



Report No.: SZ11090107S01



SAR TEST REPORT

Issued to

3M Cogent, Inc

For

Mobile Ident IIIc

Model Name : Mi3c
 Trade Name : 3M
 Brand Name : 3M
 FCC ID : ZYFMI3C
 Standard : FCC Oet65 Supplement C Jun.2001
 47CFR 2.1093
 ANSI C95.1-1999
 IEEE 1528-2003
 MAX SAR : Body: 0.658W/kg
 Test date : Oct. 31, 2011&Nov.07, 2011
 Issue date : Dec. 13, 2011

Shenzhen MORLAB Communication Technology Co., Ltd.



Tested by Zhu Zhan
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 Date 2011.12.13

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 Date 2011.12.13

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 Date 2011.12.13



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Change History		
Issue	Date	Reason for change
1.0	Nov.26, 2011	First edition
2.0	Dec. 13,2011	Correct the SAR lists in Page 25 to Page 26, and specify the distance from the DUT to the flat phantom.

1. Testing Laboratory

1.1. Identification of the Responsible Testing Laboratory

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

1.2. Identification of the Responsible Testing Location

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

1.3. Accreditation Certificate

Accredited Testing Laboratory: No. CNAS L3572

1.4. List of Test Equipments

No.	Instrument	Type	Cal. Date	Cal. Due
1	PC	Dell (Pentium IV 2.4GHz, SN:X10-23533)	(n.a)	(n.a)
2	Network Emulator	Rohde&Schwarz (CMU200, SN:105894)	2011-9-26	1year
3	Voltmeter	Keithley (2000, SN:1000572)	2011-9-24	1year
4	Synthetizer	Rohde&Schwarz (SML_03, SN:101868)	2011-9-24	1year
5	Amplifier	Nucl udes (ALB216, SN:10800)	2011-9-24	1year
6	Power Meter	Rohde&Schwarz (NRVD, SN:101066)	2011-9-24	1year
7	Probe	Satimo (SN:SN_3708_EP80)	2011-9-24	1year
8	Phantom	Satimo (SN:SN_36_08_SAM62)	2011-9-24	1year
9	Liquid	Satimo (Last Calibration: 2011-11-07)	N/A	N.A
10	Dipole 835MHz	Satimo (SN 36/08 DIPC 99)	2011-9-24	1year
11	Dipole 1900MHz	Satimo (SN 36/08 DIPF 102)	2011-9-24	1year
11	Dipole 2450MHz	Satimo (SN 36/08 DIPF 103)	2011-9-24	1year

2. Technical Information

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

2.1. Identification of Applicant

Company Name: 3M Cogent, Inc
 Address: 639N.Rosemead Blvd. Pasadena.CA 91170, USA

2.2. Identification of Manufacturer

Company Name: 3M Cogent, Inc
 Address: Fiyta Hi-tech Building 1706, Gaoxinnanyi Avenue, Southern District of Hi-tech Park, Nanshan District, Shenzhen, China

2.3. Equipment Under Test (EUT)

Model Name: Mi3c
 Brand Name: 3M
 Trade Name: 3M
 Hardware Version: V5.1
 Software Version: V2.1.6
 Frequency Bands: GSM 850MHz / PCS 1900MHz
 WCDMA 850MHz
 WCDMA 1900MHz
 WIFI 2412MHz-2472MHz
 Modulation Mode: GSM/GPRS:GMSK; EDGE: 8PSK
 WCDMA : QPSK;
 WIFI 802.11B: DSSS
 WIFI 802.11G: OFDM
 Multislot Class GPRS: Multislot Class 12; EDGE: Multislot Class 12
 GPRS operation mode: Class B
 Antenna type: Fixed Internal Antenna
 Development Stage: Identical prototype
 Battery Model: SONATA 4400
 Battery specification: 4400mAh 3.7V

2.3.1. Photographs of the EUT

Please see for photographs of the EUT.

2.3.2. Identification of all used EUT

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

EUT Identity	Hardware Version	Software Version
1#	V5.1	V2.1.6

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.

2.5. Device Category and SAR Limits

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

2.6. Test Environment/Conditions

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa
Test frequency:	GSM 900MHz / PCS 1900MHz WCDMA 900 MHz/WCDMA2100MHz WIFI 802.11B/G 2.4GHz
Operation mode:	Call established
Power Level:	GSM 850 MHz Maximum output power(level 5) PCS 1900 MHz Maximum output power(level 0) WCDMA 850 (All Up Bit) WCDMA 1900 (All Up Bit) WIFI 802.11B/G (Maximum output power)

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

The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 128, 190 and 251 respectively in the case of GSM 850 MHz, or to 512, 661 and 810 respectively in the case of PCS 1800 MHz, The EUT, The EUT is commanded to operate at maximum transmitting power.

And Located at channel 4132, 4182 and 4233 of WCDMA 850 band; Located at channel 9262, 9400 and 9538 of WCDMA 1900 band.

For WIFI SAR testing, the EUT was commanded to maximum power transmitting.

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

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

For SAR testing, EUT is in GPRS/EDGE mode. In GPRS/EDGE link mode, its crest factor is 2, because EUT is set in GPRS/EDGE multi-slot class 12 with 4 uplink slots.

3. Specific Absorption Rate (SAR)

3.1. Introduction

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

3.2. SAR Definition

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

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

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

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

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

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

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

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

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

4. SAR Measurement Setup

4.1. The Measurement System

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

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

The following figure shows the system.



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

4.2. Probe

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

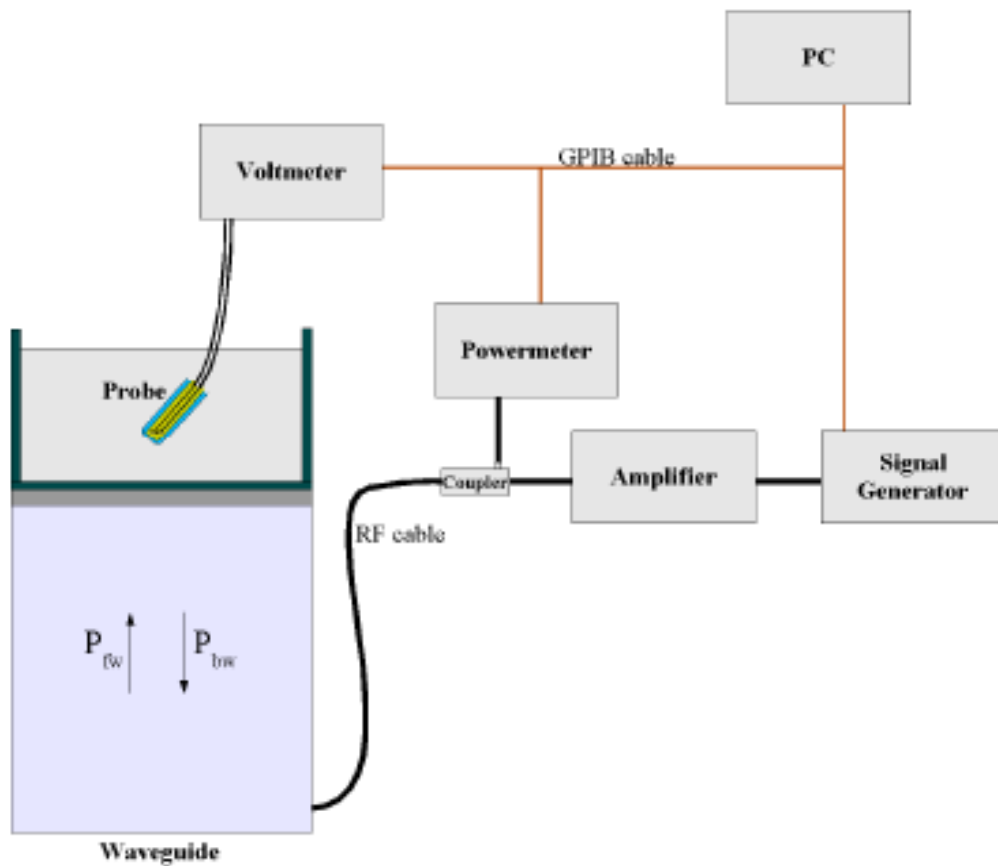
- Dynamic range: 0.01-100 W/kg
- Tip Diameter : 6.5 mm
- Distance between probe tip and sensor center: 2.5mm
- Distance between sensor center and the inner phantom surface: 4 mm

(repeatability better than +/- 1mm)

- Probe linearity: <0.25 dB
- Axial Isotropy: <0.25 dB
- Spherical Isotropy: <0.25 dB
- Calibration range: 835to 2500MHz for head & body simulating liquid.

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

Probe calibration is realized, in compliance with CENELEC EN 62209 and IEEE 1528 std, with CALISAR, Antenna 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 below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm².

4.3.2 Temperature Assessment Procedure

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

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,

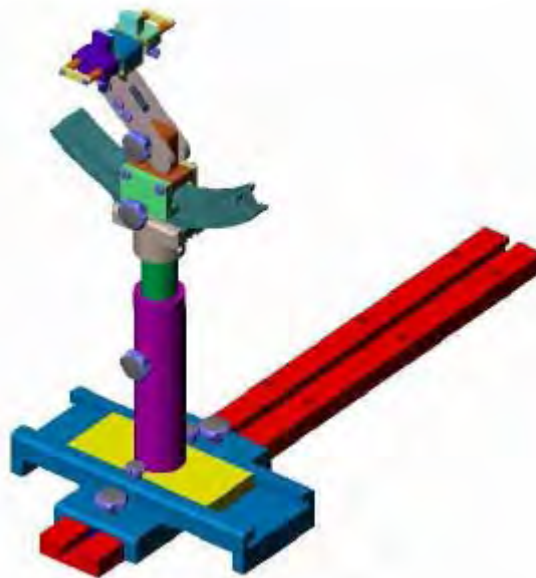
ρ = Tissue density (1.25 g/cm³ for brain tissue)

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 lower than 1°.



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

5. Tissue Simulating Liquids

Simulant liquids that are used for testing at frequencies of 850MHz, 1900MHz and 2450MHz, which are made mainly of sugar, salt and water solutions may be left in the phantoms. Approximately 20litres are needed for an upright head compared to about 25 litres for a horizontal bath phantom. The liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is (head SAR)or from the flat phantom to the liquid top surface (body SAR) is 15cm.

Following is the recipes for one liter of body tissue simulating liquid for frequency band 850MHz, 1900 MHz and 2450 MHz.

Ingredients (% by weight)	Frequency Band	Frequency Band	Frequency Band
	850MHz	1900MHz	2450MHz
Tissue Type	Body	Body	Body
Water	52.4	40.4	73.2
Salt(NaCl)	1.4	0.5	0.04
Sugar	45.0	58.0	0.0
HEC	1.0	1.0	0.0
Bactericide	0.1	0.1	0.0
Triton	0.0	0.0	0.0
DGBE	0.0	0.0	26.7
Acticide SPX	0.0	0.0	0.0
Dielectric Constant	56.1	54.0	52.5
Conductivity (S/m)	0.95	1.45	1.78

Recipes for Tissue Simulating Liquid

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

Table 1: Dielectric Performance of Body Tissue Simulating Liquid

Temperature: 23.0~23.8°C, humidity: 54~60%.			
/	Frequency	Permittivity ϵ	Conductivity σ (S/m)
Target value	835 MHz	55.2	0.97
Validation value (Oct. 31)	835 MHz	55.709999	1.009033
Target value	1900 MHz	53.3	1.52
Validation value (Nov. 07)	1900 MHz	52.548876	1.573978
Target value	2450 MHz	53.3	1.52
Validation value (Nov. 07)	2450 MHz	52.548876	1.573978

6. Uncertainty Assessment

The following table includes the uncertainty table of the IEEE 1528.

6.1. UNCERTAINTY EVALUATION FOR HANDSET SAR TEST

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+ %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	Vi
Measurement System									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.76	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.01	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.62	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∞
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and integration 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	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞

and thickness tolerances)									
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

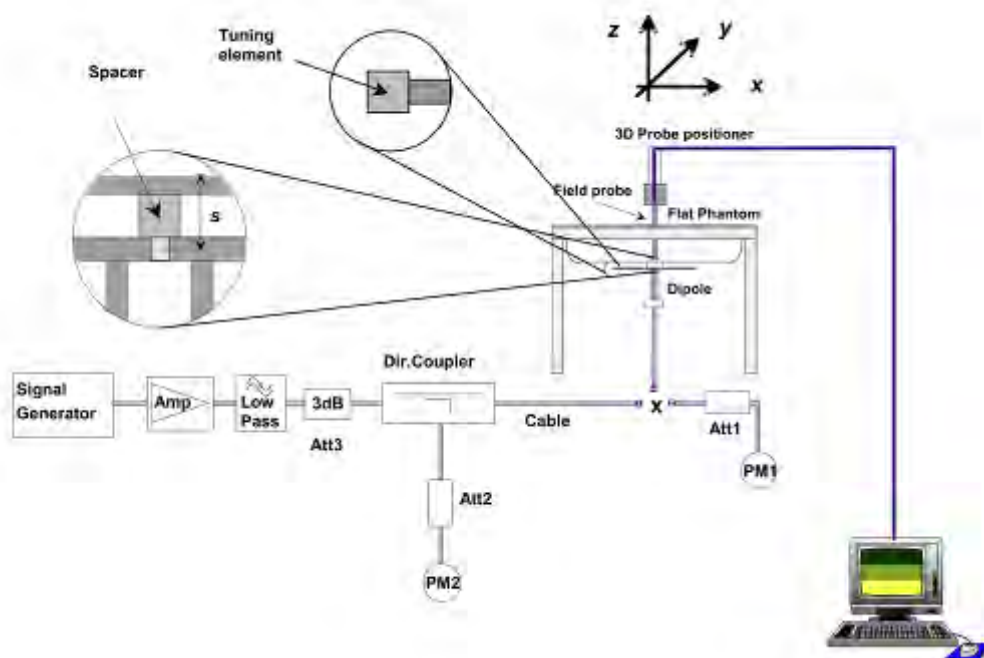
7.1. System Setup

In the simplified setup for system evaluation, the EUT 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 2450 MHz. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom.

Equipments:

name	Type and specification
Signal generator	E4433B
Directional coupler	450MHz-3GHz
Amplifier	3W 502(10-2500MHz)
Reference dipole	850MHz:SN 36/08 DIPF 99 1900MHz:SN 36/08 DIPF 102 2450MHz:SN 36/08 DIPF 103

System Verification Setup Block Diagram



7.2. Validation Results

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

Frequency	835MHz	1900MHz	2450MHz
Target value (1g)	9.2 W/Kg	\	\
250 mW input power (Oct.31, 2011)	2.437 W/Kg	\	\
Test value (1g) (Oct.31, 2011)	9.748 W/Kg	\	\
Target value (1g)	\	39.7 W/Kg	52.4 W/Kg
250 mW input power (Nov.07, 2011)	\	9.668 W/Kg	12.784 W/Kg
Test value (1g) (Nov.07, 2011)	\	38.672 W/Kg	51.136 W/Kg

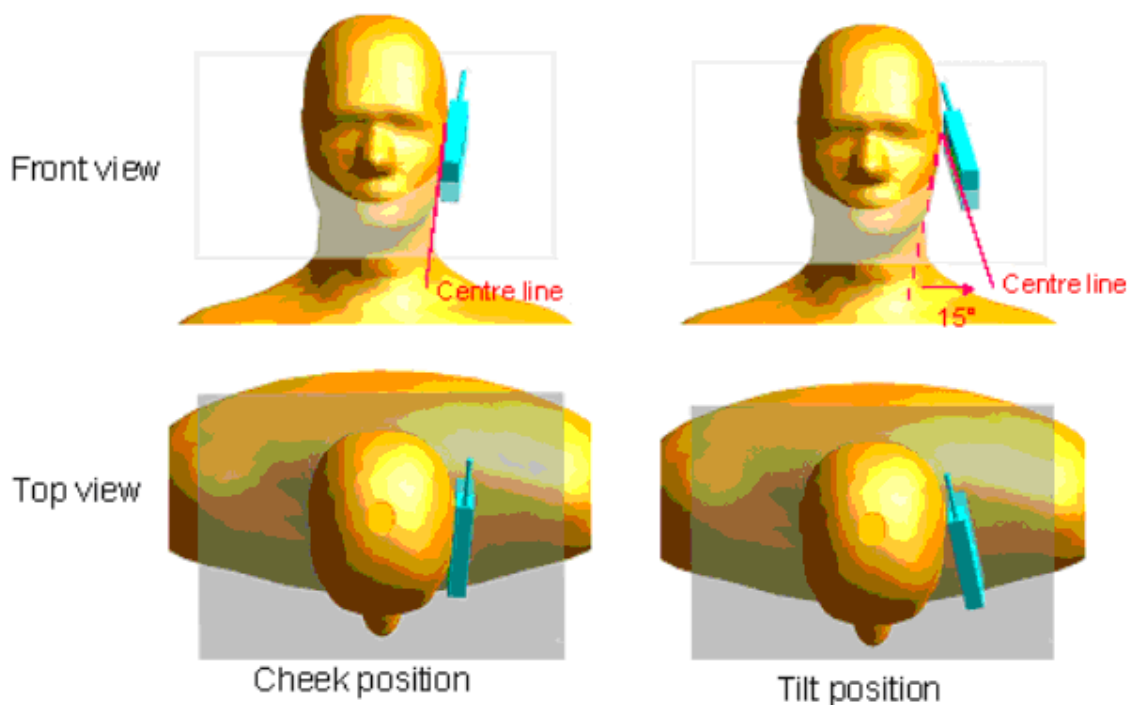
Note: System checks the specific test data please see page 99-104.

8. Operational Conditions During Test

8.1. Informations on the testing

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

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



Description of the “cheek” position:

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

Description of the “tilted” position:

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

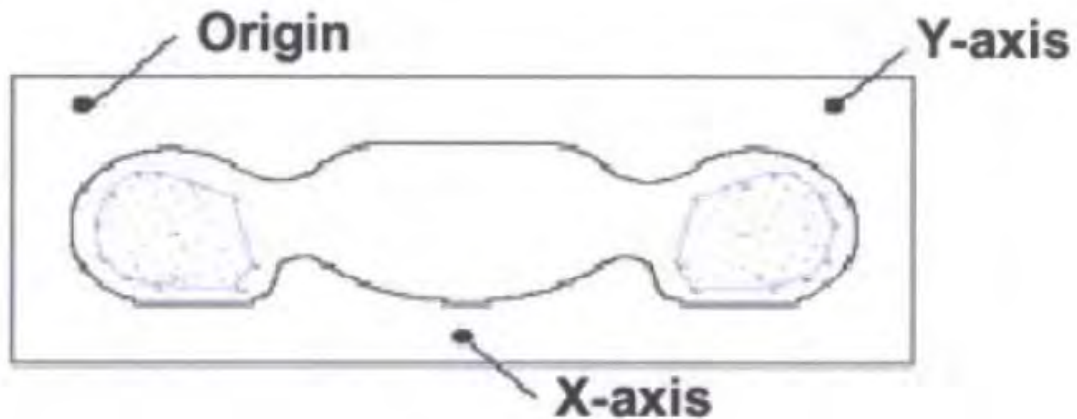
Remark: Please refer to Appendix B for the test setup photos.

8.2. Body-worn Configurations

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

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

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



SAR Measurement Points in Area Scan

8.3. Measurement procedure

The following steps are used for each test position

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

8.4. Description of interpolation/extrapolation scheme

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

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated

from the liquid surface with a 1mm step.

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

9. 3G MEASUREMENT PROCEDURES

9.1. Procedures Used To Establish Test Signal

The handset was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing SAR and are recommended for evaluating SAR. SAR measurements were taken with a fully charged battery. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR measurement software calculates a reference point at the start and end of the test to check for power drifts. If conducted power deviations of more than 5% occurred, the tests were repeated.

9.2. SAR Measurement Conditions for WCDMA

These procedures were followed according to FCC KDB 941225, October, 2007.

9.3. Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC(transmit power control) set to all "1s". Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes) should be tabulated in the test report. All configurations that are not supported by the EUT or cannot be measured due to technical or equipment limitations should be clearly identified.

9.4. Tablet PC with HSUPA

Body SAR is also measured for HSUPA when the maximum average output of each RF channel with HSUPA active is at least 1/4 dB higher than that measured without HSUPA using 12.2kbps RMC or the maximum SAR for 12.2kbps RMC is above 75% of the SAR limit. Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2kbps RMC without HSD-PA

9.5. Measurement Of Conducted Peak Output Power.

WCDMA mode Peak Output Power

Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4132	4175	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	22.89	22.69	22.79	23.06	23.01	23.19
5.2AA(HSDPA)	1	22.81	22.61	22.71	23.05	22.97	23.09
	2	22.87	22.68	22.77	23.05	22.99	23.10
	3	22.32	22.13	22.21	22.52	22.51	22.65
	4	22.35	22.18	22.23	22.53	22.49	22.69
5.2B(HSUPA)	1	22.83	22.62	22.76	23.05	22.98	23.12
	2	20.76	20.16	20.66	21.08	20.88	21.15
	3	21.78	21.61	21.71	22.06	21.85	22.15
	4	20.79	20.59	20.75	21.06	20.55	21.13
	5	22.81	22.61	22.71	23.03	22.97	23.11

GPRS Mode Peak Output Power

GPRS ModeBand	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	31.85	31.83	30.59	27.76
	190	836.6	31.82	31.80	30.58	27.74
	251	848.8	32.16	32.13	30.91	28.03
PCS 1900	512	1850.2	30.72	30.73	26.37	26.34
	661	1880.0	30.81	30.76	26.27	26.25
	810	1909.8	30.55	30.58	25.62	25.61

GPRS Time-based Average Power

Band	Channel	Frequency (MHz)	Output Power(dBm)							
			Slot 1		Slot 2		Slot 3		Slot 4	
			Output Power	Power Drift	Output Power	Power Drift	Output Power	Power Drift	Output Power	Power Drift
GSM 850	128	824.2	22.85	/	25.81	/	26.33	/	24.75	-0.48
	190	836.6	22.82	/	25.78	/	26.32	/	24.73	-0.33
	251	848.8	23.16	/	26.11	/	26.65	/	25.02	-1.63
PCS 1900	512	1850.2	21.72	/	24.71	/	22.11	/	23.33	-1.50
	661	1880.0	21.81	/	24.74	/	22.01	/	23.24	-0.47
	810	1909.8	21.55	/	24.56	/	21.36	/	22.60	-2.32

Timeslot consignations:

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

Note: 1. Correct Factor= $10 \cdot \log(\text{Duty Cycle})$

2. Average Power= Peak Power+ Correct Factor

EDGE Mode Peak Output Power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	31.86	31.86	30.61	31.68
	190	836.6	31.82	31.79	30.59	31.36
	251	848.8	32.18	32.16	30.93	30.57
PCS 1900	512	1850.2	30.71	30.74	26.37	28.44
	661	1880.0	30.76	30.60	26.28	29.33
	810	1909.8	30.51	30.52	25.63	29.81

EDGE Time-based Average Power

Band	Channel	Frequency (MHz)	Output Power(dBm)							
			Slot 1		Slot 2		Slot 3		Slot 4	
			Output Power	Power Drift	Output Power	Power Drift	Output Power	Power Drift	Output Power	Power Drift
GSM 850	128	824.2	22.86	/	25.84	/	26.35	/	28.67	-0.29
	190	836.6	22.82	/	25.77	/	26.33	/	28.35	-0.59
	251	848.8	23.18	/	26.14	/	26.67	/	27.56	-0.62
PCS 1900	512	1850.2	21.71	/	24.72	/	22.11	/	25.43	-1.33
	661	1880.0	21.76	/	24.58	/	22.02	/	26.32	-3.08
	810	1909.8	21.51	/	24.50	/	21.37	/	26.80	-1.21

Timeslot consignations:

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

Note: 1. Correct Factor= $10 \cdot \log(\text{Duty Cycle})$

2. Average Power= Peak Power+ Correct Factor

Wifi peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)	
			802.11B (DSSS)	802.11G (OFDM)
WiFi	1	2412	10.97	8.07
	6	2437	11.05	7.86
	11	2462	9.43	8.57

Bluetooth peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			GFSK	$\Pi/4$ -DQPSK	8-DPSK
BT	0	2402	-2.909	-5.038	-4.825
	38	2441	-3.080	-5.341	-5.113
	79	2480	-2.195	-4.570	-4.416

10. Test Results List

Summary of Measurement Results (GSM 850 Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Antenna Positions	SAR(W/Kg), 1g value		
			Device Test channel		
			Channel 128	Channel 190	Channel 251
Body (GPRS)	Back upward	Internal	0.072	/	/
	Face upward	Internal	0.037	/	/
	Antenna Side	Internal	0.120	0.129	0.111
Body (EDGE)	Back upward	Internal	0.077	/	/
	Face upward	Internal	0.048	/	/
	Antenna Side	Internal	0.151	0.154	0.138

Note: The high power channel is 128 for GSM mode and GPRS mode, and the Peak SAR of each configurations are less than 0.8 W/kg and the Peak SAR of each configurations are less than 0.8 W/kg. Refer to KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

Summary of Measurement Results (GSM 1900 Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Antenna Positions	SAR(W/Kg), 1g value		
			Device Test channel, Frequency		
			Channel 512	Channel 661	Channel 810
Body (GPRS)	Back upward	Internal	/	/	0.341
	Face Upward	Internal	/	/	0.145
	Antenna Side	Internal	0.419	0.380	0.366
Body (EDGE)	Back upward	Internal	/	/	0.413
	Face Upward	Internal	/	/	0.251
	Antenna Side	Internal	0.595	0.658	0.514

Note: The high power channel is 810 for GSM mode, and the Peak SAR of each configurations are less than 0.8 W/kg. Refer to KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

Summary of Measurement Results (WCDMA 850 Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Antenna Positions	SAR(W/Kg), 1g value		
			Device Test channel		
			Channel 4132	Channel 4182	Channel 4233
Body	Back upward	Internal	0.097	/	/
	Face Upward	Internal	0.041	/	/
	Antenna Side	Internal	0.106	0.148	0.196

Note: The high power channel is 4132 for WCDMA850 mode, and the Peak SAR of each configurations are less than 0.8 W/kg. Refer to KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is \leq 100 MHz, testing for the other channels is not required.

Summary of Measurement Results (WCDMA 1900 Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Antenna Positions	SAR(W/Kg), 1g value		
			Device Test channel		
			Channel 9262	Channel 9400	Channel 9538
Body	Back upward	Internal	/	/	0.354
	Face Upward	Internal	/	/	0.155
	Antenna Side	Internal	0.421	0.370	0.469

Note: The high power channel is 9538 for WCDMA1900 mode, and the Peak SAR of each configurations are less than 0.8 W/kg. Refer KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is \leq 100 MHz, testing for the other channels is not required.

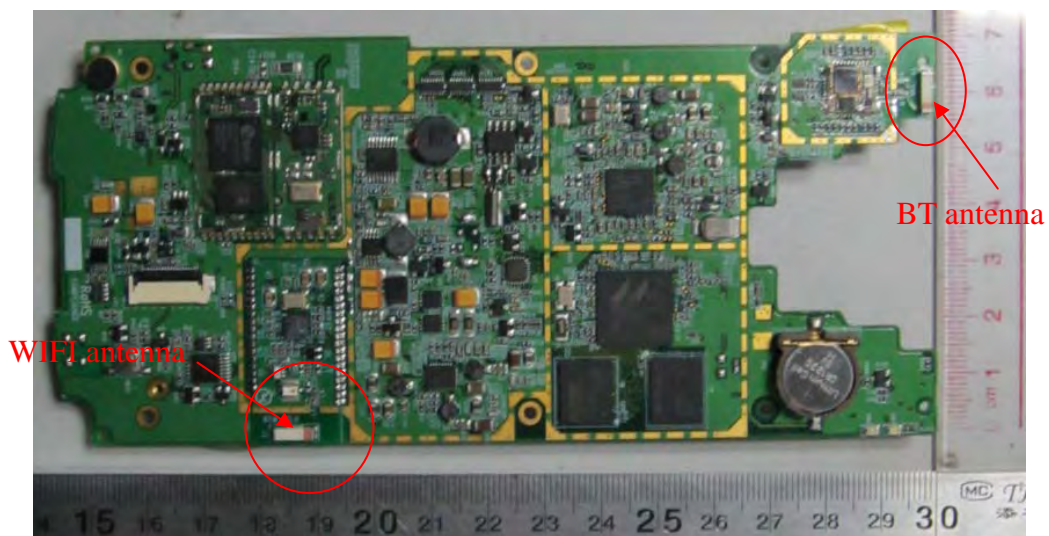
Summary of Measurement Results (WIFI 802.11B Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.					
Phantom Configurations	Device Test Positions	Antenna Positions	SAR(W/Kg), 1g value		
			Device Test channel, Frequency		
			Channel 1	Channel 6	Channel 11
Body	Back upward	Internal	/	0.127	/
	Face Upward	Internal	/	0.093	/
	Antenna Side	Internal	/	0.164	/

Note: The WIFI high power channel is 6 at 802.11B mode, and the Peak SAR of each configurations are less than 0.8 W/kg, Refer KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

11. Multiple Transmitters Evaluation

The are three transmitters build in EUT, GSM&WCDMA , BT and WiFi, As follwing :



1. The antenna distance bewteen GSM&WCDMA and wifi is 6cm.
2. The antenna distance bewteen GSM&WCDMA and BT is 11cm.
3. The antenna distance bewteen wifi and BT is 21cm
4. The GSM&WCDMA AUX antenna is receive only.
5. The Wifi mode Max. 1-g SAR vauel is 0.164W/Kg, and the GSM&WCDMA Max. 1-g SAR vauel is 0.658W/Kg, the sum of 1-g SAR vauel is 0.822W/Kg less than 1.6W/Kg, according with KDB 648474 D01, when the sum of the 1-g SAR is <1.6 W/kg for all simultaneous transmitting antennas, and the Simultaneous Transmission SAR is not required.

Annex A Photographs of the EUT

1 EUT Keyboard Upward



2 EUT Back Upward



EUT Side Upward



Liquid Level Photo



Annex B Graph Test Results

BAND	<u>PARAMETERS</u>
<u>GSM 850</u>	<p><u>Measurement 1</u>: Validation Plane with Body device position on Low Channel in GPRS mode</p> <p><u>Measurement 2</u>: Validation Plane with Body device position on Low Channel in GPRS mode</p> <p><u>Measurement 3</u>: Validation Plane with Body device position on Low Channel in GPRS mode</p> <p><u>Measurement 4</u>: Validation Plane with Body device position on Middle Channel in GPRS mode</p> <p><u>Measurement 5</u>: Validation Plane with Body device position on High Channel in GPRS mode</p> <p><u>Measurement 6</u>: Validation Plane with Body device position on Low Channel in EDGE mode</p> <p><u>Measurement 7</u>: Validation Plane with Body device position on Low Channel in EDGE mode</p> <p><u>Measurement 8</u>: Validation Plane with Body device position on Low Channel in EDGE mode</p> <p><u>Measurement 9</u>: Validation Plane with Body device position on Middle Channel in EDGE mode</p> <p><u>Measurement 10</u>: Validation Plane with Body device position on High Channel in EDGE mode</p>
<u>WCDMA 850</u>	<p><u>Measurement 11</u>: Validation Plane with Body device position on Low Channel in WCDMA mode</p> <p><u>Measurement 12</u>: Validation Plane with Body device position on Low Channel in WCDMA mode</p> <p><u>Measurement 13</u>: Validation Plane with Body device position on Low Channel in WCDMA mode</p> <p><u>Measurement 14</u>: Validation Plane with Body device position on Middle Channel in WCDMA mode</p> <p><u>Measurement 15</u>: Validation Plane with Body device position on High Channel in WCDMA mode</p>
<u>PCS 1900</u>	<p><u>Measurement 16</u>: Validation Plane with Body device position on Low Channel in GPRS mode</p> <p><u>Measurement 17</u>: Validation Plane with Body device position on Middle Channel in GPRS mode</p> <p><u>Measurement 18</u>: Validation Plane with Body device position on High Channel in GPRS mode</p> <p><u>Measurement 19</u>: Validation Plane with Body device position on High Channel in GPRS mode</p> <p><u>Measurement 20</u>: Validation Plane with Body device position on High Channel in GPRS mode</p>

	<p><u>Measurement 21:</u> Validation Plane with Body device position on Low Channel in EDGE mode</p> <p><u>Measurement 22:</u> Validation Plane with Body device position on Middle Channel in EDGE mode</p> <p><u>Measurement 23:</u> Validation Plane with Body device position on High Channel in EDGE mode</p> <p><u>Measurement 24:</u> Validation Plane with Body device position on High Channel in EDGE mode</p> <p><u>Measurement 25:</u> Validation Plane with Body device position on High Channel in EDGE mode</p>
<p><u>WCDMA 1900</u></p>	<p><u>Measurement 26:</u> Validation Plane with Body device position on Low Channel in WCDMA mode</p> <p><u>Measurement 27:</u> Validation Plane with Body device position on Middle Channel in WCDMA mode</p> <p><u>Measurement 28:</u> Validation Plane with Body device position on High Channel in WCDMA mode</p> <p><u>Measurement 29:</u> Validation Plane with Body device position on High Channel in WCDMA mode</p> <p><u>Measurement 30:</u> Validation Plane with Body device position on High Channel in WCDMA mode</p>
<p><u>WIFI 802.11B</u></p>	<p><u>Measurement 31:</u> Validation Plane with Body device position on Middle Channel in DSSS mode</p> <p><u>Measurement 32:</u> Validation Plane with Body device position on Middle Channel in DSSS mode</p> <p><u>Measurement 33:</u> Validation Plane with Body device position on Middle Channel in DSSS mode</p>

MEASUREMENT 1

Type: Phone measurement (Complete)

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

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

Date of measurement: 31/10/2011

Measurement duration: 9 minutes 7 seconds

A. Experimental conditions.

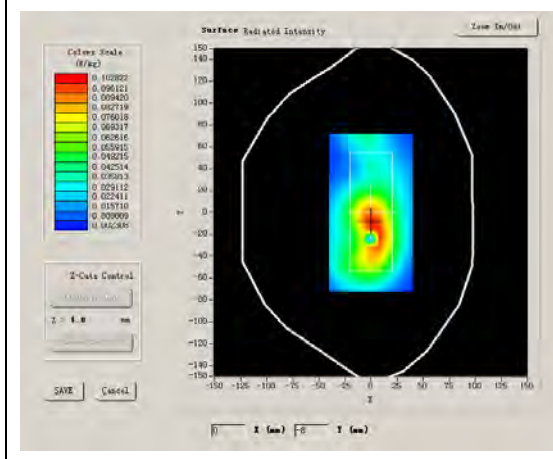
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GPRS

B. SAR Measurement Results

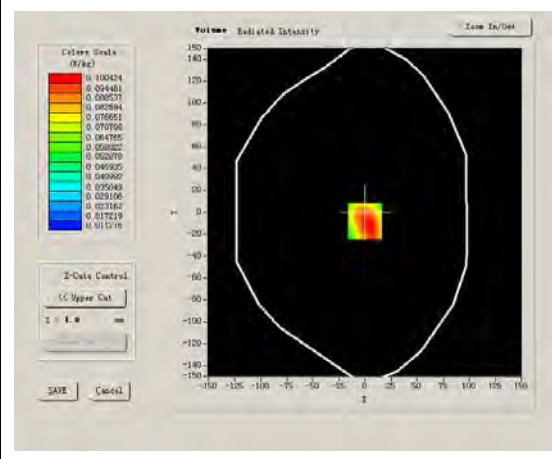
Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	-0.480000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



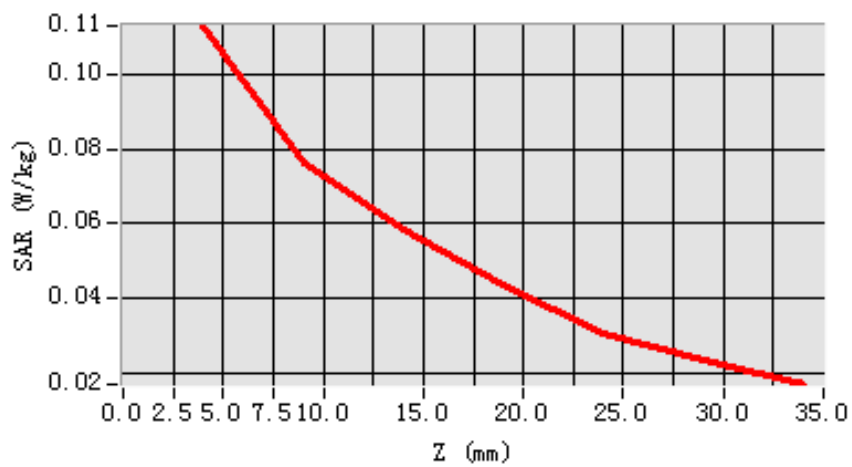
Maximum location: X=0.00, Y=-8.00

SAR 10g (W/Kg)	0.073651
SAR 1g (W/Kg)	0.119559

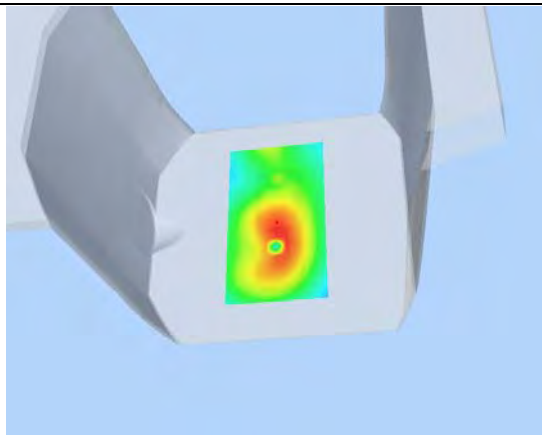
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1129	0.0759	0.0584	0.0434	0.0305	0.0234

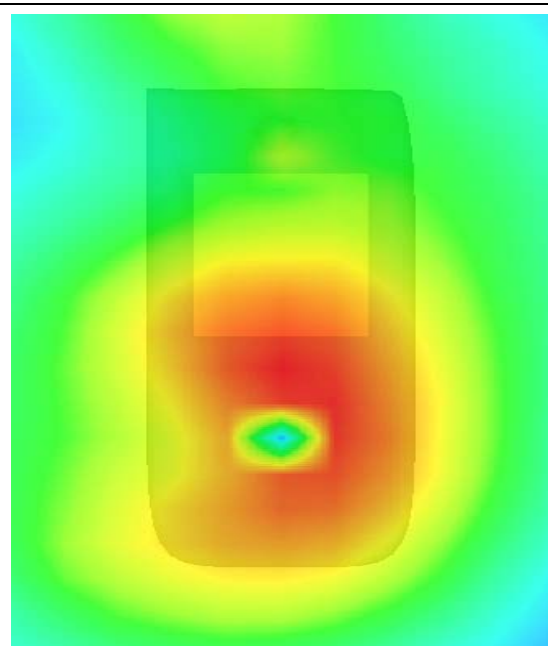
SAR, Z Axis Scan (X = 0, Y = -8)



3D seen 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: 31/10/2011

Measurement duration: 9 minutes 18 seconds

A. Experimental conditions.

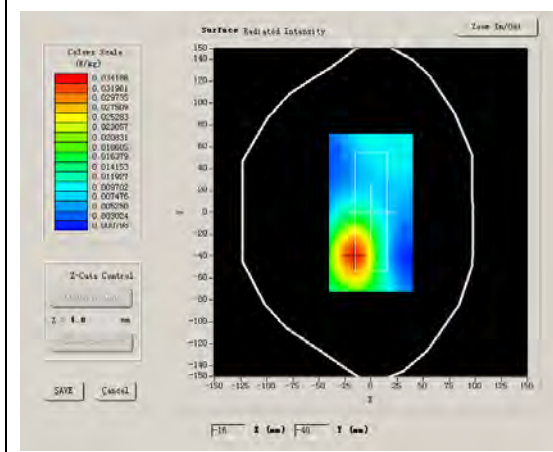
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GPRS

B. SAR Measurement Results

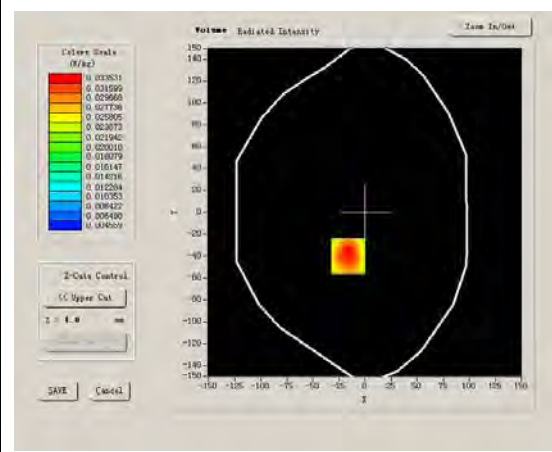
Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	0.320000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



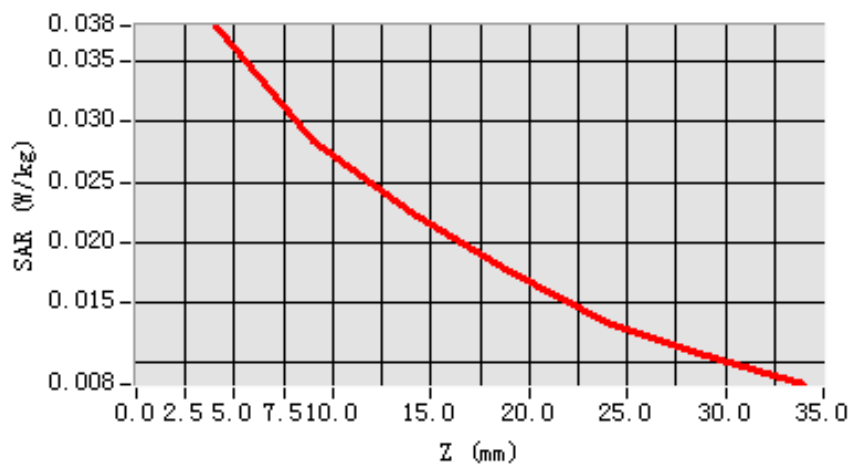
Maximum location: X=-16.00, Y=-40.00

SAR 10g (W/Kg)	0.026555
SAR 1g (W/Kg)	0.036896

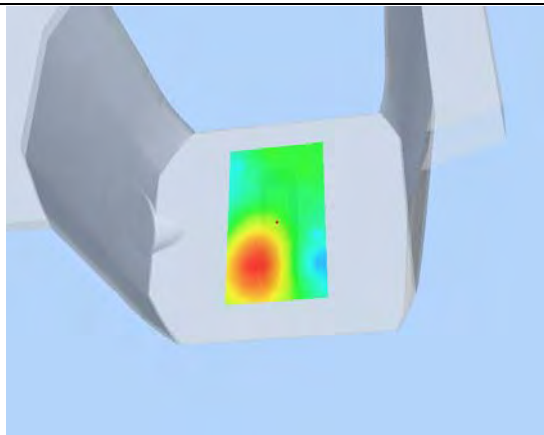
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0380	0.0285	0.0225	0.0176	0.0133	0.0105

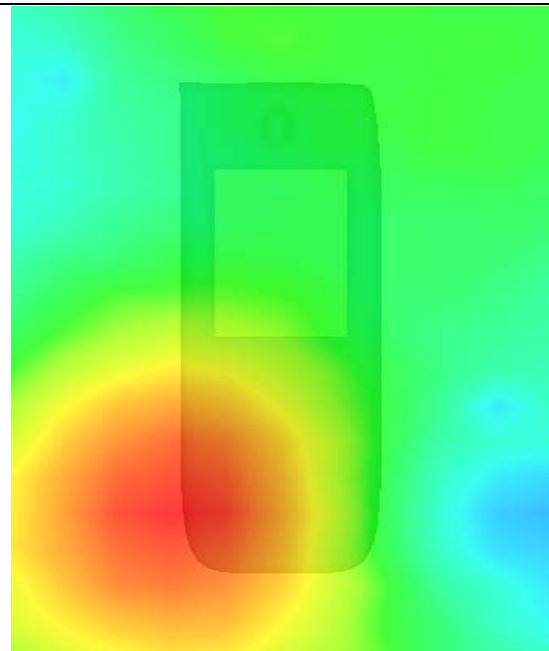
SAR, Z Axis Scan (X = -16, Y = -40)



3D seen 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: 31/10/2011

Measurement duration: 9 minutes 8 seconds

A. Experimental conditions.

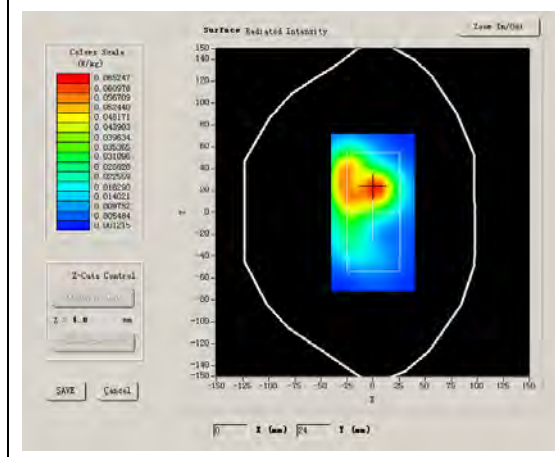
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	GPRS

B. SAR Measurement Results

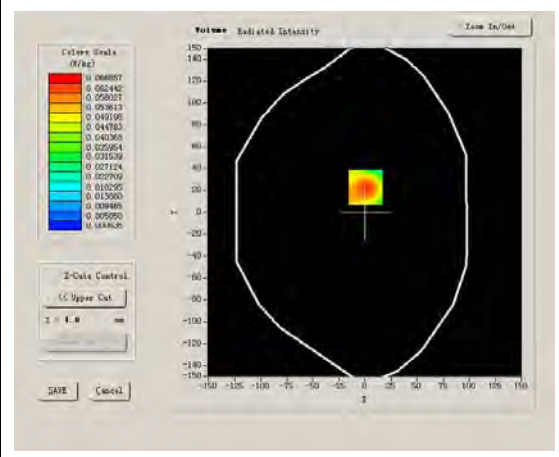
Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	1.130000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



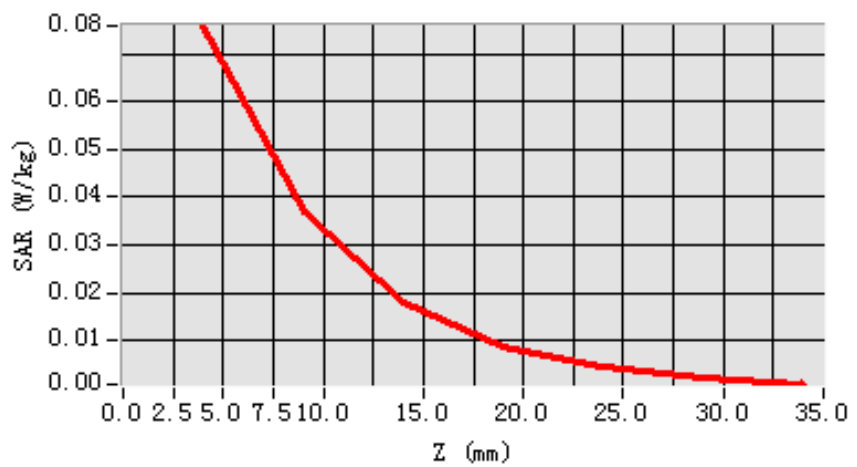
Maximum location: X=1.00, Y=23.00

SAR 10g (W/Kg)	0.037735
SAR 1g (W/Kg)	0.072461

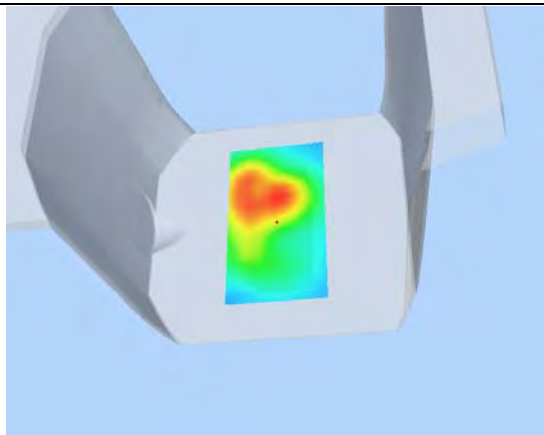
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0759	0.0371	0.0177	0.0086	0.0044	0.0022

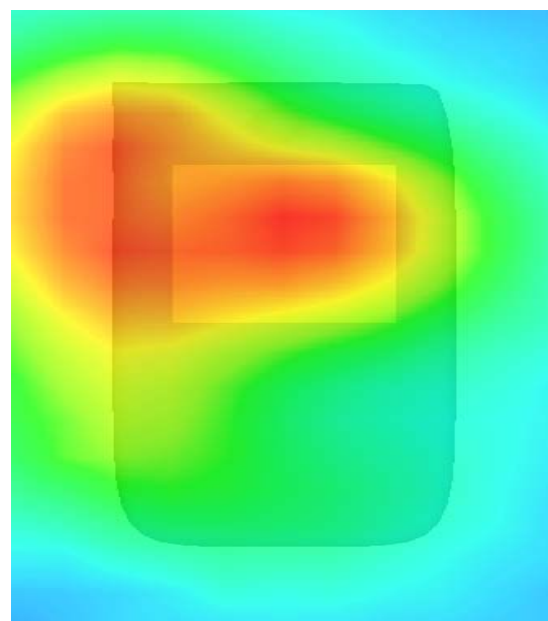
SAR, Z Axis Scan (X = 1, Y = 23)



3D seen 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: 31/10/2011

Measurement duration: 9 minutes 5 seconds

A. Experimental conditions.

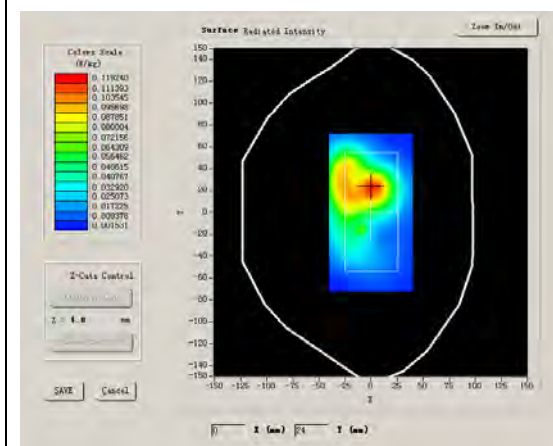
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	GPRS

B. SAR Measurement Results

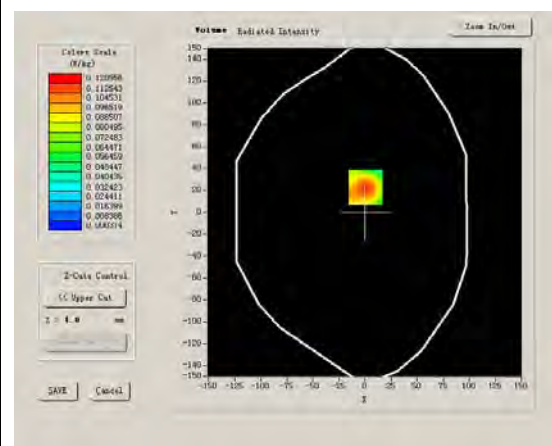
Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power drift (%)	-0.330000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



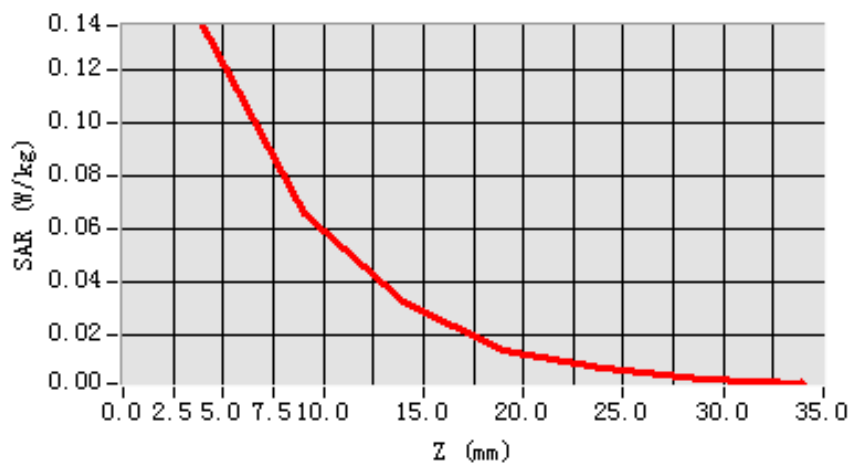
Maximum location: X=1.00, Y=23.00

SAR 10g (W/Kg)	0.067380
SAR 1g (W/Kg)	0.129482

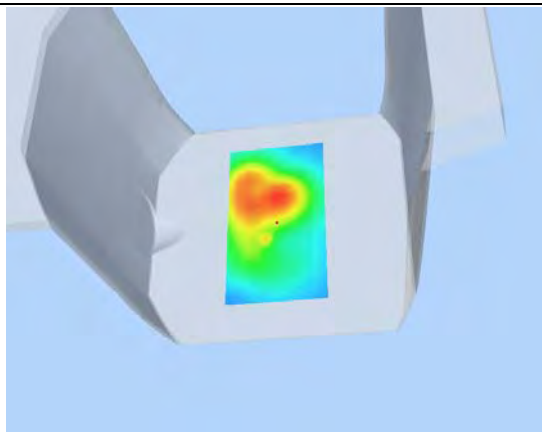
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1369	0.0656	0.0323	0.0141	0.0072	0.0035

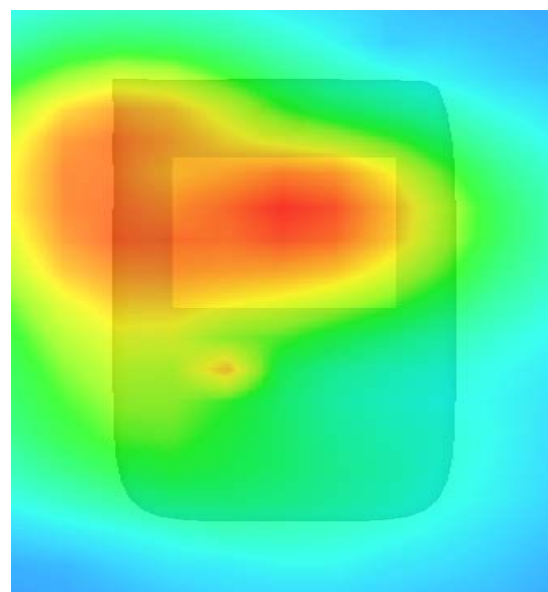
SAR, Z Axis Scan (X = 1, Y = 23)



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: 31/10/2011

Measurement duration: 9 minutes 7 seconds

A. Experimental conditions.

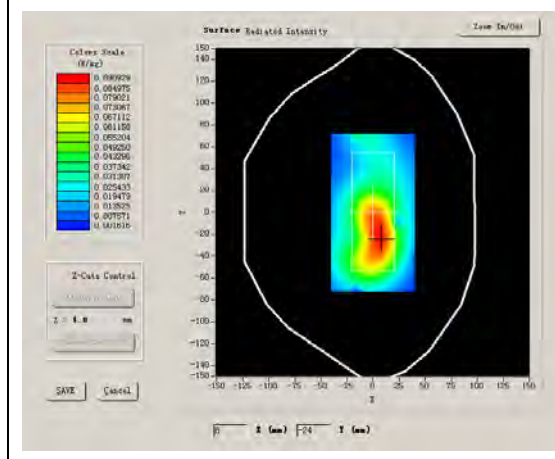
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	High
Signal	GPRS

B. SAR Measurement Results

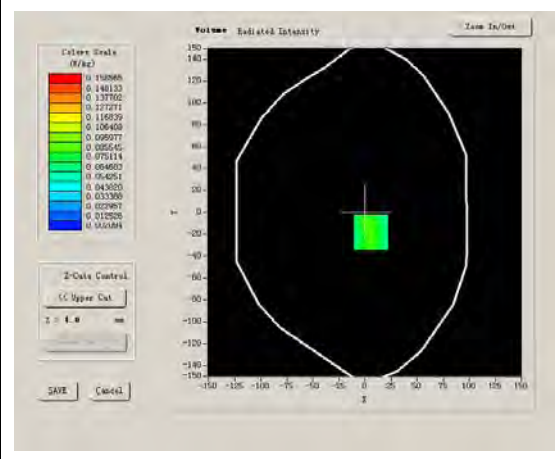
Higher Band SAR (Channel 251):

Frequency (MHz)	848.799988
Relative permittivity (real part)	54.014999
Relative permittivity	21.332850
Conductivity (S/m)	1.005962
Power drift (%)	-1.630000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



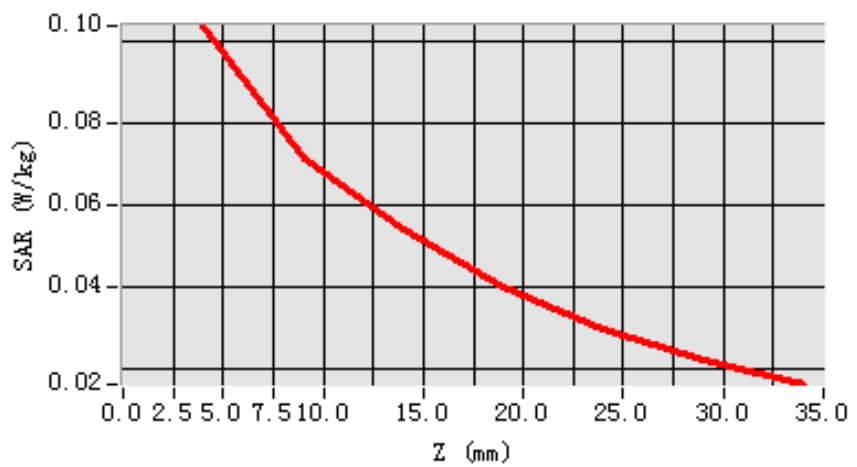
Maximum location: X=6.00, Y=-18.00

SAR 10g (W/Kg)	0.068884
SAR 1g (W/Kg)	0.110958

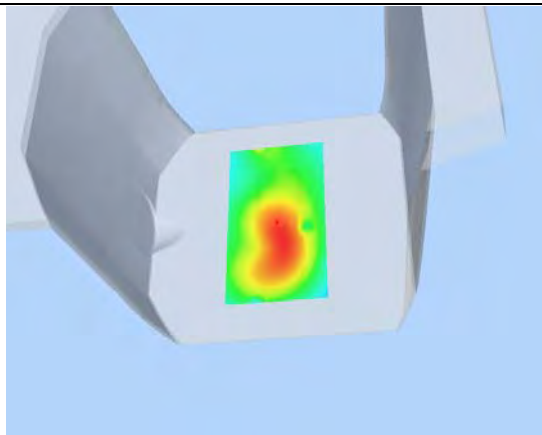
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1038	0.0712	0.0542	0.0400	0.0300	0.0222

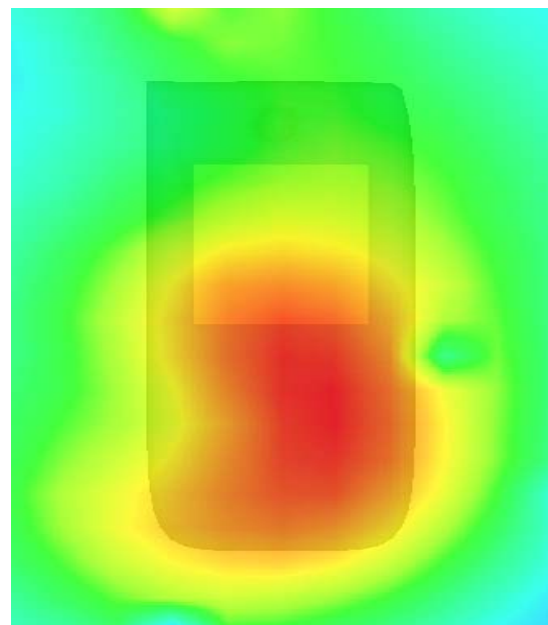
SAR, Z Axis Scan (X = 6, Y = -18)



3D seen 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: 31/10/2011

Measurement duration: 9 minutes 9 seconds

A. Experimental conditions.

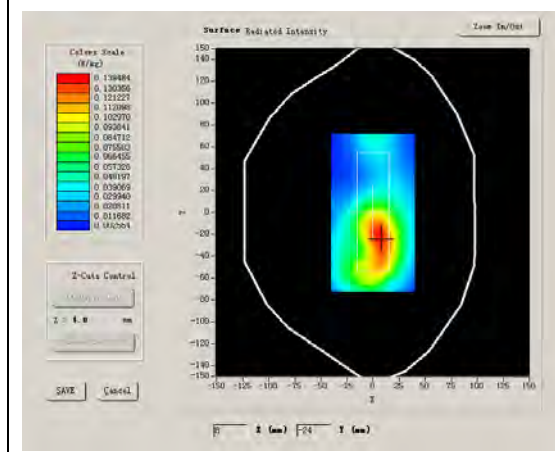
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	EDGE

B. SAR Measurement Results

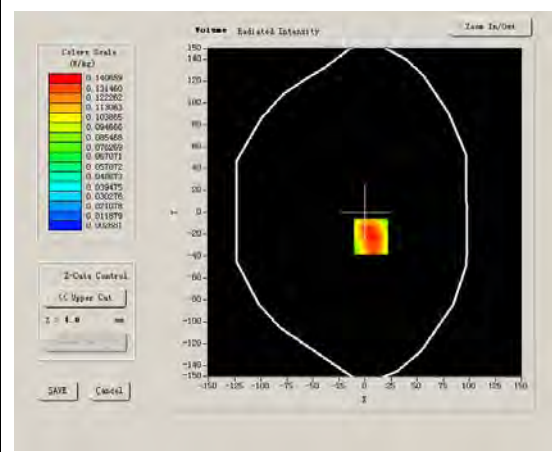
Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	-0.290000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



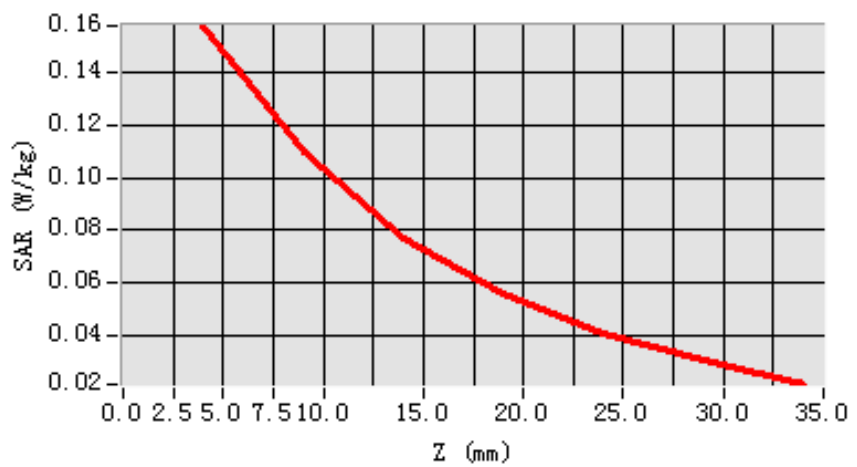
Maximum location: X=6.00, Y=-22.00

SAR 10g (W/Kg)	0.100127
SAR 1g (W/Kg)	0.151114

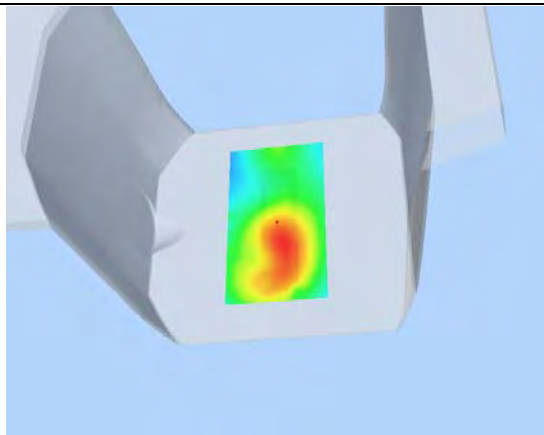
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1582	0.1102	0.0765	0.0558	0.0403	0.0301

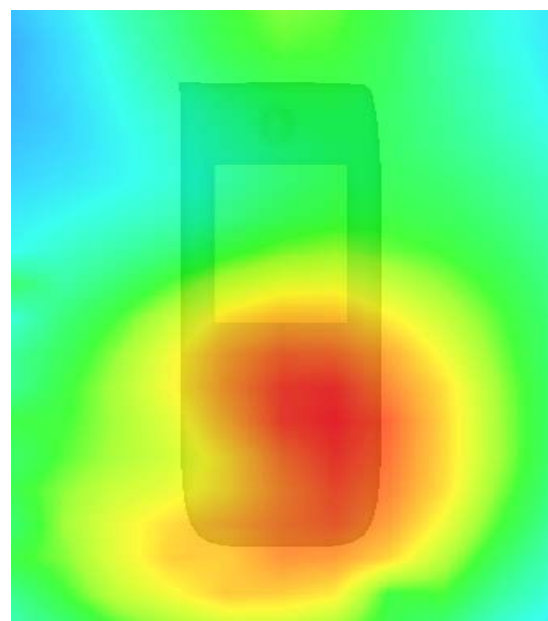
SAR, Z Axis Scan (X = 6, Y = -22)



3D seen 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: 31/10/2011

Measurement duration: 9 minutes 9 seconds

A. Experimental conditions.

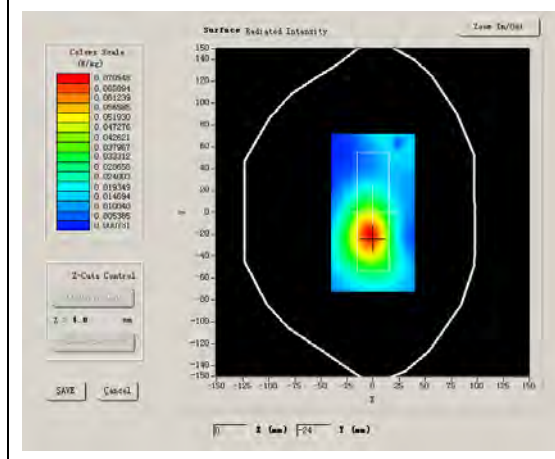
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	EDGE

B. SAR Measurement Results

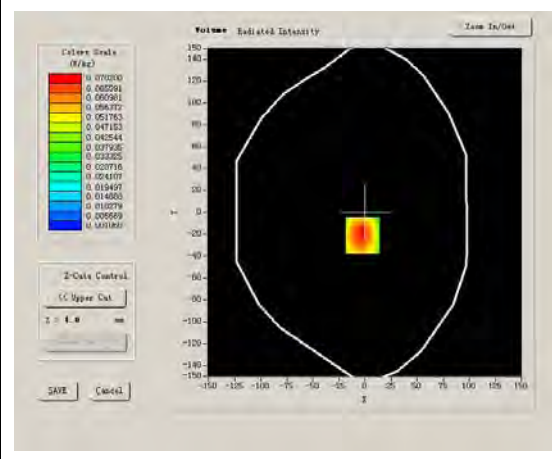
Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	-0.860000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



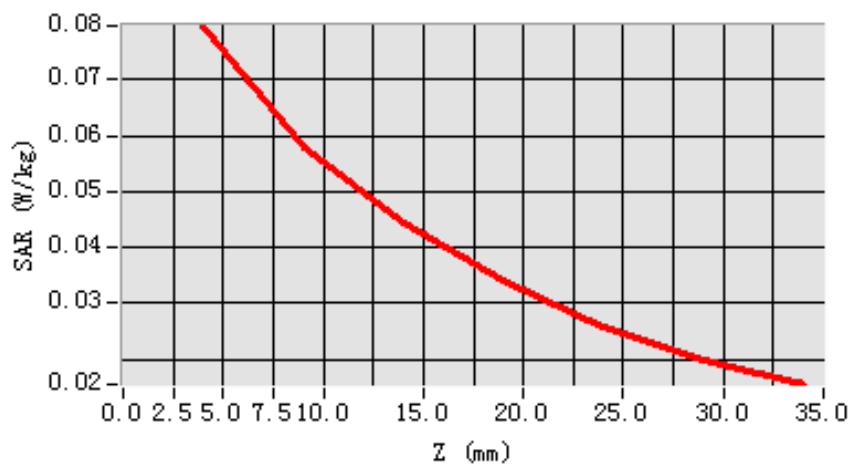
Maximum location: X=-2.00, Y=-21.00

SAR 10g (W/Kg)	0.052733
SAR 1g (W/Kg)	0.076756

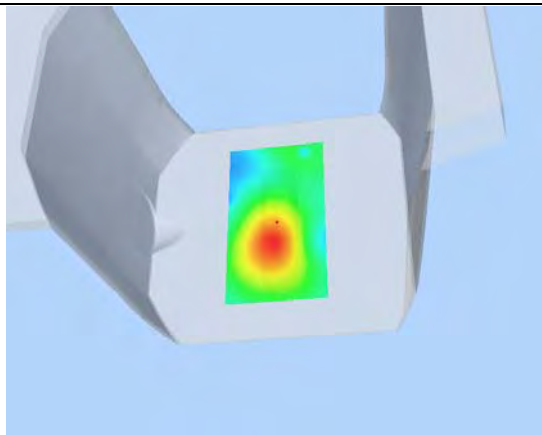
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0797	0.0580	0.0446	0.0341	0.0256	0.0198

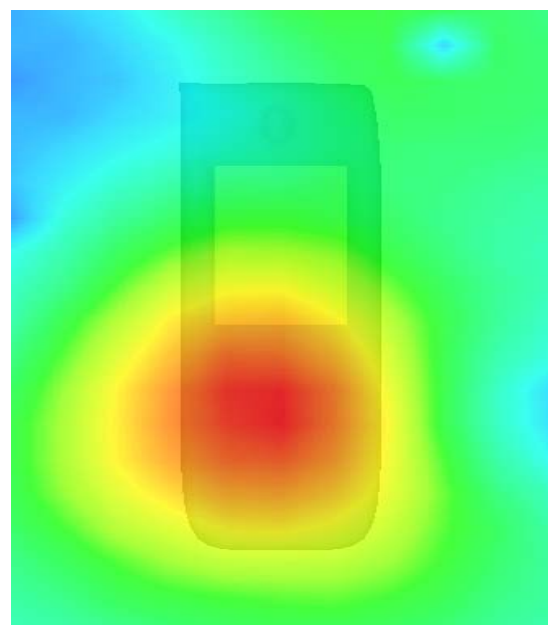
SAR, Z Axis Scan (X = -2, Y = -21)



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: 31/10/2011

Measurement duration: 9 minutes 5 seconds

A. Experimental conditions.

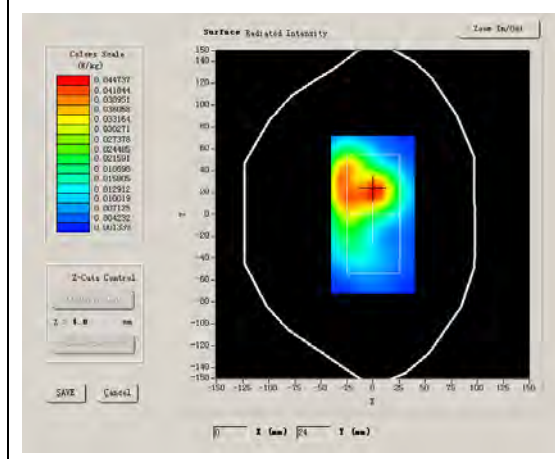
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	EDGE

B. SAR Measurement Results

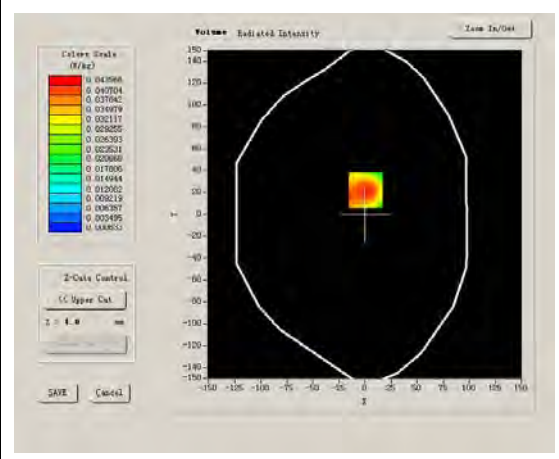
Lower Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	54.116001
Relative permittivity	21.284550
Conductivity (S/m)	0.974596
Power drift (%)	-1.050000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



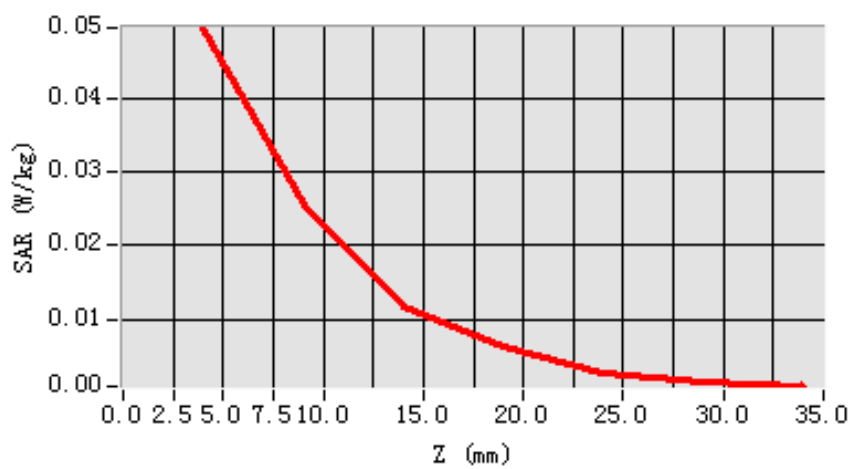
Maximum location: X=1.00, Y=22.00

SAR 10g (W/Kg)	0.025583
SAR 1g (W/Kg)	0.047671

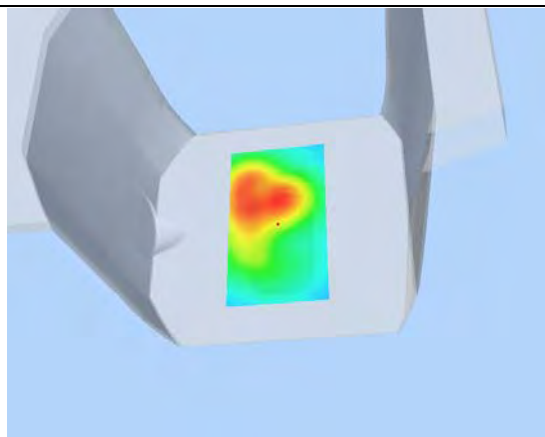
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0495	0.0255	0.0118	0.0065	0.0027	0.0014

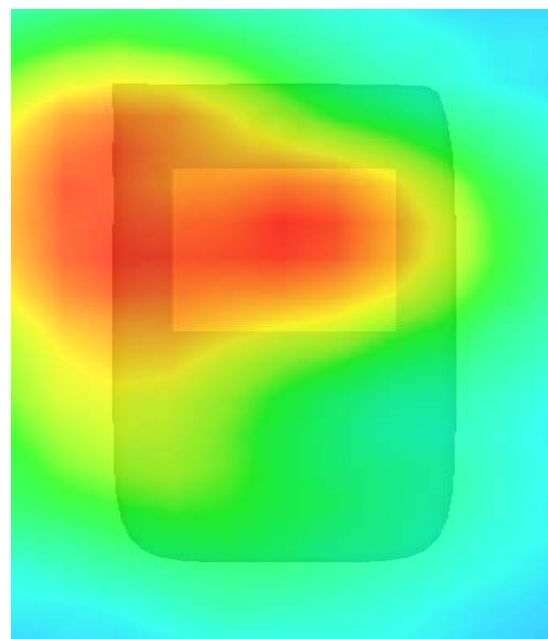
SAR, Z Axis Scan (X = 1, Y = 22)



3D seen 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: 31/10/2011

Measurement duration: 9 minutes 8 seconds

A. Experimental conditions.

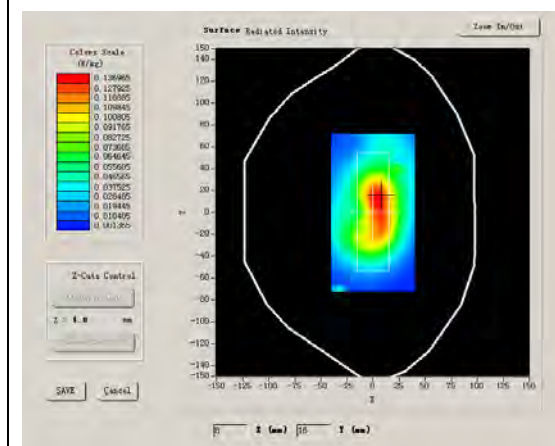
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	EDGE

B. SAR Measurement Results

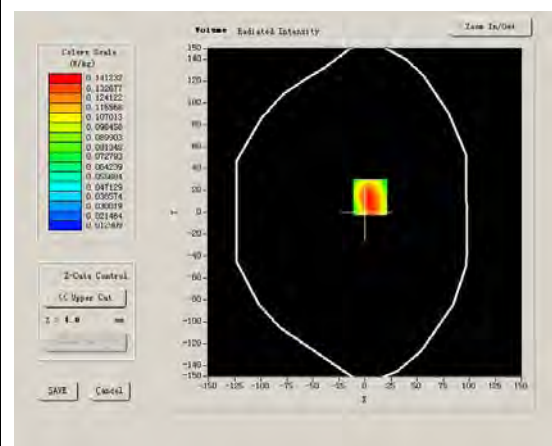
Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.709999
Relative permittivity	21.709999
Conductivity (S/m)	1.009033
Power drift (%)	-0.590000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



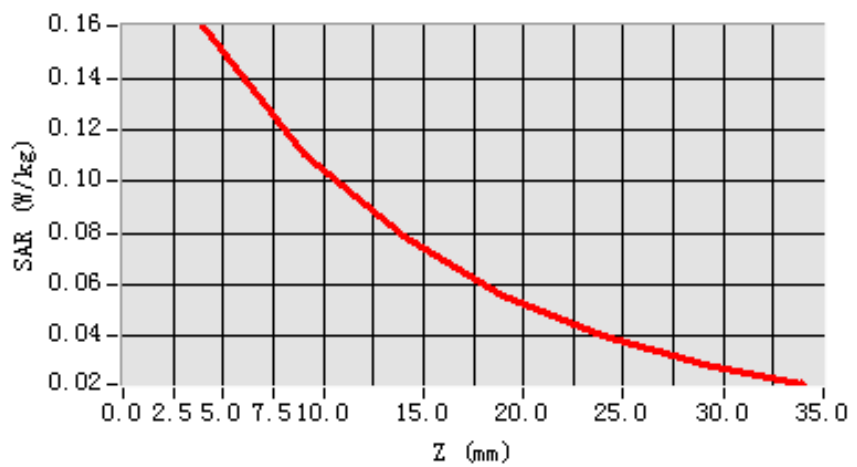
Maximum location: X=5.00, Y=14.00

SAR 10g (W/Kg)	0.101665
SAR 1g (W/Kg)	0.154249

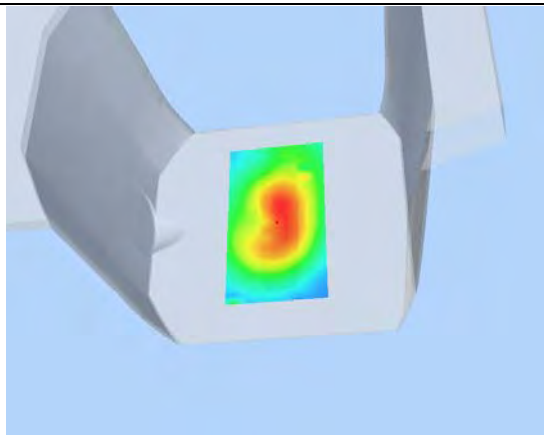
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1604	0.1105	0.0786	0.0561	0.0405	0.0293

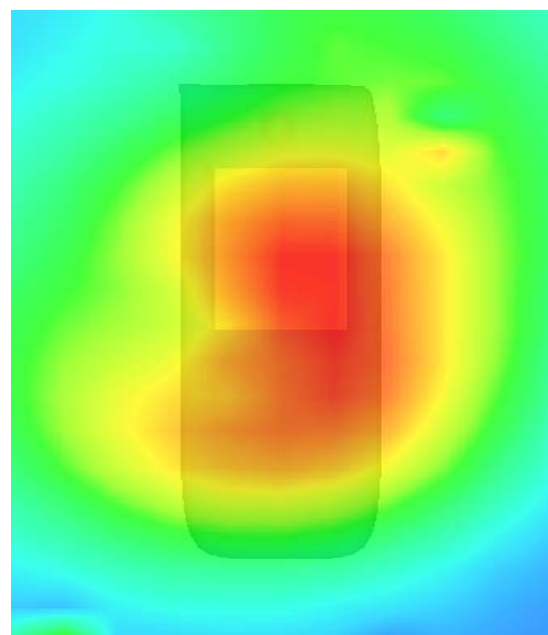
SAR, Z Axis Scan (X = 5, Y = 14)



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: 31/10/2011

Measurement duration: 9 minutes 8 seconds

A. Experimental conditions.

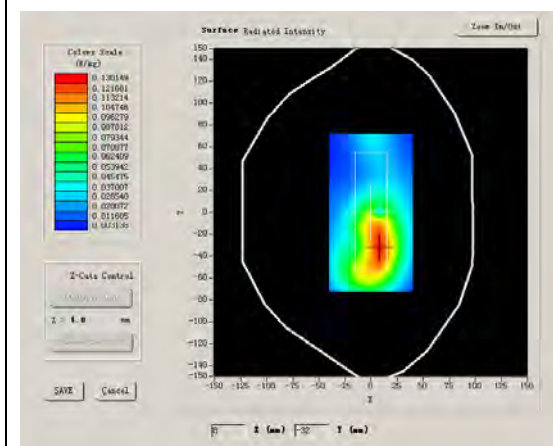
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	High
Signal	EDGE

B. SAR Measurement Results

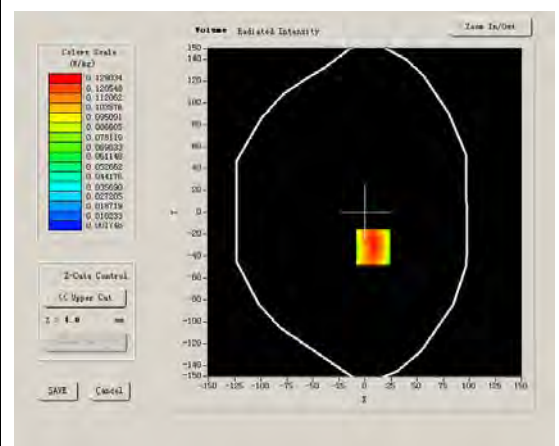
Higher Band SAR (Channel 251):

Frequency (MHz)	848.799988
Relative permittivity (real part)	54.014999
Relative permittivity	21.332850
Conductivity (S/m)	1.005962
Power drift (%)	-0.620000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



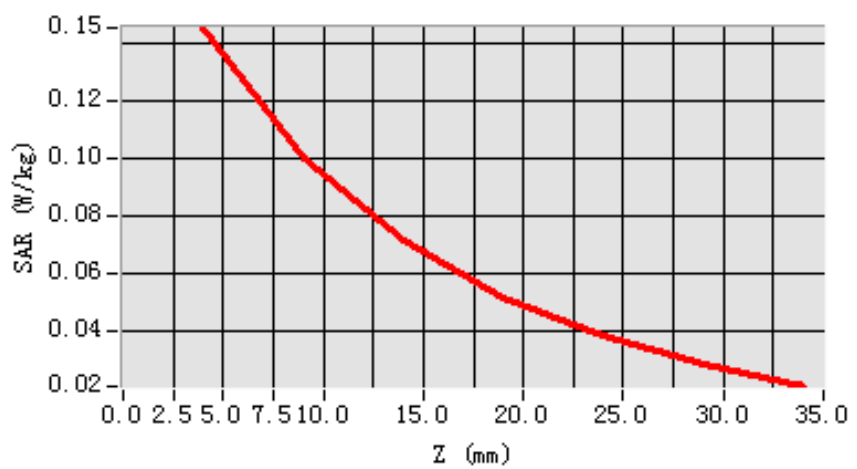
Maximum location: X=8.00, Y=-32.00

SAR 10g (W/Kg)	0.092549
SAR 1g (W/Kg)	0.138071

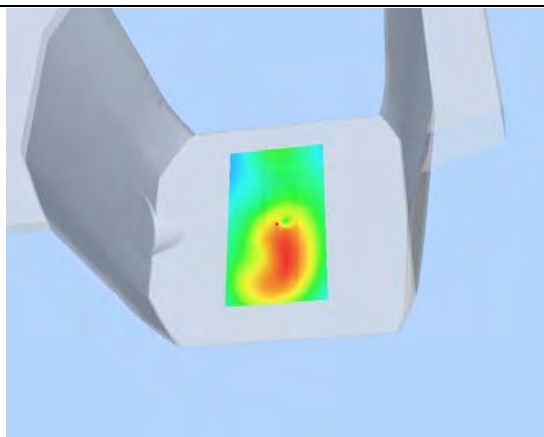
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1451	0.1000	0.0711	0.0514	0.0385	0.0286

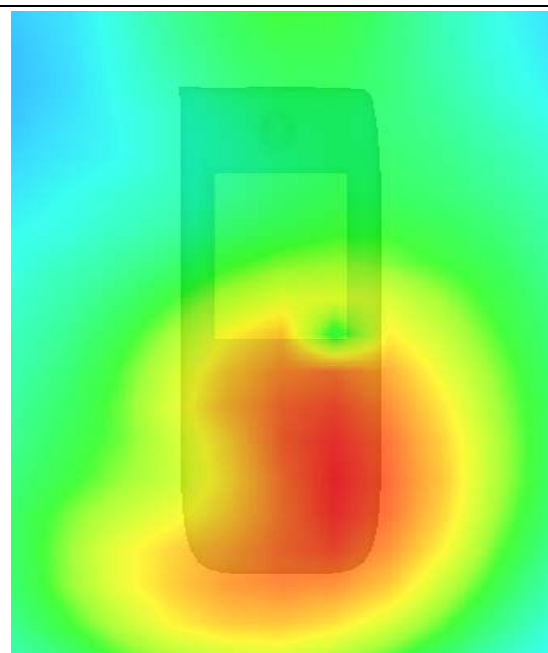
SAR, Z Axis Scan (X = 8, Y = -32)



3D seen 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: 31/10/2011

Measurement duration: 9 minutes 7 seconds

A. Experimental conditions.

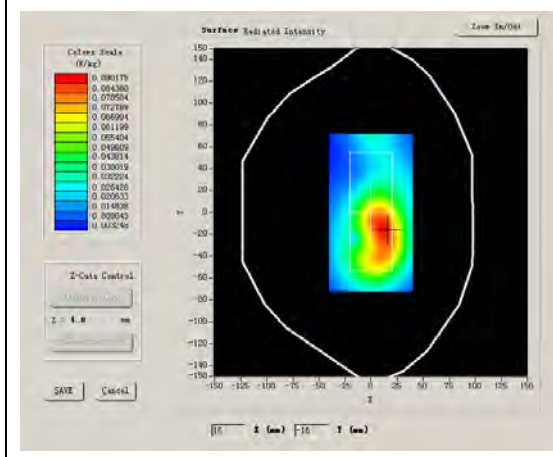
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA 850
Channels	Low
Signal	CDMA

B. SAR Measurement Results

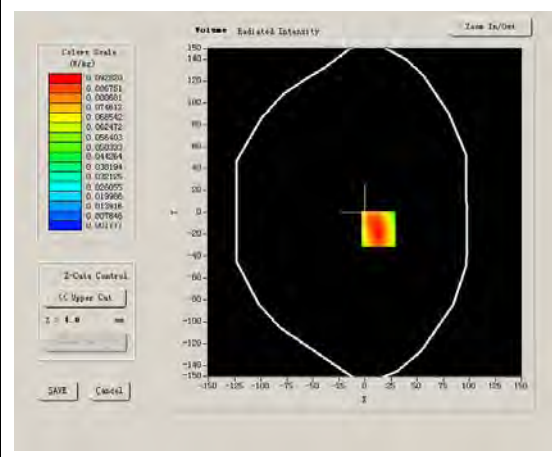
Lower Band SAR (Channel 4132):

Frequency (MHz)	826.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.728580
Power drift (%)	-1.720000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



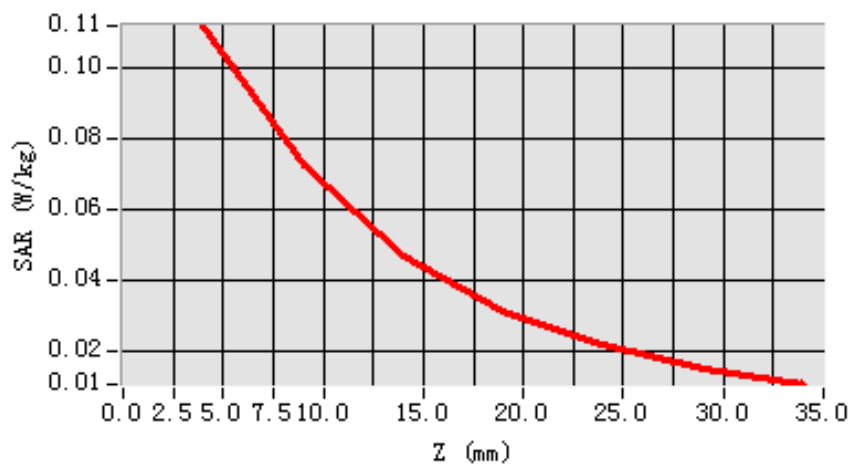
Maximum location: X=13.00, Y=-15.00

SAR 10g (W/Kg)	0.067350
SAR 1g (W/Kg)	0.106434

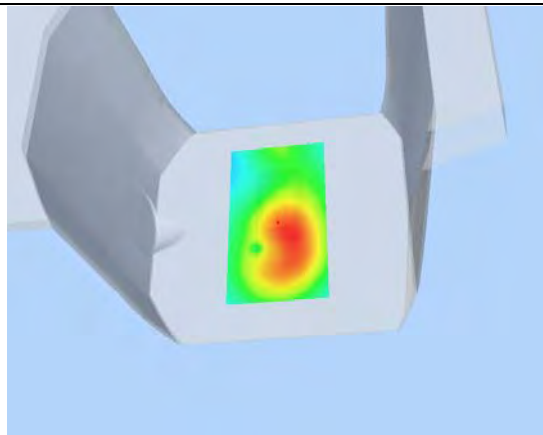
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1119	0.0723	0.0471	0.0311	0.0219	0.0151

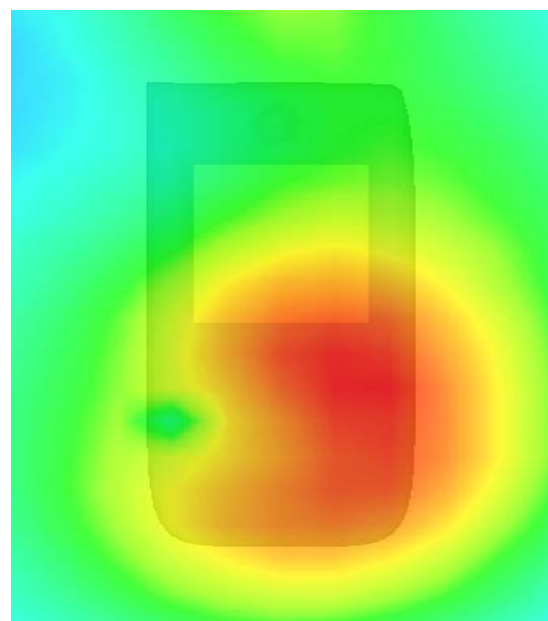
SAR, Z Axis Scan (X = 13, Y = -15)



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: 31/10/2011

Measurement duration: 9 minutes 7 seconds

A. Experimental conditions.

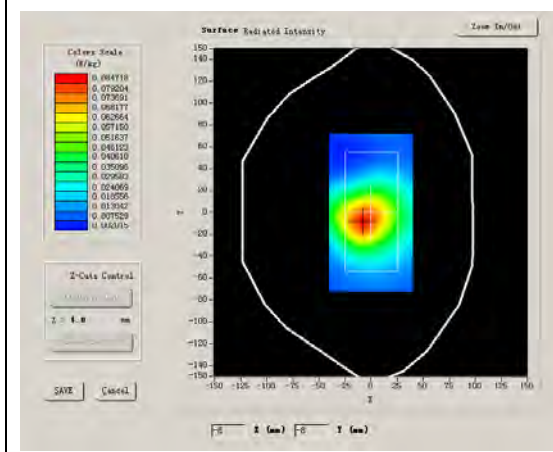
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA 850
Channels	Low
Signal	CDMA

B. SAR Measurement Results

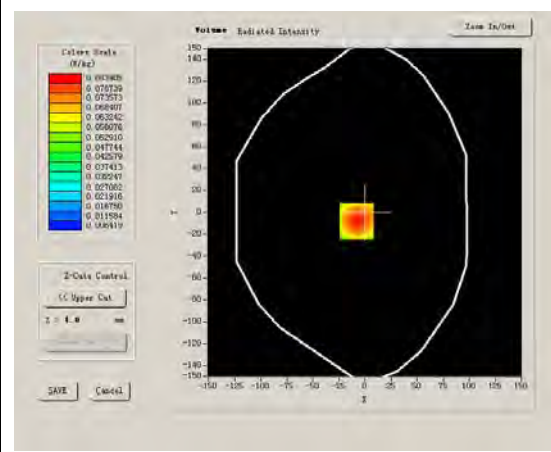
Lower Band SAR (Channel 4132):

Frequency (MHz)	826.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.728580
Power drift (%)	-0.550000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



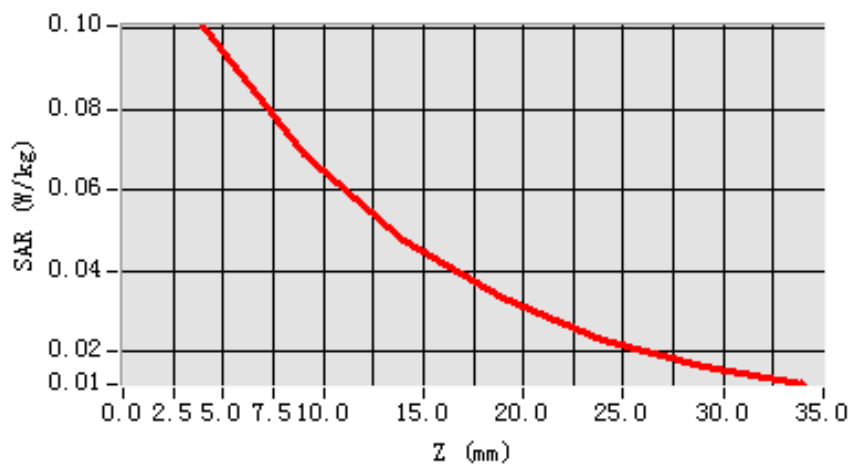
Maximum location: X=-8.00, Y=-8.00

SAR 10g (W/Kg)	0.064028
SAR 1g (W/Kg)	0.096588

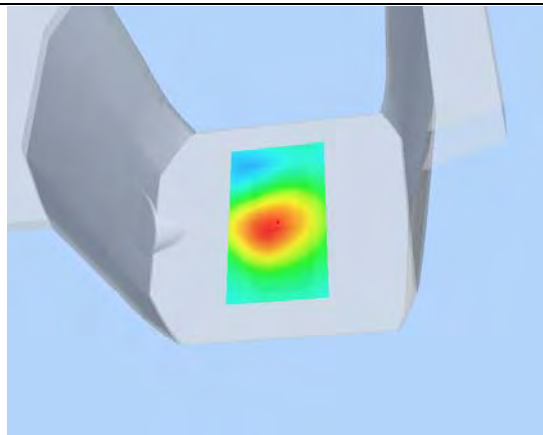
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1007	0.0691	0.0478	0.0332	0.0230	0.0161

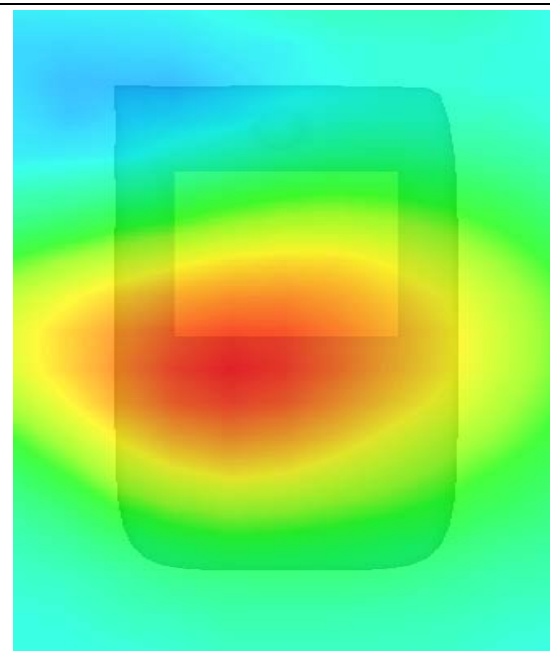
SAR, Z Axis Scan (X = -8, Y = -8)



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: 31/10/2011

Measurement duration: 9 minutes 7 seconds

A. Experimental conditions.

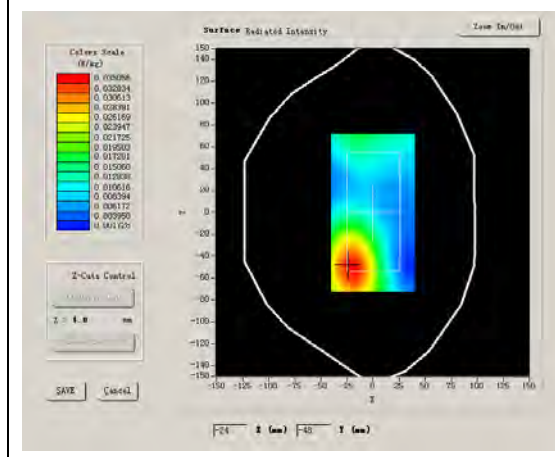
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA 850
Channels	Low
Signal	CDMA

B. SAR Measurement Results

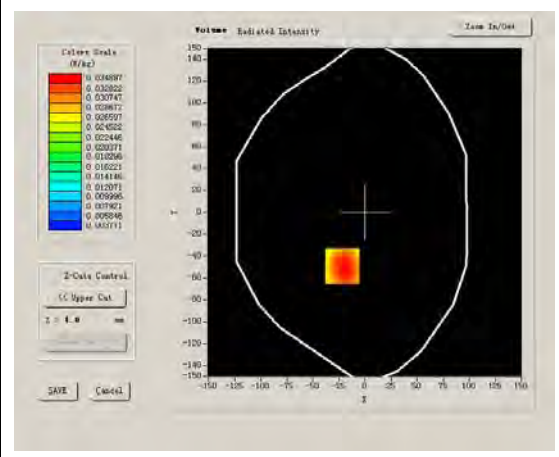
Middle Band SAR (Channel 4182):

Frequency (MHz)	826.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.728580
Power drift (%)	-0.760000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



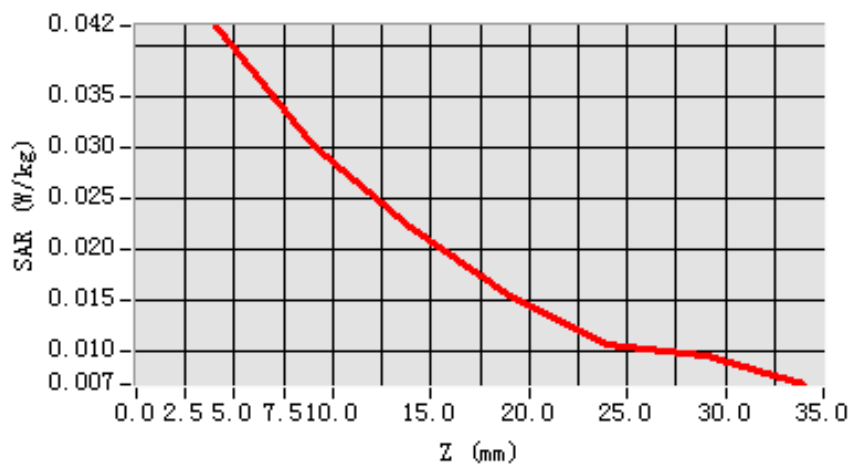
Maximum location: X=-22.00, Y=-49.00

SAR 10g (W/Kg)	0.028113
SAR 1g (W/Kg)	0.040627

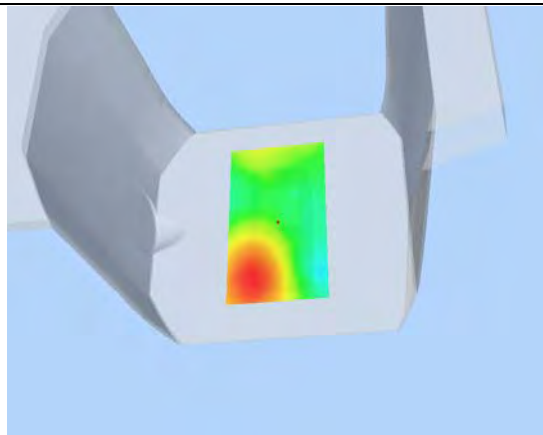
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0419	0.0301	0.0222	0.0154	0.0107	0.0095

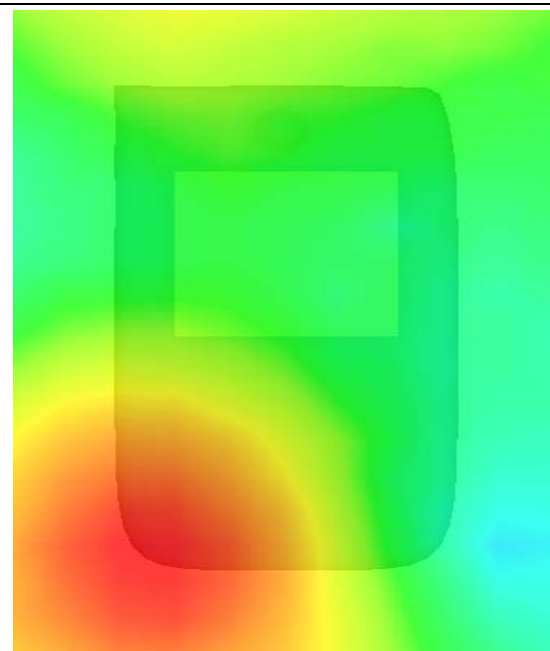
SAR, Z Axis Scan (X = -22, Y = -49)



3D seen 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: 31/10/2011

Measurement duration: 9 minutes 18 seconds

A. Experimental conditions.

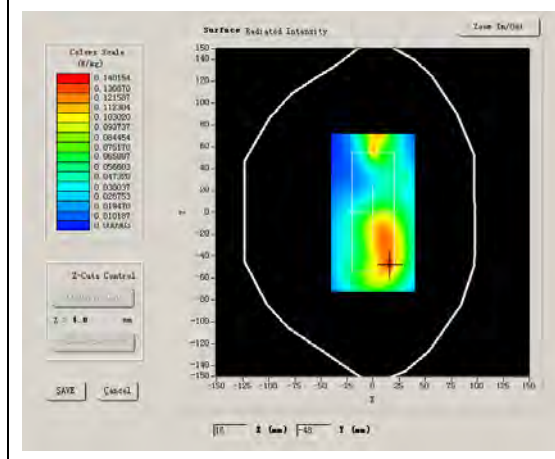
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA 850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

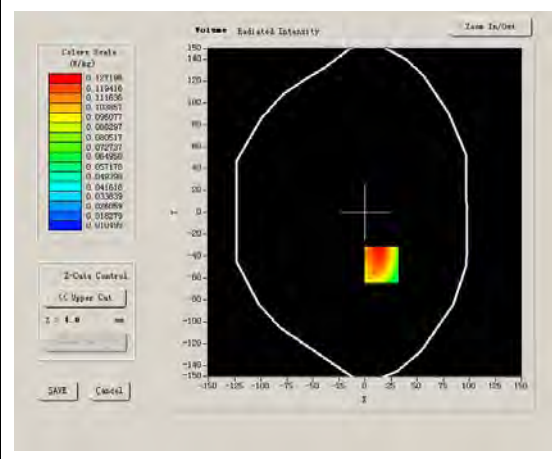
Middle Band SAR (Channel 4182):

Frequency (MHz)	836.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.737401
Power drift (%)	-2.370000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



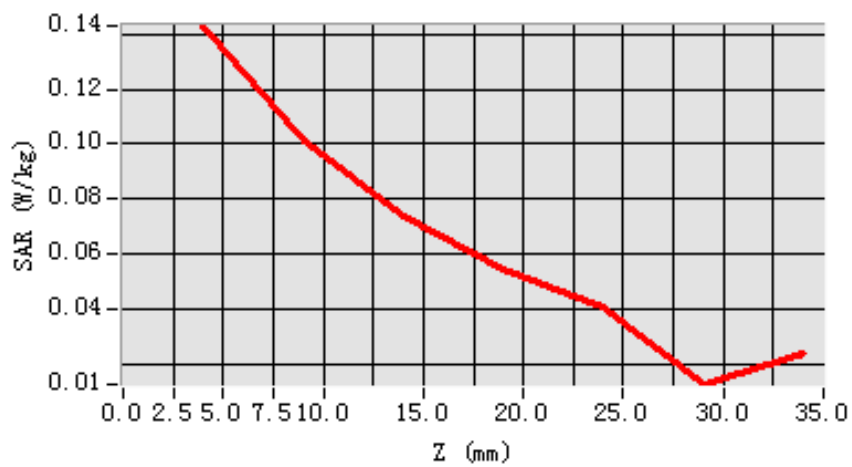
Maximum location: X=16.00, Y=-48.00

SAR 10g (W/Kg)	0.100248
SAR 1g (W/Kg)	0.147563

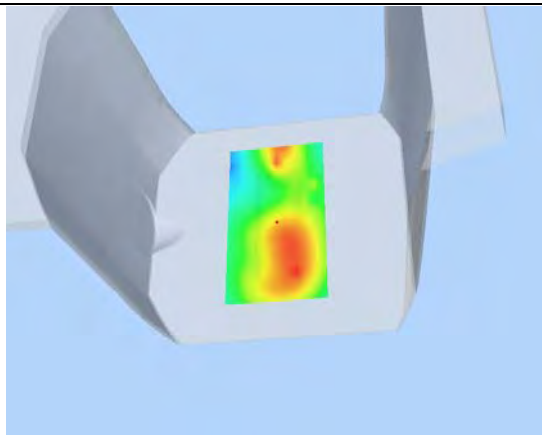
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1429	0.1014	0.0734	0.0544	0.0411	0.0126

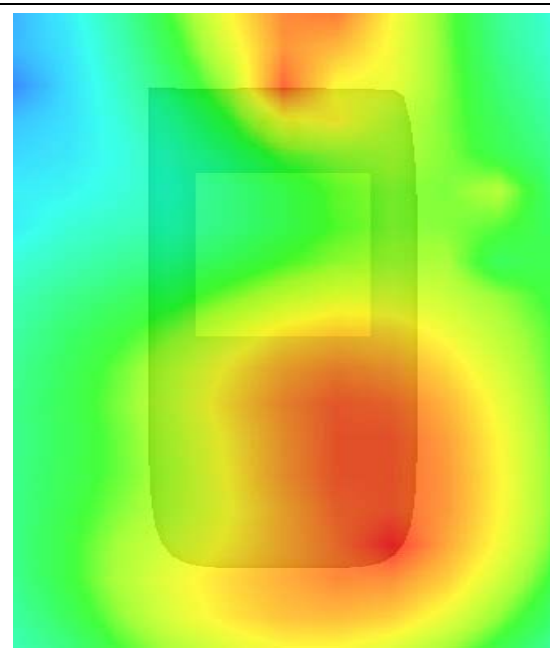
SAR, Z Axis Scan (X = 16, Y = -48)



3D seen 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: 31/10/2011

Measurement duration: 9 minutes 8 seconds

A. Experimental conditions.

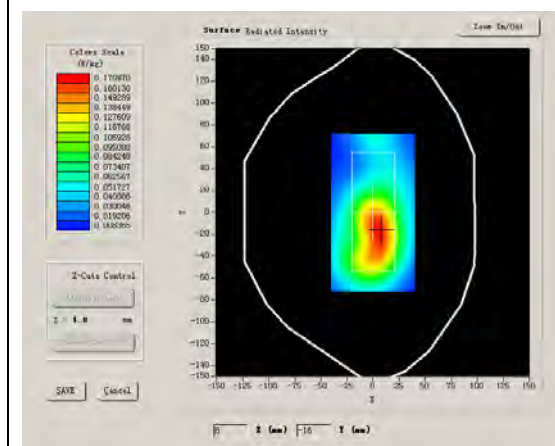
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA
Channels	High
Signal	CDMA

B. SAR Measurement Results

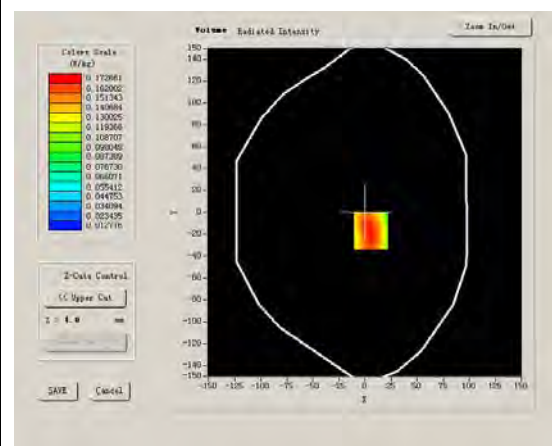
Higher Band SAR (Channel 4233):

Frequency (MHz)	846.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	0.746221
Power drift (%)	1.45742
Ambient Temperature:	22.7°C
Liquid Temperature:	22.8°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



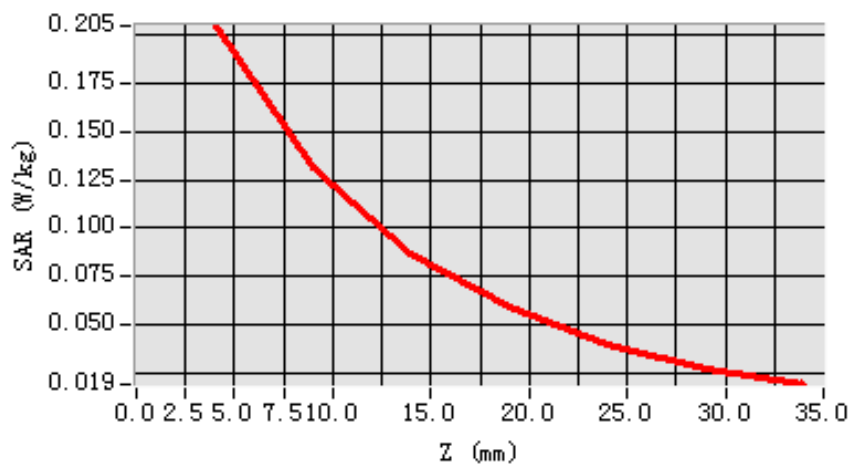
Maximum location: X=6.00, Y=-17.00

SAR 10g (W/Kg)	0.125023
SAR 1g (W/Kg)	0.196122

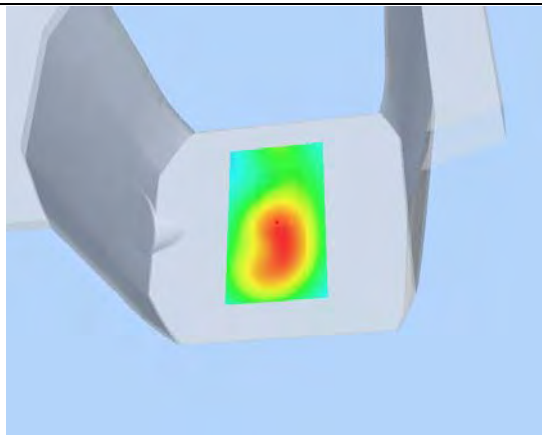
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2049	0.1314	0.0865	0.0595	0.0401	0.0275

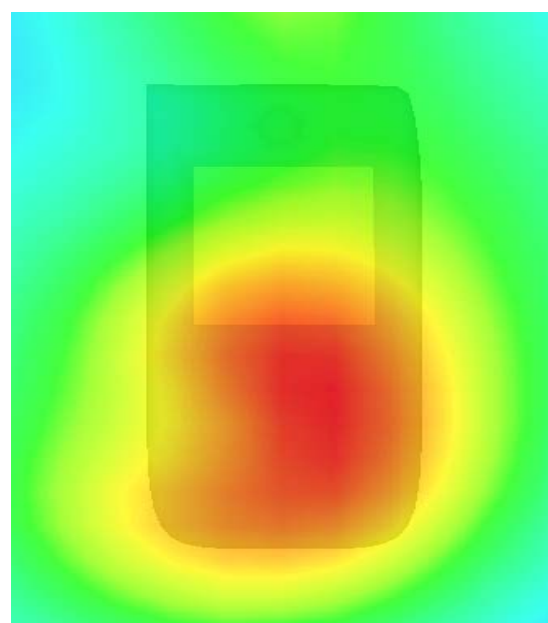
SAR, Z Axis Scan (X = 6, Y = -17)



3D scen 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: 07/11/2011

Measurement duration: 9 minutes 7 seconds

A. Experimental conditions.

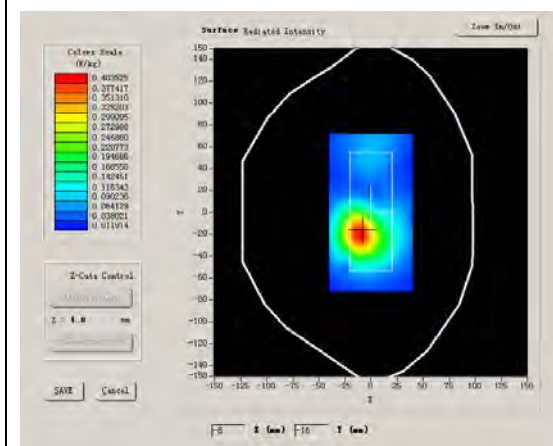
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	GPRS

B. SAR Measurement Results

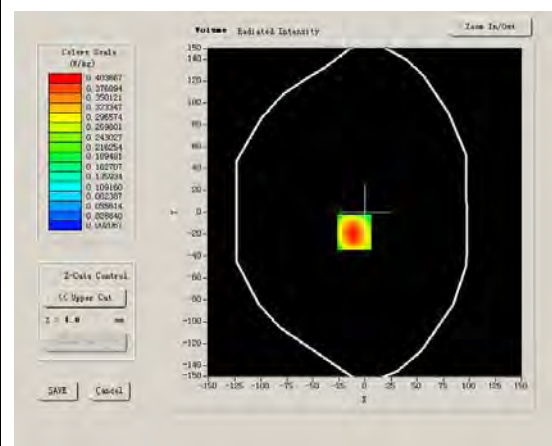
Lower Band SAR (Channel 512):

Frequency (MHz)	1850.199951
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.446240
Power drift (%)	-1.500000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



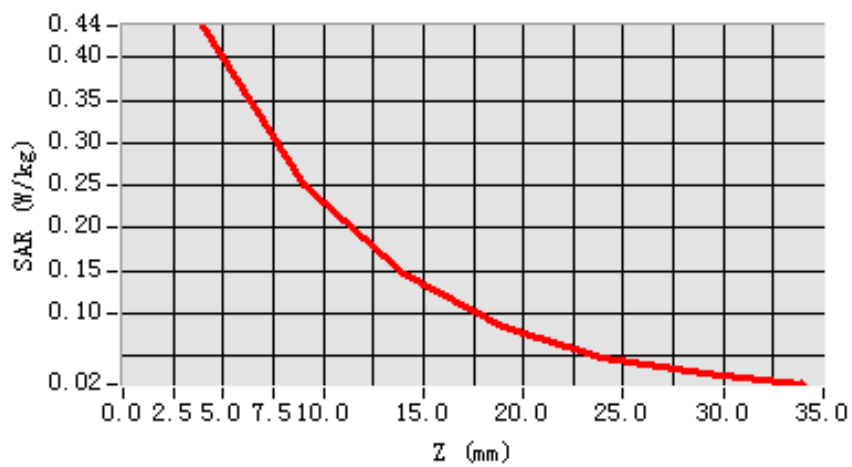
Maximum location: X=-10.00, Y=-18.00

SAR 10g (W/Kg)	0.236626
SAR 1g (W/Kg)	0.418708

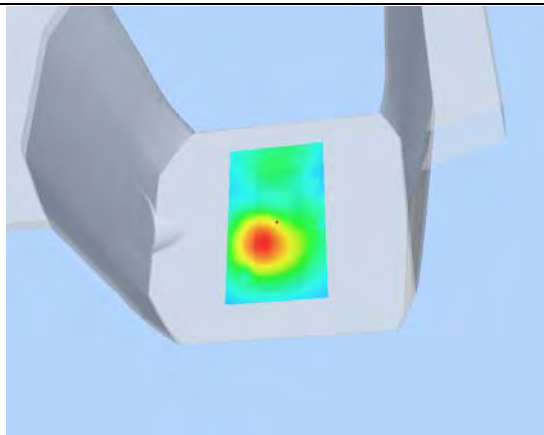
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4372	0.2504	0.1456	0.0837	0.0491	0.0299

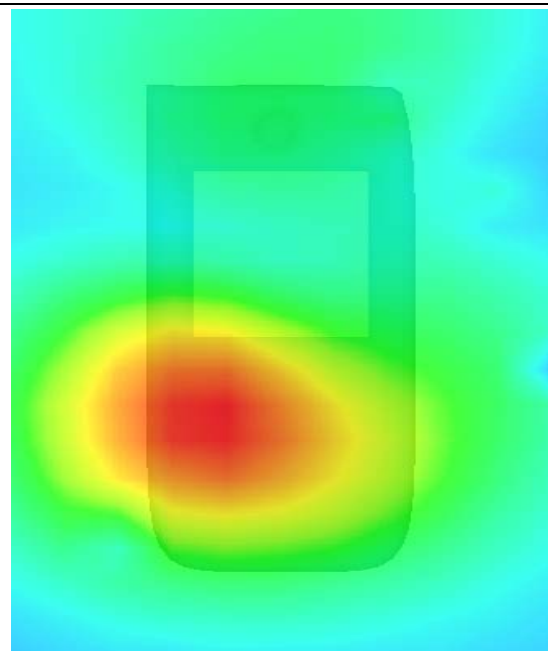
SAR, Z Axis Scan (X = -10, Y = -18)



3D seen 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: 07/11/2011

Measurement duration: 9 minutes 11 seconds

A. Experimental conditions.

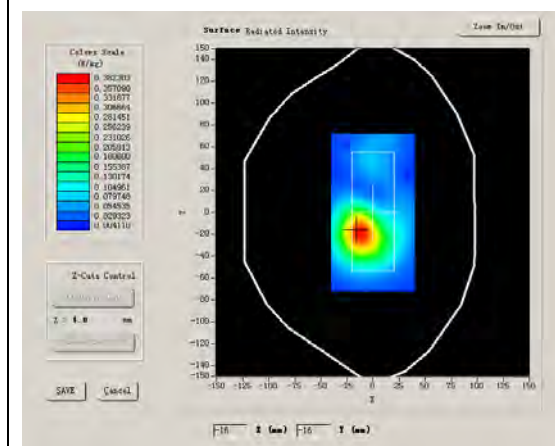
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	GPRS

B. SAR Measurement Results

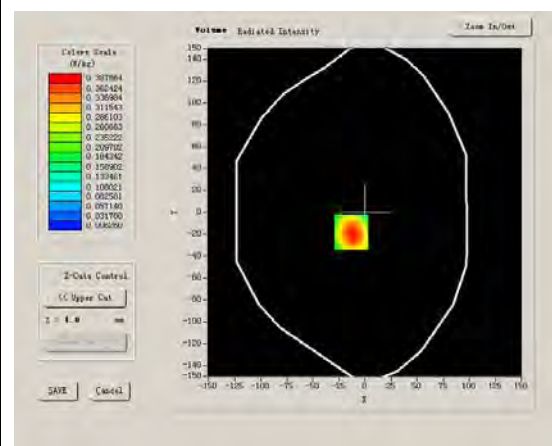
Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.469533
Power drift (%)	-0.470000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



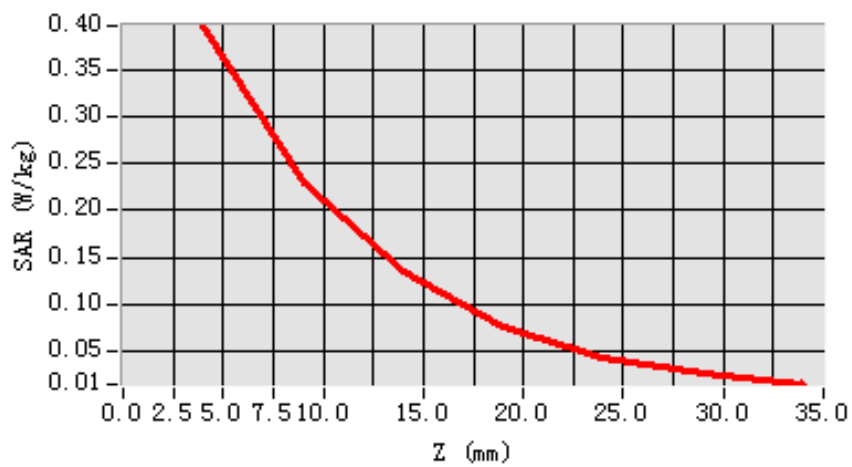
Maximum location: X=-13.00, Y=-18.00

SAR 10g (W/Kg)	0.215678
SAR 1g (W/Kg)	0.380229

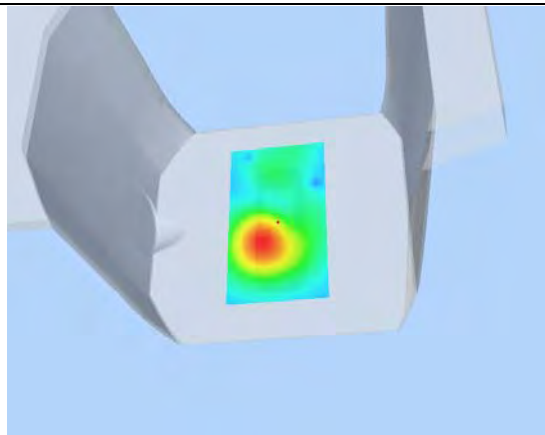
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3969	0.2302	0.1340	0.0772	0.0430	0.0256

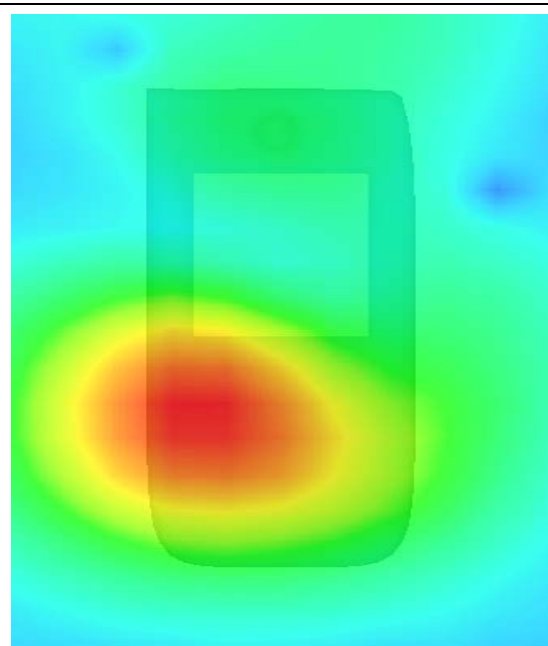
SAR, Z Axis Scan (X = -13, Y = -18)



3D seen 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: 07/11/2011

Measurement duration: 9 minutes 20 seconds

A. Experimental conditions.

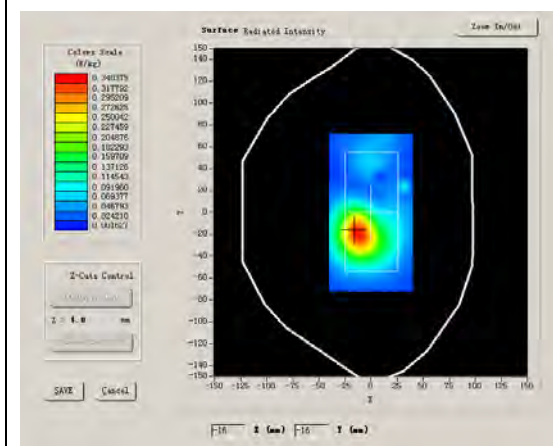
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	High
Signal	GPRS

B. SAR Measurement Results

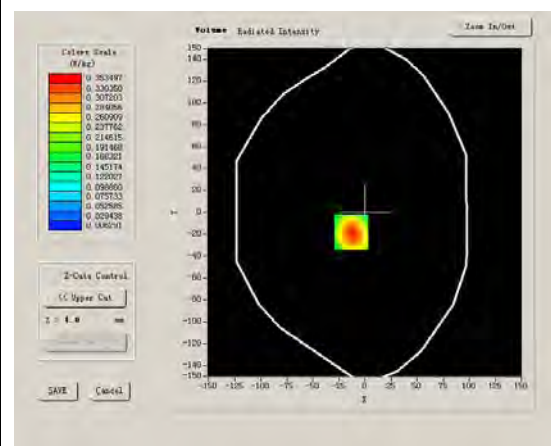
Higher Band SAR (Channel 810):

Frequency (MHz)	1909.800049
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.492827
Power drift (%)	-2.320000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



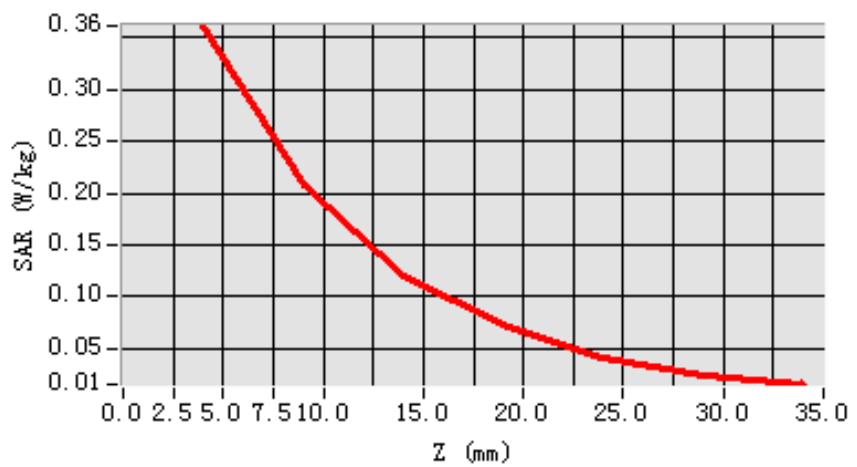
Maximum location: X=-13.00, Y=-18.00

SAR 10g (W/Kg)	0.191782
SAR 1g (W/Kg)	0.341324

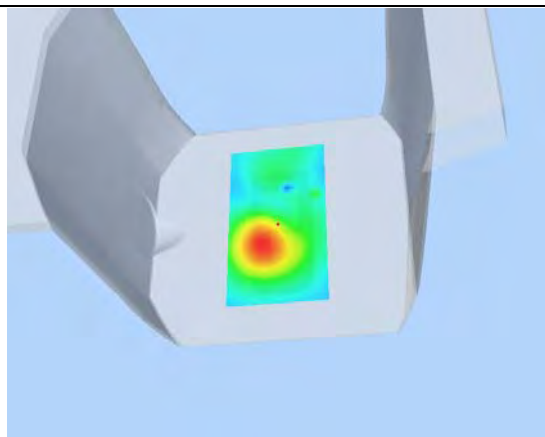
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3617	0.2083	0.1199	0.0715	0.0409	0.0235

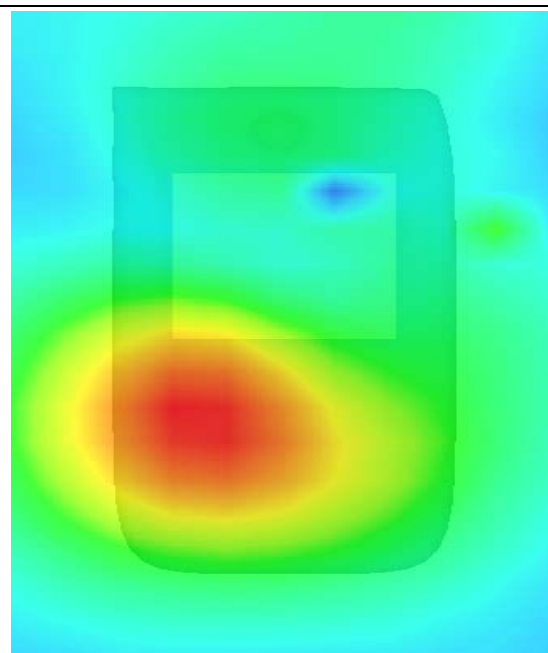
SAR, Z Axis Scan (X = -13, Y = -18)



3D seen shot



Hot spot position



MEASUREMENT 19

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 6 seconds

A. Experimental conditions.

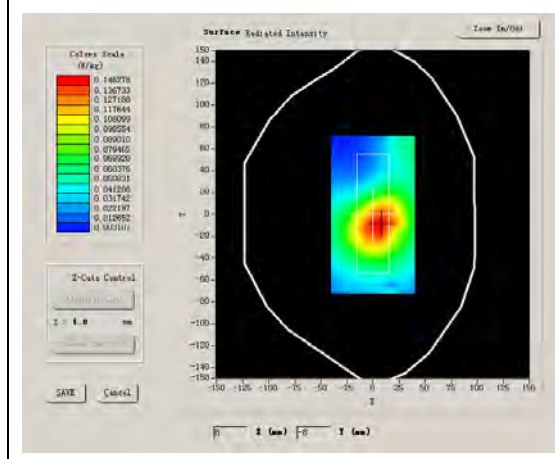
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	High
Signal	GPRS

B. SAR Measurement Results

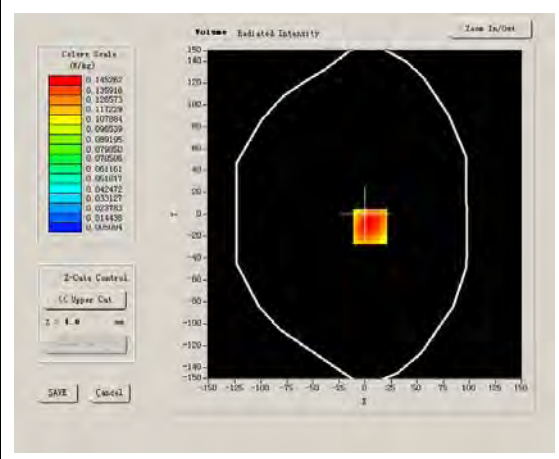
Higher Band SAR (Channel 810):

Frequency (MHz)	1909.800049
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.492827
Power drift (%)	0.270000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



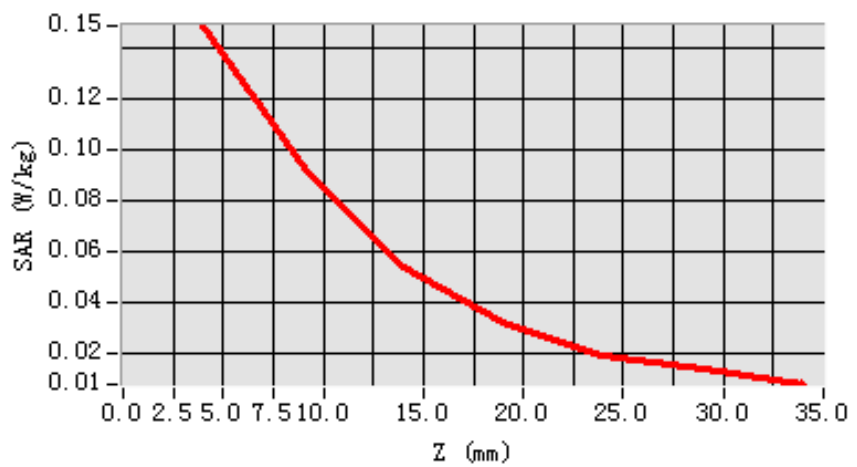
Maximum location: X=5.00, Y=-11.00

SAR 10g (W/Kg)	0.087105
SAR 1g (W/Kg)	0.144542

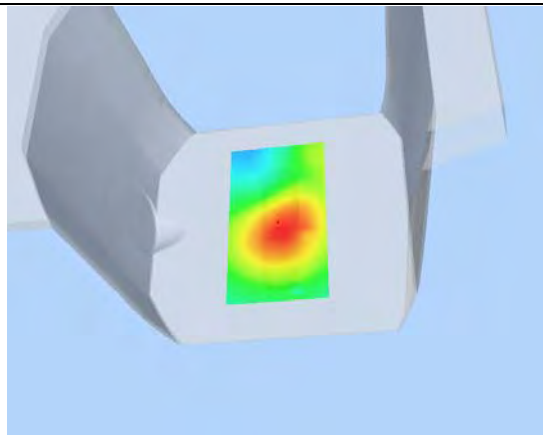
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1486	0.0928	0.0533	0.0316	0.0185	0.0131

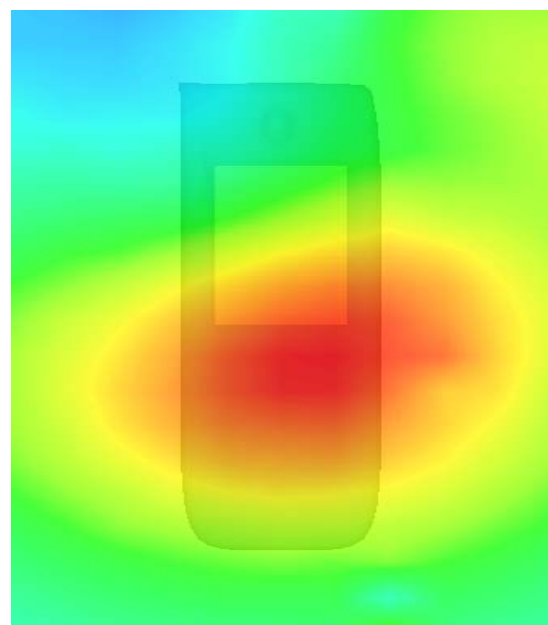
SAR, Z Axis Scan (X = 5, Y = -11)



3D scene shot



Hot spot position



MEASUREMENT 20

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 19 seconds

A. Experimental conditions.

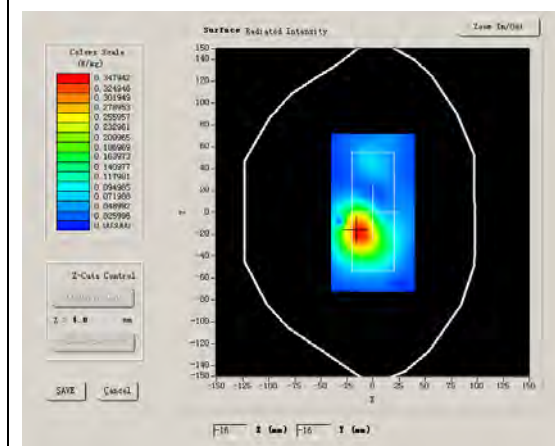
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	High
Signal	GPRS

B. SAR Measurement Results

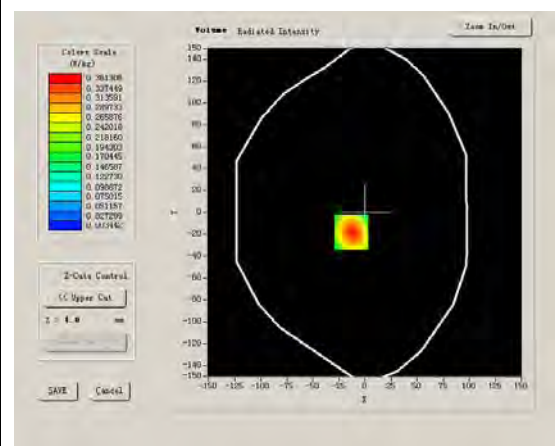
Higher Band SAR (Channel 810):

Frequency (MHz)	1909.800049
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.492827
Power drift (%)	0.950000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



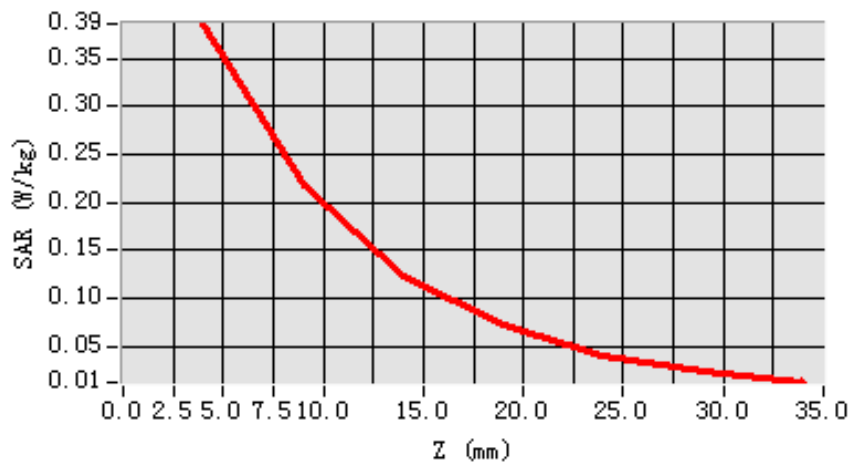
Maximum location: X=-13.00, Y=-18.00

SAR 10g (W/Kg)	0.205708
SAR 1g (W/Kg)	0.366099

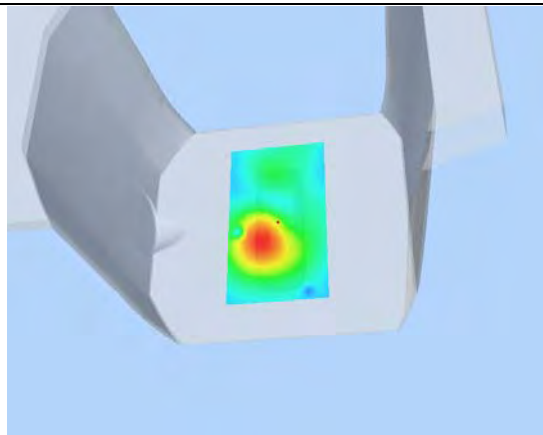
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3864	0.2179	0.1232	0.0737	0.0405	0.0248

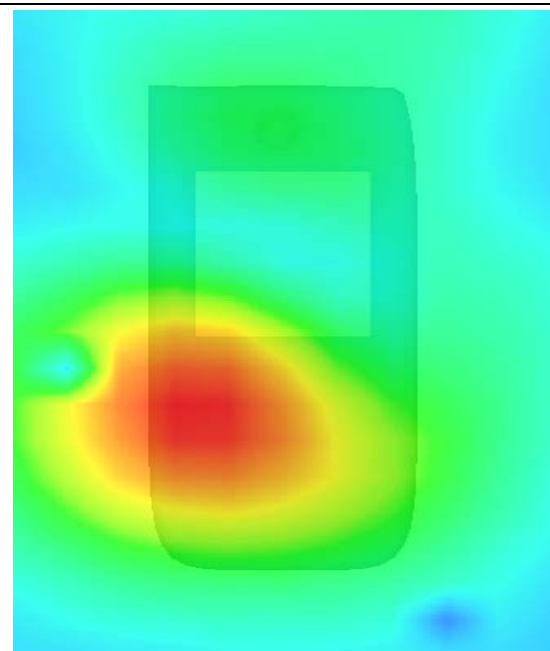
SAR, Z Axis Scan (X = -13, Y = -18)



3D seen shot



Hot spot position



MEASUREMENT 21

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 11 seconds

A. Experimental conditions.

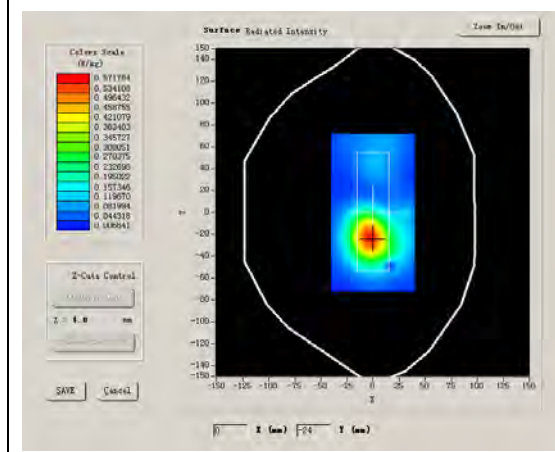
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	EDGE

B. SAR Measurement Results

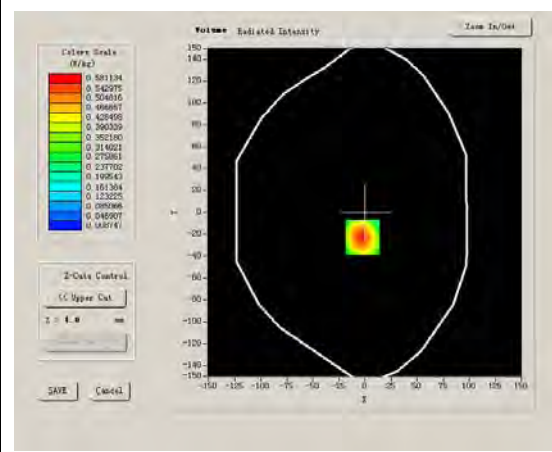
Lower Band SAR (Channel 512):

Frequency (MHz)	1850.199951
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.446240
Power drift (%)	-1.330000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



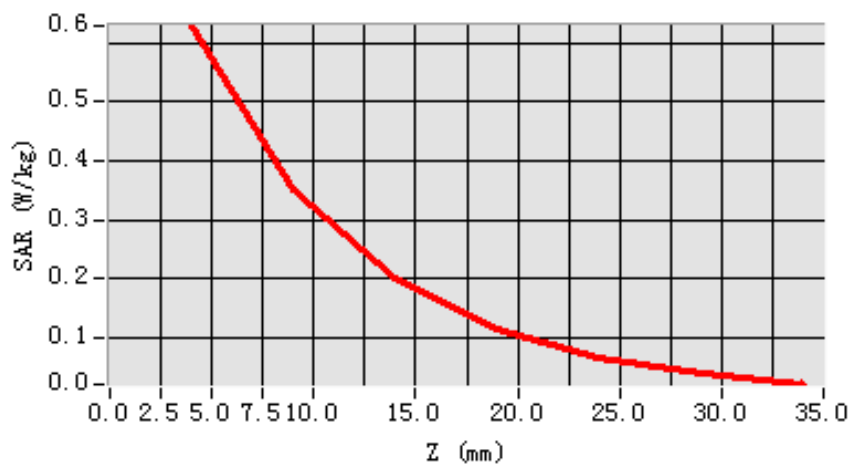
Maximum location: X=-2.00, Y=-23.00

SAR 10g (W/Kg)	0.330991
SAR 1g (W/Kg)	0.594634

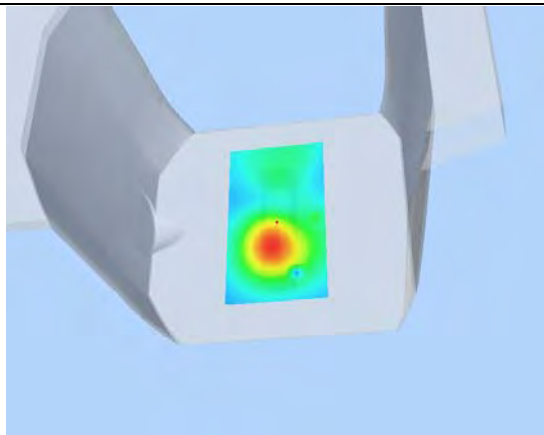
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.6294	0.3527	0.2033	0.1142	0.0682	0.0402

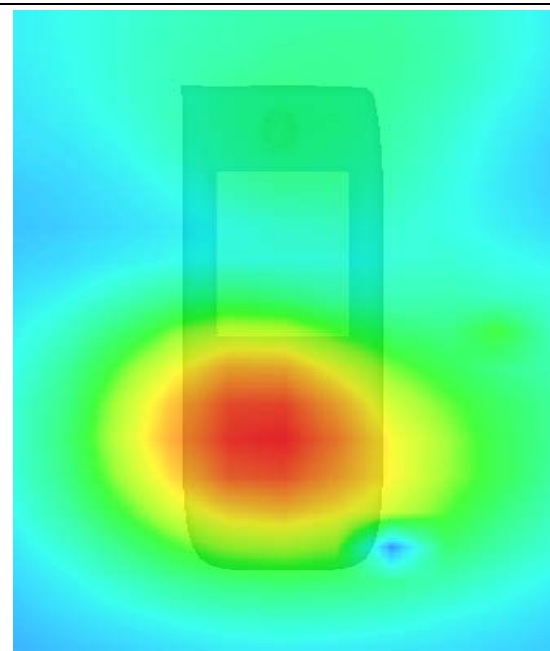
SAR, Z Axis Scan (X = -2, Y = -23)



3D seen shot



Hot spot position



MEASUREMENT 22

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 8 seconds

A. Experimental conditions.

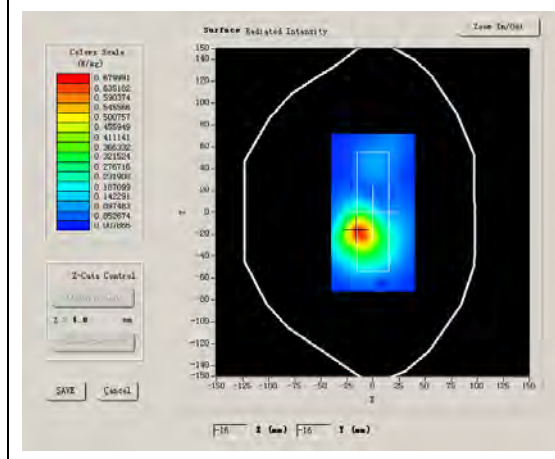
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	EDGE

B. SAR Measurement Results

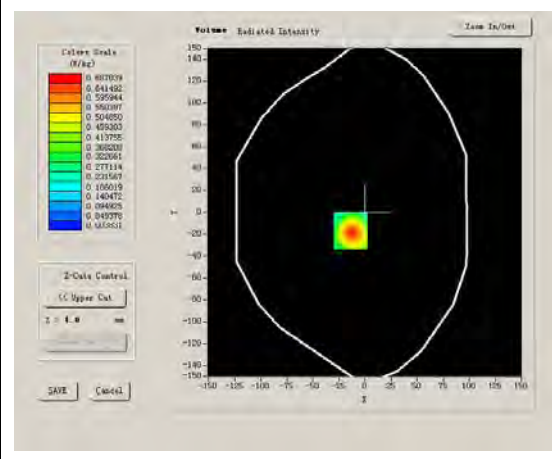
Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.469533
Power drift (%)	-3.080000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



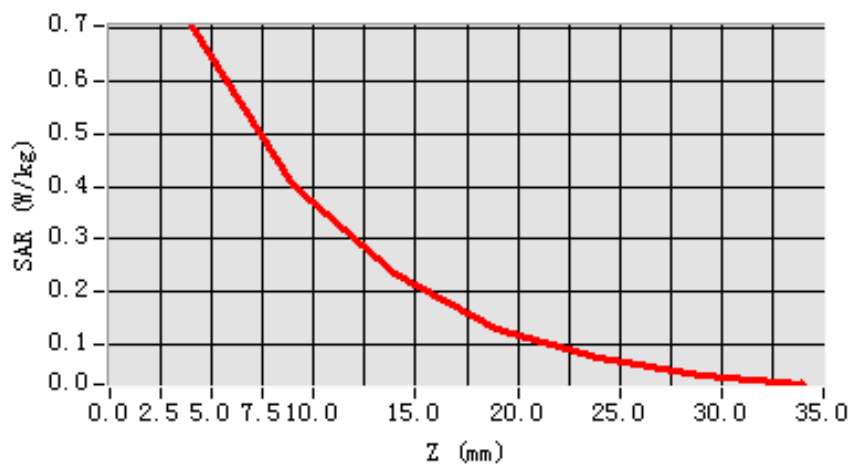
Maximum location: X=-14.00, Y=-17.00

SAR 10g (W/Kg)	0.354214
SAR 1g (W/Kg)	0.658055

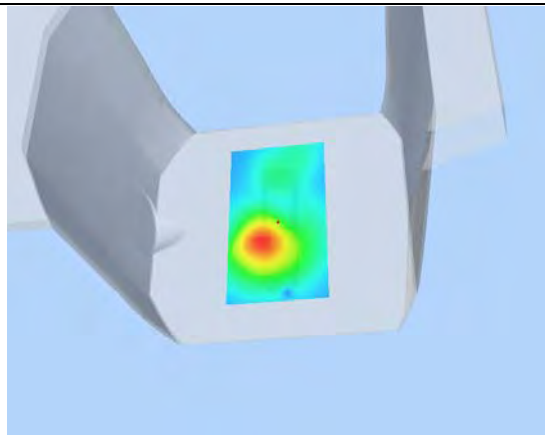
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.7030	0.4001	0.2341	0.1288	0.0743	0.0425

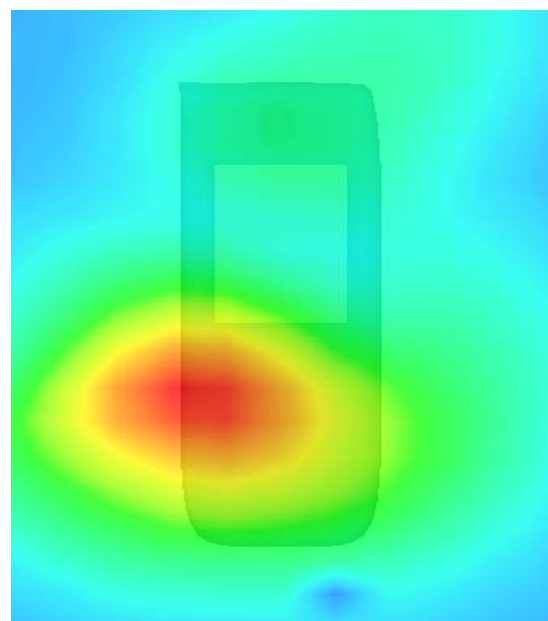
SAR, Z Axis Scan (X = -14, Y = -17)



3D scene shot



Hot spot position



MEASUREMENT 23

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 6 seconds

A. Experimental conditions.

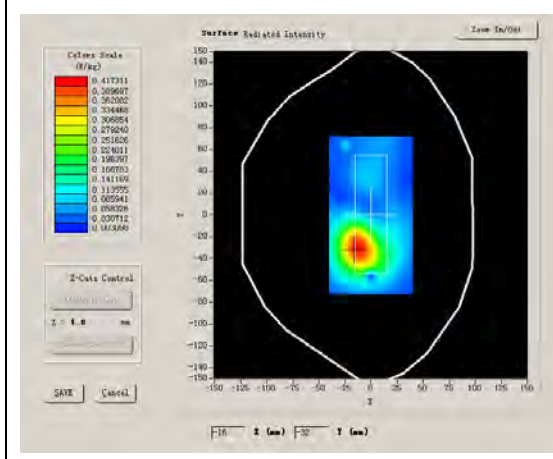
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	High
Signal	EDGE

B. SAR Measurement Results

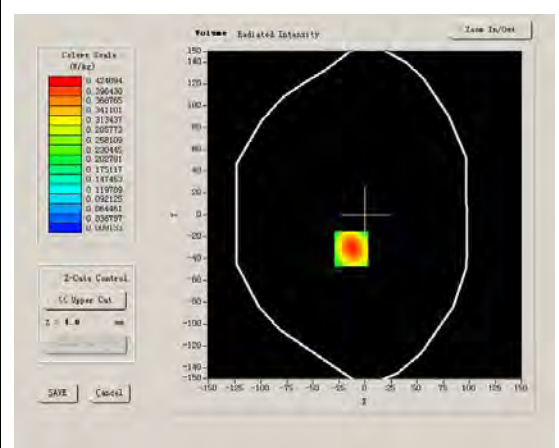
Higher Band SAR (Channel 810):

Frequency (MHz)	1909.800049
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.492827
Power drift (%)	-1.210000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



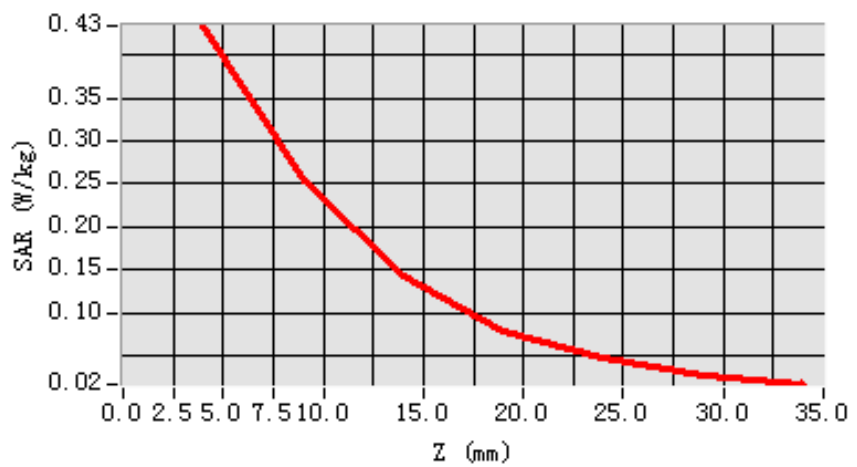
Maximum location: X=-13.00, Y=-31.00

SAR 10g (W/Kg)	0.229556
SAR 1g (W/Kg)	0.412560

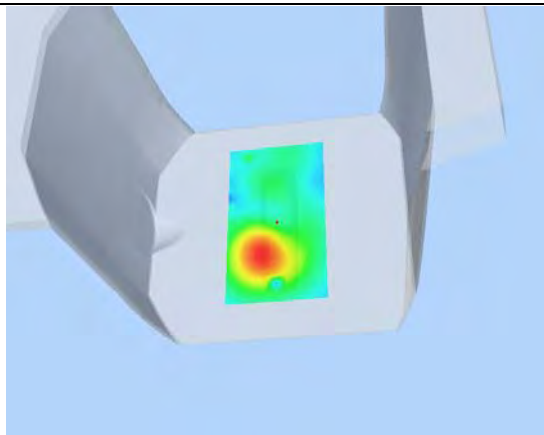
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4340	0.2539	0.1416	0.0793	0.0478	0.0277

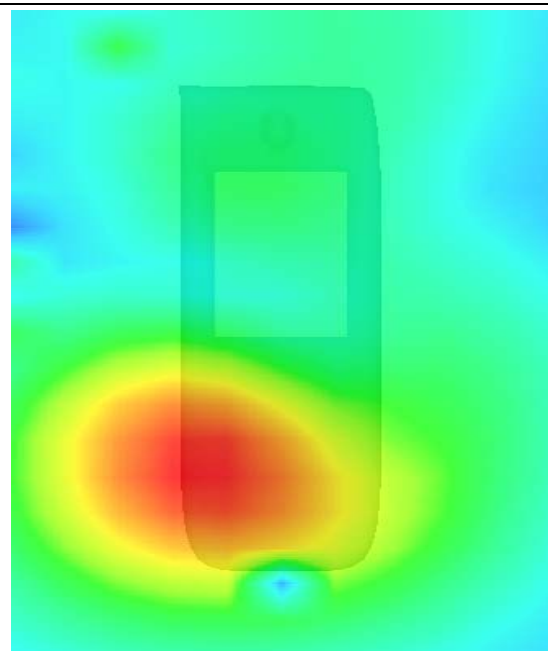
SAR, Z Axis Scan (X = -13, Y = -31)



3D scene shot



Hot spot position



MEASUREMENT 24

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 7 seconds

A. Experimental conditions.

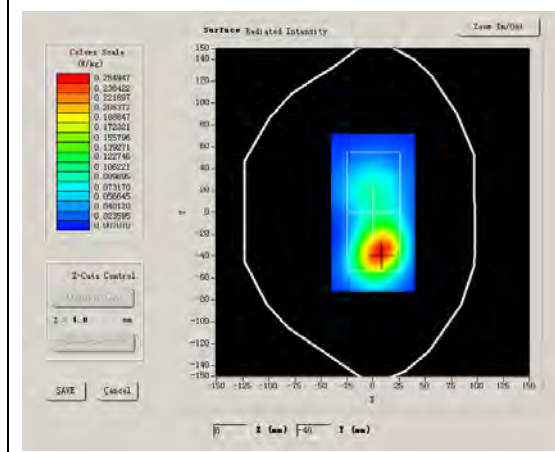
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	High
Signal	EDGE

B. SAR Measurement Results

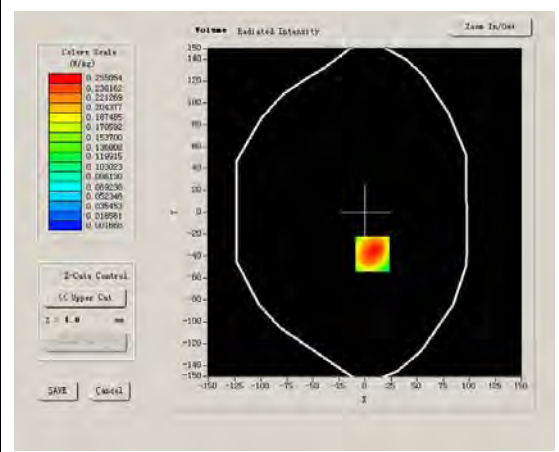
Higher Band SAR (Channel 810):

Frequency (MHz)	1909.800049
Relative permittivity (real part)	52.540001
Relative permittivity	14.070000
Conductivity (S/m)	1.492827
Power drift (%)	-1.000000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



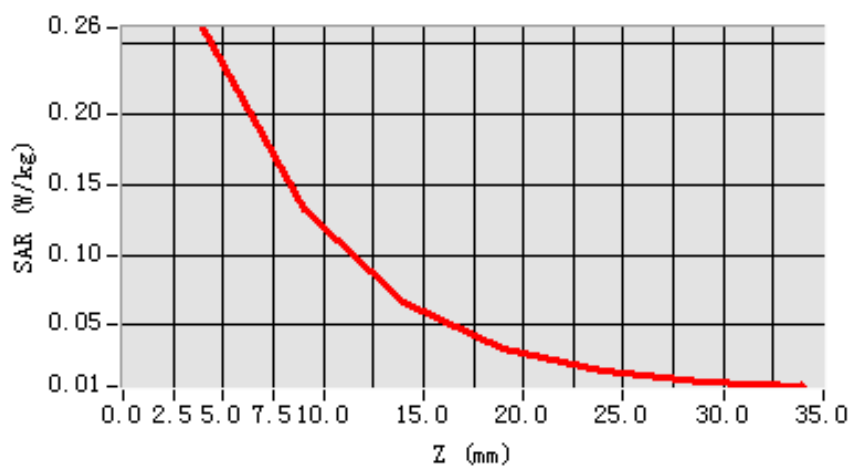
Maximum location: X=7.00, Y=-38.00

SAR 10g (W/Kg)	0.134707
SAR 1g (W/Kg)	0.251238

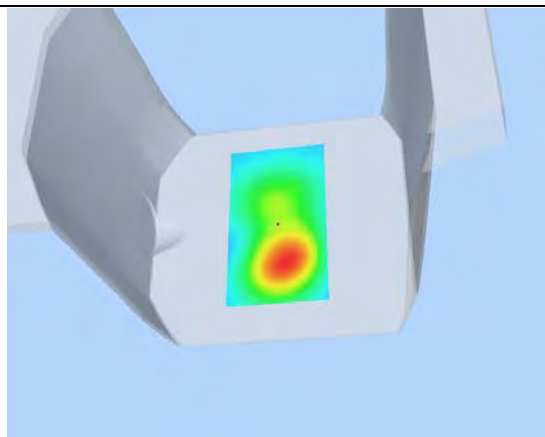
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.2610	0.1318	0.0671	0.0331	0.0173	0.0094

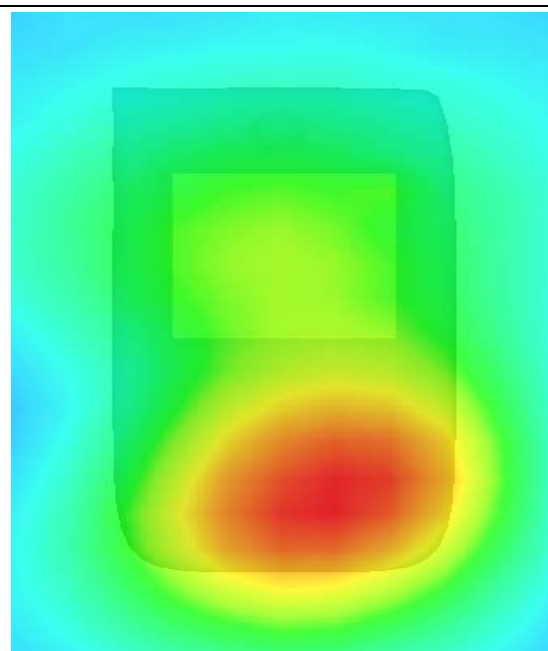
SAR, Z Axis Scan (X = 7, Y = -38)



3D scene shot



Hot spot position



MEASUREMENT 25

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 8 seconds

A. Experimental conditions.

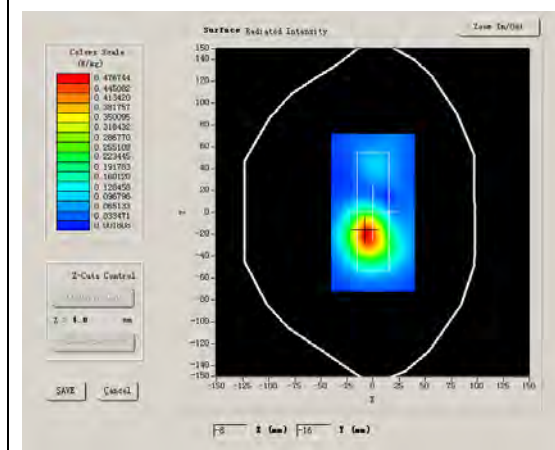
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	High
Signal	EDGE

B. SAR Measurement Results

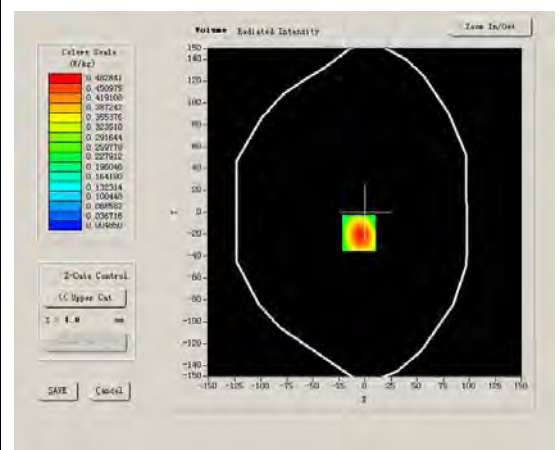
Higher Band SAR (Channel 810):

Frequency (MHz)	1909.800049
Relative permittivity (real part)	39.929001
Relative permittivity	13.156500
Conductivity (S/m)	1.395905
Power drift (%)	-2.160000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:2

SURFACE SAR



VOLUME SAR



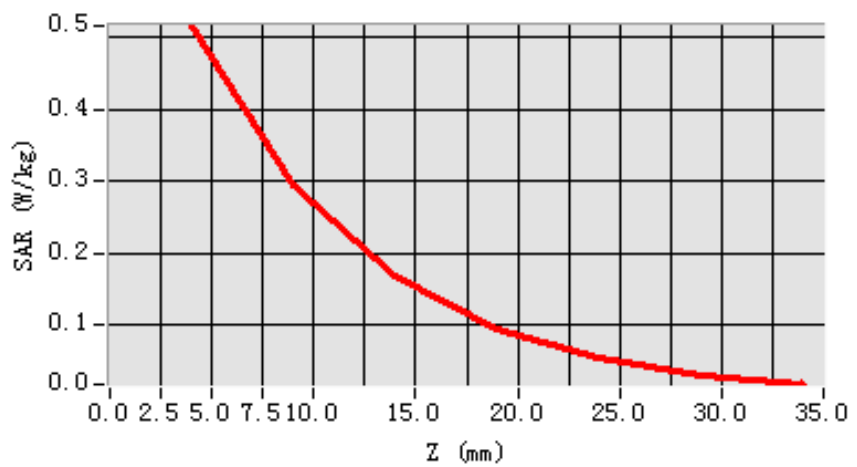
Maximum location: X=-6.00, Y=-19.00

SAR 10g (W/Kg)	0.241754
SAR 1g (W/Kg)	0.514282

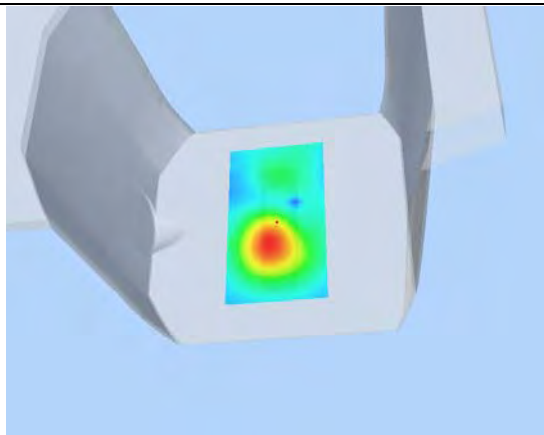
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.5164	0.2951	0.1680	0.0945	0.0547	0.0299

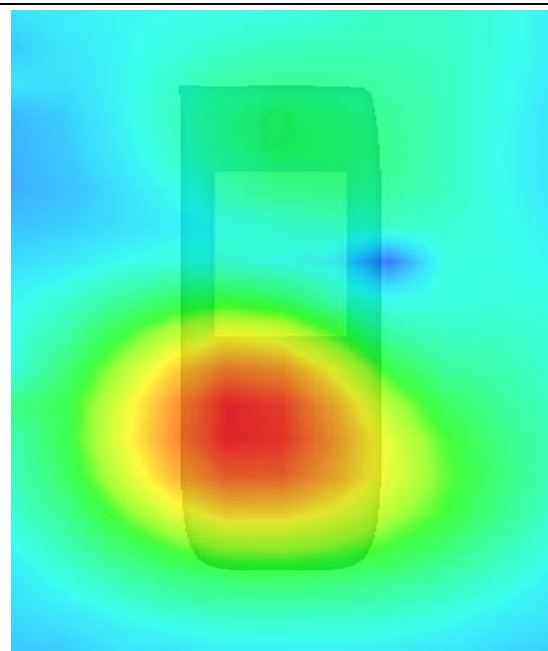
SAR, Z Axis Scan (X = -6, Y = -19)



3D scene shot



Hot spot position



MEASUREMENT 26

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 25 seconds

A. Experimental conditions.

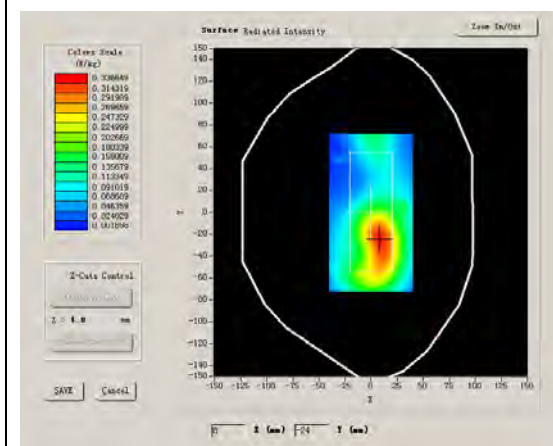
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA 1900
Channels	Low
Signal	CDMA

B. SAR Measurement Results

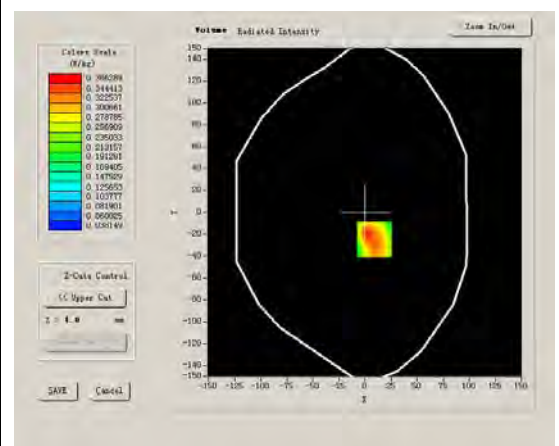
Lower Band SAR (Channel 9262):

Frequency (MHz)	1852.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.633572
Power drift (%)	0.320000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



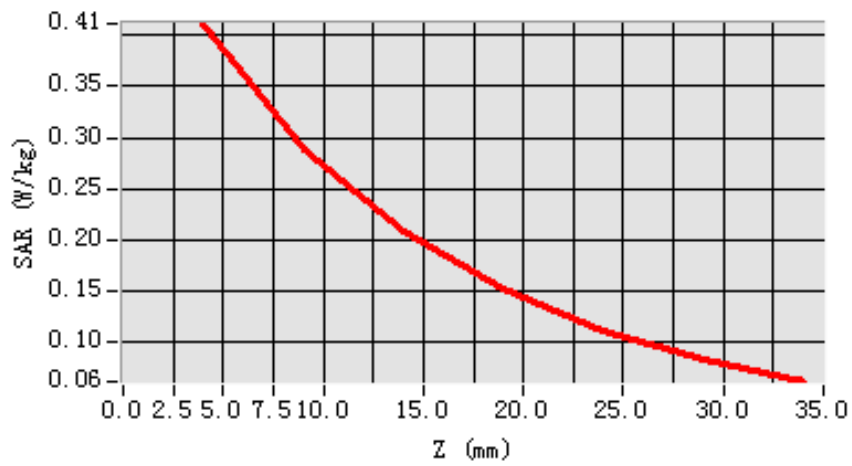
Maximum location: X=9.00, Y=-25.00

SAR 10g (W/Kg)	0.266906
SAR 1g (W/Kg)	0.421392

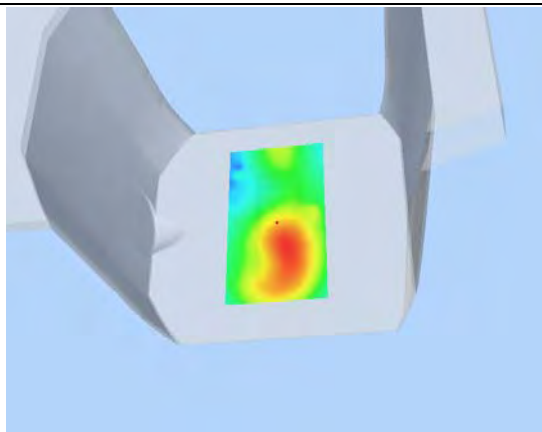
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4115	0.2878	0.2072	0.1521	0.1115	0.0831

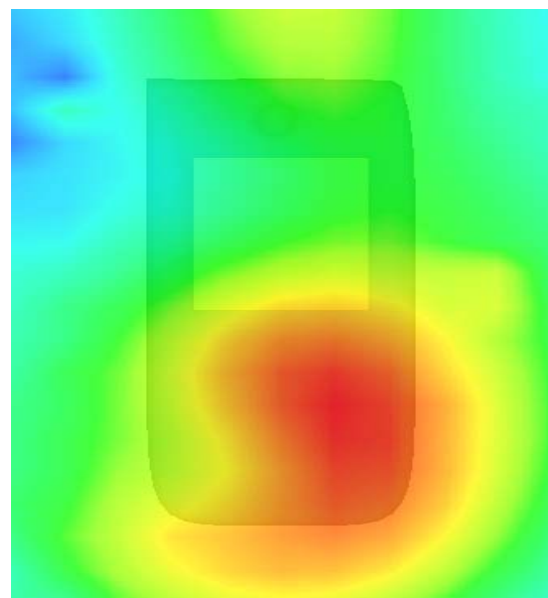
SAR, Z Axis Scan (X = 9, Y = -25)



3D scene shot



Hot spot position



MEASUREMENT 27

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 21 seconds

A. Experimental conditions.

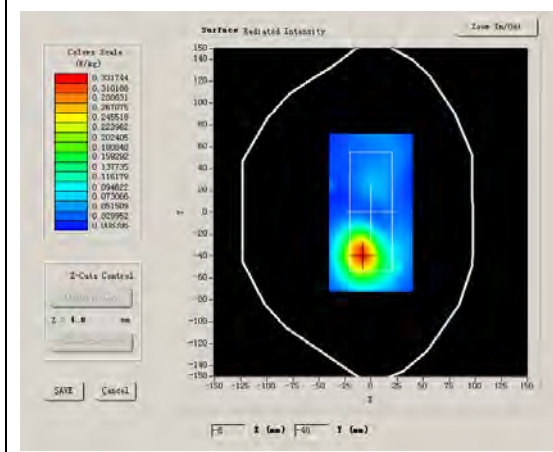
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA 1900
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

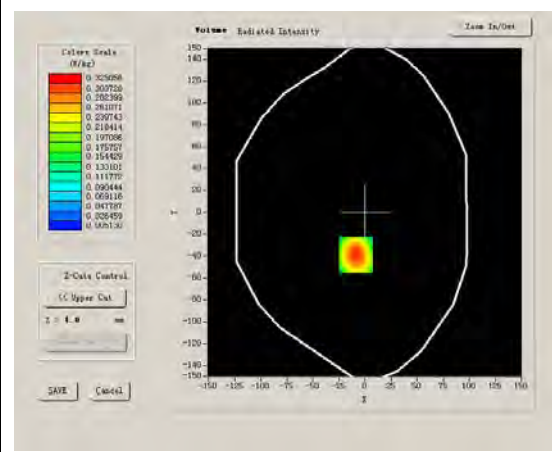
Middle Band SAR (Channel 9400):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.658270
Power drift (%)	-1.230000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



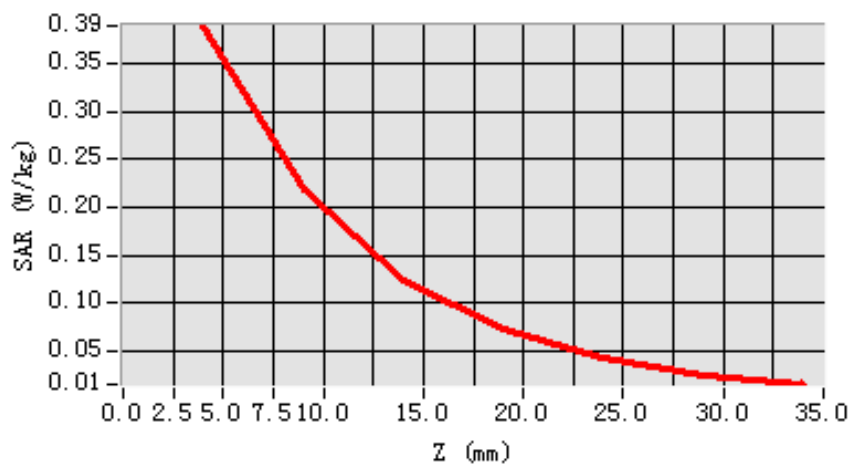
Maximum location: X=-9.00, Y=-39.00

SAR 10g (W/Kg)	0.206383
SAR 1g (W/Kg)	0.370017

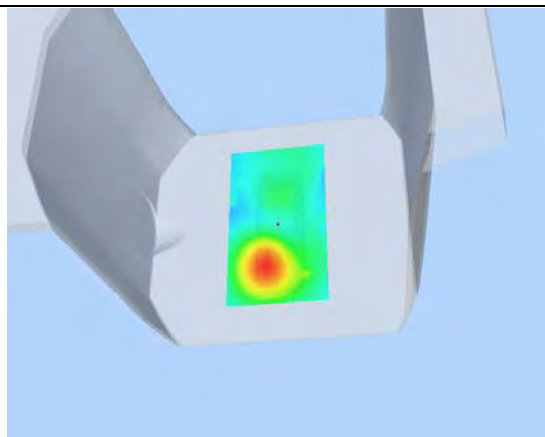
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3901	0.2180	0.1246	0.0724	0.0419	0.0242

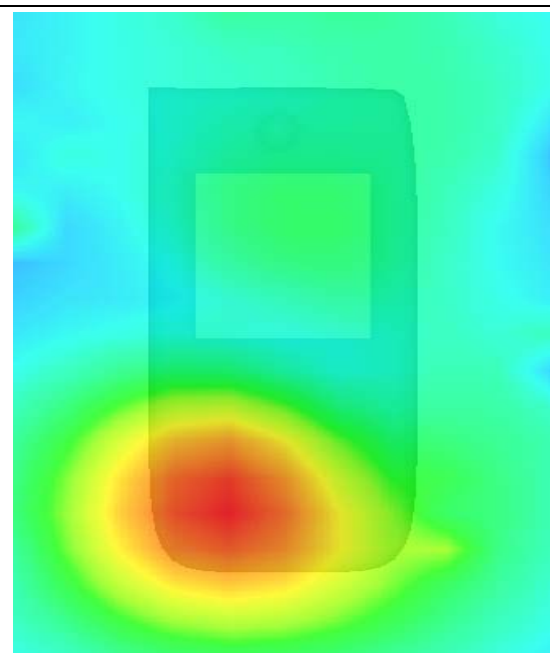
SAR, Z Axis Scan (X = -9, Y = -39)



3D seen shot



Hot spot position



MEASUREMENT 28

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 17 seconds

A. Experimental conditions.

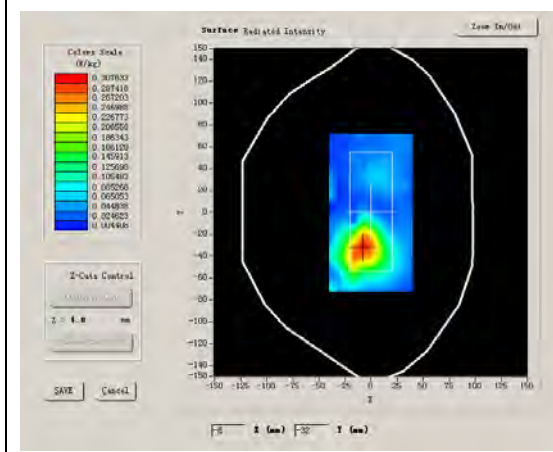
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA 1900
Channels	High
Signal	CDMA

B. SAR Measurement Results

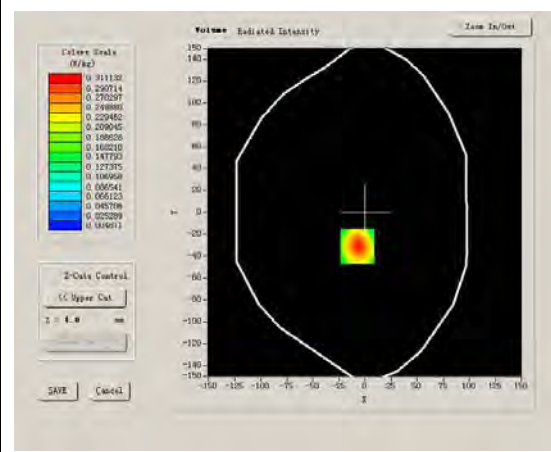
Lower Band SAR (Channel 9538):

Frequency (MHz)	1907.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.682085
Power drift (%)	-0.360000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



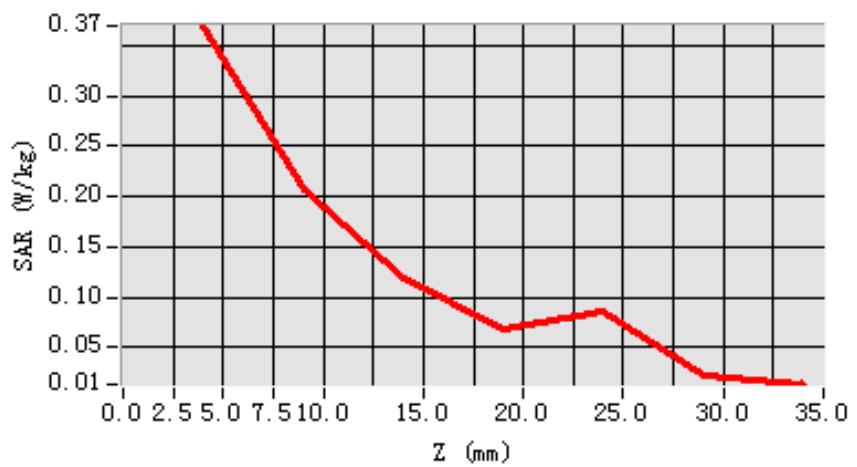
Maximum location: X=-7.00, Y=-31.00

SAR 10g (W/Kg)	0.195296
SAR 1g (W/Kg)	0.353817

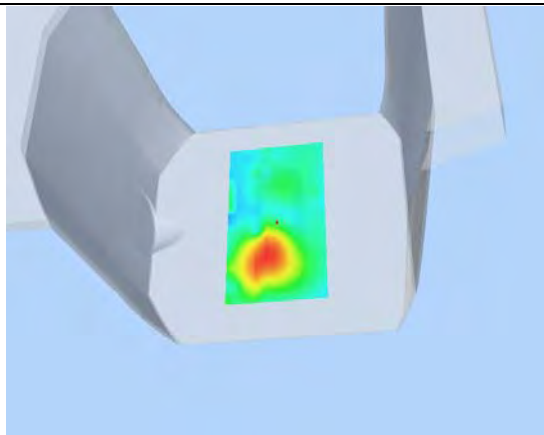
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3692	0.2074	0.1191	0.0673	0.0857	0.0221

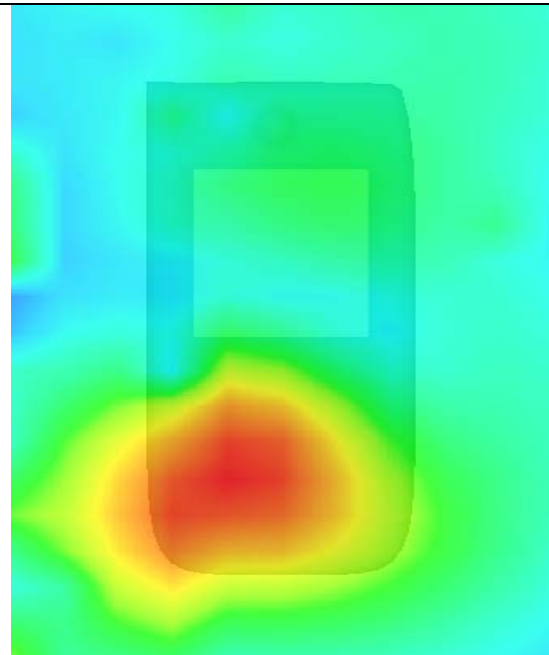
SAR, Z Axis Scan (X = -7, Y = -31)



3D scene shot



Hot spot position



MEASUREMENT 29

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 9 seconds

A. Experimental conditions.

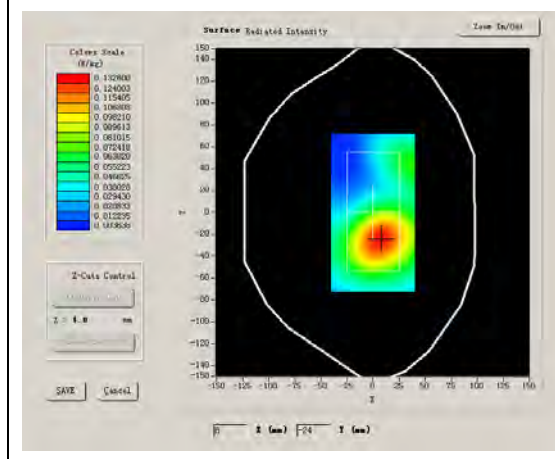
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA 1900
Channels	High
Signal	CDMA

B. SAR Measurement Results

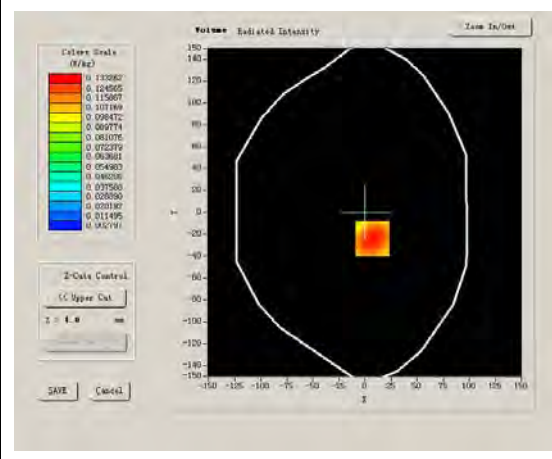
Higher Band SAR (Channel 9538):

Frequency (MHz)	1907.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.682085
Power drift (%)	0.480000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



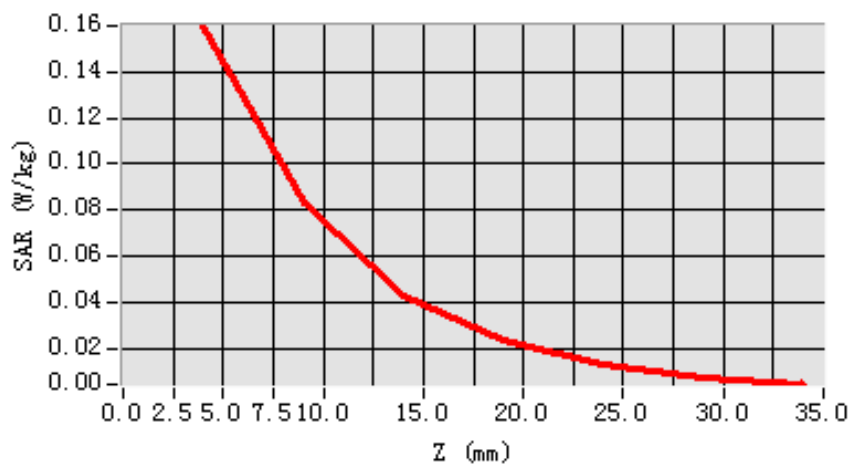
Maximum location: X=7.00, Y=-24.00

SAR 10g (W/Kg)	0.087041
SAR 1g (W/Kg)	0.155038

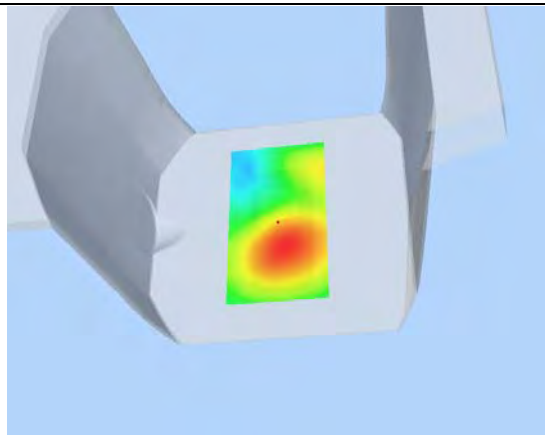
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1599	0.0829	0.0426	0.0237	0.0129	0.0076

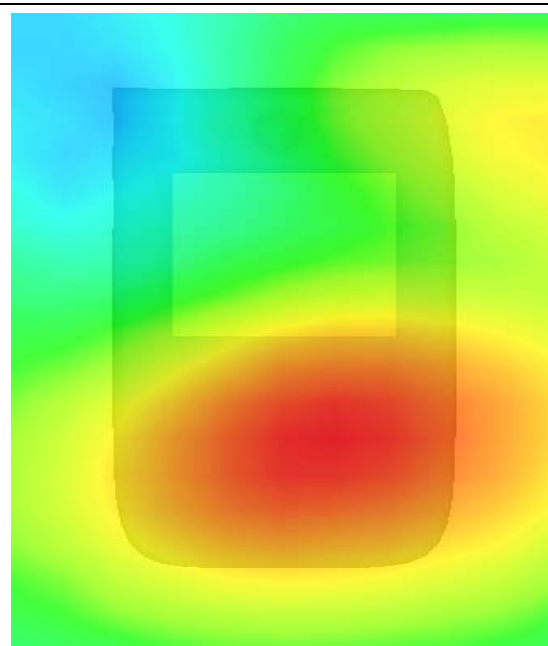
SAR, Z Axis Scan (X = 7, Y = -24)



3D seen shot



Hot spot position



MEASUREMENT 30

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 27 seconds

A. Experimental conditions.

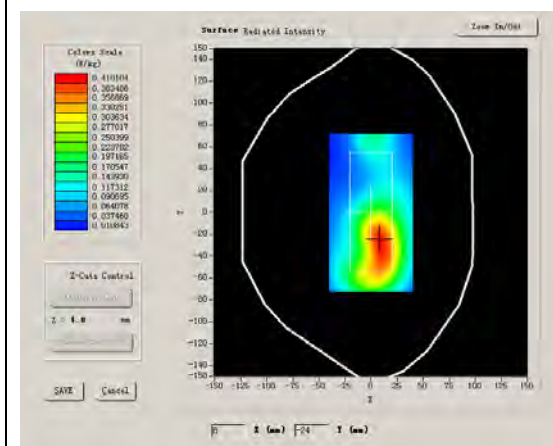
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	WCDMA 1900
Channels	High
Signal	CDMA

B. SAR Measurement Results

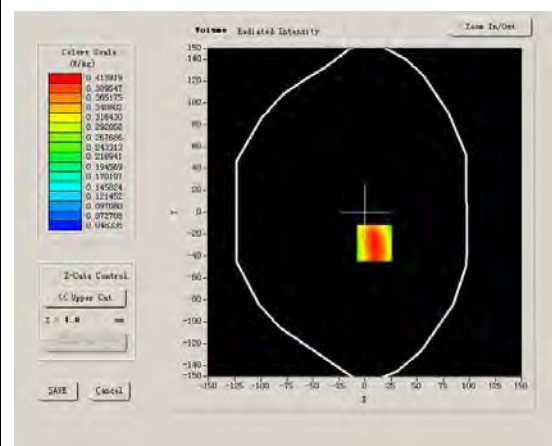
Higher Band SAR (Channel 9538):

Frequency (MHz)	1907.000000
Relative permittivity (real part)	51.341000
Relative permittivity	15.877050
Conductivity (S/m)	1.682085
Power drift (%)	0.230000
Ambient Temperature:	22.6°C
Liquid Temperature:	22.7°C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



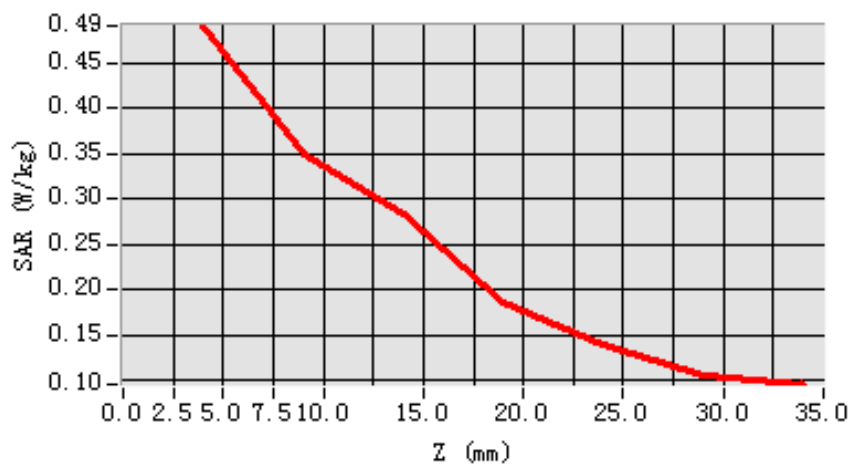
Maximum location: X=9.00, Y=-28.00

SAR 10g (W/Kg)	0.323889
SAR 1g (W/Kg)	0.469317

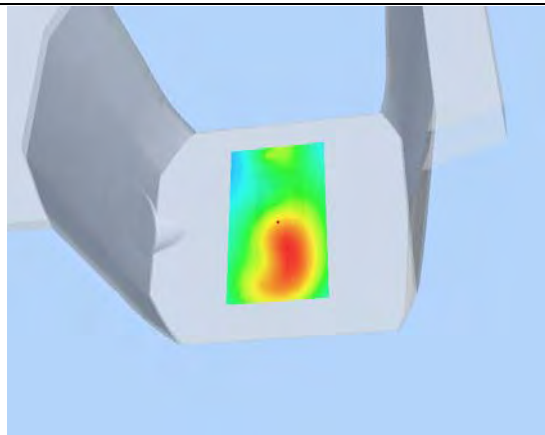
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4912	0.3487	0.2837	0.1866	0.1389	0.1045

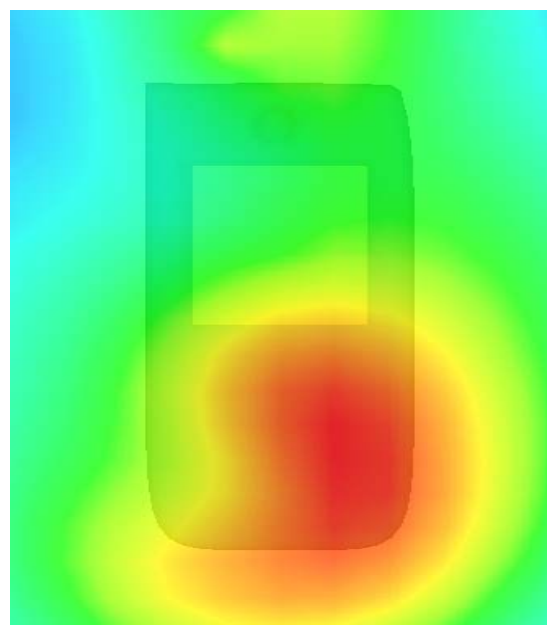
SAR, Z Axis Scan (X = 9, Y = -28)



3D seen shot



Hot spot position



MEASUREMENT 31

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 14 seconds

A. Experimental conditions.

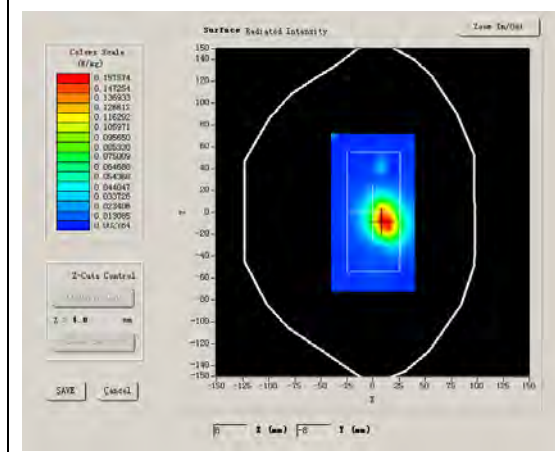
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

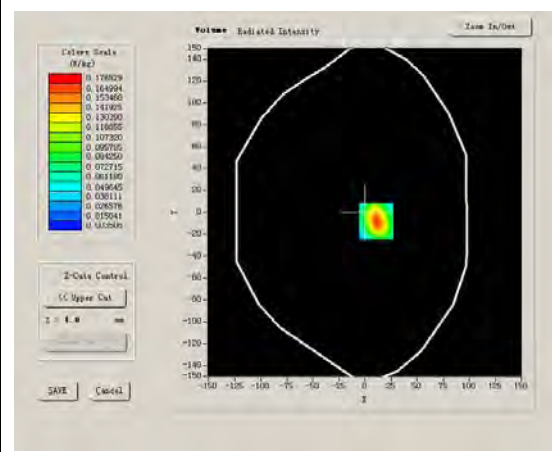
Middle Band SAR (Channel 6):

Frequency (MHz)	2437.000000
Relative permittivity (real part)	52.548876
Relative permittivity	12.991650
Conductivity (S/m)	1.790014
Power drift (%)	2.530000
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



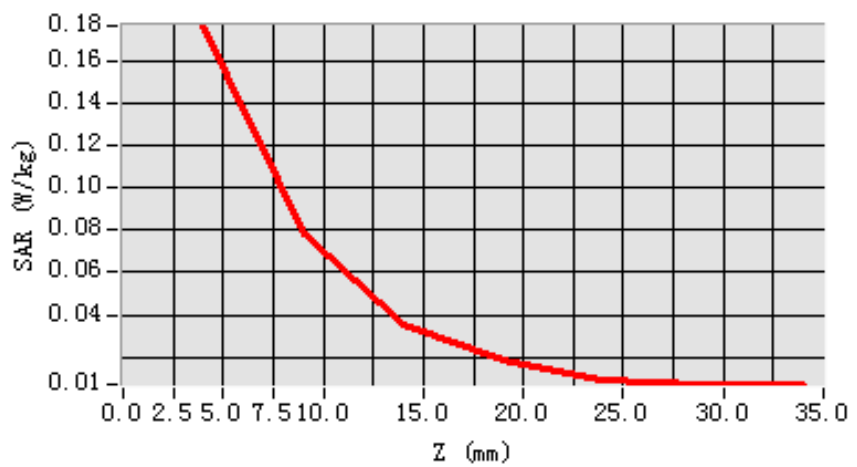
Maximum location: X=11.00, Y=-8.00

SAR 10g (W/Kg)	0.076003
SAR 1g (W/Kg)	0.163846

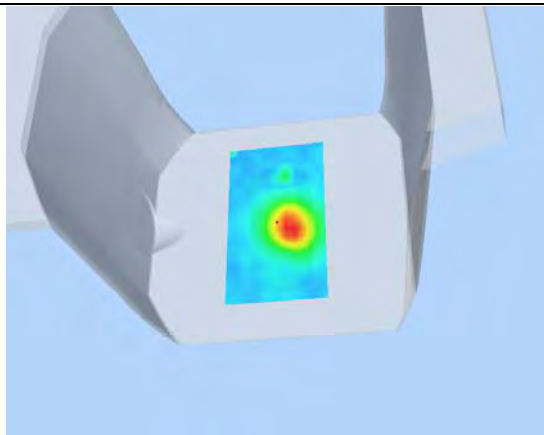
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1765	0.0778	0.0353	0.0186	0.0086	0.0072

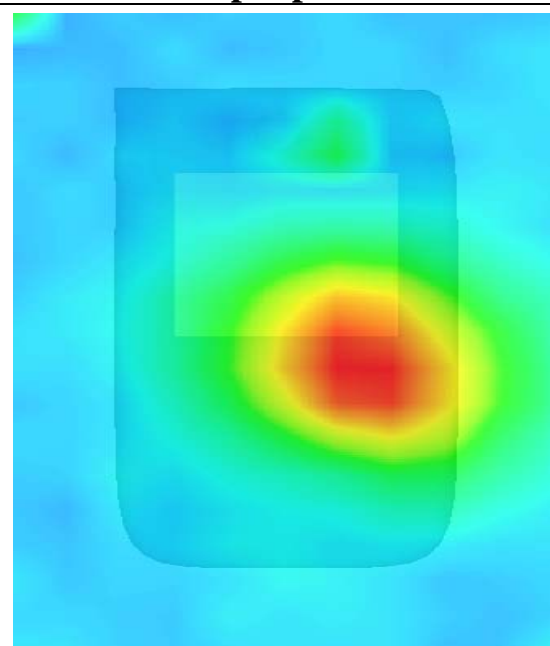
SAR, Z Axis Scan (X = 11, Y = -8)



3D scen shot



Hot spot position



MEASUREMENT 32

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 13 seconds

A. Experimental conditions.

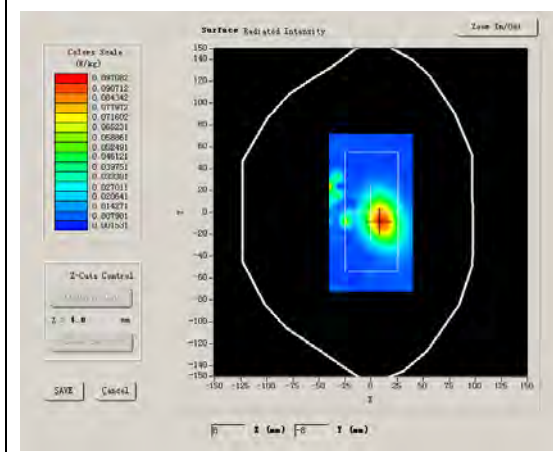
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

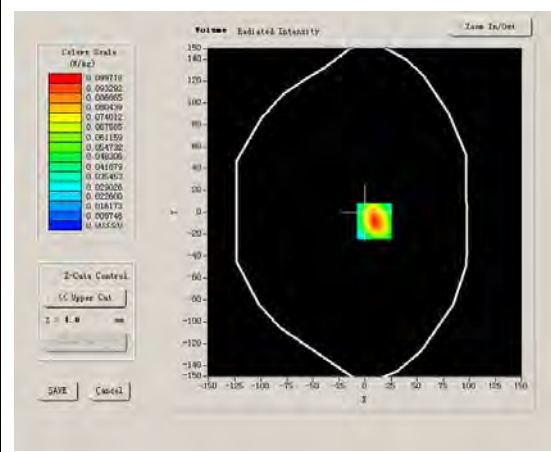
Middle Band SAR (Channel 6):

Frequency (MHz)	2437.000000
Relative permittivity (real part)	52.548876
Relative permittivity	12.991650
Conductivity (S/m)	1.790014
Power drift (%)	0.440000
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



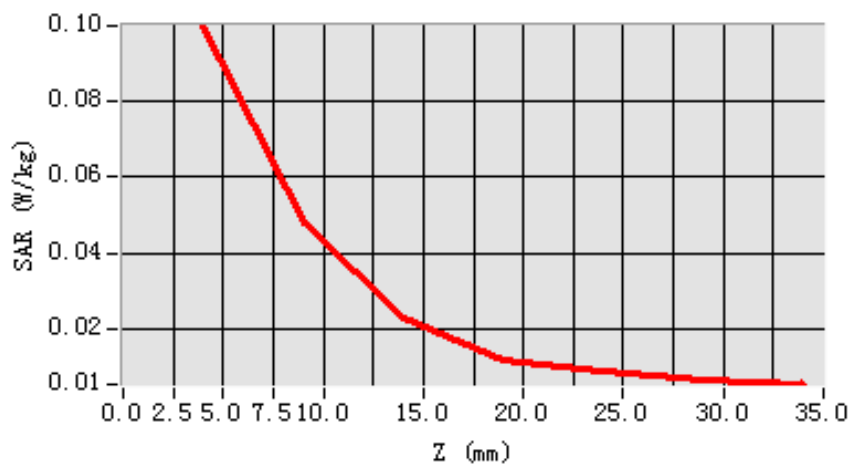
Maximum location: X=9.00, Y=-8.00

SAR 10g (W/Kg)	0.046563
SAR 1g (W/Kg)	0.093472

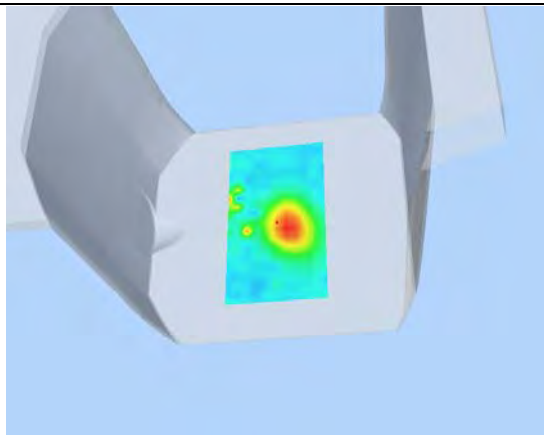
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0997	0.0478	0.0233	0.0117	0.0093	0.0066

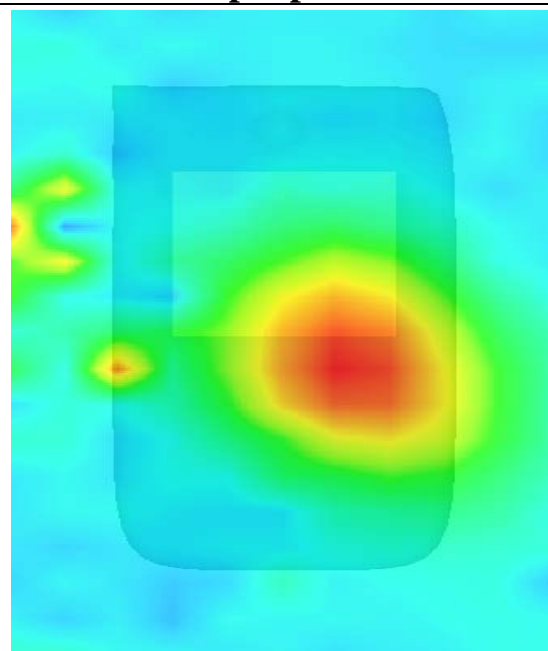
SAR, Z Axis Scan (X = 9, Y = -8)



3D scen shot



Hot spot position



MEASUREMENT 33

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 9 minutes 12 seconds

A. Experimental conditions.

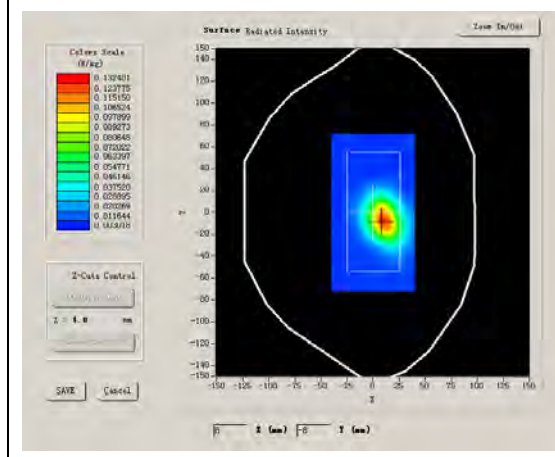
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	802.11B
Channels	Middle
Signal	DSSS

B. SAR Measurement Results

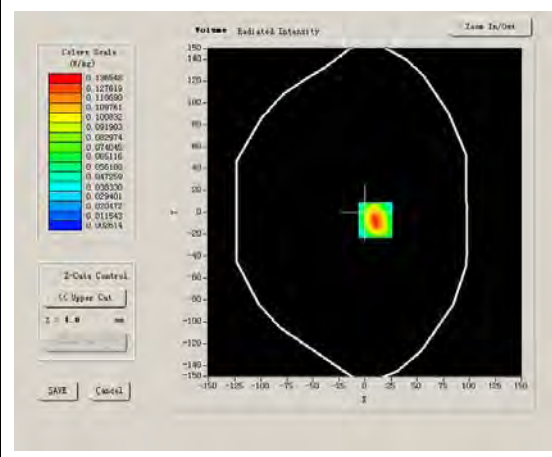
Middle Band SAR (Channel 6):

Frequency (MHz)	2437.000000
Relative permittivity (real part)	52.548876
Relative permittivity	12.991650
Conductivity (S/m)	1.790014
Power drift (%)	0.560000
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



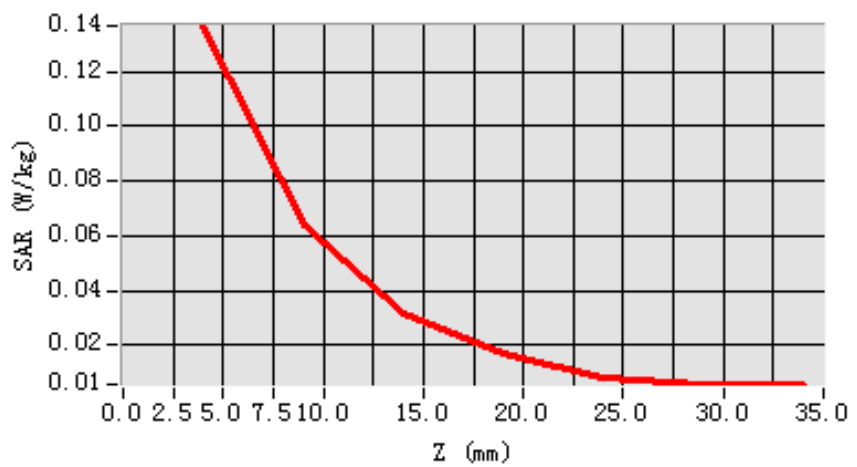
Maximum location: X=10.00, Y=-7.00

SAR 10g (W/Kg)	0.061464
SAR 1g (W/Kg)	0.127242

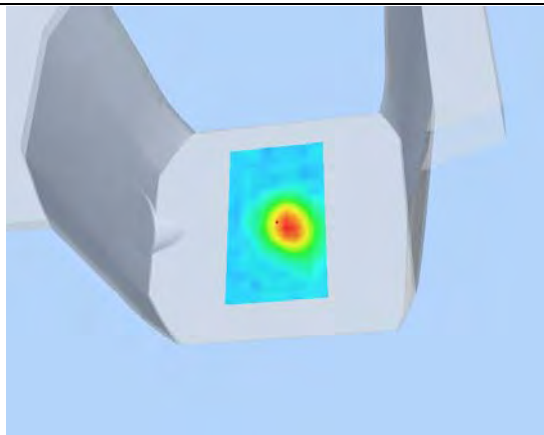
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1365	0.0636	0.0315	0.0172	0.0081	0.0058

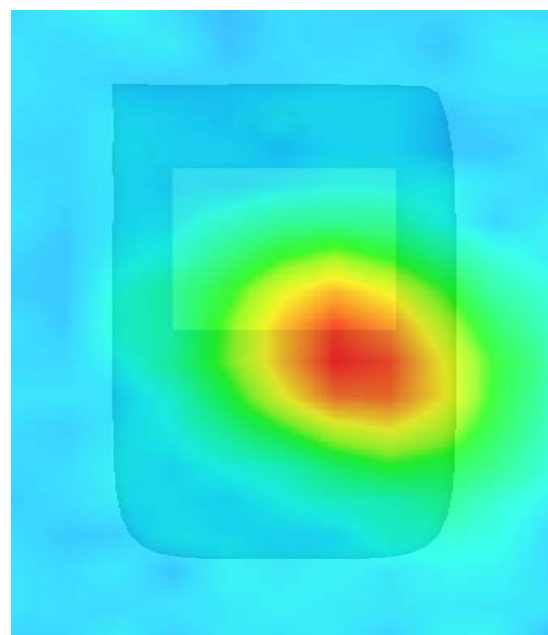
SAR, Z Axis Scan (X = 10, Y = -7)



3D scen shot



Hot spot position



System Performance Check Data(835MHz)

Type: Phone measurement (Complete)
 Area scan resolution: dx=8mm,dy=8mm
 Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
 Date of measurement: 31/10/2011
 Measurement duration: 13 minutes 27 seconds

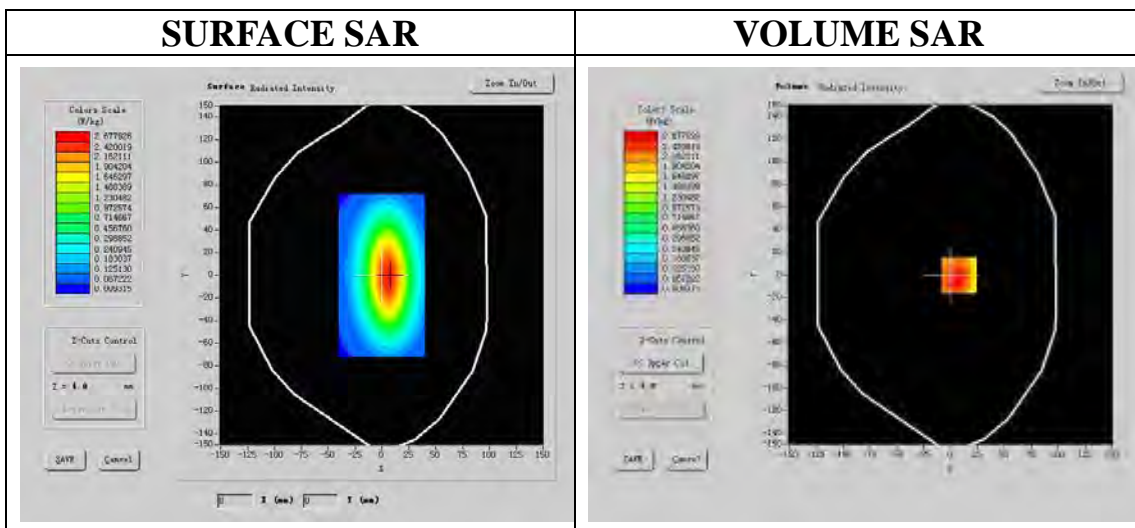
A. Experimental conditions.

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

B. SAR Measurement Results

Band SAR

Frequency (MHz)	835.000000
Relative permittivity (real part)	40.490002
Relative permittivity	15.070000
Conductivity (S/m)	0.983918
Power Drift (%)	-0.050000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.5°C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1



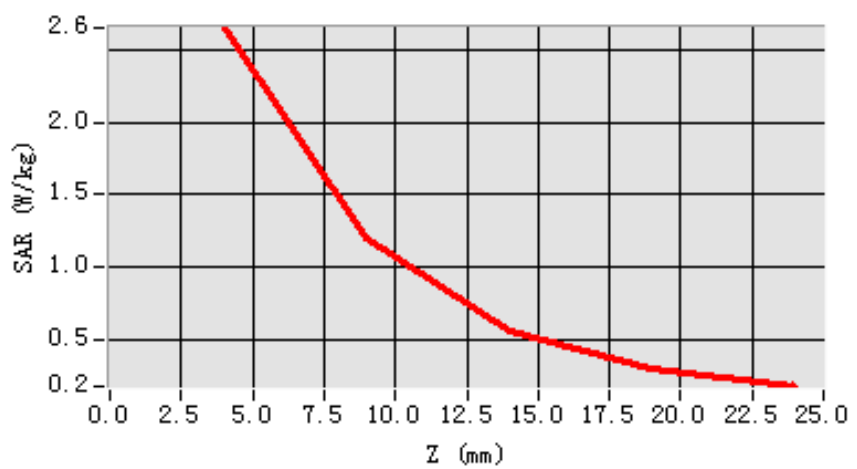
Maximum location: X=5.00, Y=1.00

SAR 10g (W/Kg)	1.715223
SAR 1g (W/Kg)	2.437245

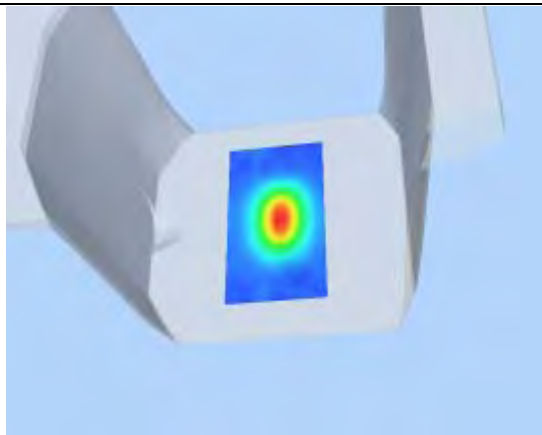
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	2.5486	1.2069	0.5583	0.3002

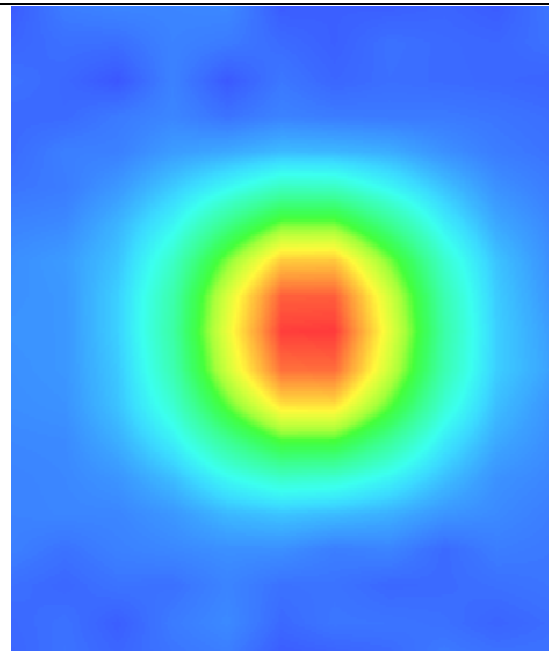
SAR, Z Axis Scan (X = 5, Y = 1)



3D seen shot



Hot spot position



System Performance Check Data(1900MHz)

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 13 minutes 27 seconds

A. Experimental conditions.

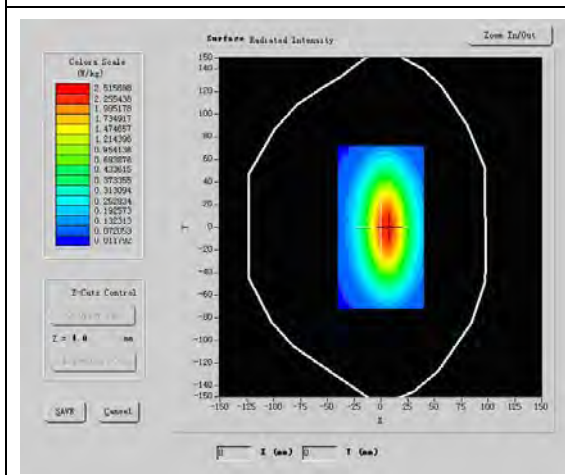
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	
Band	1900MHz
Channels	
Signal	CW

B. SAR Measurement Results

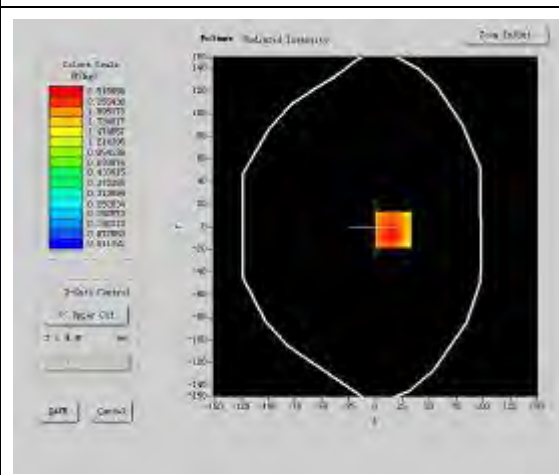
Band SAR

Frequency (MHz)	1900.000000
Relative permittivity (real part)	38.930000
Relative permittivity	15.070000
Conductivity (S/m)	1.321229
Power Drift (%)	-0.140000
Ambient Temperature:	22.3°C
Liquid Temperature:	22.6°C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

SURFACE SAR



VOLUME SAR



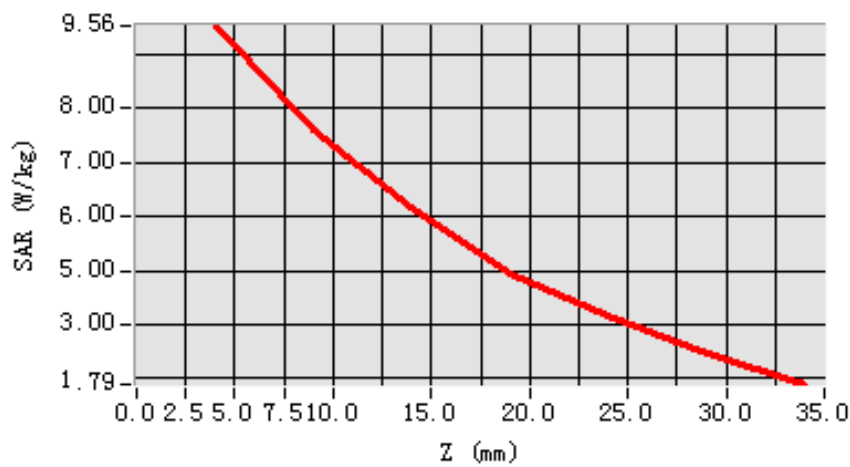
Maximum location: X=-1.00, Y=-50.00

SAR 10g (W/Kg)	4.910003
SAR 1g (W/Kg)	9.668142

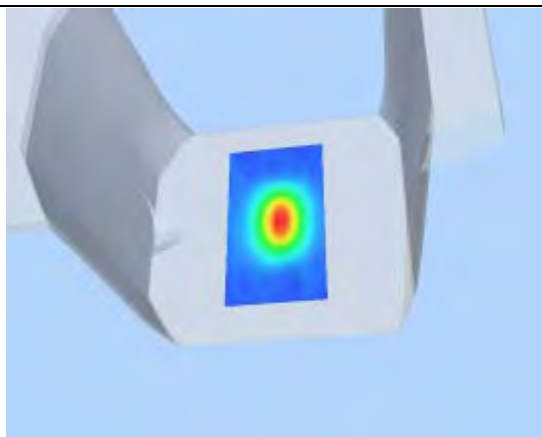
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	9.5536	5.3061	2.6041	0.3211

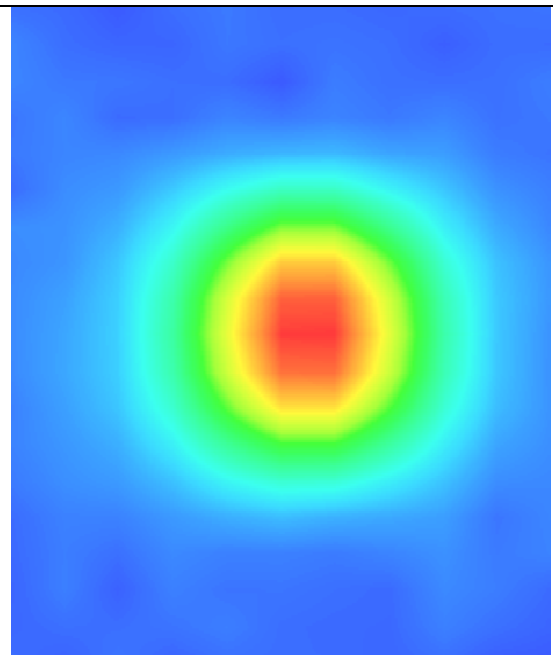
SAR, Z Axis Scan (X = -1, Y = -50)



3D seen shot



Hot spot position



System Performance Check Data(2450MHz)

Type: Phone measurement (Complete)

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

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

Date of measurement: 07/11/2011

Measurement duration: 13 minutes 27 seconds

A. Experimental conditions.

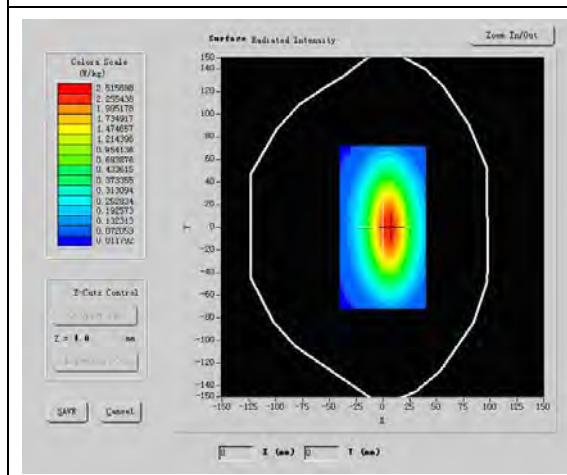
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	
Band	2450MHz
Channels	
Signal	CW

B. SAR Measurement Results

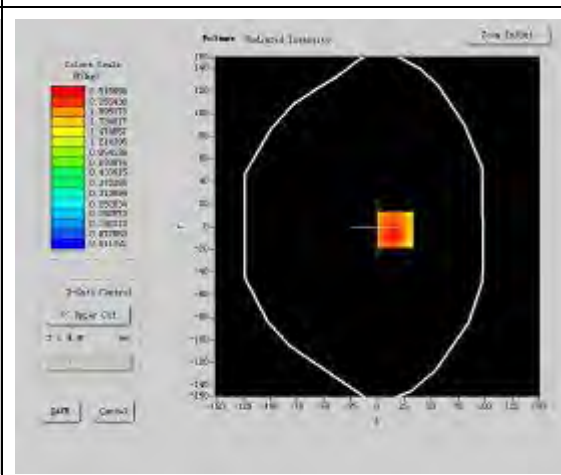
Band SAR

Frequency (MHz)	2450.000000
Relative permittivity (real part)	52.548876
Relative permittivity	12.991650
Conductivity (S/m)	1.790014
Power Drift (%)	-2.180000
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



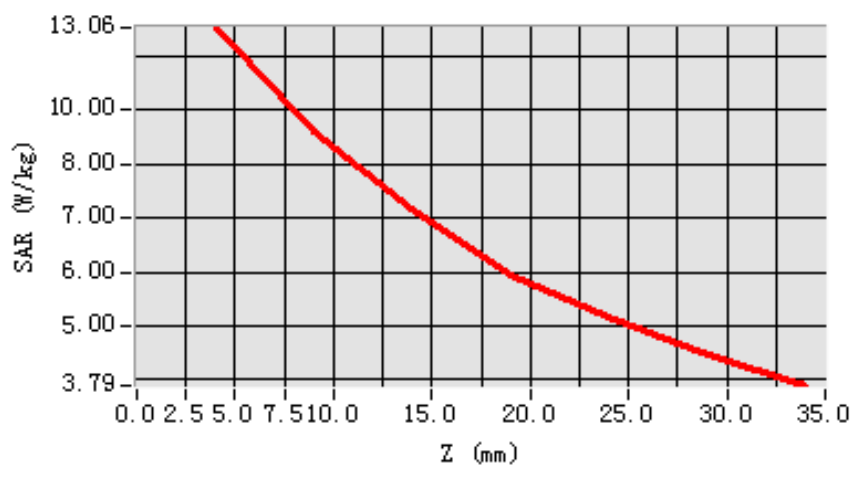
Maximum location: X=-1.00, Y=-50.00

SAR 10g (W/Kg)	6.256773
SAR 1g (W/Kg)	12.784442

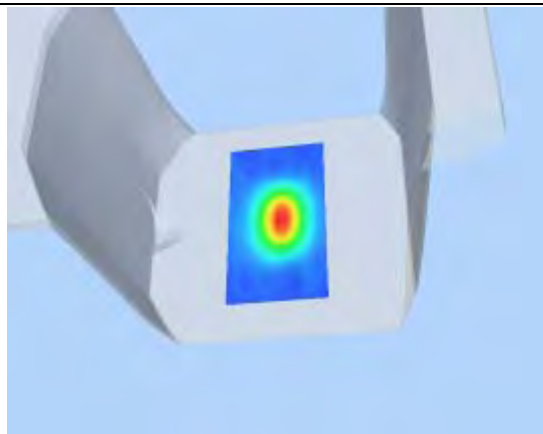
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	2.8536	1.3061	0.6041	0.3211

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



3D scen shot



Hot spot position

