FCC SAR
Measurement and Test Report

For

ATID Co., Ltd.

(Gasan-dong, #1210 Byuksan/Kyungin Digitalvalley II), 184,

Gasandigital2-ro, Geumcheon-gu, Seoul, Korea

FCC ID: VUJAT911N

FCC Rules:	FCC Part 2.1093 ANSI / IEEE C95.1 :2005 ANSI / IEEE C95.3 :2002 IEEE 1528 :2013
Product Description:	WCDMA wireless data terminal
Tested Model:	AT911N
Report No.:	STR16038164H
Tested Date:	2015-08-24 to 2016-05-23
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Tested By:	Lucy Wei / Engineer
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TABLE OF CONTENTS

1. General Information 3
1.1 Product Description for Equipment Under Test (EUT) 3
1.2 Test Standards 5
1.3 Test Methodology 5
1.4 Test Facility 5
2. Summary of Test Results 6
3. Specific Absorption Rate (SAR) 7
3.1 Introduction 7
3.2 SAR Definition 7
4. SAR Measurement System 8
4.1 The Measurement System 8
4.2 Probe 8
4.3 Probe Calibration Process 10
4.4 Phantom 11
4.5 Device Holder 11
4.6 Test Equipment List 12
5. Tissue Simulating Liquids 13
5.1 Composition of Tissue Simulating Liquid 13
5.2 Tissue Dielectric Parameters for Head and Body Phantoms 14
5.3 Tissue Calibration Result 15
6. SAR Measurement Evaluation 16
6.1 Purpose of System Performance Check 16
6.2 System Setup 16
6.3 Validation Results 17
7. EUT Testing Position 19
7.1 Define Two Imaginary Lines on The Handset 19
7.2 Cheek Position 20
7.3 Tilted Position 20
7.4 Body Position 21
7.5 EUT Antenna Position 21
7.6 EUT Testing Position 22
8. SAR Measurement Procedures 23
8.1 Measurement Procedures 23
8.2 Spatial Peak SAR Evaluation 23
8.3 Area & Zoom Scan Procedures 24
8.4 Volume Scan Procedures 24
8.5 SAR Averaged Methods 24
8.6 Power Drift Monitoring 24
9. SAR Test Result 25
9.1 Conducted RF Output Power 25
9.2 Test Results for Standalone SAR Test 29
9.3 Simultaneous Multi-band Transmission SAR Analysis 36
10. Measurement Uncertainty 45
10.1 Uncertainty for EUT SAR Test 45
10.2 Uncertainty for System Performance Check 46
Annex A. Plots of System Performance Check 48
Annex B. Plots of SAR Measurement 66
Annex C. EUT Photos 177
Annex D. Test Setup Photos 180
Annex E. Calibration Certificate 185

1. General Information

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	ATID Co., Ltd.
Address of applicant:	(Gasan-dong, #1210 Byuksan/Kyungin Digitalvalley II), 184,Gasandigital2-ro, Geumcheon-gu, Seoul, Korea
Manufacturer:	ATID Co., Ltd.
Address of manufacturer:	(Gasan-dong, #1210 Byuksan/Kyungin Digitalvalley II), 184,Gasandigital2-ro, Geumcheon-gu, Seoul, Korea

General Description of EUT	
Product Name:	WCDMA wireless data terminal
Brand Name:	Atid
Model No.:	AT911N
Adding Model:	/
Software Version:	STD0110P4MXGC
Hardware Version:	AT911N MAIN PCB
IMEI:	358625050875212
Rated Voltage:	DC 3.7V Li-ion Battery
Battery Capacity:	Main Battery:2200mAh Gun Battery :5200mAh
The EUT is dual band GSM850/DCS1900, WCDMA Band II/V, WCDMA wireless data terminal, The WCDMA wireless data terminal is intended for speech and Multimedia Message Service (MMS) transmission. It is equipped with GPRS/EDGE class 10 for GSM850/DCS1900 and Wi-Fi, Bluetooth, GPS, and camera functions. For more information see the following datasheet.	
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
2G	
Support Networks:	GSM, GPRS,EDGE
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: 32.07dBm, GSM1900: 29.04dBm
Type of Modulation:	GMSK,8PSK
Antenna Type:	Integral Antenna

Antenna Gain:	GSM850: 0dBi, GSM1900: 0dBi
GPRS/EDGE Class:	Class 10
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band II, WCDMA Band V
Uplink Frequency:	WCDMA Band II: 1850~1910MHz WCDMA Band V: 824~849MHz
Downlink Frequency:	WCDMA Band II: 1930~1990MHz WCDMA Band V: 869~894MHz
RF Output Power:	WCDMA850: 22.81dBm, WCDMA1900: 22.50dBm
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	0dBi
WIFI	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 802.11b/g/n(HT20)
AV Output Power:	16.06dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels:	11 for 802.11b/g/n(HT20)
Channel Separation:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	0dBi
Bluetooth	
Bluetooth Version:	V4.0
Frequency Range:	2402-2480MHz
AV Output Power:	7.929dBm (Conducted)
Data Rate:	1Mbps, 2Mbps, 3Mbps
Modulation:	GFSK, Pi/4 QDPSK, 8DPSK
Quantity of Channels:	79/40
Channel Separation:	1MHz/2MHz
Antenna Type:	Integral Antenna
Antenna Gain:	0dBi
UHF	
Support Standards:	RFID
Frequency Range:	920.625MHz-924.375MHz
RF Output Power:	90.72dBuV/m
Antenna Type:	Integral Antenna
Antenna Gain:	1dBi

1.2 Test Standards

The following report is prepared on behalf of the ATID Co., Ltd. in accordance with FCC 47 CFR Part 2.1093, ANSI/IEEE C95.1-2005, IEEE 1528-2013 and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02

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 KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02. The public notice KDB 447498 D01 v06 for Mobile and Portable Devices RF Exposure Procedure also.

1.4 Test Facility

- **FCC – Registration No.: 934118**
  Shenzhen SEM.Test Technology 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 934118.

- **Industry Canada (IC) Registration No.: 11464A**
  The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

- **CNAS Registration No.: L4062**
  Shenzhen SEM.Test Technology 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 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd 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	Head SAR	Body-worn (10mm Gap)	Hotspot (10mm Gap)	SAR_{1g} Limit (W/kg)
	Maximum SAR_{1g} (W/kg)	Maximum SAR_{1g} (W/kg)	Maximum SAR_{1g} (W/kg)	
GSM850	**0.445**	**0.788**	**0.748**	1.6
GSM1900	0.203	0.488	0.283	1.6
WCDMA Band V	0.270	0.450	0.450	1.6
WCDMA Band II	0.298	0.673	0.673	1.6
WLAN 2.4GHz	0.436	0.158	0.158	1.6
WLAN 5.2GHz	0.355	0.109	0.109	1.6
WLAN 5.8GHz	0.380	0.119	0.119	1.6
Simultaneous Transmission	0.881	**0.946**	0.906	1.6

*The highest reported SAR values for head, body-worn accessory, wireless router(hotspot) , and simultaneous transmission conditions are **0.445 W/kg, 0.788 W/kg , 0.748 W/kg, and 0.946W/kg** respectively*

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 C95.1-2005, and had been tested in accordance with the measurement methods and procedure specified in IEEE 1528-2013 and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02

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

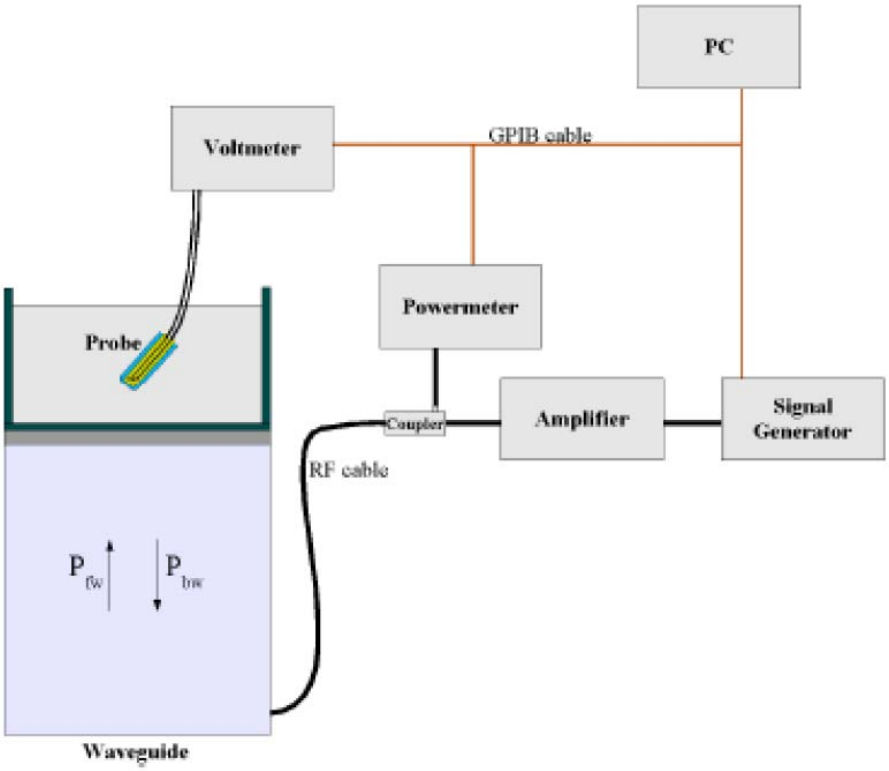
For the measurements the Specific Dosimetric E-Field Probe SSE5 SN 09/13 EP168 with following specifications is used

- 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.

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

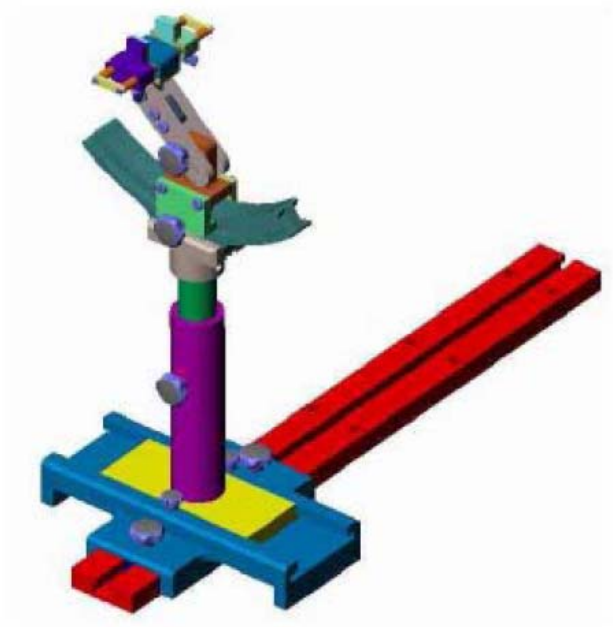
Where:
σ = simulated tissue conductivity,
ρ = Tissue density (1.25 g/cm3 for brain tissue)

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

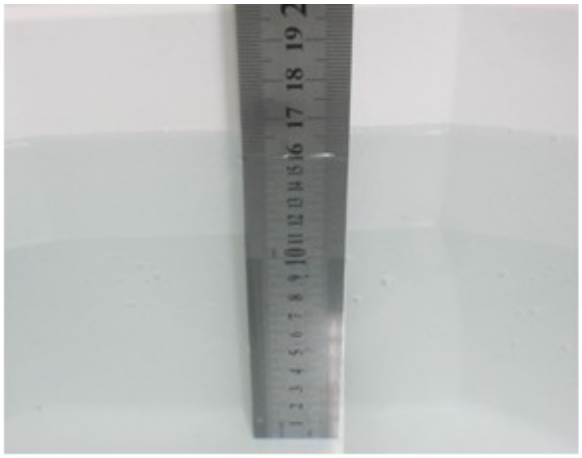
4.6 Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
E-Field Probe	SATIMO	SSE5	SN 09/13 EP168	2015-06-03	2016-06-02
835MHz Dipole	SATIMO	SID835	SN 47/12 DIP 0G835-204	2015-03-16	2016-03-15
835MHz Dipole	SATIMO	SID835	SN 47/12 DIP 0G835-204	2016-03-20	2017-03-19
1900MHz Dipole	SATIMO	SID1900	SN 47/12 DIP 1G900-207	2015-03-16	2016-03-15
1900MHz Dipole	SATIMO	SID1900	SN 47/12 DIP 1G900-207	2016-03-20	2017-03-19
2450MHz Dipole	SATIMO	SID2450	SN 13/15 DIP 2G450-364	2015-04-13	2016-04-12
Dielectric Probe Kit	SATIMO	SCLMP	SN 47/12 OCPG49	2015-03-16	2016-03-15
SAM Phantom	SATIMO	SAM	SN/ 47/12 SAM95	N/A	N/A
MULTIMETER	KEITHLEY	Keithley 2000	4006367	2015-06-16	2016-06-15
Signal Generator	Rohde & Schwarz	SMR20	100047	2015-06-16	2016-06-15
Universal Tester	Rohde & Schwarz	CMU200	112012	2015-06-16	2016-06-15
Network Analyzer	HP	8753C	2901A00831	2015-06-16	2016-06-15
Directional Couplers	Agilent	778D	20160	2015-06-16	2016-06-15

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	70.56	0.35	20.88	0.00	0.00	8.21

5.2 Tissue Dielectric Parameters for Head and Body Phantoms

The IEEE Std. 1528, FCC KDBs and CEI/IEC 62209 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

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	0.87	0.90	-3.33	41.11	41.50	-0.94	±5	2015-08-24
1900	21.3	1.38	1.40	-1.43	38.56	40.00	-3.60	±5	2015-08-24
2450	21.3	1.76	1.80	-2.22	38.6	39.2	-1.53	±5	2015-08-24

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	0.95	0.97	-2.06	54.85	55.20	-0.63	±5	2015-08-24
1900	21.3	1.50	1.52	-1.32	52.42	53.30	-1.65	±5	2015-08-24
2450	21.3	2.00	1.95	2.56	52.3	52.7	-0.76	±5	2015-08-24

Head Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
1900	21.3	1.36	1.40	-2.86	38.53	40.00	-3.68	±5	2016-05-23

Body Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
1900	21.3	1.51	1.52	-0.66	52.46	53.30	-1.58	±5	2016-05-23
835	21.2	0.95	0.97	-2.06	54.85	55.20	-0.63	±5	2016-05-23

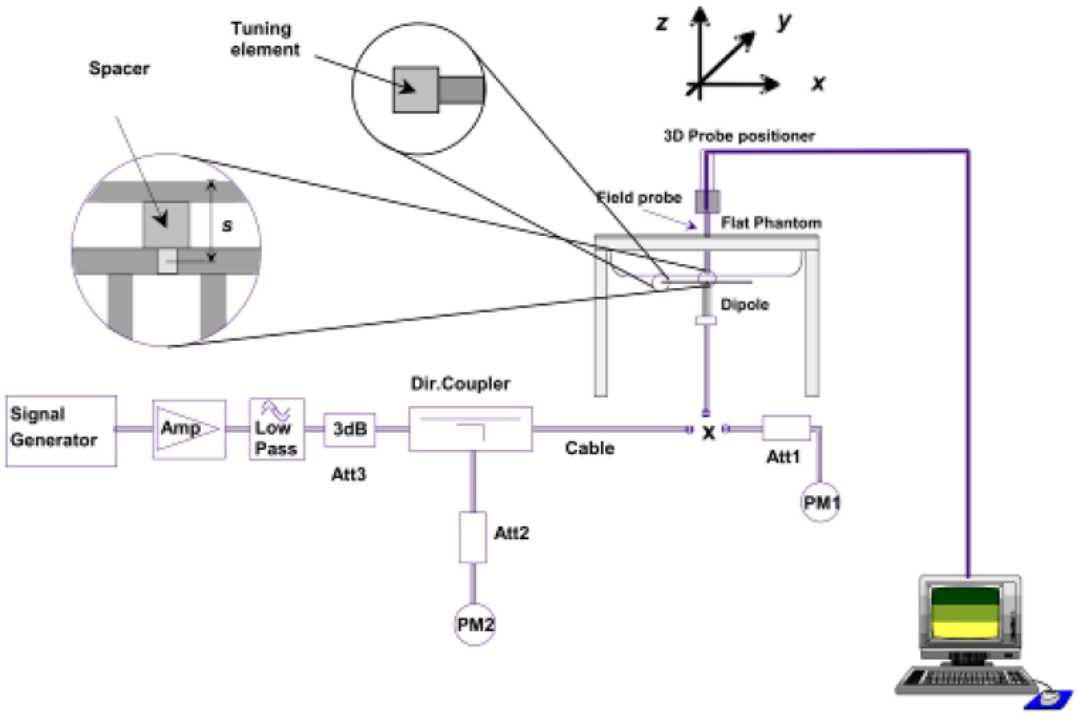
6. SAR Measurement Evaluation

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.



System Verification Setup Block Diagram

Setup Photo of Dipole Antenna

The output power on dipole port must be calibrated to 24dBm (250mW) 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	Targeted SAR_{1g}	Measured SAR_{1g}	Normalized SAR_{1g}	Tolerance
MHz	(W/kg)	(W/kg)	(W/kg)	(%)
Head				
835	9.65	2.42	9.68	0.31
1900	39.59	9.92	39.68	0.23
2450	53.76	13.46	53.84	0.15
Body				
835	9.36	2.36	9.44	0.85
1900	39.01	9.80	39.2	0.49
2450	50.33	12.60	50.4	0.14

Frequency	Targeted SAR_{1g}	Measured SAR_{1g}	Normalized SAR_{1g}	Tolerance
MHz	(W/kg)	(W/kg)	(W/kg)	(%)
Head				
1900	39.58	9.90	39.6	0.05
835	9.67	2.41	9.64	-0.31
Body				
1900	39.10	9.78	39.12	0.05
835	9.38	2.38	9.52	1.49

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.

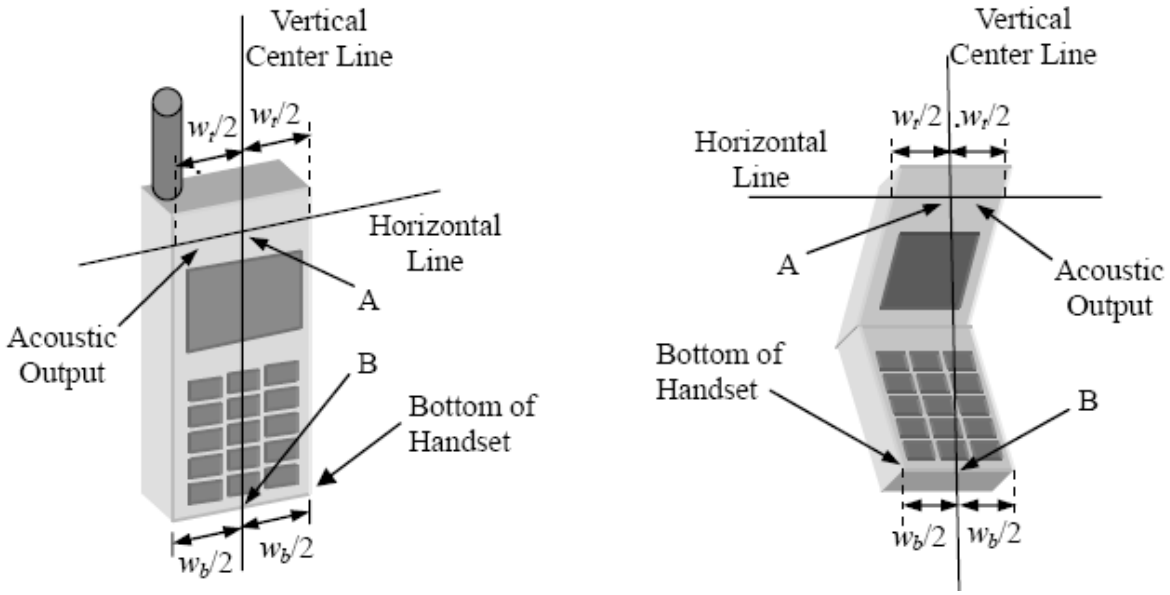


Illustration for Handset Vertical and Horizontal Reference Lines

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).

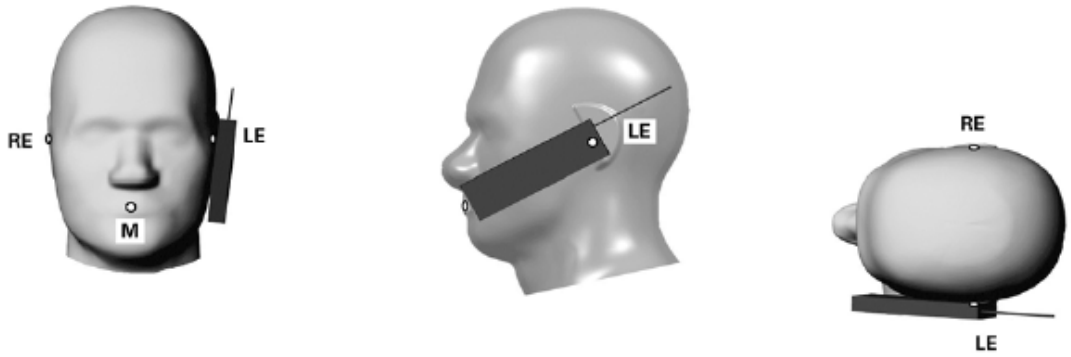


Illustration for Cheek Position

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).

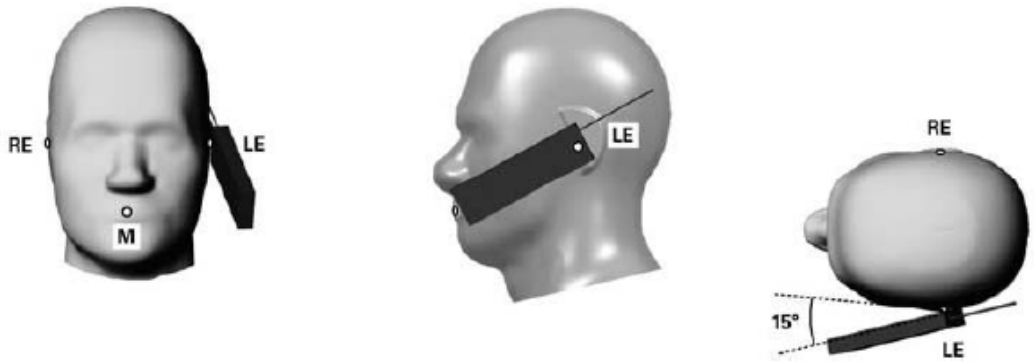


Illustration for Tilted Position

7.4 Body 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 10mm.

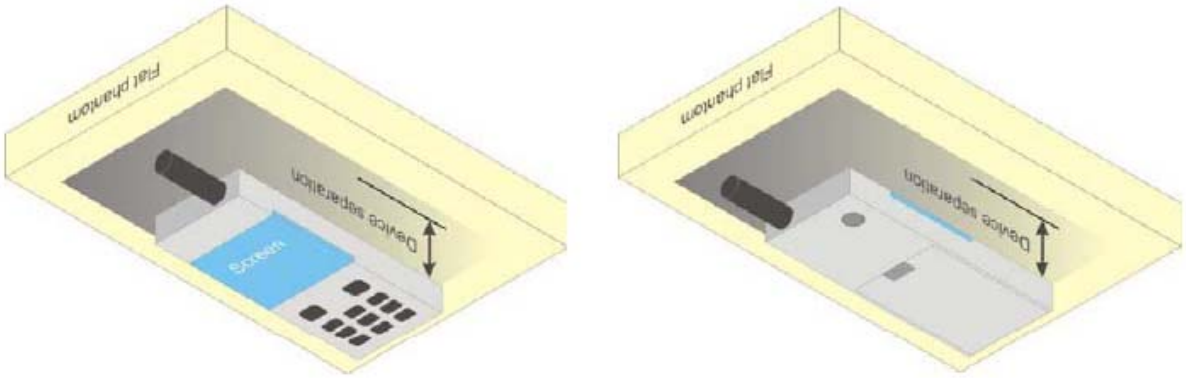
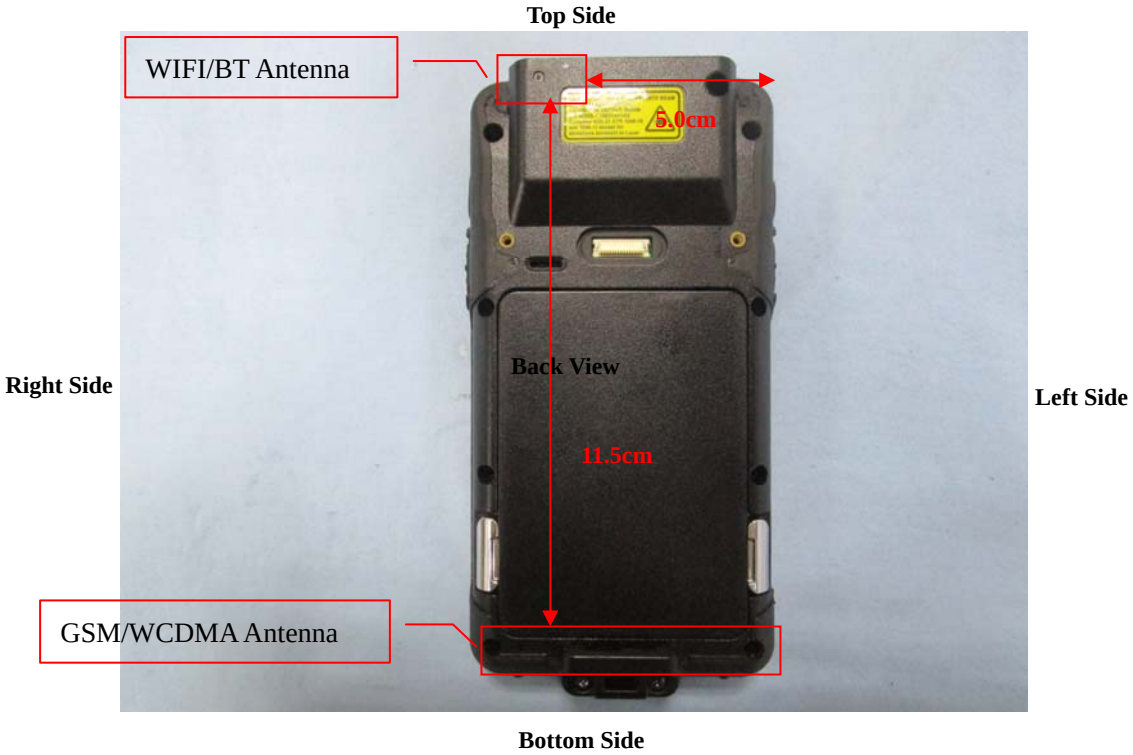


Illustration for Body Position

7.5 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**
WWAN	Yes	Yes	Yes	Yes
WLAN	Yes	Yes	Yes	Yes

Hotspot SAR tests, Test distance: 10mm						
Antennas	**Front**	**Back**	**Right Side**	**Left Side**	**Top Side**	**Bottom Side**
WWAN	Yes	Yes	Yes	Yes	No	Yes
WLAN	Yes	Yes	Yes	No	Yes	No

Body-worn SAR tests, Test distance: 10mm		
Antennas	**Front**	**Back**
WWAN	Yes	Yes
WLAN	Yes	Yes

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.

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	32.07	31.69	31.58	28.46	28.31	29.04
GPRS (1 slot)	32.34	31.85	31.79	29.04	28.57	28.23
GPRS (2 slots)	29.36	28.88	28.60	25.68	25.22	24.45
EDGE(1 slot)	26.42	26.26	26.08	25.01	24.62	23.72
EDGE (2 slots)	23.44	23.22	22.98	21.85	21.49	20.43

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	23.07	22.69	22.58	19.46	19.31	20.04
GPRS (1 slot)	23.34	22.85	22.79	20.04	19.57	19.23
GPRS (2 slots)	23.36	22.88	22.60	19.68	19.22	18.45
EDGE(1 slot)	17.42	17.26	17.08	16.01	15.62	14.72
EDGE (2 slots)	17.44	17.22	16.98	15.85	15.49	14.43
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						

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 (2Tx slots) for GSM850 and GPRS (1Tx slots) for GSM1900 due to its highest source-based time-average power.
3. Per KDB 447498 D01 v06 , 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 II**			**WCDMA Band V**		
Channel	**9262**	**9400**	**9538**	**4132**	**4183**	**4233**
Frequency (MHz)	**1852.4**	**1880.0**	**1907.6**	**826.4**	**836.6**	**846.6**
RMC 12.2k	22.50	21.77	21.80	22.81	22.51	22.36
HSDPA Subtest-1	22.97	21.91	22.52	22.44	22.36	22.32
HSDPA Subtest-2	22.78	21.75	22.34	22.29	22.29	22.14
HSDPA Subtest-3	22.54	21.62	22.16	22.19	22.15	22.02
HSDPA Subtest-4	22.36	21.44	22.04	22.00	22.03	21.87
HSUPA Subtest-1	22.69	21.65	22.80	22.42	22.28	22.30
HSUPA Subtest-2	22.45	21.43	22.65	22.20	22.03	22.14
HSUPA Subtest-3	22.28	21.29	22.43	21.93	21.87	21.98
HSUPA Subtest-4	22.10	21.18	22.34	21.75	21.63	21.92
HSUPA Subtest-5	22.01	21.02	22.10	21.54	21.34	21.66

WLAN - Maximum Average Power				
Test Mode	**Data Rate**	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**
802.11b	1Mbps	CH 01	2412	15.76
		CH 06	2437	16.06
		CH 11	2462	15.51
802.11g	54Mbps	CH 01	2412	14.96
		CH 06	2437	15.24
		CH 11	2462	14.71
802.11n (20MHz)	MCS7	CH 01	2412	13.37
		CH 06	2437	13.68
		CH 11	2462	13.10

Remark:

1. Per KDB 248227 D01 v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion

2. Per KDB 248227 D01 v02r02, 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	-2.029
		CH 39	2441	-1.072
		CH 78	2480	-1.909
Pi/4 DQPSK	2Mbps	CH 00	2402	-2.035
		CH 39	2441	-1.365
		CH 78	2480	-1.887
8DPSK	3Mbps	CH 00	2402	-1.555
		CH 39	2441	-0.953
		CH 78	2480	-1.786
BLE	1Mbps	CH 00	2402	6.697
		CH 19	2440	7.929
		CH 39	2480	7.254

Remark:

Bluetooth maximum output power is 7.929dBm, and Tune-Up output power is 8.0dBm. Per KDB 447498 D01 V06, 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

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
8.0	6.31	5	2.440	1.97	3

The exclusion thresholds is 1.97< 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	32.07	32.5	1.1041	0.3786	0.4180
2	GSM	Right Tilted	128	824.2	32.07	32.5	1.1041	0.2814	0.3107
3	GSM	Left Cheek	128	824.2	32.07	32.5	1.1041	0.4031	0.4451
4	GSM	Left Tilted	128	824.2	32.07	32.5	1.1041	0.2117	0.2337

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.	M Hz					
12	GSM	Right Cheek	810	1909.8	29.04	29.5	1.1117	0.1827	0.2031
13	GSM	Right Tilted	810	1909.8	29.04	29.5	1.1117	0.0554	0.0616
14	GSM	Left Cheek	810	1909.8	29.04	29.5	1.1117	0.0940	0.1045
15	GSM	Left Tilted	810	1909.8	29.04	29.5	1.1117	0.0391	0.0435

WCDMA Band V – 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					
23	RMC	Right Cheek	4132	826.4	22.81	23.0	1.0447	0.2547	0.2661
24	RMC	Right Tilted	4132	826.4	22.81	23.0	1.0447	0.2091	0.2185
25	RMC	Left Cheek	4132	826.4	22.81	23.0	1.0447	0.2585	0.2701
26	RMC	Left Tilted	4132	826.4	22.81	23.0	1.0447	0.1868	0.1952

WCDMA Band II – 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					
32	RMC	Right Cheek	9262	1852.4	22.50	23.0	1.1220	0.2652	0.2976
33	RMC	Right Tilted	9262	1852.4	22.50	23.0	1.1220	0.0522	0.0586
34	RMC	Left Cheek	9262	1852.4	22.50	23.0	1.1220	0.1481	0.1662
35	RMC	Left Tilted	9262	1852.4	22.50	23.0	1.1220	0.0559	0.0627

WLAN 2.4GHz – 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					
41	802.11b	Right Cheek	06	2437	16.06	16.5	1.1066	0.0530	0.0587
42	802.11b	Right Tilted	06	2437	16.06	16.5	1.1066	0.0432	0.0478
43	802.11b	Left Cheek	06	2437	16.06	16.5	1.1066	0.3939	0.4359
44	802.11b	Left Tilted	06	2437	16.06	16.5	1.1066	0.1847	0.2044

WCDMA Band II – 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					
49	HSDPA Subtest-1	Right Cheek	9262	1852.4	22.97	23.0	1.0069	0.2235	0.2250
50	HSDPA Subtest-1	Right Tilted	9262	1852.4	22.97	23.0	1.0069	0.0501	0.0504
51	HSDPA Subtest-1	Left Cheek	9262	1852.4	22.97	23.0	1.0069	0.1926	0.1939
52	HSDPA Subtest-1	Left Tilted	9262	1852.4	22.97	23.0	1.0069	0.0491	0.0494

WCDMA Band II – 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					
53	HSDPA Subtest-2	Right Cheek	9262	1852.4	22.78	23.0	1.0520	0.1943	0.2044
54	HSDPA Subtest-2	Right Tilted	9262	1852.4	22.78	23.0	1.0520	0.0435	0.0458
55	HSDPA Subtest-2	Left Cheek	9262	1852.4	22.78	23.0	1.0520	0.1892	0.1990
56	HSDPA Subtest-2	Left Tilted	9262	1852.4	22.78	23.0	1.0520	0.0421	0.0443

Remark: Per KDB 447498 D01 v06 , 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 Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
5	GSM	Back	128	824.2	32.07	32.5	1.1041	0.7138	0.7881
6	GSM	Front	128	824.2	32.07	32.5	1.1041	0.5800	0.6404

GSM1900 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
16	GSM	Back	810	1909.8	29.04	29.5	1.1117	0.4389	0.4879
17	GSM	Front	810	1909.8	29.04	29.5	1.1117	0.1665	0.1851

WCDMA Band V – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
27	RMC 12.2k	Back	4132	826.4	22.81	23.0	1.0447	0.4311	0.4504
28	RMC 12.2k	Front	4132	826.4	22.81	23.0	1.0447	0.3265	0.3411

WCDMA Band II – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
36	RMC 12.2k	Back	9262	1852.4	22.50	23.0	1.1220	0.5997	0.6729
37	RMC 12.2k	Front	9262	1852.4	22.50	23.0	1.1220	0.2109	0.2366

WLAN 2.4GHz –Body SAR Test									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
45	802.11b	Back Side	06	2437	16.06	16.5	1.1066	0.1427	0.1579
46	802.11b	Front Side	06	2437	16.06	16.5	1.1066	0.0882	0.0976

WCDMA Band II – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
57	HSDPA Subtest-1	Back Side	9262	1852.4	22.97	23.0	1.0069	0.5169	0.5205
58	HSDPA Subtest-1	Front Side	9262	1852.4	22.97	23.0	1.0069	0.2072	0.2086

WCDMA Band II – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
62	HSDPA Subtest-2	Back Side	9262	1852.4	22.78	23.0	1.0520	0.5030	0.5291
63	HSDPA Subtest-2	Front Side	9262	1852.4	22.78	23.0	1.0520	0.1737	0.1827

GSM850 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
67	GPRS_2TX	Back	128	824.2	29.36	29.5	1.0328	0.5052	0.5218
68	GPRS_2TX	Front	128	824.2	29.36	29.5	1.0328	0.3688	0.3809

GSM1900 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
69	GPRS_1TX	Back	512	1850.2	29.04	29.5	1.1117	0.3439	0.3823
70	GPRS_1TX	Front	512	1850.2	29.04	29.5	1.1117	0.1125	0.1251

Remark: Per KDB 447498 D01 v06 , if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

Hotspot SAR

GSM850 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
7	GPRS_2TX	Back Side	128	824.2	29.36	29.5	1.0328	0.7244	0.7481
8	GPRS_2TX	Front Side	128	824.2	29.36	29.5	1.0328	0.6104	0.6304
9	GPRS_2TX	Bottom side	128	824.2	29.36	29.5	1.0328	0.0651	0.0672
10	GPRS_2TX	Right side	128	824.2	29.36	29.5	1.0328	0.4815	0.4973
11	GPRS_2TX	Left side	128	824.2	29.36	29.5	1.0328	0.4325	0.4467

GSM1900 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
18	GPRS_1TX	Back Side	512	1850.2	29.04	29.5	1.1117	0.2544	0.2828
19	GPRS_1TX	Front Side	512	1850.2	29.04	29.5	1.1117	0.1258	0.1399
20	GPRS_1TX	Bottom side	512	1850.2	29.04	29.5	1.1117	0.1731	0.1924
21	GPRS_1TX	Right side	512	1850.2	29.04	29.5	1.1117	0.1393	0.1549
22	GPRS_1TX	Left side	512	1850.2	29.04	29.5	1.1117	0.0080	0.0089

WCDMA Band V – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
27	RMC 12.2k	Back Side	4132	826.4	22.81	23.0	1.0447	0.4311	0.4504
28	RMC 12.2k	Front Side	4132	826.4	22.81	23.0	1.0447	0.3265	0.3411
29	RMC 12.2k	Bottom side	4132	826.4	22.81	23.0	1.0447	0.0496	0.0518
30	RMC 12.2k	Right side	4132	826.4	22.81	23.0	1.0447	0.2417	0.2525
31	RMC 12.2k	Left side	4132	826.4	22.81	23.0	1.0447	0.2474	0.2585

WCDMA Band II – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
36	RMC 12.2k	Back Side	9262	1852.4	22.50	23.0	1.1220	0.5997	0.6729
37	RMC 12.2k	Front Side	9262	1852.4	22.50	23.0	1.1220	0.2109	0.2366
38	RMC 12.2k	Bottom side	9262	1852.4	22.50	23.0	1.1220	0.3591	0.4029
39	RMC 12.2k	Right side	9262	1852.4	22.50	23.0	1.1220	0.1815	0.2036
40	RMC 12.2k	Left side	9262	1852.4	22.50	23.0	1.1220	0.0167	0.0187

WLAN 2.4GHz –Body SAR Test									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
45	802.11b	Back Side	06	2437	16.06	16.5	1.1066	0.1427	0.1579
46	802.11b	Front Side	06	2437	16.06	16.5	1.1066	0.0882	0.0976
47	802.11b	Right side	06	2437	16.06	16.5	1.1066	0.0812	0.0899
48	802.11b	Top Side	06	2437	16.06	16.5	1.1066	0.0648	0.0717

WCDMA Band II – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
57	HSDPA Subtest-1	Back Side	9262	1852.4	22.97	23.0	1.0069	0.5169	0.5205
58	HSDPA Subtest-1	Front Side	9262	1852.4	22.97	23.0	1.0069	0.2072	0.2086
59	HSDPA Subtest-1	Bottom side	9262	1852.4	22.97	23.0	1.0069	0.3071	0.3092
60	HSDPA Subtest-1	Right side	9262	1852.4	22.97	23.0	1.0069	0.1462	0.1472
61	HSDPA Subtest-1	Left side	9262	1852.4	22.97	23.0	1.0069	0.0110	0.0111

WCDMA Band II – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
62	HSDPA Subtest-2	Back Side	9262	1852.4	22.78	23.0	1.0520	0.5030	0.5291
63	HSDPA Subtest-2	Front Side	9262	1852.4	22.78	23.0	1.0520	0.1737	0.1827
64	HSDPA Subtest-2	Bottom side	9262	1852.4	22.78	23.0	1.0520	0.2687	0.2827
65	HSDPA Subtest-2	Right side	9262	1852.4	22.78	23.0	1.0520	0.1216	0.1279
66	HSDPA Subtest-2	Left side	9262	1852.4	22.78	23.0	1.0520	0.0067	0.0070

Remark: Per KDB 447498 D01 v06 , 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 Simultaneous Multi-band Transmission

No.	Configurations	Head SAR	Body-worn SAR	Hotspot SAR
1	GSM(Voice) + WLAN(Data)	Yes	Yes	-
2	GPRS/EDGE(Data) + WLAN(Data)	Yes	Yes	Yes
3	WCDMA(Voice) + WLAN(Data)	Yes	Yes	-
4	HSDPA(Data) + WLAN(Data)	Yes	Yes	Yes
5	HSUPA(Data) + WLAN(Data)	Yes	Yes	Yes
6	GSM(Voice) + Bluetooth(Data)	Yes	Yes	-
7	GPRS/EDGE(Data) + Bluetooth(Data)	Yes	Yes	Yes
8	WCDMA(Voice) + Bluetooth(Data)	Yes	Yes	-
9	HSDPA(Data) + Bluetooth(Data)	Yes	Yes	Yes
10	HSUPA(Data) + Bluetooth(Data)	Yes	Yes	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 D01v06, 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 D01v06 as below:

Bluetooth:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	X	SAR(1g) 5mm	SAR(1g) 10mm
8.0	6.31	5/10	2.440	7.5	0.2628	0.1314

4. The report of WLAN(5G) Please refer to the report no BL-SZ1580227-703

5. The maximum SAR summation is calculated based on the same configuration and test position.

Head SAR

WWAN and WLAN

	WWAN		WLAN(2.4G)	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Right Cheek	GSM850	0.4180	0.0587	0.4767
Right Tilted	GSM850	0.3107	0.0478	0.3585
Left Cheek	GSM850	0.4451	0.4359	**0.881**
Left Tilted	GSM850	0.2337	0.2044	0.4381
Right Cheek	GSM1900	0.2031	0.0587	0.2618
Right Tilted	GSM1900	0.0616	0.0478	0.1094
Left Cheek	GSM1900	0.1045	0.4359	0.5404
Left Tilted	GSM1900	0.0435	0.2044	0.2479
Right Cheek	WCDMA Band V	0.2661	0.0587	0.3248
Right Tilted	WCDMA Band V	0.2185	0.0478	0.2663
Left Cheek	WCDMA Band V	0.2701	0.4359	0.706
Left Tilted	WCDMA Band V	0.1952	0.2044	0.3996
Right Cheek	WCDMA Band II	0.2976	0.0587	0.3563
Right Tilted	WCDMA Band II	0.0586	0.0478	0.1064
Left Cheek	WCDMA Band II	0.1662	0.4359	0.6021
Left Tilted	WCDMA Band II	0.0627	0.2044	0.2671

	WWAN		WLAN(5.2G)	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Right Cheek	GSM850	0.4180	0.042	0.46
Right Tilted	GSM850	0.3107	0.040	0.3507
Left Cheek	GSM850	0.4451	0.355	**0.8001**
Left Tilted	GSM850	0.2337	0.224	0.4577
Right Cheek	GSM1900	0.2031	0.042	0.2451
Right Tilted	GSM1900	0.0616	0.040	0.1016
Left Cheek	GSM1900	0.1045	0.355	0.4595
Left Tilted	GSM1900	0.0435	0.224	0.2675
Right Cheek	WCDMA Band V	0.2661	0.042	0.3081
Right Tilted	WCDMA Band V	0.2185	0.040	0.2585
Left Cheek	WCDMA Band V	0.2701	0.355	0.6251
Left Tilted	WCDMA Band V	0.1952	0.224	0.4192
Right Cheek	WCDMA Band II	0.2976	0.042	0.3396
Right Tilted	WCDMA Band II	0.0586	0.040	0.0986
Left Cheek	WCDMA Band II	0.1662	0.355	0.5212
Left Tilted	WCDMA Band II	0.0627	0.224	0.2867

Position	WWAN		WLAN(5.8G)	Summed SAR (W/kg)
	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Right Cheek	GSM850	0.4180	0.052	0.47
Right Tilted	GSM850	0.3107	0.040	0.3507
Left Cheek	GSM850	0.4451	0.380	**0.8251**
Left Tilted	GSM850	0.2337	0.256	0.4897
Right Cheek	GSM1900	0.2031	0.052	0.2551
Right Tilted	GSM1900	0.0616	0.040	0.1016
Left Cheek	GSM1900	0.1045	0.380	0.4845
Left Tilted	GSM1900	0.0435	0.256	0.2995
Right Cheek	WCDMA Band V	0.2661	0.052	0.3181
Right Tilted	WCDMA Band V	0.2185	0.040	0.2585
Left Cheek	WCDMA Band V	0.2701	0.380	0.6501
Left Tilted	WCDMA Band V	0.1952	0.256	0.4512
Right Cheek	WCDMA Band II	0.2976	0.052	0.3496
Right Tilted	WCDMA Band II	0.0586	0.040	0.0986
Left Cheek	WCDMA Band II	0.1662	0.380	0.5462
Left Tilted	WCDMA Band II	0.0627	0.256	0.3187

WWAN and Bluetooth

Position	WWAN		Bluetooth	Summed SAR (W/kg)
	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Right Cheek	GSM850	0.4180	0.2628	0.6808
Right Tilted	GSM850	0.3107	0.2628	0.5735
Left Cheek	GSM850	0.4451	0.2628	**0.7079**
Left Tilted	GSM850	0.2337	0.2628	0.4965
Right Cheek	GSM1900	0.2031	0.2628	0.4659
Right Tilted	GSM1900	0.0616	0.2628	0.3244
Left Cheek	GSM1900	0.1045	0.2628	0.3673
Left Tilted	GSM1900	0.0435	0.2628	0.3063
Right Cheek	WCDMA Band V	0.2661	0.2628	0.5289
Right Tilted	WCDMA Band V	0.2185	0.2628	0.4813
Left Cheek	WCDMA Band V	0.2701	0.2628	0.5329
Left Tilted	WCDMA Band V	0.1952	0.2628	0.458
Right Cheek	WCDMA Band II	0.2976	0.2628	0.5604
Right Tilted	WCDMA Band II	0.0586	0.2628	0.3214
Left Cheek	WCDMA Band II	0.1662	0.2628	0.429
Left Tilted	WCDMA Band II	0.0627	0.2628	0.3255

Body-worn SAR

WWAN and WLAN

	WWAN		WLAN(2.4G)	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	0.7881	0.1579	**0.946**
Front	GSM850	0.6404	0.0976	0.738
Back	GSM1900	0.4879	0.1579	0.6458
Front	GSM1900	0.1851	0.0976	0.2827
Back	WCDMA Band V	0.4504	0.1579	0.6083
Front	WCDMA Band V	0.3411	0.0976	0.4387
Back	WCDMA Band II	0.6729	0.1579	0.8308
Front	WCDMA Band II	0.2366	0.0976	0.3342

	WWAN		WLAN(5.2G)	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	0.7881	0.077	**0.8651**
Front	GSM850	0.6404	0.109	0.7494
Back	GSM1900	0.4879	0.077	0.5649
Front	GSM1900	0.1851	0.109	0.2941
Back	WCDMA Band V	0.4504	0.077	0.5274
Front	WCDMA Band V	0.3411	0.109	0.4501
Back	WCDMA Band II	0.6729	0.077	0.7499
Front	WCDMA Band II	0.2366	0.109	0.3456

	WWAN		WLAN(5.8G)	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	0.7881	0.089	**0.8771**
Front	GSM850	0.6404	0.119	0.7594
Back	GSM1900	0.4879	0.089	0.5769
Front	GSM1900	0.1851	0.119	0.3041
Back	WCDMA Band V	0.4504	0.089	0.5394
Front	WCDMA Band V	0.3411	0.119	0.4601
Back	WCDMA Band II	0.6729	0.089	0.7619
Front	WCDMA Band II	0.2366	0.119	0.3556

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	0.7881	0.1314	**0.9195**
Front	GSM850	0.6404	0.1314	0.7718
Back	GSM1900	0.4879	0.1314	0.6193
Front	GSM1900	0.1851	0.1314	0.3165
Back	WCDMA Band V	0.4504	0.1314	0.5818
Front	WCDMA Band V	0.3411	0.1314	0.4725
Back	WCDMA Band II	0.6729	0.1314	0.8043
Front	WCDMA Band II	0.2366	0.1314	0.368

Remark: For BT the 1g SAR value is not being captured by the measurement system, the 1g-SAR value is conservatively used for simultaneous transmission analysis.

Hotspot SAR

WWAN and WLAN

	WWAN		WLAN(2.4G)	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	0.7481	0.1579	**0.906**
Front	GSM850	0.6304	0.0976	0.728
Top side	GSM850	--	0.0717	0.0717
Bottom side	GSM850	0.0672	--	0.0672
Right side	GSM850	0.4973	0.0899	0.5872
Left side	GSM850	0.4467	--	0.4467
Back	GSM1900	0.2828	0.1579	0.4407
Front	GSM1900	0.1399	0.0976	0.2375
Top side	GSM1900	--	0.0717	0.0717
Bottom side	GSM1900	0.1924	--	0.1924
Right side	GSM1900	0.1549	0.0899	0.2448
Left side	GSM1900	0.0089	--	0.0089
Back	WCDMA Band V	0.4504	0.1579	0.6083
Front	WCDMA Band V	0.3411	0.0976	0.4387
Top side	WCDMA Band V	--	0.0717	0.0717
Bottom side	WCDMA Band V	0.0518	--	0.0518
Right side	WCDMA Band V	0.2525	0.0899	0.3424
Left side	WCDMA Band V	0.2585	--	0.2585
Back	WCDMA Band II	0.6729	0.1579	0.8308
Front	WCDMA Band II	0.2366	0.0976	0.3342
Top side	WCDMA Band II	--	0.0717	0.0717
Bottom side	WCDMA Band II	0.4029	--	0.4029
Right side	WCDMA Band II	0.2036	0.0899	0.2935
Left side	WCDMA Band II	0.0187	--	0.0187

	WWAN		WLAN(5.2G)	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	0.7481	0.077	**0.8251**
Front	GSM850	0.6304	0.109	0.7394
Top side	GSM850	--	0.041	0.041
Bottom side	GSM850	0.0672	--	0.0672
Right side	GSM850	0.4973	--	0.4973
Left side	GSM850	0.4467	0.069	0.5157
Back	GSM1900	0.2828	0.077	0.3598
Front	GSM1900	0.1399	0.109	0.2489
Top side	GSM1900	--	0.041	0.041
Bottom side	GSM1900	0.1924	--	0.1924
Right side	GSM1900	0.1549	--	0.1549
Left side	GSM1900	0.0089	0.069	0.0779
Back	WCDMA Band V	0.4504	0.077	0.5274
Front	WCDMA Band V	0.3411	0.109	0.4501
Top side	WCDMA Band V	--	0.041	0.041
Bottom side	WCDMA Band V	0.0518	--	0.0518
Right side	WCDMA Band V	0.2525	--	0.2525
Left side	WCDMA Band V	0.2585	0.069	0.3275
Back	WCDMA Band II	0.6729	0.077	0.7499
Front	WCDMA Band II	0.2366	0.109	0.3456
Top side	WCDMA Band II	--	0.041	0.041
Bottom side	WCDMA Band II	0.4029	--	0.4029
Right side	WCDMA Band II	0.2036	--	0.2036
Left side	WCDMA Band II	0.0187	0.069	0.0877

	WWAN		WLAN(5.8G)	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	0.7481	0.089	**0.8371**
Front	GSM850	0.6304	0.119	0.7494
Top side	GSM850	--	0.083	0.083
Bottom side	GSM850	0.0672	--	0.0672
Right side	GSM850	0.4973	--	0.4973
Left side	GSM850	0.4467	0.072	0.5187
Back	GSM1900	0.2828	0.089	0.3718
Front	GSM1900	0.1399	0.119	0.2589
Top side	GSM1900	--	0.083	0.083
Bottom side	GSM1900	0.1924	--	0.1924
Right side	GSM1900	0.1549	--	0.1549
Left side	GSM1900	0.0089	0.072	0.0809
Back	WCDMA Band V	0.4504	0.089	0.5394
Front	WCDMA Band V	0.3411	0.119	0.4601
Top side	WCDMA Band V	--	0.083	0.083
Bottom side	WCDMA Band V	0.0518	--	0.0518
Right side	WCDMA Band V	0.2525	--	0.2525
Left side	WCDMA Band V	0.2585	0.072	0.3305
Back	WCDMA Band II	0.6729	0.089	0.7619
Front	WCDMA Band II	0.2366	0.119	0.3556
Top side	WCDMA Band II	--	0.083	0.083
Bottom side	WCDMA Band II	0.4029	--	0.4029
Right side	WCDMA Band II	0.2036	--	0.2036
Left side	WCDMA Band II	0.0187	0.072	0.0907

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	0.7481	0.1314	**0.8795**
Front	GSM850	0.6304	0.1314	0.7618
Top side	GSM850	--	0.1314	0.1314
Bottom side	GSM850	0.0672	0.1314	0.1986
Right side	GSM850	0.4973	0.1314	0.6287
Left side	GSM850	0.4467	0.1314	0.5781
Back	GSM1900	0.2828	0.1314	0.4142
Front	GSM1900	0.1399	0.1314	0.2713
Top side	GSM1900	--	0.1314	0.1314
Bottom side	GSM1900	0.1924	0.1314	0.3238
Right side	GSM1900	0.1549	0.1314	0.2863
Left side	GSM1900	0.0089	0.1314	0.1403
Back	WCDMA Band V	0.4504	0.1314	0.5818
Front	WCDMA Band V	0.3411	0.1314	0.4725
Top side	WCDMA Band V	--	0.1314	0.1314
Bottom side	WCDMA Band V	0.0518	0.1314	0.1832
Right side	WCDMA Band V	0.2525	0.1314	0.3839
Left side	WCDMA Band V	0.2585	0.1314	0.3899
Back	WCDMA Band II	0.6729	0.1314	0.8043
Front	WCDMA Band II	0.2366	0.1314	0.368
Top side	WCDMA Band II	--	0.1314	0.1314
Bottom side	WCDMA Band II	0.4029	0.1314	0.5343
Right side	WCDMA Band II	0.2036	0.1314	0.335
Left side	WCDMA Band II	0.0187	0.1314	0.1501

Remark: For BT the 1g SAR value is not being captured by the measurement system, the 1g-SAR value is conservatively used for simultaneous transmission analysis.

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 – Noise	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
RF ambient Conditions - Reflections	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	5.0	R	√3	1	1	2.89	2.89	∝
Test Sample Related									
Test sample positioning	E.4.2	0.03	N	1	1	1	0.03	0.03	N–1
Device Holder Uncertainty	E.4.1	5.00	N	1	1	1	5.00	5.00	
Output power Variation - SAR drift measurement	E.2.9	12.02	R	√3	1	1	6.94	6.94	∝
SAR scaling	E6.5	0.0	R	√3	1	1	0.0	0.0	∝
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	√3	1	1	0.03	0.03	∝
Uncertainty in SAR correction for deviations in permittivity and conductivity	E3.2	1.9	R	√3	1	0.84	1.10	0.90	∝
Liquid conductivity - deviation	E.3.2	5.00	R	√3	0.64	0.43	1.85	1.24	∝

from target value									
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	∝
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	∝
Modulation response	E.2.5	0	R	√3	0	0	0.0	0.0	∝
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 – Noise	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
RF ambient Conditions - Reflections	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.	E.5.2	5.0	R	√3	1	1	2.89	2.89	∝

SAR Evaluation									
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	∝
Deviation of experimental dipole from numerical dipole	E.6.4	5.5	R	√3	1	1	3.20	3.20	∝
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	√3	1	1	0.03	0.03	∝
Uncertainty in SAR correction for deviations in permittivity and conductivity	E3.2	2.0	R	√3	1	0.84	1.10	1.10	∝
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: 08/24/2015

Measurement duration: 7 minutes 21 seconds

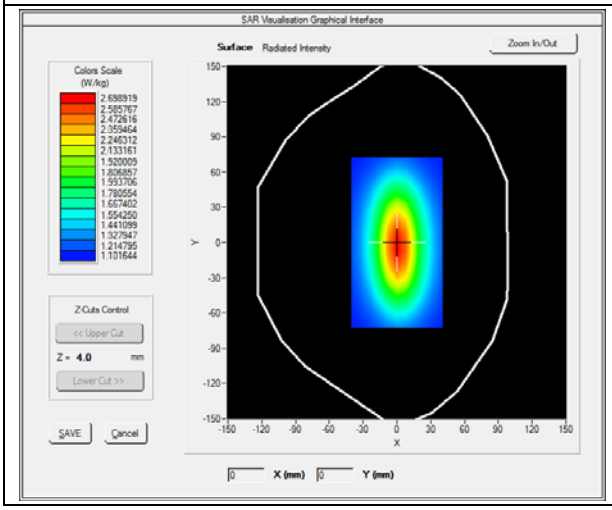
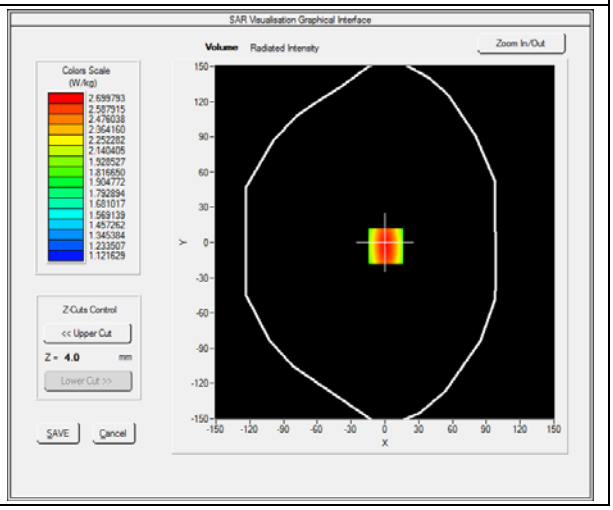
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.578358
Ambient Temperature	21.1
Liquid Temperature	21.3

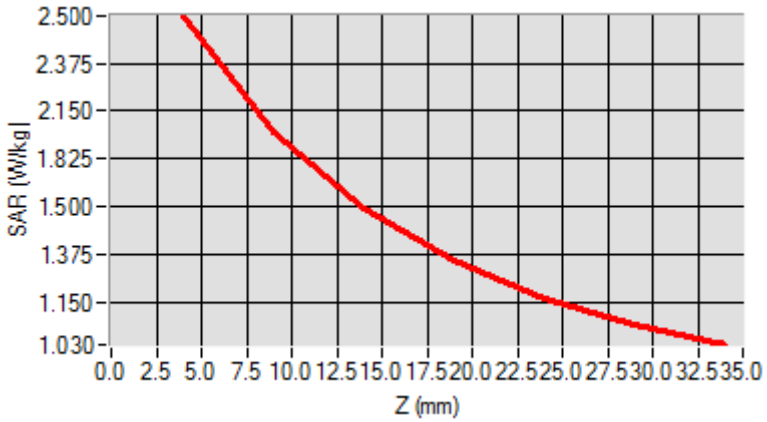
SURFACE SAR	VOLUME SAR
	

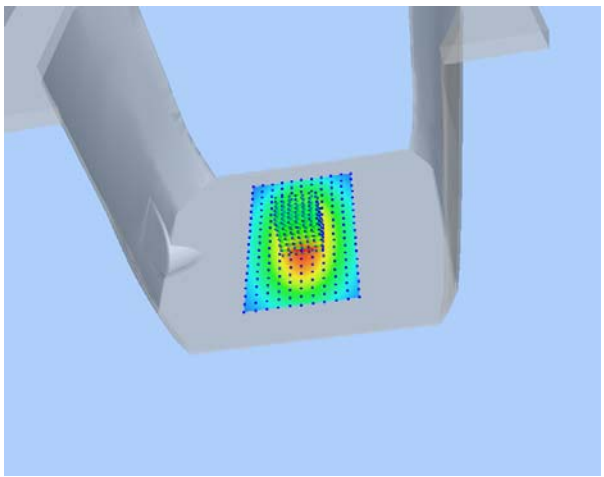
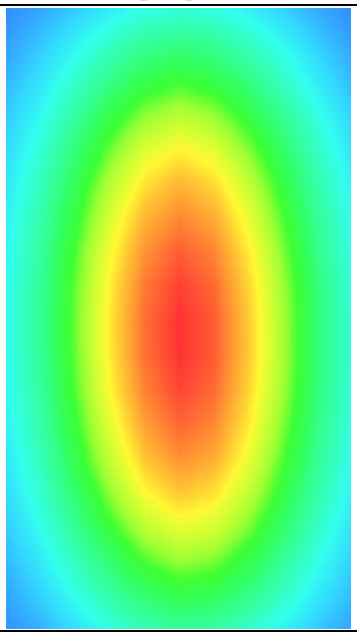
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.129489
SAR 1g (W/Kg)	2.421250

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	2.4900	1.8942	1.4811	1.3541	1.1123	1.0539



3D screen shot	Hot spot position
	

MEASUREMENT 2

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/24/2015

Measurement duration: 12 minutes 21 seconds

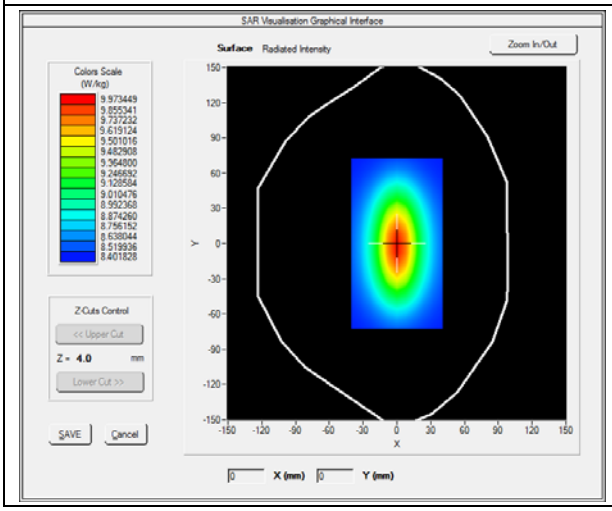
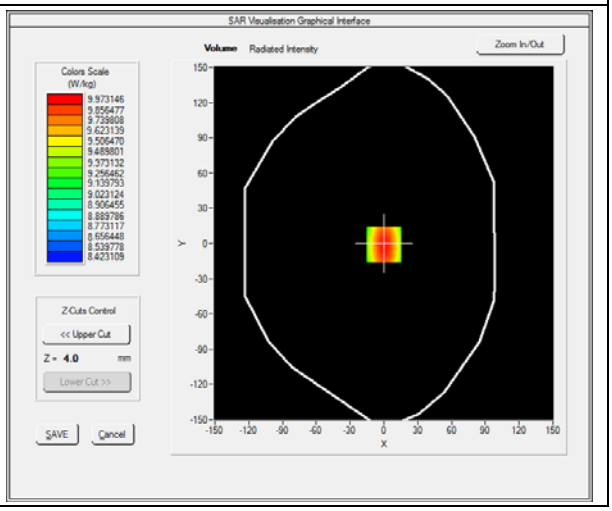
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1900.000000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.022540
Ambient Temperature	21.1
Liquid Temperature	21.3

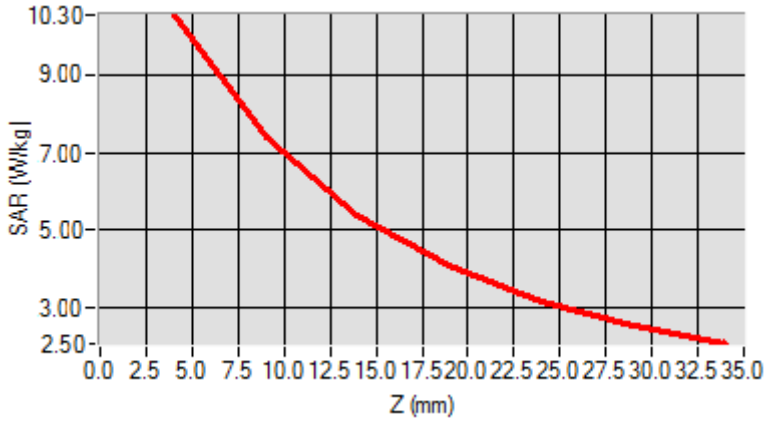
SURFACE SAR	VOLUME SAR
	

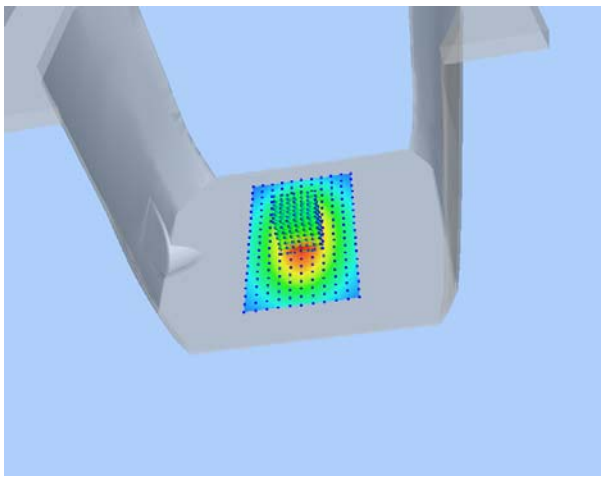
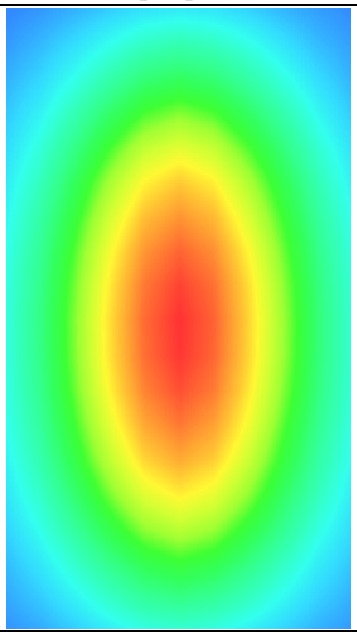
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	7.174526
SAR 1g (W/Kg)	9.923214

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	10.2354	6.8400	5.0121	4.1189	3.0522	2.8424



3D screen shot	Hot spot position
	

MEASUREMENT 3

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/24/2015

Measurement duration: 12 minutes 21 seconds

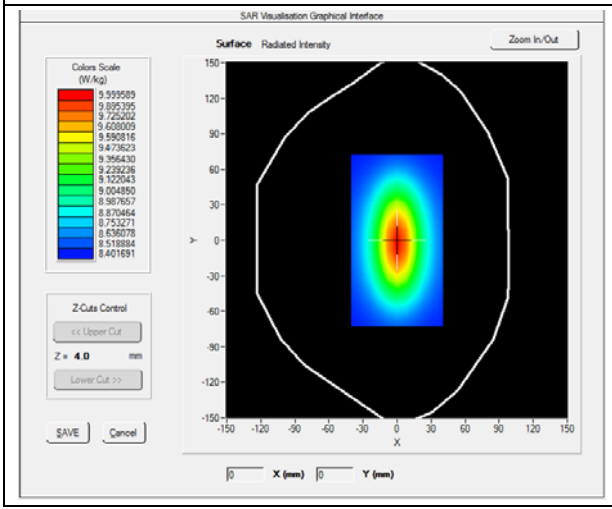
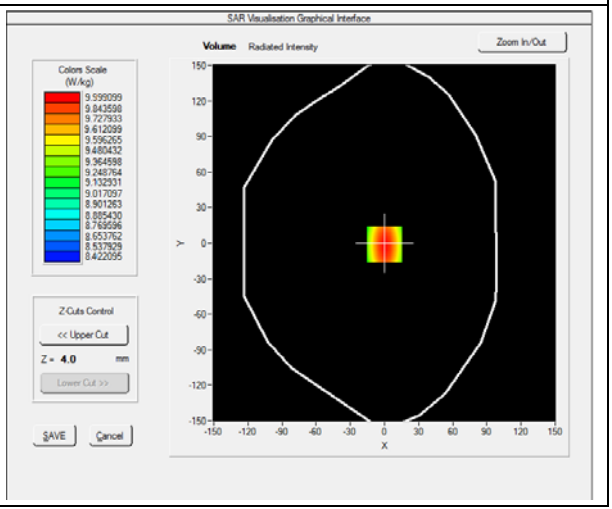
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2450.000000
Relative Permittivity (real part)	38.601212
Conductivity (S/m)	1.761202
Power Variation (%)	1.144120
Ambient Temperature	21.1
Liquid Temperature	21.2

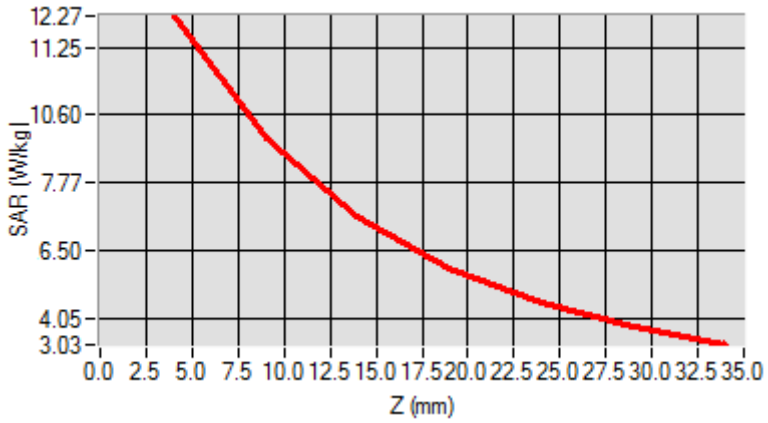
SURFACE SAR	VOLUME SAR
	

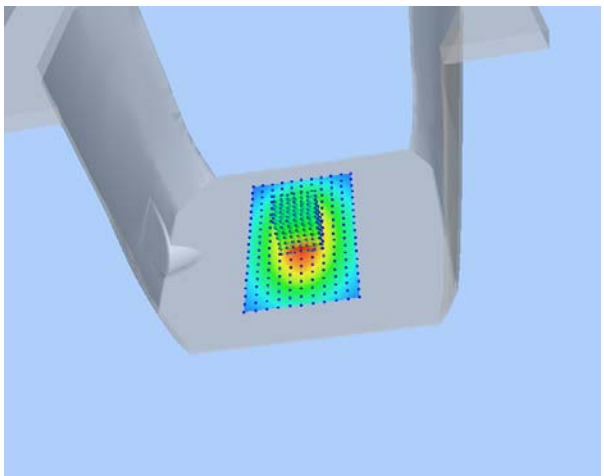
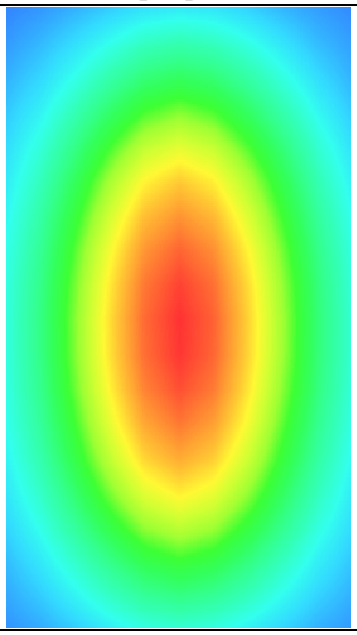
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	6.352122
SAR 1g (W/Kg)	13.462010

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	12.1355	10.3301	8.4512	6.4365	5.6123	3.5621



3D screen shot	Hot spot position
	

MEASUREMENT 4

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/24/2015

Measurement duration: 12 minutes 21 seconds

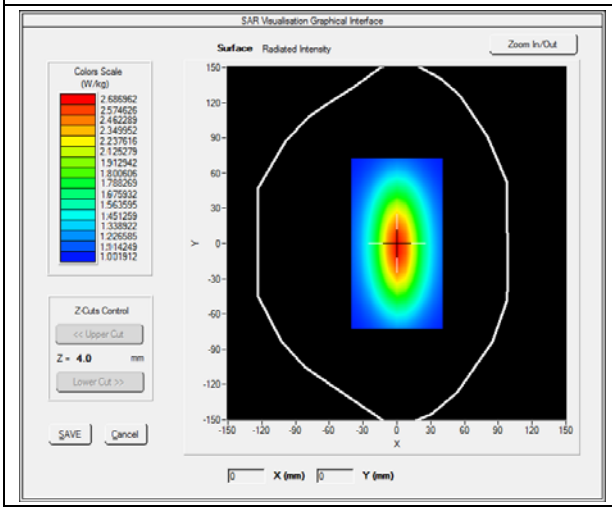
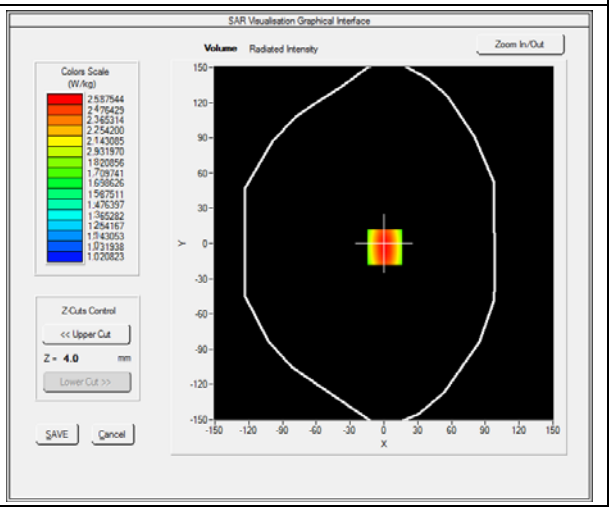
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.901472
Ambient Temperature	21.1
Liquid Temperature	21.3

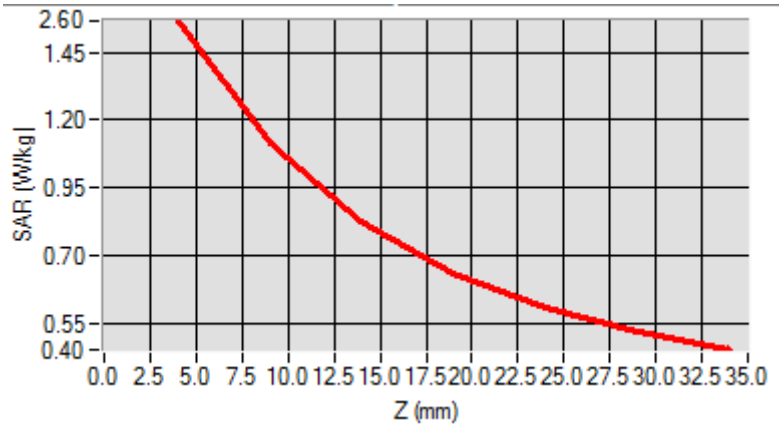
SURFACE SAR	VOLUME SAR
	

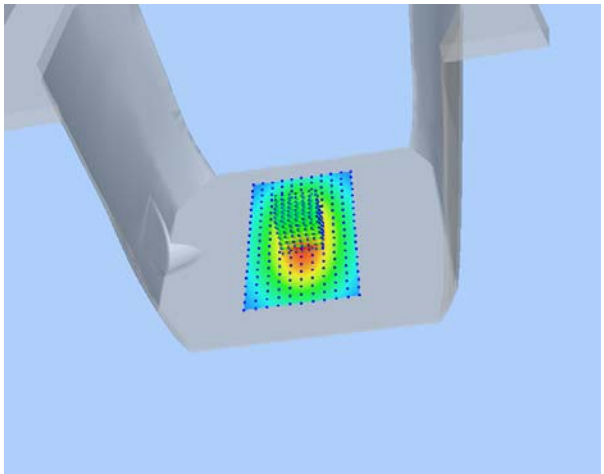
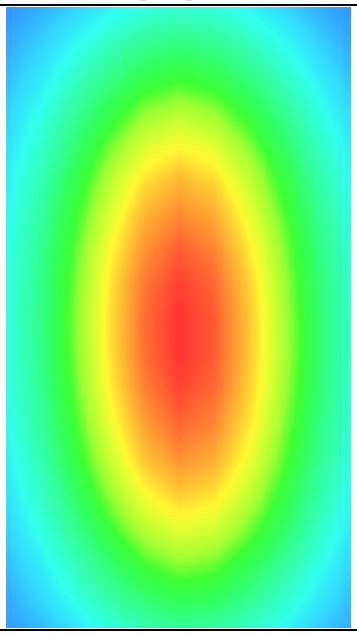
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.028956
SAR 1g (W/Kg)	2.364211

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	2.5789	1.1300	0.8795	0.5940	0.5011	0.5100



3D screen shot	Hot spot position
	

MEASUREMENT 5

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/24/2015

Measurement duration: 12 minutes 21 seconds

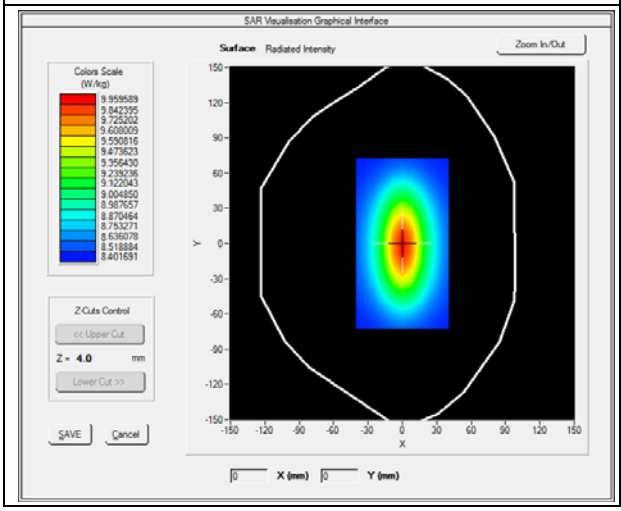
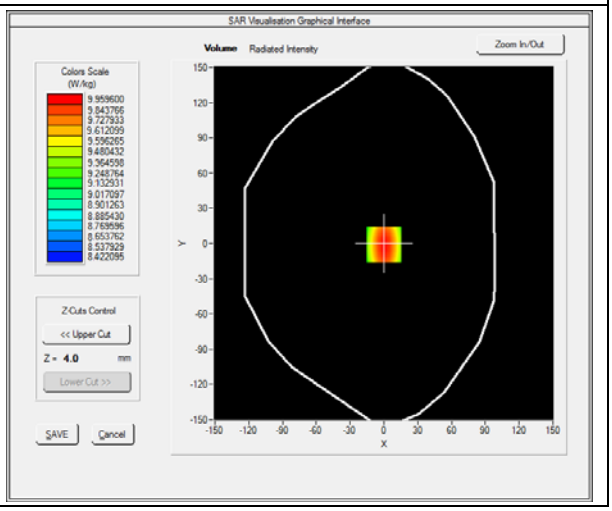
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1900.000000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	0.541872
Ambient Temperature	21.1
Liquid Temperature	21.3

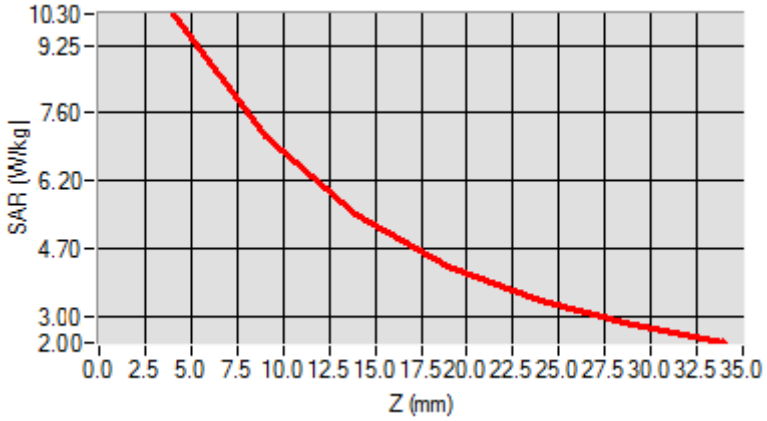
SURFACE SAR	VOLUME SAR
	

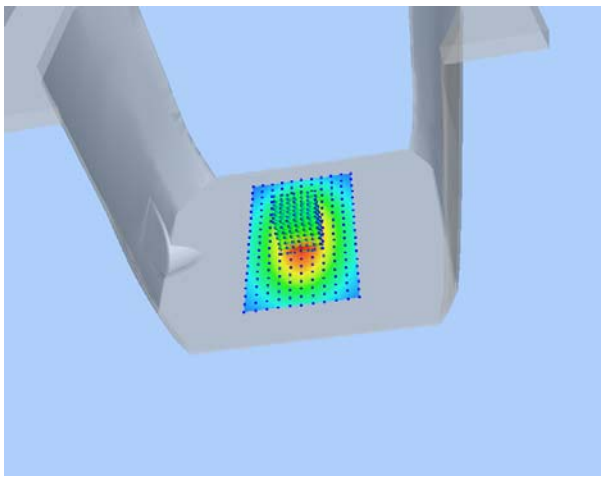
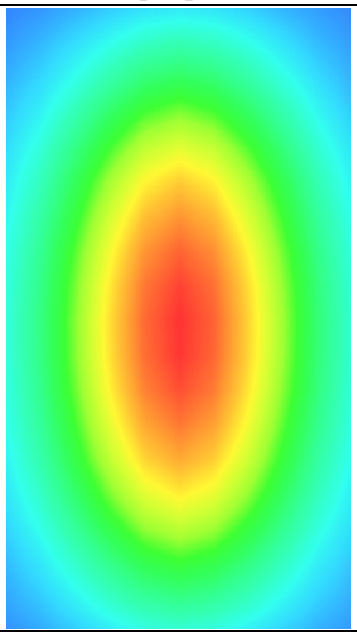
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	5.134651
SAR 1g (W/Kg)	9.801550

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	10.2031	6.43001	4.9011	4.5325	3.1201	2.5024



3D screen shot	Hot spot position
	

MEASUREMENT 6

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/24/2015

Measurement duration: 12 minutes 21 seconds

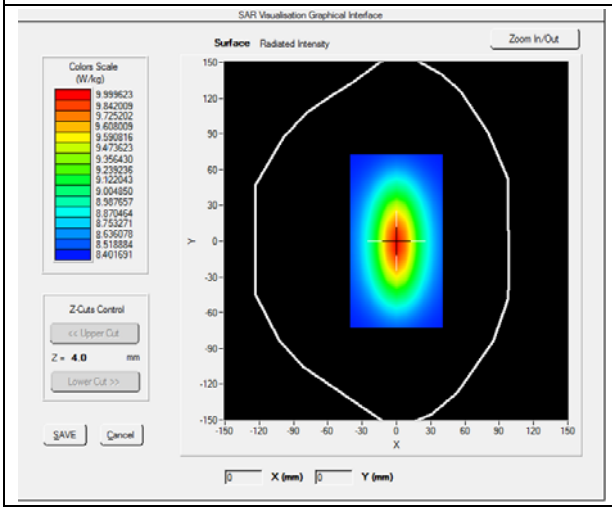
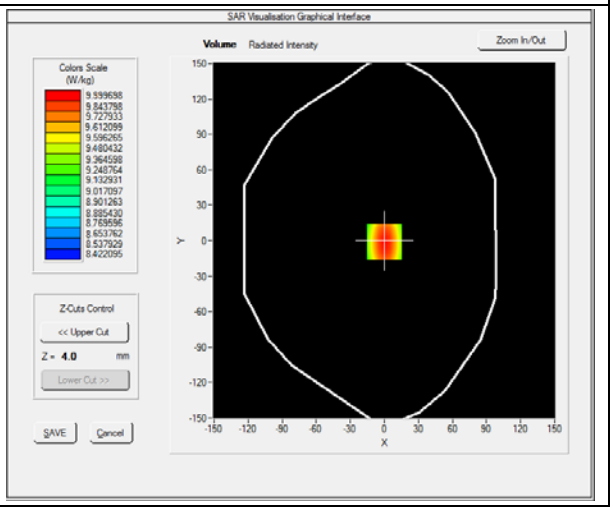
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.80; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2450.000000
Relative Permittivity (real part)	52.301622
Conductivity (S/m)	2.001255
Power Variation (%)	0.542660
Ambient Temperature	21.1
Liquid Temperature	21.2

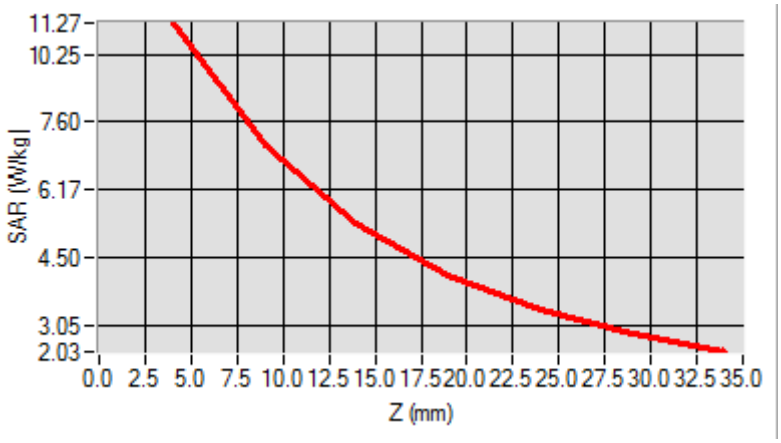
SURFACE SAR	VOLUME SAR
	

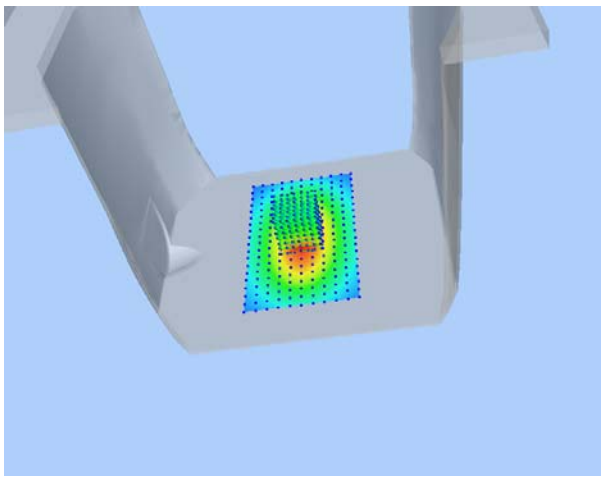
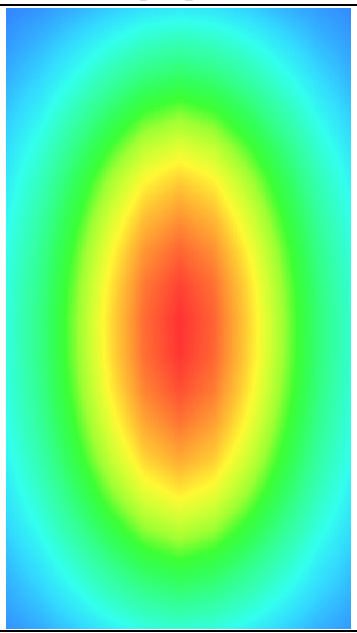
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	6.351512
SAR 1g (W/Kg)	12.600533

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	12.1631	10.01221	9.2566	8.5623	6.3469	4.5626



3D screen shot	Hot spot position
	

MEASUREMENT 7

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 05/23/2016

Measurement duration: 12 minutes 21 seconds

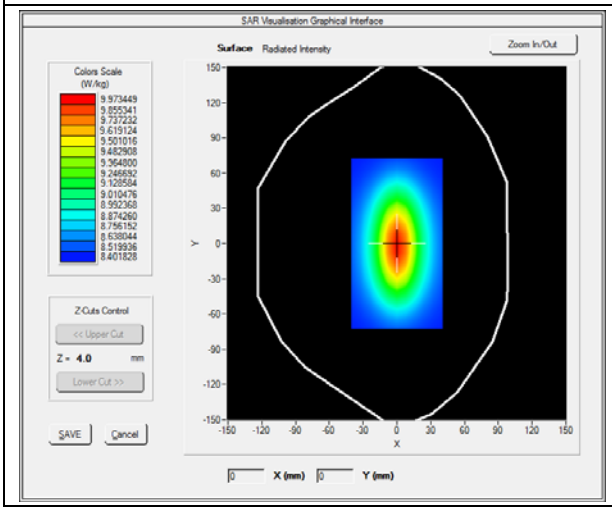
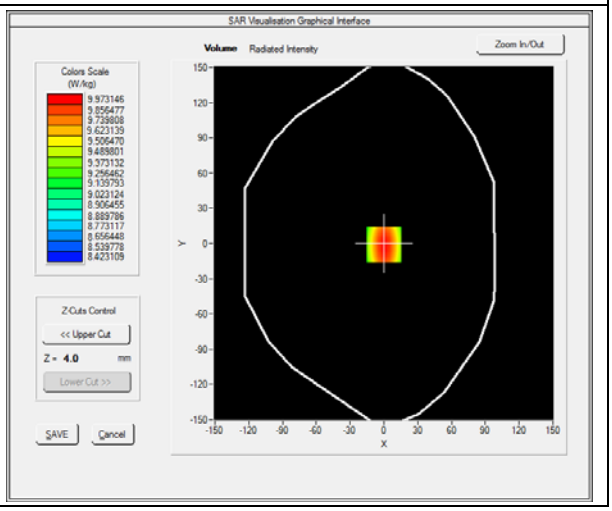
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1900.000000
Relative Permittivity (real part)	38.530782
Conductivity (S/m)	1.361795
Power Variation (%)	1.036672
Ambient Temperature	21.1
Liquid Temperature	21.3

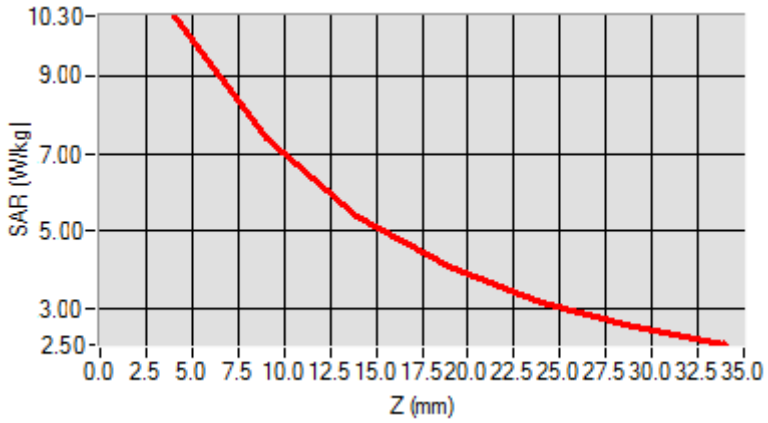
SURFACE SAR	VOLUME SAR
	

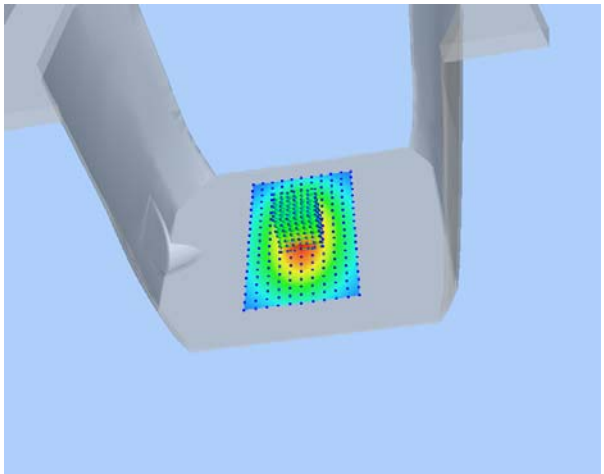
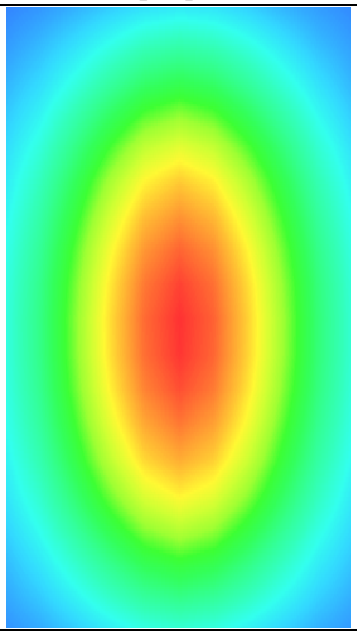
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**7.164892**
SAR 1g (W/Kg)	**9.901839**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**10.2357**	**6.8398**	**5.0109**	**4.1190**	**3.0522**	**2.8422**



3D screen shot	**Hot spot position**
	

MEASUREMENT 8

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 05/23/2016

Measurement duration: 12 minutes 21 seconds

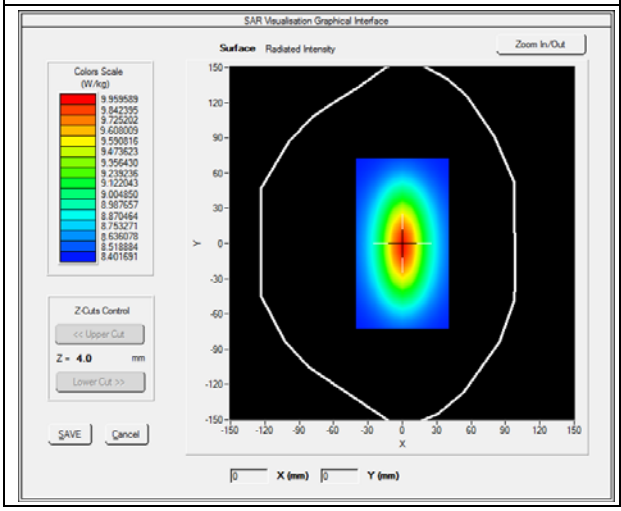
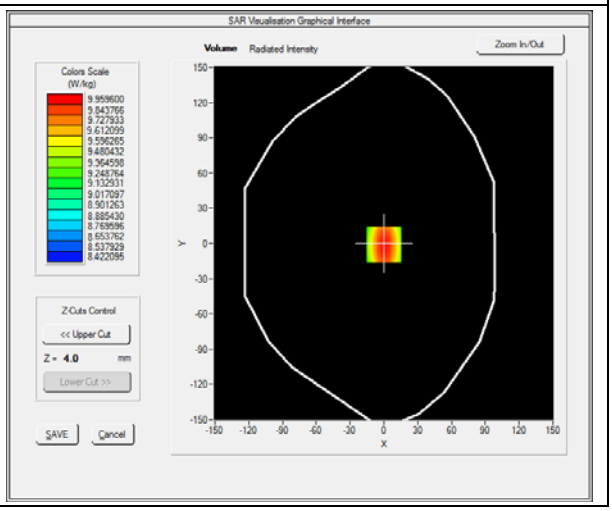
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1900.000000
Relative Permittivity (real part)	52.461608
Conductivity (S/m)	1.510288
Power Variation (%)	0.568126
Ambient Temperature	21.1
Liquid Temperature	21.3

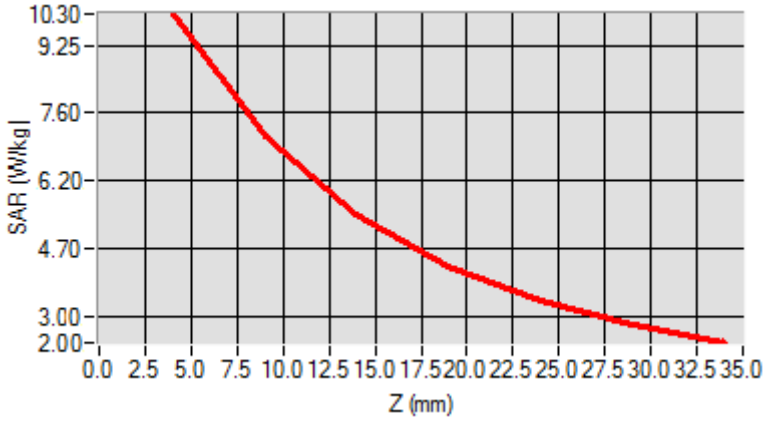
SURFACE SAR	VOLUME SAR
	

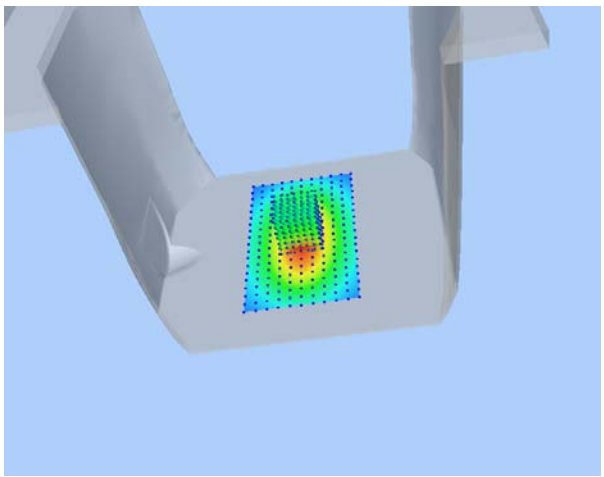
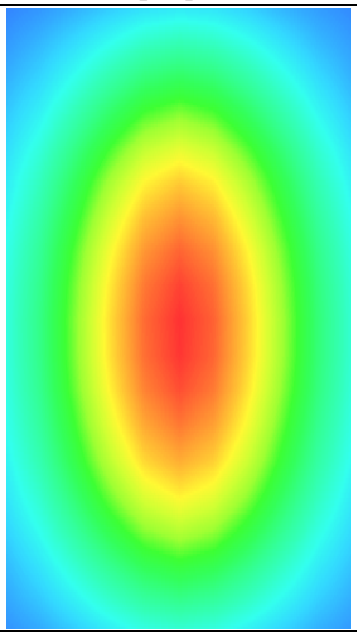
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	5.129763
SAR 1g (W/Kg)	9.781923

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	10.2029	6.43001	4.9018	4.5330	3.1203	2.5025



3D screen shot	Hot spot position
	

MEASUREMENT 9

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 05/23/2016

Measurement duration: 12 minutes 21 seconds

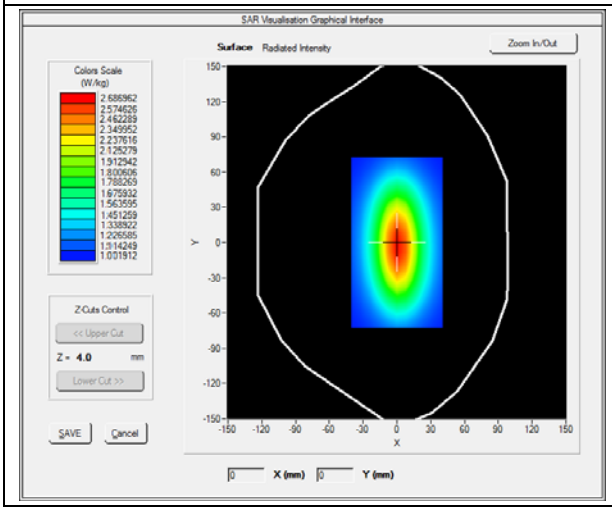
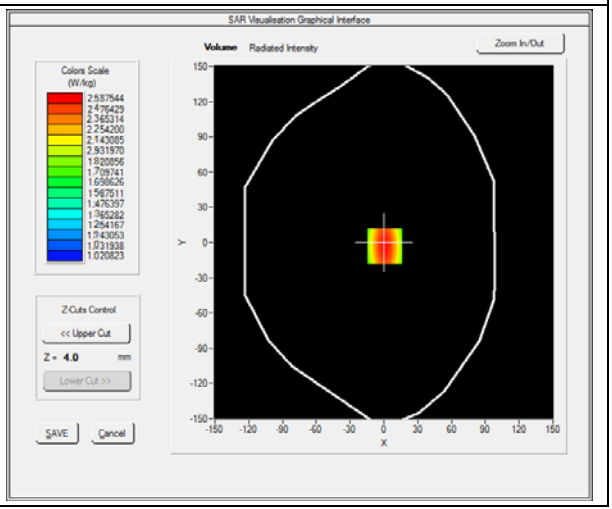
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative Permittivity (real part)	54.852440
Conductivity (S/m)	0.950189
Power Variation (%)	0.678929
Ambient Temperature	21.1
Liquid Temperature	21.3

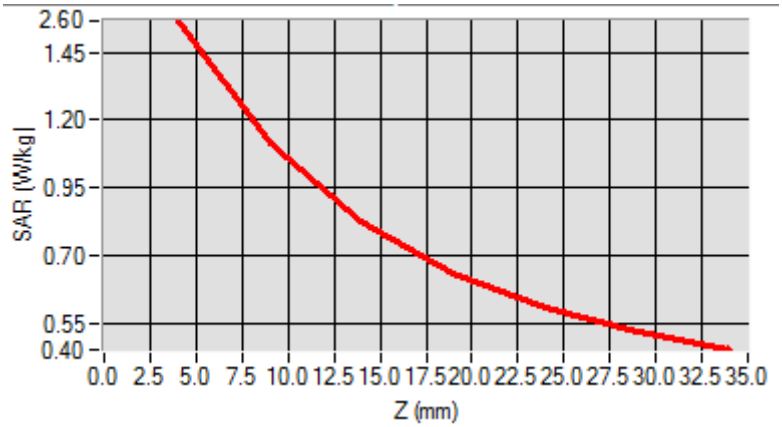
SURFACE SAR	VOLUME SAR
	

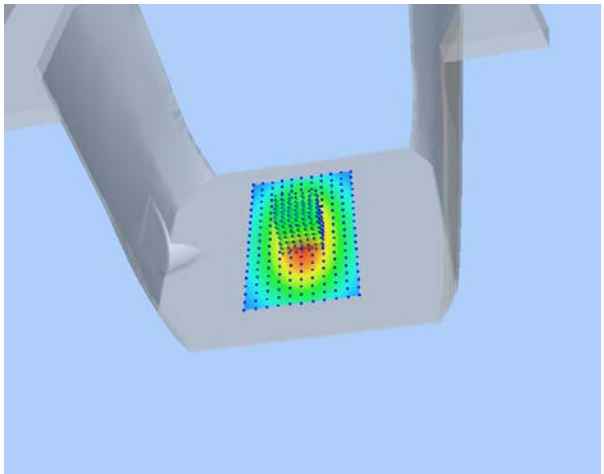
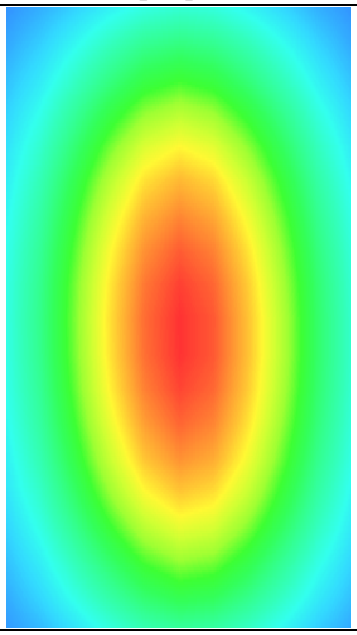
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.028899
SAR 1g (W/Kg)	2.383421

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	2.5795	1.1300	0.8797	0.5942	0.5011	0.5110



3D screen shot	Hot spot position
	

Annex B. Plots of SAR Measurement

TYPE	BAND	PARAMETERS
Phone	**GSM850**	Measurement 1:Right Head with Cheek device position on Low Channel in GSM mode
Phone	**GSM850**	Measurement 2: Right Head with Tilt device position on Low Channel in GSM mode
Phone	**GSM850**	Measurement 3: Left Head with Cheek device position on Low Channel in GSM mode
Phone	**GSM850**	Measurement 4: Left Head with Tilt device position on Low Channel in GSM mode
Phone	**GSM850**	Measurement 5: Flat Plane with Back(Body-worn) device position on Low Channel in GSM mode
Phone	**GSM850**	Measurement 6: Flat Plane with Front(Body-worn) device position on Low Channel in GSM mode
Phone	**GPRS850_2TX**	Measurement 7: Flat Plane with Back device position on Low Channel in GPRS mode
Phone	**GPRS850_2TX**	Measurement 8: Flat Plane with Front device position on Low Channel in GPRS mode
Phone	**GPRS850_2TX**	Measurement 9: Flat Plane with Bottom side device position on Low Channel in GPRS mode
Phone	**GPRS850_2TX**	Measurement 10: Flat Plane with Right side device position on Low Channel in GPRS mode
Phone	**GPRS850_2TX**	Measurement 11: Flat Plane with Left side device position on Low Channel in GPRS mode
Phone	**GSM1900**	Measurement 12: Right Head with Cheek device position on High Channel in GSM mode
Phone	**GSM1900**	Measurement 13: Right Head with Tilt device position on High Channel in GSM mode
Phone	**GSM1900**	Measurement 14: Left Head with Cheek device position on High Channel in GSM mode
Phone	**GSM1900**	Measurement 15: Left Head with Tilt device position on High Channel in GSM mode
Phone	**GSM1900**	Measurement 16: Flat Plane with Back(Body-worn) device position on High Channel in GSM mode
Phone	**GSM1900**	Measurement 17: Flat Plane with Front(Body-worn) device position on High Channel in GSM mode
Phone	**GPRS1900_1TX**	Measurement 18: Flat Plane with Back device position on Low Channel in GPRS mode
Phone	**GPRS1900_1TX**	Measurement 19: Flat Plane with Front device position on Low Channel in GPRS mode

Phone	**GPRS1900_1TX**	Measurement 20: Flat Plane with Bottom side device position on Low Channel in GPRS mode
Phone	**GPRS1900_1TX**	Measurement 21: Flat Plane with Right side device position on Low Channel in GPRS mode
Phone	**GPRS1900_1TX**	Measurement 22: Flat Plane with Left side device position on Low Channel in GPRS mode
Phone	**WCDMA850_RMC**	Measurement 23: Right Head with Cheek device position on Low Channel in WCDMA mode
Phone	**WCDMA850_RMC**	Measurement 24: Right Head with Tilt device position on Low Channel in WCDMA mode
Phone	**WCDMA850_RMC**	Measurement 25: Left Head with Cheek device position on Low Channel in WCDMA mode
Phone	**WCDMA850_RMC**	Measurement 26: Left Head with Tilt device position on Low Channel in WCDMA mode
Phone	**WCDMA850_RMC**	Measurement 27: Flat Plane with Back device position on Low Channel in WCDMA mode
Phone	**WCDMA850_RMC**	Measurement 28: Flat Plane with Front device position on Low Channel in WCDMA mode
Phone	**WCDMA850_RMC**	Measurement 29: Flat Plane with Bottom side device position on Low Channel in WCDMA mode
Phone	**WCDMA850_RMC**	Measurement 30: Flat Plane with Right side device position on Low Channel in WCDMA mode
Phone	**WCDMA850_RMC**	Measurement 31: Flat Plane with Left side device position on Low Channel in WCDMA mode
Phone	**WCDMA1900_RMC**	Measurement 32: Right Head with Cheek device position on Low Channel in WCDMA mode
Phone	**WCDMA1900_RMC**	Measurement 33: Right Head with Tilt device position on Low Channel in WCDMA mode
Phone	**WCDMA1900_RMC**	Measurement 34: Left Head with Cheek device position on Low Channel in WCDMA mode
Phone	**WCDMA1900_RMC**	Measurement 35: Left Head with Tilt device position on Low Channel in WCDMA mode
Phone	**WCDMA1900_RMC**	Measurement 36: Flat Plane with Back device position on Low Channel in WCDMA mode
Phone	**WCDMA1900_RMC**	Measurement 37: Flat Plane with Front device position on Low Channel in WCDMA mode
Phone	**WCDMA1900_RMC**	Measurement 38: Flat Plane with Bottom side device position on Low Channel in WCDMA mode
Phone	**WCDMA1900_RMC**	Measurement 39: Flat Plane with Right side device position on Low Channel in WCDMA mode
Phone	**WCDMA1900_RMC**	Measurement 40: Flat Plane with Left side device position on Low Channel in WCDMA mode
Phone	**WiFi_802.11b**	Measurement 41: Right Head with Cheek device position on Middle Channel in 802.11b mode

Phone	**WiFi_802.11b**	Measurement 42: Right Head with Tilt device position on Middle Channel in 802.11b mode
Phone	**WiFi_802.11b**	Measurement 43: Left Head with Cheek device position on Middle Channel in 802.11b mode
Phone	**WiFi_802.11b**	Measurement 44: Left Head with Tilt device position on Middle Channel in 802.11b mode
Phone	**WiFi_802.11b**	Measurement 45: Flat Plane with Back side device position on Middle Channel in 802.11b mode
Phone	**WiFi_802.11b**	Measurement 46: Flat Plane with Front side device position on Middle Channel in 802.11b mode
Phone	**WiFi_802.11b**	Measurement 47: Flat Plane with Right side device position on Middle Channel in 802.11b mode
Phone	**WiFi_802.11b**	Measurement 48: Flat Plane with Top side device position on Middle Channel in 802.11b mode

TYPE	**BAND**	**PARAMETERS**
Phone	**WCDMA1900_ HSDPA Subtest-1**	Measurement 49: Right Head with Cheek device position on Low Channel in HSDPA Subtest-1 mode
Phone	**WCDMA1900_ HSDPA Subtest-2**	Measurement 53: Right Head with Cheek device position on Low Channel in HSDPA Subtest-2 mode
Phone	**WCDMA1900_ HSDPA Subtest-1**	Measurement 57: Flat Plane with Back device position on Low Channel in HSDPA Subtest-1 mode
Phone	**WCDMA1900_ HSDPA Subtest-2**	Measurement 62: Flat Plane with Back device position on Low Channel in HSDPA Subtest-2 mode
Phone	**GPRS850_2TX**	Measurement 67: Flat Plane with Back(Body-worn) device position on Low Channel in GPRS mode
Phone	**GPRS1900_1TX**	Measurement 69: Flat Plane with Back(Body-worn) device position on Low Channel in GPRS mode
Remark: SAR plot is showed the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.		

MEASUREMENT 1

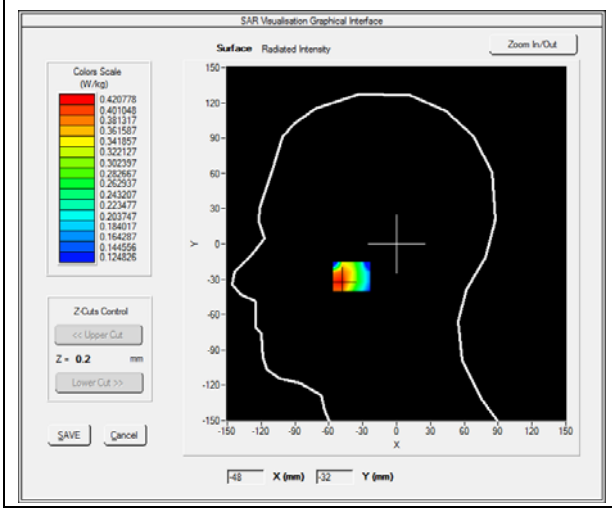
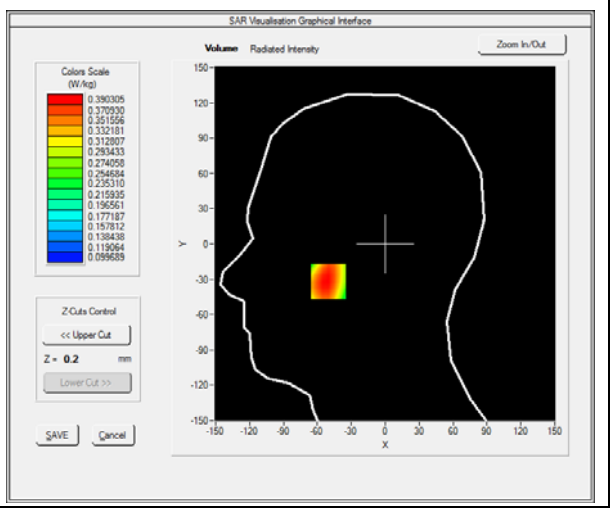
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

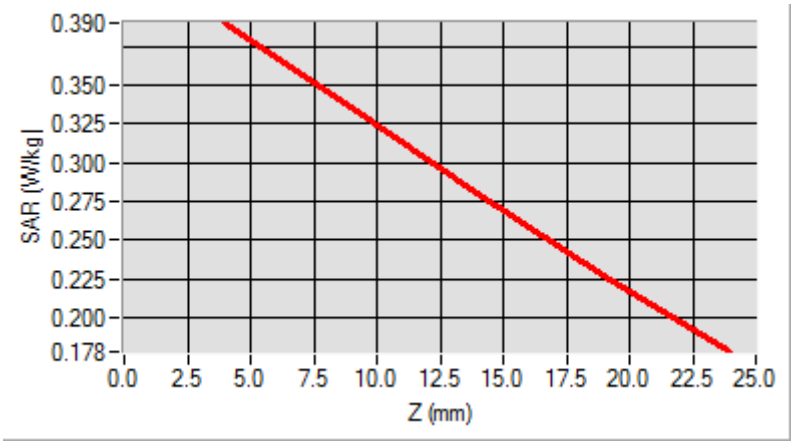
Frequency (MHz)	824.200012
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.865470
Ambient Temperature	21.1
Liquid Temperature	21.3

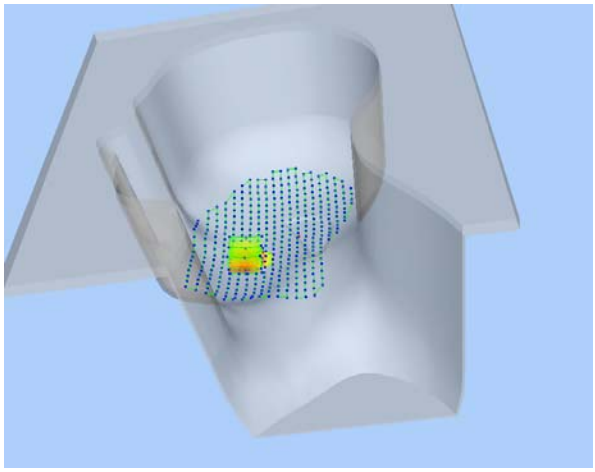
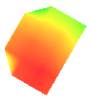
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-50.00, Y=-32.00

SAR 10g (W/Kg)	0.296246
SAR 1g (W/Kg)	0.378578

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.3903	0.3356	0.2807	0.2273



3D screen shot	Hot spot position
	

MEASUREMENT 2

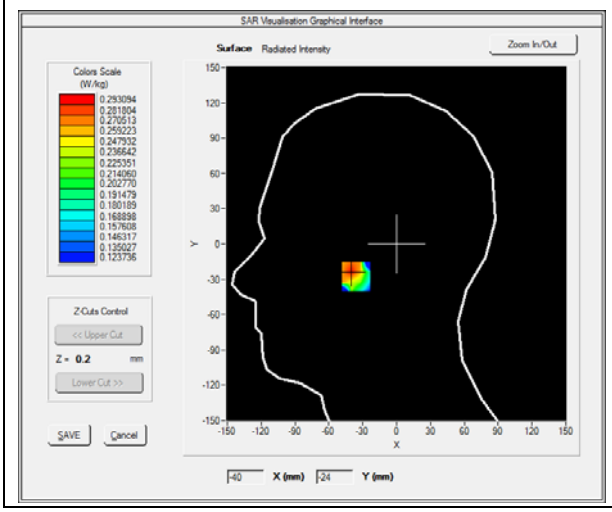
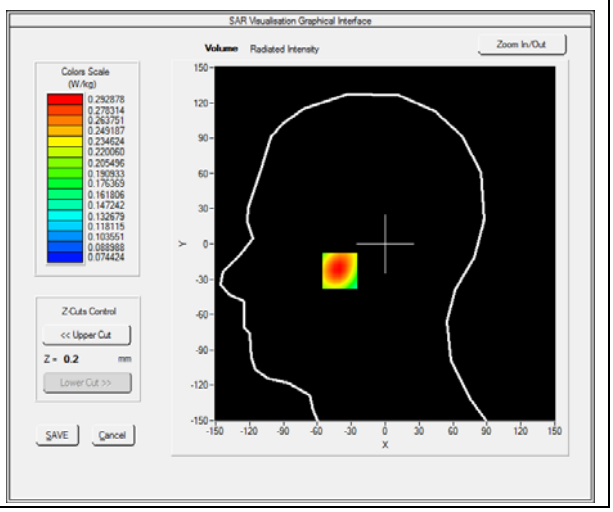
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

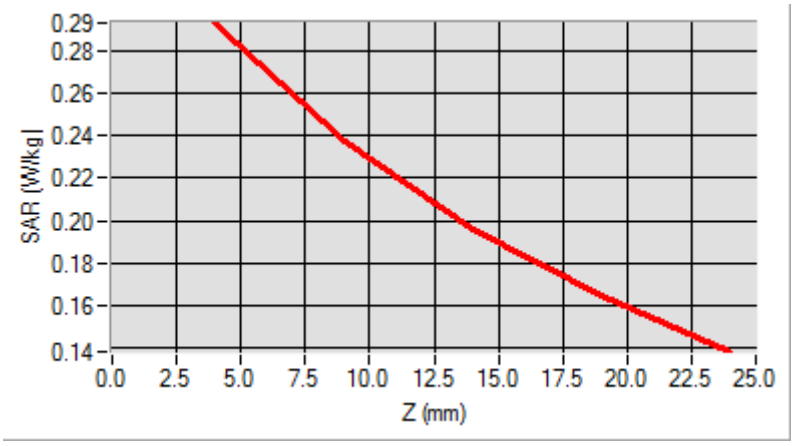
Frequency (MHz)	824.200012
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.763498
Ambient Temperature	21.1
Liquid Temperature	21.3

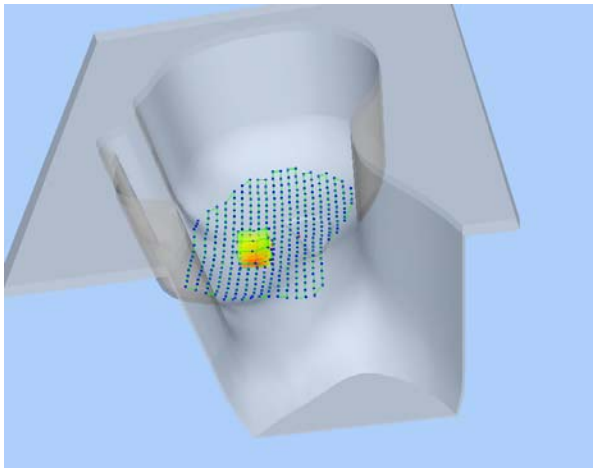
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-40.00, Y=-23.00

SAR 10g (W/Kg)	**0.212840**
SAR 1g (W/Kg)	**0.281425**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.2929**	**0.2376**	**0.1959**	**0.1644**



3D screen shot	**Hot spot position**
	

MEASUREMENT 3

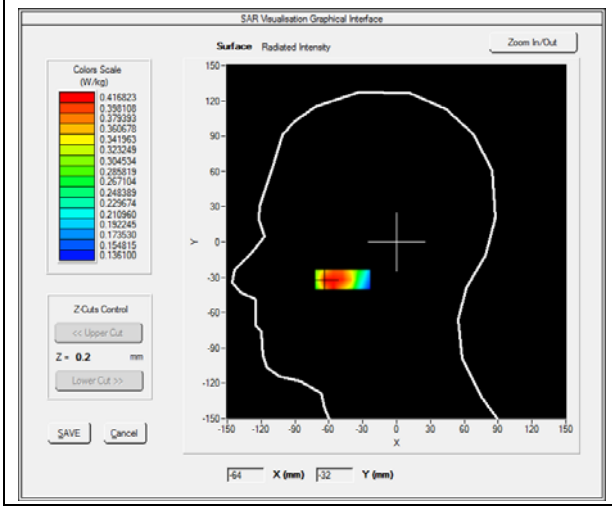
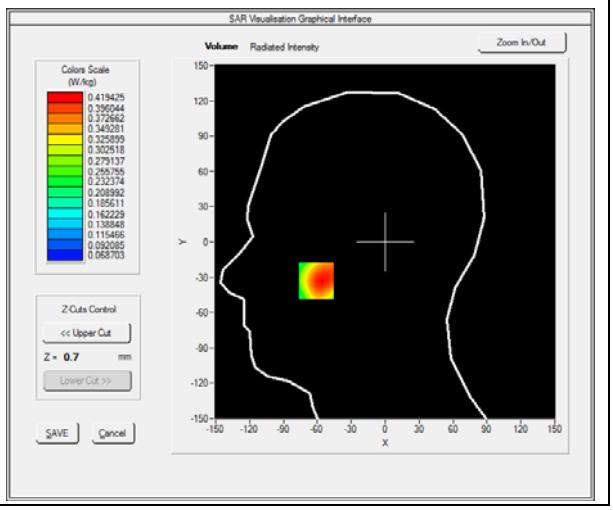
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 11 minutes 48 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

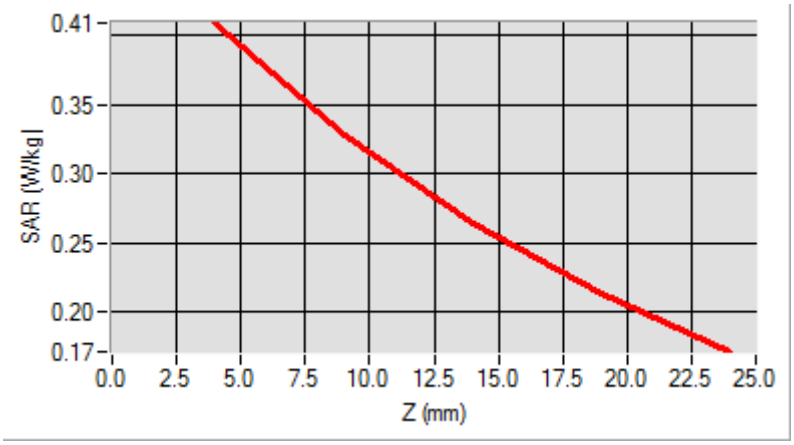
Frequency (MHz)	824.200012
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.524264
Ambient Temperature	21.1
Liquid Temperature	21.3

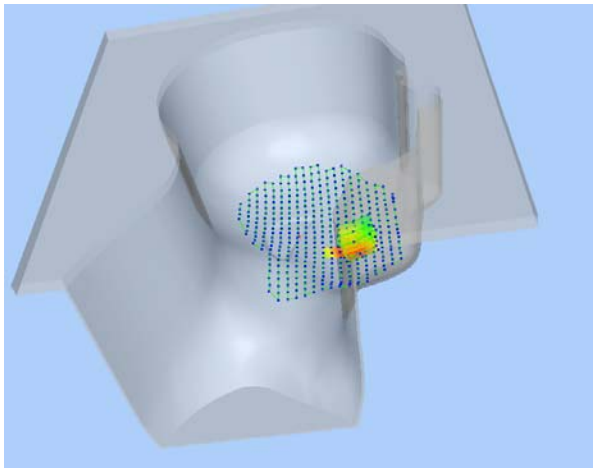
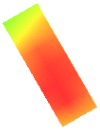
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-61.00, Y=-33.00

SAR 10g (W/Kg)	**0.307217**
SAR 1g (W/Kg)	**0.403146**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.4093**	**0.3280**	**0.2642**	**0.2138**



3D screen shot	**Hot spot position**
	

MEASUREMENT 4

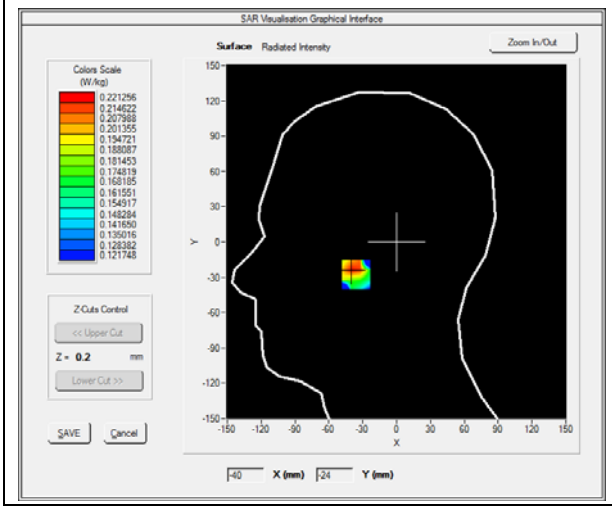
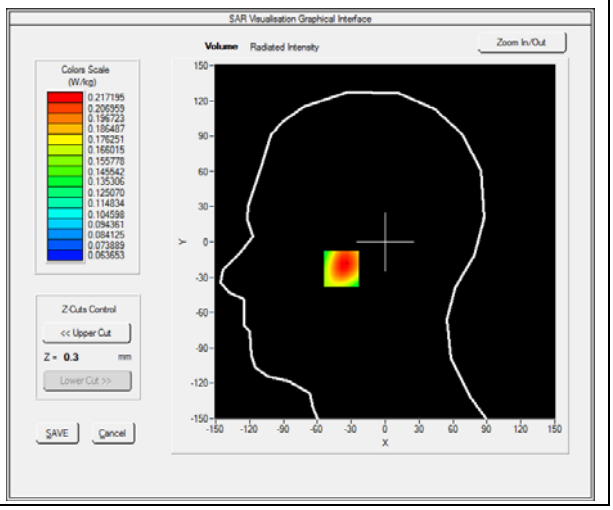
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

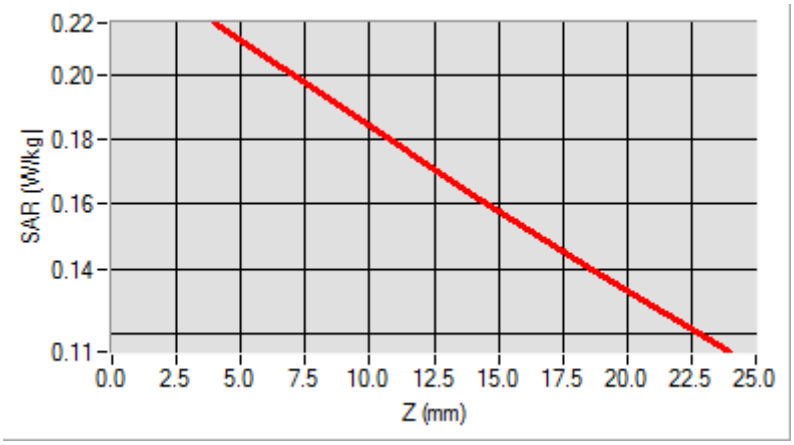
Frequency (MHz)	824.200012
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.784287
Ambient Temperature	21.1
Liquid Temperature	21.3

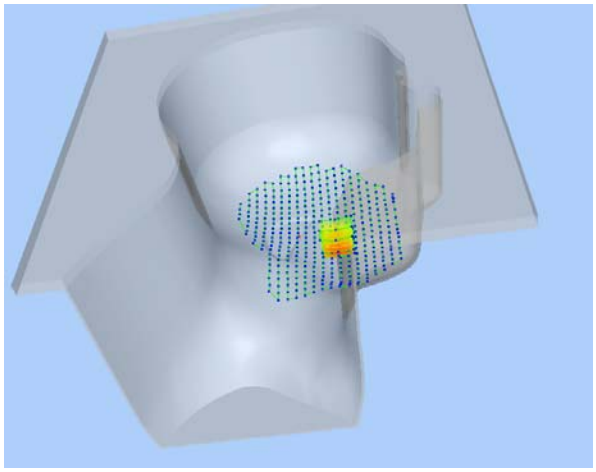
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-39.00, Y=-23.00

SAR 10g (W/Kg)	**0.167372**
SAR 1g (W/Kg)	**0.211746**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.2158**	**0.1890**	**0.1628**	**0.1378**



3D screen shot	**Hot spot position**
	

MEASUREMENT 5

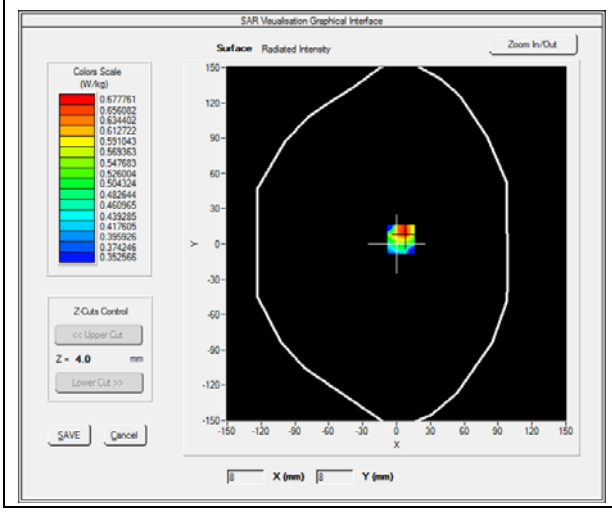
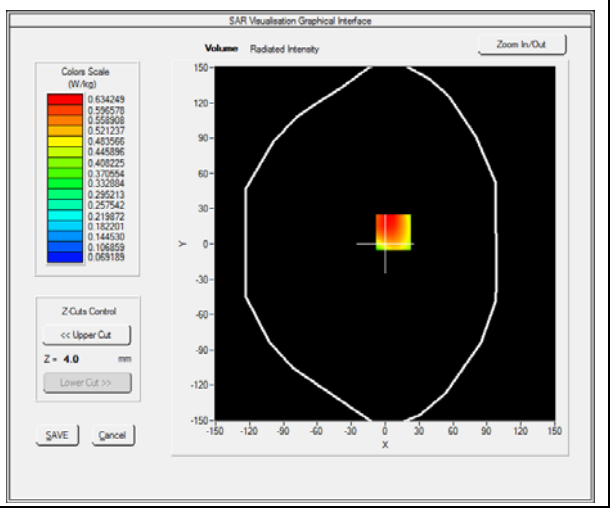
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back(Body-worn)
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

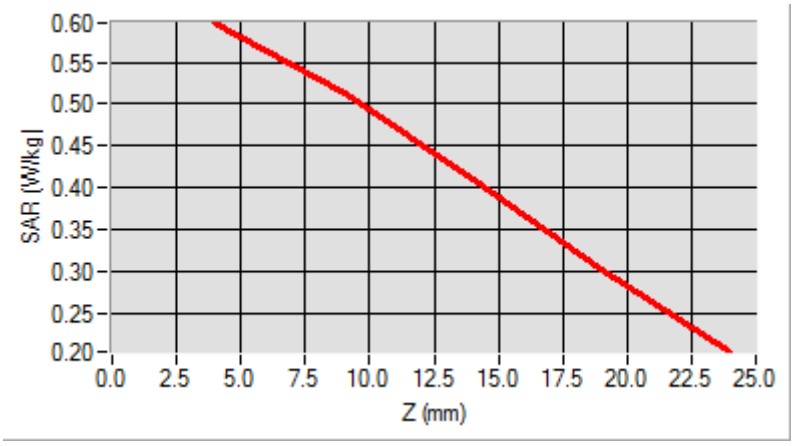
Frequency (MHz)	824.200012
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.893340
Ambient Temperature	21.1
Liquid Temperature	21.3

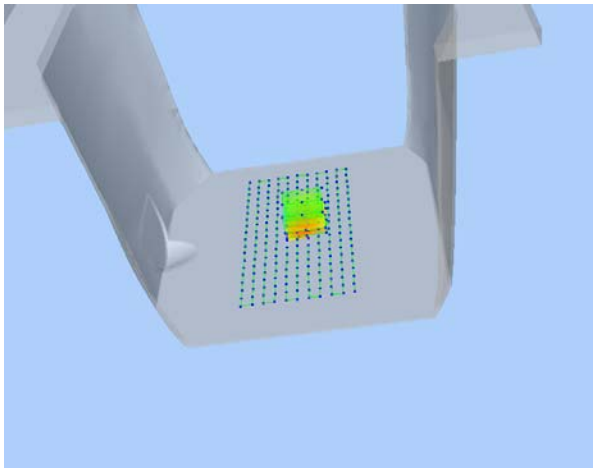
SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=10.00

SAR 10g (W/Kg)	**0.533382**
SAR 1g (W/Kg)	**0.713844**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.5967**	**0.5123**	**0.4106**	**0.3027**



3D screen shot	**Hot spot position**
	

MEASUREMENT 6

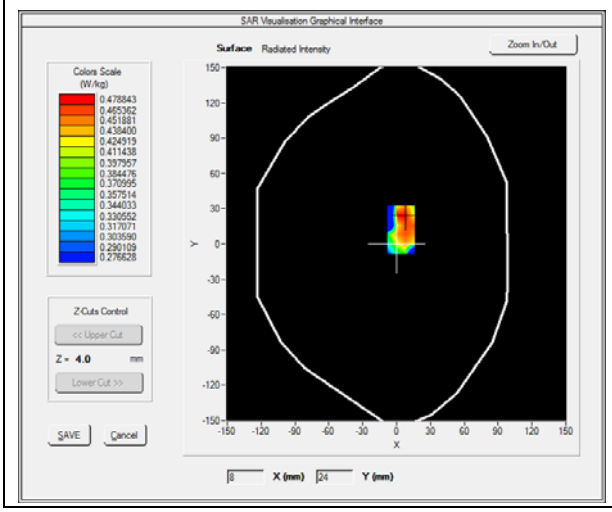
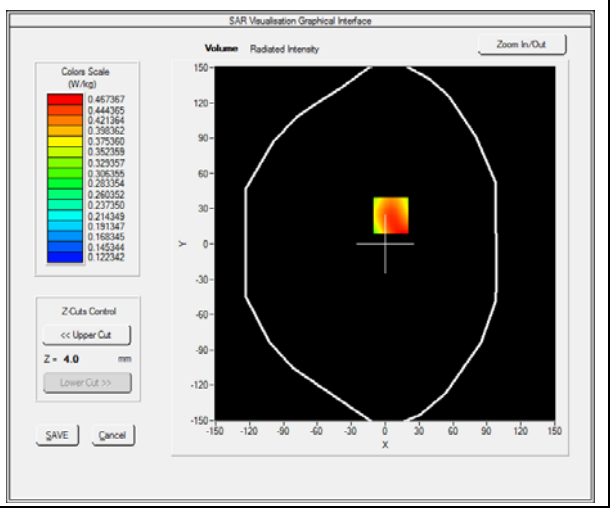
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Front(Body-worn)
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

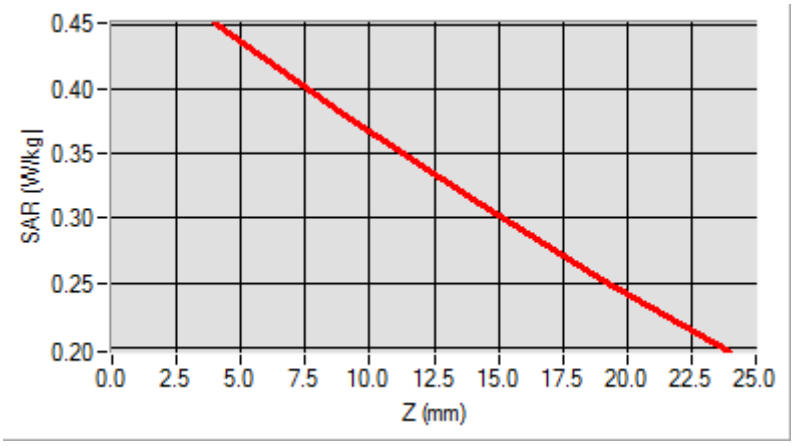
Frequency (MHz)	824.200012
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.896078
Ambient Temperature	21.1
Liquid Temperature	21.3

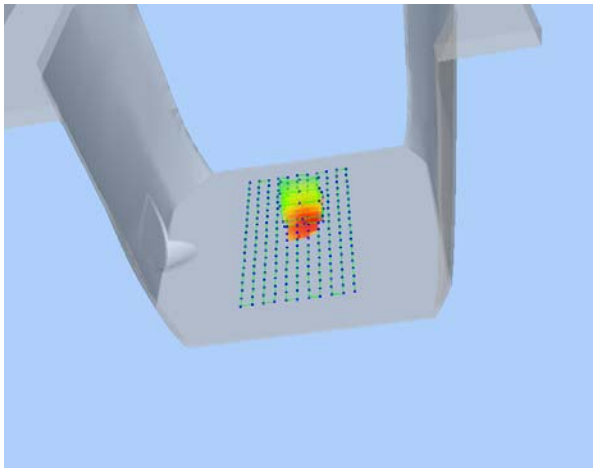
SURFACE SAR	VOLUME SAR
	

Maximum location: X=5.00, Y=24.00

SAR 10g (W/Kg)	**0.448840**
SAR 1g (W/Kg)	**0.580015**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.4514**	**0.3806**	**0.3139**	**0.2521**



3D screen shot	**Hot spot position**
	

MEASUREMENT 7

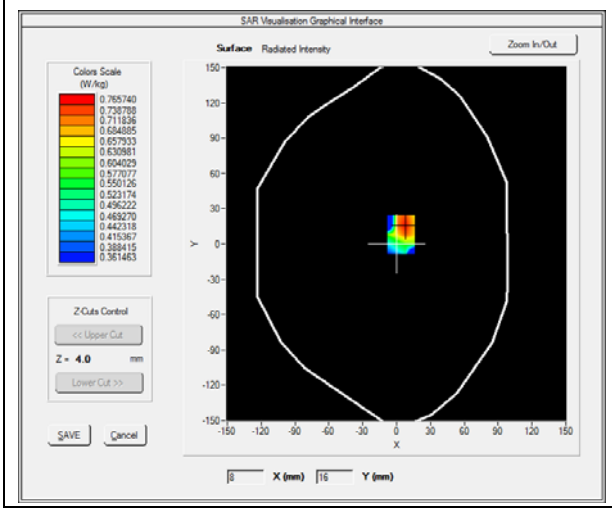
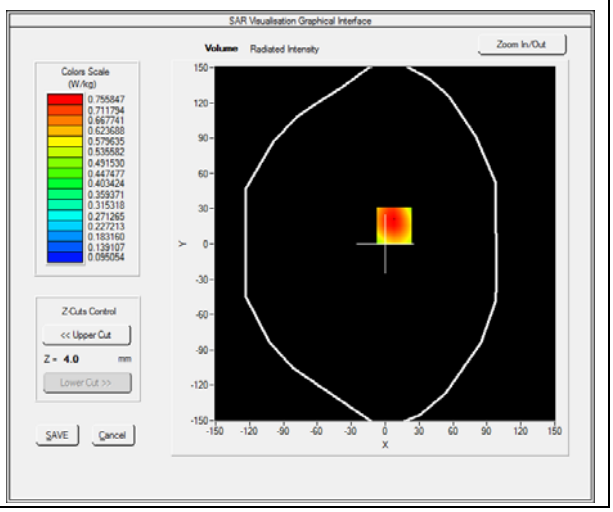
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Back
Band	GPRS850_2TX
Channels	Low
Signal	Duty Cycle 1:4

B. SAR Measurement Results

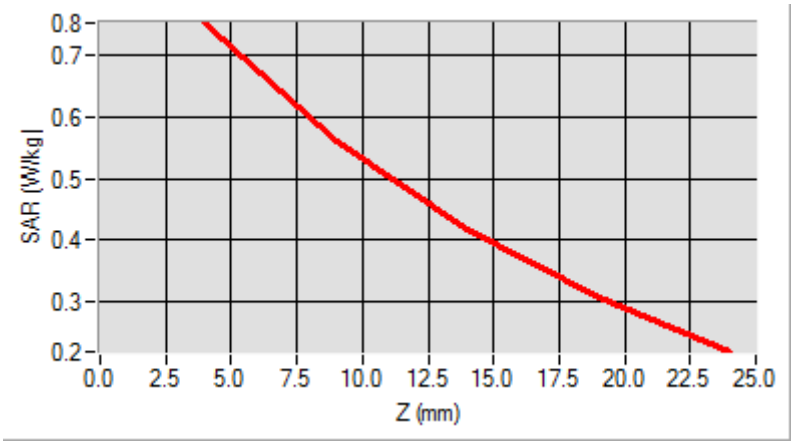
Frequency (MHz)	824.200012
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.976584
Ambient Temperature	21.1
Liquid Temperature	21.3

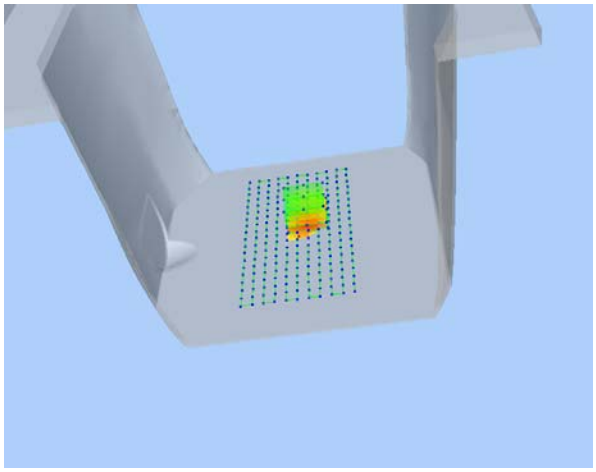
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=16.00

SAR 10g (W/Kg)	0.517144
SAR 1g (W/Kg)	0.724411

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.7516	0.5605	0.4158	0.3063



3D screen shot	Hot spot position
	

MEASUREMENT 8

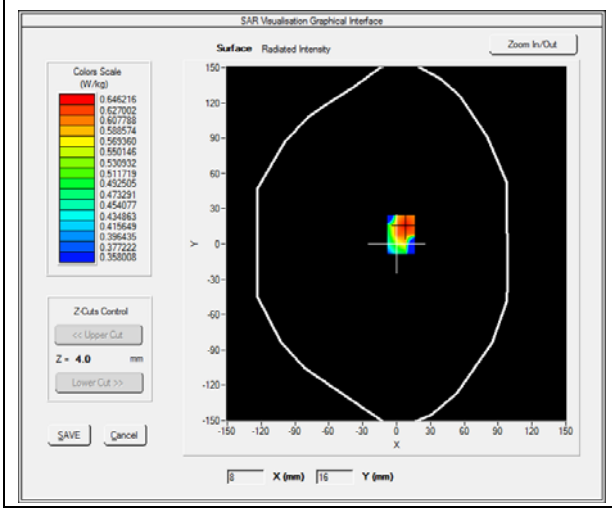
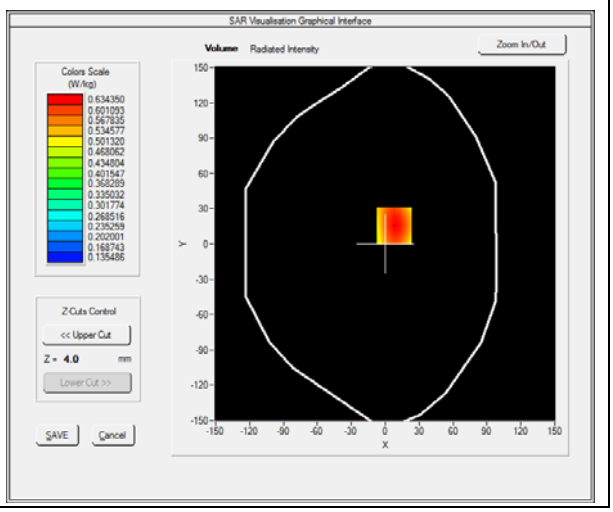
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Front
Band	GPRS850_2TX
Channels	Low
Signal	Duty Cycle 1:4

B. SAR Measurement Results

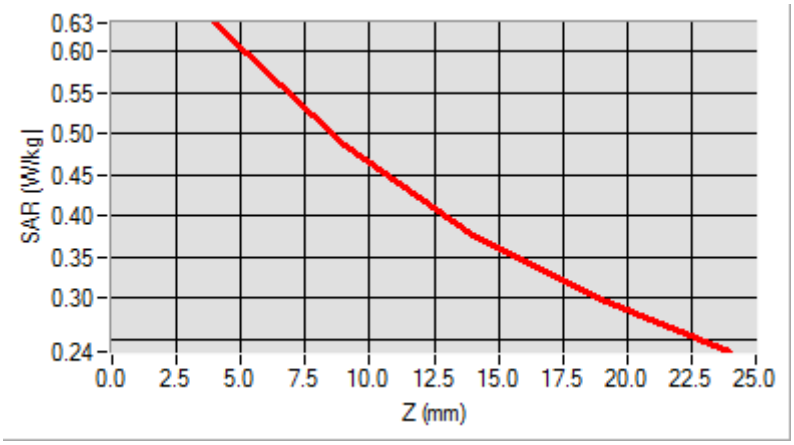
Frequency (MHz)	824.200012
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.546472
Ambient Temperature	21.1
Liquid Temperature	21.3

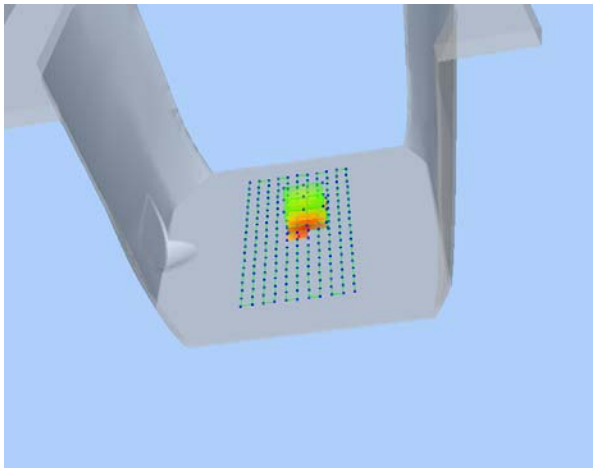
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=16.00

SAR 10g (W/Kg)	**0.451686**
SAR 1g (W/Kg)	**0.610423**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.6343**	**0.4857**	**0.3774**	**0.2982**



3D screen shot	**Hot spot position**
	

MEASUREMENT 9

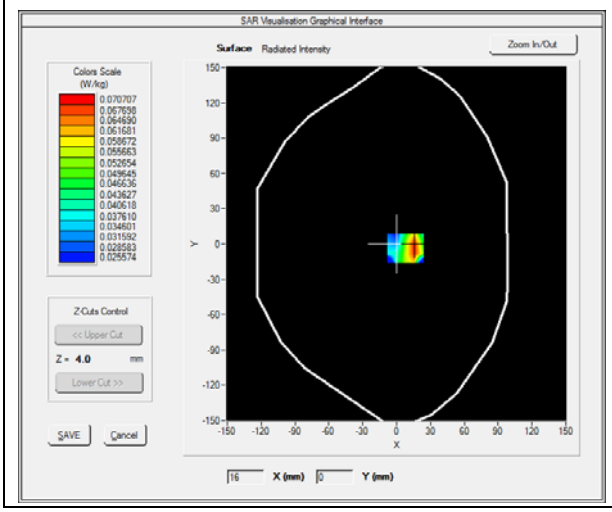
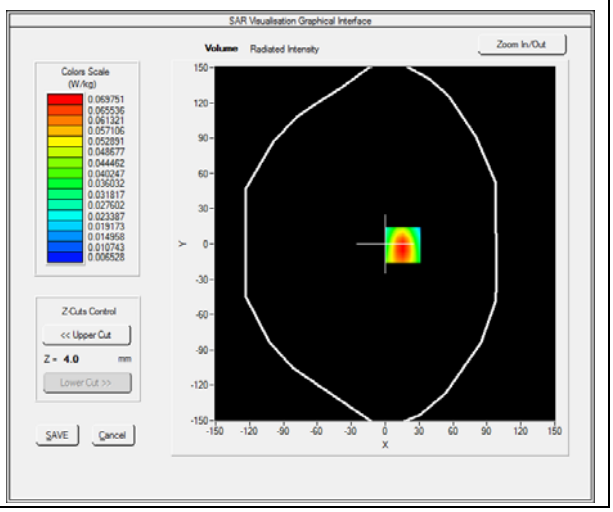
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Bottom
Band	GPRS850_2TX
Channels	Low
Signal	Duty Cycle 1:4

B. SAR Measurement Results

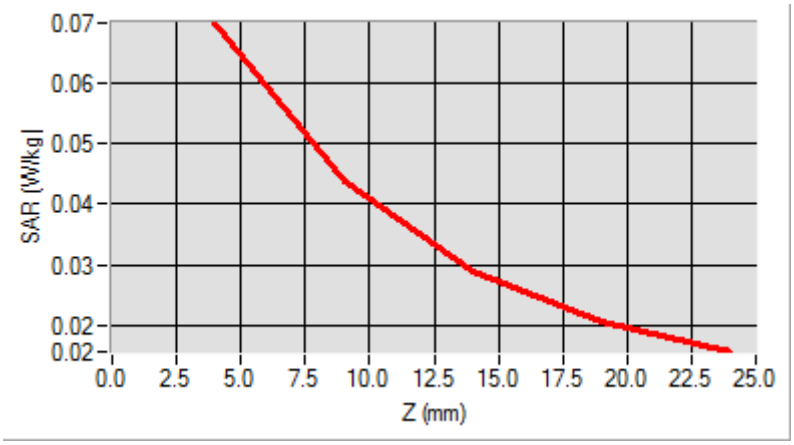
Frequency (MHz)	824.200012
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.687583
Ambient Temperature	21.1
Liquid Temperature	21.3

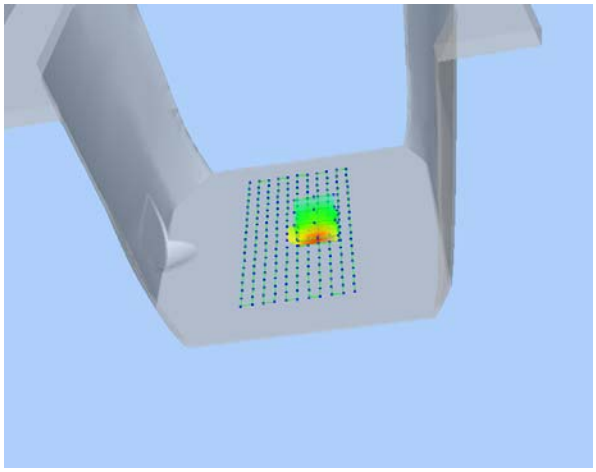
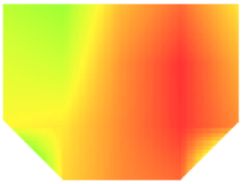
SURFACE SAR	VOLUME SAR
	

Maximum location: X=16.00, Y=-1.00

SAR 10g (W/Kg)	**0.040323**
SAR 1g (W/Kg)	**0.065085**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.0698**	**0.0437**	**0.0288**	**0.0208**



3D screen shot	**Hot spot position**
	

MEASUREMENT 10

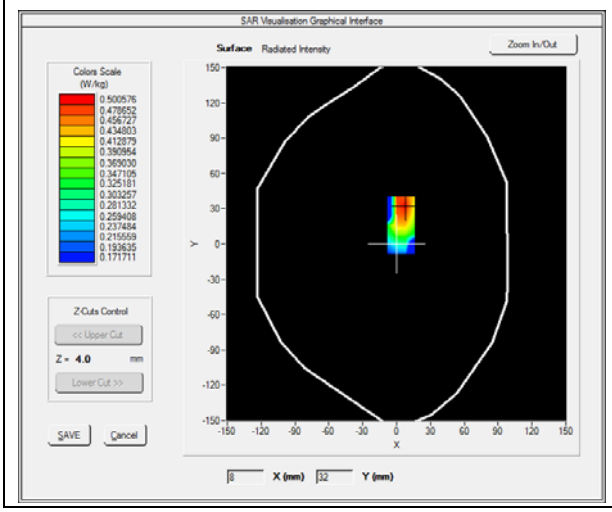
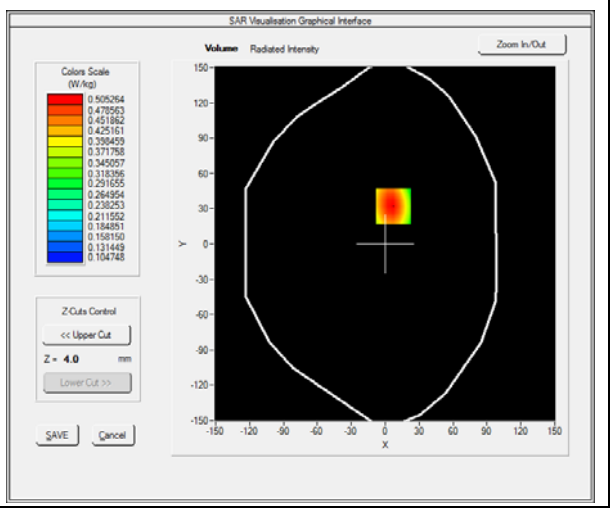
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Right side
Band	GPRS850_2TX
Channels	Low
Signal	Duty Cycle 1:4

B. SAR Measurement Results

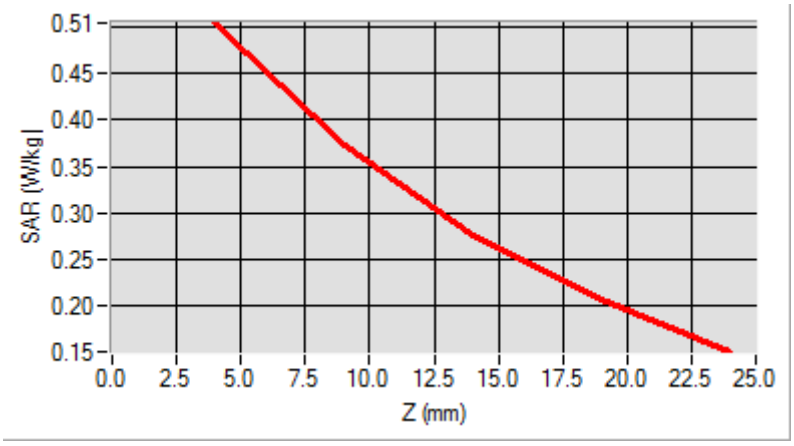
Frequency (MHz)	824.200012
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.856940
Ambient Temperature	21.1
Liquid Temperature	21.3

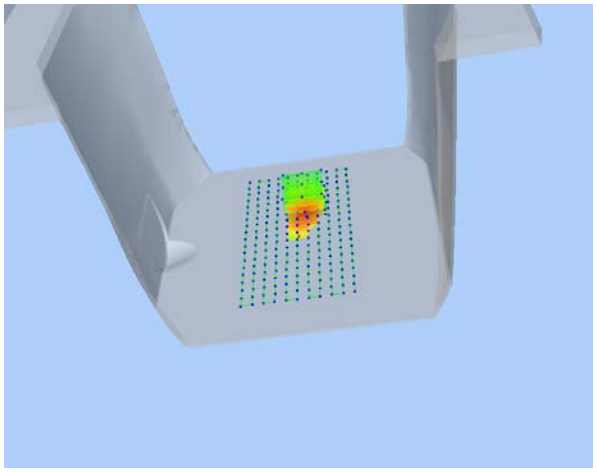
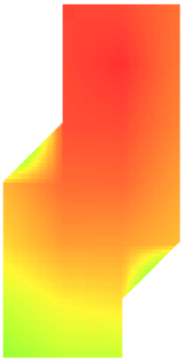
SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=32.00

SAR 10g (W/Kg)	**0.337414**
SAR 1g (W/Kg)	**0.481498**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.5053**	**0.3729**	**0.2760**	**0.2049**



3D screen shot	**Hot spot position**
	

MEASUREMENT 11

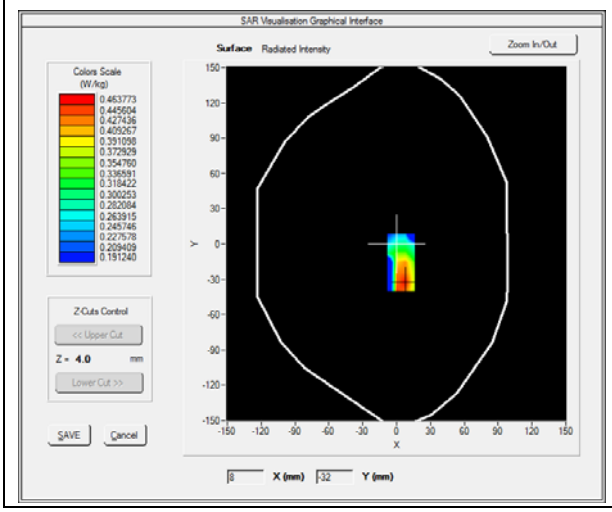
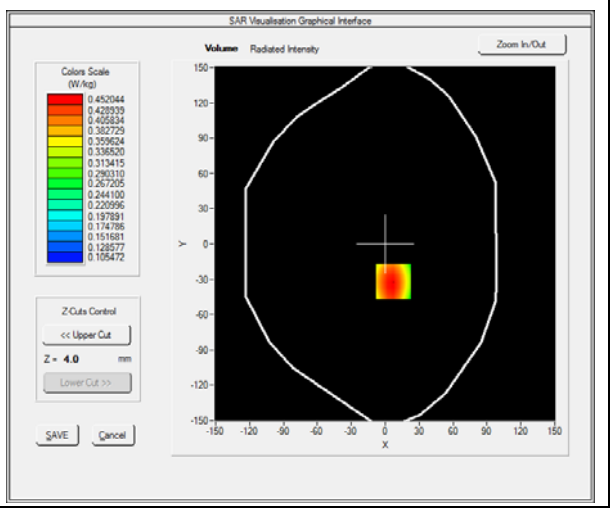
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Left side
Band	GPRS850_2TX
Channels	Low
Signal	Duty Cycle 1:4

B. SAR Measurement Results

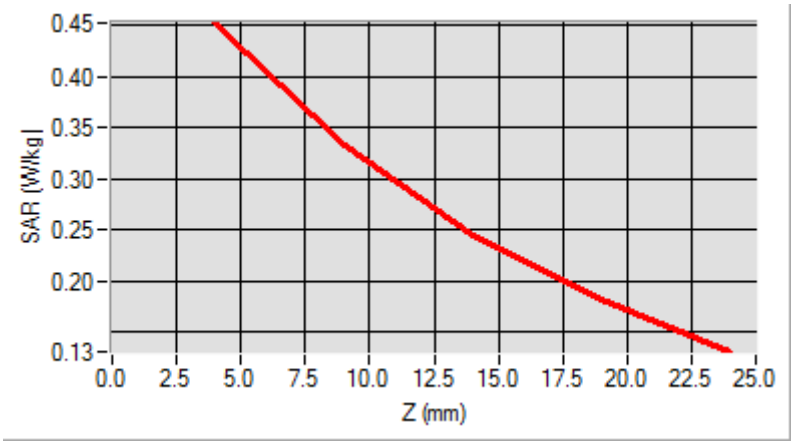
Frequency (MHz)	824.200012
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.794704
Ambient Temperature	21.1
Liquid Temperature	21.3

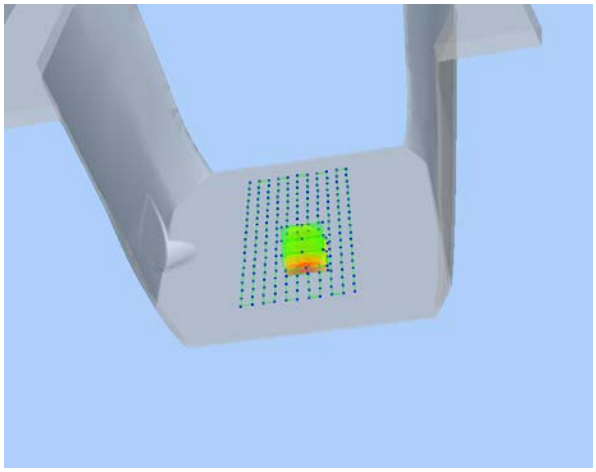
SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=-32.00

SAR 10g (W/Kg)	**0.303159**
SAR 1g (W/Kg)	**0.432546**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.4520**	**0.3328**	**0.2454**	**0.1813**



3D screen shot	**Hot spot position**
	

MEASUREMENT 12

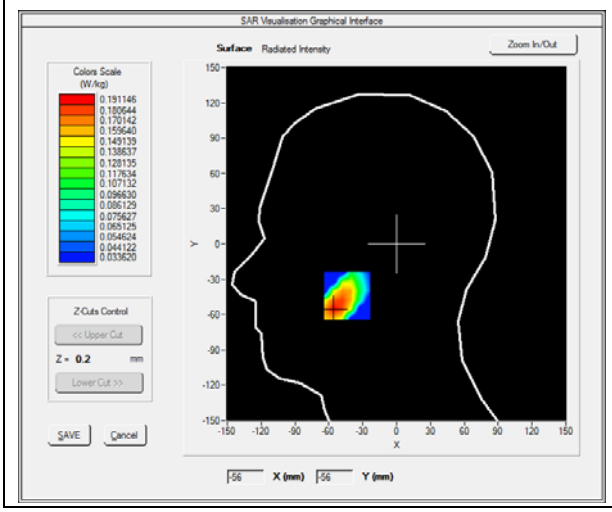
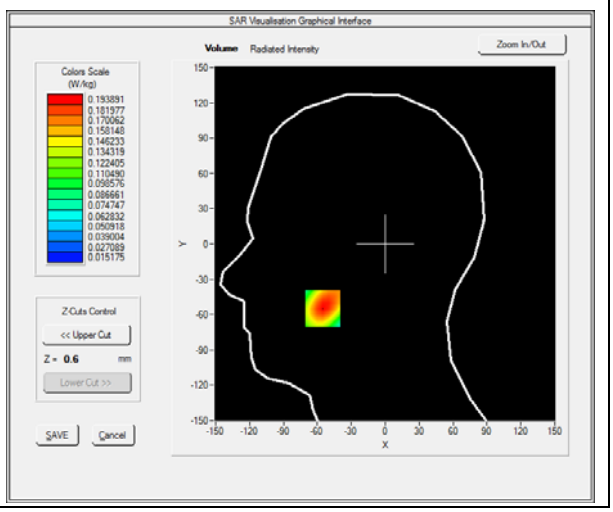
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

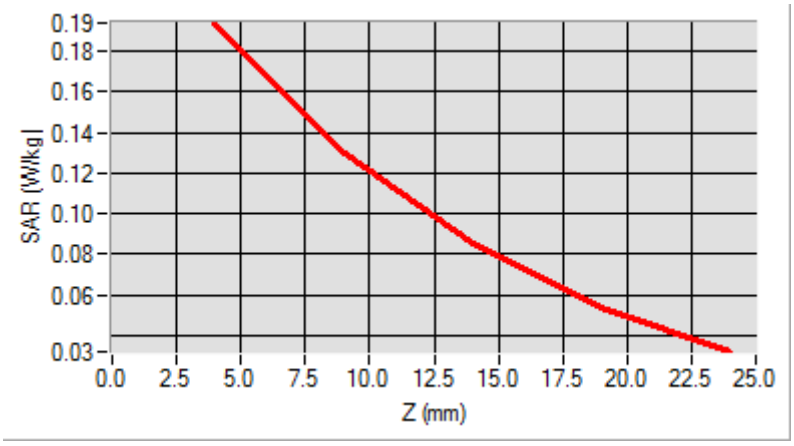
Frequency (MHz)	1909.800049
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.056837
Ambient Temperature	21.1
Liquid Temperature	21.3

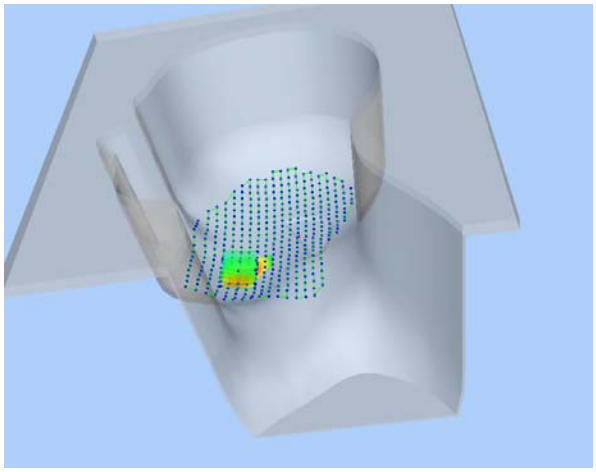
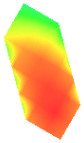
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-55.00, Y=-55.00

SAR 10g (W/Kg)	0.113301
SAR 1g (W/Kg)	0.182677

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.1939	0.1295	0.0847	0.0540



3D screen shot	Hot spot position
	

MEASUREMENT 13

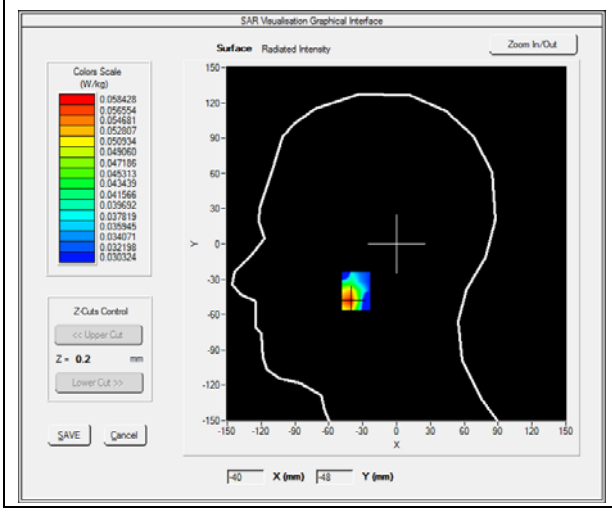
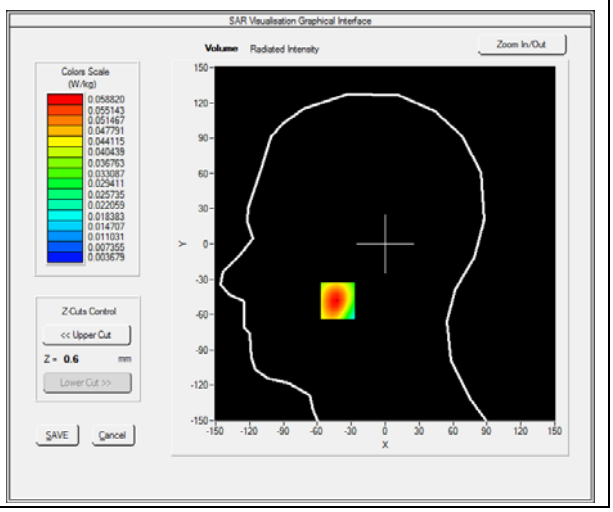
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Tilt
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

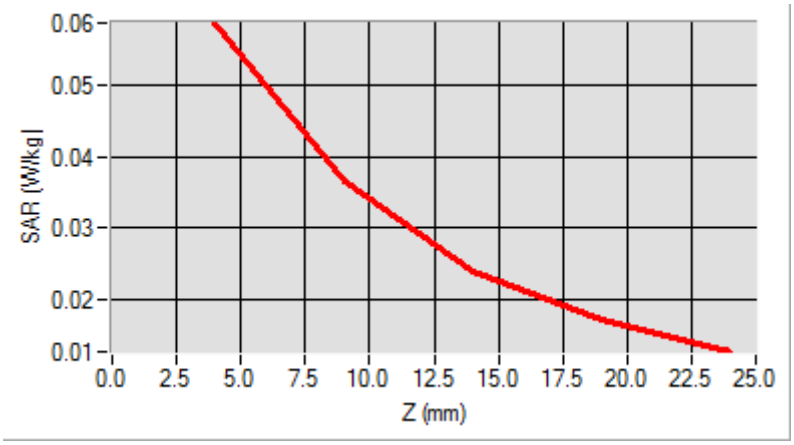
Frequency (MHz)	1909.800049
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.647693
Ambient Temperature	21.1
Liquid Temperature	21.3

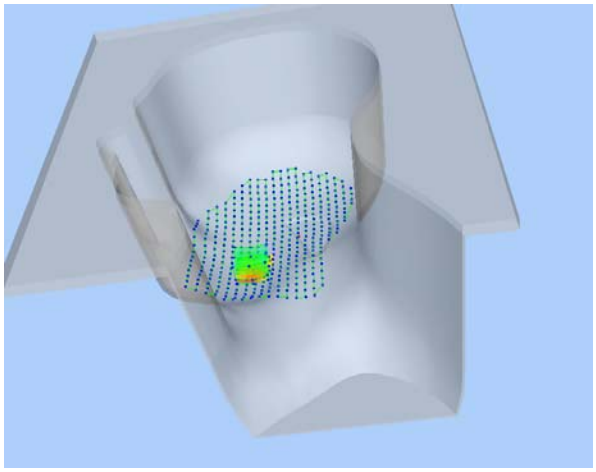
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-42.00, Y=-48.00

SAR 10g (W/Kg)	**0.034258**
SAR 1g (W/Kg)	**0.055446**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.0588**	**0.0366**	**0.0239**	**0.0170**



3D screen shot	**Hot spot position**
	

MEASUREMENT 14

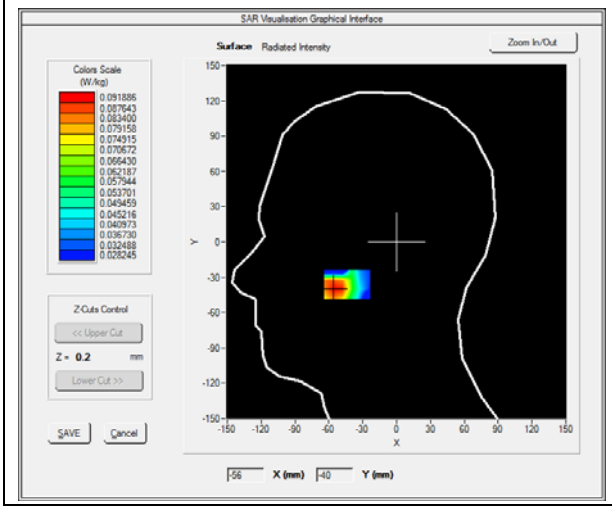
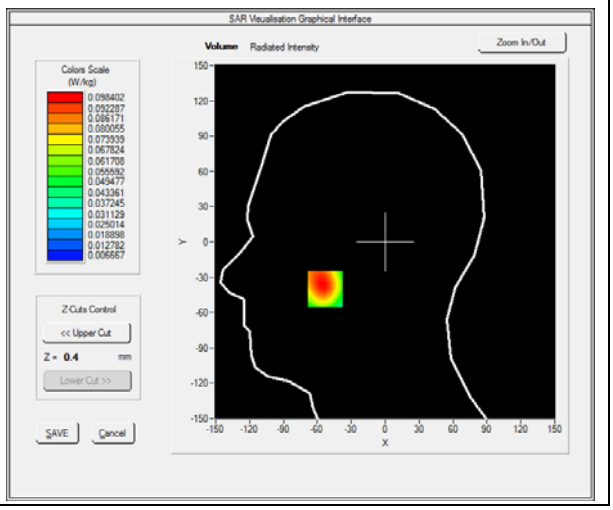
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 11 minutes 48 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

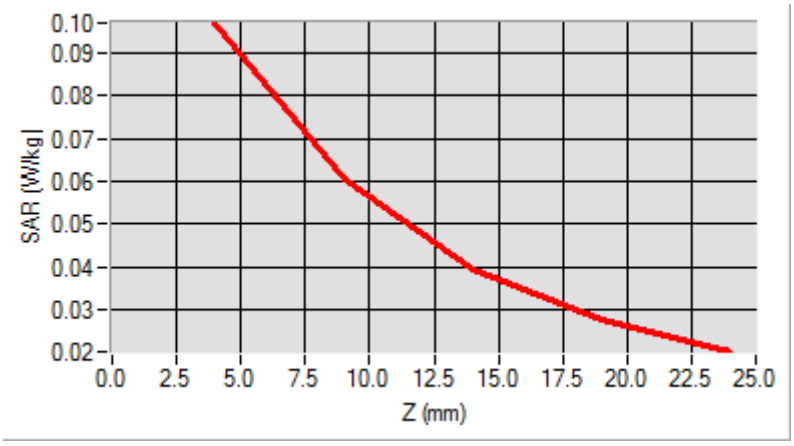
Frequency (MHz)	1909.800049
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.758498
Ambient Temperature	21.1
Liquid Temperature	21.3

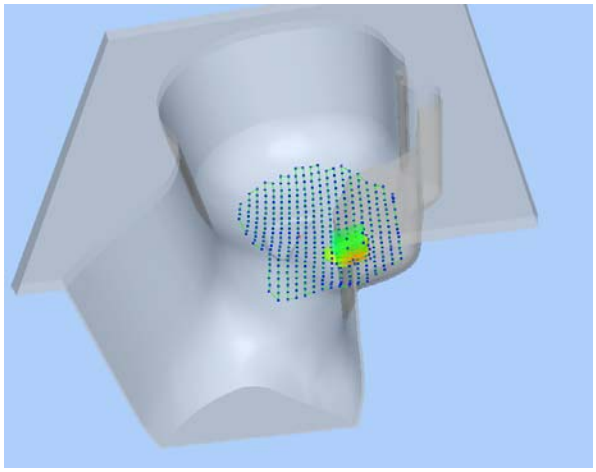
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-53.00, Y=-40.00

SAR 10g (W/Kg)	0.059216
SAR 1g (W/Kg)	0.093969

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.0970	0.0604	0.0393	0.0277



3D screen shot	Hot spot position
	

MEASUREMENT 15

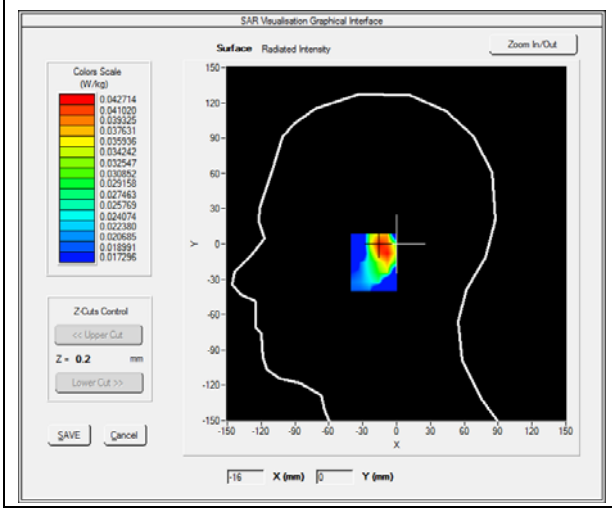
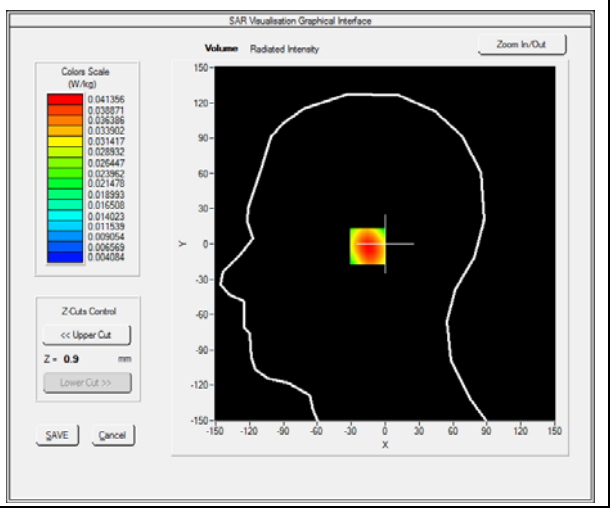
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Tilt
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

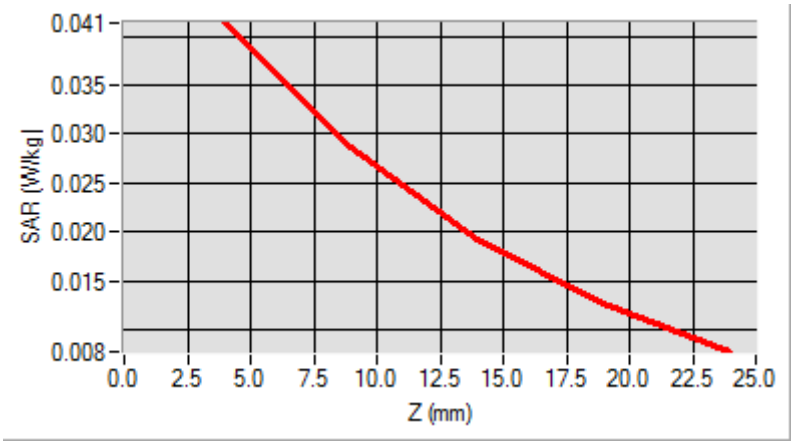
Frequency (MHz)	1909.800049
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.054274
Ambient Temperature	21.1
Liquid Temperature	21.3

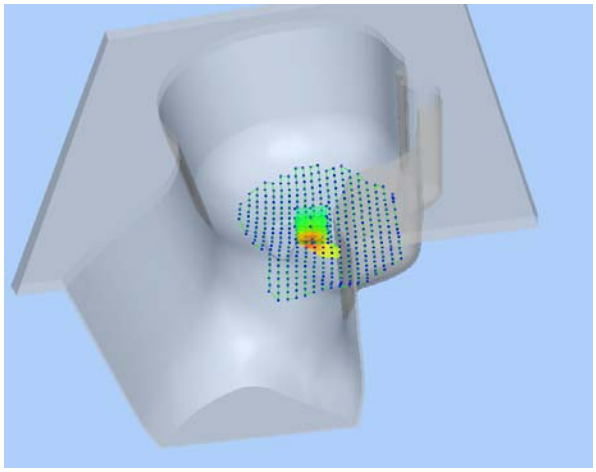
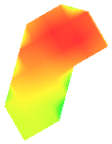
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-14.00, Y=-2.00

SAR 10g (W/Kg)	**0.025266**
SAR 1g (W/Kg)	**0.039145**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0000**	**0.0414**	**0.0286**	**0.0193**	**0.0127**



3D screen shot	**Hot spot position**
	

MEASUREMENT 16

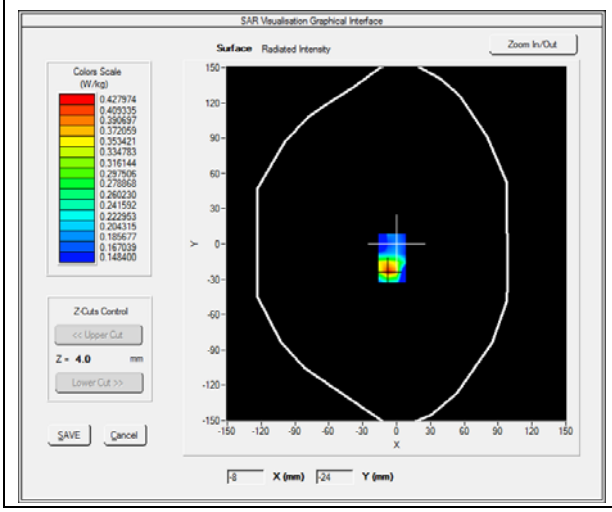
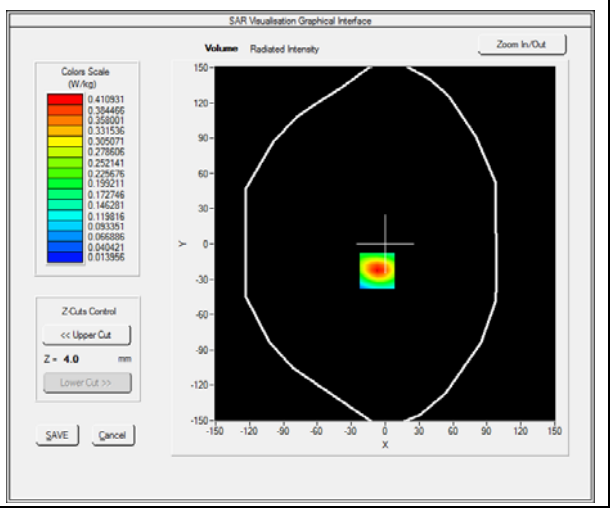
Type: Phone measurement (Complete)
Date of measurement: 08/24/2015
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/03/2015

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back(Body-worn)
Band	GSM1900
Channels	High
Signal	TDMA (Crest factor: 8.0)

B. SAR Measurement Results

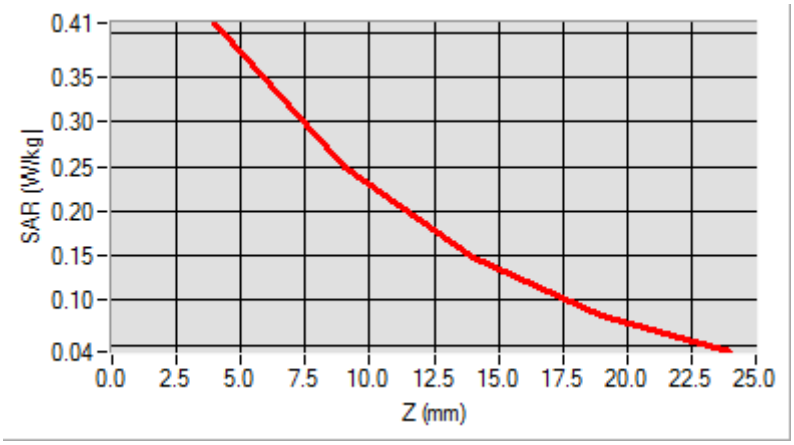
Frequency (MHz)	1909.800049
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	0.527467
Ambient Temperature	21.1
Liquid Temperature	21.3

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-7.00, Y=-23.00

SAR 10g (W/Kg)	0.233786
SAR 1g (W/Kg)	0.438938

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0000	0.4109	0.2496	0.1472	0.0838



3D screen shot	Hot spot position