FCC SAR
Measurement and Test Report

For

3Q TECHNOLOGY LIMILED

3/F Jonsim Place, 228 Queen's Road East Wanchai, Hong Kong

FCC ID: RON-MT0729B

FCC Rules:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2003 FCC OET Bulletin 65C (Edition 01-01)
Product Description:	Tablet PC
Tested Model:	MT0729B
Report No.:	STR13058446H
Max. SAR Values:	Head: **1.2867W/kg(1g)** Body: **0.9719 W/kg(1g)**
Tested Date:	2013-06-28 to 2013-07-01
Issued Date:	2013-07-08
Tested By:	Seven Song / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

SEM.Test Compliance Service Co., Ltd
3/F, Jinbao Commerce Building, Xin'an Fanshen Road,
Bao'an District, Shenzhen, P.R.C.（518101）
Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

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1. General Information

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	3Q TECHNOLOGY LIMITED
Address of applicant:	3/F Jonsim Place, 228 Queen's Road East Wanchai, Hong Kong
Manufacturer:	Shenzhen Next Generation Communication Co., Ltd
Address of manufacturer:	501., Bldg.1 Block A, Internet Industrial Zone, Bao Yuan Road, Baoan Dist., Shenzhen

General Description of EUT	
Product Name:	Tablet PC
Trade Name:	3Q
Model No.:	MT0729B
Hardware Version:	P507-MB-V3.0
Software Version:	ALPS.ICS2.MP.3Q.MT0729B.V2.2
IMEI:	894825666555568
Device Category:	Portable Device
RF Exposure Environment:	General Public
Rated Voltage:	DC 3.7V
Power Adapter Model:	YHSW-050100V (Input: AC 100-240V, Output: DC 5V 1000mA)
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
2G	
Support Networks:	GSM, GPRS
Support Band:	GSM850/PCS1900
Uplink Frequency:	GSM/GPRS 850: 824~849MHz GSM/GPRS 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS 850: 869~894MHz GSM/GPRS 1900: 1930~1990MHz
RF Output Power:	GSM850: 31.80dBm, GSM1900: 29.85dBm
Type of Modulation:	GMSK, QPSK
Antenna Type:	Internal Antenna
Antenna Gain:	GSM850: 0dBi GSM1900: 1.0dBi WCDMA Band V: 0dBi
GPRS Class:	Class 12
3G	
Support Networks:	WCDMA
Support Band:	WCDMA Band V
Uplink Frequency:	WCDMA Band V: 824~849MHz
Downlink Frequency:	WCDMA Band V: 869~894MHz
RF Output Power:	WCDMA Band V: 25.86dBm
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band V: 1.0dBi
Bluetooth	
Bluetooth Version:	V2.1+EDR
Frequency Range:	2402-2480MHz
RF Output Power:	6.0 dBm (Conducted)
Type of Modulation:	GFSK, Pi/4 QDPSK, 8DPSK
Data Rate:	1Mbps, 2Mbps, 3Mbps
Antenna Type:	Internal Antenna
Antenna Gain:	1.0 dBi
Wi-Fi	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 11b/g/n-HT20 2422-2452MHz for 11n-HT40
RF Output Power:	17.72 dBm (Conducted)
Modulation Type:	CCK, OFDM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Antenna Type:	Internal Antenna
Antenna Gain:	1.0 dBi

1.2 Test Standards

The following report is prepared on behalf of the 3Q TECHNOLOGY LIMILED in accordance with FCC 47 CFR Part 2.1093, ANSI/IEEE C95.1-1992, IEEE 1528-2003 and FCC OET Bulletin 65 Supplement C (Edition 01-01).

The objective is to determine compliance with FCC Part 2.1093 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with FCC OET Bulletin 65 Supplement C. The public notice KDB 447498 D01 V05 for Mobile and Portable Devices RF Exposure Procedure also.

1.4 Test Facility

FCC – Registration No.: 994117
SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

Industry Canada (IC) Registration No.: 7673A
The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

CNAS Registration No.: L4062
Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin’an Fanshen Road, Bao’an District, Shenzhen, P.R.C (518101)

2. Summary of Test Results

The maximum results of Specific Absorption Rate (SAR) have found during testing are as follows:

Frequency Band	Position	SAR_{1g} (W/kg)	Scaled SAR_{1g} (W/kg)
GSM850	Head	**1.2203**	**1.2867**
GSM1900	Head	**0.9954**	**1.1561**
WCDMA Band V	Head	**0.6475**	**0.6687**
WLAN 2.4GHz	Head	**0.0120**	**0.0128**
GSM850	Body (1.0cm Gap)	**0.9091**	**0.9719**
GSM1900	Body (1.0cm Gap)	**0.6401**	**0.7555**
WCDMA Band V	Body (1.0cm Gap)	**0.4021**	**0.4153**
WLAN 2.4GHz	Body (1.0cm Gap)	**0.1297**	**0.1384**

The device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR Part 2.1093 and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedure specified in IEEE 1528-2003 and FCC OET Bulletin 65 Supplement C (Edition 01-01).

3. Specific Absorption Rate (SAR)

3.1 Introduction

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

3.2 SAR Definition

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

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

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be either related to the temperature elevation in tissue by

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

Where: C is the specific heat capacity, δ T is the temperature rise and δ t is the exposure duration, or related to the
electrical field in the tissue by

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

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

4. SAR Measurement System

4.1 The Measurement System

Comosar is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The Comosar system consists of the following items:
- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.

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

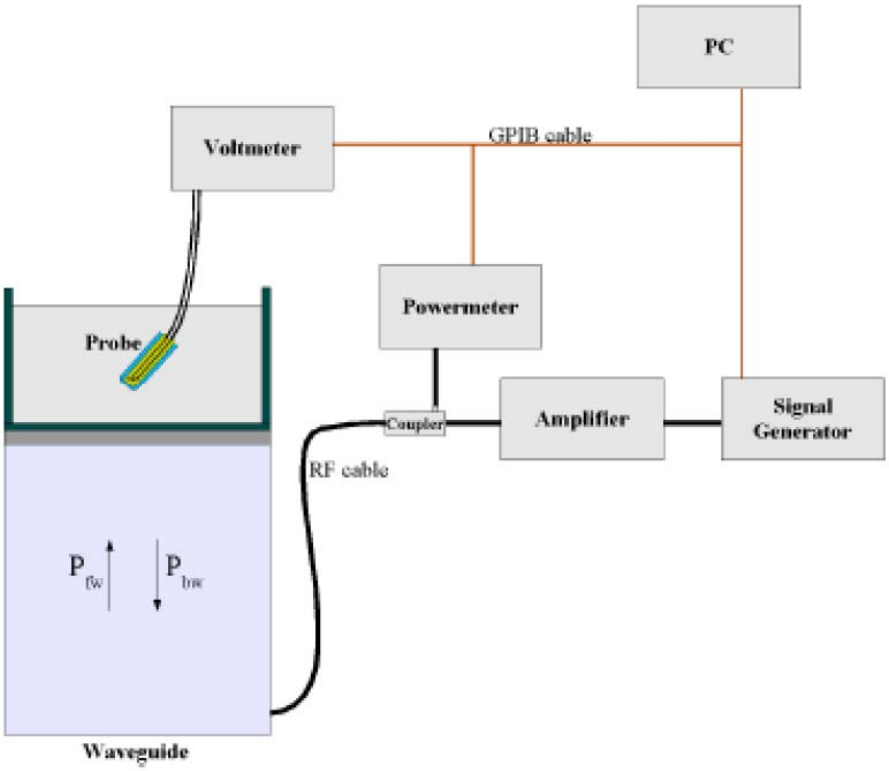
4.2 Probe

For the measurements the Specific Dosimetric E-Field Probe SSE5 SN 22/12 EP155 with following specifications is used
- Dynamic range: 0.01-100 W/kg
- Probe Length: 330 mm
- Length of Individual Dipoles: 4.5 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter : 5 mm
- Distance between dipoles / probe extremity: 2.7mm

- Probe linearity: ＜0.25 dB
- Axial Isotropy: ＜0.25 dB
- Spherical Isotropy: ＜0.50 dB
- Calibration range: 700 to 3000MHz for head & body simulating liquid.

Angle between probe axis (evaluation axis) and suface normal line:1ess than 30°

Probe calibration is realized, in compliance with EN 62209-1 and IEEE 1528 STD, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN 62209-1 annexe technique using reference guide at the five frequencies.



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

Where :

Pfw = Forward Power

Pbw = Backward Power

a and b =Waveguide dimensions

I = Skin depth

Keithley configuration:

Rate = Medium; Filter = ON; RDGS = 10; Filter type = Moving Average; Range auto after each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

The calibration factors, CF(N), for the 3 sensors corresponding to dipole 1, dipole 2 and dipole 3 are:

$$CF(N)=SAR(N)/Vlin(N) \quad (N=1,2,3)$$

The linearised output voltage Vlin(N) is obtained from the displayed output voltage V(N) using

$$Vlin(N)=V(N)*(1+V(N)/DCP(N)) \quad (N=1,2,3)$$

where DCP is the diode compression point in mV.

4.3 Probe Calibration Process

Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. SATIMO Probe calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm2) using an with CALISAR, Antenna proprietary calibration system.

Free Space Assessment Procedure

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1mW/cm2.

Temperature Assessment Procedure

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

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where:

Δt = exposure time (30 seconds),

C = heat capacity of tissue (brain or muscle),

ΔT = temperature increase due to RF exposure.

SAR is proportional to $\Delta T/\Delta t$, the initial rate of tissue heating, before thermal diffusion takes place. The electric field in the simulated tissue can be used to estimate SAR by equating the thermally derived SAR to that with the E- field component.

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

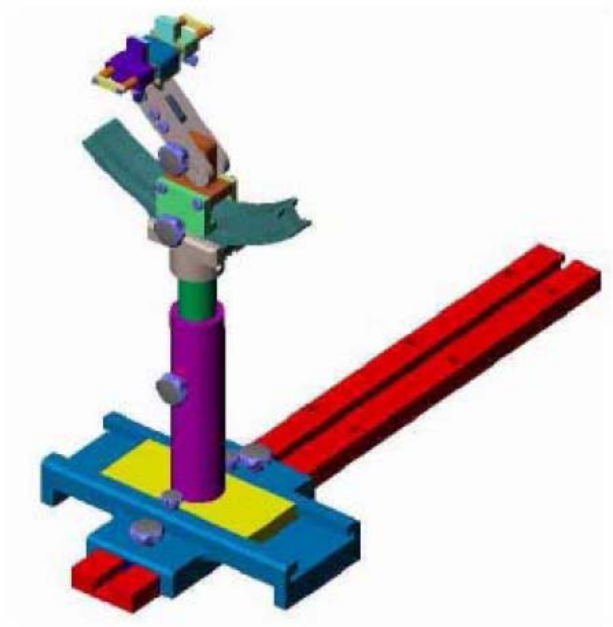
Where:
σ = simulated tissue conductivity,
ρ = Tissue density (1.25 g/cm3 for brain tissue)

4.4 Phantom

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

4.5 Device Holder

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



System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

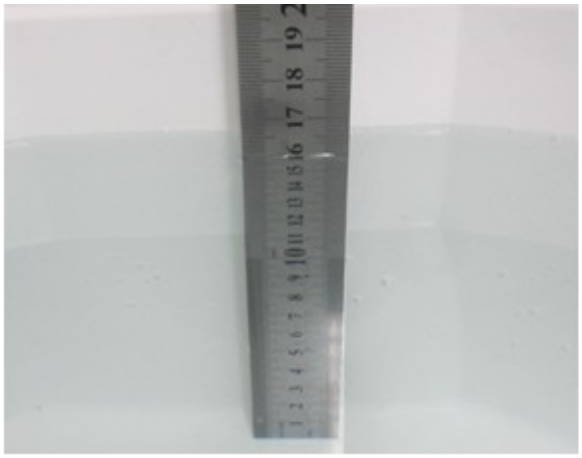
4.6 Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
E-Field Probe	SATIMO	SSE5	SN 22/12 EP155	2012-11-26	2013-11-25
835MHz Dipole	SATIMO	SID835	SN 47/12 DIP 0G835-204	2012-11-26	2013-11-25
1900MHz Dipole	SATIMO	SID1900	SN 47/12 DIP 1G900-207	2012-11-26	2013-11-25
2450MHz Dipole	SATIMO	SID2450	SN 47/12 DIP 2G450-209	2012-11-26	2013-11-25
Dielectric Probe	SATIMO	SCLMP	SN 47/12 OCPG49	2012-11-26	2013-11-25
SAM Phantom	SATIMO	SAM	SN/ 47/12 SAM95	N/A	N/A
Multi Meter	Keithley	Keithley 2000	4006367	2013-05-07	2014-05-06
Signal Generator	Rohde & Schwarz	SMR20	100047	2013-05-07	2014-05-06
Universal Tester	Rohde & Schwarz	CMU200	112012	2013-05-07	2014-05-06
Directional Coupler	Agilent	87300B	3123C03573	2013-05-07	2014-05-06

5. Tissue Simulating Liquids

5.1 Composition of Tissue Simulating Liquid

For the measurement of the field distribution inside the SAM phantom with SMTIMO, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. Please see the following photos for the liquid height.



Liquid Height for Head SAR

Liquid Height for Body SAR

The Composition of Tissue Simulating Liquid

Frequency (MHz)	Water (%)	Salt (%)	Triton (%)	HEC (%)	Preventol (%)	DGBE (%)
Head						
835	35.34	0.98	0.00	0.00	63.68	0.00
1900	55.26	0.52	30.40	0.00	0.00	13.82
2450	55.44	0.32	30.50	0.00	0.00	13.74
Body						
835	52.87	1.07	0.00	0.00	46.10	0.00
1900	69.99	0.41	20.66	0.00	0.00	8.93
2450	55.44	0.32	30.50	0.00	0.00	13.74

5.2 Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

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

5.3 Tissue Calibration Result

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

Calibration Result for Dielectric Parameters of Tissue Simulating Liquid

Head Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
835	21.2	0.88	0.90	-2.22	41.4	41.5	-0.2	±5	06-28-2013
1900	21.3	1.43	1.40	2.14	39.4	40.0	-1.5	±5	06-28-2013
2450	21.3	1.76	1.80	-2.22	38.6	39.2	-1.53	±5	06-28-2013

Body Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
835	21.2	0.96	0.97	-1.1	55.8	55.2	1.1	±5	06-28-2013
1900	21.3	1.54	1.52	1.3	51.2	53.3	-3.9	±5	06-28-2013
2450	21.3	2.00	1.95	2.56	52.3	52.7	-0.76	±5	06-28-2013

6. SAR Measurement Evaluation

6.1 Purpose of System Performance Check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

6.2 System Setup

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

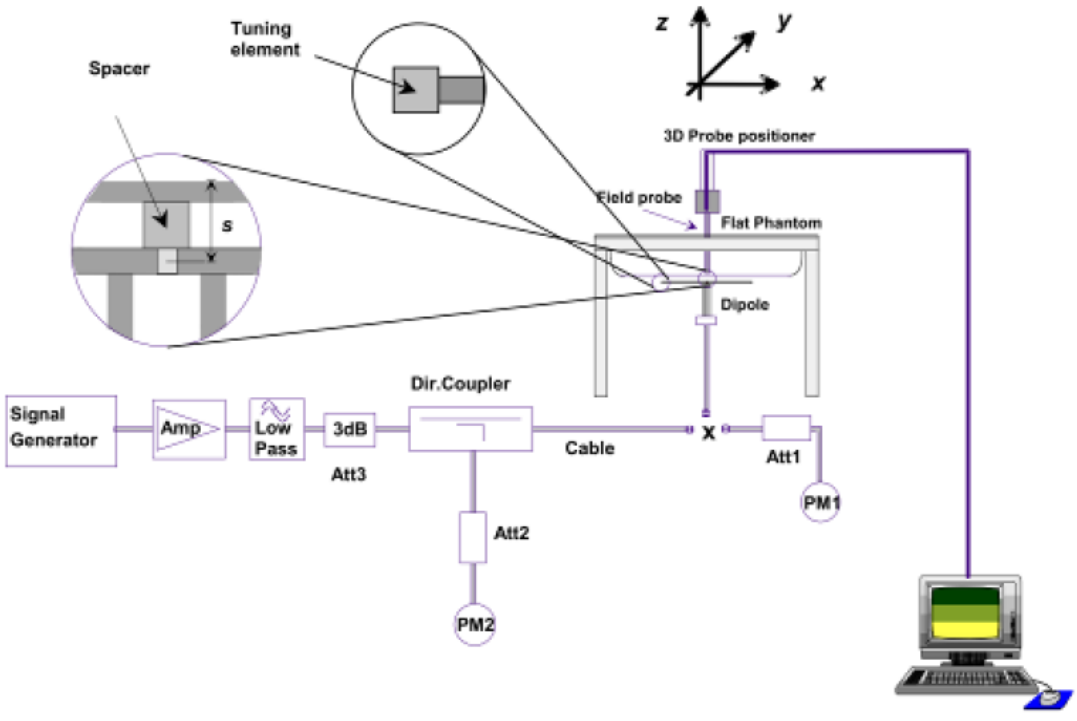


Fig 7.1 System Verification Setup Block Diagram

Fig 7.2 Setup Photo of Dipole Antenna

The output power on dipole port must be calibrated to 24 dBm (250 mW) before dipole is connected.

6.3 Validation Results

Comparing to the original SAR value provided by SATIMO, the validation data should be within its specification of 10 %. Table 6.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion.

Frequency	Liquid	Targeted SAR_{1g}	Measured SAR_{1g}	Normalized SAR_{1g}	Tolerance
MHz	(Head/Body)	(W/kg)	(W/kg)	(W/kg)	(%)
835	Head	9.82	2.43	9.70	-1.22
1900	Head	40.79	9.99	39.94	-2.08
2450	Head	52.50	12.27	49.08	-6.52
835	Body	10.19	2.50	10.00	-1.86
1900	Body	40.41	9.97	39.87	-1.34
2450	Body	51.80	12.90	51.61	-0.37

Table 7.1 Targeted and Measurement SAR

Please refer to Annex A for the plots of system performance check.

7. EUT Testing Position

7.1 Define Two Imaginary Lines on The Handset

(a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

(b) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.

(c) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

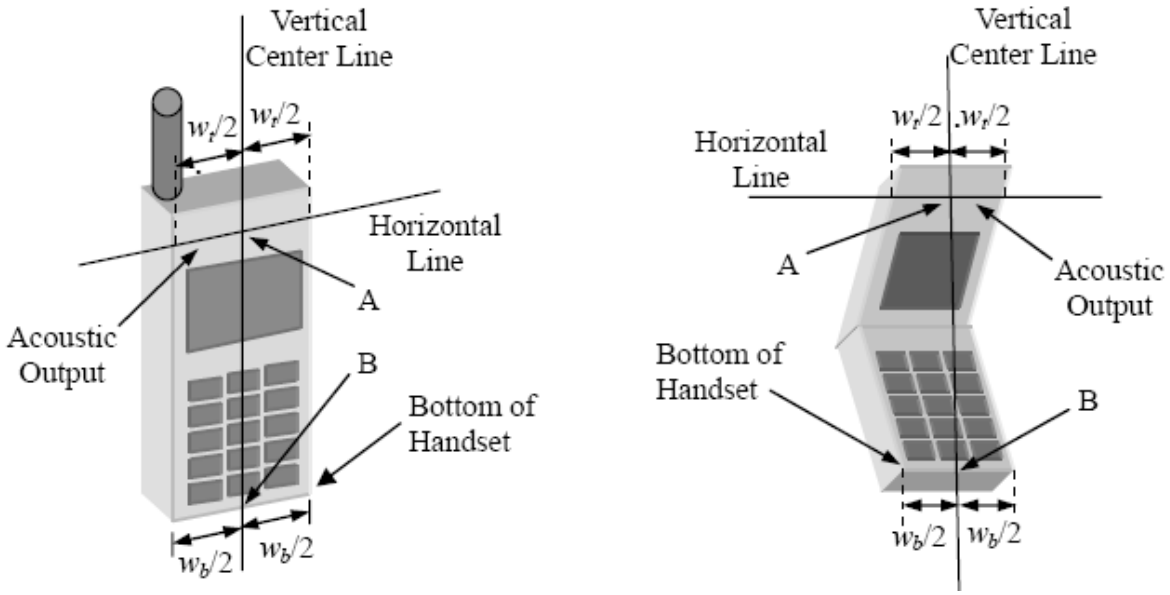


Fig 7.1 Illustration for Handset Vertical and Horizontal Reference Lines

7.2 Cheek Position

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig. 7.2).

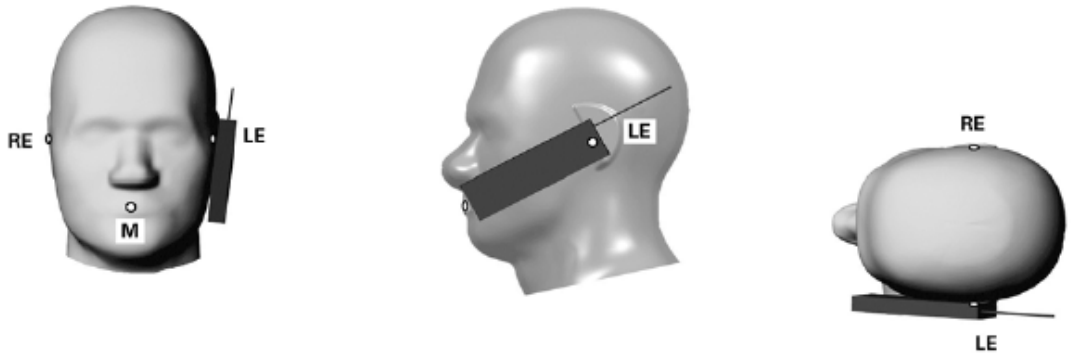


Fig 7.2 Illustration for Cheek Position

7.3 Tilted Position

(a) To position the device in the “cheek” position described above.
(b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig. 7.3).

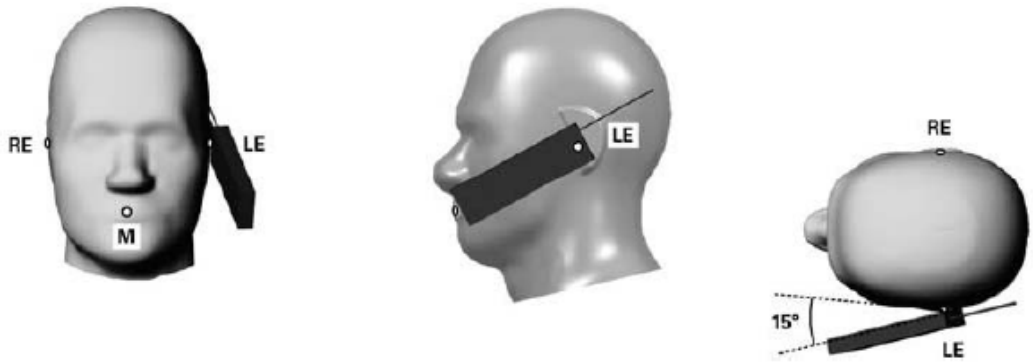


Fig 7.3 Illustration for Tilted Position

7.4 Body Worn Position

(a) To position the device parallel to the phantom surface with either keypad up or down.
(b) To adjust the device parallel to the flat phantom.
(c) To adjust the distance between the device surface and the flat phantom to 1.0cm.

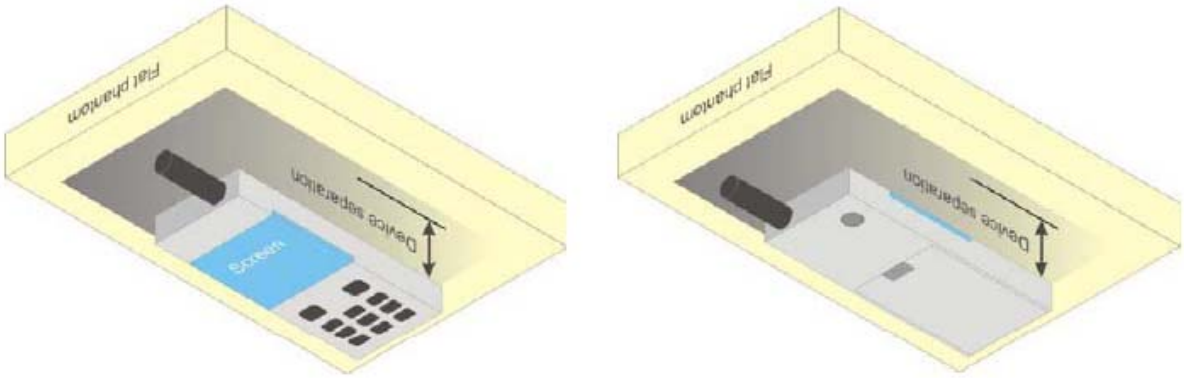


Fig 7.4 Illustration for Body Worn Position

7.5 EUT Antenna Position

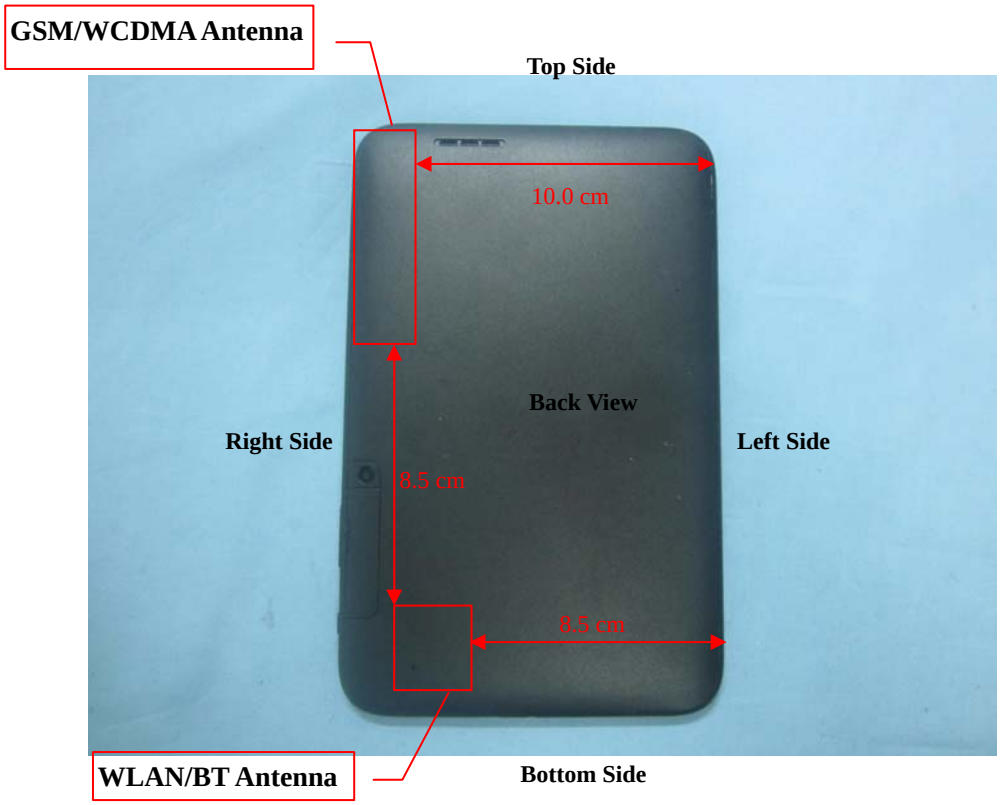


Fig 7.5 Block Diagram for EUT Antenna Position

7.6 EUT Testing Position

Head/Body-worn/Hotspot mode SAR assessments are required for this device. This EUT was tested in different positions for different SAR test modes, more information as below:

Head SAR tests				
Antennas	**Right Cheek**	**Left Cheek**	**Right Tilted**	**Left Tilted**
GSM	Yes	Yes	Yes	Yes
WCDMA	Yes	Yes	Yes	Yes
WLAN	Yes	Yes	Yes	Yes

Body SAR tests, Body-worn mode, Test distance: 10mm			
Antennas	**Front**	**Back**	**Body-worn with headset**
GSM	Yes	Yes	Yes
WCDMA	Yes	Yes	Yes
WLAN	Yes	Yes	Yes

All sides for Body SAR tests, Hotspot mode, Test distance: 10mm						
Antennas	**Front**	**Back**	**Top Side**	**Bottom Side**	**Right Side**	**Left Side**
GPRS	Yes	Yes	Yes	No	Yes	No
WLAN	Yes	Yes	No	Yes	Yes	No

Remark:

1. Referring to KDB 941225 D06, when the overall device length and width are >= 9cm*5cm, the test separation is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
2. For WWAN antenna, SAR measurements at Bottom/Left side are not required since the distance between WWAN transmitting antenna and surface or edge > 25mm.
3. For WLAN & Bluetooth antenna, SAR measurements Up/Left sides are not required since the distance between WLAN & Bluetooth transmitting antenna and surface or edge > 25mm.

Please refer to Annex D for the EUT test setup photos.

8. SAR Measurement Procedures

8.1 Measurement Procedures

The measurement procedures are as follows:
(a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the highest power channel.
(b) Keep EUT to radiate maximum output power or 100% factor (if applicable)
(c) Measure output power through RF cable and power meter.
(d) Place the EUT in the positions as Annex E demonstrates.
(e) Set scan area, grid size and other setting on the SATIMO software.
(f) Measure SAR results for the highest power channel on each testing position.
(g) Find out the largest SAR result on these testing positions of each band
(h) Measure SAR results for other channels in worst SAR testing position if the SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:
(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

8.2 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The SATIMO software includes all numerical procedures necessary to evaluate the spatial peak SAR value.
The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.
The entire evaluation of the spatial peak values is performed within the post-processing engine. The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:
(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

8.3 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures 5x5x7 points with step size 8, 8 and 5 mm for 300 MHz to 3 GHz, and 8x8x8 points with step size 4, 4 and 2.5 mm for 3 GHz to 6 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

8.4 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing (step-size is 4, 4 and 2.5 mm). When all volume scan were completed, the software can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.5 SAR Averaged Methods

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

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

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

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In SATIMO measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

9. SAR Test Result

9.1 Conducted RF Output Power

GSM - Burst Average Power (dBm)						
Band	**GSM850**			**PCS1900**		
Channel	**128**	**190**	**251**	**512**	**661**	**810**
Frequency (MHz)	**824.2**	**836.4**	**848.8**	**1850.2**	**1880**	**1909.8**
GSM	31.77	31.71	31.70	29.67	29.35	29.85
GPRS (1 slot)	31.80	31.75	31.70	29.67	29.37	29.81
GPRS (2 slots)	30.90	30.89	30.83	28.70	28.32	28.86
GPRS (3 slots)	29.15	29.09	29.05	26.91	26.53	27.02
GPRS (4 slots)	28.35	28.31	28.24	26.14	25.71	26.28

GSM - Source-Based Time-Average Power (dBm)						
Band	**GSM850**			**PCS1900**		
Channel	**128**	**190**	**251**	**512**	**661**	**810**
Frequency (MHz)	**824.2**	**836.4**	**848.8**	**1850.2**	**1880**	**1909.8**
GSM	22.77	22.71	22.70	20.67	20.35	20.85
GPRS (1 slot)	22.80	22.75	22.70	20.67	20.37	20.81
GPRS (2 slots)	24.90	24.89	24.83	22.70	22.32	22.86
GPRS (3 slots)	24.90	24.84	24.80	22.66	22.28	22.77
GPRS (4 slots)	25.35	25.31	25.24	23.14	22.71	23.28
Note: The source-based time-averaged power is linearly scaled the maximum burst averaged power based on time slots. The calculated method are shown as below: Source based time-average power = Burst averaged power - Duty cycle factor in dB Duty cycle factor = 9 dB for 1 Tx slot, 6 dB for 2 Tx slots, 4.25 dB for 3 Tx slots, 3 dB for 4 Tx slots						

Remark:

1. For Head SAR testing, GSM should be evaluated, therefore the EUT was set in GSM for GSM850 and GSM1900 due to its highest source-based time-average power.
2. For Body SAR testing, GPRS should be evaluated, therefore the EUT was set in GPRS (4 Tx slots) for GSM850 and GSM1900 due to its highest source-based time-average power.
3. Per KDB 447498, the maximum output power channel is used for SAR testing and for further SAR test reduction.
4. The DUT do not support DTM function.

WCDMA - Average Power (dBm)						
Band	**WCDMA Band V**					
Channel	**4132**	**4182**	**4233**			
Frequency (MHz)	**826.4**	**836.4**	**846.6**			
AMR	24.75	25.86	25.06			

WLAN - Maximum Average Power				
Test Mode	**Data Rate**	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**
802.11b	1Mbps	CH 01	2412	17.29
		CH 06	2437	17.44
		CH 11	2462	17.72
802.11g	54Mbps	CH 01	2412	15.72
		CH 06	2437	15.49
		CH 11	2462	15.24
802.11n (20MHz)	MCS7	CH 01	2412	14.52
		CH 06	2437	14.55
		CH 11	2462	14.63
802.11n (40MHz)	MCS7	CH 03	2422	14.65
		CH 06	2437	14.65
		CH 09	2452	14.45

Remark:

1. Per KDB 248227, choose the highest output power channel to test SAR and determine further SAR exclusion
2. Per KDB 248227, if 11g and 11n average output power is higher than 1/4 dB higher than 11b mode, SAR will be verified.
3. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 1/4 dB higher than those measured at the lowest data rate. For 802.11n mode, SAR test according to the highest power channel with correspondence data rates.

Bluetooth - Maximum Average Power				
Test Mode	**Data Rate**	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**
GFSK	1Mbps	CH 00	2402	6.0
		CH 39	2441	5.2
		CH 78	2480	5.8
Pi/4 DQPSK	2Mbps	CH 00	2402	5.6
		CH 39	2441	5.3
		CH 78	2480	5.3
8DPSK	3Mbps	CH 00	2402	5.6
		CH 39	2441	5.4
		CH 78	2480	5.2

Remark:

Bluetooth maximum output power (including tune-up tolerance) is 6.0dBm. Per KDB 648474 D01, 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,16 where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation17
- The result is rounded to one decimal place for comparison

Max. Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
6	3.98	5	2.48	1.26	3

The exclusion thresoholds is 1.26 < 3, therefore, the RF exposure evaluation is not required.

9.2 Test Results for Standalone SAR Test

Head SAR

GSM850 – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
1	GSM	Right Cheek	128	824.2	31.77	32	1.05	0.6829	0.7200
2	GSM	Right Tilted	128	824.2	31.77	32	1.05	0.4832	0.5095
3	GSM	Left Cheek	128	824.2	31.77	32	1.05	1.2203	1.2867
4	GSM	Left Cheek	190	836.4	31.71	32	1.07	1.1028	1.1790
5	GSM	Left Cheek	251	848.8	31.70	32	1.07	1.1395	1.2210
6	GSM	Left Tilted	128	824.2	31.77	32	1.05	0.6962	0.7341

WCDMA Band V – Head SAR Test									
Plot No.	Mode	Test Postion Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
7	AMR	Right Cheek	4182	836.4	25.86	26	1.03	0.4935	0.5097
8	AMR	Right Tilted	4182	836.4	25.86	26	1.03	0.3391	0.3502
9	AMR	Left Cheek	4182	836.4	25.86	26	1.03	0.6475	0.6687
10	AMR	Left Tilted	4182	836.4	25.86	26	1.03	0.4043	0.4175

GSM1900 – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
11	GSM	Right Cheek	810	1909.8	29.85	30	1.04	0.5069	0.5247
12	GSM	Right Tilted	810	1909.8	29.85	30	1.04	0.2173	0.2249
13	GSM	Left Cheek	810	1909.8	29.85	30	1.04	0.8793	0.9102
14	GSM	Left Cheek	190	836.4	29.67	30	1.08	1.0414	1.1236
15	GSM	Left Cheek	251	848.8	29.35	30	1.16	0.9954	1.1561
16	GSM	Left Tilted	810	1909.8	29.85	30	1.04	0.6251	0.6471

WLAN 2.4GHz – Head SAR Test									
Plot No.	Mode	Test Postion Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
17	802.11b	Right Cheek	13	2462	17.72	18	1.07	0.0120	0.0128
18	802.11b	Right Tilted	13	2462	17.72	18	1.07	0.0016	0.0017
19	802.11b	Left Cheek	13	2462	17.72	18	1.07	0.0033	0.0035
20	802.11b	Left Tilted	13	2462	17.72	18	1.07	0.0011	0.0012

Remark: Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

Body-worn SAR

GSM850 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Postion Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
21	GSM	Body-worn	128	824.2	31.77	32	1.05	0.8806	0.9285
22	GSM	Body-worn	190	836.4	31.71	32	1.07	0.9091	0.9719
23	GSM	Body-worn	251	848.8	31.70	32	1.07	0.8333	0.8929

WCDMA Band V – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Postion Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
24	AMR	Body-worn	4182	836.4	25.86	26	1.03	0.4021	0.4153

GSM1900 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Postion Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
29	GSM	Body-worn	810	1909.8	29.85	30	1.04	0.3042	0.3149

WLAN 2.4GHz –Body SAR Test(Gap: 10mm)									
Plot No.	Mode	Test Postion Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
34	802.11b	Body-worn	13	2462	17.72	18	1.07	0.0219	0.0234

Remark:

1. Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.
2. The Body-worn SAR for the back device with headset position is worst case and was reported.

Hotspot SAR

GSM850 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Postion Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
25	GPRS_4TX	Front	128	824.2	28.35	29	1.16	0.7865	0.9135
26	GPRS_4TX	Back	128	824.2	28.35	29	1.16	0.7957	0.9242
27	GPRS_4TX	Top side	128	824.2	28.35	29	1.16	0.4698	0.5456
28	GPRS_4TX	Right side	128	824.2	28.35	29	1.16	0.7229	0.8396

GSM1900 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Postion Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
30	GPRS_4TX	Front	810	1909.8	26.28	27	1.18	0.5427	0.6404
31	GPRS_4TX	Back	810	1909.8	26.28	27	1.18	0.6401	0.7555
32	GPRS_4TX	Top side	810	1909.8	26.28	27	1.18	0.5429	0.6408
33	GPRS_4TX	Right side	810	1909.8	26.28	27	1.18	0.4116	0.4858

WLAN 2.4GHz –Body SAR Test(Gap: 10mm)									
Plot No.	Mode	Test Postion Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
35	802.11b	Front	11	2462	17.72	18	1.07	0.0975	0.1043
36	802.11b	Back	11	2462	17.72	18	1.07	0.1297	0.1384
37	802.11b	Bottom side	11	2462	17.72	18	1.07	0.0047	0.0051
38	802.11b	Right side	11	2462	17.72	18	1.07	0.0193	0.0207

Remark: Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

9.3 Simultaneous Multi-band Transmission SAR Analysis

List of Mode for Simultanous Multi-band Transmission

No.	Configurations	Head SAR	Body-worn SAR	Hotspot SAR
1	GSM + WLAN	Yes	Yes	-
2	WCDMA + WLAN	Yes	Yes	-
3	GPRS + WLAN (Hotspot)	-	-	Yes
4	GSM + Bluetooth	Yes	Yes	-
5	WCDMA + Bluetooth	Yes	Yes	-
6	GPRS + Bluetooth (Tethering)	-	-	Yes

Remark:

1. GSM and WCDMA share the same antenna, and cannot transmit simultaneously.
2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. According to the KDB 447498 D01v05r01, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

(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.

For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v05r01 as below:

Bluetooth Max. Power (dBm)	Frequency (GHz)	Exposure Position	Head	Hotspot	Body-worn
		Test sparation	0 mm	10 mm	10 mm
		Antenna to user distance	5 mm	10 mm	10 mm
6	2.48	Estimated SAR (W/kg)	0.168	0.084	0.084

4. The maximum SAR summation is calculated based on the same configuration and test position. If 1g-SAR scalar summation < 1.6W/kg, simultaneous SAR measurement is not necessary.

Head SAR

WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Right Cheek	GSM850	0.7200	0.0128	0.7328
Right Tilted	GSM850	0.5095	0.0017	0.5112
Left Cheek	GSM850	1.2867	0.0035	**1.2902**
Left Tilted	GSM850	1.2210	0.0012	1.2222
Right Cheek	GSM1900	0.5247	0.0128	0.5375
Right Tilted	GSM1900	0.2249	0.0017	0.2266
Left Cheek	GSM1900	1.1561	0.0035	1.1596
Left Tilted	GSM1900	0.6471	0.0012	0.6483
Right Cheek	WCDMA Band V	0.5097	0.0128	0.5225
Right Tilted	WCDMA Band V	0.3502	0.0017	0.3519
Left Cheek	WCDMA Band V	0.6687	0.0035	0.6722
Left Tilted	WCDMA Band V	0.4175	0.0012	0.4187

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Right Cheek	GSM850	0.7200	0.168	0.8880
Right Tilted	GSM850	0.5095	0.168	0.6775
Left Cheek	GSM850	1.2867	0.168	**1.4547**
Left Tilted	GSM850	1.2210	0.168	1.3890
Right Cheek	GSM1900	0.5247	0.168	0.6927
Right Tilted	GSM1900	0.2249	0.168	0.3929
Left Cheek	GSM1900	1.1561	0.168	1.3241
Left Tilted	GSM1900	0.6471	0.168	0.8151
Right Cheek	WCDMA Band V	0.5097	0.168	0.6777
Right Tilted	WCDMA Band V	0.3502	0.168	0.5182
Left Cheek	WCDMA Band V	0.6687	0.168	0.8367
Left Tilted	WCDMA Band V	0.4175	0.168	0.5855

Body-worn SAR

WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Body-worn	GSM850	0.9719	0.0234	**0.9953**
Body-worn	GSM1900	0.3149	0.0234	0.3383
Body-worn	WCDMA Band V	0.4153	0.0234	0.4387

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Body-worn	GSM850	0.9719	0.084	**1.0559**
Body-worn	GSM1900	0.3149	0.084	0.3989
Body-worn	WCDMA Band V	0.4153	0.084	0.4993

Hotspot SAR

WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Front	GSM850	0.9135	0.1043	1.0178
Back	GSM850	0.9242	0.1384	**1.0626**
Top side	GSM850	0.5456	-	0.5456
Bottom side	-	-	0.0051	0.0051
Right side	GSM850	0.8396	0.0207	0.8603
Left side	-	-	-	-
Front	GSM1900	0.6404	0.1043	0.7447
Back	GSM1900	0.7555	0.1384	0.8939
Top side	GSM1900	0.6408	-	0.6408
Bottom side	-	-	0.0051	0.0051
Right side	GSM1900	0.4858	0.0207	0.5065
Left side	-	-	-	-

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Front	GSM850	0.9135	0.084	0.9975
Back	GSM850	0.9242	0.084	**1.0082**
Top side	GSM850	0.5456	-	0.5456
Bottom side	-	-	0.084	0.0840
Right side	GSM850	0.8396	0.084	0.9236
Left side	-	-	-	-
Front	GSM1900	0.6404	0.084	0.7244
Back	GSM1900	0.7555	0.084	0.8395
Top side	GSM1900	0.6408	-	0.6408
Bottom side	-	-	0.084	0.0840
Right side	GSM1900	0.4858	0.084	0.5698
Left side	-	-	-	-

10. Measurement Uncertainty

10.1 Uncertainty for EUT SAR Test

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	**Sec.**	**Tol (+- %)**	**Prob. Dist.**	**Div.**	**Ci (1g)**	**Ci (10g)**	**1g Ui (+-%)**	**10g Ui (+-%)**	**Vi**
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	∝
Axial Isotropy	E.2.2	2.5	R	√3	(1_Cp)^1/2	(1_Cp)^1/2	1.02	1.02	∝
Hemispherical Isotropy	E.2.2	4.0	R	√3	(Cp)^1/2	(Cp)^1/2	1.63	1.63	∝
Boundary effect	E.2.3	1.0	R	√3	1	1	0.58	0.58	∝
Linearity	E.2.4	5.0	R	√3	1	1	2.89	2.89	∝
System detection limits	E.2.5	1.0	R	√3	1	1	0.58	0.58	∝
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∝
Reponse Time	E.2.7	3.0	R	√3	1	1	1.73	1.73	∝
Integration Time	E.2.8	2.0	R	√3	1	1	1.15	1.15	∝
RF ambient Conditions	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	√3	1	1	1.15	1.15	∝
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	√3	1	1	0.03	0.03	∝
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5.2	5.0	R	√3	1	1	2.89	2.89	∝
Test Sample Related									
Test sample positioning	E.4.2.1	0.03	N	1	1	1	0.03	0.03	N−1
Device Holder Uncertainty	E.4.1.1	5.00	N	1	1	1	5.00	5.00	
Output power Variation - SAR drift measurement	6.6.2	12.02	R	√3	1	1	6.94	6.94	∝
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	√3	1	1	0.03	0.03	∝
Liquid conductivity - deviation from target value	E.3.2	5.00	R	√3	0.64	0.43	1.85	1.24	
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	
Liquid permittivity - deviation from target value	E.3.2	0.37	R	√3	0.6	0.49	0.13	0.10	
Liquid permittivity -	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M

measurement uncertainty									
Combined Standard Uncertainty			RSS				12.98	12.53	
Expanded Uncertainty (95% Confidence interval)			K=2				25.32	24.43	

10.2 Uncertainty for System Performance Check

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	**Sec.**	**Tol (+- %)**	**Prob. Dist.**	**Div.**	**Ci (1g)**	**Ci (10g)**	**1g Ui (+-%)**	**10g Ui (+-%)**	**Vi**
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	∝
Axial Isotropy	E.2.2	2.5	R	√3	(1_Cp)^1/2	(1_Cp)^1/2	1.02	1.02	∝
Hemispherical Isotropy	E.2.2	4.0	R	√3	(Cp)^1/2	(Cp)^1/2	1.63	1.63	∝
Boundary effect	E.2.3	1.0	R	√3	1	1	0.58	0.58	∝
Linearity	E.2.4	5.0	R	√3	1	1	2.89	2.89	∝
System detection limits	E.2.5	1.0	R	√3	1	1	0.58	0.58	∝
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∝
Reponse Time	E.2.7	3.0	R	√3	1	1	1.73	1.73	∝
Integration Time	E.2.8	2.0	R	√3	1	1	1.15	1.15	∝
RF ambient Conditions	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	√3	1	1	1.15	1.15	∝
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	√3	1	1	0.03	0.03	∝
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5.2	5.0	R	√3	1	1	2.89	2.89	∝
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	√3	1	1	0.58	0.58	N–1
Input power and SAR drift measurement	8,6.6.2	12.02	R	√3	1	1	6.94	6.94	∝
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	√3	1	1	0.03	0.03	∝
Liquid conductivity - deviation from target value	E.3.2	5.00	R	√3	0.64	0.43	1.85	1.24	

Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	
Liquid permittivity - deviation from target value	E.3.2	0.37	R	√3	0.6	0.49	0.13	0.10	
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M
Combined Standard Uncertainty			RSS				12.00	11.50	
Expanded Uncertainty (95% Confidence interval)			K=2				23.39	22.43	

Annex A. Plots of System Performance Check

MEASUREMENT 1

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 28/6/2013

Measurement duration: 7 minutes 21 seconds

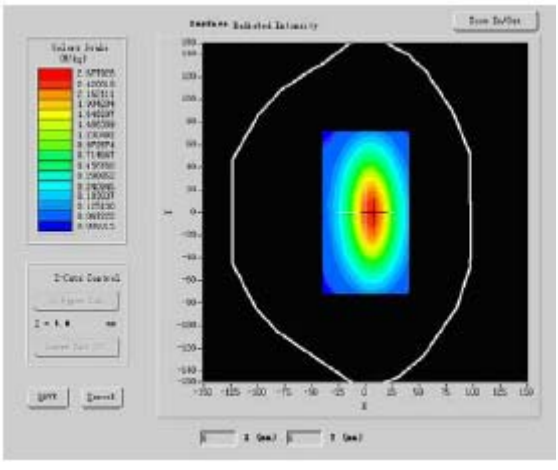
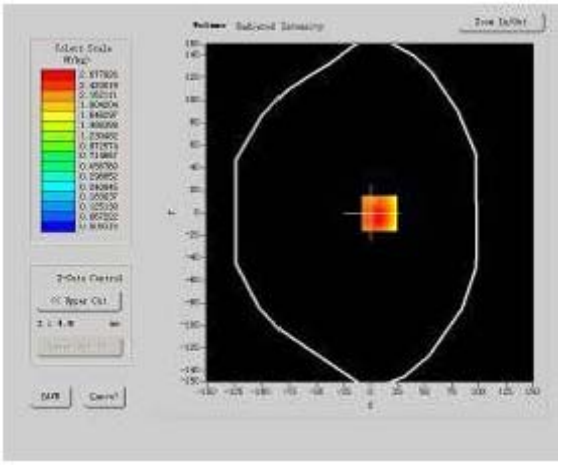
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Channels	Middle
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	1.810000
Ambient Temperature	21.1
Liquid Temperature	21.3

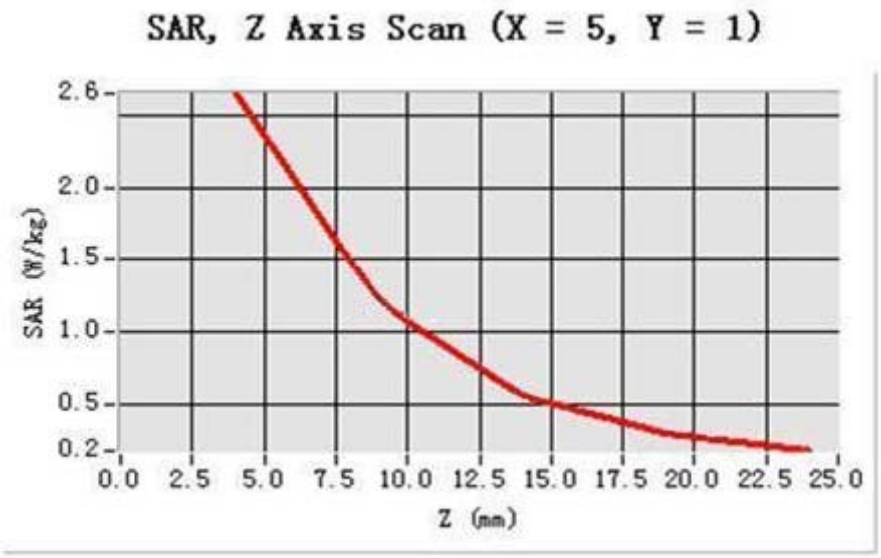
SURFACE SAR	VOLUME SAR
	

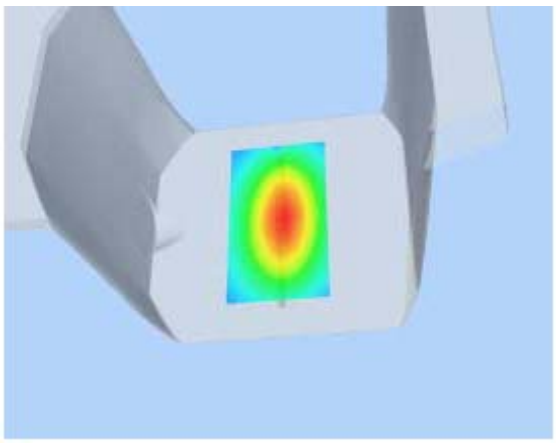
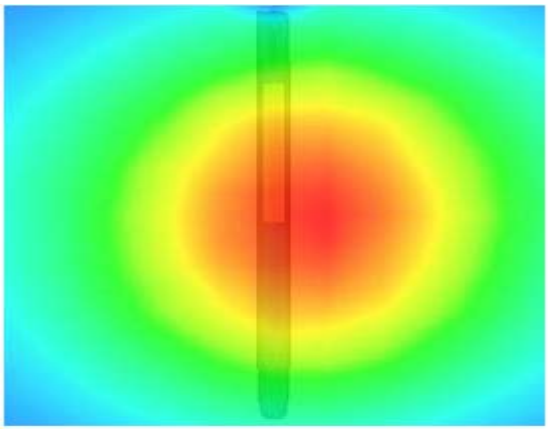
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.673405
SAR 1g (W/Kg)	2.430230

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**2.5662**	**1.2246**	**0.5256**	**0.2110**	**0.1583**	**0.1044**



3D screen shot	**Hot spot position**
	

MEASUREMENT 2

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 28/6/2013

Measurement duration: 12 minutes 21 seconds

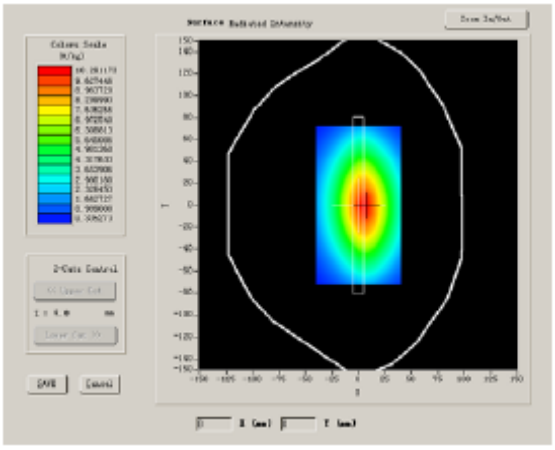
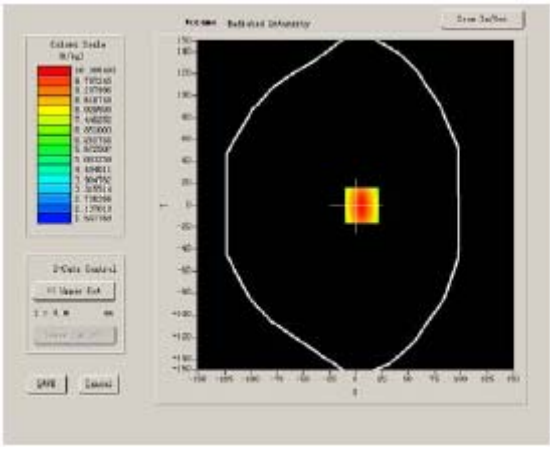
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.26; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Channels	Middle
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	1900
Relative Permittivity (real part)	39.40020
Conductivity (S/m)	1.431000
Power Variation (%)	-0.523000
Ambient Temperature	21.1
Liquid Temperature	21.3

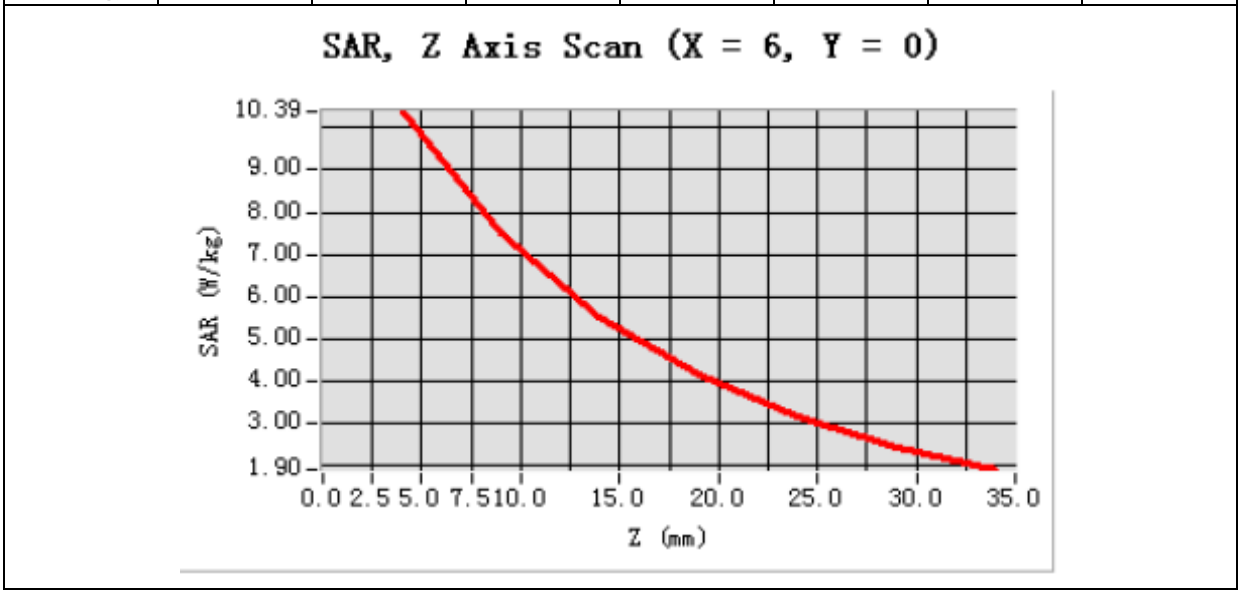
SURFACE SAR	VOLUME SAR
	

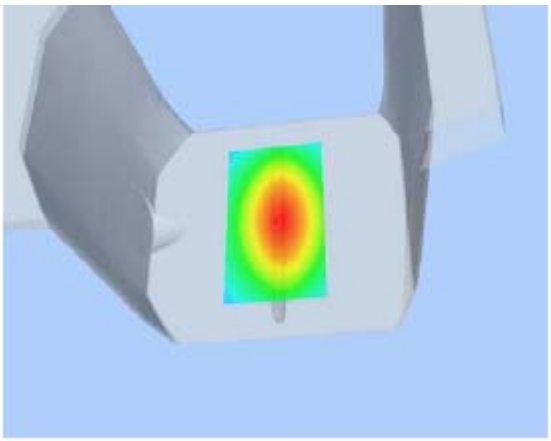
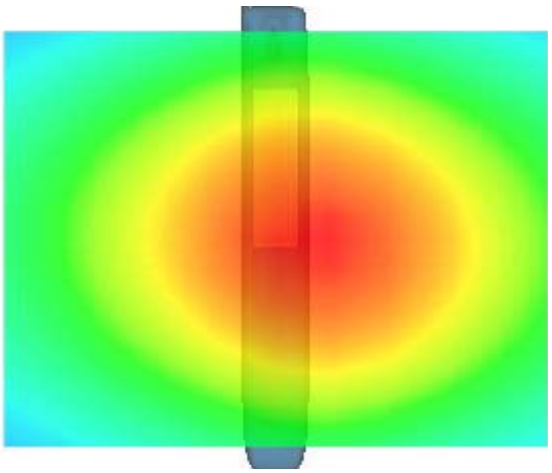
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	7.110000
SAR 1g (W/Kg)	9.990120

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**10.3855**	**7.4995**	**5.5372**	**4.1562**	**3.1631**	**2.4388**



3D screen shot	**Hot spot position**
	

MEASUREMENT 3

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 28/6/2013

Measurement duration: 12 minutes 21 seconds

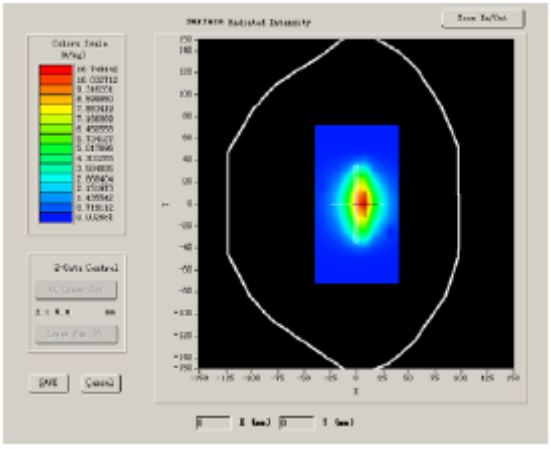
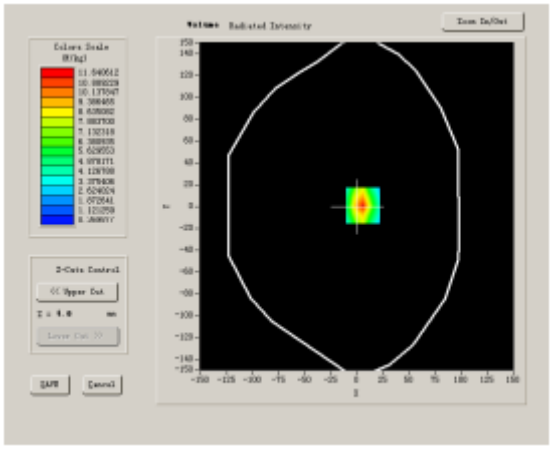
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.12; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Channels	Middle
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	2450
Relative Permittivity (real part)	38.60127
Conductivity (S/m)	1.760200
Power Variation (%)	0.740000
Ambient Temperature	21.1
Liquid Temperature	21.3

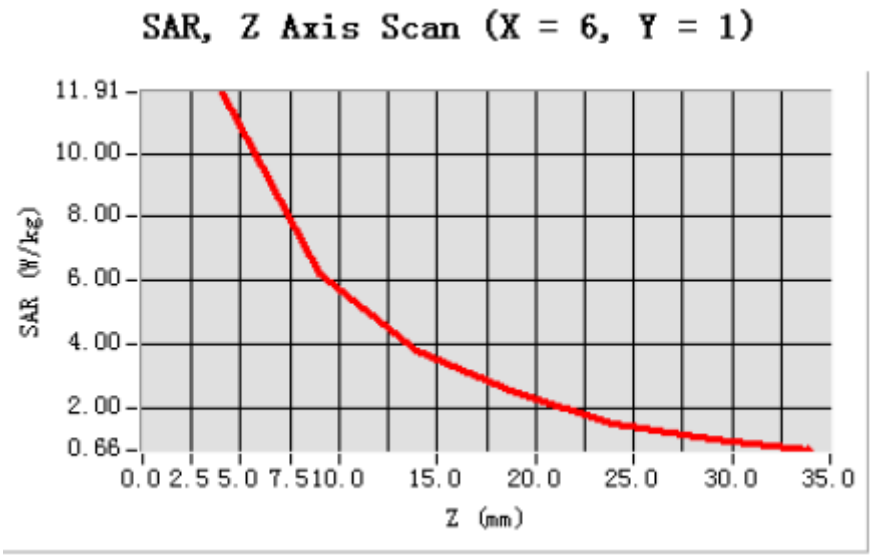
SURFACE SAR	VOLUME SAR
	

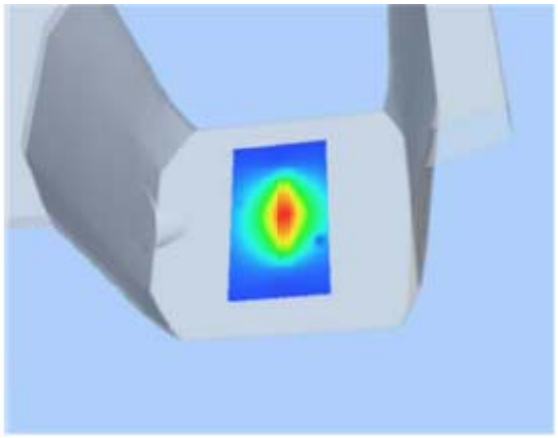
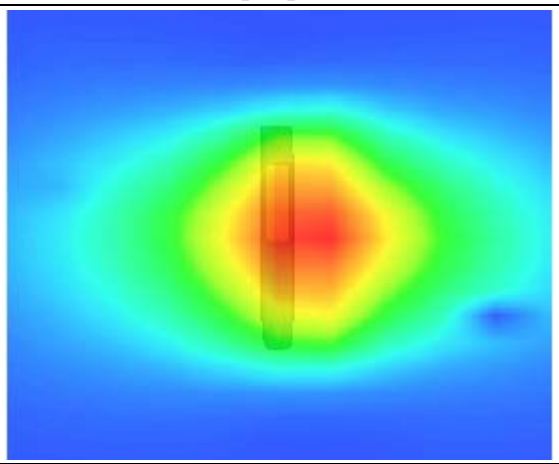
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	7.880124
SAR 1g (W/Kg)	12.272403

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**12.2152**	**6.2122**	**3.8192**	**2.4501**	**1.5033**	**1.0217**



3D screen shot	**Hot spot position**
	

MEASUREMENT 4

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 28/6/2013

Measurement duration: 12 minutes 21 seconds

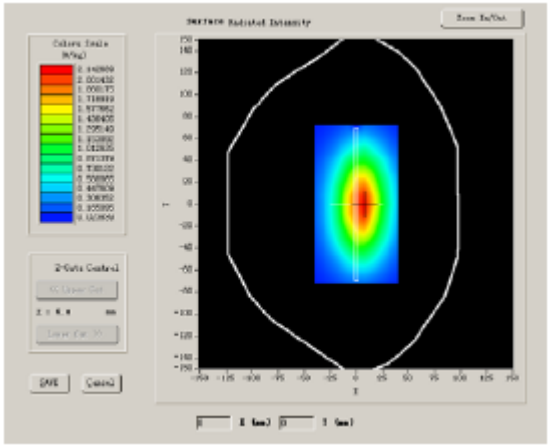
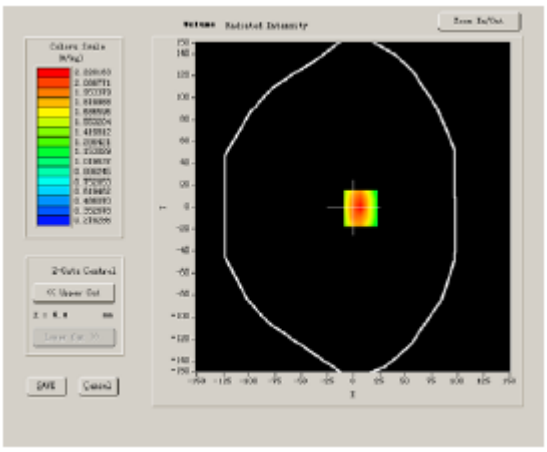
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.71; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Channels	Middle
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	835
Relative Permittivity (real part)	55.802100
Conductivity (S/m)	0.96000
Power Variation (%)	0.80000
Ambient Temperature	21.1
Liquid Temperature	21.3

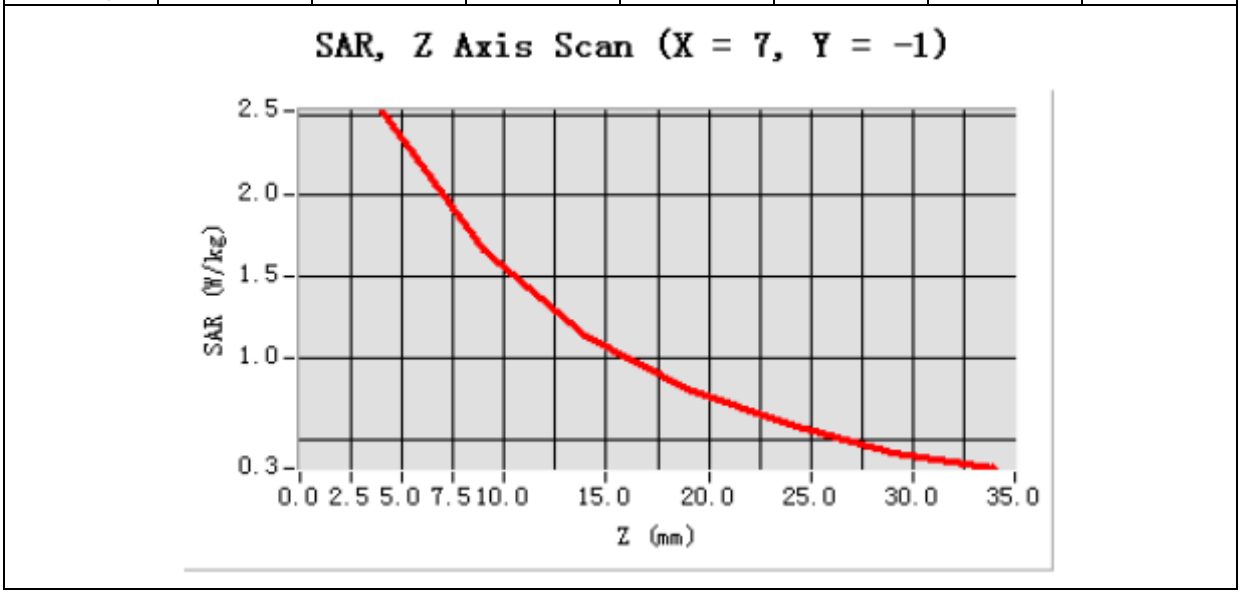
SURFACE SAR	VOLUME SAR
	

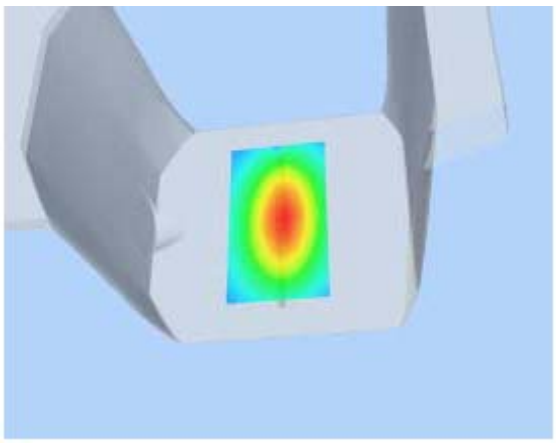
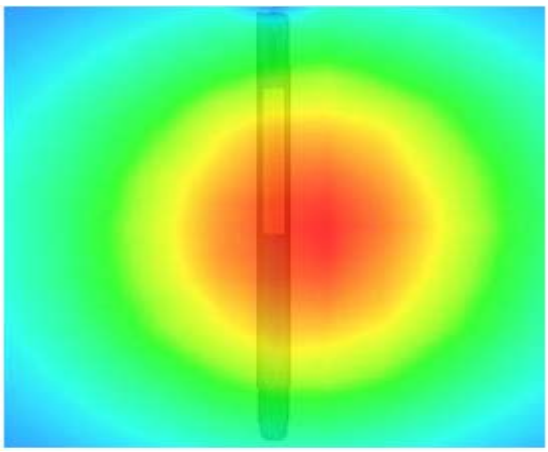
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.621260
SAR 1g (W/Kg)	2.504560

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**2.5231**	**1.6634**	**1.1442**	**0.8077**	**0.5892**	**0.4142**



3D screen shot	**Hot spot position**
	

MEASUREMENT 5

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 28/6/2013

Measurement duration: 12 minutes 21 seconds

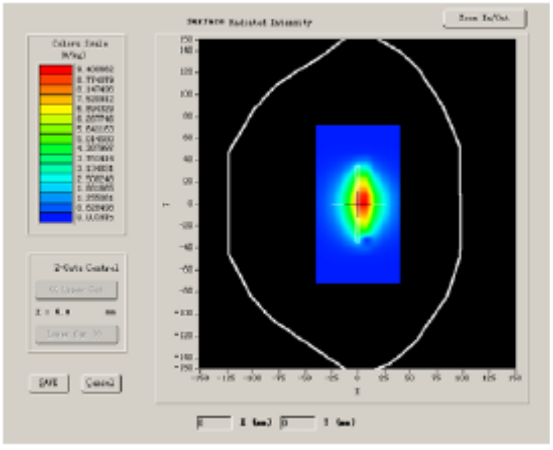
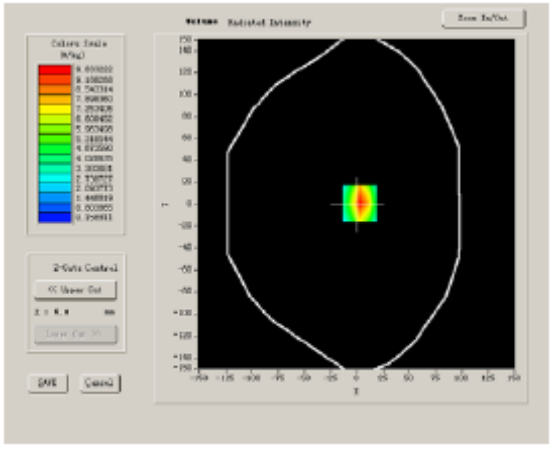
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.38; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Channels	Middle
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	1900
Relative Permittivity (real part)	51.20200
Conductivity (S/m)	1.540200
Power Variation (%)	0.752100
Ambient Temperature	21.1
Liquid Temperature	21.3

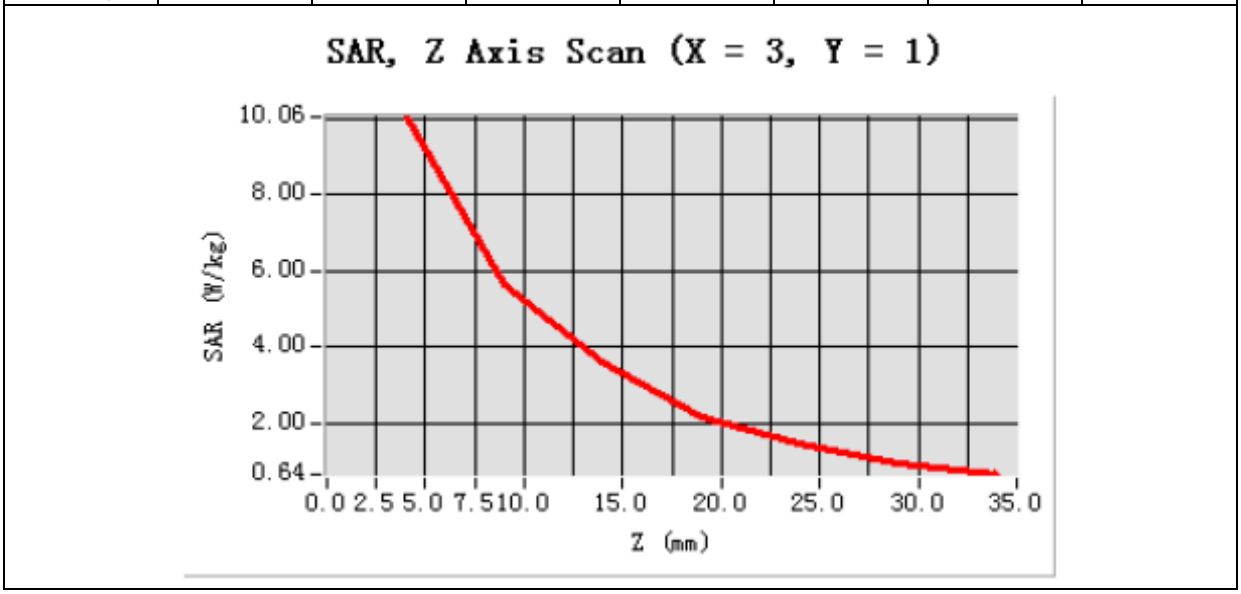
SURFACE SAR	VOLUME SAR
	

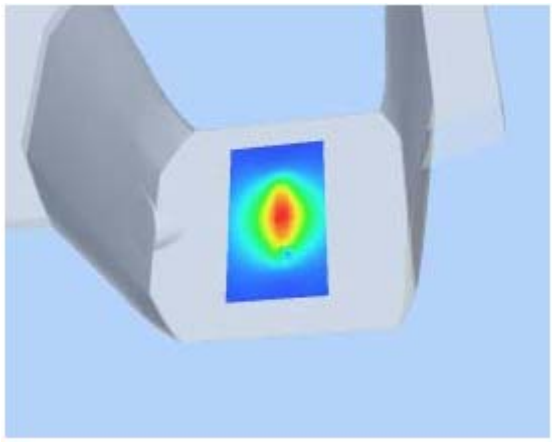
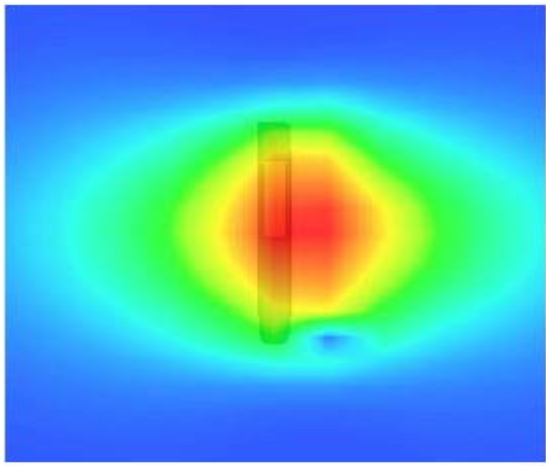
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	5.112530
SAR 1g (W/Kg)	9.970239

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**10.1566**	**5.6120**	**3.6547**	**2.1833**	**1.4609**	**0.9110**



3D screen shot	**Hot spot position**
	

MEASUREMENT 6

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 28/6/2013

Measurement duration: 12 minutes 21 seconds

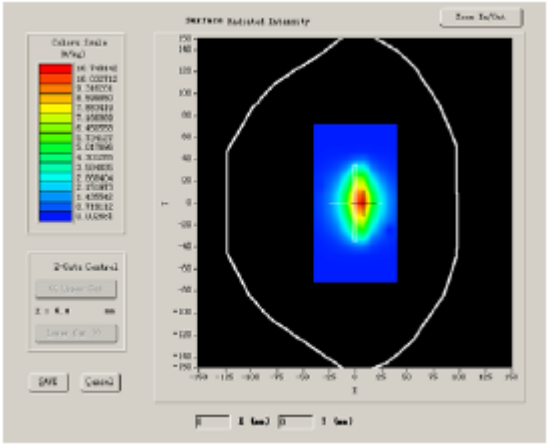
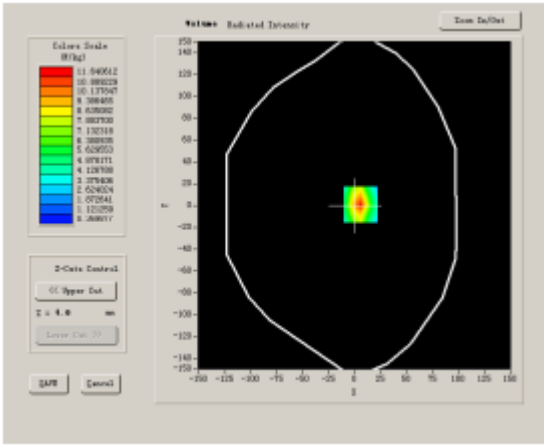
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.29; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Channels	Middle
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	2450
Relative permittivity (real part)	52.30160
Conductivity (S/m)	2.001200
Power Variation (%)	1.321251
Ambient Temperature	21.1
Liquid Temperature	21.3

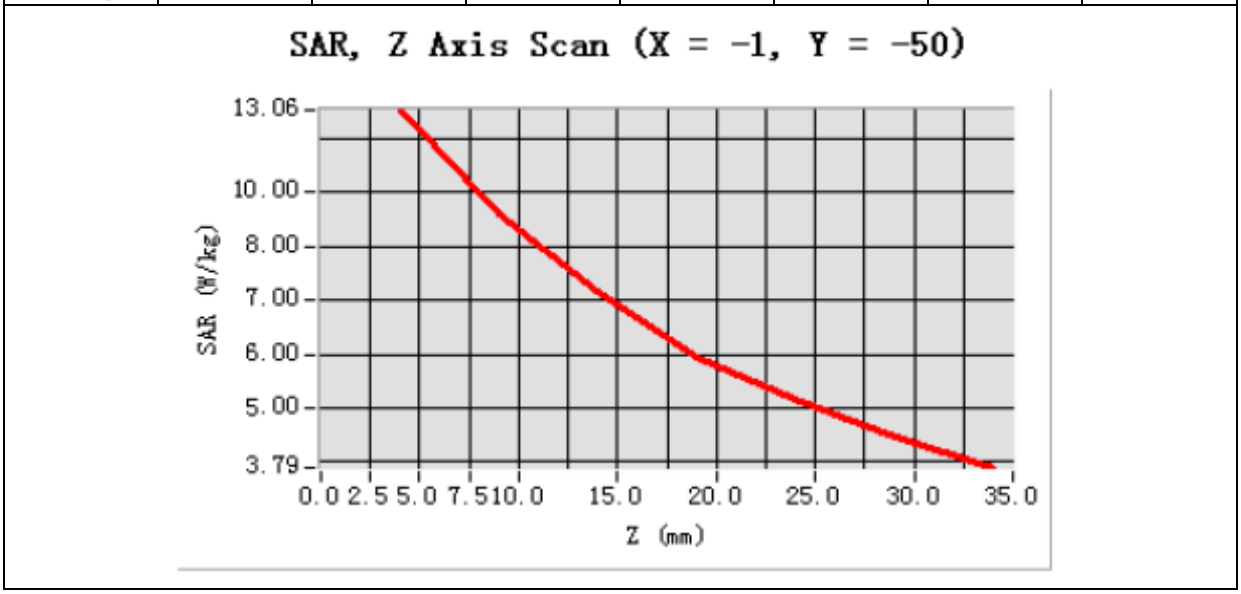
SURFACE SAR	VOLUME SAR
	

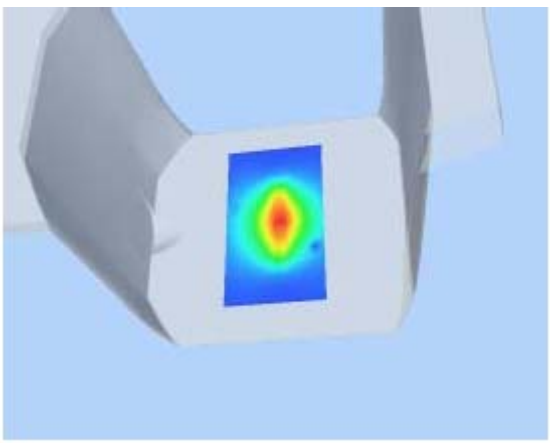
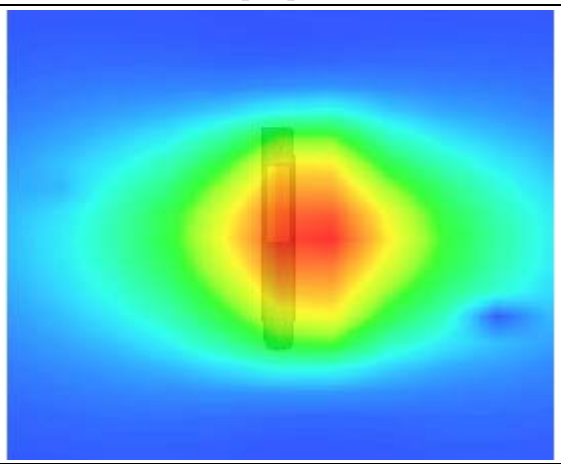
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	6.164236
SAR 1g (W/Kg)	12.902110

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**13.1282**	**8.8315**	**7.3002**	**6.0477**	**5.1251**	**4.3630**



3D screen shot	**Hot spot position**
	

Annex B. Plots of SAR Measurement

TYPE	BAND	PARAMETERS
Tablet PC	**GSM850**	Measurement 1: Right Head with Cheek device position on Low Channel in GSM mode
Tablet PC	**GSM850**	Measurement 2: Right Head with Tilt device position on Low Channel in GSM mode
Tablet PC	**GSM850**	Measurement 3: Left Head with Cheek device position on Low Channel in GSM mode
Tablet PC	**GSM850**	Measurement 4: Left Head with Cheek device position on Middle Channel in GSM mode
Tablet PC	**GSM850**	Measurement 5: Left Head with Cheek device position on High Channel in GSM mode
Tablet PC	**GSM850**	Measurement 6: Left Head with Tilt device position on Low Channel in GSM mode
Tablet PC	**WCDMA850_ AMR**	Measurement 7: Right Head with Cheek device position on Middle Channel in WCDMA mode
Tablet PC	**WCDMA850_ AMR**	Measurement 8: Right Head with Tilt device position on Middle Channel in WCDMA mode
Tablet PC	**WCDMA850_ AMR**	Measurement 9: Left Head with Cheek device position on Middle Channel in WCDMA mode
Tablet PC	**WCDMA850_ AMR**	Measurement 10: Left Head with Tilt device position on Middle Channel in WCDMA mode
Tablet PC	**GSM1900**	Measurement 11: Right Head with Cheek device position on High Channel in GSM mode
Tablet PC	**GSM1900**	Measurement 12: Right Head with Tilt device position on High Channel in GSM mode
Tablet PC	**GSM1900**	Measurement 13: Left Head with Cheek device position on High Channel in GSM mode
Tablet PC	**GSM1900**	Measurement 14: Left Head with Cheek device position on Low Channel in GSM mode
Tablet PC	**GSM1900**	Measurement 15: Left Head with Cheek device position on Middle Channel in GSM mode
Tablet PC	**GSM1900**	Measurement 16: Left Head with Tilt device position on High Channel in GSM mode
Tablet PC	**WiFi_802.11b**	Measurement 17: Right Head with Cheek device position on High Channel in WiFi mode
Tablet PC	**WiFi_802.11b**	Measurement 18: Right Head with Tilt device position on High Channel in WiFi mode
Tablet PC	**WiFi_802.11b**	Measurement 19: Left Head with Cheek device position on High Channel in WiFi mode

Tablet PC	**WiFi_802.11b**	Measurement 29: Left Head with Tilt device position on High Channel in WiFi mode
Tablet PC	**GSM850**	Measurement 21: Flat Plane with Body-worn device position on Low Channel in GSM mode
Tablet PC	**GSM850**	Measurement 22: Flat Plane with Body-worn device position on Middle Channel in GSM mode
Tablet PC	**GSM850**	Measurement 23: Flat Plane with Body-worn device position on High Channel in GSM mode
Tablet PC	**WCDMA850_AMR**	Measurement 24: Flat Plane with Body-worn device position on Middle Channel in WCDMA mode
Tablet PC	**GPRS850_4TX**	Measurement 25: Flat Plane with Front device position on Low Channel in GPRS mode
Tablet PC	**GPRS850_4TX**	Measurement 26: Flat Plane with Back device position on Low Channel in GPRS mode
Tablet PC	**GPRS850_4TX**	Measurement 27: Flat Plane with Top side device position on Low Channel in GPRS mode
Tablet PC	**GPRS850_4TX**	Measurement 28: Flat Plane with Right side device position on Middle Channel in GPRS mode
Tablet PC	**GSM1900**	Measurement 29: Flat Plane with Body-worn device position on High Channel in GSM mode
Tablet PC	**GPRS1900_4TX**	Measurement 30: Flat Plane with Front device position on High Channel in GPRS mode
Tablet PC	**GPRS1900_4TX**	Measurement 31: Flat Plane with Back device position on High Channel in GPRS mode
Tablet PC	**GPRS1900_4TX**	Measurement 32: Flat Plane with Top side device position on High Channel in GPRS mode
Tablet PC	**GPRS850_4TX**	Measurement 33: Flat Plane with Right side device position on High Channel in GPRS mode
Tablet PC	**WiFi_802.11b**	Measurement 34: Flat Plane with Body-worn device position on High Channel in WiFi mode
Tablet PC	**WiFi_802.11b**	Measurement 35: Flat Plane with Front device position on High Channel in WiFi mode
Tablet PC	**WiFi_802.11b**	Measurement 36: Flat Plane with Back device position on High Channel in WiFi mode
Tablet PC	**WiFi_802.11b**	Measurement 37: Flat Plane with Bottom side device position on High Channel in WiFi mode
Tablet PC	**WiFi_802.11b**	Measurement 38: Flat Plane with Right side device position on High Channel in WiFi mode

MEASUREMENT 1

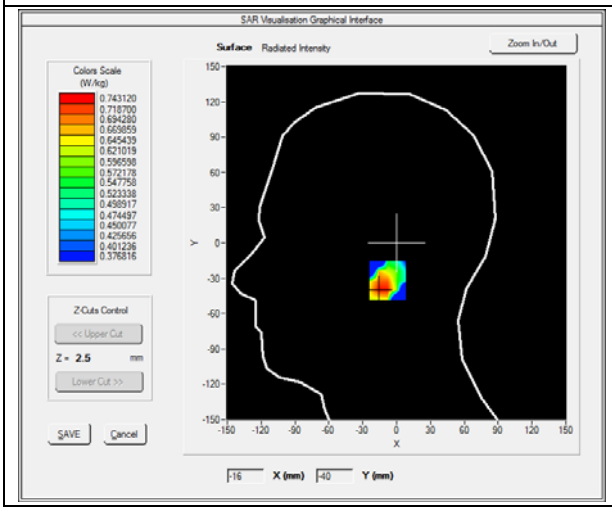
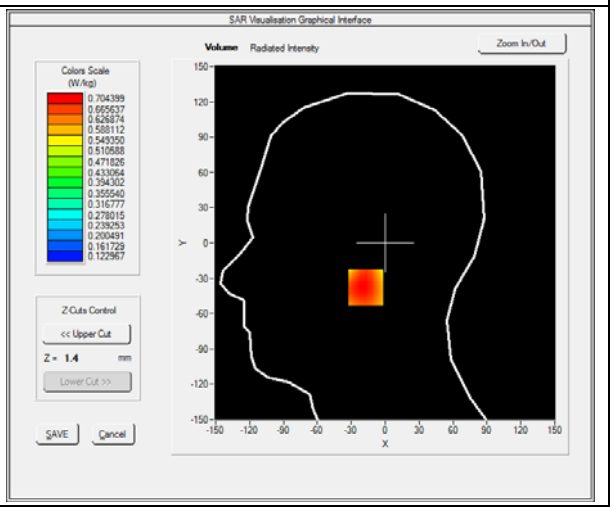
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

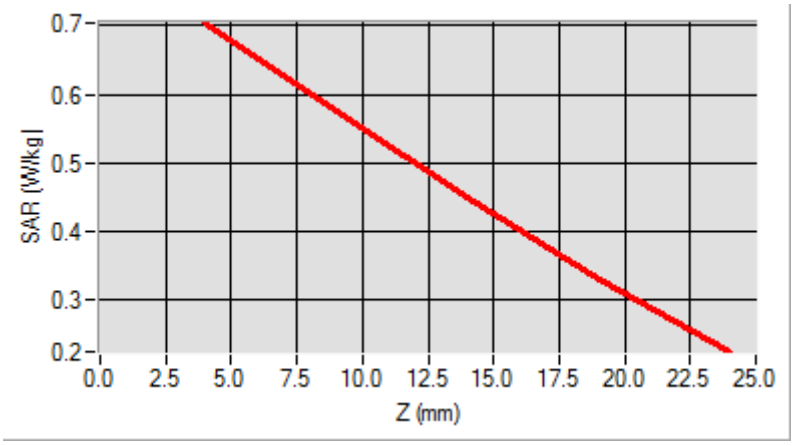
Frequency (MHz)	824.200000
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	-2.350000
Ambient Temperature	21.1
Liquid Temperature	21.3

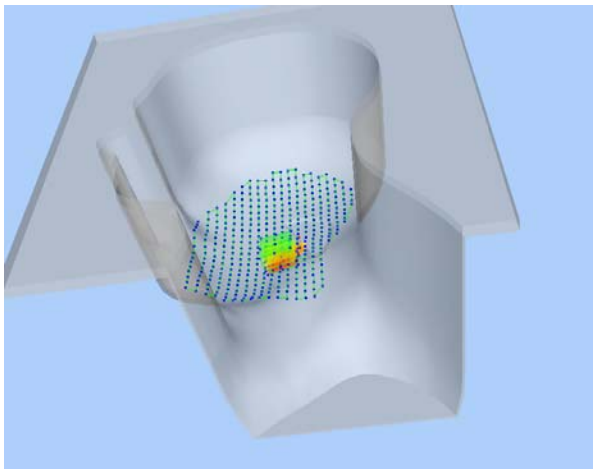
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-13.00, Y=-38.00

SAR 10g (W/Kg)	0.510312
SAR 1g (W/Kg)	0.682895

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.7044	0.5755	0.4480	0.3280



3D screen shot	Hot spot position
	

MEASUREMENT 2

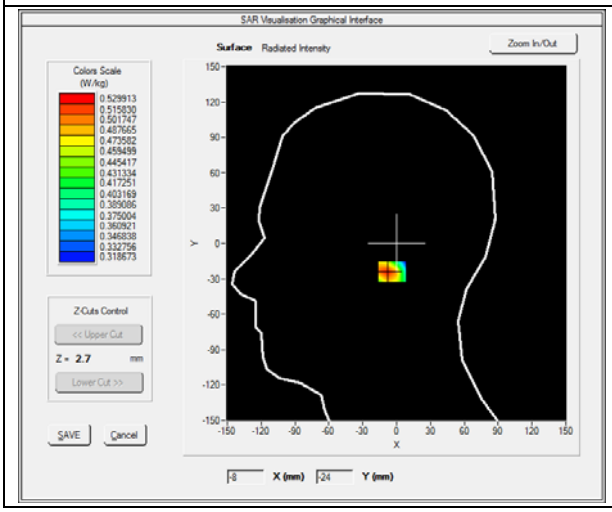
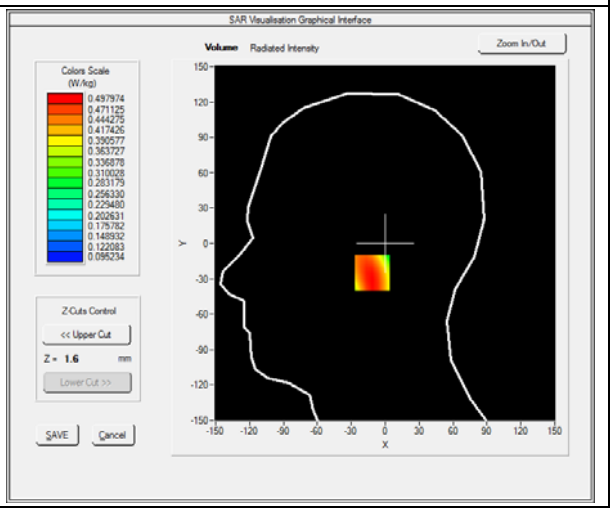
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

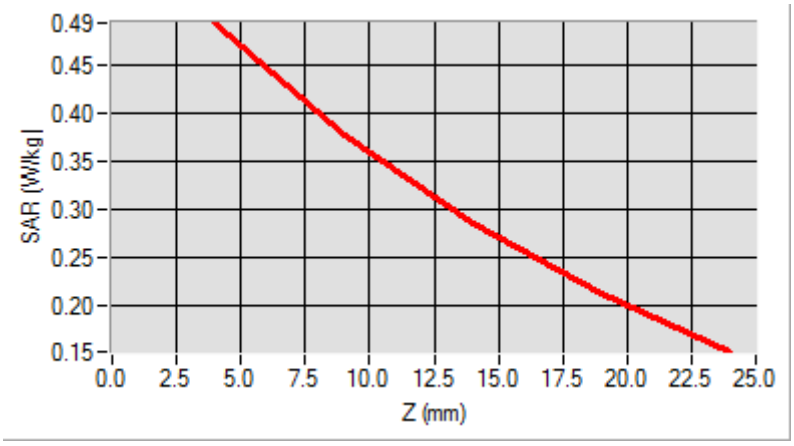
Frequency (MHz)	824.200000
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	-1.150000
Ambient Temperature	21.1
Liquid Temperature	21.3

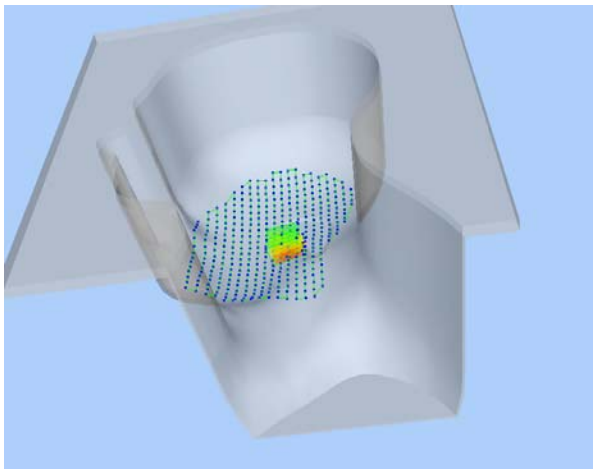
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-8.00, Y=-25.00

SAR 10g (W/Kg)	0.354443
SAR 1g (W/Kg)	0.483167

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.4929	0.3771	0.2852	0.2124



3D screen shot	Hot spot position
	

MEASUREMENT 3

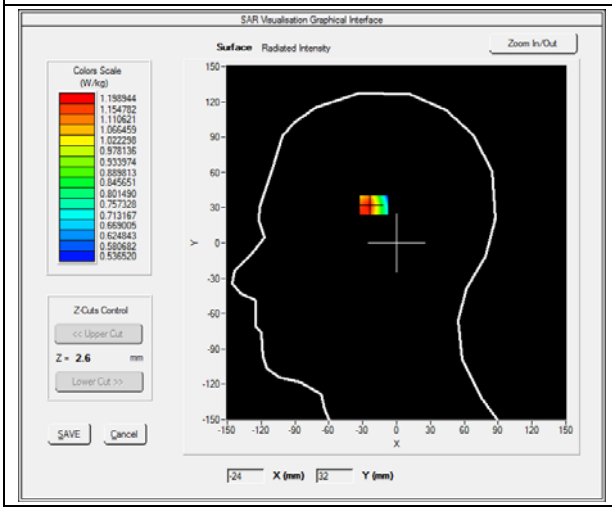
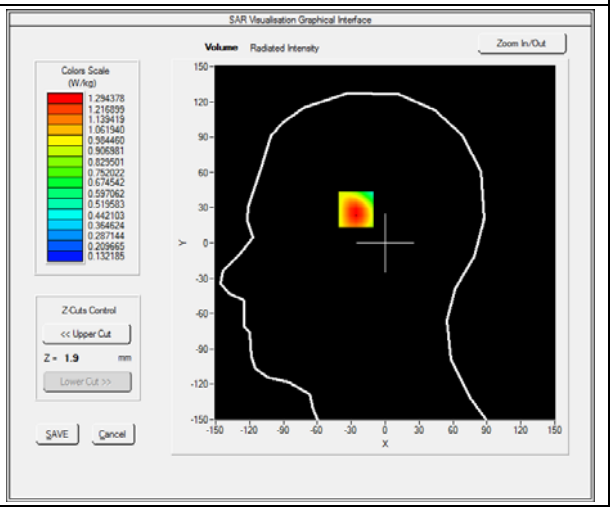
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 11 minutes 48 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

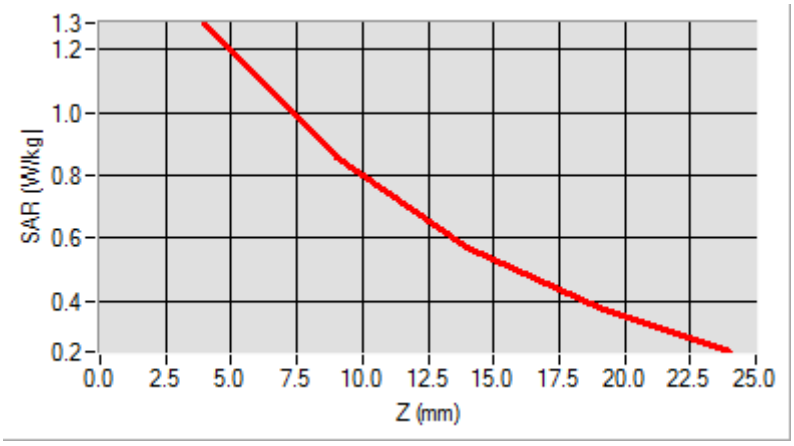
Frequency (MHz)	824.200000
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	0.530000
Ambient Temperature	21.1
Liquid Temperature	21.3

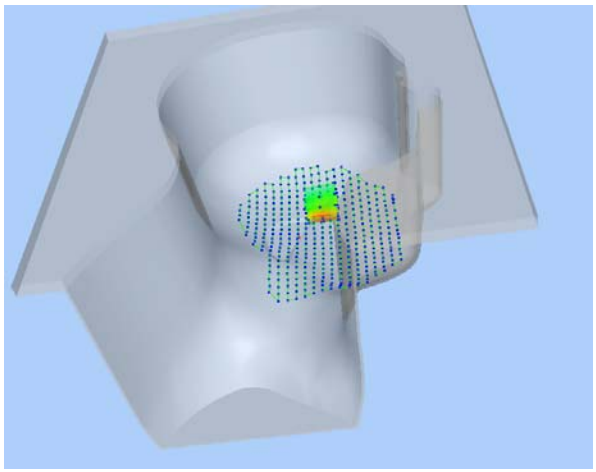
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-26.00, Y=31.00

SAR 10g (W/Kg)	0.777412
SAR 1g (W/Kg)	1.220259

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	1.2863	0.8562	0.5671	0.3747



3D screen shot	Hot spot position
	

MEASUREMENT 4

Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

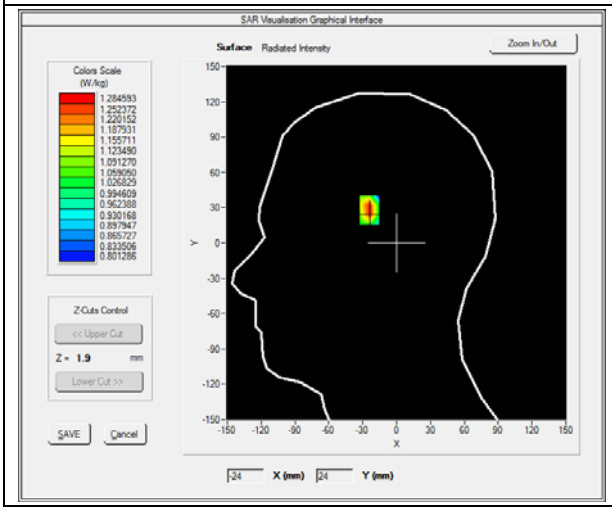
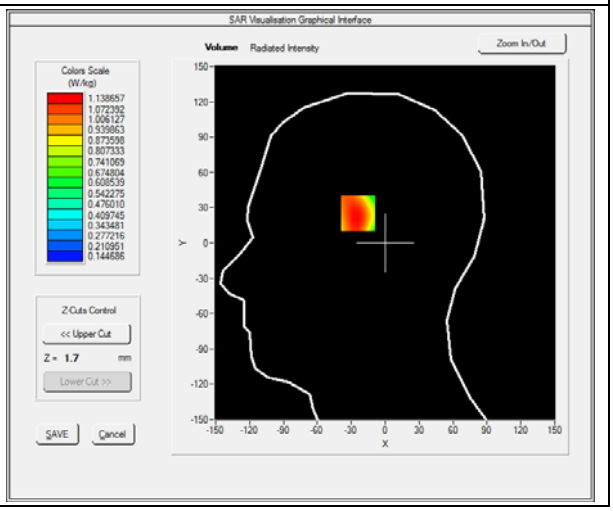
A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM850
Channels	Middle
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

Middle Band SAR (Channel 190)

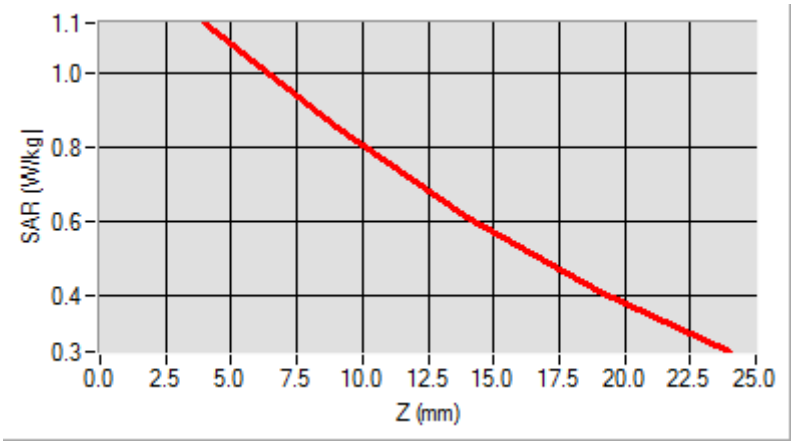
Frequency (MHz)	836.600000
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	1.70000
Ambient Temperature	21.1
Liquid Temperature	21.3

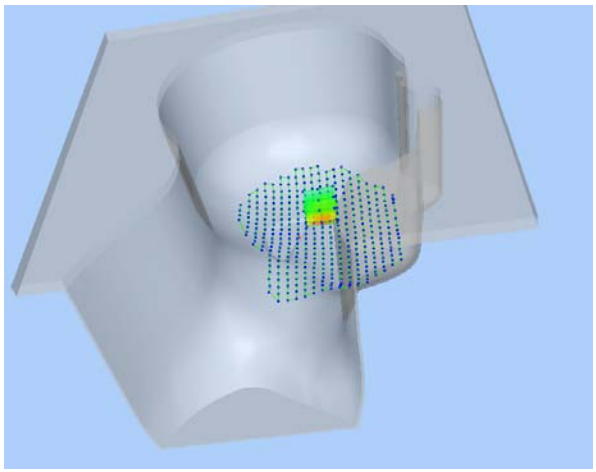
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-24.00, Y=27.00

SAR 10g (W/Kg)	0.746326
SAR 1g (W/Kg)	1.102848

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	1.1348	0.8545	0.6136	0.4122



3D screen shot	Hot spot position
	

MEASUREMENT 5

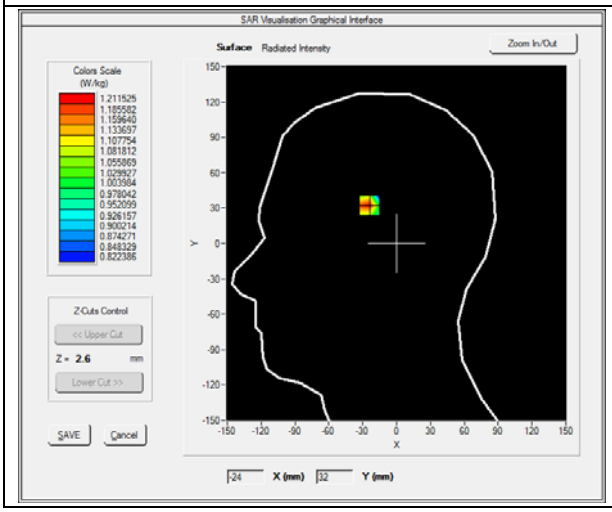
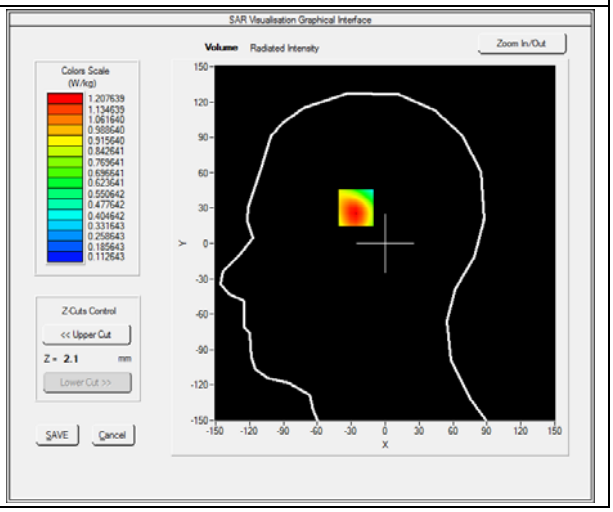
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM850
Channels	High
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

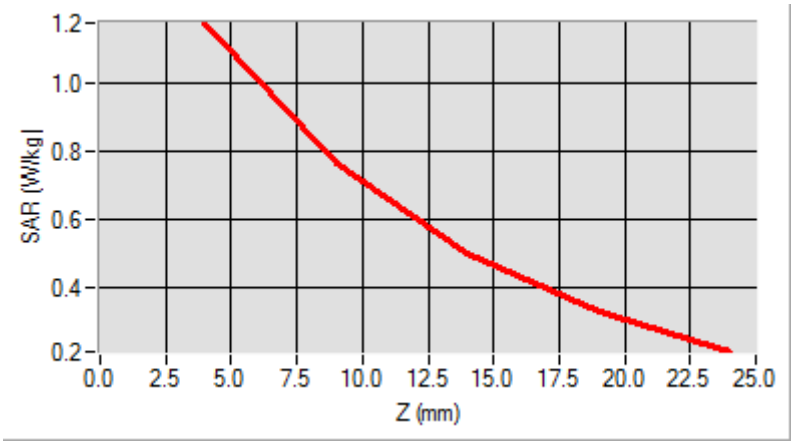
Frequency (MHz)	848.799988
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	1.310000
Ambient Temperature	21.1
Liquid Temperature	21.3

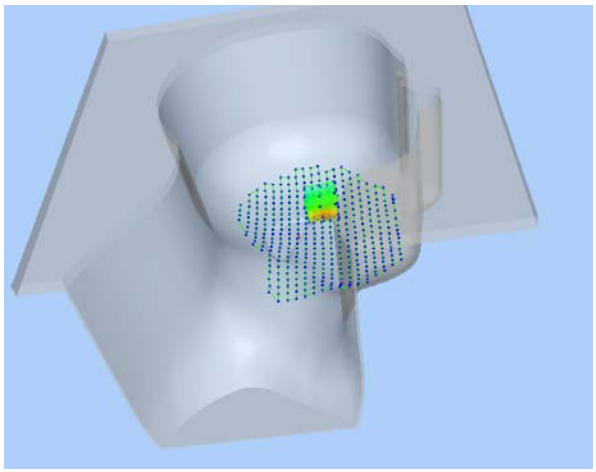
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-26.00, Y=33.00

SAR 10g (W/Kg)	0.718008
SAR 1g (W/Kg)	1.139490

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	1.1793	0.7683	0.5026	0.3330



3D screen shot	Hot spot position
	

MEASUREMENT 6

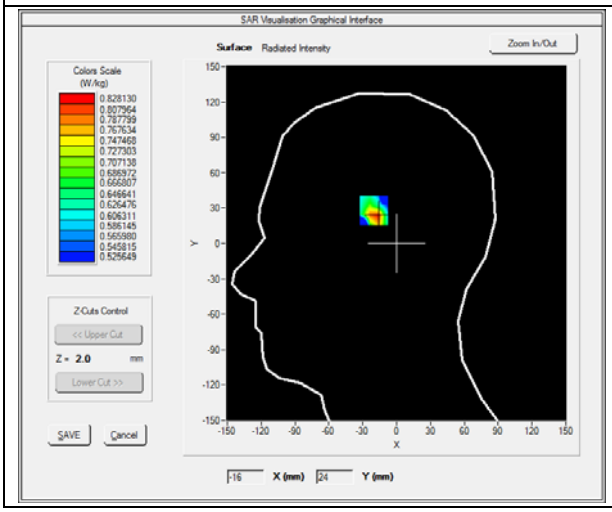
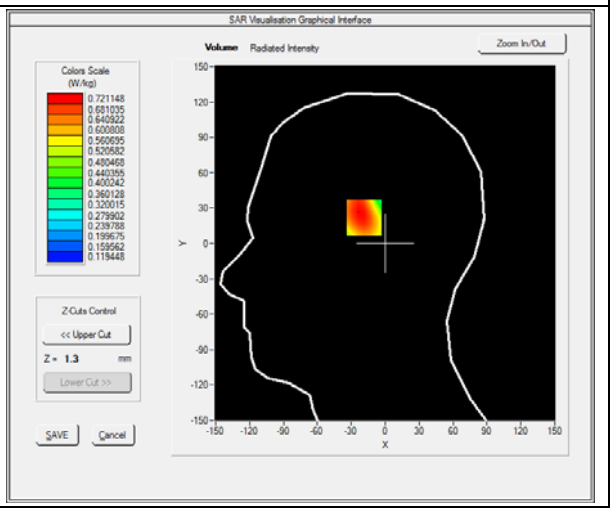
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

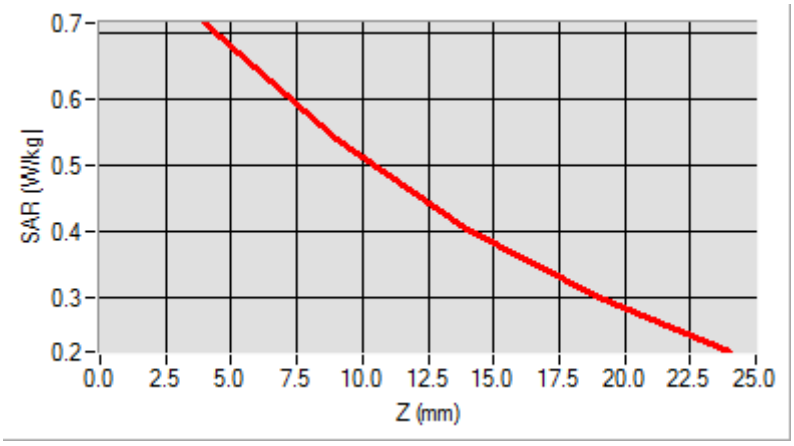
Frequency (MHz)	824.200012
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	-1.250000
Ambient Temperature	21.1
Liquid Temperature	21.3

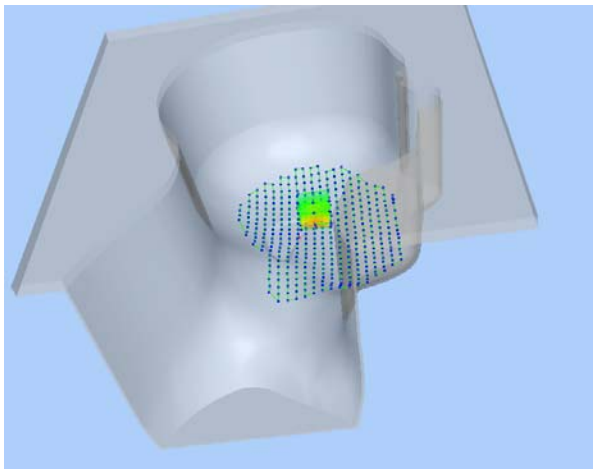
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-18.00, Y=23.00

SAR 10g (W/Kg)	0.486628
SAR 1g (W/Kg)	0.696220

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.7164	0.5398	0.4046	0.3011



3D screen shot	Hot spot position
	

MEASUREMENT 7

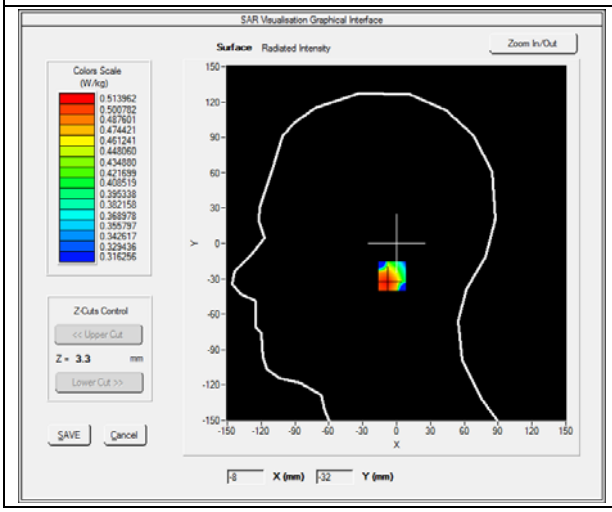
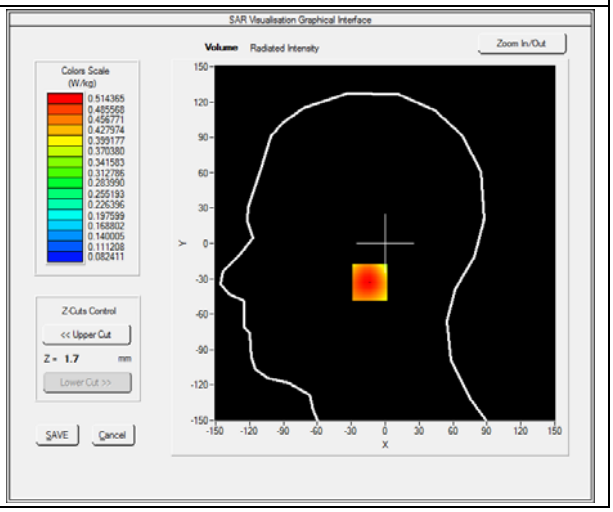
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	WCDMA Band V
Channels	Middle
Signal	CDMA (Crest factor: 1:1)

B. SAR Measurement Results

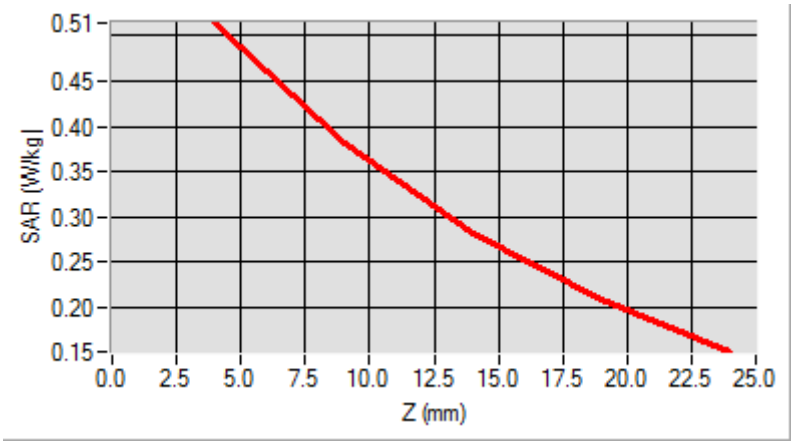
Frequency (MHz)	836.400000
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	-0.790000
Ambient Temperature	21.1
Liquid Temperature	21.3

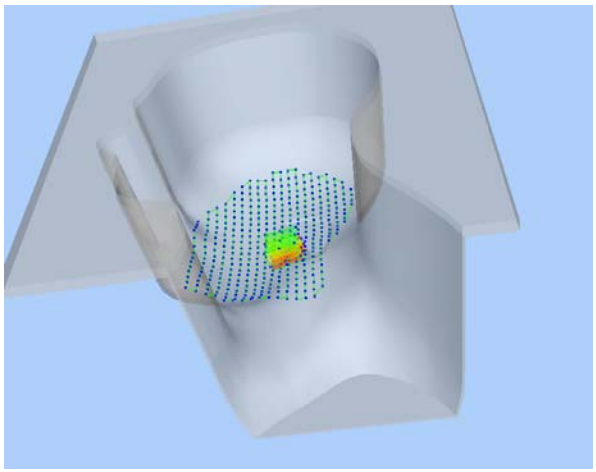
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-9.00, Y=-33.00

SAR 10g (W/Kg)	**0.355032**
SAR 1g (W/Kg)	**0.493484**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.5144**	**0.3809**	**0.2820**	**0.2086**



3D screen shot	**Hot spot position**
	

MEASUREMENT 8

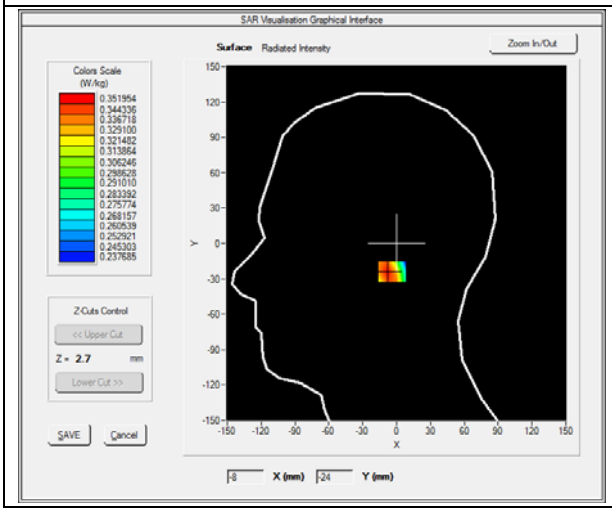
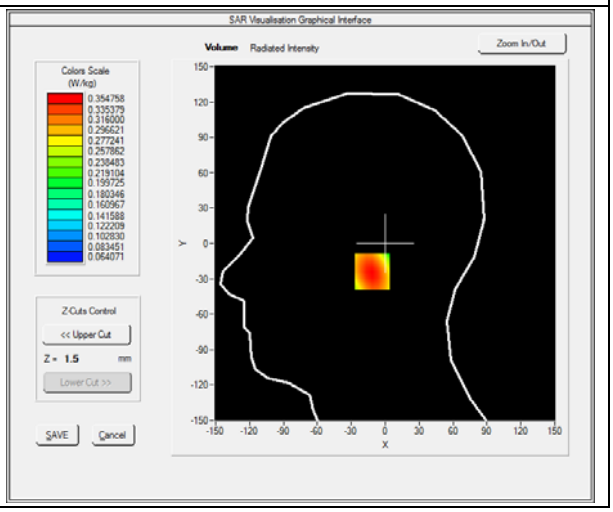
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	WCDMA Band V
Channels	Middle
Signal	CDMA (Crest factor: 1:1)

B. SAR Measurement Results

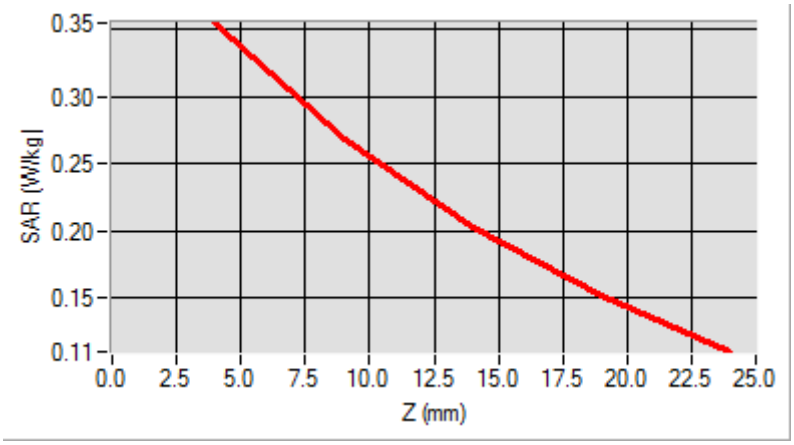
Frequency (MHz)	836.400000
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	-0.170000
Ambient Temperature	21.1
Liquid Temperature	21.3

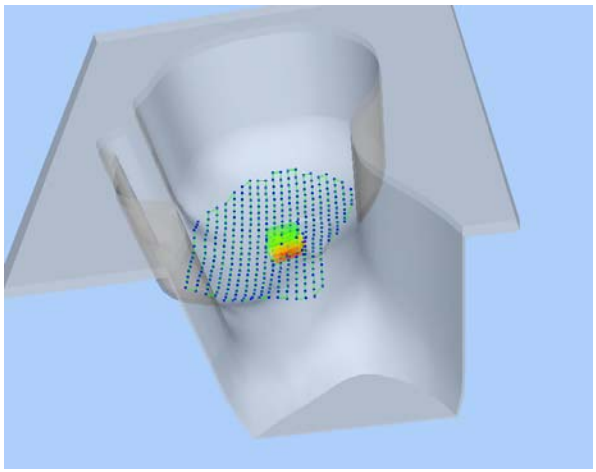
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-8.00, Y=-24.00

SAR 10g (W/Kg)	0.244551
SAR 1g (W/Kg)	0.339117

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.3548	0.2685	0.2022	0.1511



3D screen shot	Hot spot position
	

MEASUREMENT 9

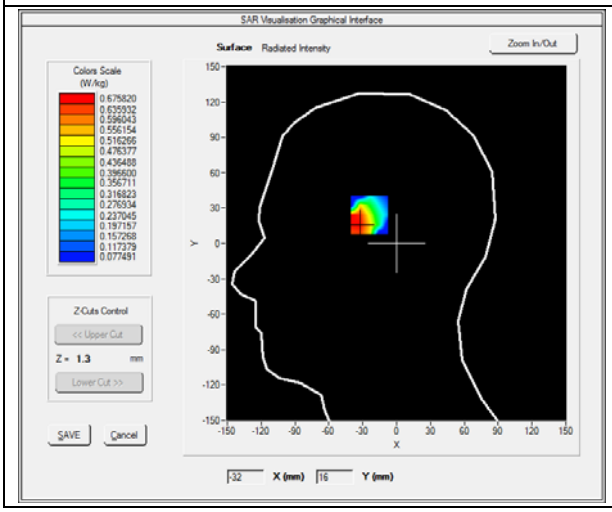
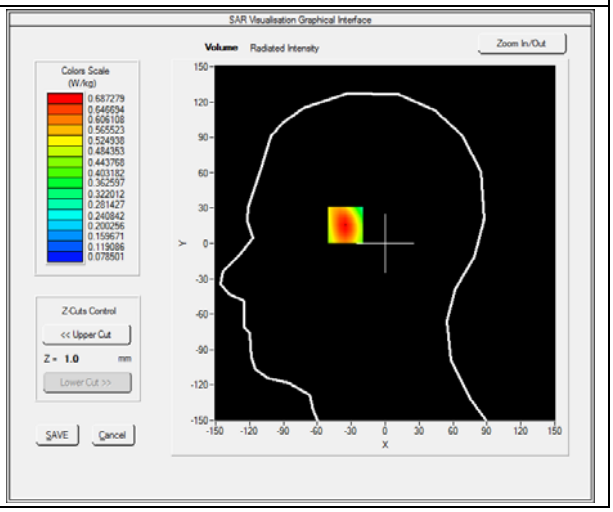
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	WCDMA Band V
Channels	Middle
Signal	CDMA (Crest factor: 1:1)

B. SAR Measurement Results

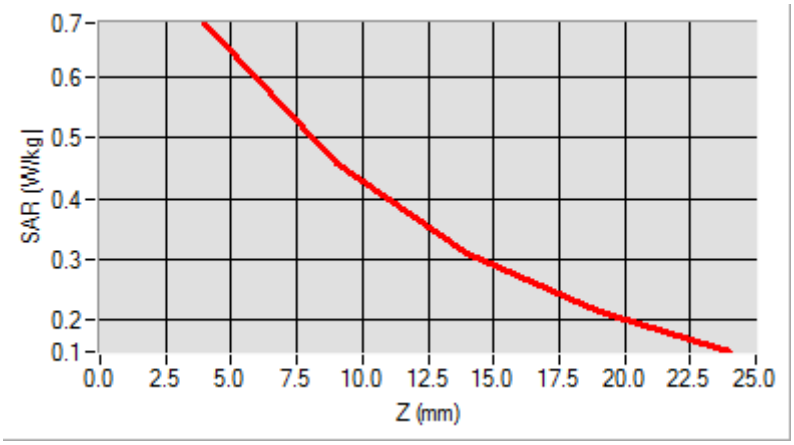
Frequency (MHz)	836.400000
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	-1.860000
Ambient Temperature	21.1
Liquid Temperature	21.3

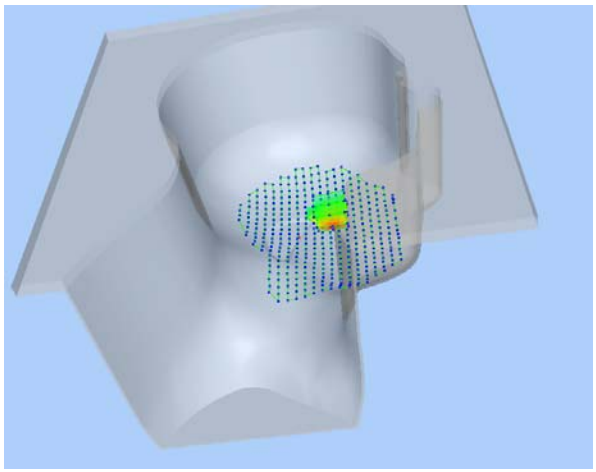
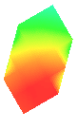
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-35.00, Y=18.00

SAR 10g (W/Kg)	0.422783
SAR 1g (W/Kg)	0.647508

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.6873	0.4587	0.3107	0.2161



3D screen shot	Hot spot position
	

MEASUREMENT 10

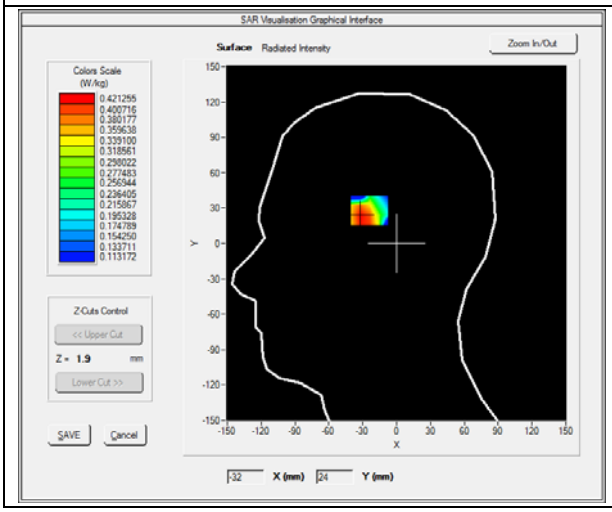
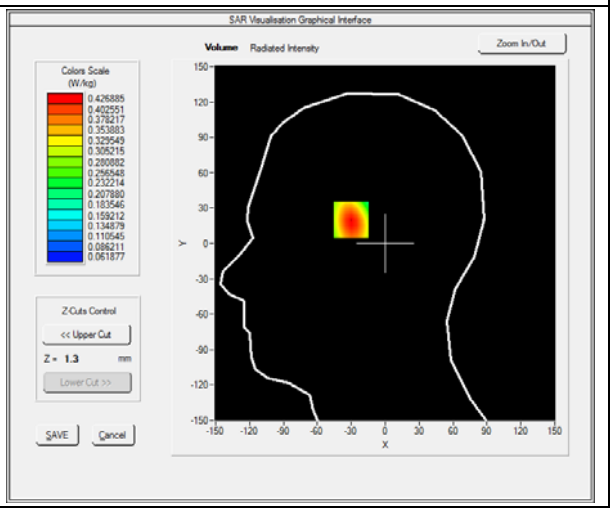
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.49; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	WCDMA Band V
Channels	Middle
Signal	CDMA (Crest factor: 1:1)

B. SAR Measurement Results

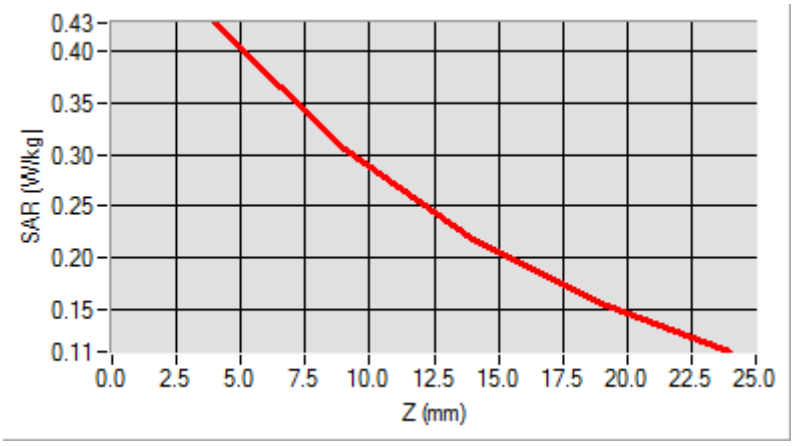
Frequency (MHz)	836.400000
Relative Permittivity (real part)	41.400000
Conductivity (S/m)	0.880000
Power Variation (%)	1.810000
Ambient Temperature	21.1
Variation (%)	3.430000

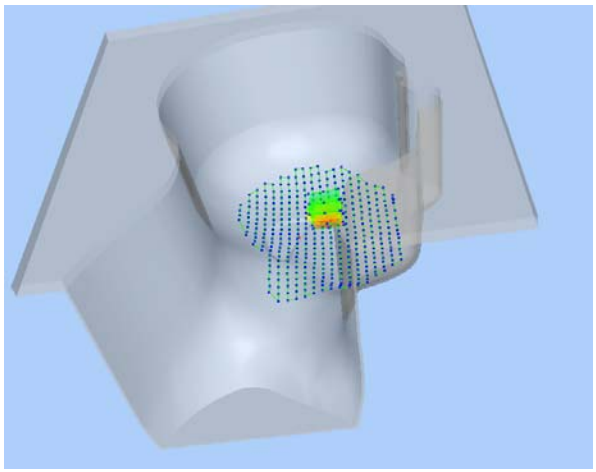
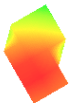
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-30.00, Y=22.00

SAR 10g (W/Kg)	0.275075
SAR 1g (W/Kg)	0.404345

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.4269	0.3048	0.2179	0.1564



3D screen shot	Hot spot position
	

MEASUREMENT 11

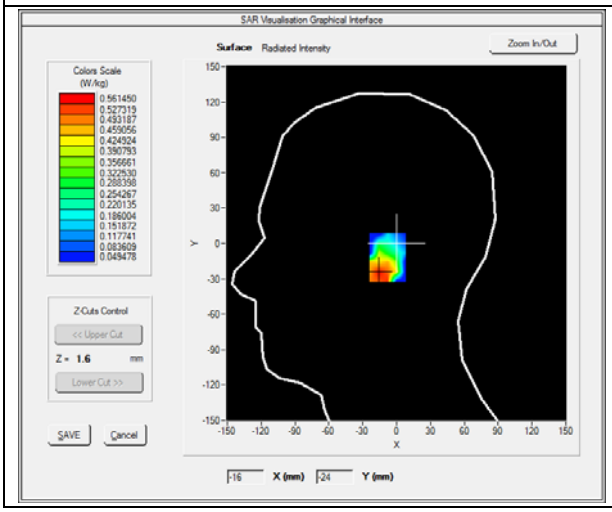
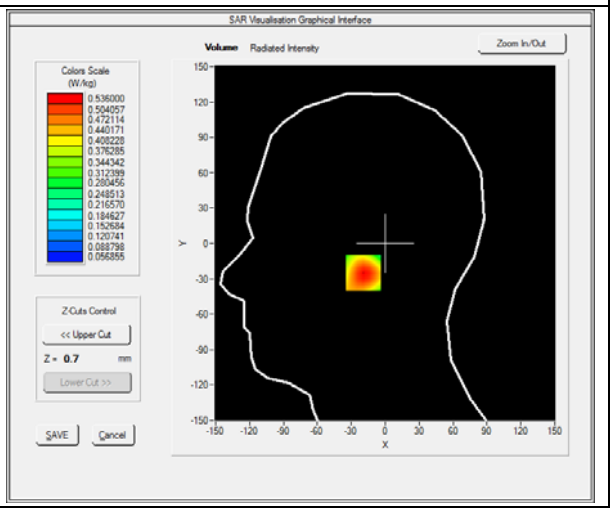
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.26; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

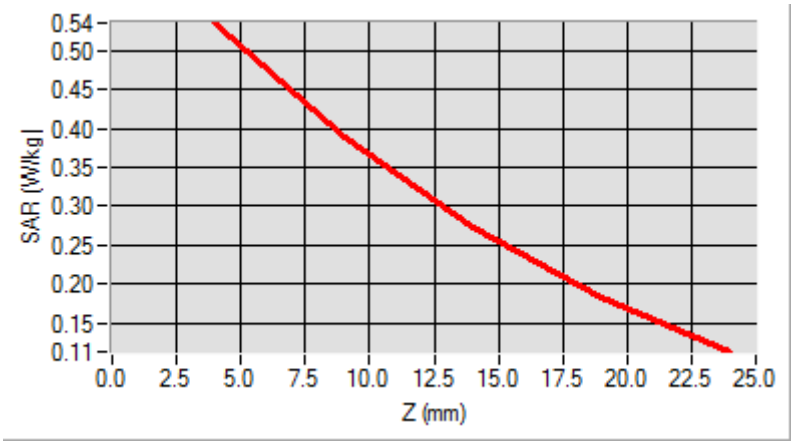
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	39.40020
Conductivity (S/m)	1.431000
Power Variation (%)	-0.56000
Ambient Temperature	21.1
Liquid Temperature	21.3

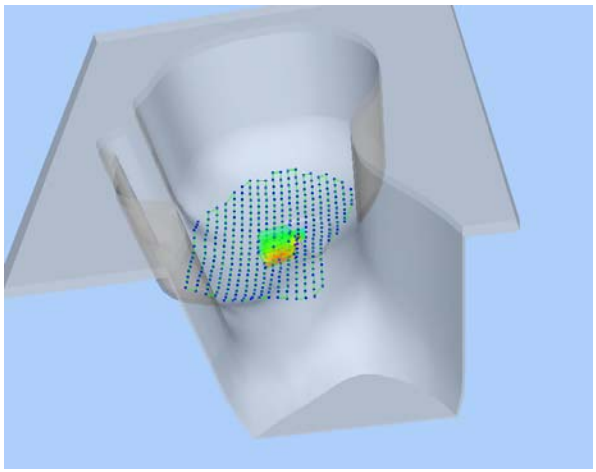
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-16.00, Y=-25.00

SAR 10g (W/Kg)	0.335975
SAR 1g (W/Kg)	0.506898

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.5360	0.3883	0.2724	0.1827



3D screen shot	Hot spot position
	

MEASUREMENT 12

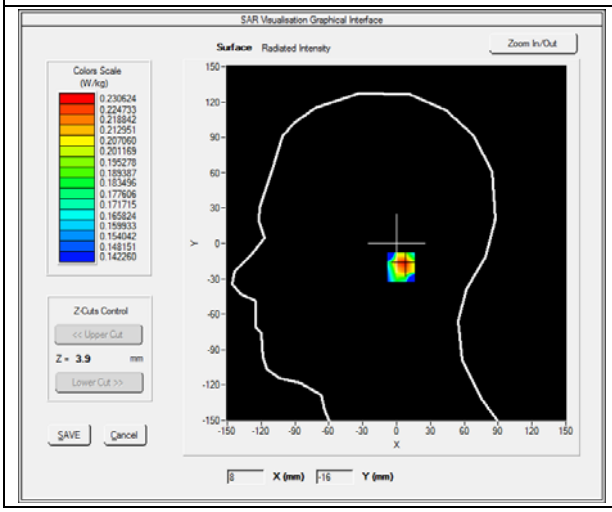
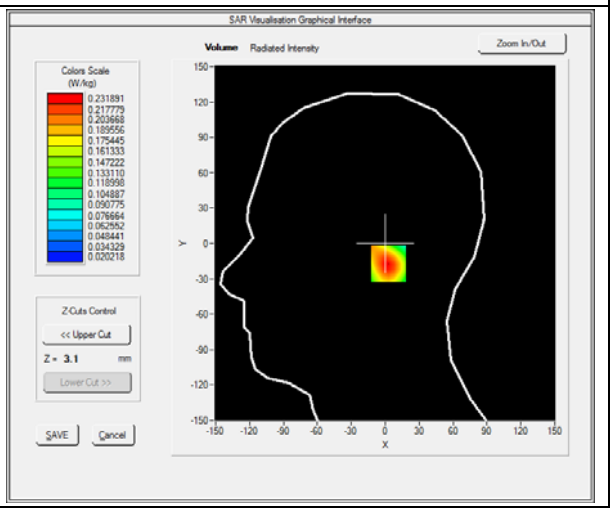
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.26; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

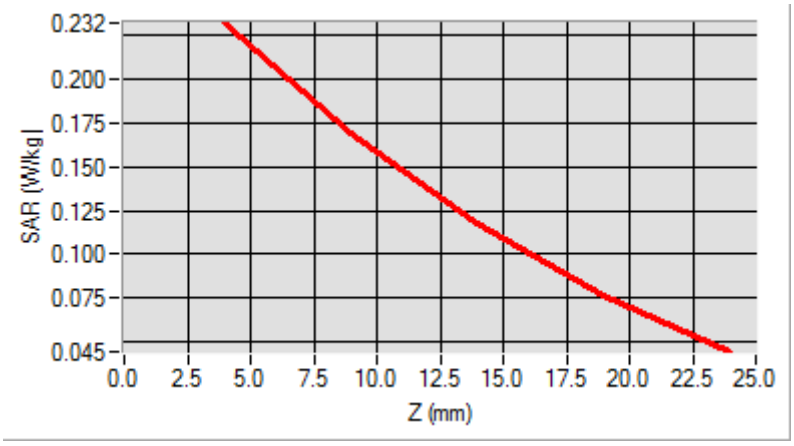
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	39.40020
Conductivity (S/m)	1.431000
Power Variation (%)	-0.542000
Ambient Temperature	21.1
Liquid Temperature	21.3

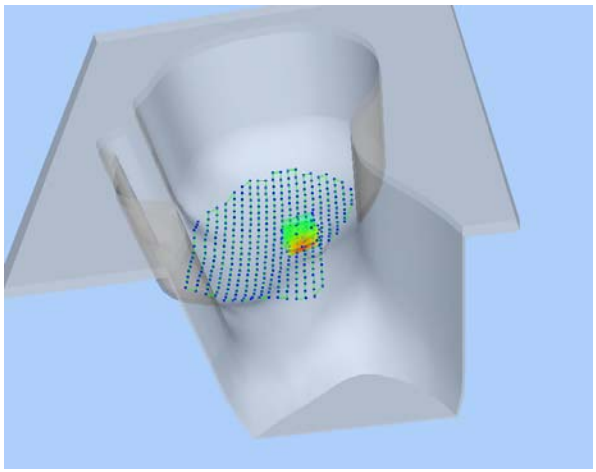
SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=-17.00

SAR 10g (W/Kg)	0.139963
SAR 1g (W/Kg)	0.217280

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.2319	0.1687	0.1172	0.0762



3D screen shot	Hot spot position
	

MEASUREMENT 13

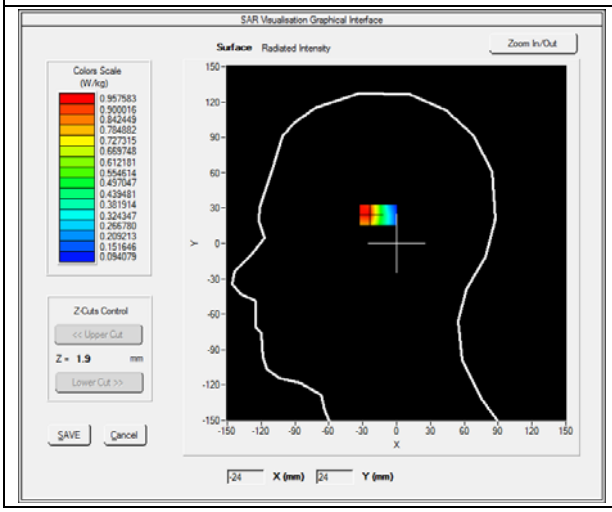
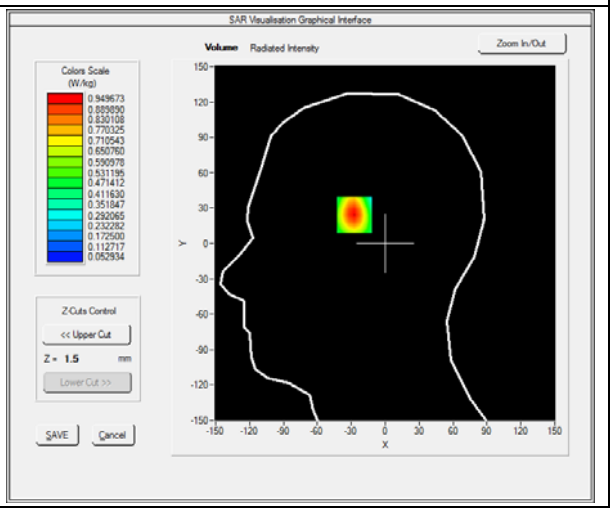
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.26; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

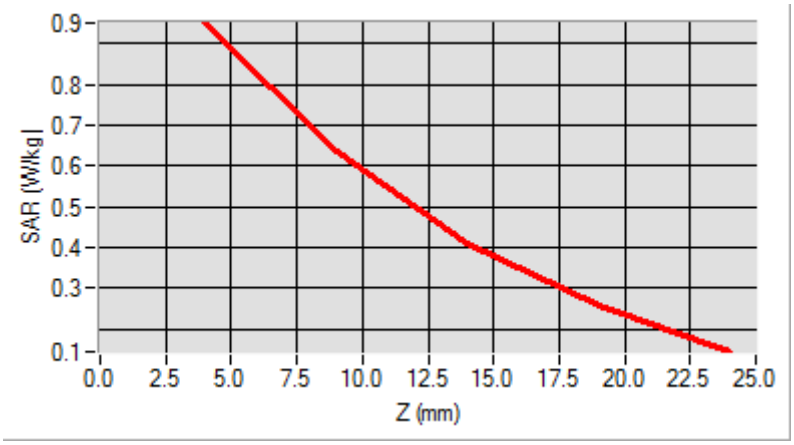
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	39.40020
Conductivity (S/m)	1.431000
Power Variation (%)	-0.69000
Ambient Temperature	21.1
Liquid Temperature	21.3

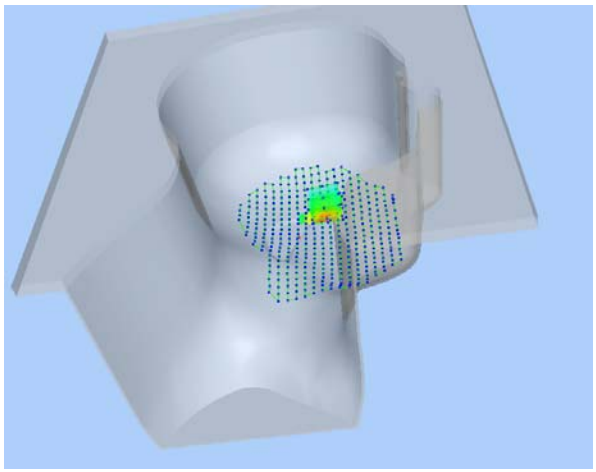
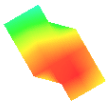
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-27.00, Y=26.00

SAR 10g (W/Kg)	0.525950
SAR 1g (W/Kg)	0.879263

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.9497	0.6348	0.4120	0.2566



3D screen shot	Hot spot position
	

MEASUREMENT 14

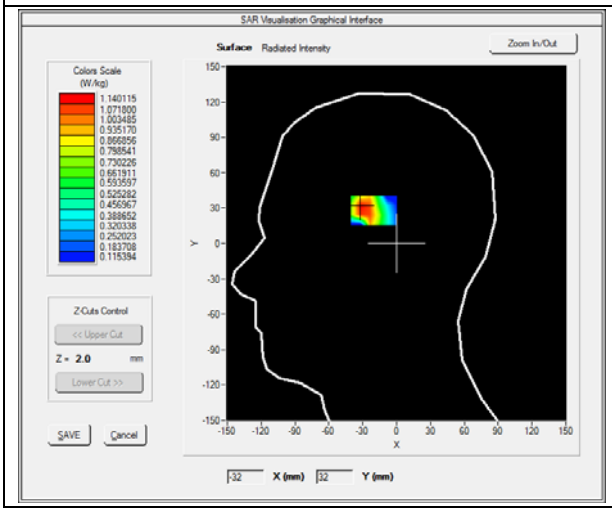
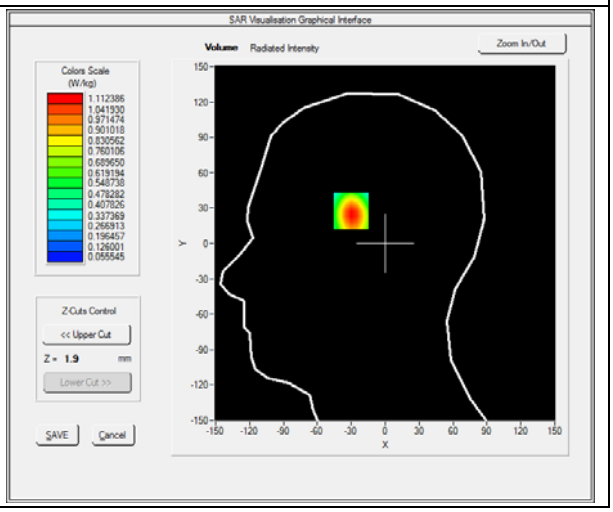
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.26; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM1900
Channels	Low
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

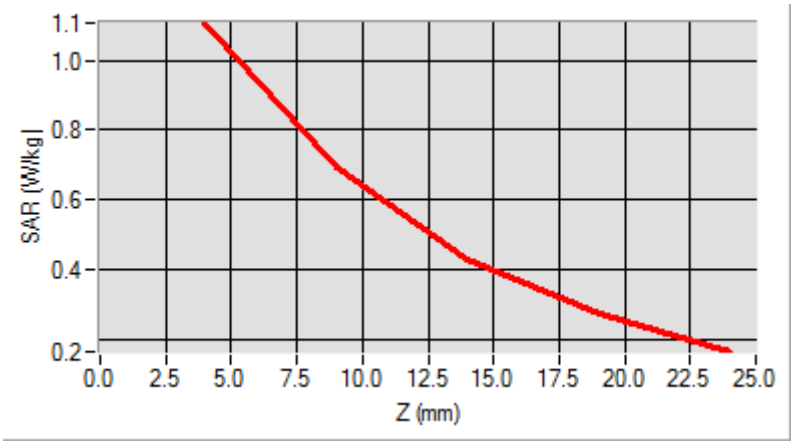
Frequency (MHz)	1850.200000
Relative Permittivity (real part)	39.40020
Conductivity (S/m)	1.431000
Power Variation (%)	-0.40000
Ambient Temperature	21.1
Liquid Temperature	21.3

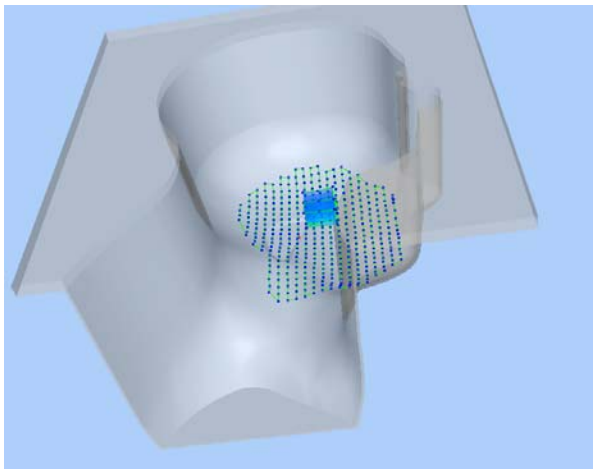
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-30.00, Y=30.00

SAR 10g (W/Kg)	0.621815
SAR 1g (W/Kg)	1.041408

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	1.1066	0.6903	0.4298	0.2701



3D screen shot	Hot spot position
	

MEASUREMENT 15

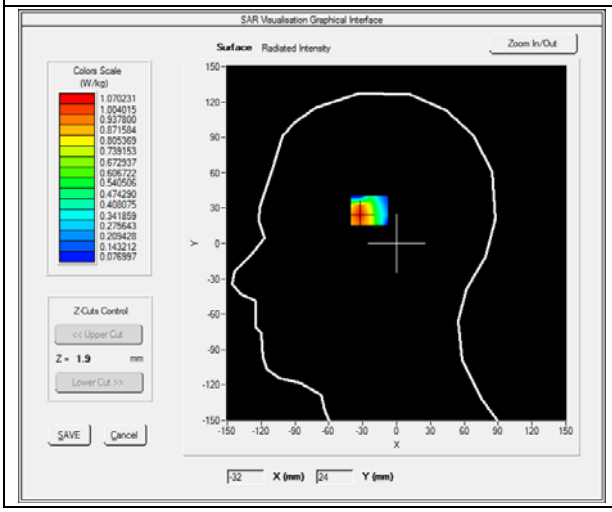
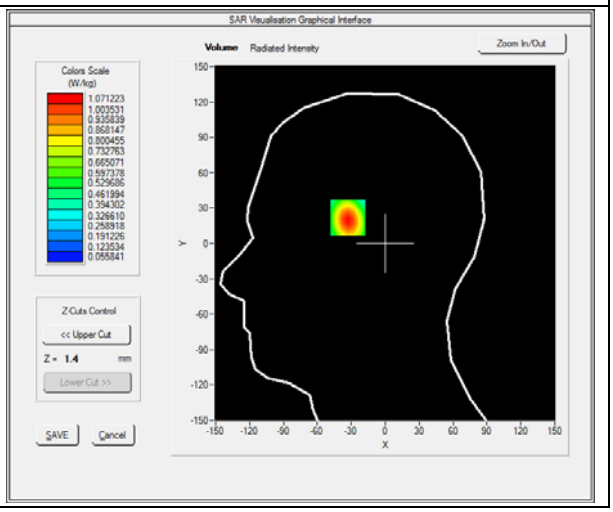
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.26; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM1900
Channels	Middle
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

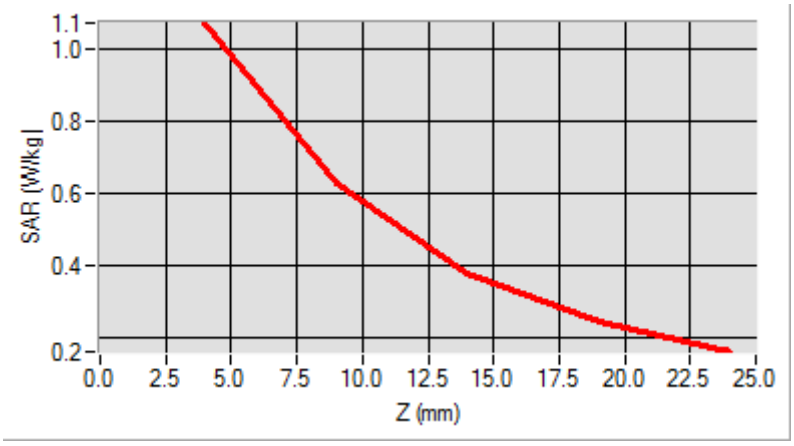
Frequency (MHz)	1880.000000
Relative Permittivity (real part)	39.40020
Conductivity (S/m)	1.431000
Power Variation (%)	-2.16000
Ambient Temperature	21.1
Liquid Temperature	21.3

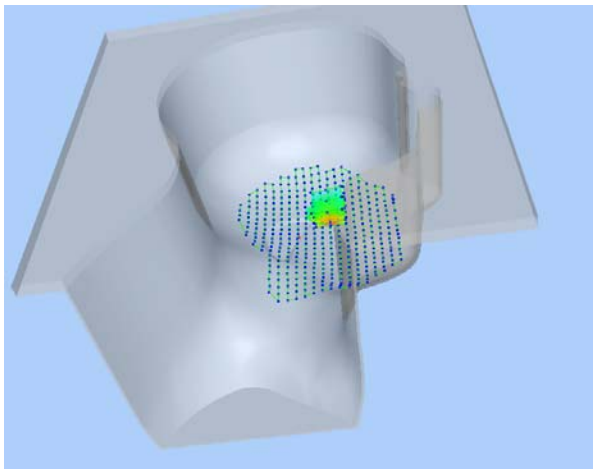
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-33.00, Y=24.00

SAR 10g (W/Kg)	0.576632
SAR 1g (W/Kg)	0.995403

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	1.0712	0.6270	0.3773	0.2428



3D screen shot	Hot spot position
	

MEASUREMENT 16

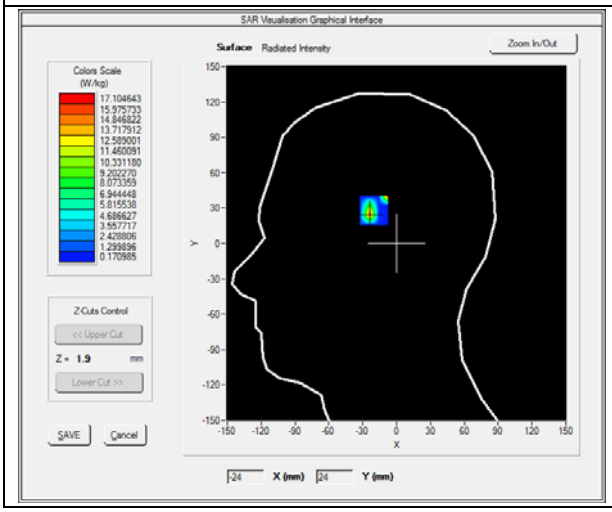
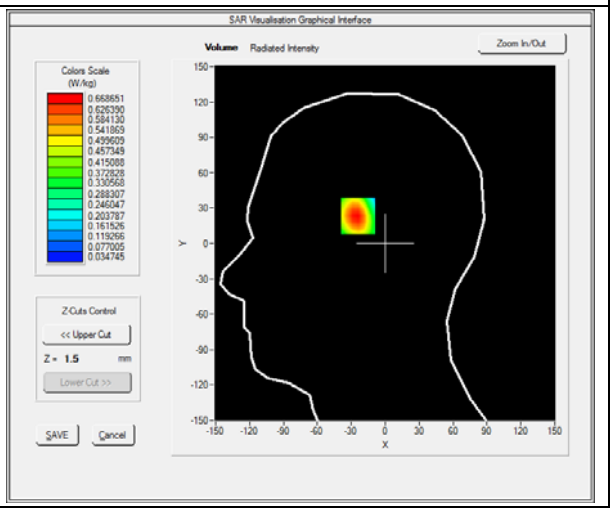
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.26; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

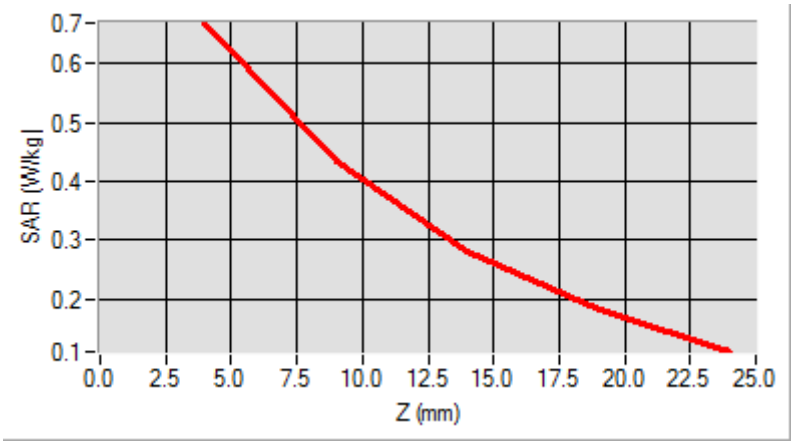
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	39.40020
Conductivity (S/m)	1.431000
Power Variation (%)	-1.52000
Ambient Temperature	21.1
Liquid Temperature	21.3

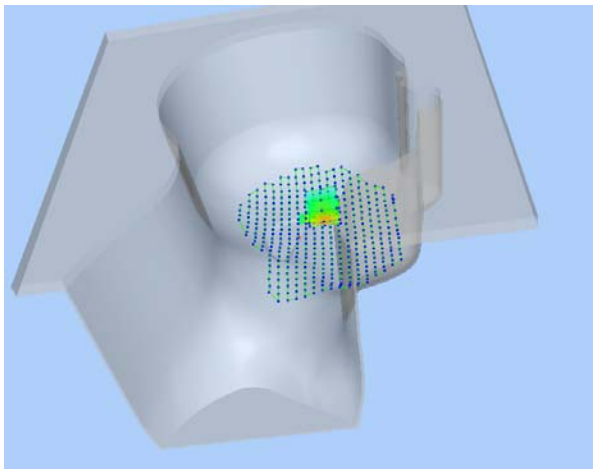
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-24.00, Y=25.00

SAR 10g (W/Kg)	0.376697
SAR 1g (W/Kg)	0.625070

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.6687	0.4355	0.2817	0.1816



3D screen shot	Hot spot position
	

MEASUREMENT 17

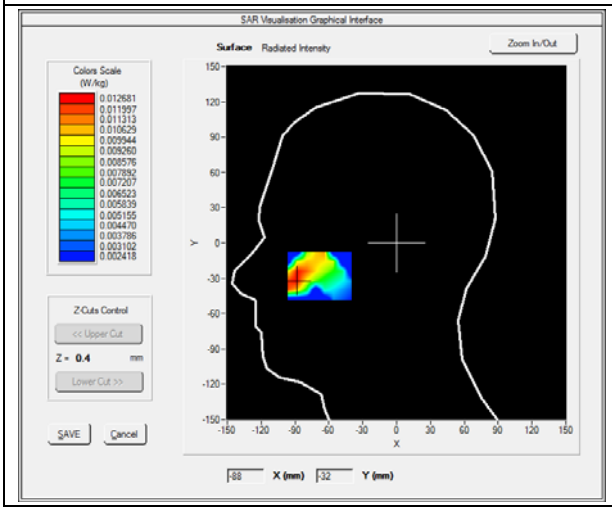
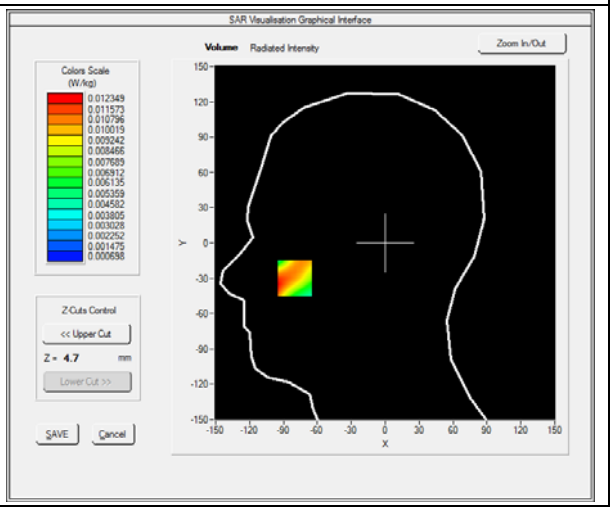
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 34 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.12; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	802.11b
Channels	High
Signal	DSSS (Crest factor: 1:1)

B. SAR Measurement Results

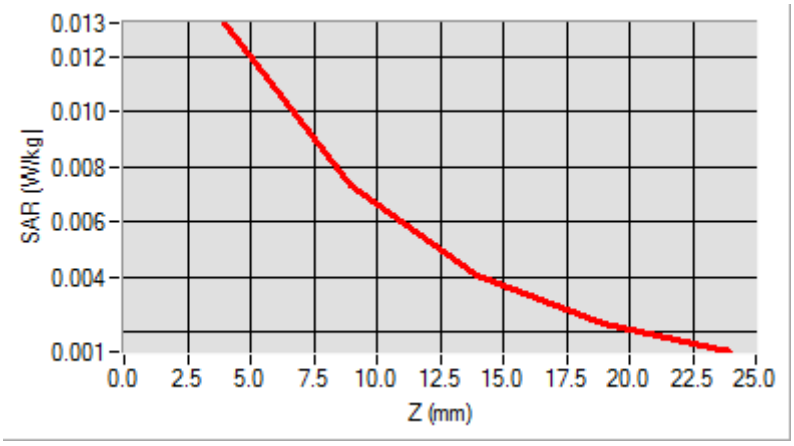
Frequency (MHz)	2462.000000
Relative Permittivity (real part)	38.60127
Conductivity (S/m)	1.760200
Power Variation (%)	-0.54000
Ambient Temperature	21.1
Liquid Temperature	21.3

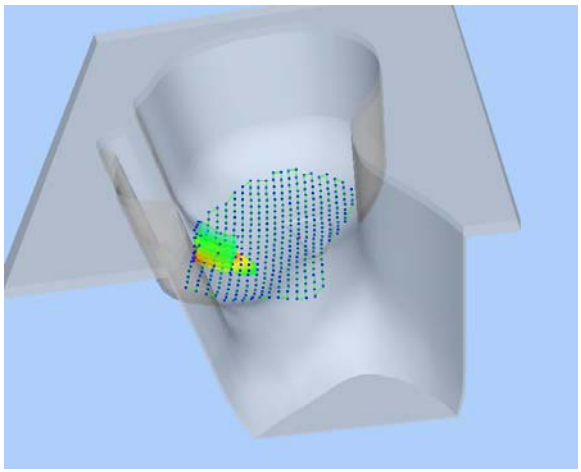
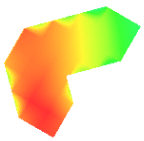
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-10.00, Y=-19.00

SAR 10g (W/Kg)	**0.006317**
SAR 1g (W/Kg)	**0.012014**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.0132**	**0.0074**	**0.0041**	**0.0023**



3D screen shot	**Hot spot position**
	

MEASUREMENT 18

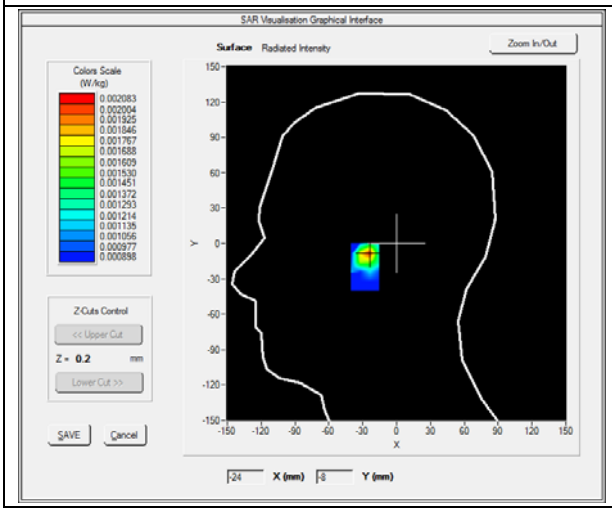
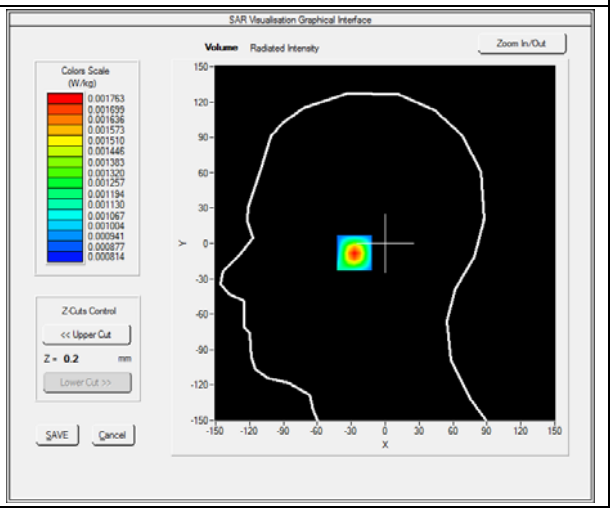
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 13 minutes 04 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.12; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	802.11b
Channels	High
Signal	DSSS (Crest factor: 1:1)

B. SAR Measurement Results

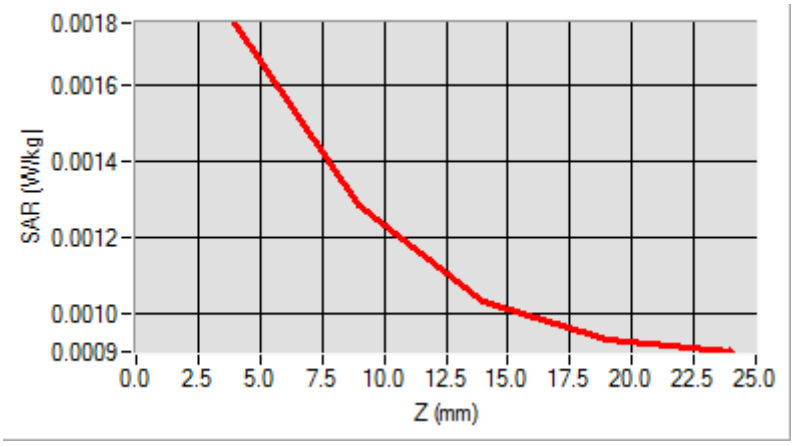
Frequency (MHz)	2462.000000
Relative Permittivity (real part)	38.60127
Conductivity (S/m)	1.760200
Power Variation (%)	-0.72000
Ambient Temperature	21.1
Liquid Temperature	21.3

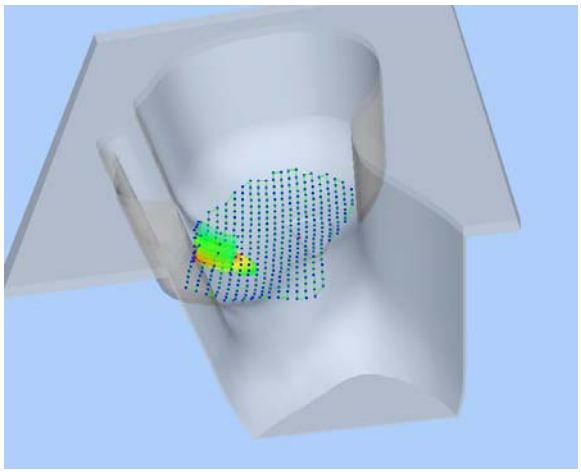
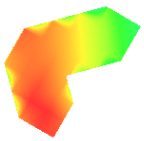
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-25.00, Y=-8.00

SAR 10g (W/Kg)	0.001175
SAR 1g (W/Kg)	0.001632

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.0018	0.0013	0.0010	0.0009



3D screen shot	Hot spot position
	

MEASUREMENT 19

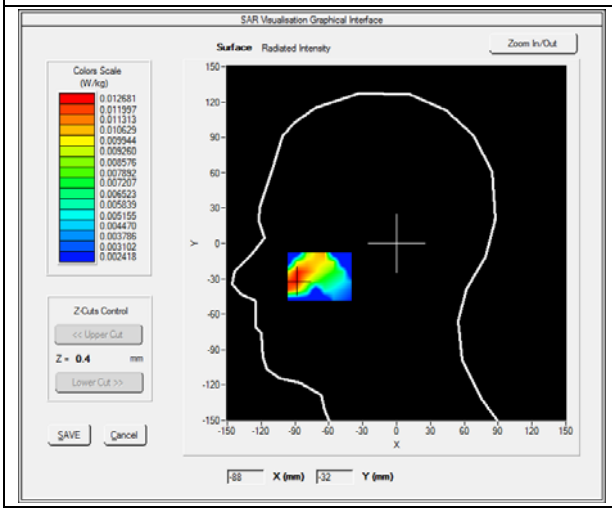
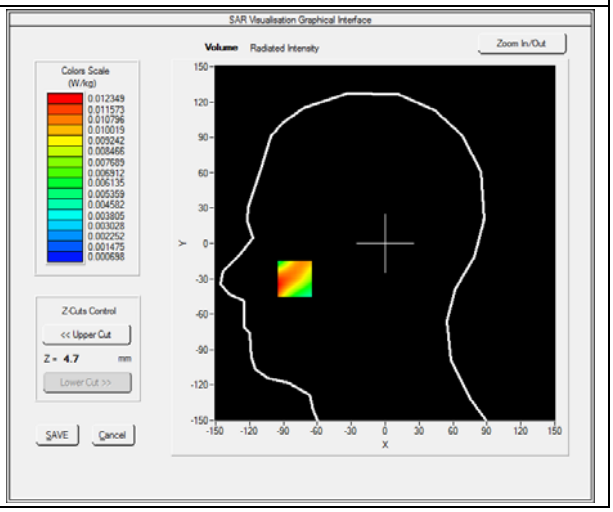
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 31 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.12; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	802.11b
Channels	High
Signal	DSSS (Crest factor: 1:1)

B. SAR Measurement Results

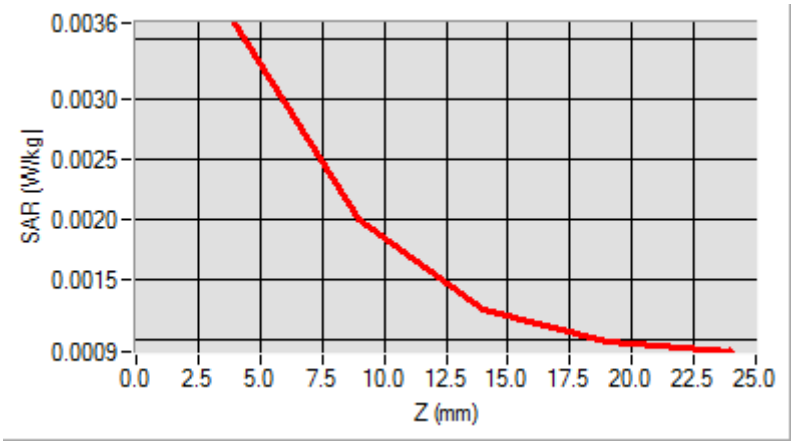
Frequency (MHz)	2462.000000
Relative Permittivity (real part)	38.60127
Conductivity (S/m)	1.760200
Power Variation (%)	-0.84000
Ambient Temperature	21.1
Liquid Temperature	21.3

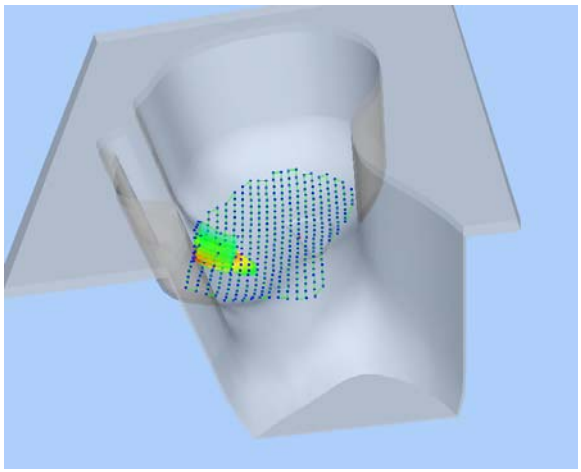
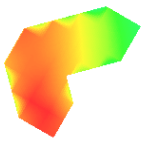
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-64.00, Y=-31.00

SAR 10g (W/Kg)	**0.001852**
SAR 1g (W/Kg)	**0.003302**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.0036**	**0.0020**	**0.0012**	**0.0010**



3D screen shot	**Hot spot position**
	

MEASUREMENT 20

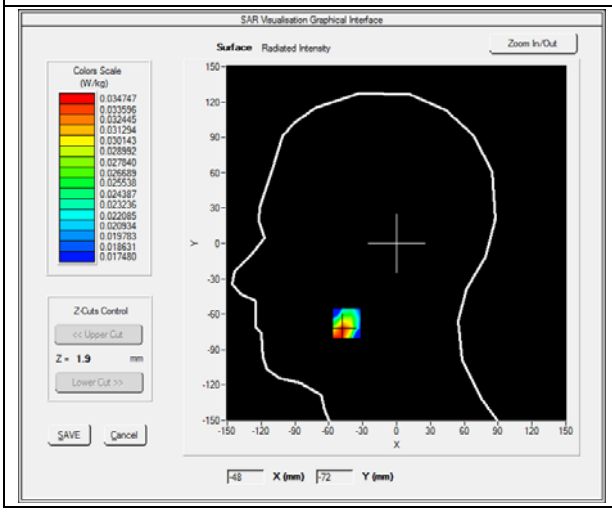
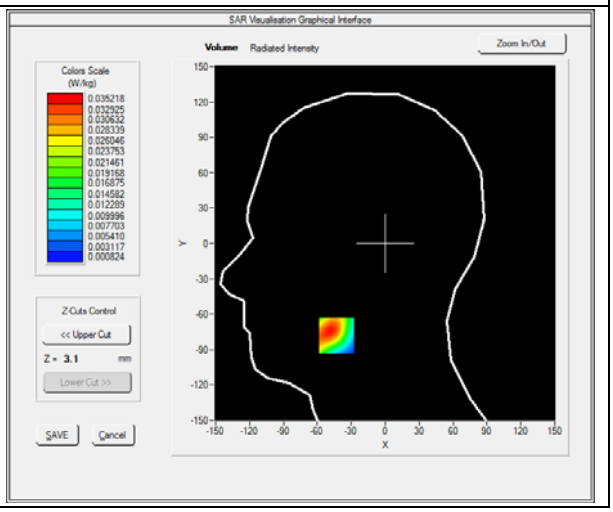
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 19 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.12; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	802.11b
Channels	High
Signal	DSSS (Crest factor: 1:1)

B. SAR Measurement Results

Frequency (MHz)	2462.000000
Relative Permittivity (real part)	38.60127
Conductivity (S/m)	1.760200
Power Variation (%)	0.840000
Ambient Temperature	21.1
Liquid Temperature	21.3

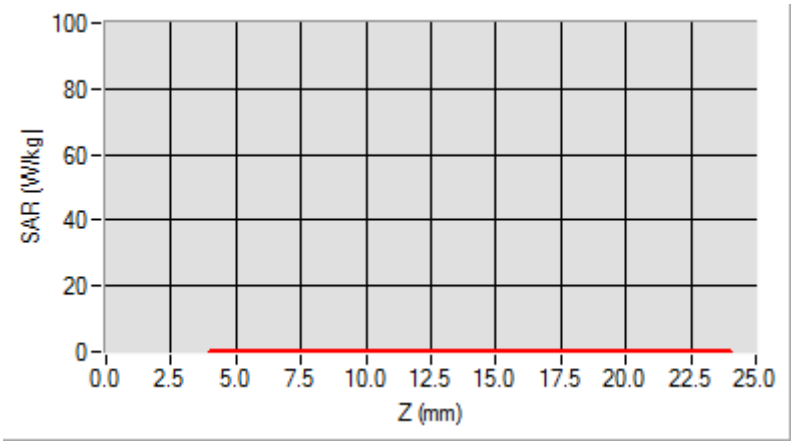
SURFACE SAR	VOLUME SAR
	

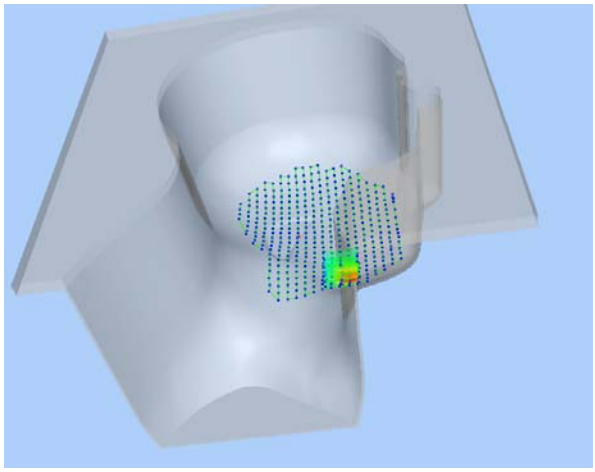
Maximum location: X=-0.00, Y=-5.00

SAR 10g (W/Kg)	0.000980
SAR 1g (W/Kg)	0.001050

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00
SAR (W/Kg)	0.0000	0.0009	0.0009	0.0009	0.0009	0.0001



3D screen shot	Hot spot position
	

MEASUREMENT 21

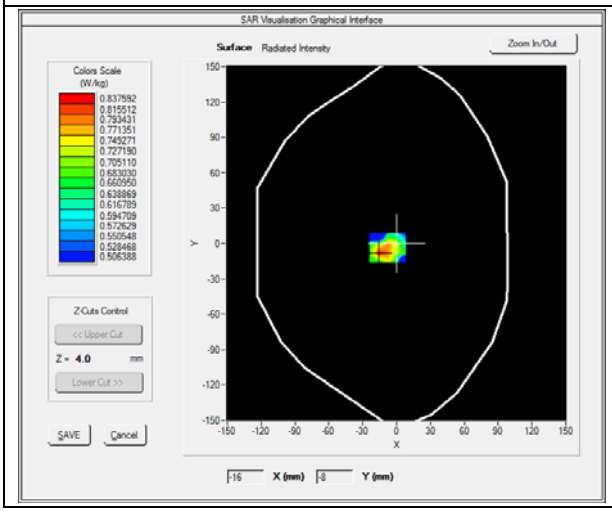
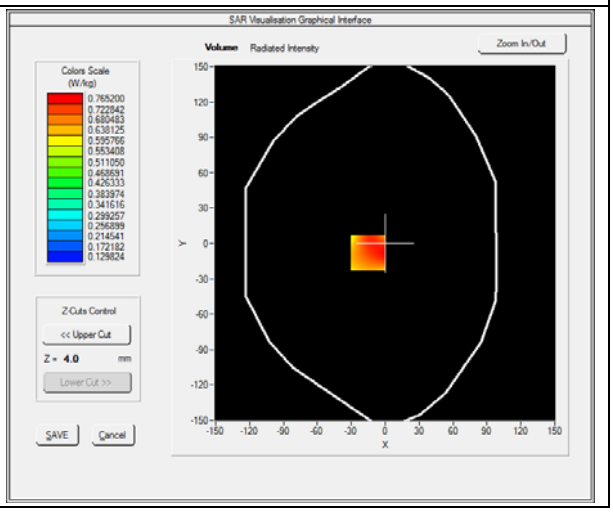
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.71; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Body-worn
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

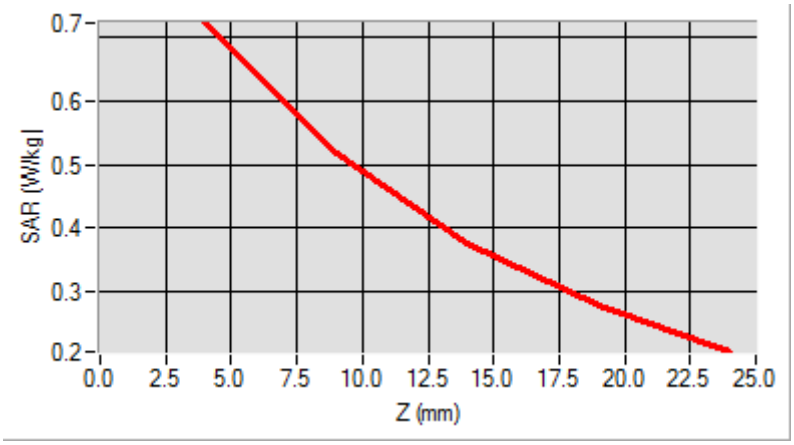
Frequency (MHz)	824.200000
Relative Permittivity (real part)	55.802100
Conductivity (S/m)	0.96000
Power Variation (%)	-0.98000
Ambient Temperature	21.1
Liquid Temperature	21.3

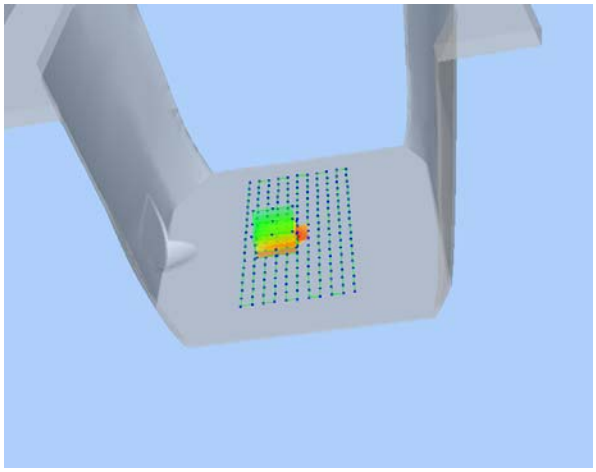
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-15.00, Y=-8.00

SAR 10g (W/Kg)	0.612778
SAR 1g (W/Kg)	0.880562

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.7211	0.5180	0.3774	0.2803



3D screen shot	Hot spot position
	

MEASUREMENT 22

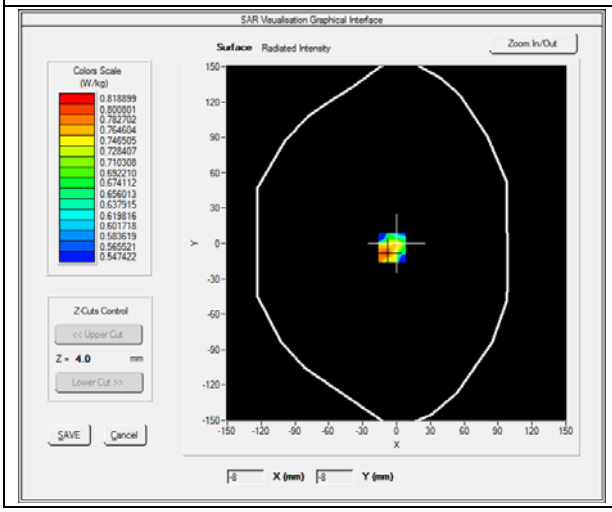
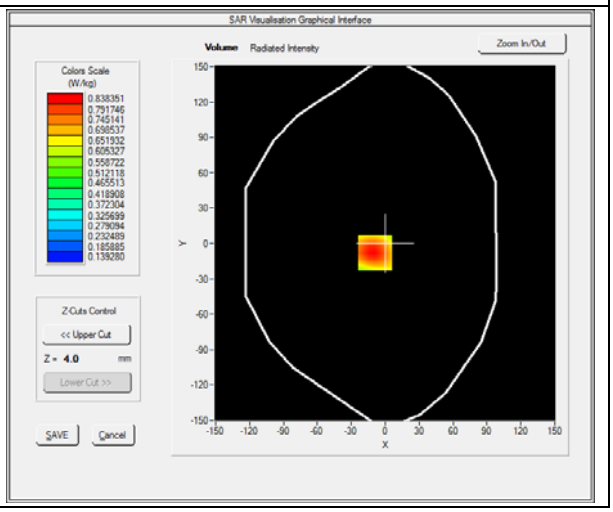
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.71; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Body-worn
Band	GSM850
Channels	Middle
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

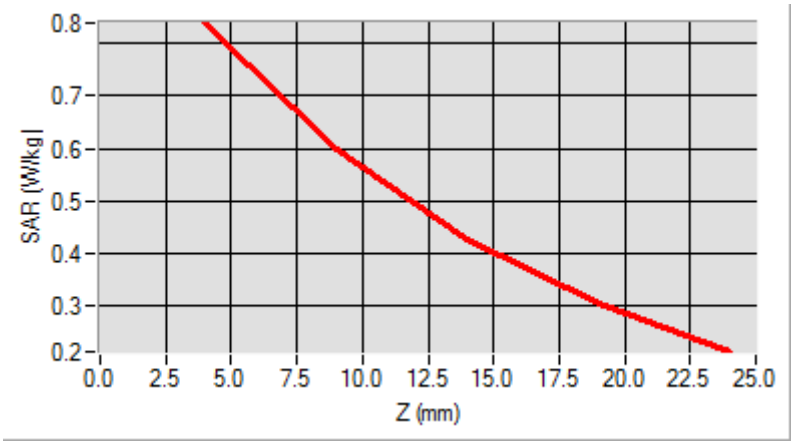
Frequency (MHz)	836.600000
Relative Permittivity (real part)	55.802100
Conductivity (S/m)	0.96000
Power Variation (%)	-0.75000
Ambient Temperature	21.1
Liquid Temperature	21.3

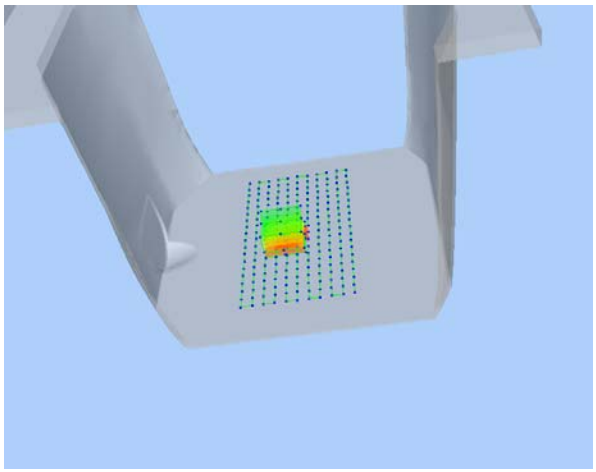
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-9.00, Y=-8.00

SAR 10g (W/Kg)	0.625139
SAR 1g (W/Kg)	0.909062

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.8384	0.5969	0.4258	0.3050



3D screen shot	Hot spot position
	

MEASUREMENT 23

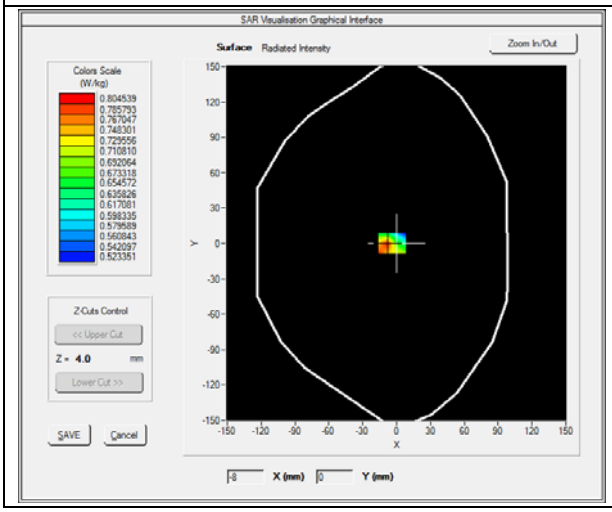
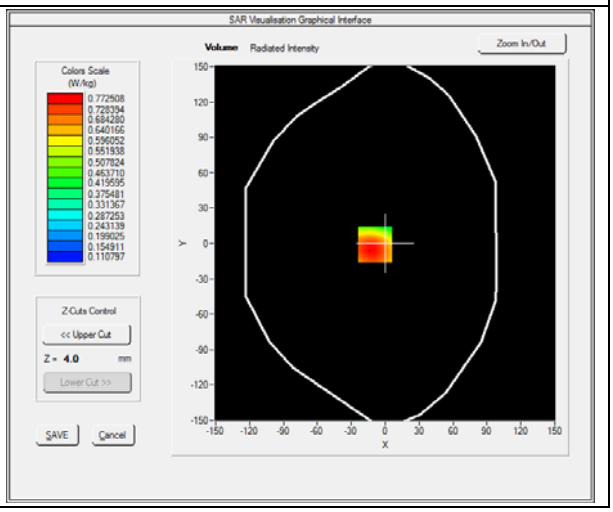
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.71; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Body-worn
Band	GSM850
Channels	High
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

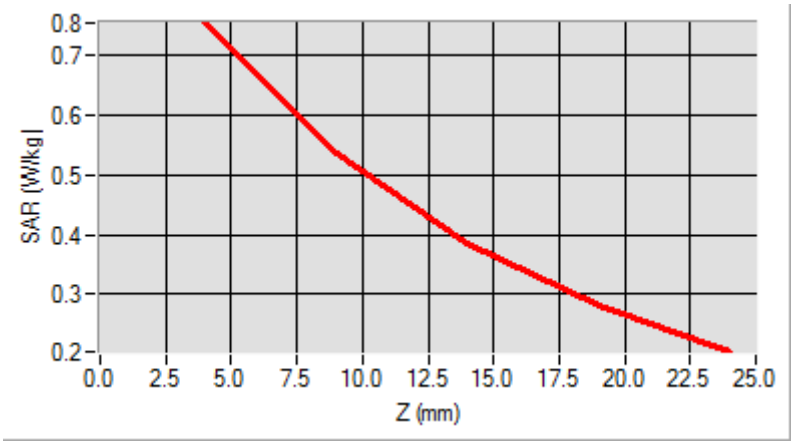
Frequency (MHz)	848.800000
Relative Permittivity (real part)	55.802100
Conductivity (S/m)	0.96000
Power Variation (%)	-0.38000
Ambient Temperature	21.1
Liquid Temperature	21.3

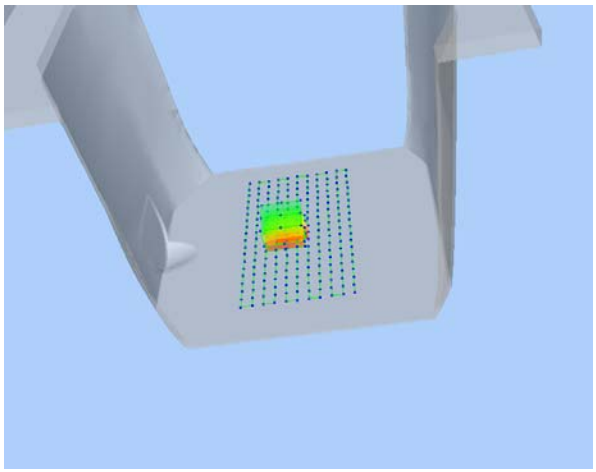
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-9.00, Y=-1.00

SAR 10g (W/Kg)	0.578956
SAR 1g (W/Kg)	0.833326

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.7549	0.5362	0.3851	0.2813



3D screen shot	Hot spot position
	

MEASUREMENT 24

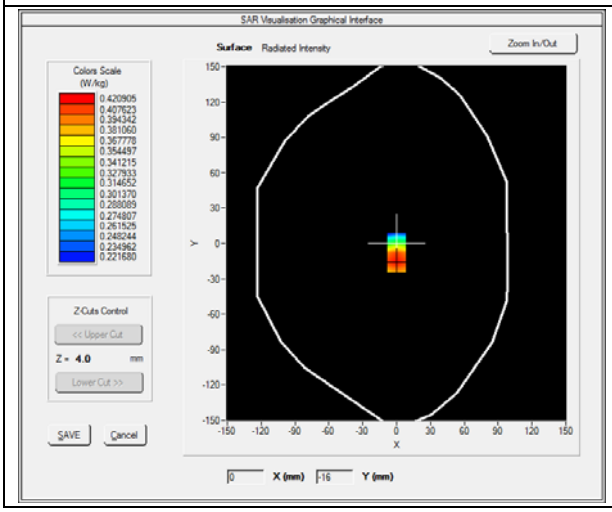
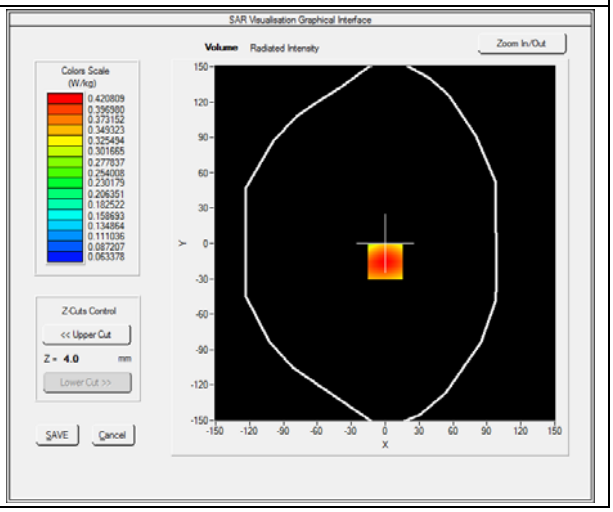
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 13 minutes 04 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.71; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Body-worn
Band	WCDMA Band V
Channels	Middle
Signal	CDMA (Crest factor: 1:1)

B. SAR Measurement Results

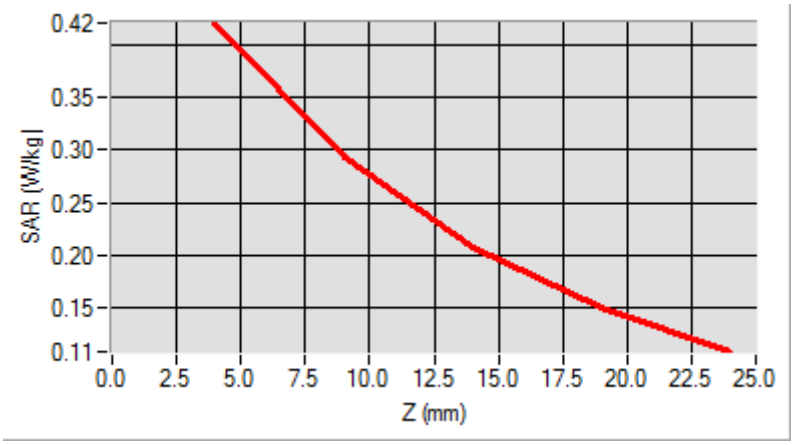
Frequency (MHz)	836.400000
Relative Permittivity (real part)	55.802100
Conductivity (S/m)	0.96000
Power Variation (%)	-1.10000
Ambient Temperature	21.1
Liquid Temperature	21.3

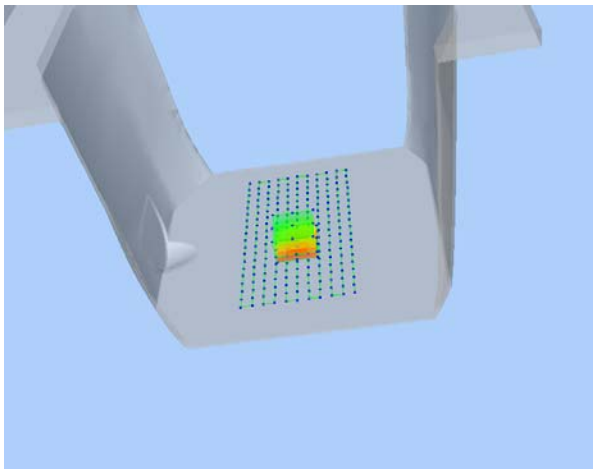
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=-15.00

SAR 10g (W/Kg)	0.278627
SAR 1g (W/Kg)	0.402087

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.4208	0.2938	0.2080	0.1504



3D screen shot	Hot spot position
	

MEASUREMENT 25

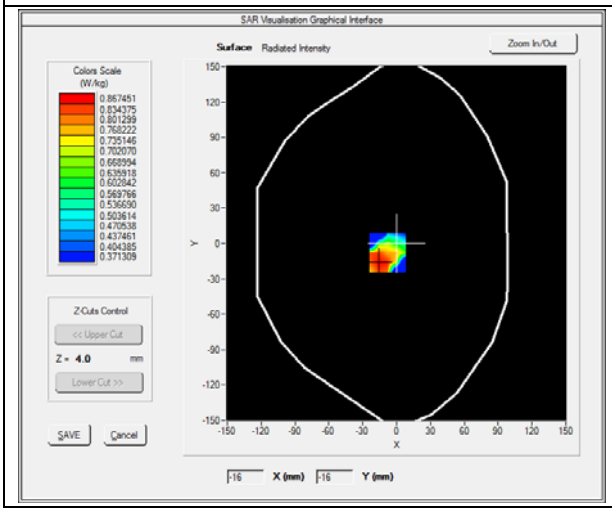
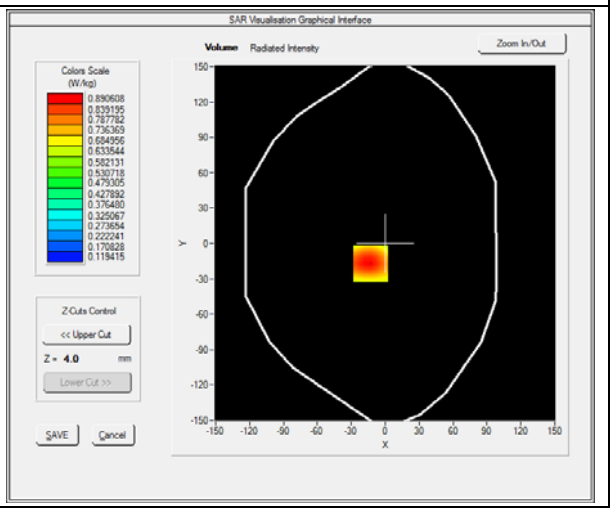
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.71; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Front
Band	GPRS850_4TX
Channels	Low
Signal	TDMA (Crest factor: 1:2)

B. SAR Measurement Results

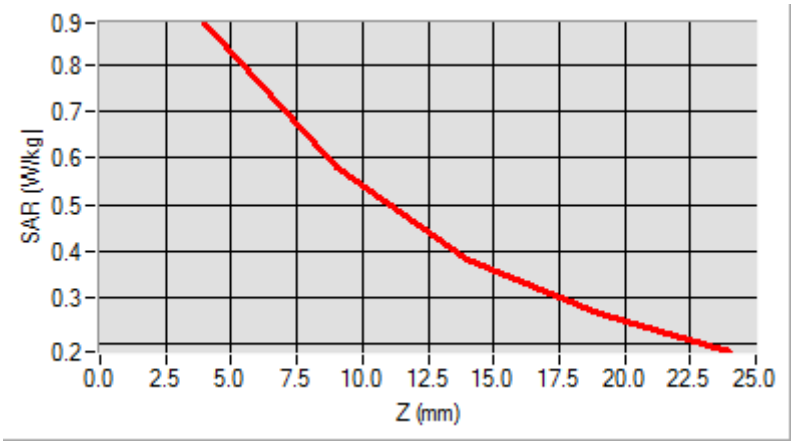
Frequency (MHz)	824.200000
Relative Permittivity (real part)	55.802100
Conductivity (S/m)	0.96000
Power Variation (%)	0.51000
Ambient Temperature	21.1
Liquid Temperature	21.3

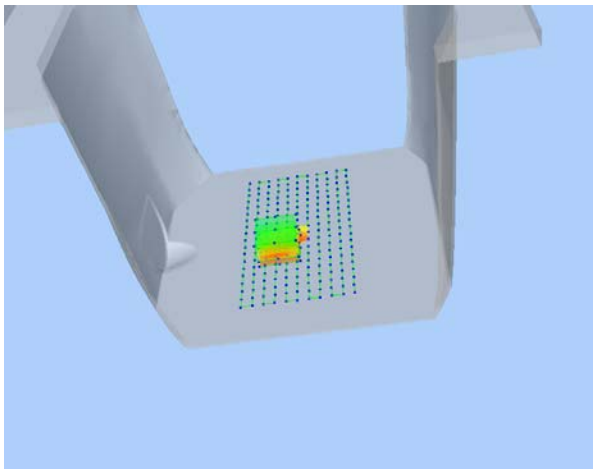
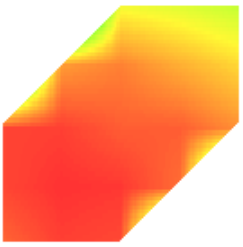
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-13.00, Y=-17.00

SAR 10g (W/Kg)	0.542347
SAR 1g (W/Kg)	0.786482

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.8711	0.5769	0.3837	0.2652



3D screen shot	Hot spot position
	

MEASUREMENT 26

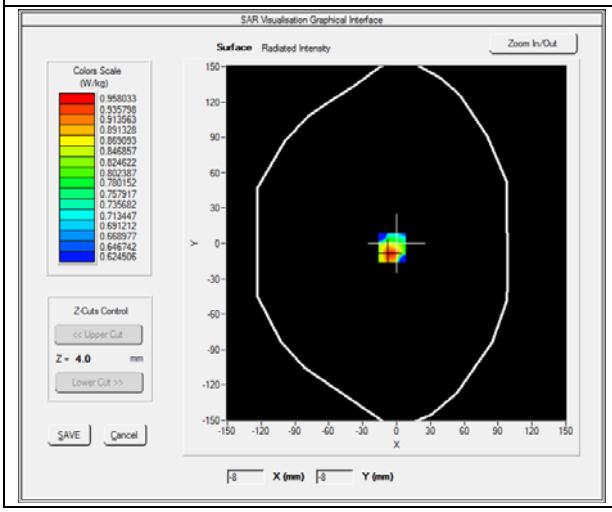
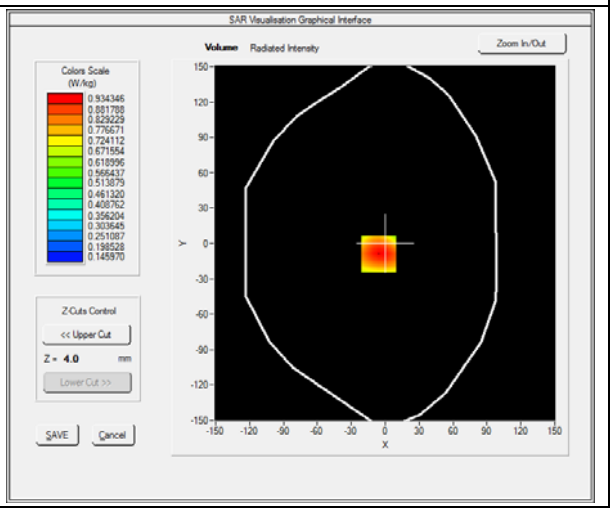
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.71; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Back
Band	GPRS850_4TX
Channels	Middle
Signal	TDMA (Crest factor: 1:2)

B. SAR Measurement Results

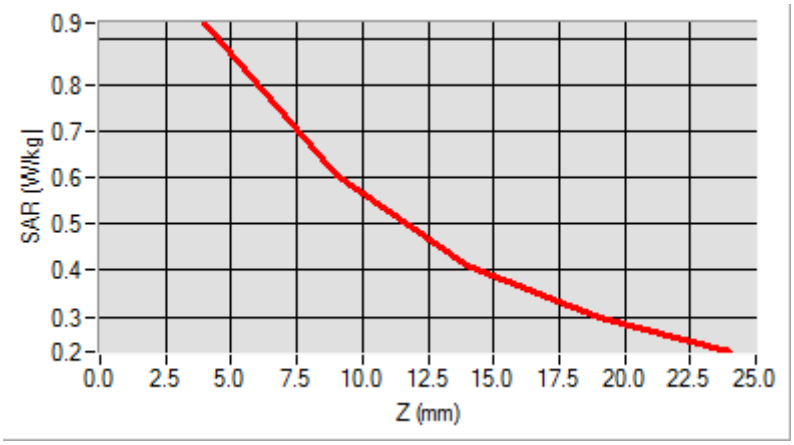
Frequency (MHz)	824.200000
Relative Permittivity (real part)	55.802100
Conductivity (S/m)	0.96000
Power Variation (%)	0.46000
Ambient Temperature	21.1
Liquid Temperature	21.3

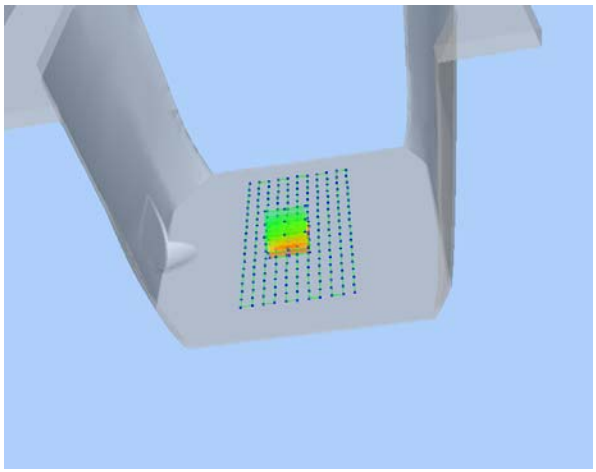
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-6.00, Y=-9.00

SAR 10g (W/Kg)	0.571143
SAR 1g (W/Kg)	0.795692

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.9243	0.6018	0.4089	0.2981



3D screen shot	Hot spot position
	

MEASUREMENT 27

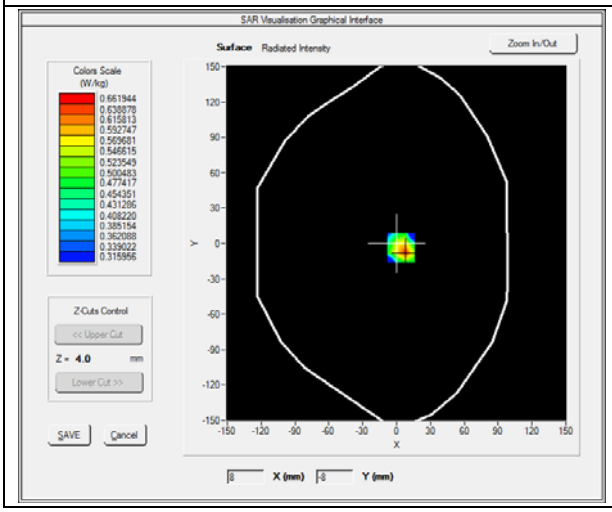
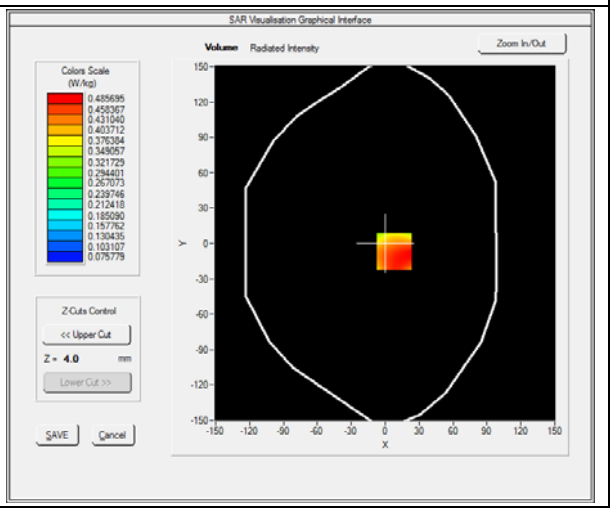
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.71; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Top side
Band	GPRS850_4TX
Channels	Low
Signal	TDMA (Crest factor: 1:2)

B. SAR Measurement Results

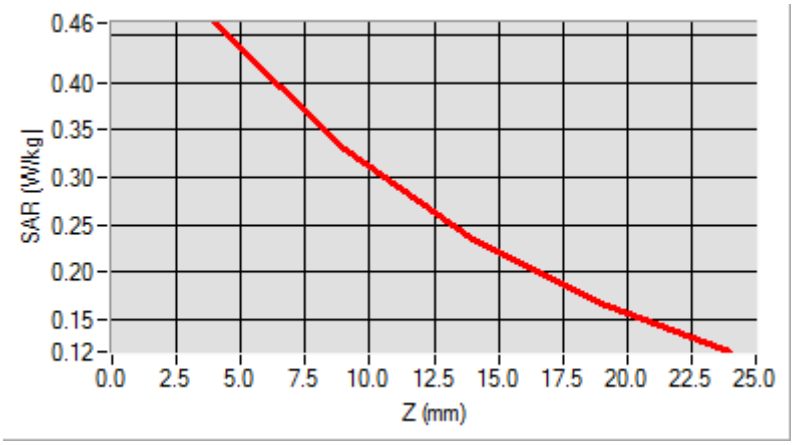
Frequency (MHz)	824.200000
Relative Permittivity (real part)	55.802100
Conductivity (S/m)	0.96000
Power Variation (%)	0.56000
Ambient Temperature	21.1
Liquid Temperature	21.3

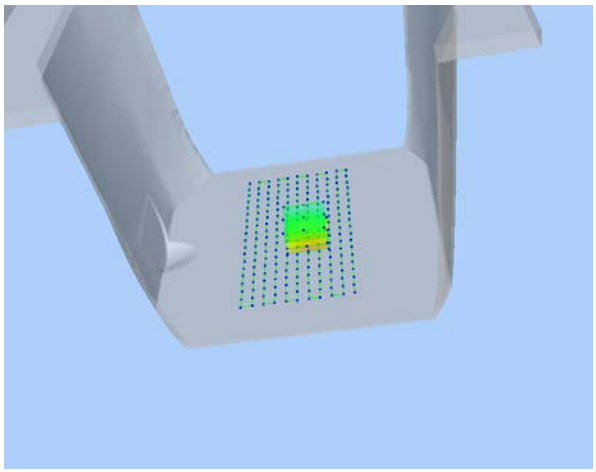
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=-7.00

SAR 10g (W/Kg)	0.313173
SAR 1g (W/Kg)	0.469791

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.4624	0.3291	0.2344	0.1673



3D screen shot	Hot spot position
	

MEASUREMENT 28

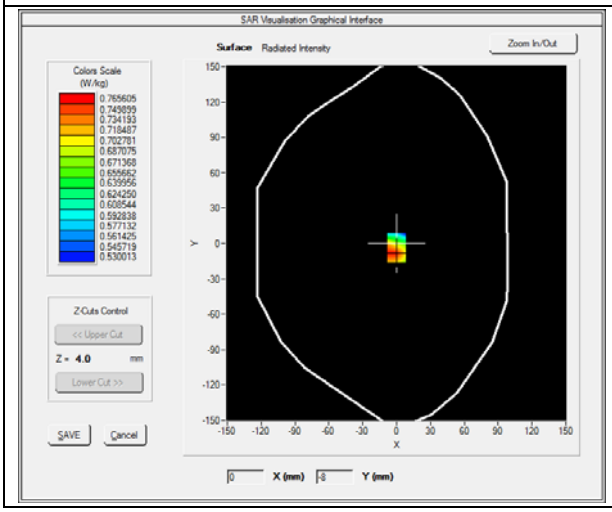
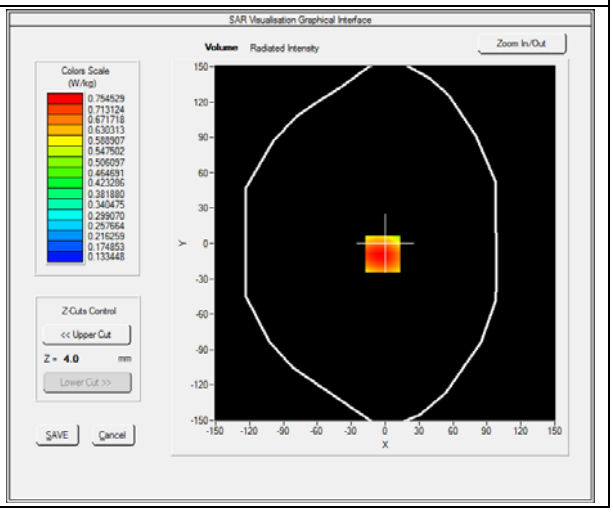
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.71; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Right side
Band	GPRS850_4TX
Channels	Low
Signal	TDMA (Crest factor: 1:2)

B. SAR Measurement Results

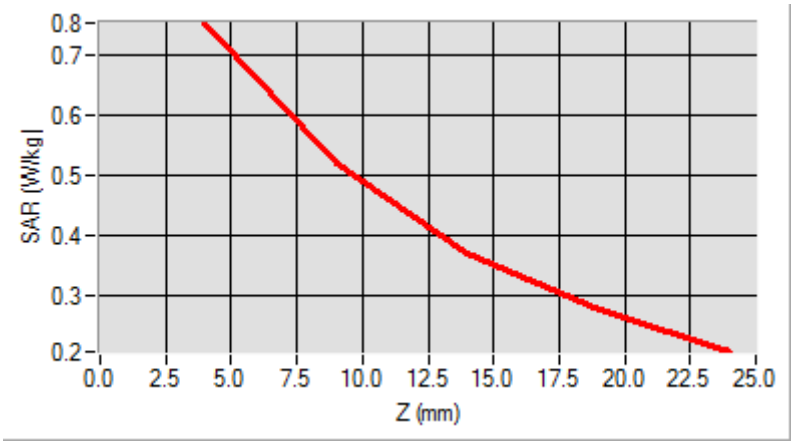
Frequency (MHz)	824.200000
Relative Permittivity (real part)	55.802100
Conductivity (S/m)	0.96000
Power Variation (%)	0.44000
Ambient Temperature	21.1
Liquid Temperature	21.3

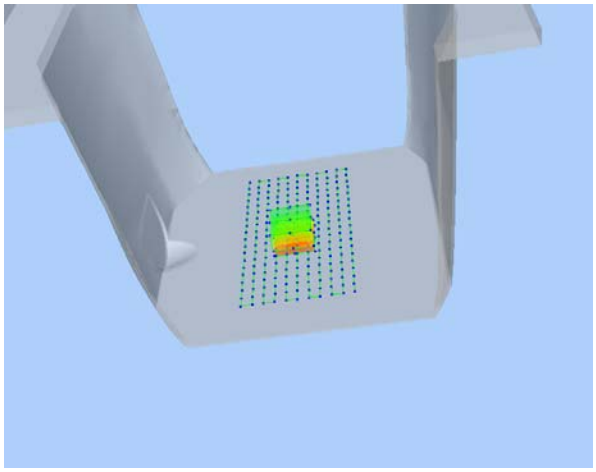
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-2.00, Y=-9.00

SAR 10g (W/Kg)	0.497924
SAR 1g (W/Kg)	0.722842

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.7545	0.5224	0.3721	0.2763



3D screen shot	Hot spot position
	

MEASUREMENT 29

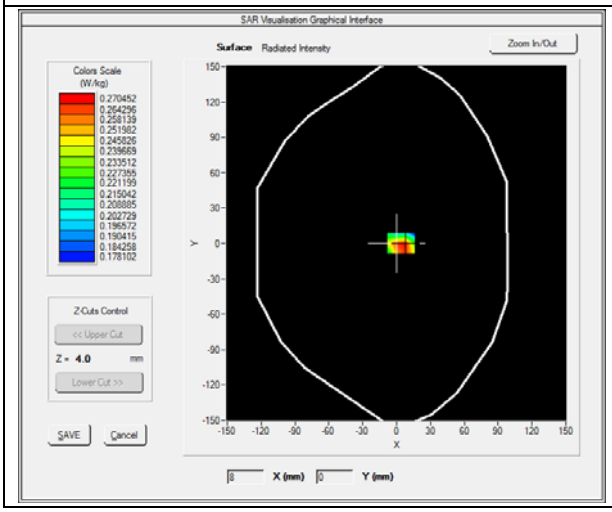
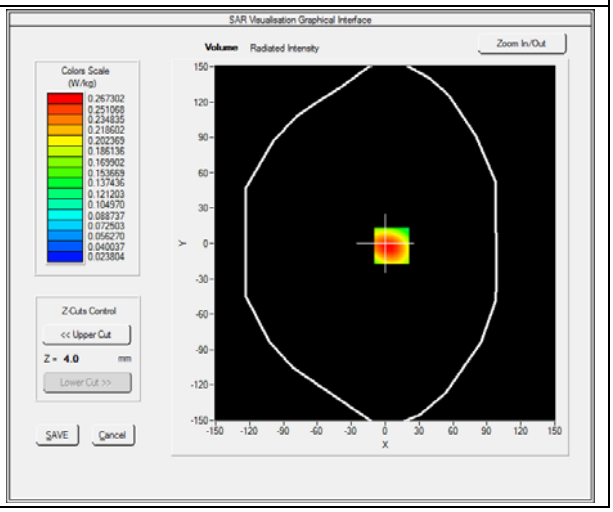
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.38; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Body-worn
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 1:8)

B. SAR Measurement Results

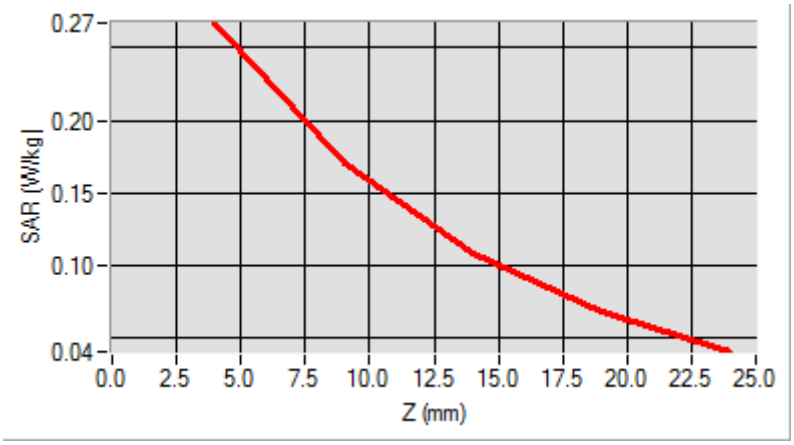
Frequency (MHz)	1909.800049
Relative Permittivity (real part)	51.20200
Conductivity (S/m)	1.540200
Power Variation (%)	-0.5000
Ambient Temperature	21.1
Liquid Temperature	21.3

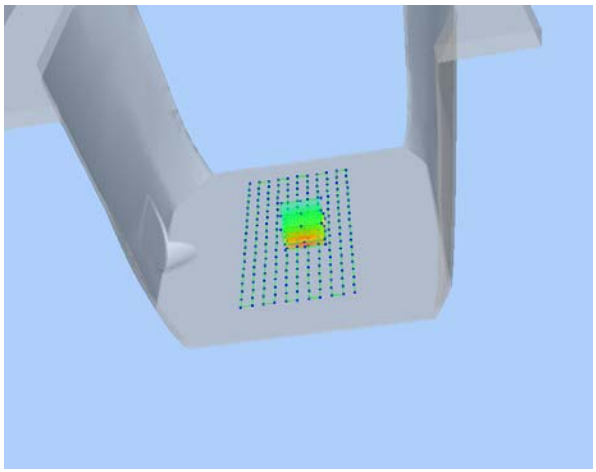
SURFACE SAR	VOLUME SAR
	

Maximum location: X=6.00, Y=-2.00

SAR 10g (W/Kg)	0.186838
SAR 1g (W/Kg)	0.304201

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.2672	0.1706	0.1082	0.0683



3D screen shot	Hot spot position
	

MEASUREMENT 30

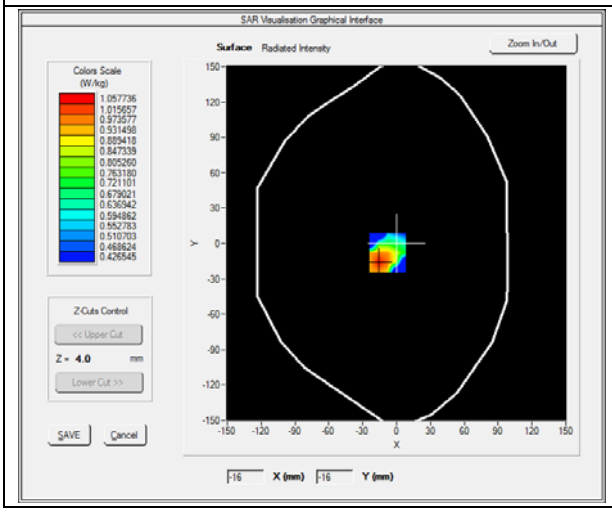
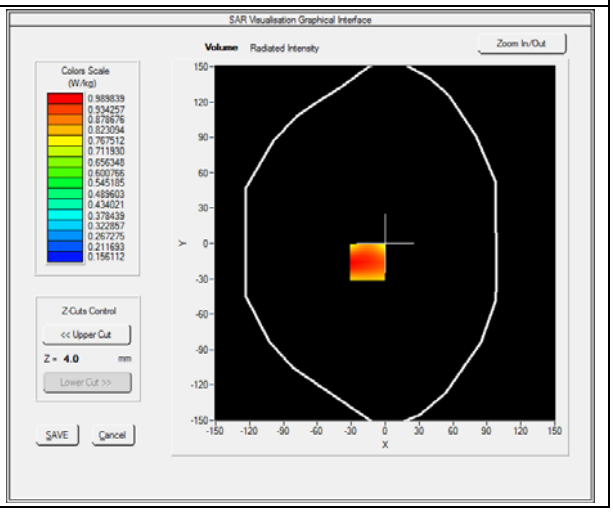
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.38; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Front
Band	GPRS1900_4TX
Channels	High
Signal	TDMA (Crest factor: 1:2)

B. SAR Measurement Results

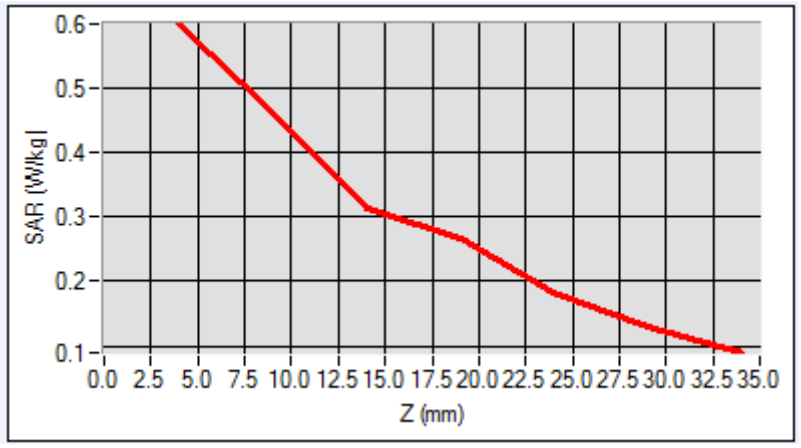
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	51.20200
Conductivity (S/m)	1.540200
Power Variation (%)	-0.15600
Ambient Temperature	21.1
Liquid Temperature	21.3

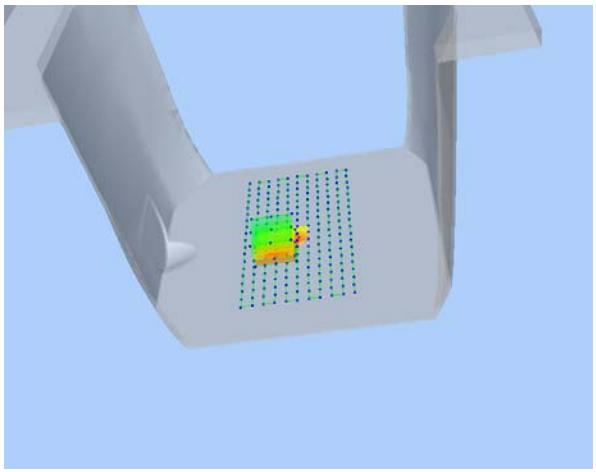
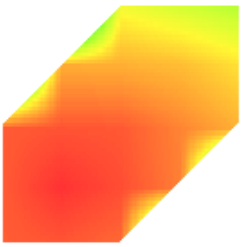
SURFACE SAR	VOLUME SAR
	

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

SAR 10g (W/Kg)	**0.364675**
SAR 1g (W/Kg)	**0.542647**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.6001**	**0.4640**	**0.3133**	**0.2657**



3D screen shot	**Hot spot position**
	

MEASUREMENT 31

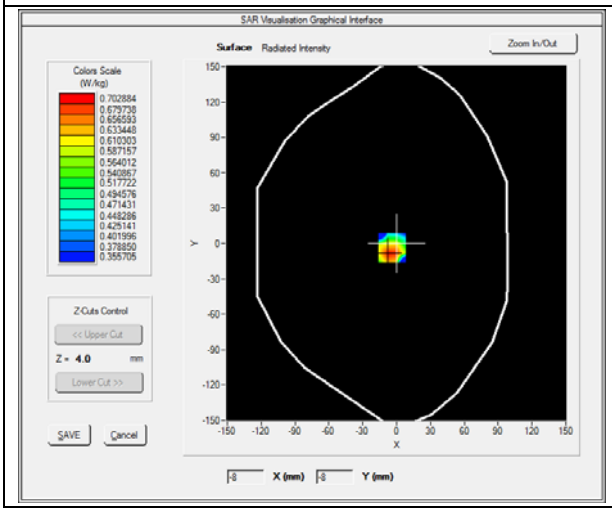
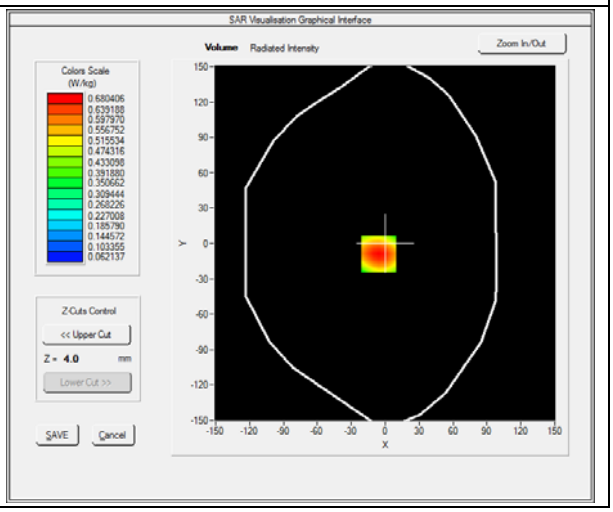
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.38; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Back
Band	GPRS1900_4TX
Channels	High
Signal	TDMA (Crest factor: 1:2)

B. SAR Measurement Results

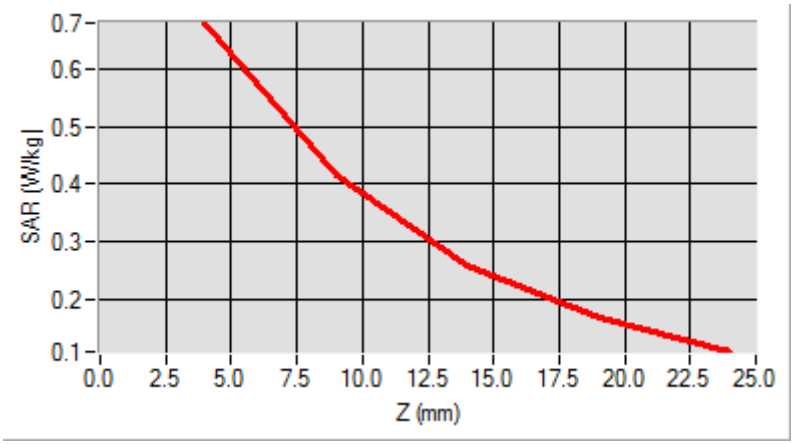
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	51.20200
Conductivity (S/m)	1.540200
Power Variation (%)	-0.42000
Ambient Temperature	21.1
Liquid Temperature	21.3

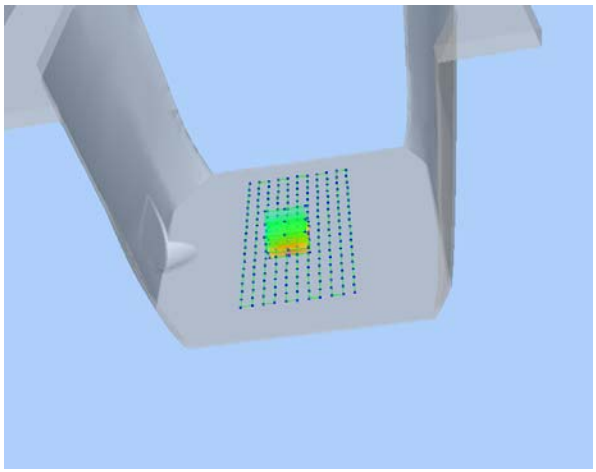
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-6.00, Y=-9.00

SAR 10g (W/Kg)	**0.392087**
SAR 1g (W/Kg)	**0.640093**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.6804**	**0.4140**	**0.2566**	**0.1662**



3D screen shot	**Hot spot position**
	

MEASUREMENT 32

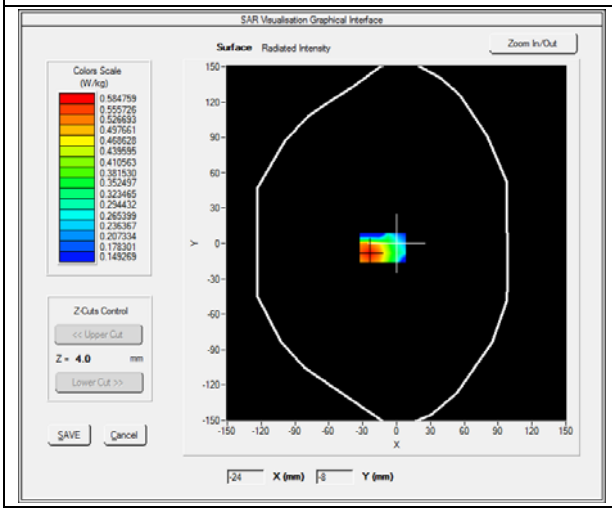
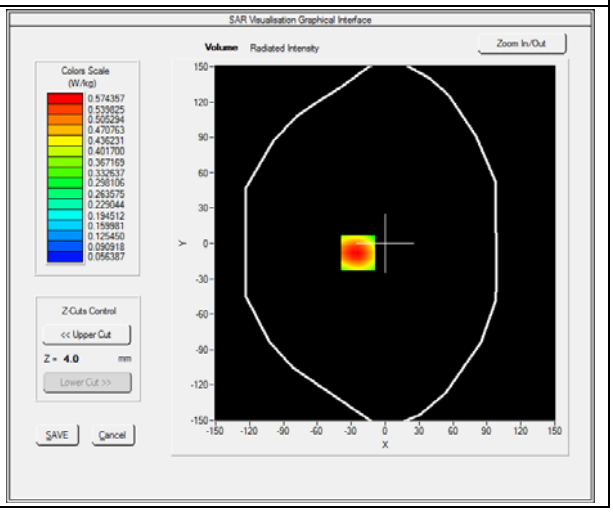
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.38; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Top side
Band	GPRS1900_4TX
Channels	High
Signal	TDMA (Crest factor: 1:2)

B. SAR Measurement Results

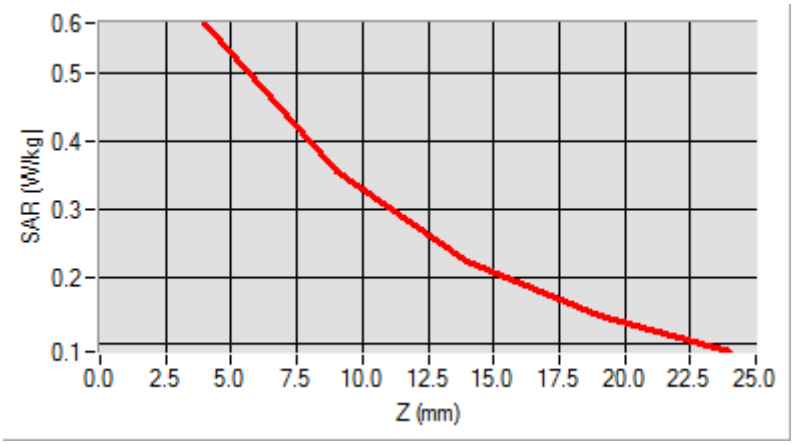
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	51.20200
Conductivity (S/m)	1.540200
Power Variation (%)	0.15000
Ambient Temperature	21.1
Liquid Temperature	21.3

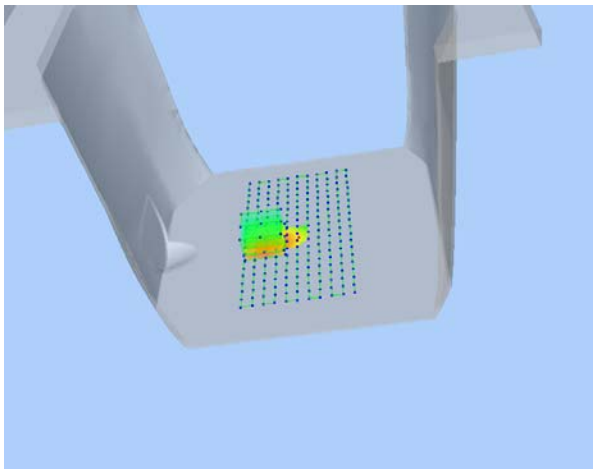
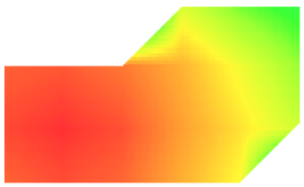
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-24.00, Y=-8.00

SAR 10g (W/Kg)	0.332370
SAR 1g (W/Kg)	0.542871

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.5744	0.3560	0.2224	0.1424



3D screen shot	Hot spot position
	

MEASUREMENT 33

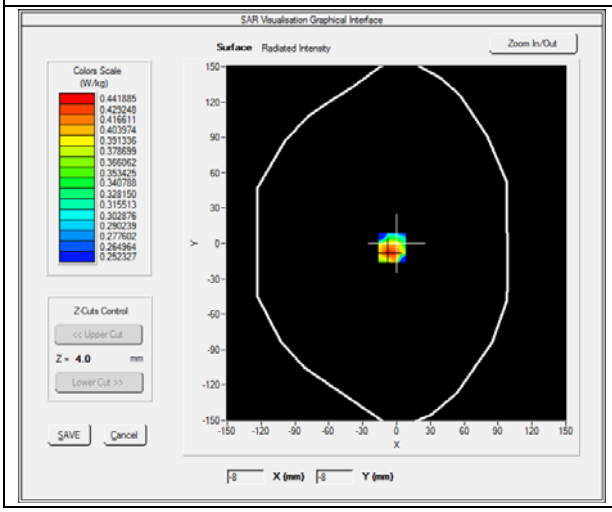
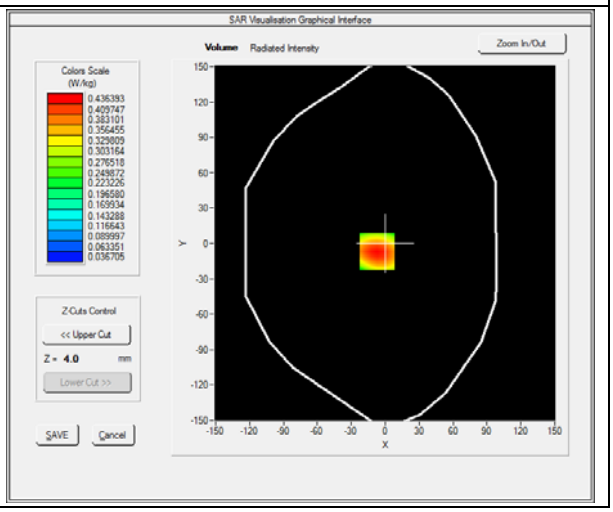
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.38; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Right side
Band	GPRS1900_4TX
Channels	High
Signal	TDMA (Crest factor: 1:2)

B. SAR Measurement Results

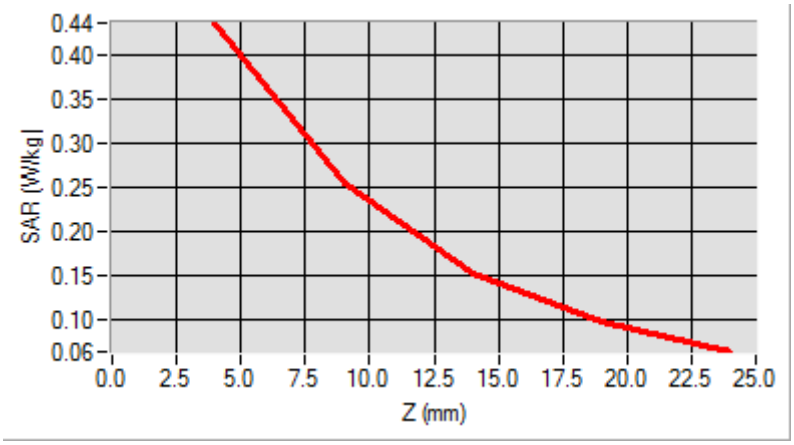
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	51.20200
Conductivity (S/m)	1.540200
Power Variation (%)	0.04000
Ambient Temperature	21.1
Liquid Temperature	21.3

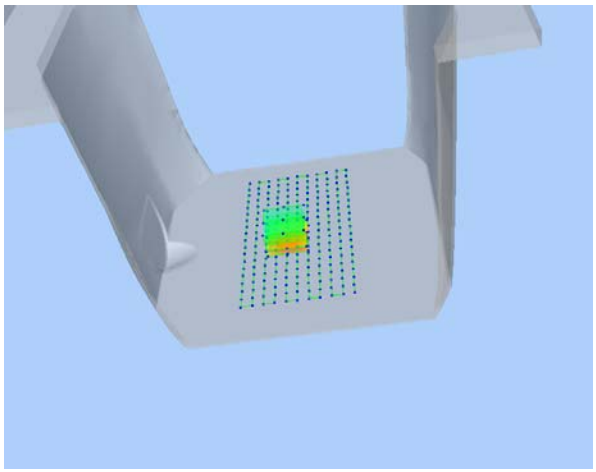
SURFACE SAR	VOLUME SAR
	

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

SAR 10g (W/Kg)	0.250168
SAR 1g (W/Kg)	0.411640

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.4364	0.2558	0.1539	0.0989



3D screen shot	Hot spot position
	

MEASUREMENT 34

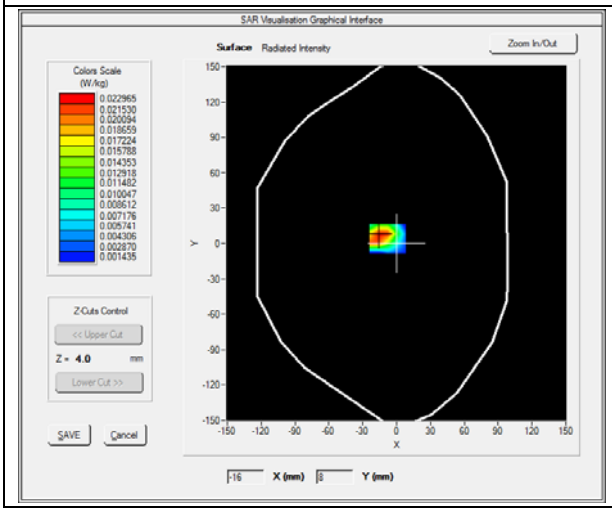
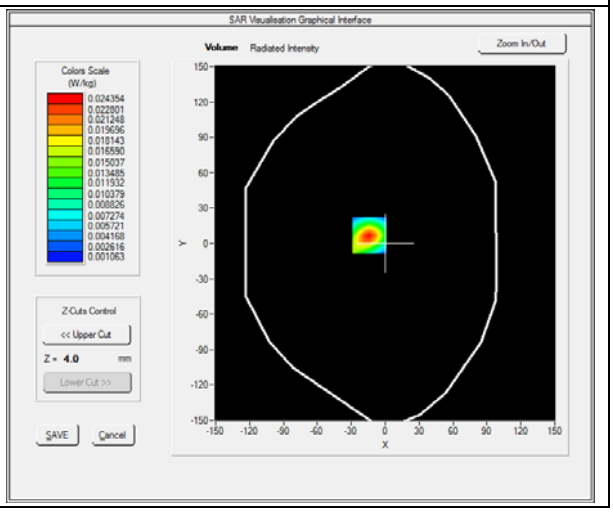
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 25seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.29; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Body-worn (Back)
Band	802.11b
Channels	High
Signal	DSSS (Crest factor: 1:1)

B. SAR Measurement Results

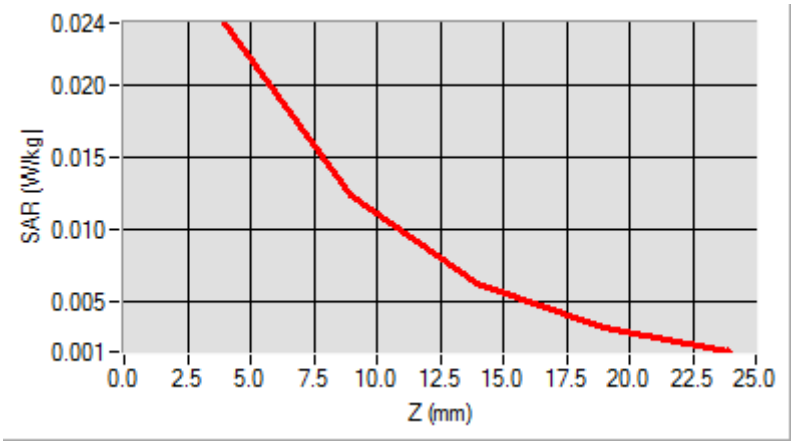
Frequency (MHz)	2462.000000
Relative Permittivity (real part)	52.30160
Conductivity (S/m)	2.001200
Power Variation (%)	-0.84200
Ambient Temperature	21.1
Liquid Temperature	21.3

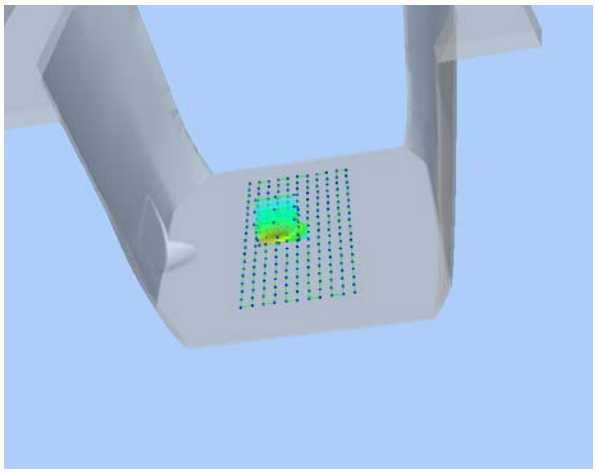
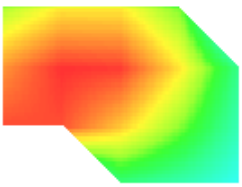
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-14.00, Y=7.00

SAR 10g (W/Kg)	0.010486
SAR 1g (W/Kg)	0.021909

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.0244	0.0124	0.0062	0.0031



3D screen shot	Hot spot position
	

MEASUREMENT 35

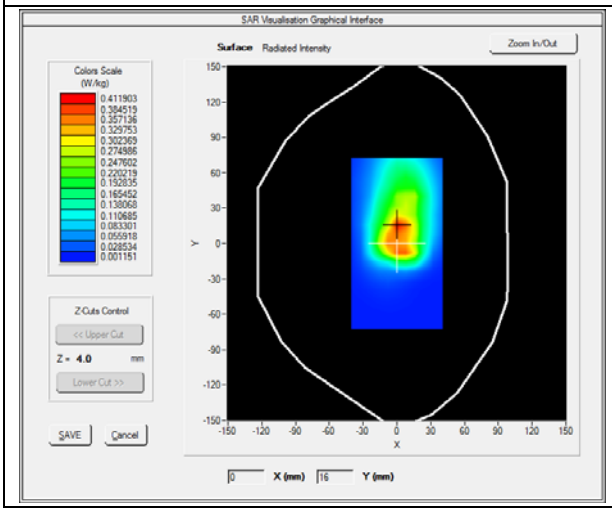
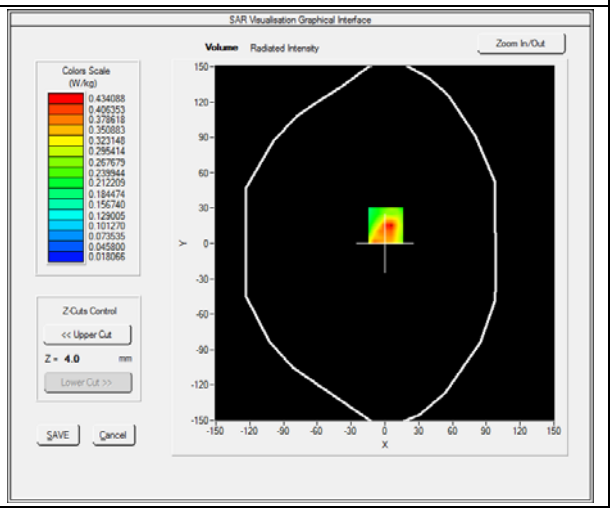
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 25seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.29; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Front
Band	2.4GHz-802.11b
Channels	High
Signal	DSSS (Crest factor: 1:1)

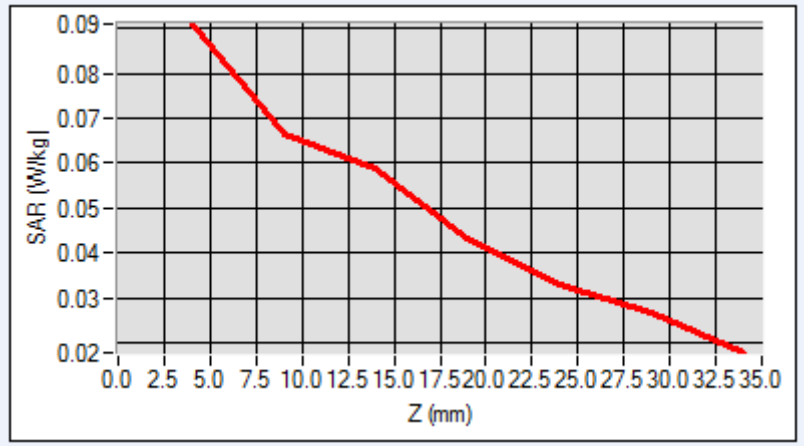
B. SAR Measurement Results

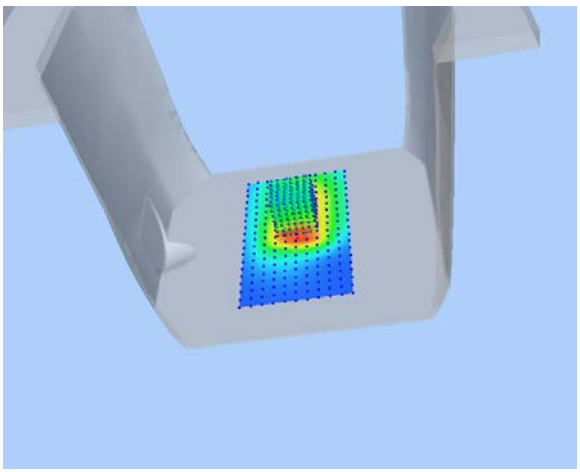
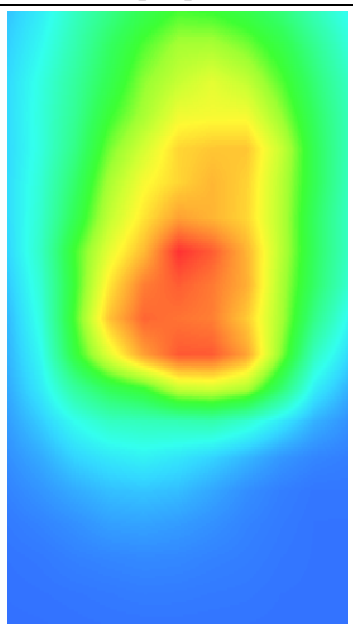
Frequency (MHz)	2462.000000
Relative Permittivity (real part)	52.30160
Conductivity (S/m)	2.001200
Power Variation (%)	-0.60332
Ambient Temperature	21.1
Liquid Temperature	21.3

SURFACE SAR	VOLUME SAR
	

SAR 10g (W/Kg)	0.070873
SAR 1g (W/Kg)	0.097449

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.000000	0.090993	0.066489	0.058772	0.043206	0.032959	0.026625



3D screen shot	Hot spot position
	

MEASUREMENT 36

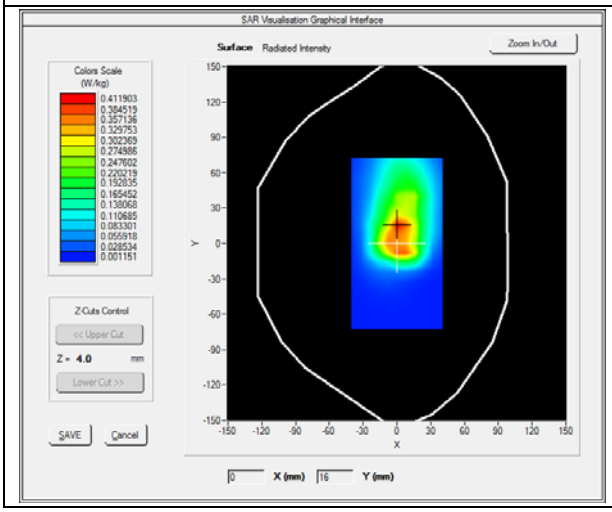
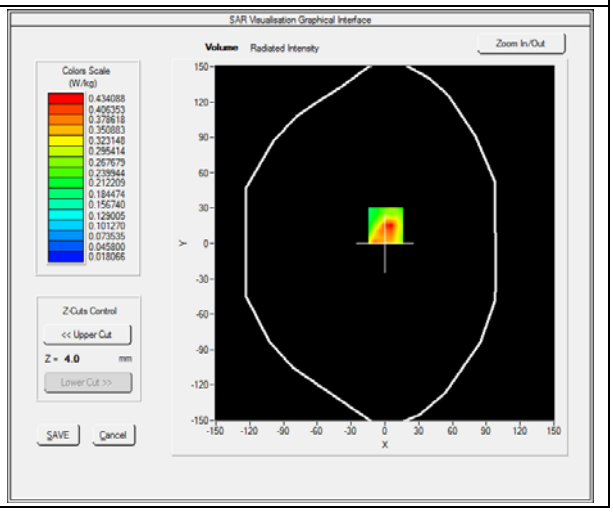
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 25seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.29; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	2.4GHz-802.11b
Channels	High
Signal	DSSS (Crest factor: 1:1)

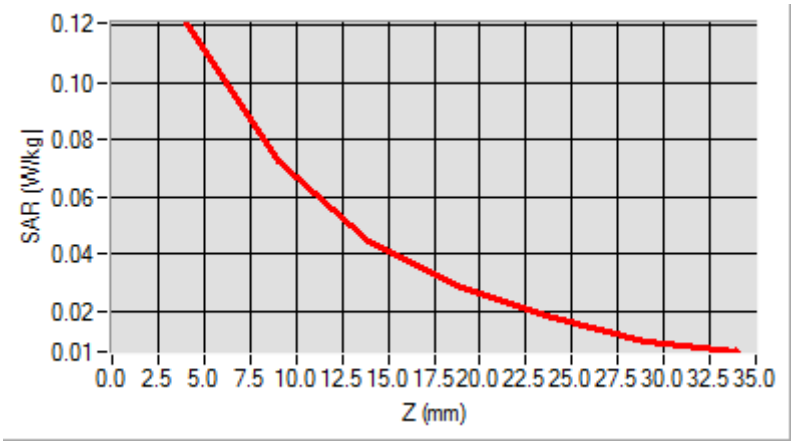
B. SAR Measurement Results

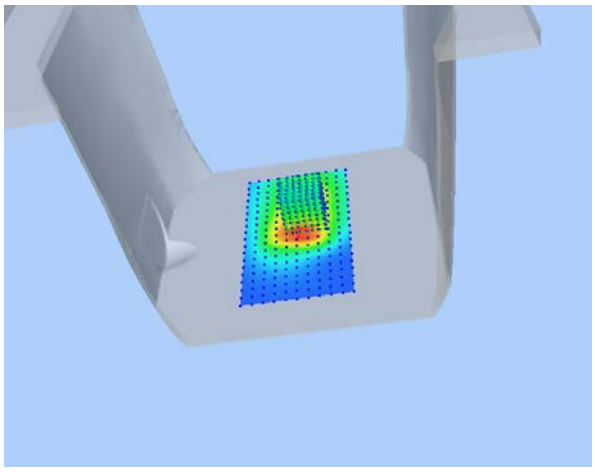
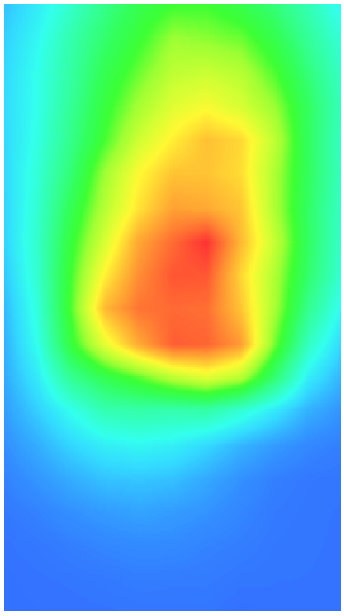
Frequency (MHz)	2462.000000
Relative Permittivity (real part)	52.30160
Conductivity (S/m)	2.001200
Power Variation (%)	-1.65000
Ambient Temperature	21.1
Liquid Temperature	21.3

SURFACE SAR	VOLUME SAR
	

SAR 10g (W/Kg)	0.072670
SAR 1g (W/Kg)	0.129693

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.000000	0.120721	0.072311	0.044151	0.028101	0.017912	0.009511



3D screen shot	Hot spot position
	

MEASUREMENT 37

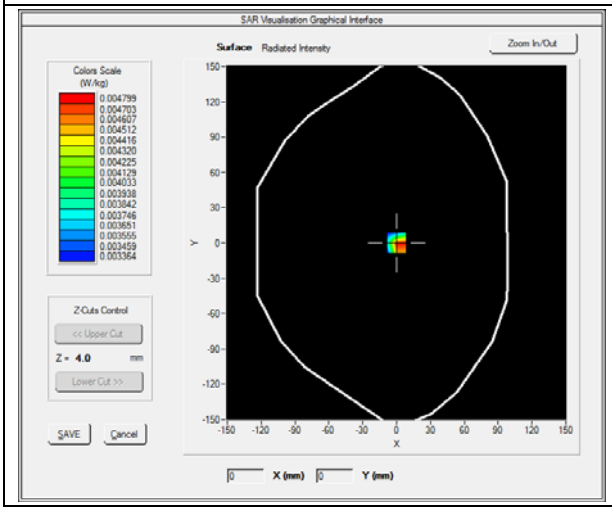
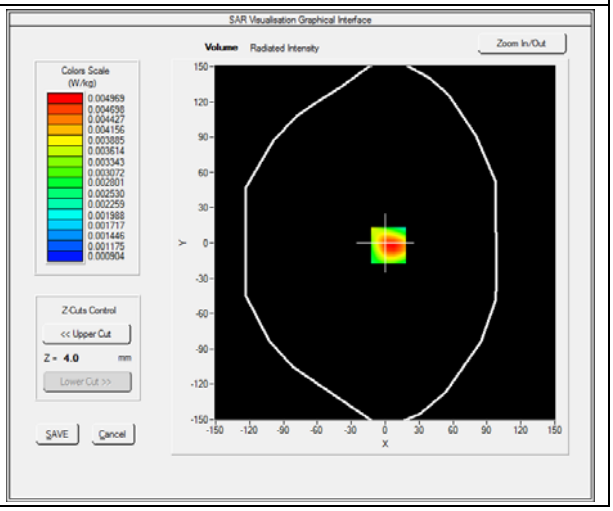
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 25seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.29; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Bottom side
Band	2.4GHz-802.11b
Channels	High
Signal	DSSS (Crest factor: 1:1)

B. SAR Measurement Results

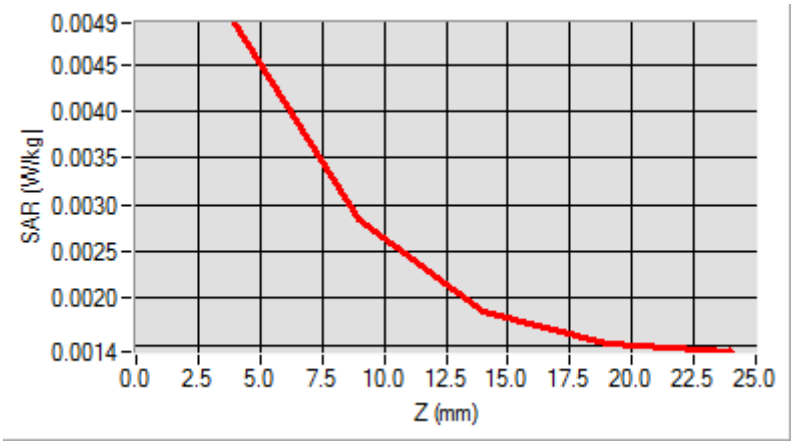
Frequency (MHz)	2462.000000
Relative Permittivity (real part)	52.30160
Conductivity (S/m)	2.001200
Power Variation (%)	-0.84000
Ambient Temperature	21.1
Liquid Temperature	21.3

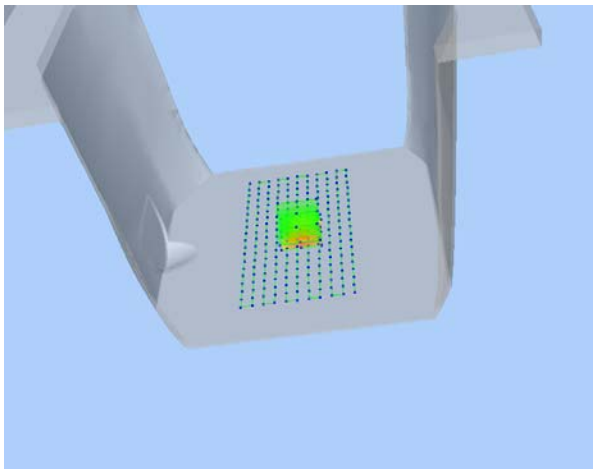
SURFACE SAR	VOLUME SAR
	

Maximum location: X=3.00, Y=-2.00

SAR 10g (W/Kg)	0.002821
SAR 1g (W/Kg)	0.004715

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.0049	0.0028	0.0019	0.0015



3D screen shot	Hot spot position
	

MEASUREMENT 38

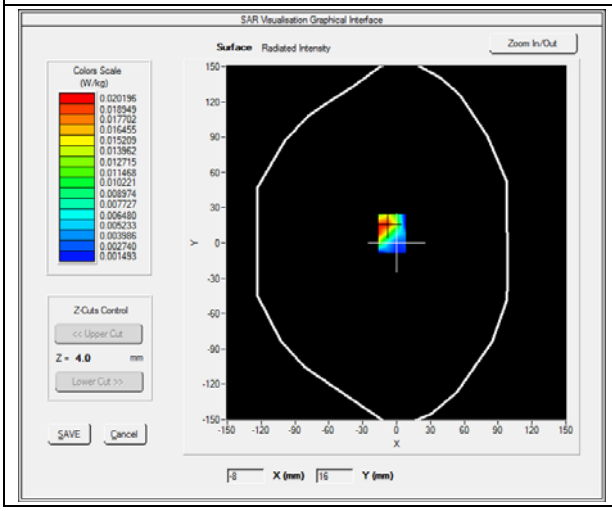
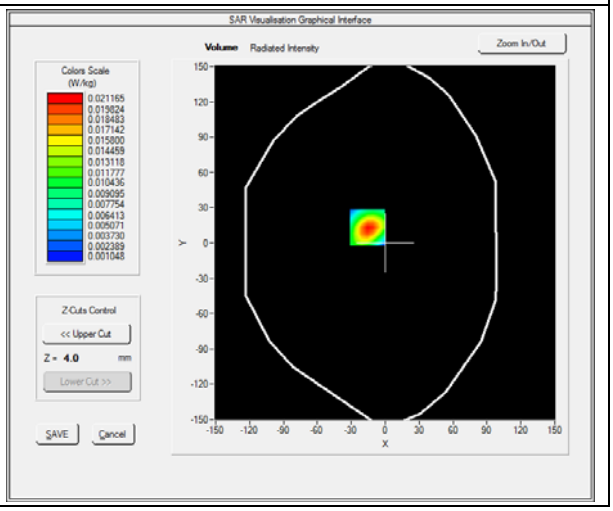
Type: Phone measurement (Complete)
Date of measurement: 28/6/2013
Measurement duration: 12 minutes 25seconds
E-field Probe: SSE5 - SN 22/12 EP155; ConvF: 5.29; Calibrated: 2012/11/26

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Right side
Band	2.4GHz-802.11b
Channels	High
Signal	DSSS (Crest factor: 1:1)

B. SAR Measurement Results

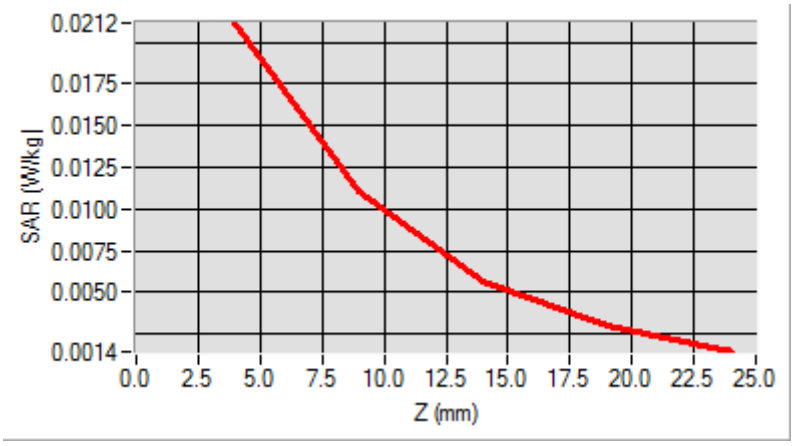
Frequency (MHz)	2462.000000
Relative Permittivity (real part)	52.30160
Conductivity (S/m)	2.001200
Power Variation (%)	-0.85000
Ambient Temperature	21.1
Liquid Temperature	21.3

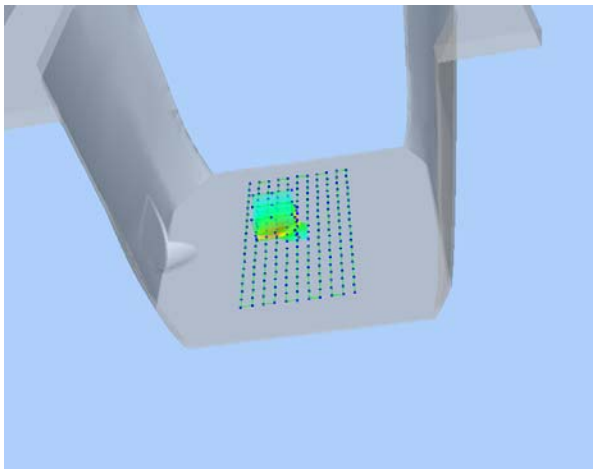
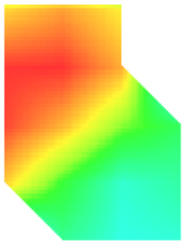
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-16.00, Y=13.00

SAR 10g (W/Kg)	0.009542
SAR 1g (W/Kg)	0.019331

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.0212	0.0110	0.0056	0.0029



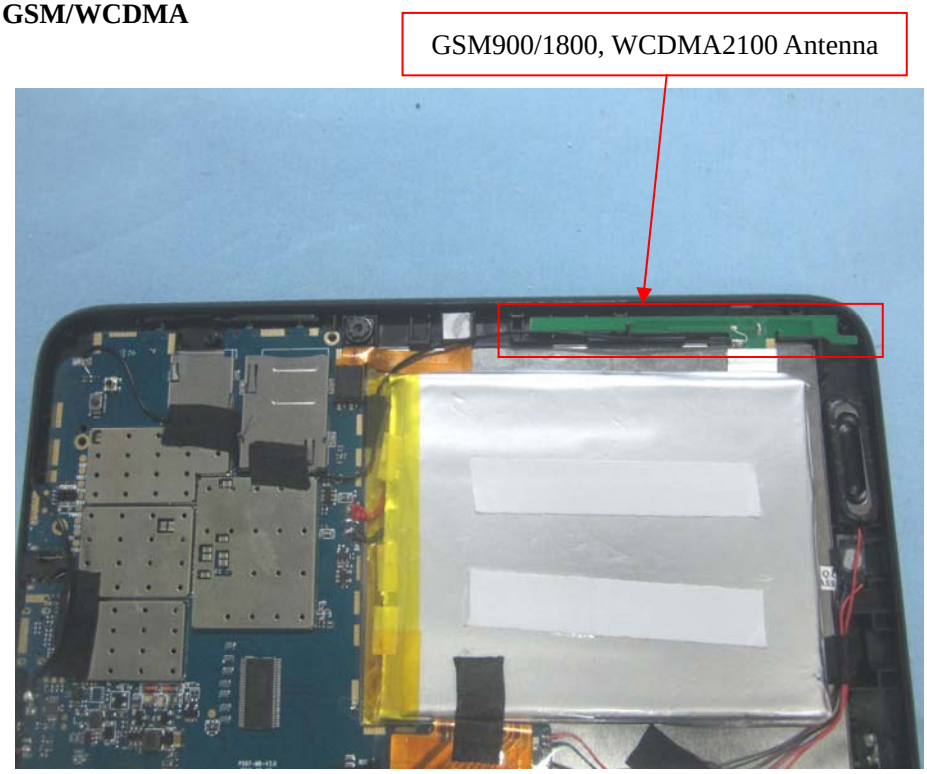
3D screen shot	Hot spot position
	

Annex C. EUT Photos

EUT View_Front

EUT View_Back

Antenna View GSM/WCDMA

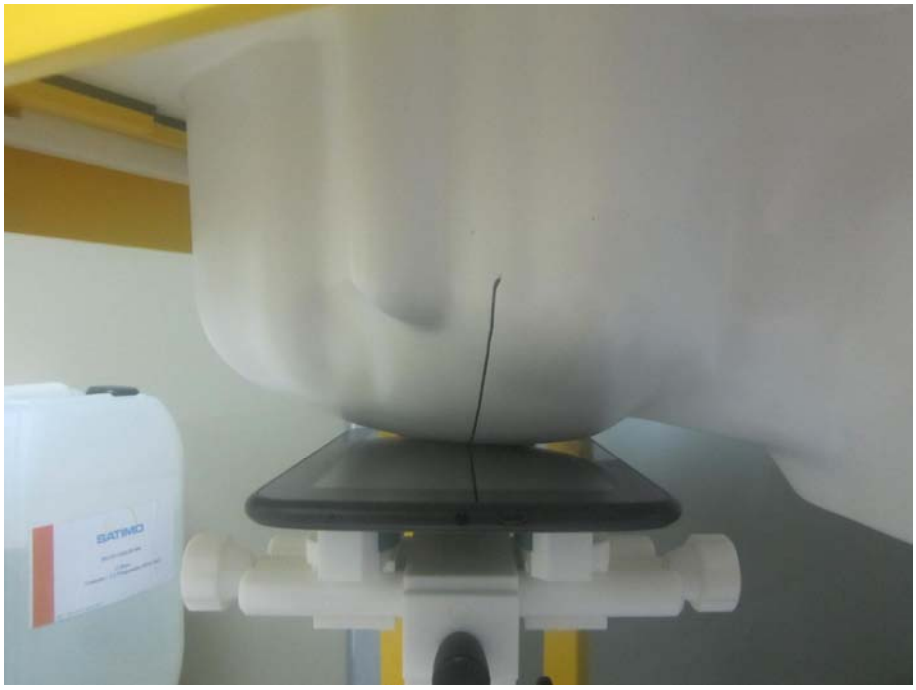


Antenna View WiFi

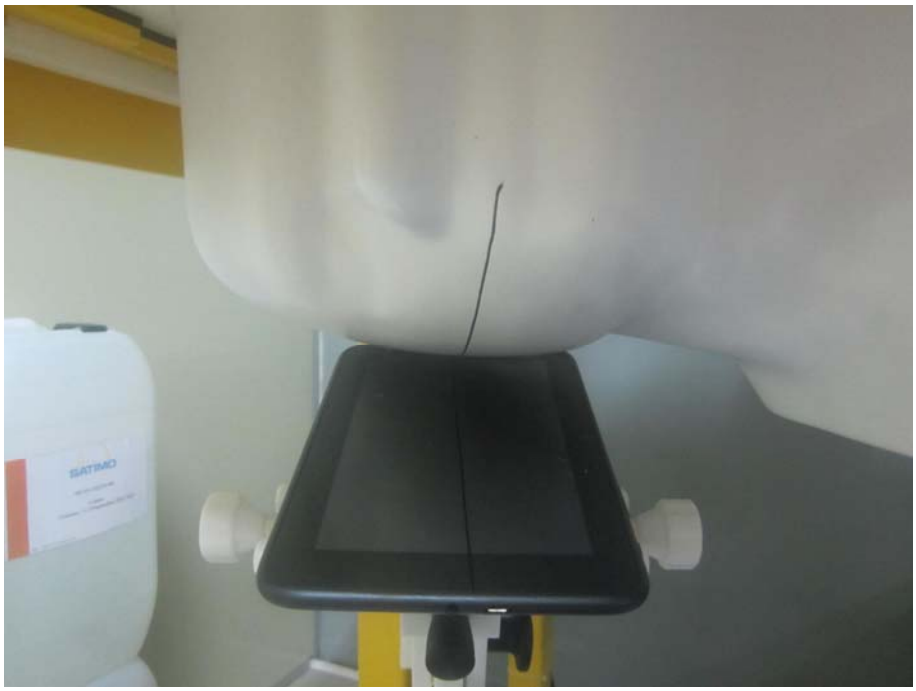
Annex D. Test Setup Photos

Test View 1 (Right Head)

Cheek

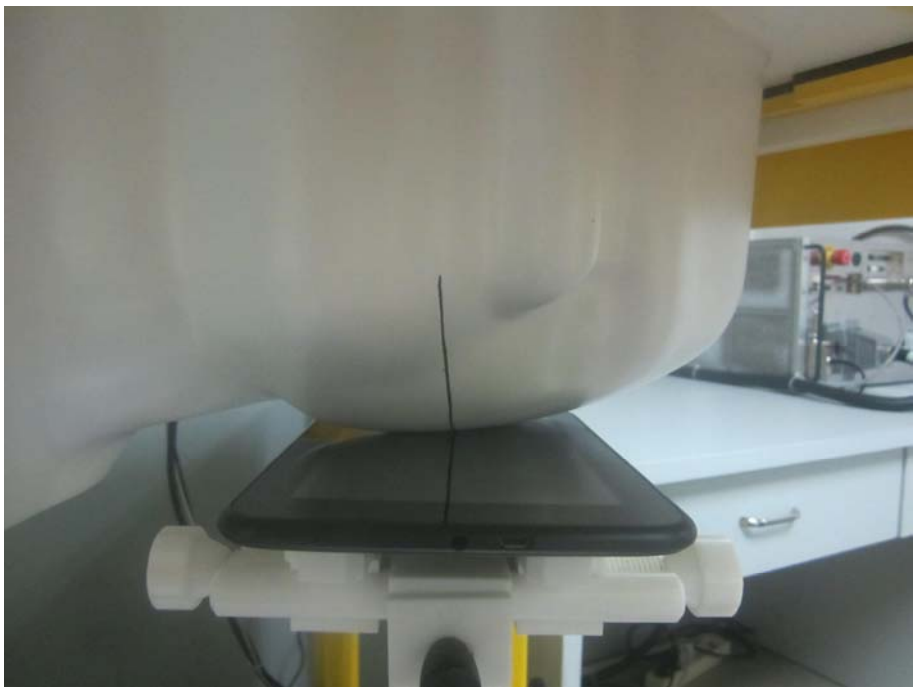


Tilt



Test View 2 (Left Head)

Cheek

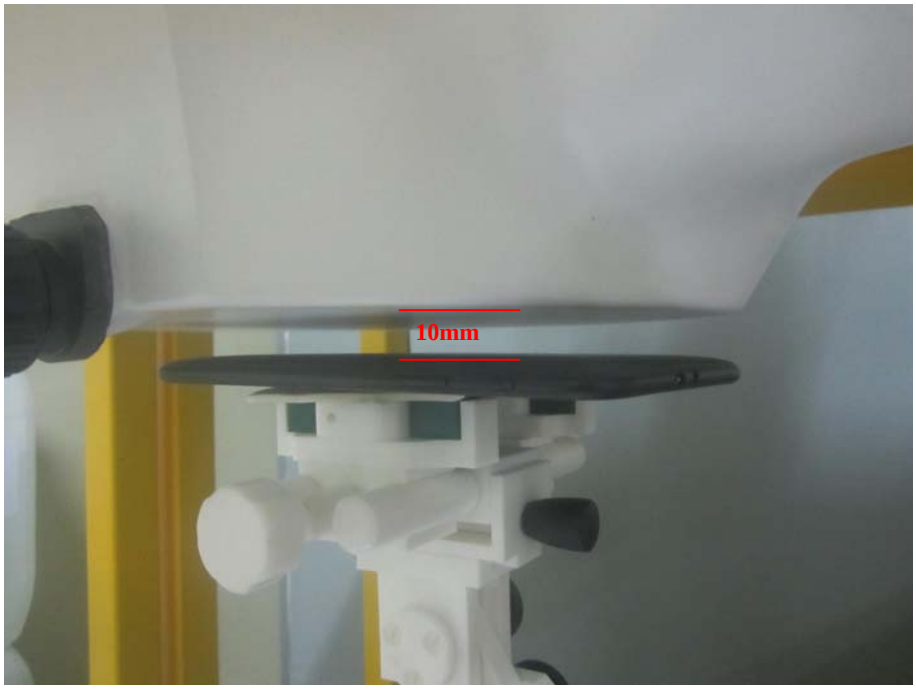


Tilt

Test View 3

Body Front

Body Back



Body Top

Body Bottom

Body Right

Annex E. Calibration Certificate

Please refer to the exhibit for the calibration certificate

******* END OF REPORT *******