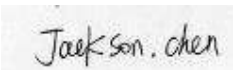
5LINX Enterprises, Inc.

5LINXGLOBAL WiFi Cellphone

Model: GM100N,WM680

June 30, 2010
Report No.: 1005007-SAR

(This report supersedes NONE)

Modifications made to the product : None	
This Test Report is Issued Under the Authority of:	
	
Peter Cai **Compliance Engineer**	**Jackson Chen** **Technical Manager**

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Laboratory Introduction

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1 TECHNICAL DETAILS

Purpose	Compliance testing of WIFI Module with stipulated standard
Applicant / Client	5LINX Enterprises, Inc. 275 Kenneth Drive, Rochester, NY, 14623, U.S.A
Manufacturer	W&M Telecommunication Co.,Ltd B-10F,Xinghua Building,Shennan Rd east, Futian district,Shenzhen,China
Laboratory performing the tests	SIEMIC Nanjing (China) Laboratories NO.2-1,Longcang Dadao, Yuhua Economic Development Zone, Nanjing, China Tel:+86(25)86730128/86730129 Fax:+86(25)86730127 Email:info@siemic.com
Test report reference number	1005007-SAR
Date EUT received	June 07, 2010
Standard applied	FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)
Dates of test (from – to)	June 07 - June 25, 2010
No of Units	#2
Equipment Category	GSM/WIFI Mobil Phone
Model :	GM100N,WM680
RF Operating Frequency (ies)	GSM 850 Tx:824.2-848.8MHz Rx:869.2-893.8MHz GSM 1900 Tx:1850.2-1909.8MHz Rx:1930.2-1989.8MHz
Modulation :	GMSK
Output Power	GSM 850: 32.67dBm GSM 1900:29.66dBm
ID Number	YKMGM100N

Remark: Above EUT's information was declared by manufacturer. Please refer to the specifications of manufacturer or User's Manual for more detailed features description.

REQUIREMENTS FOR COMPLIANCE TESTING DEFINED BY THE FCC

The US Federal Communications Commission has released the report and order "Guidelines for Evaluating the Environmental Effects of RF Radiation", ET Docket No. 93-62 in August 1996. The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g for an uncontrolled environment and 8.0 mW/g for an occupational/controlled environment as recommended by the ANSI/IEEE standard C95.1-1992. According to the Supplement C of OET Bulletin 65 "Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at maximum output power (radiated from the antenna) under "worst-case" conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

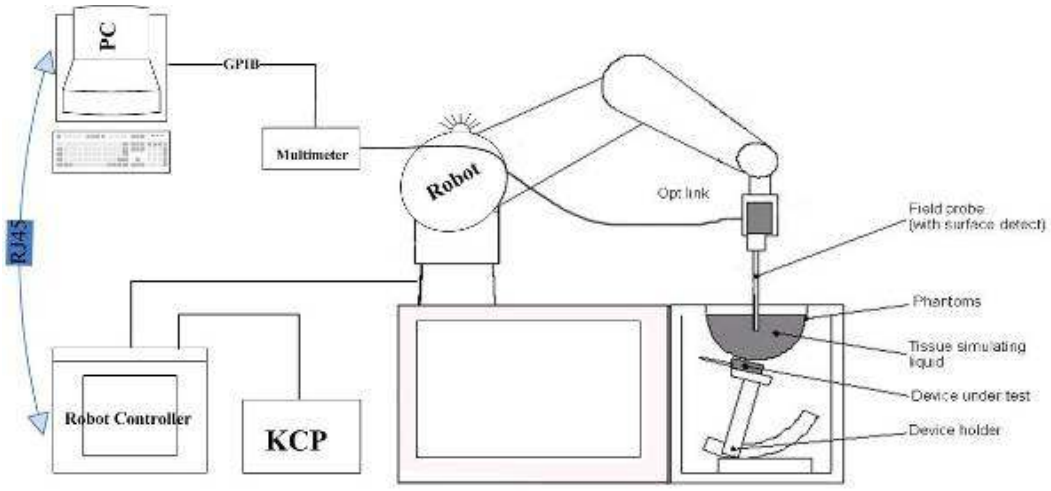
3. DOSIMETRIC ASSESSMENT SYSTEM

These measurements were performed with the automated near-field scanning system OPENSAR from ANTENNESSA.The system is based on a high precision robot (working range greater than 0.9 m), which positions the probes with a positional repeatability of better than ± 0.02 mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit. The SAR measurements were conducted with the dosimetric probe EP100 SN1109 (manufactured by ANTENNESSA), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure described in [7] with accuracy of better than ±10%. The spherical isotropy was evaluated with the procedure described in [8] and found to be better than ±0.25 dB. The phantom used was the SAM Phantom as described in FCC supplement C, IEEE P1528 and CENELEC EN62209-1.

The Tissue simulation liquid used for each test is in according with the FCC OET65 supplement C as listed below.

Ingredients	**Frequency (MHz)**									
(% by weight)	**450**		**835**		**915**		**1900**		**2450**	
Tissue Type	**Head**	**Body**	**Head**	**Body**	**Head**	**Body**	**Head**	**Body**	**Head**	**Body**
Water	**38.56**	**51.16**	**41.45**	**52.4**	**41.05**	**56.0**	**54.9**	**40.4**	**62.7**	**73.2**
Salt (NaCl)	**3.95**	**1.49**	**1.45**	**1.4**	**1.35**	**0.76**	**0.18**	**0.5**	**0.5**	**0.04**
Sugar	**56.32**	**46.78**	**56.0**	**45.0**	**56.5**	**41.76**	**0.0**	**58.0**	**0.0**	**0.0**
HEC	**0.98**	**0.52**	**1.0**	**1.0**	**1.0**	**1.21**	**0.0**	**1.0**	**0.0**	**0.0**
Bactericide	**0.19**	**0.05**	**0.1**	**0.1**	**0.1**	**0.27**	**0.0**	**0.1**	**0.0**	**0.0**
Triton X-100	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**36.8**	**0.0**
DGBE	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**44.92**	**0.0**	**0.0**	**26.7**
Dielectric Constant	**43.42**	**58.0**	**42.54**	**56.1**	**42.0**	**56.8**	**39.9**	**54.0**	**39.8**	**52.5**
Conductivity (S/m)	**0.85**	**0.83**	**0.91**	**0.95**	**1.0**	**1.07**	**1.42**	**1.45**	**1.88**	**1.78**

MEASUREMENT SYSTEM DIAGRAM



The OPENSAR system for performing compliance tests consist of the following items:

1. A standard high precision 6-axis robot (KUKA) with controller and software.
2. KUKA Control Panel (KCP).
3. A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
4. The functions of the PC plug-in card are to perform the time critical task such as signal filtering, surveillance of the robot operation fast movement interrupts.
5. A computer operating Windows 95.
6. OPENSAR software.
7. Remote control with teaches pendant and additional circuitry for robot safety such as warning lamps, etc.
8. The SAM phantom enabling testing left-hand right-hand and body usage.
9. The Position device for handheld EUT.
10. Tissue simulating liquid mixed according to the given recipes (see Application Note).
11. System validation dipoles to validate the proper functioning of the system.

SYSTEM COMPONENTS

SN11/09 EP100 Probe Specification

Construction Symmetrical design with triangular core

Built-in optical fiber for surface detection System

Built-in shielding against static charges

Calibration in air from 100 MHz to 2.5 GHz

In brain and muscle simulating tissue at frequencies of 835 MHz, 897MHz ,1747 MHz,1880 MHz,1950 MHz and 1.8 GHz (accuracy of 8%)

Frequency 100 MHz to > 30GHz; Linearity: 0.25 dB (100 MHz to 30 GHz)

Directivity 0.25 dB in brain tissue (rotation around probe axis)

0.5 dB in brain tissue (rotation normal probe axis)

Dynamic 0.001W/kg to > 100W/kg;

Range Linearity: 0.25 dB

Surface 0.2 mm repeatability in air and clear liquids

Detection over diffuse reflecting surfaces

Dimensions Overall length: 330 mm

Tip length: 16 mm

Body diameter: 8 mm

Tip diameter: 6.5 mm

Distance from probe tip to dipole centers: <2.7 mm

Application General dosimetric up to 3 GHz

Compliance tests of mobile phones

Fast automatic scanning in arbitrary phantoms

Photograph of the Probe

Inside View of SN11/09 EP100 E-field

The SAR measurements were conducted with the dosimetric probe SN11/09 EP100designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique, with printed resistive lines on ceramic substrates. The probe is equipped with an optical multi-fiber line ending at the front of the probe tip. It is connected to the KRC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The OPENSAR software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting. The approach is stopped when reaching the maximum.

E-Field Probe Calibration Process

Each probe is calibrated according to a dosimetric assessment procedure described in [6] with accuracy better than +/- 10%. The spherical isotropy was evaluated with the procedure described in [7] and found to be better than +/-0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a waveguide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

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

SAM Phantom

The SAM Phantom SAM29 is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is in compliance with the specification set in IEEE P1528 and CENELEC EN62209-1. The phantom enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness: 2 0.2 mm

Filling Volume: Approx. 25 liters

Dimensions (H x L x W): 810 x 1000 x 500 mm

SAM Phantom

Device Holder for Transmitters

In combination with the Generic Twin Phantom V3.0, the Mounting Device enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation points is the ear opening. The devices can be easily, accurately, and repeatedly positioned according to the FCC and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

Device Holder

Note: *A simulating human hand is not used due to the complex anatomical and geometrical structure of the hand that may produced infinite number of configurations [10]. To produce the worst-case condition (the hand absorbs antenna output power), the hand is omitted during the tests.*

4. EVALUATION PROCEDURE

DATA EVALUATION

The OPENSAR software automatically executes the following procedure to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	$Norm_i$, a_{i10}, a_{i11}, a_{i12}
	- Conversion factor	ConvFi
	- Diode compression point Dcpi	
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can either be found in the component documents or be imported into the software from the configuration files issued for the OPENSAR components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

Where V_i = Compensated signal of channel i (i = x, y, z)
U_i = Input signal of channel i (i = x, y, z)
cf = Crest factor of exciting field (DASY parameter)
dcp_i = Diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $$E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$

H-field probes: $$H_i = \sqrt{Vi} \cdot \frac{a_{i10} + a_{i11} f + a_{i12} f^2}{f}$$

Where V_i = Compensated signal of channel i (i = x, y, z)
$Norm_i$ = Sensor sensitivity of channel i (i = x, y, z)
μV/(V/m)2 for E0field Probes
$ConvF$ = Sensitivity enhancement in solution
a_{ij} = Sensor sensitivity factors for H-field probes

f = *Carrier frequency (GHz)*
E_i = *Electric field strength of channel i in V/m*
H_i = *Magnetic field strength of channel i in A/m*

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

where SAR = *local specific absorption rate in mW/g*
E_{tot} = *total field strength in V/m*
σ = *conductivity in [mho/m] or [siemens/m]*
ρ = *equivalent tissue density in g/cm3*

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid.

The power flow density is calculated assuming the excitation field as a free space field.

$$P_{pwe} = \frac{E_{tot}^2}{3770} \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

where P_{pwe} = *Equivalent power density of a plane wave in mW/cm2*
E_{tot} = *total electric field strength in V/m*
H_{tot} = *total magnetic field strength in A/m*

SAR EVALUATION PROCEDURES

The procedure for assessing the peak spatial-average SAR value consists of the following steps:

- **Power Reference Measurement**

  The reference and drift jobs are useful jobs for monitoring the power drift of the device under test in the batch process. Both jobs measure the field at a specified reference position, at a selectable distance from the phantom surface. The reference position can be either the selected section's grid reference point or a user point in this section. The reference job projects the selected point onto the phantom surface, orients the probe perpendicularly to the surface, and approaches the surface using the selected detection method.

- **Area Scan**

  The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a finer measurement around the hot spot. The sophisticated interpolation routines implemented in OPENSAR software can find the maximum locations even in relatively coarse grids. The scan area is defined by an editable grid. This grid is anchored at the grid reference point of the selected section in the phantom. When the area scan's property sheet is brought-up, grid was at to 15 mm by 15 mm and can be edited by a user.

- **Zoom Scan**

  Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default zoom scan measures 5 x 5 x 7 points within a cube whose base faces are centered around the maximum found in a preceding area scan job within the same procedure. If the preceding Area Scan job indicates more then one maximum, the number of Zoom Scans has to be enlarged accordingly (The default number inserted is 1).

- **Power Drift measurement**

  The drift job measures the field at the same location as the most recent reference job within the same procedure, and with the same settings. The drift measurement gives the field difference in dB from the reading conducted within the last reference measurement. Several drift measurements are possible for one reference measurement. This allows a user to monitor the power drift of the device under test within a batch process. In the properties of the Drift job, the user can specify a limit for the drift and have OPENSAR software stop the measurements if this limit is exceeded.

SPATIAL PEAK SAR EVALUATION

The procedure for spatial peak SAR evaluation has been implemented according to the IEEE1529 standard. It can be conducted for 1 g and 10 g.

The OPENSAR system allows evaluations that combine measured data and robot positions, such as:

- maximum search
- extrapolation
- boundary correction
- peak search for averaged SAR

During a maximum search, global and local maximum searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Seve ral measurements at different distances are necessary for the extrapolation.

Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Cube Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 5x5x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1 g and 10 g cubes.

Boundary effect

For measurements in the immediate vicinity of a phantom surface, the field coupling effects between the probe and the boundary influence the probe characteristics. Boundary effect errors of different dosimetric probe types have been analyzed by measurements and using a numerical probe model. As expected, both methods showed an enhanced sensitivity in the immediate vicinity of the boundary. The effect strongly depends on the probe dimensions and disappears with increasing distance from the boundary. The sensitivity can be approximately given as:

$$S \approx S_o + S_b exp(-\frac{z}{a}) cos(\pi \frac{z}{\lambda})$$

Since the decay of the boundary effect dominates for small probes (a<<λ), the cos-term can be omitted. Factors *Sb* (parameter Alpha in the OPENSAR software) and *a* (parameter Delta in the OPENSAR software) are assessed during probe calibration and used for numerical compensation of the boundary effect. Several simulations and measurements have confirmed that the compensation is valid for different field and boundary configurations.

This simple compensation procedure can largely reduce the probe uncertainty near boundaries. It works well as long as:

- the boundary curvature is small
- the probe axis is angled less than 30_ to the boundary normal
- the distance between probe and boundary is larger than 25% of the probe diameter

- the probe is symmetric (all sensors have the same offset from the probe tip)

Since all of these requirements are fulfilled in a OPENSAR system, the correction of the probe boundary effect in the vicinity of the phantom surface is performed in a fully automated manner via the measurement data extraction during post processing.

5. MEASUREMENT UNCERTAINTY

UNCERTAINTY EVALUATION FOR HANDSET SAR TEST

a	b	c	d	e= f(d,k)	f	g	h= cxf/e	i= cxg/e	k
Uncertainty Component	Sec.	Tol. (± %)	Prob. Dist.	Div.	c_i (1 g)	c_i (10 g)	1 g u_i (± %)	10 g u_i (± %)	v_i
Measurement System									
Probe Calibration	E.2.1.	7	N	1	1	1	7	7	∞
Axial Isotropy	E.2.2.	2,5	R	√3	$(1-c_p)^{1/2}$	$(1-c_p)^{1/2}$	1,02062	1,02062	∞
Hemispherical Isotropy	E.2.2.	4	R	√3	$\sqrt{C_p}$	$\sqrt{C_p}$	1,63299	1,63299	∞
Boundary Effect	E.2.3.	1	R	√3	1	1	0,57735	0,57735	∞
Linearity	E.2.4.	5	R	√3	1	1	2,88675	2,88675	∞
System Detection Limits	E.2.5.	1	R	√3	1	1	0,57735	0,57735	∞
Readout Electronics	E.2.6.	0,02	N	1	1	1	0,02	0,02	∞
Response Time	E.2.7.	3	R	√3	1	1	1,73205	1,73205	∞
Integration Time	E.2.8.	2	R	√3	1	1	1,1547	1,1547	∞
RF Ambient Conditions	E.6.1.	3	R	√3	1	1	1,73205	1,73205	∞
Probe Positioner Mechanical Tolerance	E.6.2.	2	R	√3	1	1	1,1547	1,1547	∞
Probe Positioning with respect to Phantom Shell	E.6.3.	0,05	R	√3	1	1	0,02887	0,02887	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5.2.	5	R	√3	1	1	2,88675	2,88675	∞
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	N	1	1	1	5	5	N-1
Output Power Variation - SAR drift measurement	6.6.2.	3	R	√3	1	1	1,73205	1,73205	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1.	0,05	R	√3	1	1	0,02887	0,02887	∞
Liquid Conductivity - deviation from target values	E.3.2.	5	R	√3	0,64	0,43	1,84752	1,2413	∞
Liquid Conductivity - measurement uncertainty	E.3.3.	5	N	1	0,64	0,43	3,2	2,15	M
Liquid Permittivity - deviation from target values	E.3.2.	3	R	√3	0,6	0,49	1,03923	0,8487	∞
Liquid Permittivity - measurement uncertainty	E.3.3.	10	N	1	0,6	0,49	6	4,9	M
Combined Standard Uncertainty			RSS				11,1265	10,5799	
Expanded Uncertainty (95% CONFIDENCE INTERVAL)			k=2				21,8079	20,7366	

6. EXPOSURE LIMIT

(A). Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

(B). Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

***Note: Whole-Body SAR** is averaged over the entire body, **partial-body SAR** is averaged over any 1 gram of tissue defined as a tissue volume in the shape of a cube. **SAR for hands, wrists, feet and ankles** is averaged over any 1 grams of tissue defined as a tissue volume in the shape of a cube.*

Population/Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Occupational/Controlled Environments are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

NOTE

GENERAL POPULATION/UNCONTROLLED EXPOSURE
PARTIAL BODY LIMIT

1.6 W/kg

7. EUT ARRANGEMENT

Please refer to IEEE P1528 illustration below.

7.1 ANTHROPOMORPHIC HEAD PHANTOM

Figure 7-1a shows the front, back and side views of SAM. The point "M" is the reference point for the center of mouth, "LE" is the left ear reference point (ERP), and "RE" is the right ERP. The ERPs are 15 mm posterior to the entrance to ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 7-1b. The plane passing through the two ear reference points and M is defined as the Reference Plane. The line N-F (Neck-Front) perpendicular to the reference plane and passing through the RE (or LE) is called the Reference Pivoting Line (see Figure 7-1c). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines should be marked on the external phantom shell to facilitate handset positioning. Posterior to the N-F line, the thickness of the phantom shell with the shape of an ear is a flat surface 6 mm thick at the ERPs. Anterior to the N-F line, the ear is truncated as illustrated in Figure 7-1b. The ear truncation is introduced to avoid the handset from touching the ear lobe, which can cause unstable handset positioning at the cheek.

Figure 7-1a

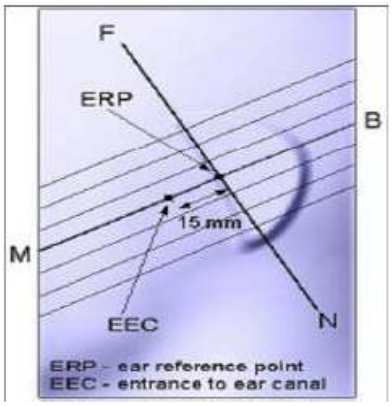
Front, back and side view of SAM (model for the phantom shell)

Figure 7-1b

Close up side view of phantom showing the ear region

Figure 7-1c

Side view of the phantom showing relevant markings and the 7 cross sectional plane locations



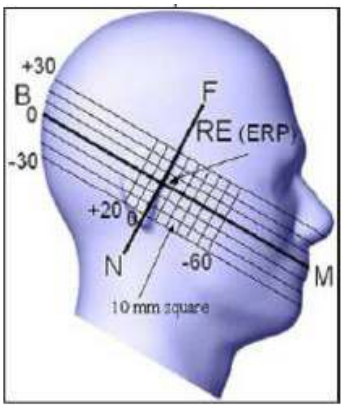


Figure 7-1b

Close up side view of phantom showing the ear region

Figure 7-1c

Side view of the phantom showing relevant markings and the 7 cross sectional plane locations

7.2 DEFINITION OF THE "CHEEK/TOUCH" POSITION

The "cheek" or "touch" position is defined as follows:

a. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece, open the cover. (If the handset can also be used with the cover closed both configurations must be tested.)

b. Define two imaginary lines on the handset: the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset: the midpoint of the width wt of the handset at the level of the acoustic output (point A on Figures 7-2a and 7-2b), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 7-2a). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output. However, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 7-2b), especially for clamshell handsets, handsets with flip pieces, and other irregularly-shaped handsets.

c. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 7-2c), such that the plane defined by the vertical center line and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.

d. Translate the handset towards the phantom along the line passing through RE and LE until the handset touches the pinna.

e. e) While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to MB-NF including the line MB (called the reference plane).

f. Rotate the handset around the vertical centerline until the handset (horizontal line) is symmetrical with respect to the line NF.

g. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE and maintaining the handset contact with the pinna, rotate the handset about the line NF until any point on the handset is in contact with a phantom point below the pinna (cheek). See Figure 7-2c. The physical angles of rotation should be noted.

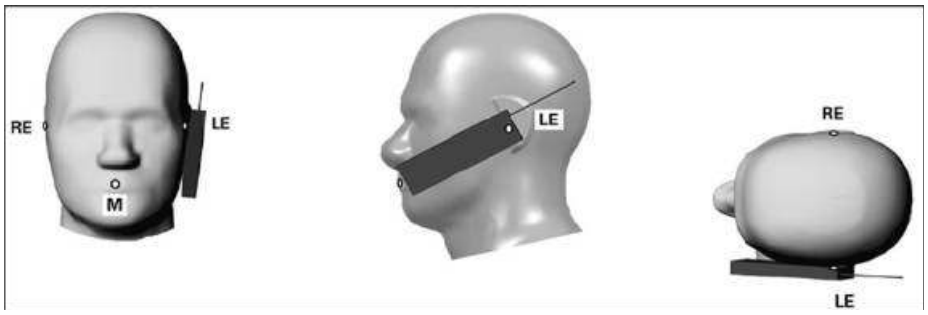


Figure 7.2c
Phone "cheek" or "touch" position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for handset positioning, are indicated.

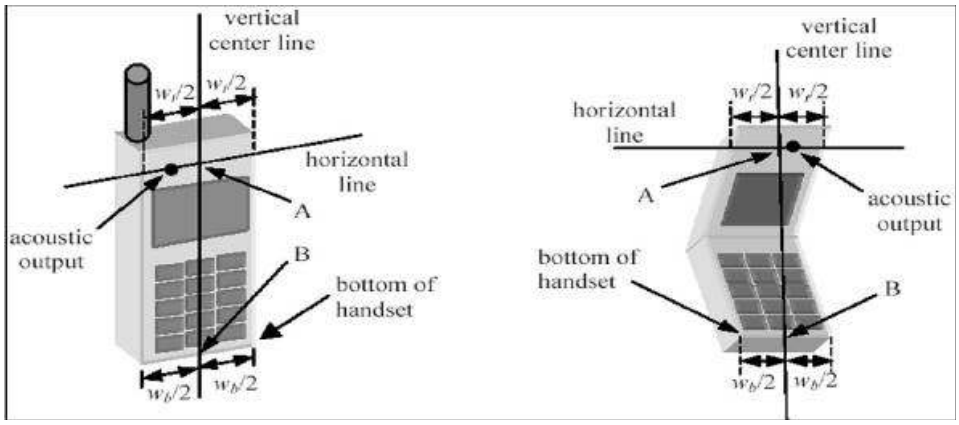


Figure 7.2a

Figure 7.2b

7.3 DEFINITION OF THE "TILTED" POSITION

The "tilted" position is defined as follows:

a. Repeat steps (a) - (g) of 7.2 to place the device in the "cheek position."

b. While maintaining the orientation of the handset move the handset away from the pinna along the line passing through RE and LE in order to enable a rotation of the handset by 15 degrees.

c. Rotate the handset around the horizontal line by 15 degrees.

d. While maintaining the orientation of the handset, move the handset towards the phantom on a line passing through RE and LE until any part of the handset touches the ear. The tilted position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna (e.g., the antenna with the back of the phantom head), the angle of the handset should be reduced. In this case, the tilted position is obtained if any part of the handset is in contact with the pinna as well as a second part of the handset is contact with the phantom (e.g., the antenna with the back of the head).

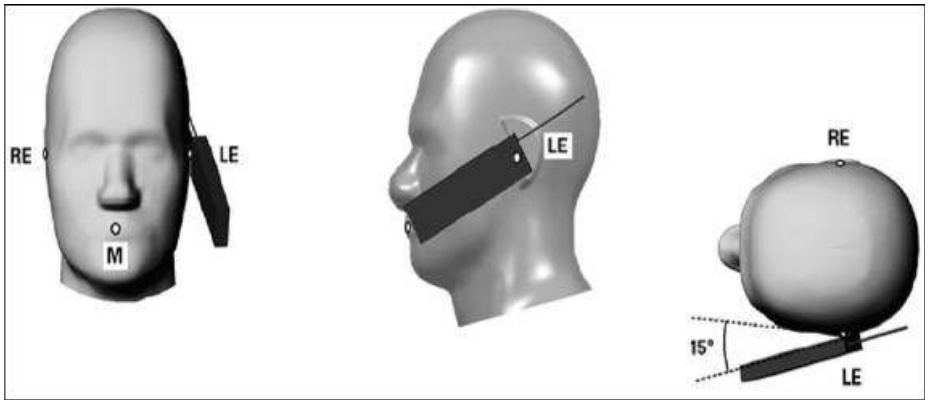


Figure 7-3
Phone "tilted" position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for handset positioning, are indicated.

8. MEASUREMENT RESULTS

TEST LIQUID CONFIRMATION

Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070C dielectric probe kit. The dielectric parameters measured are reported in each correspondent section.

IEEE SCC-34/SC-2 P1528 recommended Tissue Dielectric Parameters

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in P1528

Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

Note: ε_r *= relative permittivity,* σ *= conductivity and* ρ *= 1000 kg/m*^{3}

Liquid Confirmation Results

Ambient conduction

Temperature: 21□□C Relative humidity: 58%

System Validation Dipole: DIPOLE850 SN:SN 48/05 DIPD33 **Date**: June 08,2010

Type	Medium Temp (□C)	Depth (□ 0.5 cm)	Parameter	Target	Measured	Deviation (%)	Limit (%)
Head 835 MHz	20.00	15.00	Permitivity	41.50	41.579	-0.19	□ 5
			Conductivity	0.90	0.859	4.56	□ 5
			1g SAR	9.41	9.245	1.75	□ 10

System Validation Dipole: DIPOLE850SN:SN 48/05 DIPD33 **Date**: June 08,2010

Type	Medium Temp (□C)	Depth (□ 0.5 cm)	Parameter	Target	Measured	Deviation (%)	Limit (%)
Body 835 MHz	20.00	15.00	Permitivity	55.20	55.095	0.19	□ 5
			Conductivity	0.97	0.973	-0.31	□ 5
			1g SAR	9.79	9.894	1.06	□ 10

Temperature: 21□□C Relative humidity: 58%

System Validation Dipole: DIPOLE1900 SN:SN 48/05 DIPF34 **Date**: June 08,2010

Type	Medium Temp (□C)	Depth (□ 0.5 cm)	Parameter	Target	Measured	Deviation (%)	Limit (%)
Head 1900 MHz	20.00	15.00	Permittivity	40.00	41.214	-3.04	□ 5
			Conductivity	1.40	1.385	1.07	□ 5
			1g SAR	40.73	39.409	3.35	□ 10

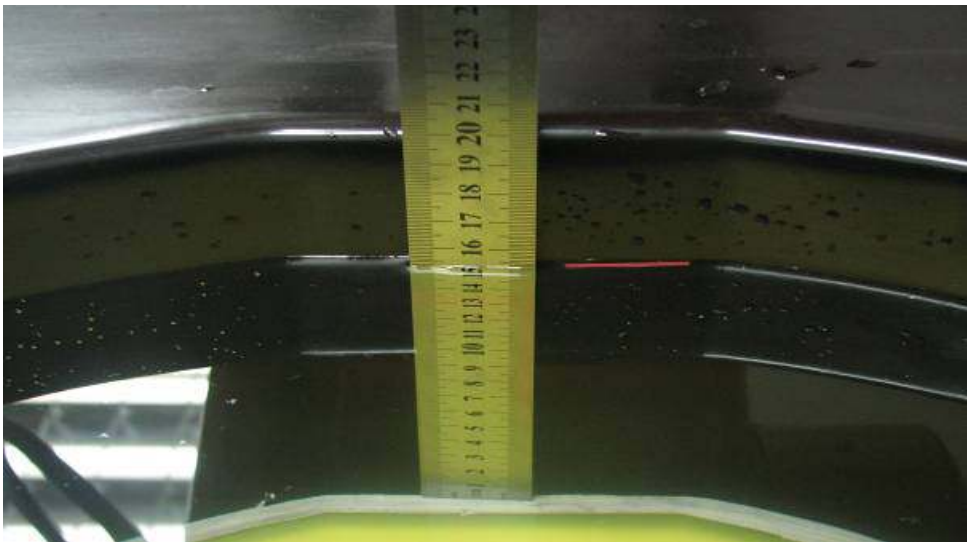
System Validation Dipole: DIPOLE1900 SN: SN 48/05 DIPF34 **Date**: June 08,2010

Type	Medium Temp (□C)	Depth (□ 0.5 cm)	Parameter	Target	Measured	Deviation (%)	Limit (%)
Body 1900 MHz	20.00	15.00	Permittivity	53.30	53.546	-0.46	□ 5
			Conductivity	1.52	1.532	-0.79	□ 5
			1g SAR	40.36	39.985	0.93	□ 10

EUT TUNE-UP PROCEDURE

The following procedure had been used to prepare the EUT for the SAR test.

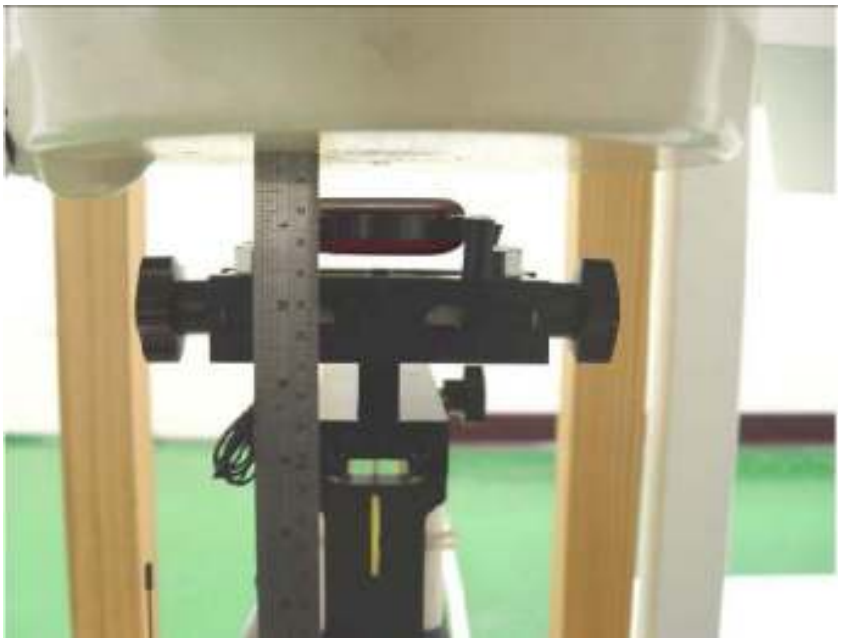
- o The client supplied a special driver to program the EUT, allowing it to continually transmit the specified maximum power and change the channel frequency.
- o The conducted power was measured at the high, middle and low channel frequency before and after the SAR measurement.
- o the depth of Liquid must above 15cm.



EUT SETUP PHOTOS

EUT Setup Configuration 1

the back side of the EUT in body position



EUT Setup Configuration 2

Cheek device with head phantom.

Fig. 3 Left Cheek

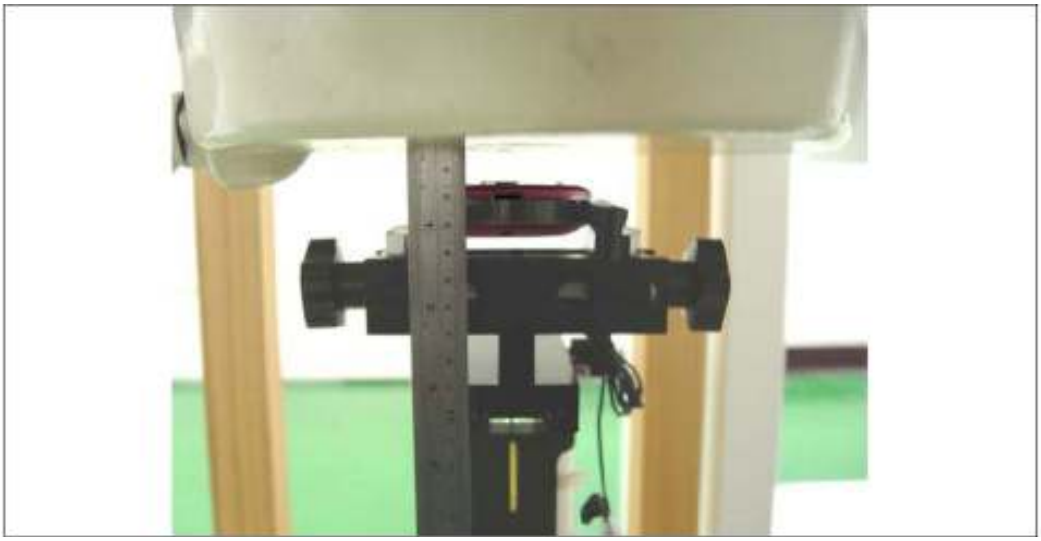
EUT Setup Configuration 3

Tilt device with head phantom.

Fig. 4 Left Tilted

EUT Setup Configuration 4

the back side of the EUT in body position



SAR MEASUREMENT RESULT

Date of Measurement: June 08,2010

SAR Measurement GSM 850

Crest Factor: 8 (Duty cycle: 12.5%) Depth of Liquid: 15.0 cm

EUT Configuration 1

EUT Setup Condition			Frequency		Conducted Power (dBm)		Liquid Temp [℃]	SAR(1g) (W/kg)	Limit (W/kg)
Position	Antenna	Channel	MHz	Before	After			
Flat (1.5cm)	Fixed	128	824.2	32.63	32.62	20.0	0.301	1.6
		180	836.6	**32.91**	32.90	20.0	0.252	
		251	848.8	31.44	31.43	20.0	0.361	

EUT Configuration 2

EUT Setup Condition			Frequency		Conducted Power (dBm)		Liquid Temp [℃]	**SAR**(1g) (W/kg)	Limit (W/kg)
Position	Antenna	Channel	MHz	Before	After			
cheek	**Righthead** Fixed	128	824.2	32.66	32.65	20.0	0.861	1.6
		180	836.6	32.89	32.88	20.0	0.837	
		251	848.8	31.41	31.40	20.0	0.831	
	Left_head Fixed	128	824.2	32.66	32.65	20.0	**0.859**	
		180	836.6	32.89	32.88	20.0	0.809	
		251	848.8	31.41	31.40	20.0	0.828	

EUT Configuration 3

EUT Setup Condition			Frequency		Conducted Power (dBm)		Liquid Temp [℃]	**SAR**(1g) (W/kg)	Limit (W/kg)
Position	Antenna	Channel	MHz	Before	After			
tilt	**Righthead** Fixed	128	824.2	32.66	32.65	20.0	0.639	1.6
		180	836.6	32.89	32.88	20.0	0.654	
		251	848.8	31.41	31.40	20.0	0.661	
	Left_head Fixed	128	824.2	32.66	32.65	20.0	0.460	
		180	836.6	32.89	32.88	20.0	0.507	
		251	848.8	31.41	31.40	20.0	0.541	

Remarks: For SAR testing, EUT is in GSM link mode. In GSM850 link mode, its crest factor is 8. (Duty cycle: 1:8)

Date of Measurement: June 08,2010

SAR Measurement GPRS 850 Class 12

Crest Factor: 2 (Duty cycle: 50%) Depth of Liquid: 15.0 cm

EUT Configuration 4

EUT Setup Condition		Frequency		Conducted Power (dBm)		Liquid Temp [°C]	SAR(1g) (W/kg)	Limit (W/kg)
Position	Antenna	Channel	MHz	Before	After			
Flat (1.5cm)	Fixed	128	824.2	32.63	32.62	20.0	0.283	1.6
		180	836.6	32.87	32.86	20.0	0.364	
		251	848.8	31.40	31.39	20.0	0.351	

Remarks: For SAR testing, EUT is in GPRS link mode. In GPRS850 link mode, its crest factor is 2. (Duty cycle: 1:2)

Date of Measurement: June 08,2010

SAR Measurement GSM 1900

Crest Factor: 8 (Duty cycle: 12.5%) Depth of Liquid: 15.0 cm

EUT Configuration 1

EUT Setup Condition		Frequency		Conducted Power (dBm)		Liquid Temp [℃]	SAR(1g) (W/kg)	Limit (W/kg)
Position	Antenna	Channel	MHz	Before	After			
Flat (1.5cm)	Fixed	512	1850.2	28.77	28.76	20.0	0.356	1.6
		661	1880.0	29.16	29.15	20.0	0.317	
		810	1910.0	28.72	28.71	20.0	0.368	

EUT Configuration 2

EUT Setup Condition			Frequency		Conducted Power (dBm)		Liquid Temp [℃]	**SAR**(1g) (W/kg)	Limit (W/kg)
Position		Antenna	Channel	MHz	Before	After			
cheek	**Right head**	Fixed	512	1850.2	28.73	28.72	20.0	0.488	1.6
			661	1880.0	29.08	29.06	20.0	0.535	
			810	1910.0	28.79	28.78	20.0	0.578	
	Left_head	Fixed	512	1850.2	28.73	28.72	20.0	0.358	
			661	1880.0	29.08	29.06	20.0	0.561	
			810	1910.0	28.79	28.78	20.0	0.454	

EUT Configuration 3

EUT Setup Condition			Frequency		Conducted Power (dBm)		Liquid Temp [℃]	**SAR**(1g) (W/kg)	Limit (W/kg)
Position		Antenna	Channel	MHz	Before	After			
tilt	**Righthead**	Fixed	512	1850.2	28.73	28.72	20.0	0.449	1.6
			661	1880.0	29.08	29.06	20.0	0.486	
			810	1910.0	28.79	28.78	20.0	0.562	
	Left_head	Fixed	512	1850.2	28.73	28.72	20.0	0.363	
			661	1880.0	29.08	29.06	20.0	0.442	
			810	1910.0	28.79	28.78	20.0	0.457	

Remarks: For SAR testing, EUT is in GSM link mode. In GSM1900 link mode, its crest factor is 8. (Duty cycle: 1:8)

Date of Measurement: June 08,2010

SAR Measurement GPRS 1900 Class 12

Crest Factor: 2 (Duty cycle: 50%) Depth of Liquid: 15.0 cm

EUT Configuration 4

EUT Setup Condition		Frequency		Conducted Power (dBm)		Liquid Temp [°C]	SAR(1g) (W/kg)	Limit (W/kg)
Position	Antenna	Channel	MHz	Before	After			
Flat (1.5cm)	Fixed	512	1850.2	28.70	28.69	20.0	**0.485**	1.6
		661	1880.0	29.06	29.05	20.0	0.391	
		810	1910.0	28.77	28.76	20.0	0.460	

Remarks: For SAR testing, EUT is in GPRS link mode. In GPRS 1900 link mode, its crest factor is 2. (Duty cycle: 1:2)

SAR Evaluation Consideration for handsets with Multiple Transmitter and Antennas

These procedures were followed according to FCC "SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas", May 2008. The procedures are applicable to phones with built-in unlicensed transmitters, such as 802.11 a/b/g and Bluetooth devices.

	2.45	5.15 - 5.35	5.47 - 5.85	GHz
P_{Ref}	12	6	5	mW
Device output power should be rounded to the nearest mW to compare with values specified in this				

Table. 10.1 Output Power Thresholds for Unlicensed Transmitters

	Individual Transmitter	Simultaneous Transmission
Licensed Transmitters	Routine evaluation required	SAR not required: Unlicensed only ○ when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas Licensed & Unlicensed ○ when the sum of the 1-g SAR is < 1.6 W/kg for all simultaneous transmitting antennas ○ when SAR to peak location separation ratio of simultaneous transmitting antenna pair is < 0.3 SAR required: Licensed & Unlicensed antenna pairs with SAR to peak location separation ratio ≥ 0.3; test is only required for the configuration that results in the highest SAR in stand-alone configuration for each wireless mode and exposure condition Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply
Unlicensed Transmitters	When there is no simultaneous transmission – ○ output ≤ 60/f: SAR not required ○ output > 60/f: stand-alone SAR required When there is simultaneous transmission – Stand-alone SAR not required when ○ output ≤ 2-P_{Ref} and antenna is ≥ 5.0 cm from other antennas ○ output ≤ P_{Ref} and antenna is ≥ 2.5 cm from other antennas ○ output ≤ P_{Ref} and antenna is < 2.5 cm from other antennas, each with either output power ≤ P_{Ref} or 1-g SAR < 1.2 W/kg Otherwise stand-alone SAR is required When stand-alone SAR is required ○ test SAR on highest output channel for each wireless mode and exposure condition ○ if SAR for highest output channel is > 50% of SAR limit, evaluate all channels according to normal procedures	
Jaw, Mouth and Nose	Flat phantom SAR required ○ when measurement is required in tight regions of SAM and it is not feasible or the results can be questionable due to probe tilt, calibration, positioning and orientation issues ○ position rectangular and clam-shell phones according to flat phantom procedures and conduct SAR measurements for these specific locations	When simultaneous transmission SAR testing is required, contact the FCC Laboratory for interim guidance.

Table. 10.2 SAR Evaluation Requirements for Cellphones with Multiple Transmitters

WLAN and BT will not work at the same time.

WLAN Output Power = 10 dBm ➔ Individual SAR is not required.
BT Output Power = less than 0dBm ➔ Individual SAR is not required.

BT and WLAN are sharing one antenna.
The antenna separation from GSM to WLAN/BT is 9cm

Because the conducted output power level of the BT/WLAN transmitter is less than Pref, and the other antenna < 2.5cm is Less than 1.6 W/KG , no simultaneous SAR are required for the EUT

8 EUT PHOTOS


12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

9. EQUIPMENT LIST & CALIBRATION

Name of Equipment	Manufacturer	Type/Model	Serial Number	Calibration Due
P C	HP	PV 3.06GHz	375052-AA1	N/A
Signal Generator	Agilent	E8257C	MY43321570	3/25/2011
MultiMeter	Keithley	2000	1015843	10/21/2010
S-Parameter Network Analyzer	Agilent	E5071B	MY42301382	3/25/2011
Wireless Communication Test Set	R&S	CMU200	111092	3/25/2011
Power Meter	Agilent	E4416A	GB41292714	3/25/2011
E-field PROBE	SATIMO	EP_100	SN11/09	12/10/2010
DIPOLE 900	ANTENNESSA	DIPOLE 900MHz	SN 48/05 DIPD33	12/10/2010
DIPOLE 1800	ANTENNESSA	DIPOLE 1800MHz	SN 48/05 DIPF34	12/10/2010
POSITIONING DEVICE	ANTENNESSA	MSH_14	SN 41_05	N/A
DUMMY PROBE	ANTENNESSA	DP_12	SN 39_05	N/A
SAM PHANTOM	ANTENNESSA	SAM29	SN 41_05	N/A
PHANTON WOOD TABLE	ANTENNESSA	N/A	N/A	N/A
6 AXIS ROBOT	KUKA	KR3	846428	N/A
ROBOT KRC	KUKA	KCP2	01436	N/A
CHANELS SCAN CARD	KEITHLEY	2000	2000-172-01B	N/A
PROBE/ROBOT POSITIONING DEVICE	ANTENNESSA	MSH14	SN 41_05	N/A
LIQUID CALIBRATION KIT	ANTENNESSA	41/05 OCP9	00425167	N/A

10.FACILITIES

All measurement facilities used to collect the measurement data are located at

⊕No.10, Weiye Rd., Innovation Park, Eco & Tec. Development Part, Kunshan City, Jiangsu Province, China.

11. REFERENCES

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12. ATTACHMENT

Exhibit	Content
1	System Validation Plots
2	SAR Test Plots
3	Dipole calibration report (850MHz/1900MHz)
4	E-field calibration report

End of Report

System Validation Plots

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

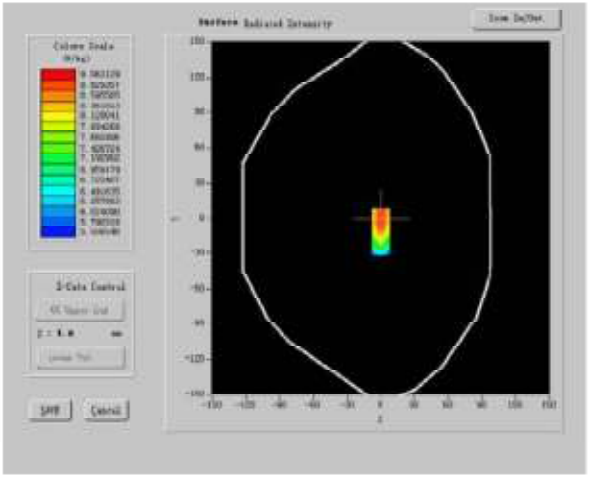
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

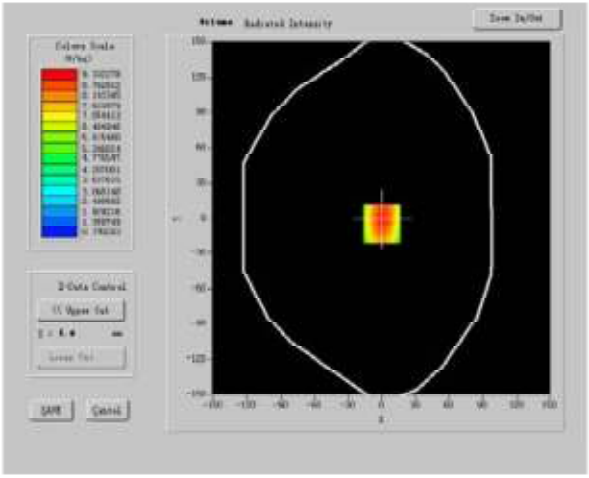
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

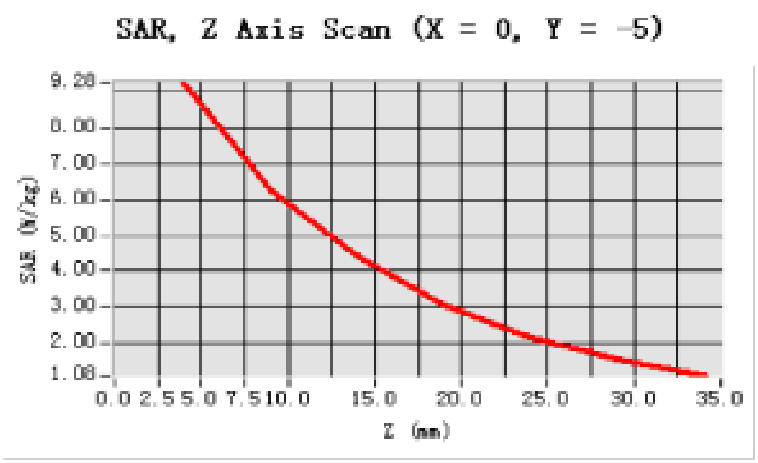
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	835.000110 (Head)
Relative permitivity (real part)	41.579001
Relative permitivity (imaginary part)	19.590210
Conductivity (S/m)	0.859210
Variation (%)	0.450000
SAR 1g (W/Kg)	9.245001

SURFACE SAR **VOLUME SAR**







Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

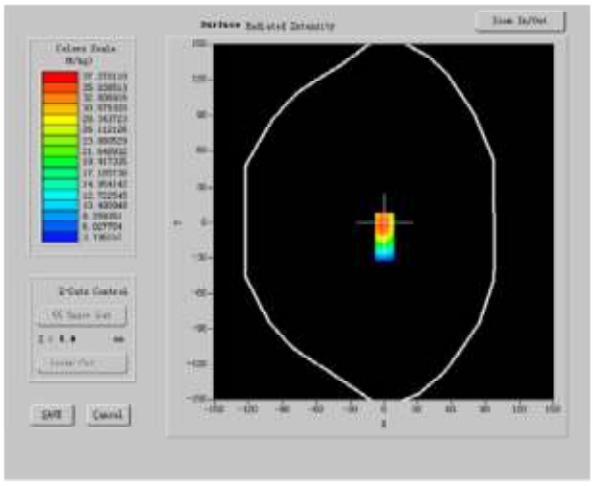
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

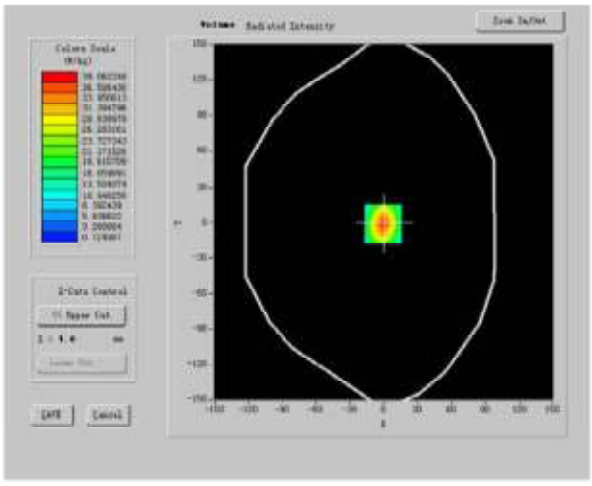
Probe: Antennessa (SN:SN_1109_EP_100)

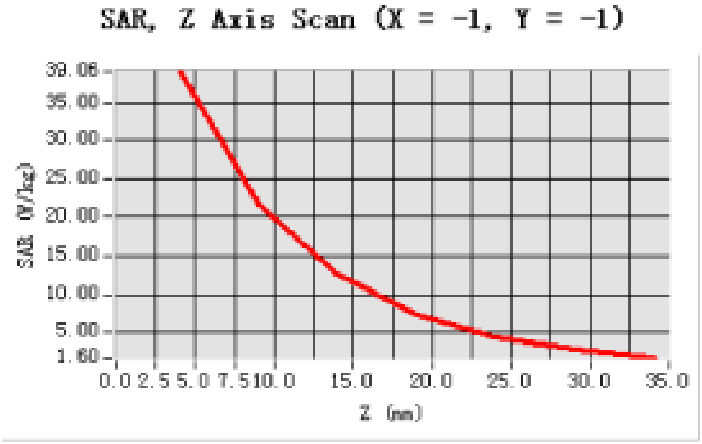
Frequency (MHz)	1880.000020 (Head)
Relative permitivity (real part)	41.214003
Relative permitivity (imaginary part)	13.210520
Conductivity (S/m)	1.385201
Variation (%)	0.450000
SAR 1g (W/Kg)	39.409223

SURFACE SAR



VOLUME SAR





Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

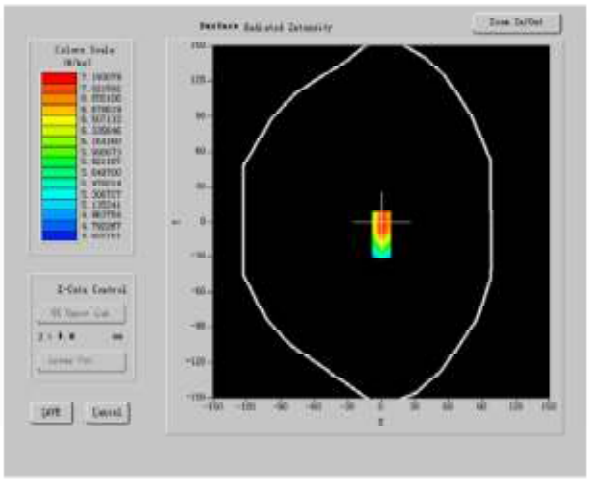
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

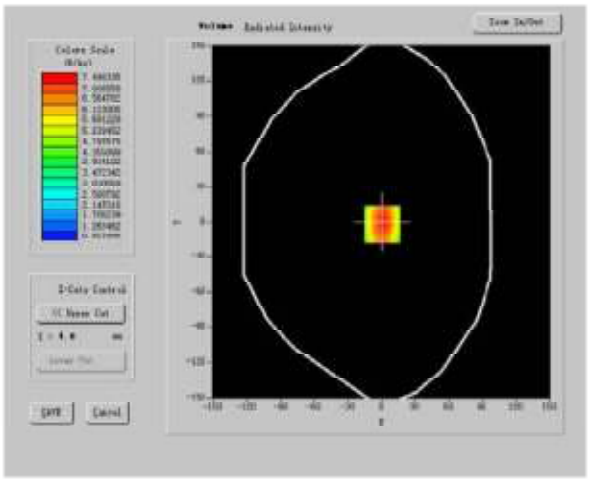
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	835.000004 (Body)
Relative permitivity (real part)	55.095200
Relative permitivity (imaginary part)	22.120012
Conductivity (S/m)	0.973210
Variation (%)	0.300000
SAR 1g (W/Kg)	9.894247

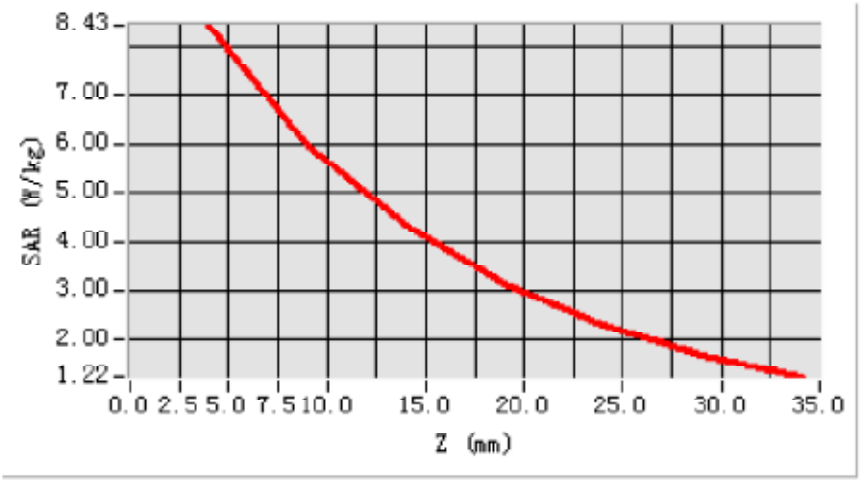
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 1, Y = -2)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

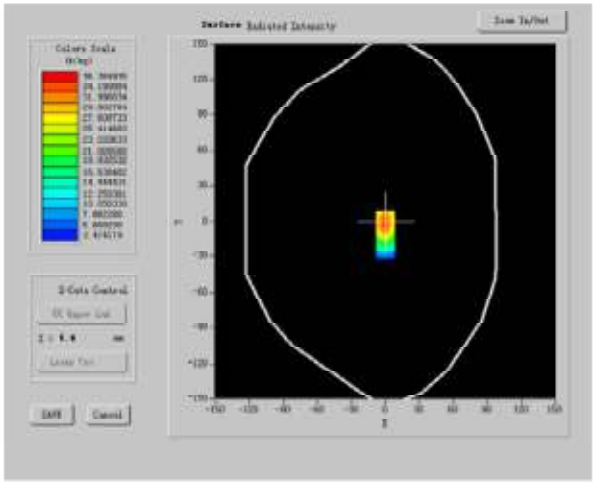
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

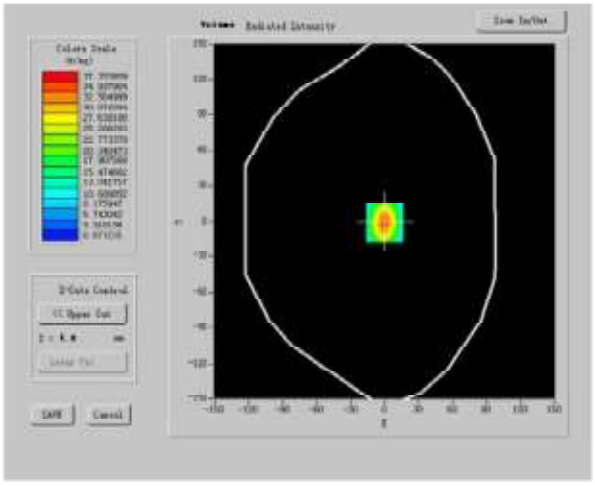
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1880.000020 (Body)
Relative permitivity (real part)	53.546168
Relative permitivity (imaginary part)	13.621000
Conductivity (S/m)	1.532100
Variation (%)	-0.400000
SAR 1g (W/Kg)	39.984602

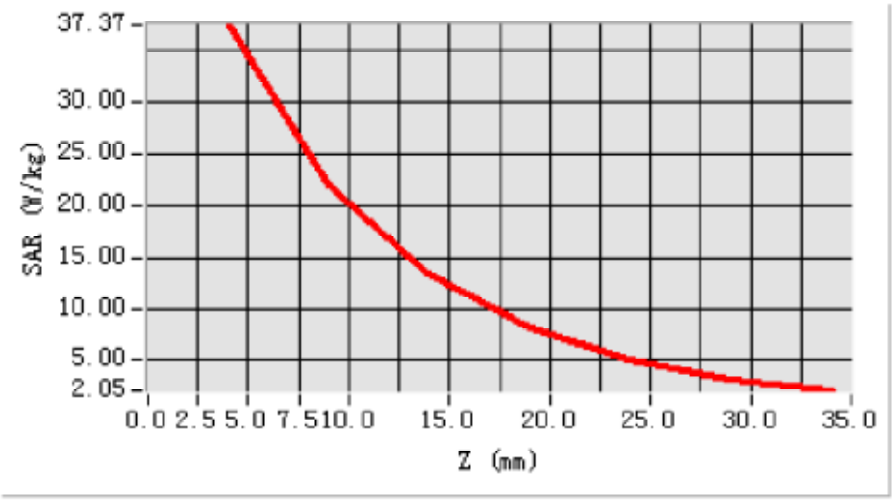
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 0, Y = -1)



SAR Data Plots

TYPE	BAND	PARAMETERS
Noise	--	--
Validation	--	--
Phone	**GSM850**	Measurement 1: Right Head with Cheek device position on Low Channel in GSM mode Measurement 2: Right Head with Cheek device position on Middle Channel in GSM mode Measurement 3: Right Head with Cheek device position on High Channel in GSM mode Measurement 4: Right Head with Tilt device position on Low Channel in GSM mode Measurement 5: Right Head with Tilt device position on Middle Channel in GSM mode Measurement 6: Right Head with Tilt device position on High Channel in GSM mode Measurement 7: Left Head with Cheek device position on Low Channel in GSM mode Measurement 8: Left Head with Cheek device position on Middle Channel in GSM mode Measurement 9: Left Head with Cheek device position on High Channel in GSM mode Measurement 10: Left Head with Tilt device position on Low Channel in GSM mode Measurement 11: Left Head with Tilt device position on Middle Channel in GSM mode Measurement 12: Left Head with Tilt device position on High Channel in GSM mode Measurement 13: Validation Plane with Body device position on Low Channel in GSMmode Measurement 14: Validation Plane with Body device position on Middle Channel in GSM mode Measurement 15: Validation Plane with Body device position on High Channel in GSM mode

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

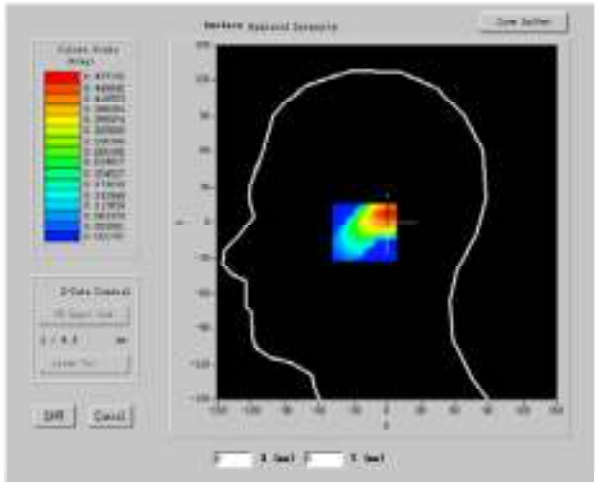
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

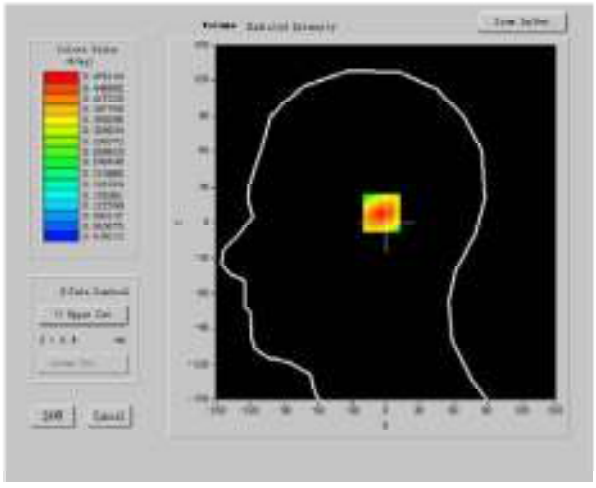
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.200001 (Right Head , Cheek)
Relative permitivity (real part)	41.489245
Relative permitivity (imaginary part)	19.510012
Conductivity (S/m)	0.854200
Variation (%)	-1.450000
SAR 1g (W/Kg)	0.861054

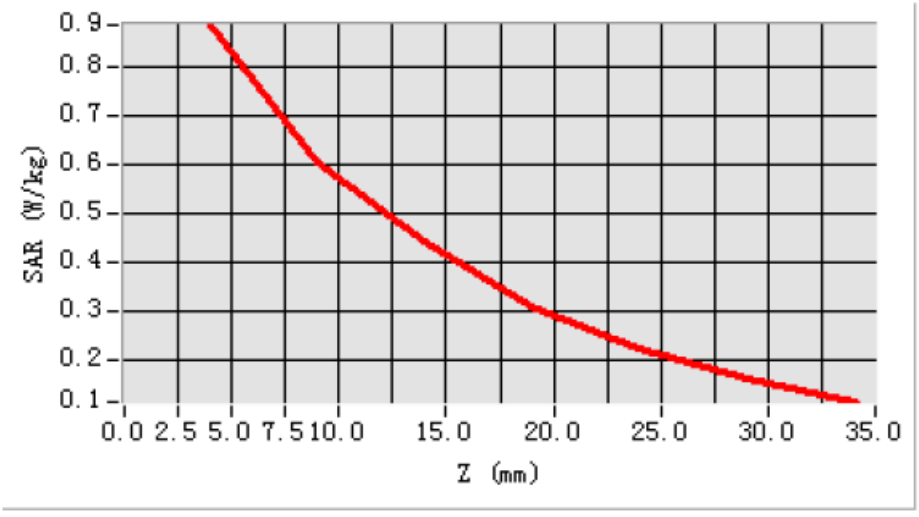
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

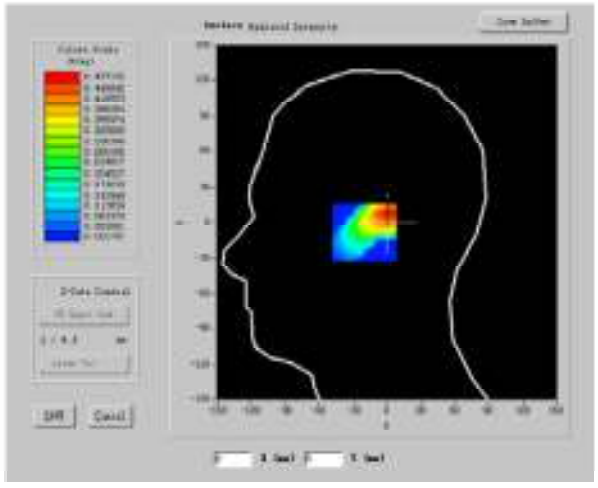
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

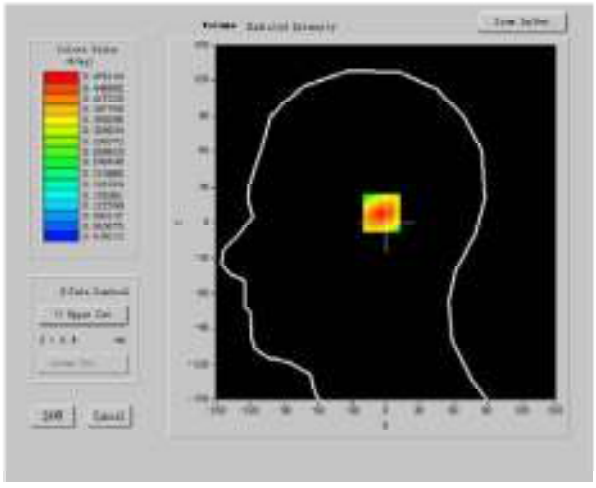
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.590001 (Right Head , Cheek)
Relative permitivity (real part)	41.400210
Relative permitivity (imaginary part)	19.505201
Conductivity (S/m)	0.906234
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.837156

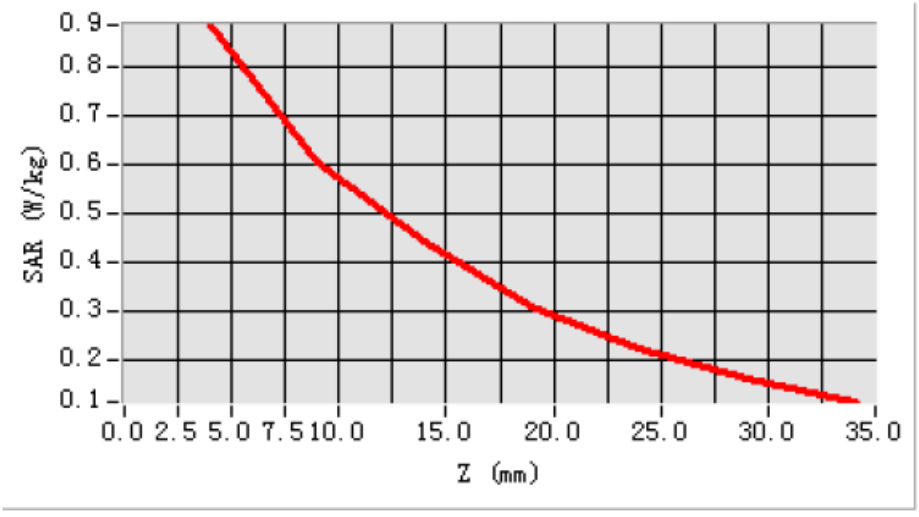
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

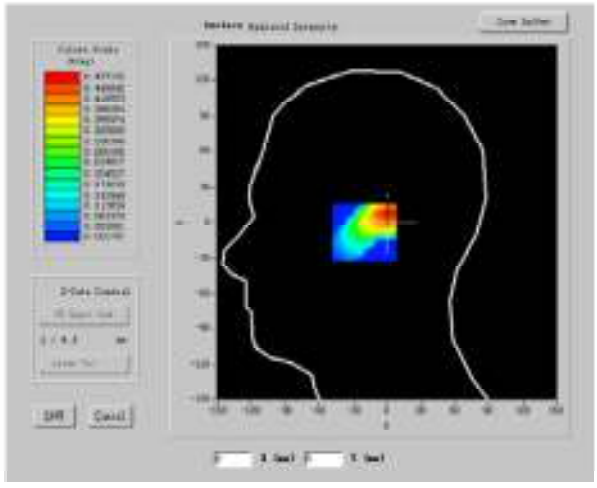
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

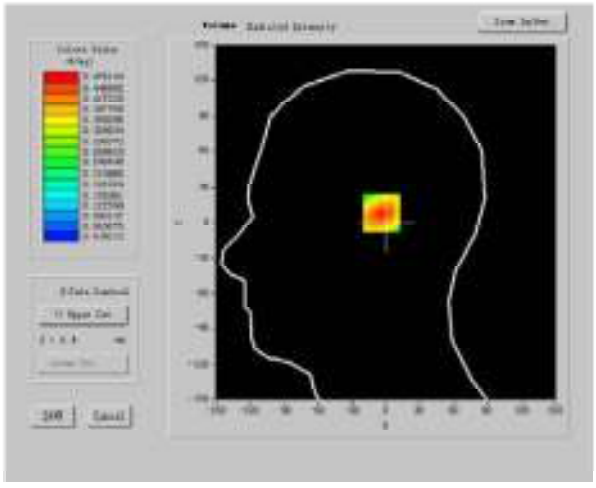
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.799999 (Right Head , Cheek)
Relative permitivity (real part)	41.262410
Relative permitivity (imaginary part)	19.593210
Conductivity (S/m)	0.902146
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.831197

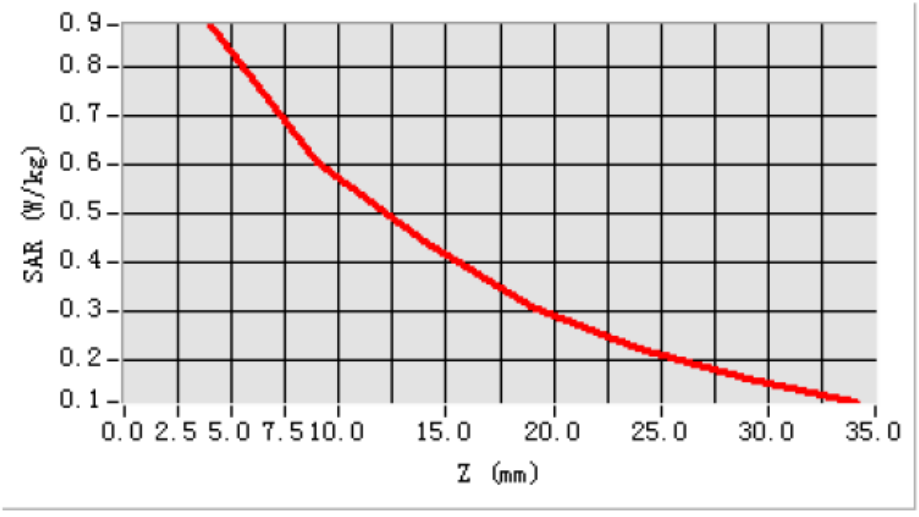
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

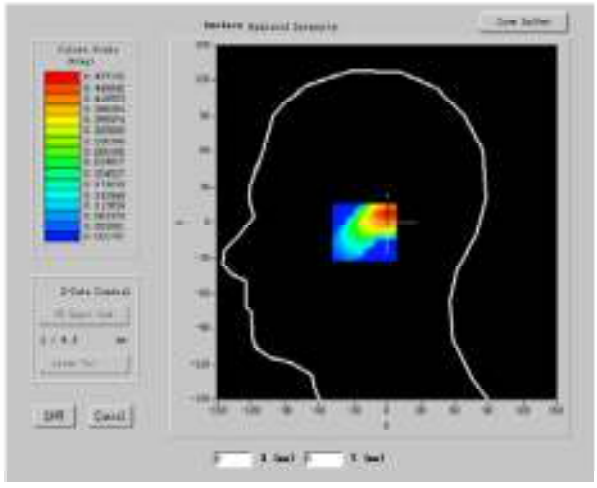
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

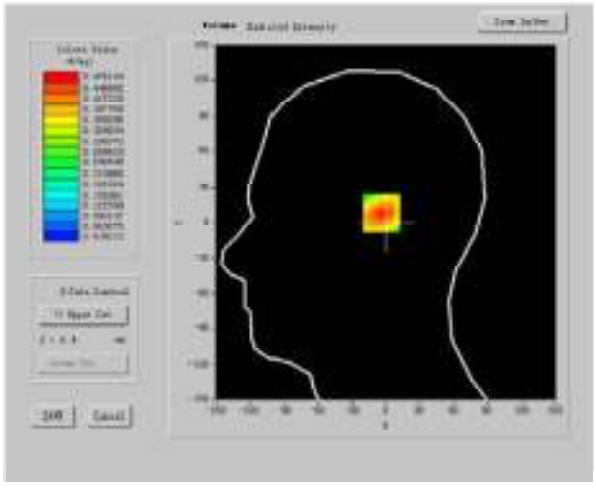
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.202012 (Right Head , Tilt)
Relative permitivity (real part)	41.432019
Relative permitivity (imaginary part)	19.532401
Conductivity (S/m)	0.815242
Variation (%)	-1.300000
SAR 1g (W/Kg)	0.638814

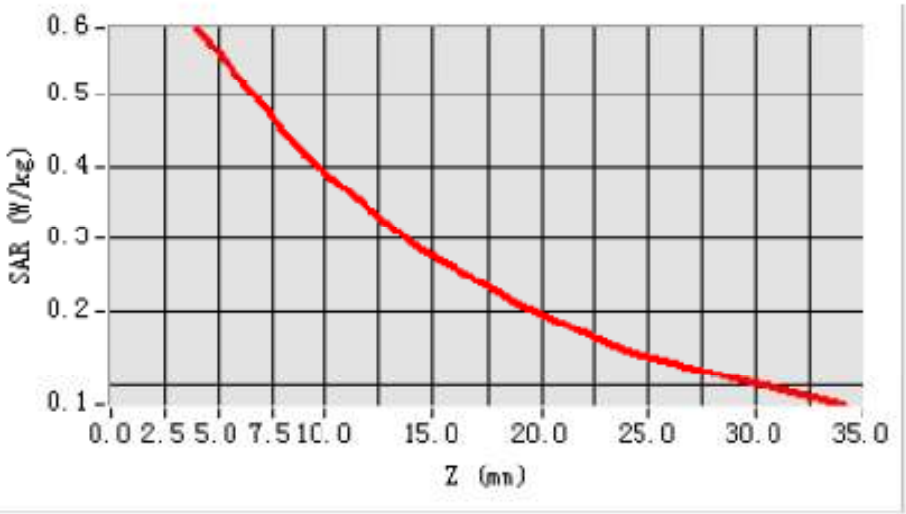
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -9, Y = -6)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

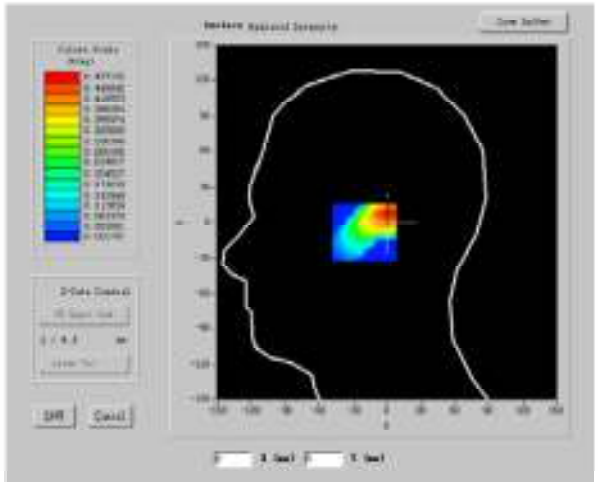
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

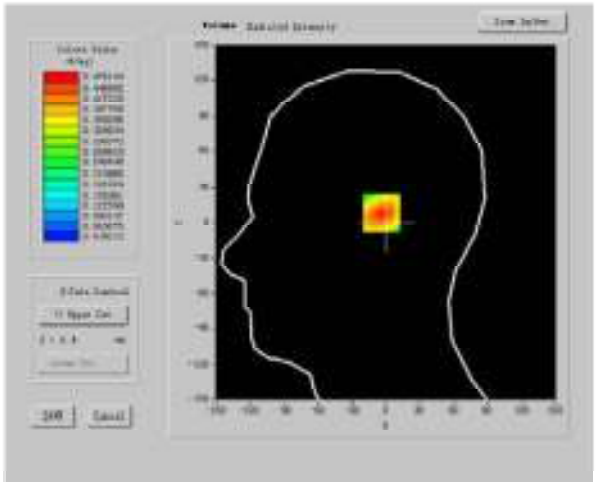
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.600210 (Right Head , tilt)
Relative permitivity (real part)	41.402109
Relative permitivity (imaginary part)	19.532001
Conductivity (S/m)	0.900120
Variation (%)	-0.890000
SAR 1g (W/Kg)	0.654108

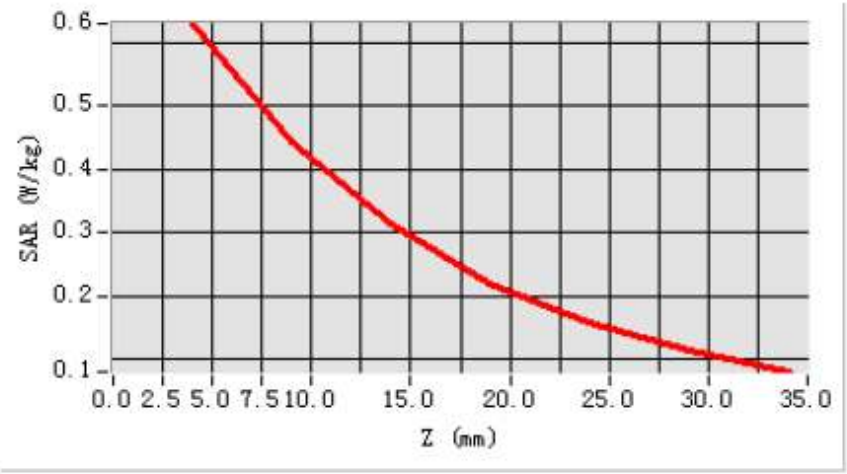
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -9, Y = -6)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

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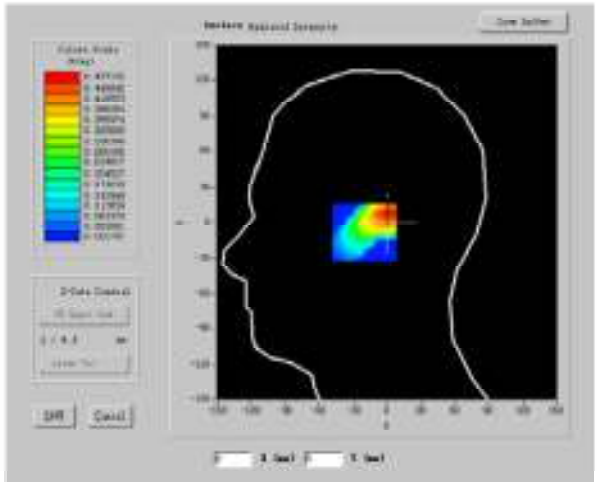
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

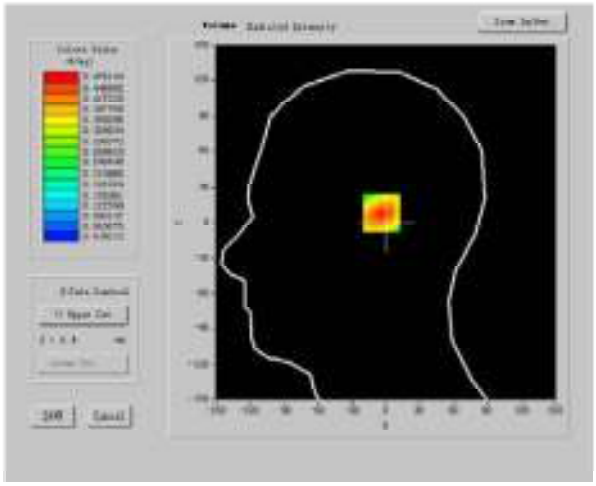
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.799000 (Right Head , Tilt)
Relative permitivity (real part)	41.221001
Relative permitivity (imaginary part)	19.536200
Conductivity (S/m)	0.903346
Variation (%)	-0.400000
SAR 1g (W/Kg)	0.660510

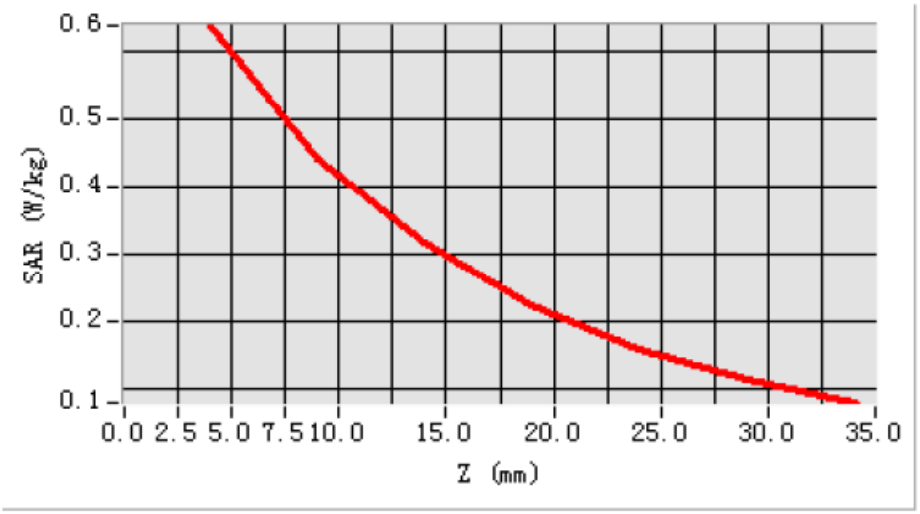
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -9, Y = -6)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

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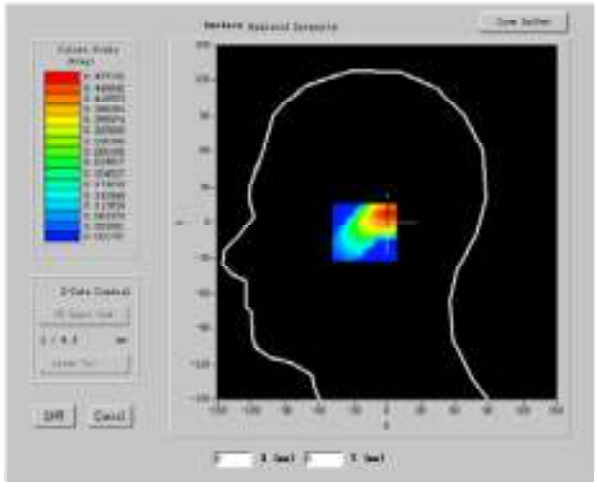
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

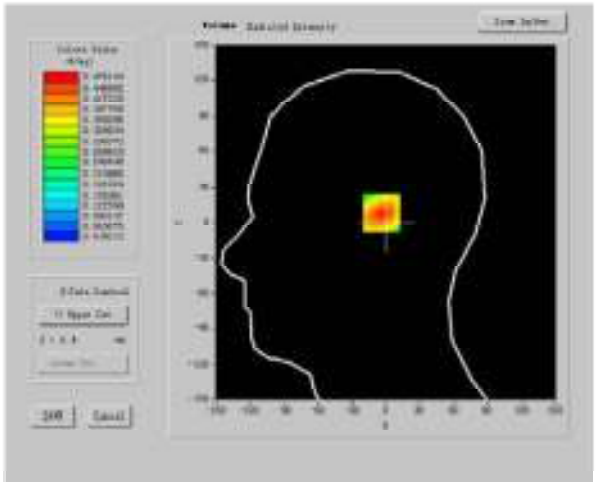
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.203202 (Left Head , Cheek)
Relative permitivity (real part)	41.412099
Relative permitivity (imaginary part)	19.545206
Conductivity (S/m)	0.832142
Variation (%)	-0.250000
SAR 1g (W/Kg)	0.859071

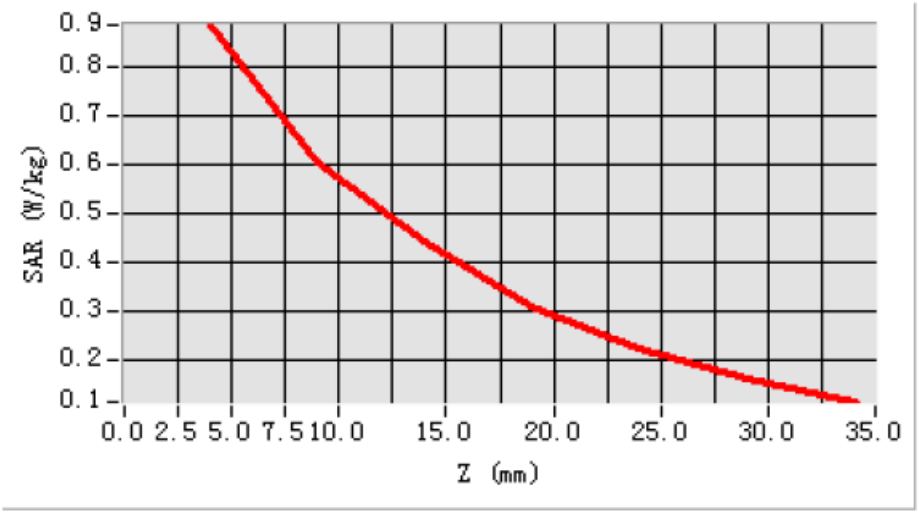
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

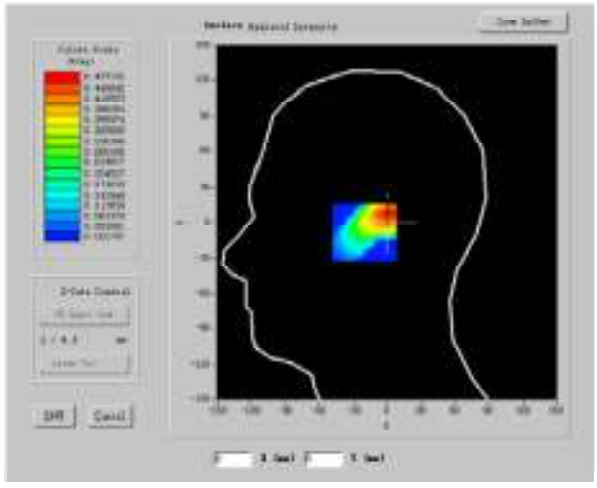
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

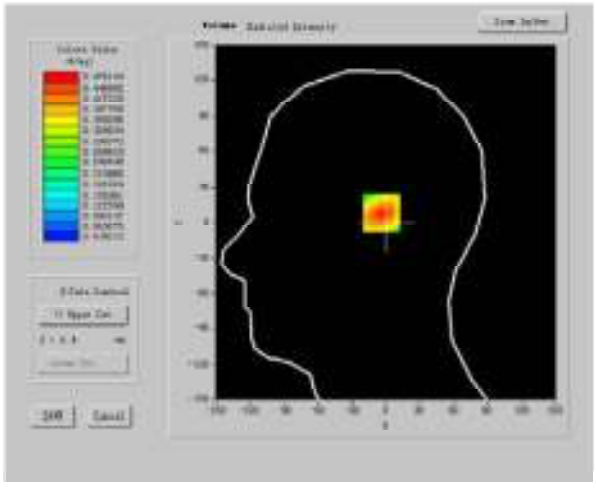
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.600010 (Left Head , Cheek)
Relative permitivity (real part)	41.490019
Relative permitivity (imaginary part)	19.505201
Conductivity (S/m)	0.906241
Variation (%)	-0.230000
SAR 1g (W/Kg)	0.808882

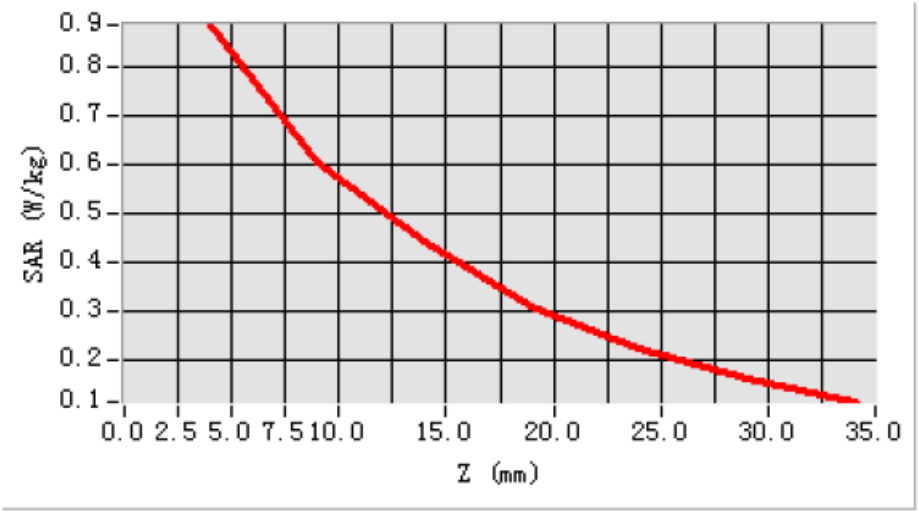
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
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Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

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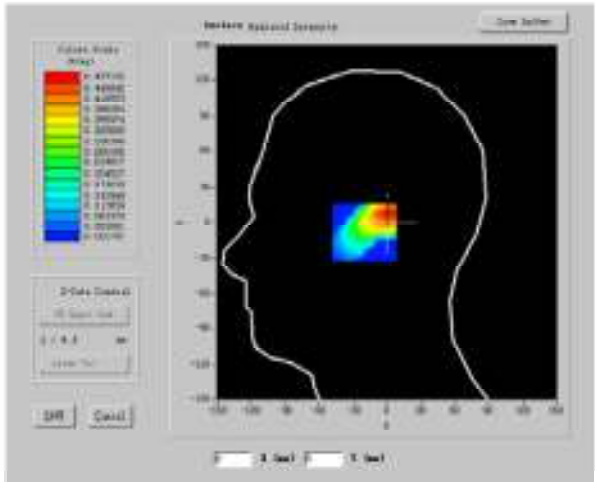
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

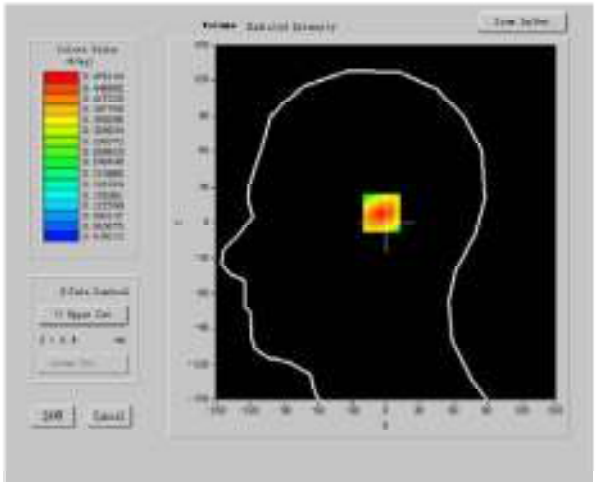
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.592416 (Left Head , Cheek)
Relative permitivity (real part)	41.214521
Relative permitivity (imaginary part)	19.535200
Conductivity (S/m)	0.900120
Variation (%)	-1.300000
SAR 1g (W/Kg)	0.827913

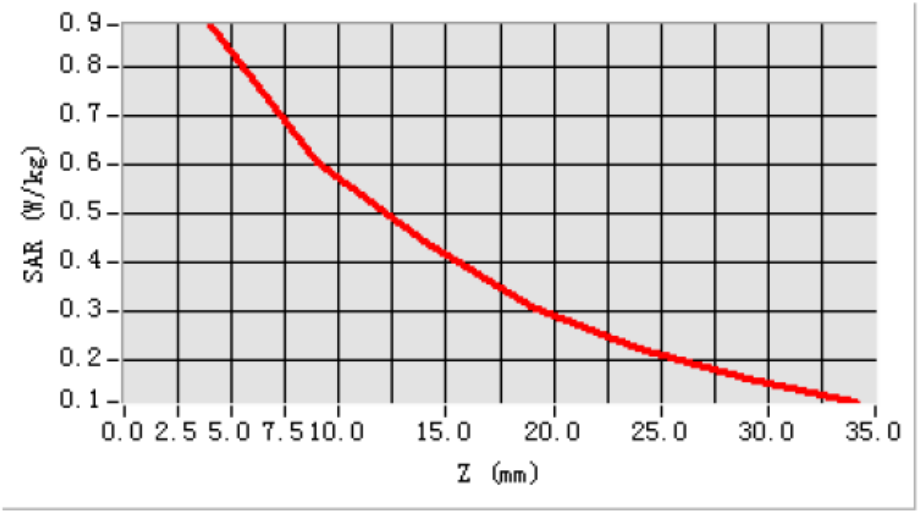
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

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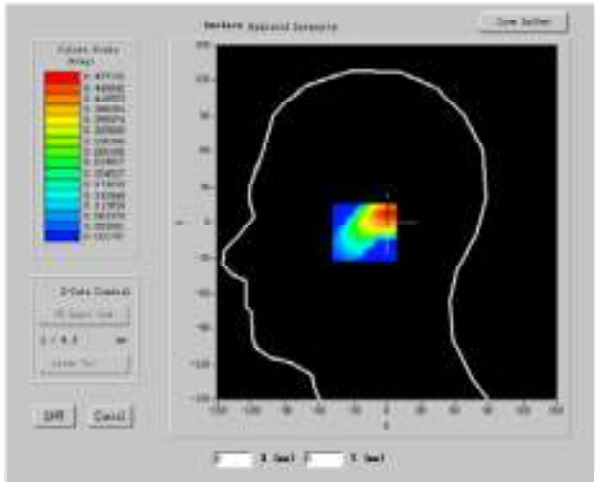
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

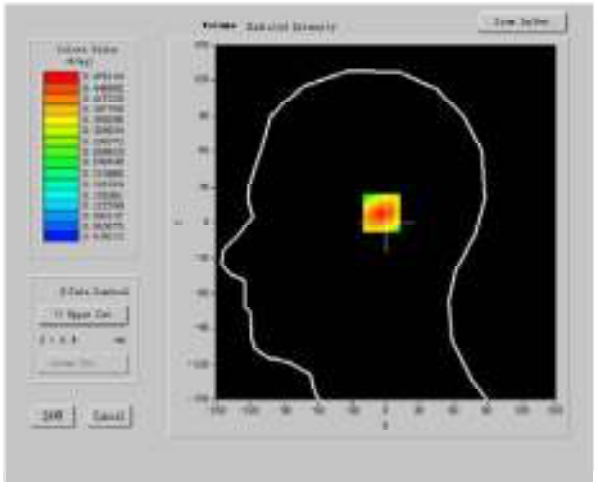
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.203202 (Left Head , Tilt)
Relative permitivity (real part)	41.412501
Relative permitivity (imaginary part)	19.502103
Conductivity (S/m)	0.900212
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.460139

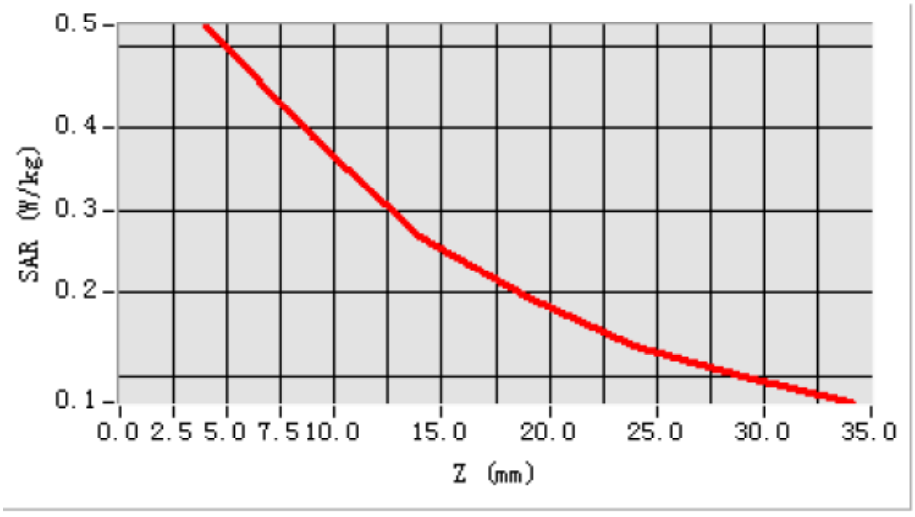
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

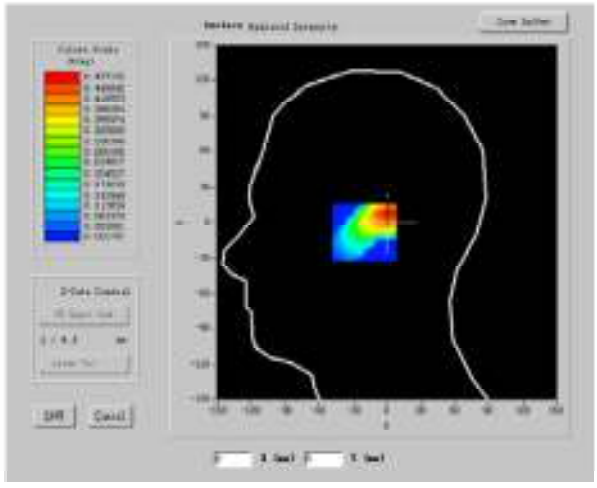
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

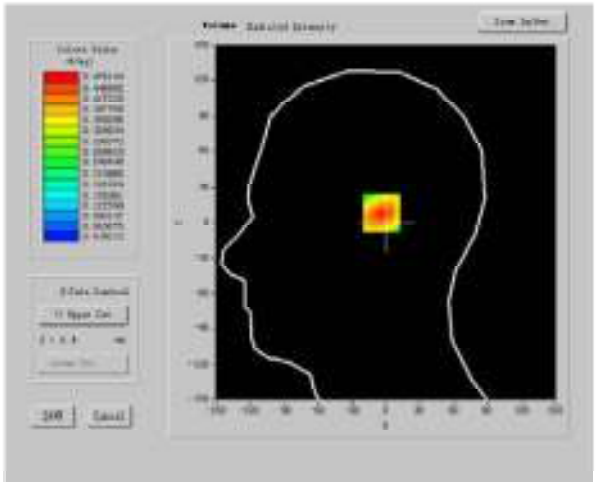
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.602124 (Left Head , tilt)
Relative permitivity (real part)	41.460120
Relative permitivity (imaginary part)	19.532105
Conductivity (S/m)	0.900102
Variation (%)	-0.010000
SAR 1g (W/Kg)	0.507431

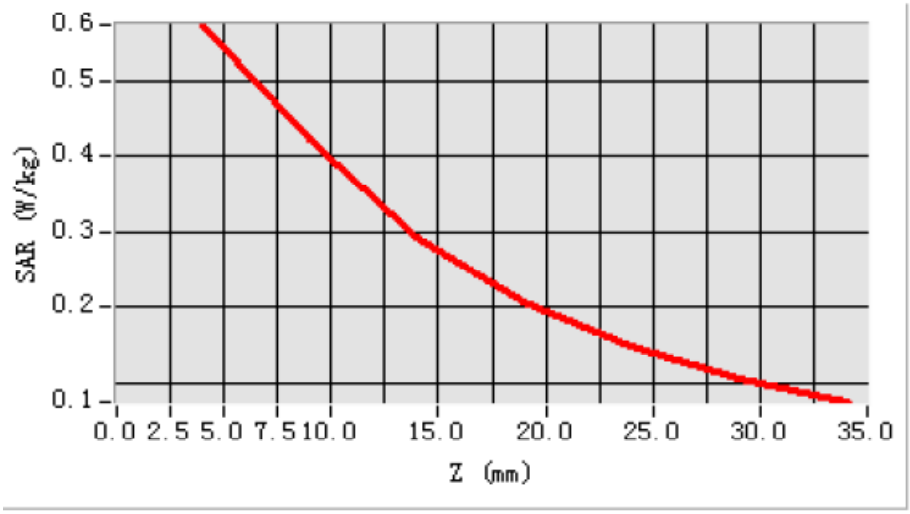
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

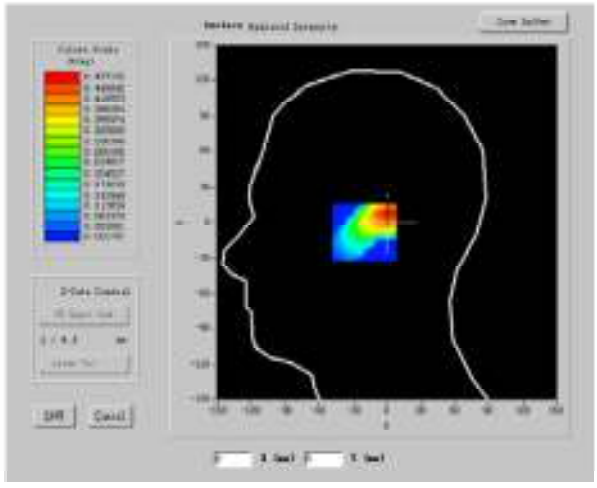
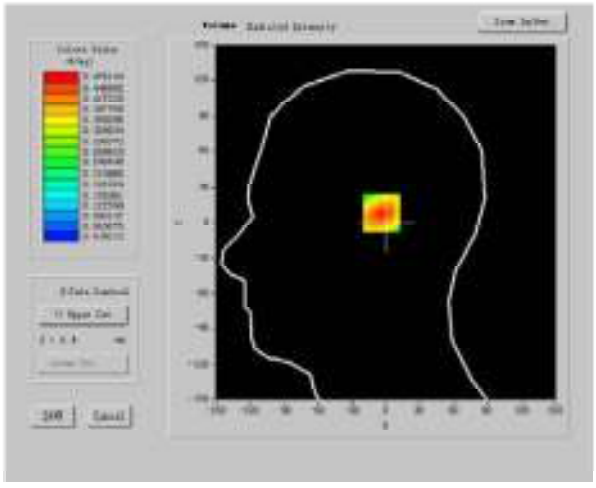
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

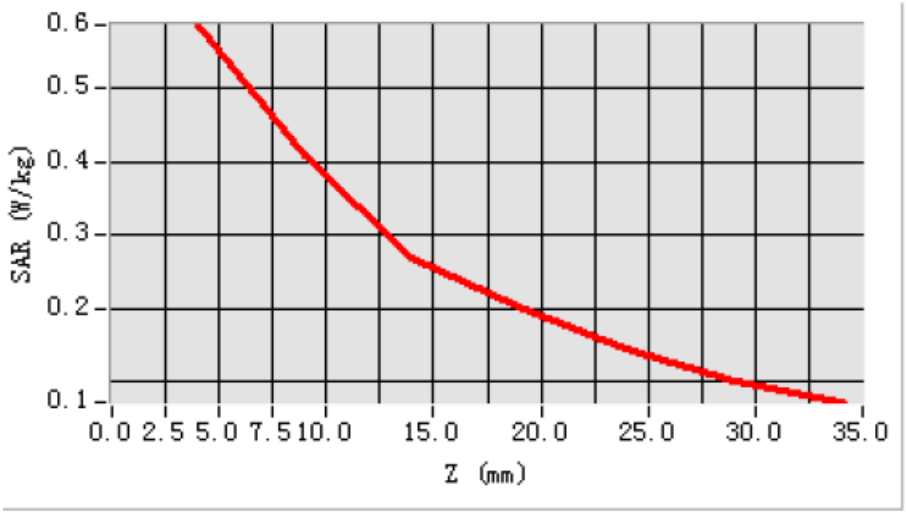
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.790120 (Left Head , Tilt)
Relative permitivity (real part)	41.432001
Relative permitivity (imaginary part)	19.524100
Conductivity (S/m)	0.903206
Variation (%)	-1.100000
SAR 1g (W/Kg)	0.540881

SURFACE SAR	VOLUME SAR
	

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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

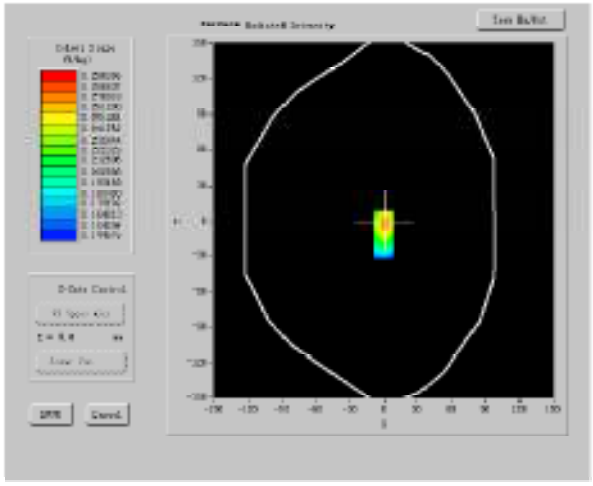
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

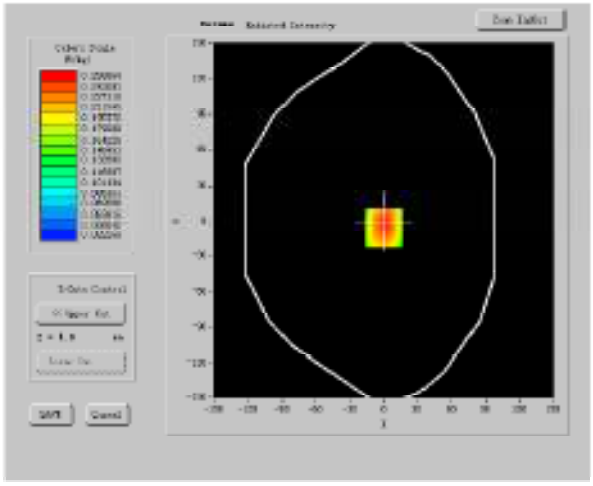
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.200002 (Body)
Relative permitivity (real part)	55.524000
Relative permitivity (imaginary part)	21.241150
Conductivity (S/m)	0.932509
Variation (%)	-1.130000
SAR 1g (W/Kg)	0.300897

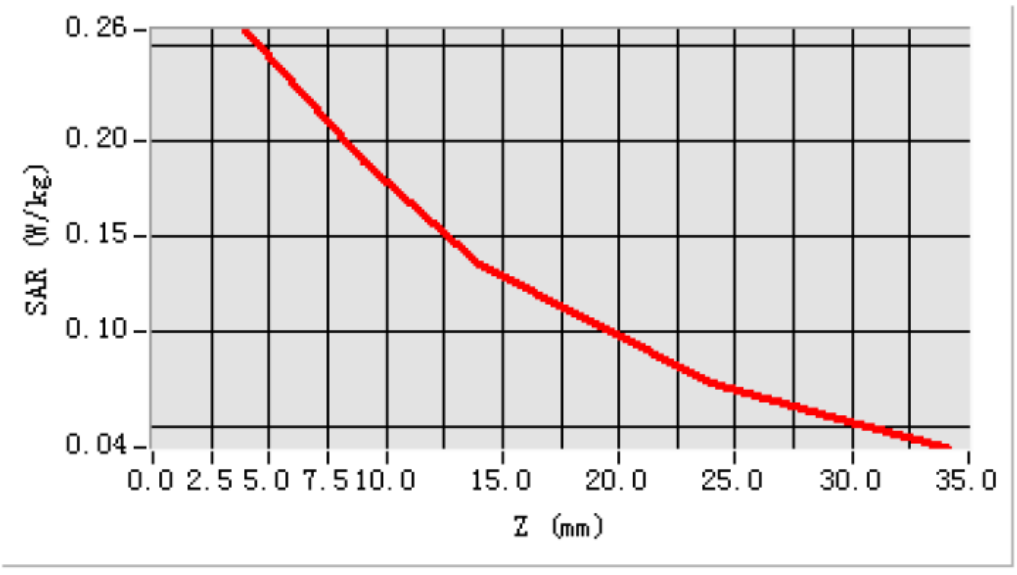
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

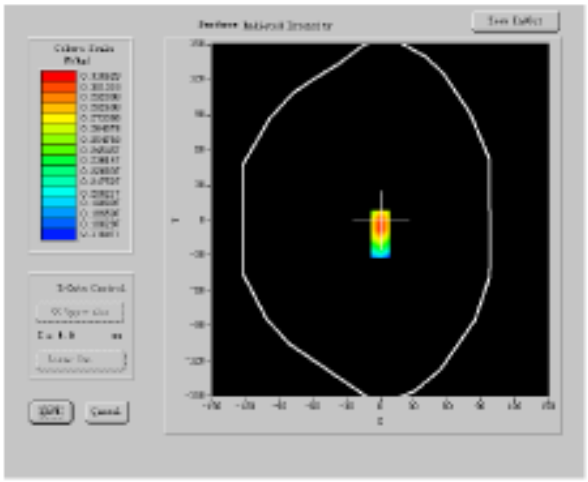
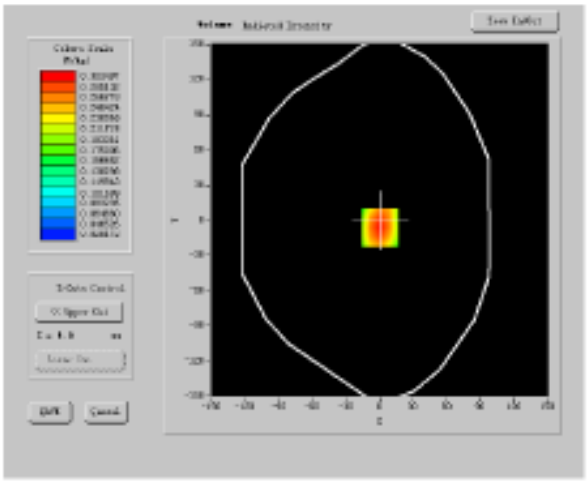
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

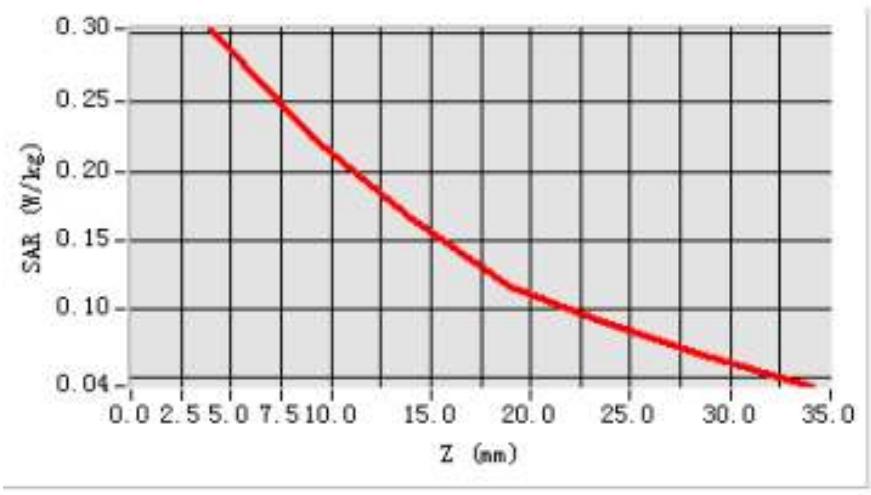
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	836.600204 (Body)
Relative permitivity (real part)	55.500210
Relative permitivity (imaginary part)	21.832010
Conductivity (S/m)	0.924152
Variation (%)	-1.200000
SAR 1g (W/Kg)	0.252046

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

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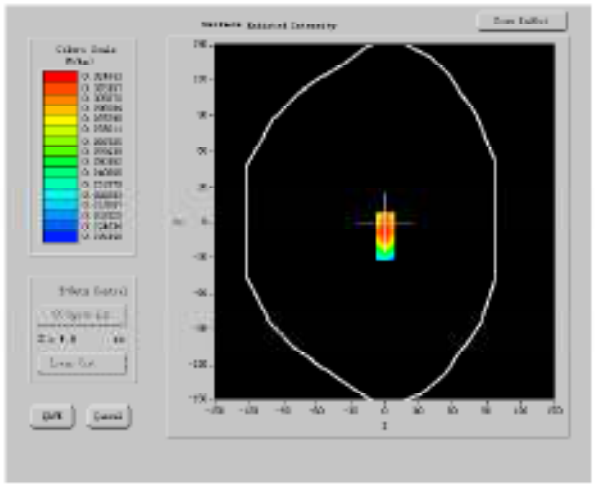
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

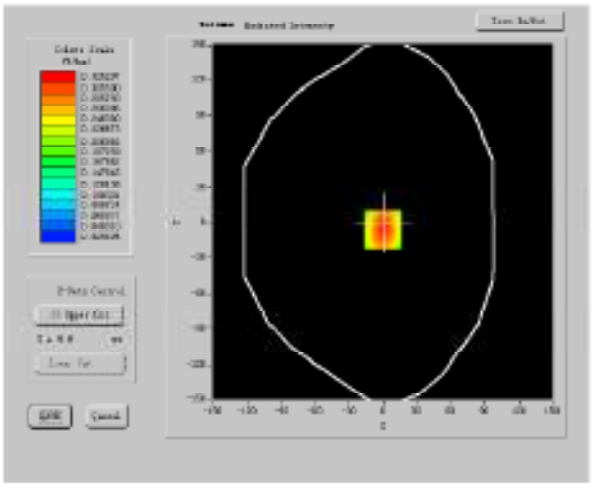
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	848.862406 (Body)
Relative permitivity (real part)	55.524000
Relative permitivity (imaginary part)	21.702101
Conductivity (S/m)	0.963200
Variation (%)	-1.310000
SAR 1g (W/Kg)	0.361159

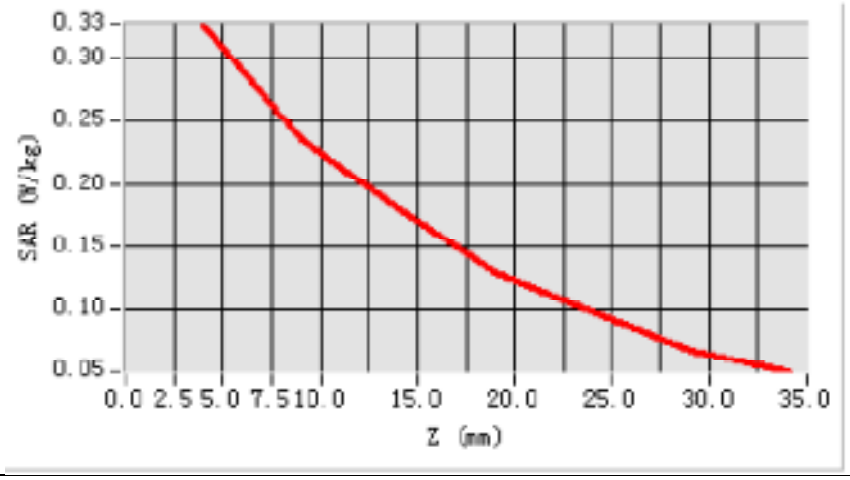
SURFACE SAR



VOLUME SAR



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



GSM 1900

I. RESULTS

TYPE	BAND	PARAMETERS
Noise	--	--
Validation	--	--
Phone	**GSM1900**	Measurement 1: Right Head with Cheek device position on Low Channel in GSM mode Measurement 2: Right Head with Cheek device position on Middle Channel in GSM mode Measurement 3: Right Head with Cheek device position on High Channel in GSM mode Measurement 4: Right Head with Tilt device position on Low Channel in GSM mode Measurement 5: Right Head with Tilt device position on Middle Channel in GSM mode Measurement 6: Right Head with Tilt device position on High Channel in GSM mode Measurement 7: Left Head with Cheek device position on Low Channel in GSM mode Measurement 8: Left Head with Cheek device position on Middle Channel in GSM mode Measurement 9: Left Head with Cheek device position on High Channel in GSM mode Measurement 10: Left Head with Tilt device position on Low Channel in GSM mode Measurement 11: Left Head with Tilt device position on Middle Channel in GSM mode Measurement 12: Left Head with Tilt device position on High Channel in GSM mode Measurement 13: Validation Plane with Body device position on Low Channel in GSM mode Measurement 14: Validation Plane with Body device position on Middle Channel in GSM mode Measurement 15: Validation Plane with Body device position on High Channel in GSM mode

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

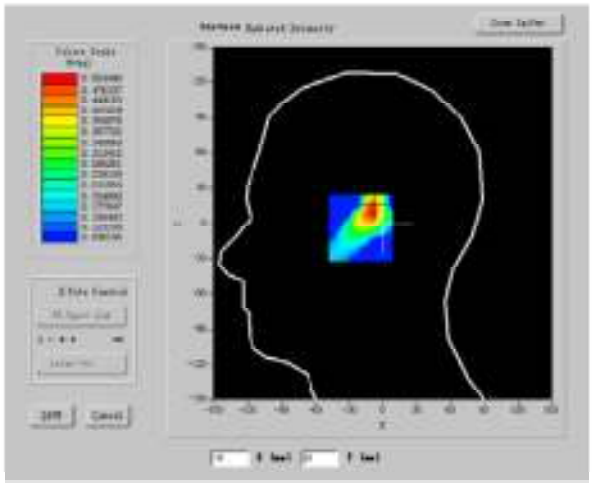
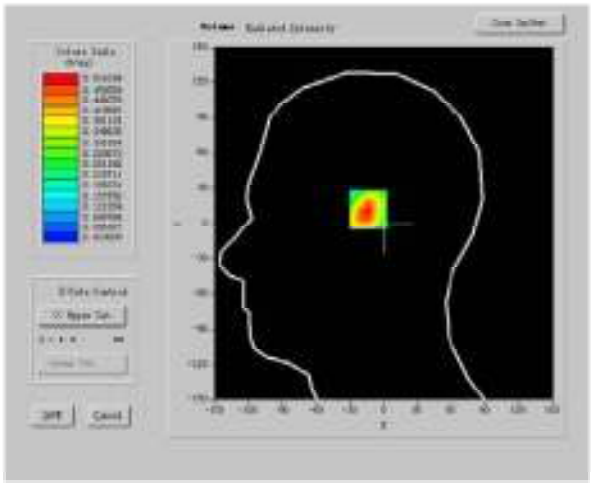
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

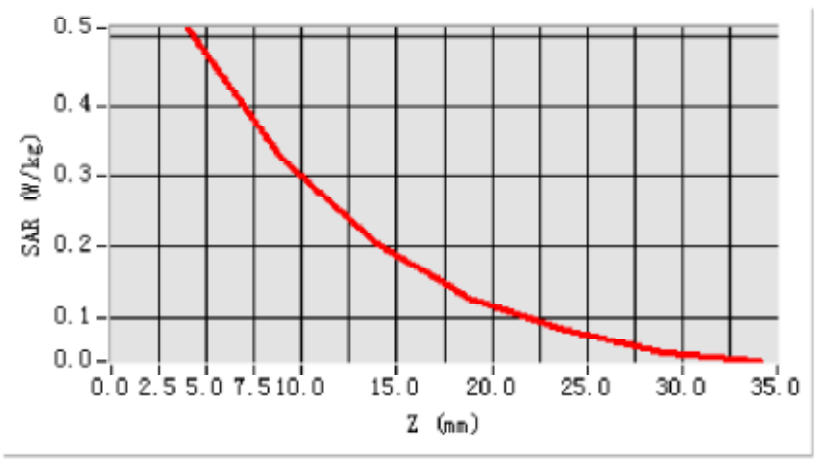
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1850.200024 (Right Head , Cheek)
Relative permitivity (real part)	40.302000
Relative permitivity (imaginary part)	13.536000
Conductivity (S/m)	1.432058
Variation (%)	-1.200000
SAR 1g (W/Kg)	0.488346

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

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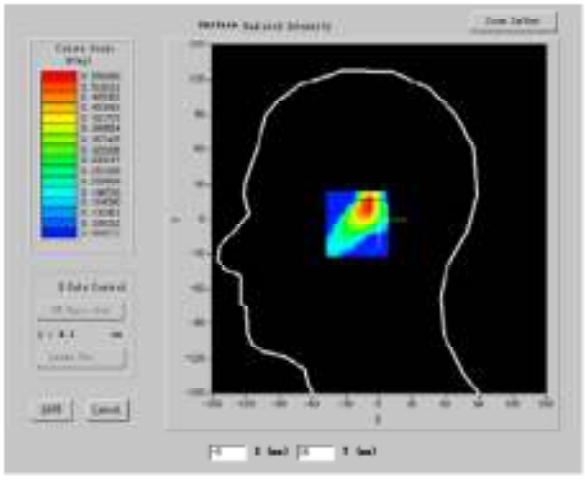
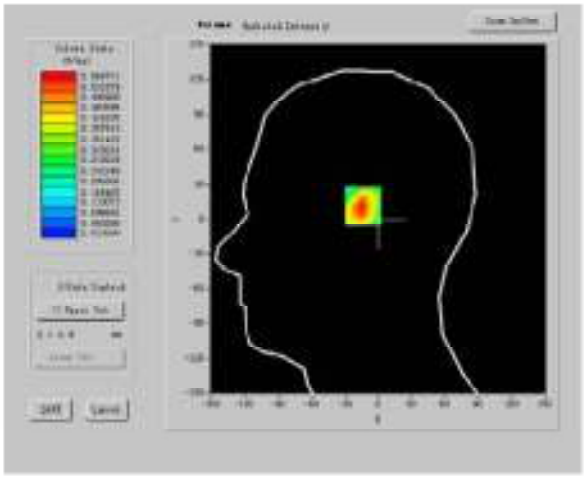
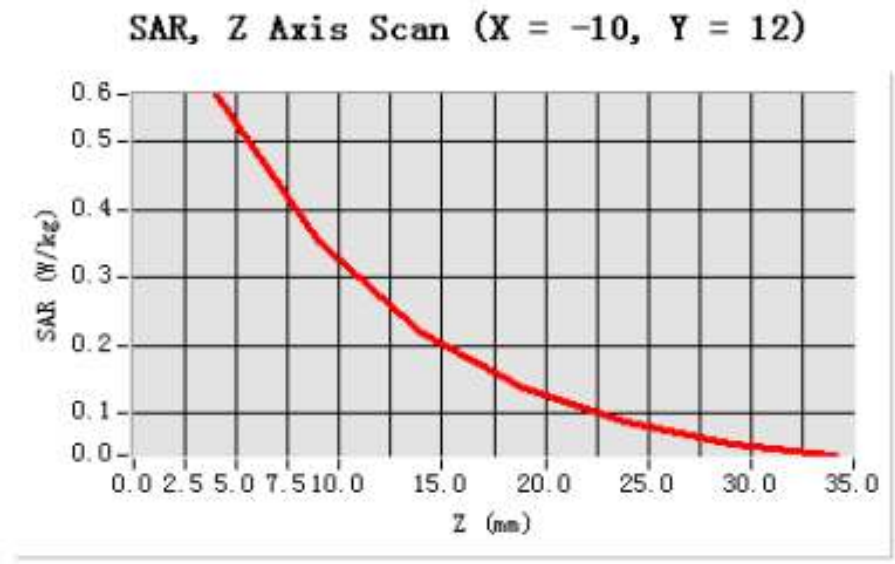
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1880.000000 (Right Head , Cheek)
Relative permitivity (real part)	40.102201
Relative permitivity (imaginary part)	13.835200
Conductivity (S/m)	1.413205
Variation (%)	-0.300000
SAR 1g (W/Kg)	0.535022

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

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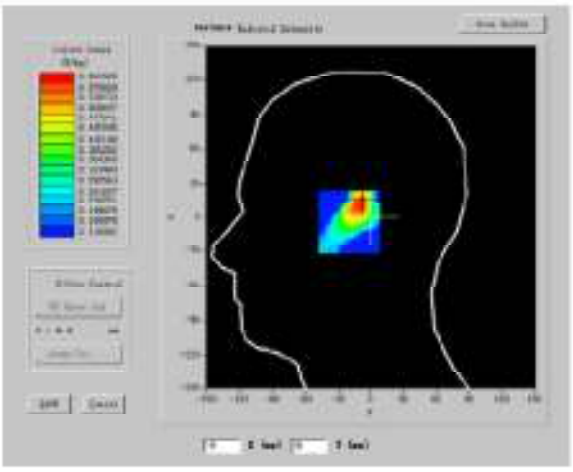
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

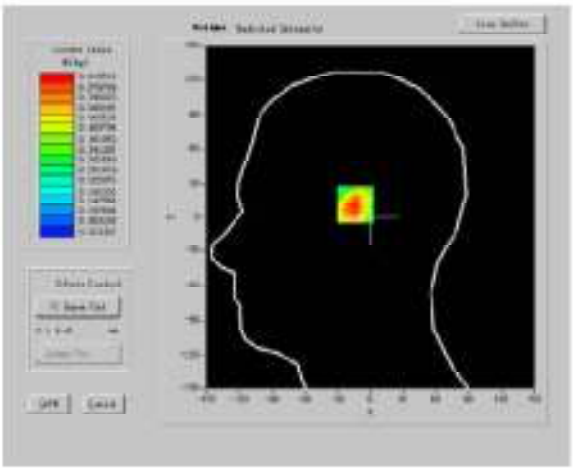
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1910.000216 (Right Head , Cheek)
Relative permitivity (real part)	40.202109
Relative permitivity (imaginary part)	13.636200
Conductivity (S/m)	1.420245
Variation (%)	-0.300000
SAR 1g (W/Kg)	0.578348

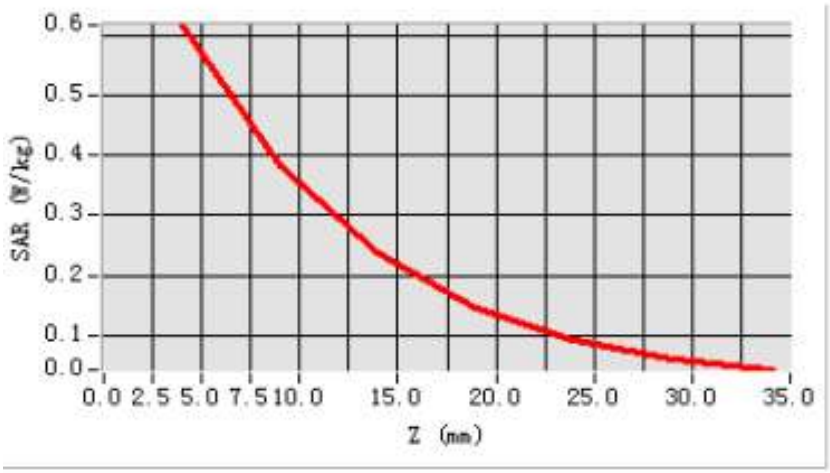
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -10, Y = 12)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

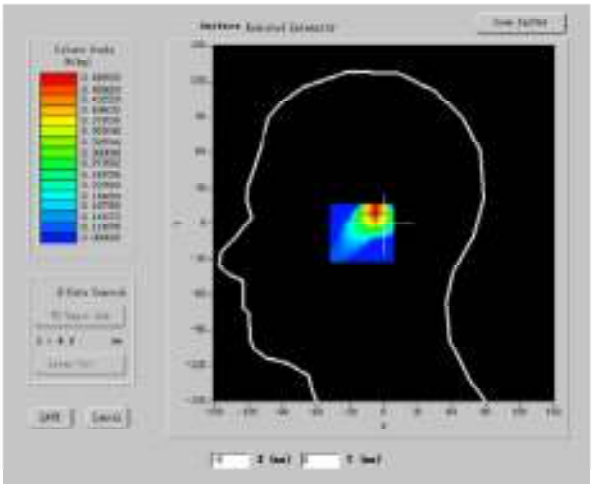
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

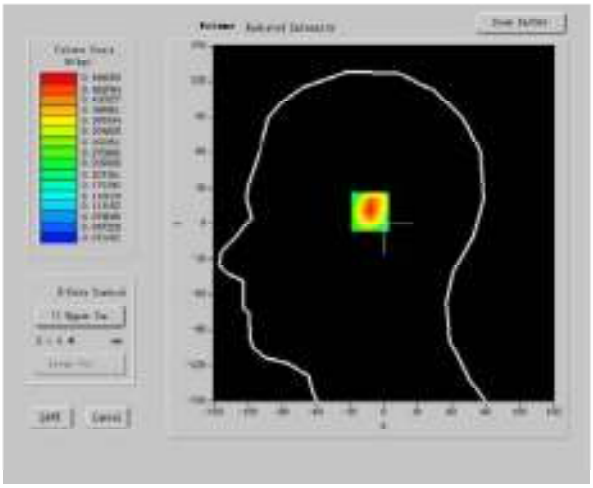
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1850.200020 (Right Head , Tilt)
Relative permitivity (real part)	40.302030
Relative permitivity (imaginary part)	13.524100
Conductivity (S/m)	1.402108
Variation (%)	-1.400000
SAR 1g (W/Kg)	0.449131

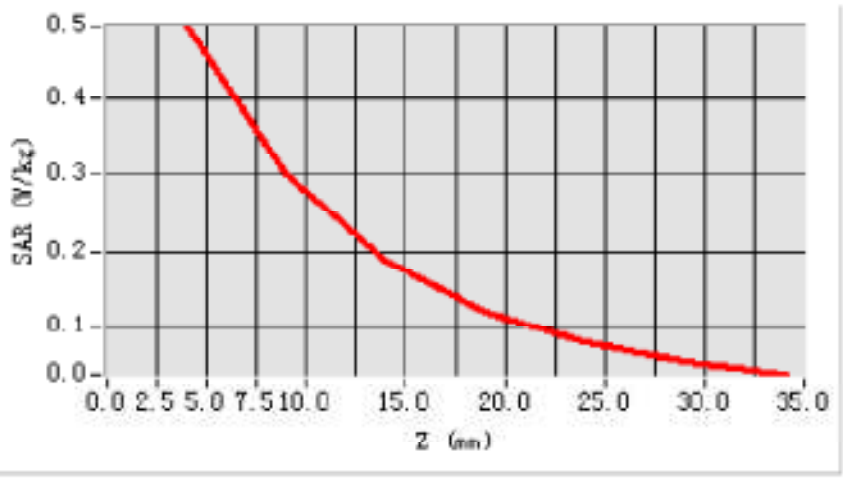
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
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Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

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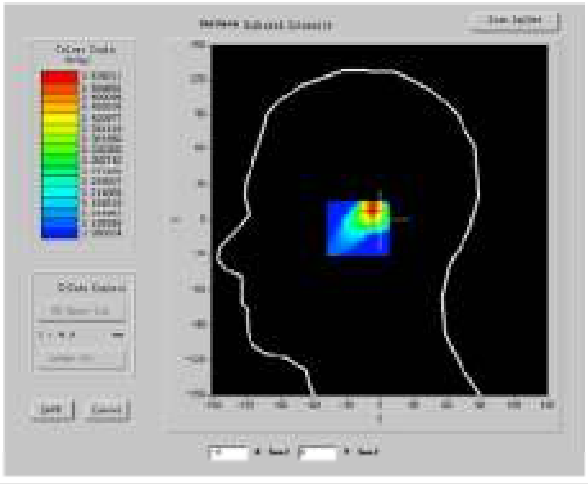
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

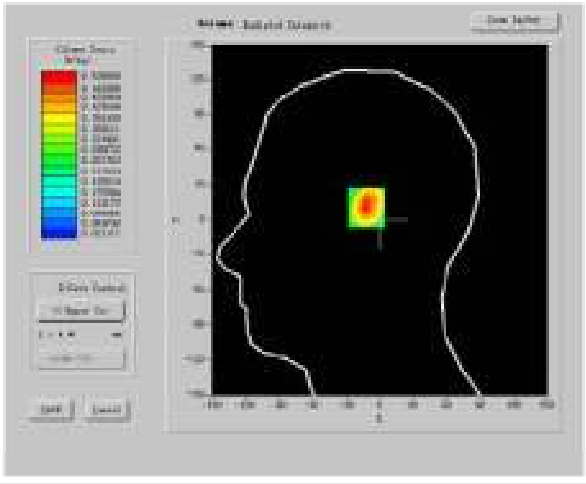
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1880.000000 (Right Head , Tilt)
Relative permitivity (real part)	40.201201
Relative permitivity (imaginary part)	13.802000
Conductivity (S/m)	1.432010
Variation (%)	-0.450000
SAR 1g (W/Kg)	0.485612

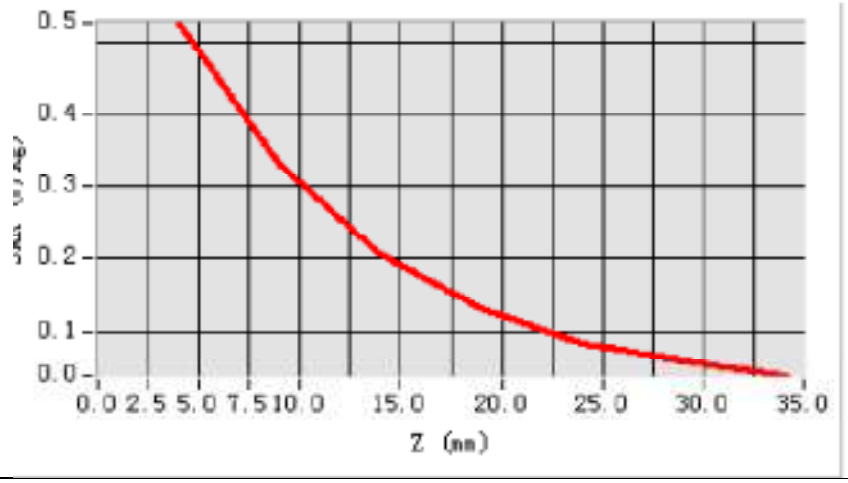
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

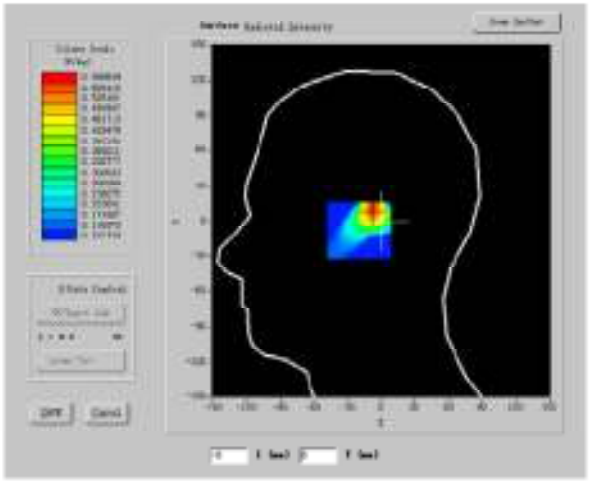
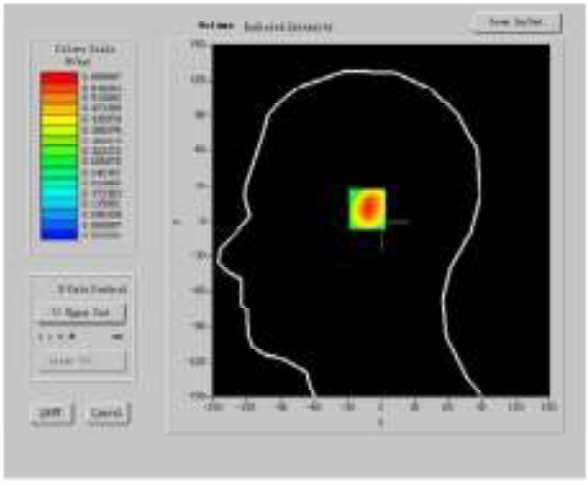
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

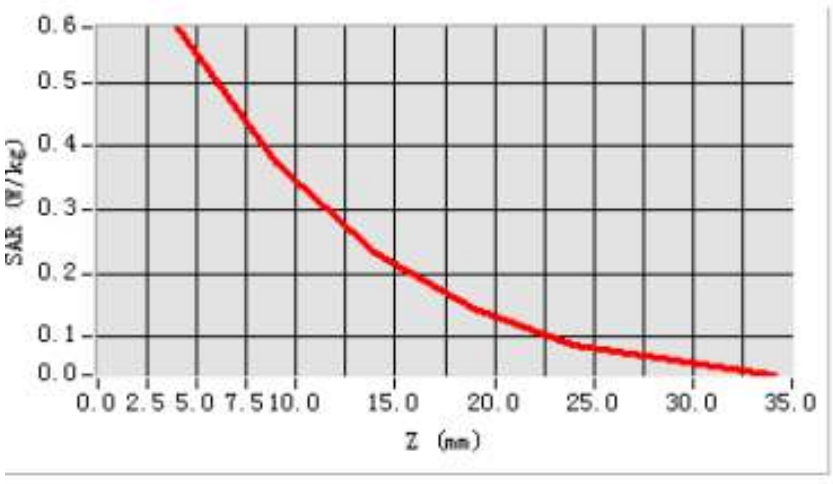
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1910.000216 (Right Head , Tilt)
Relative permitivity (real part)	40.282019
Relative permitivity (imaginary part)	13.210900
Conductivity (S/m)	1.413020
Variation (%)	-1.500000
SAR 1g (W/Kg)	0.561694

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

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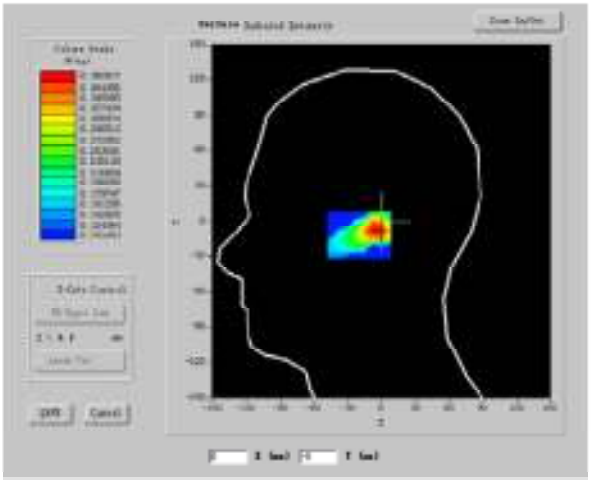
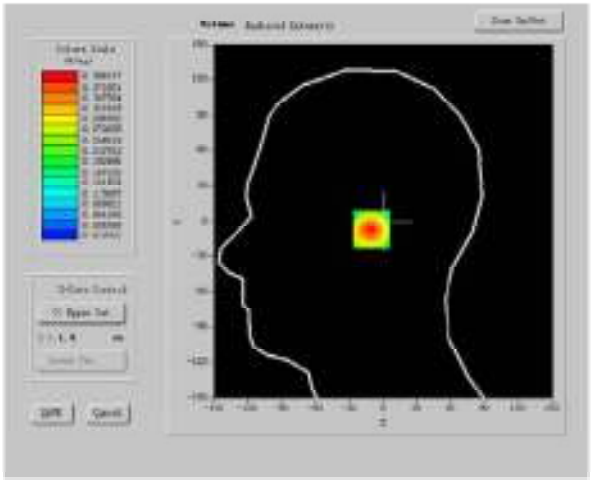
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

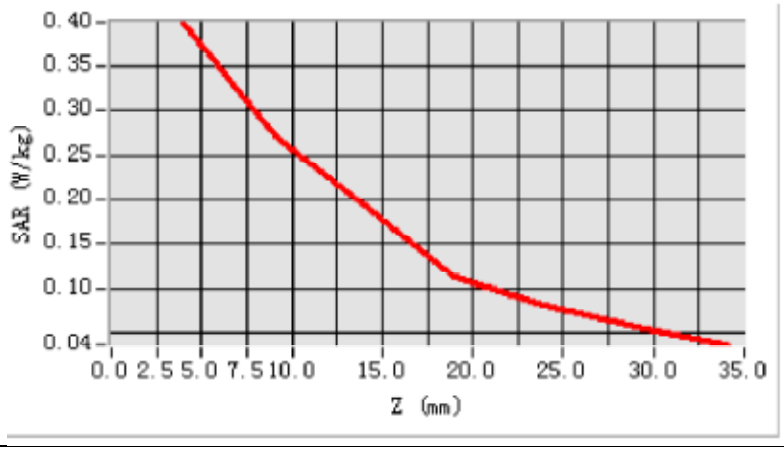
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1850.200001 (Left Head , Cheek)
Relative permitivity (real part)	40.312000
Relative permitivity (imaginary part)	13.532000
Conductivity (S/m)	1.420120
Variation (%)	0.300000
SAR 1g (W/Kg)	0.357548

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -3, Y = -7)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

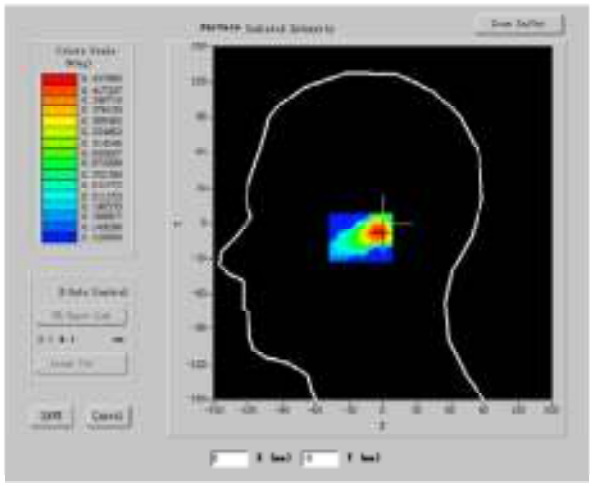
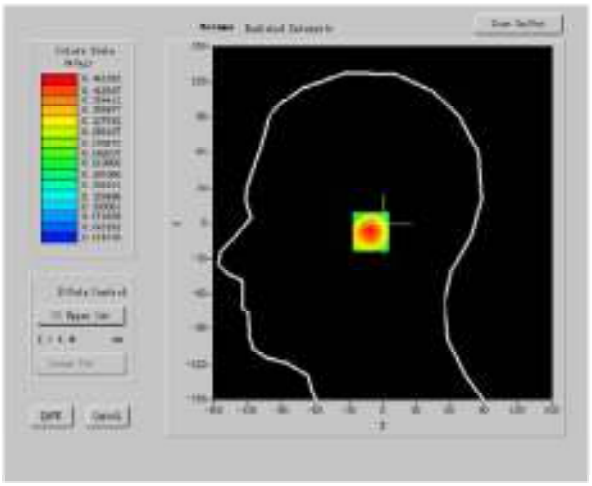
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

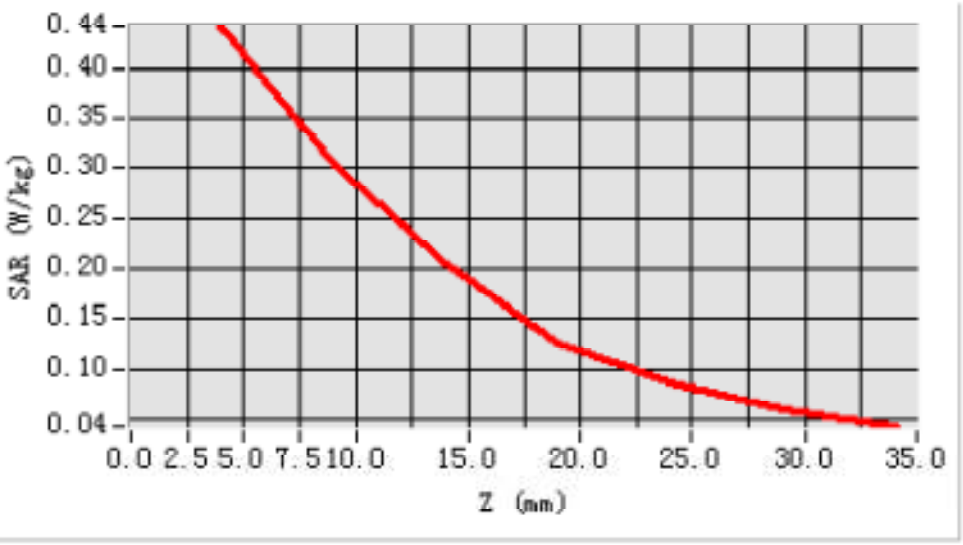
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1880.000000 (Left Head , Cheek)
Relative permitivity (real part)	40.125402
Relative permitivity (imaginary part)	13.832000
Conductivity (S/m)	1.410102
Variation (%)	1.400000
SAR 1g (W/Kg)	0.561009

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -3, Y = -7)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

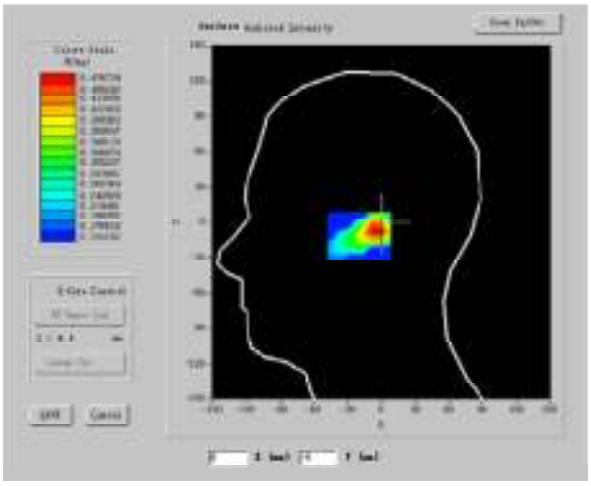
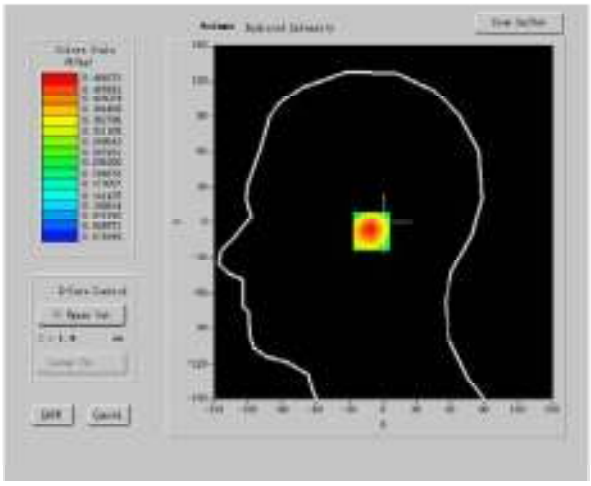
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

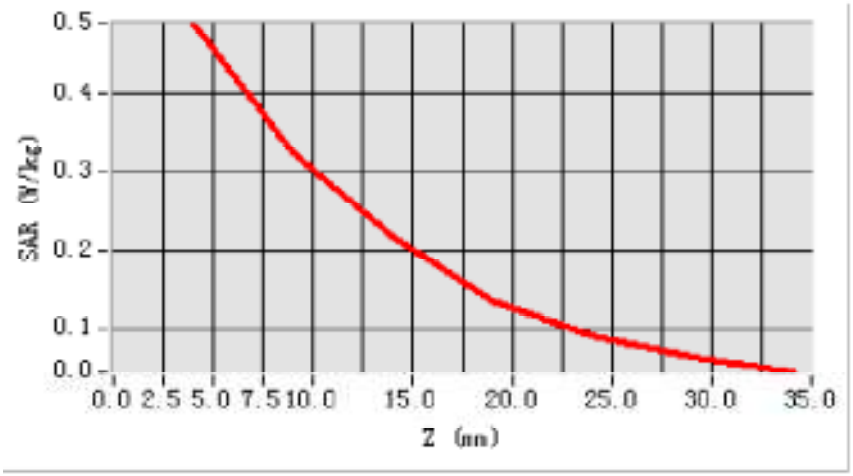
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1910.000276 (Left Head , Cheek)
Relative permitivity (real part)	40.021030
Relative permitivity (imaginary part)	13.621000
Conductivity (S/m)	1.410320
Variation (%)	- 0.500000
SAR 1g (W/Kg)	0.453610

SURFACE SAR	VOLUME SAR
	



Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

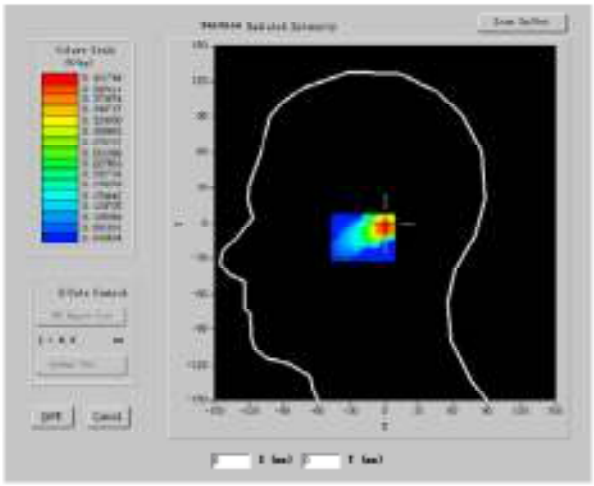
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

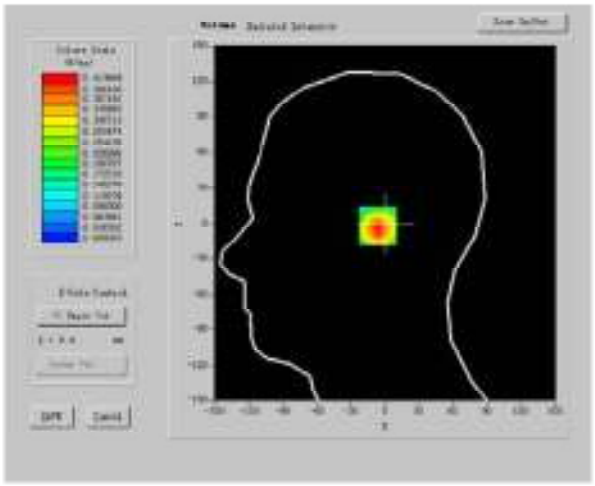
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1850.200004 (Left Head , Tilt)
Relative permitivity (real part)	40.300200
Relative permitivity (imaginary part)	13.502100
Conductivity (S/m)	1.402010
Variation (%)	-0.600000
SAR 1g (W/Kg)	0.362846

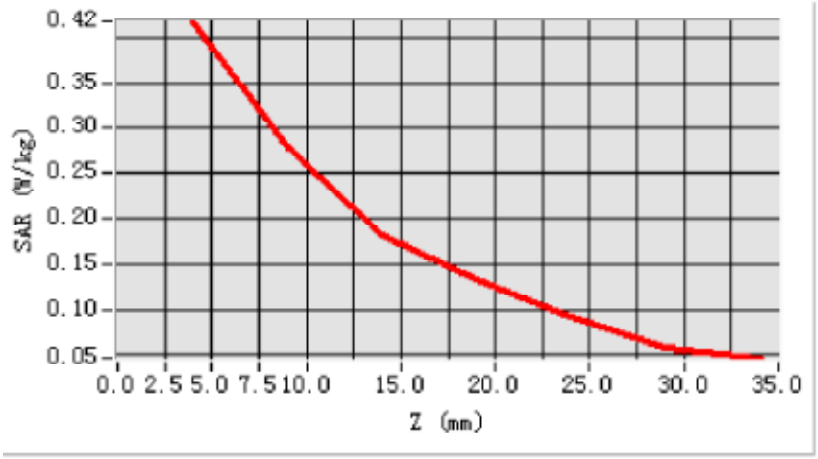
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 0, Y = -2)



Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

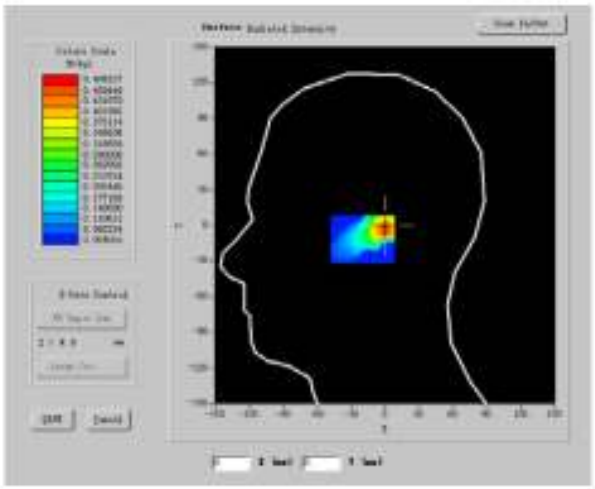
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

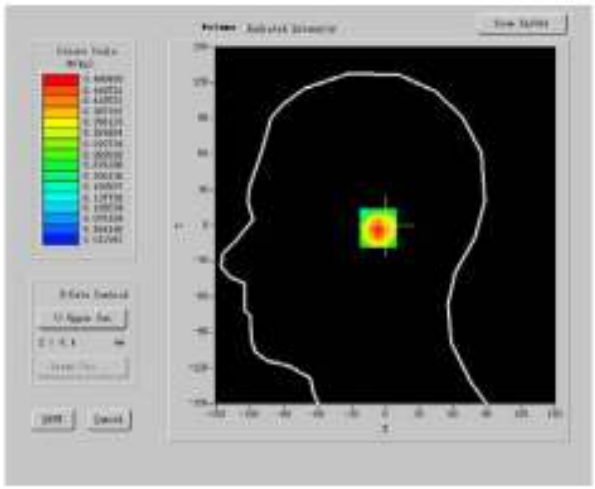
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1880.000000 (Left Head , Tilt)
Relative permitivity (real part)	40.010201
Relative permitivity (imaginary part)	13.320100
Conductivity (S/m)	1.402010
Variation (%)	-1.200000
SAR 1g (W/Kg)	0.442289

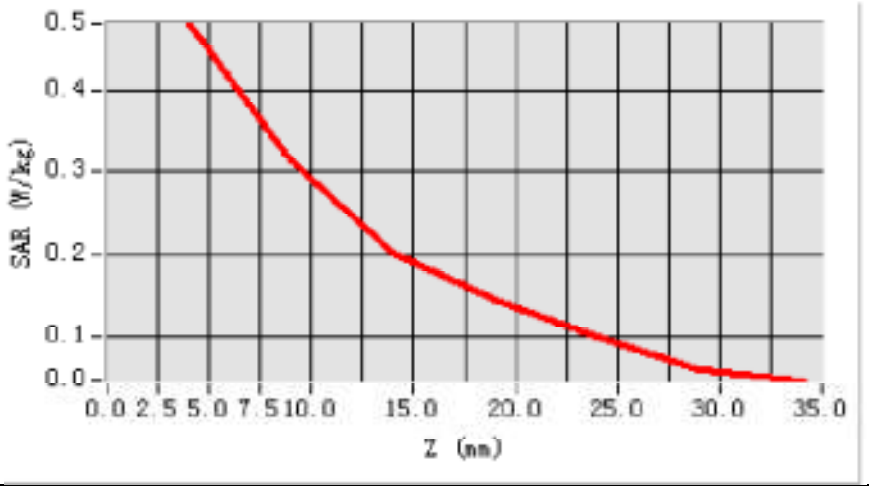
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 0, Y = -2)



Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

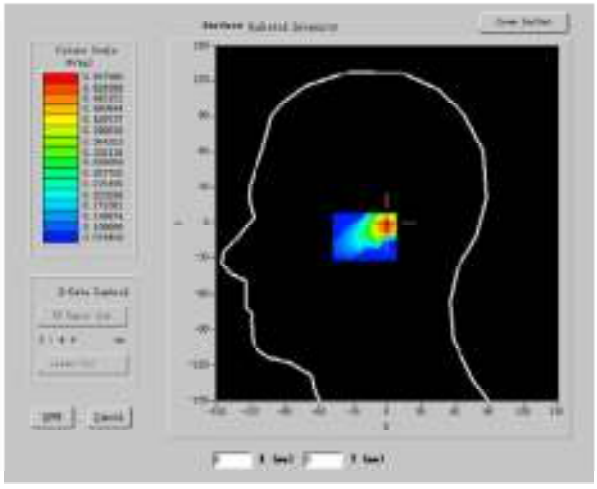
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

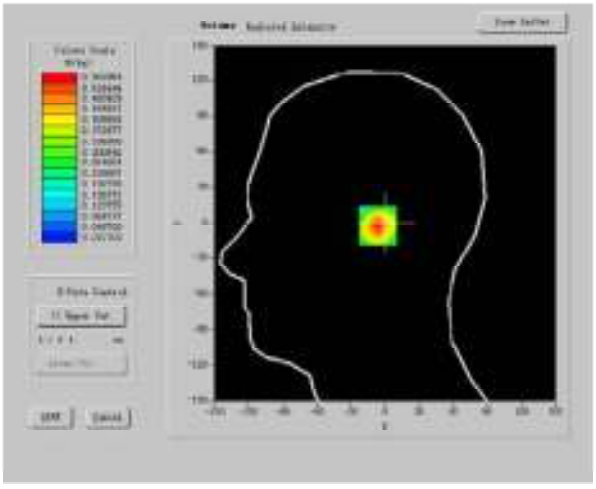
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1910.002076 (Left Head , Tilt)
Relative permitivity (real part)	40.200203
Relative permitivity (imaginary part)	13.620100
Conductivity (S/m)	1.423205
Variation (%)	- 1.140000
SAR 1g (W/Kg)	0.457458

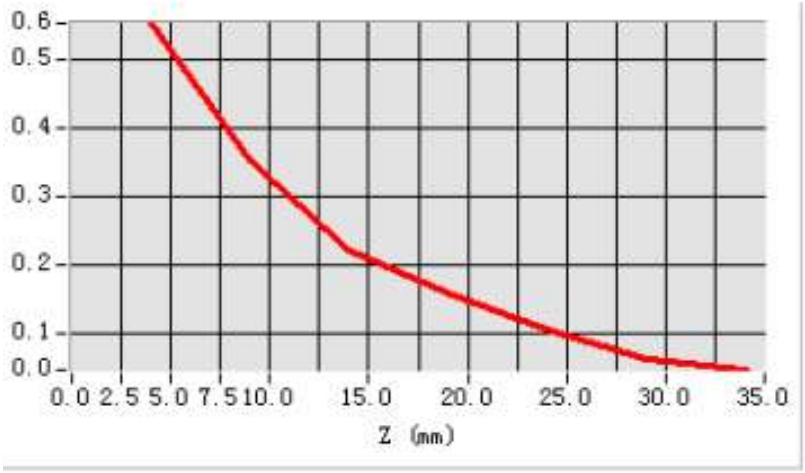
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 0, Y = -2)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

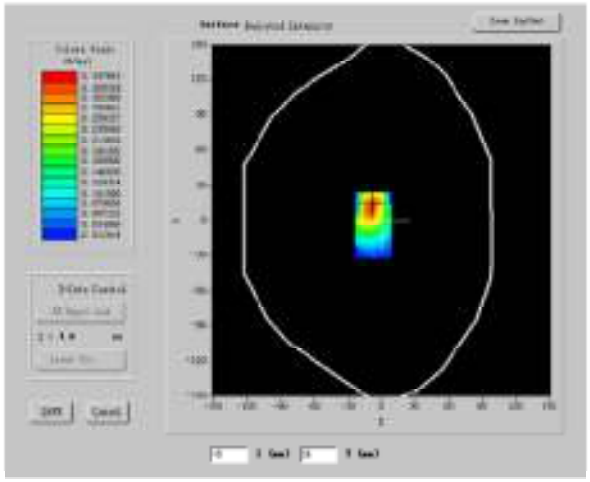
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

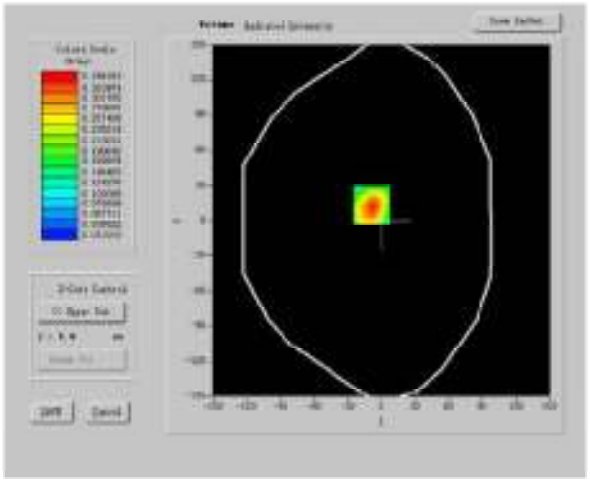
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1850.200004 (Body)
Relative permitivity (real part)	53.302000
Relative permitivity (imaginary part)	13.532000
Conductivity (S/m)	1.506001
Variation (%)	-0.130000
SAR 1g (W/Kg)	0.355513

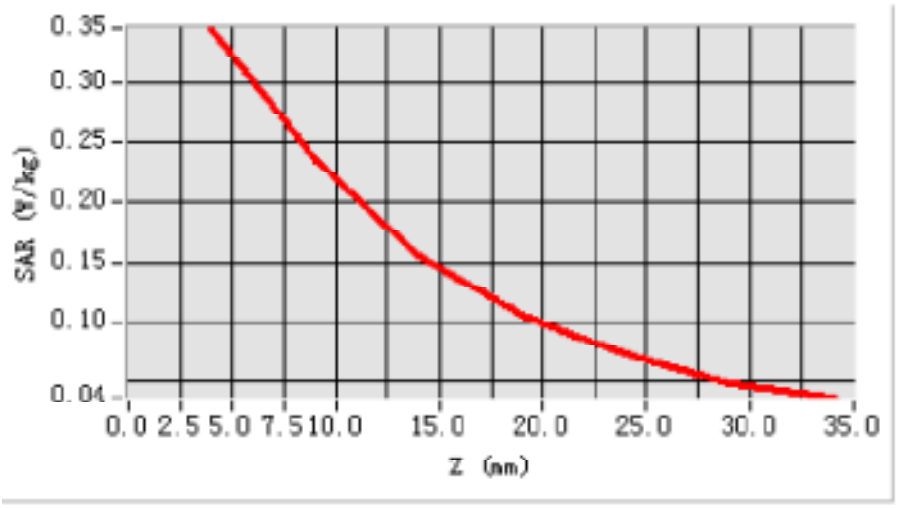
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -9, Y = 13)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

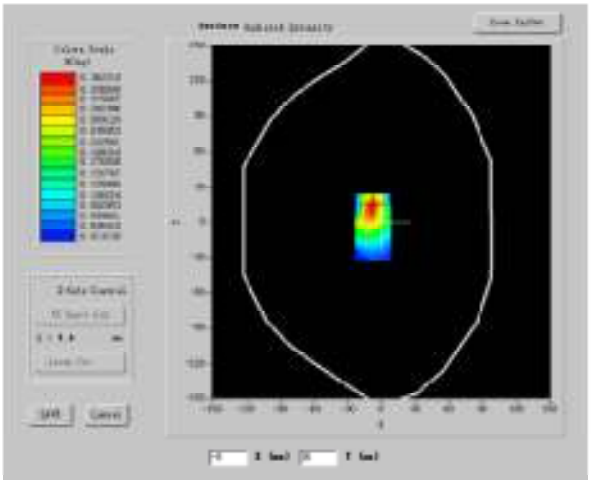
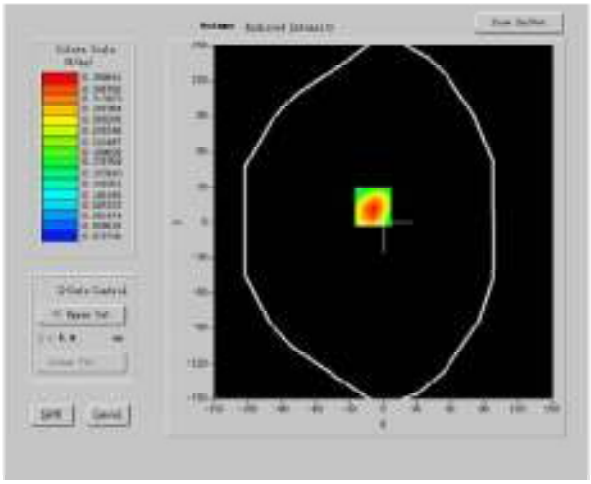
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

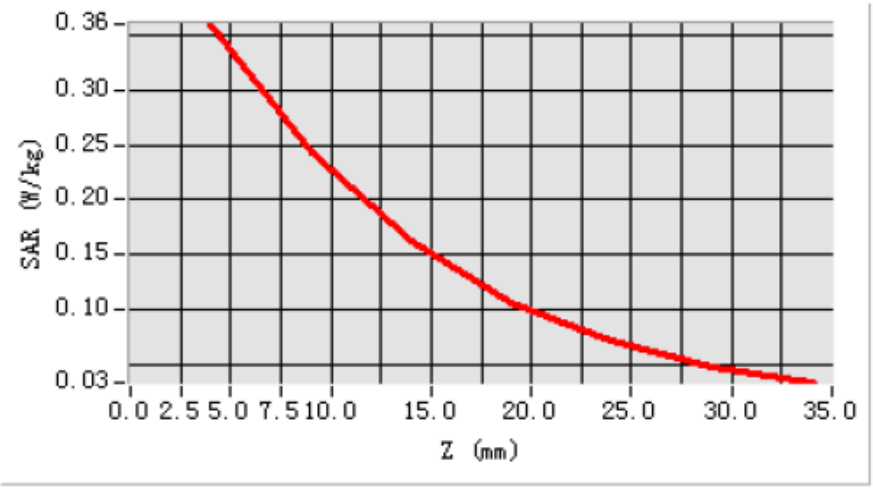
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1880.000000 (Body)
Relative permitivity (real part)	52.952001
Relative permitivity (imaginary part)	13.802100
Conductivity (S/m)	1.510210
Variation (%)	-0.600000
SAR 1g (W/Kg)	0.317231

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -9, Y = 13)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

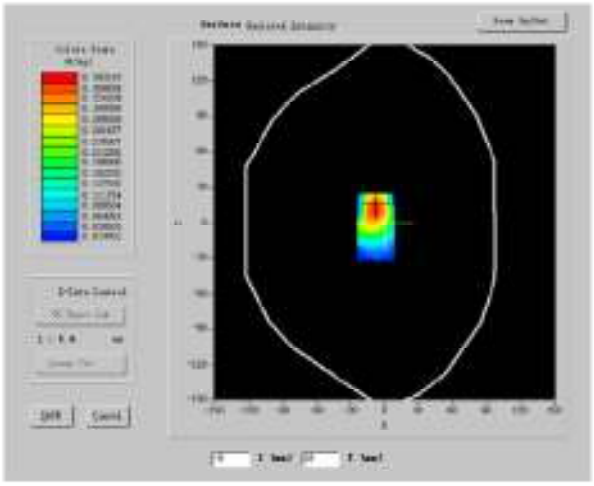
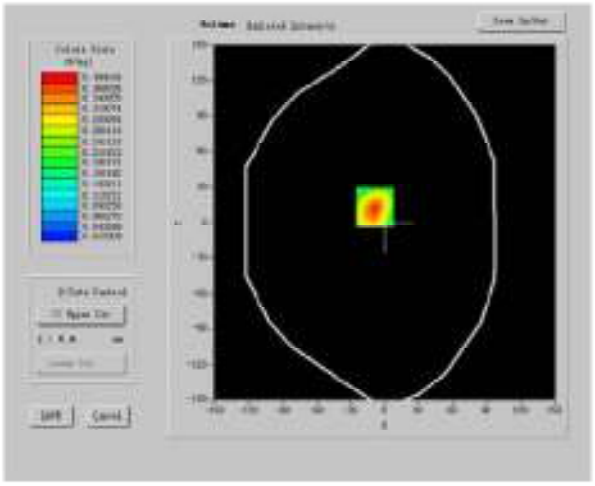
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

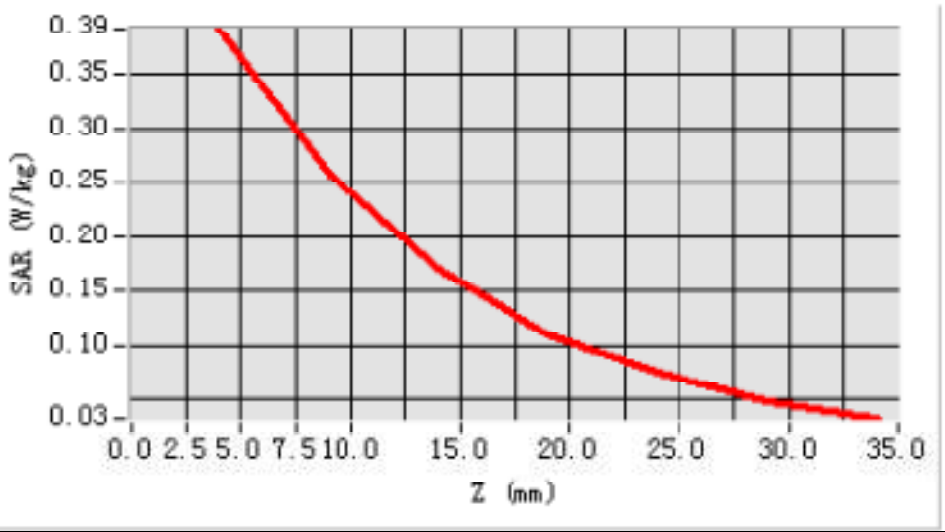
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1909.590210 (Body)
Relative permitivity (real part)	52.280210
Relative permitivity (imaginary part)	13.636200
Conductivity (S/m)	1.510125
Variation (%)	-0.400000
SAR 1g (W/Kg)	0.368232

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -9, Y = 13)



GPRS 850

I. RESULTS

TYPE	BAND	PARAMETERS
Noise	--	--
Validation	--	--
Phone	GPRS850	Measurement 1: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 2: Validation Plane with Body device position on Middle Channel in GPRS mode Measurement 3: Validation Plane with Body device position on High Channel in GPRS mode

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

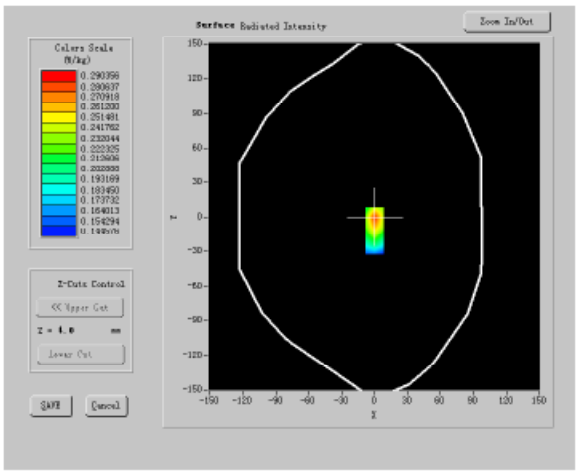
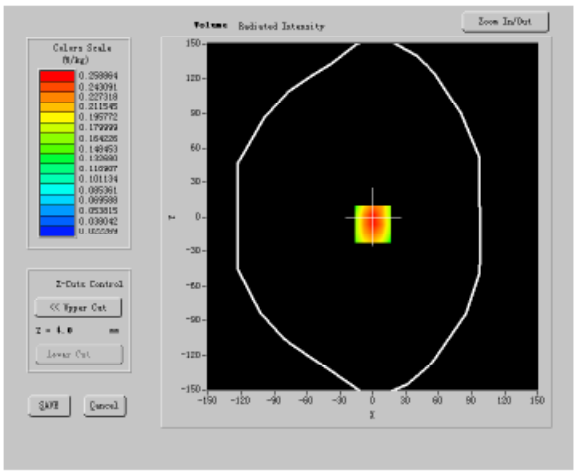
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

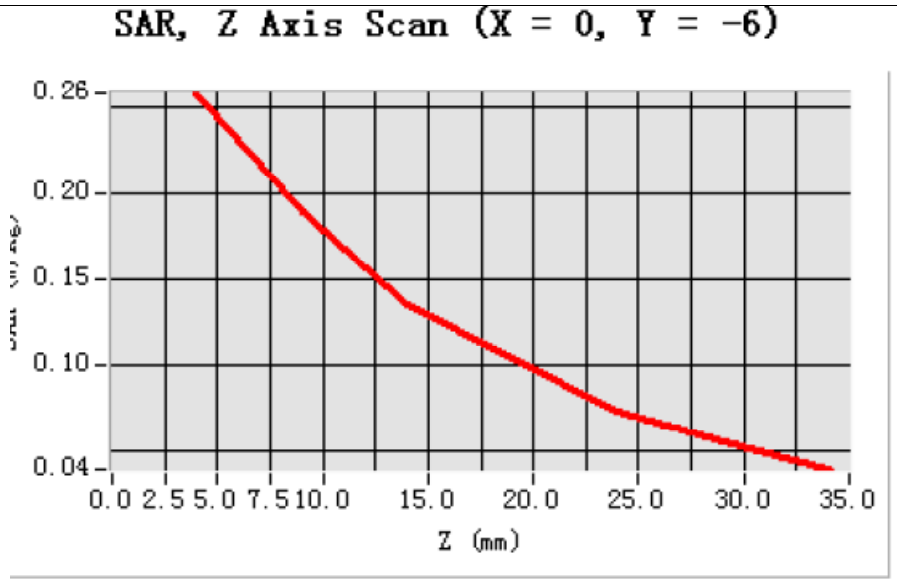
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.200002 (Body)
Relative permitivity (real part)	55.524000
Relative permitivity (imaginary part)	21.652100
Conductivity (S/m)	0.960120
Variation (%)	-0.120000
SAR 1g (W/Kg)	0.283369

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

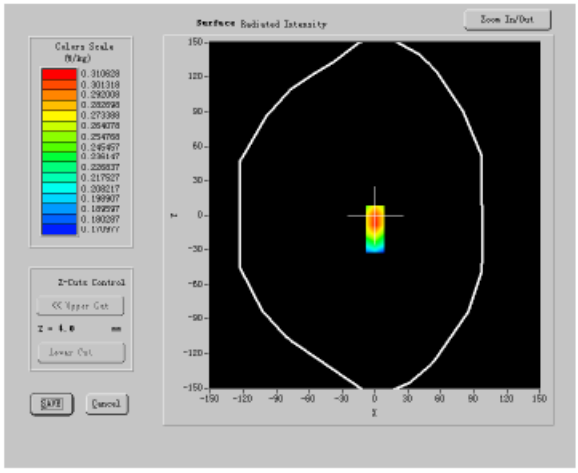
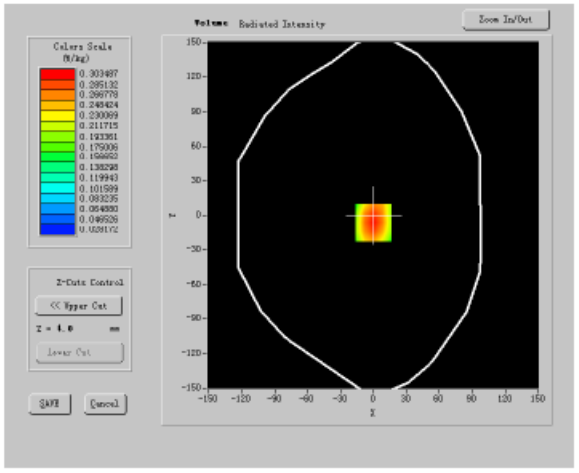
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

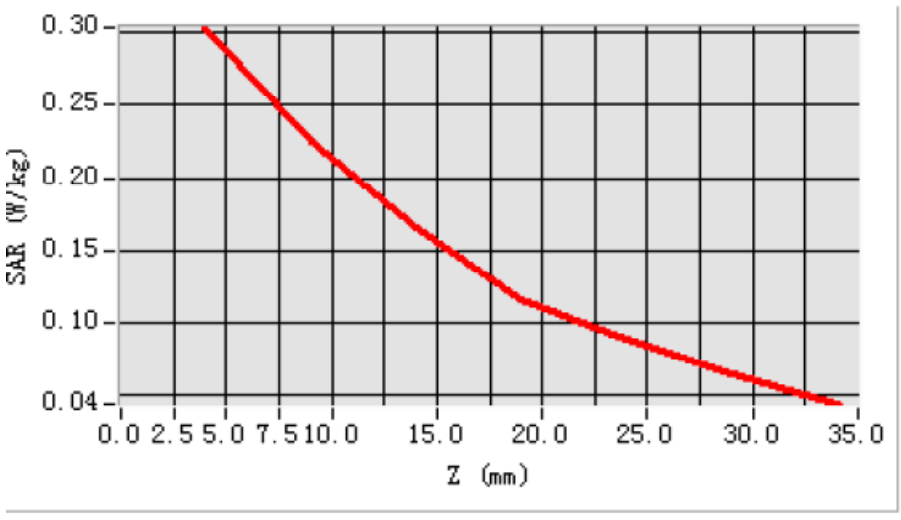
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.600204 (Body)
Relative permitivity (real part)	55.501019
Relative permitivity (imaginary part)	21.803209
Conductivity (S/m)	0.921052
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.364191

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

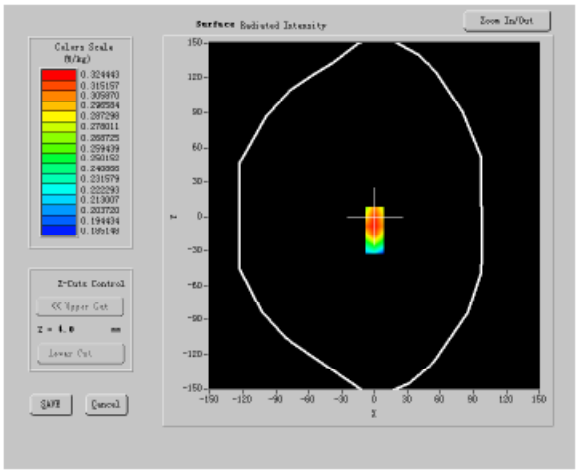
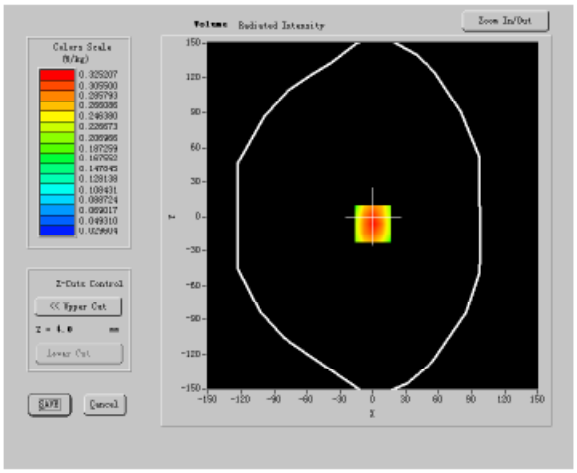
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

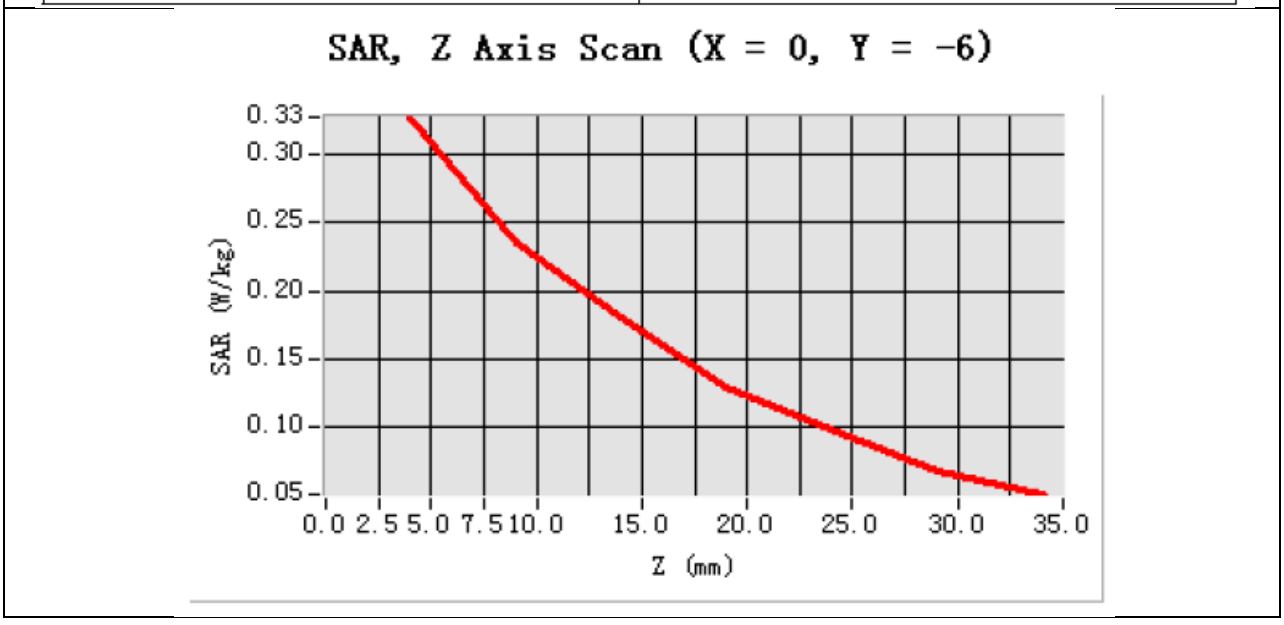
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.799001 (Body)
Relative permitivity (real part)	55.532010
Relative permitivity (imaginary part)	21.720101
Conductivity (S/m)	0.969012
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.351495

SURFACE SAR	VOLUME SAR
	



GPRS 1900

I. RESULTS

TYPE	BAND	PARAMETERS
Noise	--	--
Validation	--	--
Phone	GPRS1900	Measurement 1: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 2: Validation Plane with Body device position on Middle Channel in GPRS mode Measurement 3: Validation Plane with Body device position on High Channel in GPRS mode

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

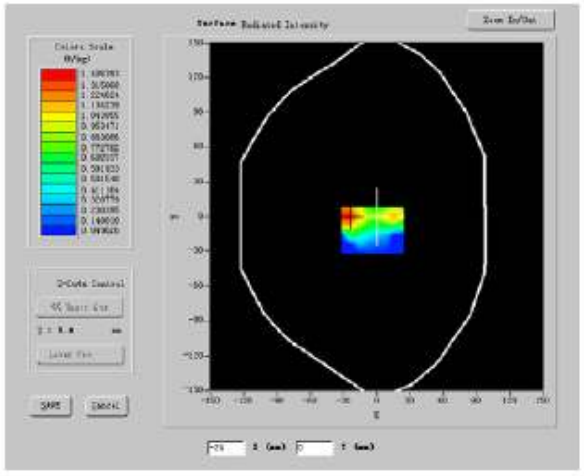
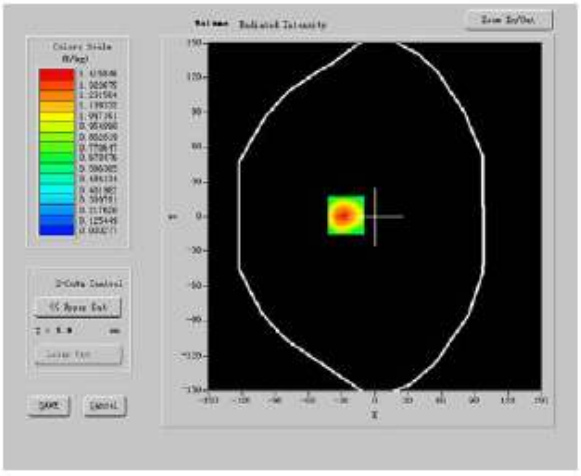
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

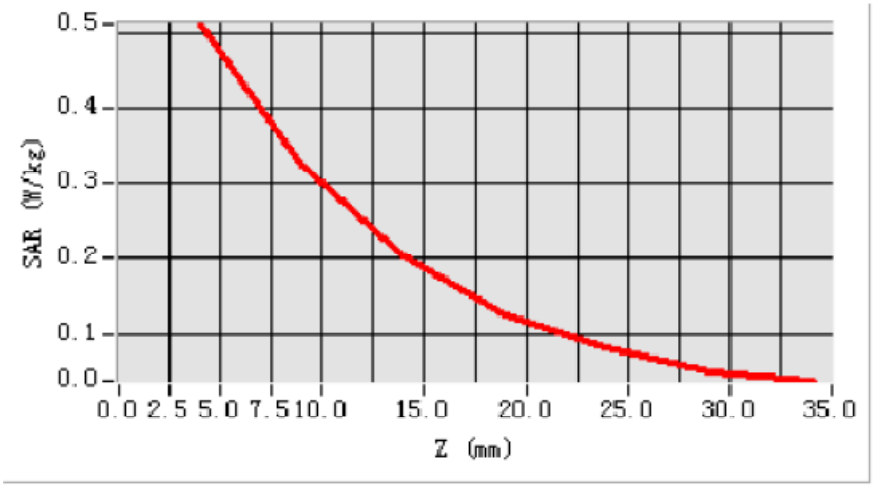
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1850.199021 (Body)
Relative permitivity (real part)	52.302100
Relative permitivity (imaginary part)	14.401202
Conductivity (S/m)	1.510321
Variation (%)	-0.500000
SAR 1g (W/Kg)	0.484852

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -10, Y = 12)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

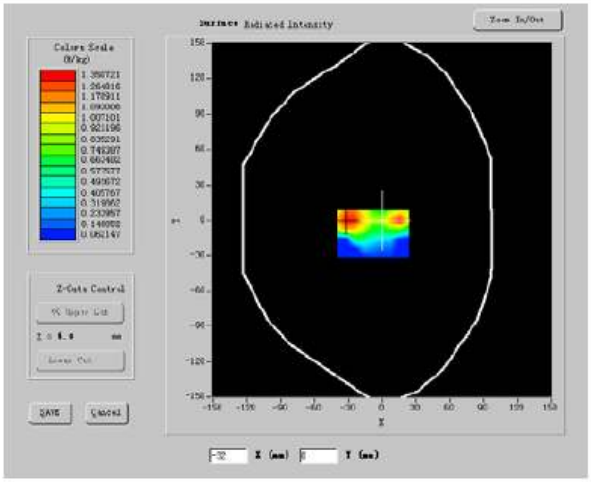
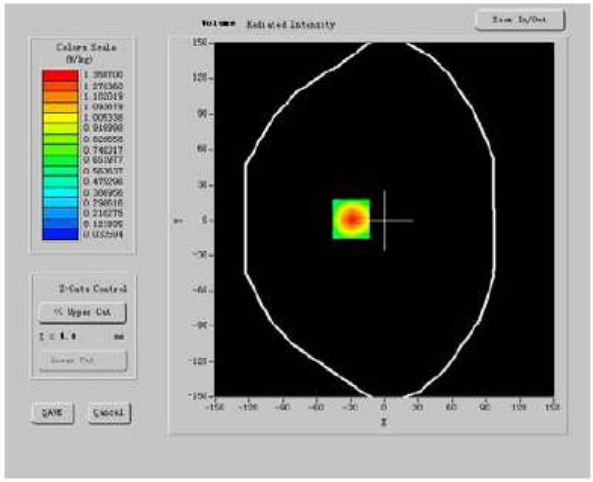
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

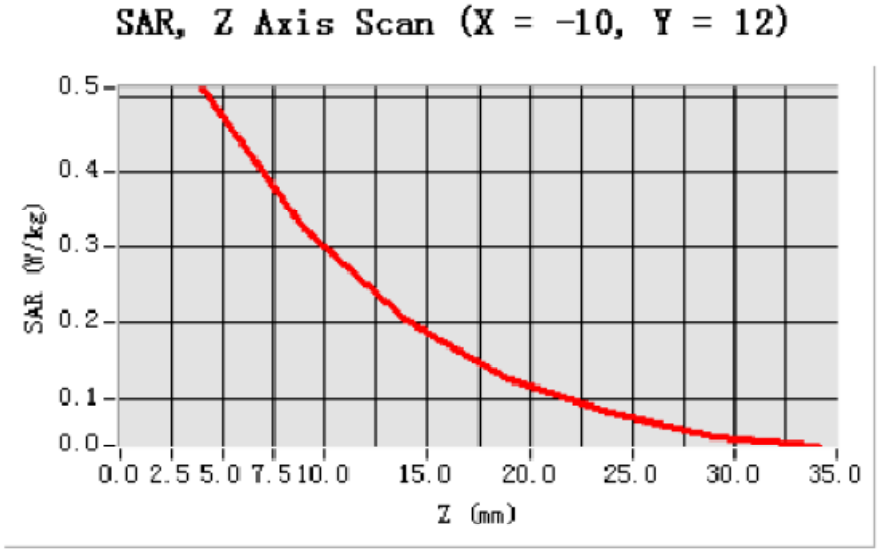
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1880.000000 (Body)
Relative permitivity (real part)	52.402103
Relative permitivity (imaginary part)	14.235206
Conductivity (S/m)	1.501203
Variation (%)	-1.000000
SAR 1g (W/Kg)	0.390946

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

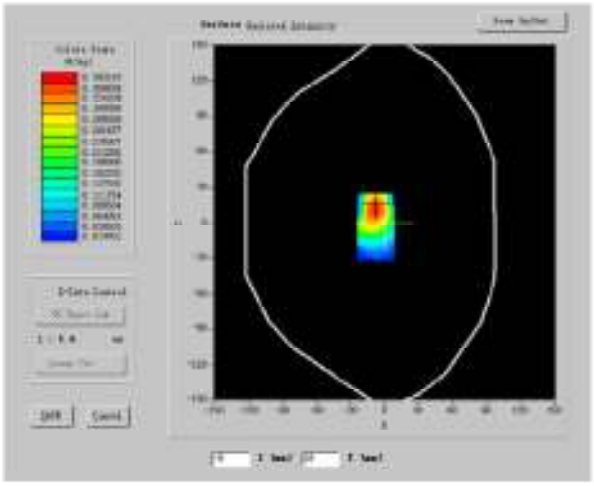
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

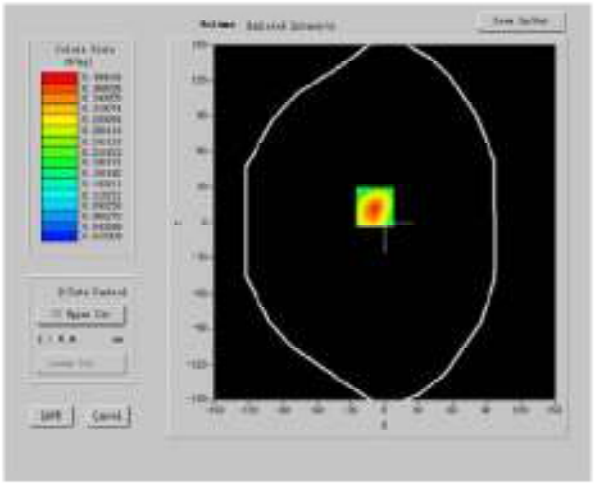
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1910.029036 (Body)
Relative permitivity (real part)	52.810010
Relative permitivity (imaginary part)	14.301200
Conductivity (S/m)	1.502102
Variation (%)	-0.130000
SAR 1g (W/Kg)	0.460125

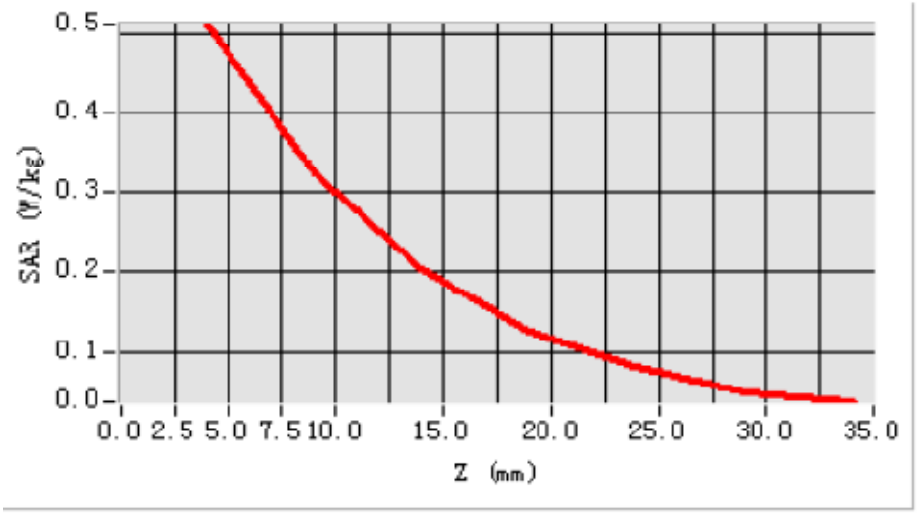
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -10, Y = 12)



CALIBRATION CERTIFICATE

上海市计量测试技术研究院
华东国家计量测试中心

校 准 证 书

委 托 者 Customer	程智科技股份（昆山）有限公司 Compliance Certification Services Inc.
委托者地址 Address of customer	江苏省昆山市（留学创业园）伟业路 10 号 No. 10, Wei-Ye Rd., Innovation park, Eco & Tec. Development Zone, Kun Shan City, Jiang Su, P. R. C.
器具名称 Name of instrument	偶极子天线 DIPOLE ANTENNA
制 造 厂 Manufacturer	ANTENNESSA 公司
型号/规格 Model/Specification	DIPOLE 900MHz
器具编号 No. of instrument	SN 48/05 DIPD33
器具准确度 Instrument accuracy	/

证书批准人 Approved by

核 验 员 Checked by

校 准 员 Calibrated by

（机构校准专用章）

校准日期 Date for calibrated 2008 年 Year 12 月 Month 10 日 Day

投诉电话：021-50798262

地址：上海市张衡路 1500 号（总部） Address 电话：021-38839800 Tel 传真：021-50796390 Fax 邮编：201203 Post Code

上海市宜山路 716 号（分部） No. 716 Yishan Road, Shanghai(branch) 电话：021-64701390 Tel 传真：021-64701810 Fax 邮编：200233 Post Code

国家法定计量检定机构计量授权证书号（中心/院）：（国）法计（2002）01039 号/（2002）01019 号
The number of the Certificate of Metrological Authorization to The Legal Metrological Verification Institution is No.（2002）01039 / No.（2002）01019

中国合格评定国家认可委员会实验室认可证书号：No. CNAS L0134
The number of the certificate accredited by CNAS is No.L0134

本次校准所依据的技术规范（代号、名称）：
Reference documents for the calibration (code、name)

JCJ/J101002.1/0-2007 SAR偶极子天线校准规范

IEEE Std 1528-2003 "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head form Wireless Communications Devices: Measure Techniques"

IEC 62209-1: 2005 Procedure to measure the Specific Absorption Rate (SAR) in the frequency range of 300 MHz to 3 GHz Part 1: hand-held mobile wireless communication devices

本次校准所使用的主要计量标准器具：
Main measurement standards used in this calibration

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度 Measuring range/accuracy
VECTOR NETWORK ANALYZER ZVB 8	容-027-27	2008F31-10-001907 2009.06.26	300 kHz~8 GHz，Frequency resolution：100 μHz，Measurement time：< 8 ms，Measurement bandwidths：1 Hz~500 kHz

以上计量标准器具的量值溯源至国家基准。
Quantity values of above measurement standards used in this calibration are traced to those of the national primary standards in the P.R. China.

校准地点及环境条件：
Location and environmental condition for the calibration

地点：Location 宜山路 716 号 (No. 716 Yishan Road)

温度：Ambient temperature 23 ℃；湿度：Relative humidity 49 %RH；其它：Others /

本次校准结果的扩展不确定度：
Expanded uncertainty

+3dB 至-15dB：U =0.8 dB（k=2）
-15dB至-25dB：U =1.2 dB（k=2）
-25dB至-35dB：U =3.1 dB（k=2）

校准结果/说明：
Results of calibration and additional explanation

Pass

The requirements of the calibration criterion: return Loss must be less than -20dB

本证书提供的结果仅对本次被校的器具有效。
The data are valid only for the instrument(s).

校准结果/说明（续页）：
Results of calibration and additional explanation（continued page）

1. Calibration procedure:
Return Loss is measured with the dipole mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis. During calibration, the flat phantom is filled with the liquid whose parameters are calibrated relative to different frequency.

2. Calibration Conditions:

A. The spacer from Dipole center to TSL

Distance Dipole Center - TSL	Frequency
15mm±0.2mm with spacer	900MHz

B. Head TSL parameters

The following parameters and calculation were applied.
Head TSL temperature change is well controlled to be within 22±0.2°C during test.

Frequency	Nominal Head TSL Parameters (Permittivity/ Conductivity)	Measurement Head TSL parameters (Permittivity/ Conductivity)
900 MHz	41.50/0.97	41.71/1.00

C. Body TSL parameters

The following parameters and calculation were applied.
Body TSL temperature change is well controlled to be within 22±0.2°C during test.

Frequency	Nominal Body TSL Parameters (Permittivity/ Conductivity)	Measurement Body TSL parameters (Permittivity/ Conductivity)
900 MHz	55.00/1.05	54.62/1.04

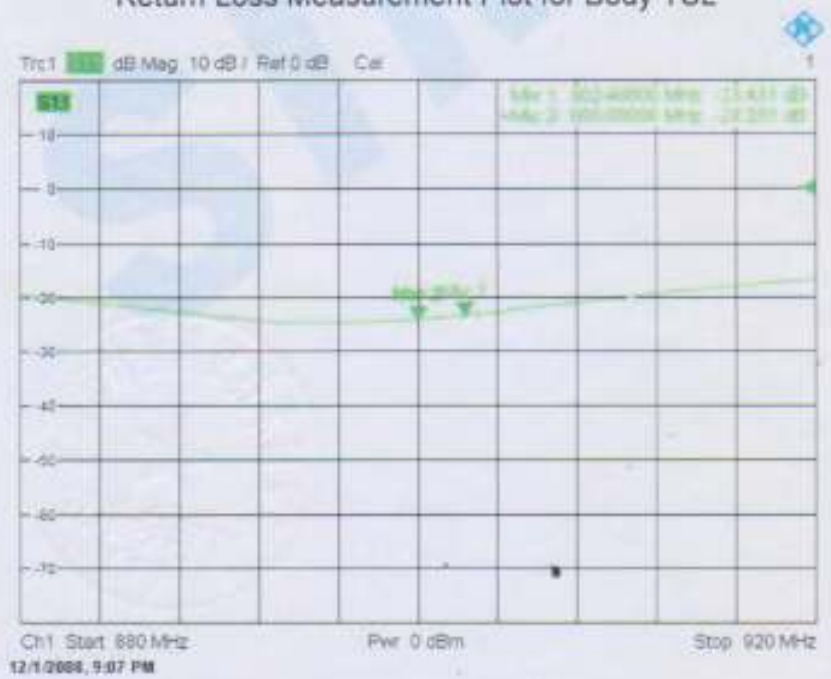
3. Measurement Results

Frequency	Return Loss with Head TSL	Return Loss with Body TSL
900 MHz	-25.06 dB	-24.23 dB

校准结果/说明（续页）：
Results of calibration and additional explanation（continued page）

Return Loss Measurement Plot for head TSL

Return Loss Measurement Plot for Body TSL



Remark: Attachment 1:SAR validation & Test equipment

End

Attachment 1: SAR validation & Test equipment

Validation	Condition	SAR Value (W/kg)	
		1g	10g
SAR measured with Head TSL	1W (input power)	11.11	7.27
SAR measured with Body TSL	1W (input power)	10.98	7.29

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度 Measuring range/accuracy
6 axis Robot KR3	容-027-01	/	6 axes, Repeatability: ± 0.05 mm, Nominal payload: 3 kg
Vector Network Analyzer ZVB 8	容-027-27	2008F31-10-001907 2009.06.26	300 kHz to 8 GHz, Frequency resolution: 100 μHz, Measurement time: < 8 ms, Measurement bandwidths: 1 Hz to 500 kHz
Signal Generator SMT 06	容-027-15	2008F33-10-001469 2009.06.26	5 kHz - 6 GHz,Resolution:0.1Hz,-144 to + 13 dBm,Max.RF power:1W,Max.DC voltage:0V / Level > -127 dBm:f<1.5 GHz:< 1dB; F>1.5 GHz:< 1.5dB; f> 3GHz:< 2dB
Power Meter NRVD	容-027-16	2008F31-10-001906 2009.06.24	100 kHz to 6 GHz,10nW to 500mW
Millivoltmeter 2000	容-027-26	2008F11-10-001004 2009.06.19	Measurement range:100.0000mV ~ 1000.000V Sensibility: 0.1μ V ~ 1mV.
Power Amplifier BLMA 0820-6	容-027-18	2008F33-10-001467 2009.06.26	0.8 - 2 GHz; Output:6W; Gain:min 37.8 / typ 40,± 2 dB; Harmonics:2nd:20dBc, 3rd:20dBc; Line power:125 W.
Isotropic E-Field Probe E-FIELD PROBE	容-027-54	2008J10-10-801001 2008.12.25	Dipole resistance (in the connector plane): 1M , to 2M Axial isotropy in human-equivalent liquids: <0.25dBHemispherical Isotropy in humanequivalent liquids<0.5dB,Linearity<0.5dB,Lower SAR detection threshold: 0.0015 Watts/kg
SAM Phantom	容-027-22	/	/

CALIBRATION CERTIFICATE

上海市计量测试技术研究院
华东国家计量测试中心

校 准 证 书

委 托 者 Customer	程智科技股份（昆山）有限公司 Compliance Certification Services Inc.
委托者地址 Address of customer	江苏省昆山市（留学创业园）伟业路10号 No. 10, Wei-Ye Rd., Innovation park, Eco & Tec. Development Zone, Kun Shan City, Jiang Su, P. R. C.
器具名称 Name of instrument	偶极子天线 DIPOLE ANTENNA
制 造 厂 Manufacturer	ANTENNESSA 公司
型号/规格 Model/Specification	DIPOLE 1800MHz
器具编号 No. of instrument	SN 48/05 DIPF34
器具准确度 Instrument accuracy	/

证书批准人 Approved by

核 验 员 Checked by 刘

校 准 员 Calibrated by 高

(机构校准专用章)

校准日期 Date for calibrated 2008 年 Year 12 月 Month 10 日 Day

投诉电话：021-50798262
地址：上海市张衡路1500号（总部） 电话：021-38839800 传真：021-50798390 邮编：201203
Address: No.1500 Zhangheng Road, Shanghai(headquarters) Tel. Fax. Post Code. Tel. for complaint
上海市宜山路716号（分部） 电话：021-64701390 传真：021-64701810 邮编：200233
No. 716 Yishan Road, Shanghai(branch) Tel. Fax Post Code

国家法定计量检定机构计量授权证书号（中心/院）：（国）法计（2002）01039 号/（2002）01019 号
The number of the Certificate of Metrological Authorization to The Legal Metrological Verification Institution is No.（2002）01039 / No.（2002）01019

中国合格评定国家认可委员会实验室认可证书号：No. CNAS L0134
The number of the certificate accredited by CNAS is No.L0134

本次校准所依据的技术规范（代号、名称）：
Reference documents for the calibration (code , name)

JCJ/J101002.1/0-2007 SAR偶极子天线校准规范

IEEE Std 1528-2003 "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head form Wireless Communications Devices: Measure Techniques"

IEC 62209-1: 2005 Procedure to measure the Specific Absorption Rate (SAR) in the frequency range of 300 MHz to 3 GHz Part 1: hand-held mobile wireless communication devices

本次校准所使用的主要计量标准器具：
Main measurement standards used in this calibration

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度 Measuring range/accuracy
VECTOR NETWORK ANALYZER ZVB 8	容-027-27	2008F31-10-001907 2009.06.26	300 kHz~8 GHz，Frequency resolution：100 μHz，Measurement time：< 8 ms，Measurement bandwidths：1 Hz~500 kHz

以上计量标准器具的量值溯源至国家基准。
Quantity values of above measurement standards used in this calibration are traced to those of the national primary standards in the P.R. China

校准地点及环境条件：
Location and environmental condition for the calibration

地点：Location 宜山路 716 号 (No. 716 Yishan Road)

温度：Ambient temperature 23 ℃；湿度：Relative humidity 49 %RH；其它：Others /

本次校准结果的扩展不确定度：
Expanded uncertainty

+3dB 至-15dB：U =0.8 dB（k=2）
-15dB至-25dB：U =1.2 dB（k=2）
-25dB至-35dB：U =3.1 dB（k=2）

校准结果/说明：
Results of calibration and additional explanation

Pass

The requirements of the calibration criterion: return Loss must be less than -20dB

校准结果/说明（续页）：
Results of calibration and additional explanation (continued page)

1. Calibration procedure:

Return Loss is measured with the dipole mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis. During calibration, the flat phantom is filled with the liquid whose parameters are calibrated relative to different frequency.

2. Calibration Conditions:

A. The spacer from Dipole center to TSL

Distance Dipole Center - TSL	Frequency
10mm±0.2mm with spacer	1800MHz

B. Head TSL parameters

The following parameters and calculation were applied.
Head TSL temperature change is well controlled to be within 22±0.2°C during test.

Frequency	Nominal Head TSL Parameters (Permittivity/ Conductivity)	Measurement Head TSL parameters (Permittivity/ Conductivity)
1800 MHz	40.00/1.40	39.40/1.37

C. Body TSL parameters

The following parameters and calculation were applied.
Body TSL temperature change is well controlled to be within 22±0.2°C during test.

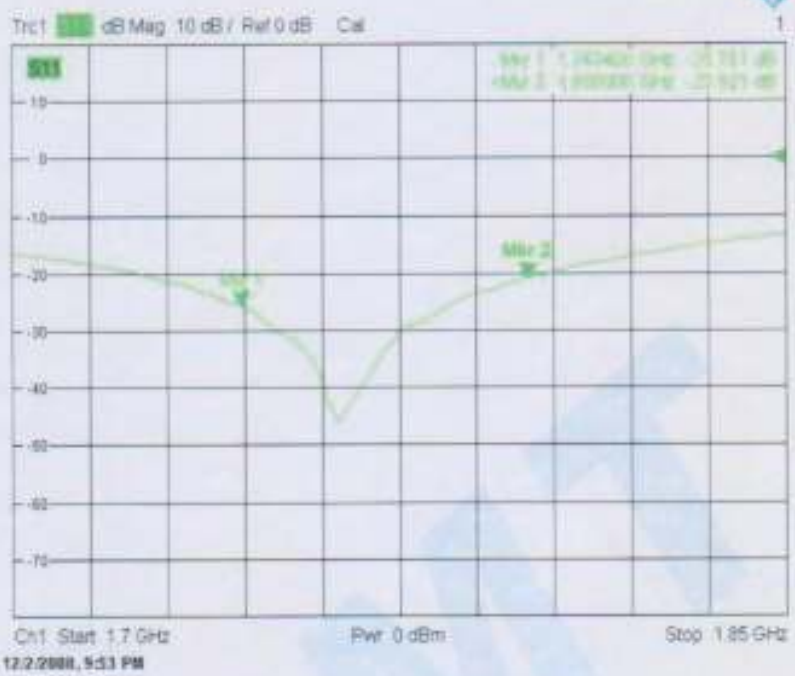
Frequency	Nominal Body TSL Parameters (Permittivity/ Conductivity)	Measurement Body TSL parameters (Permittivity/ Conductivity)
1800 MHz	53.30/1.52	51.86/1.52

3. Measurement Results

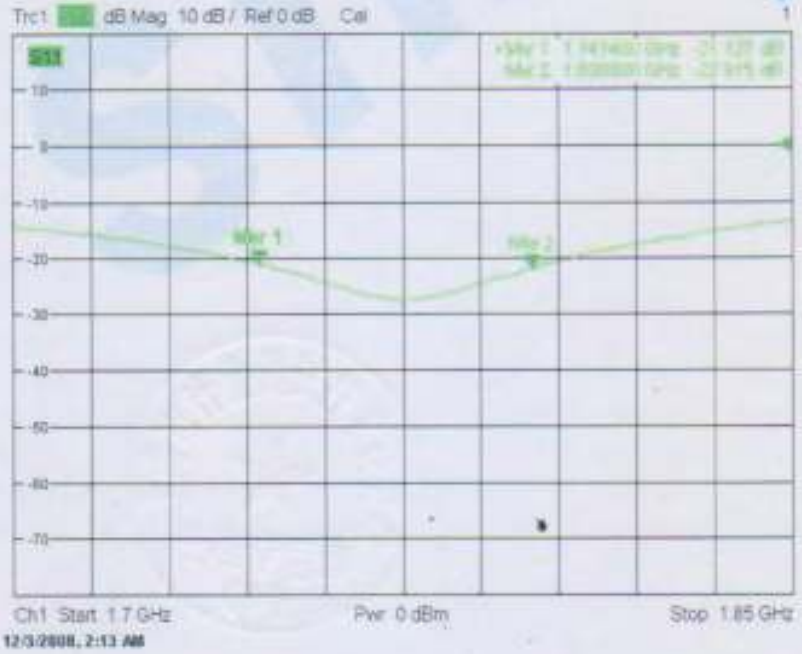
Frequency	Return Loss with Head TSL	Return Loss with Body TSL
1800 MHz	-20.82 dB	-22.01 dB

校准结果/说明（续页）：
Results of calibration and additional explanation（continued page）

Return Loss Measurement Plot for head TSL



Return Loss Measurement Plot for Body TSL



Remark: Attachment 1:SAR validation & Test equipment

End

Attachment 1: SAR validation & Test equipment

Validation	Condition	SAR Value (W/kg)	
		1g	10g
SAR measured with Head TSL	1W (input power)	38.49	20.39
SAR measured with Body TSL	1W (input power)	37.78	20.06

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度 Measuring range/accuracy
6 axis Robot KR3	容-027-01	/	6 axes, Repeatability： ± 0.05 mm, Nominal payload： 3 kg
Vector Network Analyzer ZVB 8	容-027-27	2008F31-10-001907 2009.06.26	300 kHz to 8 GHz，Frequency resolution：100 μHz，Measurement time：< 8 ms，Measurement bandwidths：1 Hz to 500 kHz
Signal Generator SMT 06	容-027-15	2008F33-10-001469 2009.06.26	5 kHz - 6 GHz,Resolution:0.1Hz,-144 to + 13 dBm,Max.RF power:1W,Max.DC voltage:0V / Level > -127 dBm:f<1.5 GHz:< 1dB; F>1.5 GHz:< 1.5dB; f> 3GHz:< 2dB
Power Meter NRVD	容-027-16	2008F31-10-001906 2009.06.24	100 kHz to 6 GHz,10nW to 500mW
Millivoltmeter 2000	容-027-26	2008F11-10-001004 2009.06.19	Measurement range:100.0000mV ~ 1000.000V Sensibility: 0.1μ V ~ 1mV.
Power Amplifier BLMA 0820-6	容-027-18	2008F33-10-001467 2009.06.26	0.8 - 2 GHz; Output:6W; Gain:min 37.8 / typ 40,± 2 dB; Harmonics:2nd:20dBc, 3rd:20dBc; Line power:125 W.
Isotropic E-Field Probe E-FIELD PROBE	容-027-54	2008J10-10-801001 2008.12.25	Dipole resistance (in the connector plane)：1M . to 2M Axial isotropy in human-equivalent liquids：<0.25dBHemispherical Isotropy in humanequivalent liquids<0.5dB,Linearity<0.5dB,Lower SAR detection threshold: 0.0015 Watts/kg
SAM Phantom	容-027-22	/	/

COMOSAR E-FIELD PROBE CALIBRATION REPORT

Prepared By: BUTET Romain, SATIMO

Project Description: COMOSAR E-FIELD PROBE

COMOSAR SEPT ISOTROPIC E-FIELD PROBE CALIBRATION REPORT

DATE: 5/11/2010

OFFER REFERENCE: PF.127.1.09.SATB.B

OBJECT: COMOSAR SEPT ISOTROPIC E-FIELD PROBE

MANUFACTURER: SATIMO

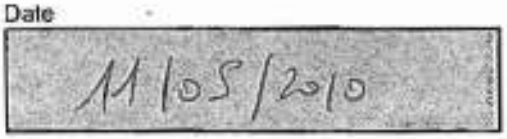
SERIAL NUMBER: SN 11/09 EP100

CONTRACT: B01351

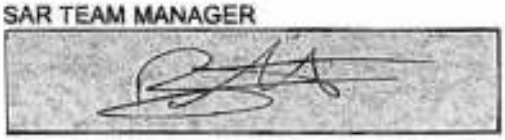
DATE OF CALIBRATION: 5/5/2010

WARRANTY:

Date



SAR TEAM MANAGER



PRODUCT DESCRIPTION

Frequency Range	100 MHz - 30 GHz
Probe length	330 mm
Length of one dipole	4.5 mm
Maximum external diameter	8 mm
Probe extremity diameter	6.5 mm
Distance between dipoles/probe extremity	< 2.7 mm
Resistance of the three dipole (at the connector)	Dipole 1: R1=2.5307 MΩ Dipole 2: R2=2.6353 MΩ Dipole 3: R3=2.5471 MΩ
Connector (HIROSE series SR30)	6 wire male (Hirose SR30series)

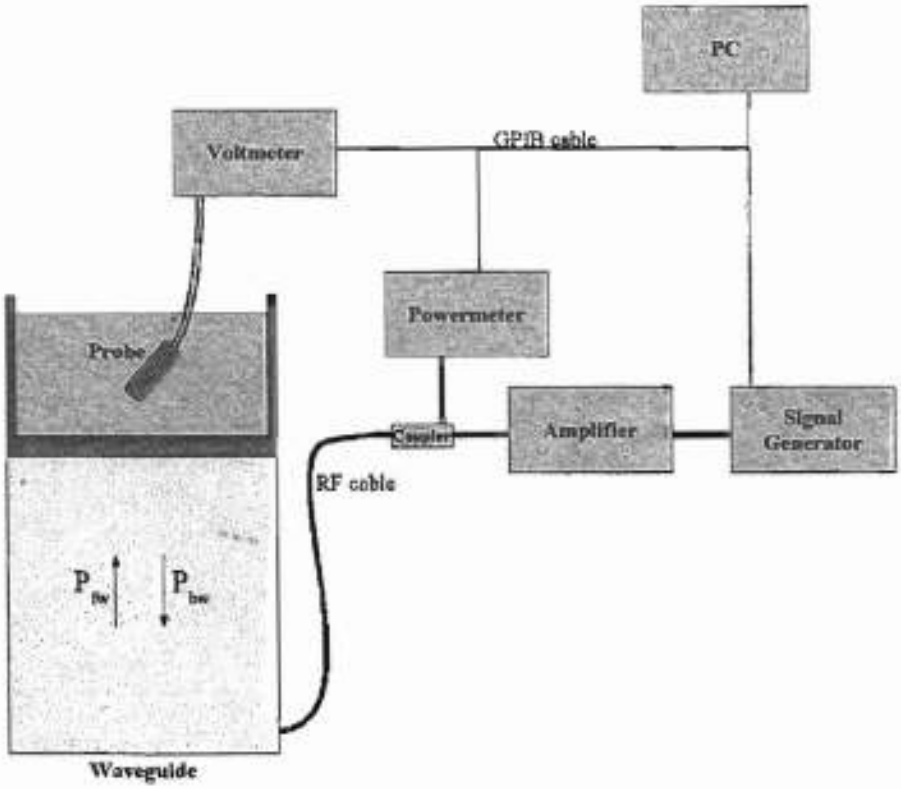
The probe could be checked by measuring the resistance of the three dipoles.

CALIBRATION TEST EQUIPMENT

TYPE	IDENTIFICATION	DATE OF CALIBRATION
Calibration bench	CALISAR CALIBRATION SYSTEM V2.0	
Multimeter	Keithley (2000, SN: 1000572)	Date of calibration: 01-04-2010

MEASUREMENT PROCEDURE

Probe calibration is realized, in compliance with CENELEC EN 50361 and IEEE 1528 std, with CALISAR, SATIMO proprietary calibration system. The calibration is performed with the EN 50361 annexe technique using reference guide at the five frequencies.



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

Where :

P_{fw}	= Forward Power
P_{bw}	= Backward Power
a and b	= Waveguide dimensions
d	= 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.

PROBE UNCERTAINTIES

Calibration report of dosimetric SATIMO probe

Uncertainty on calibration system

ERROR SOURCES	Uncertainty value (%)	Probability Distribution	Divisor	ci	Standard Uncertainty (%)
Incident or forward power	3,00%	Rectangular	$\sqrt{3}$	1	1,732%
Reflected power	3,00%	Rectangular	$\sqrt{3}$	1	1,732%
Liquid conductivity	5,00%	Rectangular	$\sqrt{3}$	1	2,887%
Liquid permittivity	4,00%	Rectangular	$\sqrt{3}$	1	2,309%
Field homogeneity	3,00%	Rectangular	$\sqrt{3}$	1	1,732%
Field probe positioning	5,00%	Rectangular	$\sqrt{3}$	1	2,887%
Field probe linearity	3,00%	Rectangular	$\sqrt{3}$	1	1,732%
Combined standard uncertainty					4,761%
Expanded uncertainty (confidence interval of 95%)					9,331%

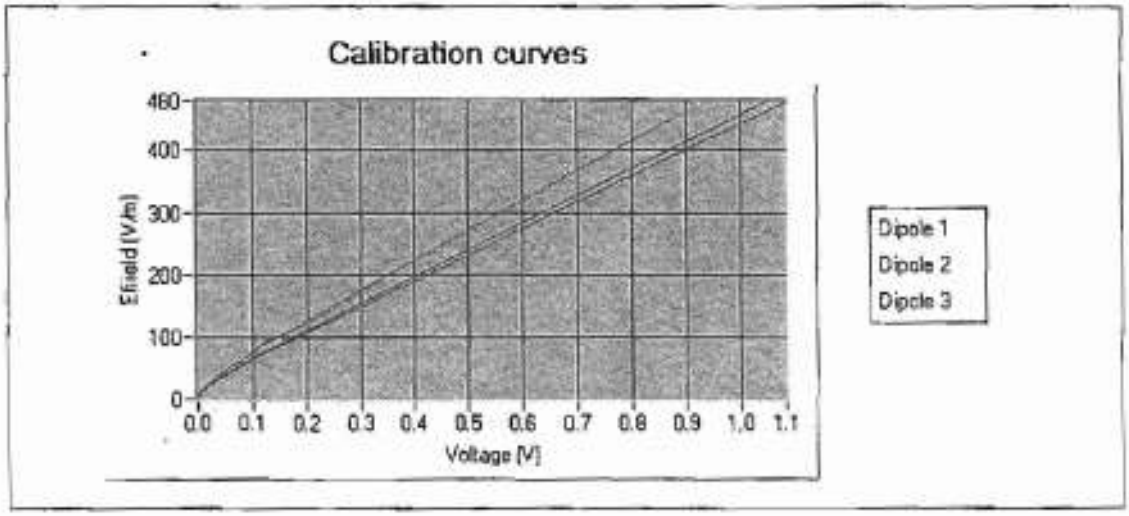
1. Calibration at 835.00 MHz

A. Calibration parameters.

Label	850
Epsilon	41.81
Sigma	0.89 S/m
Temperature	21°C
Cable loss	0.12 dB
Coupler loss	20.50 dB
Waveguide S11	-11.22 dB
Low limit detection	0.824 V/m (0.604 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

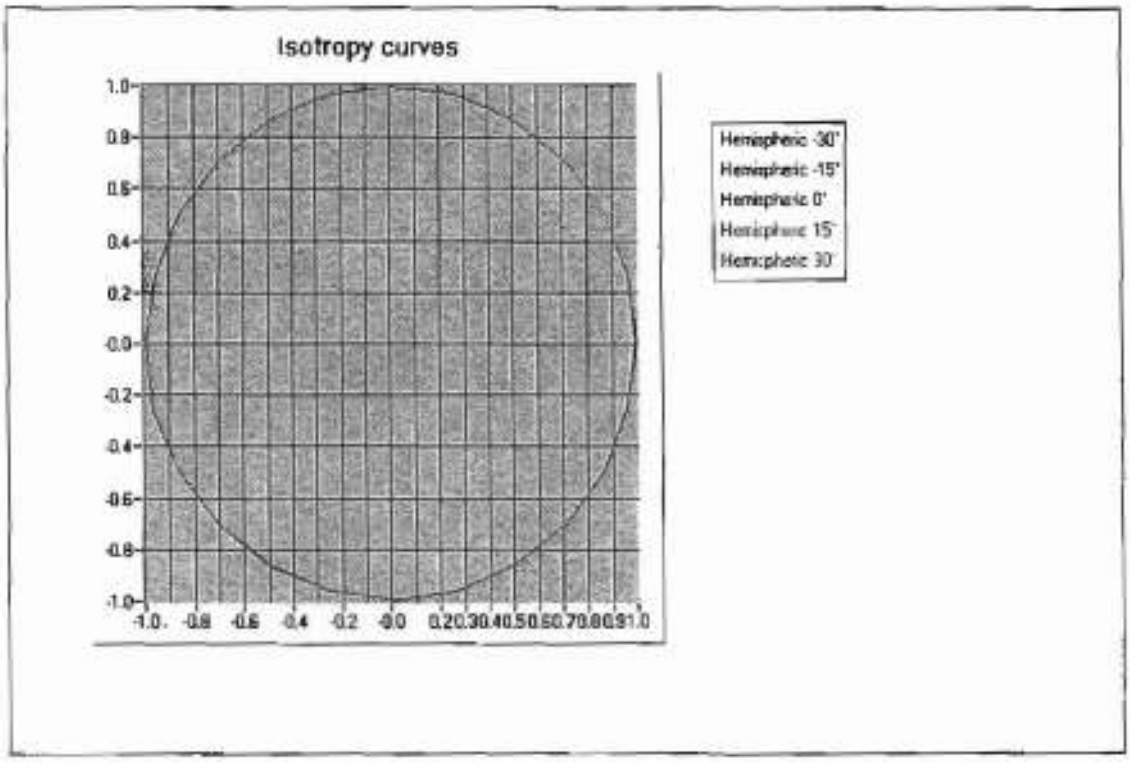
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	41.81	0.90	20.66	20.51	28.36
Body	55.51	0.94	20.00	19.88	27.77

B. Isotropy.

- Axial isotropy: 0.029 dB
- Hemispherical isotropy: 0.030 dB



C. Linearity.

- Linearity: 0.04 dB

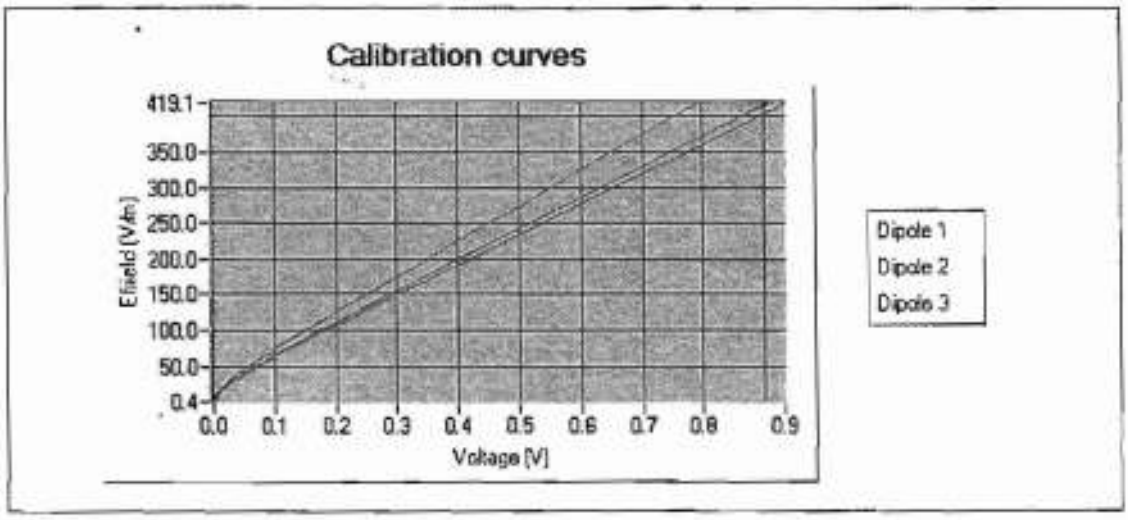
2. Calibration at 897.00 MHz

A. Calibration parameters.

Label	900
Epsilon	41.22
Sigma	0.91 S/m
Temperature	21°C
Cable loss	0.11 dB
Coupler loss	20.27 dB
Waveguide S11	-16.71 dB
Low limit detection	0.795 V/m (0.59 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

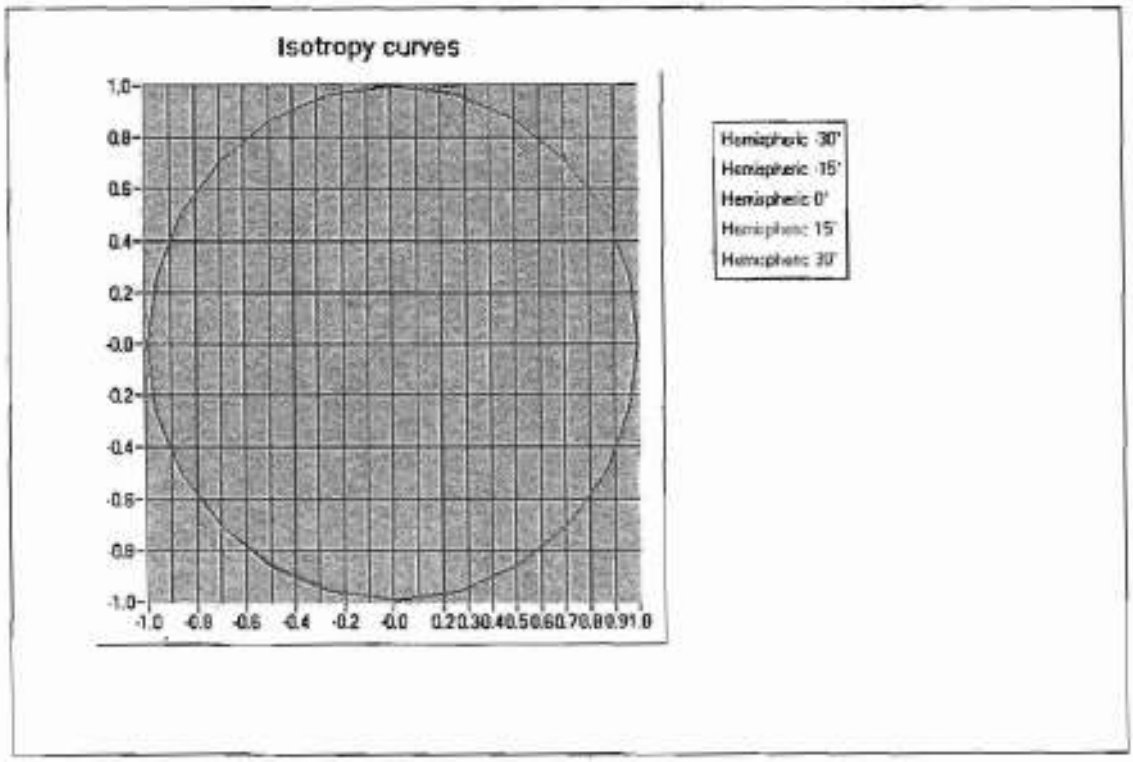
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	41.24	0.94	22.06	22.01	30.16
Body	55.69	1.00	21.56	21.36	29.10

B. Isotropy.

- Axial isotropy: 0.029 dB
- Hemispherical isotropy: 0.030 dB



C. Linearity.

- Linearity: 0.04 dB

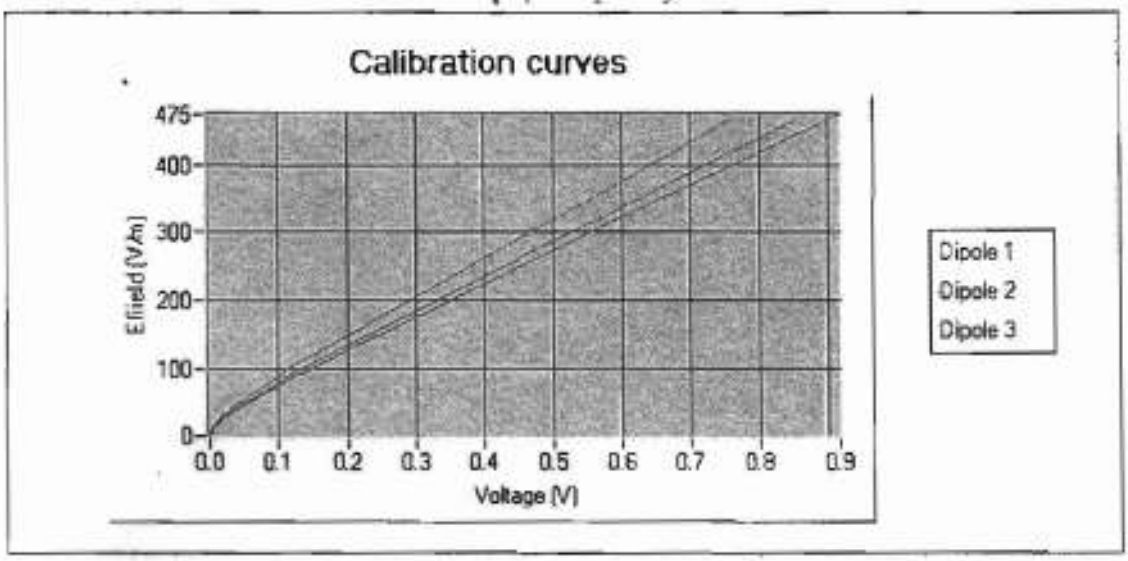
3. Calibration at 1747.00 MHz

A. Calibration parameters.

Label	1800
Epsilon	38.58
Sigma	1.33 S/m
Temperature	21°C
Cable loss	0.18 dB
Coupler loss	20.22 dB
Waveguide S11	-13.13 dB
Low limit detection	0.833 V/m (0.92 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

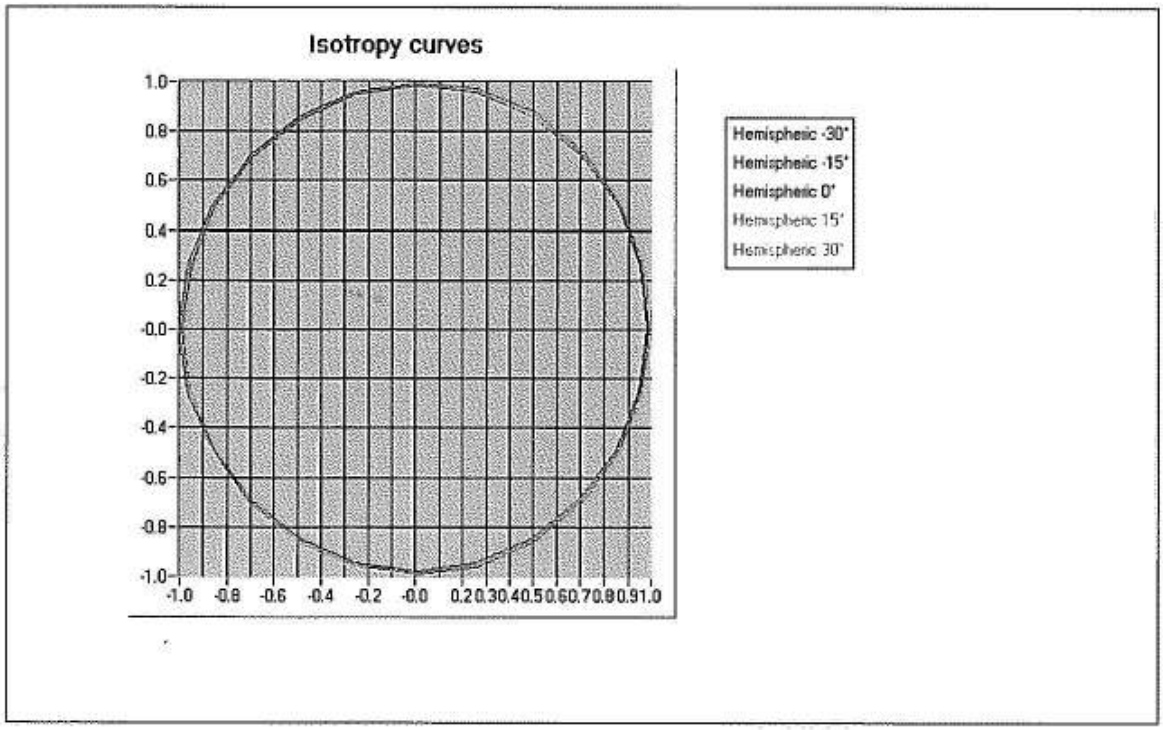
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	38.56	1.33	37.12	38.56	50.42
Body	51.99	1.49	36.66	37.99	49.66

B. Isotropy.

- Axial isotropy: 0.050 dB
- Hemispherical isotropy: 0.076 dB



C. Linearity.

- Linearity: 0.03 dB

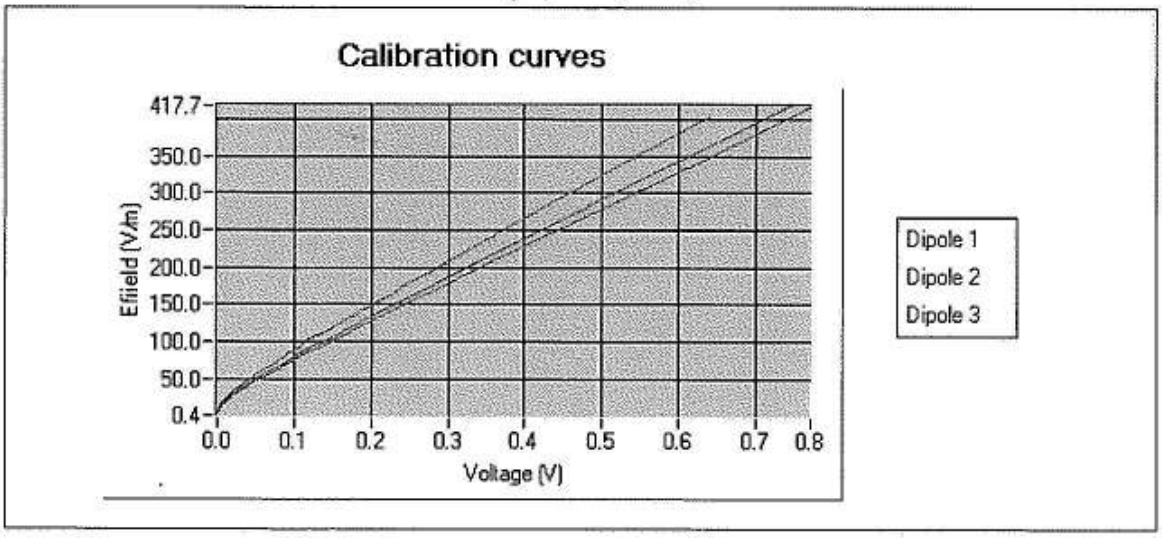
4. Calibration at 1880.00 MHz

A. Calibration parameters.

Label	1900
Epsilon	38.33
Sigma	1.44 S/m
Temperature	21°C
Cable loss	0.19 dB
Coupler loss	21.14 dB
Waveguide S11	-26.91 dB
Low limit detection	0.797 V/m (0.91 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

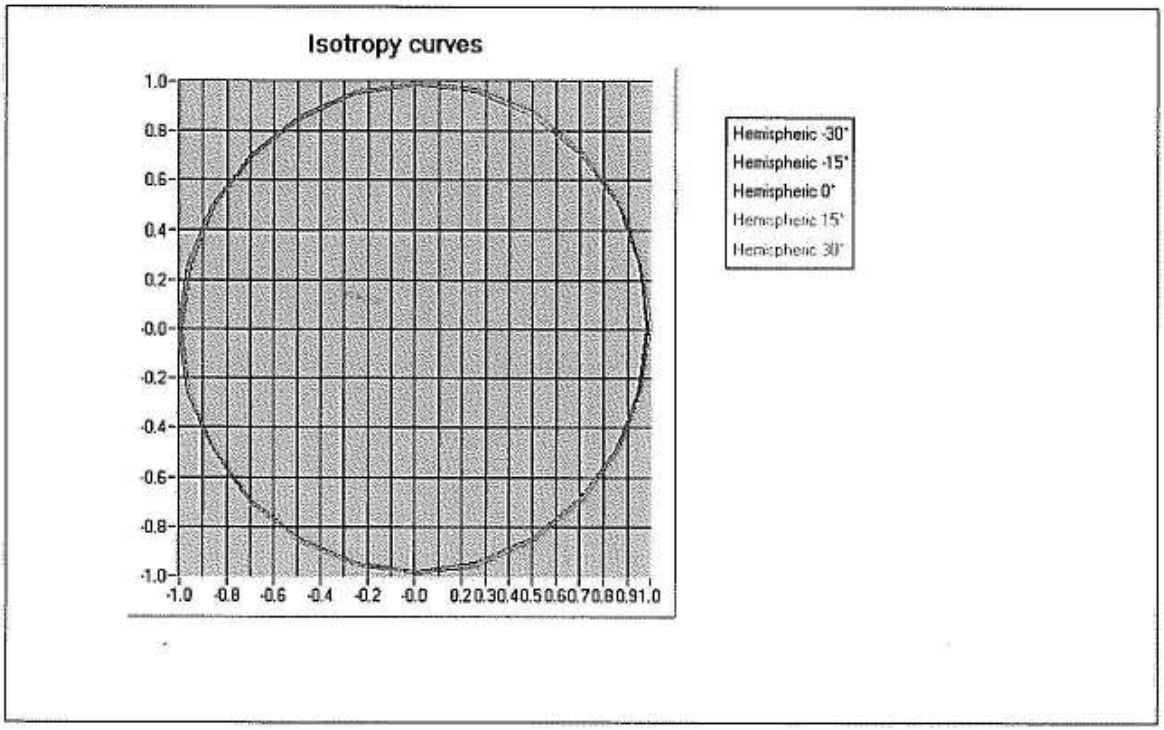
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	38.35	1.45	41.05	42.35	55.45
Body	52.12	1.52	40.42	41.12	54.75

B. Isotropy.

- Axial isotropy: 0.050 dB
- Hemispherical isotropy: 0.076 dB



C. Linearity.

- Linearity: 0.03 dB

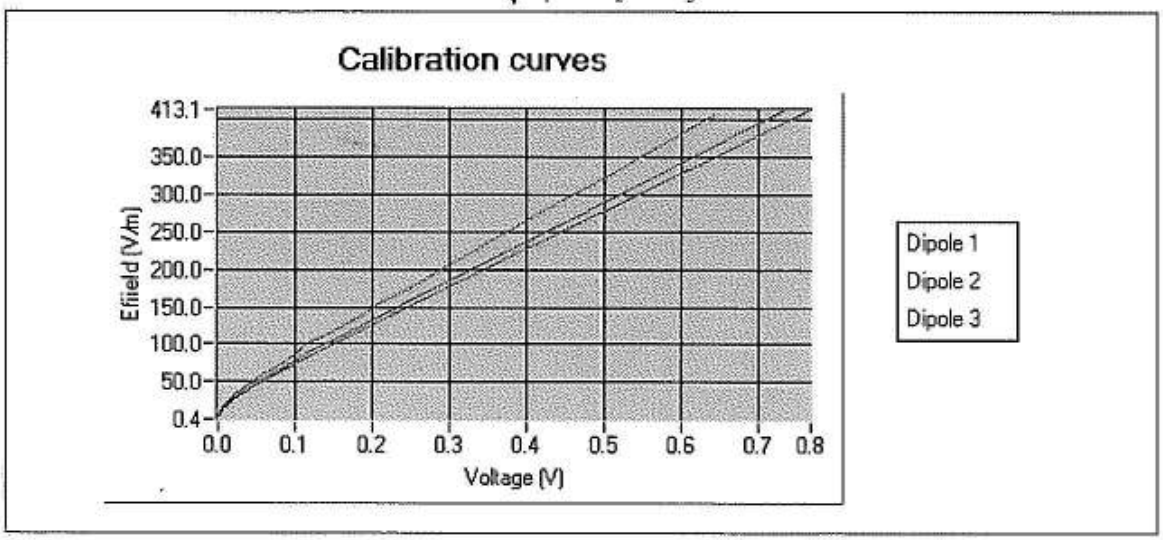
5. Calibration at 1950.00 MHz

A. Calibration parameters.

Label	2000
Epsilon	38.18
Sigma	1.48 S/m
Temperature	21°C
Cable loss	0.18 dB
Coupler loss	20.09 dB
Waveguide S11	-30.09 dB
Low limit detection	0.788 V/m (0.93 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

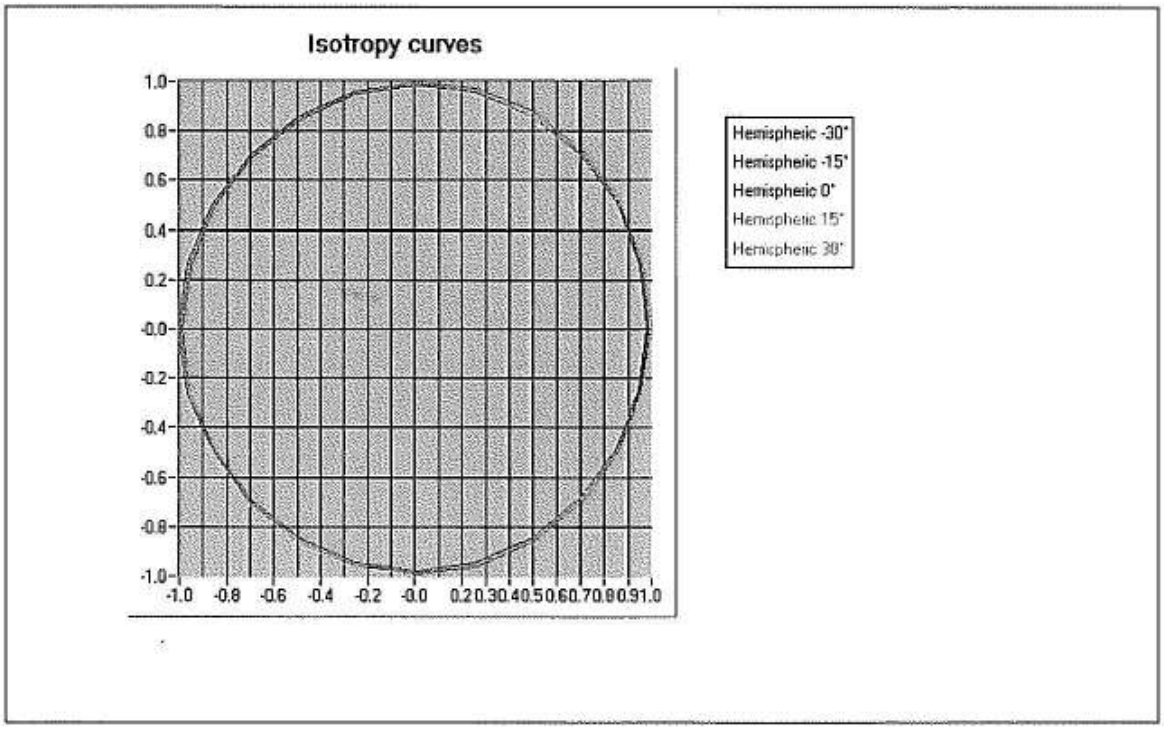
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	38.18	1.45	41.91	43.15	56.44
Body	54.05	1.52	41.01	42.41	55.65

B. Isotropy.

- Axial isotropy: 0.050 dB
- Hemispherical isotropy: 0.076 dB



C. Linearity.

- Linearity: 0.03 dB

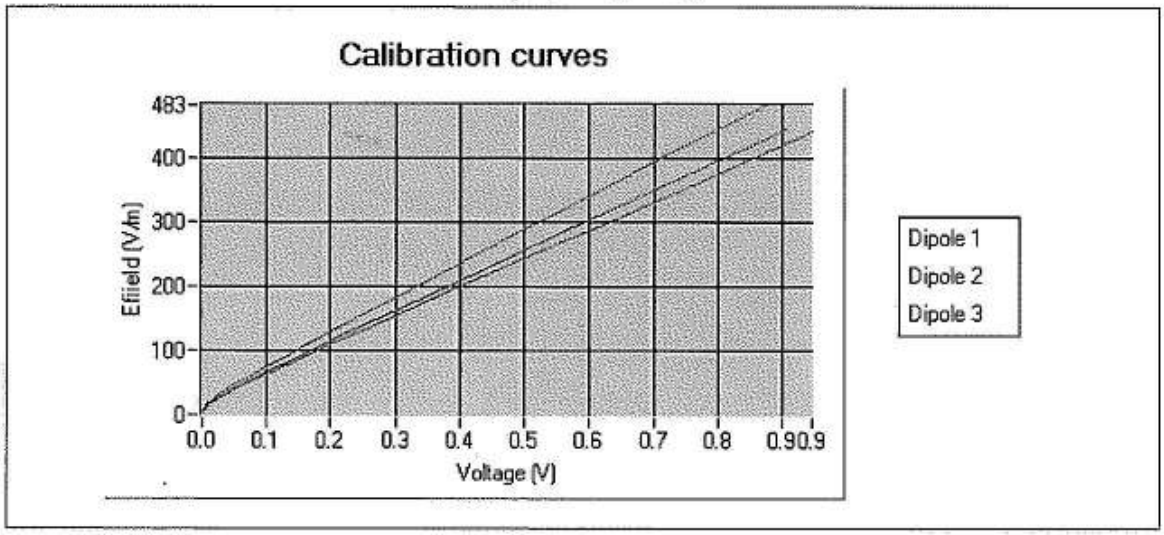
6. Calibration at 2450.00 MHz

A. Calibration parameters.

Label	2450
Epsilon	37.45
Sigma	1.75 S/m
Temperature	21°C
Cable loss	0.22 dB
Coupler loss	21.52 dB
Waveguide S11	-13.66 dB
Low limit detection	0.794 V/m (1.07 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

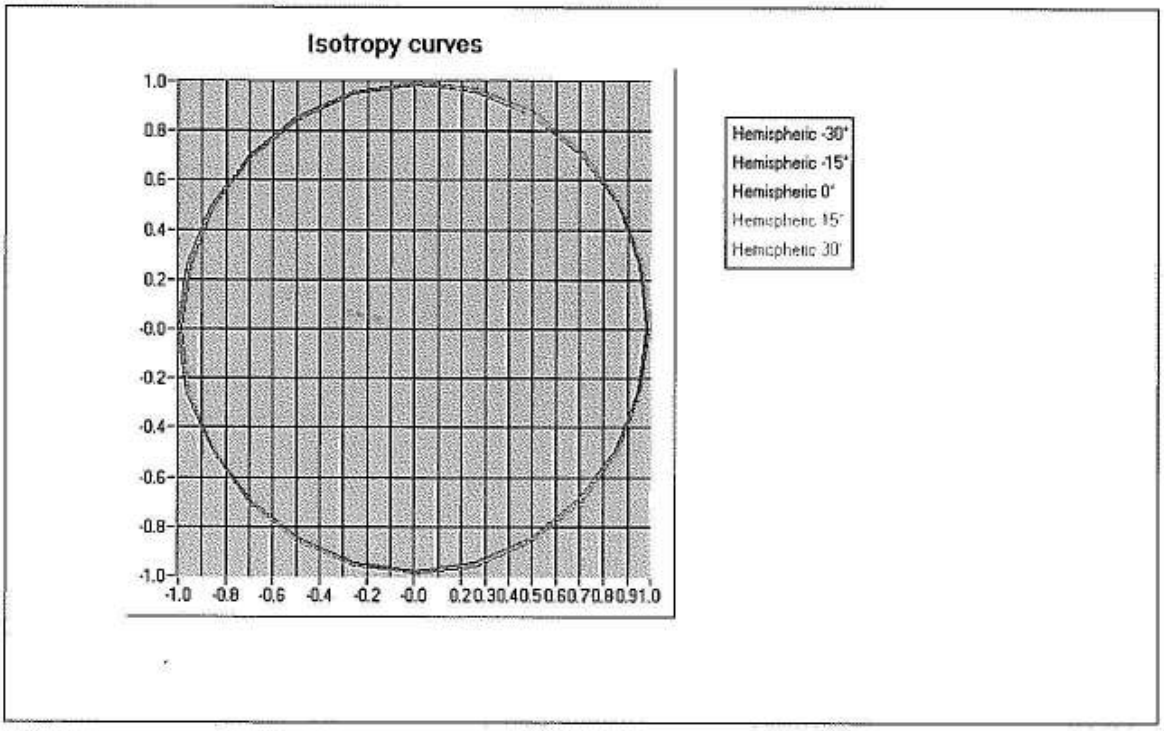
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	37.45	1.75	51.18	53.87	70.48
Body	53.70	1.95	50.35	52.98	69.78

B. Isotropy.

- Axial isotropy: 0.050 dB
- Hemispherical isotropy: 0.076 dB



C. Linearity.

- Linearity: 0.03 dB

System Validation Plots

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

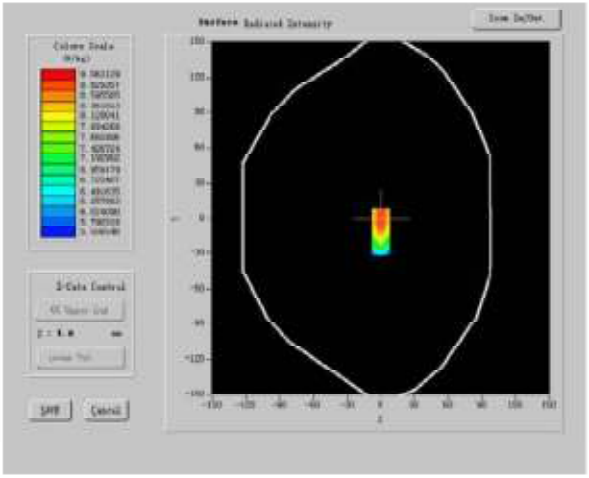
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

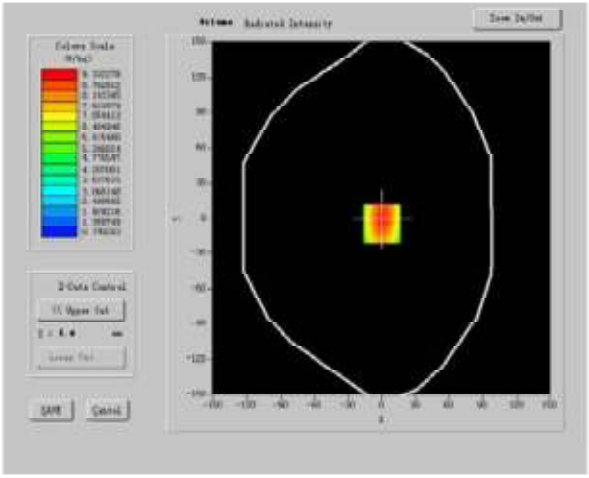
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

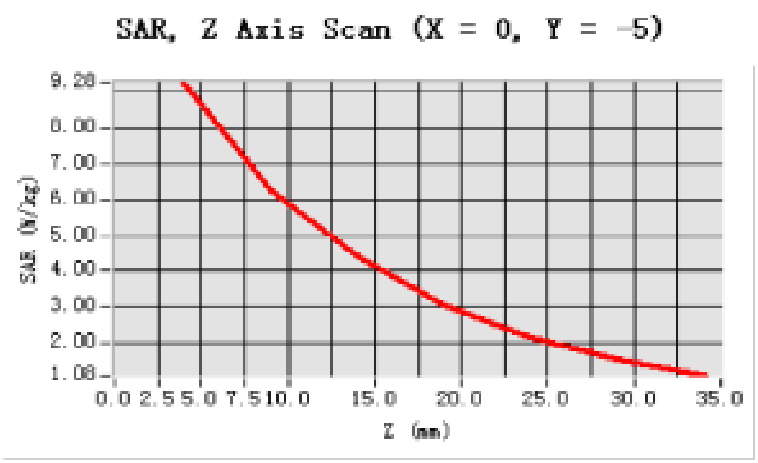
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	835.000110 (Head)
Relative permitivity (real part)	41.579001
Relative permitivity (imaginary part)	19.590210
Conductivity (S/m)	0.859210
Variation (%)	0.450000
SAR 1g (W/Kg)	9.245001

SURFACE SAR **VOLUME SAR**







Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

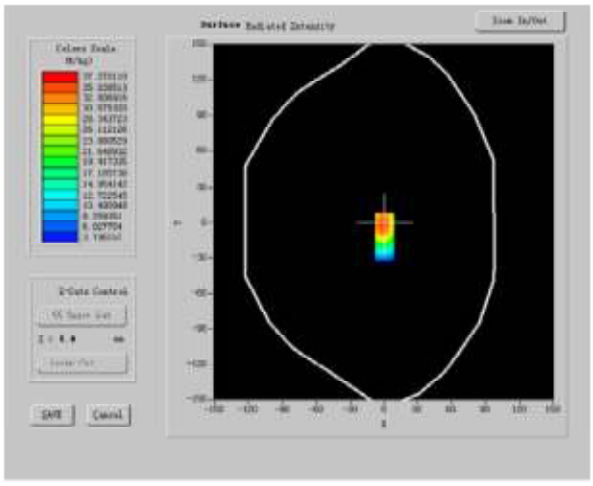
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

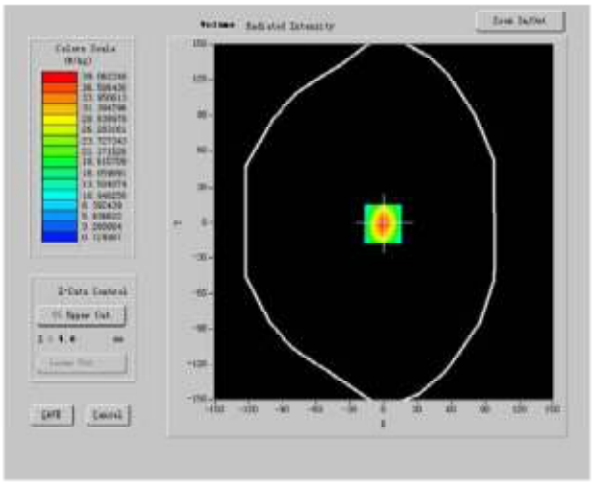
Probe: Antennessa (SN:SN_1109_EP_100)

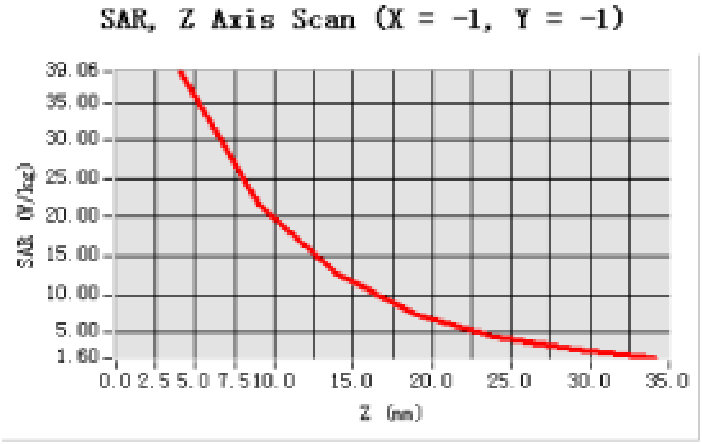
Frequency (MHz)	1880.000020 (Head)
Relative permitivity (real part)	41.214003
Relative permitivity (imaginary part)	13.210520
Conductivity (S/m)	1.385201
Variation (%)	0.450000
SAR 1g (W/Kg)	39.409223

SURFACE SAR



VOLUME SAR





Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

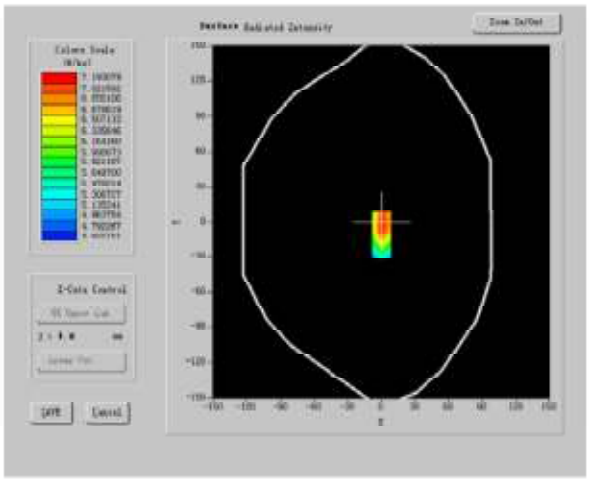
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

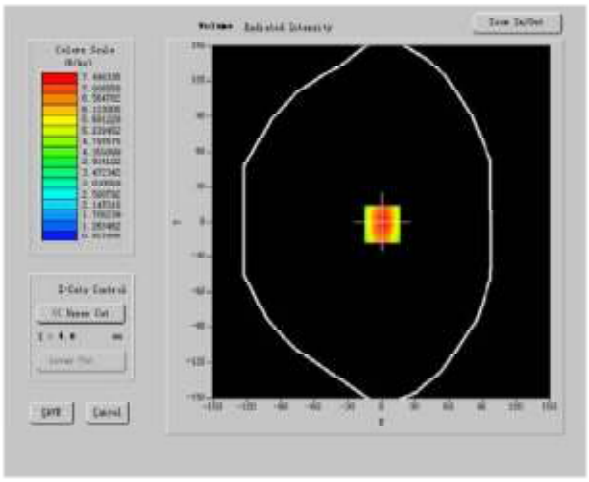
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	835.000004 (Body)
Relative permitivity (real part)	55.095200
Relative permitivity (imaginary part)	22.120012
Conductivity (S/m)	0.973210
Variation (%)	0.300000
SAR 1g (W/Kg)	9.894247

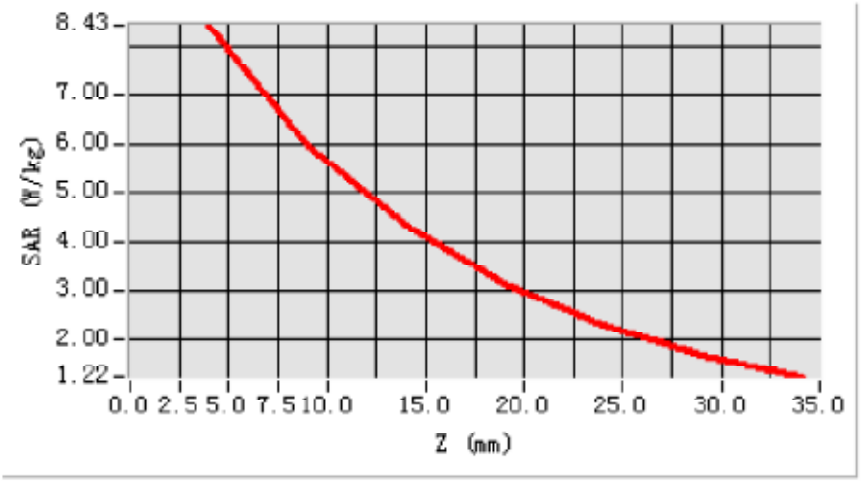
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 1, Y = -2)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

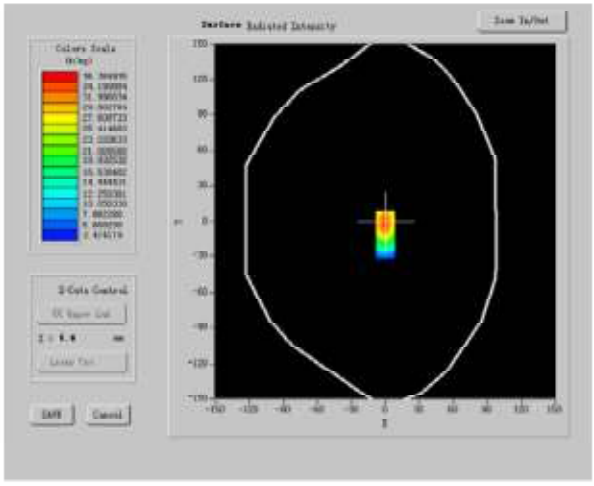
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

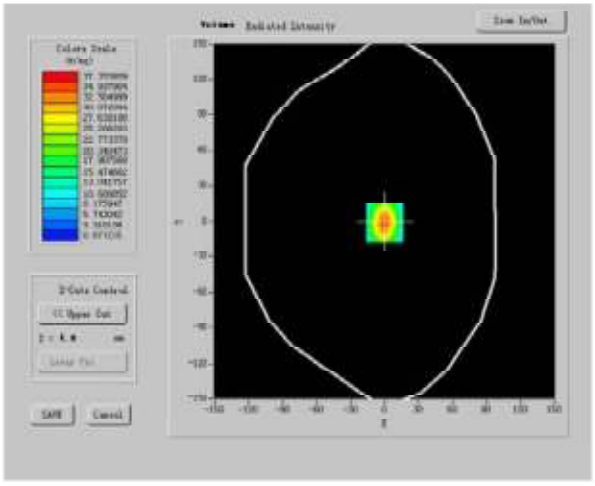
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1880.000020 (Body)
Relative permitivity (real part)	53.546168
Relative permitivity (imaginary part)	13.621000
Conductivity (S/m)	1.532100
Variation (%)	-0.400000
SAR 1g (W/Kg)	39.984602

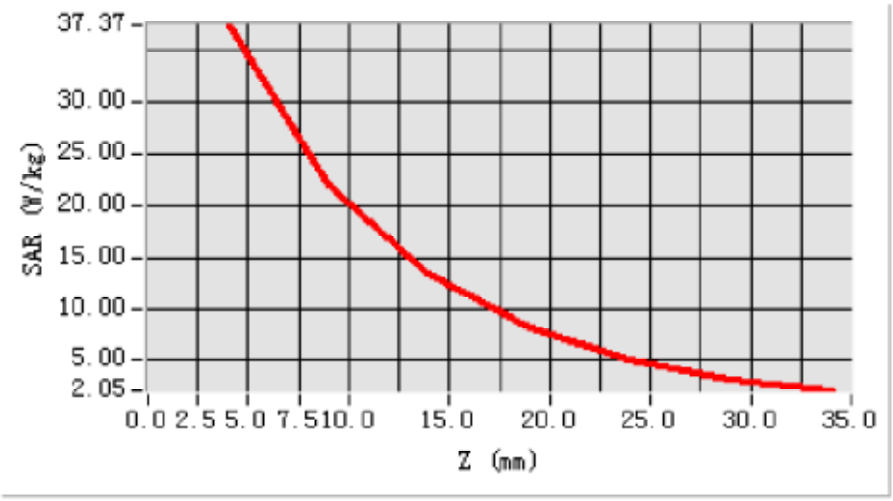
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 0, Y = -1)



SAR Data Plots

TYPE	BAND	PARAMETERS
Noise	--	--
Validation	--	--
Phone	**GSM850**	Measurement 1: Right Head with Cheek device position on Low Channel in GSM mode Measurement 2: Right Head with Cheek device position on Middle Channel in GSM mode Measurement 3: Right Head with Cheek device position on High Channel in GSM mode Measurement 4: Right Head with Tilt device position on Low Channel in GSM mode Measurement 5: Right Head with Tilt device position on Middle Channel in GSM mode Measurement 6: Right Head with Tilt device position on High Channel in GSM mode Measurement 7: Left Head with Cheek device position on Low Channel in GSM mode Measurement 8: Left Head with Cheek device position on Middle Channel in GSM mode Measurement 9: Left Head with Cheek device position on High Channel in GSM mode Measurement 10: Left Head with Tilt device position on Low Channel in GSM mode Measurement 11: Left Head with Tilt device position on Middle Channel in GSM mode Measurement 12: Left Head with Tilt device position on High Channel in GSM mode Measurement 13: Validation Plane with Body device position on Low Channel in GSMmode Measurement 14: Validation Plane with Body device position on Middle Channel in GSM mode Measurement 15: Validation Plane with Body device position on High Channel in GSM mode

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

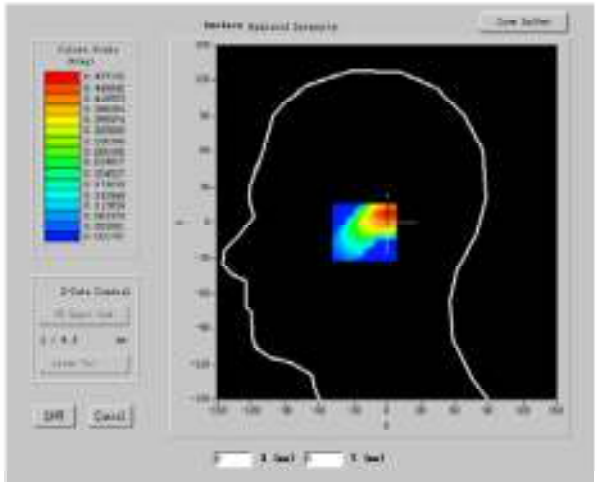
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

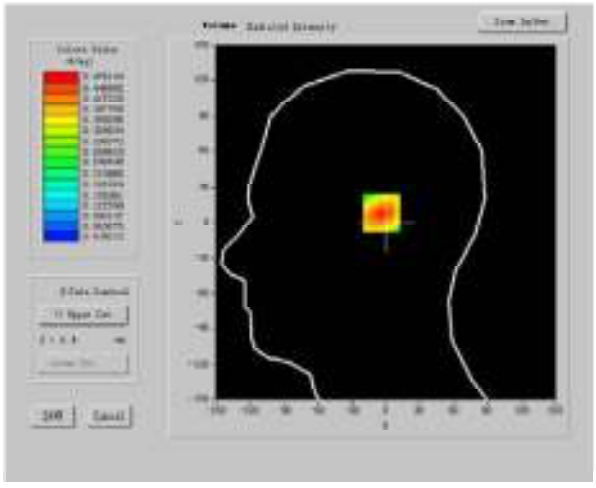
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.200001 (Right Head , Cheek)
Relative permitivity (real part)	41.489245
Relative permitivity (imaginary part)	19.510012
Conductivity (S/m)	0.854200
Variation (%)	-1.450000
SAR 1g (W/Kg)	0.861054

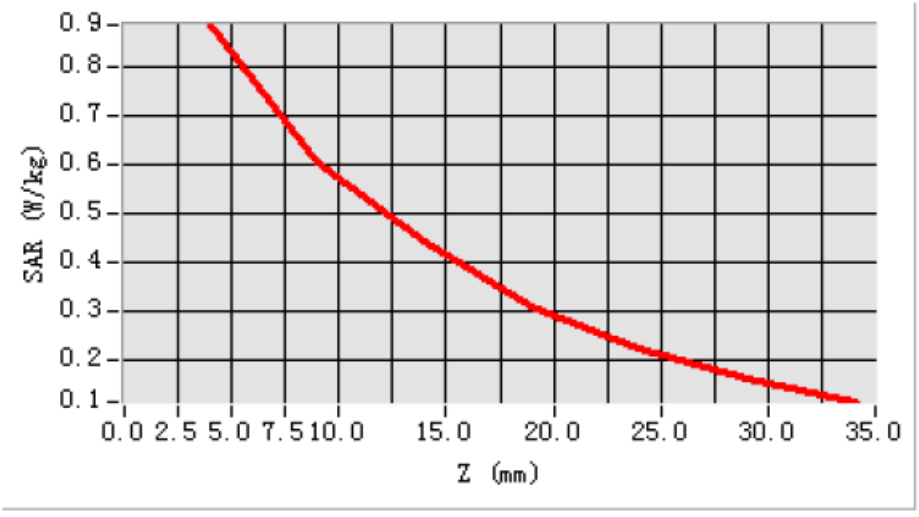
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

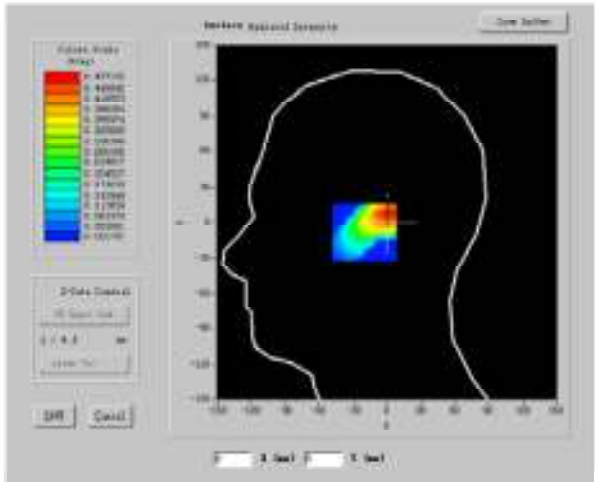
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

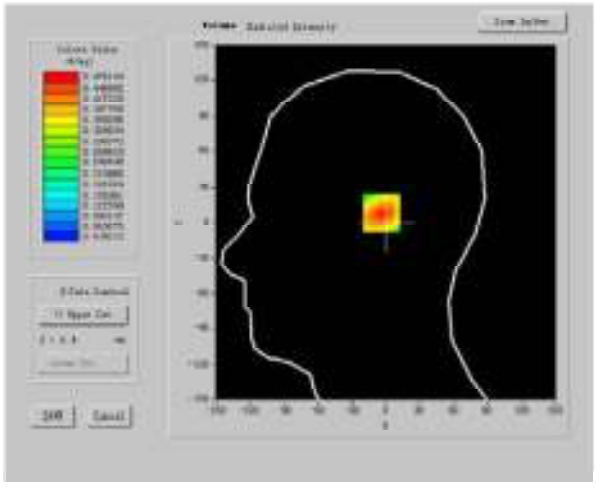
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.590001 (Right Head , Cheek)
Relative permitivity (real part)	41.400210
Relative permitivity (imaginary part)	19.505201
Conductivity (S/m)	0.906234
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.837156

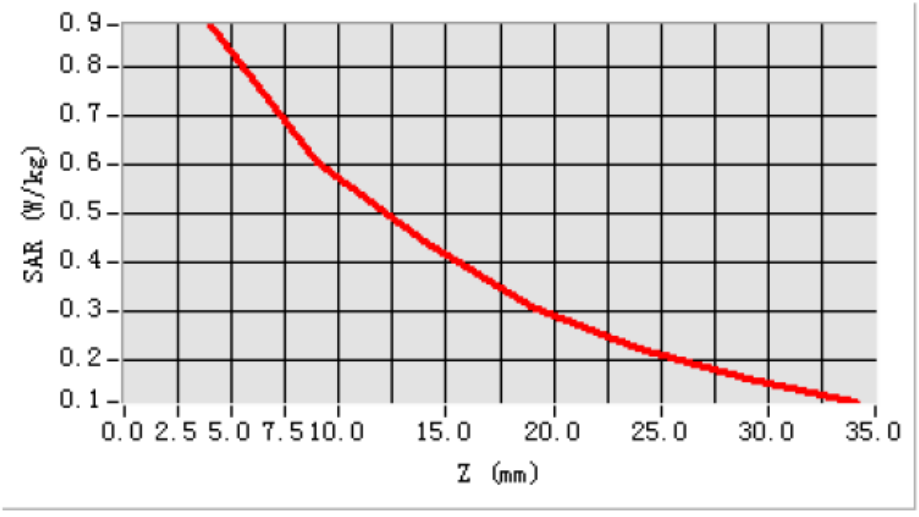
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

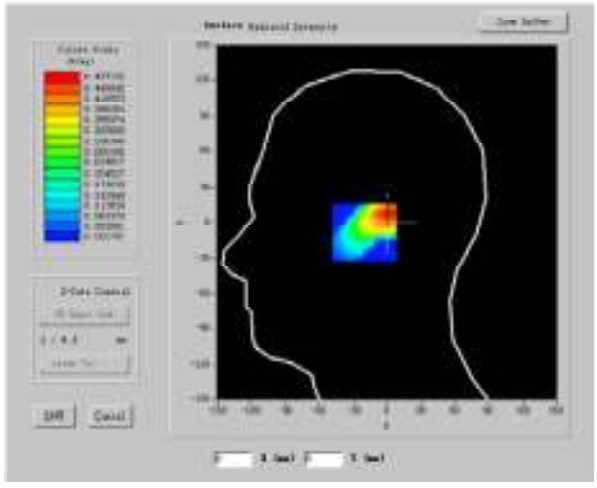
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

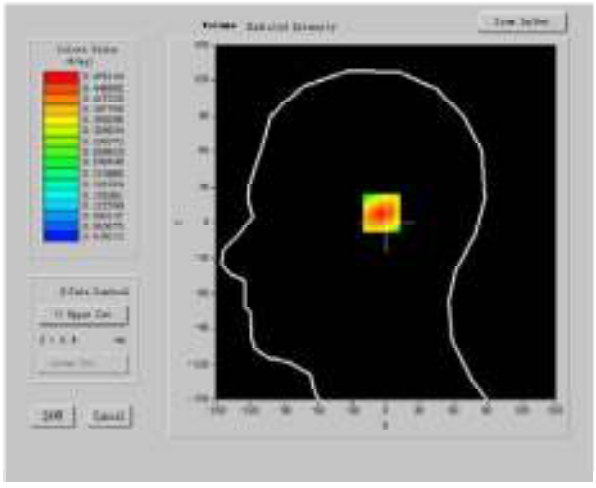
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.799999 (Right Head , Cheek)
Relative permitivity (real part)	41.262410
Relative permitivity (imaginary part)	19.593210
Conductivity (S/m)	0.902146
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.831197

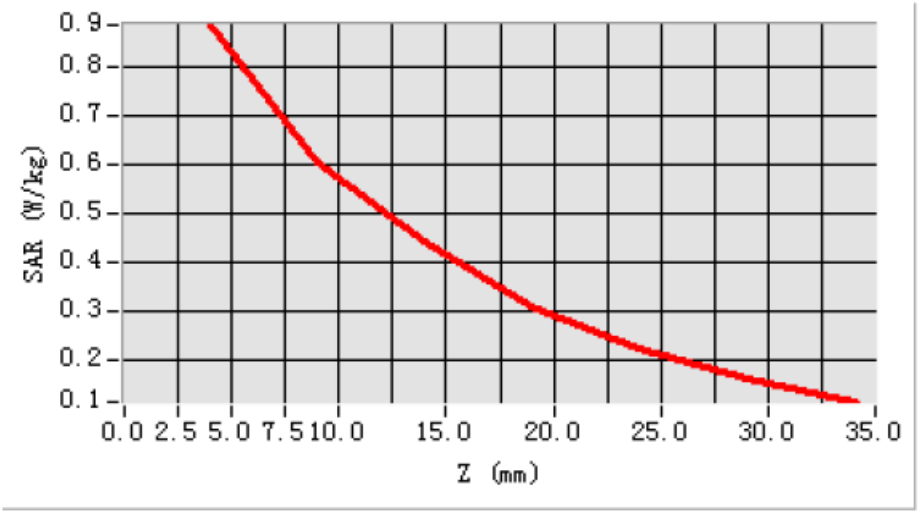
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

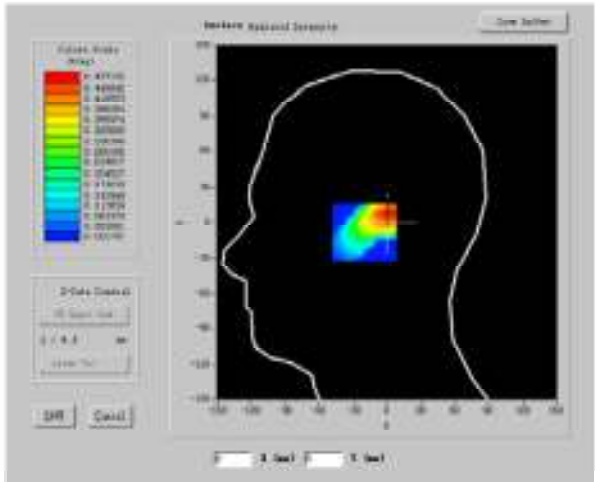
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

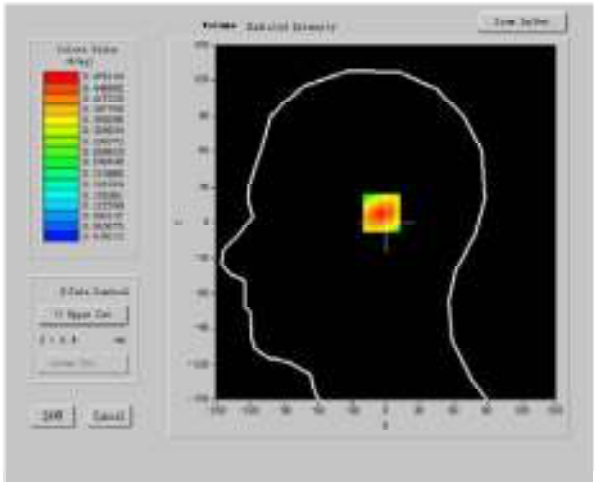
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.202012 (Right Head , Tilt)
Relative permitivity (real part)	41.432019
Relative permitivity (imaginary part)	19.532401
Conductivity (S/m)	0.815242
Variation (%)	-1.300000
SAR 1g (W/Kg)	0.638814

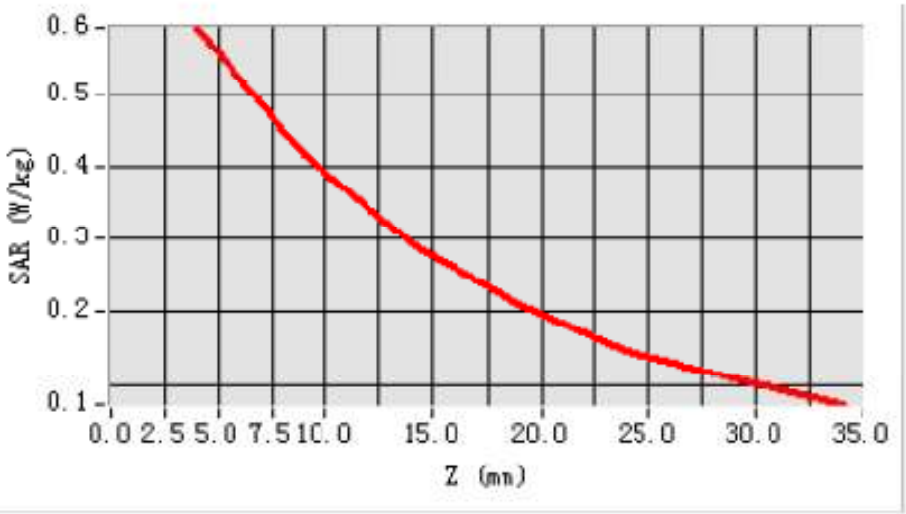
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -9, Y = -6)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

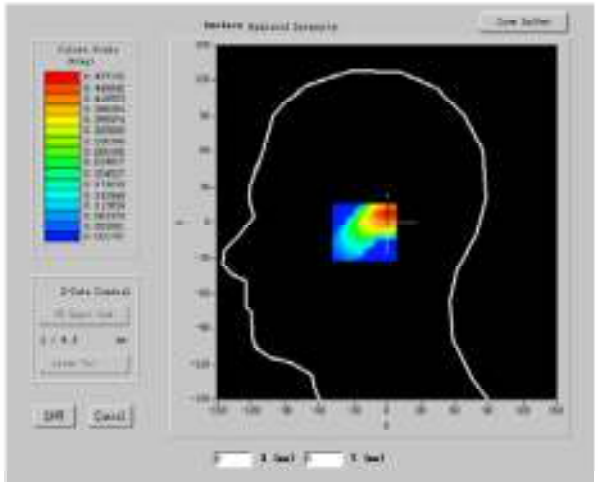
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

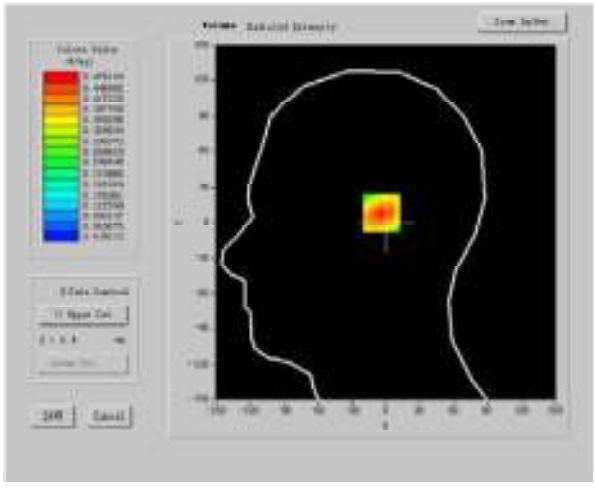
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.600210 (Right Head , tilt)
Relative permitivity (real part)	41.402109
Relative permitivity (imaginary part)	19.532001
Conductivity (S/m)	0.900120
Variation (%)	-0.890000
SAR 1g (W/Kg)	0.654108

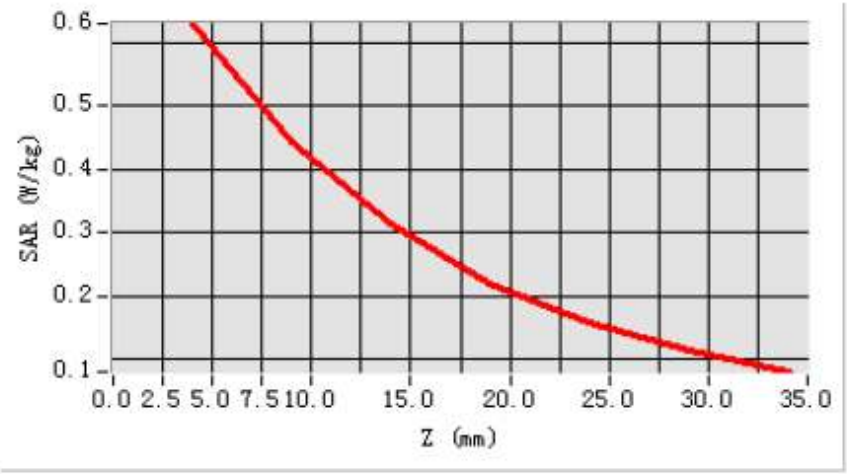
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -9, Y = -6)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

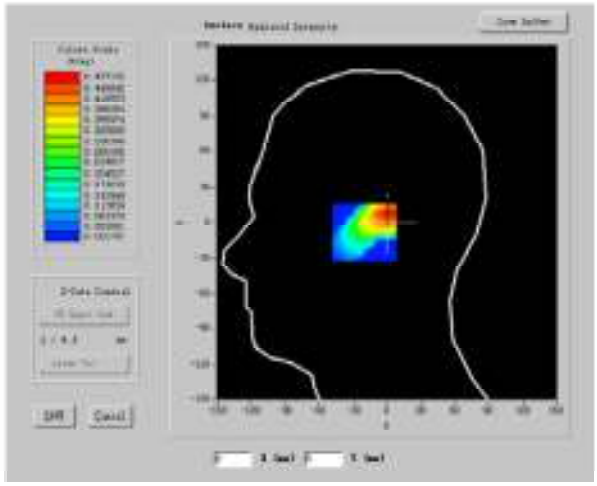
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

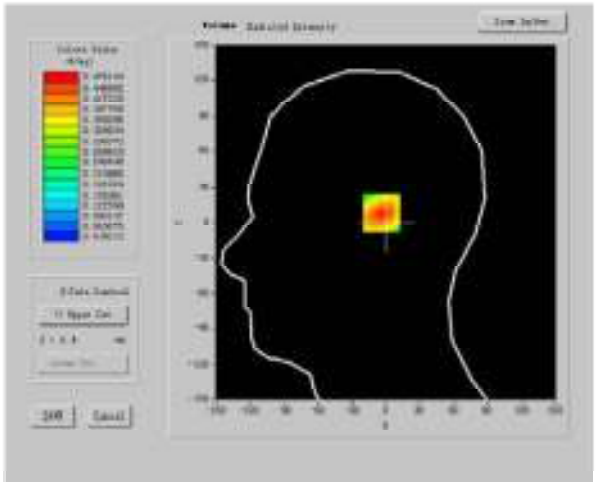
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.799000 (Right Head , Tilt)
Relative permitivity (real part)	41.221001
Relative permitivity (imaginary part)	19.536200
Conductivity (S/m)	0.903346
Variation (%)	-0.400000
SAR 1g (W/Kg)	0.660510

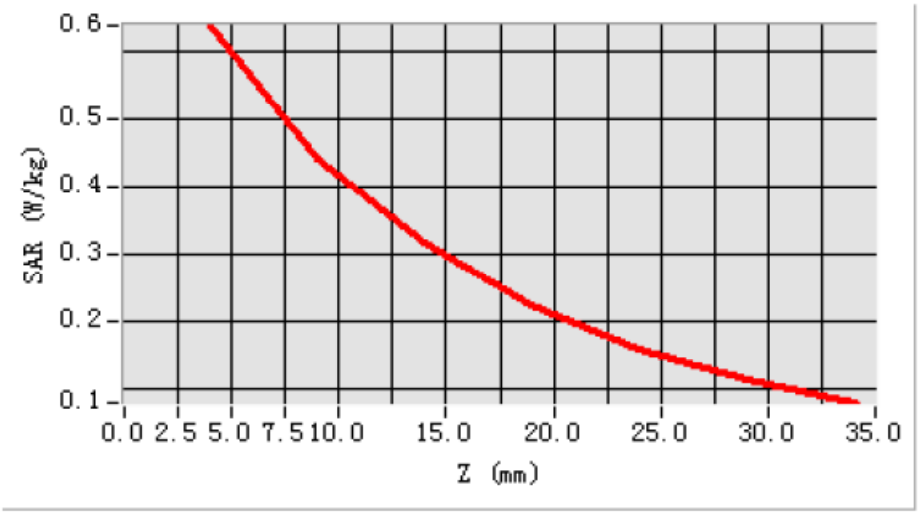
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -9, Y = -6)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

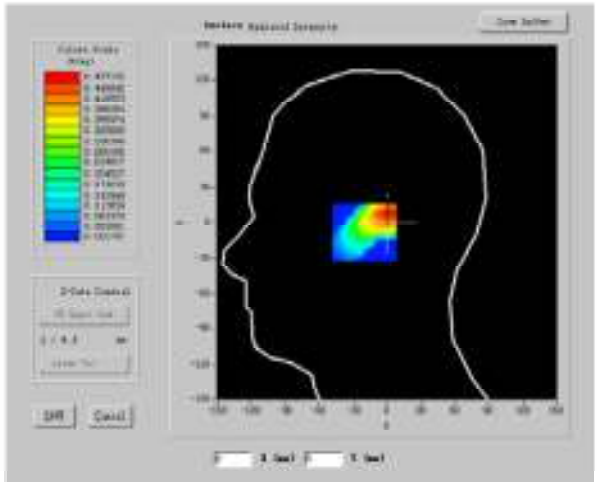
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

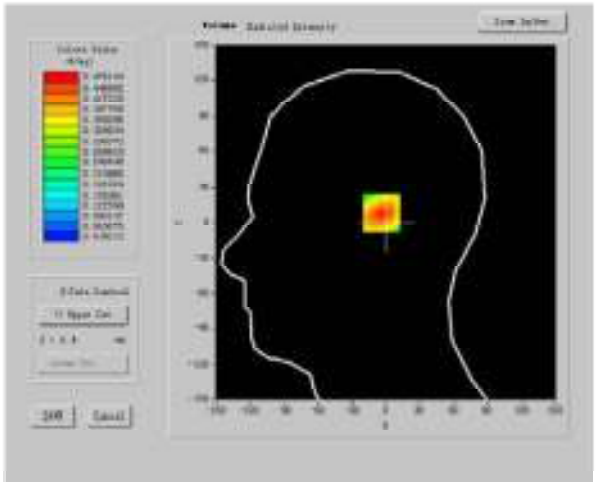
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.203202 (Left Head , Cheek)
Relative permitivity (real part)	41.412099
Relative permitivity (imaginary part)	19.545206
Conductivity (S/m)	0.832142
Variation (%)	-0.250000
SAR 1g (W/Kg)	0.859071

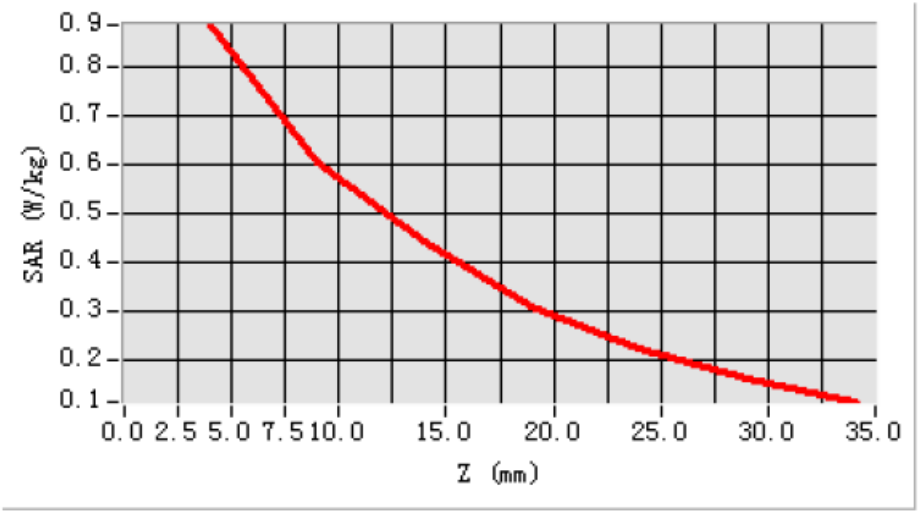
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

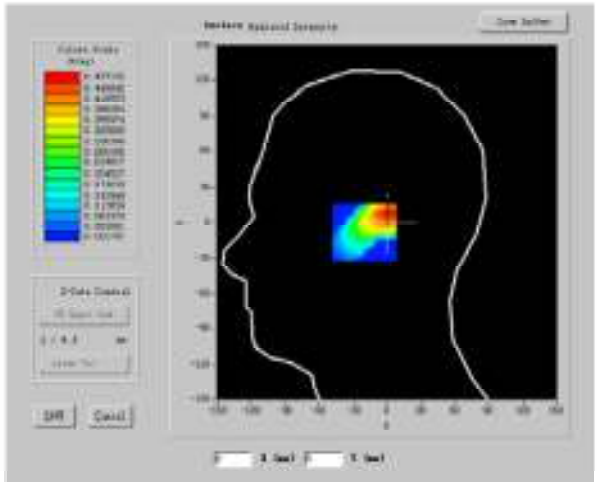
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

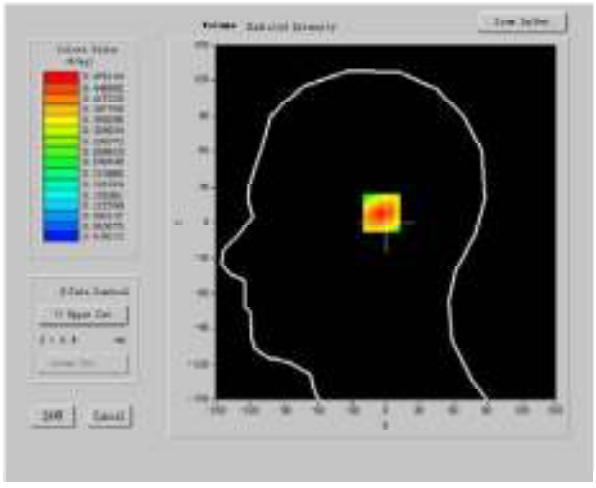
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.600010 (Left Head , Cheek)
Relative permitivity (real part)	41.490019
Relative permitivity (imaginary part)	19.505201
Conductivity (S/m)	0.906241
Variation (%)	-0.230000
SAR 1g (W/Kg)	0.808882

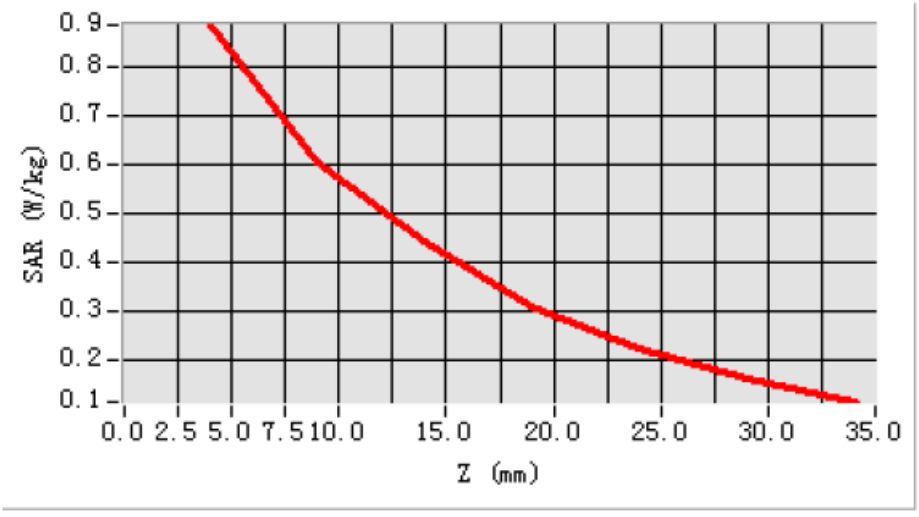
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

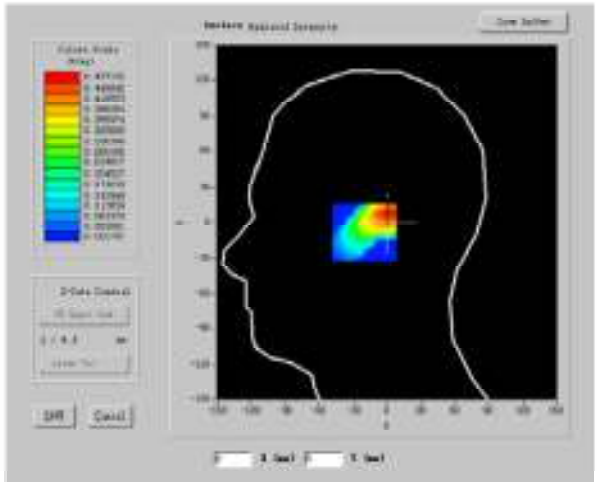
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

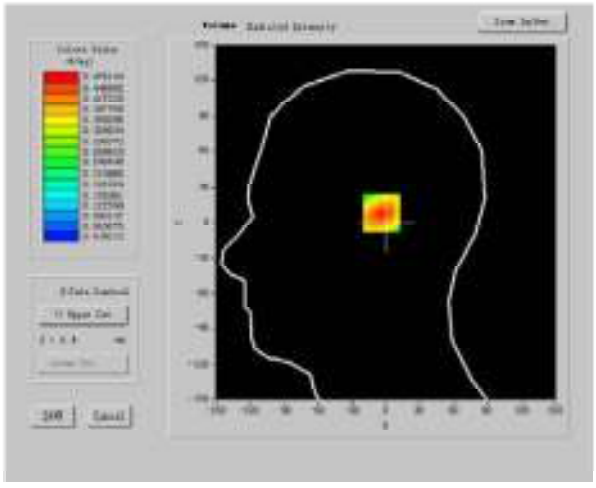
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.592416 (Left Head , Cheek)
Relative permitivity (real part)	41.214521
Relative permitivity (imaginary part)	19.535200
Conductivity (S/m)	0.900120
Variation (%)	-1.300000
SAR 1g (W/Kg)	0.827913

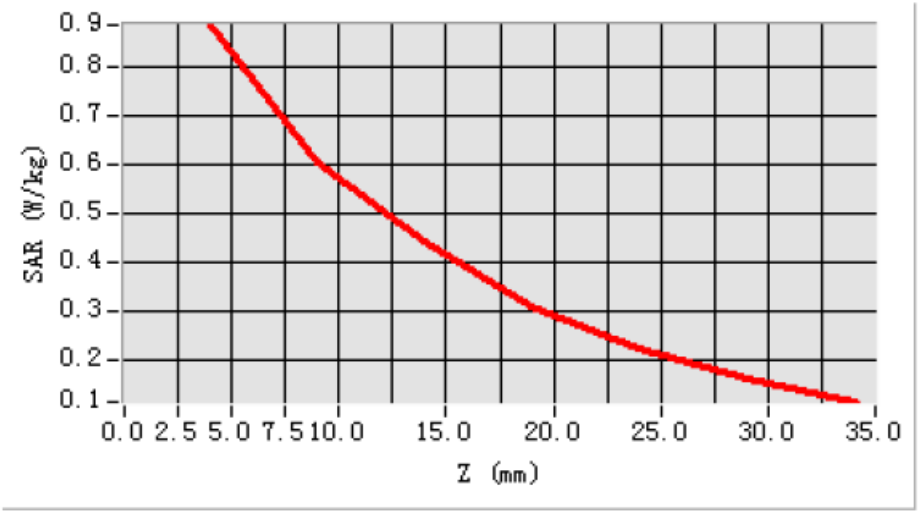
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -13, Y = -3)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

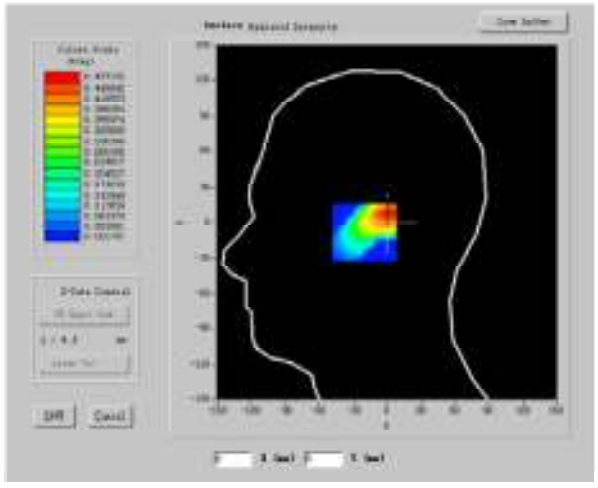
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

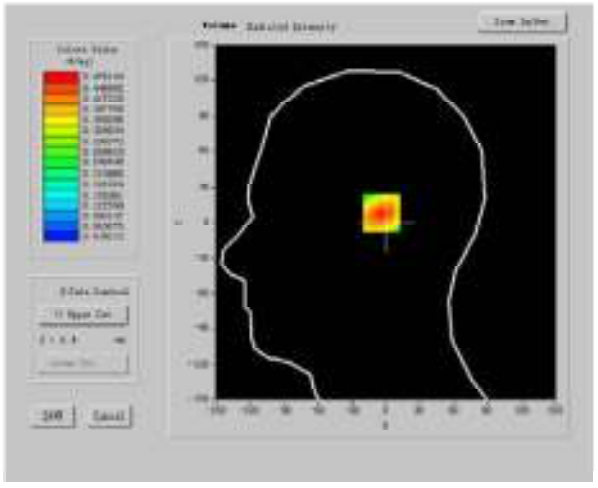
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.203202 (Left Head , Tilt)
Relative permitivity (real part)	41.412501
Relative permitivity (imaginary part)	19.502103
Conductivity (S/m)	0.900212
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.460139

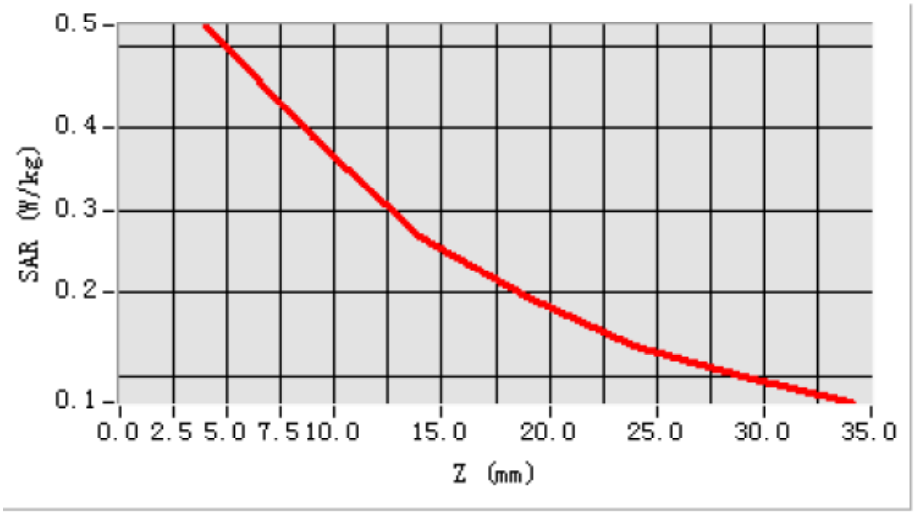
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

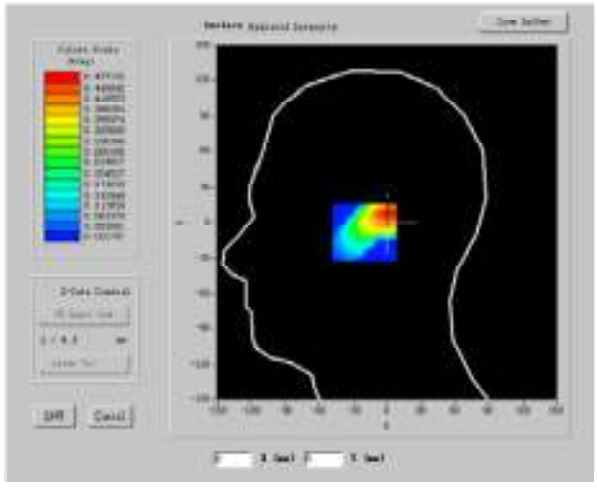
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

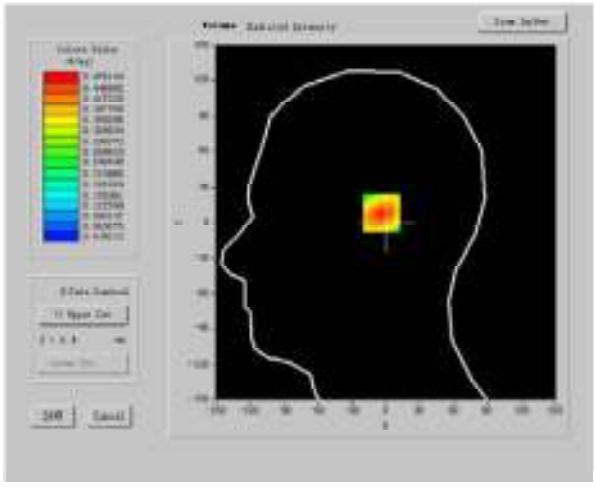
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.602124 (Left Head , tilt)
Relative permitivity (real part)	41.460120
Relative permitivity (imaginary part)	19.532105
Conductivity (S/m)	0.900102
Variation (%)	-0.010000
SAR 1g (W/Kg)	0.507431

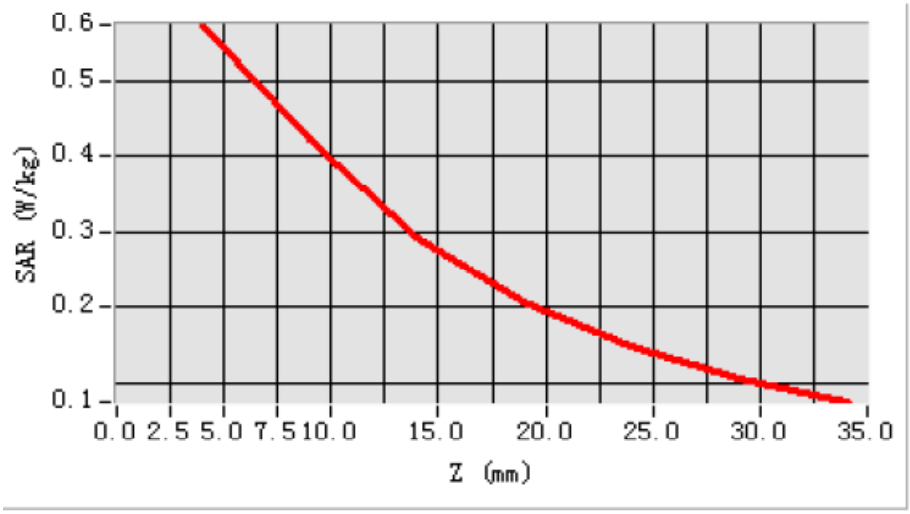
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

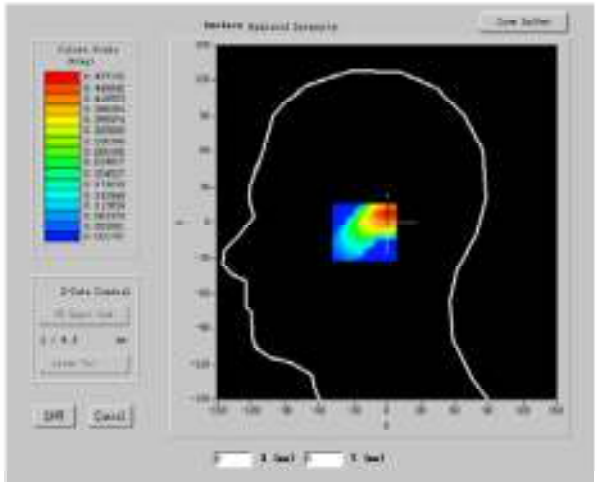
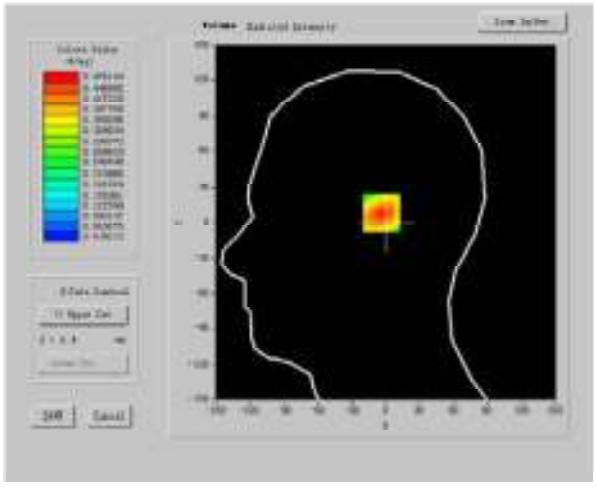
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

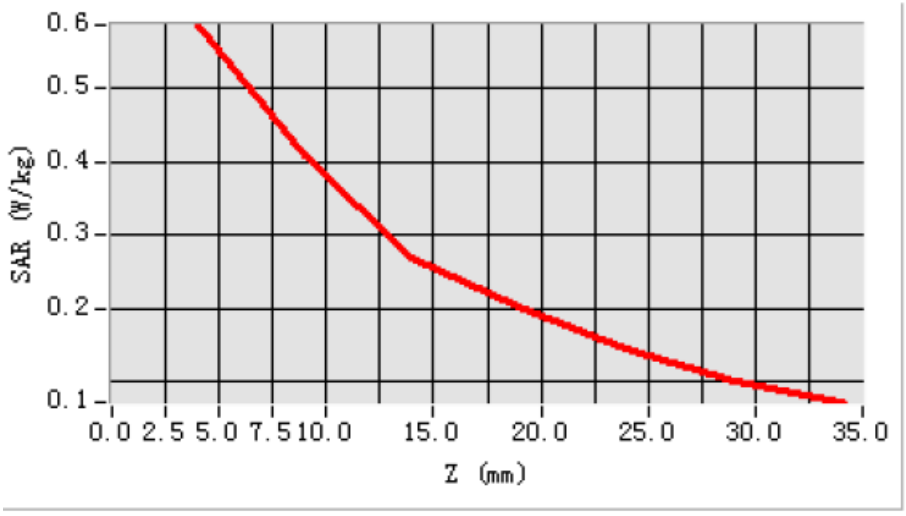
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.790120 (Left Head , Tilt)
Relative permitivity (real part)	41.432001
Relative permitivity (imaginary part)	19.524100
Conductivity (S/m)	0.903206
Variation (%)	-1.100000
SAR 1g (W/Kg)	0.540881

SURFACE SAR	VOLUME SAR
	

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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

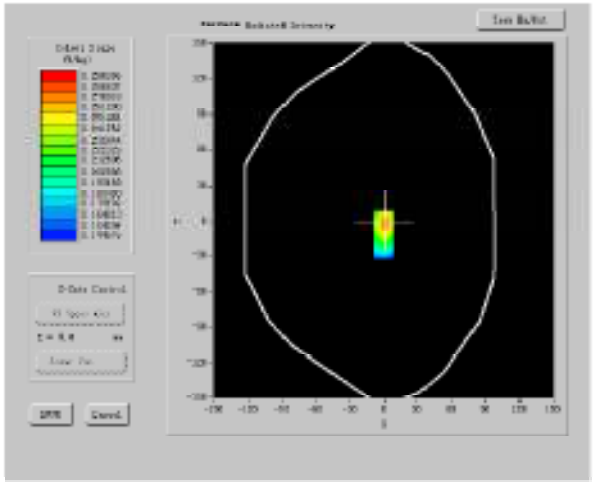
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

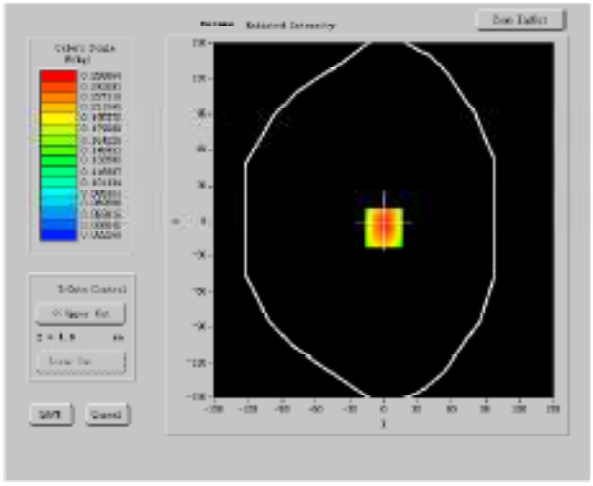
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.200002 (Body)
Relative permitivity (real part)	55.524000
Relative permitivity (imaginary part)	21.241150
Conductivity (S/m)	0.932509
Variation (%)	-1.130000
SAR 1g (W/Kg)	0.300897

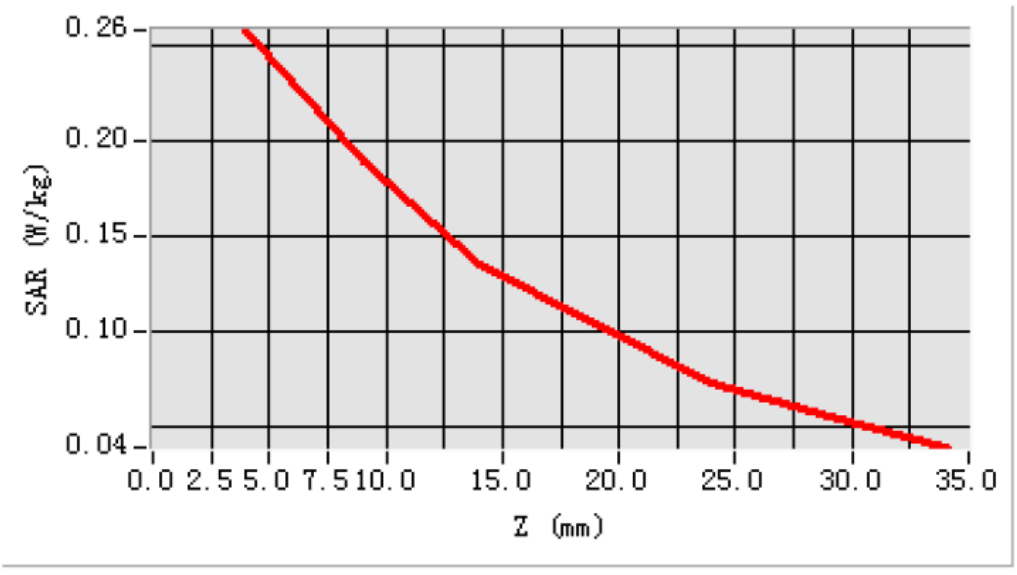
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

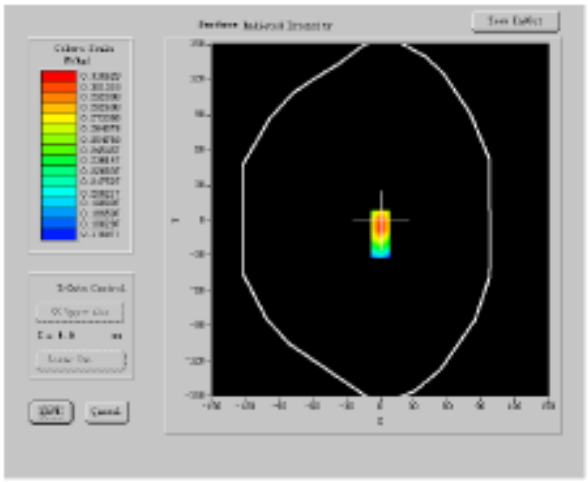
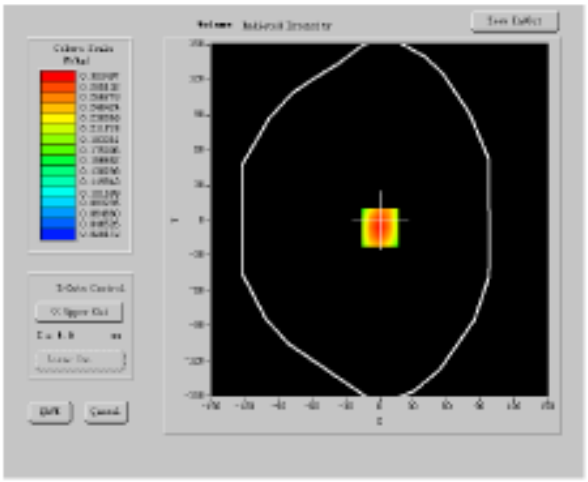
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

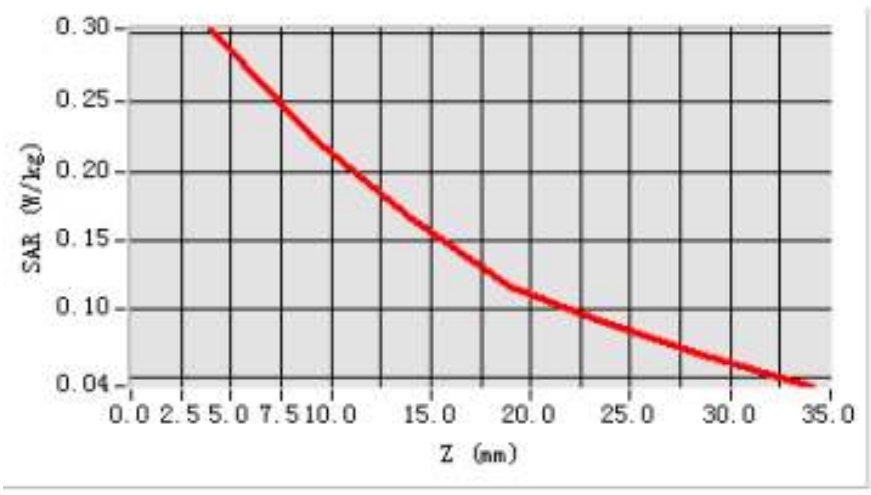
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	836.600204 (Body)
Relative permitivity (real part)	55.500210
Relative permitivity (imaginary part)	21.832010
Conductivity (S/m)	0.924152
Variation (%)	-1.200000
SAR 1g (W/Kg)	0.252046

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

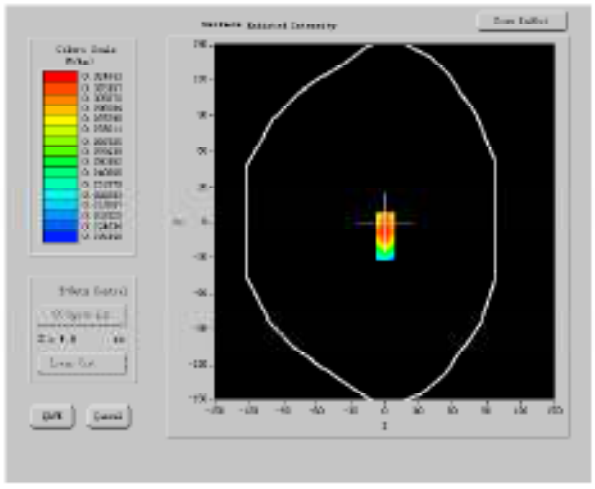
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

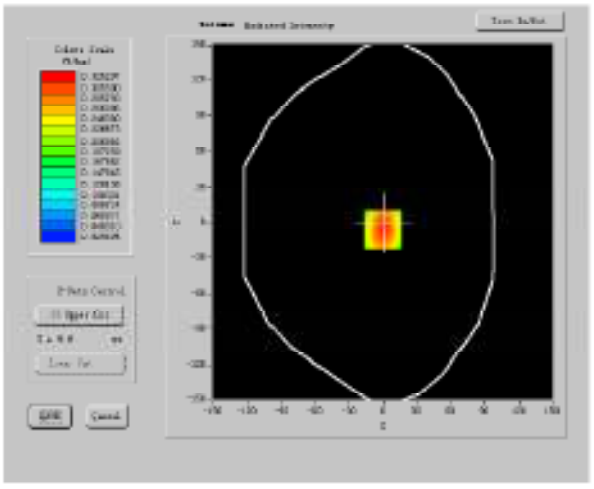
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	848.862406 (Body)
Relative permitivity (real part)	55.524000
Relative permitivity (imaginary part)	21.702101
Conductivity (S/m)	0.963200
Variation (%)	-1.310000
SAR 1g (W/Kg)	0.361159

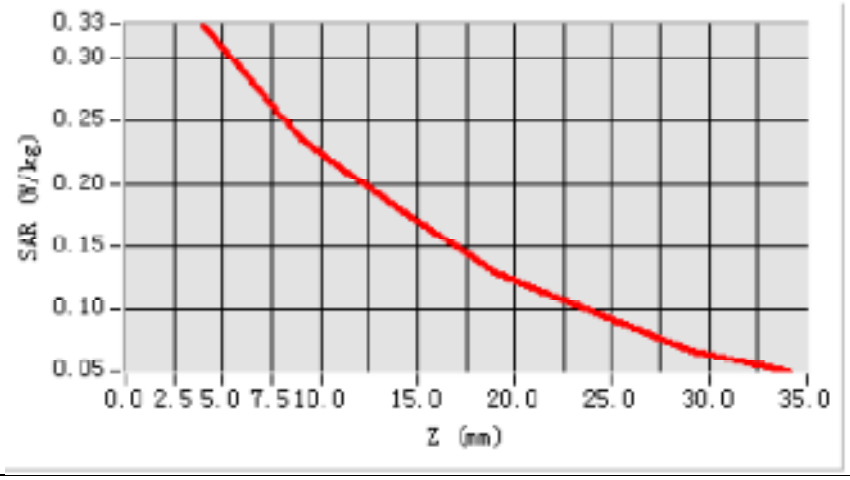
SURFACE SAR



VOLUME SAR



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



GSM 1900

I. RESULTS

TYPE	BAND	PARAMETERS
Noise	--	--
Validation	--	--
Phone	**GSM1900**	Measurement 1: Right Head with Cheek device position on Low Channel in GSM mode Measurement 2: Right Head with Cheek device position on Middle Channel in GSM mode Measurement 3: Right Head with Cheek device position on High Channel in GSM mode Measurement 4: Right Head with Tilt device position on Low Channel in GSM mode Measurement 5: Right Head with Tilt device position on Middle Channel in GSM mode Measurement 6: Right Head with Tilt device position on High Channel in GSM mode Measurement 7: Left Head with Cheek device position on Low Channel in GSM mode Measurement 8: Left Head with Cheek device position on Middle Channel in GSM mode Measurement 9: Left Head with Cheek device position on High Channel in GSM mode Measurement 10: Left Head with Tilt device position on Low Channel in GSM mode Measurement 11: Left Head with Tilt device position on Middle Channel in GSM mode Measurement 12: Left Head with Tilt device position on High Channel in GSM mode Measurement 13: Validation Plane with Body device position on Low Channel in GSM mode Measurement 14: Validation Plane with Body device position on Middle Channel in GSM mode Measurement 15: Validation Plane with Body device position on High Channel in GSM mode

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

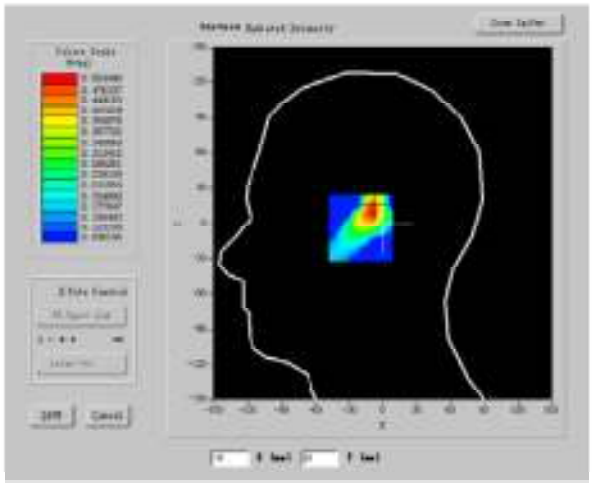
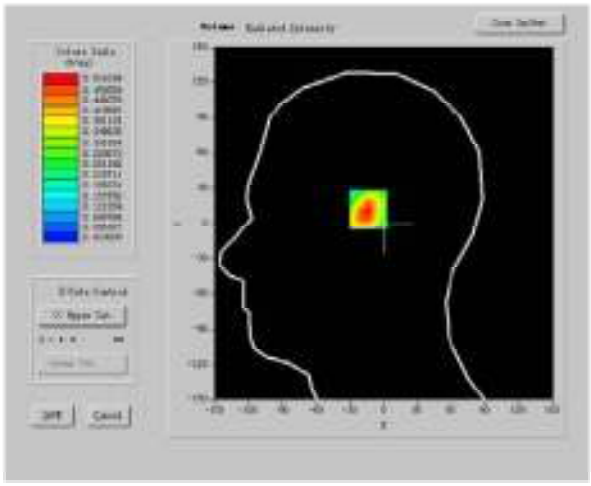
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

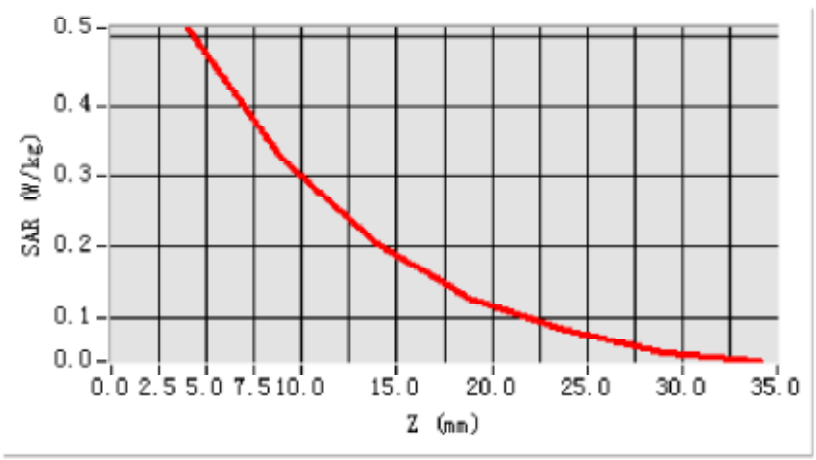
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1850.200024 (Right Head , Cheek)
Relative permitivity (real part)	40.302000
Relative permitivity (imaginary part)	13.536000
Conductivity (S/m)	1.432058
Variation (%)	-1.200000
SAR 1g (W/Kg)	0.488346

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

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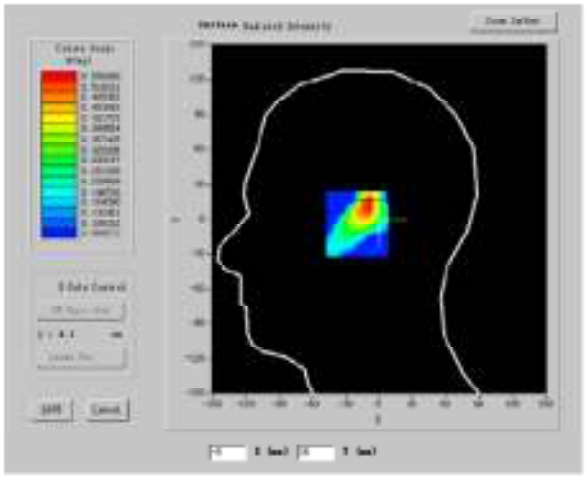
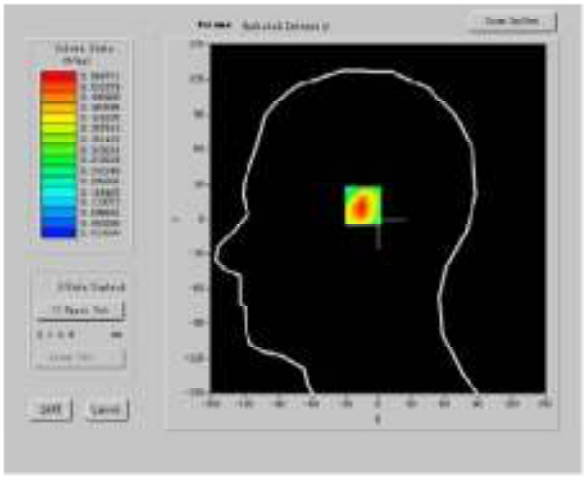
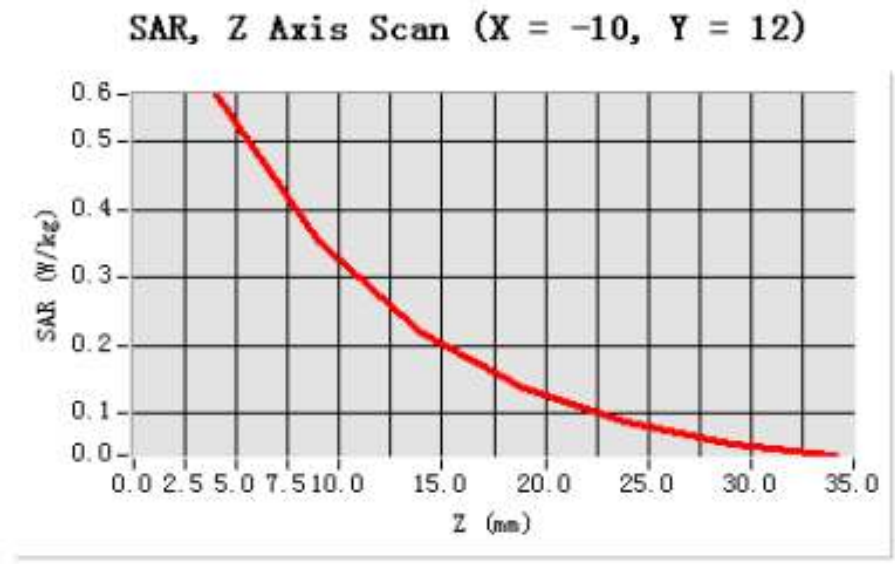
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1880.000000 (Right Head , Cheek)
Relative permitivity (real part)	40.102201
Relative permitivity (imaginary part)	13.835200
Conductivity (S/m)	1.413205
Variation (%)	-0.300000
SAR 1g (W/Kg)	0.535022

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

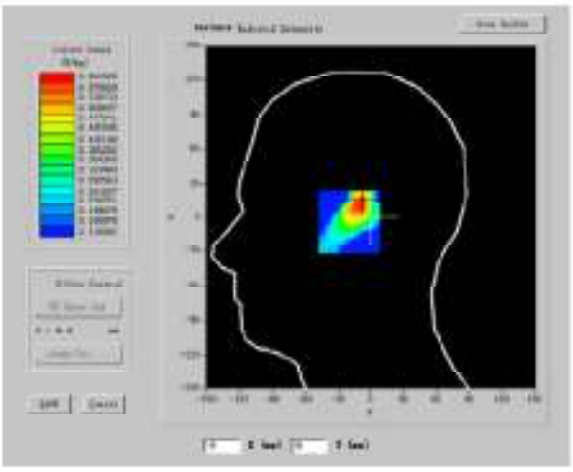
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

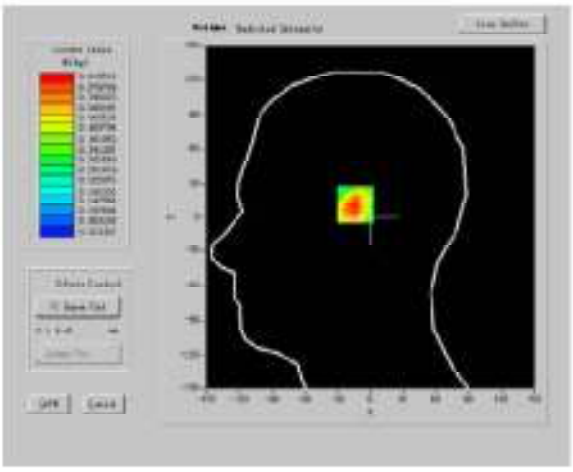
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1910.000216 (Right Head , Cheek)
Relative permitivity (real part)	40.202109
Relative permitivity (imaginary part)	13.636200
Conductivity (S/m)	1.420245
Variation (%)	-0.300000
SAR 1g (W/Kg)	0.578348

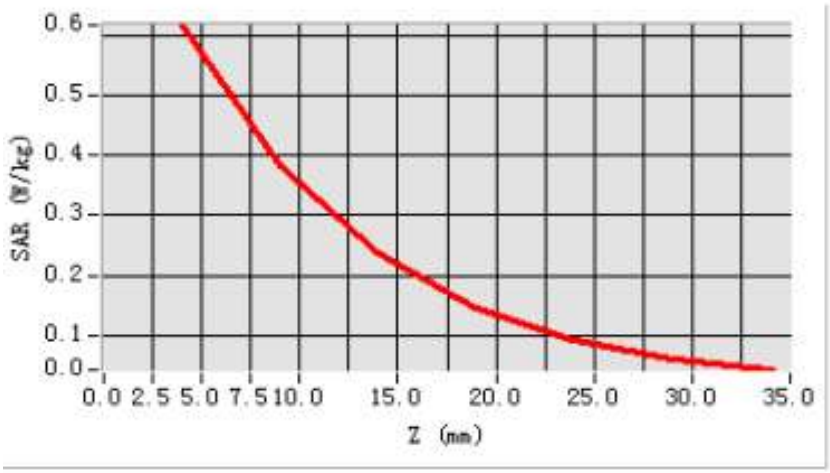
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -10, Y = 12)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

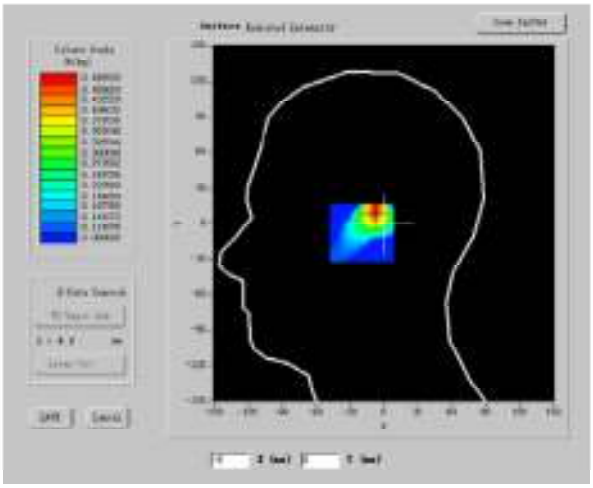
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

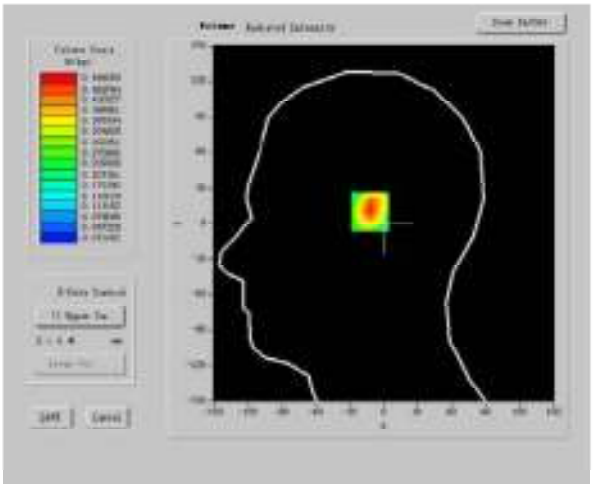
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1850.200020 (Right Head , Tilt)
Relative permitivity (real part)	40.302030
Relative permitivity (imaginary part)	13.524100
Conductivity (S/m)	1.402108
Variation (%)	-1.400000
SAR 1g (W/Kg)	0.449131

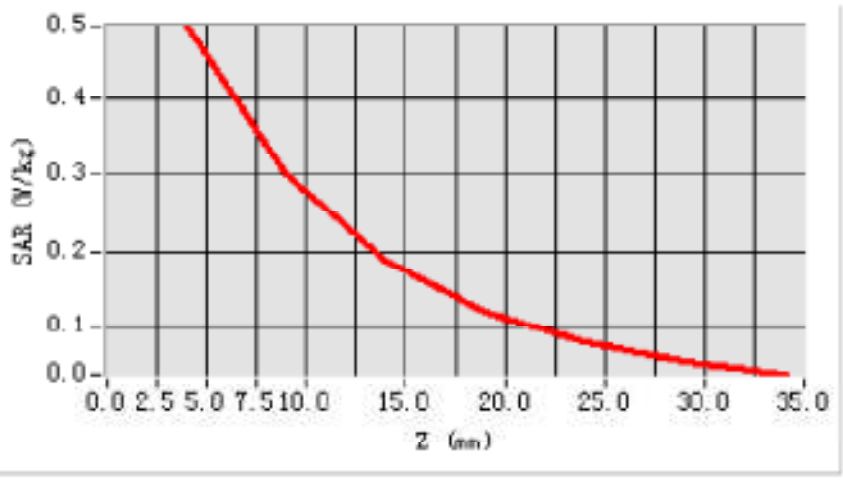
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

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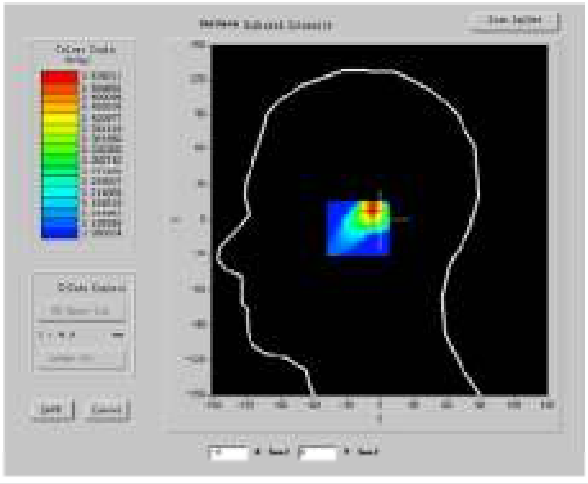
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

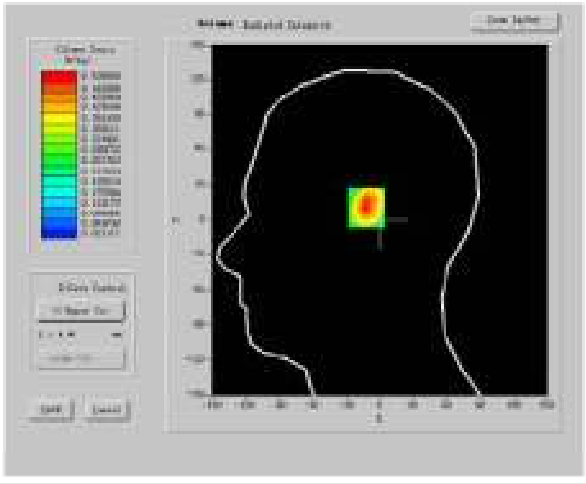
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1880.000000 (Right Head , Tilt)
Relative permitivity (real part)	40.201201
Relative permitivity (imaginary part)	13.802000
Conductivity (S/m)	1.432010
Variation (%)	-0.450000
SAR 1g (W/Kg)	0.485612

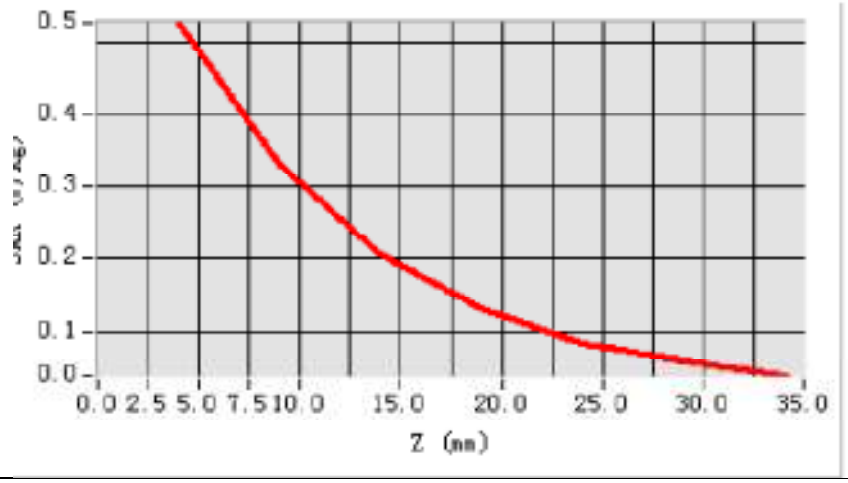
SURFACE SAR



VOLUME SAR



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



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

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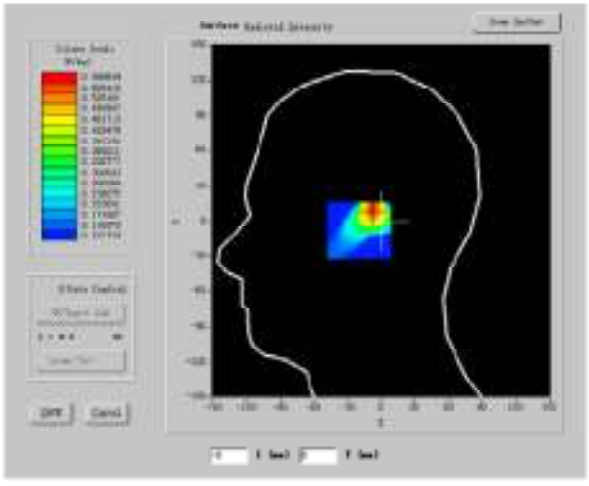
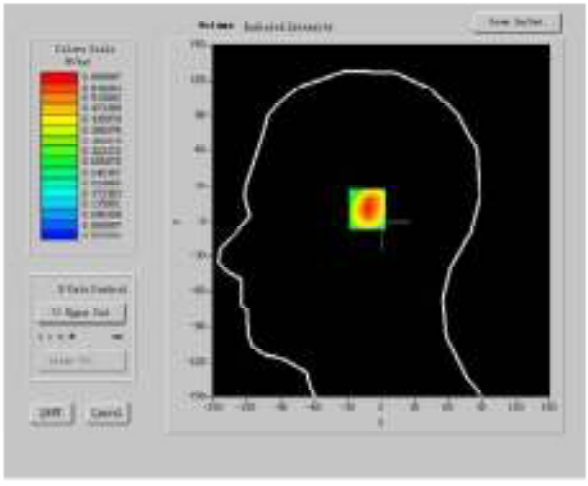
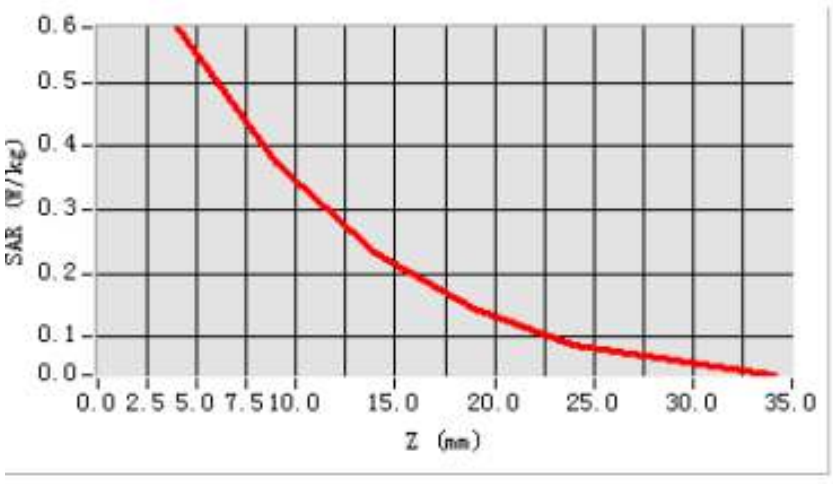
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1910.000216 (Right Head , Tilt)
Relative permitivity (real part)	40.282019
Relative permitivity (imaginary part)	13.210900
Conductivity (S/m)	1.413020
Variation (%)	-1.500000
SAR 1g (W/Kg)	0.561694

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

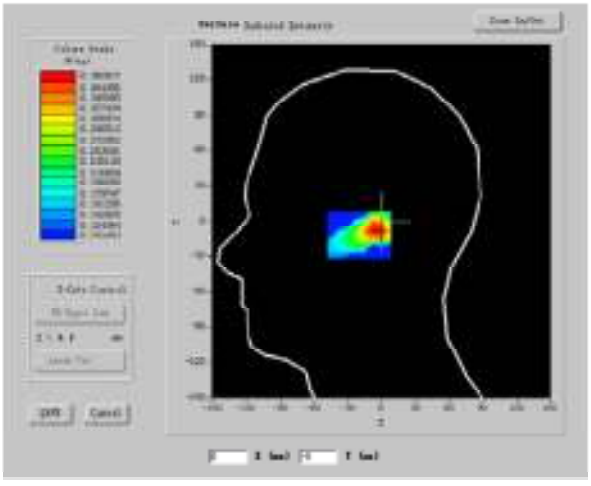
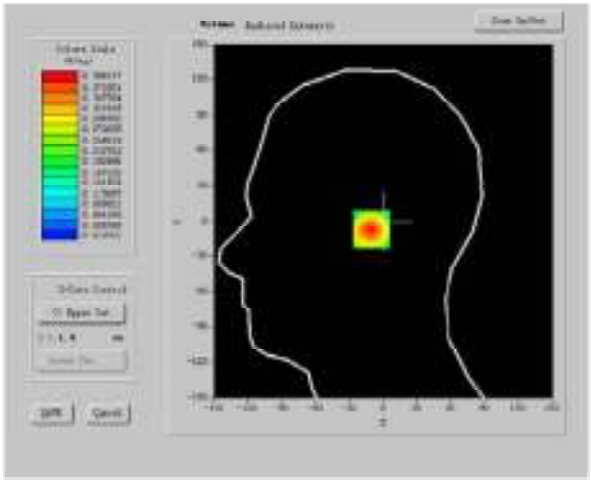
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

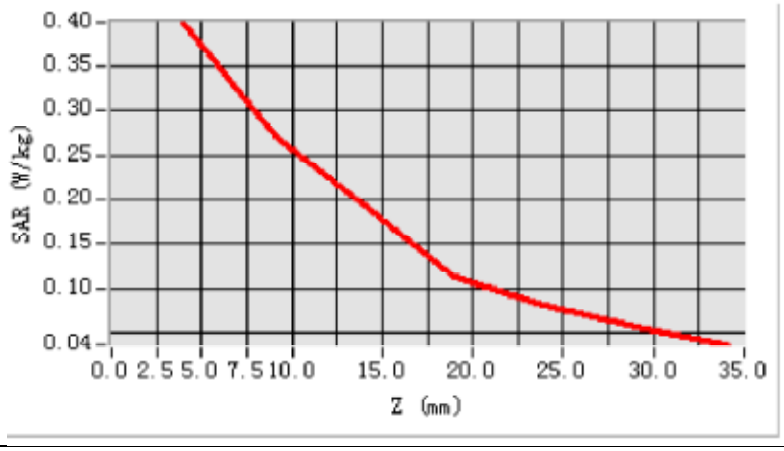
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1850.200001 (Left Head , Cheek)
Relative permitivity (real part)	40.312000
Relative permitivity (imaginary part)	13.532000
Conductivity (S/m)	1.420120
Variation (%)	0.300000
SAR 1g (W/Kg)	0.357548

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -3, Y = -7)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

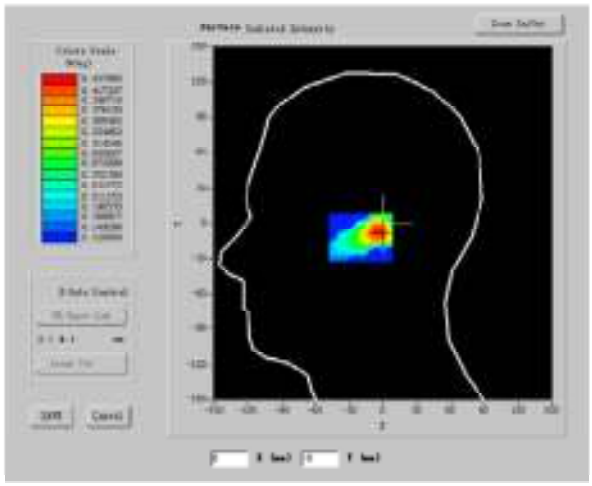
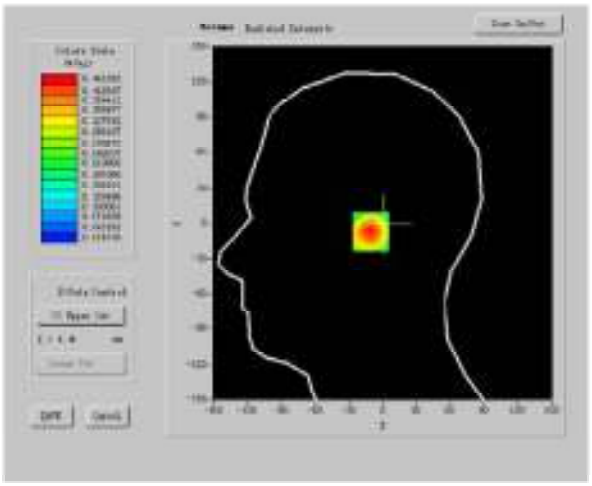
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

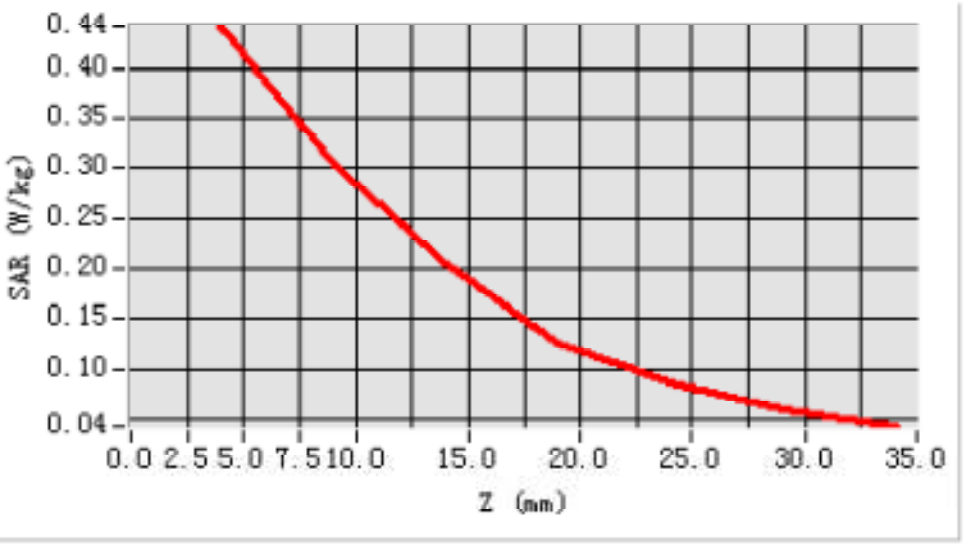
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1880.000000 (Left Head , Cheek)
Relative permitivity (real part)	40.125402
Relative permitivity (imaginary part)	13.832000
Conductivity (S/m)	1.410102
Variation (%)	1.400000
SAR 1g (W/Kg)	0.561009

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -3, Y = -7)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

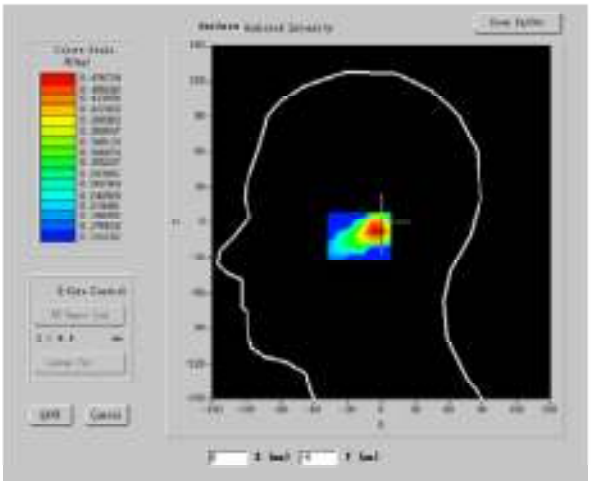
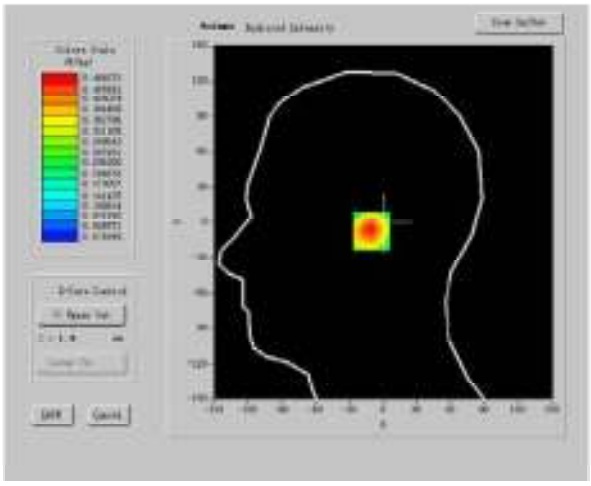
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

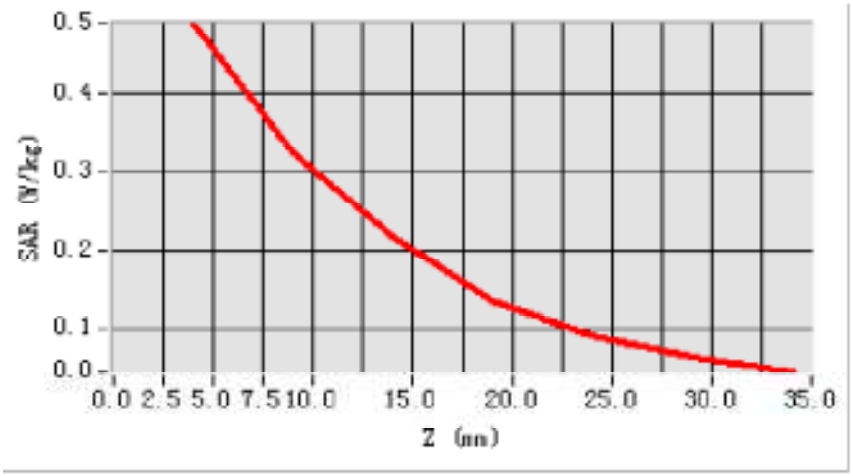
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1910.000276 (Left Head , Cheek)
Relative permitivity (real part)	40.021030
Relative permitivity (imaginary part)	13.621000
Conductivity (S/m)	1.410320
Variation (%)	- 0.500000
SAR 1g (W/Kg)	0.453610

SURFACE SAR	VOLUME SAR
	



Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

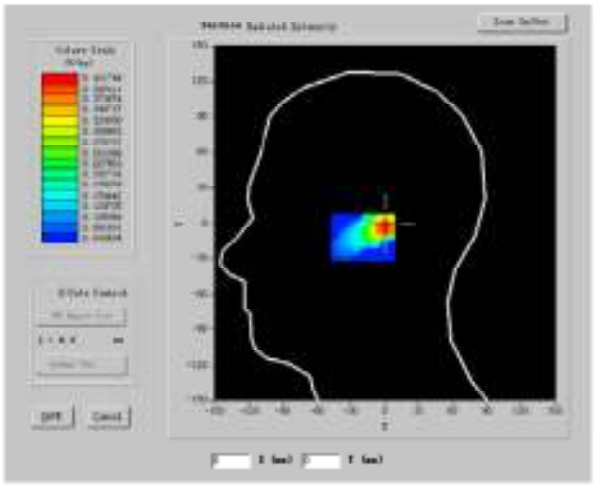
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

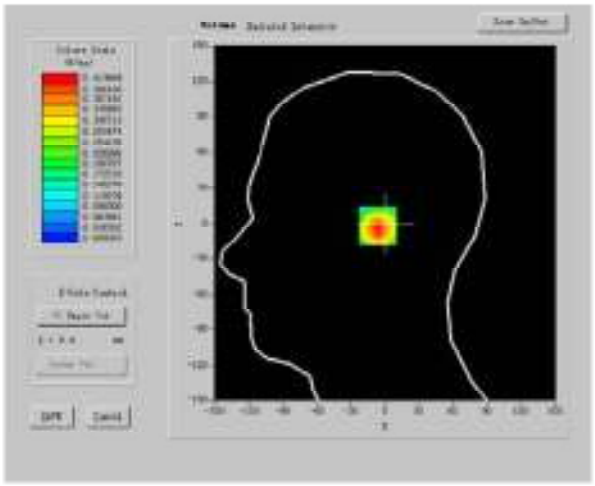
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1850.200004 (Left Head , Tilt)
Relative permitivity (real part)	40.300200
Relative permitivity (imaginary part)	13.502100
Conductivity (S/m)	1.402010
Variation (%)	-0.600000
SAR 1g (W/Kg)	0.362846

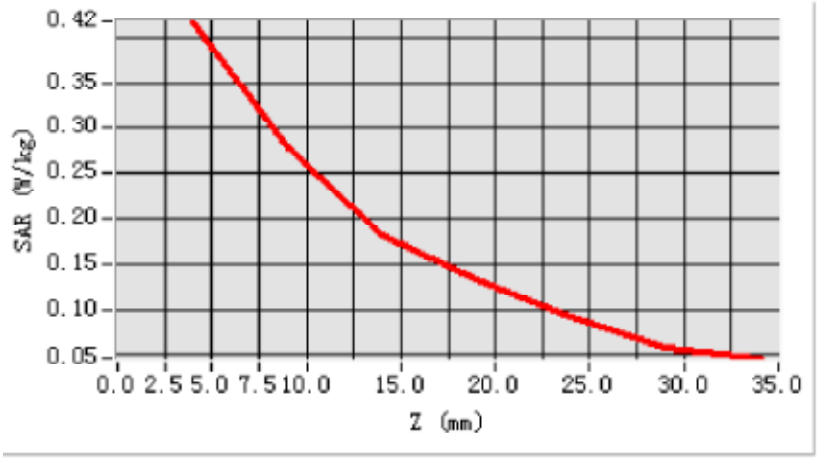
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 0, Y = -2)



Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:___1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

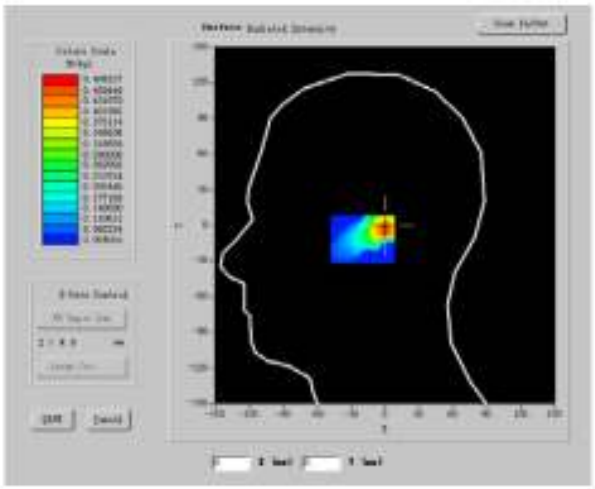
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

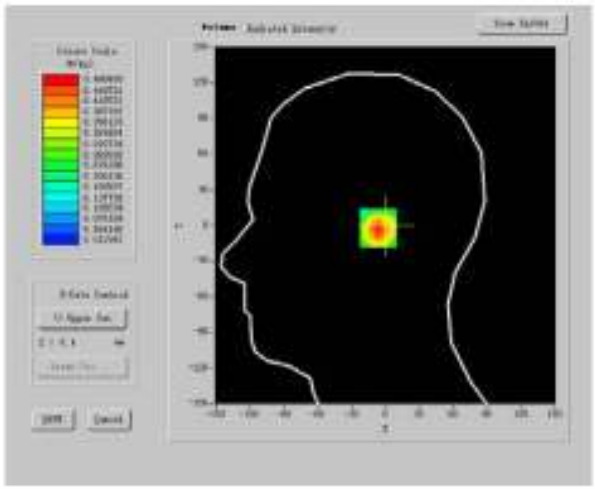
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1880.000000 (Left Head , Tilt)
Relative permitivity (real part)	40.010201
Relative permitivity (imaginary part)	13.320100
Conductivity (S/m)	1.402010
Variation (%)	-1.200000
SAR 1g (W/Kg)	0.442289

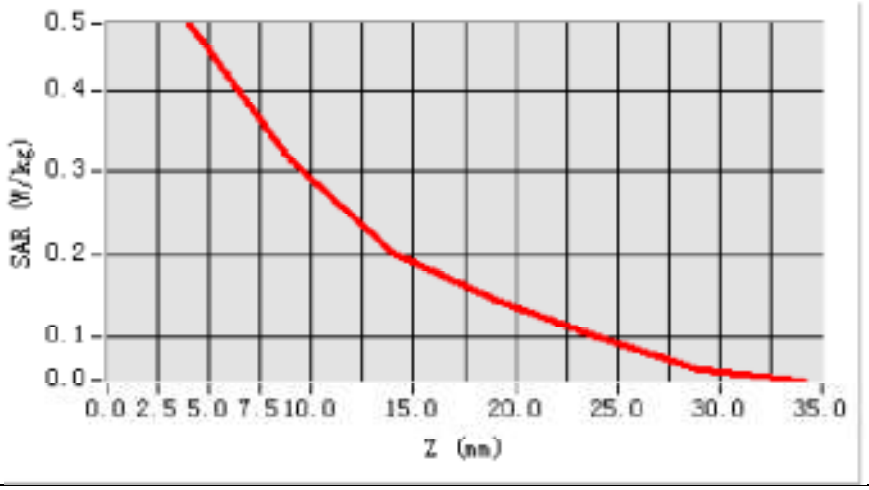
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 0, Y = -2)



Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

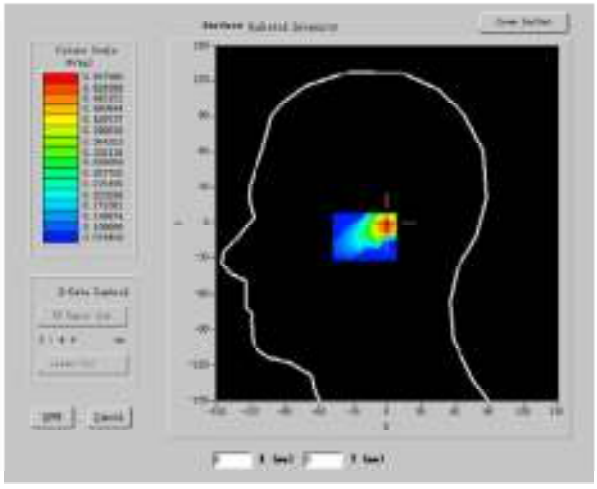
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

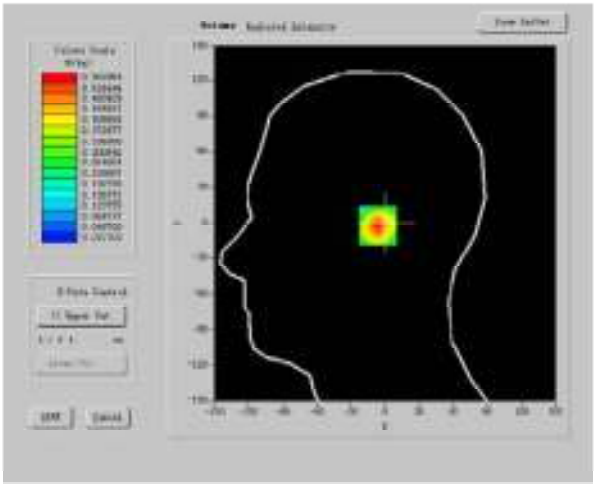
Probe: Antennessa (SN:SN_1109_EP_100)

Frequency (MHz)	1910.002076 (Left Head , Tilt)
Relative permitivity (real part)	40.200203
Relative permitivity (imaginary part)	13.620100
Conductivity (S/m)	1.423205
Variation (%)	- 1.140000
SAR 1g (W/Kg)	0.457458

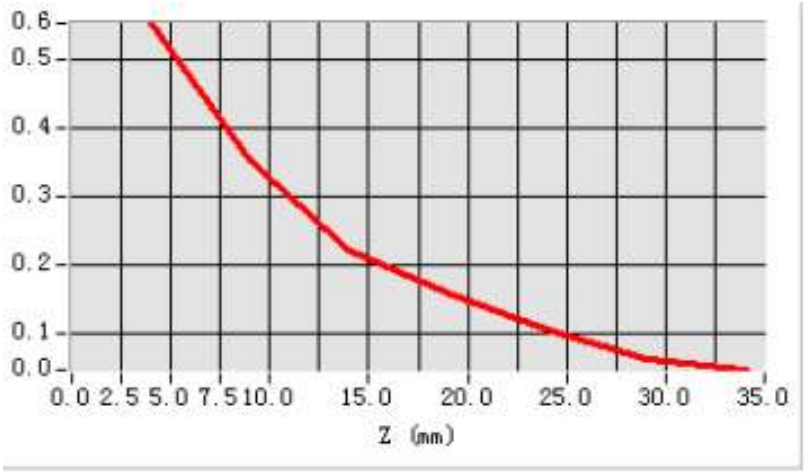
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = 0, Y = -2)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

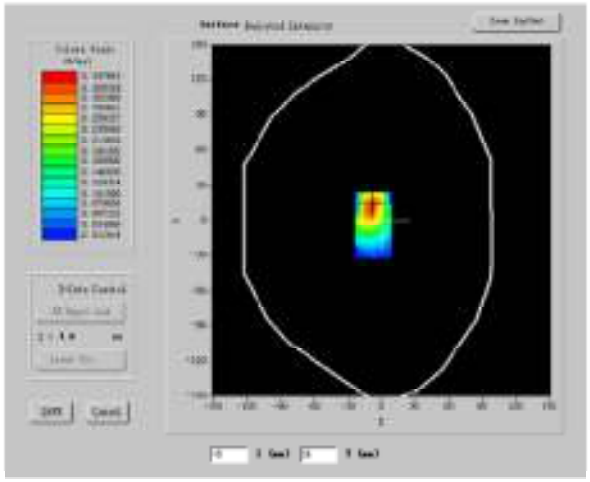
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

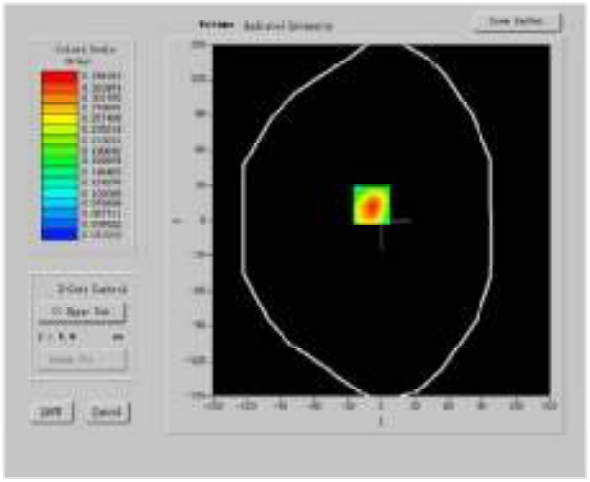
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1850.200004 (Body)
Relative permitivity (real part)	53.302000
Relative permitivity (imaginary part)	13.532000
Conductivity (S/m)	1.506001
Variation (%)	-0.130000
SAR 1g (W/Kg)	0.355513

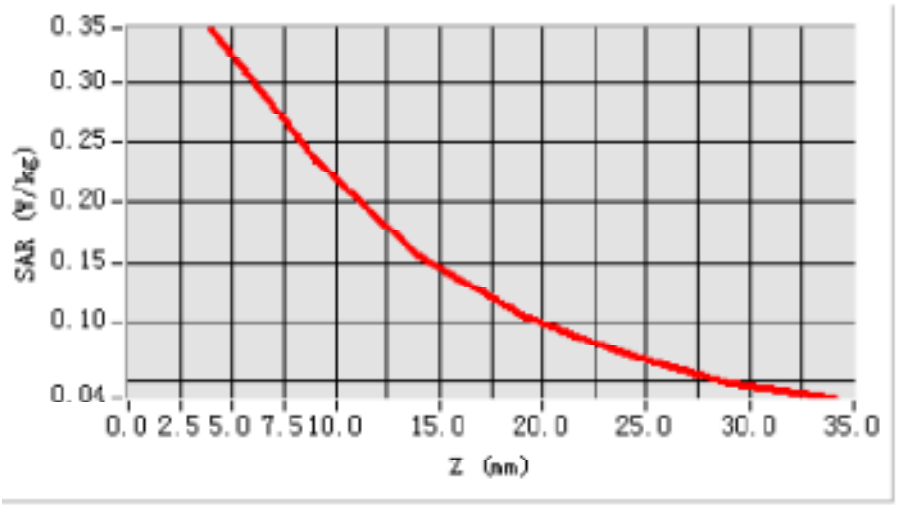
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -9, Y = 13)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

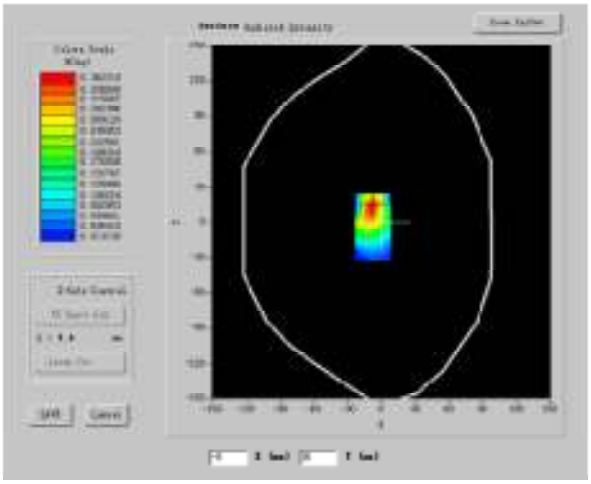
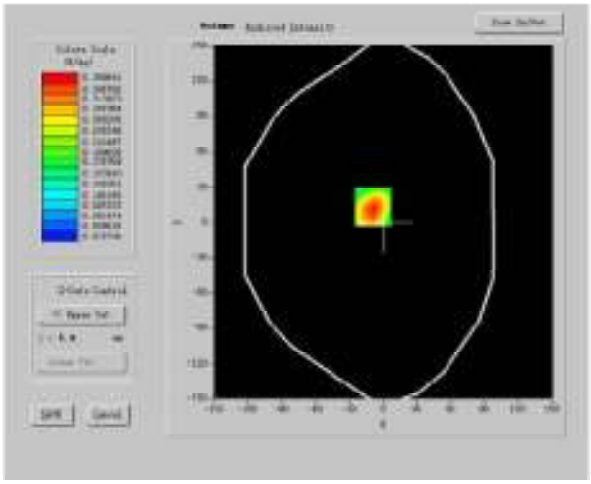
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

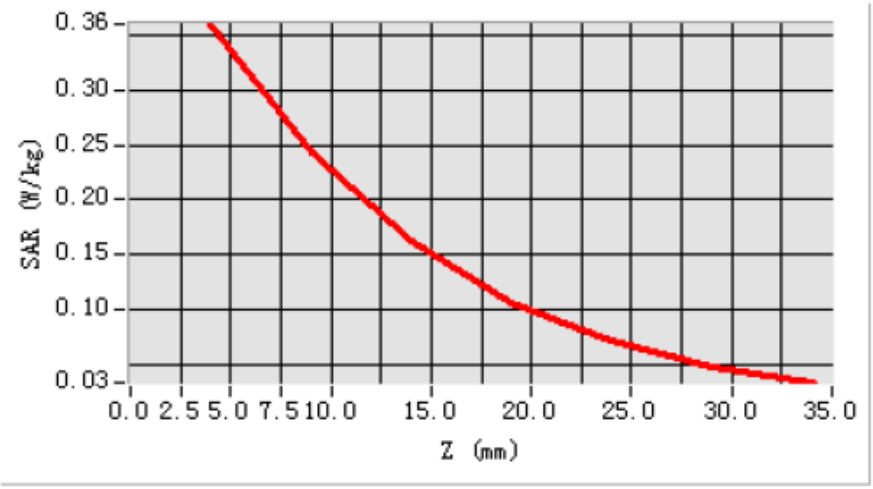
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1880.000000 (Body)
Relative permitivity (real part)	52.952001
Relative permitivity (imaginary part)	13.802100
Conductivity (S/m)	1.510210
Variation (%)	-0.600000
SAR 1g (W/Kg)	0.317231

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -9, Y = 13)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

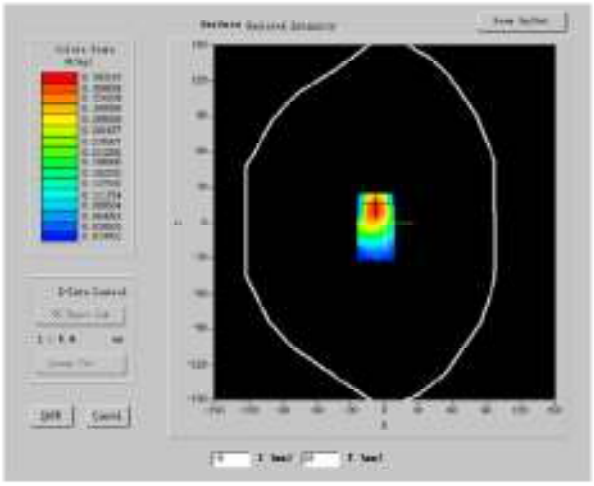
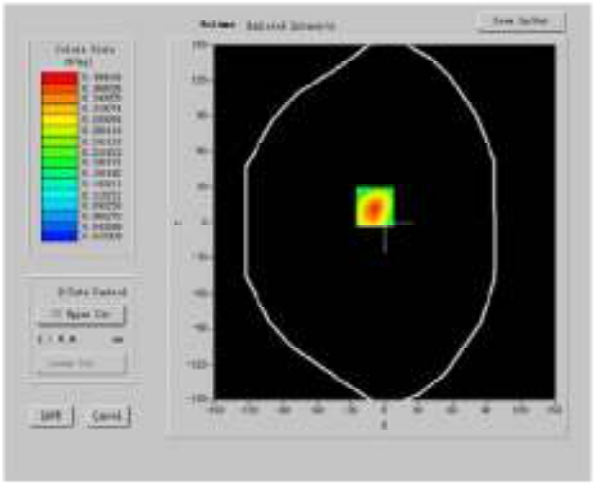
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

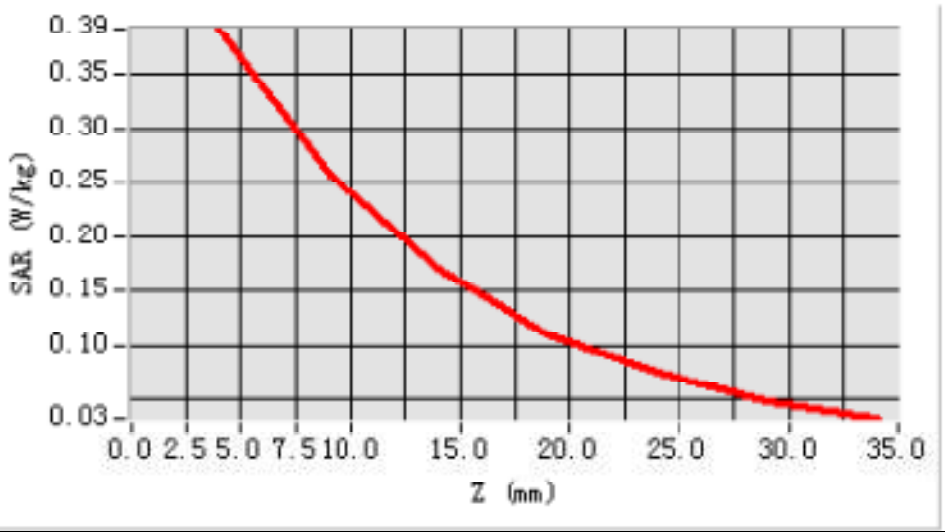
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1909.590210 (Body)
Relative permitivity (real part)	52.280210
Relative permitivity (imaginary part)	13.636200
Conductivity (S/m)	1.510125
Variation (%)	-0.400000
SAR 1g (W/Kg)	0.368232

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -9, Y = 13)



GPRS 850

I. RESULTS

TYPE	BAND	PARAMETERS
Noise	--	--
Validation	--	--
Phone	GPRS850	Measurement 1: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 2: Validation Plane with Body device position on Middle Channel in GPRS mode Measurement 3: Validation Plane with Body device position on High Channel in GPRS mode

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

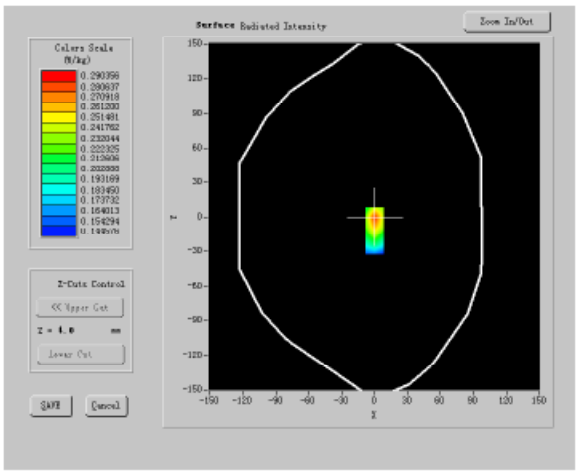
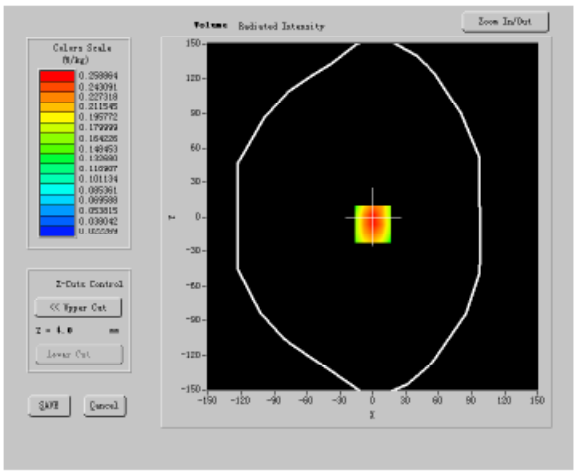
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

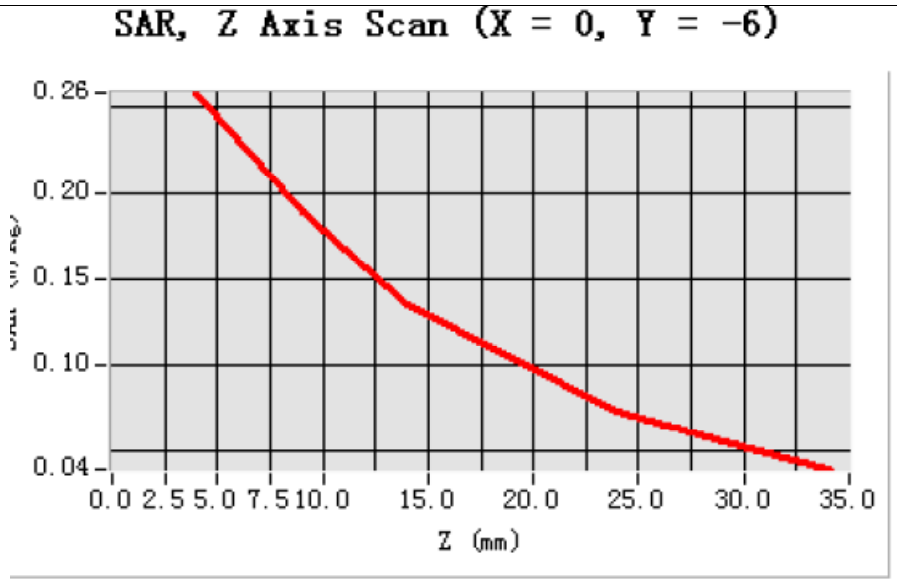
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	824.200002 (Body)
Relative permitivity (real part)	55.524000
Relative permitivity (imaginary part)	21.652100
Conductivity (S/m)	0.960120
Variation (%)	-0.120000
SAR 1g (W/Kg)	0.283369

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

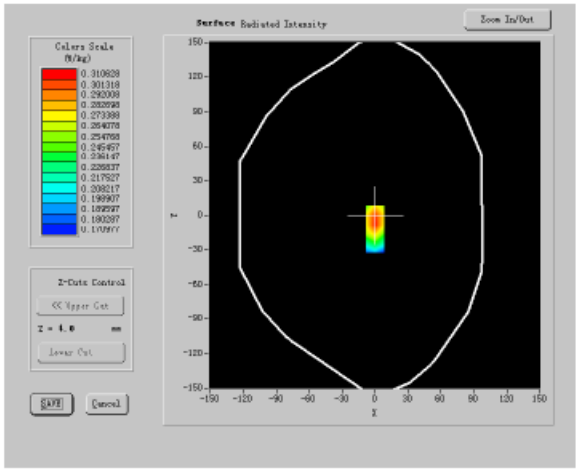
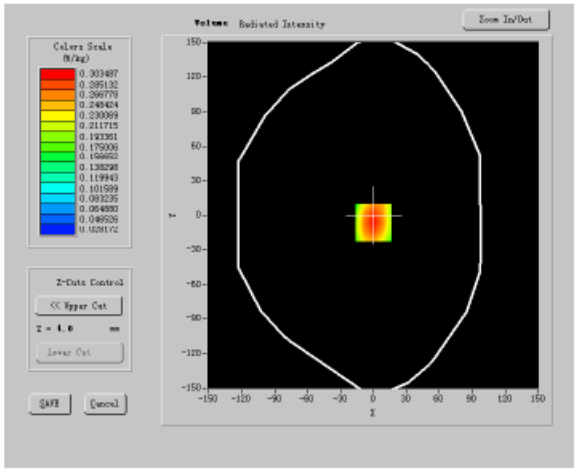
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

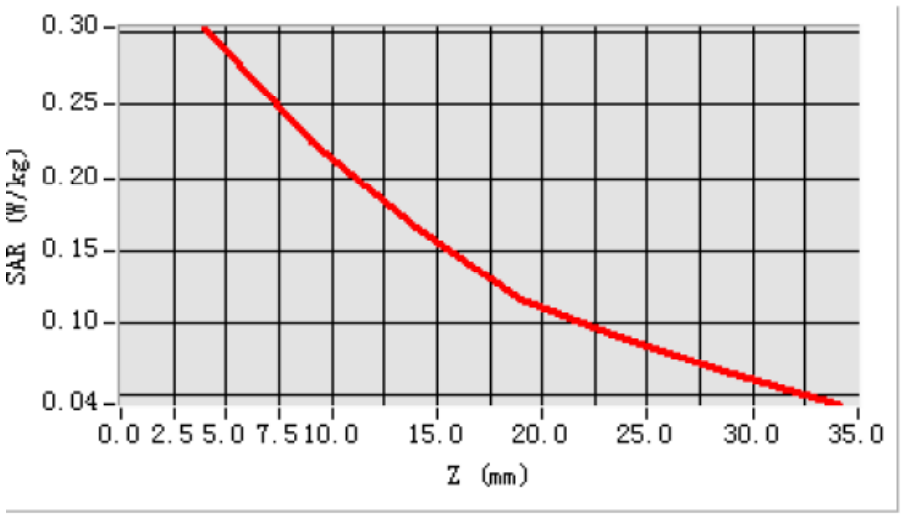
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	836.600204 (Body)
Relative permitivity (real part)	55.501019
Relative permitivity (imaginary part)	21.803209
Conductivity (S/m)	0.921052
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.364191

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

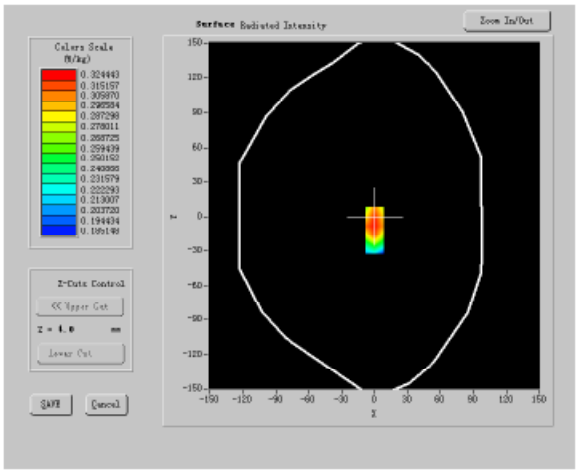
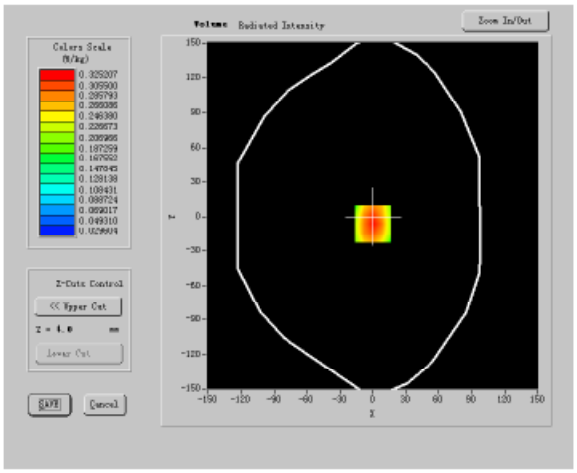
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

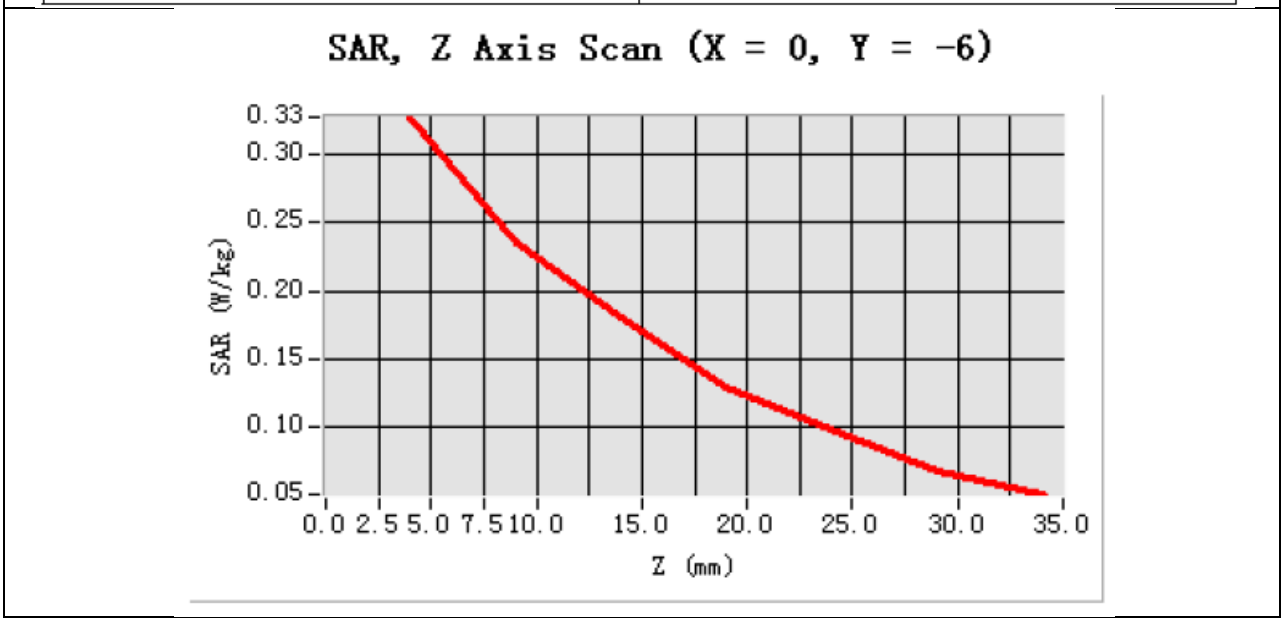
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	848.799001 (Body)
Relative permitivity (real part)	55.532010
Relative permitivity (imaginary part)	21.720101
Conductivity (S/m)	0.969012
Variation (%)	-0.200000
SAR 1g (W/Kg)	0.351495

SURFACE SAR	VOLUME SAR
	



GPRS 1900

I. RESULTS

TYPE	BAND	PARAMETERS
Noise	--	--
Validation	--	--
Phone	GPRS1900	Measurement 1: Validation Plane with Body device position on Low Channel in GPRS mode Measurement 2: Validation Plane with Body device position on Middle Channel in GPRS mode Measurement 3: Validation Plane with Body device position on High Channel in GPRS mode

Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

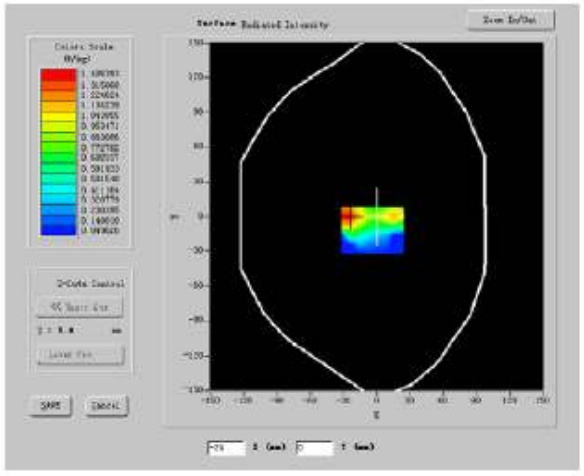
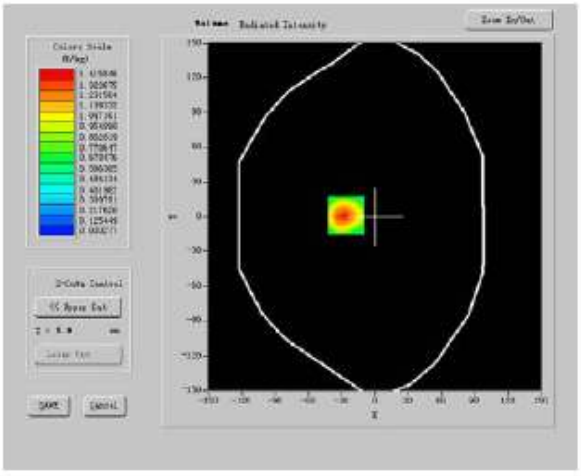
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

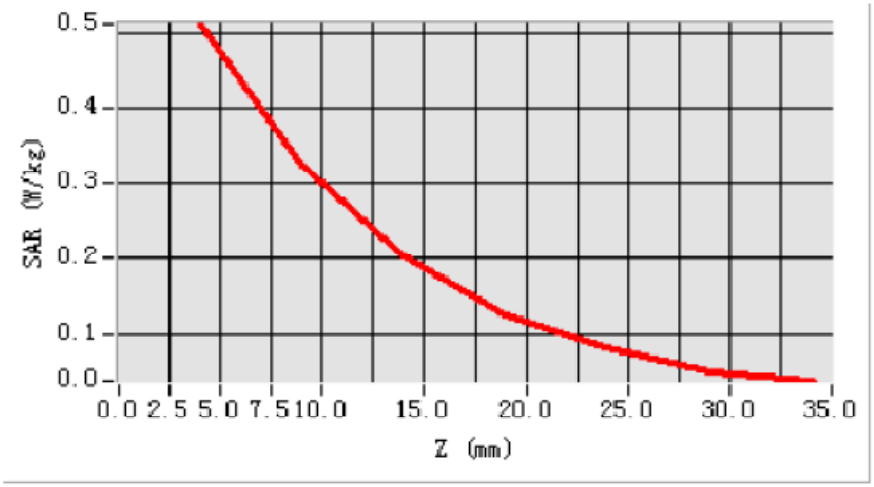
Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1850.199021 (Body)
Relative permitivity (real part)	52.302100
Relative permitivity (imaginary part)	14.401202
Conductivity (S/m)	1.510321
Variation (%)	-0.500000
SAR 1g (W/Kg)	0.484852

SURFACE SAR	VOLUME SAR
	

SAR, Z Axis Scan (X = -10, Y = 12)



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8__ GPRS 12: __2__

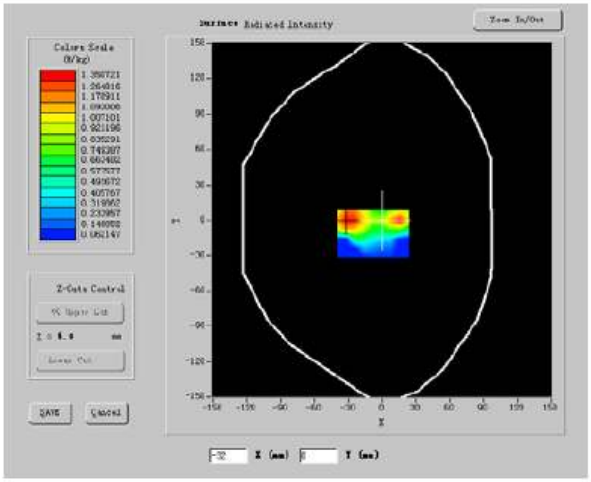
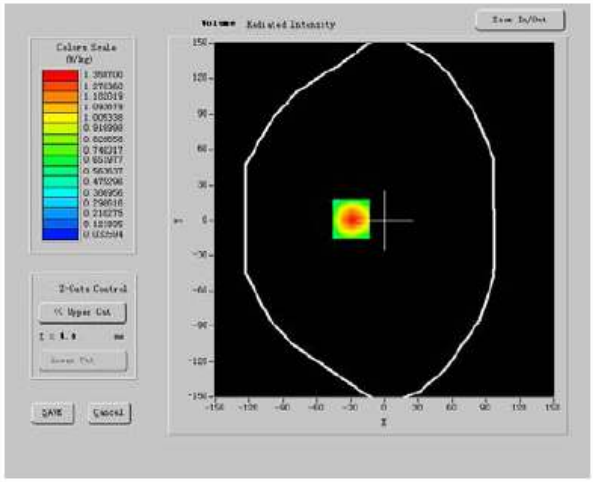
Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

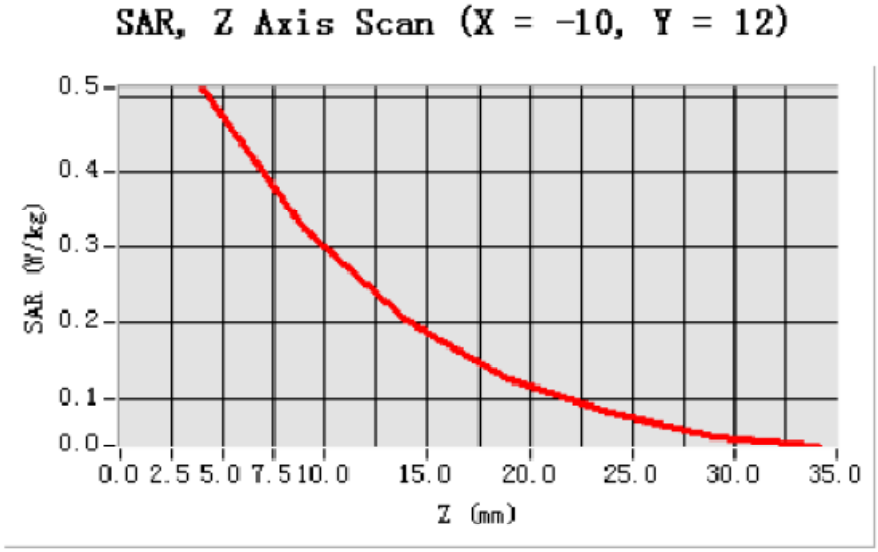
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1880.000000 (Body)
Relative permitivity (real part)	52.402103
Relative permitivity (imaginary part)	14.235206
Conductivity (S/m)	1.501203
Variation (%)	-1.000000
SAR 1g (W/Kg)	0.390946

SURFACE SAR	VOLUME SAR
	



Product Description : GSM/WIFI Mobil Phone
Model : GM100N
Test Date : June 08 2010

Air Temperature: 21 °C Liqued Temperature: 20 °C

Crest Factor: CW:__1__ GSM:__8___ GPRS 12: __2___

Area Scan: 7 x 7 x 1 dx=15mm dy=15mm

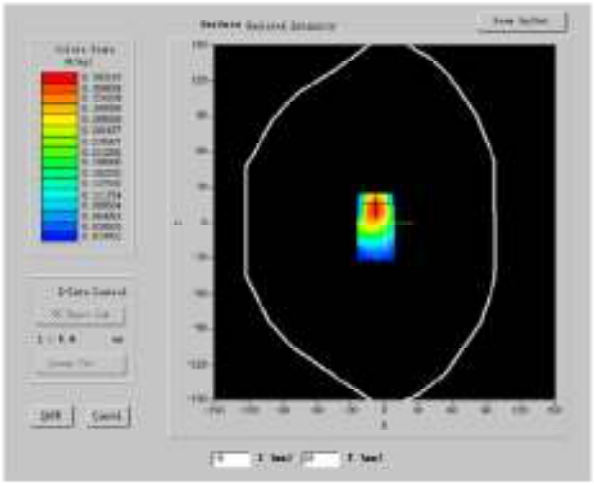
Zoom Scan: 5 x 5 x 7 dx=5mm dy=5mm dz=5mm

Z Axis Scan: 1 x 1 x 21 dx=20mm dy=20mm dz=5mm

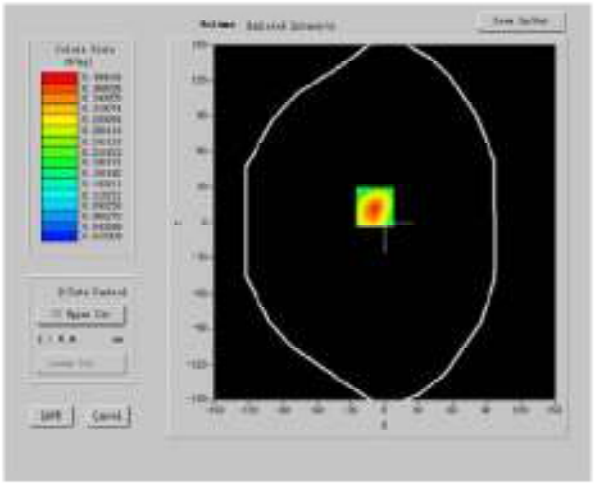
Probe: Antennessa (SN:SN 1109 EP 100)

Frequency (MHz)	1910.029036 (Body)
Relative permitivity (real part)	52.810010
Relative permitivity (imaginary part)	14.301200
Conductivity (S/m)	1.502102
Variation (%)	-0.130000
SAR 1g (W/Kg)	0.460125

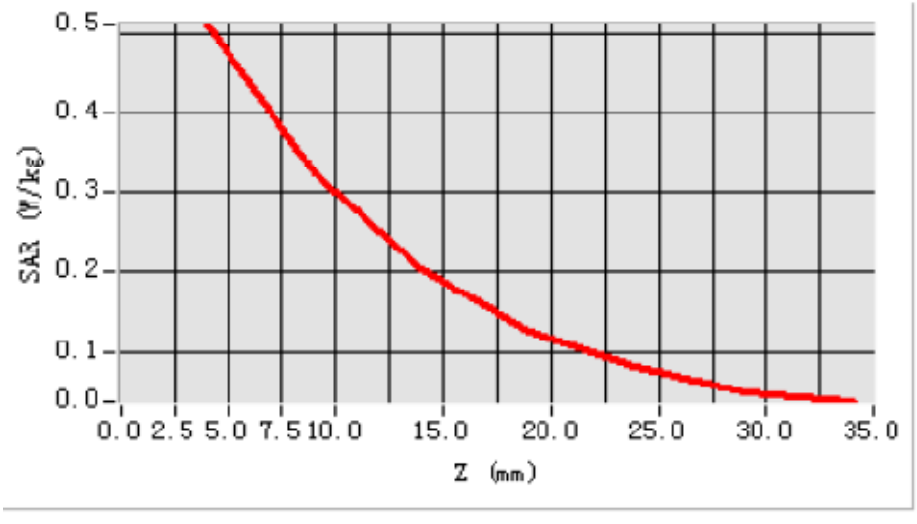
SURFACE SAR



VOLUME SAR



SAR, Z Axis Scan (X = -10, Y = 12)



校准证书编号：2008J10-10-812002
Calibrated certificate series No.

CALIBRATION CERTIFICATE

上海市计量测试技术研究院
华东国家计量测试中心

校 准 证 书

器具名称 Name of instrument	偶极子天线 DIPOLE ANTENNA
制 造 厂 Manufacturer	ANTENNESSA 公司
型号/规格 Model/Specification	DIPOLE 900MHz
器具编号 No. of instrument	SN 48/05 DIPD33
器具准确度 Instrument accuracy	/

证书批准人 Approved by

核 验 员 Checked by

校 准 员 Calibrated by

校准日期 Date for calibrated 2008 年 Year 12 月 Month 10 日 Day

投诉电话：021-50798262

地址：上海市张衡路 1500 号（总部） 电话：021-38839800 传真：021-50798390 邮编：201203
No.1500 Zhanghang Road, Shanghai(headquarters) Tel Fax Post Code

上海市宜山路 716 号（分部） 电话：021-64701390 传真：021-64701810 邮编：200233
No. 716 Yishan Road, Shanghai(branch) Tel Fax Post Code

国家法定计量检定机构计量授权证书号（中心/院）：（国）法计（2002）01039 号/（2002）01019 号
The number of the Certificate of Metrological Authorization to The Legal Metrological Verification Institution is No.（2002）01039 / No.（2002）01019

中国合格评定国家认可委员会实验室认可证书号：No. CNAS L0134
The number of the certificate accredited by CNAS is No.L0134

本次校准所依据的技术规范（代号、名称）：
Reference documents for the calibration (code、name)

JCJ/J101002.1/0-2007 SAR偶极子天线校准规范

IEEE Std 1528-2003 "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head form Wireless Communications Devices: Measure Techniques"

IEC 62209-1: 2005 Procedure to measure the Specific Absorption Rate (SAR) in the frequency range of 300 MHz to 3 GHz Part 1: hand-held mobile wireless communication devices

本次校准所使用的主要计量标准器具：
Main measurement standards used in this calibration

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度 Measuring range/accuracy
VECTOR NETWORK ANALYZER ZVB 8	容-027-27	2008F31-10-001907 2009.06.26	300 kHz~8 GHz，Frequency resolution：100 μHz，Measurement time：< 8 ms，Measurement bandwidths：1 Hz~500 kHz

以上计量标准器具的量值溯源至国家基准。
Quantity values of above measurement standards used in this calibration are traced to those of the national primary standards in the P.R. China.

校准地点及环境条件：
Location and environmental condition for the calibration

地点：Location 宜山路 716 号 (No. 716 Yishan Road)

温度：Ambient temperature 23 ℃；湿度：Relative humidity 49 %RH；其它：Others /

本次校准结果的扩展不确定度：
Expanded uncertainty

+3dB 至-15dB：U =0.8 dB（k=2）
-15dB至-25dB：U =1.2 dB（k=2）
-25dB至-35dB：U =3.1 dB（k=2）

校准结果/说明：
Results of calibration and additional explanation

Pass

The requirements of the calibration criterion: return Loss must be less than -20dB

本证书提供的结果仅对本次被校的器具有效。
The data are valid only for the instrument(s).

校准结果/说明（续页）：
Results of calibration and additional explanation（continued page）

1. Calibration procedure:
Return Loss is measured with the dipole mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis. During calibration, the flat phantom is filled with the liquid whose parameters are calibrated relative to different frequency.

2. Calibration Conditions:

A. The spacer from Dipole center to TSL

Distance Dipole Center - TSL	Frequency
15mm±0.2mm with spacer	900MHz

B. Head TSL parameters

The following parameters and calculation were applied.
Head TSL temperature change is well controlled to be within 22±0.2°C during test.

Frequency	Nominal Head TSL Parameters (Permittivity/ Conductivity)	Measurement Head TSL parameters (Permittivity/ Conductivity)
900 MHz	41.50/0.97	41.71/1.00

C. Body TSL parameters

The following parameters and calculation were applied.
Body TSL temperature change is well controlled to be within 22±0.2°C during test.

Frequency	Nominal Body TSL Parameters (Permittivity/ Conductivity)	Measurement Body TSL parameters (Permittivity/ Conductivity)
900 MHz	55.00/1.05	54.62/1.04

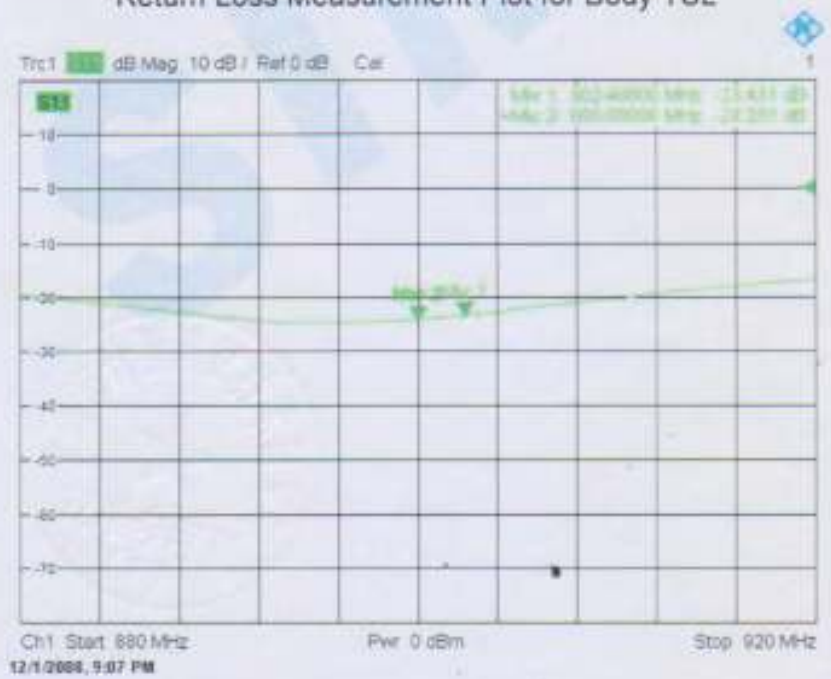
3. Measurement Results

Frequency	Return Loss with Head TSL	Return Loss with Body TSL
900 MHz	-25.06 dB	-24.23 dB

校准结果/说明（续页）：
Results of calibration and additional explanation（continued page）

Return Loss Measurement Plot for head TSL

Return Loss Measurement Plot for Body TSL



Remark: Attachment 1:SAR validation & Test equipment

End

Attachment 1: SAR validation & Test equipment

Validation	Condition	SAR Value (W/kg)	
		1g	10g
SAR measured with Head TSL	1W (input power)	11.11	7.27
SAR measured with Body TSL	1W (input power)	10.98	7.29

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度 Measuring range/accuracy
6 axis Robot KR3	容-027-01	/	6 axes, Repeatability: ± 0.05 mm, Nominal payload: 3 kg
Vector Network Analyzer ZVB 8	容-027-27	2008F31-10-001907 2009.06.26	300 kHz to 8 GHz, Frequency resolution: 100 μHz, Measurement time: < 8 ms, Measurement bandwidths: 1 Hz to 500 kHz
Signal Generator SMT 06	容-027-15	2008F33-10-001469 2009.06.26	5 kHz - 6 GHz,Resolution:0.1Hz,-144 to + 13 dBm,Max.RF power:1W,Max.DC voltage:0V / Level > -127 dBm:f<1.5 GHz:< 1dB; F>1.5 GHz:< 1.5dB; f> 3GHz:< 2dB
Power Meter NRVD	容-027-16	2008F31-10-001906 2009.06.24	100 kHz to 6 GHz,10nW to 500mW
Millivoltmeter 2000	容-027-26	2008F11-10-001004 2009.06.19	Measurement range:100.0000mV ~ 1000.000V Sensibility: 0.1μ V ~ 1mV.
Power Amplifier BLMA 0820-6	容-027-18	2008F33-10-001467 2009.06.26	0.8 - 2 GHz; Output:6W; Gain:min 37.8 / typ 40,± 2 dB; Harmonics:2nd:20dBc, 3rd:20dBc; Line power:125 W.
Isotropic E-Field Probe E-FIELD PROBE	容-027-54	2008J10-10-801001 2008.12.25	Dipole resistance (in the connector plane): 1M , to 2M Axial isotropy in human-equivalent liquids: <0.25dBHemispherical Isotropy in humanequivalent liquids<0.5dB,Linearity<0.5dB,Lower SAR detection threshold: 0.0015 Watts/kg
SAM Phantom	容-027-22	/	/

CALIBRATION CERTIFICATE

上海市计量测试技术研究院
华东国家计量测试中心

校 准 证 书

器具名称 Name of instrument	偶极子天线 DIPOLE ANTENNA
制 造 厂 Manufacturer	ANTENNESSA 公司
型号/规格 Model/Specification	DIPOLE 1800MHz
器具编号 No. of instrument	SN 48/05 DIPF34
器具准确度 Instrument accuracy	/

证书批准人 Approved by

核 验 员 Checked by 刘

校 准 员 Calibrated by 高晨

(机构校准专用章)

校准日期 Date for calibrated 2008 年 Year 12 月 Month 10 日 Day

投诉电话：021-50798262
地址：上海市张衡路 1500 号(总部) 电话：021-38839800 传真：021-50798390 邮编：201203
Address No.1500 Zhangheng Road, Shanghai(headquarters) Tel. Fax. Post Code Tel for complaint
上海市宜山路 716 号(分部) 电话：021-64701390 传真：021-64701810 邮编：200233
No. 716 Yishan Road, Shanghai(branch) Tel. Fax Post Code

国家法定计量检定机构计量授权证书号（中心/院）：（国）法计（2002）01039 号/（2002）01019 号
The number of the Certificate of Metrological Authorization to The Legal Metrological Verification Institution is No.（2002）01039 / No.（2002）01019

中国合格评定国家认可委员会实验室认可证书号：No. CNAS L0134
The number of the certificate accredited by CNAS is No.L0134

本次校准所依据的技术规范（代号、名称）：
Reference documents for the calibration (code , name)

JCJ/J101002.1/0-2007 SAR偶极子天线校准规范

IEEE Std 1528-2003 "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head form Wireless Communications Devices: Measure Techniques"

IEC 62209-1: 2005 Procedure to measure the Specific Absorption Rate (SAR) in the frequency range of 300 MHz to 3 GHz Part 1: hand-held mobile wireless communication devices

本次校准所使用的主要计量标准器具：
Main measurement standards used in this calibration

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度 Measuring range/accuracy
VECTOR NETWORK ANALYZER ZVB 8	容-027-27	2008F31-10-001907 2009.06.26	300 kHz~8 GHz，Frequency resolution：100 μHz，Measurement time：< 8 ms，Measurement bandwidths：1 Hz~500 kHz

以上计量标准器具的量值溯源至国家基准。
Quantity values of above measurement standards used in this calibration are traced to those of the national primary standards in the P.R. China

校准地点及环境条件：
Location and environmental condition for the calibration

地点：Location 宜山路 716 号 (No. 716 Yishan Road)

温度：Ambient temperature 23 ℃；湿度：Relative humidity 49 %RH；其它：Others /

本次校准结果的扩展不确定度：
Expanded uncertainty

+3dB 至-15dB：U =0.8 dB（k=2）
-15dB至-25dB：U =1.2 dB（k=2）
-25dB至-35dB：U =3.1 dB（k=2）

校准结果/说明：
Results of calibration and additional explanation

Pass

The requirements of the calibration criterion: return Loss must be less than -20dB

校准结果/说明（续页）：
Results of calibration and additional explanation (continued page)

1. Calibration procedure:

Return Loss is measured with the dipole mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis. During calibration, the flat phantom is filled with the liquid whose parameters are calibrated relative to different frequency.

2. Calibration Conditions:

A. The spacer from Dipole center to TSL

Distance Dipole Center - TSL	Frequency
10mm±0.2mm with spacer	1800MHz

B. Head TSL parameters

The following parameters and calculation were applied.
Head TSL temperature change is well controlled to be within 22±0.2°C during test.

Frequency	Nominal Head TSL Parameters (Permittivity/ Conductivity)	Measurement Head TSL parameters (Permittivity/ Conductivity)
1800 MHz	40.00/1.40	39.40/1.37

C. Body TSL parameters

The following parameters and calculation were applied.
Body TSL temperature change is well controlled to be within 22±0.2°C during test.

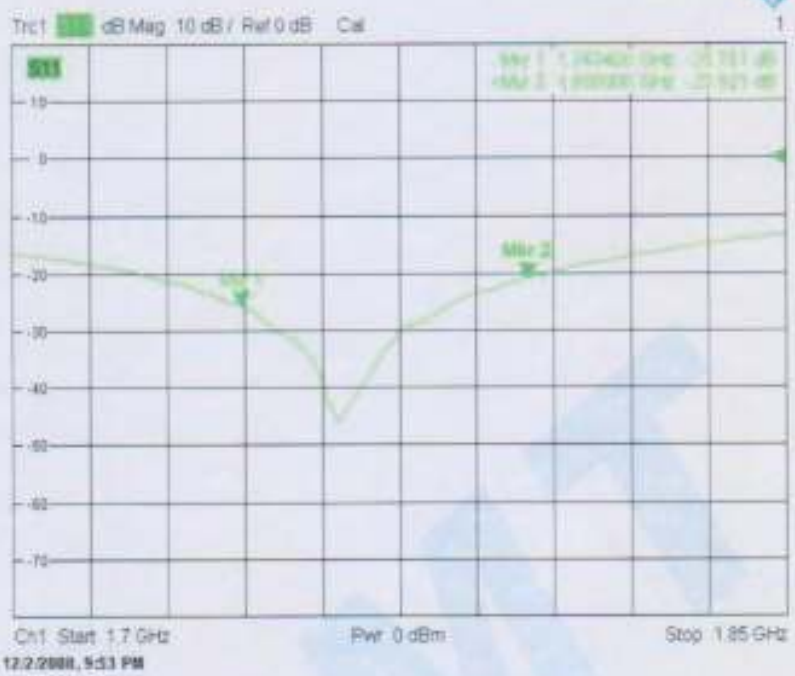
Frequency	Nominal Body TSL Parameters (Permittivity/ Conductivity)	Measurement Body TSL parameters (Permittivity/ Conductivity)
1800 MHz	53.30/1.52	51.86/1.52

3. Measurement Results

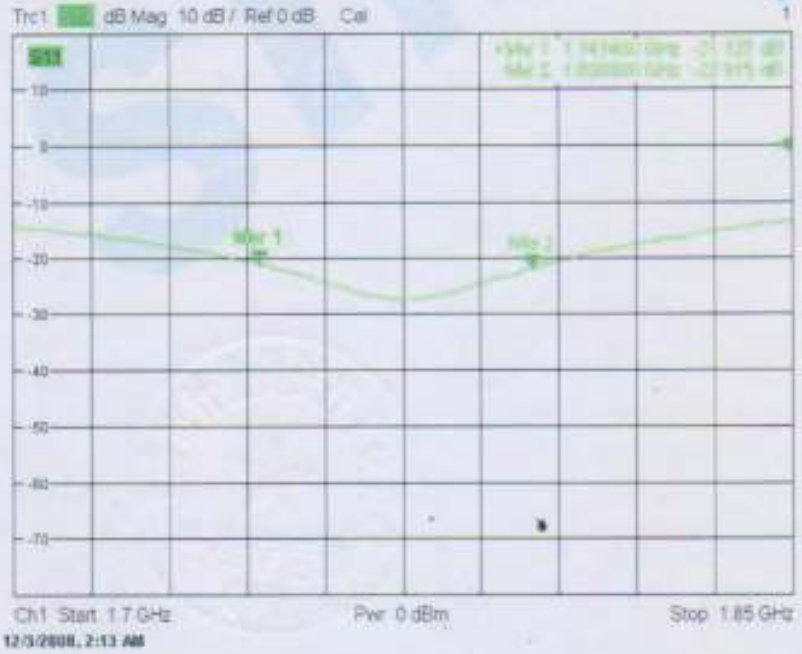
Frequency	Return Loss with Head TSL	Return Loss with Body TSL
1800 MHz	-20.82 dB	-22.01 dB

校准结果/说明（续页）：
Results of calibration and additional explanation（continued page）

Return Loss Measurement Plot for head TSL



Return Loss Measurement Plot for Body TSL



Remark: Attachment 1:SAR validation & Test equipment

End

Attachment 1: SAR validation & Test equipment

Validation	Condition	SAR Value (W/kg)	
		1g	10g
SAR measured with Head TSL	1W (input power)	38.49	20.39
SAR measured with Body TSL	1W (input power)	37.78	20.06

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度 Measuring range/accuracy
6 axis Robot KR3	容-027-01	/	6 axes, Repeatability： ± 0.05 mm, Nominal payload： 3 kg
Vector Network Analyzer ZVB 8	容-027-27	2008F31-10-001907 2009.06.26	300 kHz to 8 GHz，Frequency resolution：100 μHz，Measurement time：< 8 ms，Measurement bandwidths：1 Hz to 500 kHz
Signal Generator SMT 06	容-027-15	2008F33-10-001469 2009.06.26	5 kHz - 6 GHz,Resolution:0.1Hz,-144 to + 13 dBm,Max.RF power:1W,Max.DC voltage:0V / Level > -127 dBm:f<1.5 GHz:< 1dB; F>1.5 GHz:< 1.5dB; f> 3GHz:< 2dB
Power Meter NRVD	容-027-16	2008F31-10-001906 2009.06.24	100 kHz to 6 GHz,10nW to 500mW
Millivoltmeter 2000	容-027-26	2008F11-10-001004 2009.06.19	Measurement range:100.0000mV ~ 1000.000V Sensibility: 0.1μ V ~ 1mV.
Power Amplifier BLMA 0820-6	容-027-18	2008F33-10-001467 2009.06.26	0.8 - 2 GHz; Output:6W; Gain:min 37.8 / typ 40,± 2 dB; Harmonics:2nd:20dBc, 3rd:20dBc; Line power:125 W.
Isotropic E-Field Probe E-FIELD PROBE	容-027-54	2008J10-10-801001 2008.12.25	Dipole resistance (in the connector plane)：1M . to 2M Axial isotropy in human-equivalent liquids：<0.25dBHemispherical Isotropy in humanequivalent liquids<0.5dB,Linearity<0.5dB,Lower SAR detection threshold: 0.0015 Watts/kg
SAM Phantom	容-027-22	/	/

COMOSAR E-FIELD PROBE CALIBRATION REPORT

Prepared By: BUTET Romain, SATIMO

Project Description: COMOSAR E-FIELD PROBE

COMOSAR SEPT ISOTROPIC E-FIELD PROBE CALIBRATION REPORT

DATE: 5/11/2010

OFFER REFERENCE: PF.127.1.09.SATB.B

OBJECT: COMOSAR SEPT ISOTROPIC E-FIELD PROBE

MANUFACTURER: SATIMO

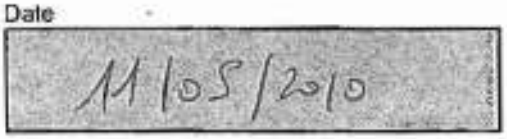
SERIAL NUMBER: SN 11/09 EP100

CONTRACT: B01351

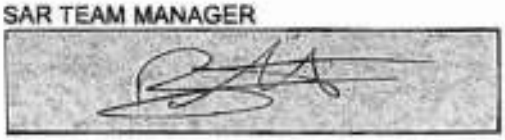
DATE OF CALIBRATION: 5/5/2010

WARRANTY:

Date



SAR TEAM MANAGER



PRODUCT DESCRIPTION

Frequency Range	100 MHz - 30 GHz
Probe length	330 mm
Length of one dipole	4.5 mm
Maximum external diameter	8 mm
Probe extremity diameter	6.5 mm
Distance between dipoles/probe extremity	< 2.7 mm
Resistance of the three dipole (at the connector)	Dipole 1: R1=2.5307 MΩ Dipole 2: R2=2.6353 MΩ Dipole 3: R3=2.5471 MΩ
Connector (HIROSE series SR30)	6 wire male (Hirose SR30series)

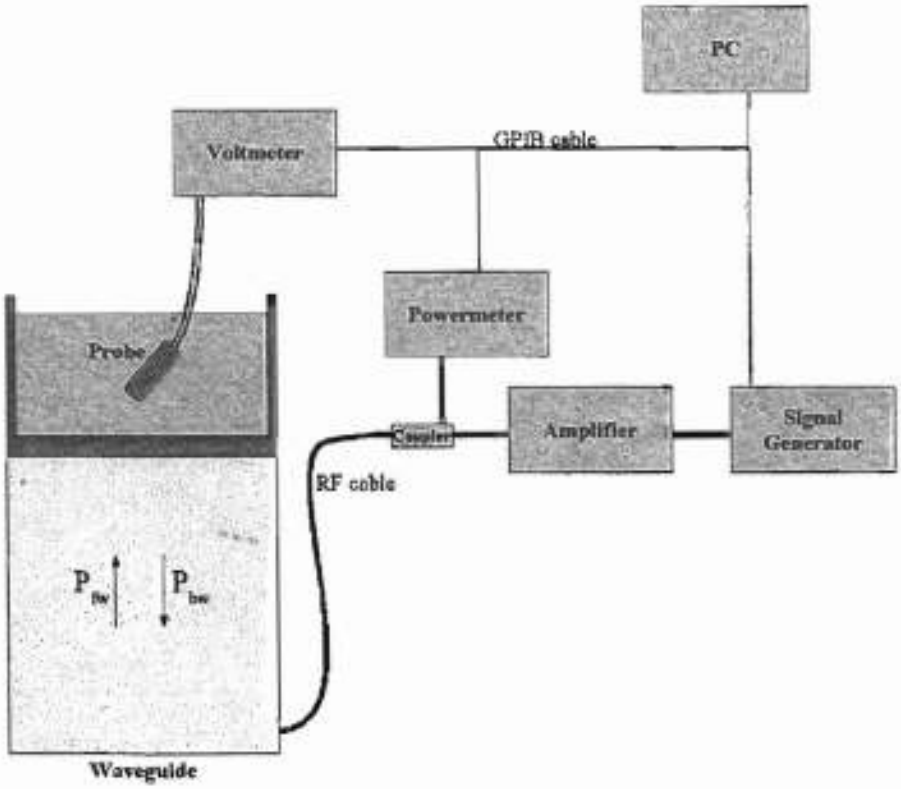
The probe could be checked by measuring the resistance of the three dipoles.

CALIBRATION TEST EQUIPMENT

TYPE	IDENTIFICATION	DATE OF CALIBRATION
Calibration bench	CALISAR CALIBRATION SYSTEM V2.0	
Multimeter	Keithley (2000, SN: 1000572)	Date of calibration: 01-04-2010

MEASUREMENT PROCEDURE

Probe calibration is realized, in compliance with CENELEC EN 50361 and IEEE 1528 std, with CALISAR, SATIMO proprietary calibration system. The calibration is performed with the EN 50361 annexe technique using reference guide at the five frequencies.



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

Where :

P_{fw}	= Forward Power
P_{bw}	= Backward Power
a and b	= Waveguide dimensions
d	= 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.

PROBE UNCERTAINTIES

Calibration report of dosimetric SATIMO probe

Uncertainty on calibration system

ERROR SOURCES	Uncertainty value (%)	Probability Distribution	Divisor	ci	Standard Uncertainty (%)
Incident or forward power	3,00%	Rectangular	$\sqrt{3}$	1	1,732%
Reflected power	3,00%	Rectangular	$\sqrt{3}$	1	1,732%
Liquid conductivity	5,00%	Rectangular	$\sqrt{3}$	1	2,887%
Liquid permittivity	4,00%	Rectangular	$\sqrt{3}$	1	2,309%
Field homogeneity	3,00%	Rectangular	$\sqrt{3}$	1	1,732%
Field probe positioning	5,00%	Rectangular	$\sqrt{3}$	1	2,887%
Field probe linearity	3,00%	Rectangular	$\sqrt{3}$	1	1,732%
Combined standard uncertainty					4,761%
Expanded uncertainty (confidence interval of 95%)					9,331%

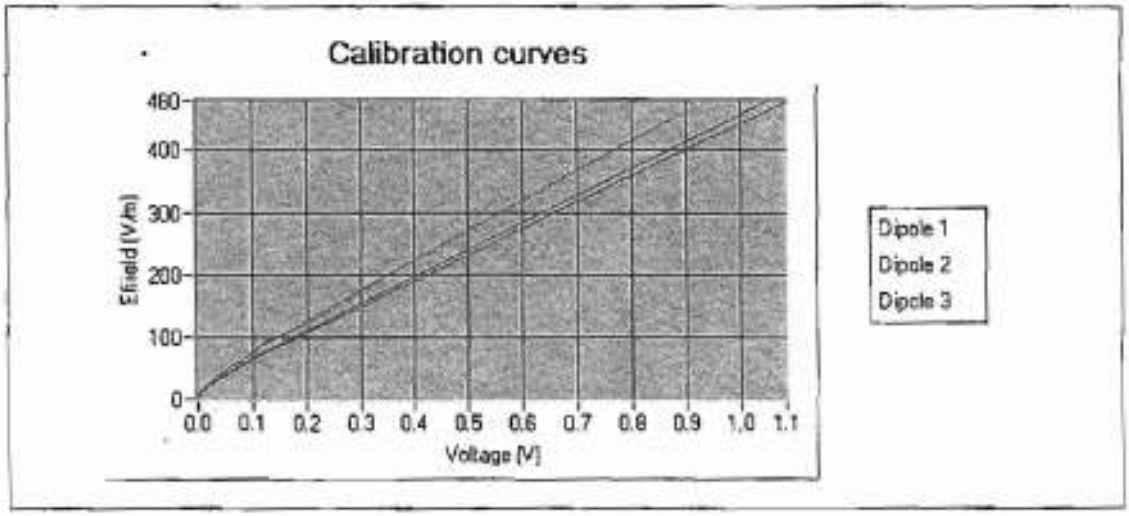
1. Calibration at 835.00 MHz

A. Calibration parameters.

Label	850
Epsilon	41.81
Sigma	0.89 S/m
Temperature	21°C
Cable loss	0.12 dB
Coupler loss	20.50 dB
Waveguide S11	-11.22 dB
Low limit detection	0.824 V/m (0.604 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

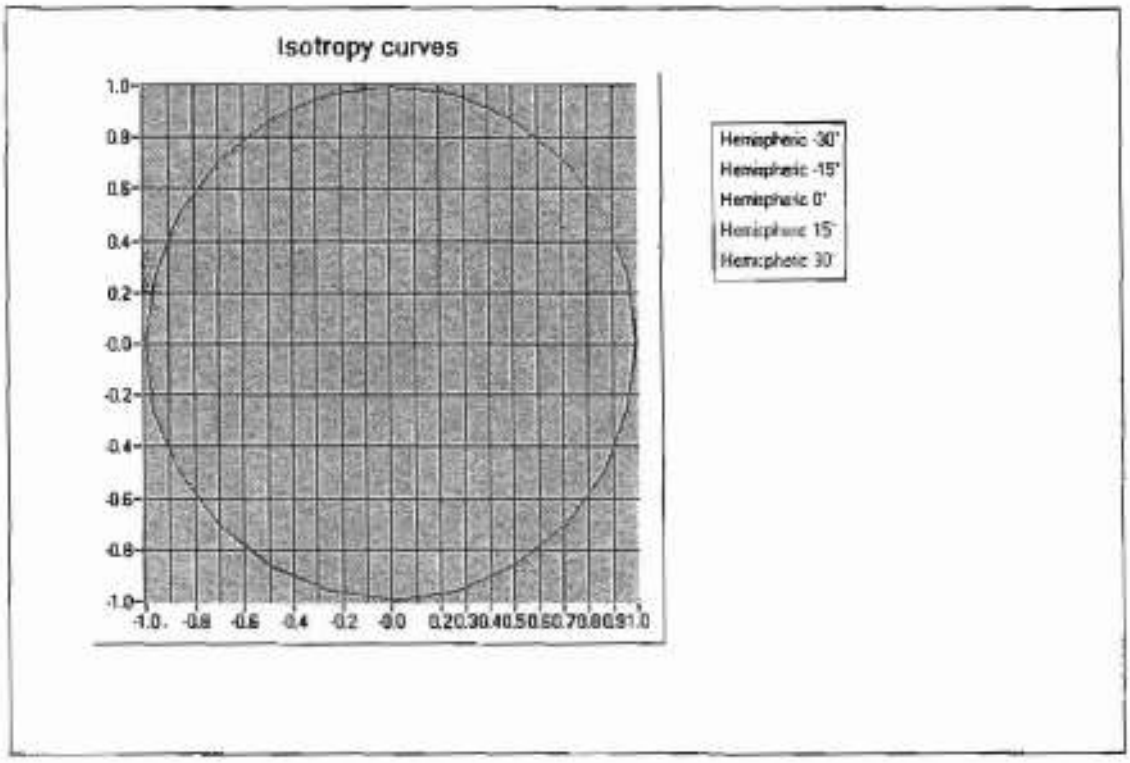
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	41.81	0.90	20.66	20.51	28.36
Body	55.51	0.94	20.00	19.88	27.77

B. Isotropy.

- Axial isotropy: 0.029 dB
- Hemispherical isotropy: 0.030 dB



C. Linearity.

- Linearity: 0.04 dB

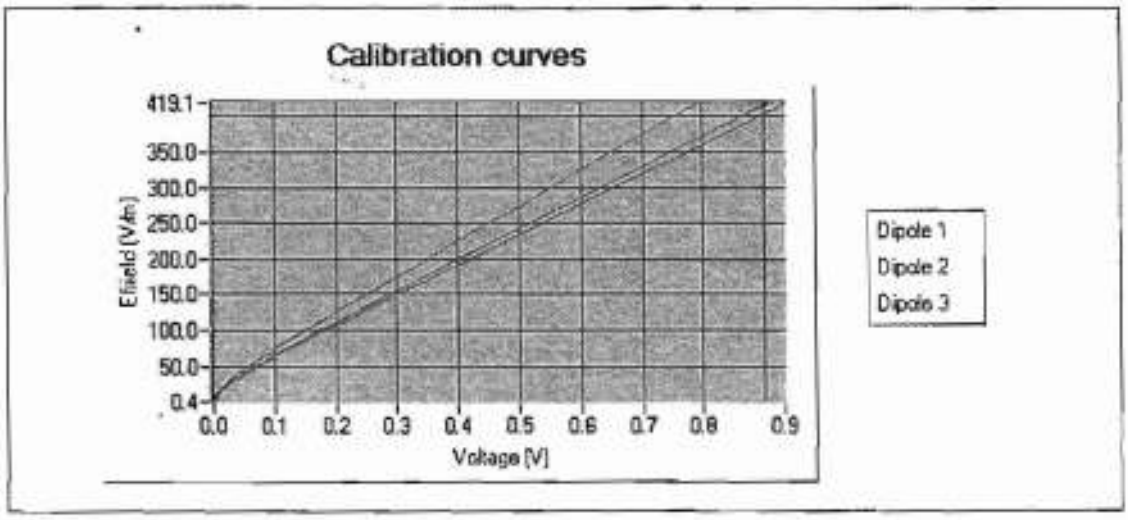
2. Calibration at 897.00 MHz

A. Calibration parameters.

Label	900
Epsilon	41.22
Sigma	0.91 S/m
Temperature	21°C
Cable loss	0.11 dB
Coupler loss	20.27 dB
Waveguide S11	-16.71 dB
Low limit detection	0.795 V/m (0.59 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

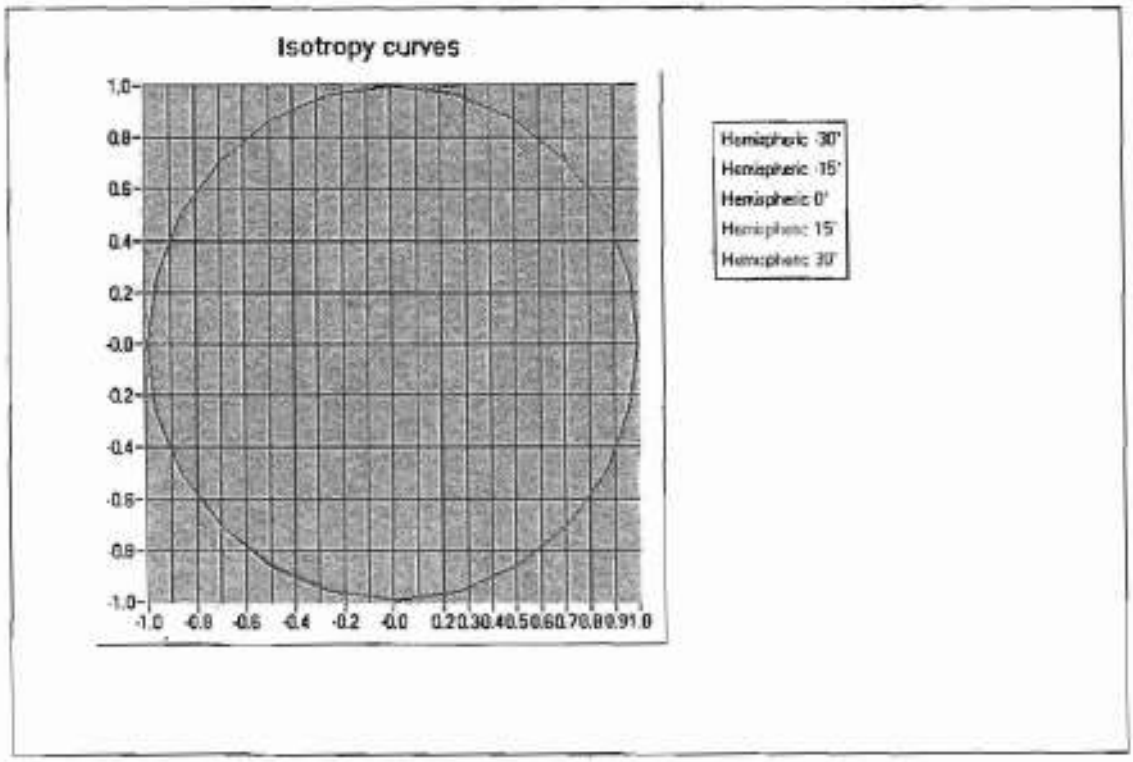
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	41.24	0.94	22.06	22.01	30.16
Body	55.69	1.00	21.56	21.36	29.10

B. Isotropy.

- Axial isotropy: 0.029 dB
- Hemispherical isotropy: 0.030 dB



C. Linearity.

- Linearity: 0.04 dB

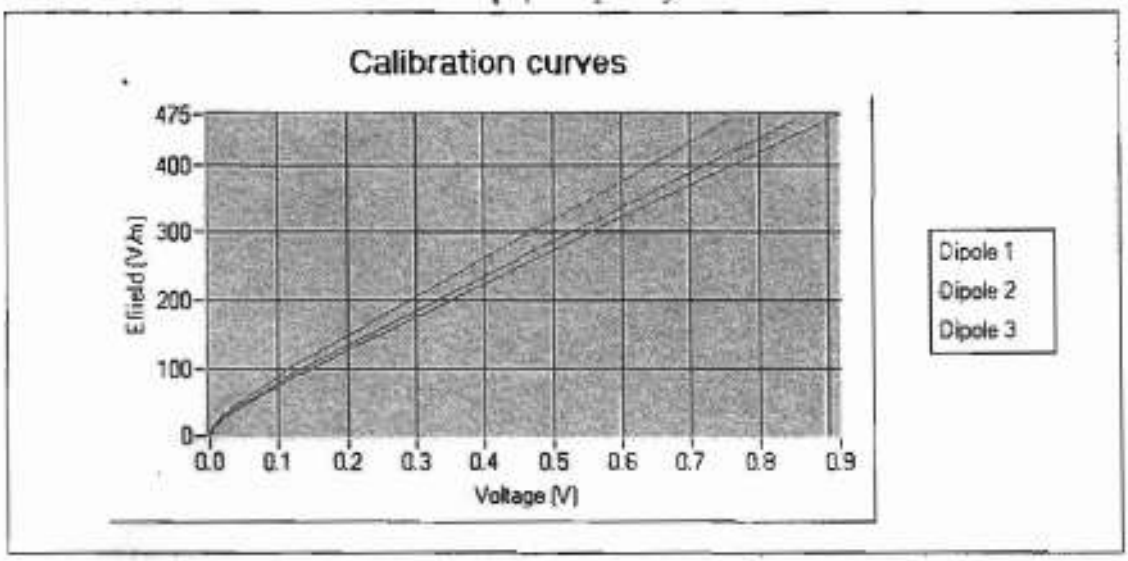
3. Calibration at 1747.00 MHz

A. Calibration parameters.

Label	1800
Epsilon	38.58
Sigma	1.33 S/m
Temperature	21°C
Cable loss	0.18 dB
Coupler loss	20.22 dB
Waveguide S11	-13.13 dB
Low limit detection	0.833 V/m (0.92 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

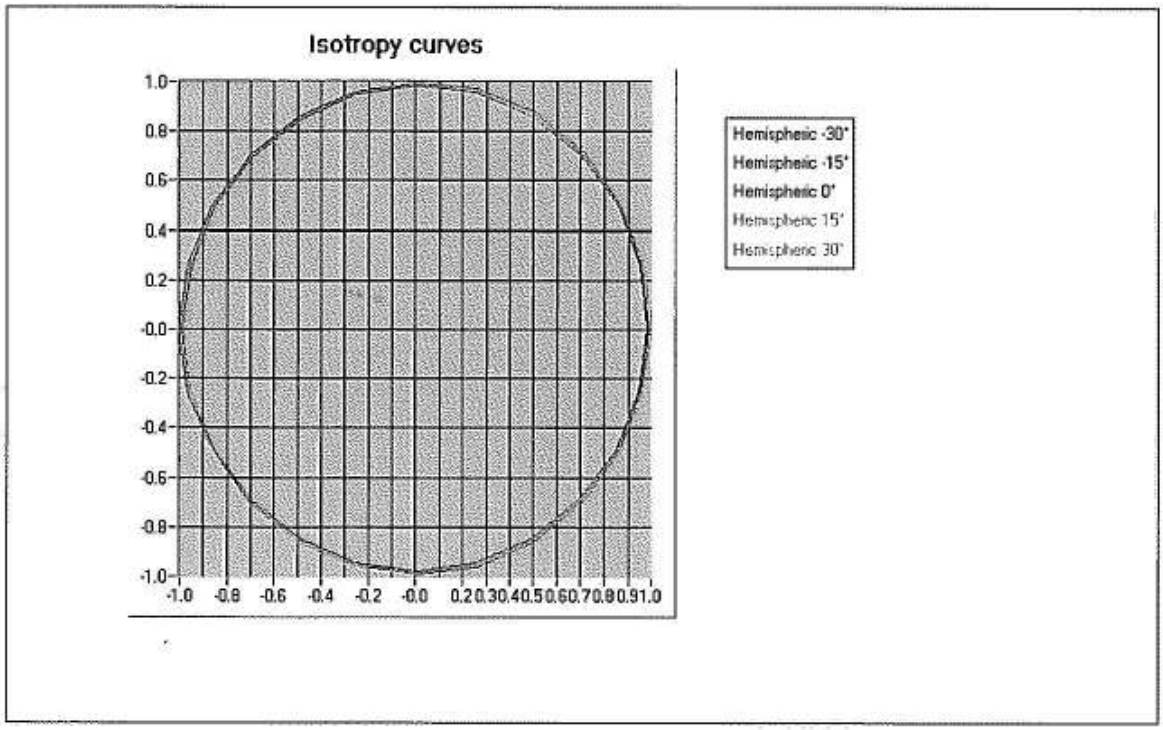
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	38.56	1.33	37.12	38.56	50.42
Body	51.99	1.49	36.66	37.99	49.66

B. Isotropy.

- Axial isotropy: 0.050 dB
- Hemispherical isotropy: 0.076 dB



C. Linearity.

- Linearity: 0.03 dB

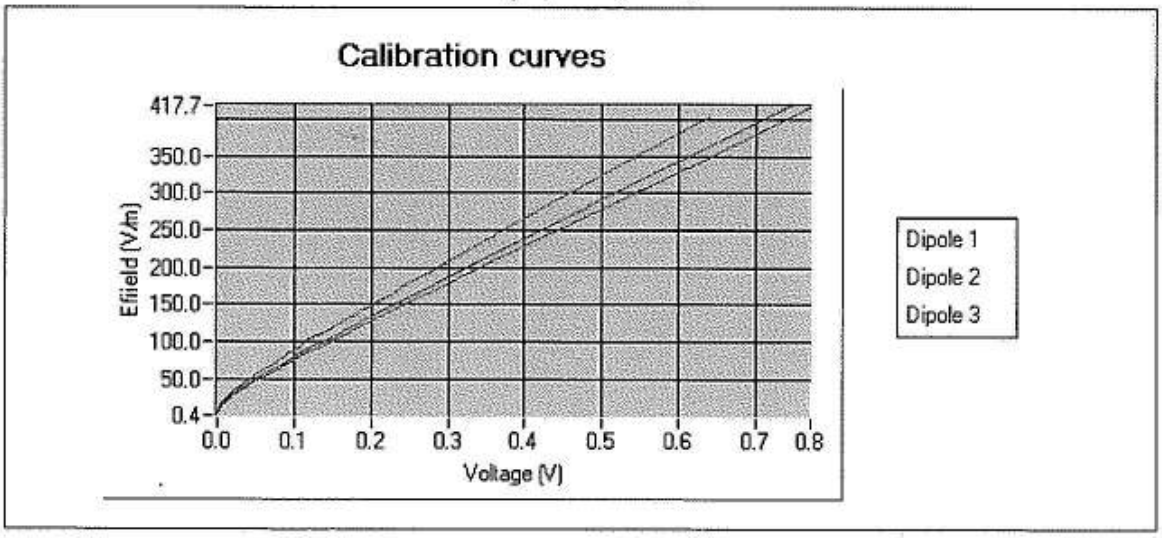
4. Calibration at 1880.00 MHz

A. Calibration parameters.

Label	1900
Epsilon	38.33
Sigma	1.44 S/m
Temperature	21°C
Cable loss	0.19 dB
Coupler loss	21.14 dB
Waveguide S11	-26.91 dB
Low limit detection	0.797 V/m (0.91 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

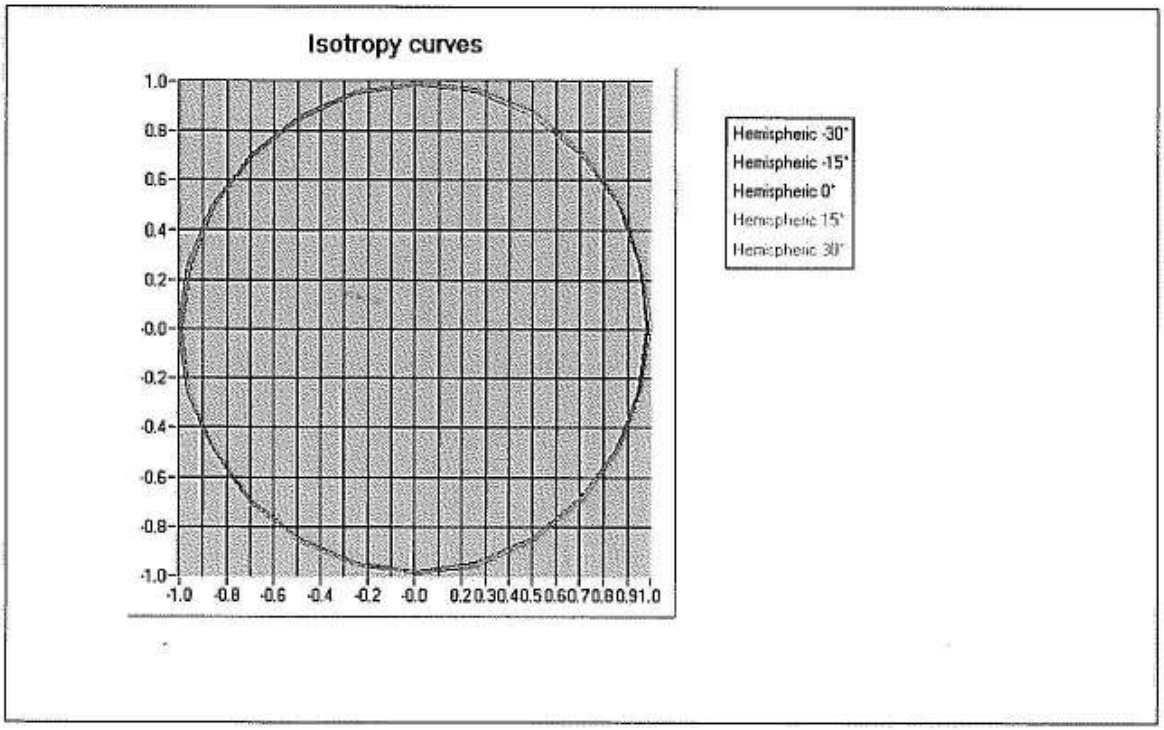
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	38.35	1.45	41.05	42.35	55.45
Body	52.12	1.52	40.42	41.12	54.75

B. Isotropy.

- Axial isotropy: 0.050 dB
- Hemispherical isotropy: 0.076 dB



C. Linearity.

- Linearity: 0.03 dB

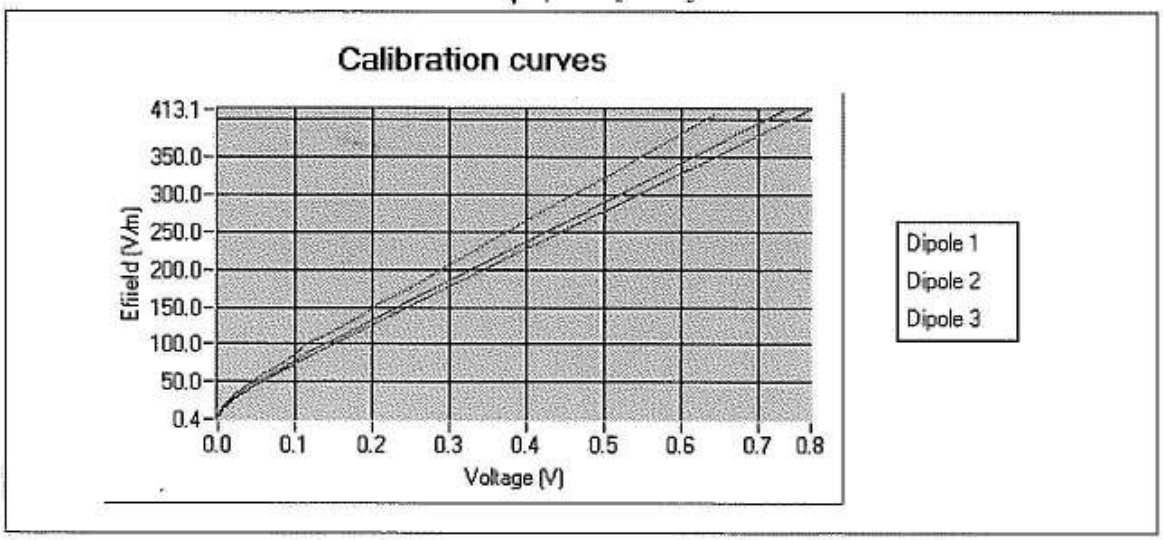
5. Calibration at 1950.00 MHz

A. Calibration parameters.

Label	2000
Epsilon	38.18
Sigma	1.48 S/m
Temperature	21°C
Cable loss	0.18 dB
Coupler loss	20.09 dB
Waveguide S11	-30.09 dB
Low limit detection	0.788 V/m (0.93 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

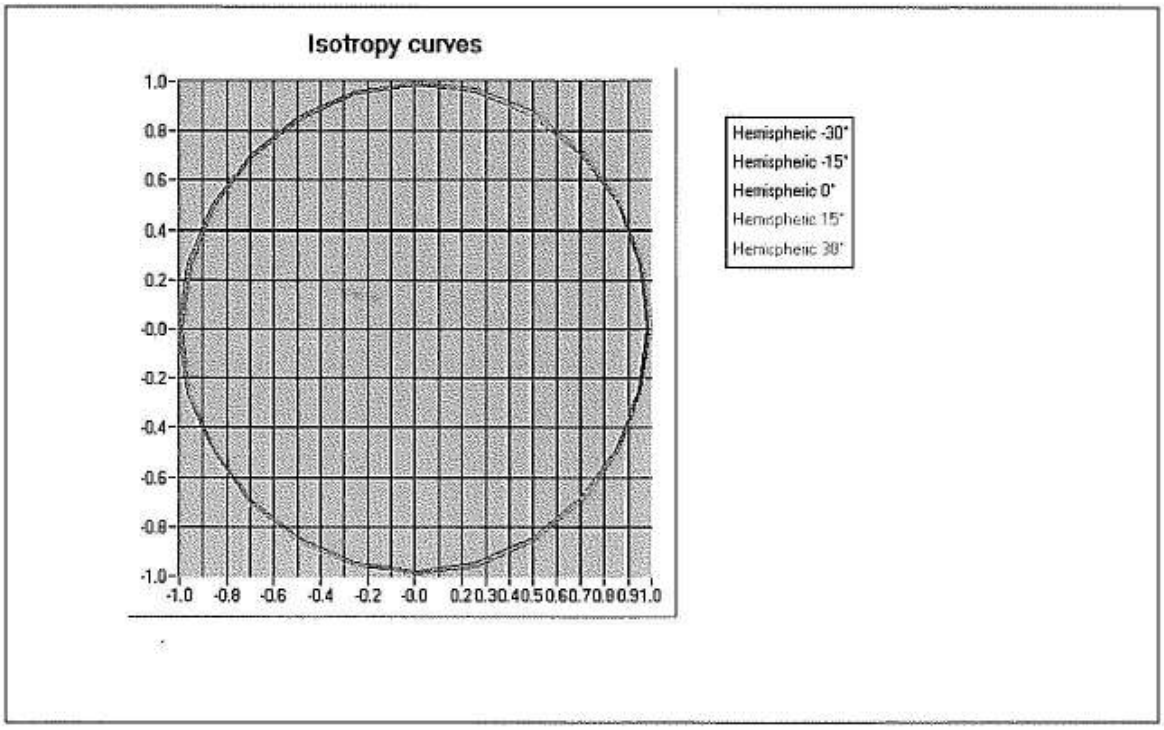
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	38.18	1.45	41.91	43.15	56.44
Body	54.05	1.52	41.01	42.41	55.65

B. Isotropy.

- Axial isotropy: 0.050 dB
- Hemispherical isotropy: 0.076 dB



C. Linearity.

- Linearity: 0.03 dB

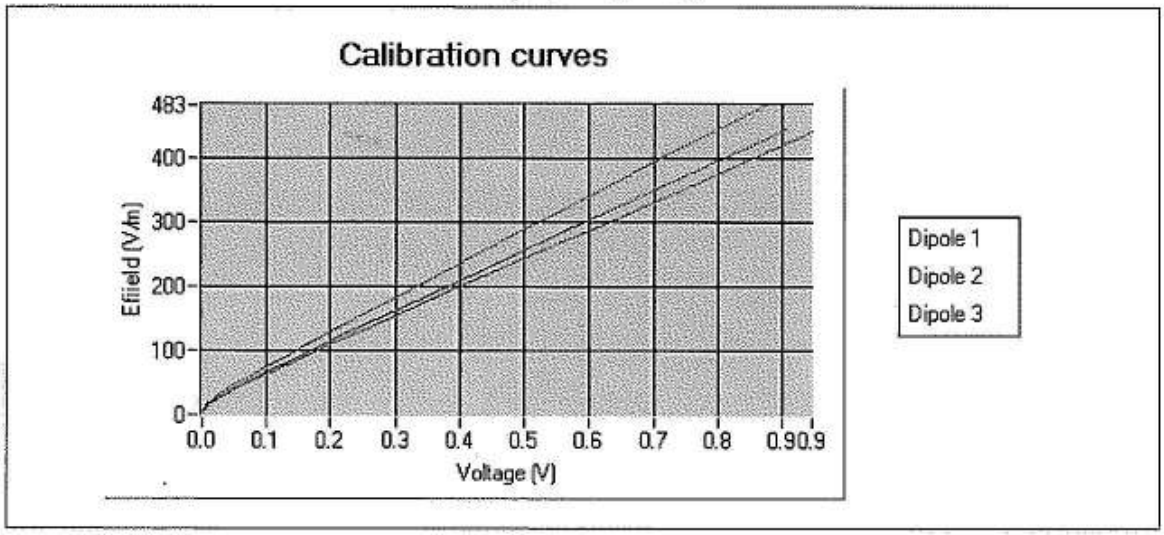
6. Calibration at 2450.00 MHz

A. Calibration parameters.

Label	2450
Epsilon	37.45
Sigma	1.75 S/m
Temperature	21°C
Cable loss	0.22 dB
Coupler loss	21.52 dB
Waveguide S11	-13.66 dB
Low limit detection	0.794 V/m (1.07 mW/kg)

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



The following tables represent the calibration curves linearization by curve segment in CW signal.

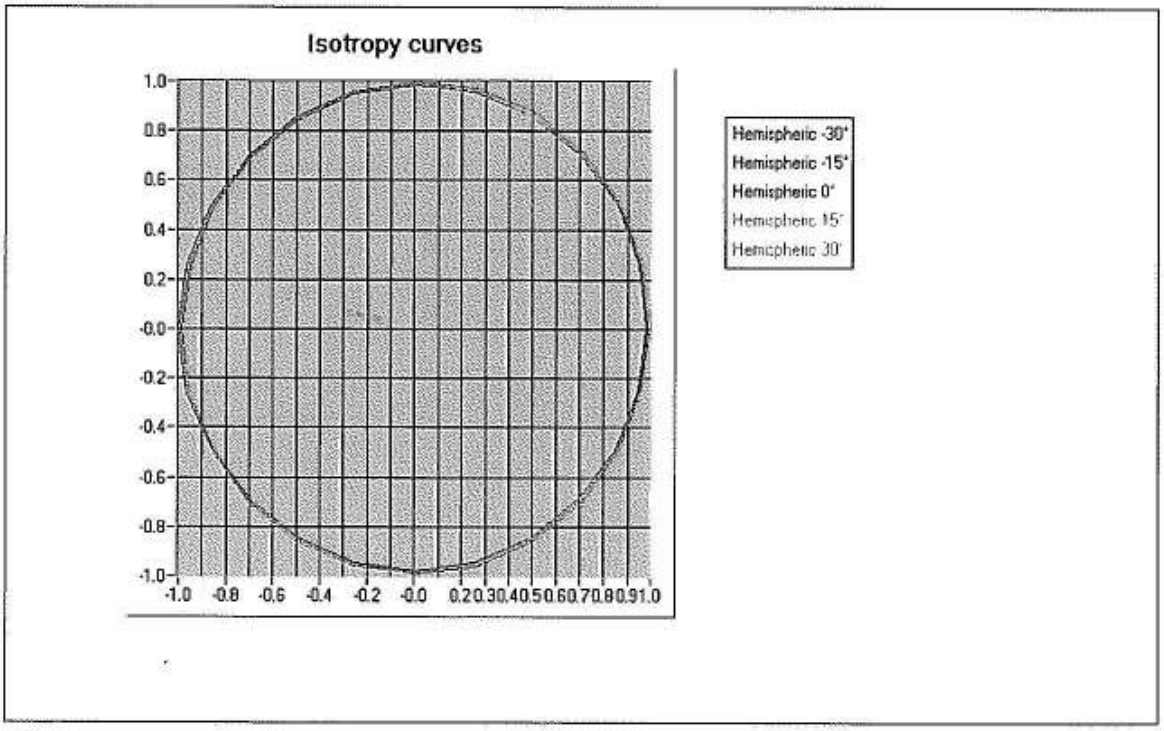
Calibration coefficients for the three dipoles in CW:

Sensitivity in liquid:

Liquid	Epsilon	Sigma (S/m)	CF dipole 1 (W.kg-1 (mV)-1)	CF dipole 2 (W.kg-1 (mV)-1)	CF dipole 3 (W.kg-1 (mV)-1)
Head	37.45	1.75	51.18	53.87	70.48
Body	53.70	1.95	50.35	52.98	69.78

B. Isotropy.

- Axial isotropy: 0.050 dB
- Hemispherical isotropy: 0.076 dB



C. Linearity.

- Linearity: 0.03 dB