



FCC SAR

TEST REPORT

of

Mobile Payment Terminal

Model Name: XD2500
Trade Name: EXADIGM
Report No.: SZ09040056S01
FCC ID: XDQ2500EXA

prepared for

Shenzhen Xinguodu Technology CO., LTD

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CTIA Authorized Test Lab

LAB CODE 20081223-00

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General Information

1.1. Notes

The test results of this test report relate exclusively to the information specified in section 3.3. Shenzhen Electronic Product Quality Testing Center 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 Electronic Product Quality Testing Center 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.:	SZ09040056S01
Date of Issue:	Jul 2, 2009
Date of Tests:	Jul 1, 2009 – Jul 1, 2009
Responsible for Accreditation:	Shu luan
Project Manager:	Chenchao
Deputy Project Manager:	Li Lei

1.3. Conclusion

Shenzhen Electronic Product Quality Testing Center Morlab Laboratory has verified that all tests as listed in the section 4.6 of this report haven been performed successfully with the tested equipment.

 Chenchao Tested by (Responsible for the Test Report)		 Li Lei Reviewed by (Verification of the Test Report)
 Shu luan Approved by (Responsible Test Lab Manager)		

2. Testing Laboratory

2.1. Identification of the Responsible Testing Laboratory

Company Name: Shenzhen Electronic Product Quality Testing Center
 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 Electronic Product Quality Testing Center 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 (see Annex A)

2.4. List of Test Equipments

No.	Instrument	Type
1	PC	Dell (Pentium IV 2.4GHz, SN:X10-23533)
2	Network Emulator	Rohde&Schwarz (CMU200, SN:105894)
3	Voltmeter	Keithley (2000, SN:1000572)
4	Synthesizer	Rohde&Schwarz (SML_03, SN:101868)
5	Amplifier	Nucl udes (ALB216, SN:10800)
6	Power Meter	Rohde&Schwarz (NRVD, SN:101066)
7	Probe	Antennessa (SN:SN_3708_EP80)
8	Phantom	Antennessa (SN:SN_36_08_SAM62)
9	Liquid	Antennessa (Last Calibration:21 08 04)

3. Technical Information

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

3.1. Identification of Applicant

Company Name: Shenzhen Xinguodu Technology CO., LTD
Address: 17A, Jinsong Bldg., Tairan Industry And Trading Area, Futian, Shenzhen, China
Contact Person: Yumei chen
Telephone: +86-755-86319909
Facsimile: +86-86319990
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3.2. Identification of Manufacturer

Company Name: Shenzhen Xinguodu Technology CO., LTD
Address: 17A, Jinsong Bldg., Tairan Industry And Trading Area, Futian, Shenzhen, China
Contact Person: Yumei chen
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Facsimile: +86-755-86319990
E-mail: chenymeis@xinguodu.com

3.3. Equipment Under Test (EUT)

Brand Name: EXADIGM
Type Name: EXADIGM
Marking Name: XD2500
Hardware Version: v3.1
Software Version: v1.17
Frequency Bands: CDMA 800MHz (channel 9:825.27MHz,channel 384:836.52MHz, channel 758:847.74MHz)
CDMA1900MHz (channel 25:1851.25MHz, channel 600:1880.00MHz, channel 1175:1908.75MHz)
Modulation Mode: CDMA
Antenna type: Build inside
Accessories: Charger; Battery
Battery Model: AE833436P4HR-2S
Battery specification: 1000mAh 3.7V

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	IMEI	Hardware Version	Software Version
1#	N.A	v3.1	v1.17
2#	N.A	v3.1	v1.17

4. Test Results

4.1. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR § 2. 1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
2	FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
3	ANSI C95.1-1999	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz
4	IEEE 1528-2003	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techuiques.

4.2. Test Environment/Conditions

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa
Details of Power Supply:	220V/50Hz AC
Extreme Temperature:	Low Temperature (LT) = -10°C
	High Temperature (HT) = 55°C
Extreme Voltage of the EUT:	Normal Voltage (NV) = 3.70V
	Low Voltage (LV) = 3.60V
	High Voltage (HV) = 4.20V
Test frequency:	CDMA 800MHz.
	CMDA 1900MHz.
Operation mode:	Call established
Power Level:	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 1013, 384 and 777 respectively in the case of CDMA 800MHz or to 25, 600 and 1175 respectively in the case of CDMA 1900 MHz, 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.

4.3. Operational Conditions During Test

4.3.1. Informations On The Testing

I. INFORMATIONS ON THE TESTING

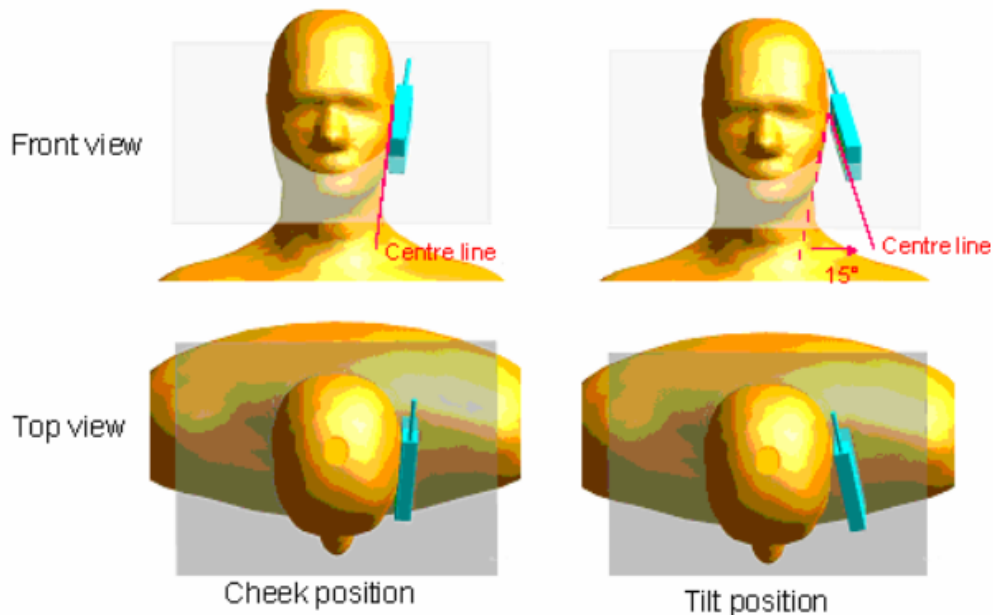
I.1. Normative reference

IEEE 1528: Recommended Practice for determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques. Institute of Electrical and Electronics Engineers, INC., 2003.

I.3. Positions and test conditions of the mobile phone under test

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 place 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.

4.3.2. 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.



COMOSAR bench

The mobile phone 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 10 g mass.

II.1. 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 2 mm +/- 0,2 mm. It enables the dosimetric evaluation of left and right hand 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.

II.2. Probe

For the measurements the Specific Dosimetric E-Field Probe SSE5 with following specifications is used.

- Dynamic range: 0.01-100 W/kg
- Tip Diameter : 5 mm

- Distance between probe tip and sensor center : 2.5 mm
- 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 : <0.50 dB
- Calibration range : 835 to 2500 MHz for head & body simulating liquid
- Angle between probe axis (evaluation axis) and surface normal line : less than 30°

II.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 16 mm * 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.

II.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 minimise 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 1 mm 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.

4.3.3. Uncertainty Assessment

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

The values are determined by Antenna.

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	7.0	N	1	1	1	7.00	7.00	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	$(1 C_p)^{1/2}$	$(1 C_p)^{1/2}$	1.02	1.02	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	$\sqrt{C_p}$	$\sqrt{C_p}$	1.63	1.63	∞
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	
Output power Variation - SAR drift measurement	6.6.2	4.76	R	$\sqrt{3}$	1	1	2.75	2.75	∞
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	0.57	R	$\sqrt{3}$	0.64	0.43	0.21	0.14	∞

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	3.66	R	$\sqrt{3}$	0.6	0.49	1.27	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				11.28	10.78	
Expanded Uncertainty (95% Confidence interval)			k				21.99	21.03	

4.3.4. Equipments and results of validation testing

Equipments :

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

Results:

Frequency	Target value (1g)	Test value (1g)
835MHz	10.8W/Kg	10.6 W/Kg (body)
1900MHz	39.7W/Kg	42.16 W/Kg (body)

Note:Please refer to check the system performance data, the first 130-144 page.

4.3.5. Dielectric Performance

The measured 1-gram averaged SAR values of the device against the head and the body are provided in Tables 1 and 2 respectively. The humidity and ambient temperature of test facility were 54% ~60% and 23.0 °C ~23.8°C respectively. The SAM head phantom (SN 0381 SH) were full of the head tissue simulating liquid. 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). A base station simulator was used to control the device during the SAR measurement. The phone was supplied with full-charged battery for each measurement.

For head measurement, the device was tested at the lowest, middle and highest frequencies in the transmit band.

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

Table 2: Dielectric Performance of Body Tissue Simulating Liquid

Temperature: 23.0~23.8°C, humidity: 54~60%.			
/	Frequency	Permittivity ϵ	Conductivity σ (S/m)
Target value	835 MHz	55.0	1.05
Validation value (Jul 1)	835 MHz	51.254412	0.9552364
Target value	1900 MHz	53.3	1.52
Validation value (Jul 1)	1900 MHz	52.548876	1.395712

4.3.6. Simulant liquids

Simulant liquids that are used for testing at frequencies of CDMA 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 20litres for a horizontal bath phantom.

Ingredients (% by weight)	Frequency Band		Frequency Band	
	835MHz		1900MHz	
Tissue Type	Head	Body	Head	Body
Water	41.45	52.4	55.36	40.4
Salt(NaCl)	1.45	1.4	0.35	0.5
Sugar	56.0	45.0	30.45	58.0
HEC	1.0	1.0	0.0	1.0
Bactericide	0.1	0.1	0.0	0.1
Triton	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	13.84	0.0
Acticide SPX	0.0	0.0	0.0	0.0
Dielectric Constant	42.45	56.1	41.00	54.0
Conductivity (S/m)	0.91	0.95	0.38	1.45

4.4. MEASUREMENT PROCEDURES

4.4.1. 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.

4.4.2 SAR Measurement Conditions for CDMA2000 1x

These procedures were followed according to FCC "SAR Measurement Procedures for 3G Devices", June 2006.

4.4.2.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by "SAR Measurement Procedures for 3G Devices", June 2006.

Maximum output power is verified on the High, Middle and Low channels according to procedures

defined in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. SO55 tests were measured with power control bits in “All Up” condition.

1. If the mobile station supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1 (Table.A) parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH0 and demodulation of RC 3, 4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2(Table.B) was applied.
5. FCHs were configured at full rate for maximum SAR with “All Up” power control bits.

Table.A Table.B

Parameters for Max. Power for RC1		
Parameter	Units	Value
I_{or}	dBm/1.23 MHz	-104
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	dB	-7.4

Table.A

Parameters for Max. Power for RC3		
Parameter	Units	Value
I_{or}	dBm/1.23 MHz	-86
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	dB	-7.4

Table.B

4.4.2.2 Head SAR Measurement

SAR for head exposure configurations is measured in RC3 with the DUT configured to transmit at fullrate using Loopback Service Option SO55. SAR for RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1 using the exposure configuration that results in the highest SAR for that channel in RC3.

4.4.2.3 Body SAR Measurement

SAR for body exposure configurations is measured in RC3 with the DUT configured to transmit at full rate on FCH with all other code channels disabled using TDSO / SO32. SAR for multiple code channels (FCH + SCHn) is not required when the maximum average output of each RF channel is less than ¼ dB higher than that measured with FCH only. Otherwise, SAR is measured on the maximum output channel (FCH + SCHn) with FCH at full rate and SCH0 enabled at 9600 bps using the exposure configuration that results in the highest SAR for that channel with FCH only. When multiple code channels are enabled, the DUT output may shift by more than 0.5 dB and lead to higher SAR drifts and SCH dropouts. Body SAR in RC1 is not required when the maximum average output of each channel is less than ¼dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1; with Loopback Service Option SO55, at full rate, using the body exposure configuration that results in the highest SAR for that channel in RC3 .

Band	Channel	SO2(dBm)	SO2(dBm)	SO55(dBm)	SO55(dBm)	TDSO SO32(dBm)
		RC1/1	RC3/3	RC1/1	RC3/3	RC3/3
Cellular	9	24.07	24.59	24.44	25.82	24.19
	384	25.39	25.71	25.67	26.83	25.45
	758	24.70	24.83	24.31	25.05	24.67

Band	Channel	SO2(dBm)	SO2(dBm)	SO55(dBm)	SO55(dBm)	TDSO SO32(dBm)
		RC1/1	RC3/3	RC1/1	RC3/3	RC3/3
PCS	25	23.53	23.62	23.70	23.61	24.39
	600	22.34	22.27	22.35	22.25	24.73
	1175	22.37	22.41	22.36	22.37	23.83

4.5. Items used in the Test Results List

Terms in the column “Verdict” for the test results list of the section 4.6:

Verdict	Description
PASS	EUT passed this test case
FAIL	EUT failed this test case
INC.	EUT did not pass and did not fail this test case, therefore the verdict is inconclusive
Decl.	“Declaration”: Morlab has received documents from the applicant and/or manufacturer which show conformity to the applied standards for this test case.
N/A	Test case not applicable for the EUT, see the column “Note” for detailed

4.6. Test Results List

SAR Values (CDMA 800MHz Band), 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)	Power level (dBm)
Side, Low frequency	0.228	25.82
Side, Middle frequency	0.199	26.83
Side, High frequency	0.173	25.05
Side, Middle frequency (back)	0.138	25.82

SAR Values (PCS 1900MHz Band), 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)	Power level (dBm)
Side, Low frequency	0.184	24.39
Side, Middle frequency	0.164	24.73
Side, High frequency	0.136	23.83
Side, Middle frequency (back)	0.110	24.39

Note 1: 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)

Note 2: The test configuration is SO55, RC3

Note 3: The body SAE was test for the worse case (PCS Band), the Cellular band is more smaller than PCS band, as it is check by pre-test.

Annex A Accreditation Certificate

 
China National Accreditation Service for Conformity Assessment
LABORATORY ACCREDITATION CERTIFICATE
(No. CNAS L1659)
<i>China National Accreditation Service for Conformity Assessment has accredited</i>
Shenzhen Electronic Product Quality Testing Center
(CQCS Testing Co. Ltd.)
<u>Electronic Testing Building Wenguang Road, Shahe West, Xili Town, Nanshan</u>
<u>District, Shenzhen, Guangdong, China</u>
<i>to ISO/IEC 17025:1999 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing and calibration.</i>
<i>The scope of accreditation is detailed in the attached schedule bearing the same accreditation number as above. The schedule forms an integral part of this certificate.</i>
Date of Issue: 2007-01-17
Date of Expiry: 2009-10-08
Date of Initial Accreditation: 1999-08-03

Signed on behalf of China National Accreditation Service for Conformity Assessment
<small>China National Accreditation Service for Conformity Assessment(CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation systems for conformity assessment. CNAS is the signatory to International Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (ILAC MRA), and the signatory to Asia Pacific Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (AFLAC MRA).</small>

Annex B Photographs of the EUT

1 spacer 1.5cm



2 Side Position



Annex C Graph Test Results

<u>TYPE</u>	<u>BAND</u>	<u>PARAMETERS</u>
	--	--
	--	--
<u>Noise</u>	<u>CDMA85</u> <u>0</u>	<u>Measurement 1:</u> Validation Plane with Body device position on Low Channel in TDMA mode <u>Measurement 2:</u> Validation Plane with Body device position on Middle Channel in TDMA mode <u>Measurement 3:</u> Validation Plane with Body device position on High Channel in TDMA mode <u>Measurement 4:</u> Validation Plane with Body device position on Low Channel in TDMA mode (back)
	<u>CDMA19</u> <u>00</u>	<u>Measurement 5:</u> Validation Plane with Body device position on Low Channel in TDMA mode <u>Measurement 6:</u> Validation Plane with Body device position on Middle Channel in TDMA mode <u>Measurement 7:</u> Validation Plane with Body device position on High Channel in TDMA mode <u>Measurement 8:</u> Validation Plane with Body device position on Low Channel in TDMA mode (back)

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: 1/7/2009

Measurement duration: 9 minutes 46 seconds

A. Experimental conditions.

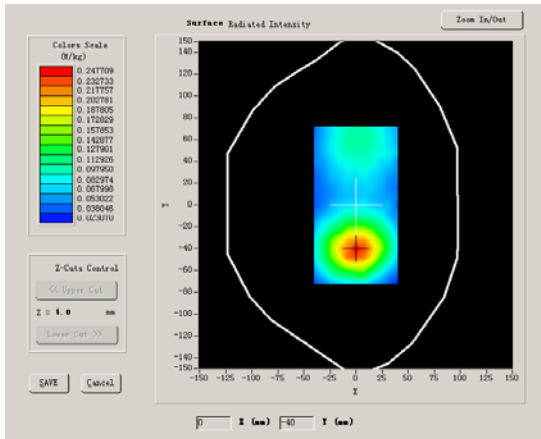
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	CDMA850
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 1013):

Frequency (MHz)	824.700012
Relative permittivity (real part)	41.790001
Relative permittivity	18.926250

Conductivity (S/m)	0.867138
Variation (%)	-4.200000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1

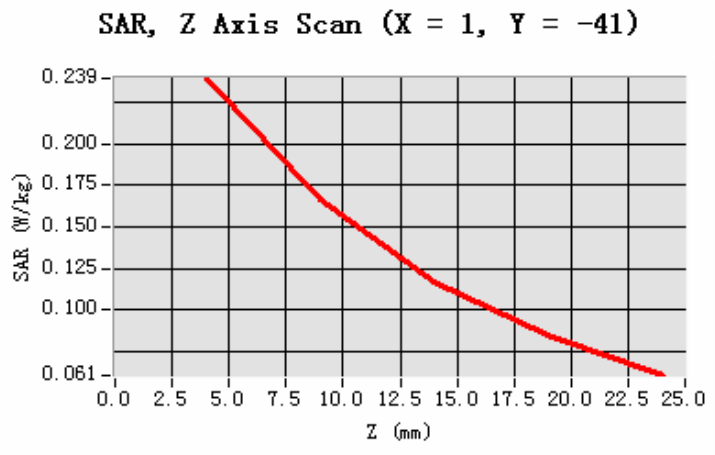
SURFACE SAR	VOLUME SAR
	

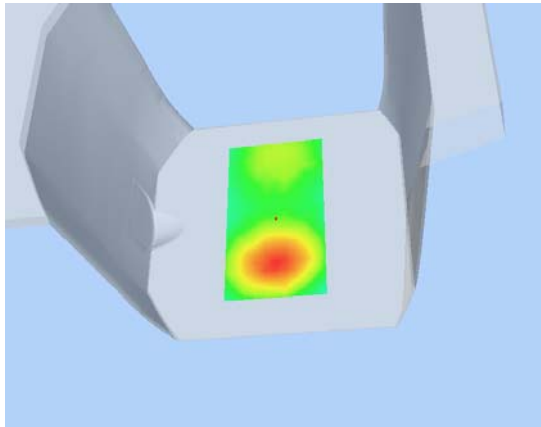
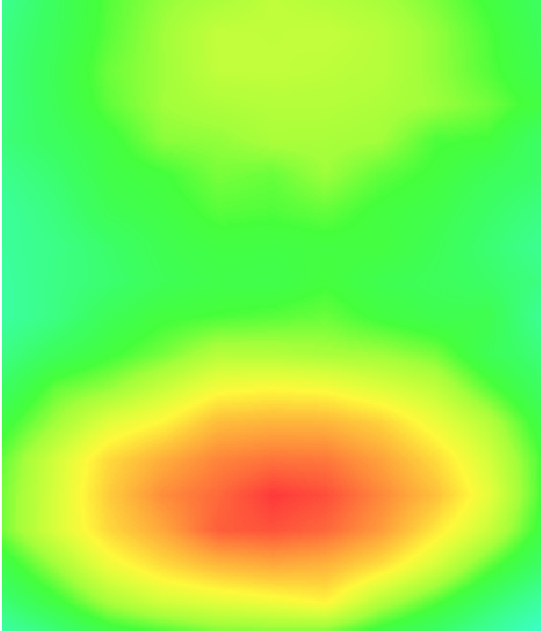
Maximum location: X=1.00, Y=-41.00

SAR 10g (W/Kg)	0.152574
SAR 1g (W/Kg)	0.228773

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.2391	0.1663	0.1173	0.0848



3D scene shot	Hot spot position
	

MEASUREMENT 2

Type: Phone measurement (Complete)

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

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

Date of measurement: 1/7/2009

Measurement duration: 9 minutes 35 seconds

A. Experimental conditions.

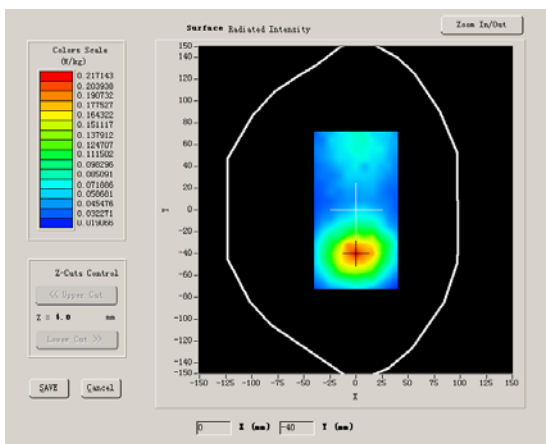
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	CDMA850
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 384):

Frequency (MHz)	836.520020
Relative permittivity (real part)	41.790001
Relative permittivity	18.926250

Conductivity (S/m)	0.879566
Variation (%)	-3.360000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1

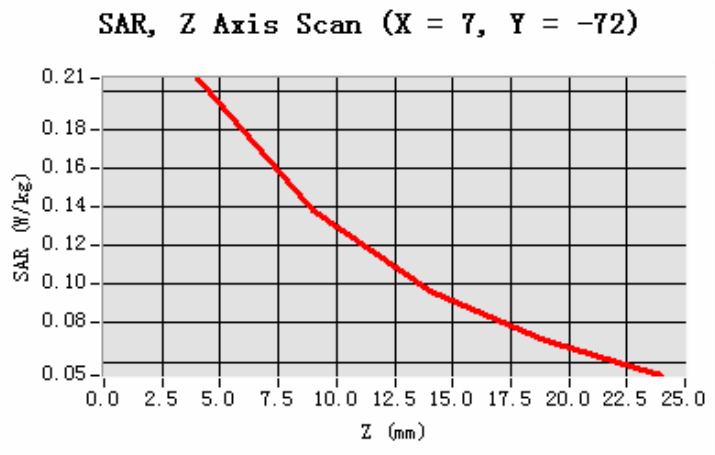
SURFACE SAR	VOLUME SAR
	

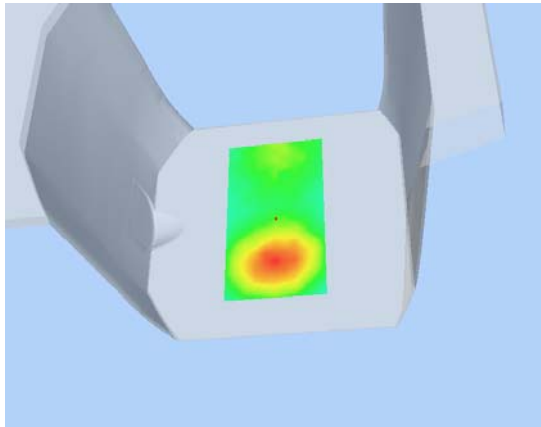
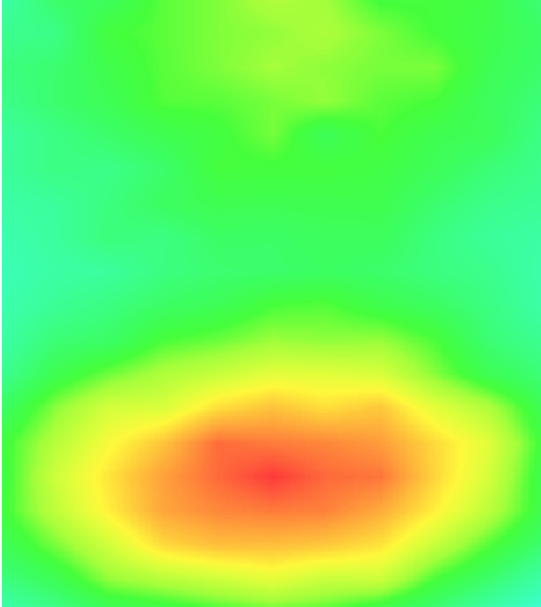
Maximum location: X=7.00, Y=-72.00

SAR 10g (W/Kg)	0.131649
SAR 1g (W/Kg)	0.199124

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.2066	0.1385	0.0963	0.0706



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: 1/7/2009

Measurement duration: 9 minutes 44 seconds

A. Experimental conditions.

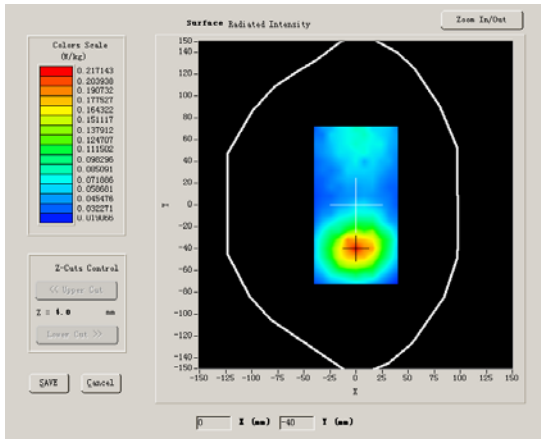
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	CDMA850
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 777):

Frequency (MHz)	848.309998
Relative permittivity (real part)	41.790001
Relative permittivity	18.926250

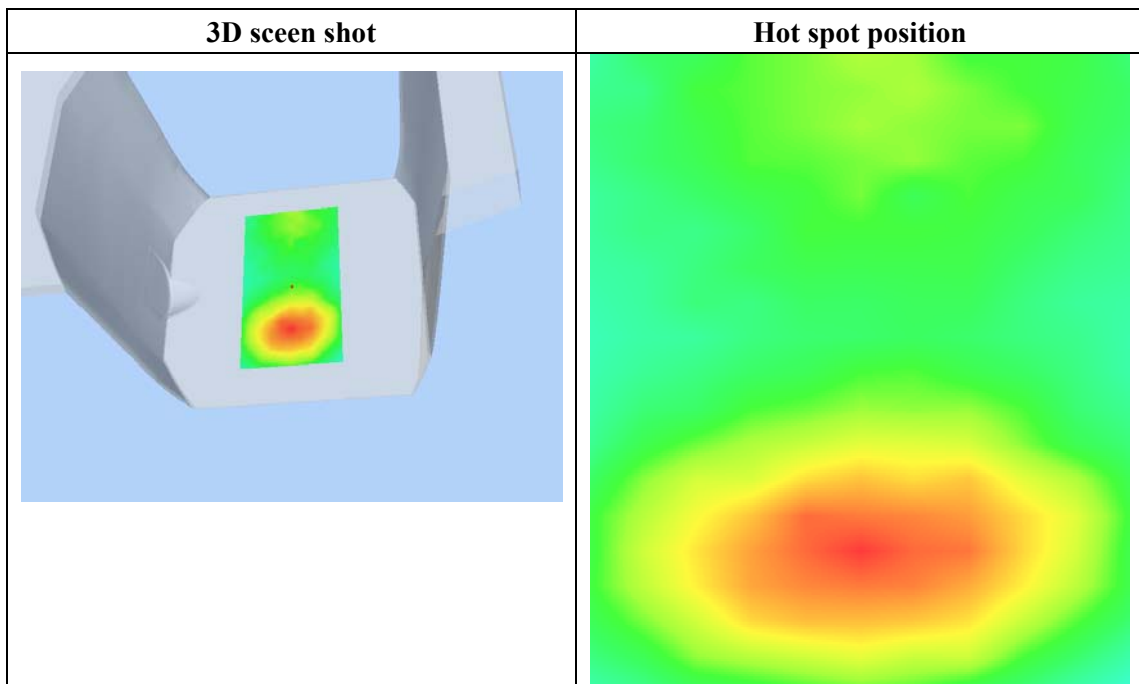
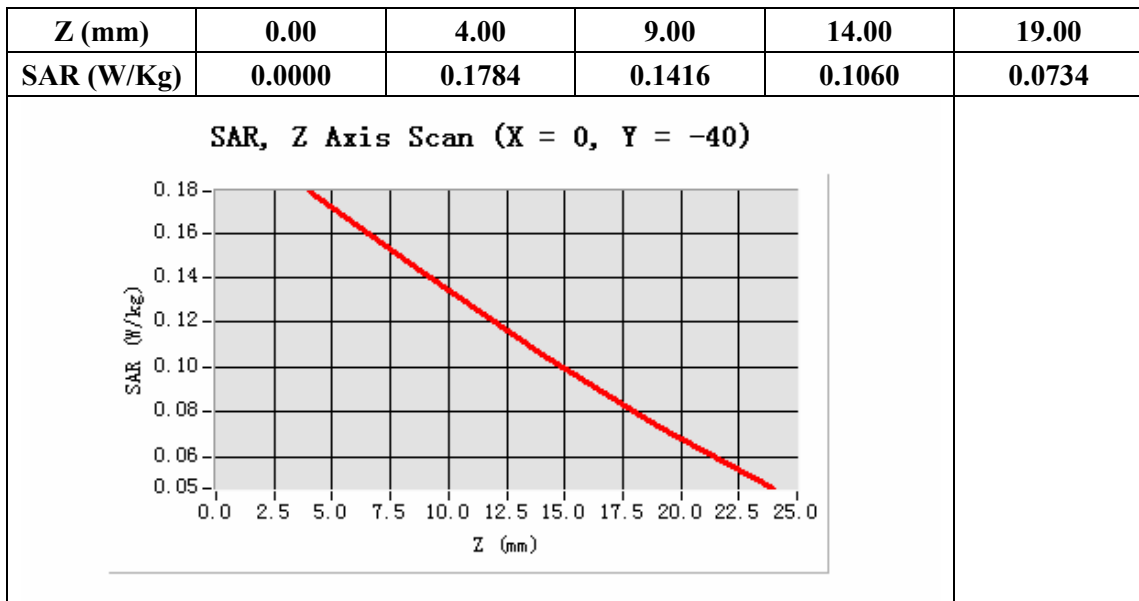
Conductivity (S/m)	0.891963
Variation (%)	-2.940000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=-40.00

SAR 10g (W/Kg)	0.122469
SAR 1g (W/Kg)	0.173173

Z Axis Scan



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: 1/7/2009

Measurement duration: 9 minutes 46 seconds

A. Experimental conditions.

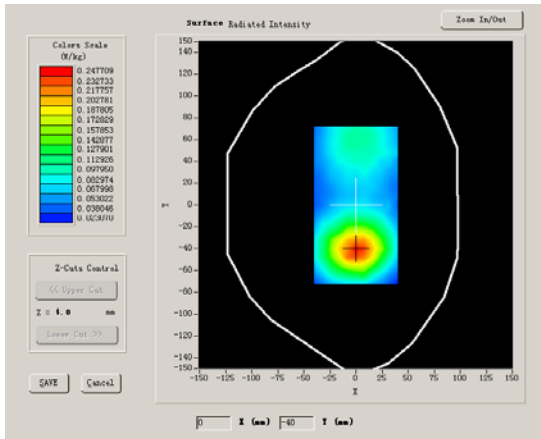
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	CDMA850
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 1013):

Frequency (MHz)	824.700012
Relative permittivity (real part)	41.790001
Relative permittivity	18.926250

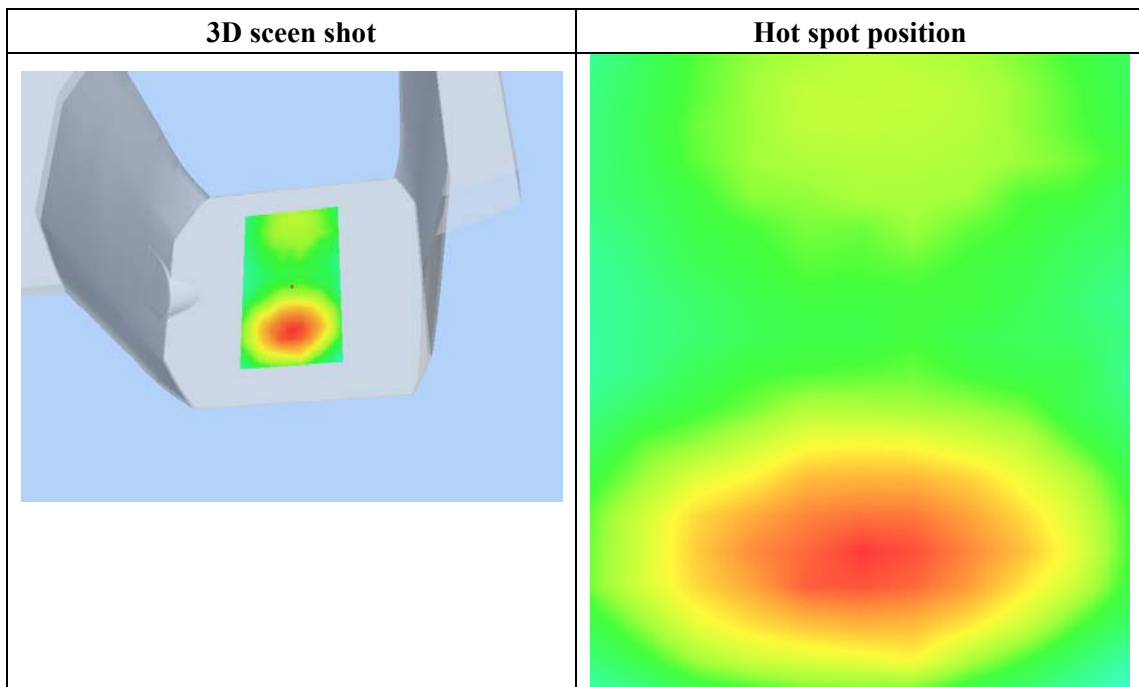
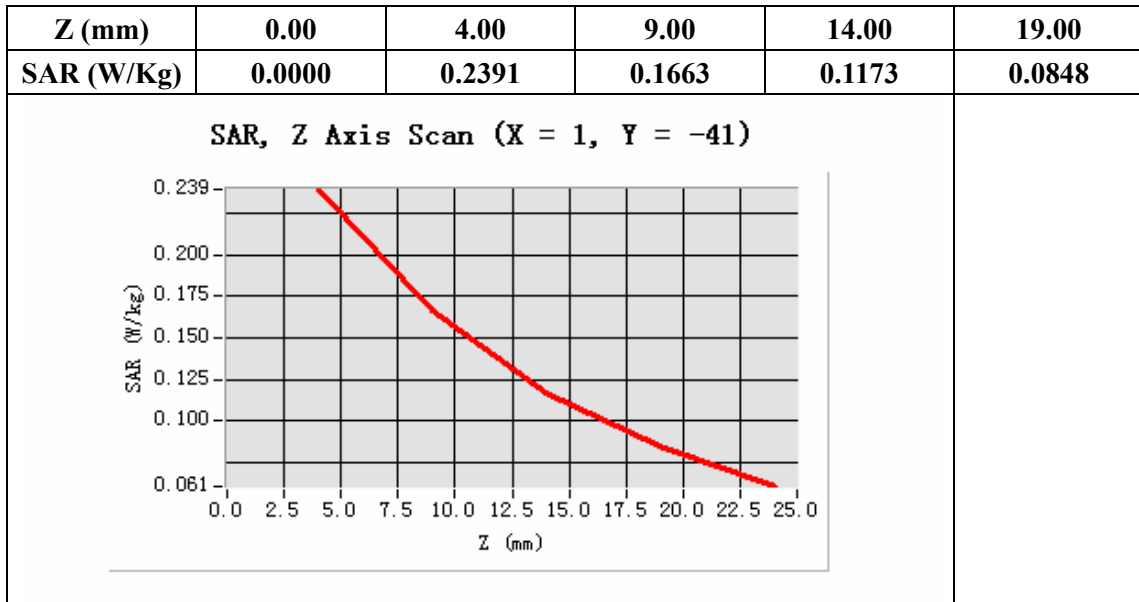
Conductivity (S/m)	0.867138
Variation (%)	-4.200000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=-41.00

SAR 10g (W/Kg)	0.077552
SAR 1g (W/Kg)	0.138830

Z Axis Scan



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: 1/7/2009

Measurement duration: 9 minutes 46 seconds

A. Experimental conditions.

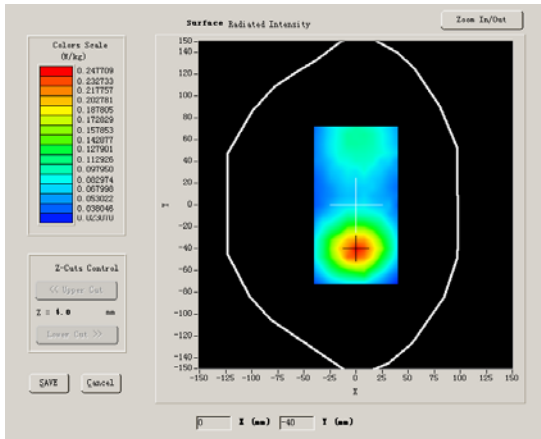
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	US_PCS
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 25):

Frequency (MHz)	1851.250000
Relative permittivity (real part)	38.209000
Relative permittivity	13.915650

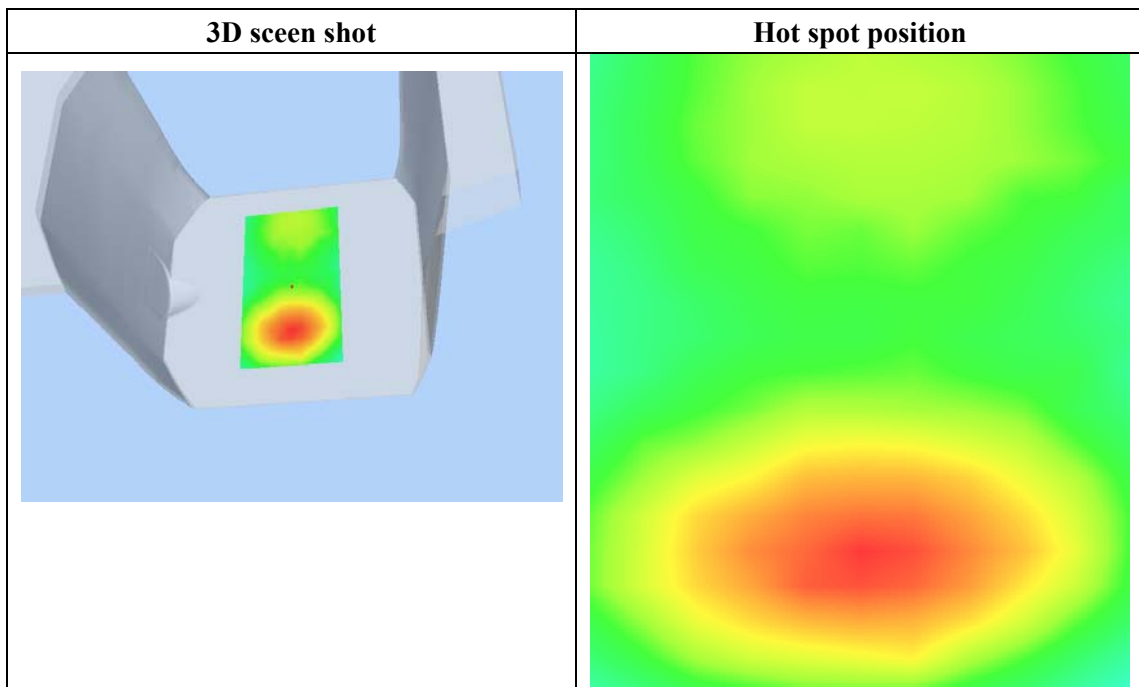
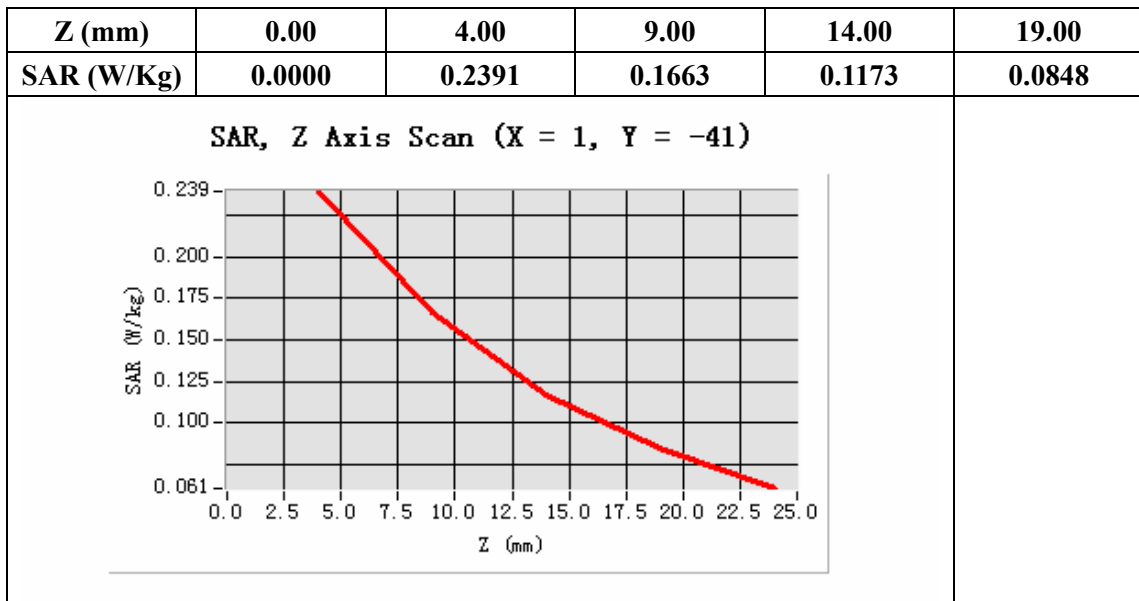
Conductivity (S/m)	1.431186
Variation (%)	-4.200000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=-41.00

SAR 10g (W/Kg)	0.107456
SAR 1g (W/Kg)	0.184776

Z Axis Scan



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: 1/7/2009

Measurement duration: 9 minutes 35 seconds

A. Experimental conditions.

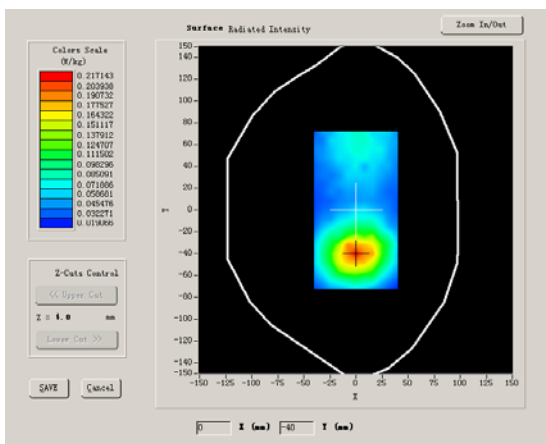
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	US_PCS
Channels	Middle
Signal	CDMA

B. SAR Measurement Results

Middle Band SAR (Channel 600):

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.209000
Relative permittivity	13.915650

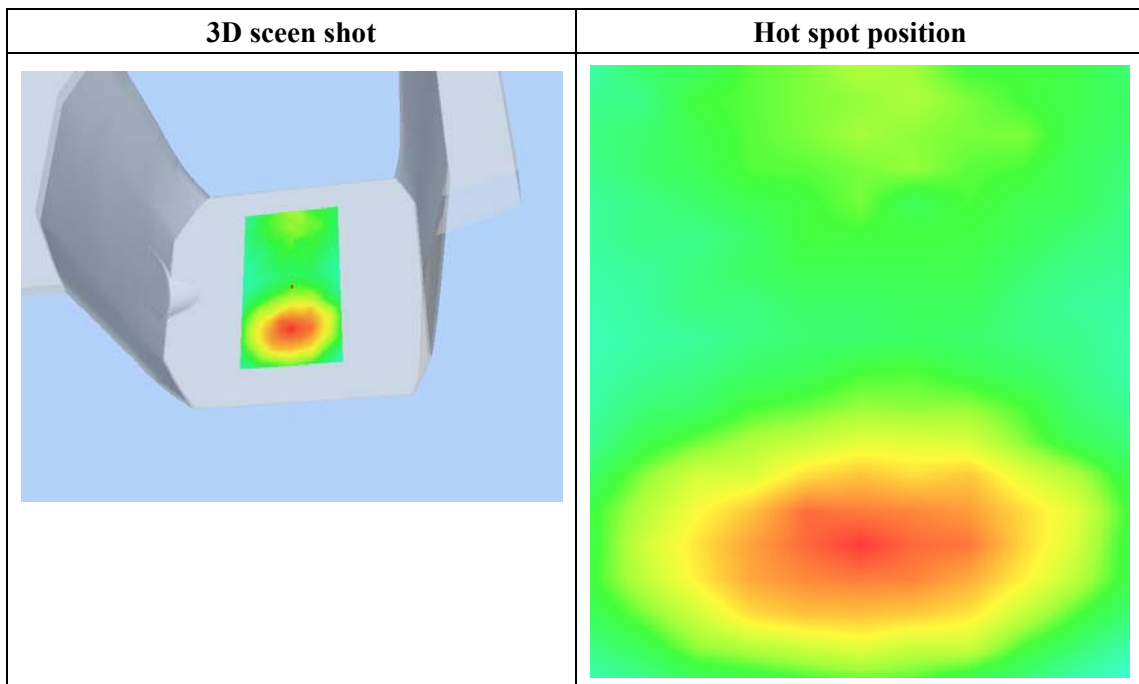
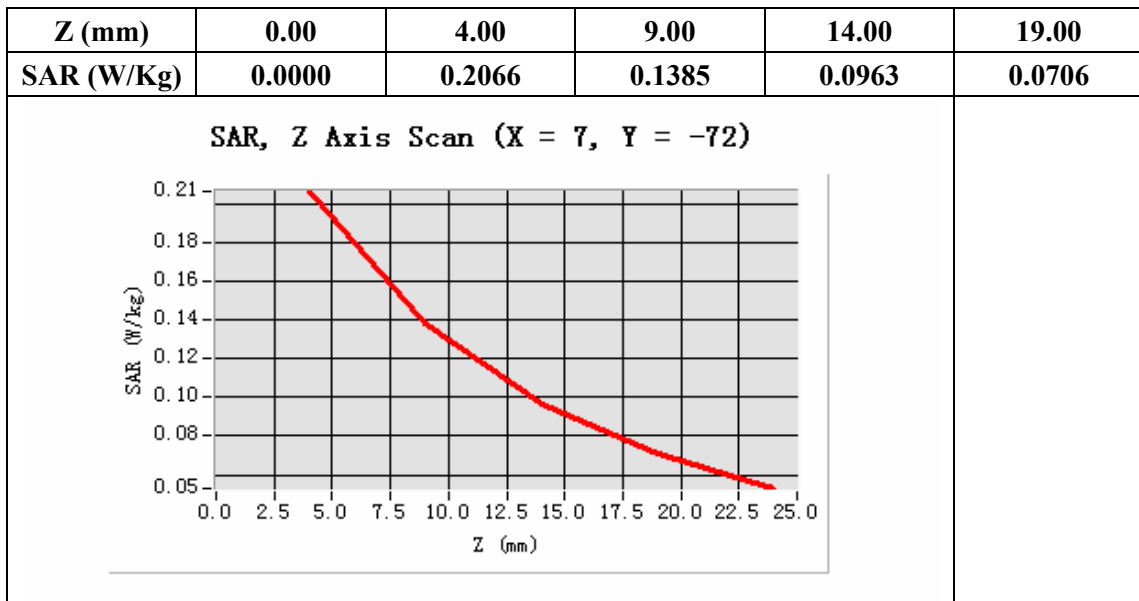
Conductivity (S/m)	1.453412
Variation (%)	-3.360000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=-72.00

SAR 10g (W/Kg)	0.097887
SAR 1g (W/Kg)	0.164742

Z Axis Scan



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: 1/7/2009

Measurement duration: 9 minutes 44 seconds

A. Experimental conditions.

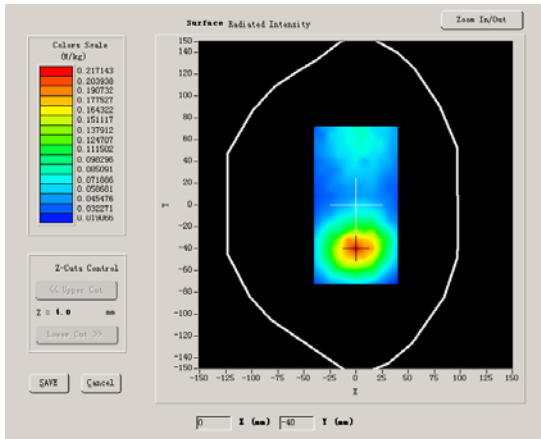
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	US_PCS
Channels	High
Signal	CDMA

B. SAR Measurement Results

Higher Band SAR (Channel 1175):

Frequency (MHz)	1908.750000
Relative permittivity (real part)	38.209000
Relative permittivity	13.915650

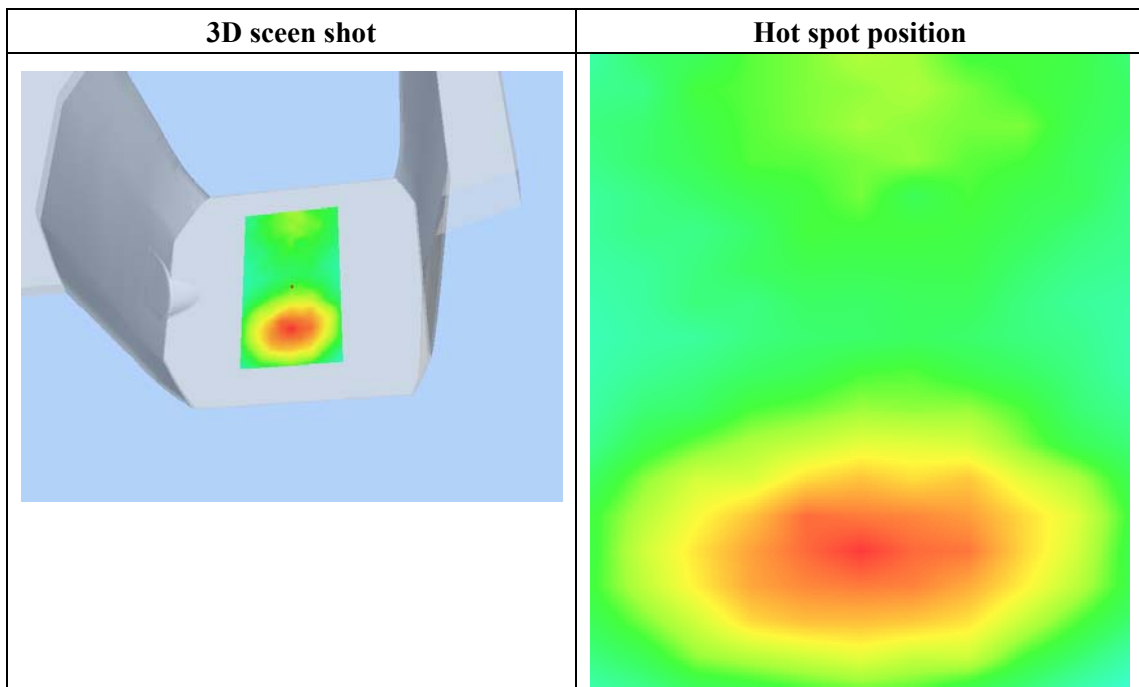
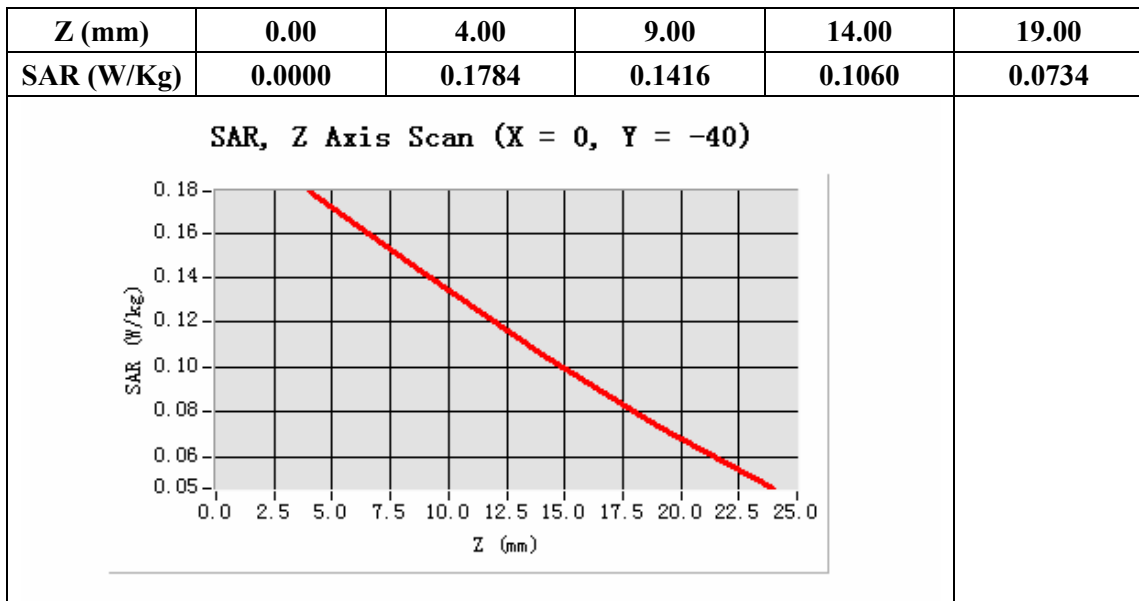
Conductivity (S/m)	1.475639
Variation (%)	-2.940000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=-40.00

SAR 10g (W/Kg)	0.063551
SAR 1g (W/Kg)	0.136652

Z Axis Scan



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: 1/7/2009

Measurement duration: 9 minutes 46 seconds

A. Experimental conditions.

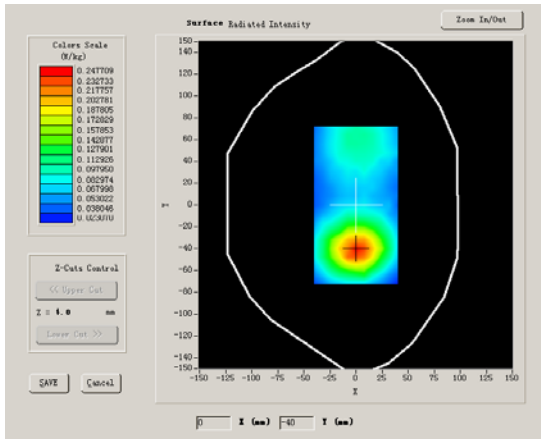
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	US_PCS
Channels	Low
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR (Channel 25):

Frequency (MHz)	1851.250000
Relative permittivity (real part)	38.209000
Relative permittivity	13.915650

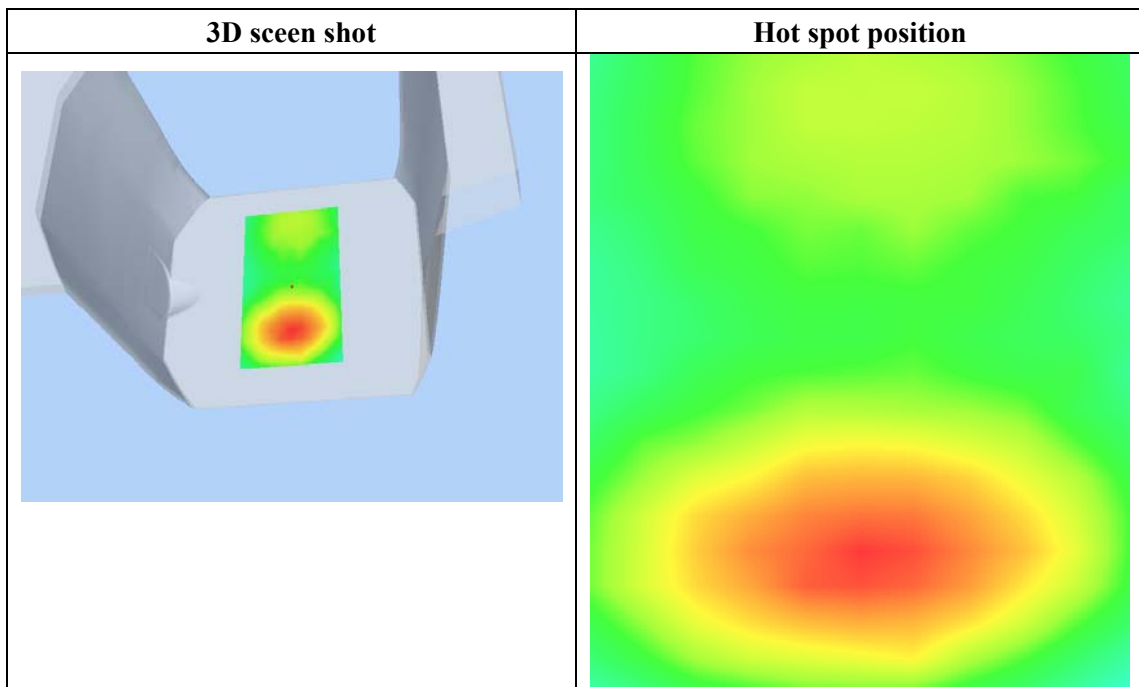
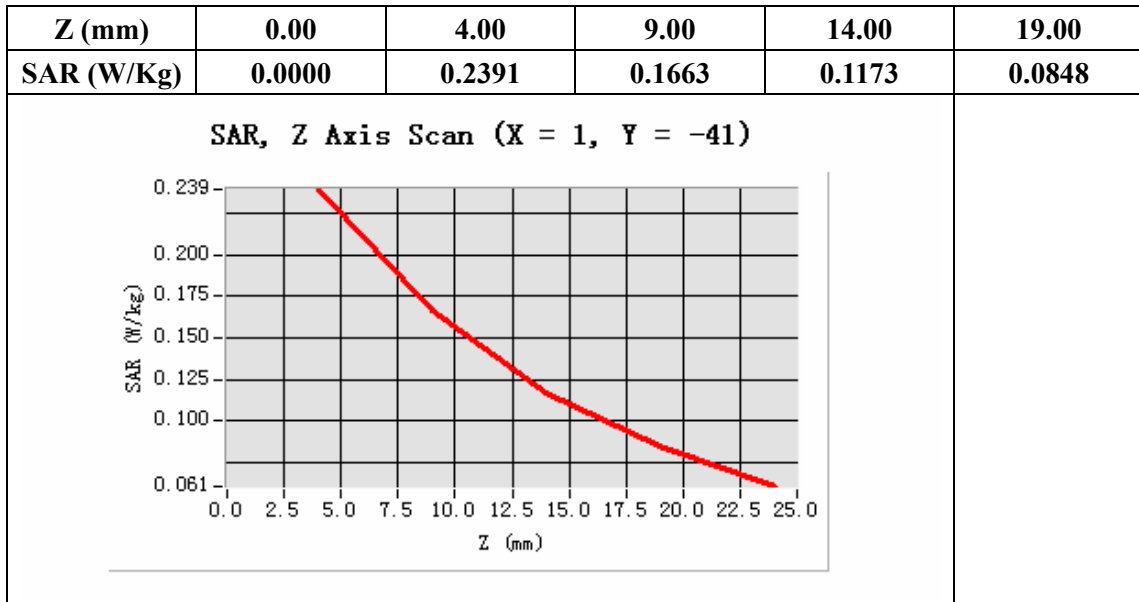
Conductivity (S/m)	1.431186
Variation (%)	-4.200000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=-41.00

SAR 10g (W/Kg)	0.053532
SAR 1g (W/Kg)	0.110795

Z Axis Scan



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

Type: Phone measurement (Complete)

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

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

Date of measurement: 1/7/2009

Measurement duration:9 minutes 27 seconds

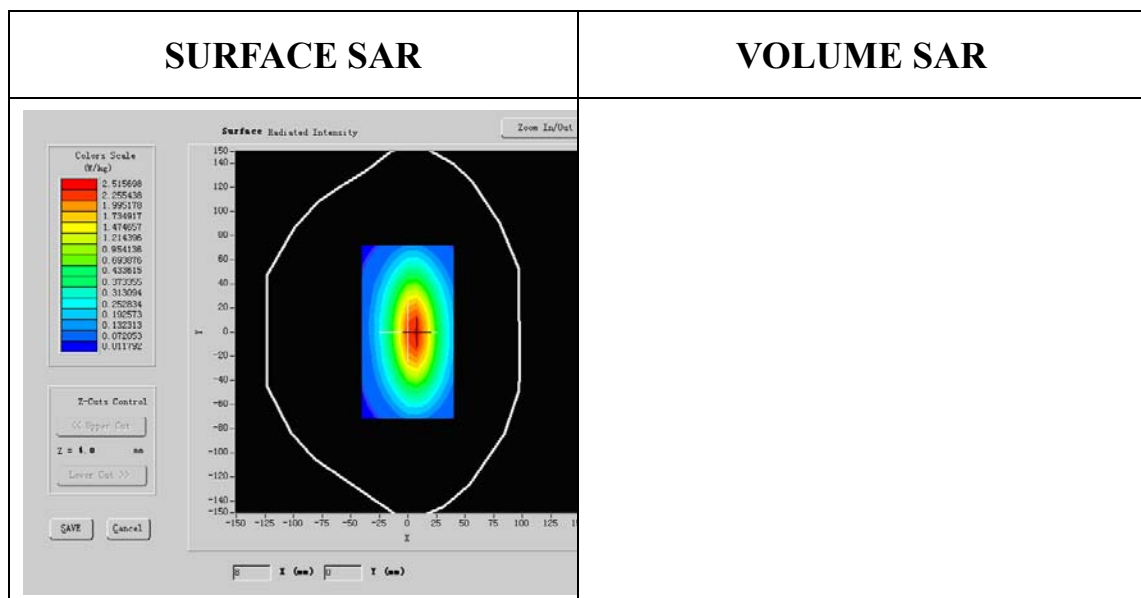
A. Experimental conditions.

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

B. SAR Measurement ResultsMiddle Band SAR:

Frequency (MHz)	835.000000
Relative permittivity (real part)	51.254412
Relative permittivity	15.070000

Conductivity (S/m)	0.9552364
Variation (%)	-0.140000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1



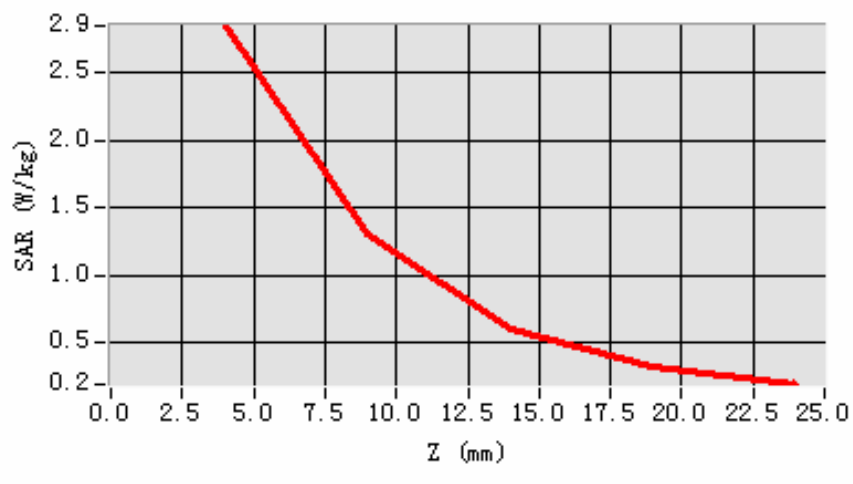
Maximum location: X=5.00, Y=1.00

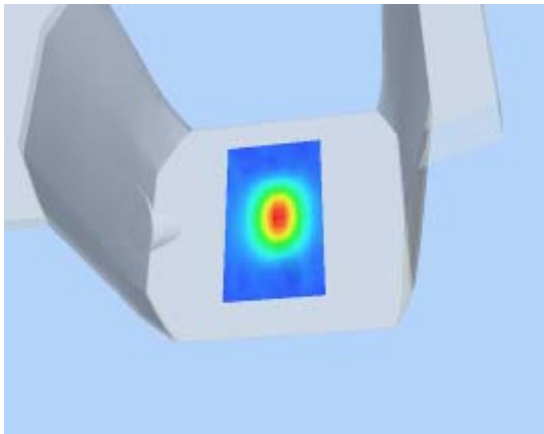
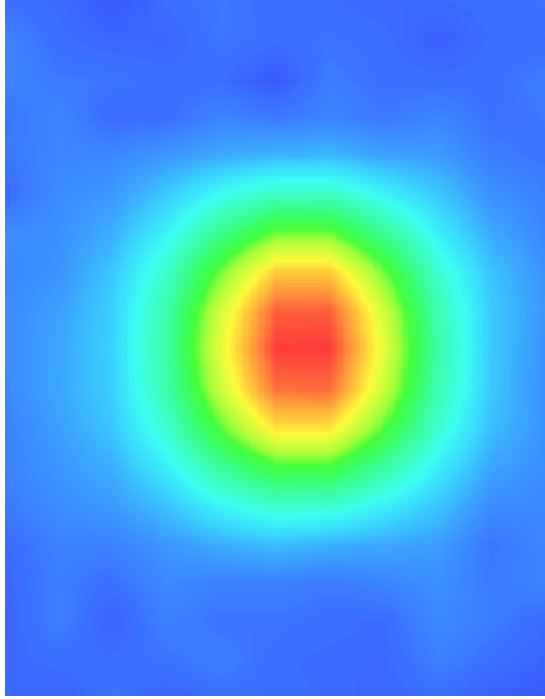
SAR 10g (W/Kg)	1.331444
SAR 1g (W/Kg)	2.653442

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 = 5, Y = 1)



3D scen shot	Hot spot position
	



System Performance Check Data(1900MHz Body)

Type: Phone measurement (Complete)

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

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

Date of measurement: 1/7/2009

Measurement duration: 9 minutes 23 seconds

A. Experimental conditions.

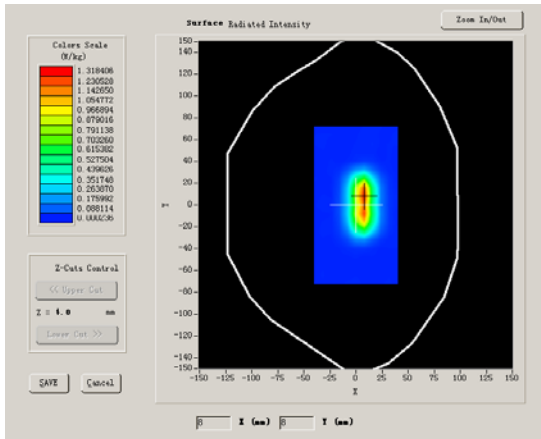
Phantom File	surf_sam_plan.txt
Phantom	Validation plane
Device Position	Body
Band	CDMA1900
Channels	
Signal	CDMA

B. SAR Measurement Results

Lower Band SAR:

Frequency (MHz)	1900.000000
Relative permittivity (real part)	52.548876
Relative permittivity	12.991650

Conductivity (S/m)	1.395712
Variation (%)	0.570000
Ambient Temperature:	21.8°C
Liquid Temperature:	21.7°C
Probe Serial Number:	SN_3708_EP80
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
 <p>Surface Radiated Intensity</p> <p>Color Scale (W/kg)</p> <ul style="list-style-type: none"> 1.318406 1.230528 1.142650 1.054772 0.966894 0.879016 0.791138 0.703260 0.615382 0.527504 0.439626 0.351748 0.263870 0.175992 0.088114 0.000000 <p>Z-Cuts Control</p> <p>Z = 1.0 mm</p> <p>SAVE Cancel</p>	

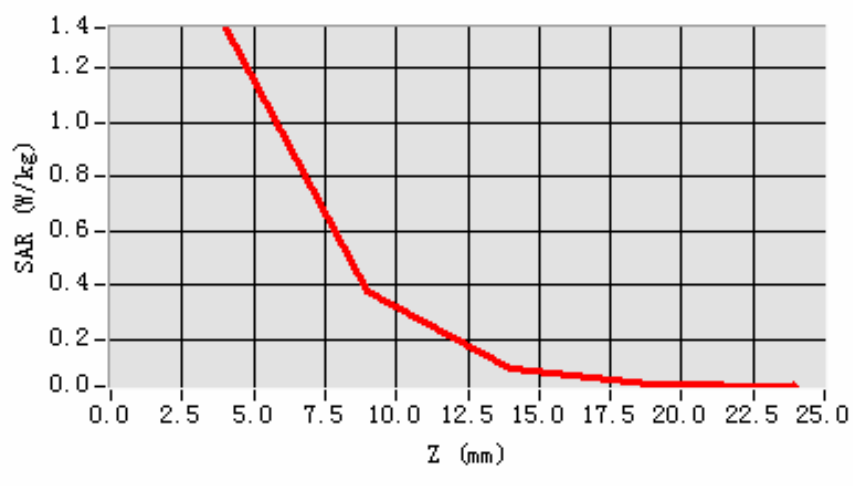
Maximum location: X=7.00, Y=8.00

SAR 10g (W/Kg)	6.344452
SAR 1g (W/Kg)	10.544334

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	1.3503	0.3791	0.0904	0.0338

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



3D scene shot	Hot spot position
