SAR Test Report

Product Name	:	GSM/WCDMA MOBILE PHONE
Model No.	:	M4 SS1010
FCC ID	:	CLNSS1010

Prepared By:	:	IAC Compliance Laboratory.
Address:	:	No.789 Pu Xing Road,Shanghai,PRC
Date of Receipt	:	2013.03.06
Date of Test	:	2013.03.13-2013.03.15
Report No.	:	20130306 SAR

Test Report Certification

Date of Issue : Mar.15.2013

Report No. : 20130306 SAR

Product Name	:	GSM/WCDMA MOBILE PHONE
Model No.	:	M4 SS1010
Trade Name	:	M4
Applicant	:	MFOURTEL MEXICO S.A. DE C.V.
Address	:	Montecito 38, Piso 23, Oficina 15. Colonia Nápoles. C.P. 03810 Mexico
Standard	:	FCC 47 CFR Part2 (2.1093)
		IEEE C95.1-1999
		IEEE 1528-2003
		FCC OET Bulletin 65 supplement C
		FCC KDB 648474 D01 v01r05
		FCC KDB 447498 D01 v05
		FCC KDB 941225 D03 v01
		FCC KDB 248227 D01 v01r02

Test Result : Complied

The Test Results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of IAC Compliance Laboratory.

Documented By : _____, Mar.15.2013
Judy Ge/Engineer

Tested By : _____, Mar.15.2013
Alice Lee/Engineer

Approved By : _____, Mar.15.2013
Jeff Huang/Director of Operations

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1. GENERAL INFORMATION

1.1. Applicant

Company Name: MFOURTEL MEXICO S.A. DE C.V.

Address: Montecito 38, Piso 23, Oficina 15. Colonia Nápoles. C.P. 03810 Mexico

1.2. Manufacturer

Company Name: CK Telecom Limited

Address: Technology Road.High-Tech Development Zone. Heyuan, Guangdong,P.R.China.

1.3. Test Environment

Ambient conditions in the laboratory:

Items	Required	Actural
Temperature(℃)	15~30	21.4
Humidity(%RH)	30~70	46

2. SAR Measurement System

2.1. ALSAS-10U System Description

ALSAS-10-U is fully compliant with the technical and scientific requirements of IEEE 1528, IEC 62209, CENELEC, ARIB, ACA, and the Federal Communications Commission. The system comprises of a six axes articulated robot which utilizes a dedicated controller. ALSAS-10U uses the latest methodologies and FDTD order to provide a platform which is repeatable with minimum uncertainty.

2.1.1. Applications

Predefined measurement procedures compliant with the guidelines of CENELEC, IEEE, IEC, FCC, etc are utilized during the assessment for the device. Automatic detection for all SAR maxima are embedded within the core architecture for the system, ensuring that peak locations used for centering the zoom scan are within a 1mm resolution and a 0.05mm repeatable position. System operation range currently is available up to 6 GHz in simulated tissue.

2.1.2. Area Scans

Area Scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a $10mm^2$ step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

Where the system identifies multiple SAR peaks (which are within 25% of peak value) the system will provide the user with the option of assessing each peak location individually for zoom scan averaging.

2.1.3. Zoom Scan (Cube Scan Averaging)

The averaging zoom scan volume utilized in the ALSAS-10U software is in the shape of a cube and the side dimension of a 1g or 10g mass is dependent on the density of the liquid representing the simulated tissue. A density of $1000kg/m^3$ is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 10mm, with the side length of the 10g cube 21.5mm.

When the cube intersects with the surFront of the phantom, it is oriented so that 3 vertices touch the surFront of the shell or the center of a Front is tangent to the surFront.

The zoom Scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 5 ×5×8 (8mm×8mm×5mm) providing a volume of 32mm in the X & Y axis, and 35mm in the Z axis.

2.1.4. ALSAS-10U Interpolation and Extrapolation Uncertainty

The overall uncertainty for the methodology and algorithms the used during the SAR calculation was evaluated using the data from IEEE 1528 based on the example f3 algorithm:

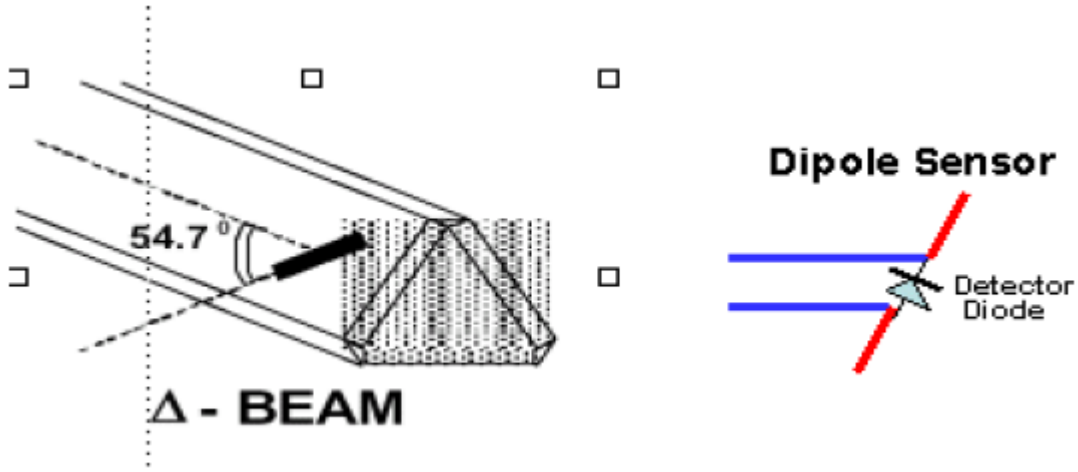
$$f_3(x, y, z) = A \frac{a^2}{\frac{a^2}{4} + x'^2 + y'^2} \cdot \left(e^{-\frac{2z}{a}} + \frac{a^2}{2(a + 2z)^2} \right)$$

2.2. Isotropic E-Field Probe

The isotropic E-Field probe has been fully calibrated and assessed for isotropic, and boundary effect within a controlled environment. Depending on the frequency for which the probe is calibrated the method utilized for calibration will change. A number of methods is used for calibrating probes, and these are outlined in the table below:

Calibration Frequency	Air Calibration	Tissue Calibration
900MHz	TEM Cell	Temperature
1800MHz	TEM Cell	Temperature

The E-Field probe utilizes a triangular sensor arrangement as detailed in the diagram below:



SAR is assessed with a calibrated probe which moves at a default height of 5mm from the center of the diode, which is mounted to the sensor, to the phantom surFront (in the Z Axis). The 5mm offset height has been selected so as to minimize any resultant boundary effect due to the probe being in close proximity to the phantom surFront.

The following algorithm is an example of the function used by the system for linearization of the output from the probe when measuring complex modulation schemes.

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

2.2.1. Isotropic E-Field Probe Specification

Calibration in Air	Frequency Dependent Below 2GHz Calibration in air performed in a TEM Cell Above 2GHz Calibration in air performed in waveguide
Sensitivity	0.70 μV/(V/m)^2 to 0.85 μV/(V/m)^2
Dynamic Range	0.0005 W/kg to 100W/kg
Isotropic Response	Better than 0.2dB
Diode Compression point (DCP)	Calibration for Specific Frequency
Probe Tip Radius	< 5mm
Sensor Offset	1.56 (+/- 0.02mm)
Probe Length	290mm
Video Bandwidth	@ 500 Hz: 1dB @1.02 KHz: 3dB
Boundary Effect	Less than 2% for distance greater than 2.4mm
Spatial Resolution	Diameter less than 5mm Compliant with Standards

Probe model no: ALS-E-020, S/N:500-00273

2.3. Boundary detection Unit and Probe Mounting Device

ALSAS-10U incorporates a boundary detection unit with a sensitivity of 0.05mm for detecting all types of surFronts. The robust design allows for detecting during probe tilt (probe normalize) exercises, and utilizes a second stage emergency sTop. The signal electronics are directly into the robot controller for high accuracy surFront detection in lateral and axial detection modes (X, Y, &Z).
The probe is mounted directly onto the Boundary Detection unit for accurate tooling and displacement calculations controlled by the robot kinematics. The probe is connected to an isolated probe interconnect where the output stage of the probe is fed directly into the amplifier stage of the Daq-Paq.

2.4. Daq-Paq (Analog to Digital Electronics)

ALSAS-10U incorporates a fully calibrated Daq-Paq (analog to digital conversion system) which has a 4 channel input stage, sent via a 2 stage auto-set amplifier module. The input signal is amplified accordingly so as to offer a dynamic range from 5 μV to 800mV. Integration of the fields measured is carried out at board level utilizing a Co-Processor which then sends the measured fields down into the main computational module in digitized form via a RS232 communications port. Probe linearity and duty cycle compensation is carried out within the main Daq-Paq module.

ADC	12 Bit
Amplifier Range	20mV to 200mV and 150mV to 800mV
Field Integration	Local Co-Processor utilizing proprietary integration algorithms
Number of Input Channels	4 in total 3 dedicated and 1 spare
Communication	Packet data via RS232

2.5. Axis Articulated Robot

ALSAS-10U utilizes a six articulated robot, which is controlled using a Pentium based real-time movement controller. The movement kinematics engine utilizes proprietary (Thermo CRS) interpolation and extrapolation algorithms, which allow full freedom of movement for each of the six joints within the working envelop. Utilization of joint 6 allows for full probe rotation with a tolerance better than 0.05mm around the central axis.

Robot/Controller Manufacturer	Thermo CRS
Number of Axis	Six independently controlled axis
Positioning Repeatability	0.05mm
Controller Type	Single phase Pentium based C500C
Robot Reach	710mm
Communication	RS232 and LAN compatible

2.6. ALSAS Universal Workstation

ALSAS Universal workstation allows for repeatability and fast adaptability. It allows users to do calibration, testing and measurement using different types of phantoms with one set up, which significantly speeds up the measurement process.

2.7. Universal Device Positioner

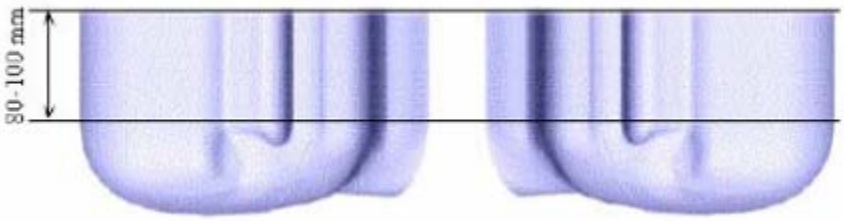
The universal device positioner allows complete freedom of movement of the EUT. Developed to hold a EUT in a free-space scenario any additional loading attributable to the material used in the construction of the positioner has been eliminated. Repeatability has been enhanced through the linear scales which form the design used to indicate positioning for any given test scenario in all major axes. A 15° tilt movements for head SAR analysis. Overall uncertainty for measurements has been reduced due to the design of the Universal device positioner, which allows positioning of a device in as near to a free-space scenario as possible, and by providing the means for complete repeatability.

2.8. Phontom Types

The ALSAS-10U allows the integration of multiple phantom types. SAM Phantoms fully compliant with IEEE 1528, Universal Phantom, and Universal Flat.

2.8.1. APREL SAM Phantoms

The SAM phantoms developed using the IEEE SAM CAD file. They are fully compliant with the requirements for both IEEE 1528 and FCC Supplement C. Both the left and right SAM phantoms are interchangeable, transparent and include the IEEE 1528 grid with visible NF and MB lines.



2.8.2. APREL Laboratories Universal Phantom

The Universal Phantom is used on the ALSAS-10U as a system validation phantom. The Universal Phantom has been fully validated both experimentally from 800MHz to 6GHz and numerically using XFDTD numerical software. The shell thickness is 2mm overall, with a 4mm spacer located at the NF/MB intersection providing an overall thickness of 6mm in line with the requirements of IEEE-1528.

The design allows for fast and accurate measurements, of handsets , by allowing the conservative SAR to be evaluated at on frequency for both left and right head experiments in one measurement.

3. Tissue Simulating Liquid

3.1. The composition of the tissue simulating liquid

INGREDIENT （% Weight）	850MHz Head	1900MHZ Head	850MHZ Body	1900MHz Body	2450MHz Head	2450MHz Body
Water	40.45%	54.9%	45.0%	70.17%	55%	73.2%
Salt	1.45%	0.18%	52.4%	0.39%	0%	0%
Sugar	57.6%	0%	1.4%	0%	0%	0%
HEC	0.4%	0%	1.0%	0%	0%	0%
Preventol	0.1%	0%	0.1%	0%	0%	0%
DGBE	0%	44.92%	0%	29.44%	45%	26.76%

3.2. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to SAR evaluation using APREL Dielectric Probe Kit and Agilent E5071B Vector Network Analyzer.

Head Tissue Simulate Measurement				
Frequency (MHz)	Description	Dielectric Parameters		Tissue Temp.(℃)
		ε_r	σ (s/m)	
850MHz	Reference result	41.5	0.90	NA
	+/-5% window	39.425to43.575	0.855to0.945	
	13-Mar-13	40.25	0.93	20.7
1900MHz	Reference result	40.0	1.40	NA
	+/-5% window	38to42	1.33 to 1.47	
	13-Mar-13	41.53	1.42	20.7
2450MHz	Reference result	39.2	1.80	NA
	+/-5% window	37.24to41.16	1.71to1.89	
	13-Mar-13	40.27	1.85	20.7

Body Tissue Simulate Measurement				
Frequency (MHz)	Description	Dielectric Parameters		Tissue Temp.(℃)
		ε_r	σ (s/m)	
850MHz	Reference result	55.2	0.97	NA
	+/-5% window	52.44to57.96	0.922to1.019	
	13-Mar-13	53.14	0.98	20.7
1900MHz	Reference result	53.3	1.52	NA
	+/-5% window	50.635to55.965	1.444to1.596	
	13-Mar-13	52.95	1.54	20.7
2450MHz	Reference result	52.7	1.95	NA
	+/-5% window	50.065to55.335	1.852to2.0475	
	13-Mar-13	53.34	1.93	20.7

3.3. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in PP1528 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 P1428 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

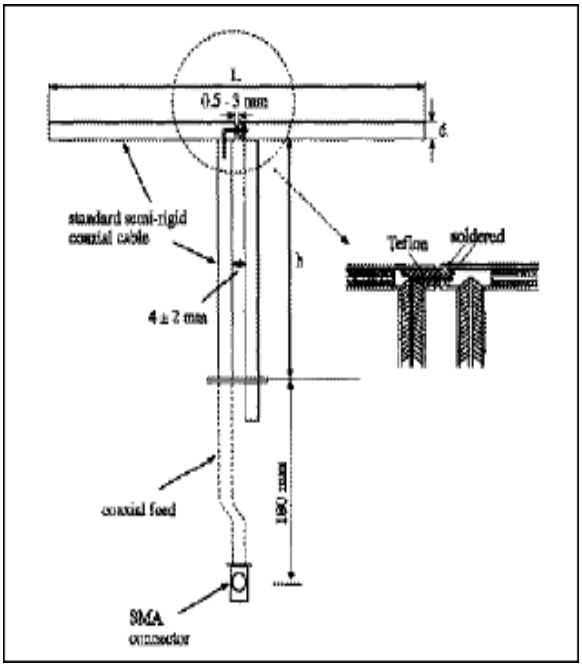
Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7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

(ε_r =relative permittivity, σ =conductivity and ρ =1000 kg/m^3)

4. SAR Measurement Procedure

4.1. SAR System Validation

4.1.1. Validation Dipoles



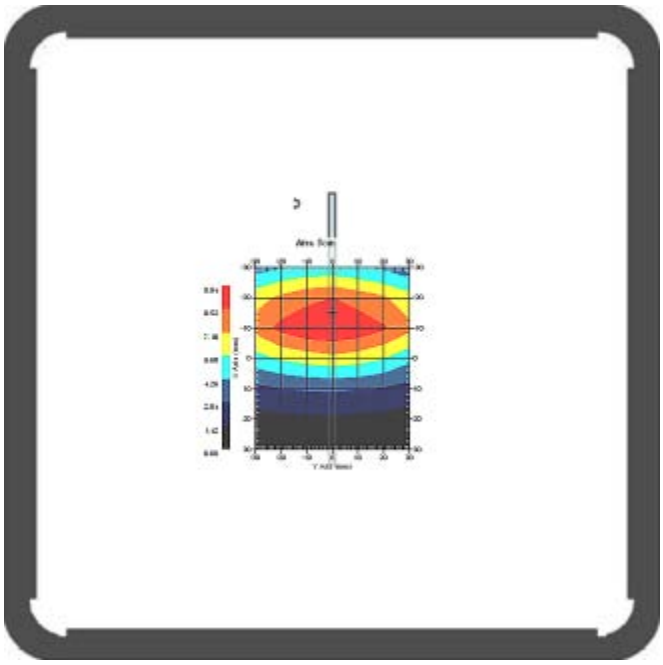
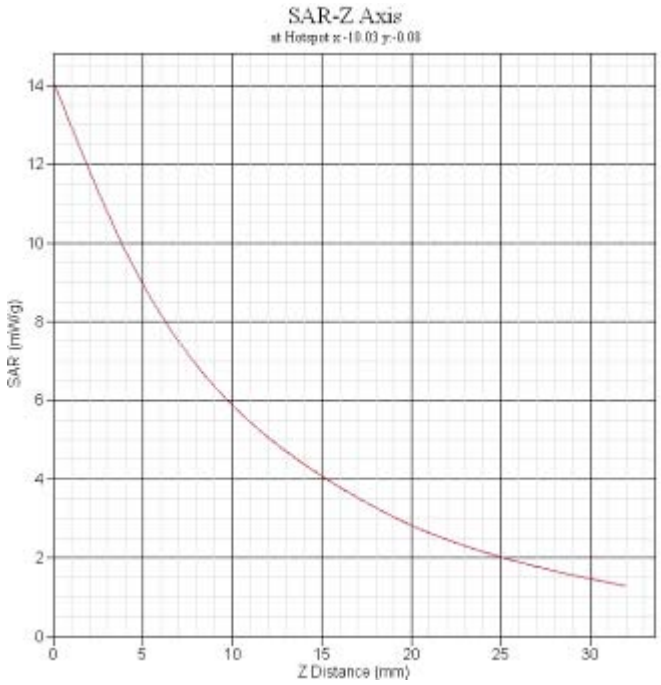
The dipoles used are based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. The table below provides details for the mechanical and electrical specifications for the dipoles.

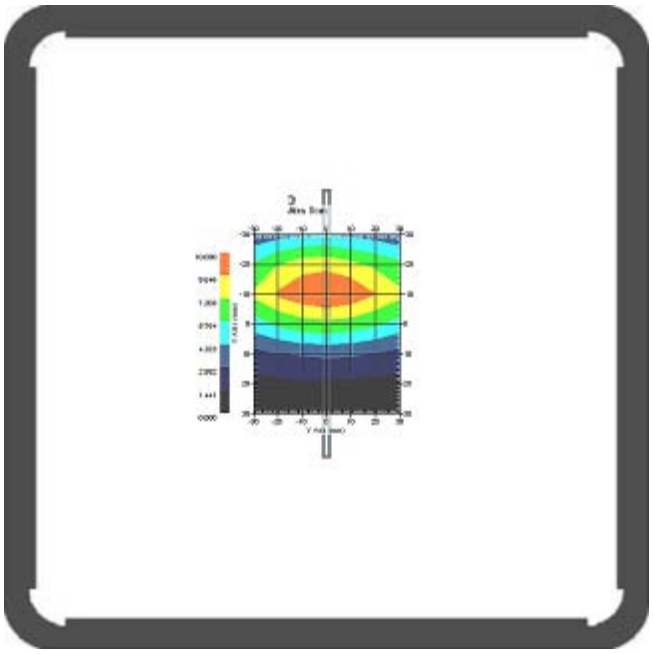
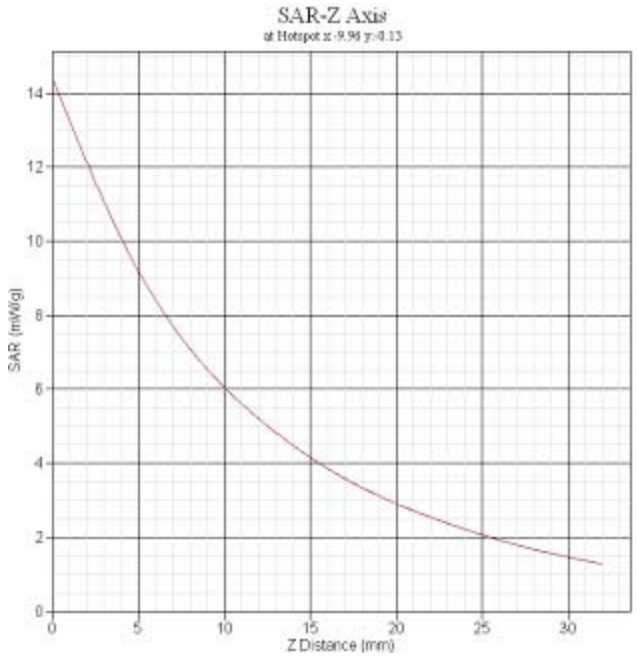
Frequency	L(mm)	h(mm)	d(mm)
850MHz	161	89.8	3.6
1900MHz	67.1	38.9	3.6
2450MHz	51.5	30.4	3.6

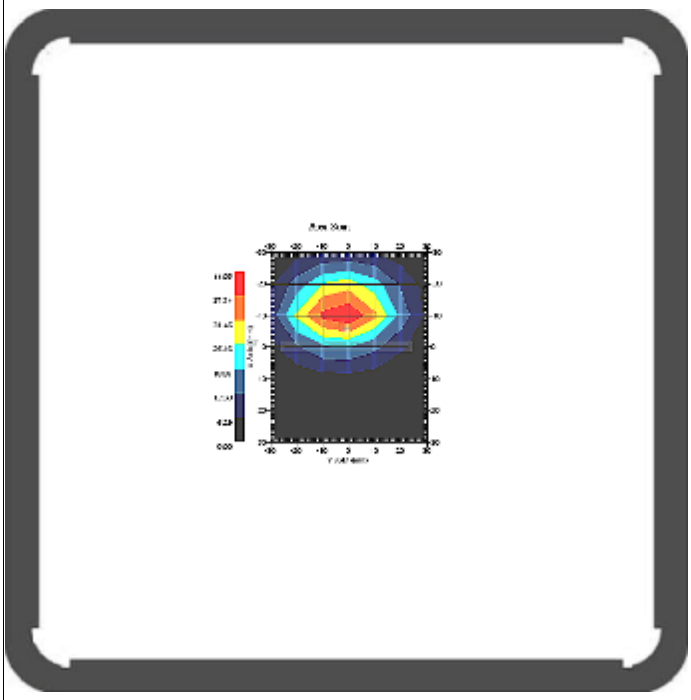
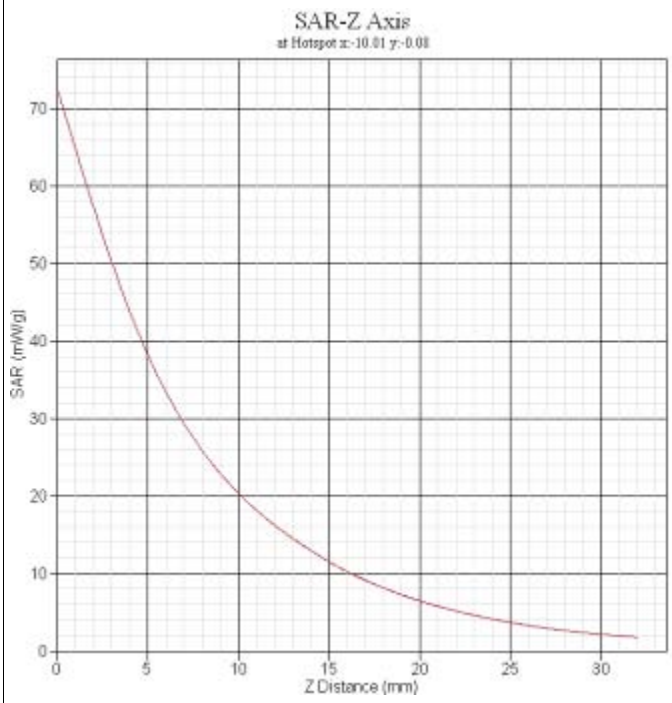
4.1.2. Validation Result

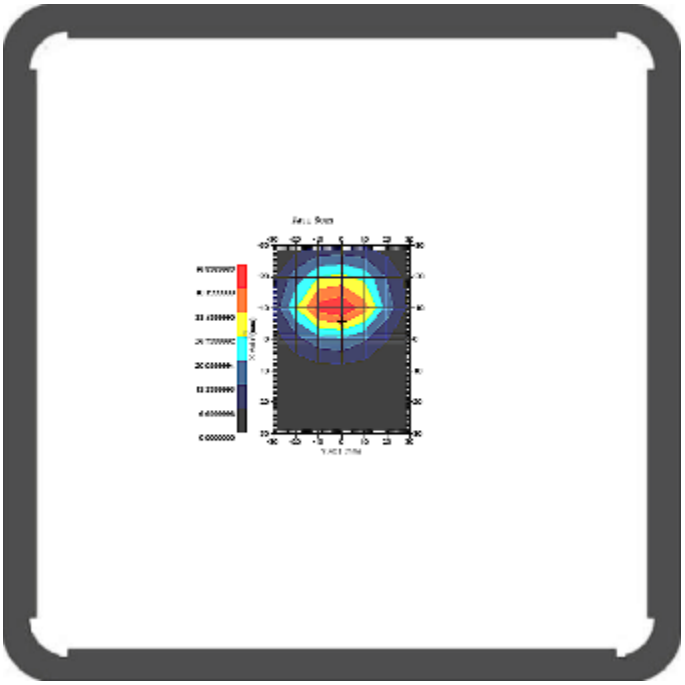
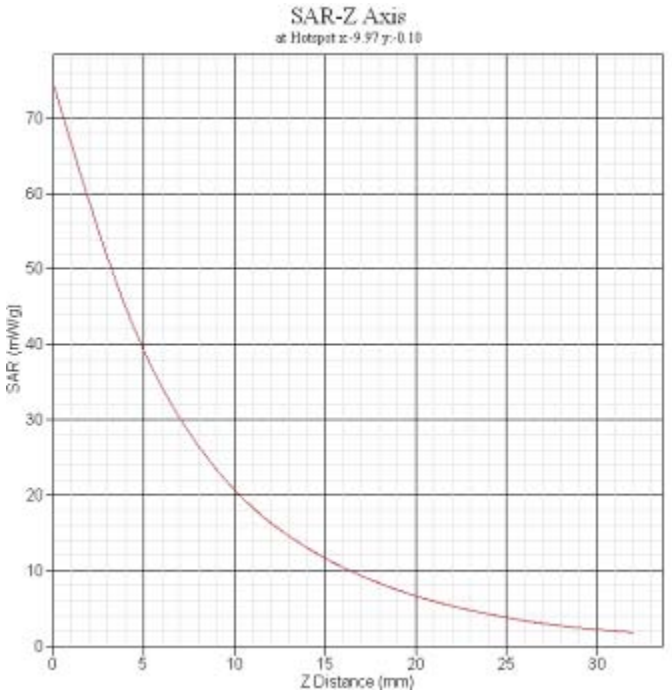
Head System Performance Check at 850MHZ&1900MHz&2450MHz				
Validation Kit: ASL-D-850-S-2				
Frequency(MHz)	Description	SAR(W/kg) 1g	SAR(W/kg) 10g	Tissue Temp.(℃)
850MHz	Reference result	9.590	6.003	N/A
	+/-5%window	9.110to10.07	5.702to6.303	
	13-Mar-13(1W)	9.487	5.851	20.7
Validation Kit: ASL-D-1900-S-2				
Frequency(MHz)	Description	SAR(W/kg) 1g	SAR(W/kg) 10g	Tissue Temp.(℃)
1900MHz	Reference result	39.378	19.668	N/A
	+/-5%window	37.418to41.356	18.685to20.651	
	13-Mar-13 (1W)	38.672	19.234	20.7
Validation Kit: ASL-D-2450-S-2				
Frequency(MHz)	Description	SAR(W/kg) 1g	SAR(W/kg) 10g	Tissue Temp.(℃)
2450MHz	Reference result	52.456	23.603	N/A
	+/-5%window	49.833to55.078	22.423to24.783	
	13-Mar-13 (1W)	51.873	22.745	20.7
Note: All SAR values are normalized to 1 W forward power.				

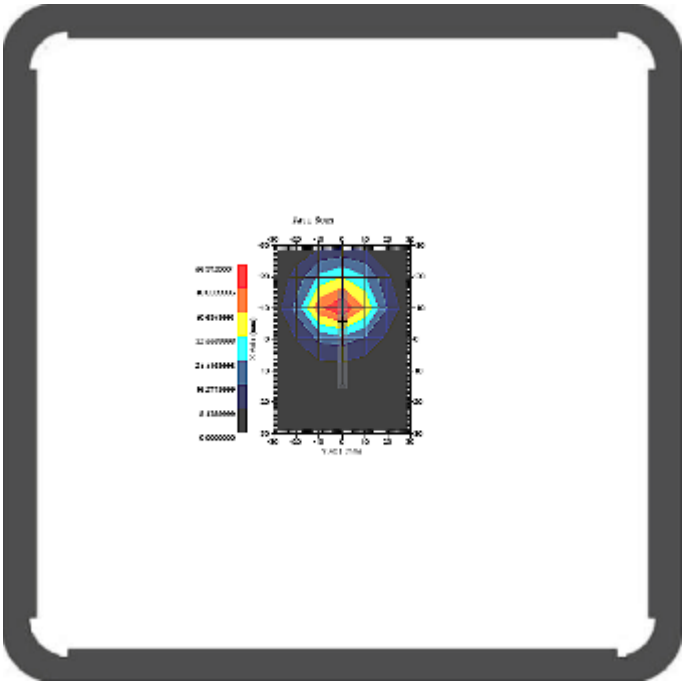
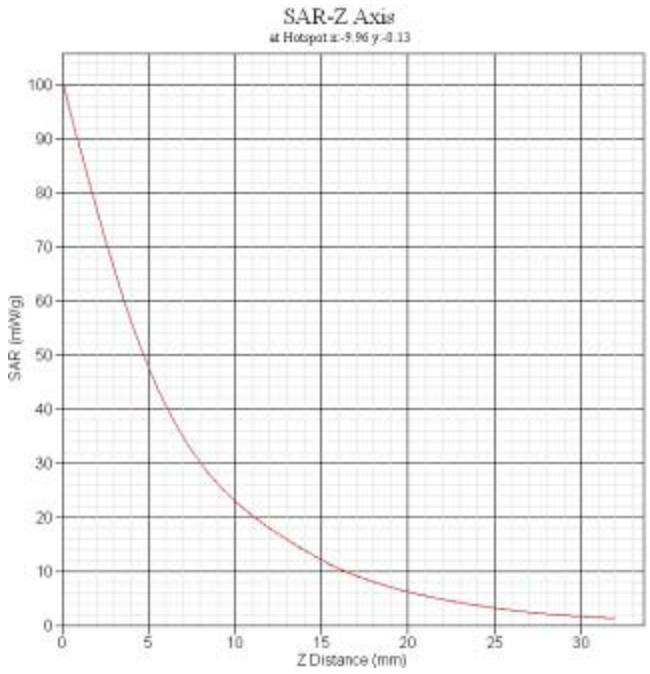
Body System Performance Check at 850MHZ&1900MHz&2450MHz				
Validation Kit: ASL-D-850-S-2				
Frequency(MHz)	Description	SAR(W/kg) 1g	SAR(W/kg) 10g	Tissue Temp.(℃)
850MHz	Reference result	9.981	6.006	N/A
	+/-5%window	9.482to10.48	5.706to6.306	
	13-Mar-13 (1W)	9.545	5.862	20.7
Validation Kit: ASL-D-1900-S-2				
Frequency(MHz)	Description	SAR(W/kg) 1g	SAR(W/kg) 10g	Tissue Temp.(℃)
1900MHz	Reference result	39.654	19.668	N/A
	+/-5%window	37.671to41.637	18.685to20.651	
	13-Mar-13 (1W)	39.635	19.721	20.7
Validation Kit: ASL-D-2450-S-2				
Frequency(MHz)	Description	SAR(W/kg) 1g	SAR(W/kg) 10g	Tissue Temp.(℃)
2450MHz	Reference result	52.592	24.461	N/A
	+/-5%window	49.962to55.222	23.238to25.684	
	13-Mar-13 (1W)	51.263	24.342	20.7
Note: All SAR values are normalized to 1W forward power.				

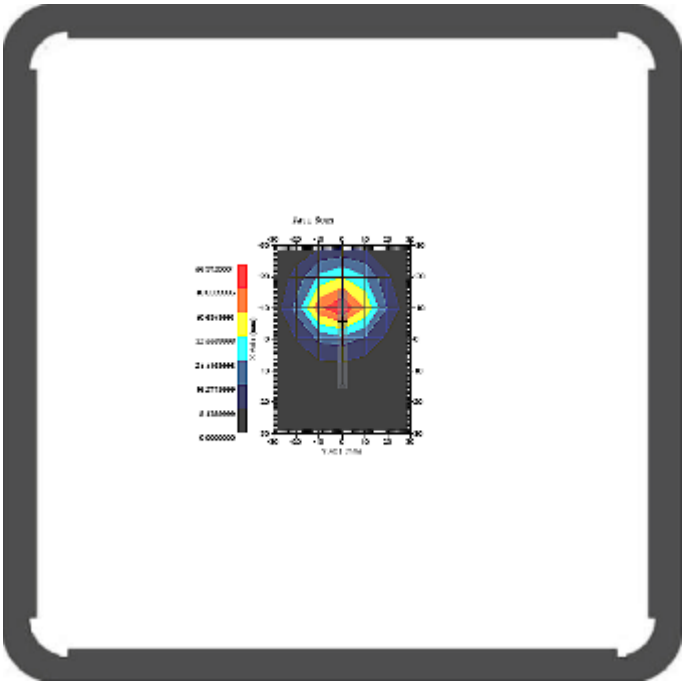
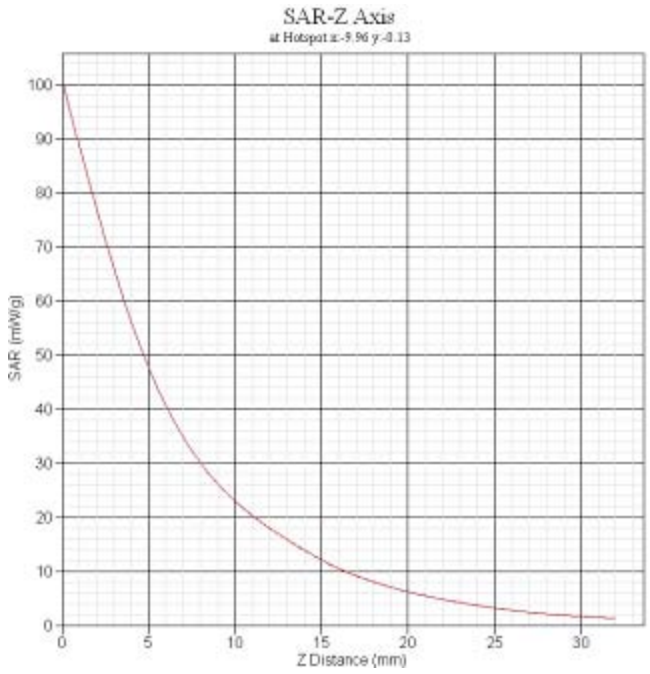
Frequency(MHz)	850
Relative permittivity(real part)	40.25
Conductivity(S/m)	0.93
Variation(%)	0.346
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.5
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	9.487
SAR 10g(W/kg)	5.851

Frequency(MHz)	850
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-2.045
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	9.545
SAR 10g(W/kg)	5.862

Frequency(MHz)	1900
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	-0.623
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	38.672
SAR 10g(W/kg)	19.234

Frequency(MHz)	1900
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	0.381
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	39.635
SAR 10g(W/kg)	19.721

Frequency(MHz)	2450
Relative permittivity(real part)	40.27
Conductivity(S/m)	1.85
Variation(%)	0.531
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	51.873
SAR 10g(W/kg)	22.745

Frequency(MHz)	2450
Relative permittivity(real part)	53.34
Conductivity(S/m)	1.93
Variation(%)	-0.246
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	51.263
SAR 10g(W/kg)	24.342

4.2. Arrangement Assessment Setup

4.2.1. Test Positions of Device Relative to Head

This specifies exactly two test positions for the handset against the head phantom, the "cheek" position and the "tilted" position. The handset should be tested in both positions on the left and right sides of the SAM phantom. If the handset construction is such that it cannot be positioned using the handset positioning procedures described in 4.2.2.1 and 4.2.2.2 to represent normal use conditions (e.g. asymmetric handset), alternative alignment procedures should be considered with details provided in the test report.

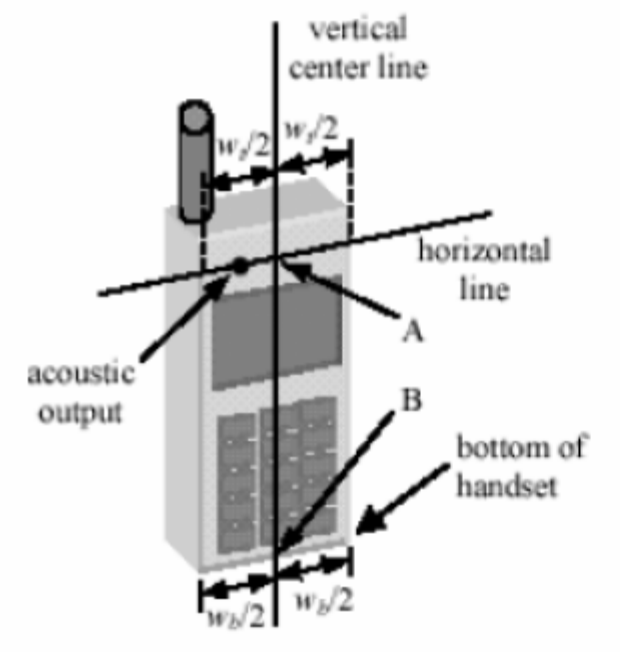


Figure 4.1a Internal Case

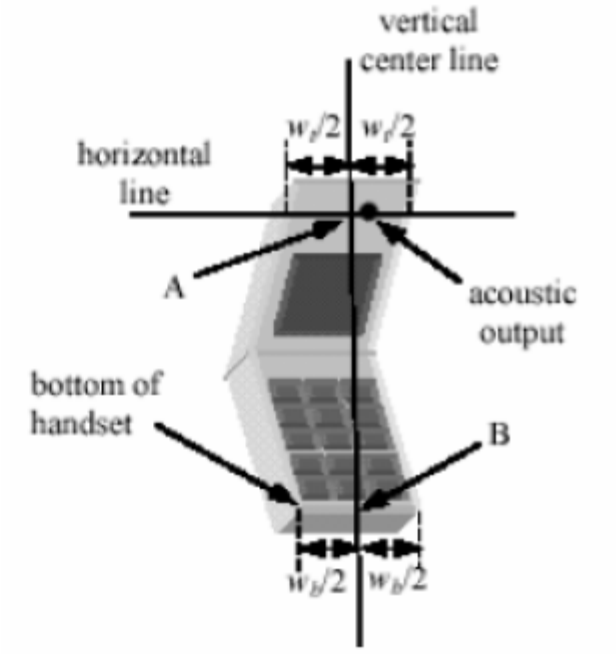


Figure4.1b Clam Shell

4.2.2.1. Definition of the "Cheek" Position

The "cheek" position is defined as follows:

a. Ready the handset for talk operation, if necessary. For example, for hand sets 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 4.1 a and 4.1 b), and the midpoint of the width wb of the Back of the handset through the center of the acoustic output (see Figure 4.1 a). 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 Front of the handset (see Figure 4.1 b), especially for clamshell handsets, handsets with flip pieces, and other irregularly-shaped handsets.

c. Position the handset close to the surFront 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 4.2), such that the plan 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. 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.

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 4.2 the physical angles of rotation should be noted.

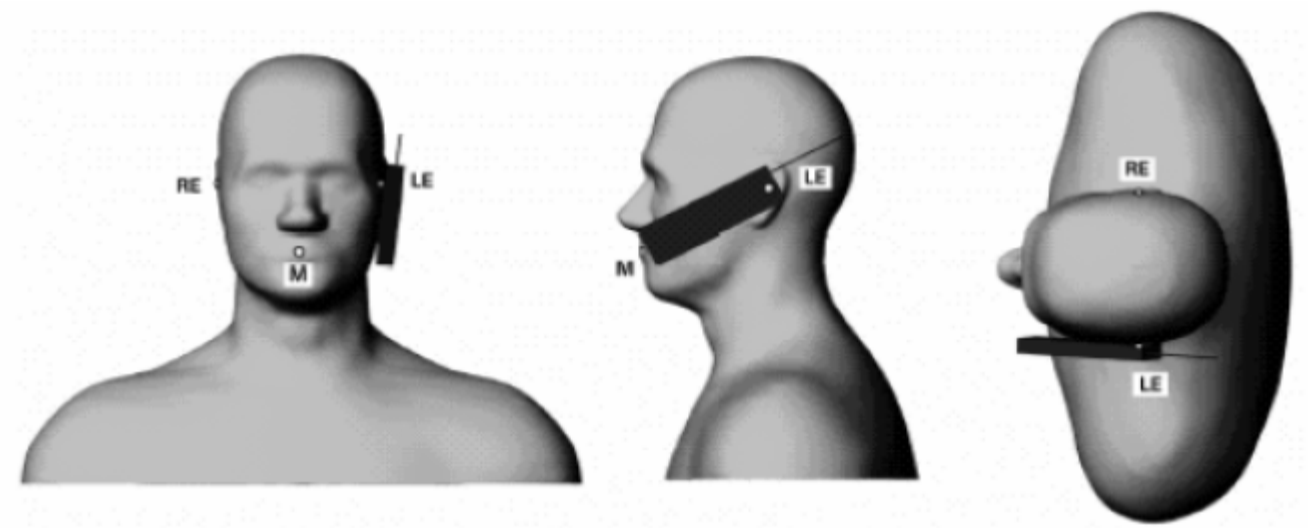


Figure 4.2 – Phone position 1, “cheek” or “touch” position.

4.2.1.2 Definition of the “Tilted” Position

The “tilted” position is defined as follows:

a. Repeat steps (a) – (g) of 4.2.1.1 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 Back of the head).

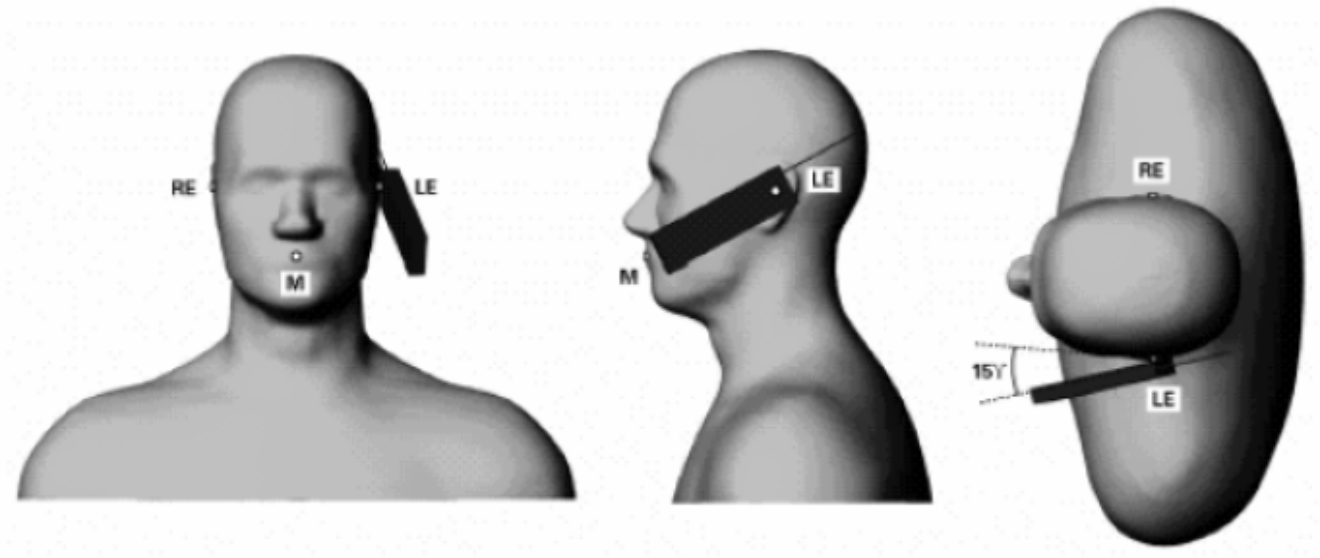


Figure 4.3 – Phone position 2, "tilted" position.

4.2.2. Test Positions for body-worn

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. A separation distance of 1.5 cm between the Back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distance may be use, but not exceed 2.5cm.

4.3. SAR Measurement Procedure

The ALSAS-10U calculates SAR using the following equation,

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

σ :represents the simulated tissue conductivity
ρ :represents the tissue density

The EUT is set to transmit at the required power in line with product specification, at each frequency relating to the LOW, MID, and HIGH channel settings.

Pre-scans are made on the device to establish the location for the transmitting antenna, using a large area scan in either air or tissue simulation fluid.

The EUT is placed against the Universal Phantom where the maximum area scan dimensions are large than the physical size of the resonating antenna. When the scan size is not large enough to cover the peak SAR distribution, it is modified by either extending the area scan size in both the X and Y directions, or the device is shifted within the predefined area.

The area scan is then run to establish the peak SAR location (interpolated resolution set at 1 mm^2) which is then used to orient the center of the zoom scan. The zoom scan is then executed and the 1g and 10g averages are derived from the zoom scan volume (interpolated resolution set at 1 mm^3).

5. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE C95.1-1999, IEEE 1528-2003 , FCC OET Bulletin 65 supplement C.

Type Exposure (W/kg)	Uncontrolled Environment Limit
Spatial Peak SAR (10g cube tissue for head and trunk)	1.60 W/kg
Spatial Average SAR (whole body)	0.08 W/kg
Spatial Peak SAR (10g for limb)	4.00 W/kg

6. Test Equipment List

Instrument	Manufacture	Model No.	Serial No.	Last Calibration
Universal Work Station	Aprel	ALS-UWS	100-00154	NCR
Data Acquisition Package	Aprel	ALS-DAQ-PAQ-3	110-00215	NCR
Probe Mounting Device and Boundary Detection Sensor System	Aprel	ALS-PMDPS-3	120-00265	NCR
Miniature E-Field Probe	Aprel	ALS-E-020	500-00273	Oct.01,2012
Left ear SAM Phantom	Aprel	ALS-P-SAM-L	130-00312	NCR
Right ear SAM Phantom	Aprel	ALS-P-SAM-R	140-00362	NCR
Universal SAM Phantom	Aprel	ALS-P-SU-1	150-00410	NCR
Reference Validation Dipole 850MHz	Aprel	ALS-D-850-S-2	180-00556	May.19,2011
Reference Validation Dipole 1900MHz	Aprel	ALS-D-1900-S-2	210-00707	May.16,2011
Reference Validation Dipole 2450MHz	Aprel	ALS-D-2450-S-2	220-00755	May.19,2011
Dielectric Probe Kit	Aprel	ALS-PR-DIEL	260-00955	NCR
Device Holder 2.0	Aprel	ALS-H-E-SET-2	170-00506	NCR
SAR software	Aprel	ALS-SAR-AL-10	Ver.2.3.8	NCR
CRS C500C Controller	Thermo	ALS-C500	RCF0504291	NCR
CRS F3 Robot	Aprel	ALS-F3-SW	N/A	NCR
Power Amplifier	Mini-Circuit	ZHL- 42	040306	Jul.17,2012
Directional Coupler	Agilent	778D-012	51011	Jul.17,2012
Universal Radio Communication Tester	Agilent	E5515C	104845	Mar.06,2013
Vector Network	Agilent	E5071B	MY4230146	Jul.19,2012
Signal Generator	Agilent	E8257D	N/A	Dec.10,2012
Power Meter	Rohde&Schwarz	NRP	N/A	Dec.10,2012

Note: All equipment upon which need to be calibrated are with calibration period of 1 year, except validation dipole antenna of every 3 years.

7. Measurement Uncertainty

Exposure Assessment Measurement Uncertainty

Source of Uncertainty	Tolerance Value	Probability Distribution	Divisor	c_i^1 (1-g)	c_i^1 (10-g)	Standard Uncertainty (1-g) %	Standard Uncertainty (10-g) %
Measurement System							
Probe Calibration	3.5	normal	1	1	1	3.5	3.5
Axial Isotropy	3.7	rectangular	$\sqrt{3}$	$(1-cp)^{1/2}$	$(1-cp)^{1/2}$	1.5	1.5
Hemispherical Isotropy	10.9	rectangular	$\sqrt{3}$	$\sqrt{cp}$	$\sqrt{cp}$	4.4	4.4
Boundary Effect	1.0	rectangular	$\sqrt{3}$	1	1	0.6	0.6
Linearity	4.7	rectangular	$\sqrt{3}$	1	1	2.7	2.7
Detection Limit	1.0	rectangular	$\sqrt{3}$	1	1	0.6	0.6
Readout Electronics	1.0	normal	1	1	1	1.0	1.0
Response Time	0.8	rectangular	$\sqrt{3}$	1	1	0.5	0.5
Integration Time	1.7	rectangular	$\sqrt{3}$	1	1	1.0	1.0
RF Ambient Condition	3.0	rectangular	$\sqrt{3}$	1	1	1.7	1.7
Probe Positioner Mech.	0.4	rectangular	$\sqrt{3}$	1	1	0.2	0.2
Restriction							
Probe Positioning with respect to Phantom Shell	2.9	rectangular	$\sqrt{3}$	1	1	1.7	1.7
Extrapolation and Integration	3.7	rectangular	$\sqrt{3}$	1	1	2.1	2.1
Test Sample Positioning	4.0	normal	1	1	1	4.0	4.0
Device Holder Uncertainty	2.0	normal	1	1	1	2.0	2.0
Drift of Output Power	0.6	rectangular	$\sqrt{3}$	1	1	0.3	0.3
Phantom and Setup							
Phantom Uncertainty(shape & thickness tolerance)	3.4	rectangular	$\sqrt{3}$	1	1	2.0	2.0
Liquid Conductivity(target)	5.0	rectangular	$\sqrt{3}$	0.7	0.5	2.0	1.4
Liquid Conductivity(meas.)	0.0	normal	1	0.7	0.5	0.0	0.0

Liquid Permittivity(target)	5.0	rectangular	√3	0.6	0.5	1.7	1.4
Liquid Permittivity(meas.)	2.4	normal	1	0.6	0.5	1.4	1.2
Combined Uncertainty		RSS				9.3	9.2
Combined Uncertainty (coverage factor=2)		Normal(k=2)				18.7	18.3

8. SAR Test Results

8.1. Conducted Power(Unit:dBm)

<WWAN Conducted Power>

Band	GSM850			GSM1900		
Channel	128	190	251	512	661	810
Frequency(MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM	31.48	**31.51**	31.49	**29.27**	28.98	29.13
Band	WCDMA band Ⅱ			WCDMA band Ⅴ		
Channel	9262	9400	9538	4132	4183	4233
Frequency(MHz)	1852.4	1880.0	1907.6	826.4	836.6	846.6
WCDMA	21.75	**21.84**	21.82	23.25	**23.28**	23.24

Band	Conducted Power (dBm)			Factor (dB)	Average Power (dBm)		
Channel	128	190	251		128	190	251
Frequency(MHz)	824.2	836.6	848.8		824.2	836.6	848.8
GPRS8(1up)	31.47	31.50	31.49	**-9.03**	22.44	22.47	22.46
GPRS10(2up)	30.71	30.75	30.73	**-6.02**	24.69	24.73	24.71
GPRS12(4up)	28.33	28.31	28.47	**-3.01**	25.32	25.30	25.46

Band	Conducted Power (dBm)			Factor (dB)	Average Power (dBm)		
Channel	512	661	810		512	661	810
Frequency(MHz)	1850.2	1880.0	1909.8		1850.2	1880.0	1909.8
GPRS8(1up)	29.28	28.96	29.12	**-9.03**	20.25	19.93	20.09
GPRS10(2up)	28.75	28.42	28.45	**-6.02**	22.73	22.40	22.43
GPRS12(4up)	26.42	26.11	26.13	**-3.01**	23.41	23.10	23.12

NOTES:
Division Factors:
To average the power, the division factor is as follows:
1.TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB
2.TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB
3.TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB
4.TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB
5.The EUT do not support DTM mode.

<Bluetooth Conducted Power>

Channel	Frequency	Bluetooth RF Output Power (dBm)		
		Data Rate / Modulation		
		GFSK	π /4-DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2402MHz	7.36	6.67	6.65
Ch39	2441MHz	7.30	6.61	6.55
Ch78	2480MHz	**7.58**	6.82	6.81

<WLAN Conducted Power>

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		At DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	14.84	14.74	15.03	14.93
CH 06	2437 MHz	15.73	15.71	15.85	15.86
CH 11	2462 MHz	16.24	16.35	16.41	**16.43**

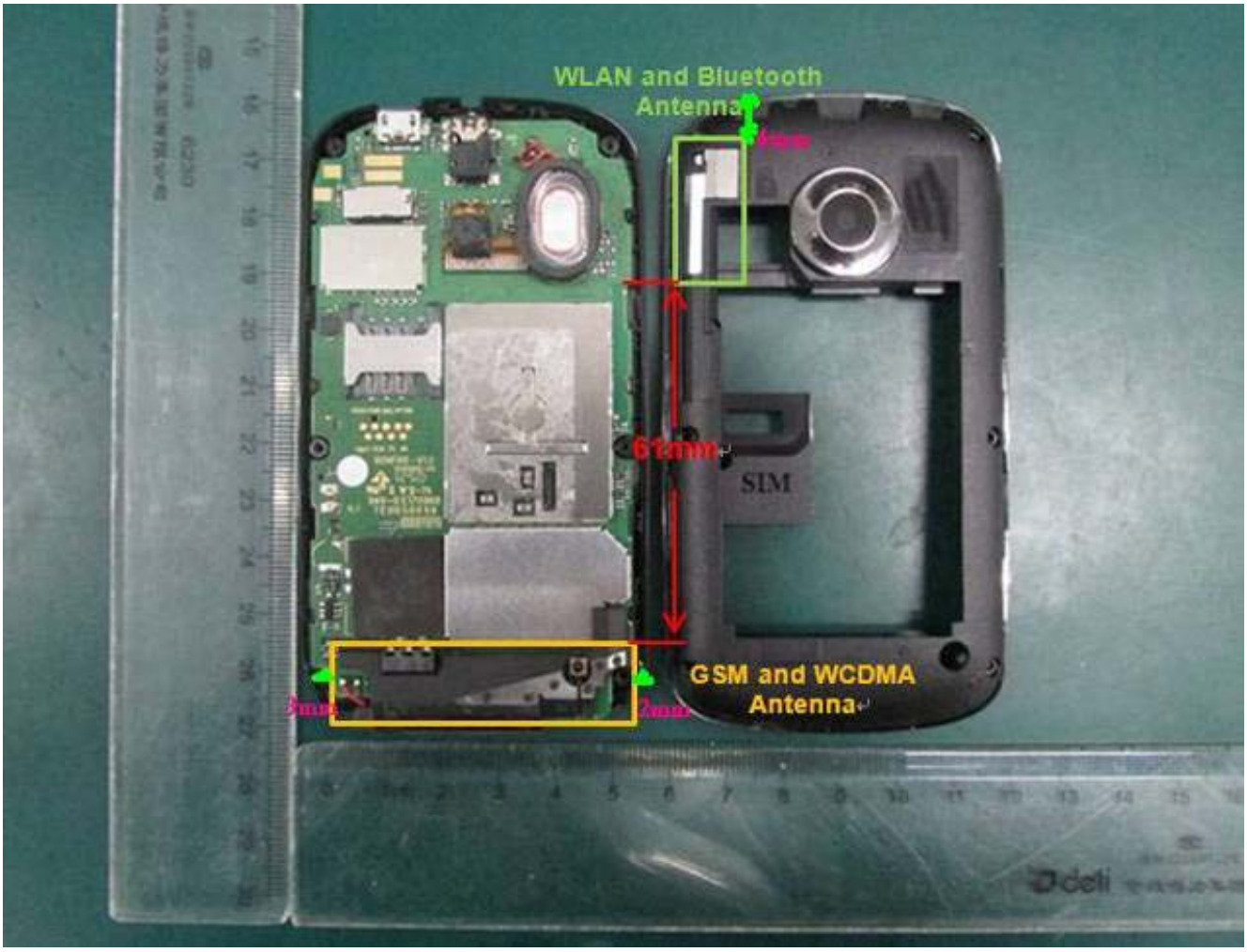
Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		At OFDM Data Rate							
		6	9	12	18	24	36	48	54
		Mbps	Mbps	Mbps	Mbps	Mbps	Mbps	Mbps	Mbps
CH01	2412MHz	12.65	12.68	12.96	13.04	13.08	13.14	13.20	12.89
CH06	2437MHz	13.72	13.79	14.05	14.10	14.16	14.19	14.23	13.98
CH11	2462MHz	14.21	14.19	14.24	14.51	14.58	14.64	**14.70**	14.45

Channel	Frequency	2.4GHz 802.11n RF Power (dBm)							
		At OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
CH01	2412MHz	13.19	13.23	13.46	14.69	13.74	13.67	13.72	13.91
CH06	2437MHz	14.28	14.35	14.47	14.59	14.74	14.73	14.85	14.94
CH11	2462MHz	14.65	14.78	14.87	14.93	14.95	15.07	15.12	**15.33**

Note:

1. Per KDB 248227, choose the highest output power channel to test SAR and judge further SAR exclusion.
2. Per KDB 248227, 11g and 11n(HT20) output power is less than 1/4 dB higher than 11b mode, thus the SAR can be excluded.
3. For each frequency band, testing at higher data rate and higher order modulations is not required when the maximum average power output for each of these configurations is less than 1/4 dB higher than those measured at the lowest data rate.

8.2. Exposure Positions Consideration



Sides for SAR tests; Hotspot mode Test distance: 10 mm						
Band	Back	Front	Top	Bottom	Right	Left
GSM 850	✓	✓	X	✓	✓	✓
GSM 1900	✓	✓	X	✓	✓	✓
WCDMA Band II	✓	✓	X	✓	✓	✓
WCDMA Band V	✓	✓	X	✓	✓	✓
WLAN 11b/g 2.4GHz	✓	✓	✓	X	✓	X

Sides for SAR tests; Body-worn mode Test distance: 10 mm						
Band	Back	Front	Top	Bottom	Right	Left
GSM 850	✓	✓	X	X	X	X
GSM 1900	✓	✓	X	X	X	X
WCDMA Band II	✓	✓	X	X	X	X
WCDMA Band V	✓	✓	X	X	X	X
WLAN 11b/g 2.4GHz	✓	✓	X	X	X	X

Note:

1. Base on KDB447498 D01v05 4.3.1.1 formula, BT SAR is exclude as below table:

	Wireless Interface	Bluetooth
	Tune-up Maximum power(dBm)	8
	Tune-up Maximum power(mW)	6
Head	Antenna to user(mm)	5
	SAR exclusion threshold(mW)	10
	SAR testing required or not?	NOT
Body	Antenna to user(mm)	10
	SAR exclusion threshold(mW)	19
	SAR testing required or not?	NOT

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,

6mW(8dBm)/5mm*√2.45=1.88<3.0, So standalone Bluetooth SAR test is not required.

The SAR threshold for 5mm distance at 2450MHz is 10mW. The power of the BT transmitter is below 10mW. Therefore standalone SAR does not required.

8.3. SAR Test Results Summary

8.3.1 Test results for Head SAR Test

<WWAN SAR>

Band	Position	Channel	Measured Power(dBm)	Tune-up Power(dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
GSM850	LC	190	31.51	32.5	0.701	1.199	0.785
	LT	190	31.51	32.5	0.505	1.199	0.565
	RC	190	31.51	32.5	0.581	1.199	0.650
	RT	190	31.51	32.5	0.465	1.199	0.521
GSM1900	LC	512	29.27	30	0.536	1.183	0.634
	LT	512	29.27	30	0.272	1.183	0.322
	RC	512	29.27	30	0.313	1.183	0.370
	RT	512	29.27	30	0.211	1.183	0.250

Band	Position	Channel	Measured Power(dBm)	Tune-up Power(dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
WCDMA V	LC	4183	23.28	23.5	0.612	1.052	0.644
	LT	4183	23.28	23.5	0.428	1.052	0.450
	RC	4183	23.28	23.5	0.502	1.052	0.528
	RT	4183	23.28	23.5	0.398	1.052	0.419
WCDMA II	LC	9262	21.75	22	0.948	1.059	1.004
	LC	9400	21.84	22	0.965	1.038	1.001
	LC	9538	21.82	22	0.853	1.042	0.889
	LT	9400	21.84	22	0.476	1.038	0.494
	RC	9400	21.84	22	0.730	1.038	0.757
	RT	9400	21.84	22	0.370	1.038	0.384

<WLAN SAR>

Band	Position	Channel	Measured Power(dBm)	Tune-up Power(dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
802.11b band	LC	11	16.43	17	0.045	1.140	0.051
	LT	11	16.43	17	0.043	1.140	0.049
	RC	11	16.43	17	0.135	1.140	0.154
	RT	11	16.43	17	0.120	1.140	0.137

8.3.2 Test results for Hotspot SAR Test

<WWAN SAR 1cm>

Band	Position	Channel	Measured Power(dBm)	Tune-up Power(dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
GPRS850	Front	190	28.31	28.5	0.724	1.045	0.756
	Back	128	28.33	28.5	0.923	1.040	0.960
	Back	190	28.31	28.5	1.006	1.045	1.051
	Back	251	28.47	28.5	0.917	1.007	0.923
	Left	190	28.31	28.5	0.755	1.045	0.789
	Right	190	28.31	28.5	0.744	1.045	0.777
	Bottom	190	28.31	28.5	0.446	1.045	0.466
GPRS1900	Front	512	26.42	27	0.285	1.143	0.326
	Back	512	26.42	27	0.478	1.143	0.546
	Left	512	26.42	27	0.099	1.143	0.113
	Right	512	26.42	27	0.092	1.143	0.105
	Bottom	512	26.42	27	0.275	1.143	0.314

Band	Position	Channel	Measured Power(dBm)	Tune-up Power(dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
WCDMA V	Front	4183	23.28	23.5	0.589	1.052	0.620
	Back	4132	23.25	23.5	0.836	1.059	0.886
	Back	4183	23.28	23.5	0.961	1.052	1.011
	Back	4233	23.24	23.5	0.857	1.062	0.910
	Left	4183	23.28	23.5	0.450	1.052	0.473
	Right	4183	23.28	23.5	0.389	1.052	0.409
	Bottom	4183	23.28	23.5	0.091	1.052	0.096
WCDMA II	Front	9400	21.84	22	0.411	1.038	0.426
	Back	9400	21.84	22	0.683	1.038	0.709
	Left	9400	21.84	22	0.205	1.038	0.213
	Right	9400	21.84	22	0.100	1.038	0.104
	Bottom	9400	21.84	22	0.357	1.038	0.370

<WLAN SAR 1cm>

Band	Position	Channel	Measured Power(dBm)	Tune-up Power(dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
802.11b band	Front	11	16.43	17	0.024	1.140	0.027
	Back	11	16.43	17	0.047	1.140	0.054
	Top	11	16.43	17	0.013	1.140	0.015
	Right	11	16.43	17	0.087	1.140	0.099

8.3.3 Test results for Body-worn SAR Test

<WWAN SAR 1cm>

Band	Position	CH	Measured Power(dBm)	Tune-up Power(dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
GPRS850	Front	190	28.31	28.5	0.724	1.045	0.756
	Back	128	28.33	28.5	0.923	1.040	0.960
	Back	190	28.31	28.5	1.006	1.045	1.051
	Back	251	28.47	28.5	0.917	1.007	0.923
GSM850 + earphone	Back	190	31.51	32	0.721	1.199	0.807
GPRS1900	Front	512	26.42	27	0.285	1.143	0.326
	Back	512	26.42	27	0.478	1.143	0.546
GSM1900 + earphone	Back	512	29.27	30	0.453	1.183	0.536

Band	Position	Channel	Measured Power(dBm)	Tune-up Power(dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
WCDMA V	Front	4183	23.28	23.5	0.589	1.052	0.620
	Back	4132	23.25	23.5	0.836	1.059	0.886
	Back	4183	23.28	23.5	0.961	1.052	1.011
	Back	4233	23.24	23.5	0.857	1.062	0.910
WCDMA V + earphone	Back	4132	23.28	23.5	0.932	1.052	0.980
WCDMA II	Front	9400	21.84	22	0.411	1.038	0.426
	Back	9400	21.84	22	0.683	1.038	0.709
WCDMA II + earphone	Back	9400	21.84	22	0.671	1.038	0.696

<WLAN SAR 1cm>

Band	Position	Channel	Measured Power(dBm)	Tune-up Power(dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
802.11b band	Front	11	16.43	17	0.024	1.140	0.027
	Back	11	16.43	17	0.047	1.140	0.054
802.11b band + earphone	Back	11	16.43	17	0.041	1.140	0.047

8.3.4 Repeated SAR Measurement

Band	Position	CH	Measured Power (dBm)	Tune-up Power (dBm)	SAR 1g (W/kg)	Scale factor	Scaled SAR 1g(W/kg)
WCDMA II	LC	9400	21.84	22	0.965	1.038	1.001
	LC	9400	21.84	22	0.961	1.038	0.997
GPRS850	Back	190	28.31	28.5	1.006	1.045	1.051
	Back	190	28.31	28.5	1.014	1.045	1.059
WCDMA V	Back	4183	23.28	23.5	0.961	1.052	1.011
	Back	4183	23.28	23.5	0.967	1.052	1.017

Note：

1. Per KDB 865664 D01v01,for each frequency band, repeated SAR measurement is required only when the measured SAR is≥0.8W/kg
2. Per KDB 447498D01v05, for each exposure position, if the highest output channel<0.8W/kg, other channels SAR testing are not necessary.
3. Per KDB 865664 D01v01,if the deviation among the repeated measurement is≤20% and the measured SAR<1.45W/kg, only one repeated measurement is required.
4. The deviation is the difference in percentage between original and repeated measured SAR.
5. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

8.4. Simultaneous Transmitting Configurations

Simultaneous Transmitting Configuration	**Applicable Combination**
Simultaneous Transmission	**WWAN+BT**
	WWAN+WiFi

1. WLAN and BT use the same antenna, cannot transmit simultaneously.
2. GSM and WCDMA use the same antenna, cannot transmit simultaneously, and the device does not support hotspot mode.
3. If 1g SAR sum>1.6W/kg, SPLSR calculation is necessary.
4. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB447498 D01v05 base on formula as below:

   (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm;

   where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is> 50 mm.
5. If the test separation distance(antenna-user)is<5mm.5mm is used for estimated SAR calculation.

	Head(0 cm)	Body(1 cm)
Estimated SAR(W/kg)	0.251W/kg	0.126W/kg

<Head SAR>

	Scaled WWAN		Scaled BT	Scaled
Position	**WWAN band**	**Max. WWAN SAR**	**Max. WLAN SAR**	**WWAN+BT**
Left Cheek	GSM850	0.785	0.251	1.036
	GSM1900	0.634	0.251	0.885
	WCDMA V	0.644	0.251	0.895
	WCDMA II	1.001	0.251	1.252
Left Tilt	GSM850	0.565	0.251	0.816
	GSM1900	0.322	0.251	0.573
	WCDMA V	0.450	0.251	0.701
	WCDMA II	0.494	0.251	0.745
Right Cheek	GSM850	0.650	0.251	0.901
	GSM1900	0.370	0.251	0.621
	WCDMA V	0.528	0.251	0.779
	WCDMA II	0.757	0.251	1.008
Right Tilt	GSM850	0.521	0.251	0.772
	GSM1900	0.250	0.251	0.501
	WCDMA V	0.419	0.251	0.670
	WCDMA II	0.384	0.251	0.635

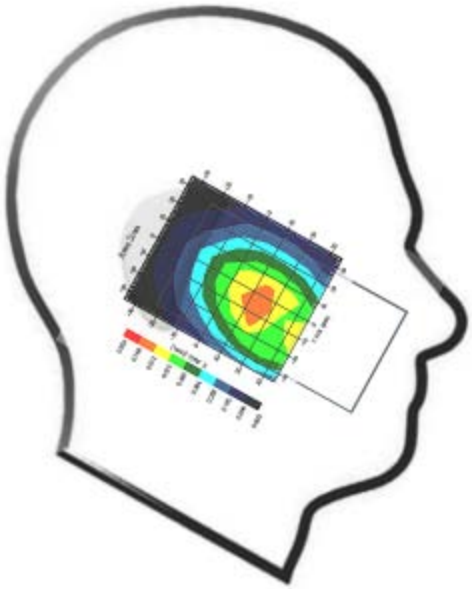
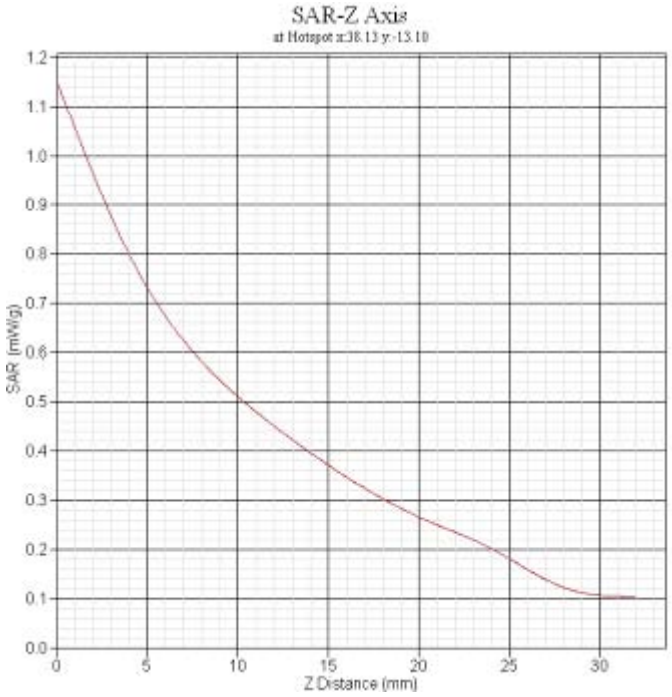
	Scaled WWAN		Scaled WLAN	Scaled
Position	**WWAN band**	**Max. WWAN SAR**	**Max. WLAN SAR**	**WWAN+WLAN**
Left Cheek	GSM850	0.785	0.051	0.836
	GSM1900	0.634	0.051	0.685
	WCDMA V	0.644	0.051	0.695
	WCDMA II	1.001	0.051	1.052
Left Tilt	GSM850	0.565	0.049	0.614
	GSM1900	0.322	0.049	0.371
	WCDMA V	0.450	0.049	0.499
	WCDMA II	0.494	0.049	0.543
Right Cheek	GSM850	0.650	0.154	0.804
	GSM1900	0.370	0.154	0.524
	WCDMA V	0.528	0.154	0.682
	WCDMA II	0.757	0.154	0.911
Right Tilt	GSM850	0.521	0.137	0.658
	GSM1900	0.250	0.137	0.387
	WCDMA V	0.419	0.137	0.556
	WCDMA II	0.384	0.137	0.521

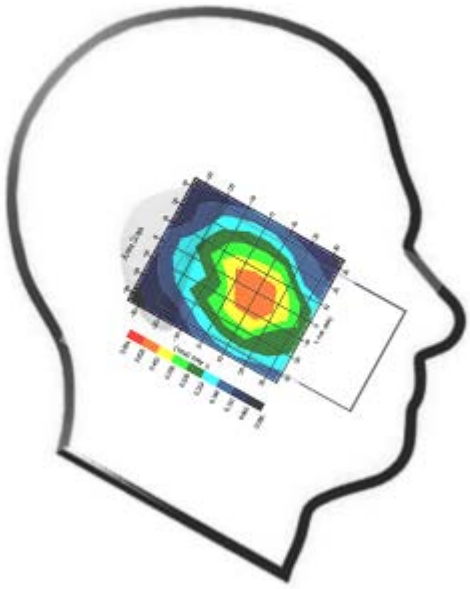
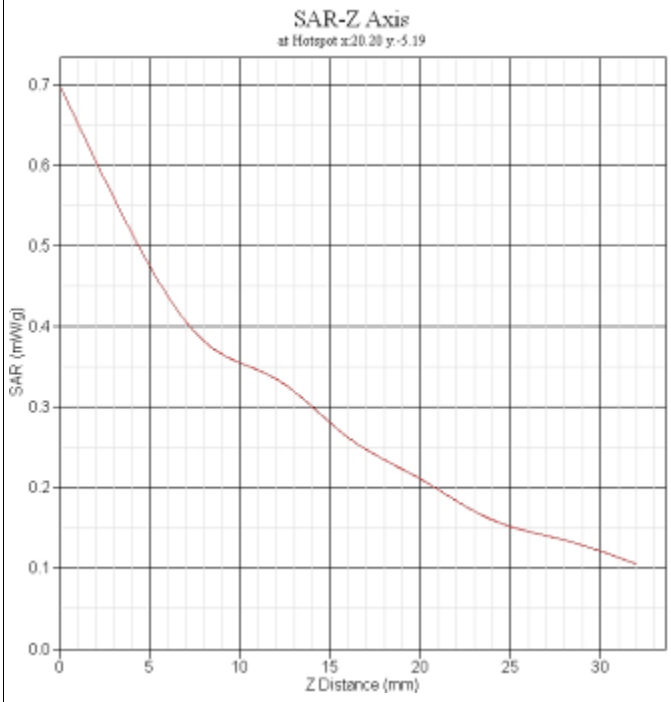
<Hotspot & Body-worn SAR>

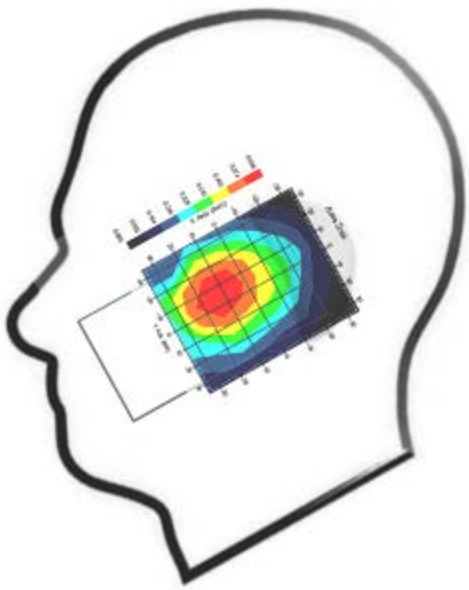
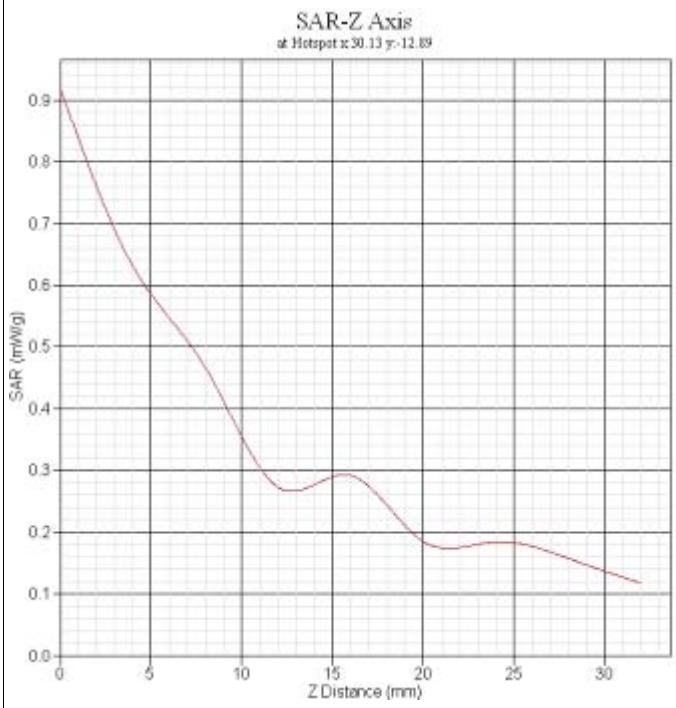
	Scaled WWAN		Scaled BT	Scaled
Position	**WWAN band**	**Max. WWAN SAR**	**Max. WLAN SAR**	**WWAN+BT**
Front	GSM850	0.756	0.126	0.882
	GSM1900	0.326	0.126	0.672
	WCDMA V	0.620	0.126	0.746
	WCDMA II	0.426	0.126	0.552
Back	GSM850	1.051	0.126	1.177
	GSM1900	0.546	0.126	0.672
	WCDMA V	1.011	0.126	1.137
	WCDMA II	0.709	0.126	0.835
Right	GSM850	0.777	0.126	0.903
	GSM1900	0.105	0.126	0.231
	WCDMA V	0.409	0.126	0.535
	WCDMA II	0.104	0.126	0.230
Back (With earphone)	GSM850	0.807	0.126	0.933
	GSM1900	0.536	0.126	0.662
	WCDMA V	0.980	0.126	1.106
	WCDMA II	0.696	0.126	0.822

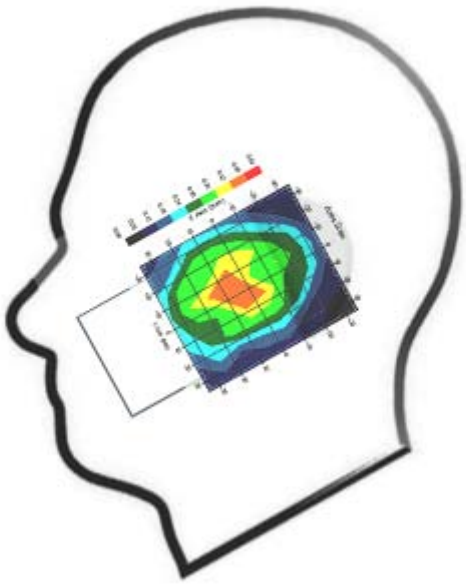
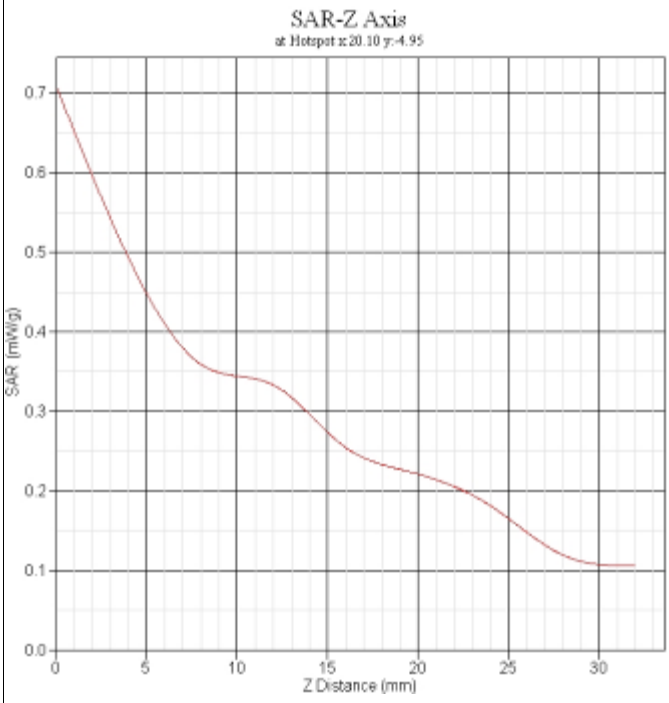
	Scaled WWAN		Scaled WLAN	Scaled
Position	**WWAN band**	**Max. WWAN SAR**	**Max. WLAN SAR**	**WWAN+WLAN**
Front	GSM850	0.756	0.027	0.783
	GSM1900	0.326	0.027	0.353
	WCDMA V	0.620	0.027	0.647
	WCDMA II	0.426	0.027	0.453
Back	GSM850	1.051	0.054	1.105
	GSM1900	0.546	0.054	0.600
	WCDMA V	1.011	0.054	1.065
	WCDMA II	0.709	0.054	0.763
Right	GSM850	0.777	0.099	0.876
	GSM1900	0.105	0.099	0.204
	WCDMA V	0.409	0.099	0.508
	WCDMA II	0.104	0.099	0.203
Back (With earphone)	GSM850	0.807	0.054	0.861
	GSM1900	0.536	0.054	0.590
	WCDMA V	0.980	0.054	1.034
	WCDMA II	0.696	0.054	0.750

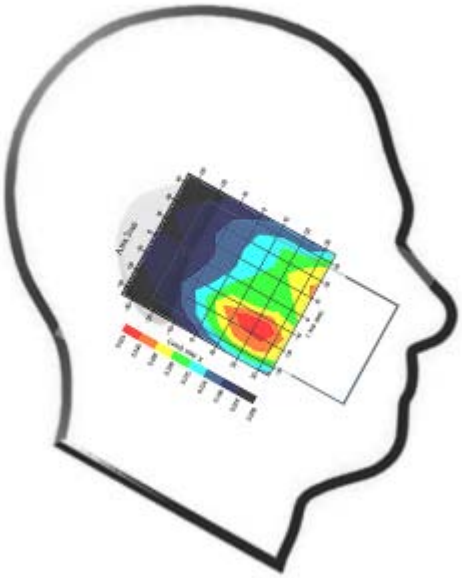
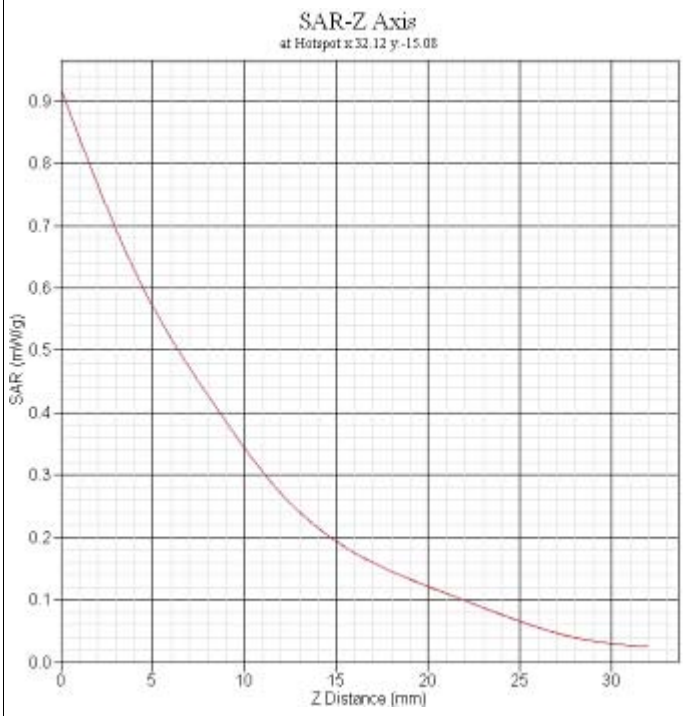
8.5. SAR Measurement Data

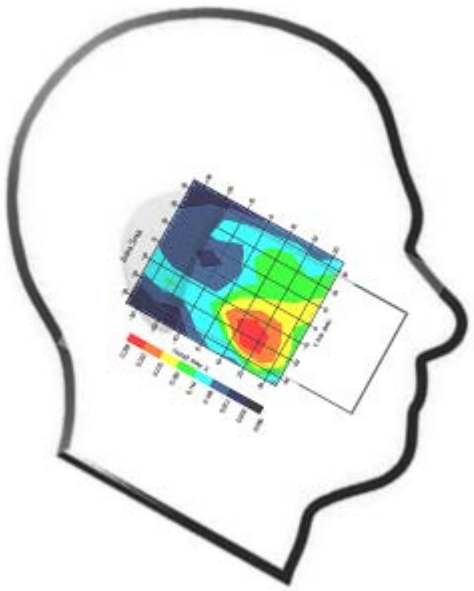
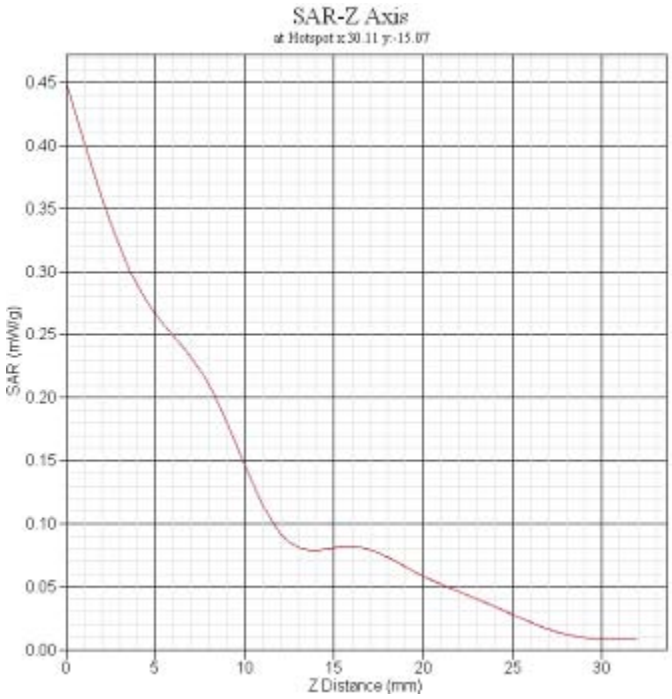
GSM850 left cheek ch190	
Frequency(MHz)	836.6
Relative permittivity(real part)	40.25
Conductivity(S/m)	0.93
Variation(%)	3.567
Duty Cycle Factor	8
Crest factor	8
4Conversion Factor	6.5
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	0.701
SAR 10g(W/kg)	0.491

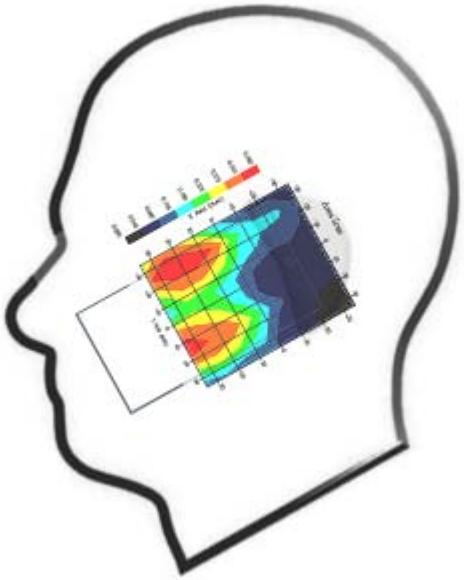
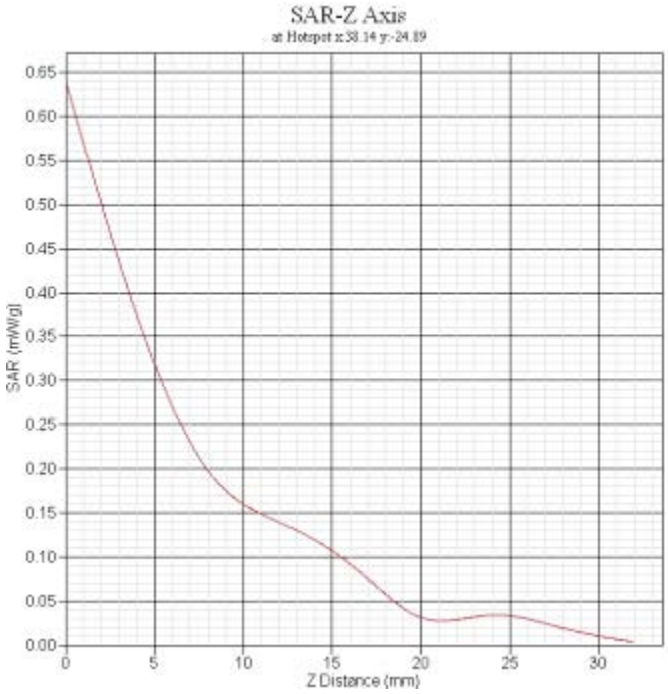
GSM850 left tilt ch190	
Frequency(MHz)	836.6
Relative permittivity(real part)	40.25
Conductivity(S/m)	0.93
Variation(%)	-1.589
Duty Cycle Factor	8
Crest factor	8
Conversion Factor	6.5
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	0.505
SAR 10g(W/kg)	0.341

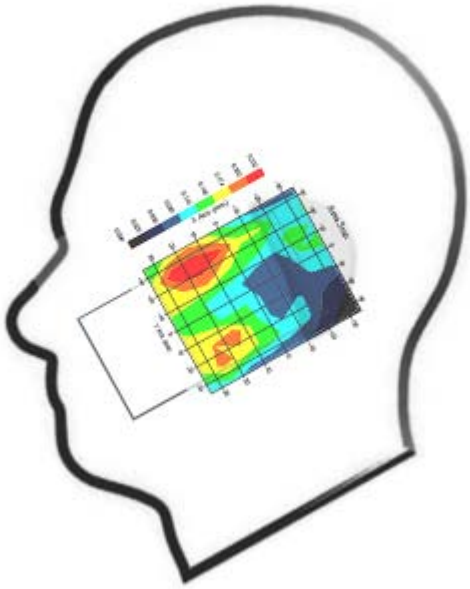
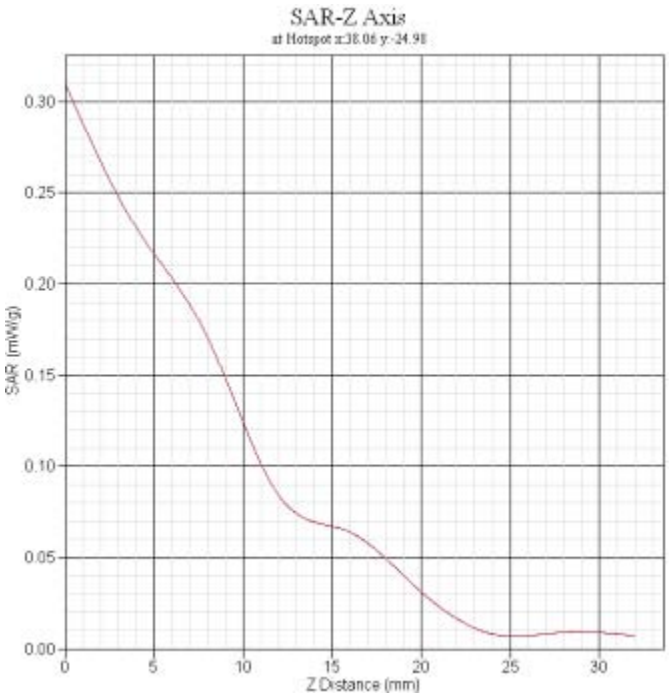
GSM850 Right cheek ch190	
Frequency(MHz)	836.6
Relative permittivity(real part)	40.25
Conductivity(S/m)	0.93
Variation(%)	-3.867
Duty Cycle Factor	8
Crest factor	8
Conversion Factor	6.5
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	0.581
SAR 10g(W/kg)	0.385

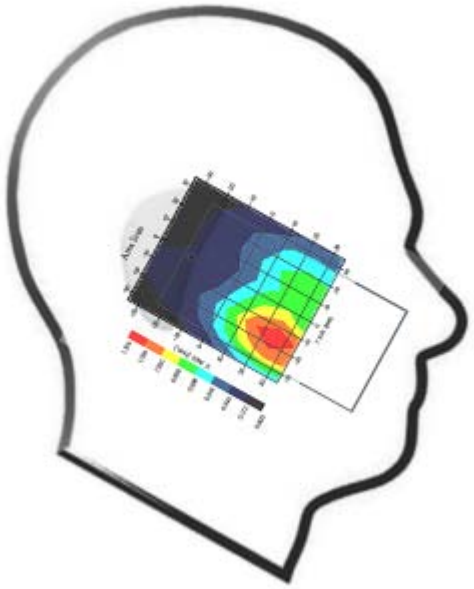
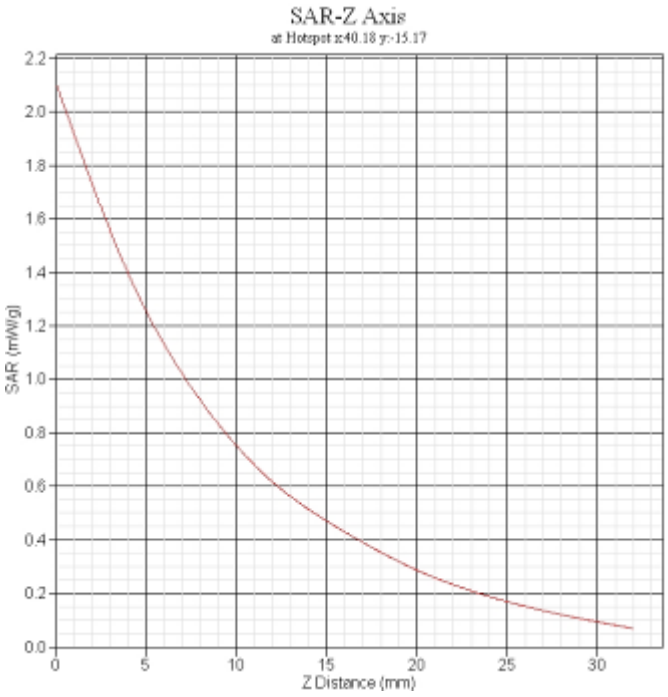
GSM850 Right tilt CH190	
Frequency(MHz)	836.6
Relative permittivity(real part)	40.25
Conductivity(S/m)	0.93
Variation(%)	-1.727
Duty Cycle Factor	8
Crest factor	8
Conversion Factor	6.5
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	0.465
SAR 10g(W/kg)	0.302

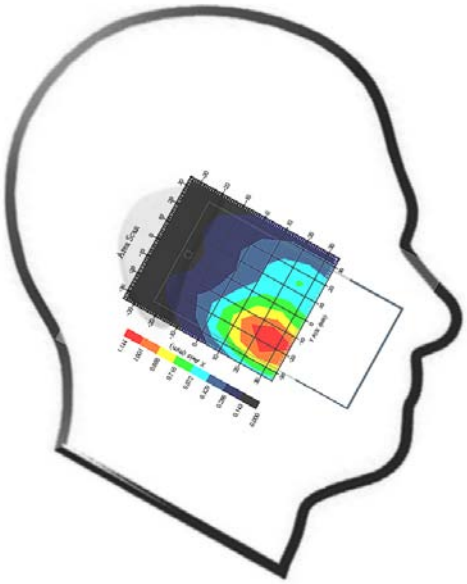
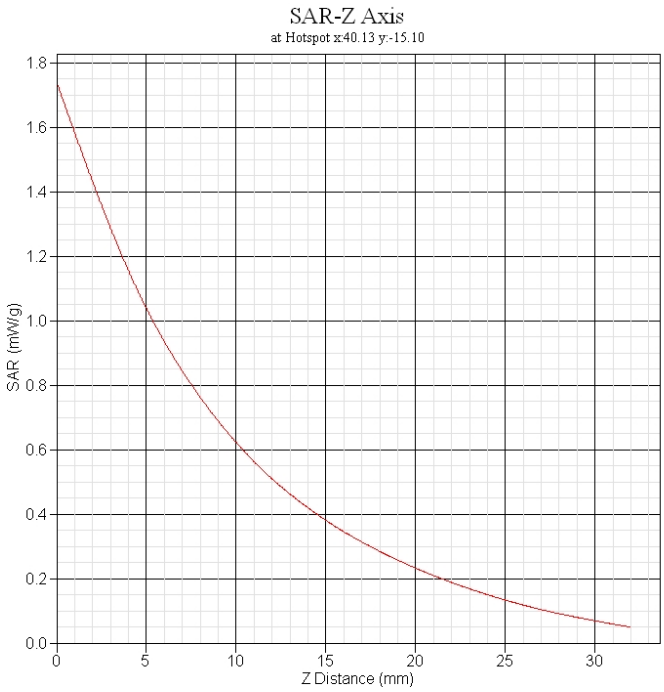
GSM1900 Left cheek CH512	
Frequency(MHz)	1850.2
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	2.154
Duty Cycle Factor	8
Crest factor	8
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	0.536
SAR 10g(W/kg)	0.308

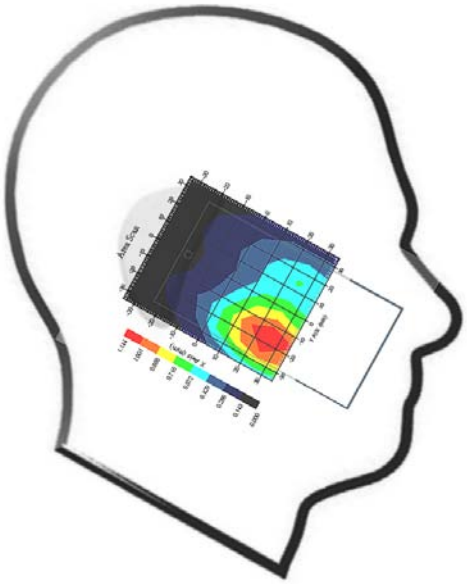
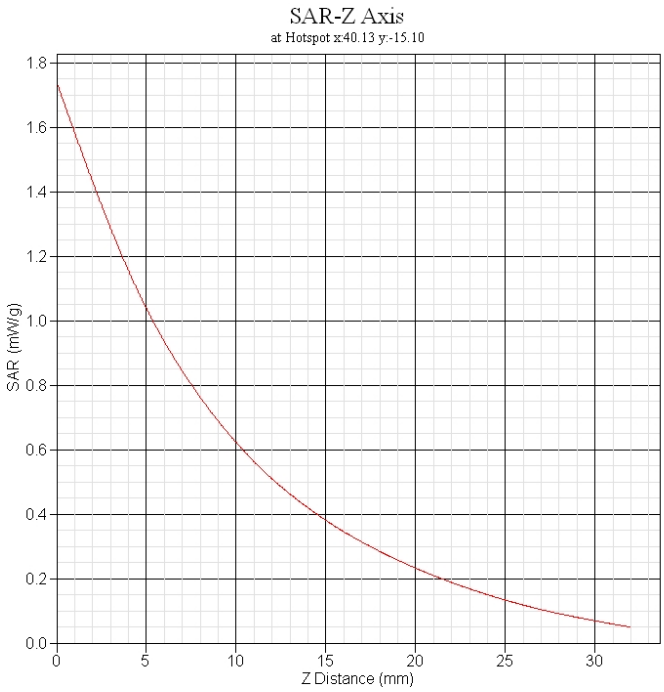
GSM1900 Left tilt CH512	
Frequency(MHz)	1850.2
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	4.970
Duty Cycle Factor	8
Crest factor	8
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	0.272
SAR 10g(W/kg)	0.148

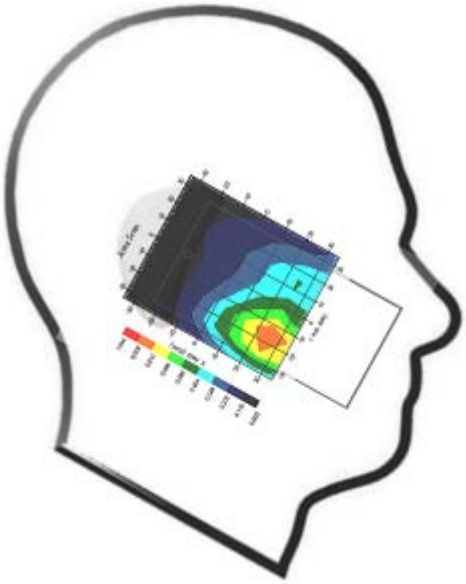
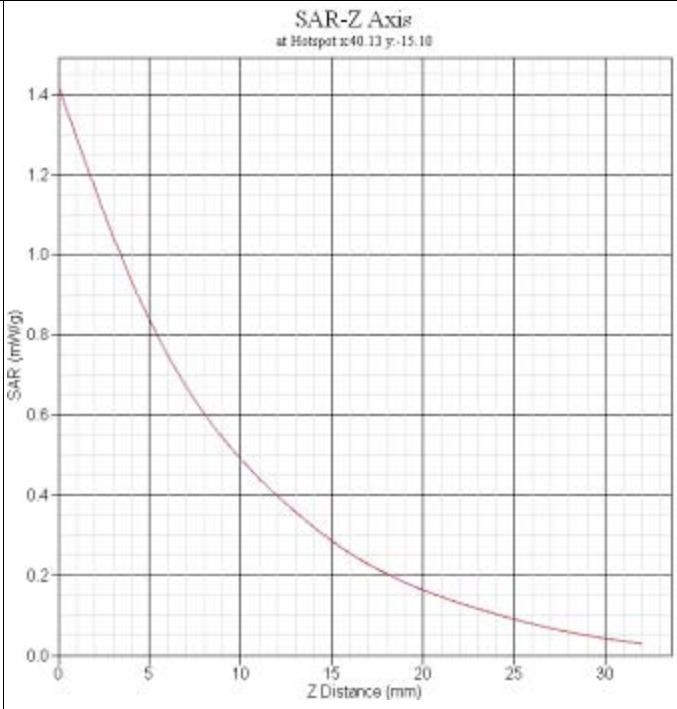
GSM1900 Right cheek CH512	
Frequency(MHz)	1850.2
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	2.317
Duty Cycle Factor	8
Crest factor	8
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	0.313
SAR 10g(W/kg)	0.163

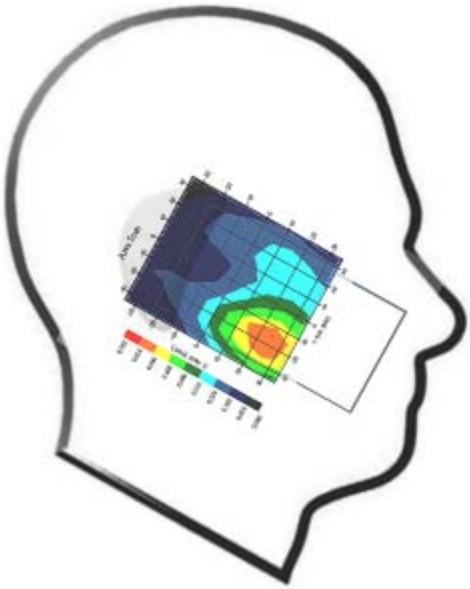
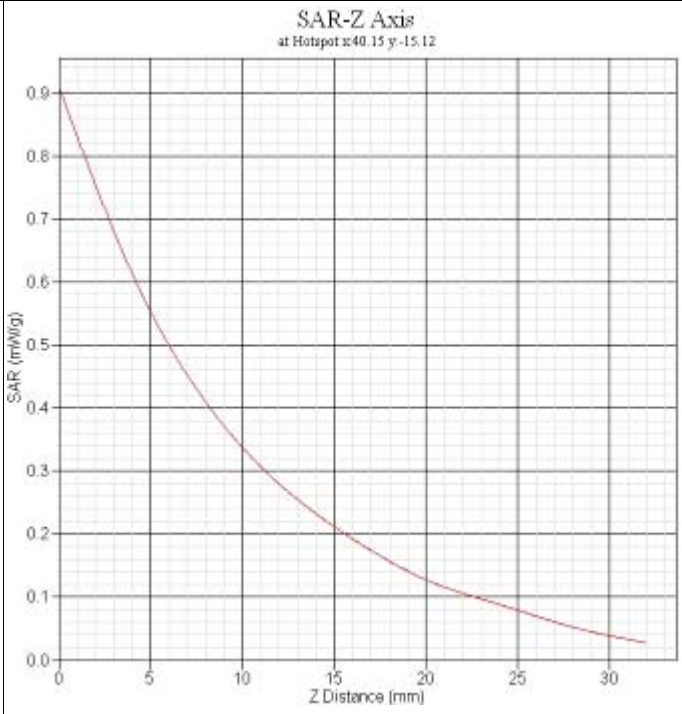
GSM1900 Right tilt CH512	
Frequency(MHz)	1850.2
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	-1.009
Duty Cycle Factor	8
Crest factor	8
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/kg)	0.211
SAR 10g(W/kg)	0.125

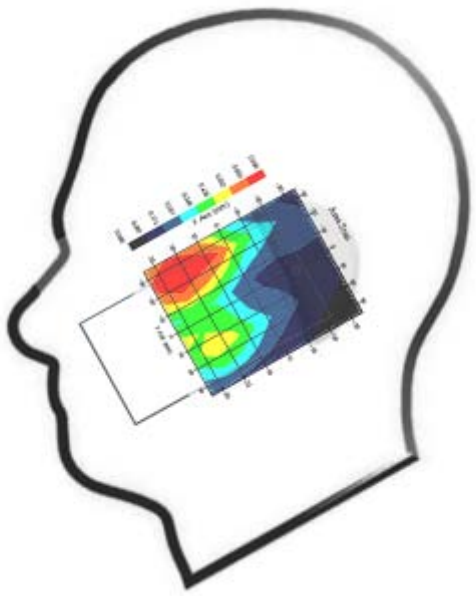
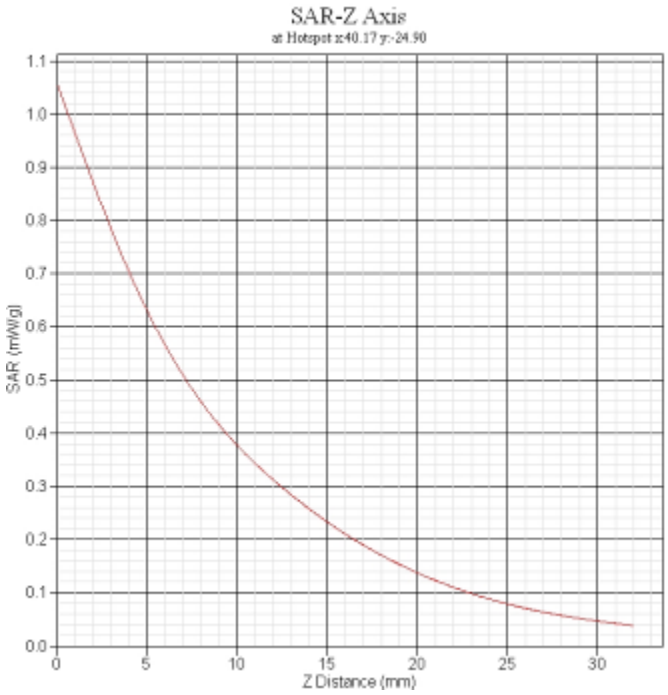
WCDMA Band Ⅱ Left cheek CH9262	
Frequency(MHz)	1852.4
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	-0.248
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.948
SAR 10g(W/Kg)	0.603

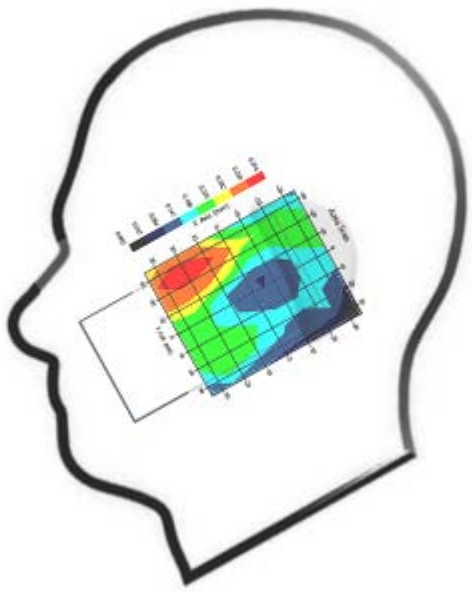
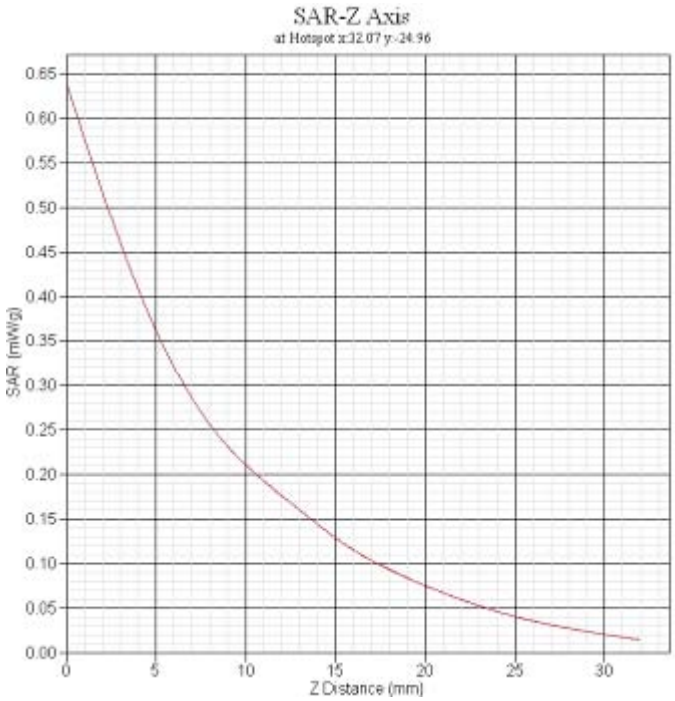
WCDMA Band Ⅱ Left cheek CH9400	
Frequency(MHz)	1880.0
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	-3.294
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.965
SAR 10g(W/Kg)	0.607

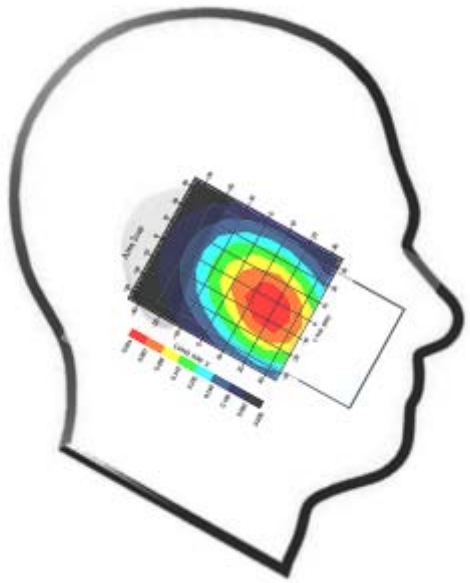
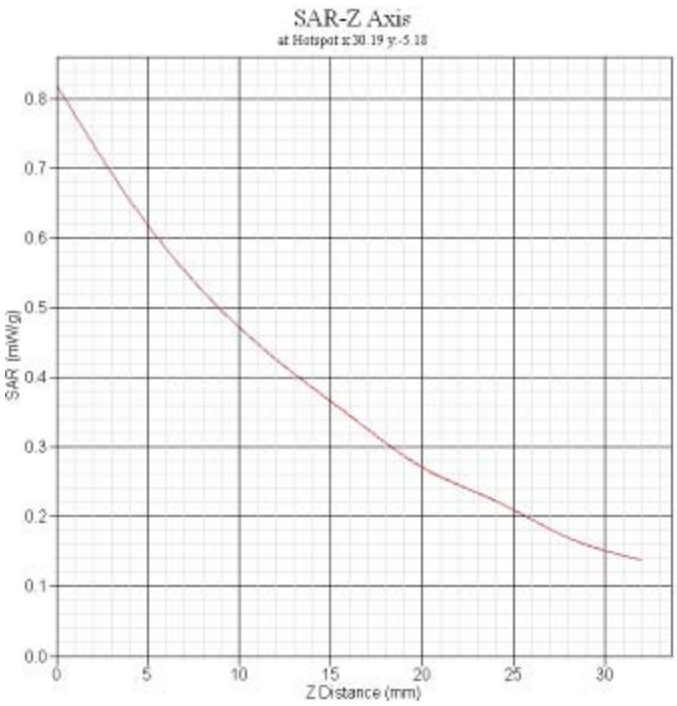
WCDMA Band Ⅱ Left cheek CH9400(repeat)	
Frequency(MHz)	1880.0
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	-3.294
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.961
SAR 10g(W/Kg)	0.602

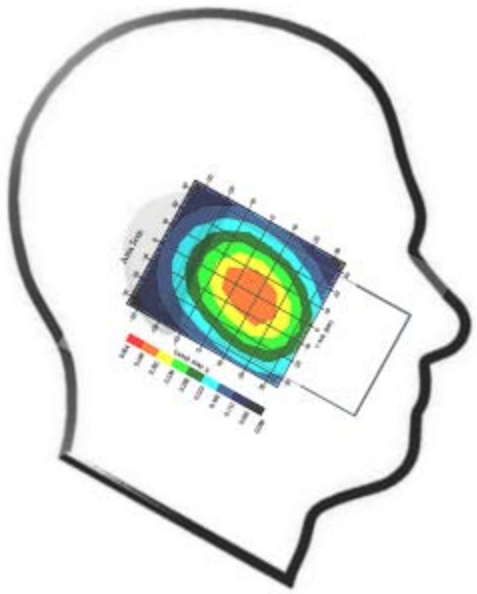
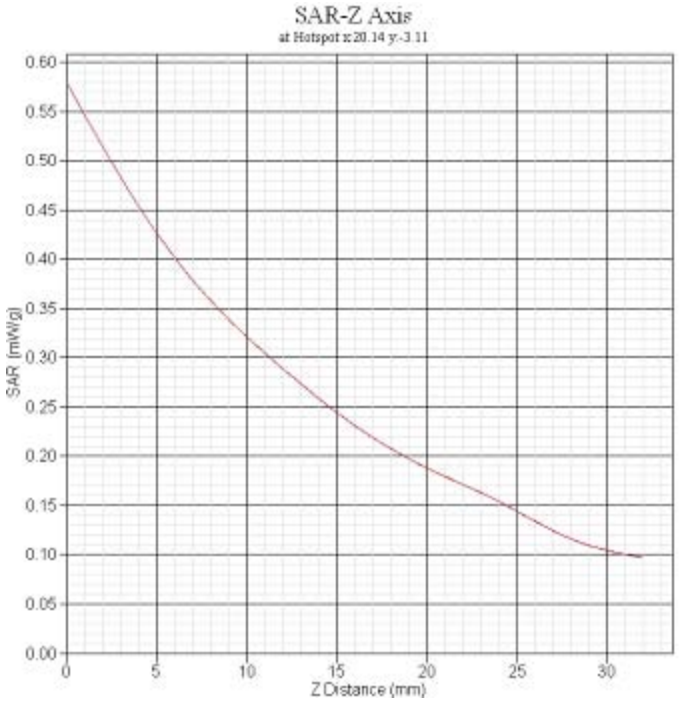
WCDMA Band Ⅱ Left cheek CH9538	
Frequency(MHz)	1907.6
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	-2.640
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.853
SAR 10g(W/Kg)	0.477

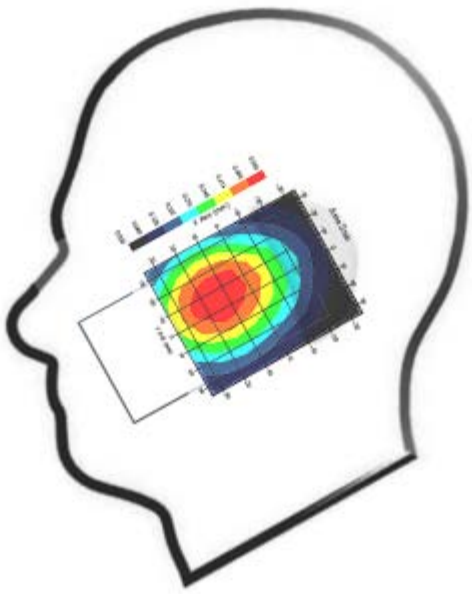
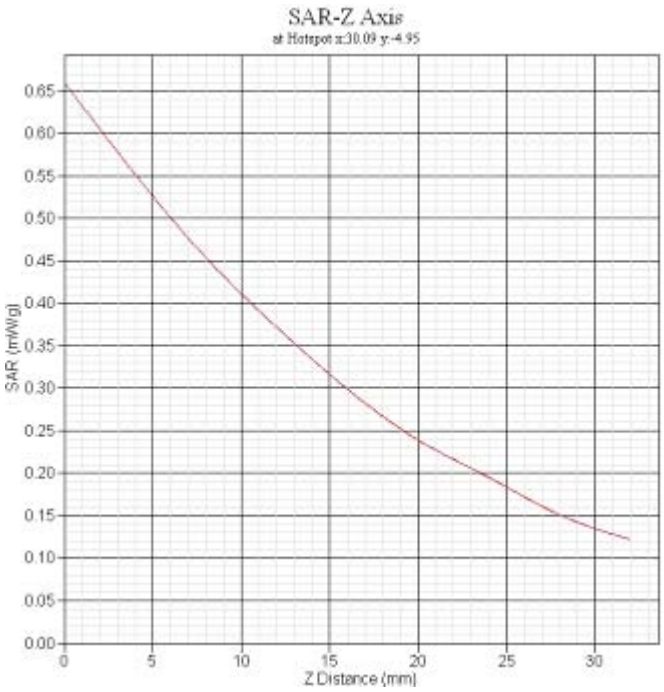
WCDMA Band Ⅱ Left tilt CH9400	
Frequency(MHz)	1800.0
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	-1.765
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.476
SAR 10g(W/Kg)	0.320

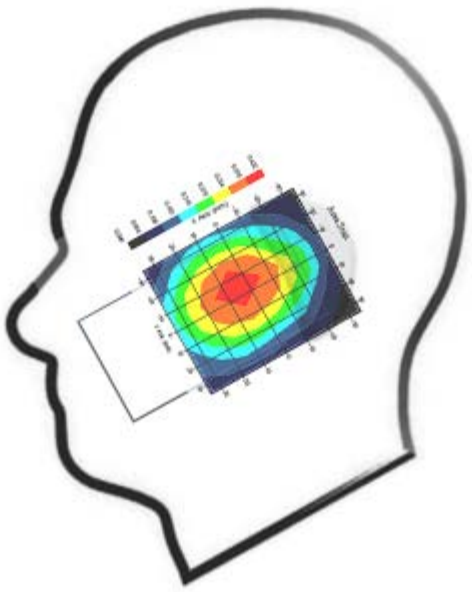
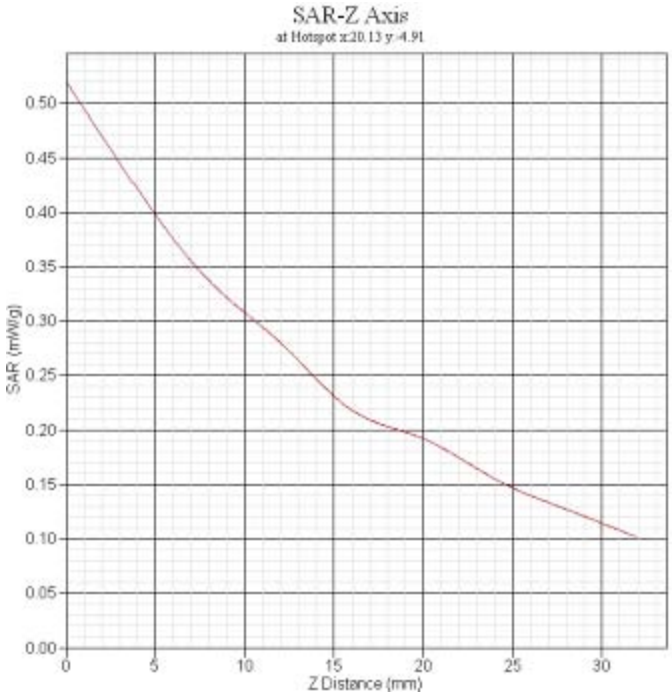
WCDMA Band Ⅱ Right cheek CH9400	
Frequency(MHz)	1800.0
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	3.367
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.730
SAR 10g(W/Kg)	0.438

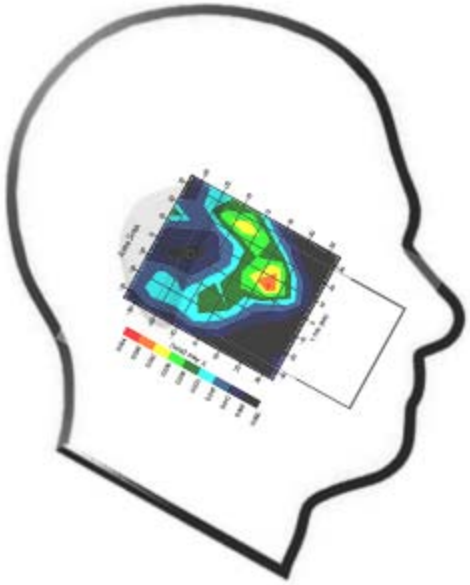
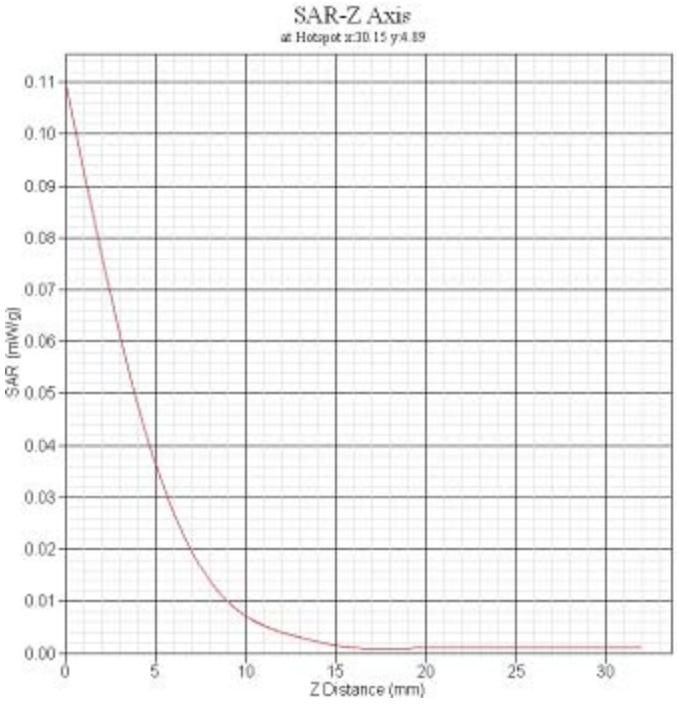
WCDMA Band Ⅱ Right tilt CH9400	
Frequency(MHz)	1800.0
Relative permittivity(real part)	41.53
Conductivity(S/m)	1.42
Variation(%)	-1.049
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.7
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.370
SAR 10g(W/Kg)	0.209

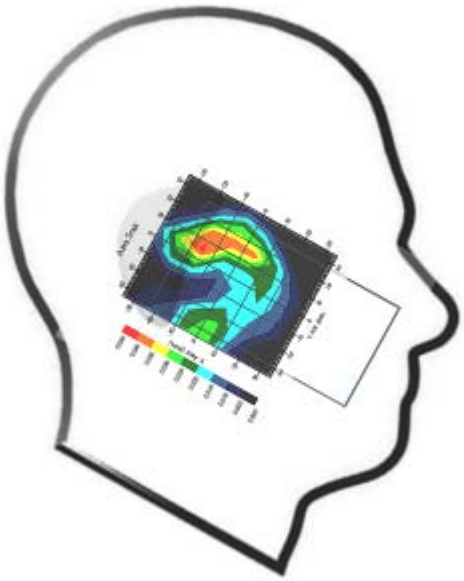
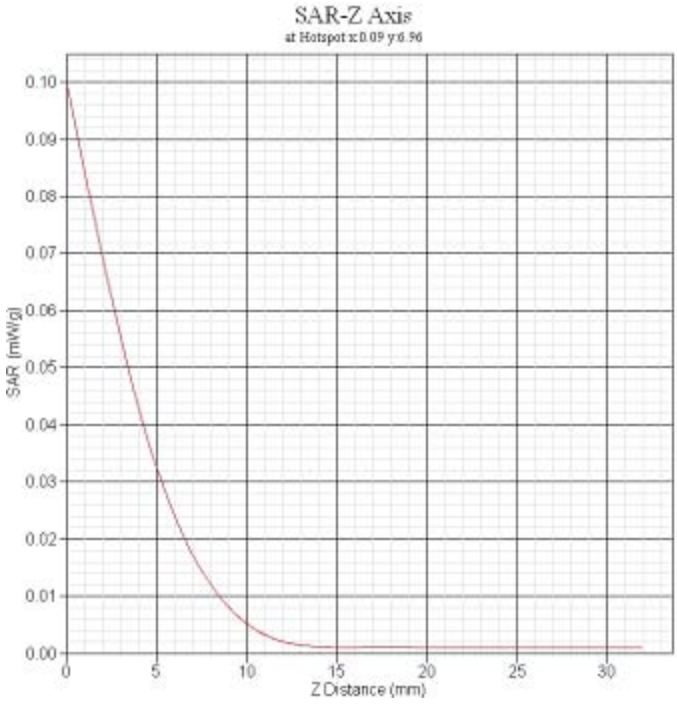
WCDMA Band Ⅴ Left cheek CH4183	
Frequency(MHz)	836.6
Relative permittivity(real part)	40.25
Conductivity(S/m)	0.93
Variation(%)	-2.557
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.5
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.612
SAR 10g(W/Kg)	0.412

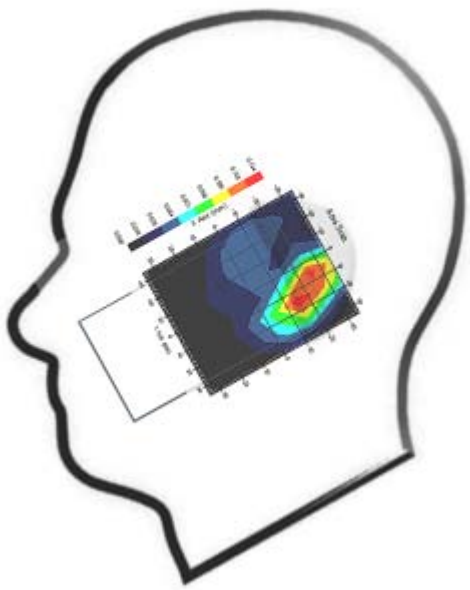
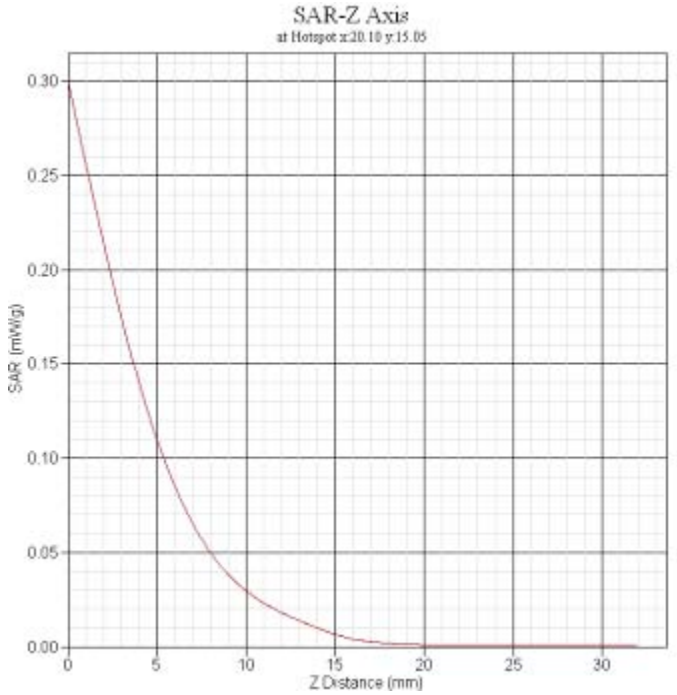
WCDMA Band Ⅴ Left tilt CH4183	
Frequency(MHz)	836.6
Relative permittivity(real part)	40.25
Conductivity(S/m)	0.93
Variation(%)	-2.723
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.5
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.428
SAR 10g(W/Kg)	0.302

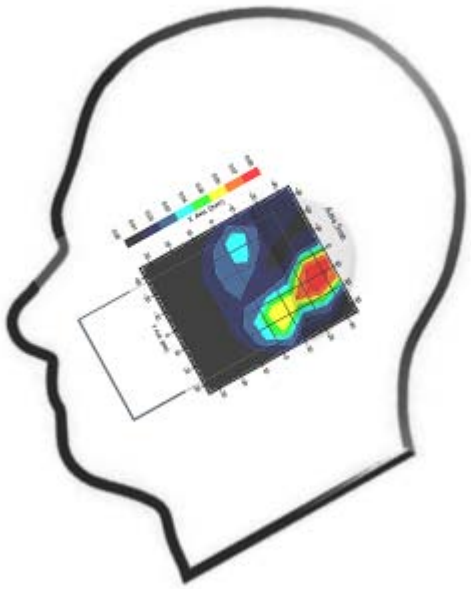
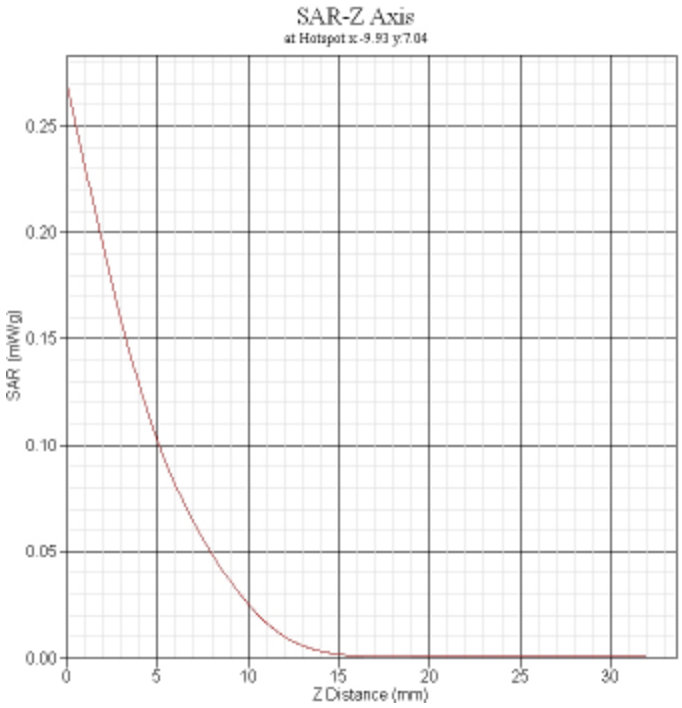
WCDMA Band Ⅴ Right cheek CH4183	
Frequency(MHz)	836.6
Relative permittivity(real part)	40.25
Conductivity(S/m)	0.93
Variation(%)	-2.263
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.5
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.502
SAR 10g(W/Kg)	0.334

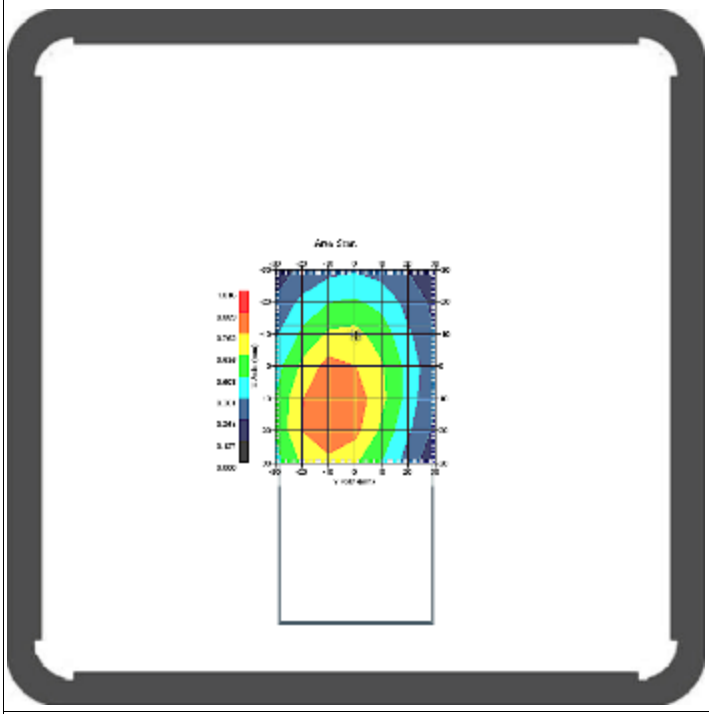
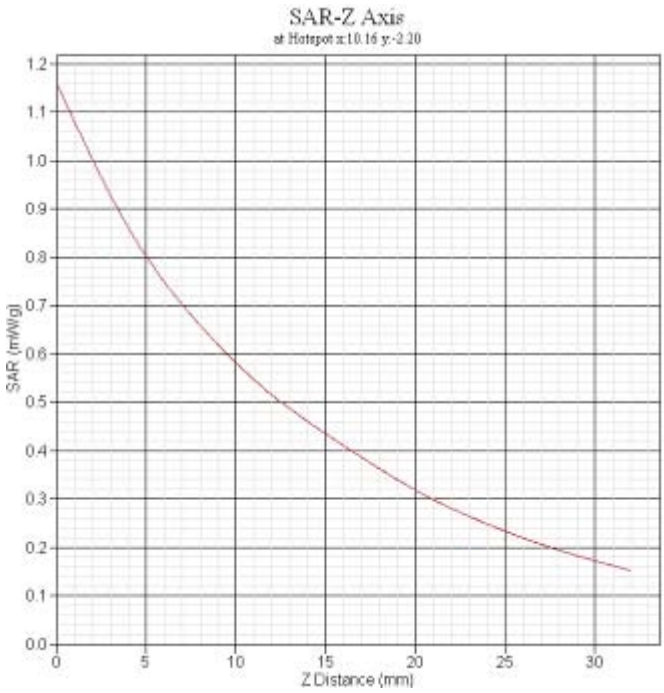
WCDMA Band Ⅴ	Right tilt CH4183
Frequency(MHz)	836.6
Relative permittivity(real part)	40.25
Conductivity(S/m)	0.93
Variation(%)	-2.947
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.5
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.398
SAR 10g(W/Kg)	0.287

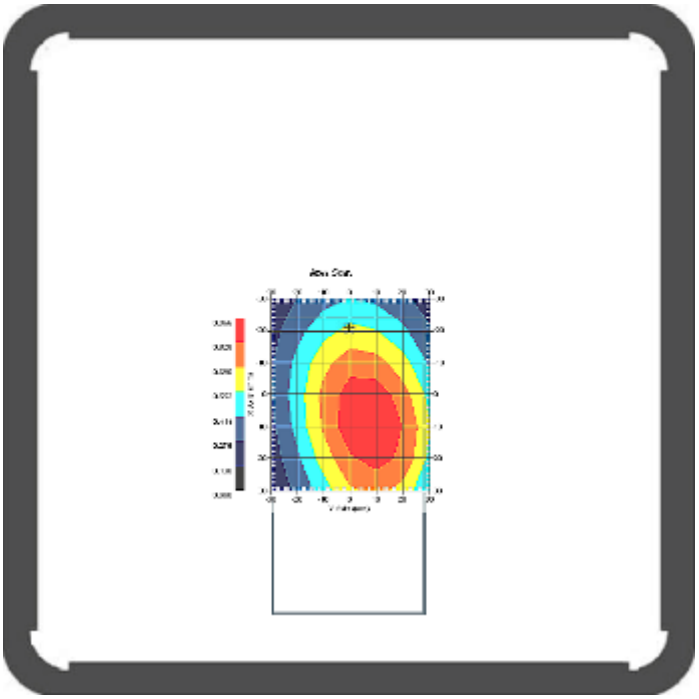
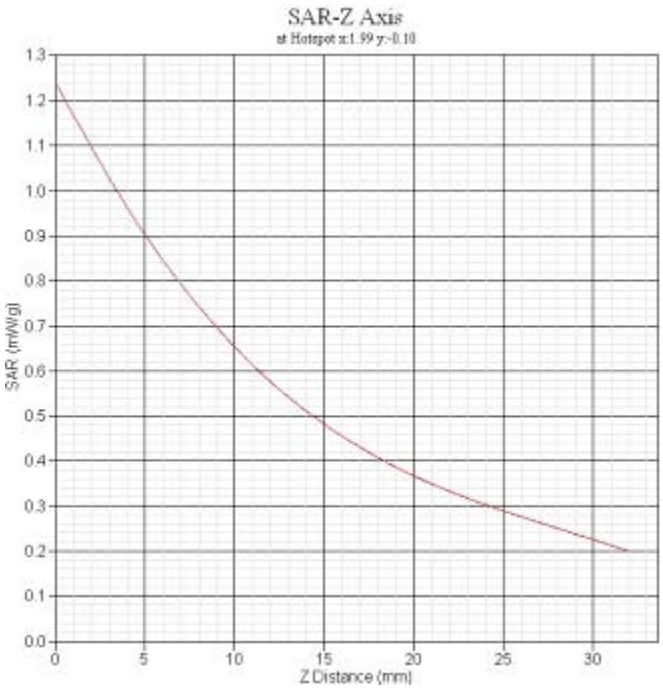
802.11b Left cheek CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	40.27
4Conductivity(S/m)	1.85
Variation(%)	4.765
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.65
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.045
SAR 10g(W/kg)	0.018

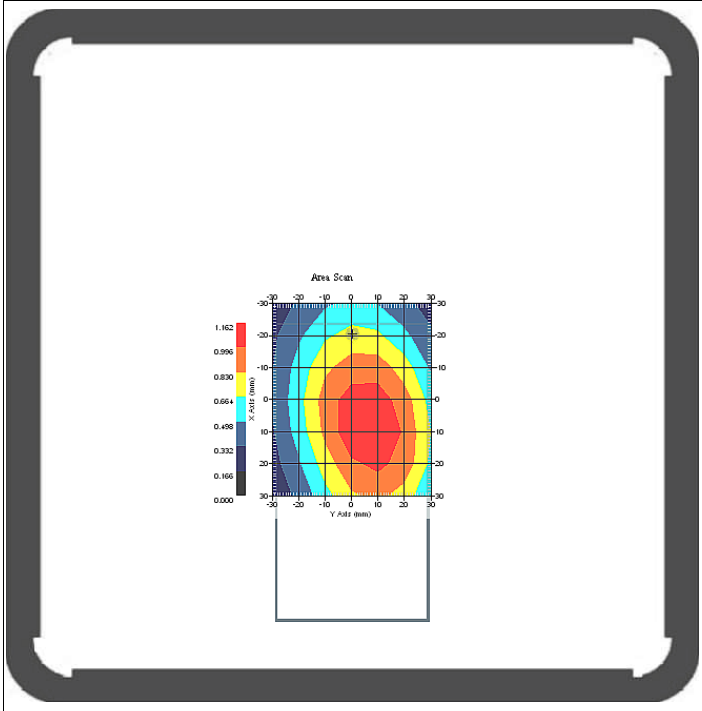
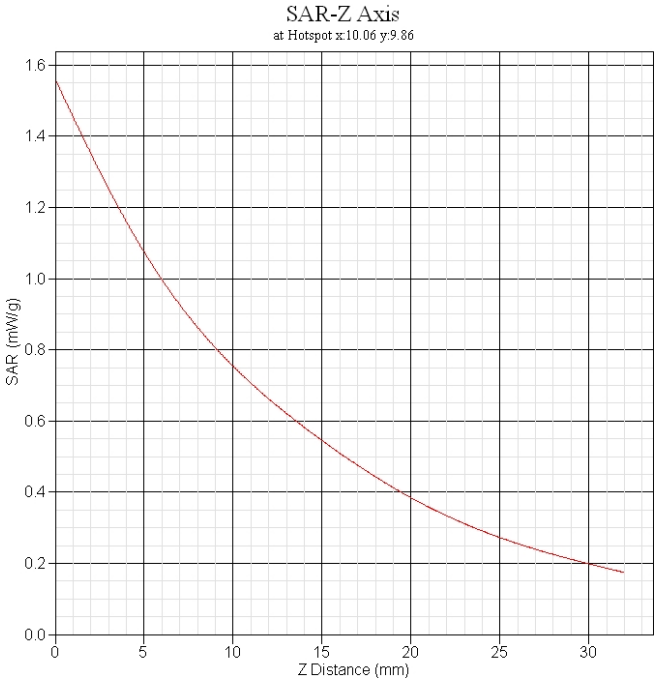
802.11b Left tilt CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	40.27
Conductivity(S/m)	1.85
Variation(%)	1.739
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.65
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.043
SAR 10g(W/kg)	0.016

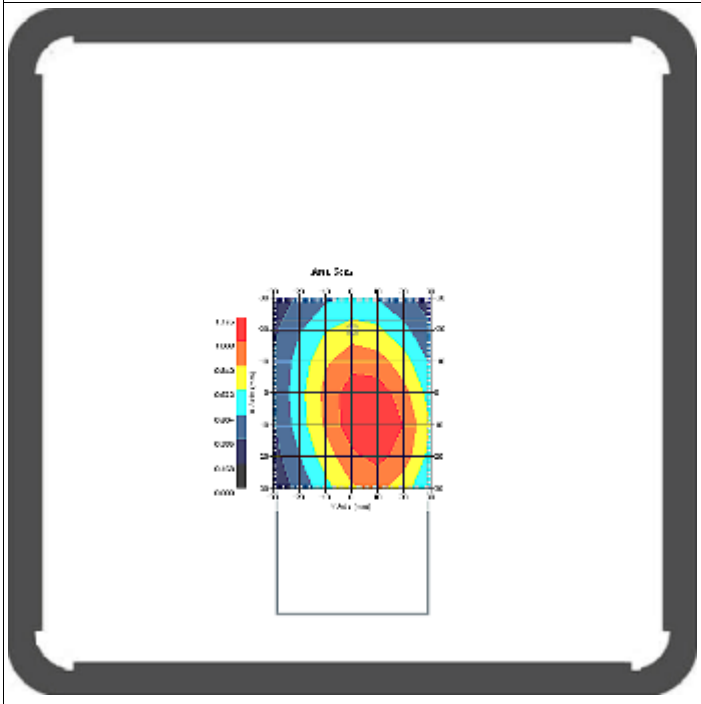
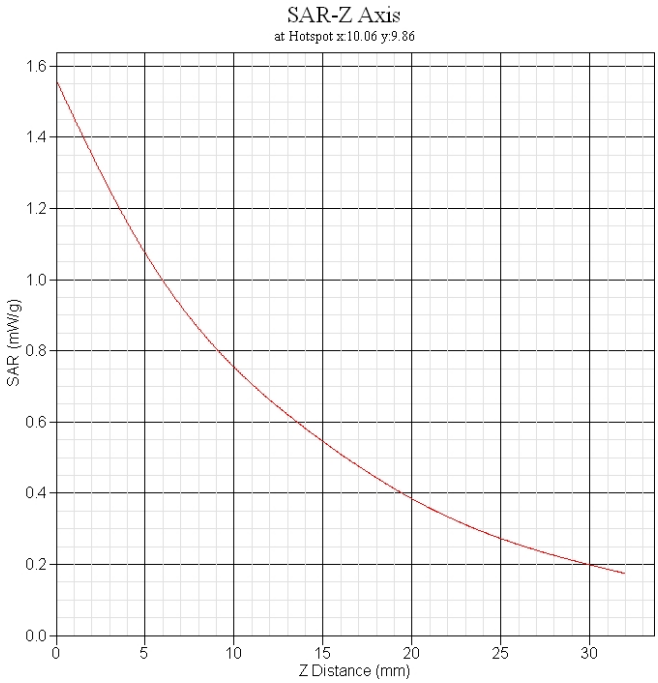
802.11b Right cheek CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	40.27
Conductivity(S/m)	1.85
Variation(%)	-1.563
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.65
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.135
SAR 10g(W/kg)	0.055

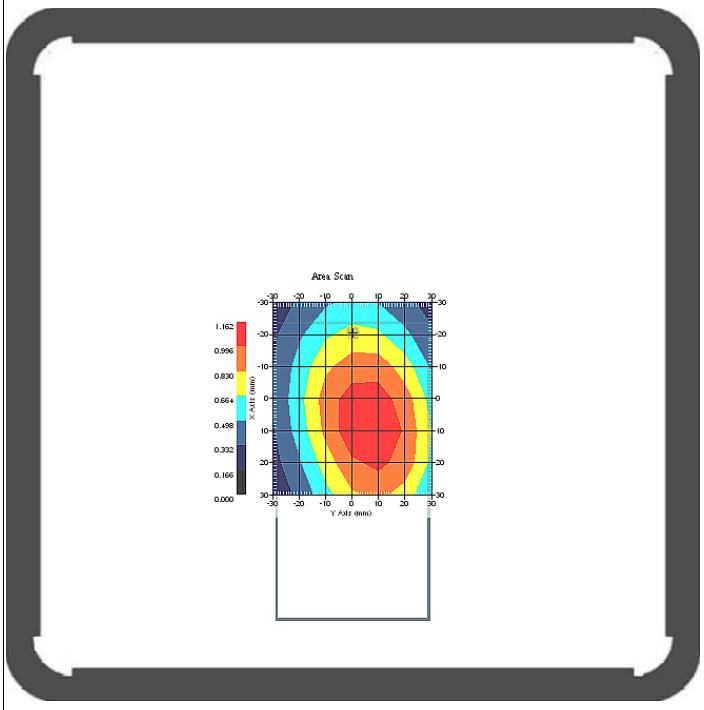
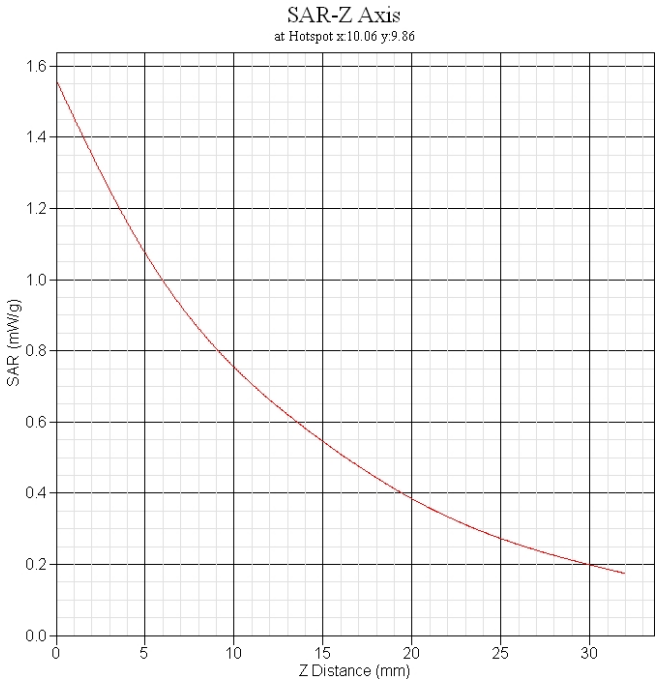
802.11b Right tilt CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	40.27
Conductivity(S/m)	1.85
Variation(%)	4.429
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.65
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.120
SAR 10g(W/kg)	0.048

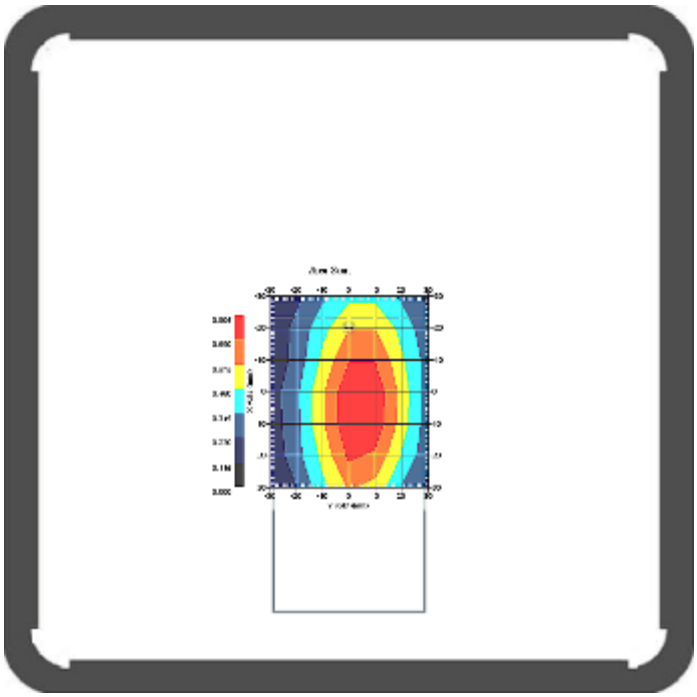
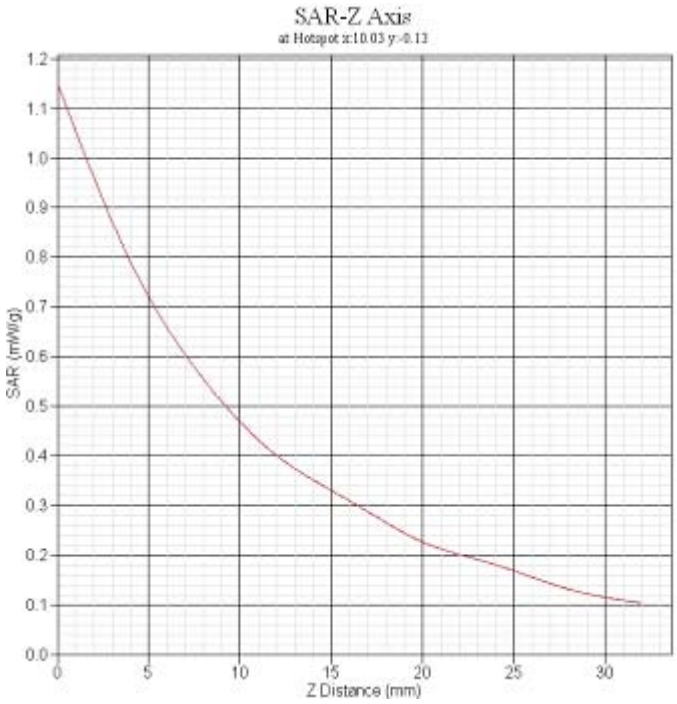
GPRS850 body Front CH190	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-1.952
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-14
	
SAR 1g(W/kg)	0.724
SAR 10g(W/kg)	0.547

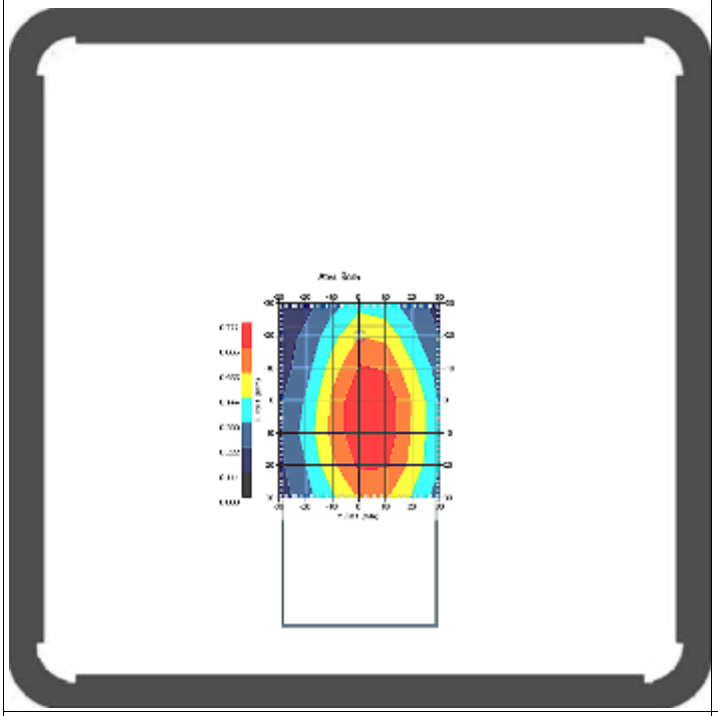
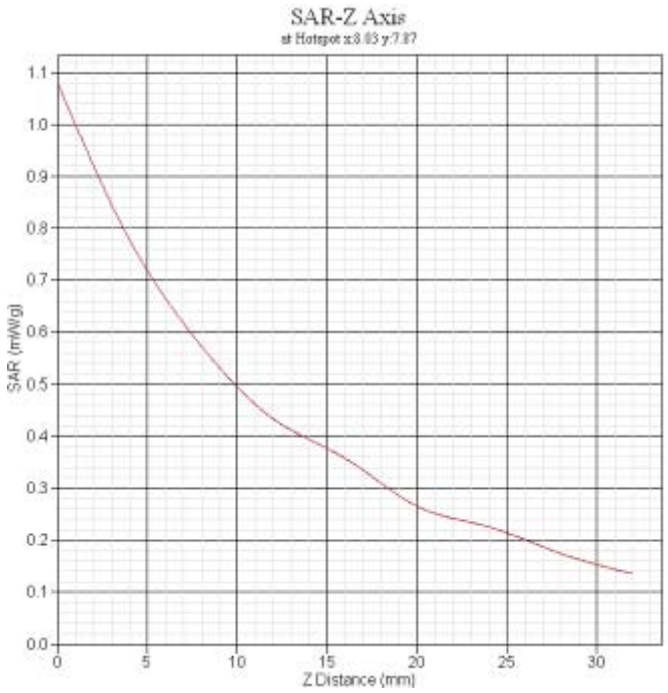
GPRS850 body Back CH128	
Frequency(MHz)	824.2
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-3.539
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-14
	
SAR 1g(W/kg)	0.923
SAR 10g(W/kg)	0.619

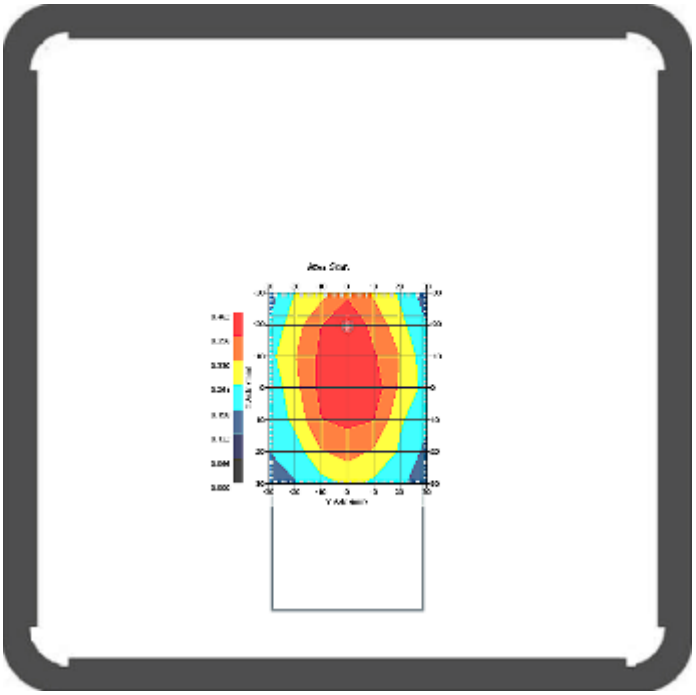
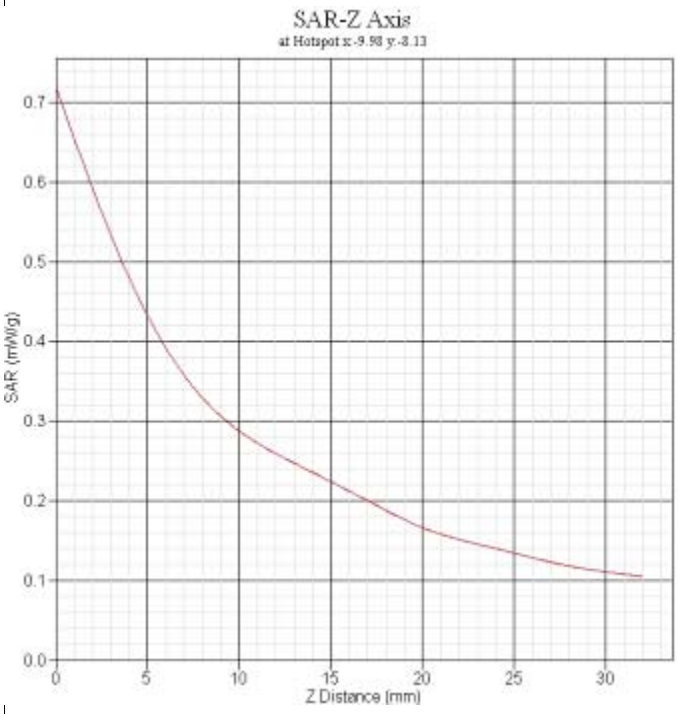
GPRS850 body Back CH190	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-4.116
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-14
	
SAR 1g(W/kg)	1.006
SAR 10g(W/kg)	0.740

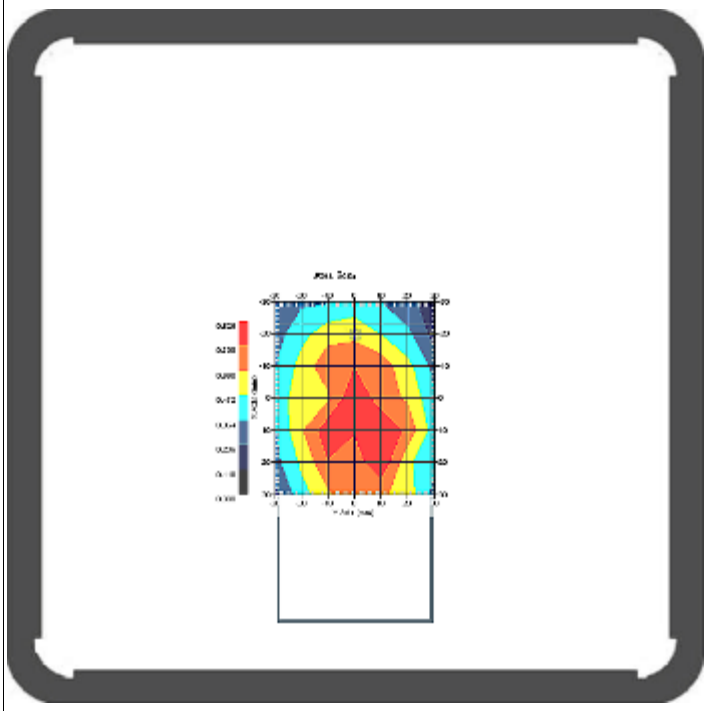
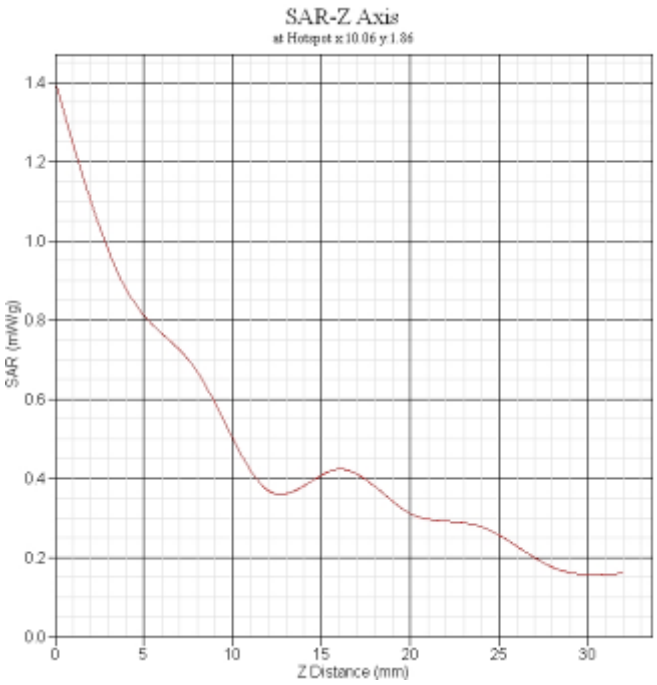
GPRS850 body Back CH251	
Frequency(MHz)	848.8
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-0.657
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-14
	
SAR 1g(W/kg)	0.957
SAR 10g(W/kg)	0.643

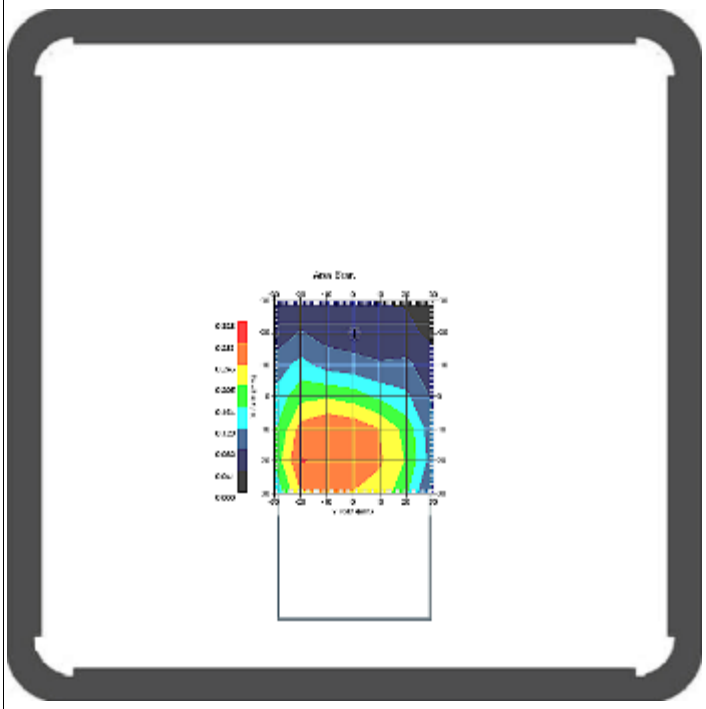
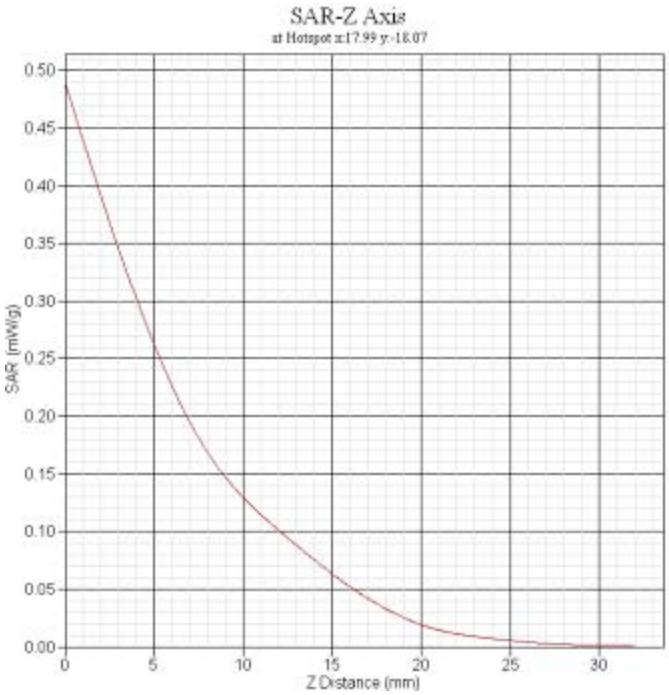
GPRS850 body Back CH190(repeat)	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-3.345
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-14
	
SAR 1g(W/kg)	1.014
SAR 10g(W/kg)	0.732

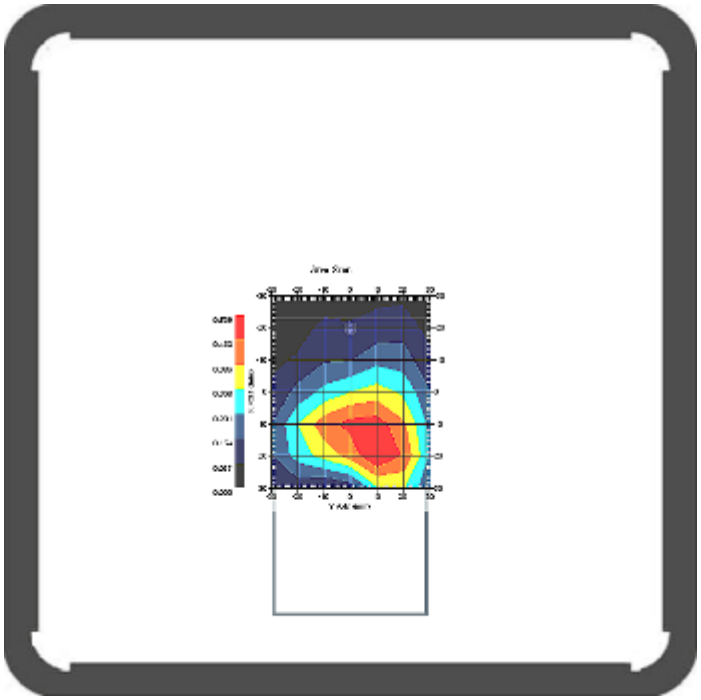
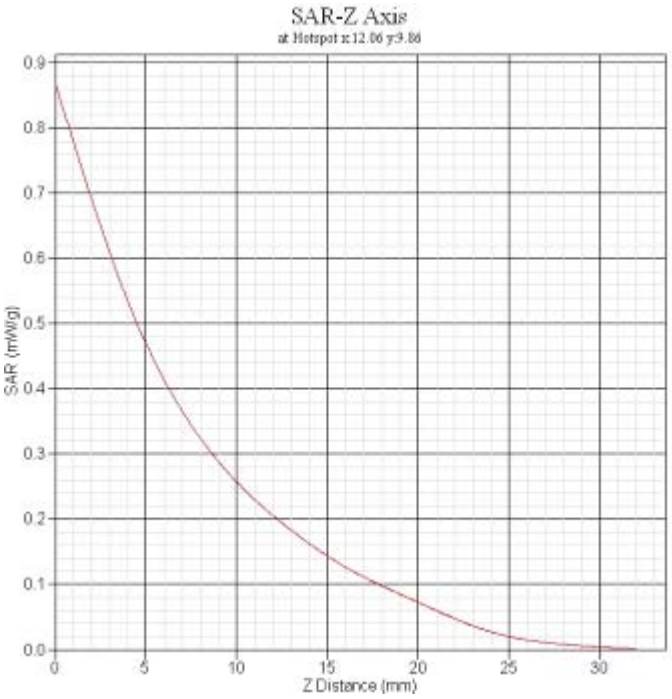
GPRS850 body Left CH190	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	0.696
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-14
	
SAR 1g(W/kg)	0.755
SAR 10g(W/kg)	0.490

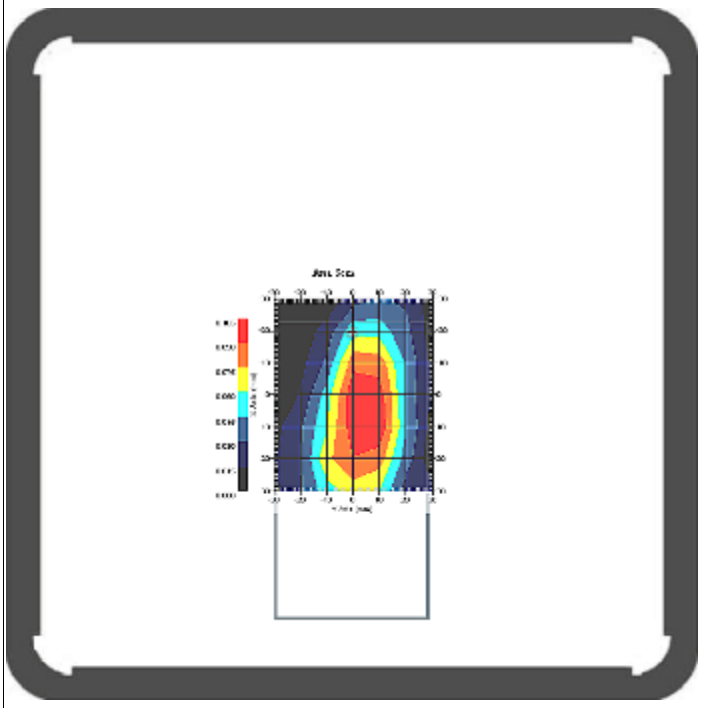
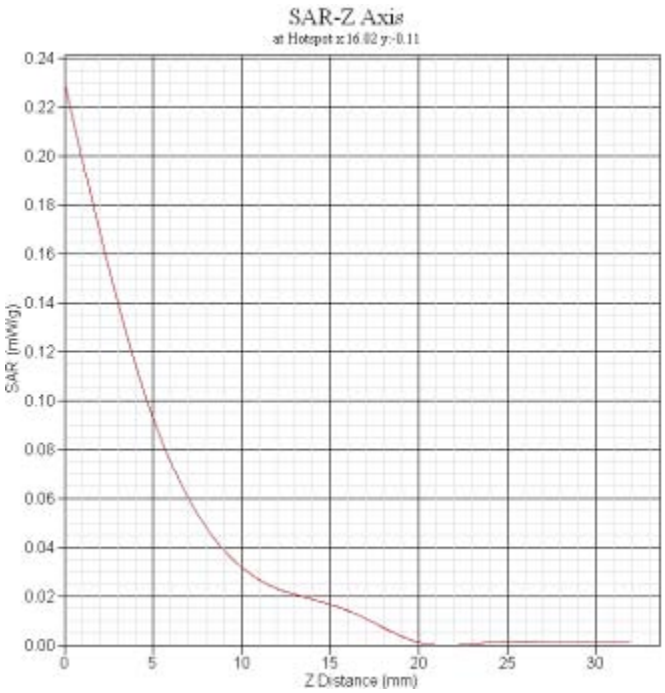
GPRS850 body Right ch190	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-1.330
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-14
	
SAR 1g(W/kg)	0.744
SAR 10g(W/kg)	0.491

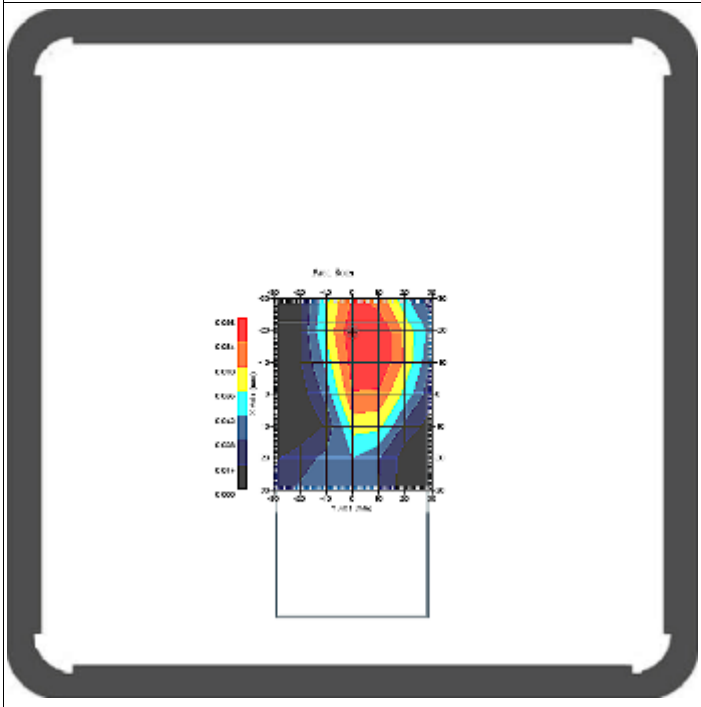
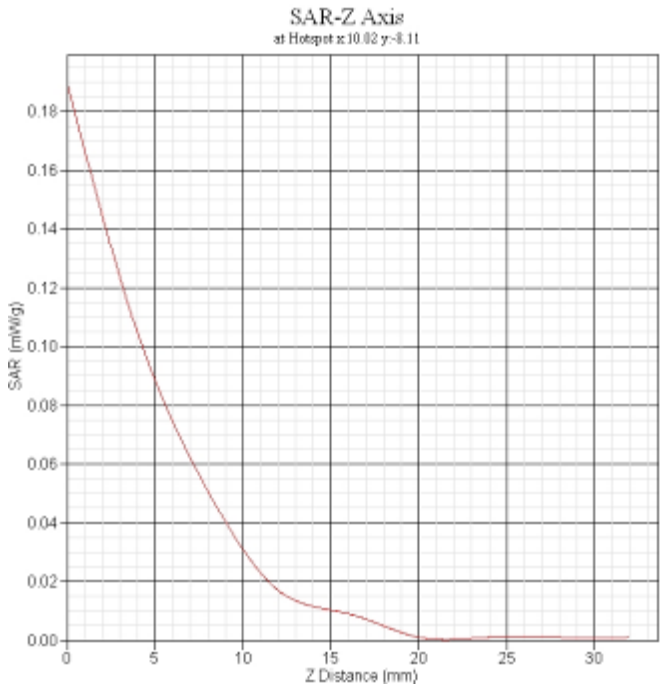
GPRS850 body Bottom ch190	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	1.630
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-14
	
SAR 1g(W/kg)	0.446
SAR 10g(W/kg)	0.305

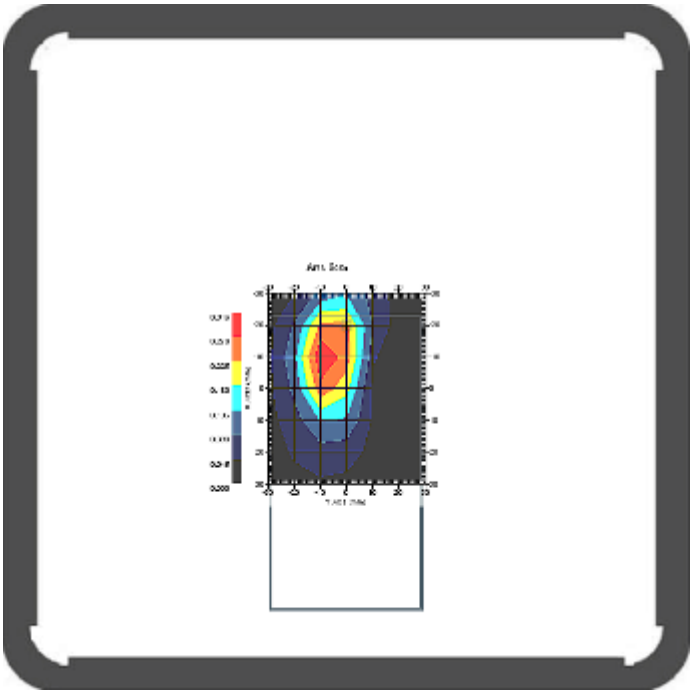
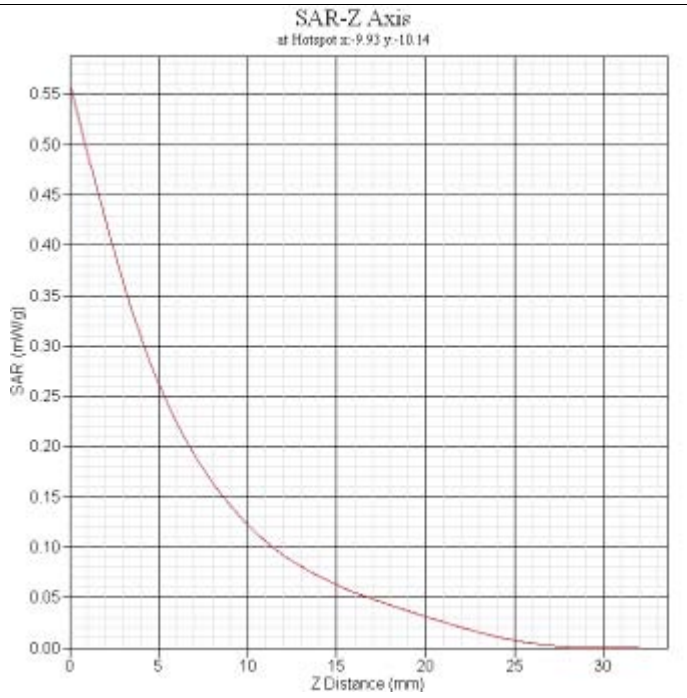
GSM850 body Back ch190+earphone	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-1.370
Duty Cycle Factor	8
Crest factor	8
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-14
	
SAR 1g(W/kg)	0.721
SAR 10g(W/kg)	0.579

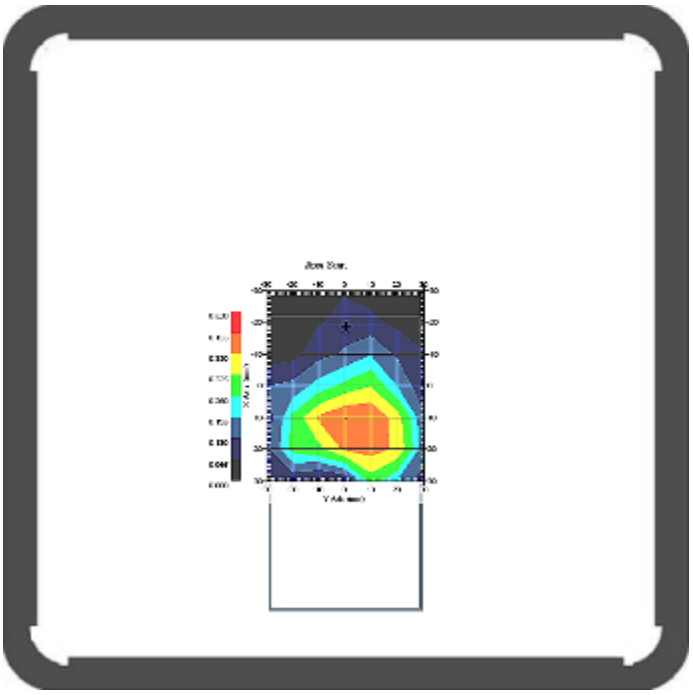
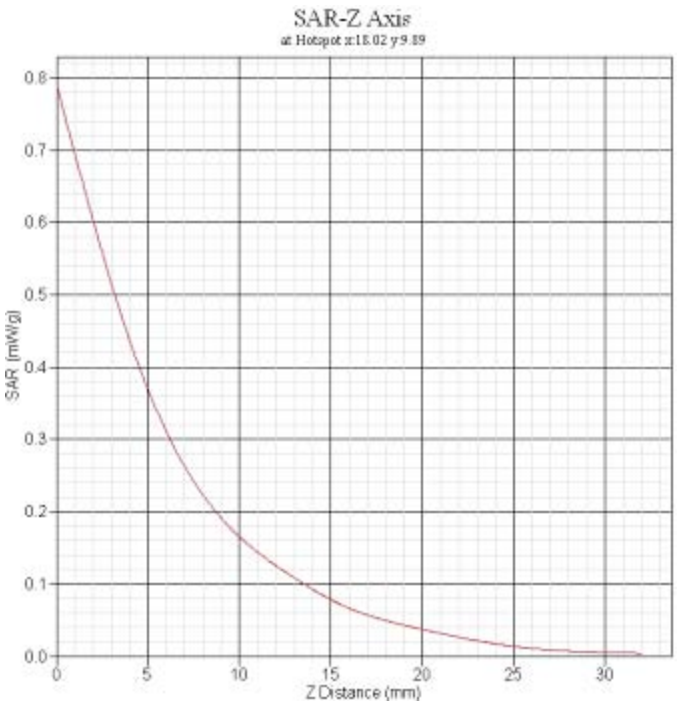
GPRS1900 body Front CH512	
Frequency(MHz)	1850.2
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	2.983
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.285
SAR 10g(W/kg)	0.152

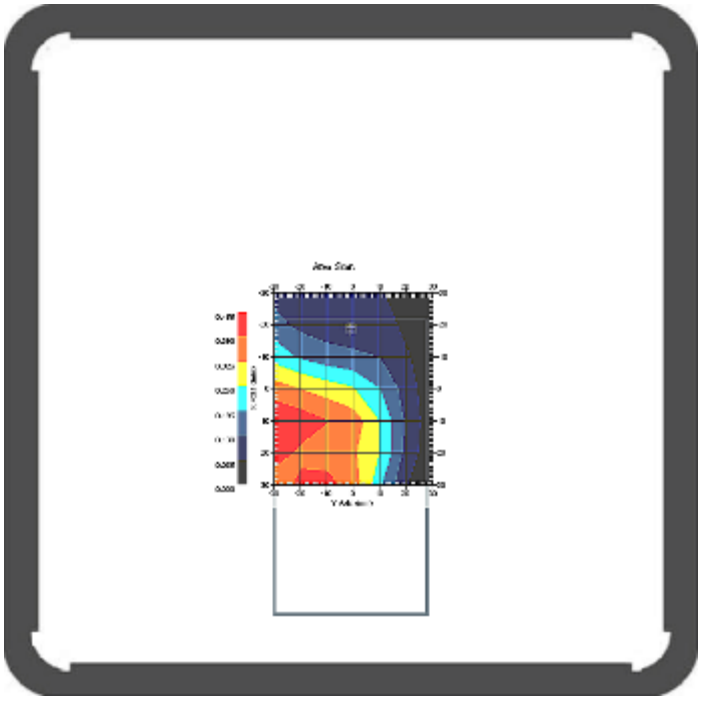
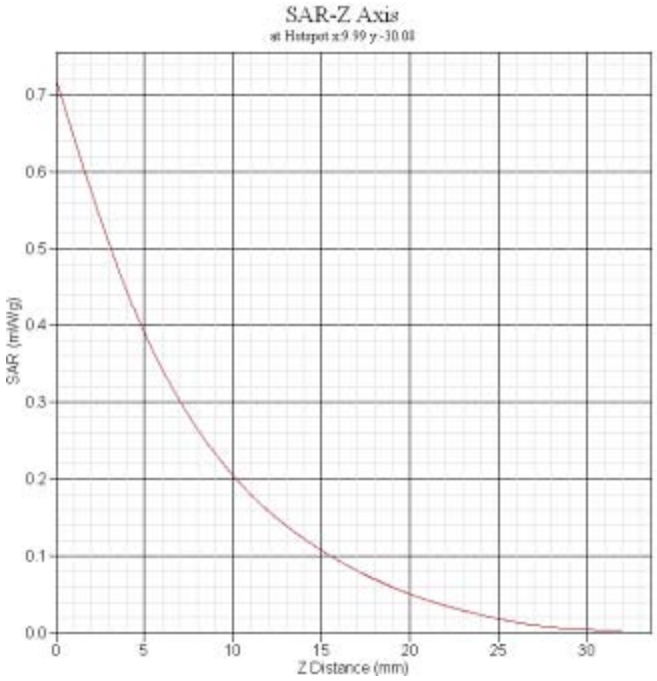
GPRS1900 body Back CH512	
Frequency(MHz)	1850.2
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	3.220
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.478
SAR 10g(W/kg)	0.241

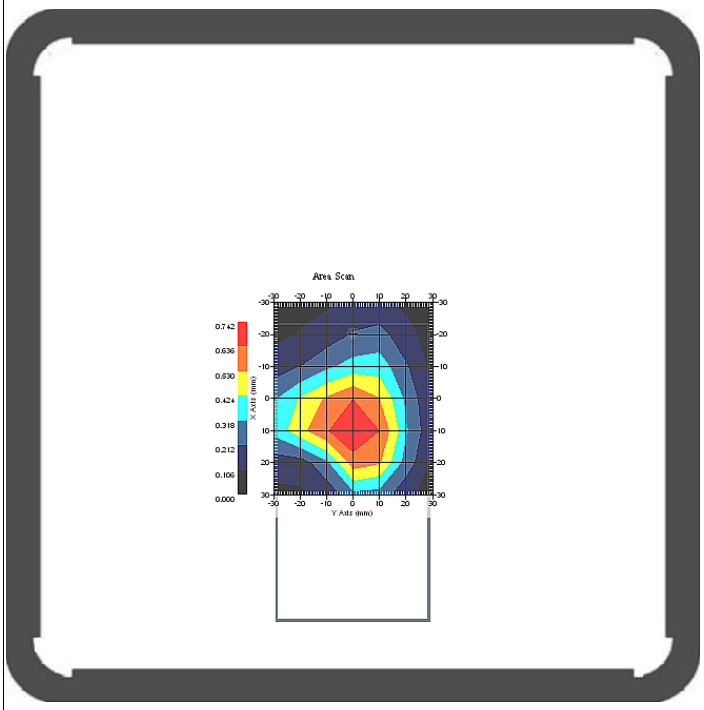
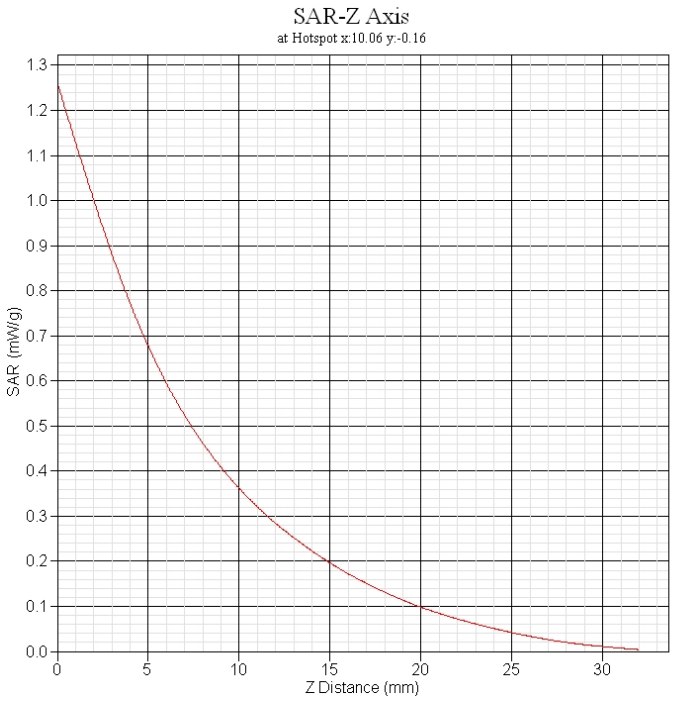
GPRS1900 body Left CH512	
Frequency(MHz)	1850.2
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	-0.301
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.099
SAR 10g(W/kg)	0.061

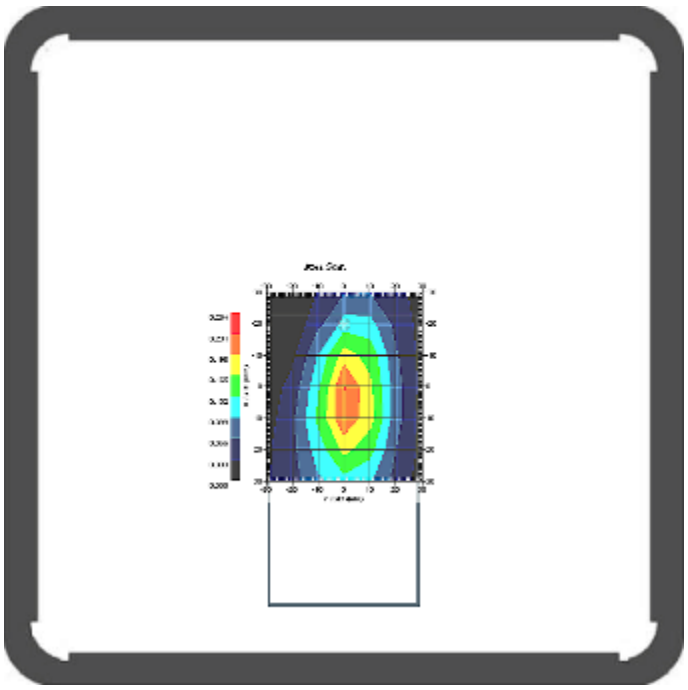
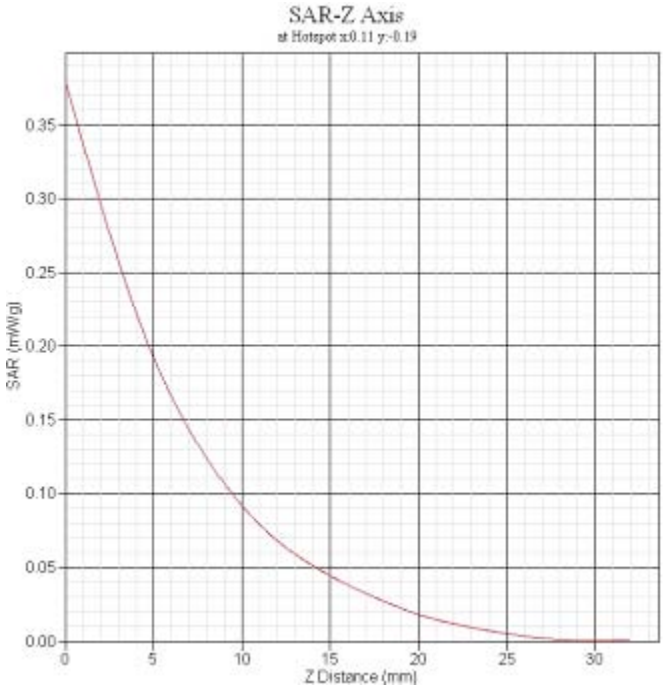
GPRS1900 body Right CH512	
Frequency(MHz)	1850.2
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	-2.831
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.092
SAR 10g(W/kg)	0.045

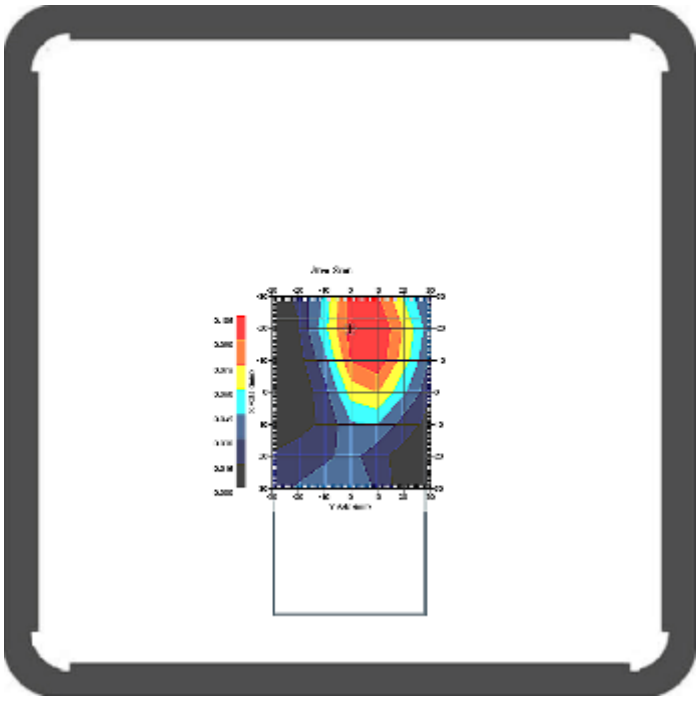
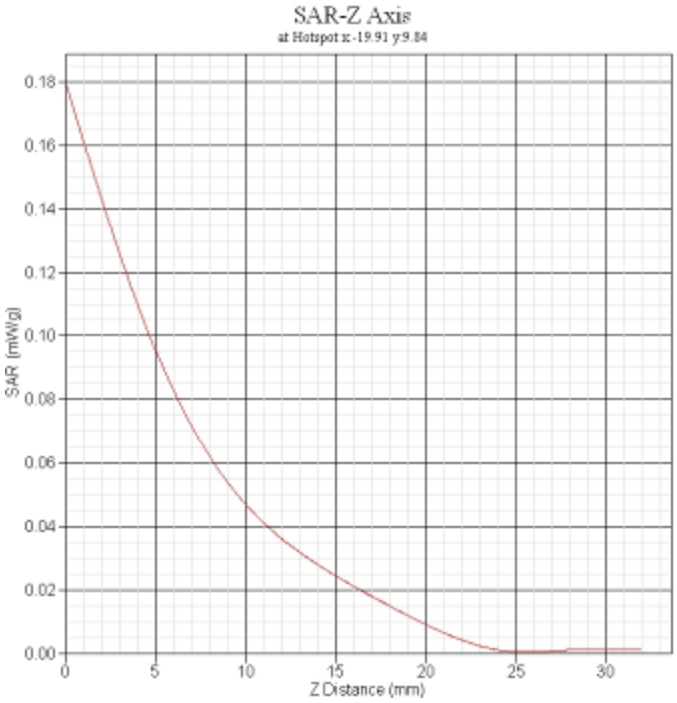
GPRS1900 body Bottom CH512	
Frequency(MHz)	1850.2
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	-4.414
Duty Cycle Factor	2
Crest factor	2
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.275
SAR 10g(W/kg)	0.129

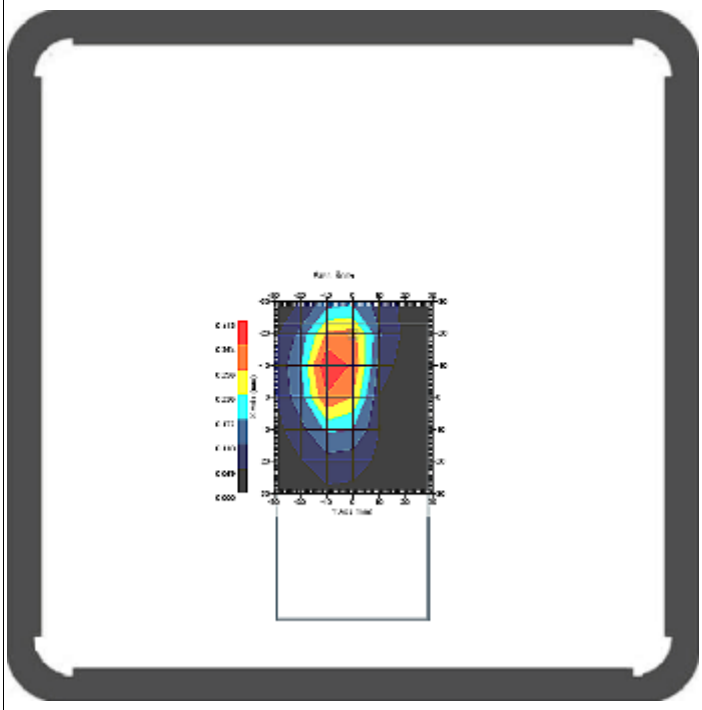
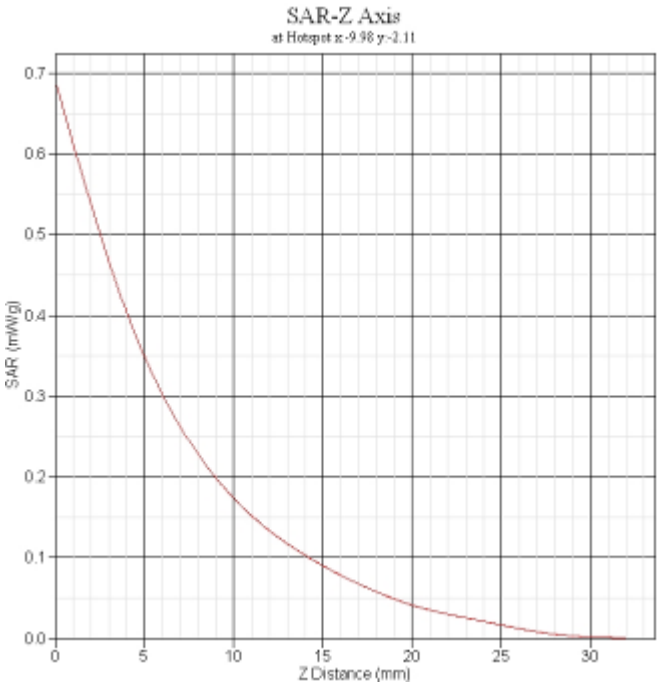
GSM1900 body Back CH512+earphone	
Frequency(MHz)	1850.2
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	2.472
Duty Cycle Factor	8
Crest factor	8
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.443
SAR 10g(W/kg)	0.208

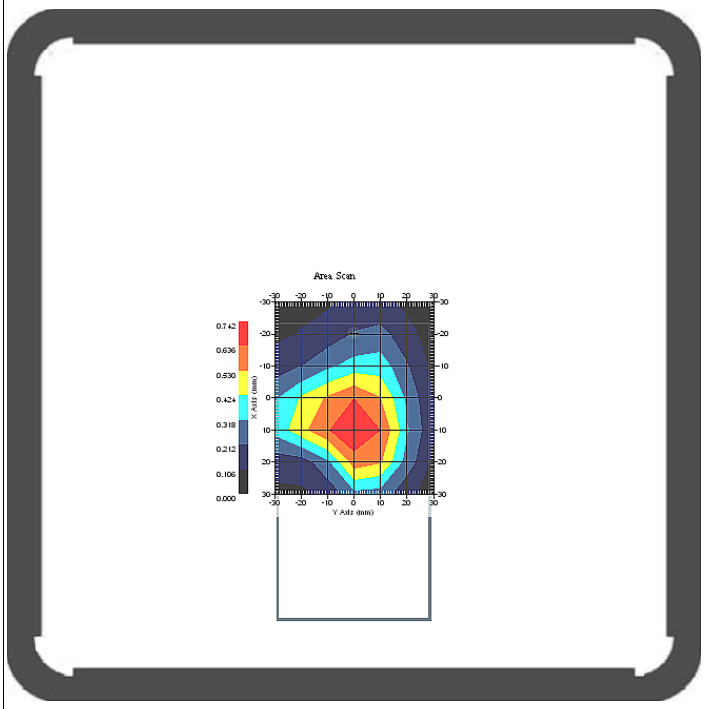
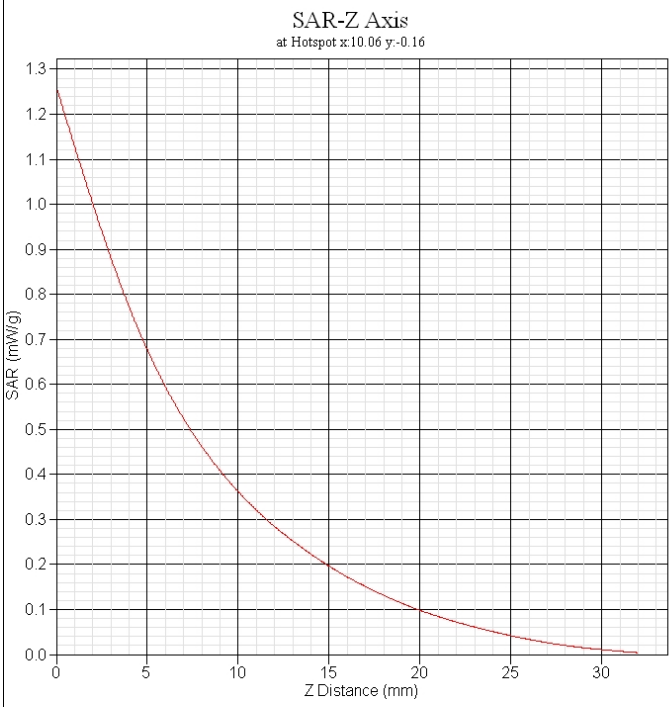
WCDMA Band Ⅱ body Front CH9400	
Frequency(MHz)	1880.0
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	0.200
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/Kg)	0.411
SAR 10g(W/Kg)	0.210

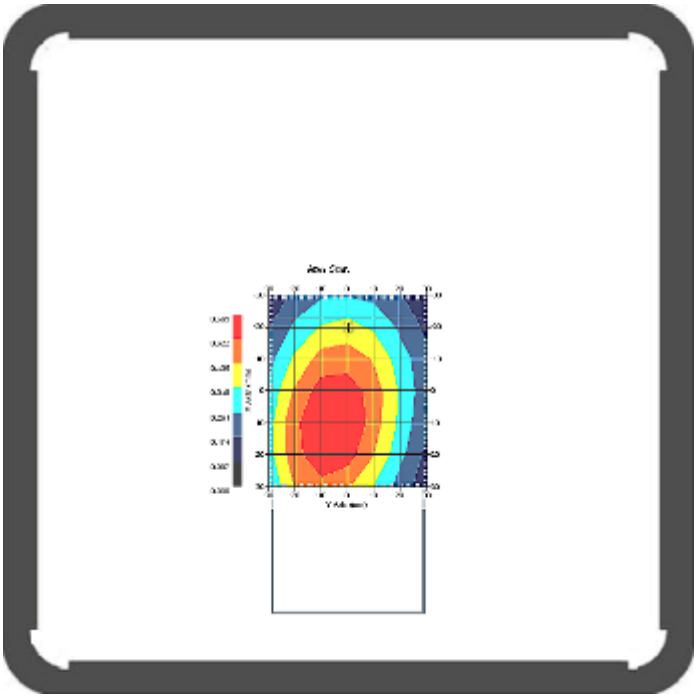
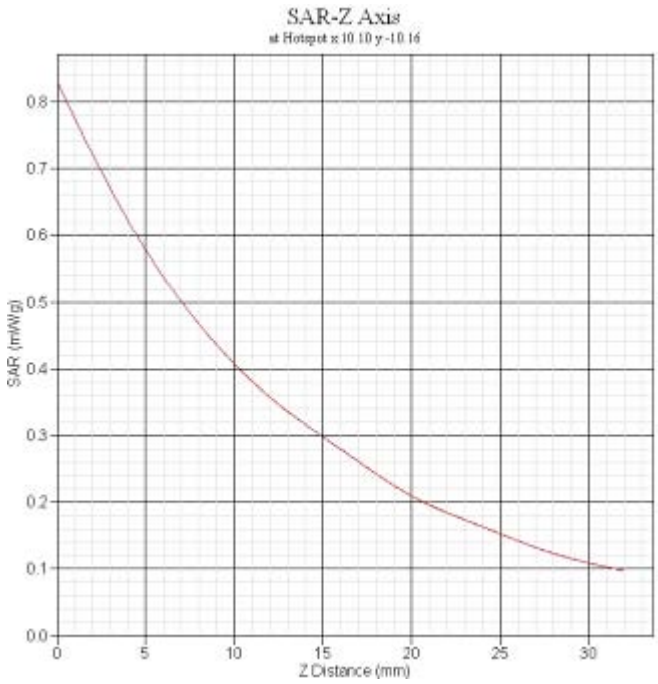
WCDMA Band Ⅱ body Back CH9400	
Frequency(MHz)	1880.0
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	2.798
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/Kg)	0.713
SAR 10g(W/Kg)	0.369

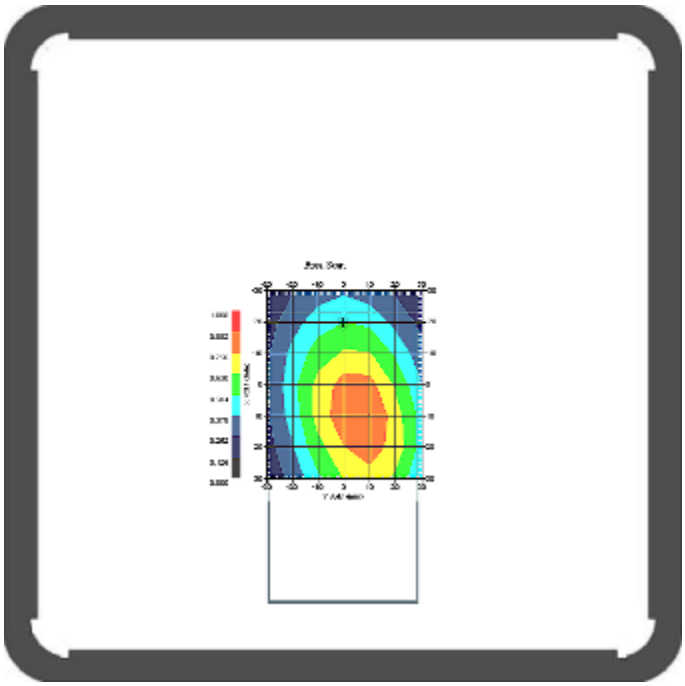
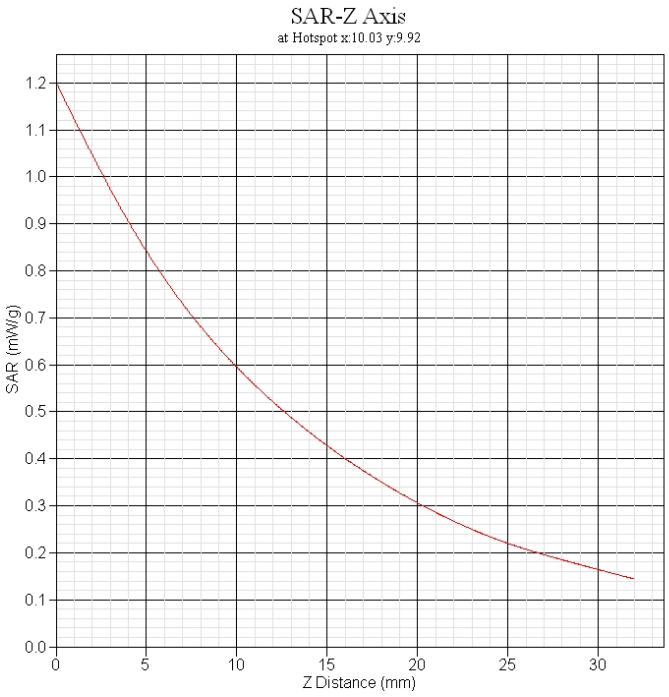
WCDMA Band Ⅱ body Left CH9400	
Frequency(MHz)	1880.0
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	-4.018
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/Kg)	0.205
SAR 10g(W/Kg)	0.101

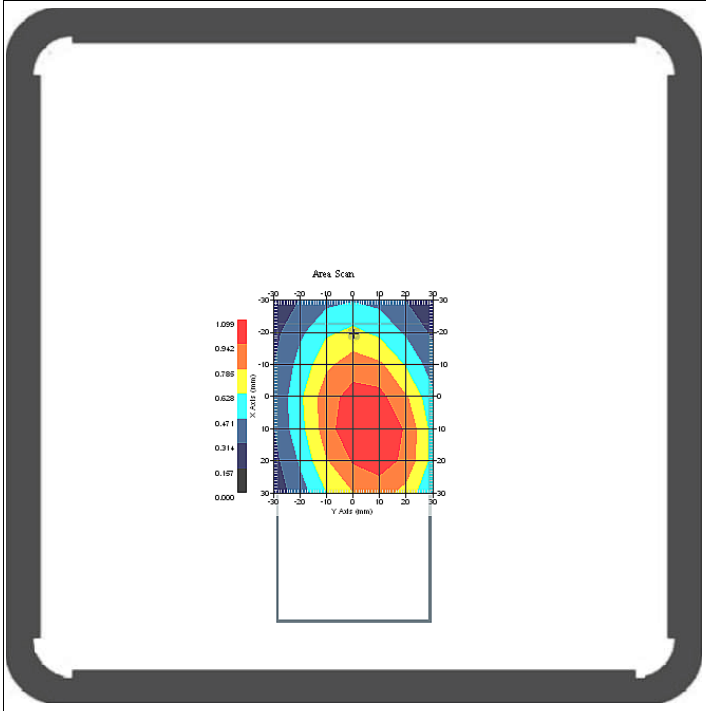
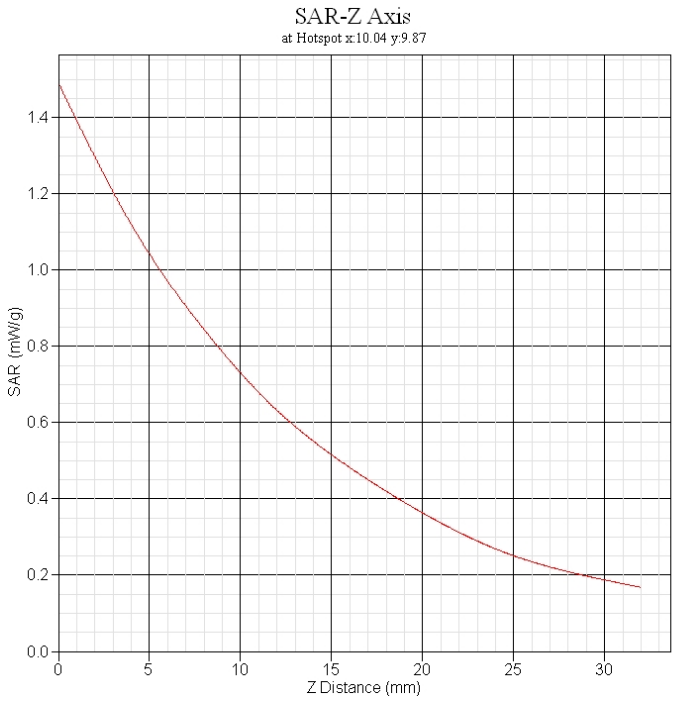
WCDMA Band Ⅱ body Right CH9400	
Frequency(MHz)	1880.0
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	-1.336
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/Kg)	0.100
SAR 10g(W/Kg)	0.049

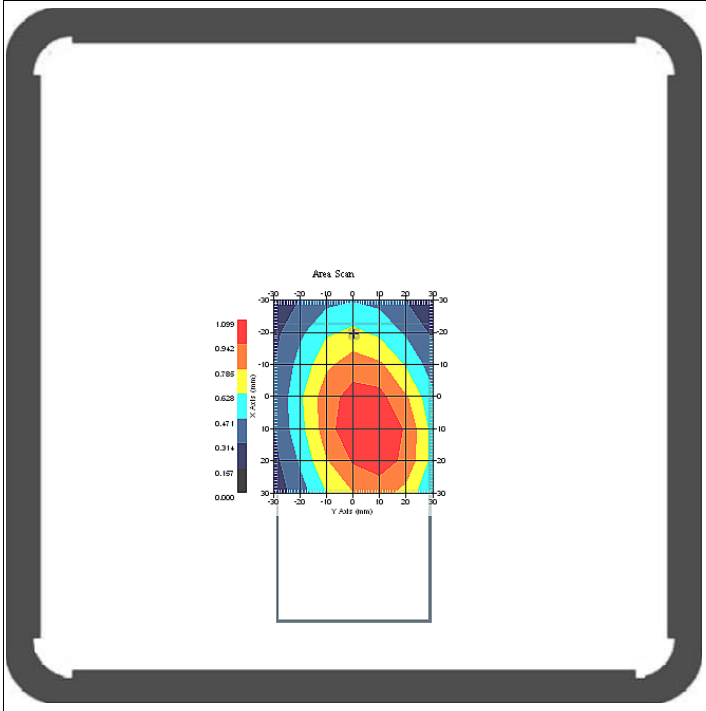
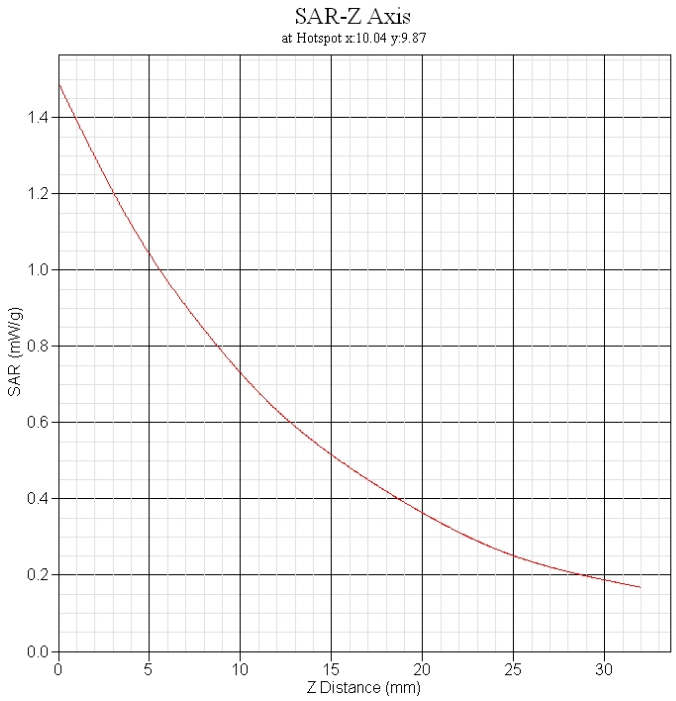
WCDMA Band Ⅱ body Bottom CH9400	
Frequency(MHz)	1880.0
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	-3.055
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/Kg)	0.357
SAR 10g(W/Kg)	0.164

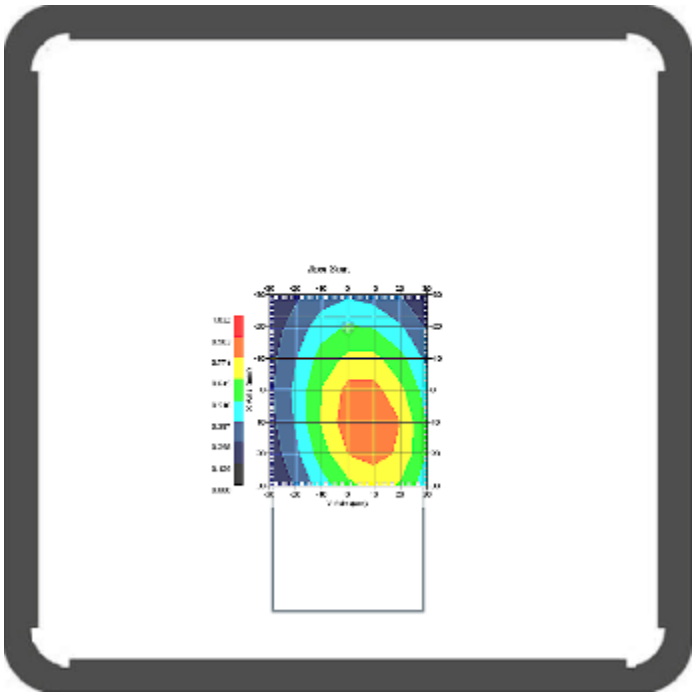
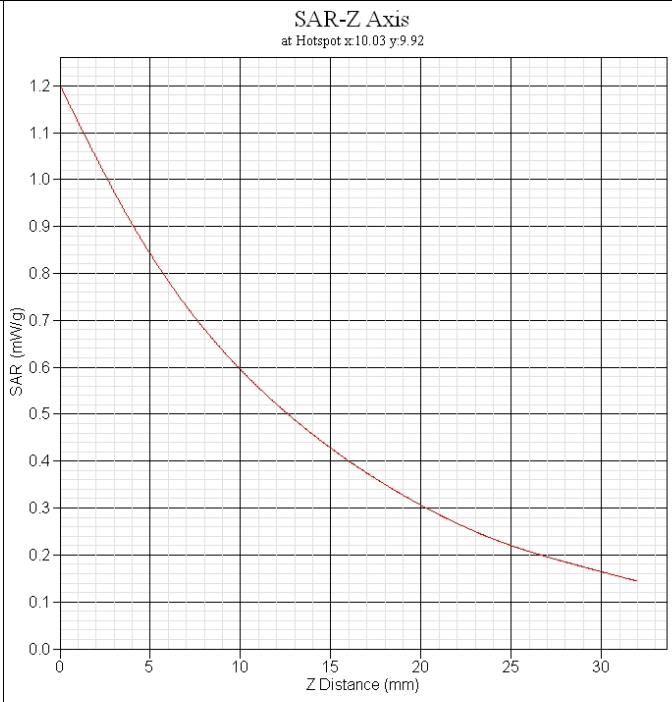
WCDMA Band Ⅱ body Back CH9400+earphone	
Frequency(MHz)	1880.0
Relative permittivity(real part)	52.95
Conductivity(S/m)	1.54
Variation(%)	-1.424
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	5.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/Kg)	0.698
SAR 10g(W/Kg)	0.346

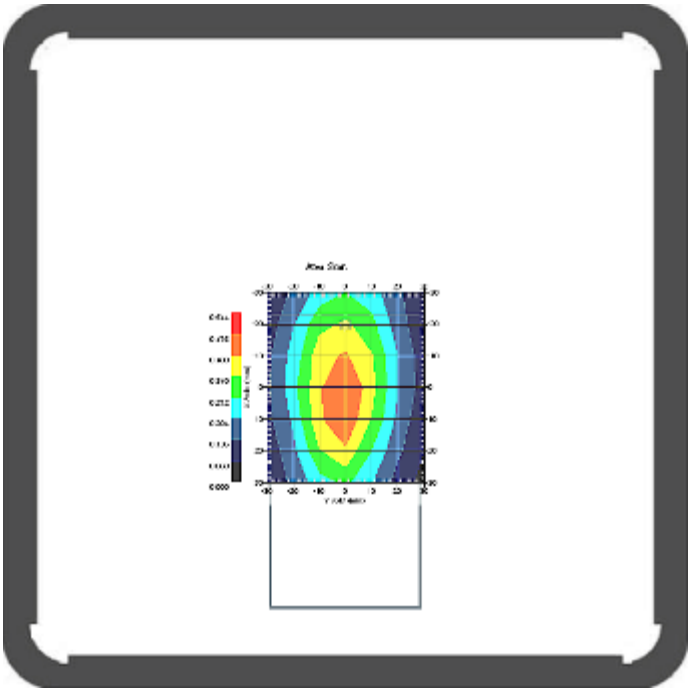
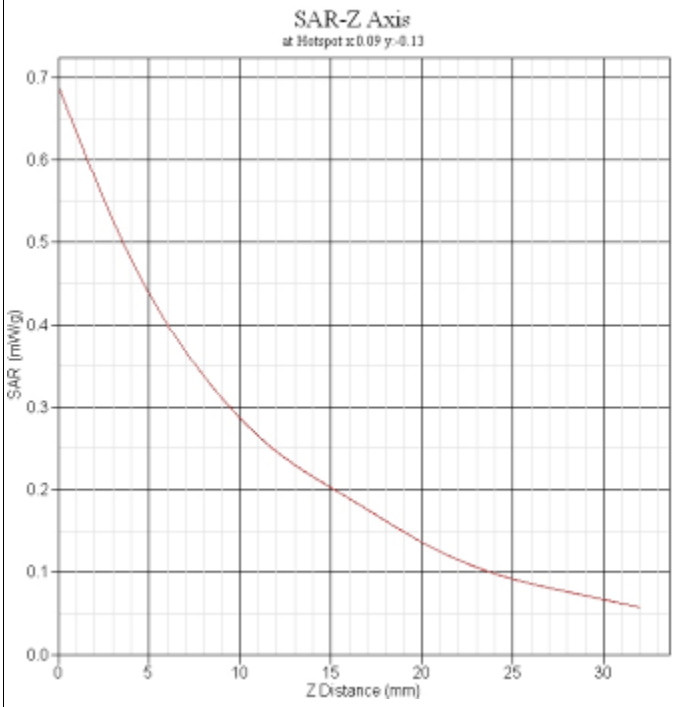
WCDMA Band Ⅴ body Front CH4183	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-0.118
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.589
SAR 10g(W/Kg)	0.398

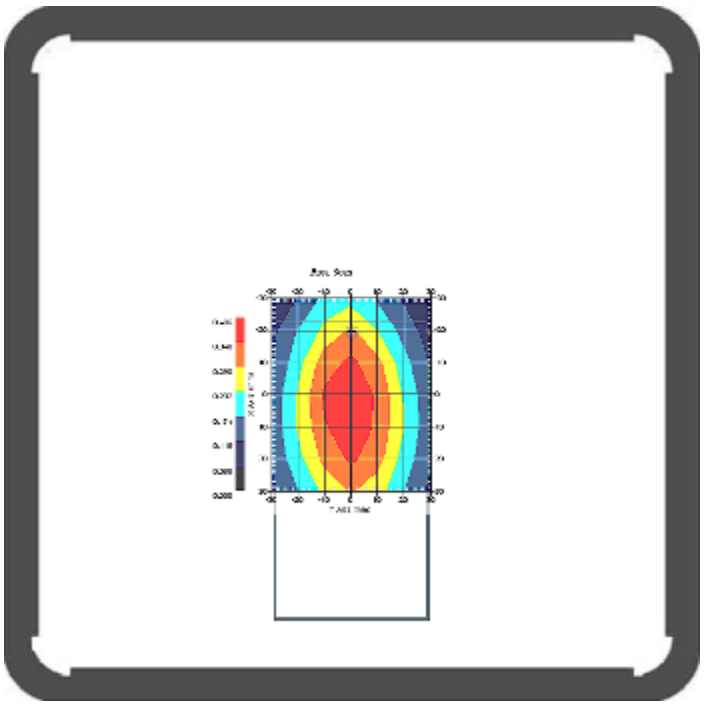
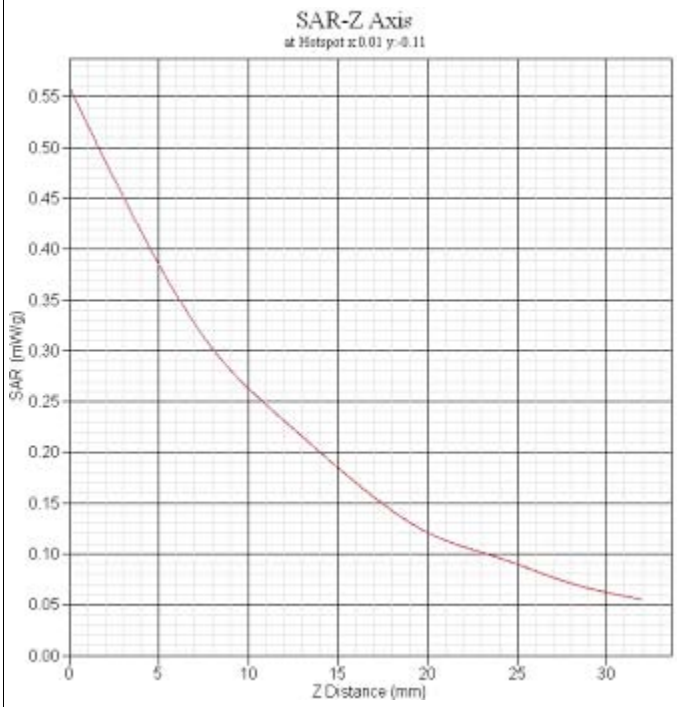
WCDMA Band Ⅴ body Back CH4132	
Frequency(MHz)	826.4
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	2.601
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.836
SAR 10g(W/Kg)	0.568

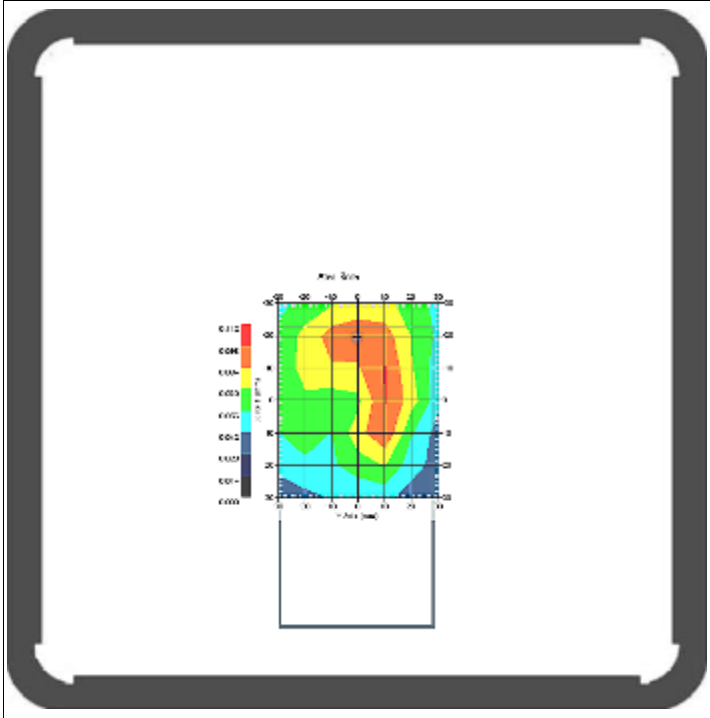
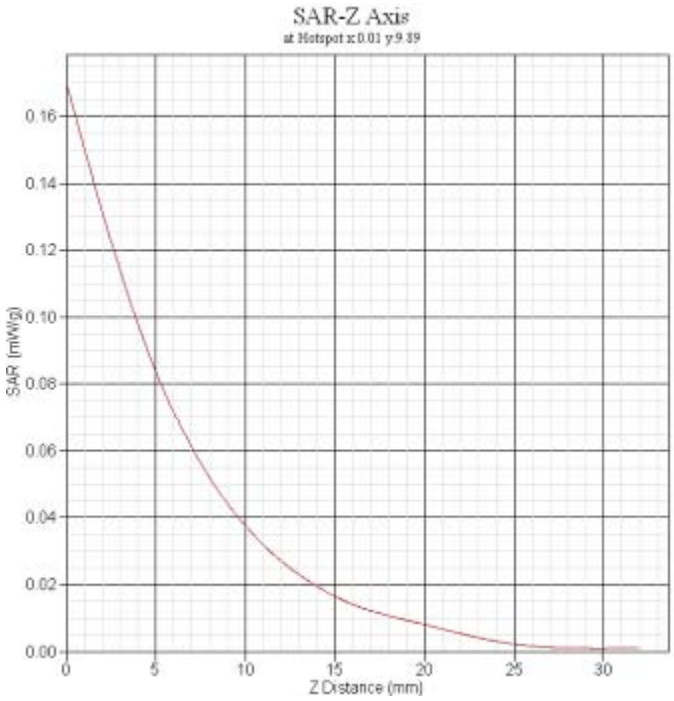
WCDMA Band Ⅴ body Back CH4183	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	1.756
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.961
SAR 10g(W/Kg)	0.707

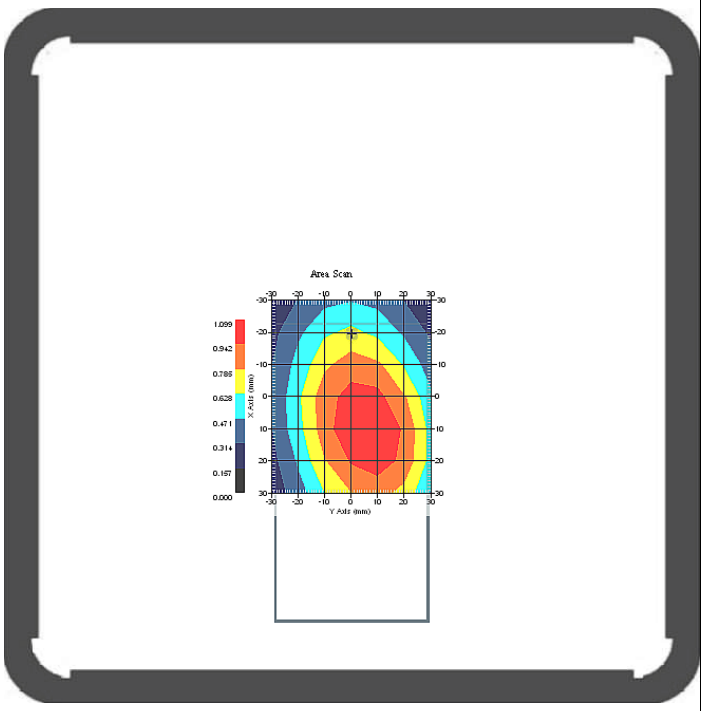
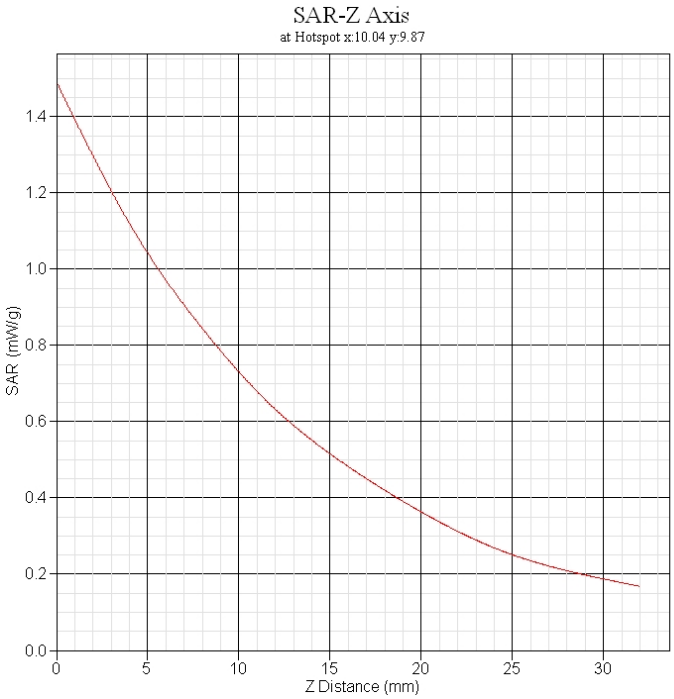
WCDMA Band Ⅴ body Back CH4183(repeat)	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	1.756
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.967
SAR 10g(W/Kg)	0.712

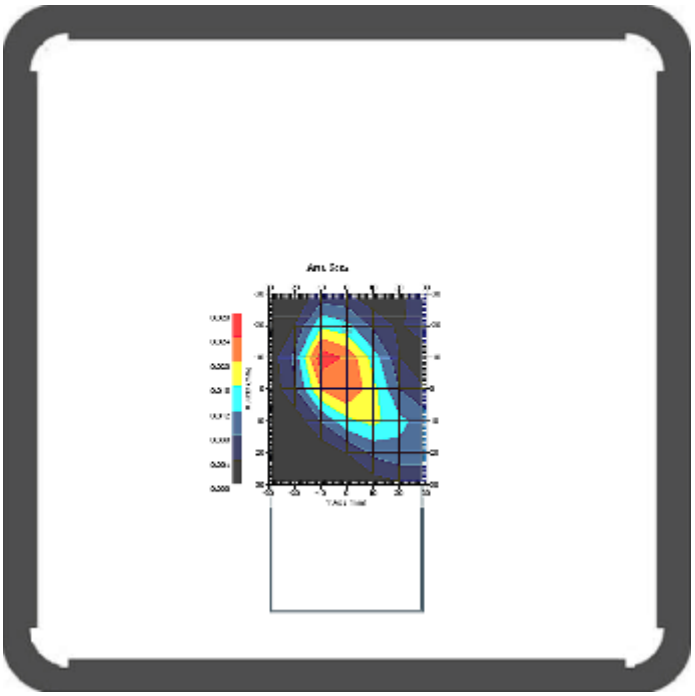
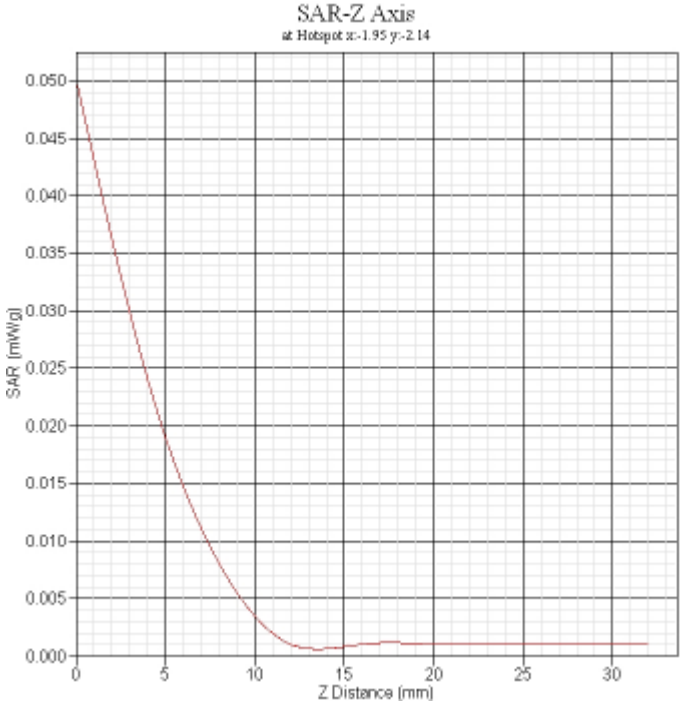
WCDMA Band Ⅴ body Back CH4233	
Frequency(MHz)	846.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-0.129
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.857
SAR 10g(W/Kg)	0.577

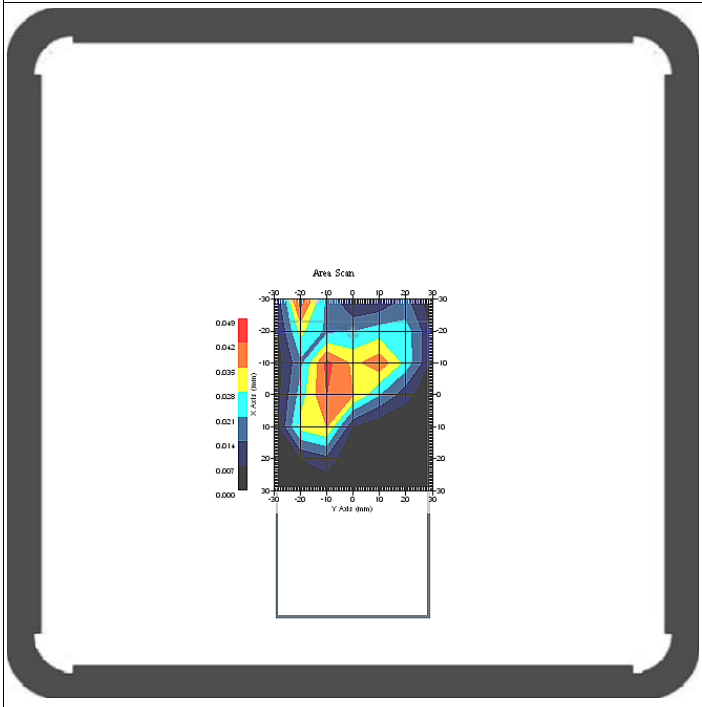
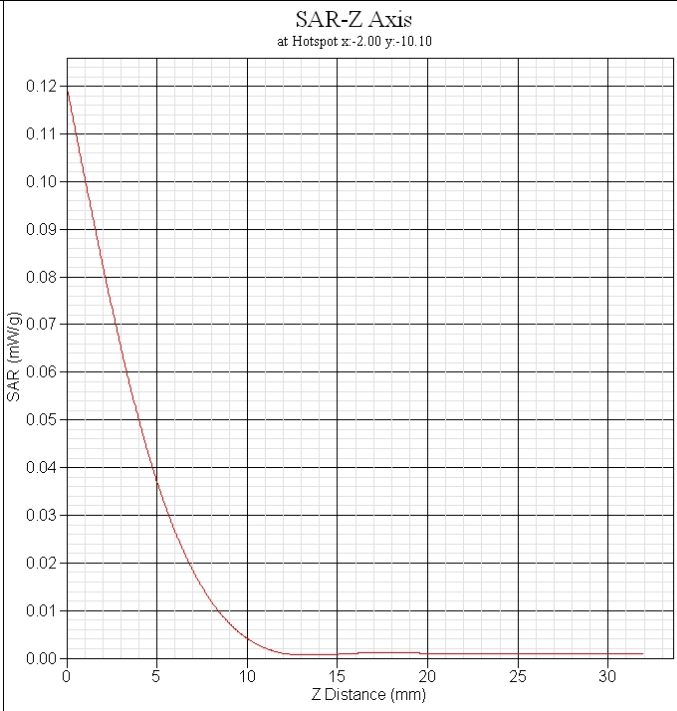
WCDMA Band Ⅴbody Left CH4183	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-2.638
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.450
SAR 10g(W/Kg)	0.282

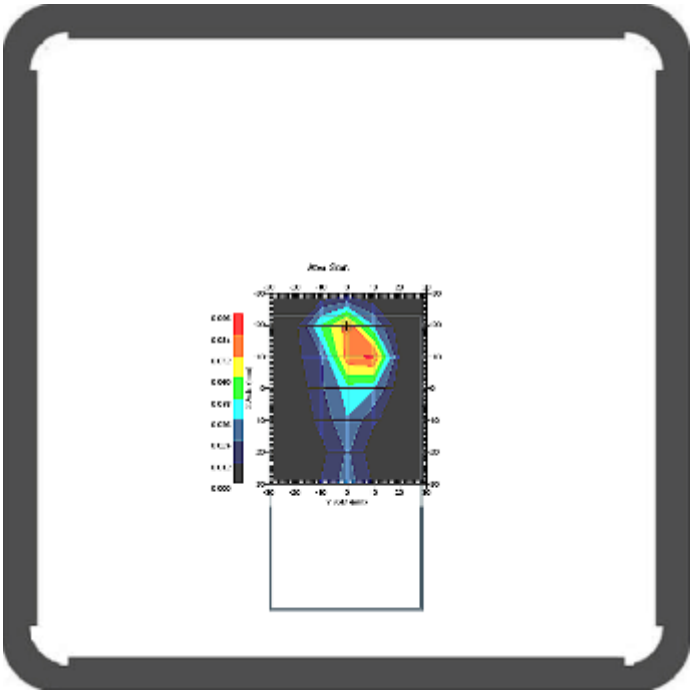
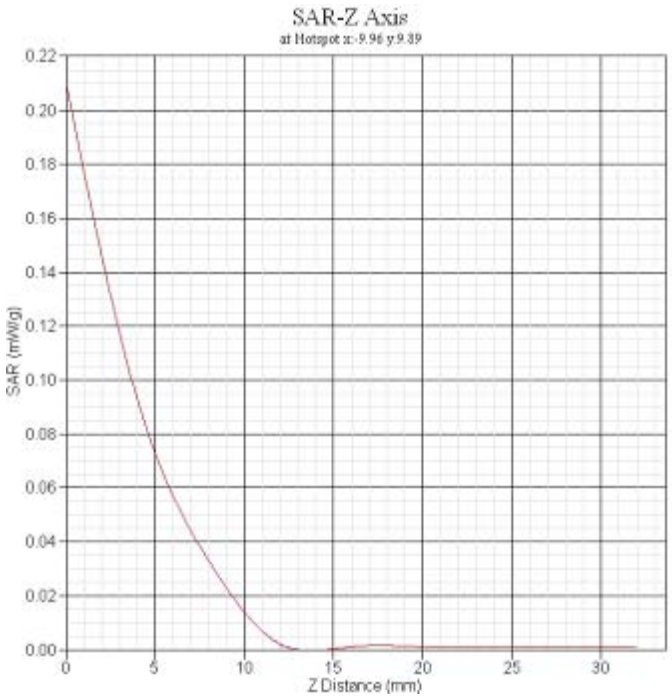
WCDMA Band Ⅴ body Right CH4183	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	3.975
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.389
SAR 10g(W/Kg)	0.254

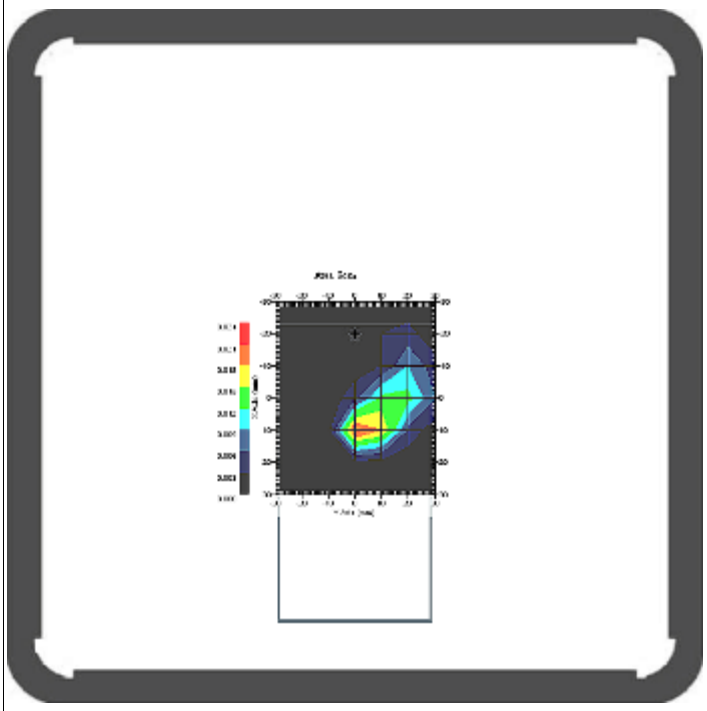
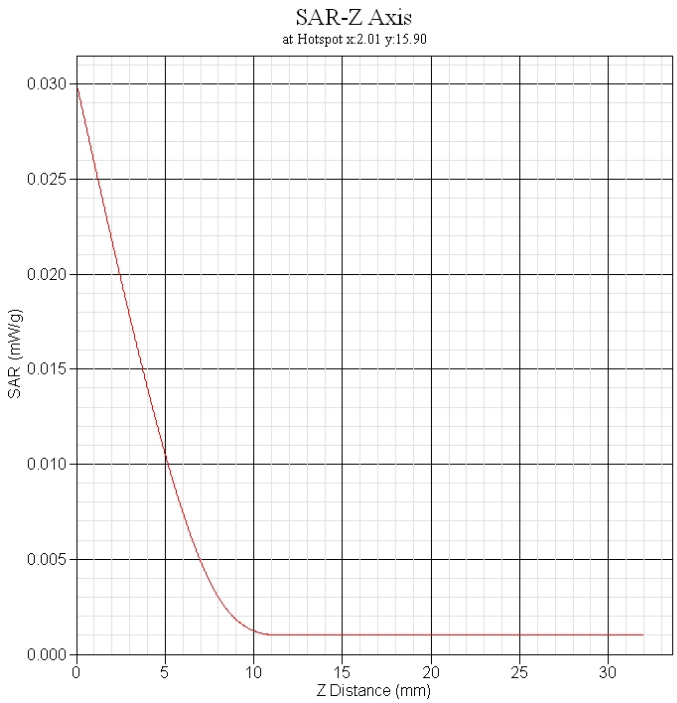
WCDMA Band Ⅴ body Bottom CH4183	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-2.246
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.091
SAR 10g(W/Kg)	0.047

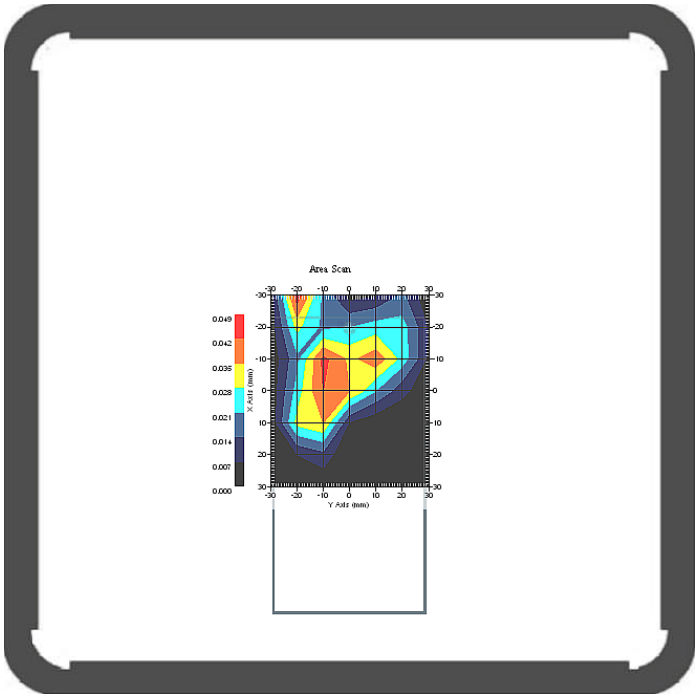
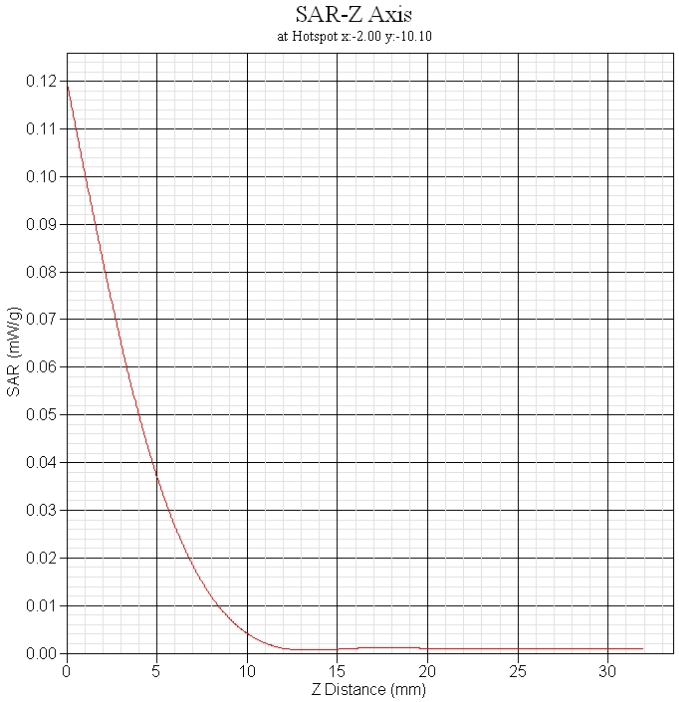
WCDMA Band Ⅴ body Back CH4183+earphone	
Frequency(MHz)	836.6
Relative permittivity(real part)	53.14
Conductivity(S/m)	0.98
Variation(%)	-1.369
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	6.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-13
	
SAR 1g(W/Kg)	0.932
SAR 10g(W/Kg)	0.684

802.11b body Front CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	53.34
Conductivity(S/m)	1.93
Variation(%)	-2.536
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.024
SAR 10g(W/kg)	0.009

802.11b body Back CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	53.34
Conductivity(S/m)	1.93
Variation(%)	-2.058
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.047
SAR 10g(W/kg)	0.019

802.11b body Right CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	53.34
Conductivity(S/m)	1.93
Variation(%)	0.930
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.087
SAR 10g(W/kg)	0.033

802.11b body Top CH11	
Frequency(MHz)	2462
Relative permittivity(real part)	53.34
Conductivity(S/m)	1.93
Variation(%)	0.234
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.013
SAR 10g(W/kg)	0.005

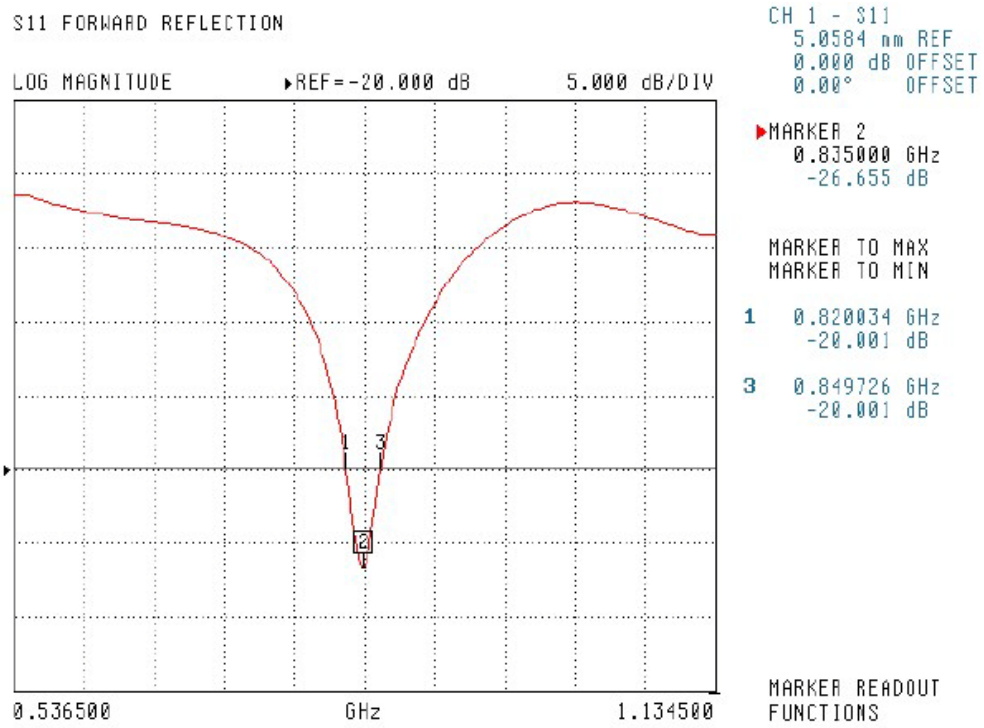
802.11b body Back CH11+earphone	
Frequency(MHz)	2462
Relative permittivity(real part)	53.34
Conductivity(S/m)	1.93
Variation(%)	-1.764
Duty Cycle Factor	1
Crest factor	1
Conversion Factor	4.4
Probe Sensitivity	1.20 1.20 1.20 μ V/(V/m)2
Data	2013-03-15
	
SAR 1g(W/kg)	0.041
SAR 10g(W/kg)	0.013

ValidationDipole Calibration

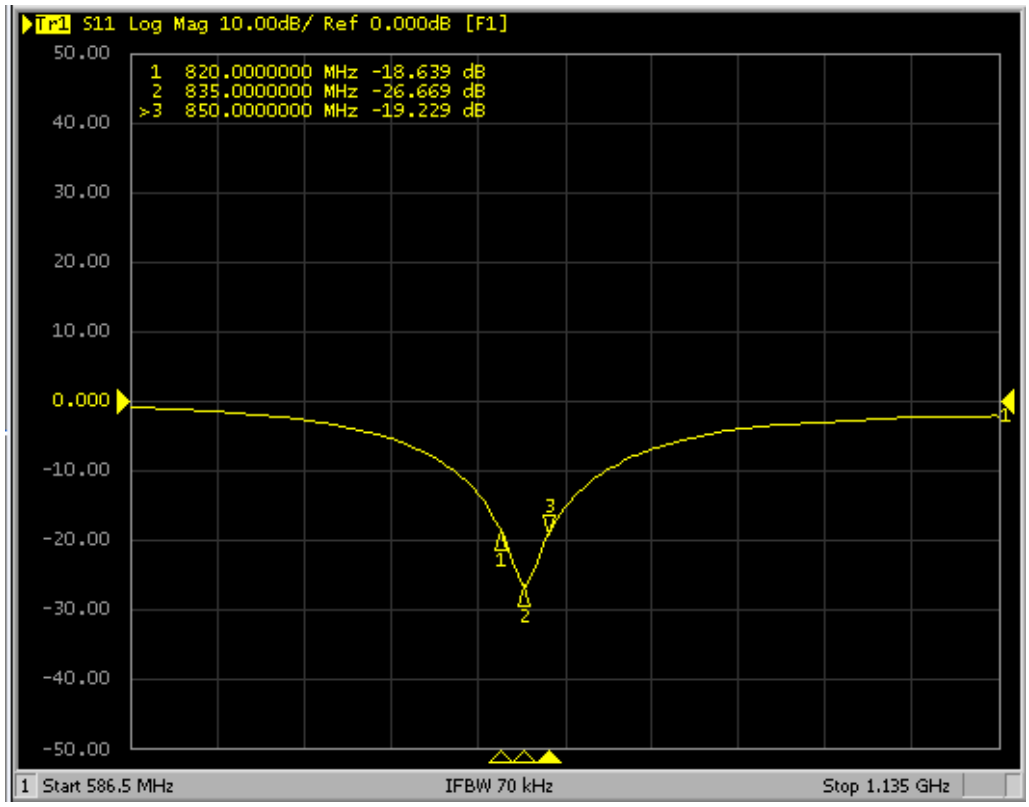
Electrical Specification 835MHz

Tissue Type	Return Loss(dB)	Impedance(ohm)
Head(2011)	-26.655	51.666
Head(2012 recent)	-26.669	52.536
Body(2011)	-22.106	57.482
Body(2012 recent)	-22.595	54.711

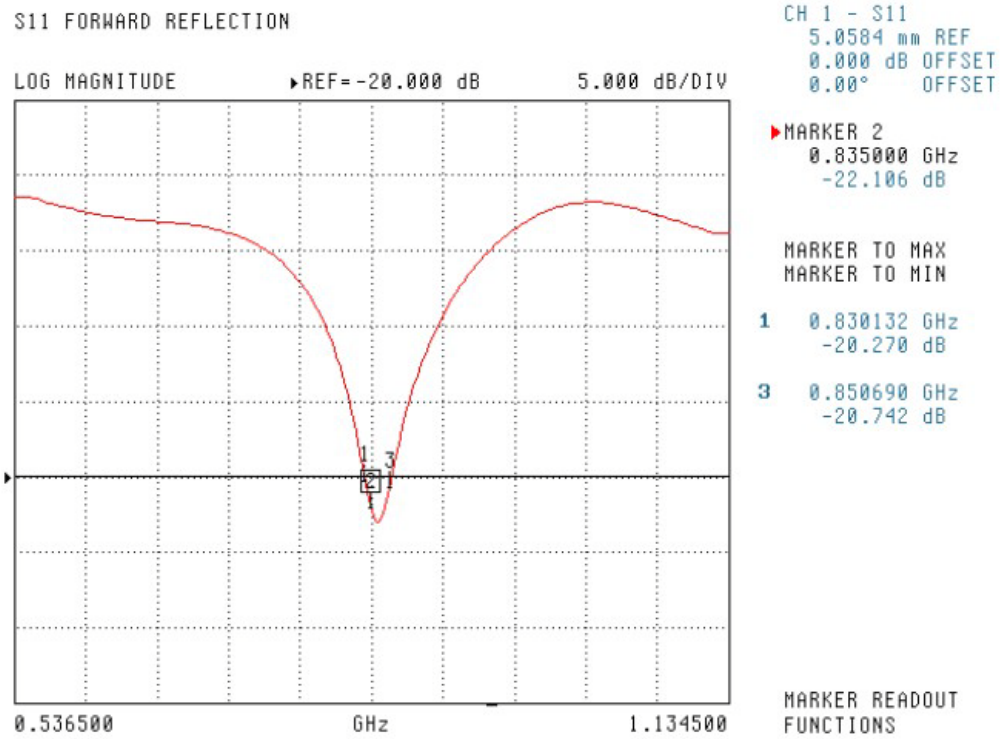
Head Tissue of Return Loss(2011)



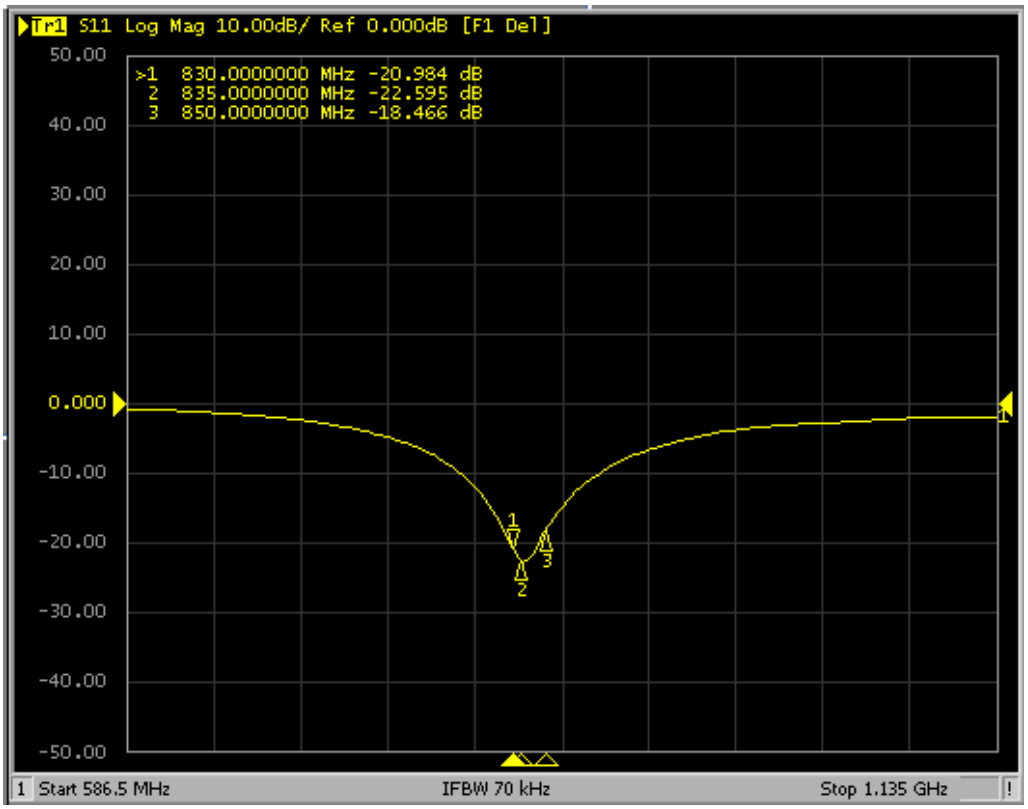
Head Tissue of Return Loss(2012 recent)



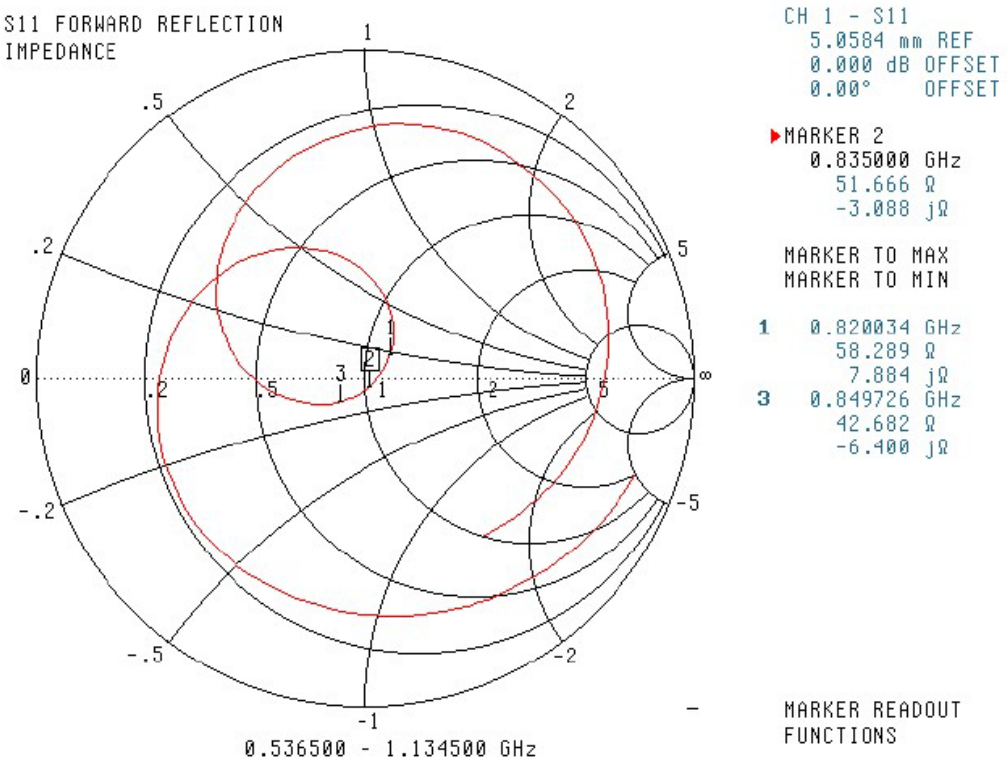
Body Tissue of Return Loss(2011)



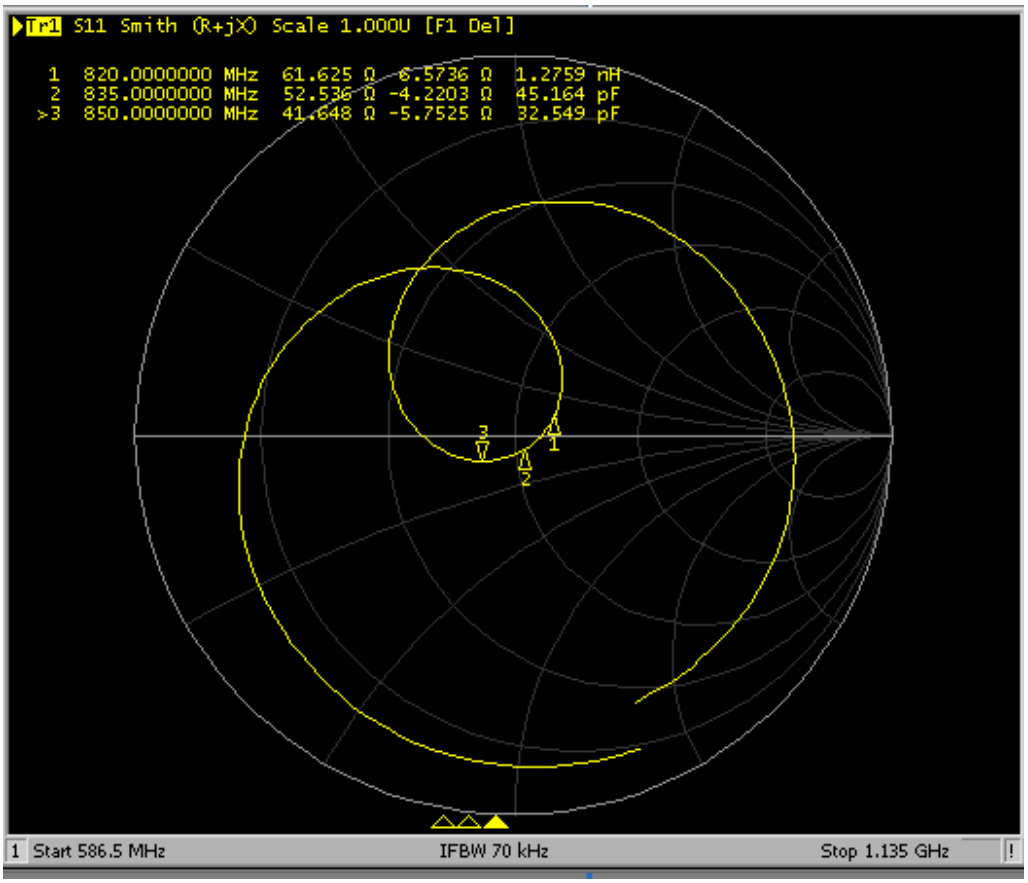
Body Tissue of Return Loss(2012 recent)



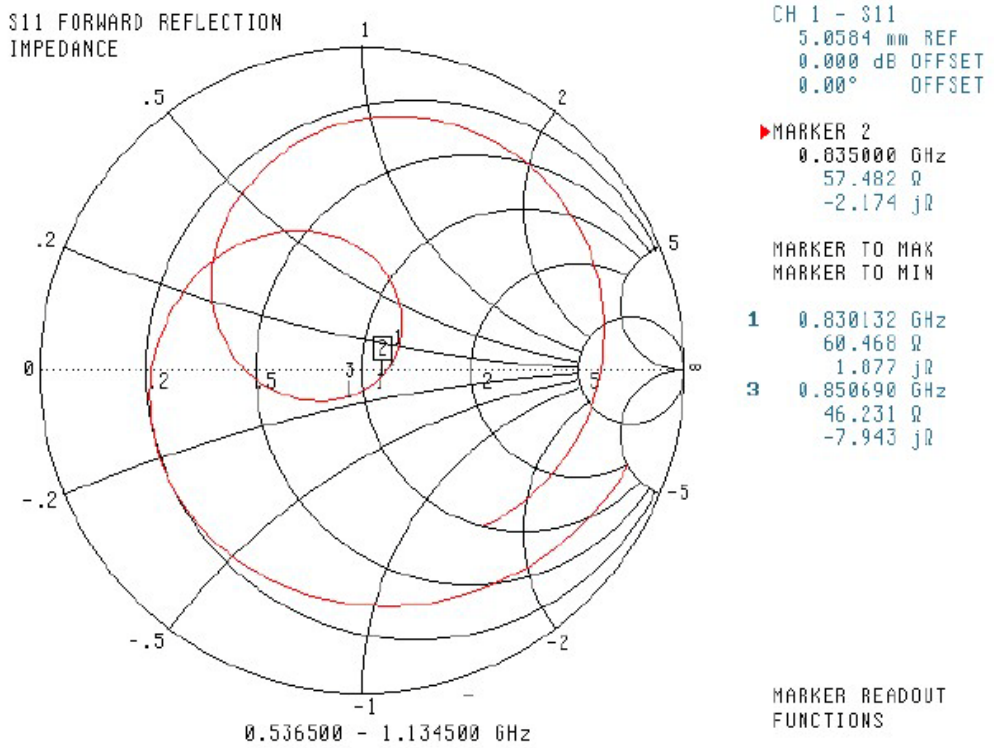
Head Tissue of Impedance(2011)



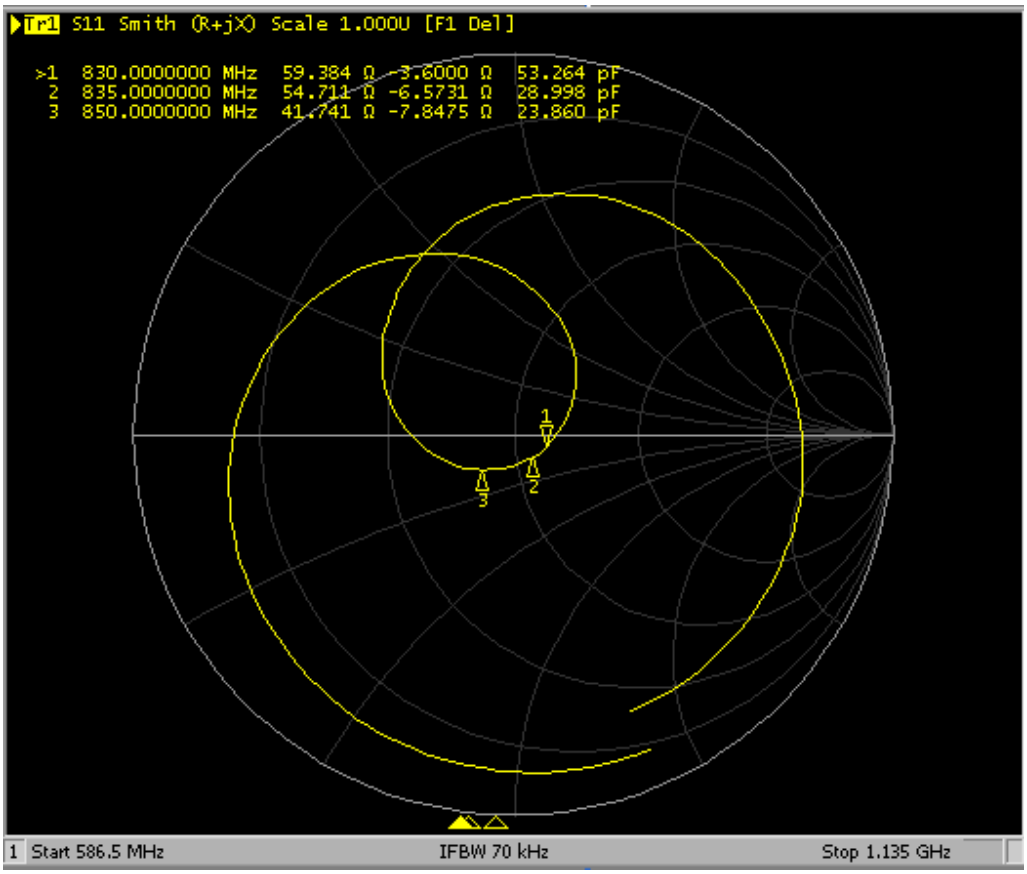
Head Tissue of Impedance(2012 recent)



Body Tissue of Impedance(2011)



Body Tissue of Impedance(2012 recent)

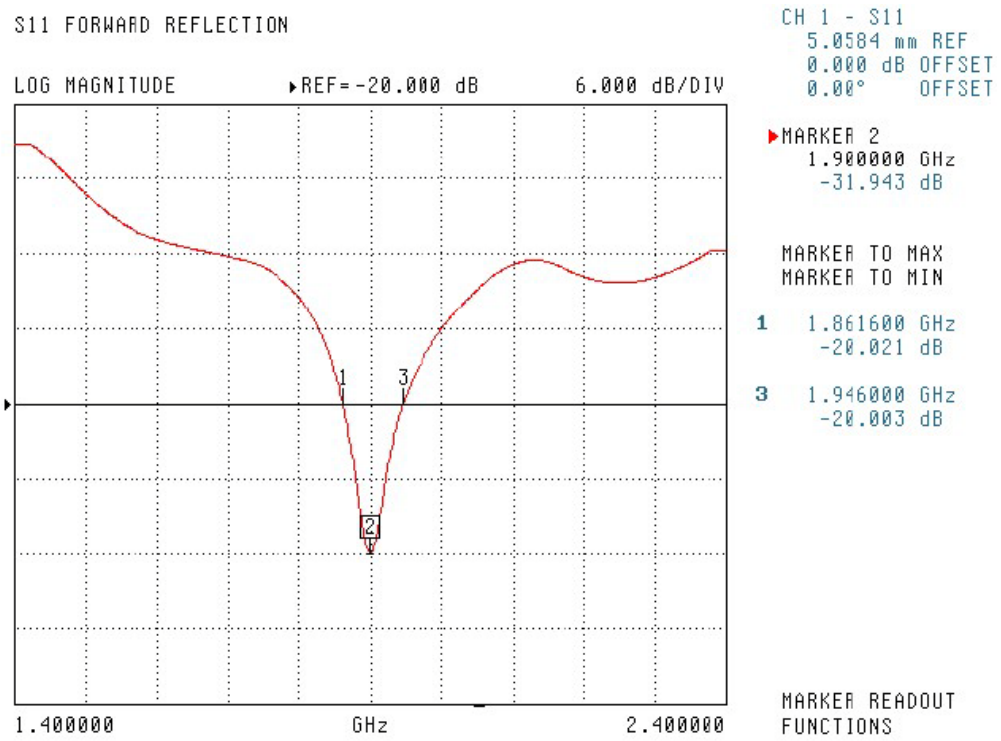


ValidationDipole Calibration

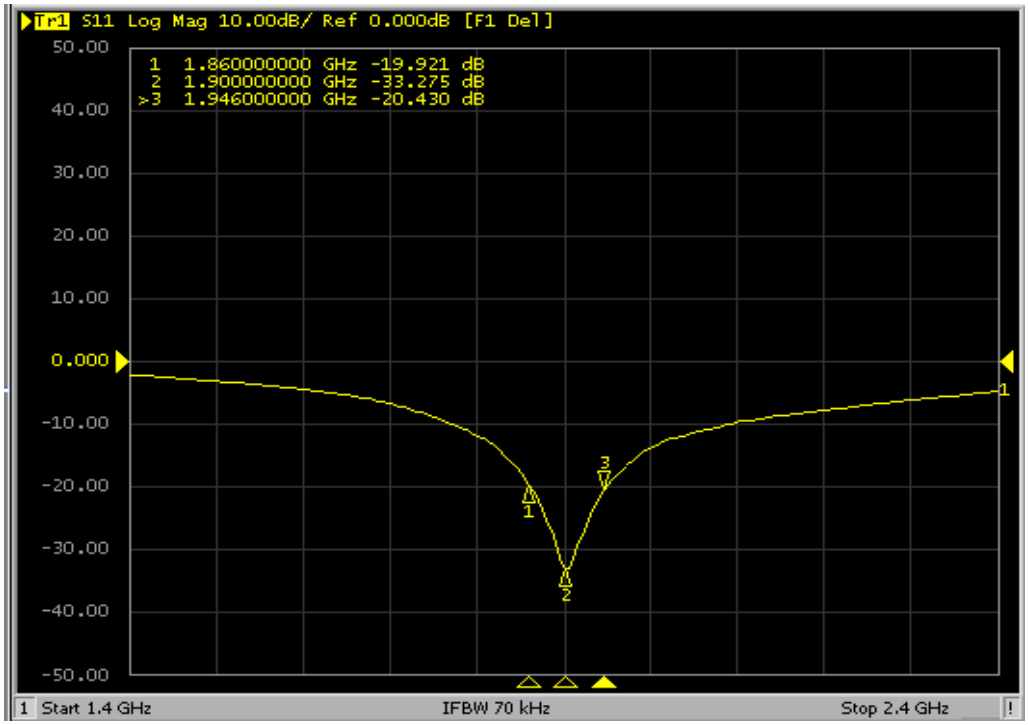
Electrical Specification 1900MHz

Tissue Type	Return Loss(dB)	Impedance(ohm)
Head(2011)	-31.943	51.262
Head(2012 recent)	-33.275	49.302
Body(2011)	-25.099	53.750
Body(2012 recent)	-25.606	50.197

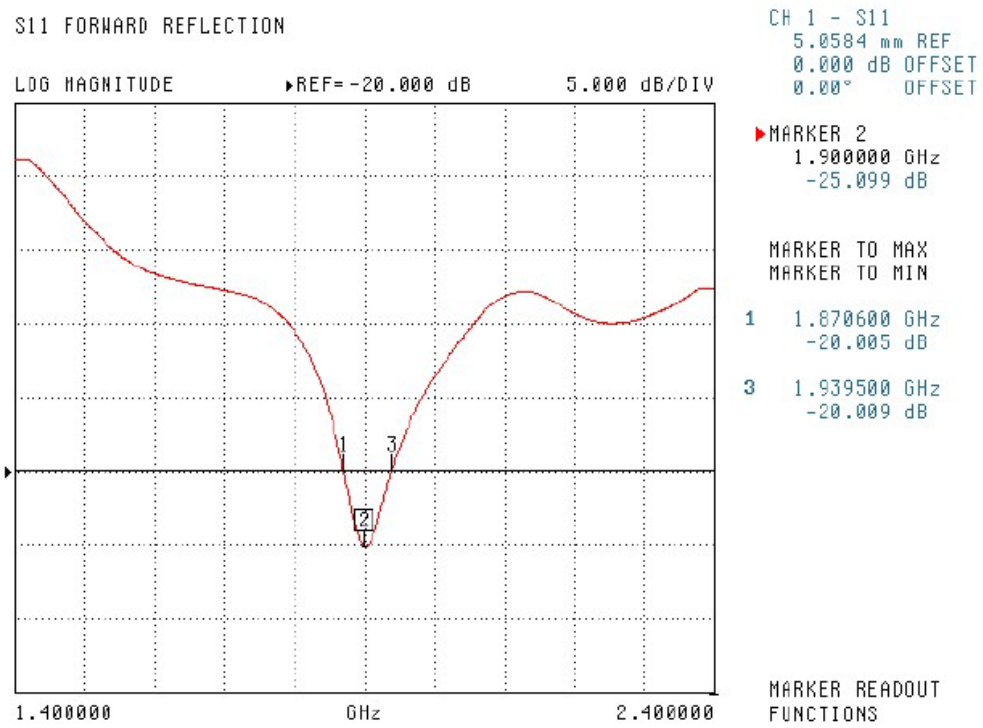
Head Tissue of Return Loss(2011)



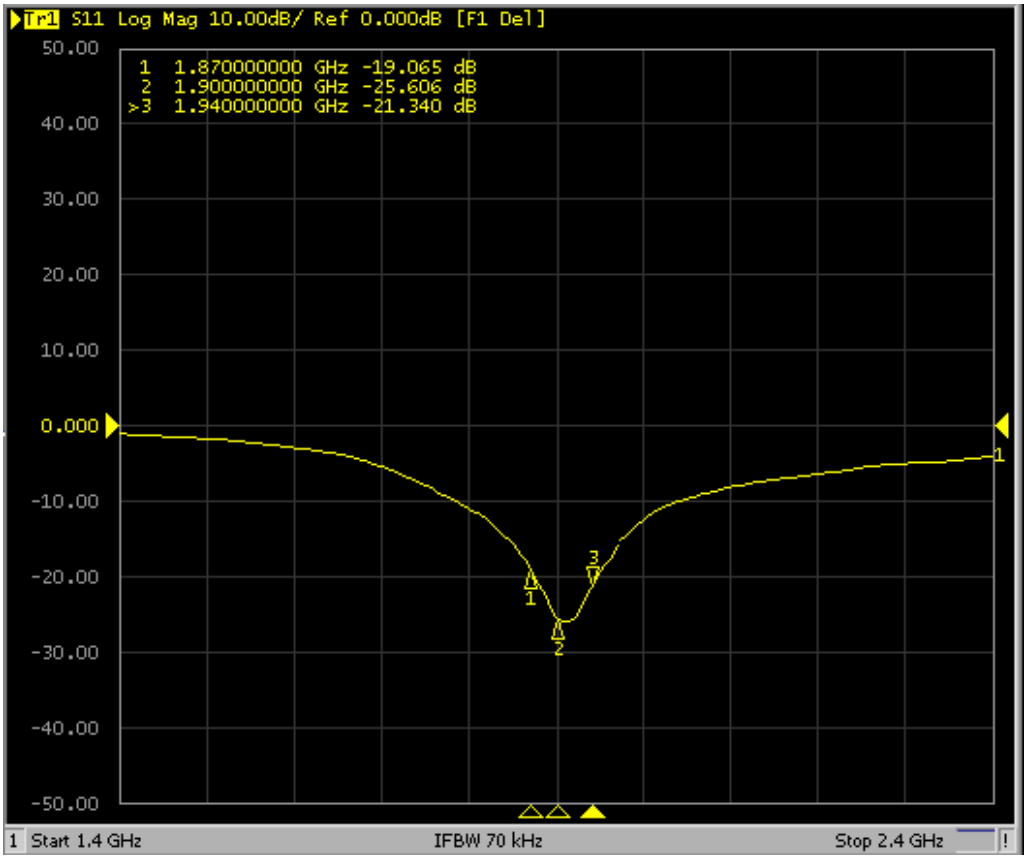
Head Tissue of Return Loss(2012 recent)



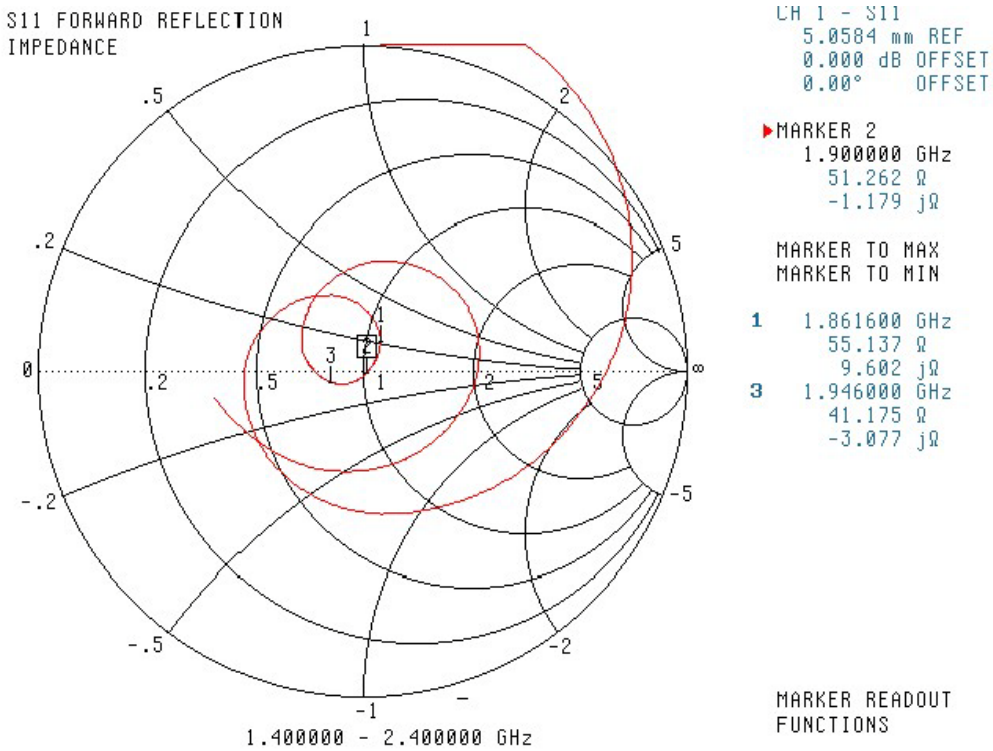
Body Tissue of Return Loss(2011)



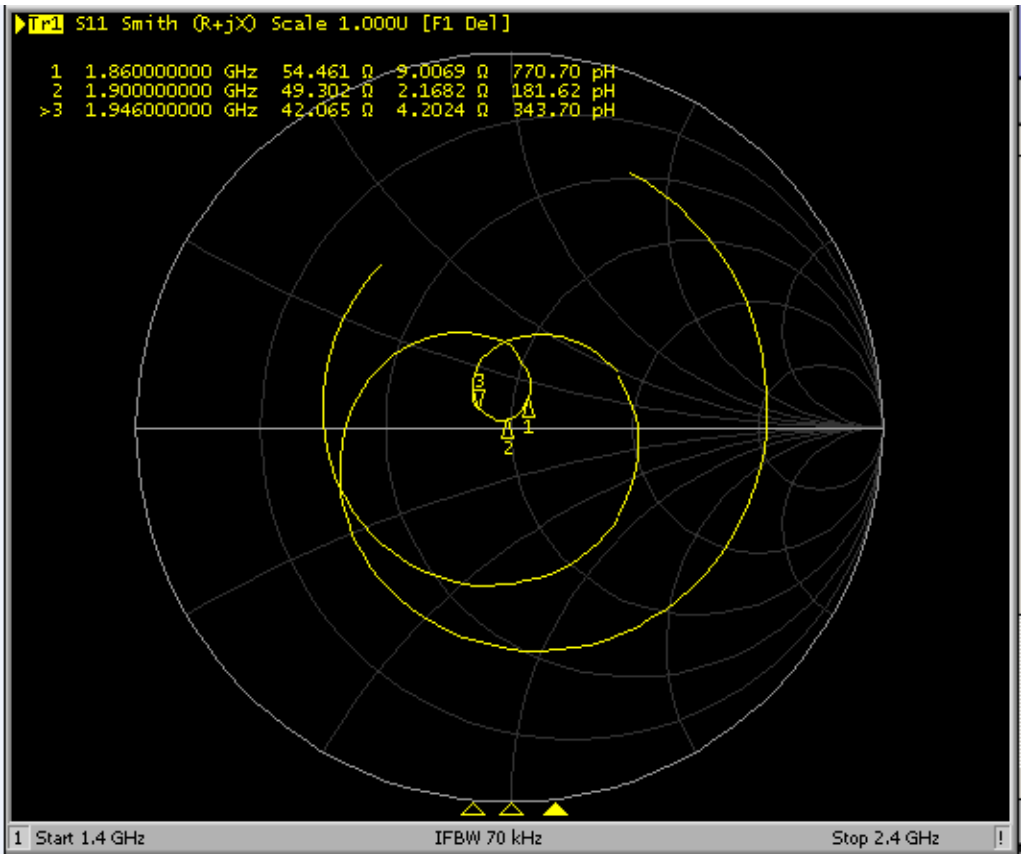
Body Tissue of Return Loss(2012 recent)



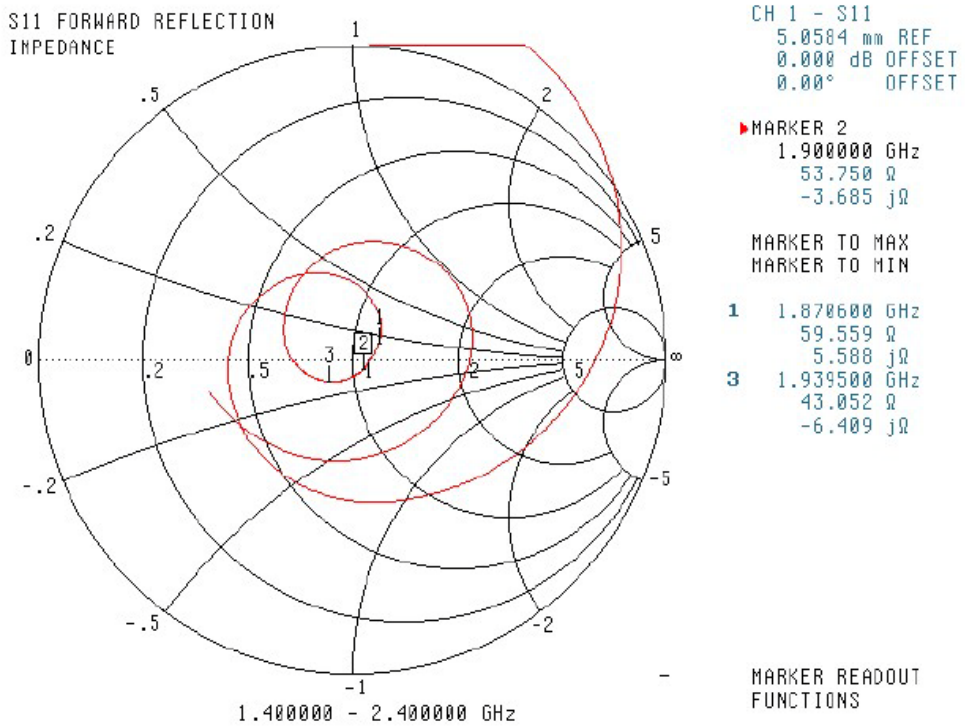
Head Tissue of Impedance(2011)



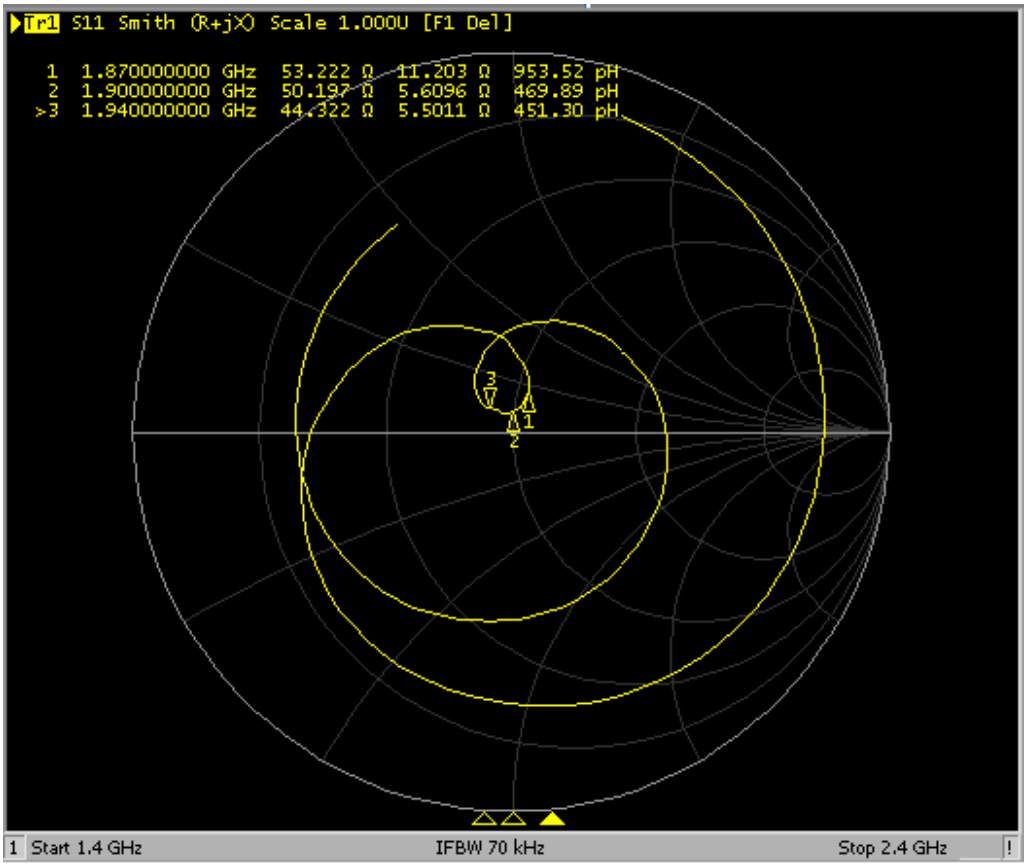
Head Tissue of Impedance(2012 recent)



Body Tissue of Impedance(2011)



Body Tissue of Impedance(2012 recent)


Tr1 S11 Smith (R+jX) Scale 1.000U [F1 Del]
1 1.870000000 GHz 53.222 Ω 11.203 Ω 953.52 pH
2 1.900000000 GHz 50.197 Ω 5.6096 Ω 469.89 pH
>3 1.940000000 GHz 44.322 Ω 5.5011 Ω 451.30 pH
1 Start 1.4 GHz
IFBW 70 kHz
Stop 2.4 GHz