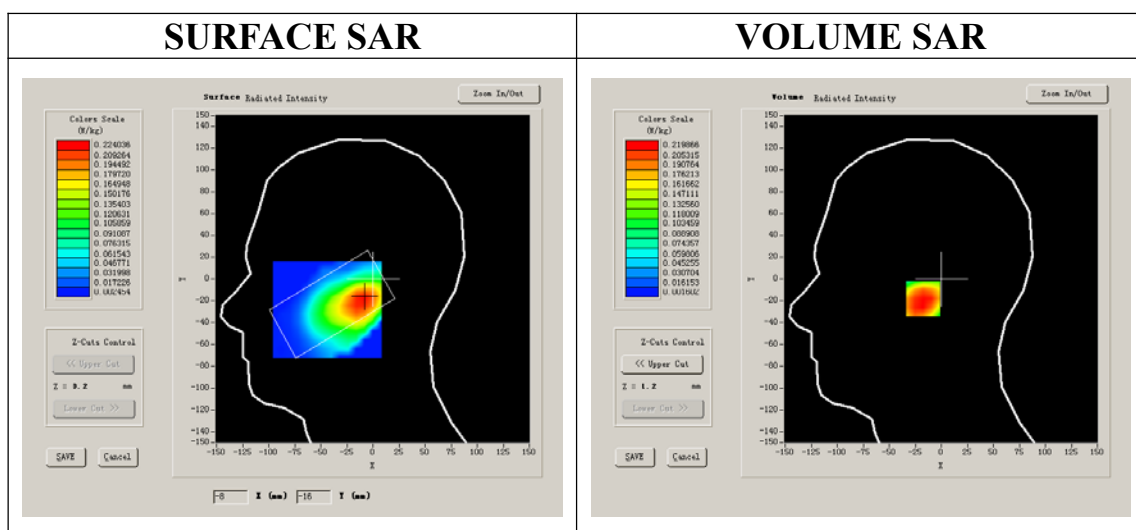
A. Experimental conditions.

Phantom File	zinf3.txt
Phantom	Left head
Device Position	Tilt
Band	US PCS G-block
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1275):

Frequency (MHz)	1913.400000
Relative permittivity (real part)	41.253820
Conductivity (S/m)	1.415742
Power drift (%)	1.060000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1



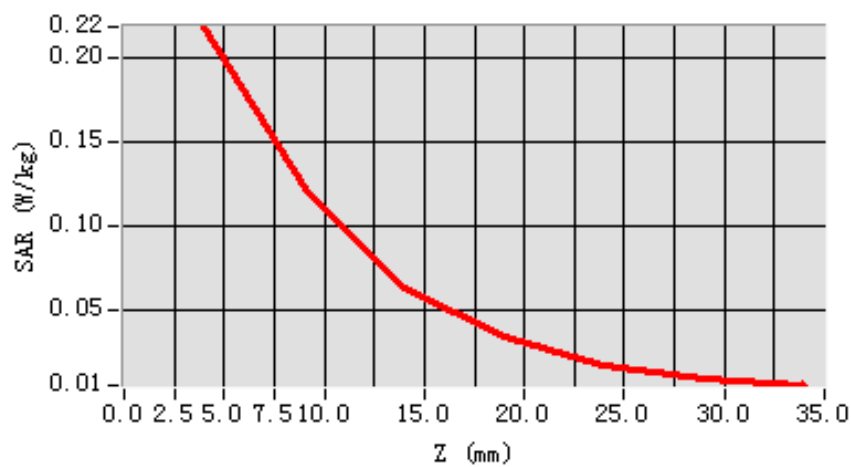
Maximum location: X=-10.00, Y=-18.00

SAR 10g (W/Kg)	0.120142
SAR 1g (W/Kg)	0.216312

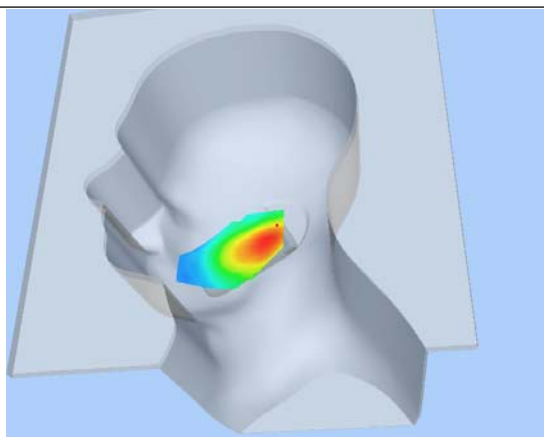
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2189	0.1223	0.0636	0.0342	0.0180	0.0096

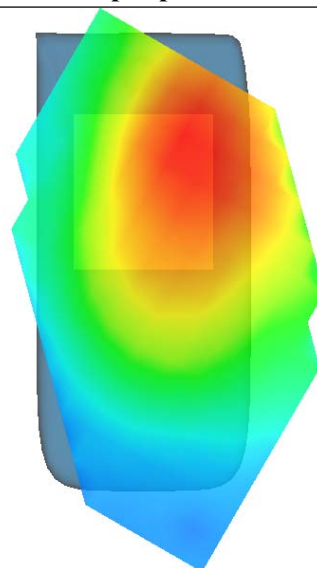
SAR, Z Axis Scan (X = -10, Y = -18)



3D sceen shot



Hot spot position



MEASUREMENT 17

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 9 minutes 8 seconds

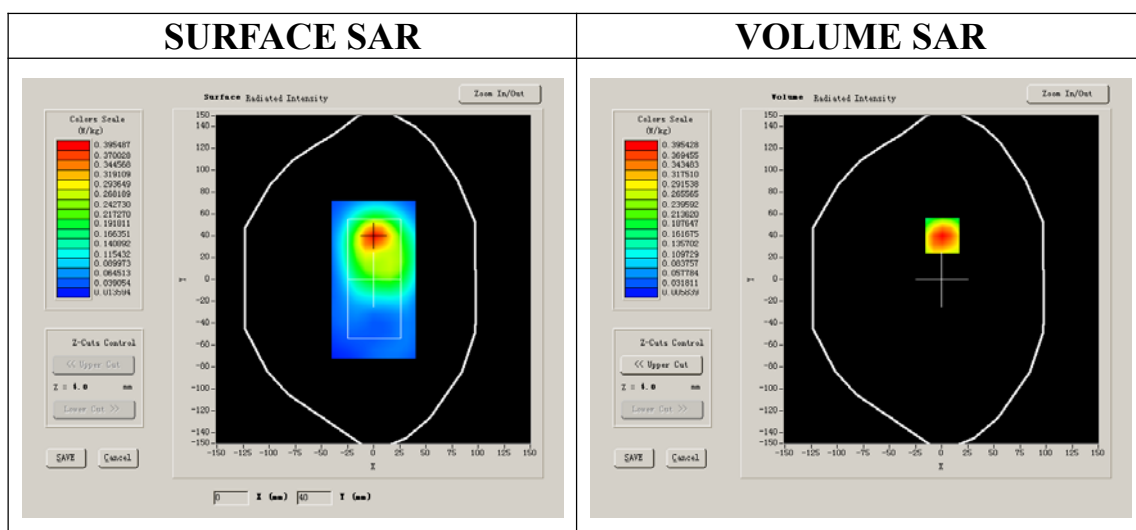
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	US_PCS_G-block
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1275):

Frequency (MHz)	1913.400000
Relative permittivity (real part)	51.903000
Conductivity (S/m)	53.283431
Power drift (%)	1.508114
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



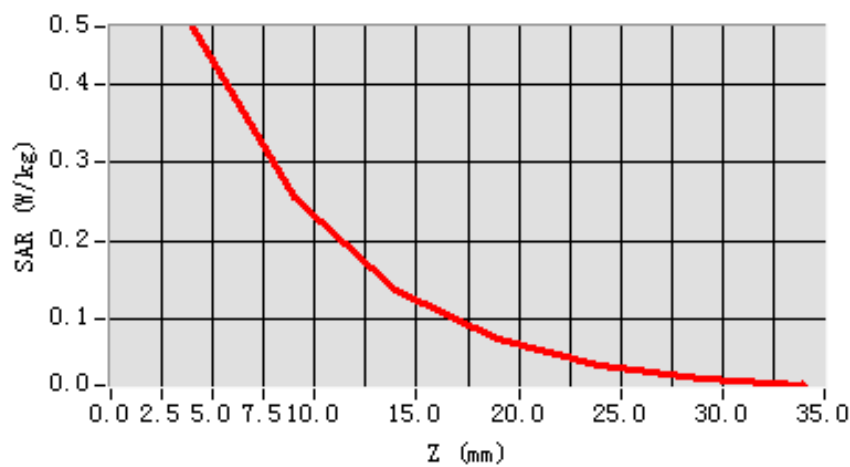
Maximum location: X=1.00, Y=40.00

SAR 10g (W/Kg)	0.247338
SAR 1g (W/Kg)	0.450949

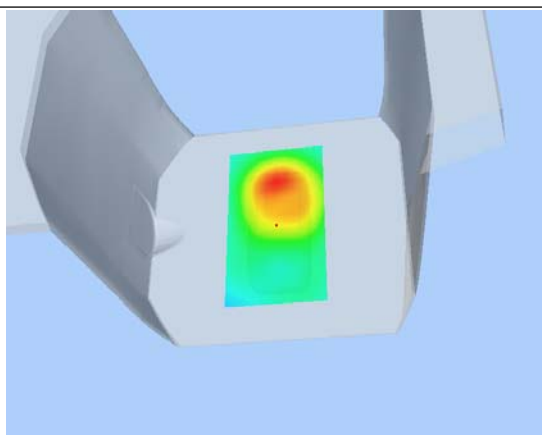
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4745	0.2543	0.1369	0.0730	0.0387	0.0232

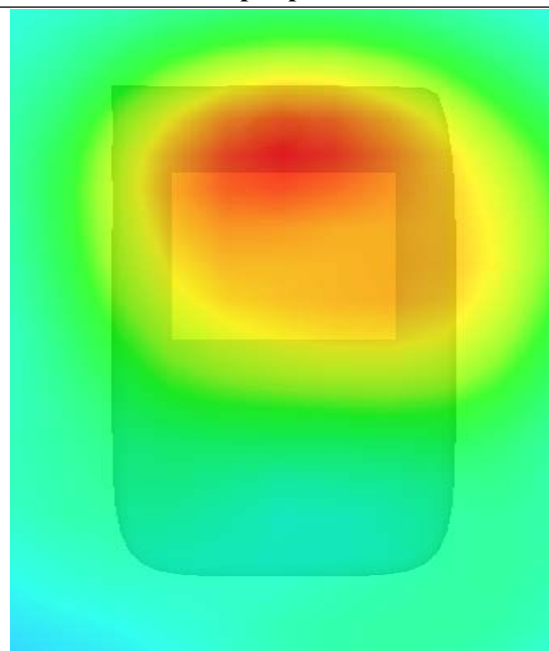
SAR, Z Axis Scan (X = 1, Y = 40)



3D scene shot



Hot spot position



MEASUREMENT 18

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 9 minutes 8 seconds

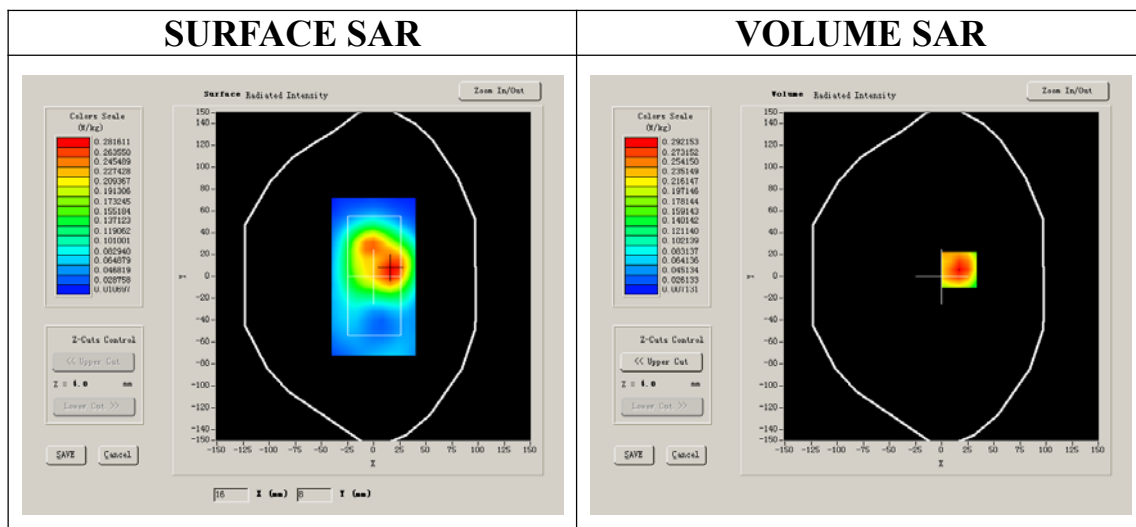
A. Experimental conditions.

Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	US_PCS_G-block
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1275):

Frequency (MHz)	1913.400000
Relative permittivity (real part)	53.283431
Conductivity (S/m)	1.508114
Power drift (%)	-0.580000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.8°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



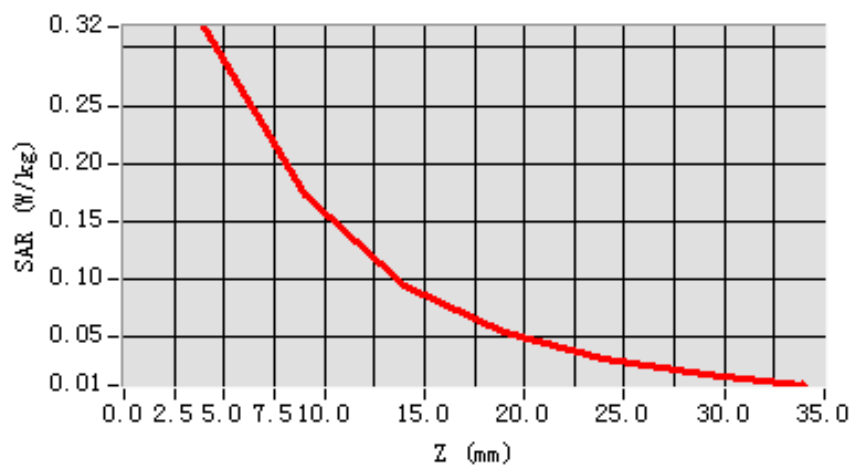
Maximum location: X=17.00, Y=6.00

SAR 10g (W/Kg)	0.170539
SAR 1g (W/Kg)	0.303534

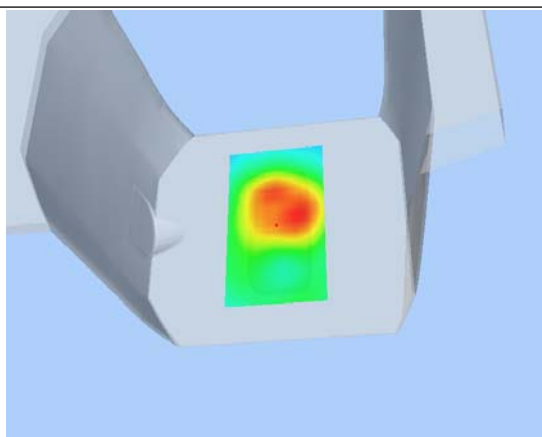
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3181	0.1724	0.0946	0.0541	0.0315	0.0188

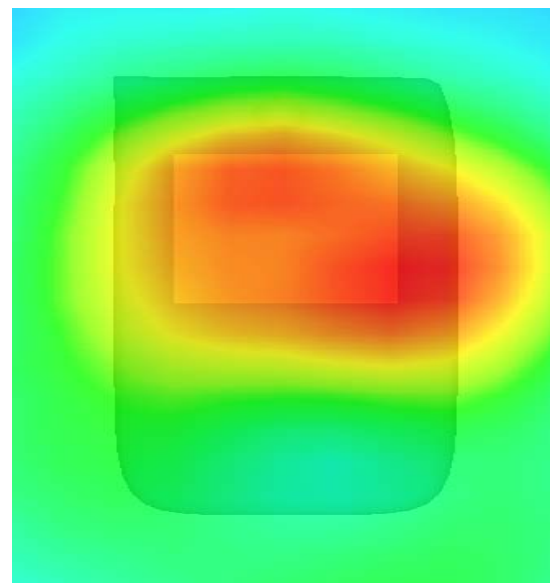
SAR, Z Axis Scan (X = 17, Y = 6)



3D scene shot



Hot spot position



MEASUREMENT 19

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 8 minutes 17 seconds

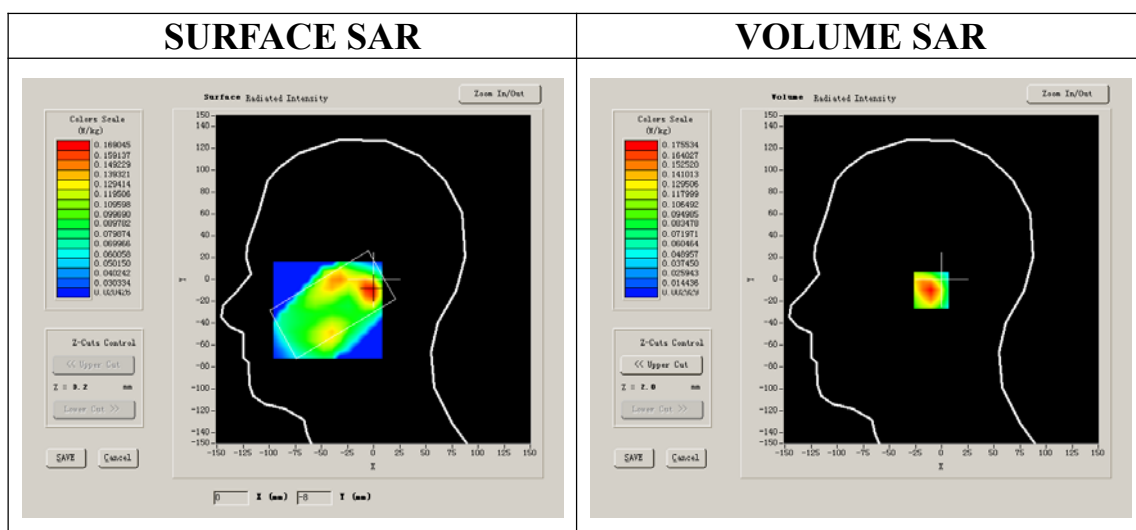
A. Experimental conditions.

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

B. SAR Measurement Results

Higher Band SAR (Channel 11)

Frequency (MHz)	2462.000000
Relative permittivity (real part)	39.723451
Conductivity (S/m)	1.794326
Power drift (%)	-0.430000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.5°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



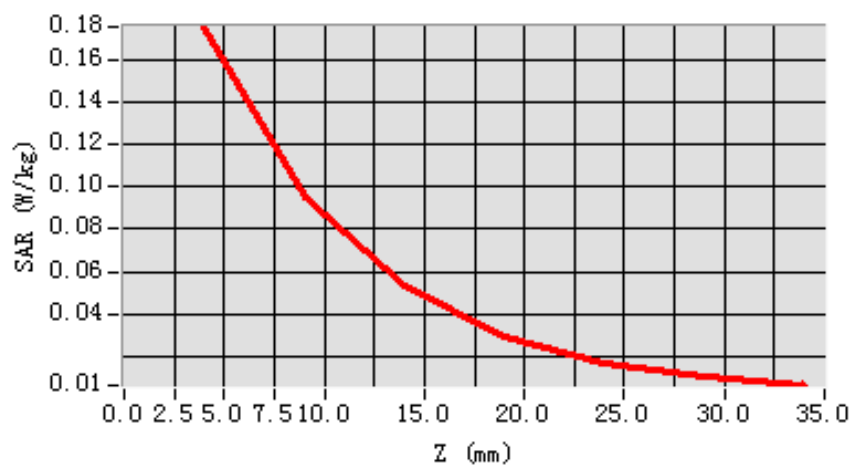
Maximum location: X=-2.00, Y=-10.00

SAR 10g (W/Kg)	0.089298
SAR 1g (W/Kg)	0.164271

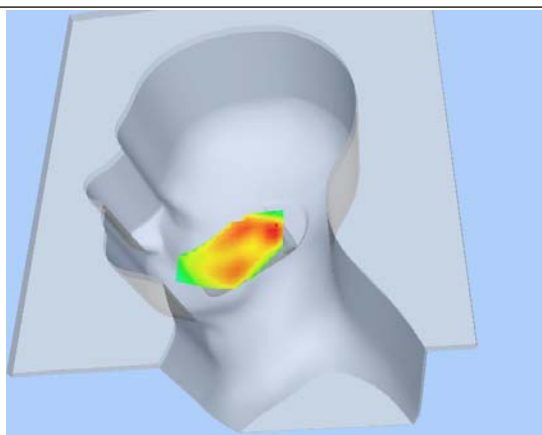
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1755	0.0949	0.0534	0.0294	0.0167	0.0100

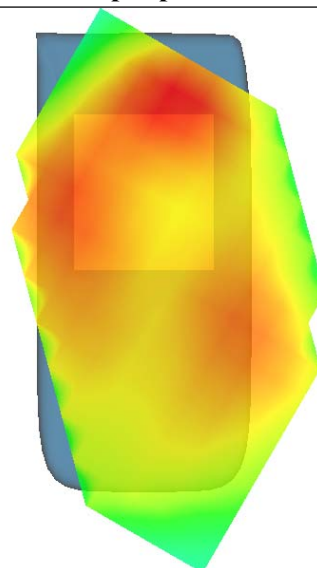
SAR, Z Axis Scan (X = -2, Y = -10)



3D sceen shot



Hot spot position



MEASUREMENT 20

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 8 minutes 15 seconds

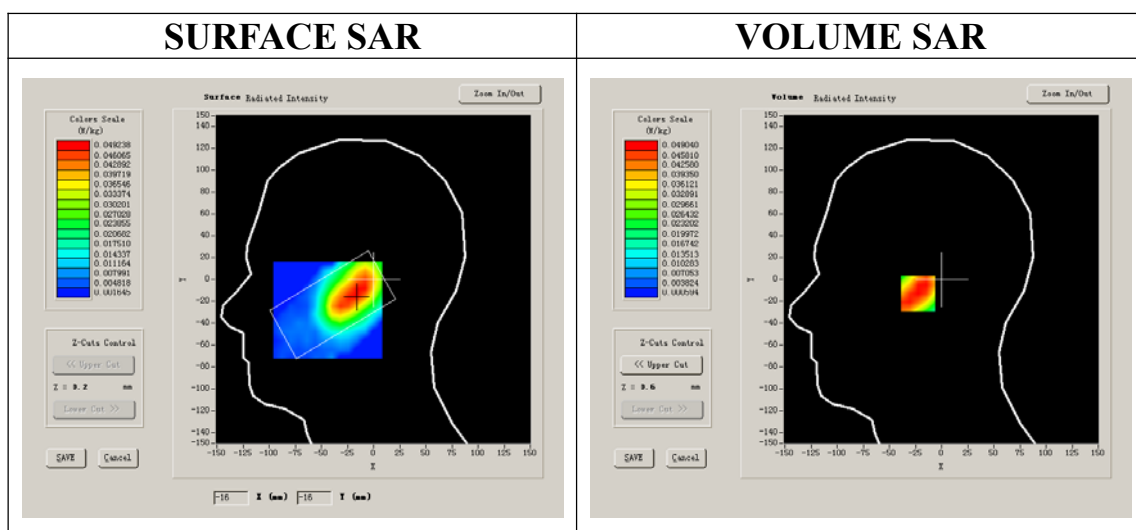
A. Experimental conditions.

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

B. SAR Measurement Results

Higher Band SAR (Channel 11)

Frequency (MHz)	2462.000000
Relative permittivity (real part)	39.723451
Conductivity (S/m)	1.794326
Power drift (%)	-0.630000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.5°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



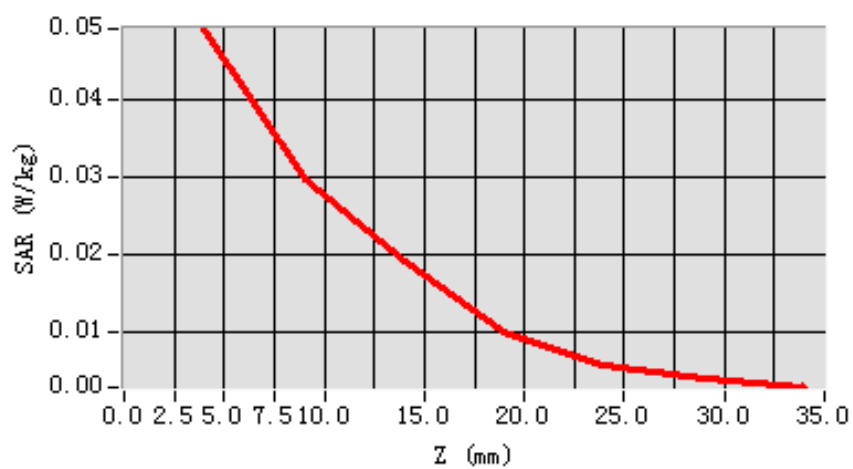
Maximum location: X=-16.00, Y=-13.00

SAR 10g (W/Kg)	0.028436
SAR 1g (W/Kg)	0.048173

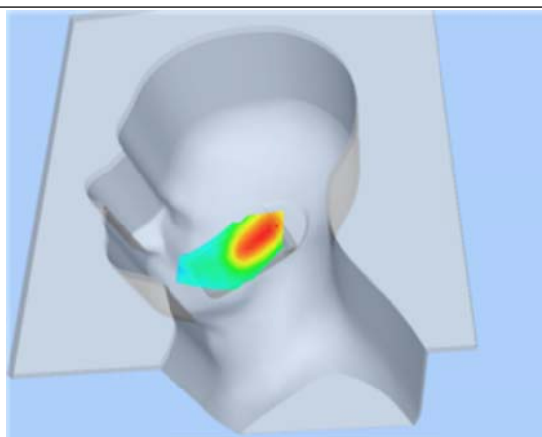
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0490	0.0296	0.0192	0.0101	0.0057	0.0041

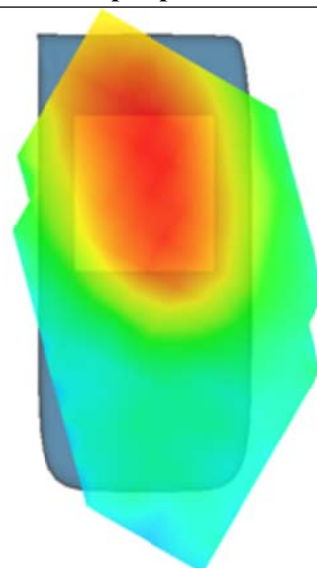
SAR, Z Axis Scan (X = -16, Y = -13)



3D sceen shot



Hot spot position



MEASUREMENT 21

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 8 minutes 17 seconds

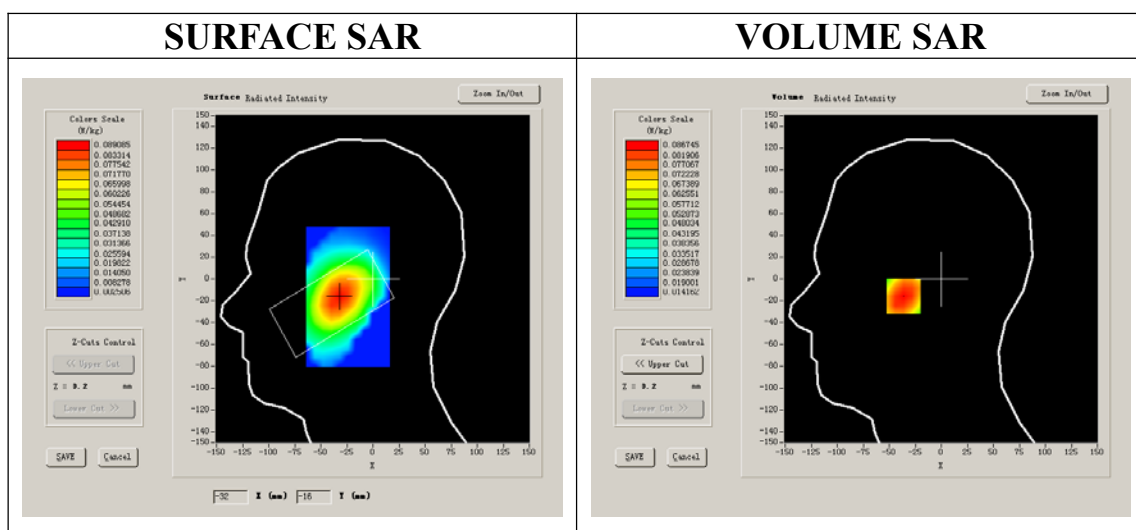
A. Experimental conditions.

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

B. SAR Measurement Results

High Band SAR (Channel 11)

Frequency (MHz)	2462.000000
Relative permittivity (real part)	39.723451
Conductivity (S/m)	1.794326
Power drift (%)	0.510000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.5°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



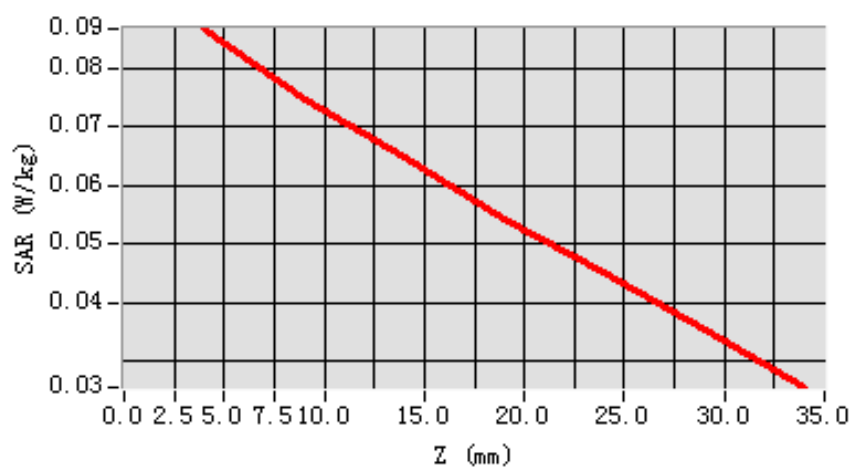
Maximum location: X=-32.00, Y=-16.00

SAR 10g (W/Kg)	0.068461
SAR 1g (W/Kg)	0.086236

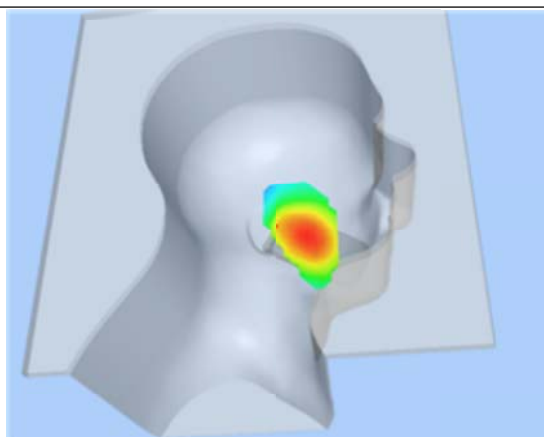
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0887	0.0748	0.0649	0.0542	0.0451	0.0352

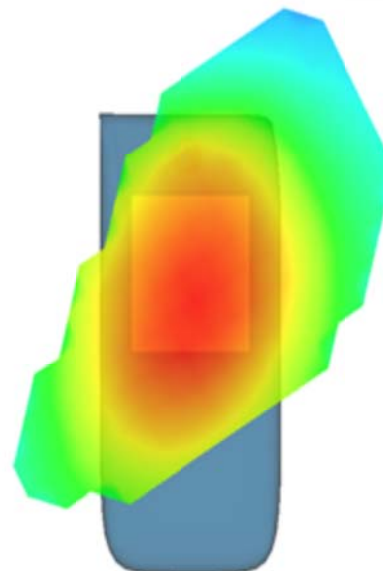
SAR, Z Axis Scan (X = -32, Y = -16)



3D scene shot



Hot spot position



MEASUREMENT 22

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 8 minutes 17 seconds

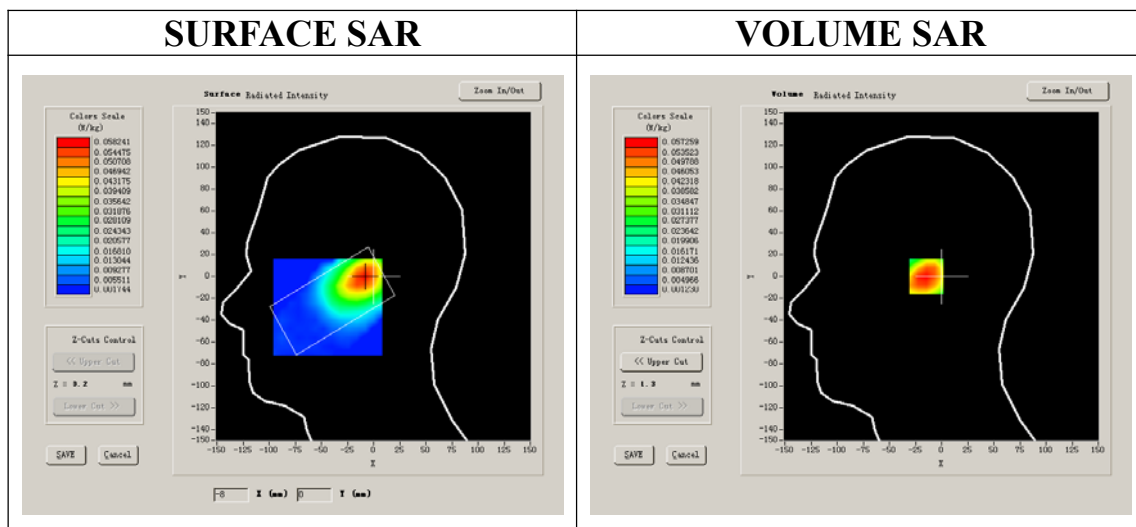
A. Experimental conditions.

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

B. SAR Measurement Results

High Band SAR (Channel 11)

Frequency (MHz)	2462.000000
Relative permittivity (real part)	39.723451
Conductivity (S/m)	1.794326
Power drift (%)	0.620000
Ambient Temperature:	22.3°C
Liquid Temperature:	21.5°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1



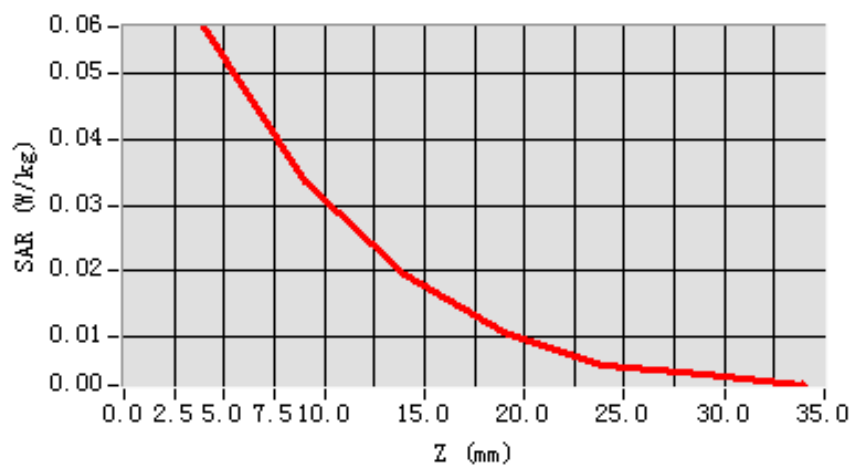
Maximum location: X=-9.00, Y=0.00

SAR 10g (W/Kg)	0.031807
SAR 1g (W/Kg)	0.054858

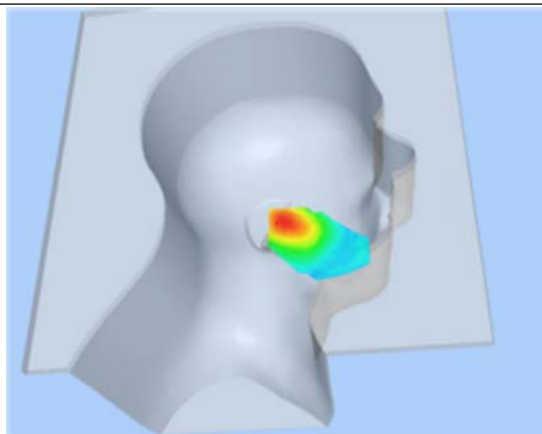
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0573	0.0337	0.0194	0.0106	0.0055	0.0042

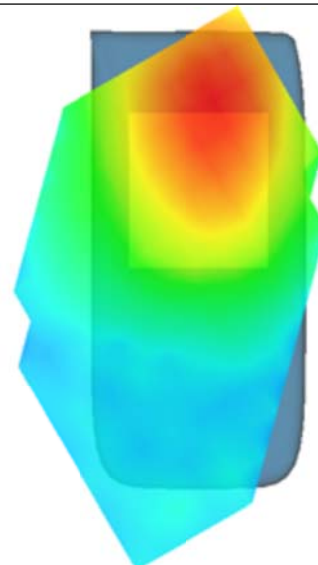
SAR, Z Axis Scan (X = -9, Y = 0)



3D sceen shot



Hot spot position



MEASUREMENT 23

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 9 minutes 10 seconds

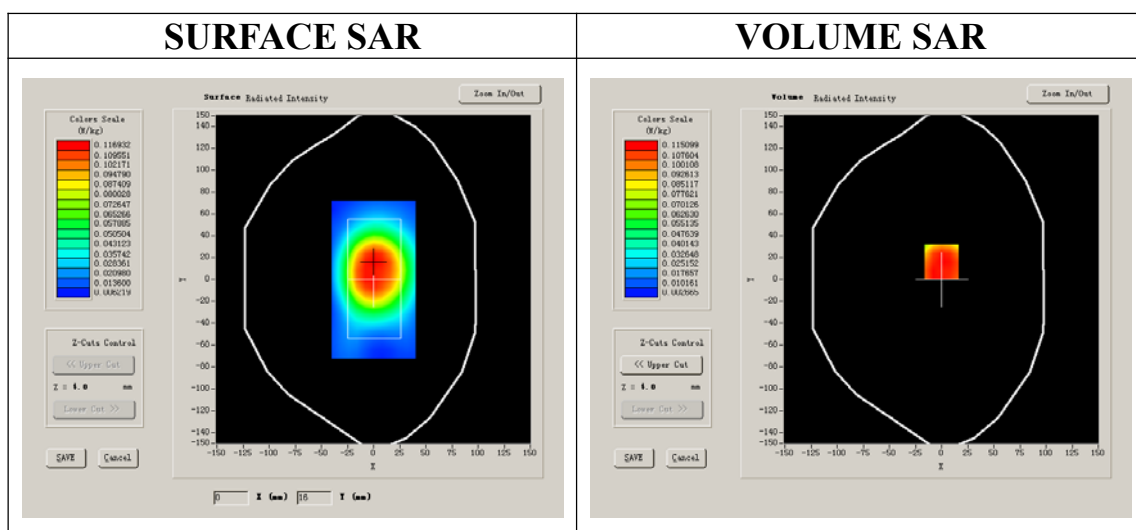
A. Experimental conditions.

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

B. SAR Measurement Results

High Band SAR (Channel 11)

Frequency (MHz)	2462.000000
Relative permittivity (real part)	53.461064
Conductivity (S/m)	1.863317
Power drift (%)	-1.710000
Ambient Temperature:	22.0°C
Liquid Temperature:	21.8°C
ConvF:	39.772,33.946,37.835
Crest factor:	1:1



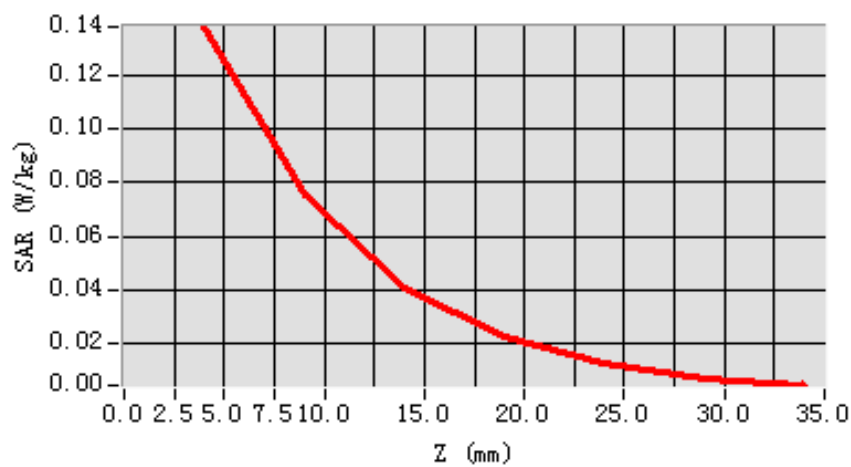
Maximum location: X=0.00, Y=16.00

SAR 10g (W/Kg)	0.078402
SAR 1g (W/Kg)	0.132832

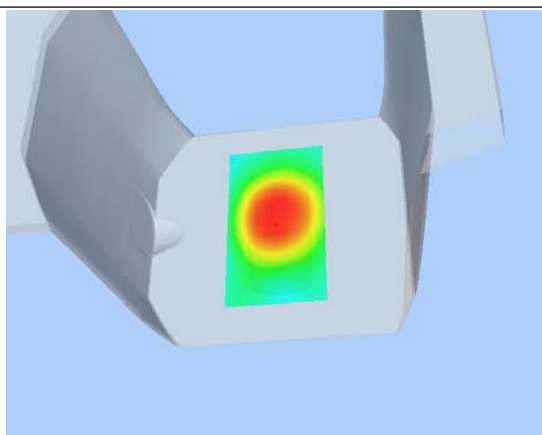
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1381	0.0755	0.0409	0.0227	0.0124	0.0069

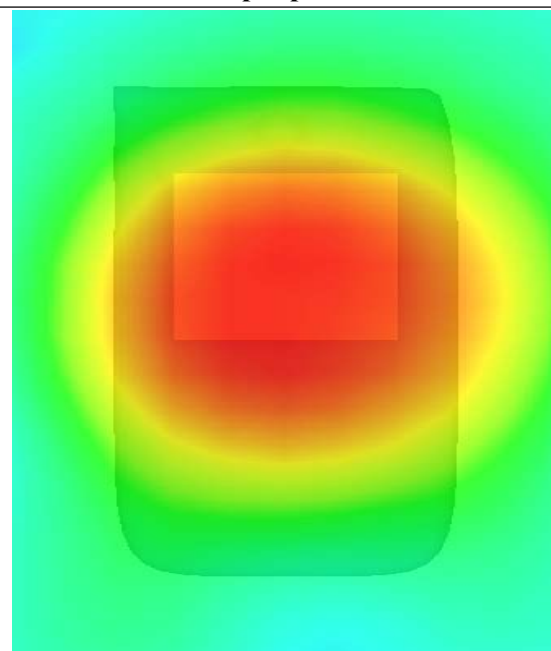
SAR, Z Axis Scan (X = 0, Y = 16)



3D scene shot



Hot spot position



MEASUREMENT 24

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 9 minutes 10 seconds

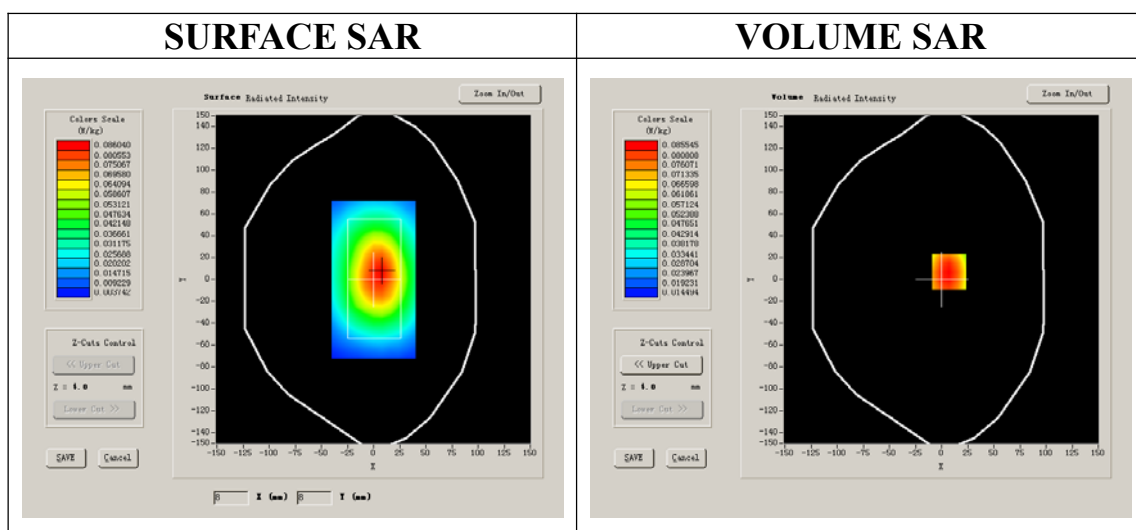
A. Experimental conditions.

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

B. SAR Measurement Results

Higher Band SAR (Channel 11)

Frequency (MHz)	2462.000000
Relative permittivity (real part)	53.461064
Conductivity (S/m)	1.863317
Power drift (%)	-2.160000
Ambient Temperature:	22.0°C
Liquid Temperature:	21.8°C
ConvF:	39.772,33.946,37.835
Crest factor:	1:1



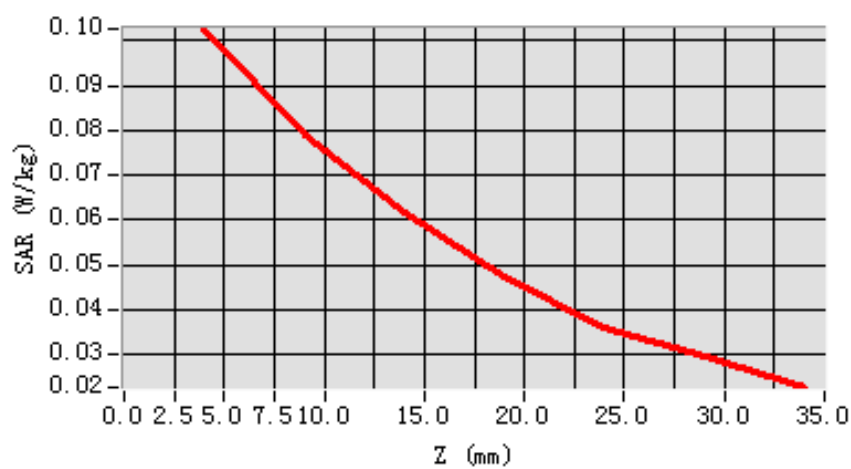
Maximum location: X=7.00, Y=7.00

SAR 10g (W/Kg)	0.073457
SAR 1g (W/Kg)	0.098751

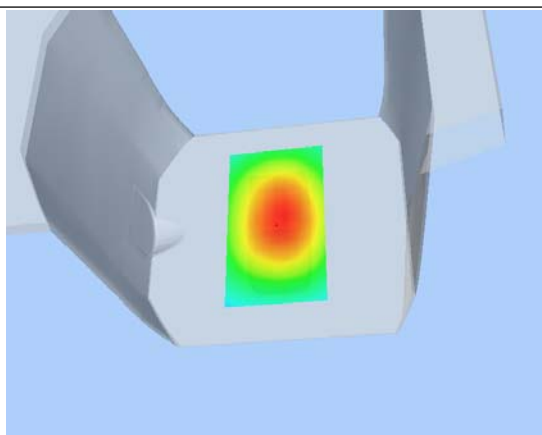
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1027	0.0789	0.0618	0.0470	0.0361	0.0297

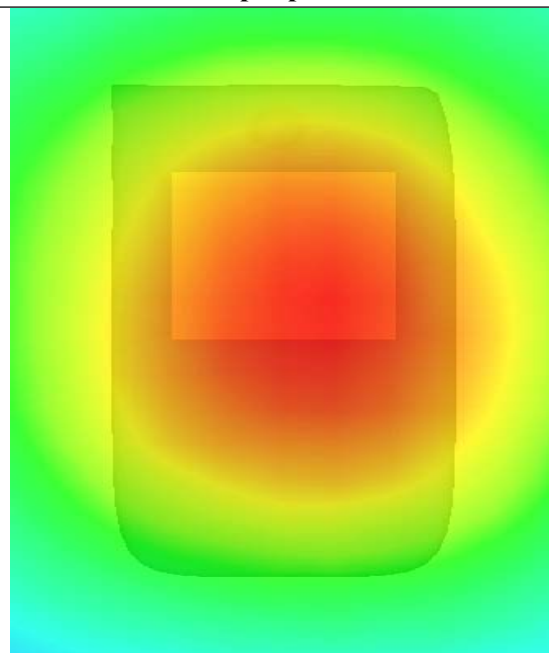
SAR, Z Axis Scan (X = 7, Y = 7)



3D scene shot



Hot spot position



System Performance Check Data(Head)

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 13 minutes 27 seconds

A. Experimental conditions.

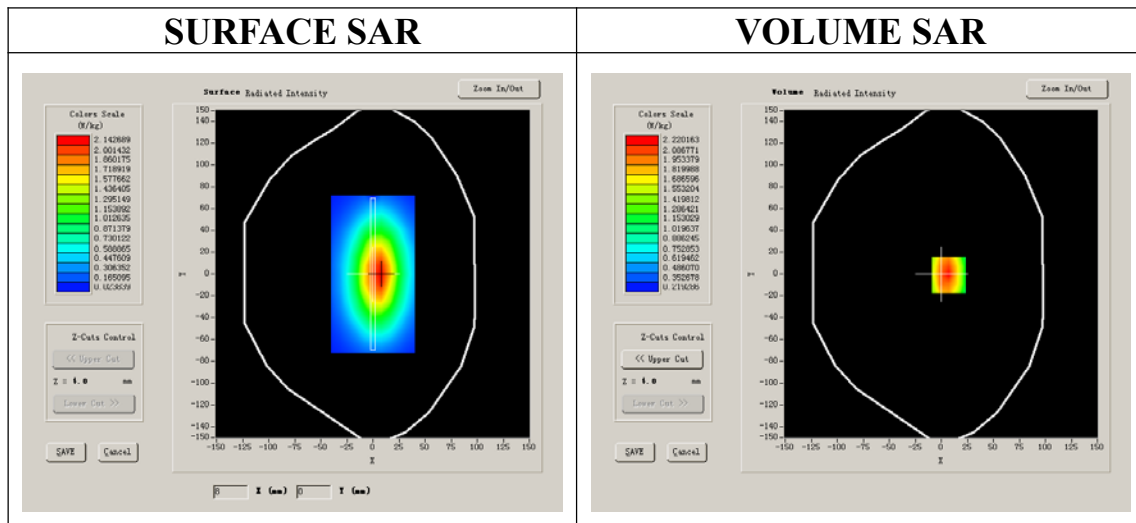
Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	
Band	835MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

Frequency (MHz)	835.000000
Relative permittivity (real part)	41.631854
Conductivity (S/m)	0.912487
Power drift (%)	-0.310000
Ambient Temperature:	22.4°C
Liquid Temperature:	21.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1

SURFACE SAR



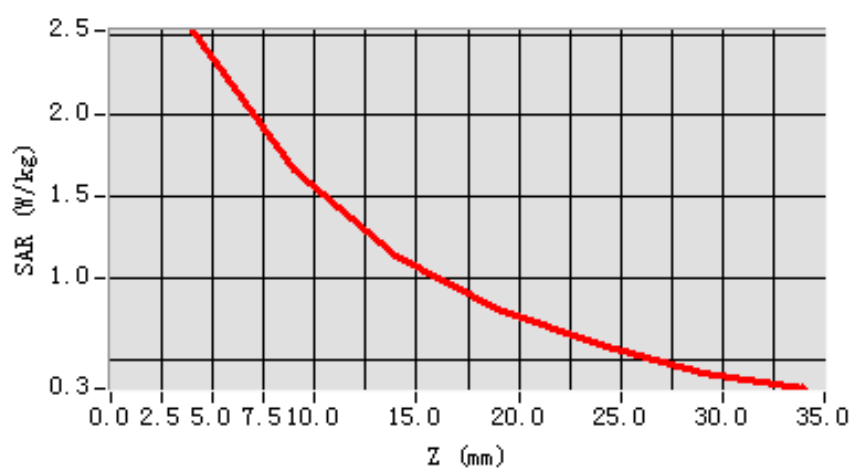
Maximum location: X=7.00, Y=-1.00

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

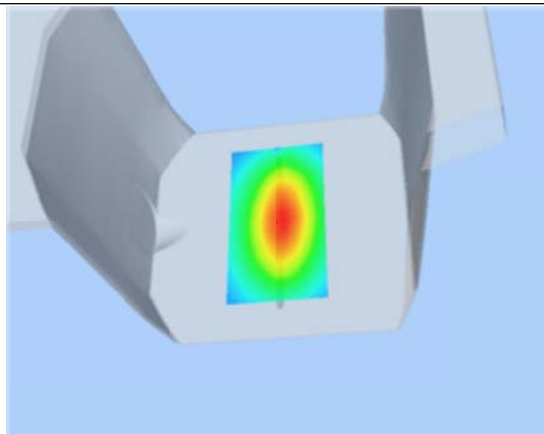
Z Axis Scan

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

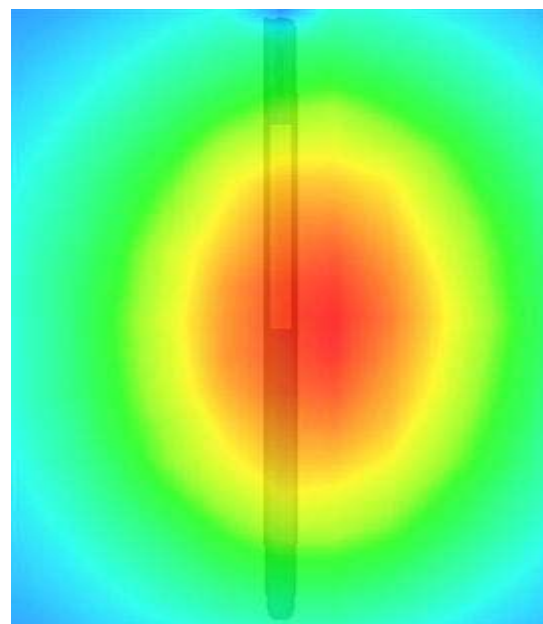
SAR, Z Axis Scan (X = 7, Y = -1)



3D scene shot



Hot spot position



System Performance Check Data(Body)

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 13 minutes 27 seconds

A. Experimental conditions.

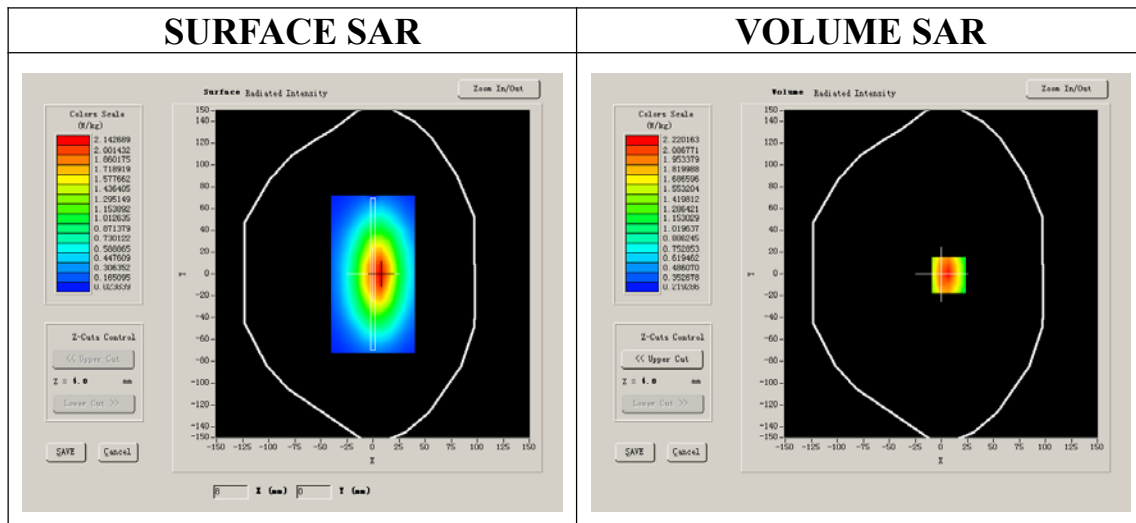
Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	
Band	835MHz
Channels	
Signal	CW

B. SAR Measurement Results

Band SAR

Frequency (MHz)	835.000000
Relative permittivity (real part)	55.016124
Conductivity (S/m)	0.951510
Power drift (%)	-0.170000
Ambient Temperature:	22.4°C
Liquid Temperature:	21.5°C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

SURFACE SAR



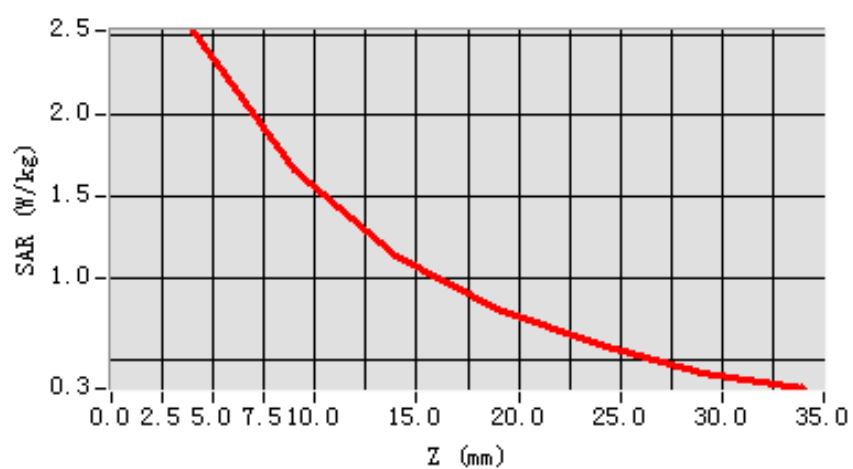
Maximum location: X=7.00, Y=-1.00

SAR 10g (W/Kg)	1.497122
SAR 1g (W/Kg)	2.379818

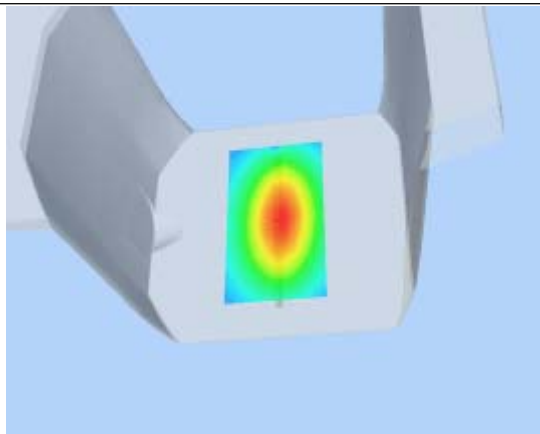
Z Axis Scan

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

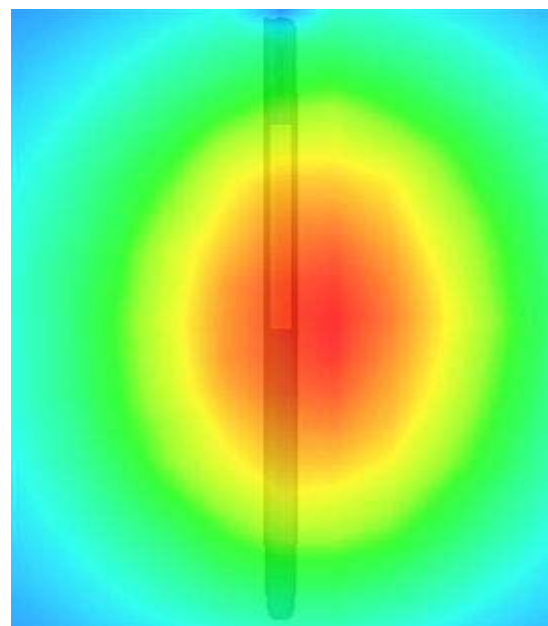
SAR, Z Axis Scan (X = 7, Y = -1)



3D scene shot



Hot spot position



System Performance Check Data(Head)

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 13 minutes 27 seconds

A. Experimental conditions.

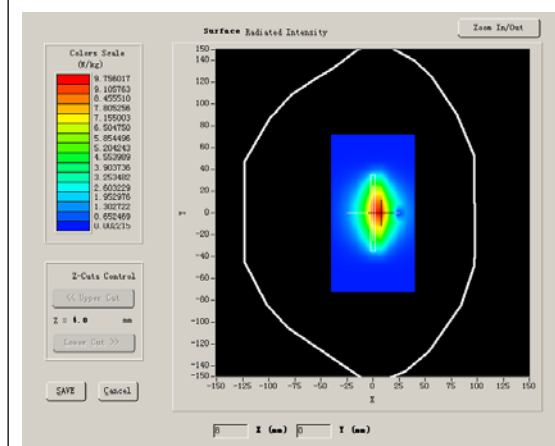
Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	
Band	1900MHz
Channels	
Signal	CW

B. SAR Measurement Results

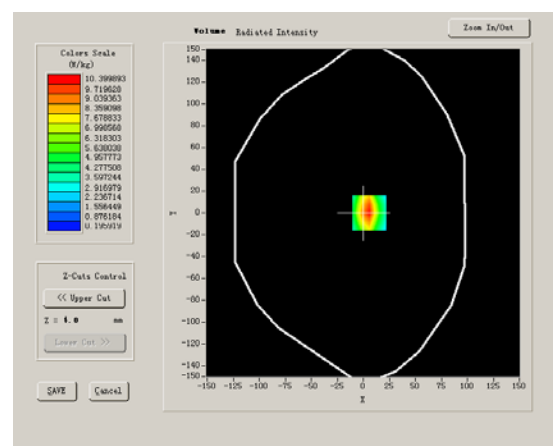
Band SAR

Frequency (MHz)	1900.000000
Relative permittivity (real part)	41.253820
Conductivity (S/m)	1.415742
Power drift (%)	-0.140000
Ambient Temperature:	22.3°C
Liquid Temperature:	22.7°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



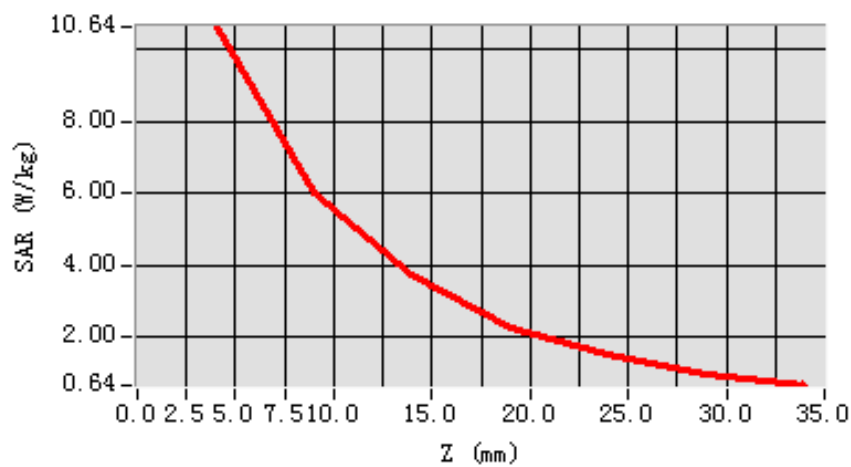
Maximum location: X=6.00, Y=0.00

SAR 10g (W/Kg)	6.145210
SAR 1g (W/Kg)	9.790543

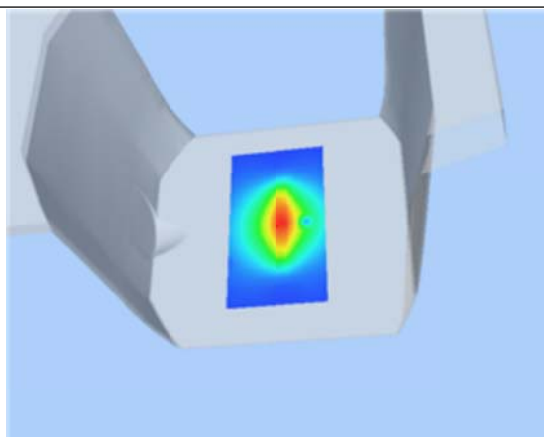
Z Axis Scan

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

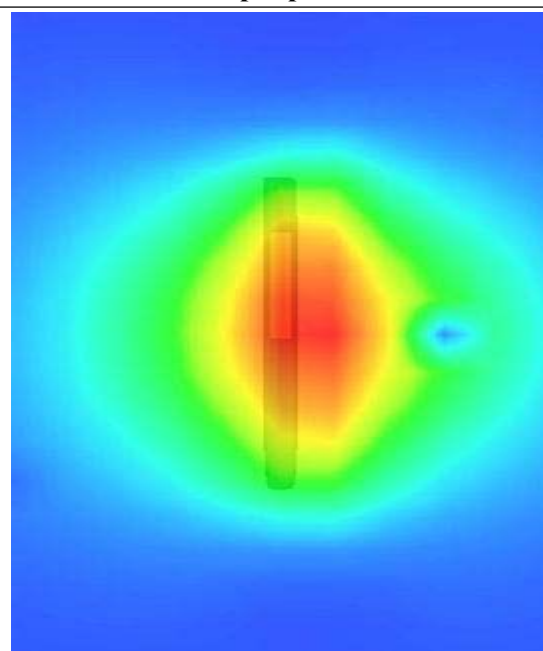
SAR, Z Axis Scan (X = 6, Y = 0)



3D scene shot



Hot spot position



System Performance Check Data(Body)

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 13 minutes 26 seconds

A. Experimental conditions.

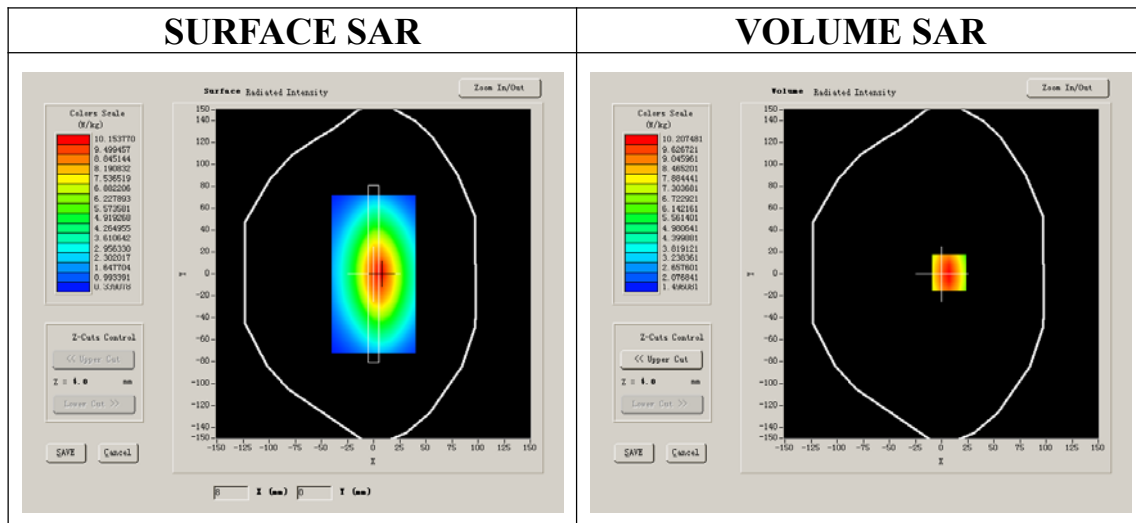
Phantom File	surf_sam_plan.txt
Phantom	Flat Plane
Device Position	
Band	1900MHz
Channels	
Signal	CW

B. SAR Measurement Results

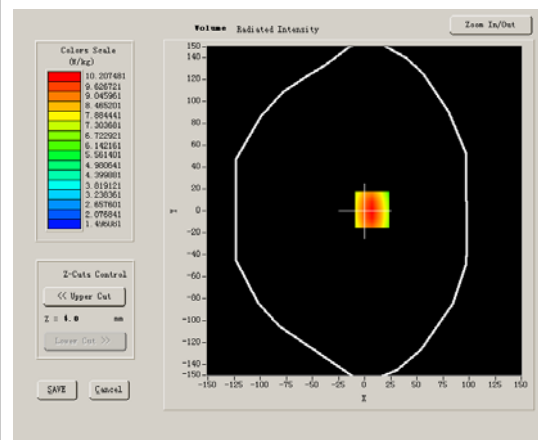
Band SAR

Frequency (MHz)	1900.000000
Relative permittivity (real part)	53.283431
Conductivity (S/m)	1.508114
Power drift (%)	-0.030000
Ambient Temperature:	22.3°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



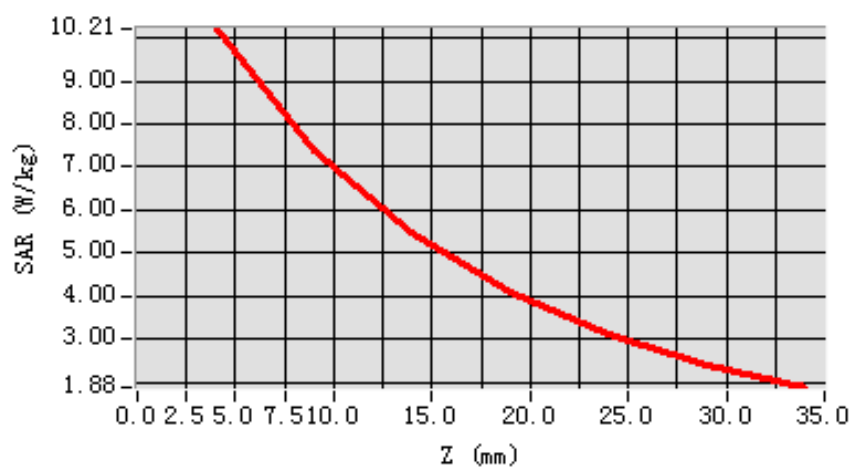
Maximum location: X=7.00, Y=1.00

SAR 10g (W/Kg)	6.628519
SAR 1g (W/Kg)	9.746173

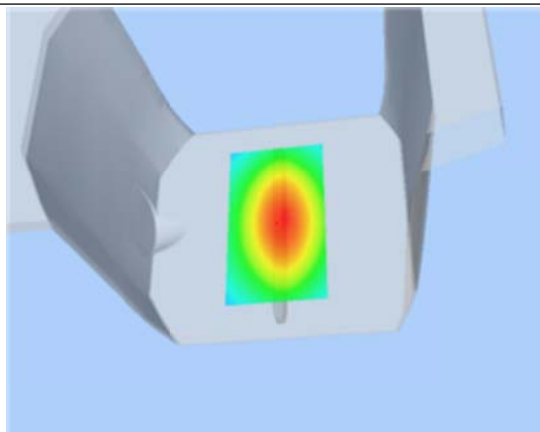
Z Axis Scan

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

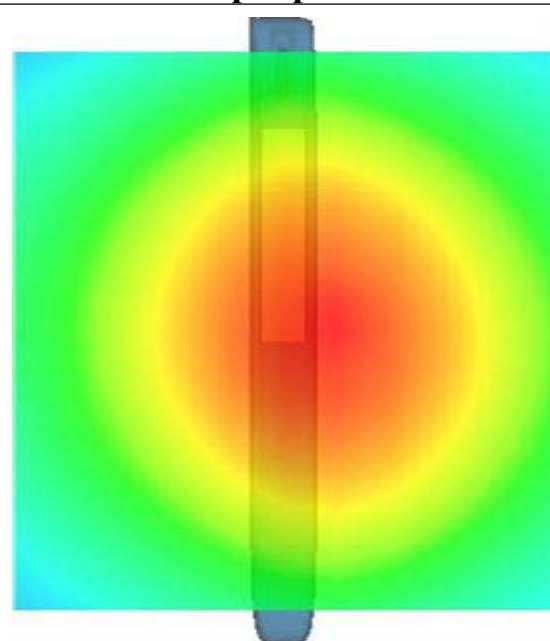
SAR, Z Axis Scan (X = 7, Y = 1)



3D scene shot



Hot spot position



System Performance Check Data(Head)

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 13 minutes 27 seconds

A. Experimental conditions.

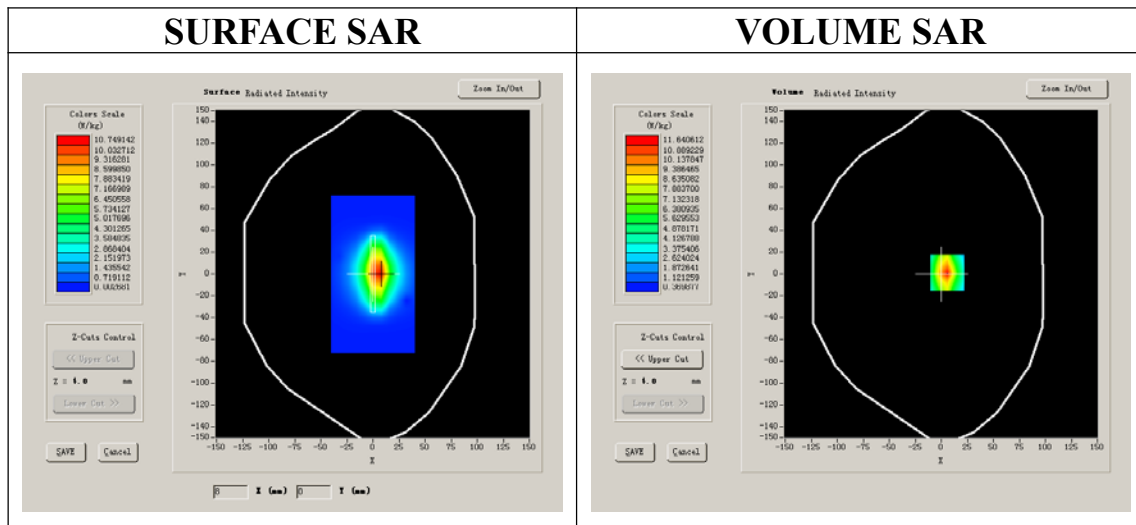
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	
Band	2450MHz
Channels	
Signal	CW

B. SAR Measurement Results

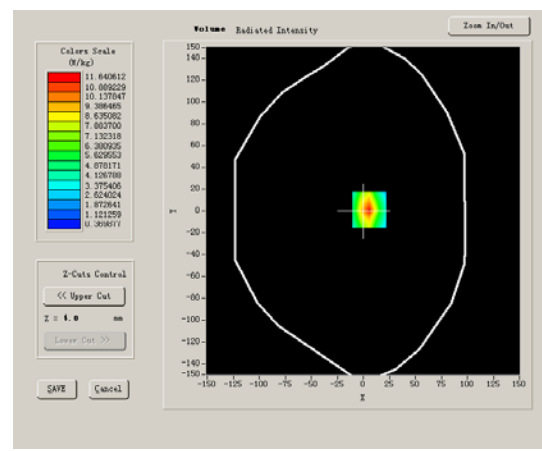
Band SAR

Frequency (MHz)	2450.000000
Relative permittivity (real part)	39.723451
Conductivity (S/m)	1.794326
Power Drift (%)	0.560000
Ambient Temperature:	22.0°C
Liquid Temperature:	21.8°C
ConvF:	39.563,33.614,37.677
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



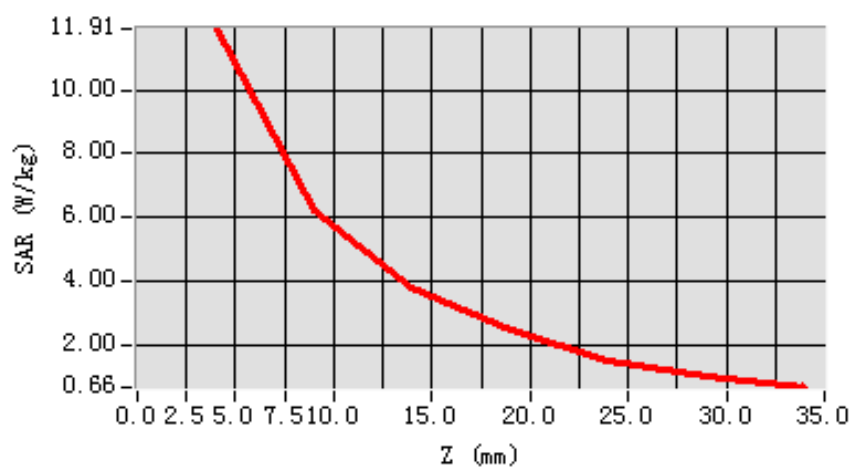
Maximum location: X=6.00, Y=1.00

SAR 10g (W/Kg)	7.638478
SAR 1g (W/Kg)	12.043675

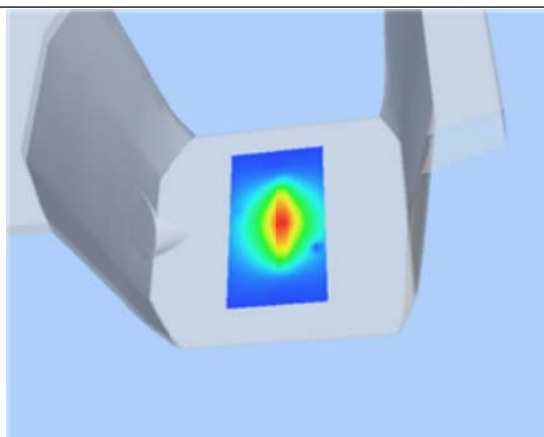
Z Axis Scan

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

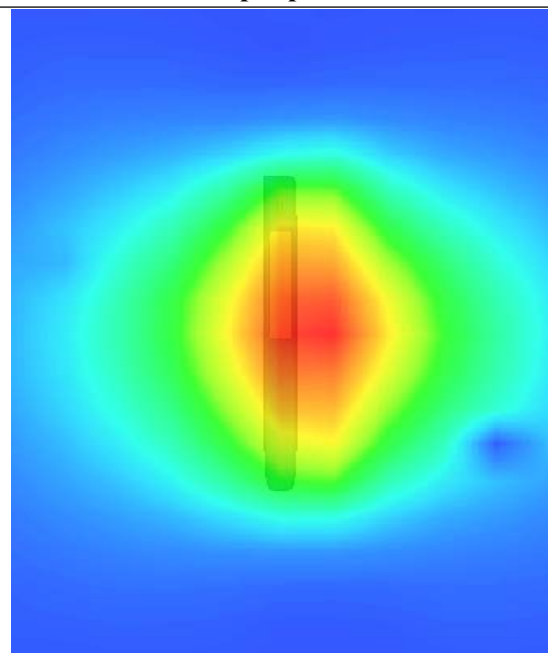
SAR, Z Axis Scan (X = 6, Y = 1)



3D scene shot



Hot spot position



System Performance Check Data(Body)

Type: Phone measurement (Complete)

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

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

Date of measurement: 2013.1.7

Measurement duration: 13 minutes 27 seconds

A. Experimental conditions.

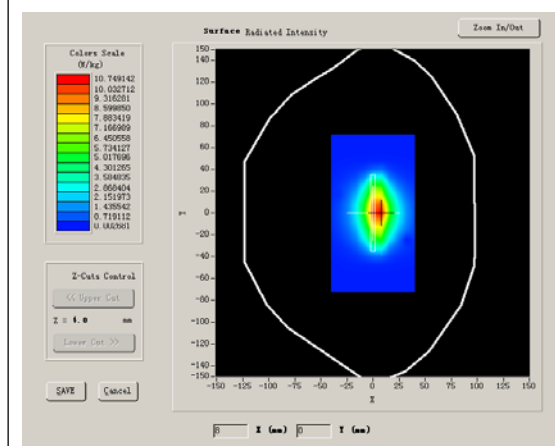
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	
Band	2450MHz
Channels	
Signal	CW

B. SAR Measurement Results

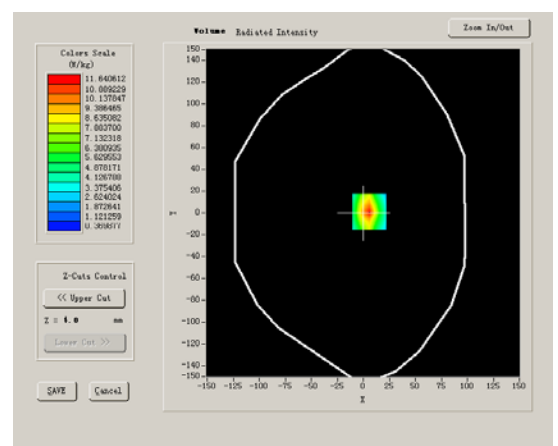
Band SAR

Frequency (MHz)	2450.000000
Relative permittivity (real part)	53.461064
Conductivity (S/m)	1.863317
Power Drift (%)	1.080000
Ambient Temperature:	22.0°C
Liquid Temperature:	21.8°C
ConvF:	39.772,33.946,37.835
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



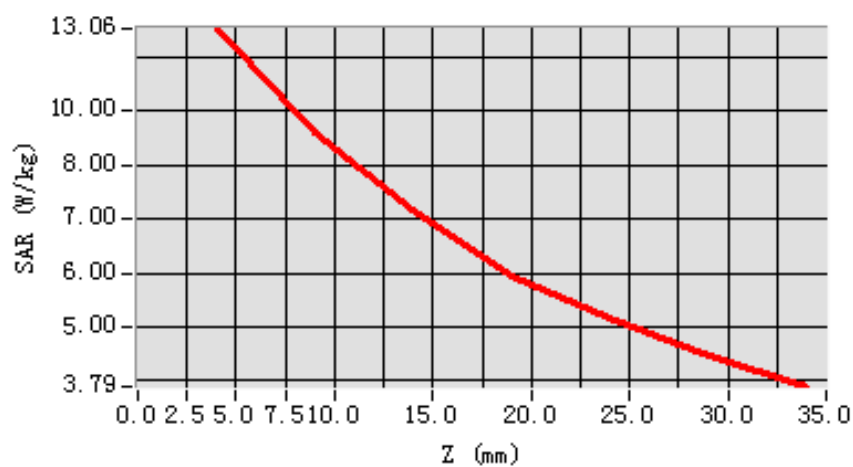
Maximum location: X=-1.00, Y=-50.00

SAR 10g (W/Kg)	7.156773
SAR 1g (W/Kg)	12.789110

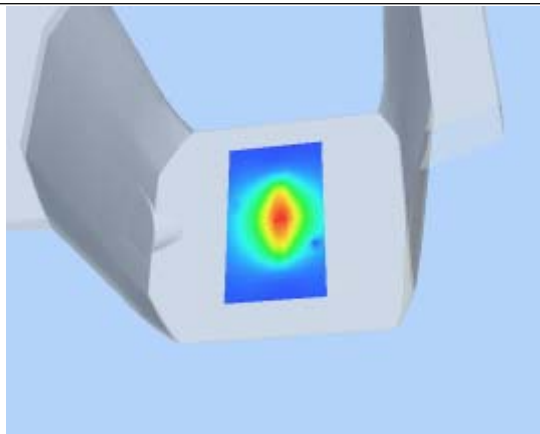
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	13.1279	6.8312	3.5991	1.3473

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



3D scene shot



Hot spot position

