



FCC SAR

TEST REPORT

of

Fixed Wireless Phone on GSM 850/1900MHz

Model Name: PG131N
Trade Name: Axesstel
Report No.: SH10060012S05
FCC ID: PH7PG131N

prepared for

Axesstel Inc

6815 Flanders Drive, #210, San Diego, CA92121, USA



prepared by

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1. General Information

1.1. Notes


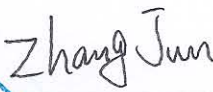

The test results of this test report relate exclusively to the information specified in section 3.3. Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the identification. The test report may only be reproduced or published in full. Reproduction or publications of extracts from the test report requires the prior written approval of Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory. The test report shall be invalid without all the signatures of testing the Project Manager, the Deputy Project Manager and the Test Lab Manager. Any objections must be raised to Morlab within 30 days since the date when the report is received. It will not be taken into consideration beyond this limit.

1.2. Organization item

Report No.:	SH10060012S05
Date of Issue:	Jan. 28, 2011
Date of Tests:	Jan. 28, 2011 –Jan. 28, 2011
Responsible for Accreditation:	Wei Bei
Project Manager:	Zhang Jun
Deputy Project Manager:	Shi Feng

1.3. Conclusion

Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory has verified that all tests as listed in the section 10 of this report have been performed successfully with the tested equipment.

		
Shi Feng		Zhang Jun
Tested by		Reviewed by
(Responsible for the Test Report)		(Verification of the Test Report)
	 Wei Bei	
	Approved by	
	(Responsible Test Lab Manager)	

2. Testing Laboratory

2.1. 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

2.2. 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

2.3. Accreditation Certificate

Accredited Testing Laboratory: No. CNAS L1659

2.4. List of Test Equipments

No.	Instrument	Type	Cal. Date	Cal. Due
1	PC	Dell (Pentium IV 2.4GHz, SN:X10-23533)	(n.a)	(n.a)
2	Network Emulator	Rohde&Schwarz (CMU200, SN:105894)	2010-9-26	1year
3	Voltmeter	Keithley (2000, SN:1000572)	2010-9-24	1year
4	Synthetizer	Rohde&Schwarz (SML_03, SN:101868)	2010-9-24	1year
5	Amplifier	Nucl udes (ALB216, SN:10800)	2010-9-24	1year
6	Power Meter	Rohde&Schwarz (NRVD, SN:101066)	2010-9-24	1year
7	Probe	Antennessa (SN:SN_3708_EP80)	2010-9-24	1year
8	Phantom	Antennessa (SN:SN_36_08_SAM62)	2010-9-24	1year
9	Liquid	Antennessa (Last Calibration:21 08 08)	2010-8-21	1year
10	Dipole Validation Kit	SATIMO (SN 36/08 DIPC99)	2010-9-23	1year
11	Dipole Validation Kit	SATIMO (SN 36/08 DIPF101)	2010-9-23	1year

3. Technical Information

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

3.1. Identification of Applicant

Company Name: Axesstel Inc
Address: 6815 Flanders Drive, #210, San Diego, CA 92121, USA

3.2. Identification of Manufacturer

Company Name: Asiatelco Technologies Co.
Address: #289 Bisheng Rd, Bld-8, 3F, Zhangjiang Hi-Tech Park, Pudong, Shanghai, China

3.3. Equipment Under Test (EUT)

Brand Name: Axesstel Inc
Type Name: Axesstel Inc
Marking Name: PG131N
Hardware Version: P2
Software Version: 08RS1E_F_05_00
Frequency Bands: GSM850/1900
Modulation Mode: GMSK
Antenna type: Fixed Internal Antenna
Antenna type: whip antenna
Accessories: Charger; Battery
Battery Model: ABL-650A
Battery specification: 650mAh 3.6V|
Development Stage: Identical prototype

3.3.1. Photographs of the EUT

Please see for photographs of the EUT.

3.3.2. Identification of all used EUTs

The EUT Identity consists of numerical and letter characters (see the table below), the first five numerical characters indicates the Type of the EUT defined by Morlab, the next letter character indicates the test sample, and the following two numerical characters indicates the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	P2	08RS1E_F_05_00

3.4. 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.
6	FCC Number	Tracking Number 478906

3.5. 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.

3.6. Test Environment/Conditions

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa
Details of Power Supply:	100--265V/AC
Extreme Temperature:	Low Temperature (LT) = -10 °C
	High Temperature (HT) = 55 °C
Extreme Voltage of the EUT:	Normal Voltage (NV) = 5.0V
	Low Voltage (LV) = 4.5V
	High Voltage (HV) = 5.5V
Test frequency:	GSM850/PCS1900
Operation mode:	Call established

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 GSM850 and 512,661 and 810 respectively in the case of PCS1900. The EUT is commanded to operate at maximum transmitting power.

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

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

4. Specific Absorption Rate (SAR)

4.1 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.

4.2 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.

5. SAR Measurement Setup

5.1. 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.

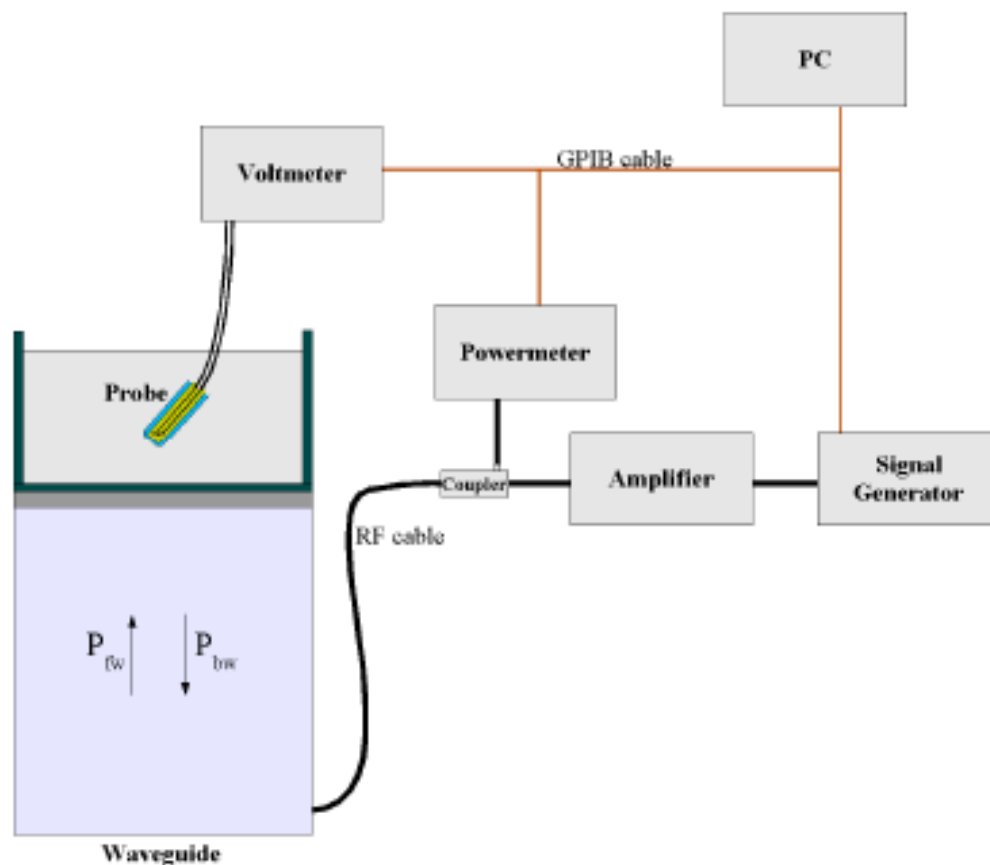
5.2. Probe

For the measurements the COMOSAR SEPT ISOTROPIC E-FIELD PROBE 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 62209 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

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

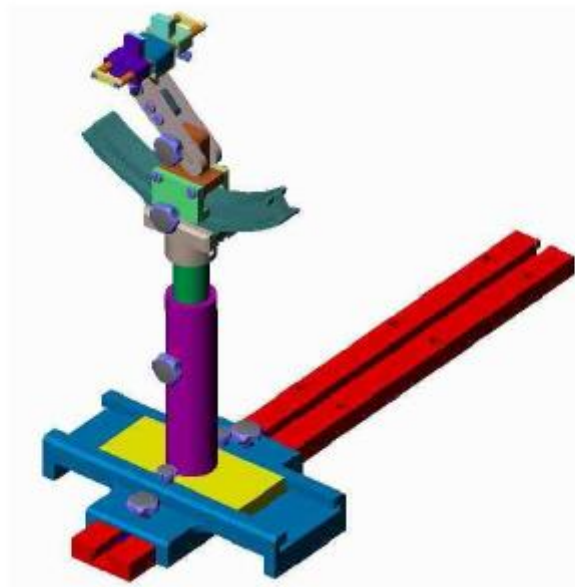
where DCP is the diode compression point in mV.

5.3. Phantom

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

5.4. Device Holder

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



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

6. Tissue Simulating Liquids

Simulant liquids that are used for testing at frequencies of GSM 850MHz, 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 15 cm.

Table gives the recipes for one liter of head and body tissue simulating liquid for frequency band 850MHz.

Ingredients (% by weight)	Frequency Band		Frequency Band	
	835MHz		1900MHz	
Tissue Type	Head	Body	Body	Body
Water	41.45	52.4	55.36	40.4
Salt(NaCl)	1.45	1.4	0.35	0.5
Sugar	56.0	45.0	30.45	58.0
HEC	1.0	1.0	0.0	1.0
Bactericide	0.1	0.1	0.0	0.1
Triton X-100	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	13.84	0.0
Dielectric Constant	42.45	56.1	0.0	0.0
Conductivity (S/m)	0.91	0.95	41.00	54.0

Recipes for Tissue Simulating Liquid

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

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

Table1: Dielectric Performance of Head Tissue Simulating Liquid

Temperature: 23.0~23.8 °C, humidity: 54~60%.			
/	Frequency	Permittivity ϵ	Conductivity σ (S/m)
Target value	835 MHz	41.5	0.90
Validation value (Jan. 28)	835 MHz	41.984401	0.921154

Target value	1900 MHz	40.0	1.4
Validation value (Jan. 28)	1900 MHz	39.578840	1.382237

Table2: 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 (Jan. 28)	835 MHz	55.370024	0.981544
Target value	1900 MHz	53.3	1.52
Validation value (Jan. 28)	1900 MHz	53.524410	1.535244

7. Uncertainty Assessment

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

7.1. UNCERTAINTY EVALUATION FOR HANDSET SAR TEST

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	V i
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	
Axial Isotropy	E.2.2	2.5	R				1.02	1.02	
Hemispherical Isotropy	E.2.2	4.0	R				1.63	1.63	
Boundary effect	E.2.3	1.0	R		1	1	0.58	0.58	
Linearity	E.2.4	5.0	R		1	1	2.89	2.89	
System detection limits	E.2.5	1.0	R		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		1	1	1.73	1.73	
Integration Time	E.2.8	2.0	R		1	1	1.15	1.15	
RF ambient Conditions	E.6.1	3.0	R		1	1	1.73	1.73	
Probe positioner Mechanical Tolerance	E.6.2	2.0	R		1	1	1.15	1.15	
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R		1	1	0.03	0.03	
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	E.5.2	5.0	R		1	1	2.89	2.89	
Test sample Related									
Test sample positioning	E.4.2.1	0.03	N	1	1	1	0.03	0.03	N - 1
Device Holder Uncertainty	E.4.1.1	5.00	N	1	1	1	5.00	5.00	
Output power Power Drift - SAR drift measurement	6.6.2	4.04	R		1	1	2.33	2.33	
Phantom and Tissue Parameters									

Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R		1	1	0.03	0.03		
Liquid conductivity - deviation from target value	E.3.2	4.57	R			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			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					11.23	10.70	
Expanded Uncertainty (95% Confidence interval)			k					21.91	20.86	

7.2. UNCERTAINTY FOR SYSTEM PERFORMANCE CHECK

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	V i
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	
Axial Isotropy	E.2.2	2.5	R				1.02	1.02	
Hemispherical Isotropy	E.2.2	4.0	R				1.63	1.63	
Boundary effect	E.2.3	1.0	R		1	1	0.58	0.58	
Linearity	E.2.4	5.0	R		1	1	2.89	2.89	
System detection limits	E.2.5	1.0	R		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		1	1	1.73	1.73	
Integration Time	E.2.8	2.0	R		1	1	1.15	1.15	
RF ambient Conditions	E.6.1	3.0	R		1	1	1.73	1.73	
Probe positioner Mechanical Tolerance	E.6.2	2.0	R		1	1	1.15	1.15	
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R		1	1	0.03	0.03	
Extrapolation, interpolation and integration Algorithms for Max.	E.5.2	5.0	R		1	1	2.89	2.89	



SAR Evaluation									
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N		1	1	0.58	0.58	N - 1
Input power and SAR drift measurement	8,6.6.2	4.04	R		1	1	2.33	2.33	
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R		1	1	0.03	0.03	
Liquid conductivity - deviation from target value	E.3.2	4.57	R		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		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				10.08	9.47	
Expanded Uncertainty (95% Confidence interval)			k				19.65	18.47	

8. SAR Measurement Evaluation

8.1. System Setup

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

Equipments :

name	Type and specification
Signal generator	E4433B
Directional coupler	450MHz-3GHz
Amplifier	3W 502(10-2500MHz)
Reference dipole	835MHz:SN 36/08 DIPC99 1900MHz: SN 36/08 DIPF 101

8.2. Validation Results

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

Frequency	835MHz	1900MHz
Target value (1g)	9.5 W/Kg	39.7 W/Kg
250 mW input power	2.46 W/Kg	9.59 W/Kg
Test value (1g)	9.84W/Kg	38.36W/Kg

Note: System checks the specific test data please see page 95-102.

9. Operational Conditions During Test

9.1. Informations on the testing

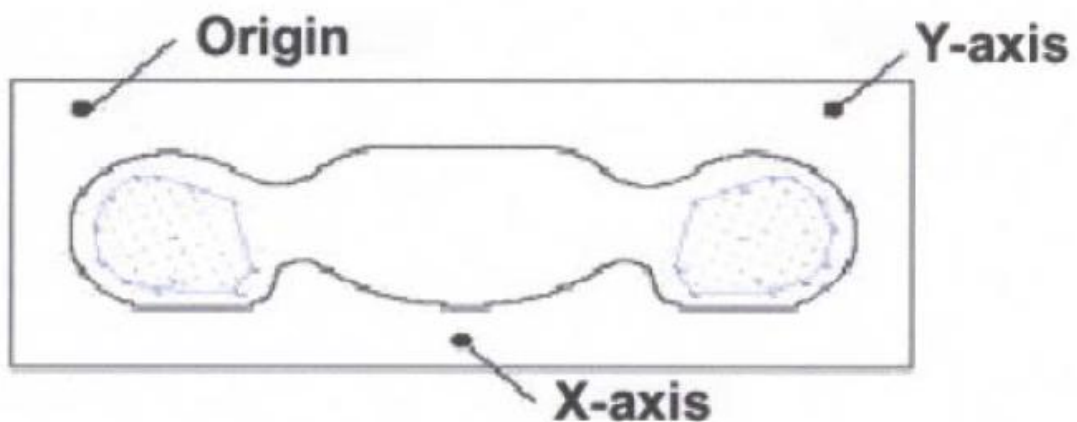
Remark: Please refer to Appendix B for the test setup photos.

9.2. 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

9.3. 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.

9.4. 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.

10. Test Results List

10.1. Summary of Measurement Results

SAR Values(GSM850), Measured against the Body.

Temperature: 23.0~23.8 °C, humidity: 54~60%.		
Limit of SAR (W/kg)	1 g Average	
	1.6	
Test Case	Measurement Result (W/kg)	
	1 g Average (W/kg)	Conducted Power (dBm)
Back Side with antenna position 1 Middle Channel (with battery)	0.054	33.59
Back Side with antenna position 2 Low Channel (with battery)	1.176	33.28
Back Side with antenna position 2 Middle Channel (with battery)	1.031	33.59
Back Side with antenna position 2 High Channel (with battery)	1.086	34.07
Back Side with antenna position 3 Low Channel (with battery)	1.413	33.28
Back Side with antenna position 3 Middle Channel (with battery)	1.125	33.59
Back Side with antenna position 3 High Channel (with battery)	1.248	34.07
Back Side with antenna position 1 Middle Channel (with adapter)	0.034	33.59
Back Side with antenna position 2 Low Channel (with adapter)	1.104	33.28
Back Side with antenna position 2 Middle Channel (with adapter)	0.946	33.59
Back Side with antenna position 2 High Channel (with adapter)	1.046	34.07
Back Side with antenna position 3 Low Channel (with adapter)	1.223	33.28
Back Side with antenna position 3 Middle Channel (with adapter)	1.004	33.59
Back Side with antenna position 3 High Channel (with adapter)	1.134	34.07

SAR Values(PCS1900), Measured against the Body.

Temperature: 23.0~23.8 °C, humidity: 54~60%.		
Limit of SAR (W/kg)	1 g Average	
	1.6	
Test Case	Measurement Result (W/kg)	
	1 g Average (W/kg)	Conducted Power (dBm)
Back Side with antenna position 1 Middle Channel (with battery)	0.023	31.94
Back Side with antenna position 2 Middle Channel (with battery)	0.139	31.94
Back Side with antenna position 3 low Channel (with battery)	0.322	31.08
Back Side with antenna position 3 Middle Channel (with battery)	0.436	31.94
Back Side with antenna position 3 High Channel (with battery)	0.453	30.02
Back Side with antenna position 1 Middle Channel (with adapter)	0.023	31.94
Back Side with antenna position 2 Middle Channel (with adapter)	0.135	31.94
Back Side with antenna position 3 Middle Channel (with adapter)	0.422	31.94

Annex A Accreditation Certificate

Annex B Photographs of the EUT

- 1 EUT Back Side with antenna position 1(with battery)



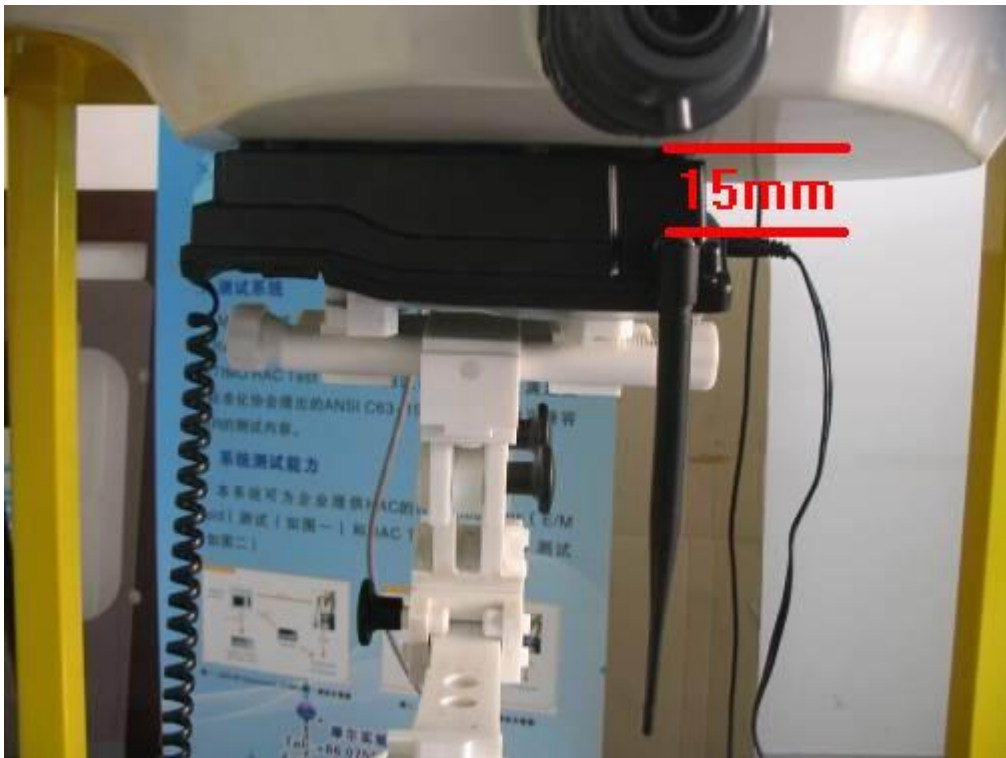
- 2 EUT Back Side with antenna position 2(with battery)



3 EUT Back Side with antenna position 3(with battery)



4 EUT Back Side with antenna position 1(with adapter)



6 EUT Back Side with antenna position 2 (with adapter)



6 EUT Back Side with antenna position 3 (with adapter)



Liquid Level Photo



Sample Photograph



Annex C Graph Test Results

	BAND	<u>PARAMETERS</u>
<u>TYPE</u>	<u>GSM850</u>	<p><u>Measurement 1:</u> Back Side with antenna position 1 Middle Channel (with battery)</p> <p><u>Measurement 2:</u> Back Side with antenna position 2 Low Channel (with battery)</p> <p><u>Measurement 3:</u> Back Side with antenna position 2 Middle Channel (with battery)</p> <p><u>Measurement 4:</u> Back Side with antenna position 2 High Channel (with battery)</p> <p><u>Measurement 5:</u> Back Side with antenna position 3 Low Channel (with battery)</p> <p><u>Measurement 6:</u> Back Side with antenna position 3 Middle Channel (with battery)</p> <p><u>Measurement 7:</u> Back Side with antenna position 3 High Channel (with battery)</p> <p><u>Measurement 8:</u> Back Side with antenna position 1 Middle Channel (with adapter)</p> <p><u>Measurement 9:</u> Back Side with antenna position 2 Low Channel (with adapter)</p> <p><u>Measurement 10:</u> Back Side with antenna position 2 Middle Channel (with adapter)</p> <p><u>Measurement 11:</u> Back Side with antenna position 2 High Channel (with adapter)</p> <p><u>Measurement 12:</u> Back Side with antenna position 3 Low Channel (with adapter)</p> <p><u>Measurement 13:</u> Back Side with antenna position 3 Middle Channel (with adapter)</p> <p><u>Measurement 14:</u> Back Side with antenna position 3 High Channel (with adapter)</p>
	<u>PCS1900</u>	<p><u>Measurement 15:</u> Back Side with antenna position 1 Middle Channel (with battery)</p> <p><u>Measurement 16:</u> Back Side with antenna position 2 Middle Channel (with battery)</p> <p><u>Measurement 17:</u> Back Side with antenna position 3 Low Channel (with battery)</p> <p><u>Measurement 18:</u> Back Side with antenna position 3 Middle Channel (with battery)</p> <p><u>Measurement 19:</u> Back Side with antenna position 3</p>

		High Channel (with battery) <u>Measurement 20:</u> Back Side with antenna position 1 Middle Channel (with adapter) <u>Measurement 21:</u> Back Side with antenna position 2 Middle Channel (with adapter) <u>Measurement 22:</u> Back Side with antenna position 3 Middle Channel (with adapter)
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MEASUREMENT 1

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 4 seconds

A. Experimental conditions.

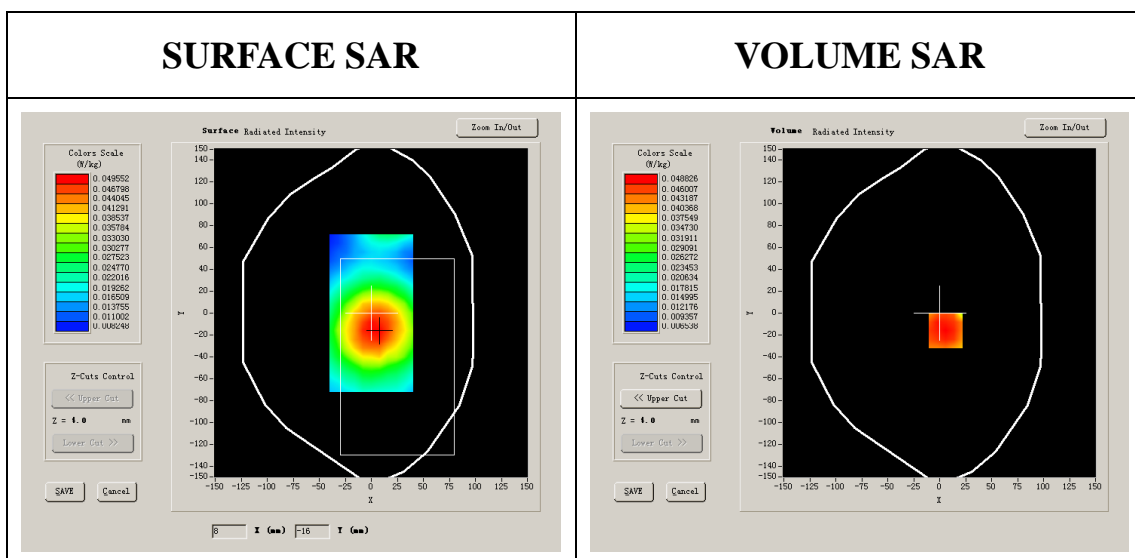
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.370024
Relative permittivity	21.709999

Conductivity (S/m)	0.981544
Variation (%)	-1.570000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

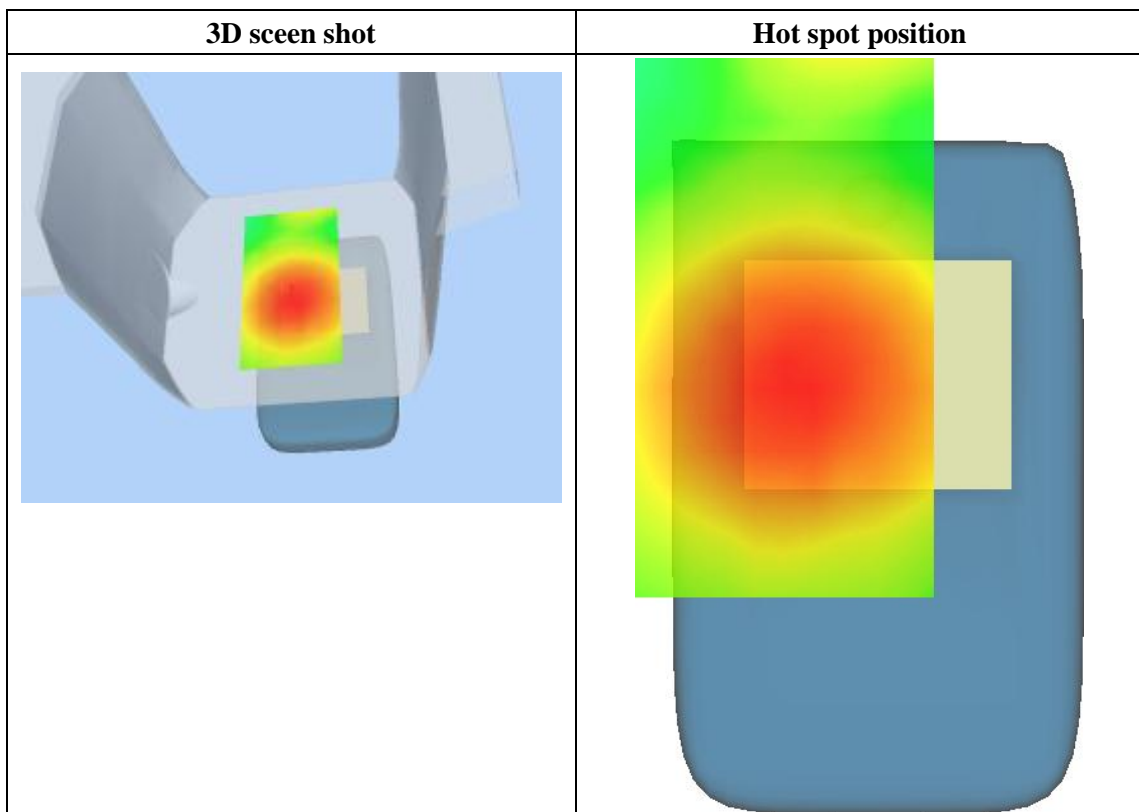
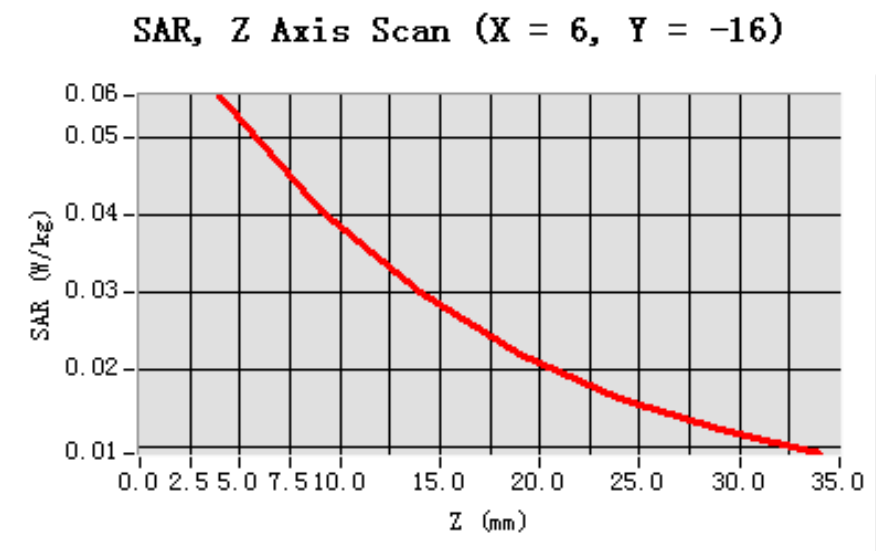


Maximum location: X=6.00, Y=-16.00

SAR 10g (W/Kg)	0.038330
SAR 1g (W/Kg)	0.053645

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0554	0.0404	0.0298	0.0220	0.0163	0.0121



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: 28/1/2011

Measurement duration: 9 minutes 13 seconds

A. Experimental conditions.

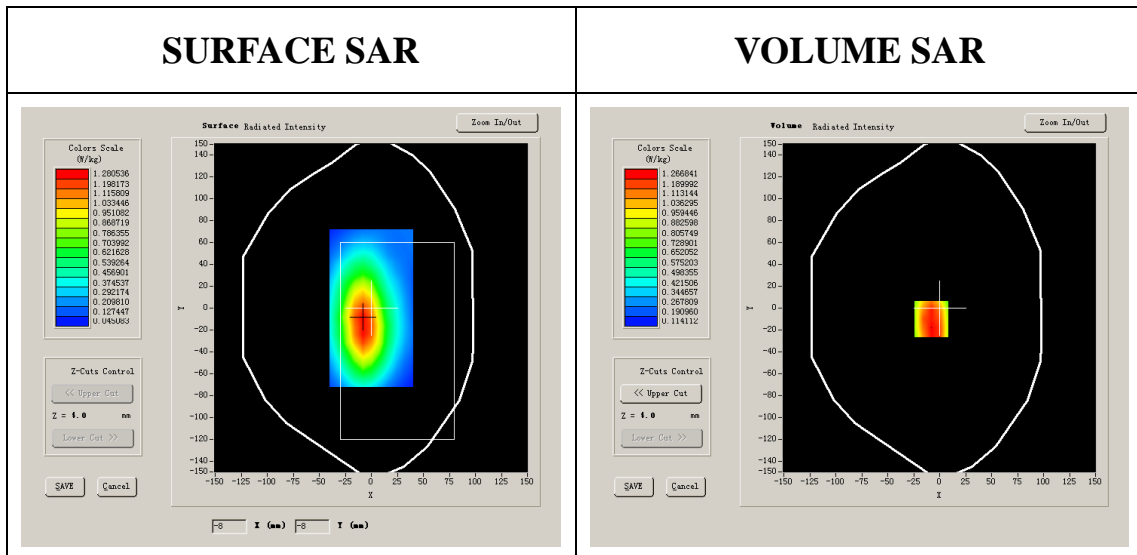
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	55.532477
Relative permittivity	18.248557

Conductivity (S/m)	0.970024
Variation (%)	-2.340000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



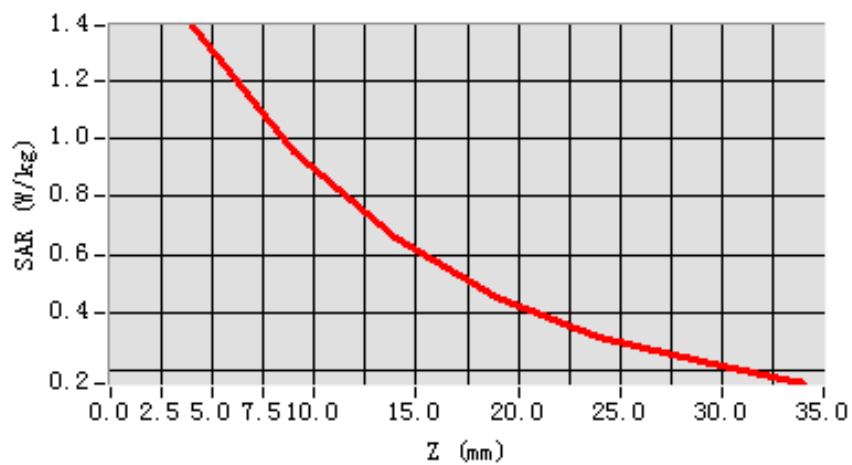
Maximum location: X=-8.00, Y=-10.00

SAR 10g (W/Kg)	0.578452
SAR 1g (W/Kg)	1.175624

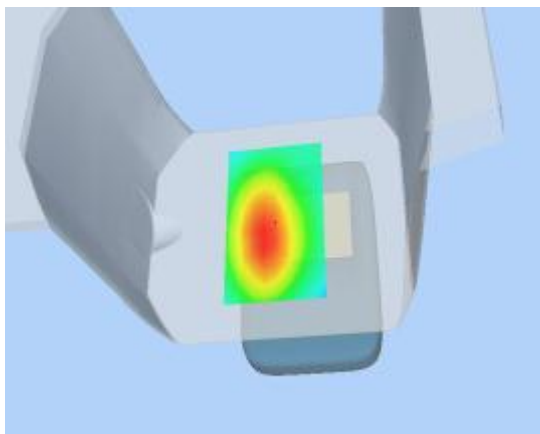
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.3945	0.9537	0.6628	0.4574	0.3157	0.2289

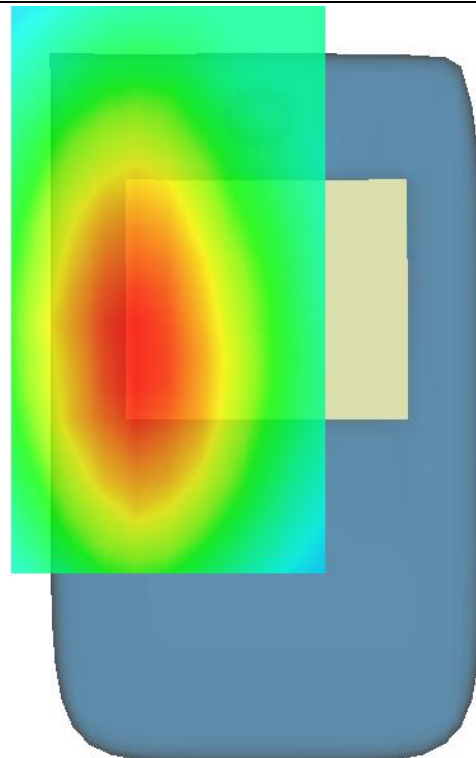
SAR, Z Axis Scan (X = -8, Y = -10)



3D scene shot



Hot spot position



MEASUREMENT 3

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 10 seconds

A. Experimental conditions.

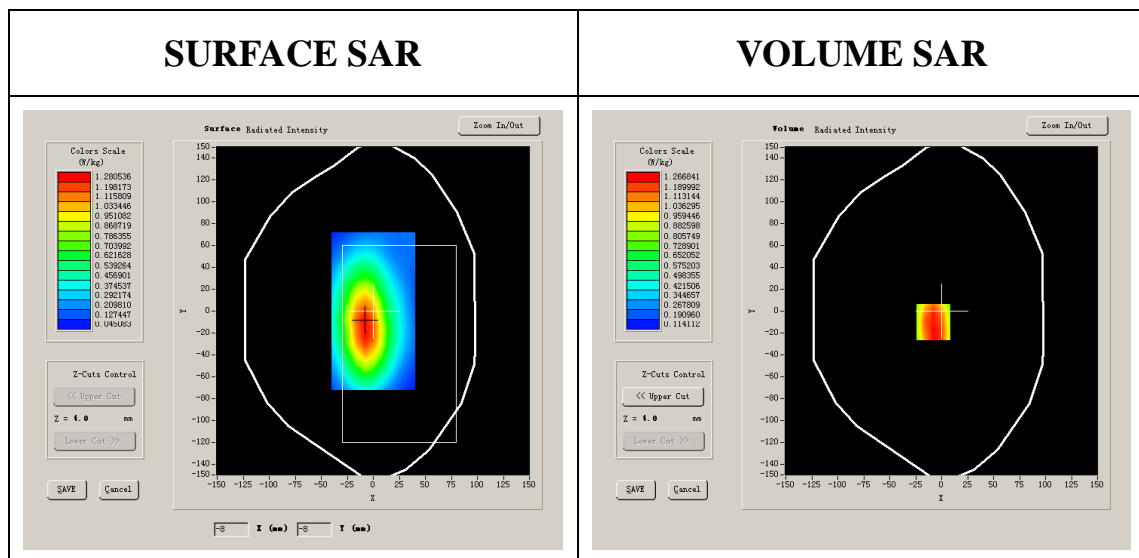
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.370024
Relative permittivity	20.235841

Conductivity (S/m)	0.981544
Variation (%)	3.010000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



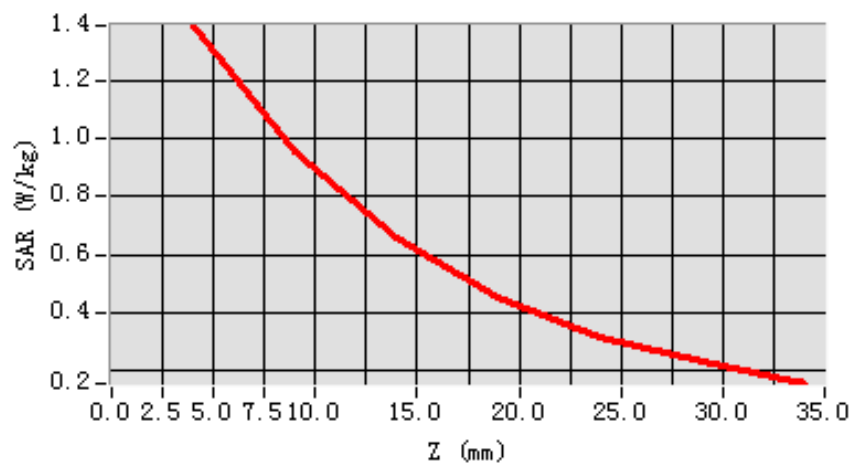
Maximum location: X=-8.00, Y=-10.00

SAR 10g (W/Kg)	0.564772
SAR 1g (W/Kg)	1.031455

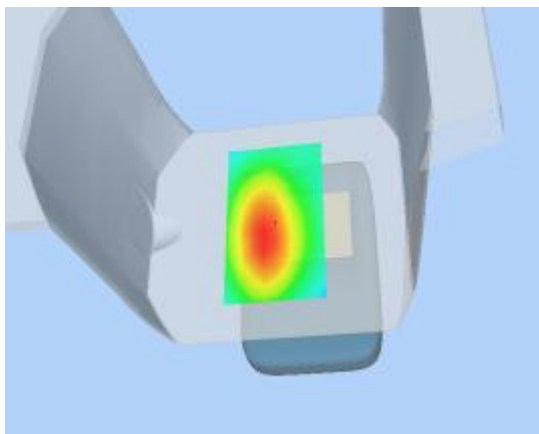
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.3899	0.9506	0.6601	0.4533	0.3127	0.2262

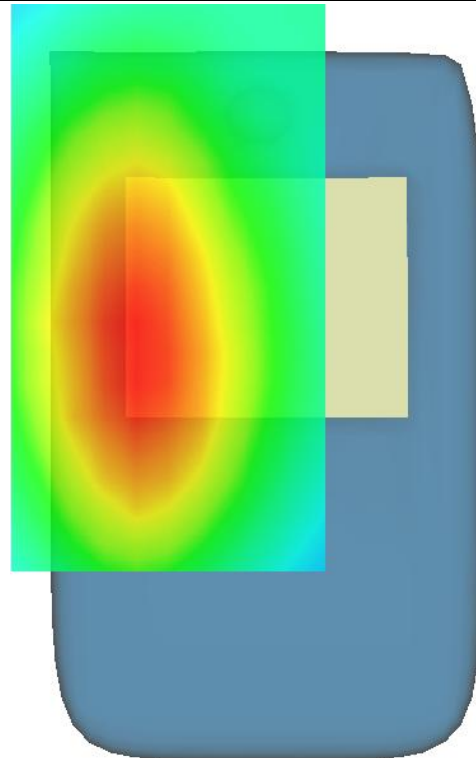
SAR, Z Axis Scan (X = -8, Y = -10)



3D scene shot



Hot spot position



MEASUREMENT 4

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 13 seconds

A. Experimental conditions.

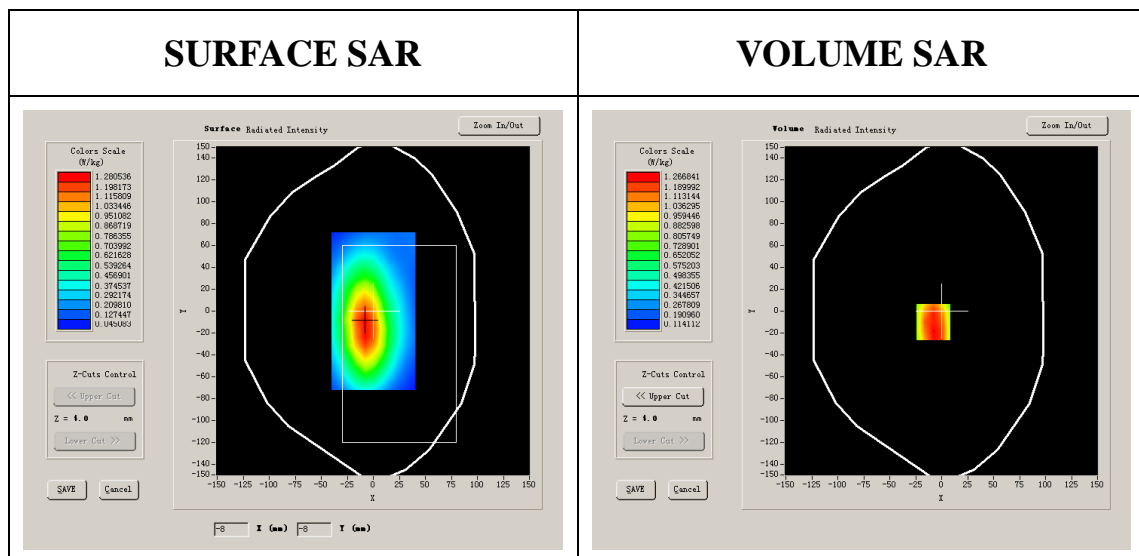
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	High
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 251):

Frequency (MHz)	848.799988
Relative permittivity (real part)	55.203410
Relative permittivity	16.325157

Conductivity (S/m)	0.986431
Variation (%)	0.320000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



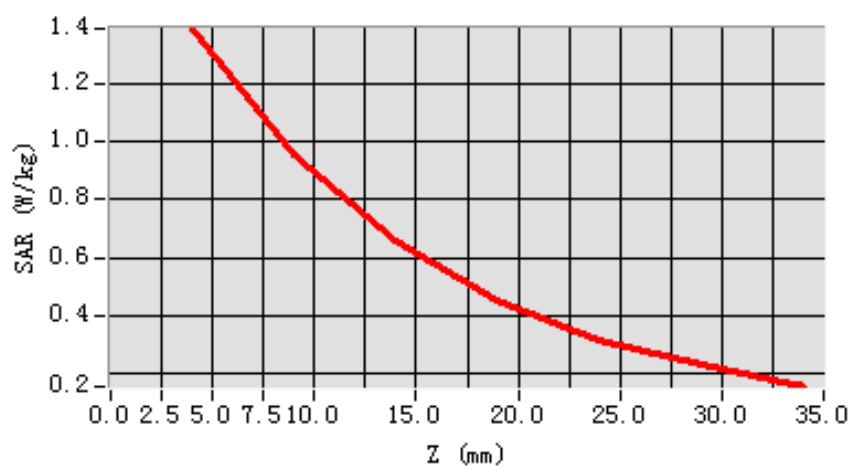
Maximum location: X=-8.00, Y=-10.00

SAR 10g (W/Kg)	0.547266
SAR 1g (W/Kg)	1.085517

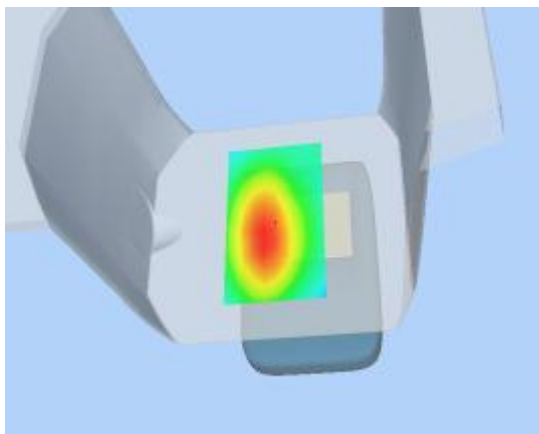
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.3916	0.9529	0.6613	0.4559	0.3141	0.2286

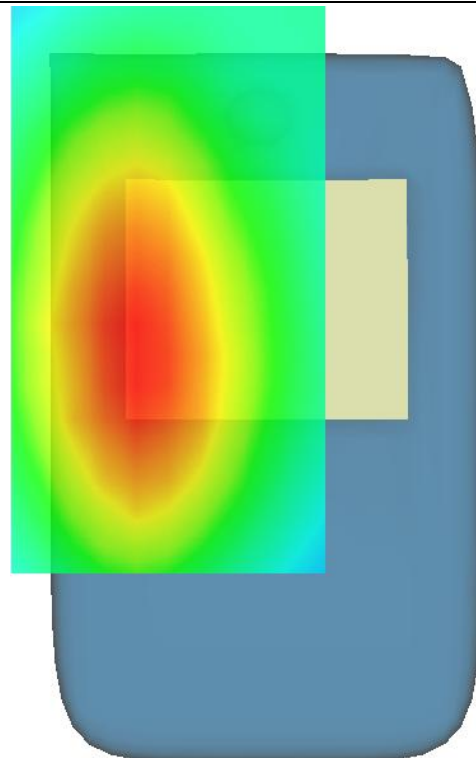
SAR, Z Axis Scan (X = -8, Y = -10)



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: 28/1/2011

Measurement duration: 9 minutes 7 seconds

A. Experimental conditions.

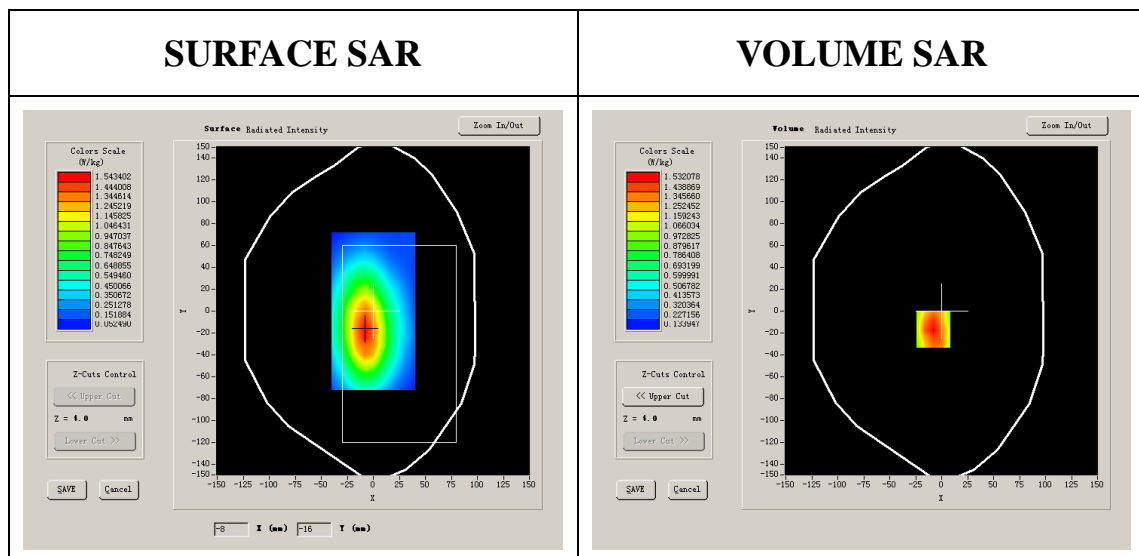
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	55.532477
Relative permittivity	17.221007

Conductivity (S/m)	0.970024
Variation (%)	-1.200000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



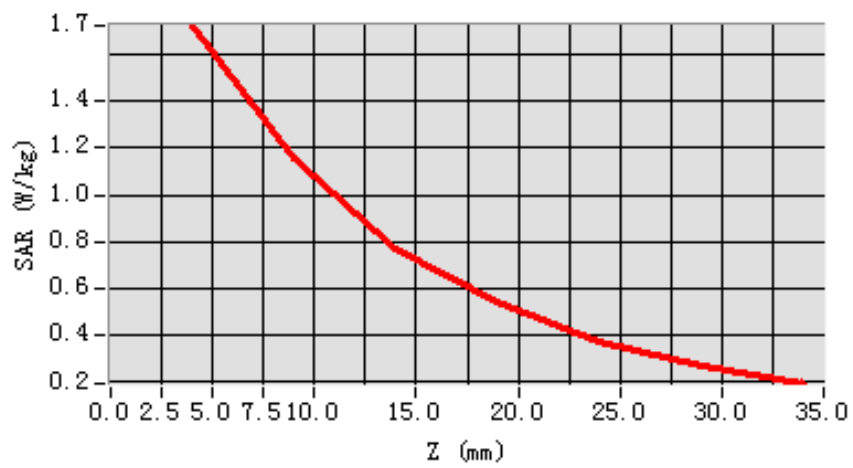
Maximum location: X=-8.00, Y=-17.00

SAR 10g (W/Kg)	0.934522
SAR 1g (W/Kg)	1.412764

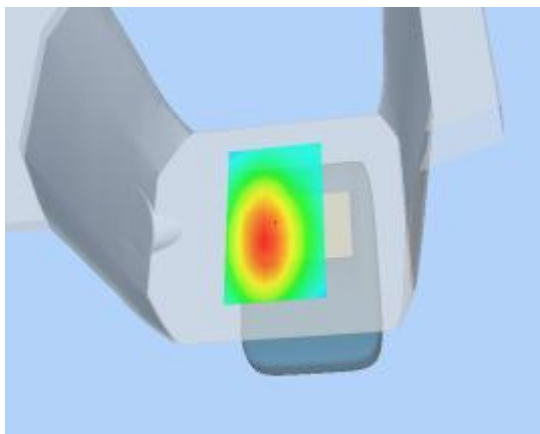
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.6230	1.2567	0.7726	0.5421	0.3733	0.2726

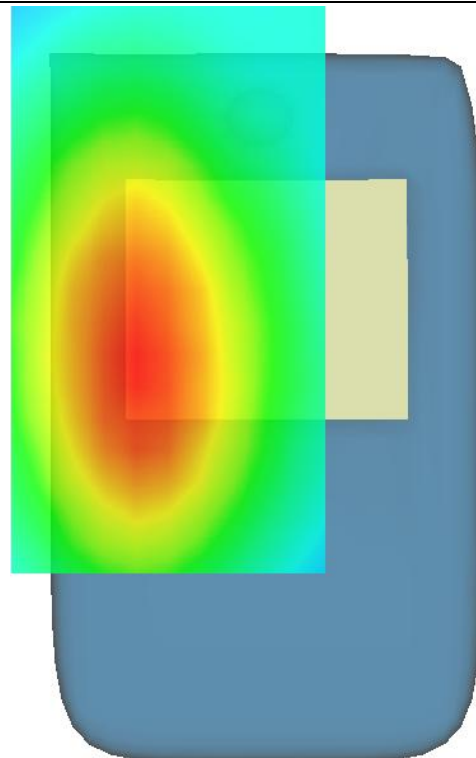
SAR, Z Axis Scan (X = -8, Y = -17)



3D scene shot



Hot spot position



MEASUREMENT 6

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 11 seconds

A. Experimental conditions.

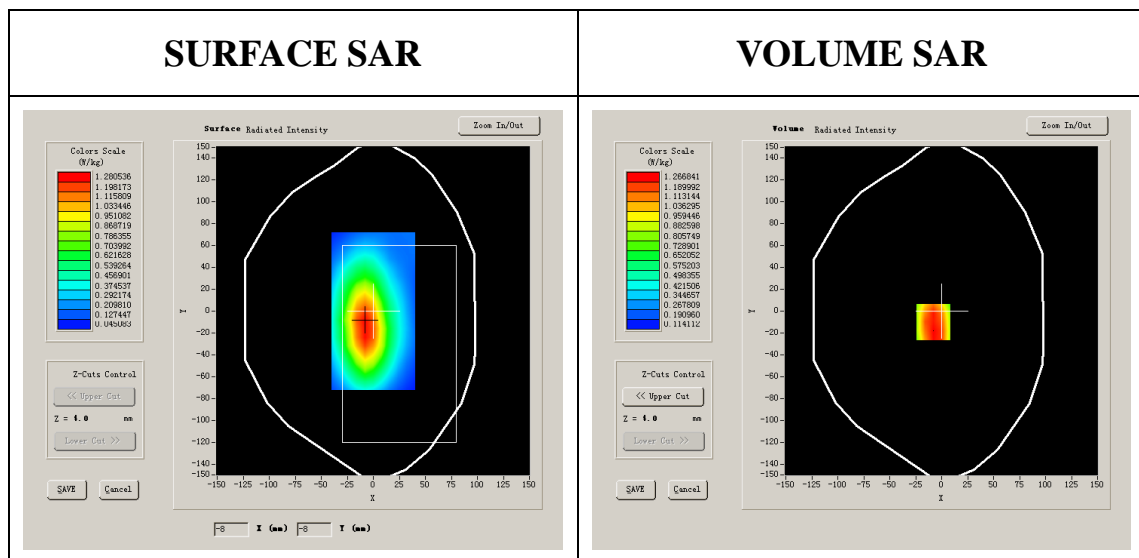
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.370024
Relative permittivity	18.002111

Conductivity (S/m)	0.981544
Variation (%)	-3.210000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



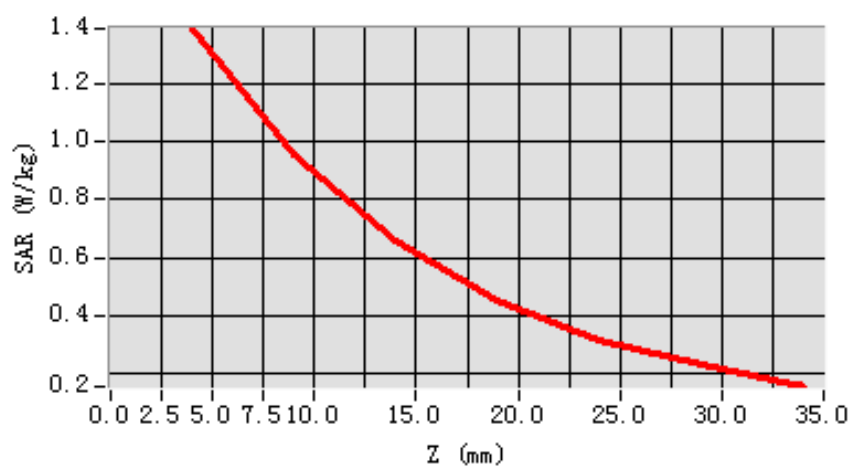
Maximum location: X=-8.00, Y=-10.00

SAR 10g (W/Kg)	0.585662
SAR 1g (W/Kg)	1.124844

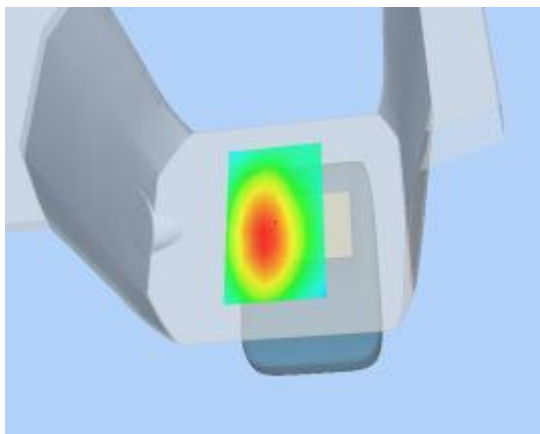
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.3916	0.9529	0.6613	0.4559	0.3141	0.2286

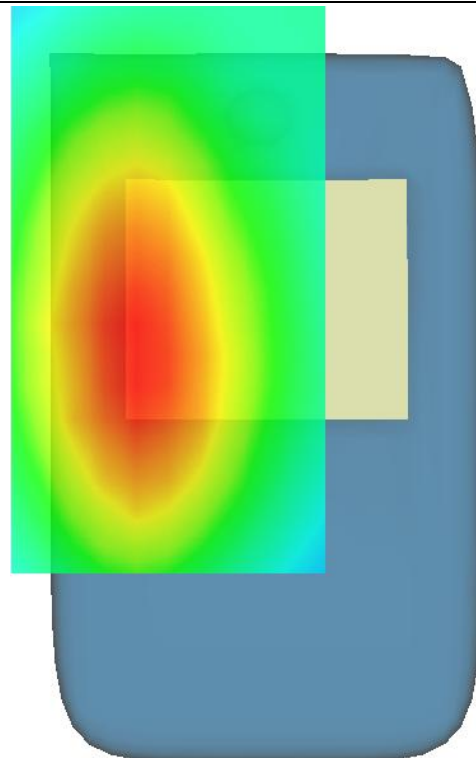
SAR, Z Axis Scan (X = -8, Y = -10)



3D scene shot



Hot spot position



MEASUREMENT 7

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 15 seconds

A. Experimental conditions.

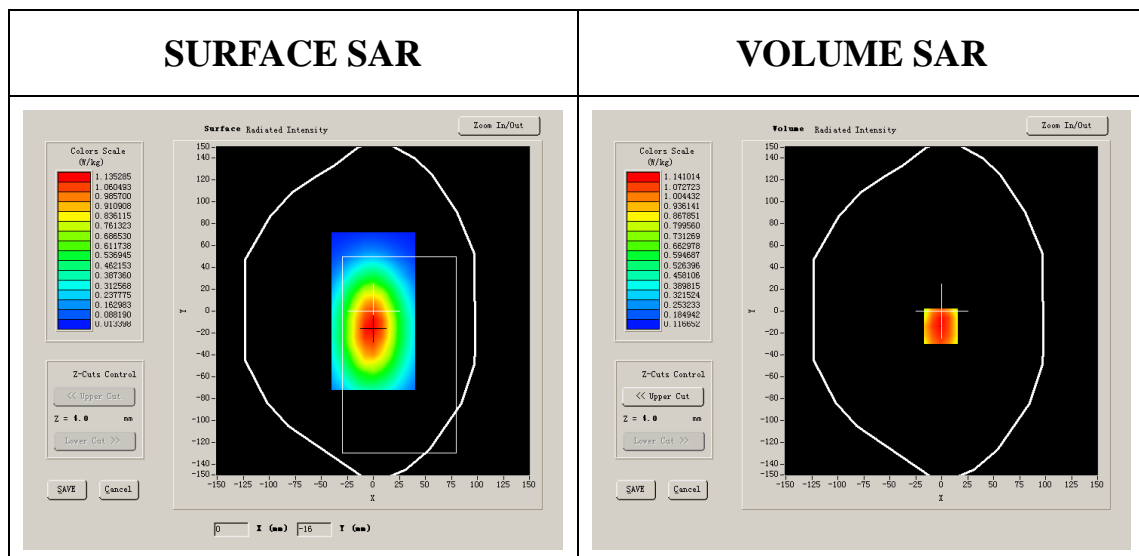
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	High
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 251):

Frequency (MHz)	848.799988
Relative permittivity (real part)	55.203410
Relative permittivity	17.325897

Conductivity (S/m)	0.986431
Variation (%)	-4.020000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



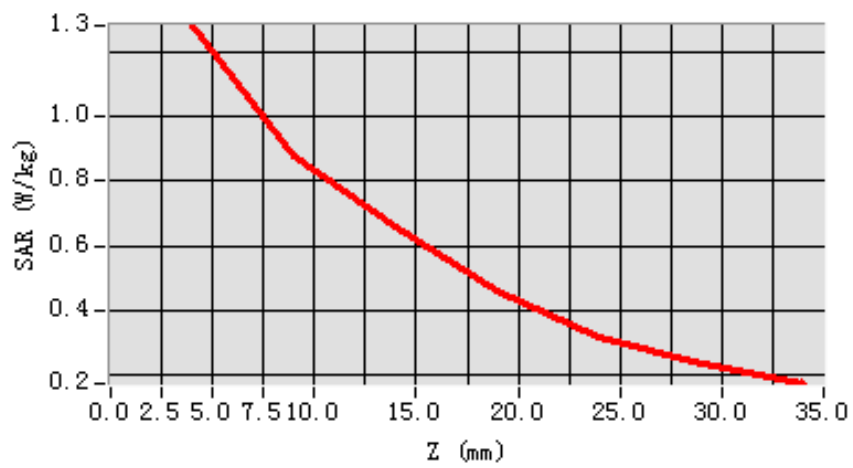
Maximum location: X=-1.00, Y=-14.00

SAR 10g (W/Kg)	0.845351
SAR 1g (W/Kg)	1.248068

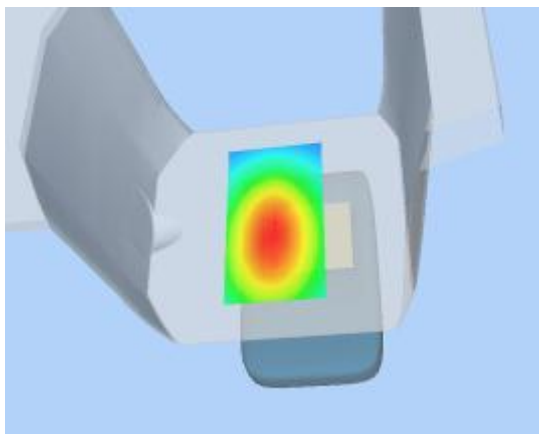
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.2833	0.8790	0.6600	0.4584	0.3196	0.2371

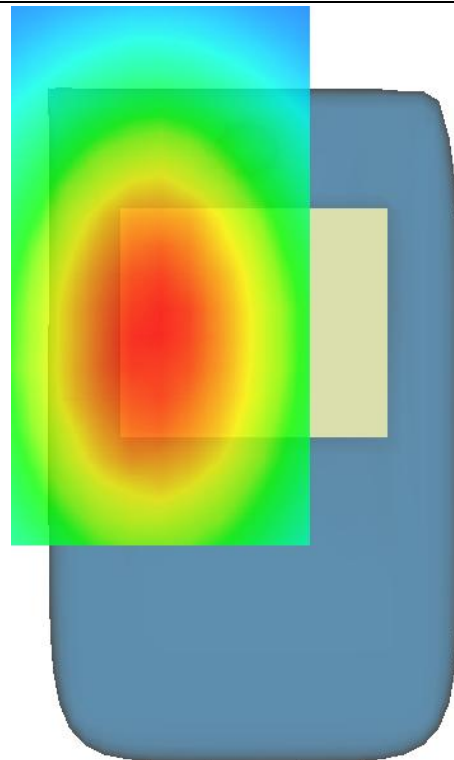
SAR, Z Axis Scan (X = -1, Y = -14)



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: 28/1/2011

Measurement duration: 9 minutes 14 seconds

A. Experimental conditions.

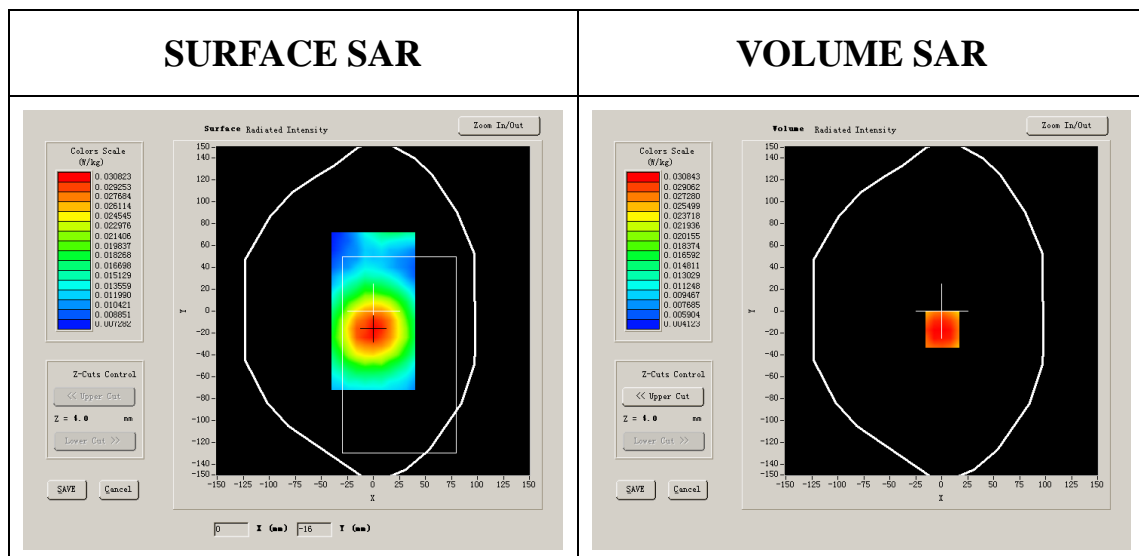
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.370024
Relative permittivity	19.654001

Conductivity (S/m)	0.981544
Variation (%)	-2.840000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

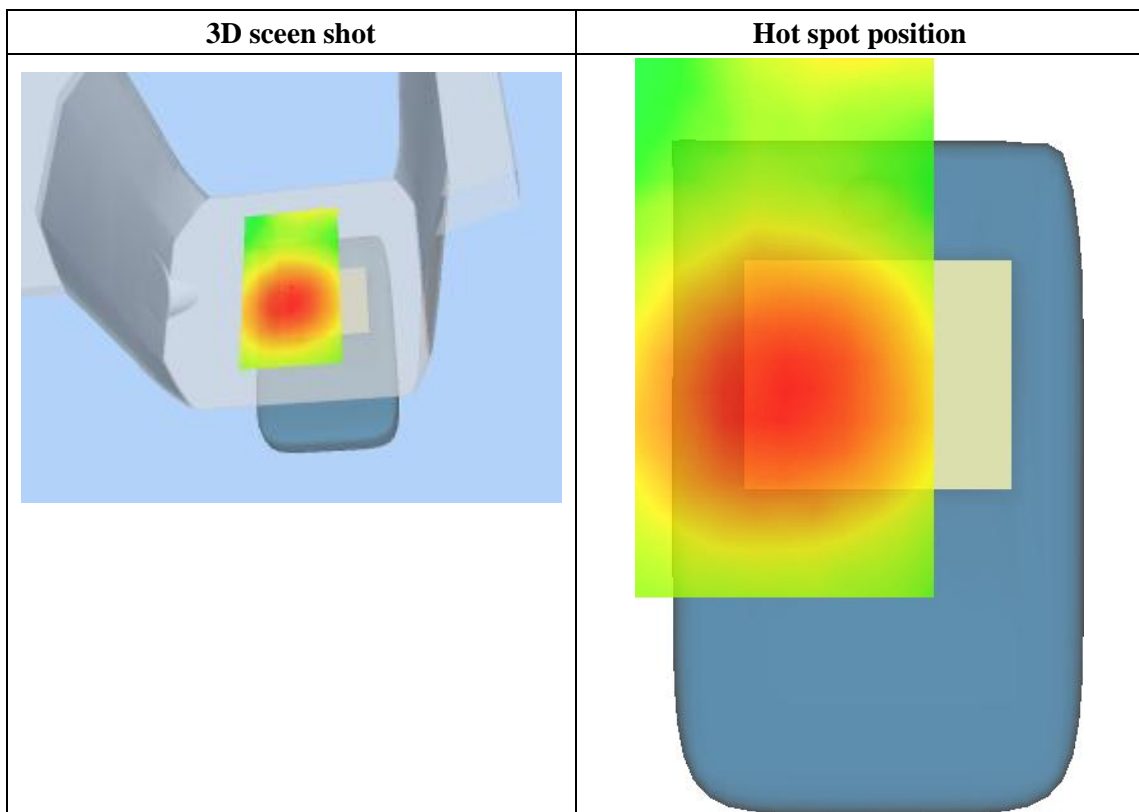
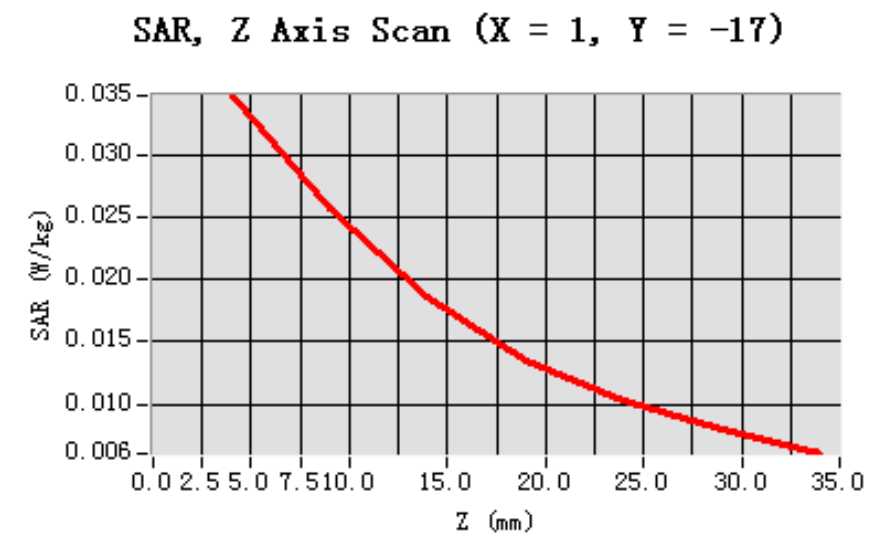


Maximum location: X=1.00, Y=-17.00

SAR 10g (W/Kg)	0.024042
SAR 1g (W/Kg)	0.033893

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0347	0.0258	0.0186	0.0135	0.0103	0.0080



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: 28/1/2011

Measurement duration: 9 minutes 9 seconds

A. Experimental conditions.

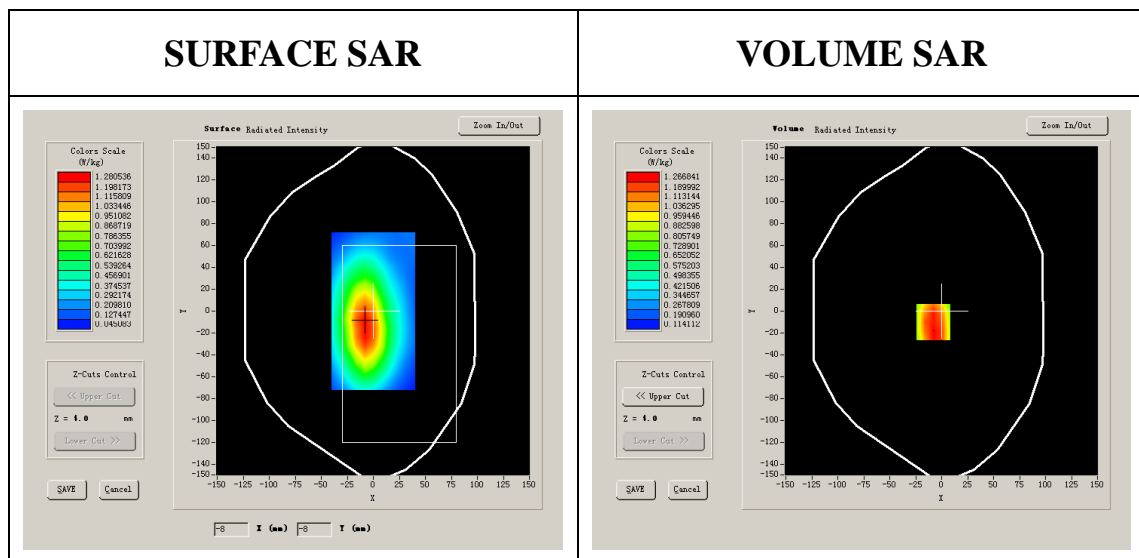
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 128):

Frequency (MHz)	824.200012
Relative permittivity (real part)	55.532477
Relative permittivity	19.677007

Conductivity (S/m)	0.970024
Variation (%)	-1.860000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



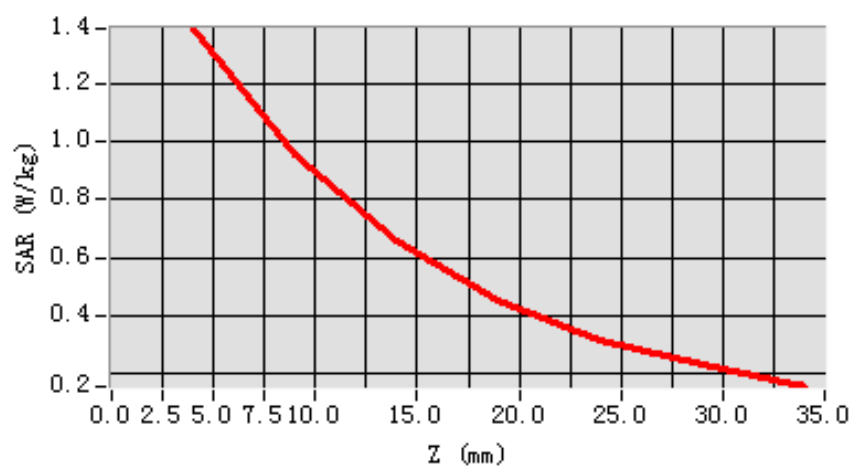
Maximum location: X=-8.00, Y=-10.00

SAR 10g (W/Kg)	0.575525
SAR 1g (W/Kg)	1.104622

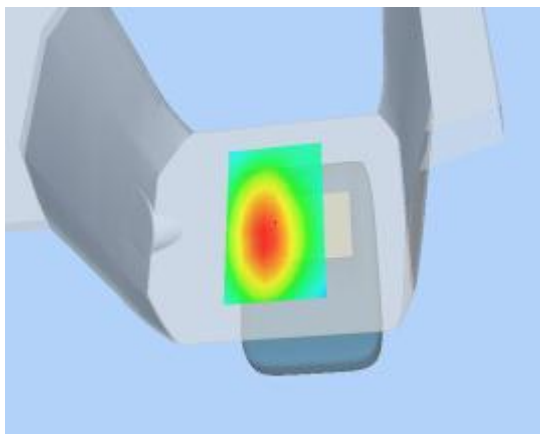
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.3916	0.9529	0.6613	0.4559	0.3141	0.2286

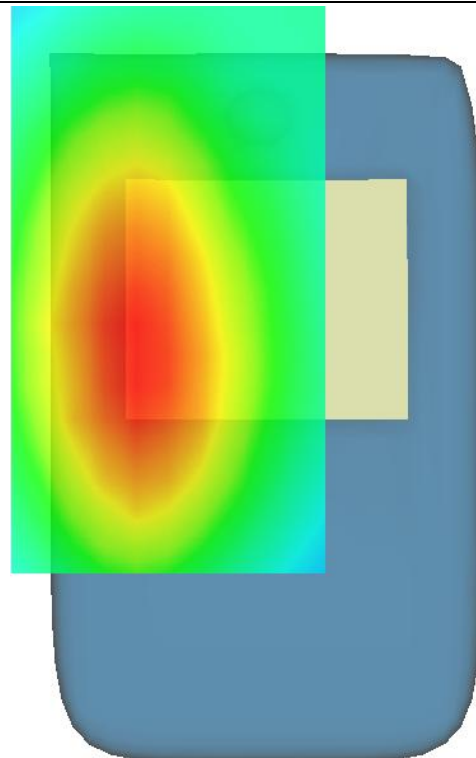
SAR, Z Axis Scan (X = -8, Y = -10)



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: 28/1/2011

Measurement duration: 9 minutes 10 seconds

A. Experimental conditions.

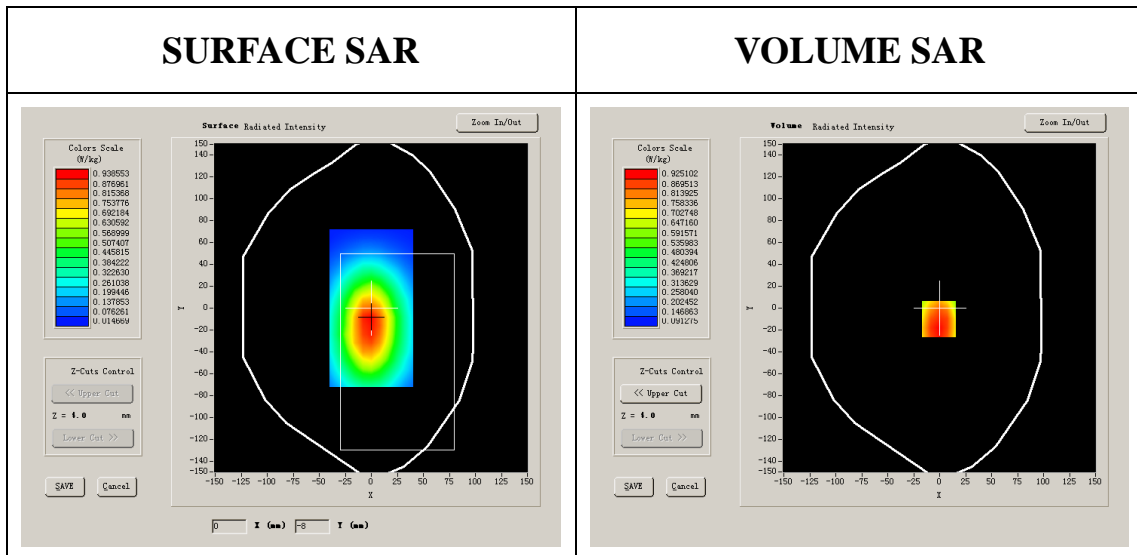
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.370024
Relative permittivity	14.877710

Conductivity (S/m)	0.981544
Variation (%)	3.810000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



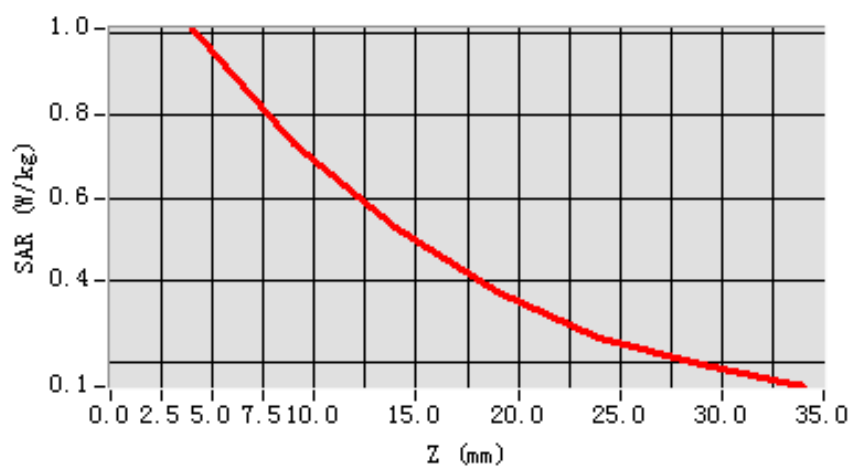
Maximum location: X=-1.00, Y=-10.00

SAR 10g (W/Kg)	0.512335
SAR 1g (W/Kg)	0.945663

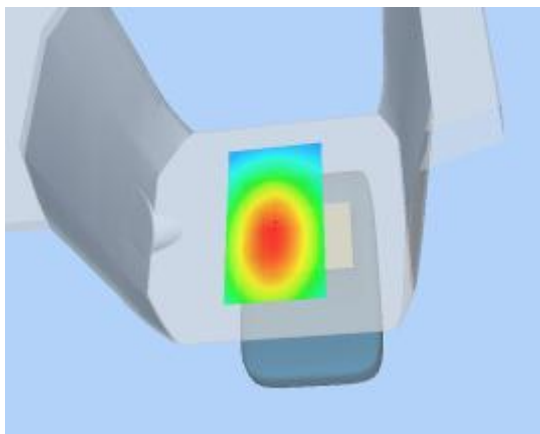
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.0104	0.7323	0.5306	0.3751	0.2624	0.1982

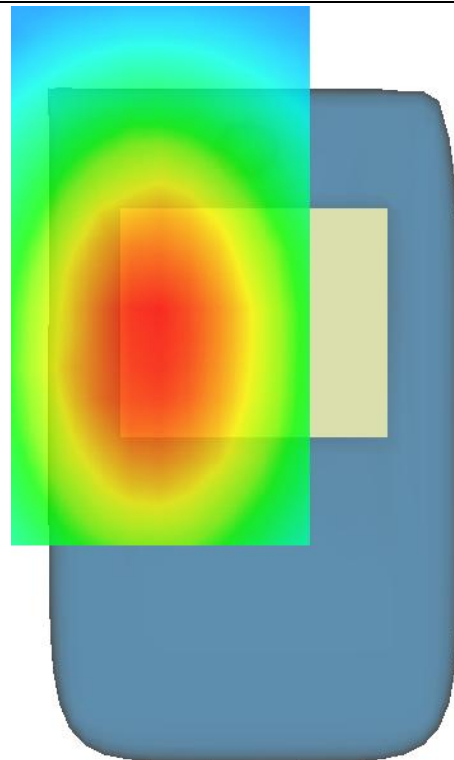
SAR, Z Axis Scan (X = -1, Y = -10)



3D scene shot



Hot spot position



MEASUREMENT 11

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 5 seconds

A. Experimental conditions.

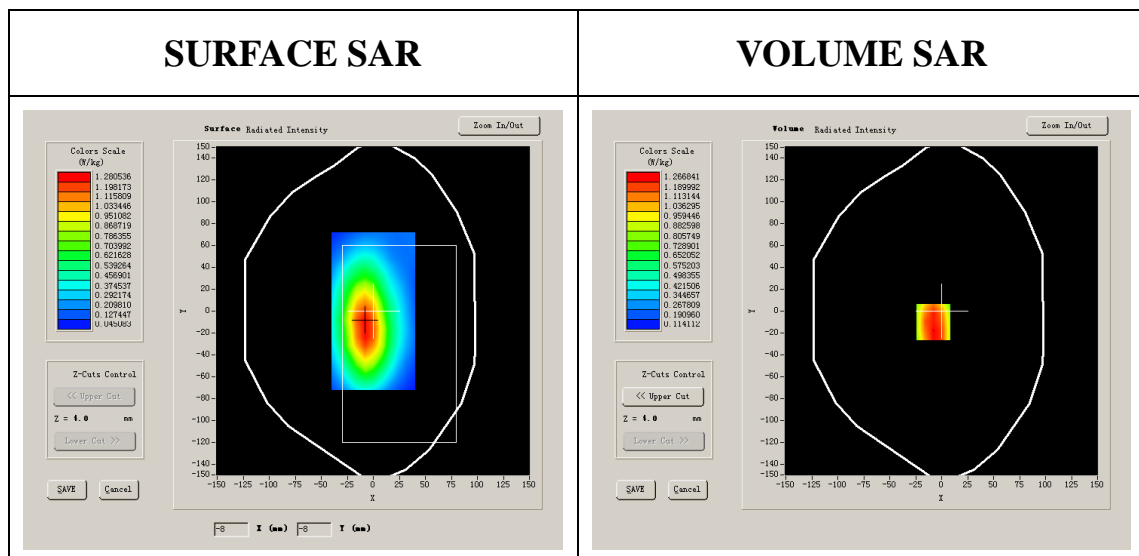
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	High
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 251):

Frequency (MHz)	848.799976
Relative permittivity (real part)	55.203410
Relative permittivity	20.311004

Conductivity (S/m)	0.986431
Variation (%)	-1.110000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



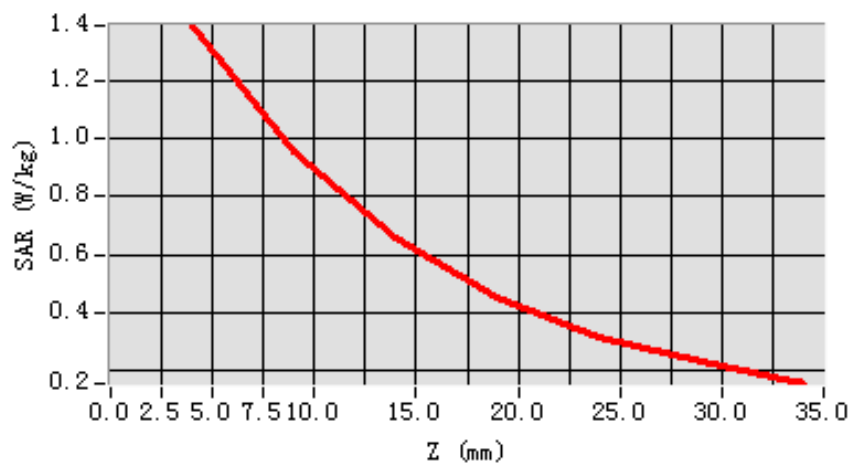
Maximum location: X=-8.00, Y=-10.00

SAR 10g (W/Kg)	0.591355
SAR 1g (W/Kg)	1.046226

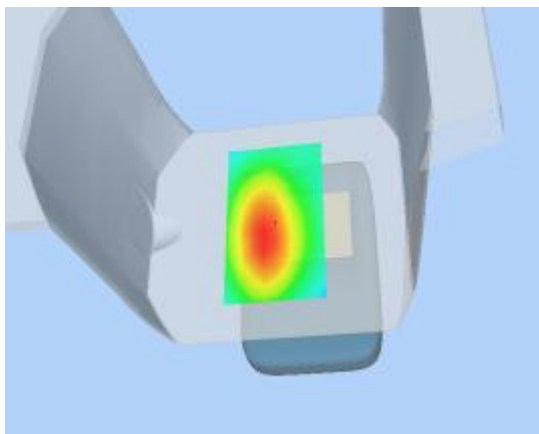
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.3916	0.9529	0.6613	0.4559	0.3141	0.2286

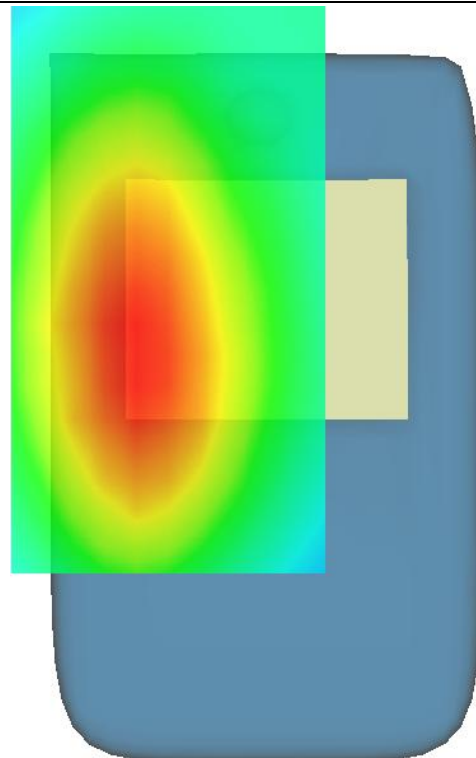
SAR, Z Axis Scan (X = -8, Y = -10)



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: 28/1/2011

Measurement duration: 9 minutes 4 seconds

A. Experimental conditions.

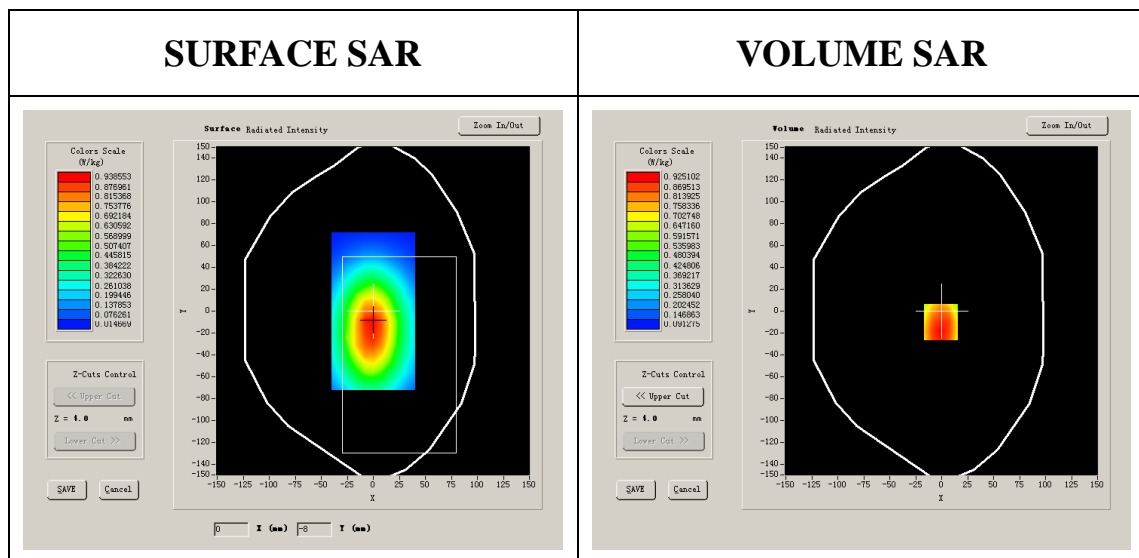
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Low
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	824.200012
Relative permittivity (real part)	55.532477
Relative permittivity	17.331007

Conductivity (S/m)	0.970024
Variation (%)	-2.010000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



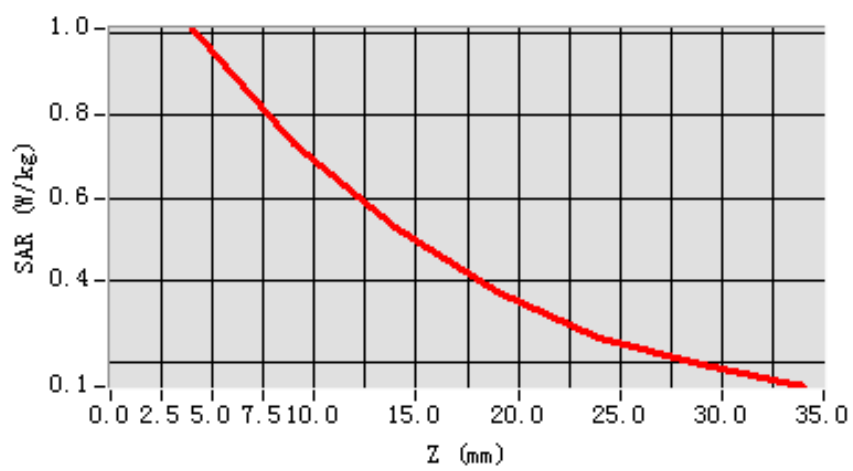
Maximum location: X=-1.00, Y=-10.00

SAR 10g (W/Kg)	0.723345
SAR 1g (W/Kg)	1.223253

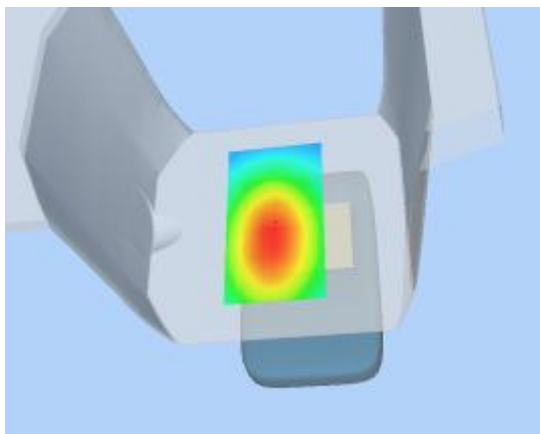
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.0104	0.7323	0.5306	0.3751	0.2624	0.1982

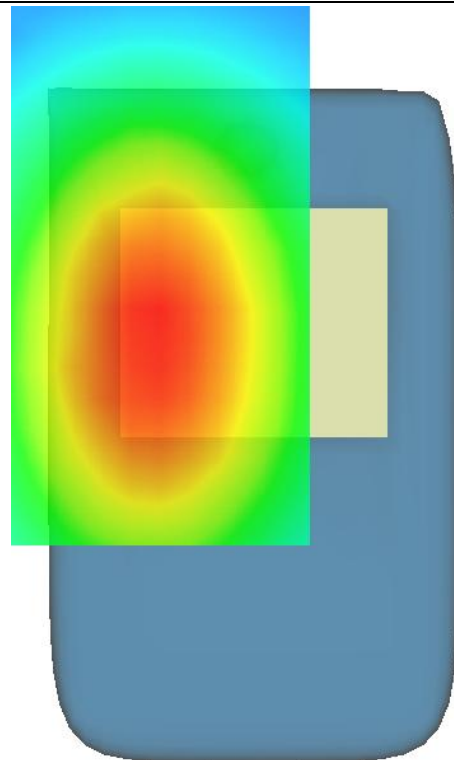
SAR, Z Axis Scan (X = -1, Y = -10)



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: 28/1/2011

Measurement duration: 9 minutes 13 seconds

A. Experimental conditions.

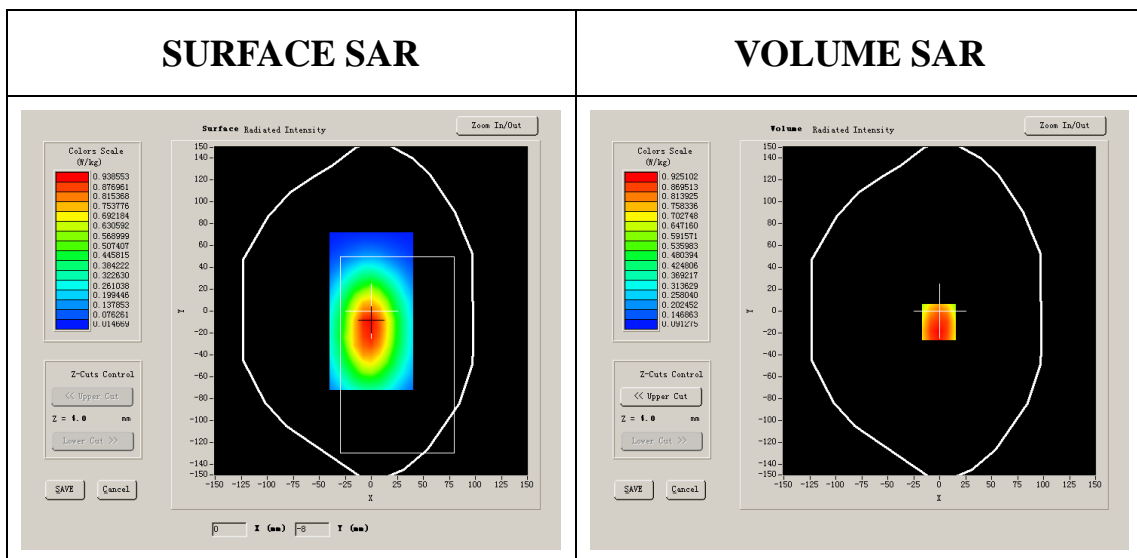
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 190):

Frequency (MHz)	836.599976
Relative permittivity (real part)	55.370024
Relative permittivity	16.709999

Conductivity (S/m)	0.981544
Variation (%)	-4.020000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1

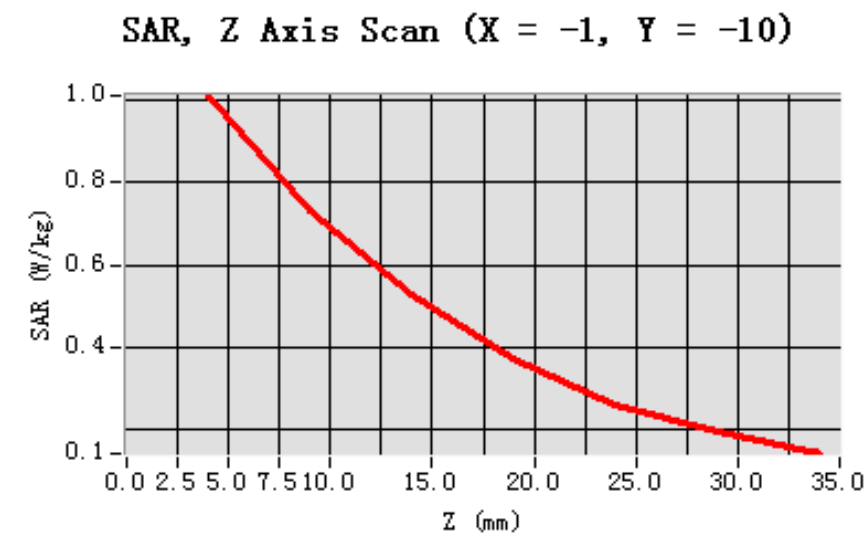


Maximum location: X=-1.00, Y=-10.00

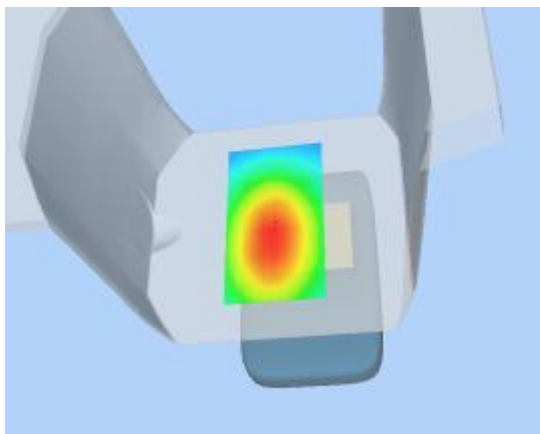
SAR 10g (W/Kg)	0.695689
SAR 1g (W/Kg)	1.003780

Z Axis Scan

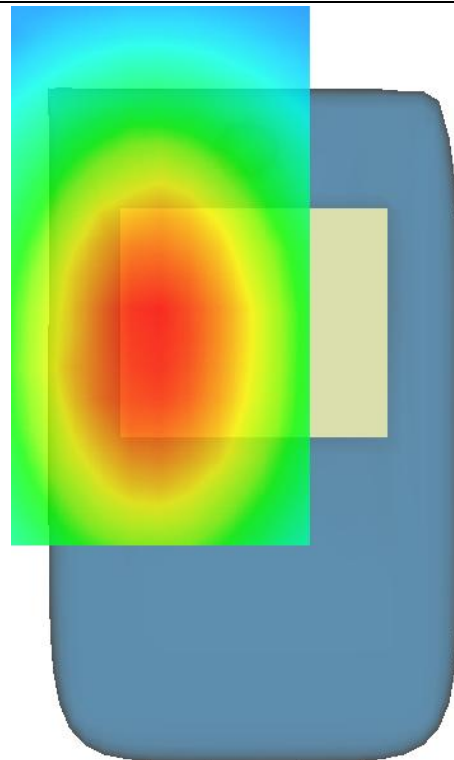
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.0104	0.7323	0.5306	0.3751	0.2624	0.1982



3D scene shot



Hot spot position



MEASUREMENT 14

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 11 seconds

A. Experimental conditions.

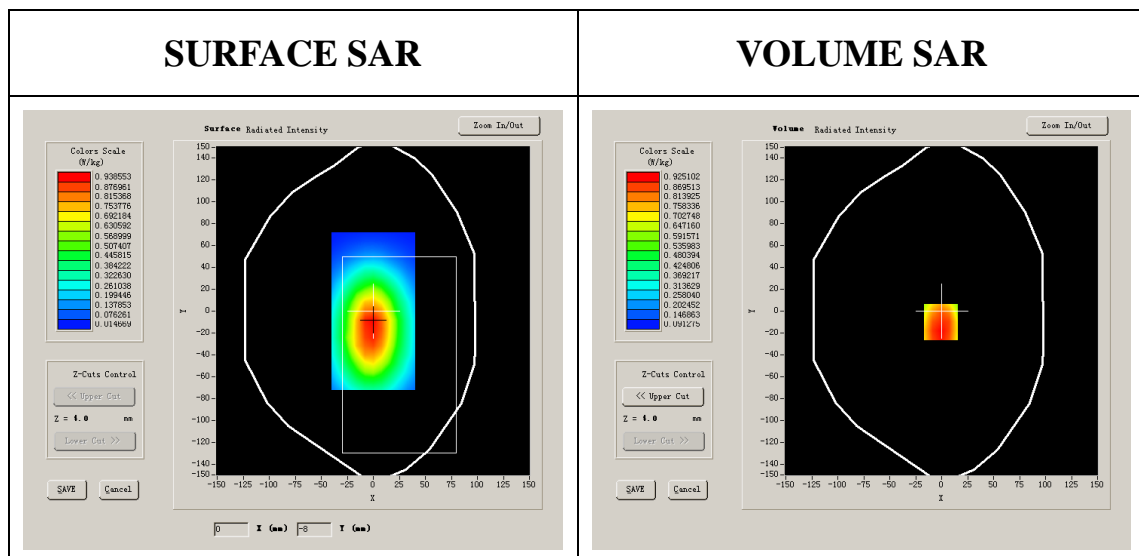
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	High
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 251):

Frequency (MHz)	848.799976
Relative permittivity (real part)	55.203410
Relative permittivity	19.220145

Conductivity (S/m)	0.986431
Variation (%)	-2.810000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.559,25.681,27.588
Crest factor:	1:1



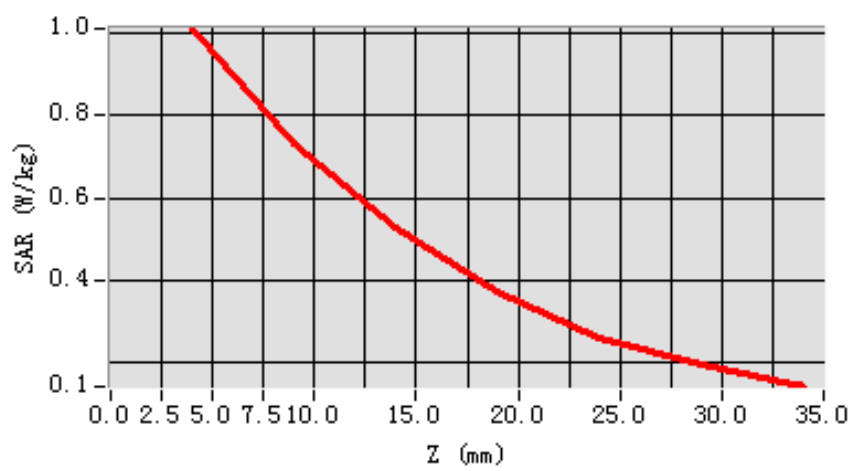
Maximum location: X=-1.00, Y=-10.00

SAR 10g (W/Kg)	0.713342
SAR 1g (W/Kg)	1.134444

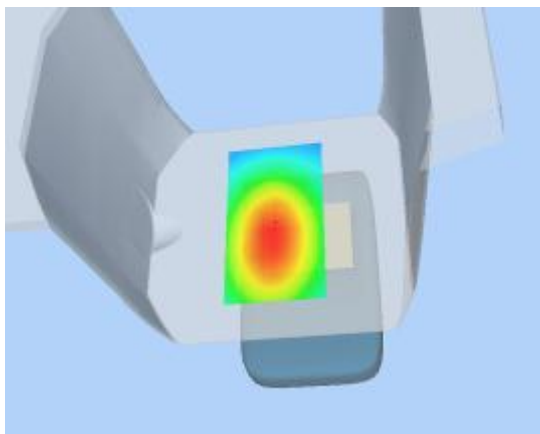
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.0104	0.7323	0.5306	0.3751	0.2624	0.1982

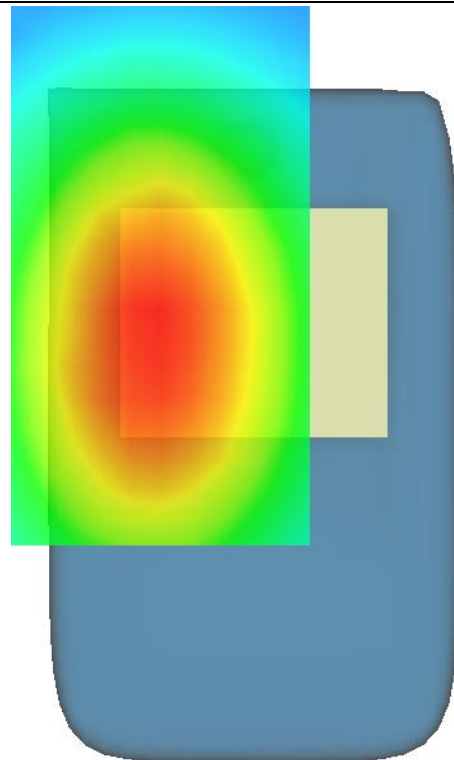
SAR, Z Axis Scan (X = -1, Y = -10)



3D scene shot



Hot spot position



MEASUREMENT 15

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 10 seconds

A. Experimental conditions.

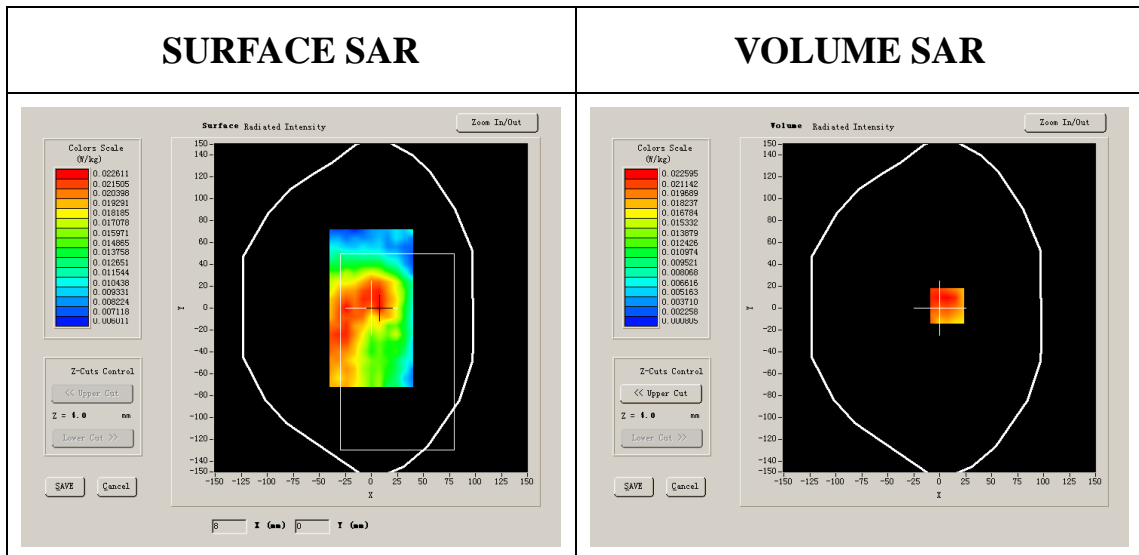
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.524410
Relative permittivity	15.001542

Conductivity (S/m)	1.535244
Variation (%)	-1.850000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

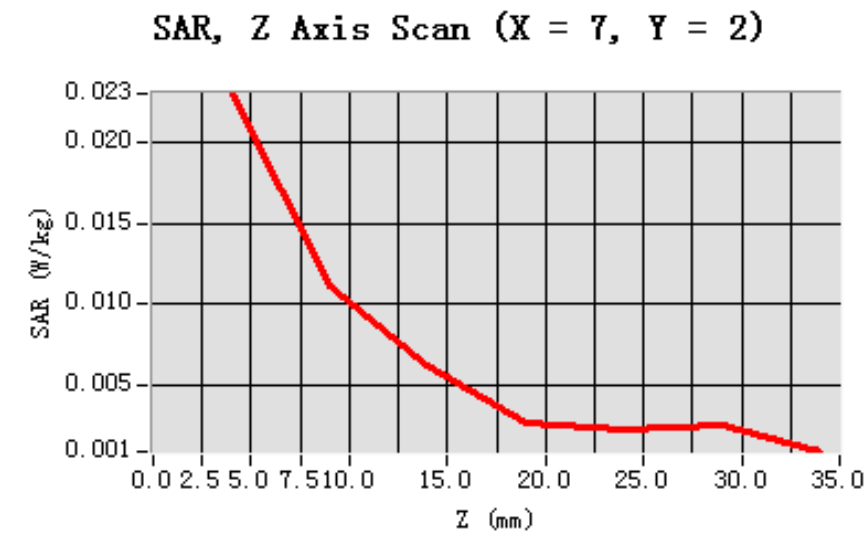


Maximum location: X=7.00, Y=2.00

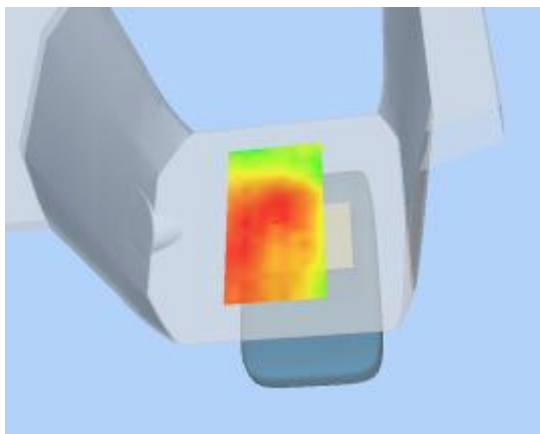
SAR 10g (W/Kg)	0.013465
SAR 1g (W/Kg)	0.023465

Z Axis Scan

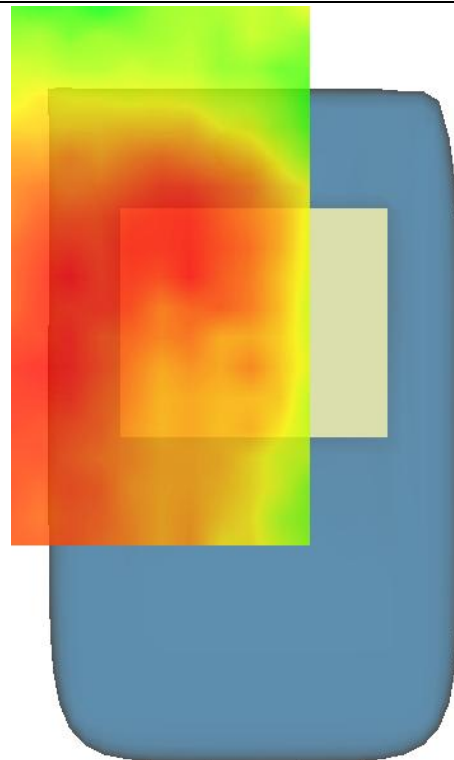
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0231	0.0111	0.0063	0.0026	0.0023	0.0025



3D scene shot



Hot spot position



MEASUREMENT 16

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 12 seconds

A. Experimental conditions.

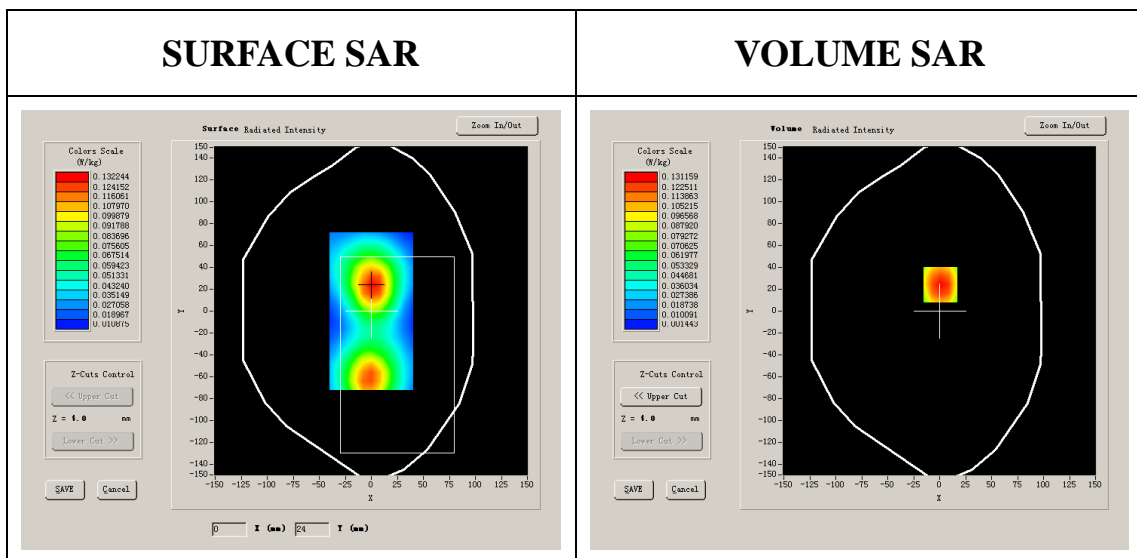
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.524410
Relative permittivity	17.521442

Conductivity (S/m)	1.535244
Variation (%)	-2.840000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



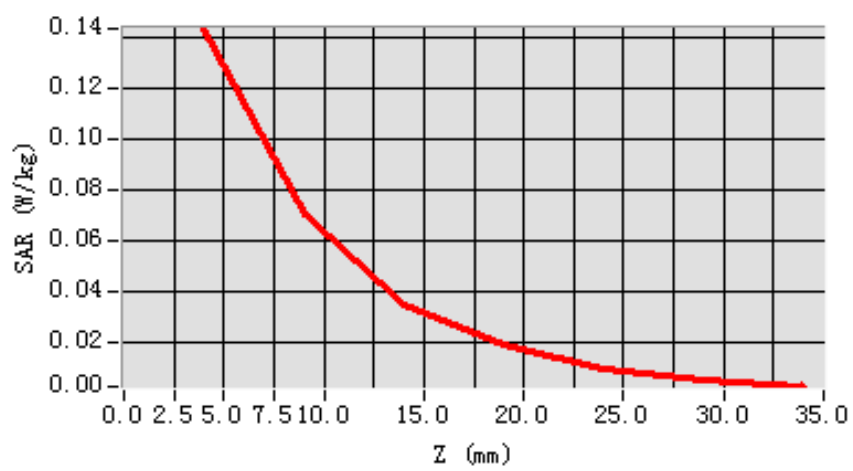
Maximum location: X=1.00, Y=24.00

SAR 10g (W/Kg)	0.074922
SAR 1g (W/Kg)	0.138698

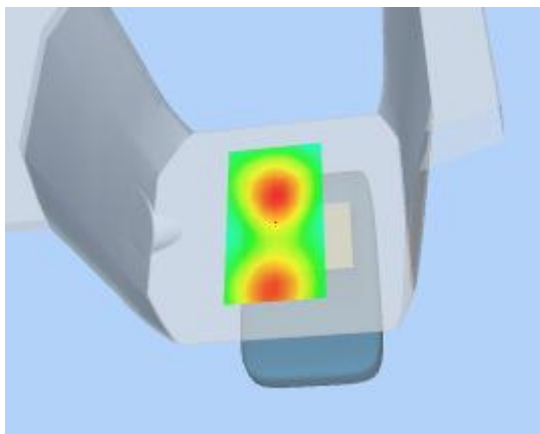
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1437	0.0706	0.0346	0.0188	0.0094	0.0053

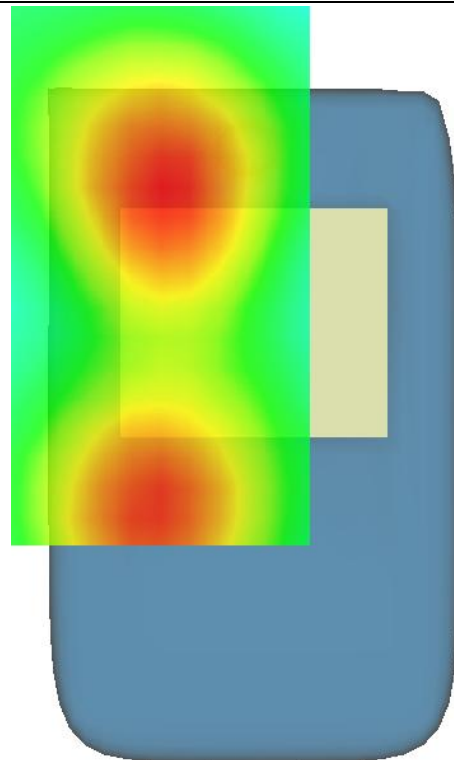
SAR, Z Axis Scan (X = 1, Y = 24)



3D scene 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: 28/1/2011

Measurement duration: 9 minutes 14 seconds

A. Experimental conditions.

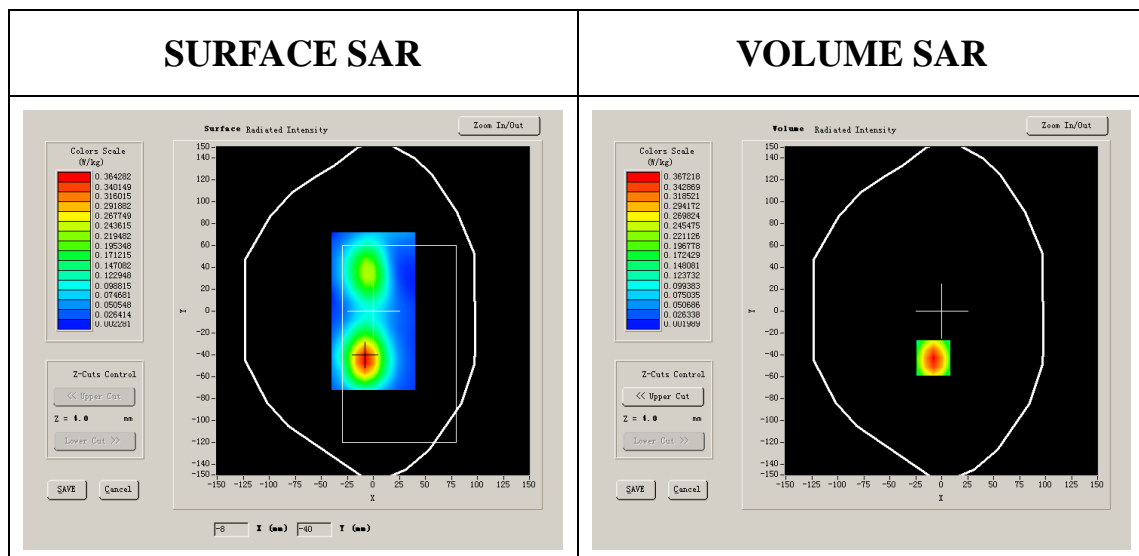
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 512):

Frequency (MHz)	1850.199951
Relative permittivity (real part)	53.720013
Relative permittivity	17.325502

Conductivity (S/m)	1.500244
Variation (%)	-3.250000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



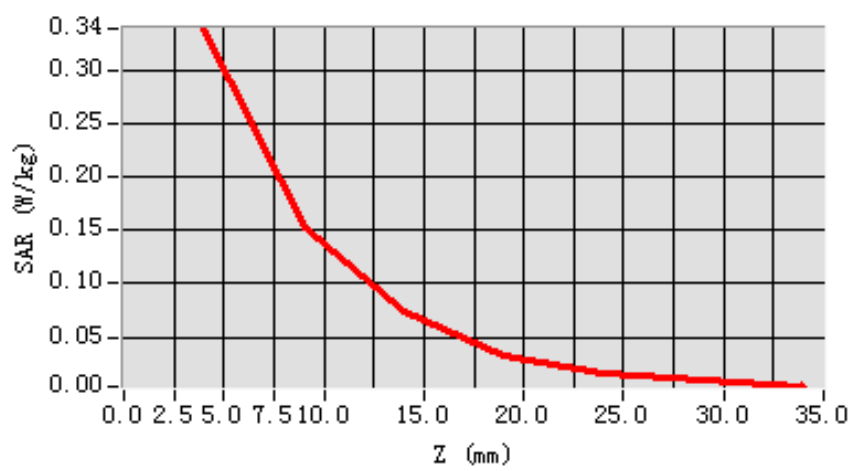
Maximum location: X=-8.00, Y=-43.00

SAR 10g (W/Kg)	0.162023
SAR 1g (W/Kg)	0.321764

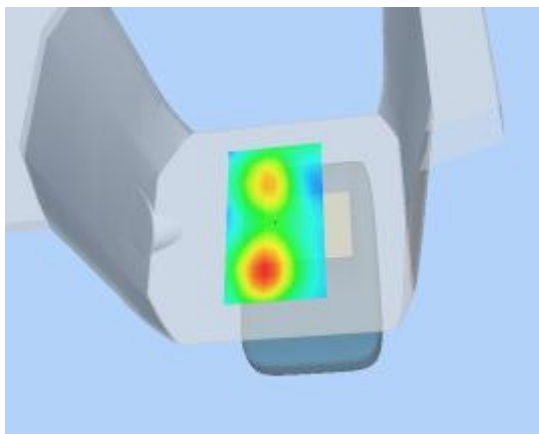
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.3392	0.1520	0.0736	0.0335	0.0170	0.0088

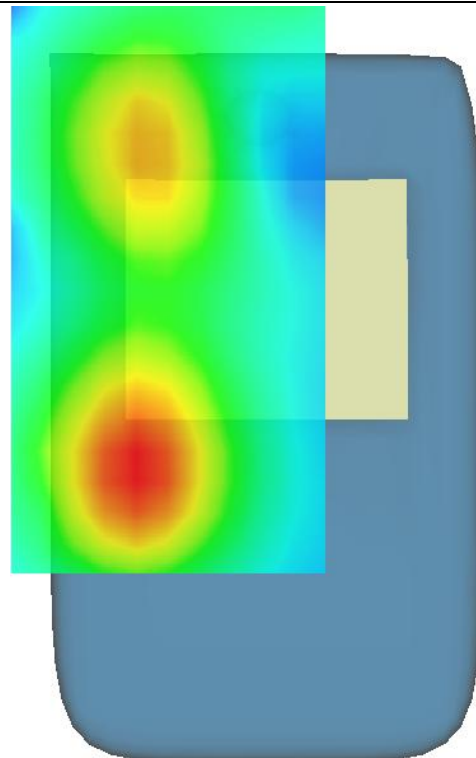
SAR, Z Axis Scan (X = -8, Y = -43)



3D scene shot



Hot spot position



MEASUREMENT 18

Type: Phone measurement (Complete)

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

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

Date of measurement: 28/1/2011

Measurement duration: 9 minutes 10 seconds

A. Experimental conditions.

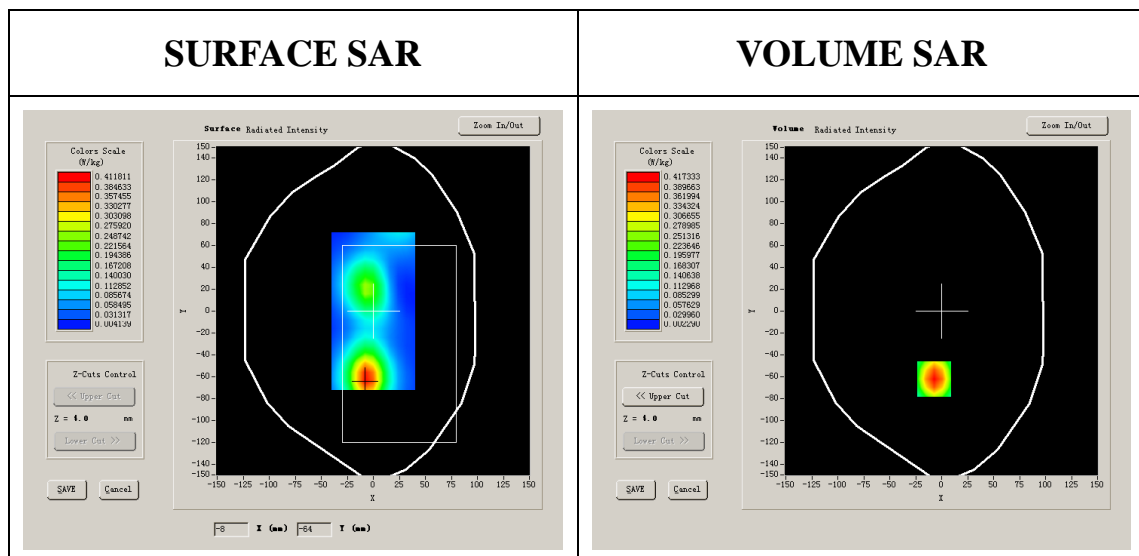
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.524410
Relative permittivity	14.322100

Conductivity (S/m)	1.535244
Variation (%)	-1.010000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



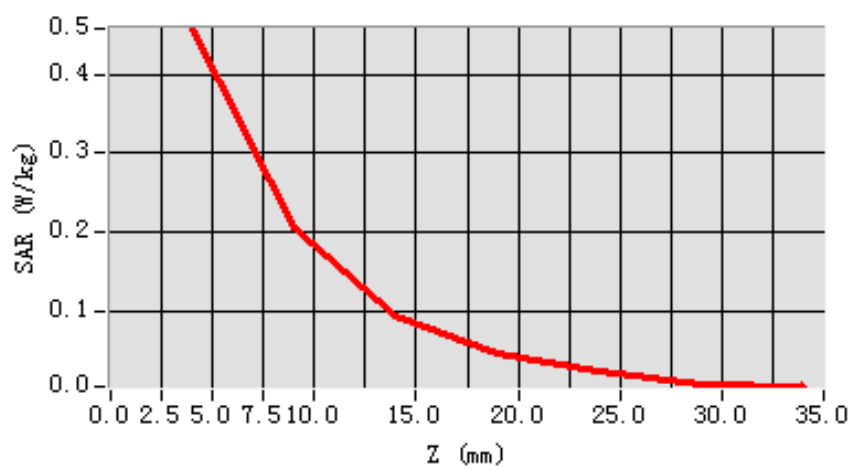
Maximum location: X=-7.00, Y=-62.00

SAR 10g (W/Kg)	0.217249
SAR 1g (W/Kg)	0.436155

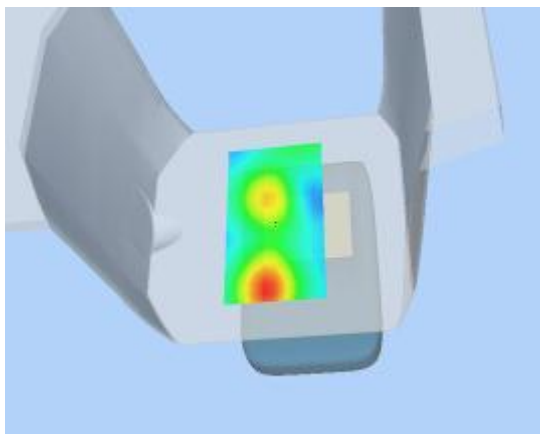
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4574	0.2074	0.0952	0.0460	0.0238	0.0089

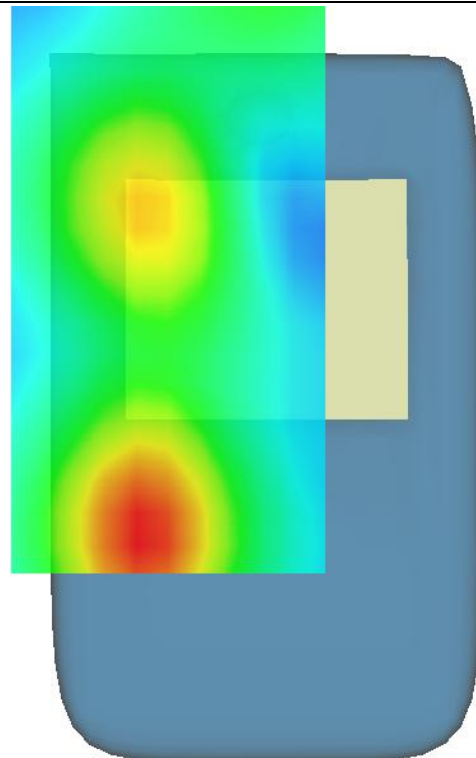
SAR, Z Axis Scan (X = -7, Y = -62)



3D scene 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: 28/1/2011

Measurement duration: 9 minutes 15 seconds

A. Experimental conditions.

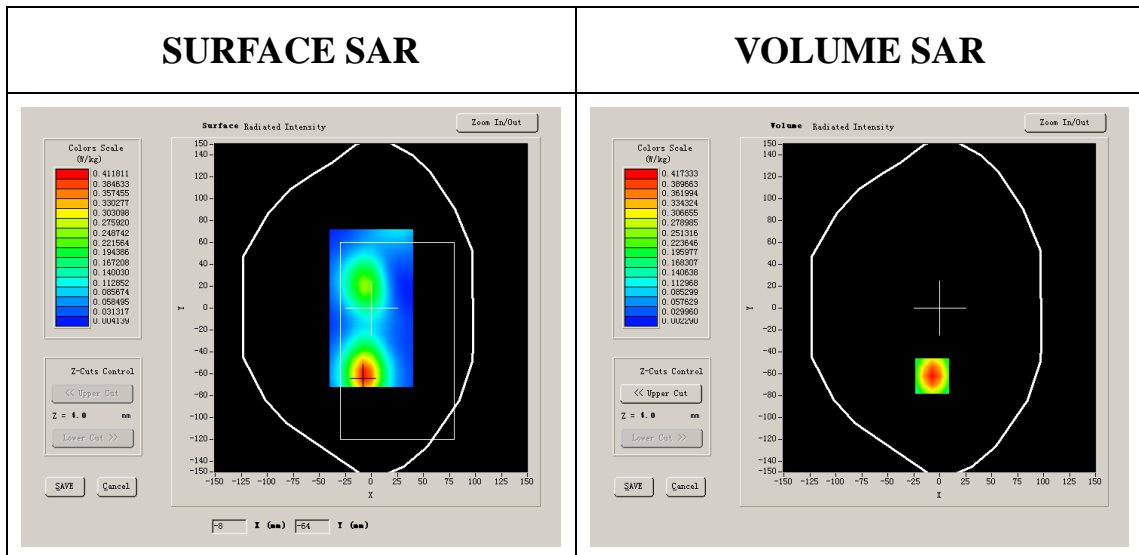
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	High
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 810):

Frequency (MHz)	1909.800049
Relative permittivity (real part)	53.225437
Relative permittivity	16.522201

Conductivity (S/m)	1.542001
Variation (%)	2.210000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



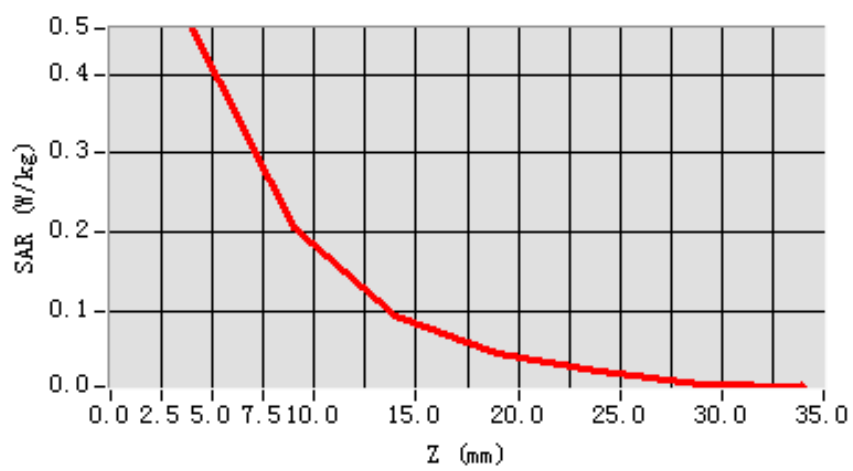
Maximum location: X=-7.00, Y=-62.00

SAR 10g (W/Kg)	0.263455
SAR 1g (W/Kg)	0.453433

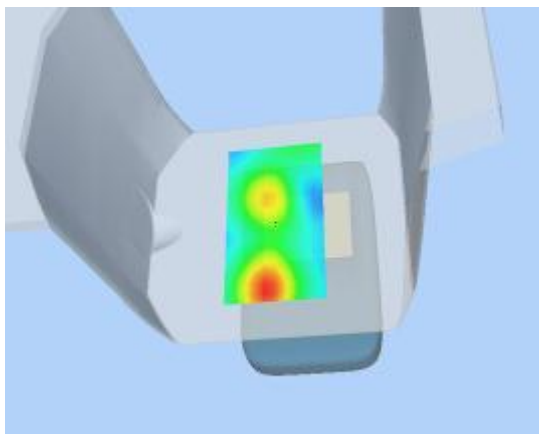
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4574	0.2074	0.0952	0.0460	0.0238	0.0089

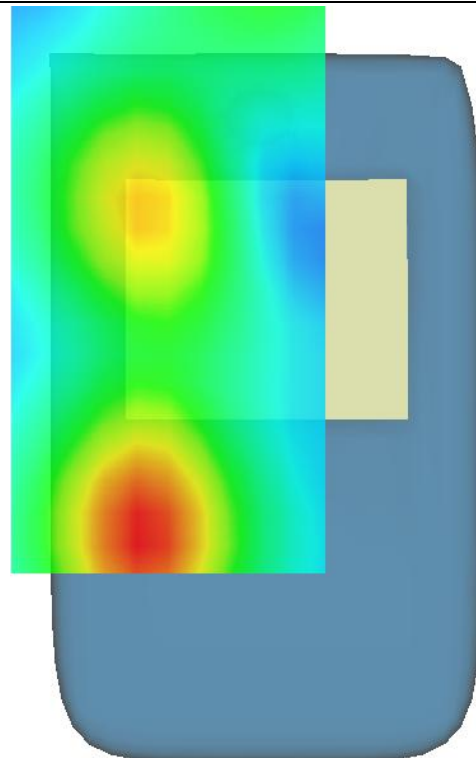
SAR, Z Axis Scan (X = -7, Y = -62)



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: 28/1/2011

Measurement duration: 9 minutes 10 seconds

A. Experimental conditions.

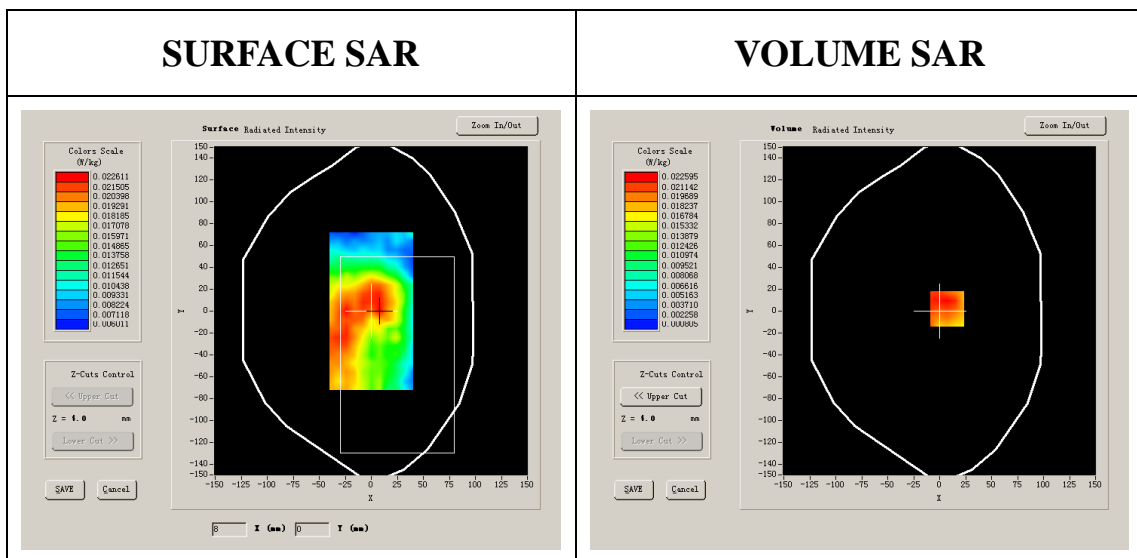
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.524410
Relative permittivity	17.001542

Conductivity (S/m)	1.535244
Variation (%)	-3.250000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1

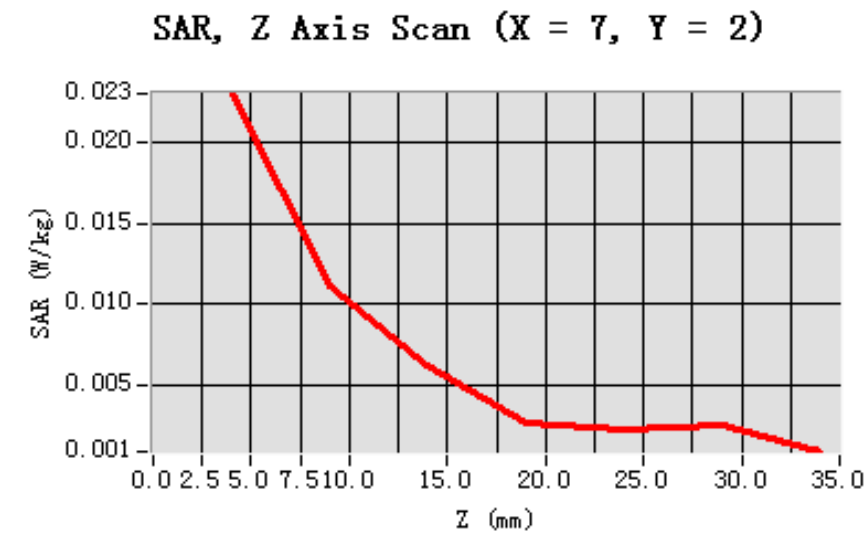


Maximum location: X=7.00, Y=2.00

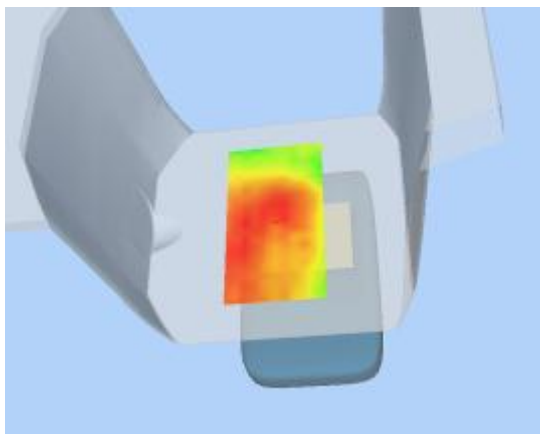
SAR 10g (W/Kg)	0.012153
SAR 1g (W/Kg)	0.022634

Z Axis Scan

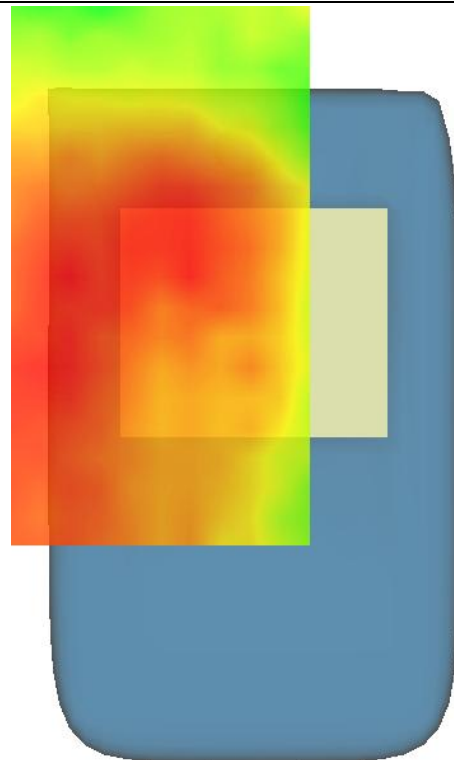
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0231	0.0111	0.0063	0.0026	0.0023	0.0025



3D scene 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: 28/1/2011

Measurement duration: 9 minutes 10 seconds

A. Experimental conditions.

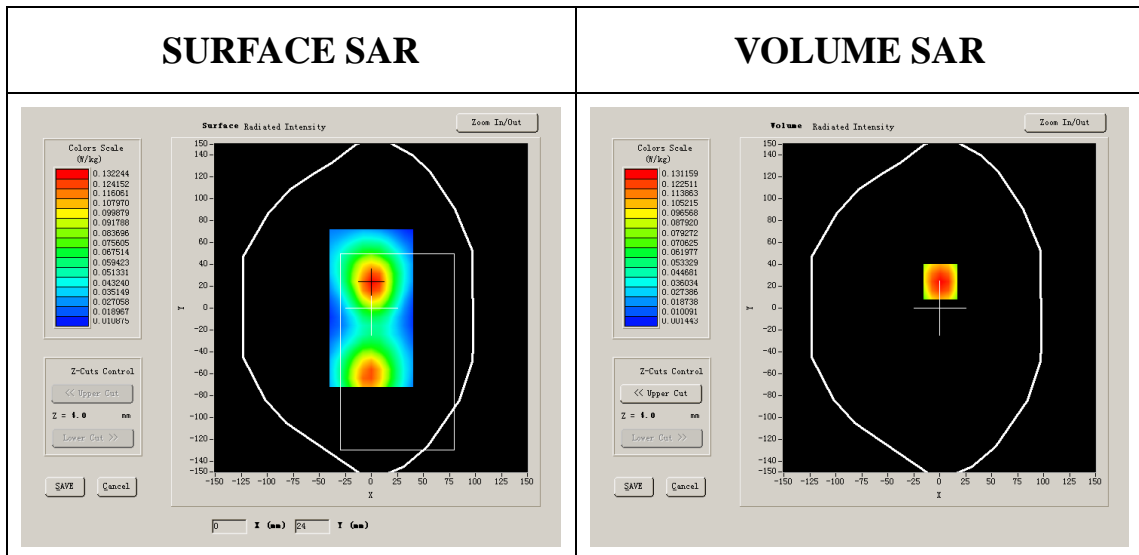
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.524410
Relative permittivity	20.325101

Conductivity (S/m)	1.535244
Variation (%)	-3.840000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



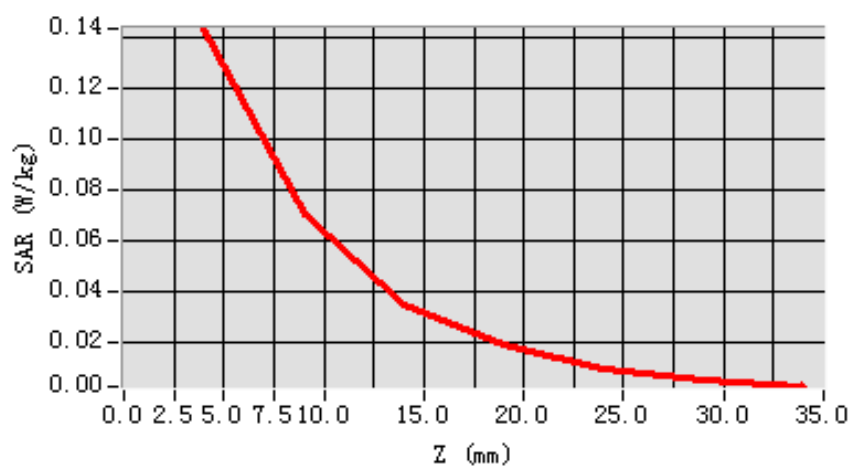
Maximum location: X=1.00, Y=24.00

SAR 10g (W/Kg)	0.072133
SAR 1g (W/Kg)	0.135235

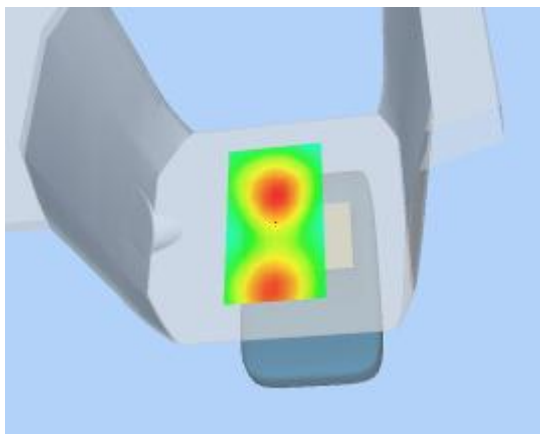
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.1437	0.0706	0.0346	0.0188	0.0094	0.0053

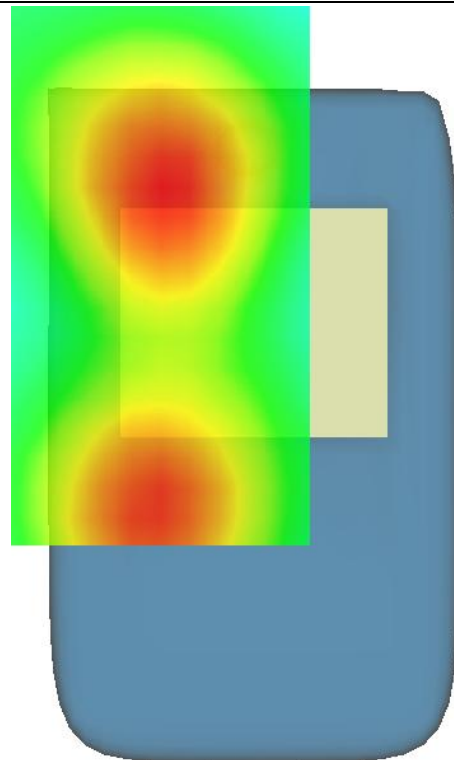
SAR, Z Axis Scan (X = 1, Y = 24)



3D scene 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: 28/1/2011

Measurement duration: 9 minutes 14 seconds

A. Experimental conditions.

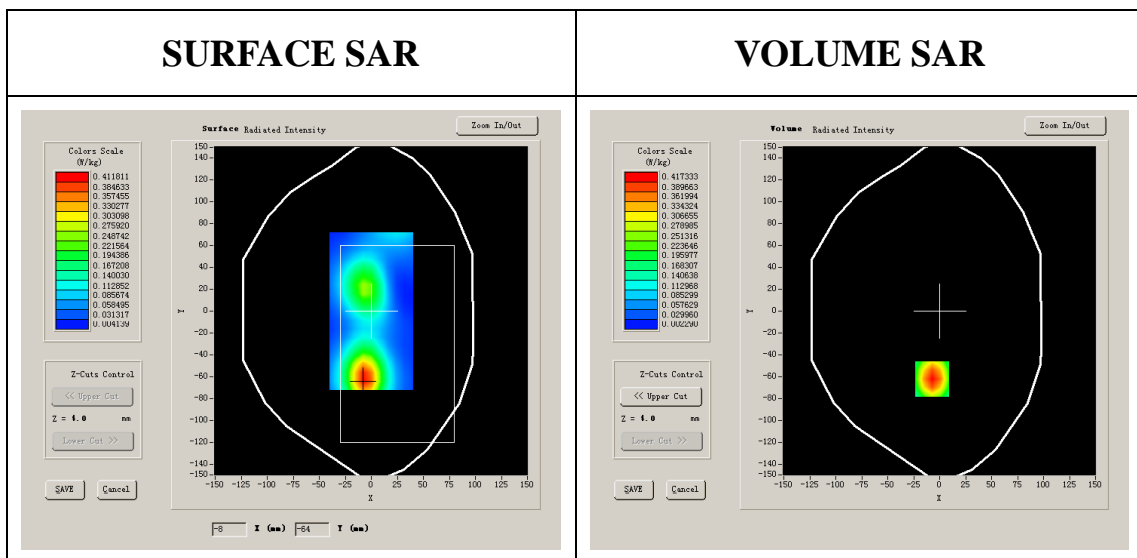
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	TDMA

B. SAR Measurement Results

Middle Band SAR (Channel 661):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.524410
Relative permittivity	15.875201

Conductivity (S/m)	1.535244
Variation (%)	-2.910000
Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	40.625,34.773,38.535
Crest factor:	1:1



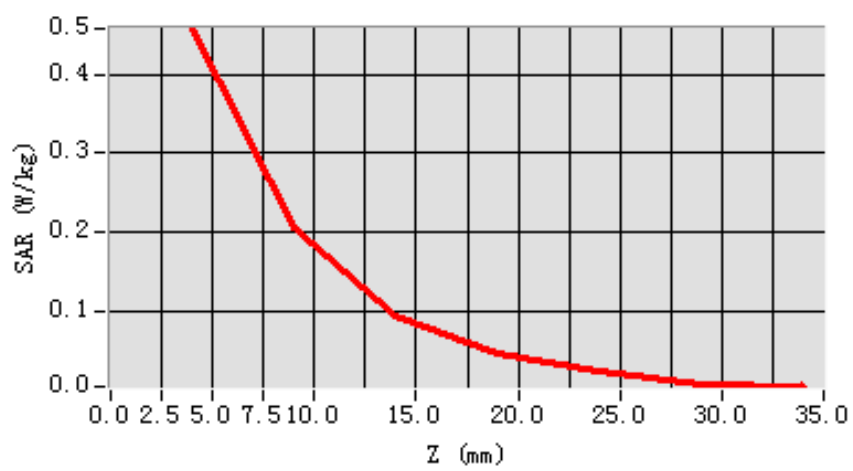
Maximum location: X=-7.00, Y=-62.00

SAR 10g (W/Kg)	0.209575
SAR 1g (W/Kg)	0.421544

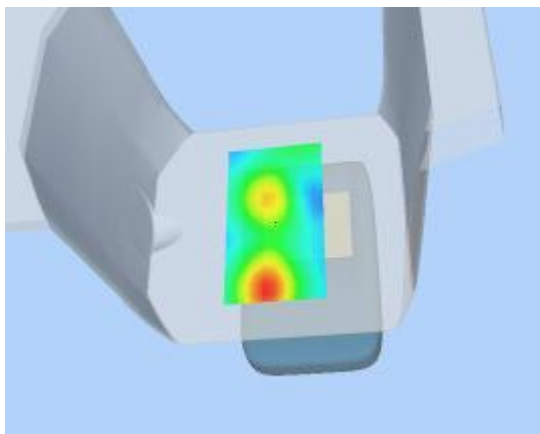
Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.4574	0.2074	0.0952	0.0460	0.0238	0.0089

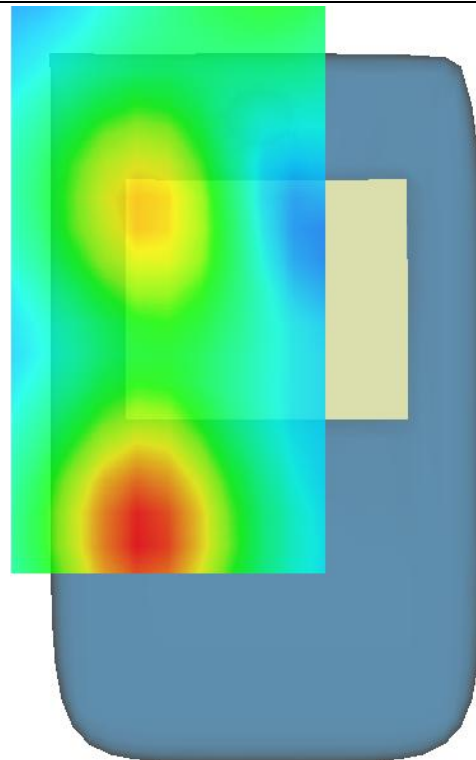
SAR, Z Axis Scan (X = -7, Y = -62)



3D scene 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: 28/1/2011

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

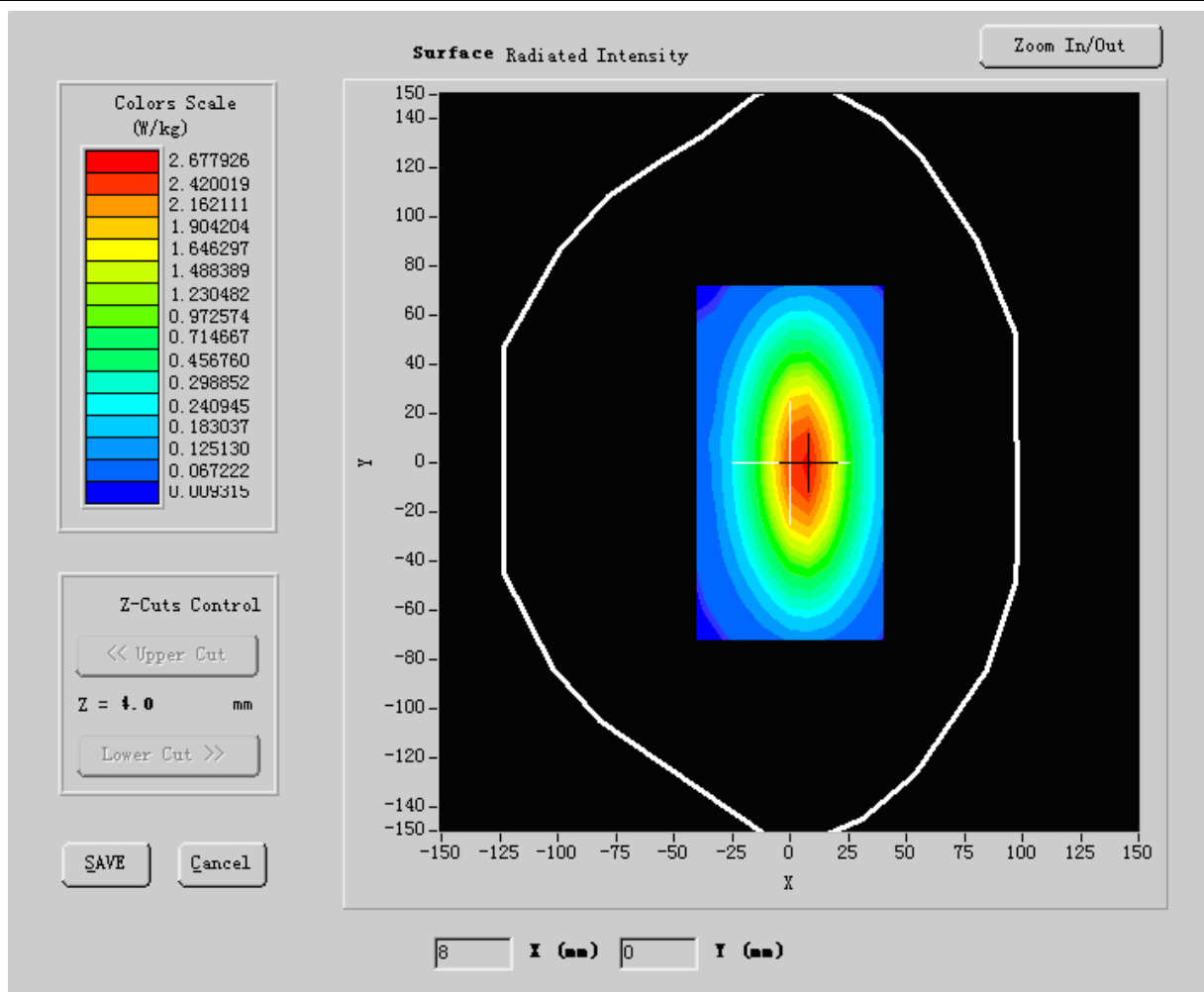
B. SAR Measurement Results

Band SAR

Frequency (MHz)	835.000000
Relative permittivity (real part)	41.984401
Relative permittivity	14.210000
Conductivity (S/m)	0.921154
Power Drift (%)	-2.100000

Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	28.479,25.214,27.196
Crest factor:	1:1

SURFACE SAR



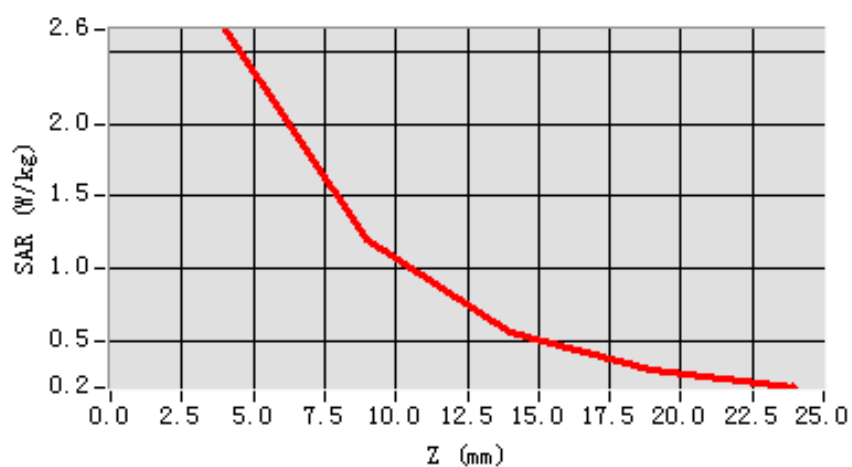
Maximum location: X=5.00, Y=1.00

SAR 10g (W/Kg)	1.272622
SAR 1g (W/Kg)	2.457733

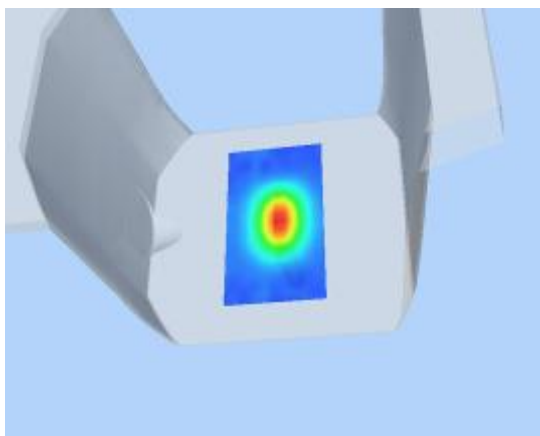
Z Axis Scan

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

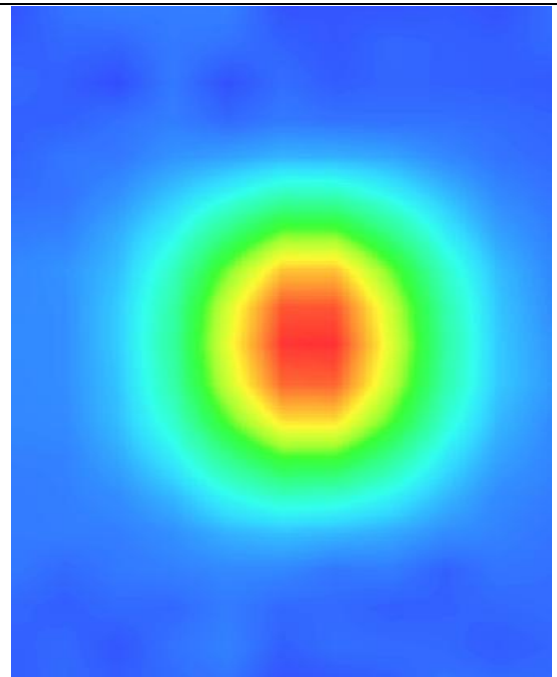
SAR, Z Axis Scan (X = 5, Y = 1)



3D scene 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: 28/1/2011

Measurement duration: 13 minutes 24 seconds

A. Experimental conditions.

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

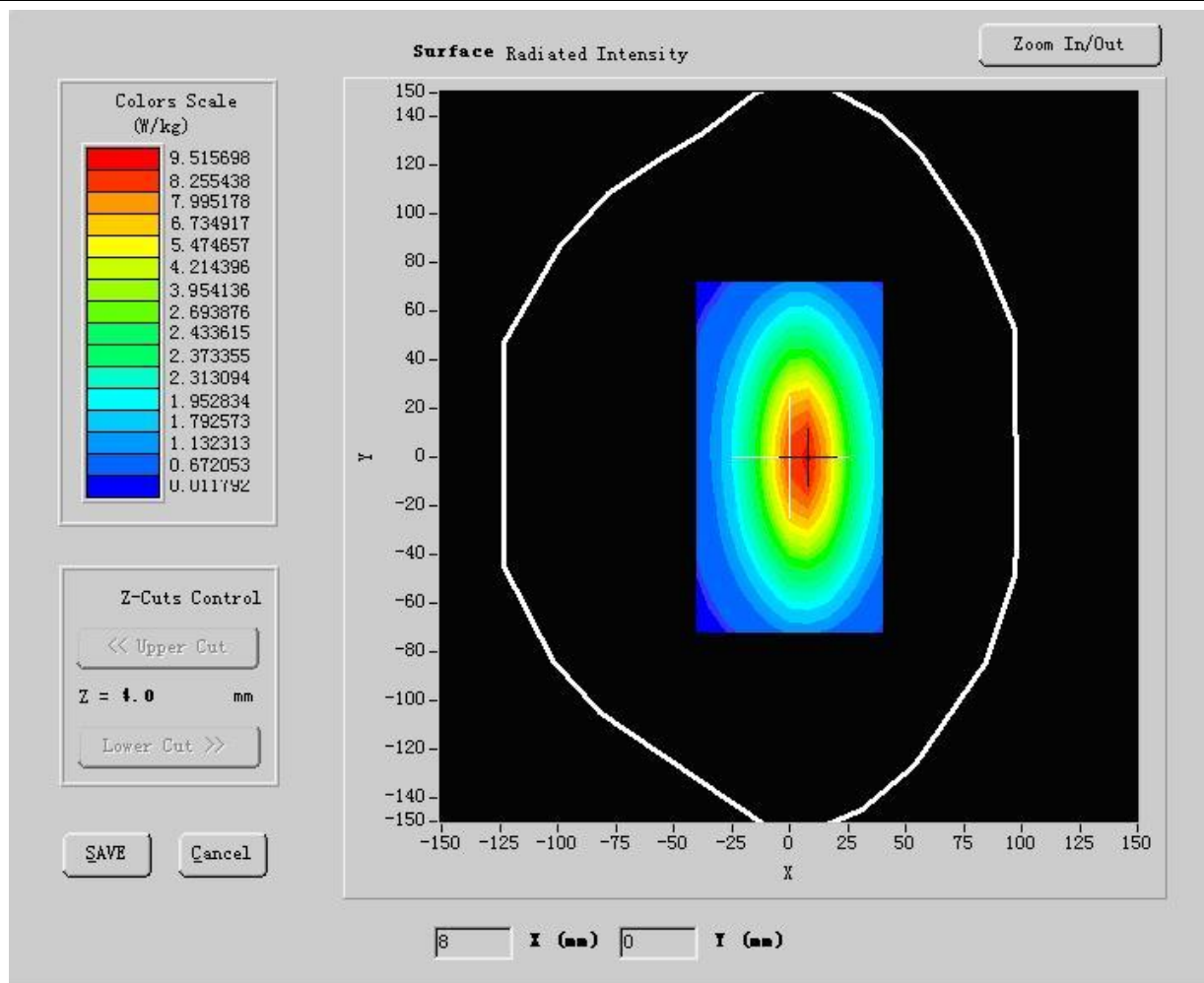
B. SAR Measurement Results

Band SAR

Frequency (MHz)	1900.000000
Relative permittivity (real part)	39.578840
Relative permittivity	16.380000
Conductivity (S/m)	1.382237
Power Drift (%)	-3.110000

Ambient Temperature:	22.4 °C
Liquid Temperature:	22.5 °C
ConvF:	40.136,34.843,38.721
Crest factor:	1:1

SURFACE SAR



Maximum location: X=5.00, Y=1.00

SAR 10g (W/Kg)	4.778344
SAR 1g (W/Kg)	9.593455

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	9.8536	5.3061	3.6041	1.3211

