FCC SAR
Measurement and Test Report

For

Cyrus Technology GmbH

Hergelsbendenstrasse 49, 52080 Aachen, Germany

FCC ID: 2AI3KCM17SA

Test Standards:	FCC Part 2.1093 ANSI / IEEE C95.1 ::2005+A1:2010 ANSI / IEEE C95.3 : 2002(R2008) IEEE 1528 :2013
Product Description:	Rugged Phone
Tested Model:	CM17SA
Report No.:	STR18018050H
Sample Received Date:	2018-01-15
Tested Date:	2018-01-15 to 2018-01-31
Issued Date:	2018-01-31
Tested By:	Lucy Wei / Engineer
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM. Test Technology Co., Ltd.

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1. General Information

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Cyrus Technology GmbH
Address of applicant:	Hergelsbendenstrasse 49, 52080 Aachen, Germany
Manufacturer:	Cyrus Technology GmbH
Address of manufacturer:	Hergelsbendenstrasse 49, 52080 Aachen, Germany

General Description of EUT:	
Product Name:	Rugged Phone
Brand Name:	CYRUS
Model No.:	CM17SA
Adding Model(s):	/
Rated Voltage:	DC 3.8V by Battery
Battery Capacity:	2500mAh
Device Category:	Portable Device
The EUT Main board support GSM850/ PCS1900, WCDMA Band 2/5, LTE Band 2/4/7/13/17 function. It is intended for speech, Multimedia Message Service (MMS) transmission. It is equipped with GPRS/EDGE class 12 for GSM850/900/DCS1800/PCS1900, GPS, FM, Bluetooth, NFC and Wi-Fi 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/EDGE 850: 824~849MHz GSM/GPRS/EDGE 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS/EDGE 850: 869~894MHz GSM/GPRS/EDGE 1900: 1930~1990MHz
RF Output Power:	GSM850: 31.10dBm, GSM1900: 28.61dBm EDGE850: 26.02dBm, EDGE1900: 24.34dBm
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: -0.96dBi; GSM1900: -0.66dBi
GPRS/EDGE Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 5
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 22.28dBm, WCDMA Band 5: 22.93dBm
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: -0.66dBi, WCDMA Band 5: -0.96dBi
4G	
Support Networks:	FDD-LTE
Support Band:	FDD-LTE Band 2, 4, 7,13,17
Uplink Frequency:	FDD-LTE Band 2: Tx: 1850-1910MHz, FDD-LTE Band 4: Tx: 1710-1755MHz, FDD-LTE Band 7: Tx: 2500-2570MHz, FDD-LTE Band 13: Tx: 777-787MHz, FDD-LTE Band 17: Tx: 704-716MHz,
Downlink Frequency:	FDD-LTE Band 2: Rx: 1930-1990MHz, FDD-LTE Band 4: Rx: 2110-2155MHz, FDD-LTE Band 7: Rx: 2620-2690MHz, FDD-LTE Band 13: Tx:746-756MHz, FDD-LTE Band 17: Tx: 734-746MHz,
RF Output Power:	FDD-LTE Band 2: 24.13dBm, FDD-LTE Band 4: 22.55dBm,

	FDD-LTE Band 7: 23.57dBm, FDD-LTE Band 13: 22.92dBm, FDD-LTE Band 17: 24.41dBm
Type of Modulation:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 2: -0.66dBi, FDD-LTE Band 4: -0.77dBi, FDD-LTE Band 7: -0.56dBi,FDD-LTE Band 13: -1.28dBi, FDD-LTE Band 17: -1.34dBi
WIFI	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
RF Output Power:	15.35dBm (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) 7 for 802.11n(HT40)
Channel Separation:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	-1.78dBi
Bluetooth	
Bluetooth Version:	V4.0
Frequency Range:	2402-2480MHz
RF Output Power:	5.439dBm (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:	-1.78dBi
NFC	
Support Standards:	NFC
Frequency Range:	13.56MHz
Max. Field Strength:	55.55dBuV/m (at 3m)/ -51.45dBm
Antenna Type:	Integral Antenna
Device Category:	Portable Device

1.2 Test Standards

The following report is prepared on behalf of the Cyrus Technology GmbH in accordance with FCC 47 CFR Part 2.1093, ANSI/IEEE C95.1-2005, ANSI / IEEE C95.3 :2002, IEEE 1528-2013, KDB 447498 D01 v06, KDB 648474 D04 v01r03, KDB 248227 D01 v02r02, KDB 941225 D01 v03r01, KDB 941225 D05 v02r05 ,KDB 941225 D06 v02r01, 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.: 125990

Shenzhen SEM Test Technology Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration Of Conformity (DOC). The Designation Number is CN5010, and Test Firm Registration Number is 125990.

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.

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	0.497	**1.409**	**1.409**	1.6
GSM1900	0.524	0.479	0.479	1.6
WCDMA Band 2	0.418	0.454	0.454	1.6
WCDMA Band 5	0.397	0.647	0.647	1.6
FDD-LTE 2	**0.718**	0.642	0.642	1.6
FDD-LTE 4	0.192	0.277	0.277	1.6
FDD-LTE 7	0.070	0.788	0.788	1.6
FDD-LTE 13	0.370	1.015	1.015	1.6
FDD-LTE 17	0.162	0.196	0.464	1.6
WLAN 2.4G	0.118	0.045	0.045	1.6
Simultaneous Transmission	0.884	1.492	**1.492**	1.6

Front-of the face SAR (25mm Gap)

Frequency Band	Maximum SAR_{1g} (W/kg)	SAR_{1g} Limit (W/kg)
GSM850	**0.399**	1.6
GSM1900	0.150	1.6

Remark:

The highest reported SAR values for head, body-worn accessory, wireless router(hotspot), front-of the face, and simultaneous transmission conditions are ***0.718W/kg, 1.409W/kg , 1.409W/kg, 0.399W/kg and 1.492W/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.

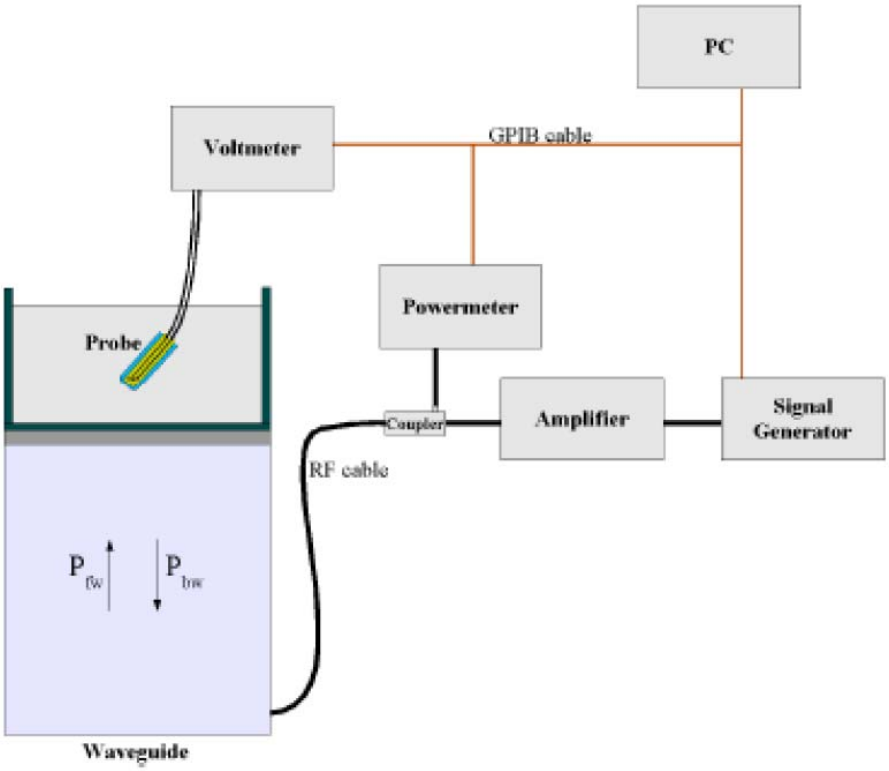
4.2 Probe

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.



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

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:

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

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

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

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.

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

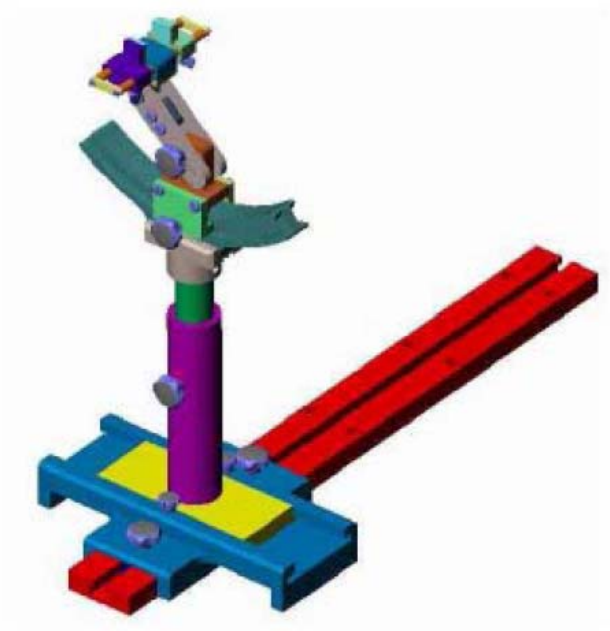
Where:
σ = simulated tissue conductivity,
ρ = Tissue density (1.25 g/cm3 for brain tissue)

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

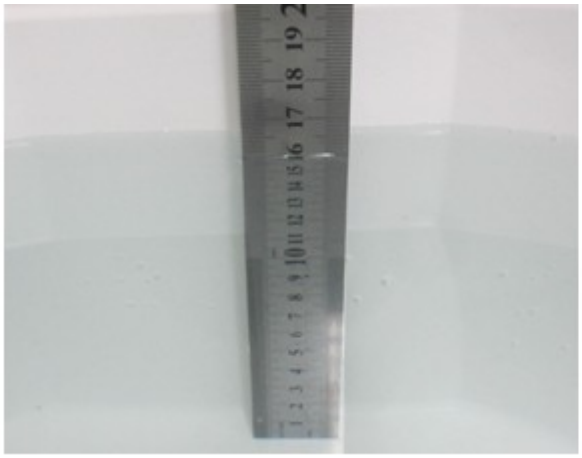
4.6 Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
E-Field Probe	MVG	SSE5	SN 09/13 EP168	2017-06-01	2018-05-31
750MHz Dipole	MVG	SID750	SN 47/12 DIP 0G750-203	2017-03-16	2018-03-15
835MHz Dipole	MVG	SID835	SN 47/12 DIP 0G835-204	2017-03-16	2018-03-15
1800MHz Dipole	MVG	SID1800	SN 47/12 DIP 1G800-206	2017-03-16	2018-03-15
1900MHz Dipole	MVG	SID1900	SN 47/12 DIP 1G900-207	2017-03-16	2018-03-15
2450MHz Dipole	MVG	SID2450	SN 13/15 DIP 2G450-364	2017-03-16	2018-03-15
2600MHz Dipole	MVG	SID2600	SN 13/15 DIP 2G600-365	2017-03-16	2018-03-15
Dielectric Probe Kit	MVG	SCLMP	SN 47/12 OCPG49	2017-03-16	2018-03-15
SAM Phantom	MVG	SAM	SN/ 47/12 SAM95	N/A	N/A
MULTIMETER	KEITHLEY	Keithley 2000	4006367	2017-06-12	2018-06-11
Signal Generator	Rohde & Schwarz	SMR20	100047	2017-06-12	2018-06-11
Universal Tester	Rohde & Schwarz	CMU200	112012	2017-06-12	2018-06-11
Network Analyzer	HP	8753C	2901A00831	2017-06-12	2018-06-11
Directional Couplers	Agilent	778D	20160	2017-06-12	2018-06-11

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 (%)	Sugar (%)	HEC (%)	Preventol (%)	DGBE (%)
Head						
750	41.1	1.4	57.0	0.2	0.3	0
835	40.3	1.4	57.9	0.2	0.2	0
1700-1900	55.2	0.3	0	0	0	44.5
2450	55.0	0.1	0	0	0	44.9
2600	54.9	0.1	0	0	0	45.0
Body						
750	50.0	0.8	48.8	0.2	0.2	0
835	50.8	0.9	48.1	0.1	0.1	0
1700-1900	70.2	0.4	0	0	0	29.4
2450	68.6	0.1	0	0	0	31.3
2600	68.2	0.1	0	0	0	31.7

5.2 Tissue Dielectric Parameters for Head and Body Phantoms

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

Target Frequency (MHz)	Head		Body	
	Conductivity (σ)	Permittivity (ε_r)	Conductivity (σ)	Permittivity (ε_r)
150	0.76	52.3	0.80	61.9
300	0.87	45.3	0.92	58.2
450	0.87	43.5	0.94	56.7
750	**0.89**	**41.9**	**0.96**	**55.5**
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
1750	**1.37**	**40.1**	**1.49**	**53.4**
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 (%)		
750	21.2	0.86	0.89	-3.37	41.32	41.90	-1.38	±5	2018-01-15
835	21.2	0.87	0.90	-3.33	41.11	41.50	-0.94	±5	2018-01-15
1750	21.3	1.37	1.37	0.00	39.02	40.1	-2.69	±5	2018-01-16
1800	21.3	1.37	1.40	-2.14	39.02	40.0	-2.45	±5	2018-01-16
1900	21.3	1.38	1.40	-1.43	38.56	40.00	-3.60	±5	2018-01-16
2450	21.3	1.74	1.80	-3.33	38.15	39.20	-2.68	±5	2018-01-17
2600	21.3	1.93	1.96	-1.53	38.63	39.0	-0.95	±5	2018-01-17

Body Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
750	21.2	0.93	0.96	-3.12	54.96	55.50	-0.97	±5	2018-01-15
835	21.2	0.95	0.97	-2.06	54.85	55.20	-0.63	±5	2018-01-15
1750	21.3	1.46	1.49	-2.01	51.22	53.40	-4.08	±5	2018-01-16
1800	21.3	1.46	1.52	-3.95	51.22	53.30	-3.90	±5	2018-01-16
1900	21.3	1.50	1.52	-1.32	52.42	53.30	-1.65	±5	2018-01-16
2450	21.3	1.91	1.95	-2.05	52.01	52.70	-1.31	±5	2018-01-17
2600	21.3	2.12	2.16	-1.85	52.24	52.50	-0.50	±5	2018-01-17

Head Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
835	21.2	0.88	0.90	-2.22	41.17	41.50	-0.80	±5	2018-01-31
1900	21.3	1.36	1.40	-2.86	38.53	40.00	-3.68	±5	2018-01-31

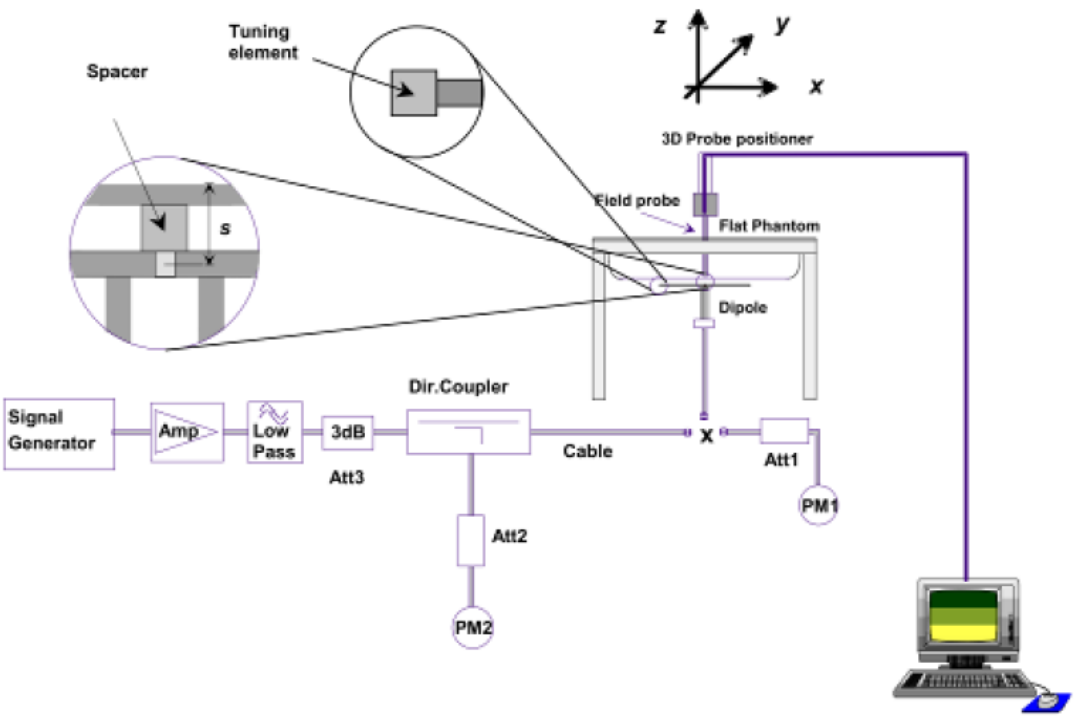
6. SAR Measurement Evaluation

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 24 dBm(250 mW) before dipole is connected.

6.3 Validation Results

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

Frequency MHz	Targeted SAR_{1g} (W/kg)	Measured SAR_{1g} (W/kg)	Normalized SAR_{1g} (W/kg)	Tolerance (%)	Date
Head					
750	8.40	2.16	8.64	2.86	2018-01-15
835	9.65	2.41	9.64	-0.10	2018-01-15
1800	38.49	9.61	38.44	-0.13	2018-01-16
1900	39.59	9.91	39.64	0.13	2018-01-16
2450	53.76	13.45	53.8	0.07	2018-01-17
2600	55.07	13.67	54.68	-0.71	2018-01-17
Body					
750	8.40	2.12	8.48	0.95	2018-01-15
835	9.36	2.35	9.4	0.43	2018-01-15
1800	38.29	9.58	38.32	0.08	2018-01-16
1900	39.01	9.78	39.12	0.28	2018-01-16
2450	50.33	12.59	50.36	0.06	2018-01-17
2600	53.92	13.43	53.72	-0.37	2018-01-17

Remark: Referring to IEEE 1528-2013, Section 8.2, The system check shall be performed at a test frequency that

is within ±10% or ±100 MHz of the compliance test mid-band frequency, so the 1750 MHz system verification is made of 1800MHz Dipole.

Frequency	Targeted SAR_{1g}	Measured SAR_{1g}	Normalized SAR_{1g}	Tolerance	Date
MHz	(W/kg)	(W/kg)	(W/kg)	(%)	
Head					
835	9.65	2.43	9.72	0.73	2018-01-31
1900	39.59	9.98	39.92	0.83	2018-01-31

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.

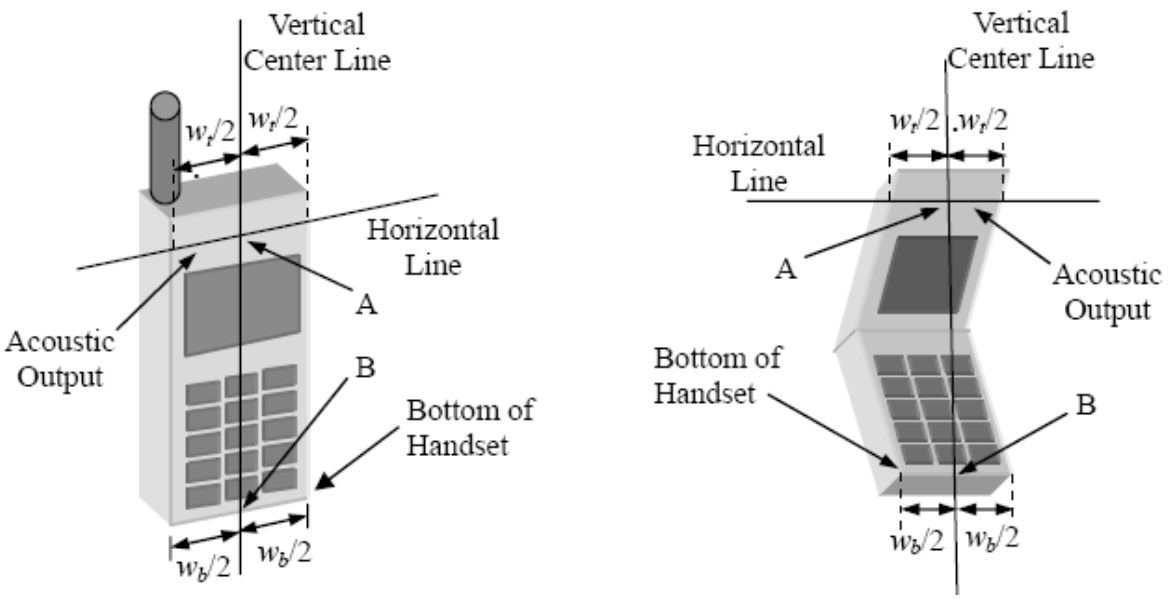


Illustration for Handset Vertical and Horizontal Reference Lines

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).

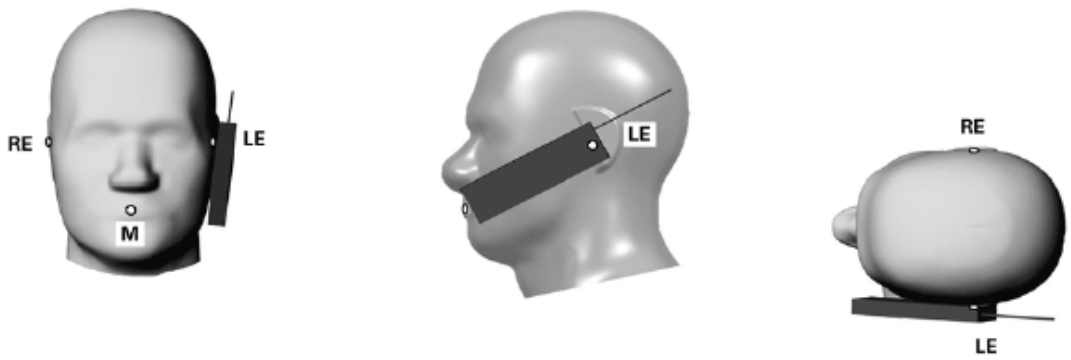


Illustration for Cheek Position

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).

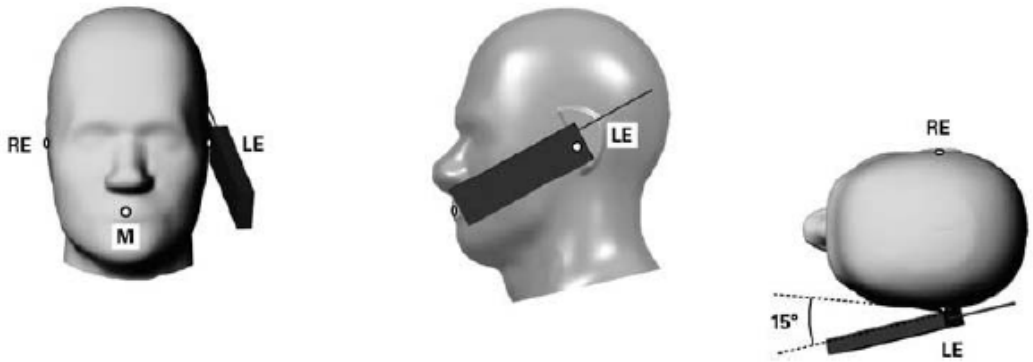


Illustration for Tilted Position

7.4 Body Worn Position

(a) To position the device parallel to the phantom surface with either keypad up or down.
(b) To adjust the device parallel to the flat phantom.
(c) To adjust the distance between the device surface and the flat phantom to 10mm.

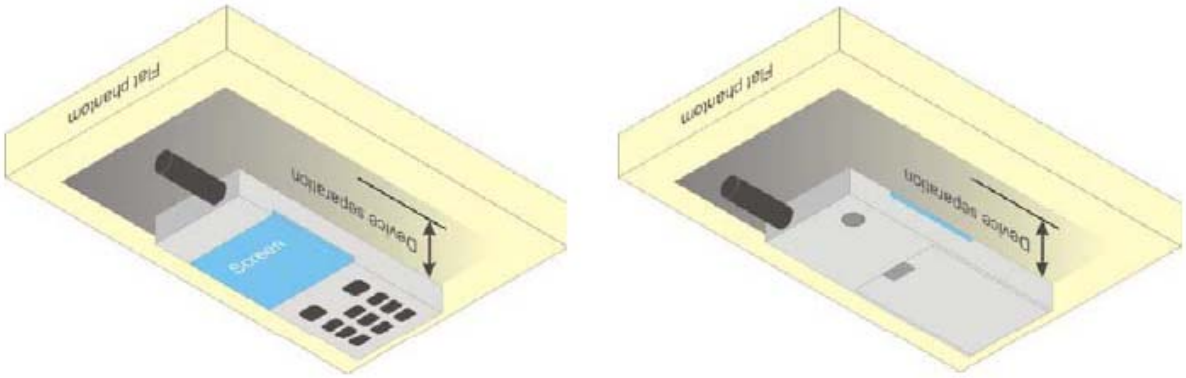
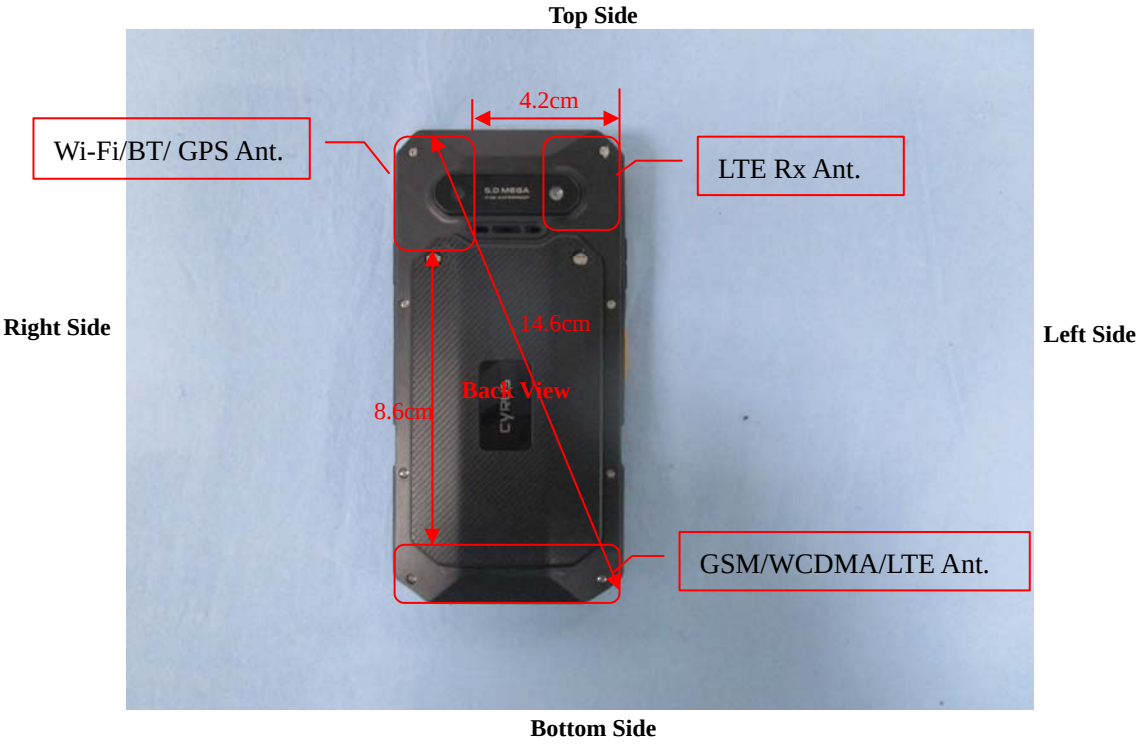


Illustration for Body Worn Position

7.5 EUT Antenna Position



Block Diagram for EUT Antenna Position

7.6 EUT Testing Position

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

Head SAR tests				
Antennas	**Right Cheek**	**Left Cheek**	**Right Tilted**	**Left Tilted**
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		
Antennas	**Front**	**Back**
WWAN	Yes	Yes
WLAN	Yes	Yes

Front-of the face SAR tests	
Antennas	**Front**
WWAN	Yes

Remark:

1. Referring to KDB 941225 D06, when the overall device length and width are >= 9cm*5cm, the test separation distances is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.

2. This generally does not apply to cellphones with PTT options that have already been tested in more conservative configurations in applicable wireless modes for SAR compliance at 100% duty factor.

3. The EUT supports PTT function only through GPRS/EDGE network function. With PTT mode, a test separation distance of 25 mm is used for in-front-of the face SAR.

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 D 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**			**Tune-up power (dBm)**	**PCS1900**			**Tune-up power (dBm)**
Channel	**128**	**190**	**251**		**512**	**661**	**810**	
Frequency (MHz)	**824.2**	**836.6**	**848.8**		**1850.2**	**1880**	**1909.8**	
GSM	31.10	31.04	31.01	31.5	28.24	28.35	28.57	29.0
GPRS (1 slot)	31.06	31.02	30.97	31.5	28.25	28.35	28.61	29.0
GPRS (2 slots)	30.56	30.5	30.44	31.0	27.52	27.6	27.82	28.0
GPRS (3 slots)	29.02	29	28.97	29.5	25.78	25.89	26.16	26.5
GPRS (4 slots)	27.92	27.87	27.84	28.5	24.68	24.86	25.11	25.5
EDGE (1 slot)	26.02	25.75	25.38	26.5	24.34	23.59	22.24	24.5
EDGE (2 slots)	25.23	24.93	24.53	25.5	23.46	22.68	21.27	24.0
EDGE (3 slots)	23.45	23.13	22.71	24.0	21.27	20.41	18.98	21.5
EDGE (4 slots)	22.46	22.16	21.76	23.0	20.09	19.25	17.74	20.5

GSM - Source-Based Time-Average Power (dBm)								
Band	**GSM850**			**Tune-up power (dBm)**	**PCS1900**			**Tune-up power (dBm)**
Channel	**128**	**190**	**251**		**512**	**661**	**810**	
Frequency (MHz)	**824.2**	**836.6**	**848.8**		**1850.2**	**1880**	**1909.8**	
GSM	22.10	22.04	22.01	22.5	19.24	19.35	19.57	20.0
GPRS (1 slot)	22.06	22.02	21.97	22.5	19.25	19.35	19.61	20.0
GPRS (2 slots)	24.56	24.50	24.44	25.0	21.52	21.60	21.82	22.0
GPRS (3 slots)	24.77	24.75	24.72	25.0	21.53	21.64	21.91	22.5
GPRS (4 slots)	24.92	24.87	24.84	25.5	21.68	21.86	22.11	22.5
EDGE (1 slot)	17.02	16.75	16.38	17.5	15.34	14.59	13.24	15.5
EDGE (2 slots)	19.23	18.93	18.53	19.5	17.46	16.68	15.27	18.0
EDGE (3 slots)	19.20	18.88	18.46	19.5	17.02	16.16	14.73	17.5
EDGE (4 slots)	19.46	19.16	18.76	20.0	17.09	16.25	14.74	17.5
Note: The source-based time-averaged power is linearly scaled the maximum burst averaged power based on time slots. The calculated method are shown as below: Source based time-average power = Burst averaged power - Duty cycle factor in dB Duty cycle factor = 9 dB for 1 Tx slot, 6 dB for 2 Tx slots, 4.25 dB for 3 Tx slots, 3 dB for 4 Tx slots								

Remark:

1. For Head SAR testing, GSM and GPRS (4TX slots) should be evaluated, therefore the EUT was set in GSM and GPRS (4TX slots) 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 (4TX slots) for GSM850 and 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.
5. This device supports VOIP capability through 3rd party apps software.

WCDMA - Average Power (dBm)								
Band	**WCDMA Band II**				**WCDMA Band V**			
Channel	**9262**	**9400**	**9538**	**Tune-up power (dBm)**	**4132**	**4182**	**4233**	**Tune-up power (dBm)**
Frequency (MHz)	**1852.4**	**1880.0**	**1907.6**		**826.4**	**836.6**	**846.6**	
RMC 12.2k	22.16	22.23	22.28	22.5	22.85	22.93	22.93	23.5
HSDPA Subtest-1	21.49	21.44	21.66	22.0	21.92	21.99	21.96	22.5
HSDPA Subtest-2	21.48	21.42	21.65	22.0	21.91	21.98	21.95	22.5
HSDPA Subtest-3	21.47	21.41	21.63	22.0	21.90	21.97	21.94	22.5
HSDPA Subtest-4	21.46	21.41	21.62	22.0	21.89	21.96	21.93	22.5
HSUPA Subtest-1	21.23	21.05	21.54	22.0	21.65	21.54	21.75	22.5
HSUPA Subtest-2	21.21	21.03	21.52	22.0	21.63	21.53	21.73	22.5
HSUPA Subtest-3	21.2	21.02	21.52	22.0	21.62	21.52	21.74	22.5
HSUPA Subtest-4	21.2	21.04	21.52	22.0	21.63	21.53	21.74	22.5
HSUPA Subtest-5	21.21	21.01	21.51	22.0	21.64	21.51	21.74	22.5

Remark:

1. For Head SAR, per KDB 941225 D01 v03, RMC 12.2kbps setting is used to evaluate SAR. If AMR 12.2kbps power is < 1/4 dB higher than RMC, SAR tests with AMR 12.2kbps can be excluded.
2. For Body SAR, per KDB 941225 D01 v03, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA subset-1 output power is < 1/4 dB higher than RMC, and SAR with RMC 12.2kbps setting is ≦1.2W/kg, HSDPA SAR evaluation can be excluded

FDD-LTE Band 2:

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.59	0
		1	3	21.63	0
		1	5	21.57	0
		3	0	21.63	0
		3	2	21.60	0
		3	3	21.61	0
		6	0	20.64	1
	MCH	1	0	22.88	0
		1	3	22.86	0
		1	5	23.02	0
		3	0	22.76	0
		3	2	22.77	0
		3	3	22.82	0
		6	0	21.96	1
	HCH	1	0	23.93	0
		1	3	23.96	0
		1	5	23.92	0
		3	0	22.76	0
		3	2	22.23	0
		3	3	23.18	0
		6	0	22.95	1
16QAM	LCH	1	0	20.72	1
		1	3	20.86	1
		1	5	20.72	1
		3	0	20.73	1
		3	2	20.66	1
		3	3	20.67	1
		6	0	20.55	2
	MCH	1	0	22.23	1
		1	3	22.27	1
		1	5	22.30	1
		3	0	21.81	1
		3	2	21.88	1
		3	3	21.95	1
		6	0	21.01	2
	HCH	1	0	23.02	1
		1	3	23.08	1

		1	5	22.94	1
		3	0	22.90	1
		3	2	22.84	1
		3	3	22.85	1
		6	0	22.00	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.50	0
		1	7	21.60	0
		1	14	21.57	0
		8	0	20.70	1
		8	4	20.70	1
		8	7	20.73	1
		15	0	20.64	1
	MCH	1	0	22.28	0
		1	7	22.52	0
		1	14	22.86	0
		8	0	21.59	1
		8	4	21.80	1
		8	7	21.98	1
		15	0	21.77	1
	HCH	1	0	24.06	0
		1	7	24.04	0
		1	14	23.93	0
		8	0	23.11	1
		8	4	23.08	1
		8	7	23.05	1
		15	0	22.98	1
16QAM	LCH	1	0	20.71	1
		1	7	20.81	1
		1	14	20.70	1
		8	0	20.71	2
		8	4	20.70	2
		8	7	20.69	2
		15	0	20.61	2
	MCH	1	0	21.58	1
		1	7	21.87	1
		1	14	22.20	1
		8	0	20.73	2
		8	4	20.95	2
		8	7	21.12	2

		15	0	20.85	2
	HCH	1	0	23.23	1
		1	7	23.20	1
		1	14	23.02	1
		8	0	22.02	2
		8	4	21.96	2
		8	7	21.94	2
		15	0	21.94	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.70	0
		1	12	21.78	0
		1	24	21.76	0
		12	0	20.74	1
		12	6	20.76	1
		12	13	20.78	1
		25	0	20.72	1
	MCH	1	0	21.77	0
		1	12	22.12	0
		1	24	23.03	0
		12	0	20.86	1
		12	6	21.21	1
		12	13	21.76	1
		25	0	21.30	1
	HCH	1	0	23.90	0
		1	12	24.11	0
		1	24	24.09	0
		12	0	23.10	1
		12	6	23.09	1
		12	13	23.01	1
		25	0	23.07	1
16QAM	LCH	1	0	20.96	0
		1	12	20.99	0
		1	24	20.89	0
		12	0	20.83	1
		12	6	20.83	1
		12	13	20.81	1
		25	0	20.67	1
	MCH	1	0	21.14	0
		1	12	21.53	0
		1	24	22.40	0

		12	0	20.05	1
		12	6	20.41	1
		12	13	21.00	1
		25	0	20.41	1
	HCH	1	0	22.95	0
		1	12	23.01	0
		1	24	22.76	0
		12	0	22.17	1
		12	6	22.08	1
		12	13	21.97	1
		25	0	22.04	1

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.67	0
		1	24	21.78	0
		1	49	21.83	0
		25	0	20.74	1
		25	12	20.76	1
		25	25	20.77	1
		50	0	20.74	1
	MCH	1	0	20.41	0
		1	24	22.01	0
		1	49	23.08	0
		25	0	20.26	1
		25	12	21.16	1
		25	25	22.05	1
		50	0	21.27	1
	HCH	1	0	22.02	0
		1	24	23.38	0
		1	49	23.97	0
		25	0	21.52	1
		25	12	22.34	1
		25	25	23.10	1
		50	0	22.63	1
16QAM	LCH	1	0	20.84	1
		1	24	20.86	1
		1	49	20.87	1
		25	0	20.66	2
		25	12	20.68	2
		25	25	20.70	2
		50	0	20.73	2

	MCH	1	0	20.69	1
		1	24	21.35	1
		1	49	22.50	1
		25	0	20.31	2
		25	12	20.24	2
		25	25	21.15	2
		50	0	20.38	2
	HCH	1	0	21.47	1
		1	24	22.73	1
		1	49	23.19	1
		25	0	20.55	2
		25	12	21.39	2
		25	25	22.05	2
		50	0	21.78	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.76	0
		1	37	22.02	0
		1	74	20.27	0
		37	0	21.05	1
		37	18	21.10	1
		37	38	21.06	1
		75	0	20.99	1
	MCH	1	0	20.95	0
		1	37	21.94	0
		1	74	23.32	0
		37	0	20.65	1
		37	18	21.82	1
		37	38	22.57	1
		75	0	22.15	1
	HCH	1	0	23.15	0
		1	37	23.25	0
		1	74	24.02	0
		37	0	22.11	1
		37	18	22.52	1
		37	38	23.16	1
		75	0	22.90	1
16QAM	LCH	1	0	20.91	1
		1	37	21.04	1
		1	74	21.75	1
		37	0	21.86	2

		37	18	20.91	2
		37	38	20.91	2
		75	0	20.87	2
	MCH	1	0	20.06	1
		1	37	22.01	1
		1	74	22.59	1
		37	0	20.71	2
		37	18	20.92	2
		37	38	21.38	2
		75	0	21.22	2
	HCH	1	0	22.58	1
		1	37	22.69	1
		1	74	23.06	1
		37	0	21.11	2
		37	18	21.56	2
		37	38	22.13	2
		75	0	21.96	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.84	0
		1	49	21.92	0
		1	99	20.37	0
		50	0	20.80	1
		50	25	20.82	1
		50	50	20.57	1
		100	0	20.94	1
	MCH	1	0	20.56	0
		1	49	22.70	0
		1	99	23.74	0
		50	0	20.38	1
		50	25	22.02	1
		50	50	22.53	1
		100	0	22.25	1
	HCH	1	0	23.91	0
		1	49	22.83	0
		1	99	24.13	0
		50	0	23.95	1
		50	25	23.90	1
		50	50	23.88	1
		100	0	23.05	1
16QAM	LCH	1	0	20.92	1

		1	49	20.93	1
		1	99	20.65	1
		50	0	20.72	2
		50	25	20.77	2
		50	50	20.67	2
		100	0	20.87	2
	MCH	1	0	20.72	1
		1	49	21.98	1
		1	99	22.99	1
		50	0	20.44	2
		50	25	21.09	2
		50	50	21.39	2
		100	0	21.21	2
	HCH	1	0	23.23	1
		1	49	22.27	1
		1	99	23.18	1
		50	0	21.92	2
		50	25	21.30	2
		50	50	22.17	2
		100	0	22.04	2

FDD-LTE Band 4:

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.28	0
		1	3	21.32	0
		1	5	21.22	0
		3	0	21.38	0
		3	2	21.33	0
		3	3	21.32	0
		6	0	20.28	1
	MCH	1	0	21.23	0
		1	3	21.33	0
		1	5	21.26	0
		3	0	21.34	0
		3	2	21.28	0
		3	3	21.33	0
		6	0	20.25	1
	HCH	1	0	22.34	0
		1	3	22.42	0

		1	5	22.37	0
		3	0	20.72	0
		3	2	21.08	0
		3	3	21.27	0
		6	0	21.24	1
16QAM	LCH	1	0	20.51	1
		1	3	20.64	1
		1	5	20.49	1
		3	0	20.49	1
		3	2	20.41	1
		3	3	20.44	1
		6	0	20.27	2
	MCH	1	0	20.65	1
		1	3	20.75	1
		1	5	20.68	1
		3	0	20.33	1
		3	2	20.31	1
		3	3	20.36	1
		6	0	20.24	2
	HCH	1	0	21.55	1
		1	3	21.74	1
		1	5	21.60	1
		3	0	21.48	1
		3	2	21.45	1
		3	3	21.51	1
		6	0	20.53	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.20	0
		1	7	21.25	0
		1	14	21.09	0
		8	0	21.29	1
		8	4	21.25	1
		8	7	21.22	1
		15	0	21.24	1
	MCH	1	0	21.12	0
		1	7	21.29	0
		1	14	21.19	0
		8	0	21.23	1
		8	4	21.27	1
		8	7	21.28	1

		15	0	21.25	1
	HCH	1	0	22.18	0
		1	7	22.35	0
		1	14	22.31	0
		8	0	21.29	1
		8	4	21.31	1
		8	7	21.36	1
		15	0	21.31	1
16QAM	LCH	1	0	20.48	1
		1	7	20.54	1
		1	14	20.38	1
		8	0	21.38	2
		8	4	21.36	2
		8	7	21.31	2
		15	0	21.27	2
	MCH	1	0	21.44	1
		1	7	21.58	1
		1	14	20.52	1
		8	0	21.35	1
		8	4	21.37	2
		8	7	21.36	2
		15	0	21.28	2
	HCH	1	0	21.56	2
		1	7	21.73	1
		1	14	21.66	1
		8	0	21.32	1
		8	4	21.33	1
		8	7	20.75	2
		15	0	20.53	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.28	0
		1	12	21.27	0
		1	24	21.07	0
		12	0	21.31	1
		12	6	21.27	1
		12	13	21.20	1
		25	0	21.20	1
	MCH	1	0	21.16	0
		1	12	21.33	0
		1	24	21.28	0

		12	0	22.32	1
		12	6	22.34	1
		12	13	22.40	1
		25	0	22.32	1
	HCH	1	0	22.18	0
		1	12	22.37	0
		1	24	22.42	0
		12	0	21.26	1
		12	6	21.32	1
		12	13	21.44	1
		25	0	21.31	1
16QAM	LCH	1	0	22.66	1
		1	12	22.70	1
		1	24	22.48	1
		12	0	21.50	12
		12	6	20.47	2
		12	13	20.42	2
		25	0	21.29	2
	MCH	1	0	20.59	1
		1	12	20.81	1
		1	24	20.73	1
		12	0	21.51	12
		12	6	21.56	2
		12	13	21.60	2
		25	0	20.40	2
	HCH	1	0	21.22	1
		1	12	21.39	1
		1	24	21.37	1
		12	0	20.34	12
		12	6	21.39	2
		12	13	20.48	2
		25	0	21.37	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.32	0
		1	24	21.17	0
		1	49	21.12	0
		25	0	21.32	1
		25	12	21.21	1
		25	25	21.23	1
		50	0	22.28	1
	MCH	1	0	21.11	0
		1	24	21.25	0
		1	49	21.40	0
		25	0	21.23	1
		25	12	21.32	1
		25	25	21.38	1
		50	0	21.31	1
	HCH	1	0	21.88	0
		1	24	22.10	0
		1	49	22.33	0
		25	0	21.00	1
		25	12	21.11	1
		25	25	21.24	1
		50	0	21.16	1
16QAM	LCH	1	0	20.59	1
		1	24	20.46	1
		1	49	20.43	1
		25	0	20.36	2
		25	12	20.27	2
		25	25	20.25	2
		50	0	20.30	2
	MCH	1	0	20.43	1
		1	24	20.58	1
		1	49	20.70	1
		25	0	20.29	2
		25	12	20.38	2
		25	25	20.45	2
		50	0	20.37	2
	HCH	1	0	21.29	1
		1	24	21.50	1
		1	49	21.71	1
		25	0	20.10	2

		25	12	21.18	2
		25	25	21.31	2
		50	0	21.25	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.36	0
		1	37	21.25	0
		1	74	21.12	0
		37	0	20.31	1
		37	18	20.55	1
		37	38	20.45	1
		75	0	20.36	1
	MCH	1	0	21.12	0
		1	37	21.34	0
		1	74	21.47	0
		37	0	20.31	1
		37	18	20.32	1
		37	38	20.42	1
		75	0	20.32	1
	HCH	1	0	21.57	0
		1	37	22.01	0
		1	74	22.34	0
		37	0	20.83	1
		37	18	21.03	1
		37	38	21.22	1
		75	0	21.08	1
16QAM	LCH	1	0	20.61	1
		1	37	20.55	1
		1	74	20.43	1
		37	0	20.32	2
		37	18	21.25	2
		37	38	21.23	2
		75	0	21.27	2
	MCH	1	0	20.40	1
		1	37	20.65	1
		1	74	20.77	1
		37	0	21.22	2
		37	18	21.32	2
		37	38	21.44	2
		75	0	21.33	2
	HCH	1	0	20.89	1

		1	37	21.33	1
		1	74	21.59	1
		37	0	21.86	2
		37	18	20.58	2
		37	38	20.39	2
		75	0	20.49	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.47	0
		1	49	21.23	0
		1	99	21.30	0
		50	0	20.52	1
		50	25	20.65	1
		50	50	20.78	1
		100	0	20.65	1
	MCH	1	0	21.23	0
		1	49	21.34	0
		1	99	21.74	0
		50	0	20.54	1
		50	25	20.65	1
		50	50	20.45	1
		100	0	20.32	1
	HCH	1	0	21.48	0
		1	49	21.85	0
		1	99	22.55	0
		50	0	22.44	1
		50	25	22.42	1
		50	50	22.44	1
		100	0	21.38	1
16QAM	LCH	1	0	20.63	1
		1	49	20.43	1
		1	99	20.46	1
		50	0	20.31	2
		50	25	20.52	2
		50	50	20.43	2
		100	0	20.85	2
	MCH	1	0	20.40	1
		1	49	20.54	1
		1	99	20.91	1
		50	0	21.21	2
		50	25	21.34	2

		50	50	21.50	2
		100	0	21.33	2
	HCH	1	0	20.83	1
		1	49	21.25	1
		1	99	21.72	1
		50	0	20.65	2
		50	25	20.78	2
		50	50	20.65	2
		100	0	20.33	2

FDD-LTE Band 7:

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.08	0
		1	12	21.25	0
		1	24	21.29	0
		12	0	20.48	1
		12	6	20.54	1
		12	13	20.32	1
		25	0	20.61	1
	MCH	1	0	23.18	0
		1	12	22.79	0
		1	24	22.93	0
		12	0	22.20	1
		12	6	21.97	1
		12	13	21.90	1
		25	0	22.03	1
	HCH	1	0	22.18	0
		1	12	21.73	0
		1	24	21.06	0
		12	0	20.97	1
		12	6	20.69	1
		12	13	20.40	1
		25	0	20.66	1
16QAM	LCH	1	0	20.46	1
		1	12	20.60	1
		1	24	20.62	1
		12	0	20.34	2
		12	6	20.40	2
		12	13	20.48	2
		25	0	20.26	2
	MCH	1	0	22.89	1
		1	12	22.17	1
		1	24	22.26	1
		12	0	21.31	2
		12	6	21.10	2
		12	13	21.06	2
		25	0	21.06	2
	HCH	1	0	21.10	1
		1	12	20.66	1

		1	24	20.54	1
		12	0	20.32	2
		12	6	20.78	2
		12	13	20.47	2
		25	0	20.70	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.04	0
		1	24	21.29	0
		1	49	20.72	0
		25	0	20.50	1
		25	12	20.32	1
		25	25	20.76	1
		50	0	20.58	1
	MCH	1	0	23.16	0
		1	24	22.65	0
		1	49	21.64	0
		25	0	22.20	1
		25	12	21.87	1
		25	25	21.42	1
		50	0	21.86	1
	HCH	1	0	21.42	0
		1	24	22.00	0
		1	49	21.13	0
		25	0	20.85	1
		25	12	21.03	1
		25	25	20.75	1
		50	0	20.88	1
16QAM	LCH	1	0	20.29	1
		1	24	20.51	1
		1	49	20.10	1
		25	0	21.24	2
		25	12	21.36	2
		25	25	21.27	2
		50	0	21.42	2
	MCH	1	0	22.37	1
		1	24	21.98	1
		1	49	20.87	1
		25	0	21.11	2
		25	12	20.89	2
		25	25	20.59	2

		50	0	20.85	2
	HCH	1	0	20.70	1
		1	24	21.42	1
		1	49	20.55	1
		25	0	21.84	2
		25	12	20.04	2
		25	25	21.80	2
		50	0	21.89	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.06	0
		1	37	20.75	0
		1	74	21.21	0
		37	0	20.40	1
		37	18	20.10	1
		37	38	20.01	1
		75	0	20.45	2
	MCH	1	0	23.35	0
		1	37	22.49	0
		1	74	21.08	0
		37	0	22.23	1
		37	18	21.79	1
		37	38	21.09	1
		75	0	21.72	2
	HCH	1	0	20.30	0
		1	37	21.90	0
		1	74	21.27	0
		37	0	21.91	1
		37	18	20.71	1
		37	38	21.02	1
		75	0	20.49	2
16QAM	LCH	1	0	20.32	1
		1	37	20.07	1
		1	74	20.50	1
		37	0	21.37	2
		37	18	21.30	2
		37	38	21.21	2
		75	0	20.46	2
	MCH	1	0	22.60	1
		1	37	21.83	1
		1	74	20.44	1

		37	0	21.18	2
		37	18	20.85	2
		37	38	20.27	2
		75	0	20.70	2
	HCH	1	0	20.56	1
		1	37	21.13	1
		1	74	20.52	1
		37	0	20.93	2
		37	18	20.76	2
		37	38	20.10	2
		75	0	20.51	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.24	0
		1	49	20.95	0
		1	99	22.09	0
		50	0	20.44	1
		50	25	20.86	1
		50	50	21.19	1
		100	0	20.36	1
	MCH	1	0	23.57	0
		1	49	22.60	0
		1	99	20.69	0
		50	0	22.18	1
		50	25	21.67	1
		50	50	20.71	1
		100	0	21.53	1
	HCH	1	0	21.70	0
		1	49	21.36	0
		1	99	21.45	0
		50	0	21.14	1
		50	25	21.21	1
		50	50	20.93	1
		100	0	21.03	1
16QAM	LCH	1	0	21.37	1
		1	49	21.10	1
		1	99	21.21	1
		50	0	20.45	2
		50	25	21.03	2
		50	50	21.21	2
		100	0	20.35	2

	MCH	1	0	22.30	1
		1	49	21.82	1
		1	99	20.82	1
		50	0	21.20	2
		50	25	20.68	2
		50	50	20.89	2
		100	0	20.53	2
	HCH	1	0	21.00	1
		1	49	20.62	1
		1	99	20.73	1
		50	0	21.21	2
		50	25	21.23	2
		50	50	21.05	2
		100	0	21.00	2

FDD-LTE Band 13:

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.75	0
		1	12	22.86	0
		1	24	22.74	0
		12	0	21.78	1
		12	6	21.77	1
		12	13	21.86	1
		25	0	21.79	1
	MCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
	HCH	1	0	22.80	0
		1	12	22.74	0
		1	24	22.78	0
		12	0	21.76	1
		12	6	21.69	1
		12	13	21.65	1
		25	0	21.67	1
16QAM	LCH	1	0	22.07	1
		1	12	22.41	1
		1	24	22.16	1
		12	0	20.92	2
		12	6	20.95	2
		12	13	21.00	2
		25	0	20.81	2
	MCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
	HCH	1	0	21.79	1
		1	12	21.65	1
		1	24	21.48	1

		12	0	20.77	2
		12	6	20.69	2
		12	13	20.65	2
		25	0	20.65	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
	MCH	1	0	22.92	0
		1	24	22.73	0
		1	49	22.68	0
		25	0	21.80	1
		25	12	21.81	1
		25	25	21.72	1
		50	0	21.78	1
	HCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
16QAM	LCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
	MCH	1	0	22.00	1
		1	24	22.02	1
		1	49	21.70	1
		25	0	20.82	2
		25	12	20.76	2
		25	25	20.66	2
		50	0	20.78	2

	HCH	/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/
		/	/	/	/

FDD-LTE Band 17:

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.97	0
		1	12	24.18	0
		1	24	24.29	0
		12	0	23.14	1
		12	6	23.20	1
		12	13	23.34	1
		25	0	23.13	1
	MCH	1	0	24.33	0
		1	12	24.31	0
		1	24	24.24	0
		12	0	23.31	1
		12	6	23.27	1
		12	13	23.11	1
		25	0	23.37	1
	HCH	1	0	24.35	0
		1	12	24.13	0
		1	24	24.01	0
		12	0	23.23	1
		12	6	23.29	1
		12	13	23.29	1
		25	0	23.34	1
16QAM	LCH	1	0	23.30	1
		1	12	23.58	1
		1	24	23.71	1
		12	0	22.26	2
		12	6	22.34	2
		12	13	22.51	2
		25	0	22.24	2
	MCH	1	0	23.37	1
		1	12	23.40	1
		1	24	23.19	1
		12	0	22.49	2
		12	6	22.33	2
		12	13	22.11	2
		25	0	22.44	2
	HCH	1	0	23.53	1
		1	12	23.37	1
		1	24	23.37	1

		12	0	22.48	2
		12	6	22.52	2
		12	13	22.44	2
		25	0	22.48	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	24.00	0
		1	24	24.31	0
		1	49	23.93	0
		25	0	23.19	1
		25	12	23.37	1
		25	25	23.21	1
		50	0	23.29	1
	MCH	1	0	24.04	0
		1	24	24.41	0
		1	49	23.95	0
		25	0	23.25	1
		25	12	23.26	1
		25	25	23.31	1
		50	0	23.33	1
	HCH	1	0	24.16	0
		1	24	23.95	0
		1	49	23.67	0
		25	0	23.36	1
		25	12	23.16	1
		25	25	23.37	1
		50	0	23.34	1
16QAM	LCH	1	0	23.25	1
		1	24	23.62	1
		1	49	23.29	1
		25	0	22.26	2
		25	12	22.43	2
		25	25	22.22	2
		50	0	22.39	2
	MCH	1	0	23.31	1
		1	24	23.64	1
		1	49	23.37	1
		25	0	22.32	2
		25	12	22.30	2
		25	25	22.29	2
		50	0	22.44	2

	HCH	1	0	23.52	1
		1	24	23.41	1
		1	49	23.17	1
		25	0	22.45	2
		25	12	22.19	2
		25	25	22.42	2
		50	0	22.55	2

Remark:

1. Per KDB941225 D05 v02r05, Start with the largest channel bandwidth then measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle, and lower edge of each required test channel. When the reported SAR is≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. 6 When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
2. Per KDB941225 D05 v02r05, The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.
3. Per KDB941225 D05 v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations, and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB941225 D05 v02r05, For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in 5.2.1, 5.2.2, and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

WLAN - Maximum Average Power					
Test Mode	**Data Rate**	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
802.11b	1Mbps	CH 01	2412	14.98	15.5
		CH 06	2437	14.32	15.5
		CH 11	2462	15.35	15.5
802.11g	54Mbps	CH 01	2412	10.29	13.0
		CH 06	2437	12.39	13.0
		CH 11	2462	12.46	13.0
802.11n (20MHz)	MCS7	CH 01	2412	10.34	12.5
		CH 06	2437	12.08	12.5
		CH 11	2462	12.2	12.5
802.11n (40MHz)	MCS7	CH 03	2422	11.59	12.0
		CH 06	2437	11.15	12.0
		CH 09	2452	11.11	12.0

Remark:

1. Per KDB 248227 D01 v02r02, For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions.

2. Per KDB 248227 D01 v02r02, For 802.11b DSSS SAR measurements ,when the reported SAR of the highest measured maximum output power channel (see 3.1) for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

3 .For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is <= 1.2W/kg.

Bluetooth - Maximum Average Power			
Test Mode	**Data Rate**	**Average Power(dBm)**	**Tune-up power (dBm)**
GFSK	1Mbps	5.439	6.0
Pi/4 QDPSK	2Mbps	4.596	6.0
8DPSK	3Mbps	4.731	6.0

Bluetooth - Maximum Average Power					
Test Mode	**Data Rate**	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
BLE	1Mbps	CH 00	2402	5.025	5.5
		CH 19	2440	5.328	5.5
		CH 39	2480	5.117	5.5

NFC - Maximum Average Power			
Test Mode	**Frequency (MHz)**	**Average Power(dBm)**	**Tune-up power (dBm)**
NFC	13.56	-51.45	-50

Remark:

Bluetooth and NFC maximum output power is 5.439dBm and -51.45dBm *respectively*, and Maximum Tune-Up output power is 6.0dBm and -50dBm. 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, 4.87mW)/(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

Bluetooth:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
6.0	3.98	5	2.441	1.24	3

The exclusion thresholds is 1.24< 3, therefore, the RF exposure evaluation is not required.

NFC:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
-50	0.00001	5	0.01356	0.0000002	3

The exclusion thresholds is 0.0000002< 3, therefore, the RF exposure evaluation is not required.

9.2 Test Results for Standalone SAR Test

Head SAR

GSM850 – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
1.	GSM	Right Cheek	128	824.2	31.10	31.5	1.096	0.326	0.357
2.	GSM	Right Tilted	128	824.2	31.10	31.5	1.096	0.039	0.043
3.	GSM	Left Cheek	128	824.2	31.10	31.5	1.096	0.379	0.416
4.	GSM	Left Tilted	128	824.2	31.10	31.5	1.096	0.042	0.046

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					
5.	GSM	Right Cheek	810	1909.8	28.57	29.0	1.104	0.207	0.229
6.	GSM	Right Tilted	810	1909.8	28.57	29.0	1.104	0.035	0.039
7.	GSM	Left Cheek	810	1909.8	28.57	29.0	1.104	0.260	0.287
8.	GSM	Left Tilted	810	1909.8	28.57	29.0	1.104	0.052	0.057

GPRS850 – 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					
9.	GPRS_4TX	Right Cheek	128	824.2	27.92	28.5	1.143	0.401	0.458
10.	GPRS_4TX	Right Tilted	128	824.2	27.92	28.5	1.143	0.176	0.201
11.	GPRS_4TX	Left Cheek	128	824.2	27.92	28.5	1.143	0.435	0.497
12.	GPRS_4TX	Left Tilted	128	824.2	27.92	28.5	1.143	0.184	0.210

GPRS1900 – 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					
13.	GPRS_4TX	Right Cheek	810	1909.8	25.11	25.5	1.094	0.420	0.459
14.	GPRS_4TX	Right Tilted	810	1909.8	25.11	25.5	1.094	0.038	0.042
15.	GPRS_4TX	Left Cheek	810	1909.8	25.11	25.5	1.094	0.479	0.524
16.	GPRS_4TX	Left Tilted	810	1909.8	25.11	25.5	1.094	0.078	0.085

WCDMA Band 2 – 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					
17.	RMC	Right Cheek	9538	1907.6	22.28	22.5	1.052	0.330	0.347
18.	RMC	Right Tilted	9538	1907.6	22.28	22.5	1.052	0.025	0.026
19.	RMC	Left Cheek	9538	1907.6	22.28	22.5	1.052	0.397	0.418
20.	RMC	Left Tilted	9538	1907.6	22.28	22.5	1.052	0.070	0.074

WCDMA Band 5 – 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					
21.	RMC	Right Cheek	4233	846.6	22.93	23.5	1.140	0.332	0.379
22.	RMC	Right Tilted	4233	846.6	22.93	23.5	1.140	0.04	0.046
23.	RMC	Left Cheek	4233	846.6	22.93	23.5	1.140	0.348	0.397
24.	RMC	Left Tilted	4233	846.6	22.93	23.5	1.140	0.028	0.032

LTE Band 2– 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)
	Modulation, Bandwidth, RB		MHz					
25.	RMC QPSK 20MHz 1RB	Right Cheek	1900.0	24.13	24.5	1.089	0.388	0.423
26.	RMC QPSK 20MHz 1RB	Right Tilted	1900.0	24.13	24.5	1.089	0.025	0.027
27.	RMC QPSK 20MHz 1RB	Left Cheek	1900.0	24.13	24.5	1.089	0.659	0.718
28.	RMC QPSK 20MHz 1RB	Left Tilted	1900.0	24.13	24.5	1.089	0.078	0.085
29.	RMC QPSK 20MHz 50%RB	Right Cheek	1900.0	23.95	24.5	1.135	0.265	0.301
30.	RMC QPSK 20MHz 50%RB	Right Tilted	1900.0	23.95	24.5	1.135	0.021	0.024
31.	RMC QPSK 20MHz 50%RB	Left Cheek	1900.0	23.95	24.5	1.135	0.469	0.532
32.	RMC QPSK 20MHz 50%RB	Left Tilted	1900.0	23.95	24.5	1.135	0.058	0.066

LTE Band 4– Head SAR Test								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Head	MHz	(dBm)	(dBm)			
33.	RMC QPSK 20MHz 1RB	Right Cheek	1745.0	22.55	23.0	1.109	0.096	0.106
34.	RMC QPSK 20MHz 1RB	Right Tilted	1745.0	22.55	23.0	1.109	0.026	0.029
35.	RMC QPSK 20MHz 1RB	Left Cheek	1745.0	22.55	23.0	1.109	0.173	0.192
36.	RMC QPSK 20MHz 1RB	Left Tilted	1745.0	22.55	23.0	1.109	0.085	0.094
37.	RMC QPSK 20MHz 50%RB	Right Cheek	1745.0	22.44	23.0	1.138	0.083	0.094
38.	RMC QPSK 20MHz 50%RB	Right Tilted	1745.0	22.44	23.0	1.138	0.019	0.022
39.	RMC QPSK 20MHz 50%RB	Left Cheek	1745.0	22.44	23.0	1.138	0.128	0.146
40.	RMC QPSK 20MHz 50%RB	Left Tilted	1745.0	22.44	23.0	1.138	0.043	0.049

LTE Band 7– Head SAR Test								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth	Head	MHz	(dBm)	(dBm)			
41.	RMC QPSK 20MHz 1RB	Right Cheek	2535.0	23.57	24.0	1.104	0.056	0.062
42.	RMC QPSK 20MHz 1RB	Right Tilted	2535.0	23.57	24.0	1.104	0.008	0.009
43.	RMC QPSK 20MHz 1RB	Left Cheek	2535.0	23.57	24.0	1.104	0.063	0.070
44.	RMC QPSK 20MHz 1RB	Left Tilted	2535.0	23.57	24.0	1.104	0.009	0.010
45.	RMC QPSK 20MHz 50%RB	Right Cheek	2535.0	22.18	22.5	1.076	0.046	0.050
46.	RMC QPSK 20MHz 50%RB	Right Tilted	2535.0	22.18	22.5	1.076	0.005	0.005
47.	RMC QPSK 20MHz 50%RB	Left Cheek	2535.0	22.18	22.5	1.076	0.057	0.061
48.	RMC QPSK 20MHz 50%RB	Left Tilted	2535.0	22.18	22.5	1.076	0.006	0.006

LTE Band 13– Head SAR Test								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth	Head	MHz	(dBm)	(dBm)			
49.	RMC QPSK 10MHz 1RB	Right Cheek	782.0	22.92	23.5	1.143	0.320	0.366
50.	RMC QPSK 10MHz 1RB	Right Tilted	782.0	22.92	23.5	1.143	0.032	0.037
51.	RMC QPSK 10MHz 1RB	Left Cheek	782.0	22.92	23.5	1.143	0.324	0.370
52.	RMC QPSK 10MHz 1RB	Left Tilted	782.0	22.92	23.5	1.143	0.036	0.041
53.	RMC QPSK 10MHz 50%RB	Right Cheek	782.0	21.81	22.5	1.172	0.11	0.129
54.	RMC QPSK 10MHz 50%RB	Right Tilted	782.0	21.81	22.5	1.172	0.029	0.034
55.	RMC QPSK 10MHz 50%RB	Left Cheek	782.0	21.81	22.5	1.172	0.12	0.141
56.	RMC QPSK 10MHz 50%RB	Left Tilted	782.0	21.81	22.5	1.172	0.028	0.033

LTE Band 17– 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)
	Modulation, Bandwidth		MHz					
57.	RMC QPSK 10MHz 1RB	Right Cheek	710.0	24.41	25.0	1.146	0.132	0.151
58.	RMC QPSK 10MHz 1RB	Right Tilted	710.0	24.41	25.0	1.146	0.052	0.060
59.	RMC QPSK 10MHz 1RB	Left Cheek	710.0	24.41	25.0	1.146	0.141	0.162
60.	RMC QPSK 10MHz 1RB	Left Tilted	710.0	24.41	25.0	1.146	0.041	0.047
61.	RMC QPSK 10MHz 50%RB	Right Cheek	711.0	23.37	24.0	1.156	0.107	0.124
62.	RMC QPSK 10MHz 50%RB	Right Tilted	711.0	23.37	24.0	1.156	0.046	0.053
63.	RMC QPSK 10MHz 50%RB	Left Cheek	711.0	23.37	24.0	1.156	0.118	0.136
64.	RMC QPSK 10MHz 50%RB	Left Tilted	711.0	23.37	24.0	1.156	0.037	0.043

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					
65.	802.11b	Right Cheek	11	2462	15.35	15.5	1.035	0.037	0.038
66.	802.11b	Right Tilted	11	2462	15.35	15.5	1.035	0.026	0.027
67.	802.11b	Left Cheek	11	2462	15.35	15.5	1.035	0.114	0.118
68.	802.11b	Left Tilted	11	2462	15.35	15.5	1.035	0.036	0.037

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					
69.	GSM	Back	128	824.2	31.10	31.5	1.096	0.737	0.808
70.	GSM	Front	128	824.2	31.10	31.5	1.096	0.442	0.485

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					
71.	GSM	Back	810	1909.8	28.57	29.0	1.104	0.218	0.241
72.	GSM	Front	810	1909.8	28.57	29.0	1.104	0.254	0.280

WCDMA Band 2 – 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					
85	RMC 12.2k	Back Side	9538	1907.6	22.28	22.5	1.052	0.432	0.454
86	RMC 12.2k	Front Side	9538	1907.6	22.28	22.5	1.052	0.329	0.346

WCDMA Band 5 – 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					
90	RMC 12.2k	Back Side	4233	846.6	22.93	23.5	1.140	0.567	0.647
91	RMC 12.2k	Front Side	4233	846.6	22.93	23.5	1.140	0.358	0.408

LTE Band 2–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)
	Modulation, Bandwidth, RB		MHz					
95	RMC QPSK 20MHz 1RB	Back Side	1900.0	24.13	24.5	1.089	0.461	0.502
96	RMC QPSK 20MHz 1RB	Front Side	1900.0	24.13	24.5	1.089	0.590	0.642
100	RMC QPSK 20MHz 50%RB	Back Side	1900.0	23.95	24.5	1.135	0.331	0.376
101	RMC QPSK 20MHz 50%RB	Front Side	1900.0	23.95	24.5	1.135	0.408	0.463

LTE Band 4–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g

	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			(W/kg)
105	RMC QPSK 20MHz 1RB	Back Side	1745.0	22.55	23.0	1.109	0.250	0.277
106	RMC QPSK 20MHz 1RB	Front Side	1745.0	22.55	23.0	1.109	0.200	0.222
110	RMC QPSK 20MHz 50%RB	Back Side	1745.0	22.44	23.0	1.138	0.177	0.201
111	RMC QPSK 20MHz 50%RB	Front Side	1745.0	22.44	23.0	1.138	0.108	0.123

LTE Band 7–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)
	Modulation, Bandwidth, RB		MHz					
115	RMC QPSK 20MHz 1RB	Back Side	2535.0	23.57	24.0	1.104	0.714	0.788
116	RMC QPSK 20MHz 1RB	Front Side	2535.0	23.57	24.0	1.104	0.085	0.094
120	RMC QPSK 20MHz 50%RB	Back Side	2535.0	22.18	22.5	1.076	0.349	0.376
121	RMC QPSK 20MHz 50%RB	Front Side	2535.0	22.18	22.5	1.076	0.165	0.178

LTE Band 13–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)
	Modulation, Bandwidth, RB		MHz					
125	RMC QPSK 10MHz 1RB	Back Side	782.0	22.92	23.5	1.143	0.888	1.015
126	RMC QPSK 10MHz 1RB	Front Side	782.0	22.92	23.5	1.143	0.484	0.553
130	RMC QPSK 10MHz 50%RB	Back Side	782.0	21.81	22.5	1.172	0.602	0.706
131	RMC QPSK 10MHz 50%RB	Front Side	782.0	21.81	22.5	1.172	0.325	0.381
135	RMC QPSK 10MHz 100%RB	Back Side	782.0	21.78	22.5	1.180	0.526	0.621

LTE Band 17–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)
	Modulation, Bandwidth, RB		MHz					
136	RMC QPSK 10MHz 1RB	Back Side	710.0	24.41	25.0	1.146	0.171	0.196
137	RMC QPSK 10MHz 1RB	Front Side	710.0	24.41	25.0	1.146	0.033	0.038
141	RMC QPSK 10MHz 50%RB	Back Side	711.0	23.37	24.0	1.156	0.114	0.132
142	RMC QPSK 10MHz 50%RB	Front Side	711.0	23.37	24.0	1.156	0.029	0.034

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					
146	802.11b	Back Side	11	2462	15.35	15.5	1.035	0.043	0.045
147	802.11b	Front Side	11	2462	15.35	15.5	1.035	0.039	0.040

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					
73.	GPRS_4TX	Back Side	128	824.2	27.92	28.5	1.143	1.233	1.409
74.	GPRS_4TX	Back Side	190	836.6	27.87	28.5	1.156	0.995	1.150
75.	GPRS_4TX	Back Side	251	848.8	27.84	28.5	1.164	0.810	0.943
76.	GPRS_4TX	Front Side	128	824.2	27.92	28.5	1.143	0.541	0.618
77.	GPRS_4TX	Bottom side	128	824.2	27.92	28.5	1.143	0.105	0.120
78.	GPRS_4TX	Right side	128	824.2	27.92	28.5	1.143	0.114	0.130
79.	GPRS_4TX	Left side	128	824.2	27.92	28.5	1.143	0.221	0.253

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					
80.	GPRS_4TX	Back Side	810	1909.8	25.11	25.5	1.094	0.337	0.369
81.	GPRS_4TX	Front Side	810	1909.8	25.11	25.5	1.094	0.438	0.479
82.	GPRS_4TX	Bottom side	810	1909.8	25.11	25.5	1.094	0.363	0.397
83.	GPRS_4TX	Right side	810	1909.8	25.11	25.5	1.094	0.101	0.110
84.	GPRS_4TX	Left side	810	1909.8	25.11	25.5	1.094	0.152	0.166

WCDMA Band 2 – 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					
85.	RMC 12.2k	Back Side	9538	1907.6	22.28	22.5	1.052	0.432	0.454
86.	RMC 12.2k	Front Side	9538	1907.6	22.28	22.5	1.052	0.329	0.346
87.	RMC 12.2k	Bottom side	9538	1907.6	22.28	22.5	1.052	0.287	0.302
88.	RMC 12.2k	Right side	9538	1907.6	22.28	22.5	1.052	0.121	0.127
89.	RMC 12.2k	Left side	9538	1907.6	22.28	22.5	1.052	0.105	0.110

WCDMA Band 5 – 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					
90.	RMC 12.2k	Back Side	4233	846.6	22.93	23.5	1.140	0.567	0.647
91.	RMC 12.2k	Front Side	4233	846.6	22.93	23.5	1.140	0.358	0.408
92.	RMC 12.2k	Bottom side	4233	846.6	22.93	23.5	1.140	0.33	0.376
93.	RMC 12.2k	Right side	4233	846.6	22.93	23.5	1.140	0.136	0.155

94.	RMC 12.2k	Left side	4233	846.6	22.93	23.5	1.140	0.041	0.047

LTE Band 2–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)**
	Modulation, Bandwidth, RB		**MHz**					
95.	RMC QPSK 20MHz 1RB	Back Side	1900.0	24.13	24.5	1.089	0.461	0.502
96.	RMC QPSK 20MHz 1RB	Front Side	1900.0	24.13	24.5	1.089	0.590	0.642
97.	RMC QPSK 20MHz 1RB	Bottom side	1900.0	24.13	24.5	1.089	0.473	0.515
98.	RMC QPSK 20MHz 1RB	Right side	1900.0	24.13	24.5	1.089	0.132	0.144
99.	RMC QPSK 20MHz 1RB	Left side	1900.0	24.13	24.5	1.089	0.127	0.138
100.	RMC QPSK 20MHz 50%RB	Back Side	1900.0	23.95	24.5	1.135	0.331	0.376
101.	RMC QPSK 20MHz 50%RB	Front Side	1900.0	23.95	24.5	1.135	0.408	0.463
102.	RMC QPSK 20MHz 50%RB	Bottom side	1900.0	23.95	24.5	1.135	0.326	0.370
103.	RMC QPSK 20MHz 50%RB	Right side	1900.0	23.95	24.5	1.135	0.091	0.103
104.	RMC QPSK 20MHz 50%RB	Left side	1900.0	23.95	24.5	1.135	0.105	0.119

LTE Band 4–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)**
	Modulation, Bandwidth, RB		**MHz**					
105.	RMC QPSK 20MHz 1RB	Back Side	1745.0	22.55	23.0	1.109	0.250	0.277
106.	RMC QPSK 20MHz 1RB	Front Side	1745.0	22.55	23.0	1.109	0.200	0.222
107.	RMC QPSK 20MHz 1RB	Bottom side	1745.0	22.55	23.0	1.109	0.13	0.144
108.	RMC QPSK 20MHz 1RB	Right side	1745.0	22.55	23.0	1.109	0.073	0.081
109.	RMC QPSK 20MHz 1RB	Left side	1745.0	22.55	23.0	1.109	0.085	0.094
110.	RMC QPSK 20MHz 50%RB	Back Side	1745.0	22.44	23.0	1.138	0.177	0.201
111.	RMC QPSK 20MHz 50%RB	Front Side	1745.0	22.44	23.0	1.138	0.108	0.123
112.	RMC QPSK 20MHz 50%RB	Bottom side	1745.0	22.44	23.0	1.138	0.112	0.127
113.	RMC QPSK 20MHz 50%RB	Right side	1745.0	22.44	23.0	1.138	0.056	0.064
114.	RMC QPSK 20MHz 50%RB	Left side	1745.0	22.44	23.0	1.138	0.068	0.077

LTE Band 7–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)**
	Modulation, Bandwidth, RB		**MHz**					
115.	RMC QPSK 20MHz 1RB	Back Side	2535.0	23.57	24.0	1.104	0.714	0.788
116.	RMC QPSK 20MHz 1RB	Front Side	2535.0	23.57	24.0	1.104	0.085	0.094
117.	RMC QPSK 20MHz 1RB	Bottom side	2535.0	23.57	24.0	1.104	0.295	0.326

118.	RMC QPSK 20MHz 1RB	Right side	2535.0	23.57	24.0	1.104	0.102	0.113
119.	RMC QPSK 20MHz 1RB	Left side	2535.0	23.57	24.0	1.104	0.046	0.051
120.	RMC QPSK 20MHz 50%RB	Back Side	2535.0	22.18	22.5	1.076	0.349	0.376
121.	RMC QPSK 20MHz 50%RB	Front Side	2535.0	22.18	22.5	1.076	0.165	0.178
122.	RMC QPSK 20MHz 50%RB	Bottom side	2535.0	22.18	22.5	1.076	0.259	0.279
123.	RMC QPSK 20MHz 50%RB	Right side	2535.0	22.18	22.5	1.076	0.063	0.068
124.	RMC QPSK 20MHz 50%RB	Left side	2535.0	22.18	22.5	1.076	0.038	0.041

LTE Band 13–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)**
	Modulation, Bandwidth, RB		**MHz**					
125.	RMC QPSK 10MHz 1RB	Back Side	782.0	22.92	23.5	1.143	0.888	1.015
126.	RMC QPSK 10MHz 1RB	Front Side	782.0	22.92	23.5	1.143	0.484	0.553
127.	RMC QPSK 10MHz 1RB	Bottom side	782.0	22.92	23.5	1.143	0.053	0.061
128.	RMC QPSK 10MHz 1RB	Right side	782.0	22.92	23.5	1.143	0.085	0.097
129.	RMC QPSK 10MHz 1RB	Left side	782.0	22.92	23.5	1.143	0.059	0.067
130.	RMC QPSK 10MHz 50%RB	Back Side	782.0	21.81	22.5	1.172	0.602	0.706
131.	RMC QPSK 10MHz 50%RB	Front Side	782.0	21.81	22.5	1.172	0.325	0.381
132.	RMC QPSK 10MHz 50%RB	Bottom side	782.0	21.81	22.5	1.172	0.039	0.046
133.	RMC QPSK 10MHz 50%RB	Right side	782.0	21.81	22.5	1.172	0.047	0.055
134.	RMC QPSK 10MHz 50%RB	Left side	782.0	21.81	22.5	1.172	0.043	0.050
135.	RMC QPSK 10MHz 100%RB	Back Side	782.0	21.78	22.5	1.180	0.526	0.621

LTE Band 17–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)**
	Modulation, Bandwidth, RB		**MHz**					
136.	RMC QPSK 10MHz 1RB	Back Side	710.0	24.41	25.0	1.146	0.171	0.196
137.	RMC QPSK 10MHz 1RB	Front Side	710.0	24.41	25.0	1.146	0.033	0.038
138.	RMC QPSK 10MHz 1RB	Bottom side	710.0	24.41	25.0	1.146	0.405	0.464
139.	RMC QPSK 10MHz 1RB	Right side	710.0	24.41	25.0	1.146	0.024	0.027
140.	RMC QPSK 10MHz 1RB	Left side	710.0	24.41	25.0	1.146	0.028	0.032
141.	RMC QPSK 10MHz 50%RB	Back Side	711.0	23.37	24.0	1.156	0.114	0.132
142.	RMC QPSK 10MHz 50%RB	Front Side	711.0	23.37	24.0	1.156	0.029	0.034
143.	RMC QPSK 10MHz 50%RB	Bottom side	711.0	23.37	24.0	1.156	0.217	0.251
144.	RMC QPSK 10MHz 50%RB	Left side	711.0	23.37	24.0	1.156	0.021	0.024

145.	RMC QPSK 10MHz 50%RB	Left side	711.0	23.37	24.0	1.156	0.018	0.021

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					
146.	802.11b	Back Side	11	2462	15.35	15.5	1.035	0.043	0.045
147.	802.11b	Front Side	11	2462	15.35	15.5	1.035	0.039	0.040
148.	802.11b	Right side	11	2462	15.35	15.5	1.035	0.013	0.013
149.	802.11b	Top Side	11	2462	15.35	15.5	1.035	0.024	0.025

Front-of the face SAR

GSM850 – Head SAR Test (Gap: 25mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
150.	GPRS_4TX	Front	128	824.2	27.92	28.5	1.143	0.349	0.399

GSM1900 –Head SAR Test (Gap: 25mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
151.	GPRS_4TX	Front	810	1909.8	25.11	25.5	1.094	0.137	0.150

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
3	WCDMA (Voice)+ WLAN(Data)	Yes	Yes	-
4	HSDPA(Data) + WLAN(Data)	-	-	Yes
5	HSUPA(Data) + WLAN(Data)	-	-	Yes
6	LTE(Data) + WLAN(Data)	-	-	Yes
7	GSM(Voice) + Bluetooth(Data)	Yes	Yes	-
8	GPRS/ EDGE(Data) + Bluetooth(Data)	Yes	-	Yes
9	WCDMA(Voice) + Bluetooth(Data)	Yes	Yes	-
10	HSDPA(Data)+ Bluetooth(Data)	-	-	Yes
11	HSUPA(Data) + Bluetooth(Data)	-	-	Yes
12	LTE(Data) + Bluetooth(Data)	-	-	Yes

Remark:

1. GSM ,WCDMA and LTE 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 D01 v06, 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 D01 v06 as below:

Bluetooth:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	X	SAR(1g) 5mm	SAR(1g) 10mm
6.0	3.98	5/10	2.441	7.5	0.166	0.083

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

Head SAR

WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Right Cheek	GSM850	0.357	0.038	0.395
Right Tilted	GSM850	0.043	0.027	0.07
Left Cheek	GSM850	0.416	0.118	0.534
Left Tilted	GSM850	0.046	0.037	0.083
Right Cheek	GSM1900	0.229	0.038	0.267
Right Tilted	GSM1900	0.039	0.027	0.066
Left Cheek	GSM1900	0.287	0.118	0.405
Left Tilted	GSM1900	0.057	0.037	0.094
Right Cheek	GPRS850	0.458	0.038	0.496
Right Tilted	GPRS850	0.201	0.027	0.228
Left Cheek	GPRS850	0.497	0.118	0.615
Left Tilted	GPRS850	0.210	0.037	0.247
Right Cheek	GPRS1900	0.459	0.038	0.497
Right Tilted	GPRS1900	0.042	0.027	0.069
Left Cheek	GPRS1900	0.524	0.118	0.642
Left Tilted	GPRS1900	0.085	0.037	0.122
Right Cheek	WCDMA Band 2	0.347	0.038	0.385
Right Tilted	WCDMA Band 2	0.026	0.027	0.053
Left Cheek	WCDMA Band 2	0.418	0.118	0.536
Left Tilted	WCDMA Band 2	0.074	0.037	0.111
Right Cheek	WCDMA Band 5	0.379	0.038	0.417
Right Tilted	WCDMA Band 5	0.046	0.027	0.073
Left Cheek	WCDMA Band 5	0.397	0.118	0.515
Left Tilted	WCDMA Band 5	0.032	0.037	0.069
Right Cheek	LTE Band 2	0.423	0.038	0.461
Right Tilted	LTE Band 2	0.027	0.027	0.054
Left Cheek	LTE Band 2	0.718	0.118	**0.836**
Left Tilted	LTE Band 2	0.085	0.037	0.122
Right Cheek	LTE Band 4	0.106	0.038	0.144
Right Tilted	LTE Band 4	0.029	0.027	0.056
Left Cheek	LTE Band 4	0.192	0.118	0.31
Left Tilted	LTE Band 4	0.094	0.037	0.131
Right Cheek	LTE Band 7	0.062	0.038	0.1
Right Tilted	LTE Band 7	0.009	0.027	0.036
Left Cheek	LTE Band 7	0.070	0.118	0.188
Left Tilted	LTE Band 7	0.010	0.037	0.047
Right Cheek	LTE Band 13	0.366	0.038	0.404

Right Tilted	LTE Band 13	0.037	0.027	0.064
Left Cheek	LTE Band 13	0.370	0.118	0.488
Left Tilted	LTE Band 13	0.041	0.037	0.078
Right Cheek	LTE Band 17	0.151	0.038	0.189
Right Tilted	LTE Band 17	0.060	0.027	0.087
Left Cheek	LTE Band 17	0.162	0.118	0.28
Left Tilted	LTE Band 17	0.047	0.037	0.084

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Right Cheek	GSM850	0.357	0.166	0.523
Right Tilted	GSM850	0.043	0.166	0.209
Left Cheek	GSM850	0.416	0.166	0.582
Left Tilted	GSM850	0.046	0.166	0.212
Right Cheek	GSM1900	0.229	0.166	0.395
Right Tilted	GSM1900	0.039	0.166	0.205
Left Cheek	GSM1900	0.287	0.166	0.453
Left Tilted	GSM1900	0.057	0.166	0.223
Right Cheek	GPRS850	0.458	0.166	0.624
Right Tilted	GPRS850	0.201	0.166	0.367
Left Cheek	GPRS850	0.497	0.166	0.663
Left Tilted	GPRS850	0.210	0.166	0.376
Right Cheek	GPRS1900	0.459	0.166	0.625
Right Tilted	GPRS1900	0.042	0.166	0.208
Left Cheek	GPRS1900	0.524	0.166	0.69
Left Tilted	GPRS1900	0.085	0.166	0.251
Right Cheek	WCDMA Band 2	0.347	0.166	0.513
Right Tilted	WCDMA Band 2	0.026	0.166	0.192
Left Cheek	WCDMA Band 2	0.418	0.166	0.584
Left Tilted	WCDMA Band 2	0.074	0.166	0.24
Right Cheek	WCDMA Band 5	0.379	0.166	0.545
Right Tilted	WCDMA Band 5	0.046	0.166	0.212
Left Cheek	WCDMA Band 5	0.397	0.166	0.563
Left Tilted	WCDMA Band 5	0.032	0.166	0.198
Right Cheek	LTE Band 2	0.423	0.166	0.589
Right Tilted	LTE Band 2	0.027	0.166	0.193
Left Cheek	LTE Band 2	0.718	0.166	**0.884**
Left Tilted	LTE Band 2	0.085	0.166	0.251
Right Cheek	LTE Band 4	0.106	0.166	0.272
Right Tilted	LTE Band 4	0.029	0.166	0.195
Left Cheek	LTE Band 4	0.192	0.166	0.358
Left Tilted	LTE Band 4	0.094	0.166	0.26
Right Cheek	LTE Band 7	0.062	0.166	0.228
Right Tilted	LTE Band 7	0.009	0.166	0.175
Left Cheek	LTE Band 7	0.070	0.166	0.236
Left Tilted	LTE Band 7	0.010	0.166	0.176
Right Cheek	LTE Band 13	0.366	0.166	0.532
Right Tilted	LTE Band 13	0.037	0.166	0.203

Left Cheek	LTE Band 13	0.370	0.166	0.536
Left Tilted	LTE Band 13	0.041	0.166	0.207
Right Cheek	LTE Band 17	0.151	0.166	0.317
Right Tilted	LTE Band 17	0.060	0.166	0.226
Left Cheek	LTE Band 17	0.162	0.166	0.328
Left Tilted	LTE Band 17	0.047	0.166	0.213

Body-worn SAR

WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	1.409	0.045	**1.454**
Front	GSM850	0.618	0.040	0.658
Back	GSM1900	0.369	0.045	0.414
Front	GSM1900	0.479	0.040	0.519
Back	WCDMA Band 2	0.454	0.045	0.499
Front	WCDMA Band 2	0.346	0.040	0.386
Back	WCDMA Band 5	0.647	0.045	0.692
Front	WCDMA Band 5	0.408	0.040	0.448
Back	LTE Band 2	0.502	0.045	0.547
Front	LTE Band 2	0.642	0.040	0.682
Back	LTE Band 4	0.277	0.045	0.322
Front	LTE Band 4	0.222	0.040	0.262
Back	LTE Band 7	0.788	0.045	0.833
Front	LTE Band 7	0.094	0.040	0.134
Back	LTE Band 13	1.015	0.045	1.06
Front	LTE Band 13	0.553	0.040	0.593
Back	LTE Band 17	0.196	0.045	0.241
Front	LTE Band 17	0.038	0.040	0.078

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	1.409	0.083	**1.492**
Front	GSM850	0.618	0.083	0.701
Back	GSM1900	0.369	0.083	0.452
Front	GSM1900	0.479	0.083	0.562
Back	WCDMA Band 2	0.454	0.083	0.537
Front	WCDMA Band 2	0.346	0.083	0.429
Back	WCDMA Band 5	0.647	0.083	0.73
Front	WCDMA Band 5	0.408	0.083	0.491
Back	LTE Band 2	0.502	0.083	0.585
Front	LTE Band 2	0.642	0.083	0.725
Back	LTE Band 4	0.277	0.083	0.36
Front	LTE Band 4	0.222	0.083	0.305
Back	LTE Band 7	0.788	0.083	0.871
Front	LTE Band 7	0.094	0.083	0.177

Back	LTE Band 13	1.015	0.083	1.098
Front	LTE Band 13	0.553	0.083	0.636
Back	LTE Band 17	0.196	0.083	0.279
Front	LTE Band 17	0.038	0.083	0.121

Hotspot SAR

WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	1.409	0.045	**1.454**
Front	GSM850	0.618	0.040	0.658
Top side	GSM850	--	0.025	0.025
Bottom side	GSM850	0.120	--	0.120
Right side	GSM850	0.130	0.013	0.143
Left side	GSM850	0.253	--	0.253
Back	GSM1900	0.369	0.045	0.414
Front	GSM1900	0.479	0.040	0.519
Top side	GSM1900	--	0.025	0.025
Bottom side	GSM1900	0.397	--	0.397
Right side	GSM1900	0.110	0.013	0.123
Left side	GSM1900	0.166	--	0.166
Back	WCDMA Band 2	0.454	0.045	0.499
Front	WCDMA Band 2	0.346	0.040	0.386
Top side	WCDMA Band 2	--	0.025	0.025
Bottom side	WCDMA Band 2	0.302	--	0.302
Right side	WCDMA Band 2	0.127	0.013	0.14
Left side	WCDMA Band 2	0.110	--	0.110
Back	WCDMA Band 5	0.647	0.045	0.692
Front	WCDMA Band 5	0.408	0.040	0.448
Top side	WCDMA Band 5	--	0.025	0.025
Bottom side	WCDMA Band 5	0.376	--	0.376
Right side	WCDMA Band 5	0.155	0.013	0.168
Left side	WCDMA Band 5	0.047	--	0.047
Back	LTE Band 2	0.502	0.045	0.547
Front	LTE Band 2	0.642	0.040	0.682
Top side	LTE Band 2	--	0.025	0.025
Bottom side	LTE Band 2	0.515	--	0.515
Right side	LTE Band 2	0.144	0.013	0.157
Left side	LTE Band 2	0.138	--	0.138
Back	LTE Band 4	0.277	0.045	0.322
Front	LTE Band 4	0.222	0.040	0.262
Top side	LTE Band 4	--	0.025	0.025
Bottom side	LTE Band 4	0.144	--	0.144
Right side	LTE Band 4	0.081	0.013	0.094
Left side	LTE Band 4	0.094	--	0.094
Back	LTE Band 7	0.788	0.045	0.833

Front	LTE Band 7	0.094	0.040	0.134
Top side	LTE Band 7	--	0.025	0.025
Bottom side	LTE Band 7	0.326	--	0.326
Right side	LTE Band 7	0.113	0.013	0.126
Left side	LTE Band 7	0.051	--	0.051
Back	LTE Band 13	1.015	0.045	1.06
Front	LTE Band 13	0.553	0.040	0.593
Top side	LTE Band 13	--	0.025	0.025
Bottom side	LTE Band 13	0.061	--	0.061
Right side	LTE Band 13	0.097	0.013	0.11
Left side	LTE Band 13	0.067	--	0.067
Back	LTE Band 17	0.196	0.045	0.241
Front	LTE Band 17	0.038	0.040	0.078
Top side	LTE Band 17	--	0.025	0.025
Bottom side	LTE Band 17	0.464	--	0.464
Right side	LTE Band 17	0.027	0.013	0.04
Left side	LTE Band 17	0.032	--	0.032

WWAN and Bluetooth

	WWAN		**Bluetooth**	**Summed SAR (W/kg)**
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM850	1.409	0.083	**1.492**
Front	GSM850	0.618	0.083	0.701
Top side	GSM850	--	0.083	0.083
Bottom side	GSM850	0.120	--	0.120
Right side	GSM850	0.130	0.083	0.213
Left side	GSM850	0.253	--	0.253
Back	GSM1900	0.369	0.083	0.452
Front	GSM1900	0.479	0.083	0.562
Top side	GSM1900	--	0.083	0.083
Bottom side	GSM1900	0.397	--	0.397
Right side	GSM1900	0.110	0.083	0.193
Left side	GSM1900	0.166	--	0.166
Back	WCDMA Band 2	0.454	0.083	0.537
Front	WCDMA Band 2	0.346	0.083	0.429
Top side	WCDMA Band 2	--	0.083	0.083
Bottom side	WCDMA Band 2	0.302	--	0.302
Right side	WCDMA Band 2	0.127	0.083	0.21
Left side	WCDMA Band 2	0.110	--	0.110
Back	WCDMA Band 5	0.647	0.083	0.73
Front	WCDMA Band 5	0.408	0.083	0.491

Top side	WCDMA Band 5	--	0.083	0.083
Bottom side	WCDMA Band 5	0.376	--	0.376
Right side	WCDMA Band 5	0.155	0.083	0.238
Left side	WCDMA Band 5	0.047	--	0.047
Back	LTE Band 2	0.502	0.083	0.585
Front	LTE Band 2	0.642	0.083	0.725
Top side	LTE Band 2	--	0.083	0.083
Bottom side	LTE Band 2	0.515	--	0.515
Right side	LTE Band 2	0.144	0.083	0.227
Left side	LTE Band 2	0.138	--	0.138
Back	LTE Band 4	0.277	0.083	0.36
Front	LTE Band 4	0.222	0.083	0.305
Top side	LTE Band 4	--	0.083	0.083
Bottom side	LTE Band 4	0.144	--	0.144
Right side	LTE Band 4	0.081	0.083	0.164
Left side	LTE Band 4	0.094	--	0.094
Back	LTE Band 7	0.788	0.083	0.871
Front	LTE Band 7	0.094	0.083	0.177
Top side	LTE Band 7	--	0.083	0.083
Bottom side	LTE Band 7	0.326	--	0.326
Right side	LTE Band 7	0.113	0.083	0.196
Left side	LTE Band 7	0.051	--	0.051
Back	LTE Band 13	1.015	0.083	1.098
Front	LTE Band 13	0.553	0.083	0.636
Top side	LTE Band 13	--	0.083	0.083
Bottom side	LTE Band 13	0.061	--	0.061
Right side	LTE Band 13	0.097	0.083	0.18
Left side	LTE Band 13	0.067	--	0.067
Back	LTE Band 17	0.196	0.083	0.279
Front	LTE Band 17	0.038	0.083	0.121
Top side	LTE Band 17	--	0.083	0.083
Bottom side	LTE Band 17	0.464	--	0.464
Right side	LTE Band 17	0.027	0.083	0.11
Left side	LTE Band 17	0.032	--	0.032

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: 01/15/2018

Measurement duration: 7 minutes 21 seconds

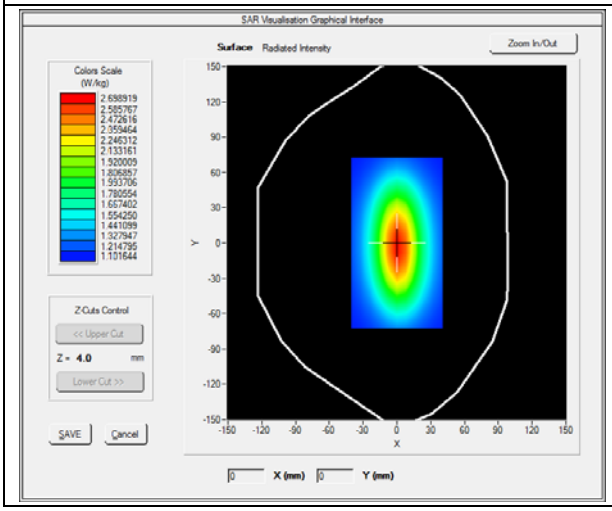
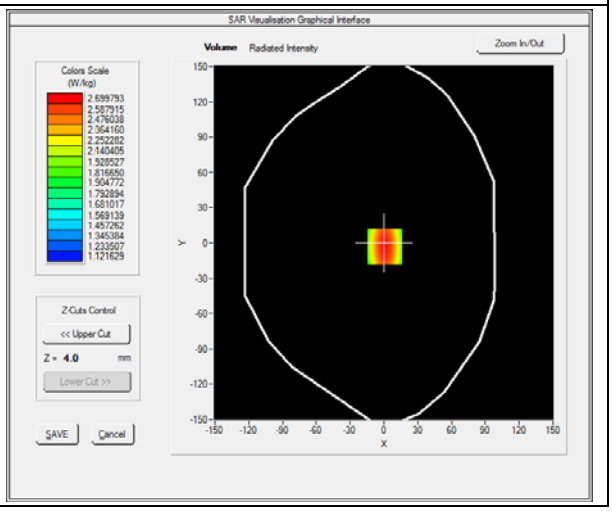
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.99; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW750
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	750.000000
Relative Permittivity (real part)	41.320574
Conductivity (S/m)	0.862373
Power Variation (%)	0.038363
Ambient Temperature	21.1
Liquid Temperature	21.3

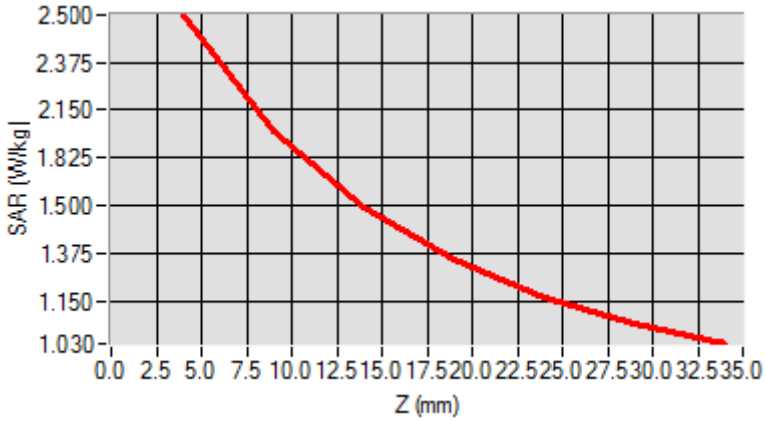
SURFACE SAR	VOLUME SAR
	

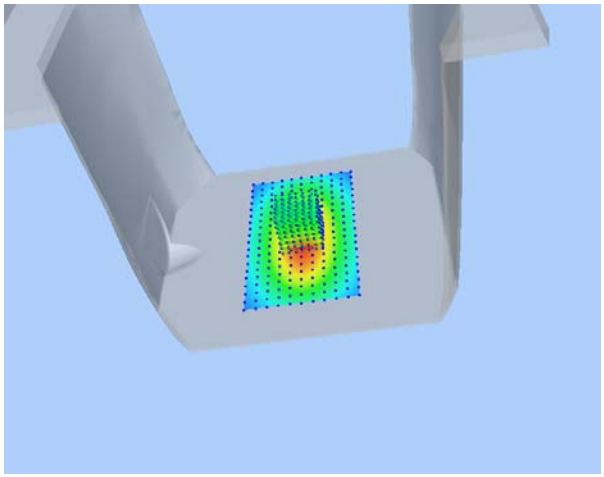
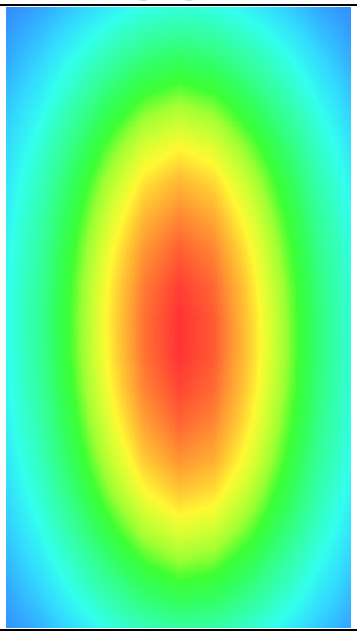
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**1.042744**
SAR 1g (W/Kg)	**2.164534**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**2.3634**	**1.8023**	**1.4523**	**1.2514**	**1.1005**	**1.0245**



3D screen shot	**Hot spot position**
	

MEASUREMENT 2

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/15/2018

Measurement duration: 7 minutes 21 seconds

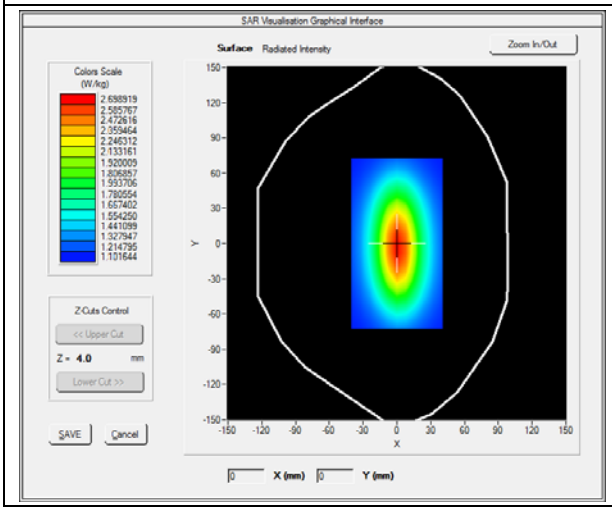
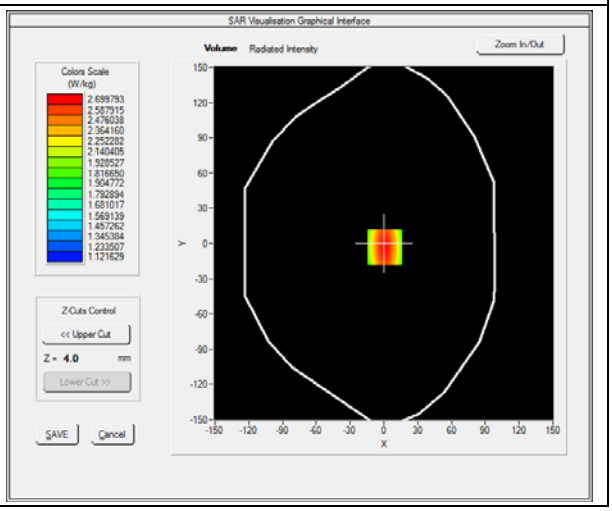
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2017

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 (%)	0.038437
Ambient Temperature	21.1
Liquid Temperature	21.3

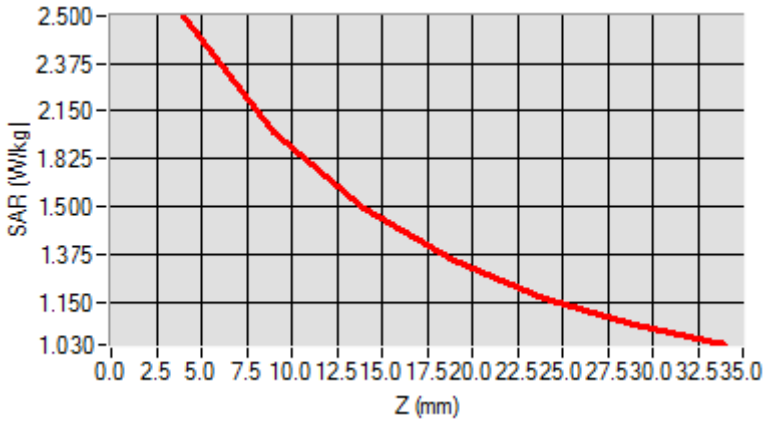
SURFACE SAR	VOLUME SAR
	

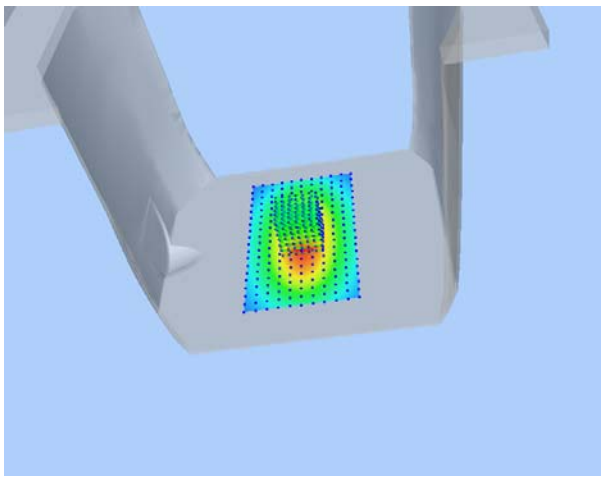
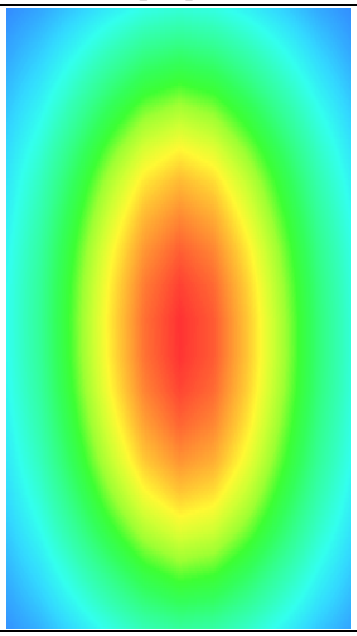
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**1.519489**
SAR 1g (W/Kg)	**2.411253**

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 3

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/16/2018

Measurement duration: 12 minutes 21 seconds

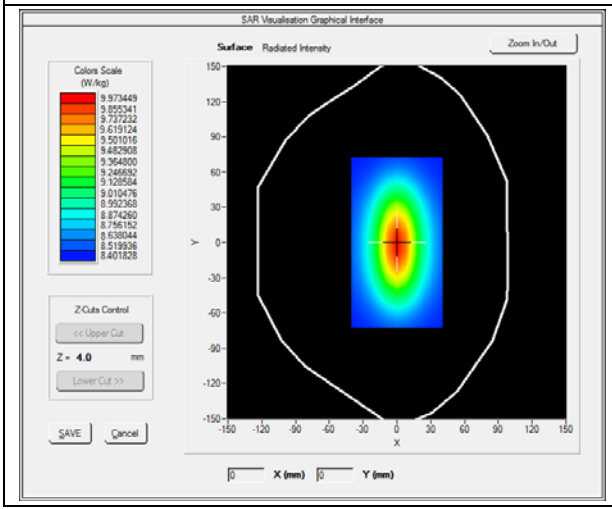
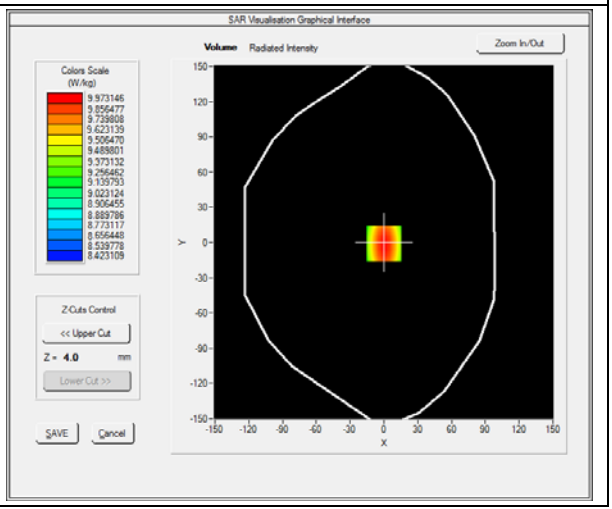
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	1800.000000
Relative Permittivity (real part)	39.024890
Conductivity (S/m)	1.371250
Power Variation (%)	1.401232
Ambient Temperature	21.1
Liquid Temperature	21.2

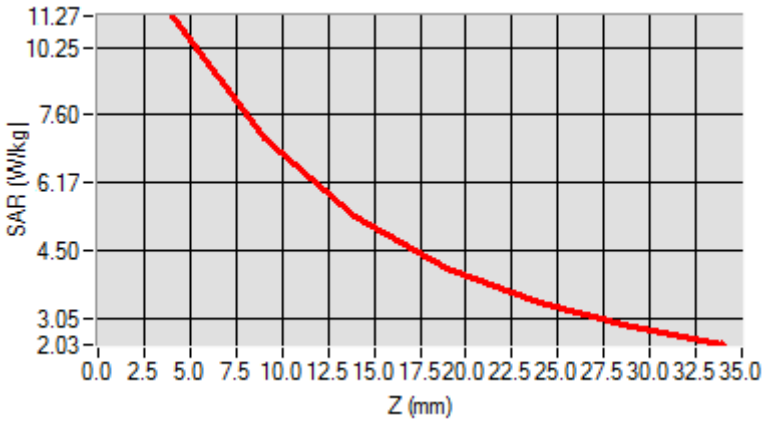
SURFACE SAR	VOLUME SAR
	

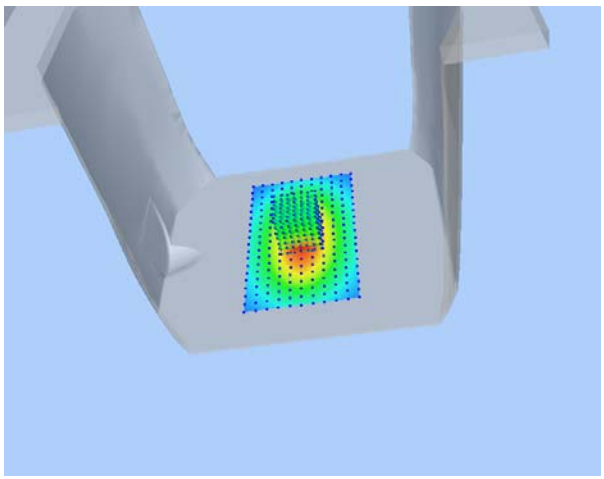
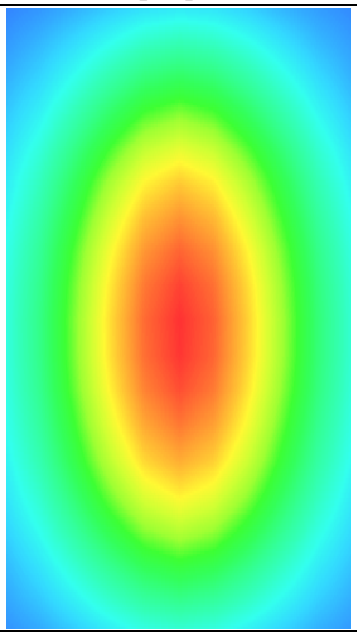
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**5.171252**
SAR 1g (W/Kg)	**9.611250**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**10.3455**	**7.1125**	**5.1026**	**3.425**	**3.0242**	**2.1125**



3D screen shot	**Hot spot position**
	

MEASUREMENT 4

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/16/2018

Measurement duration: 12 minutes 21 seconds

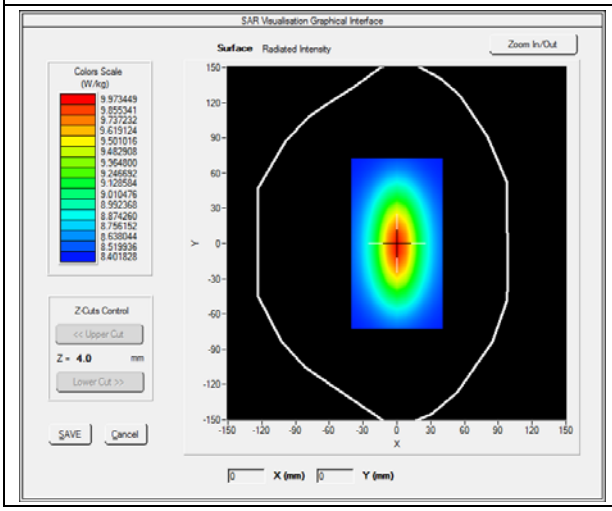
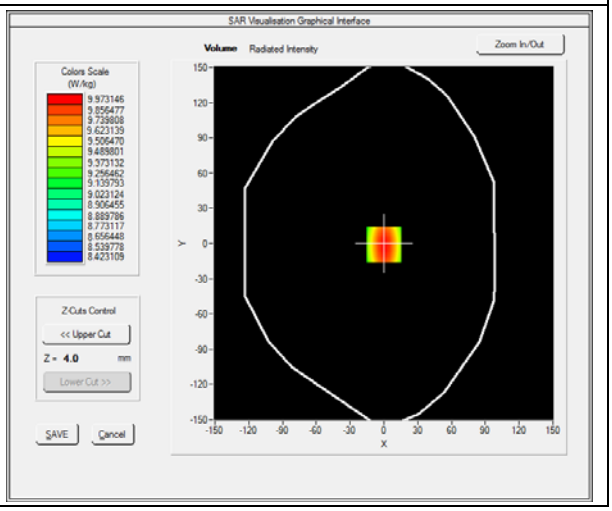
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2017

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

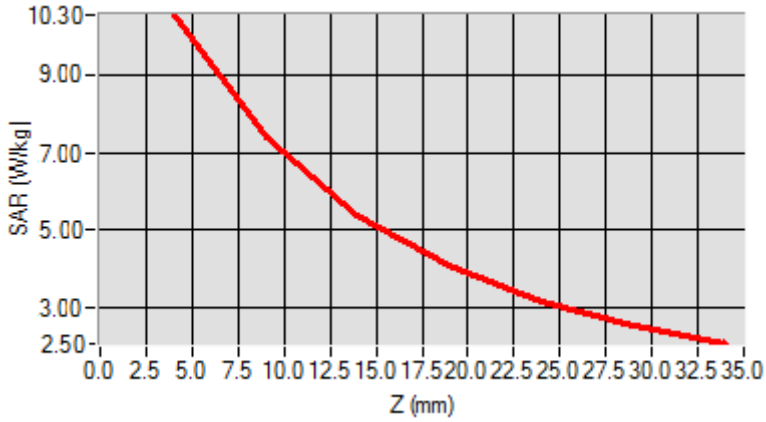
SURFACE SAR	VOLUME SAR
	

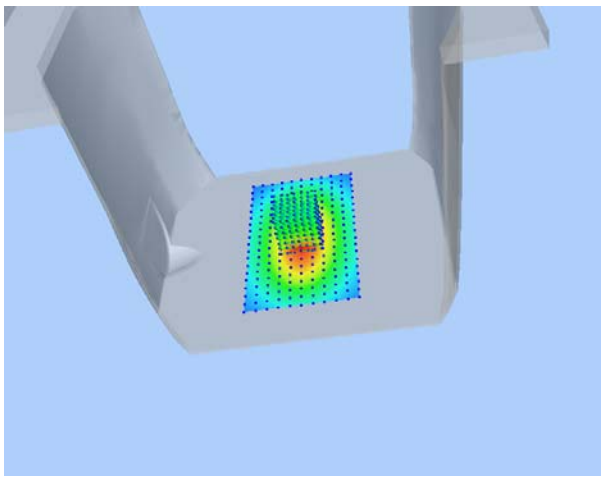
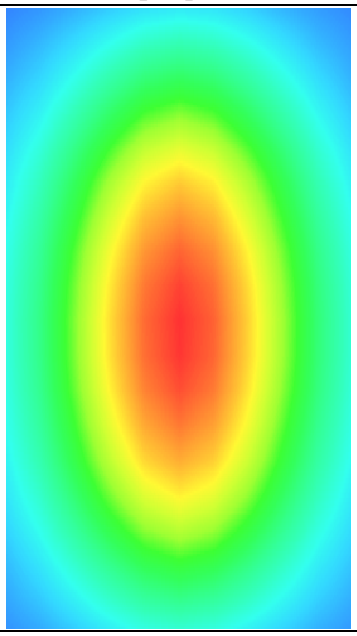
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**5.174526**
SAR 1g (W/Kg)	**9.913214**

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 5

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/17/2018

Measurement duration: 12 minutes 21 seconds

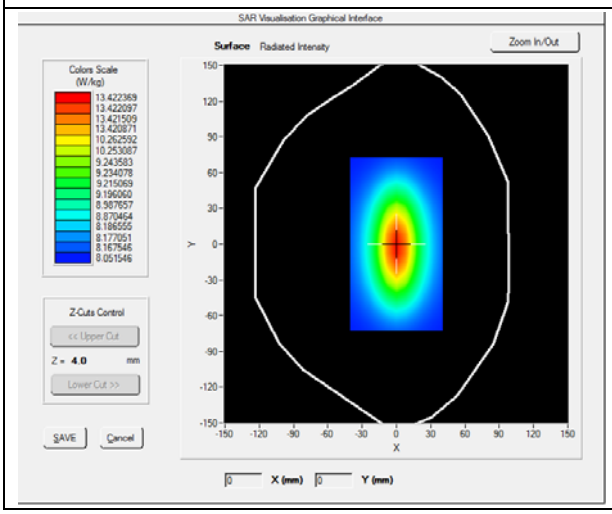
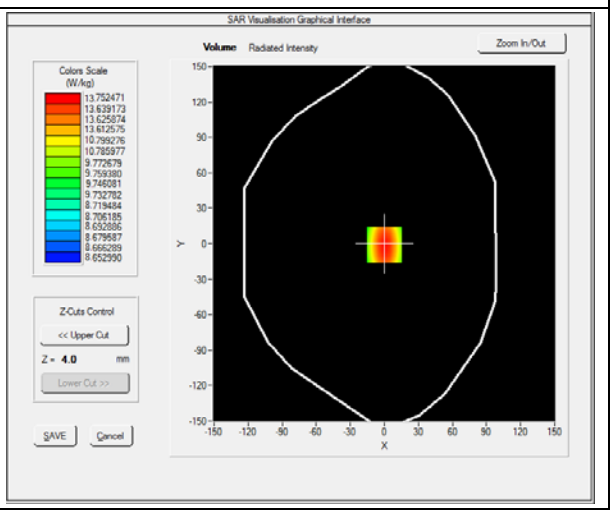
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 06/01/2017

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)	38.153660
Conductivity (S/m)	1.740236
Power Variation (%)	1.141452
Ambient Temperature	21.1
Liquid Temperature	21.2

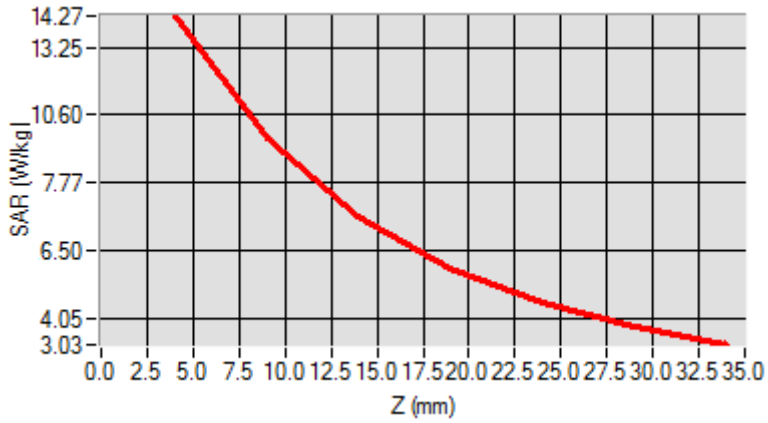
SURFACE SAR	VOLUME SAR
	

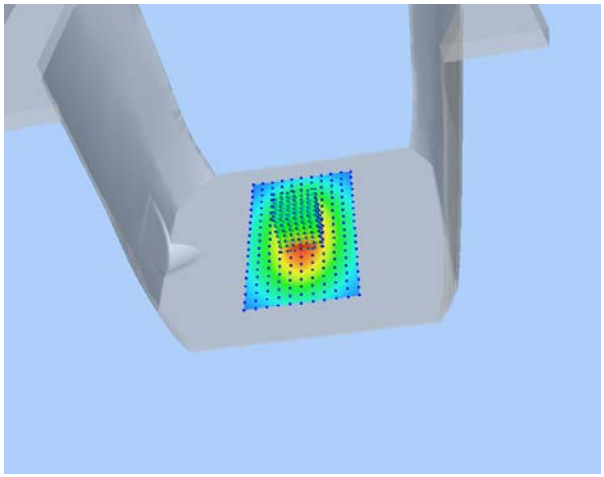
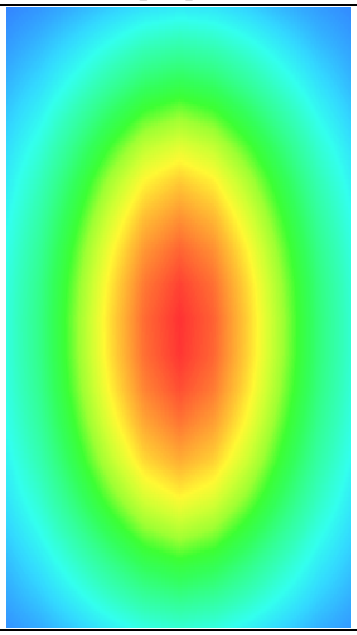
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**8.020427**
SAR 1g (W/Kg)	**13.452457**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**14.1034**	**12.0012**	**10.2624**	**7.4715**	**5.9022**	**4.5114**



3D screen shot	**Hot spot position**
	

MEASUREMENT 6

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/17/2018

Measurement duration: 12 minutes 21 seconds

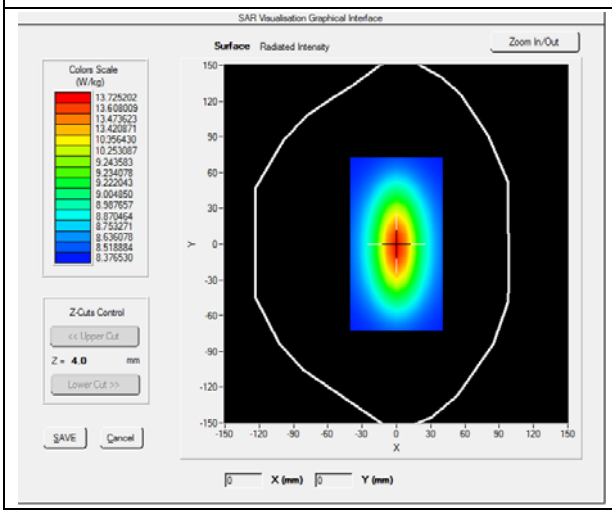
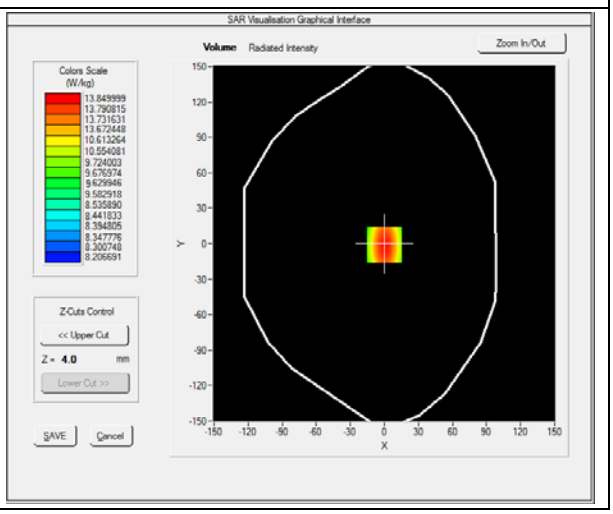
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2600.000000
Relative Permittivity (real part)	38.631092
Conductivity (S/m)	1.930182
Power Variation (%)	1.028221
Ambient Temperature	21.1
Liquid Temperature	21.2

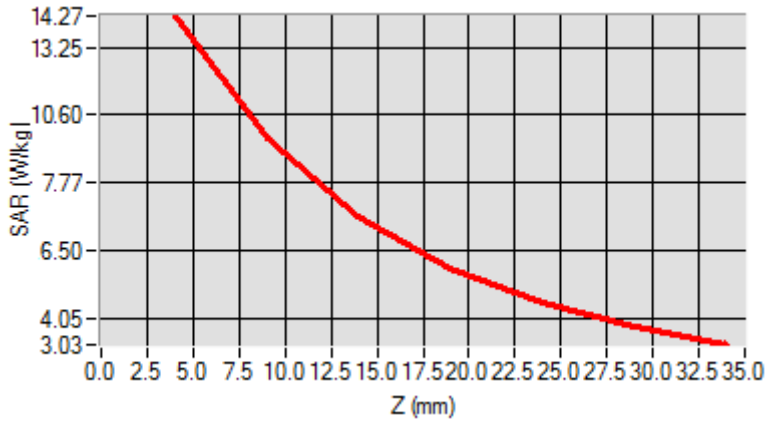
SURFACE SAR	VOLUME SAR
	

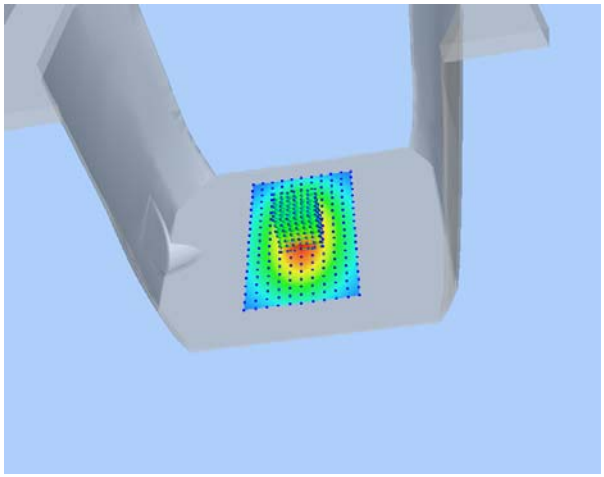
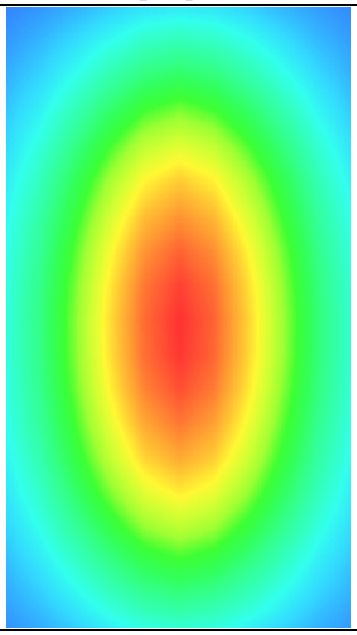
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**8.270822**
SAR 1g (W/Kg)	**13.670282**

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	14.1034	12.1354	10.2965	7.4854	5.9354	4.5186



3D screen shot	Hot spot position
	

MEASUREMENT 7

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/15/2018

Measurement duration: 12 minutes 21 seconds

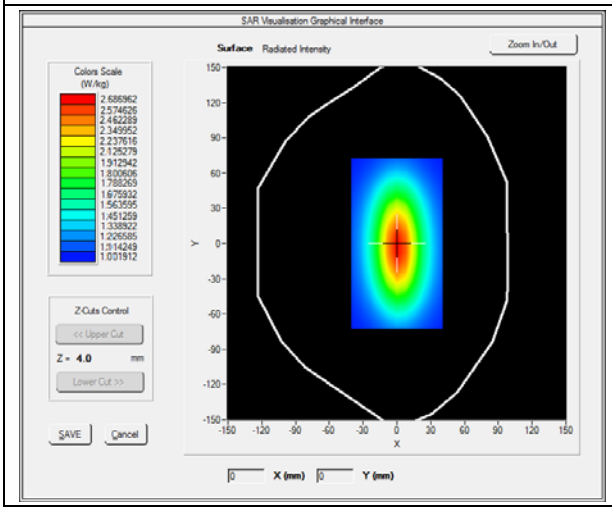
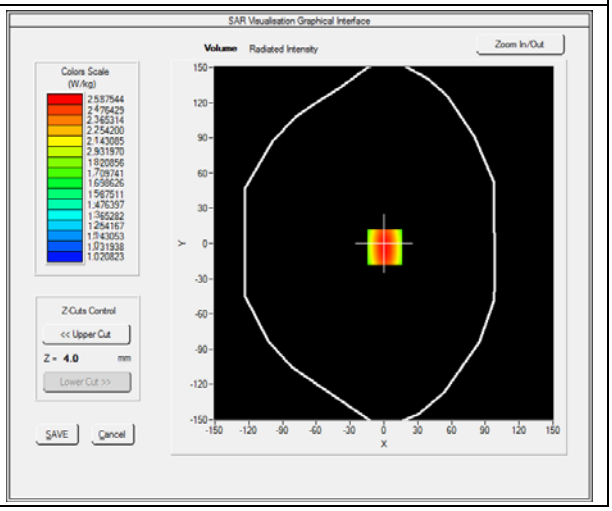
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.28; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW750
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	750.000000
Relative Permittivity (real part)	54.964739
Conductivity (S/m)	0.931048
Power Variation (%)	0.034745
Ambient Temperature	21.1
Liquid Temperature	21.3

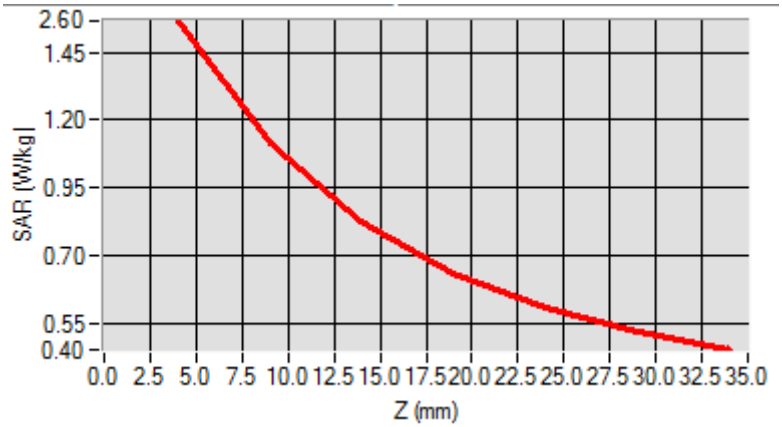
SURFACE SAR	VOLUME SAR
	

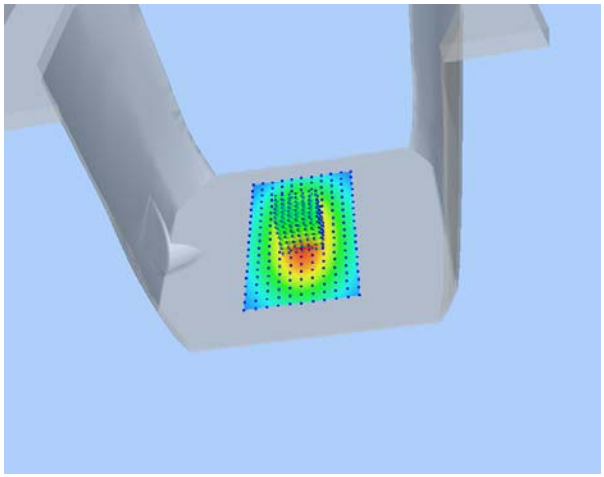
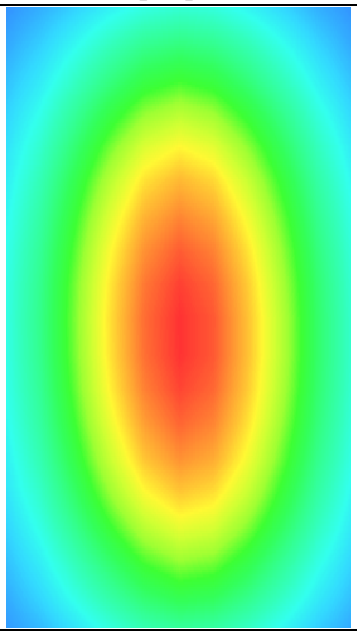
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**1.000865**
SAR 1g (W/Kg)	**2.124211**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**2.5132**	**1.1087**	**0.8214**	**0.5160**	**0.4875**	**0.4864**



3D screen shot	**Hot spot position**
	

MEASUREMENT 8

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/15/2018

Measurement duration: 12 minutes 21 seconds

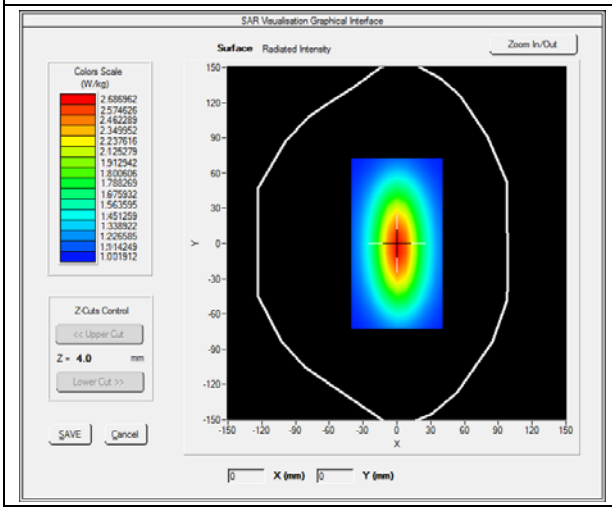
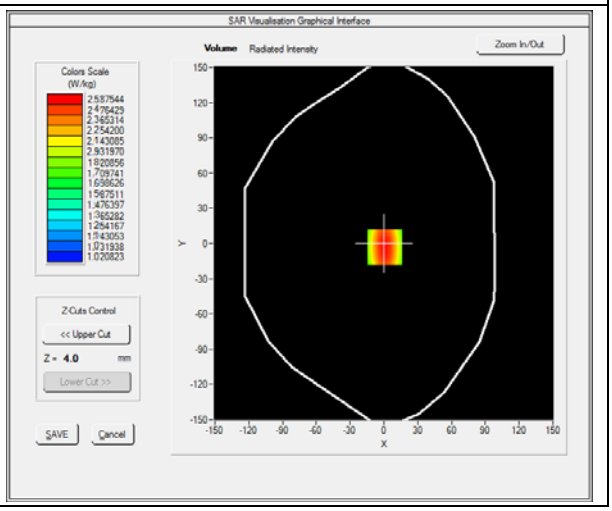
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2017

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

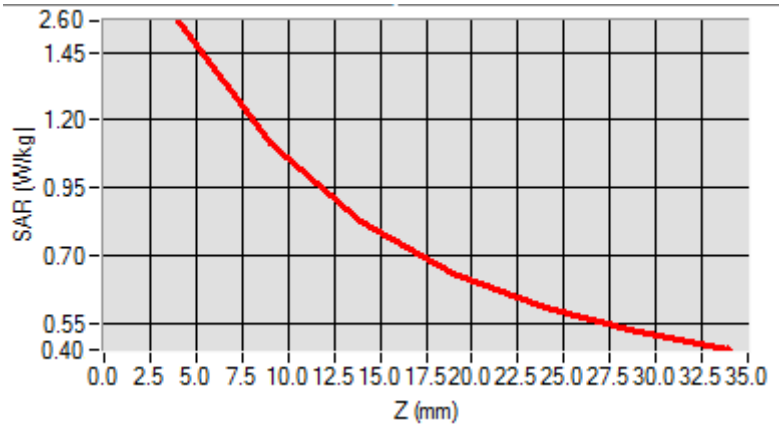
SURFACE SAR	VOLUME SAR
	

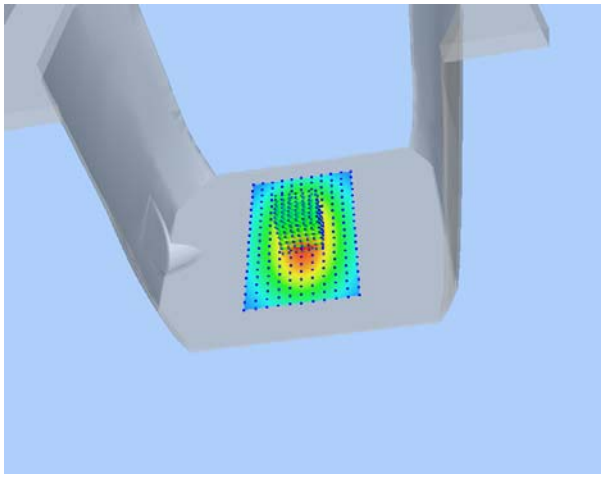
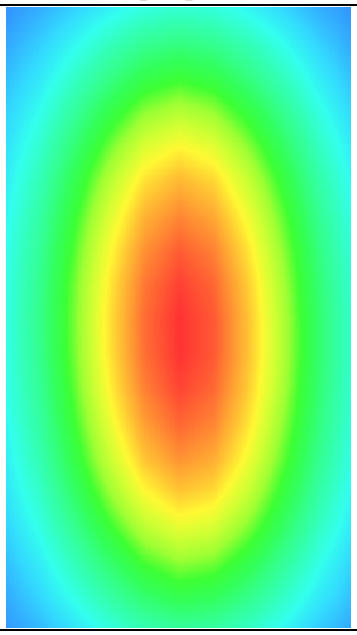
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**1.028956**
SAR 1g (W/Kg)	**2.354211**

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 9

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/16/2018

Measurement duration: 12 minutes 21 seconds

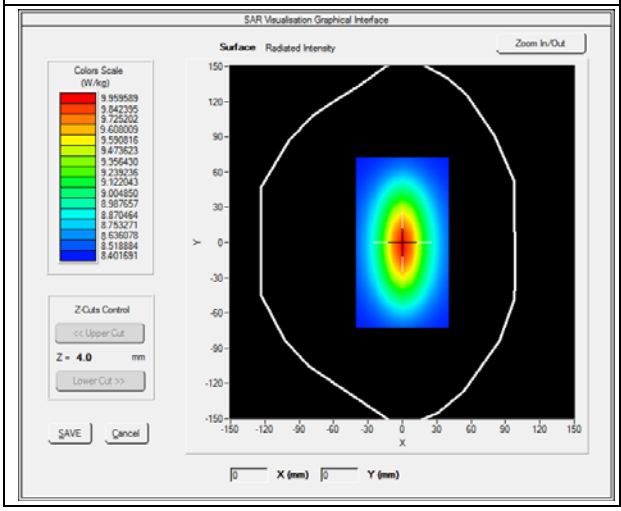
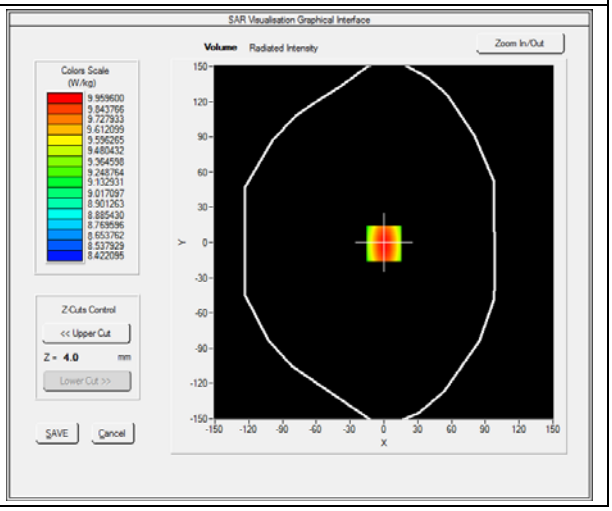
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	1800.000000
Relative Permittivity (real part)	51.224510
Conductivity (S/m)	1.461261
Power Variation (%)	0.845690
Ambient Temperature	21.1
Liquid Temperature	21.2

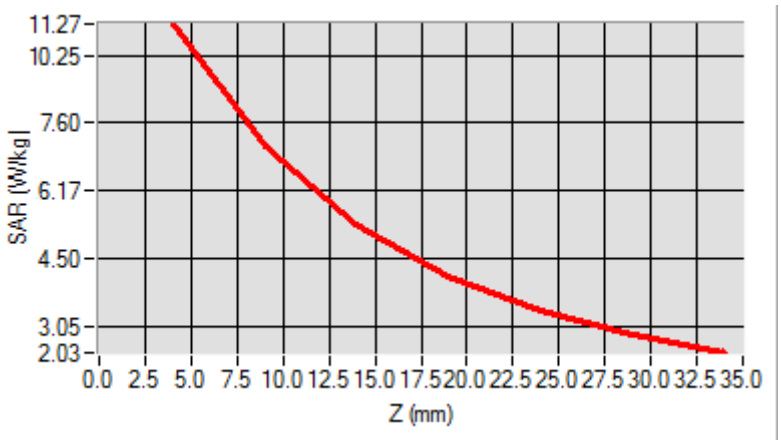
SURFACE SAR	VOLUME SAR
	

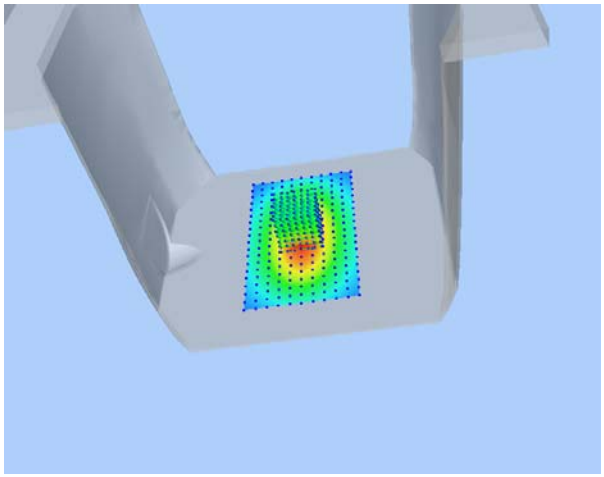
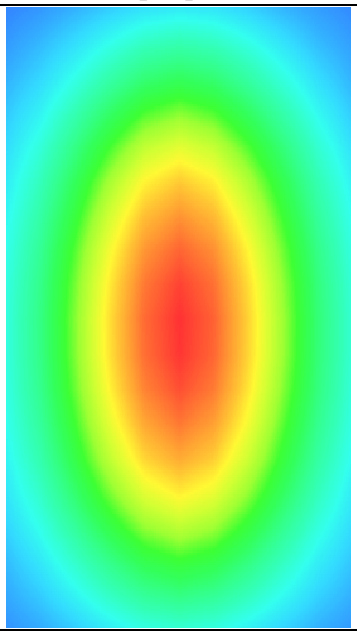
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**5.221202**
SAR 1g (W/Kg)	**9.582560**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**11.2425**	**9.4123**	**8.0345**	**6.9125**	**6.3092**	**3.9460**



3D screen shot	**Hot spot position**
	

MEASUREMENT 10

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/16/2018

Measurement duration: 12 minutes 21 seconds

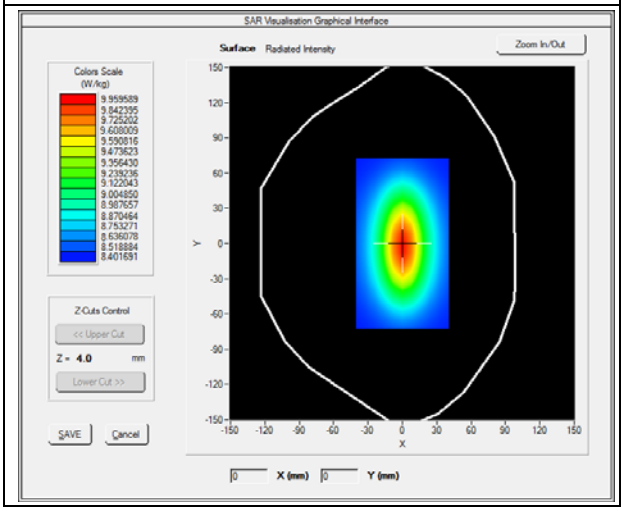
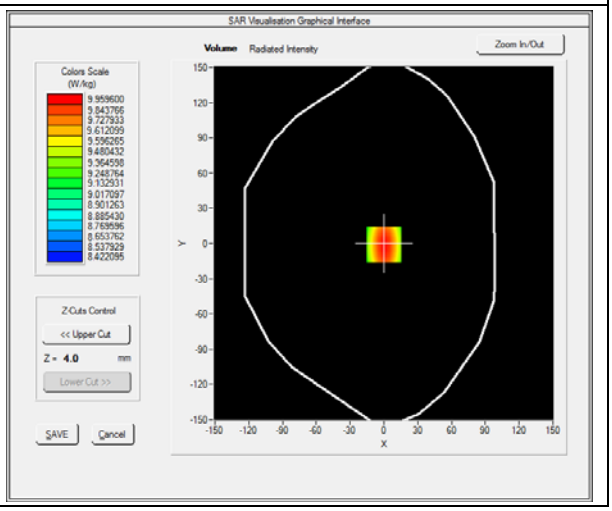
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2017

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

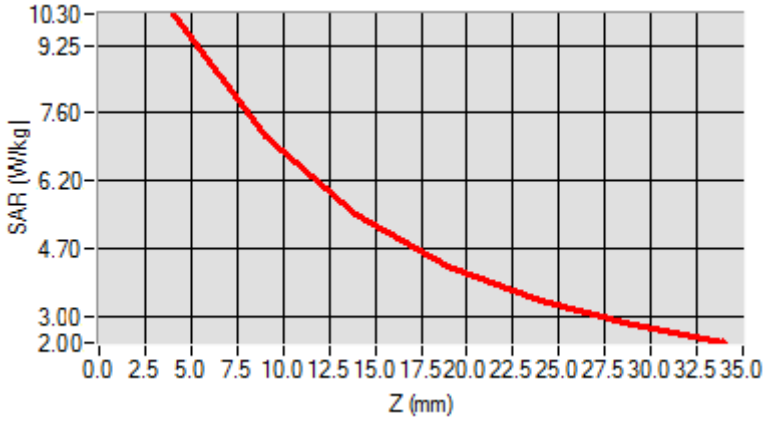
SURFACE SAR	VOLUME SAR
	

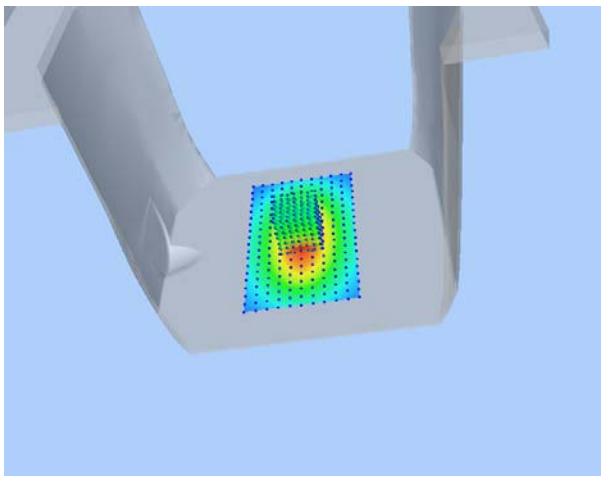
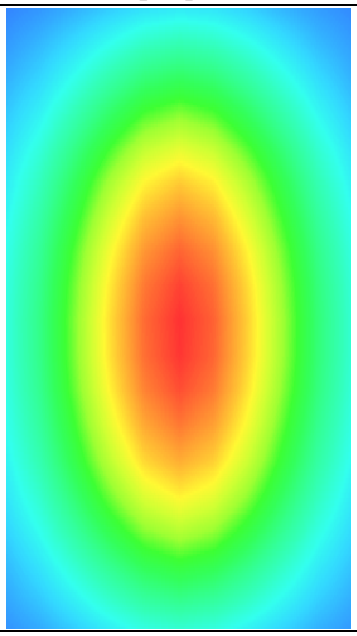
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**5.134651**
SAR 1g (W/Kg)	**9.781550**

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 11

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/17/2018

Measurement duration: 12 minutes 21 seconds

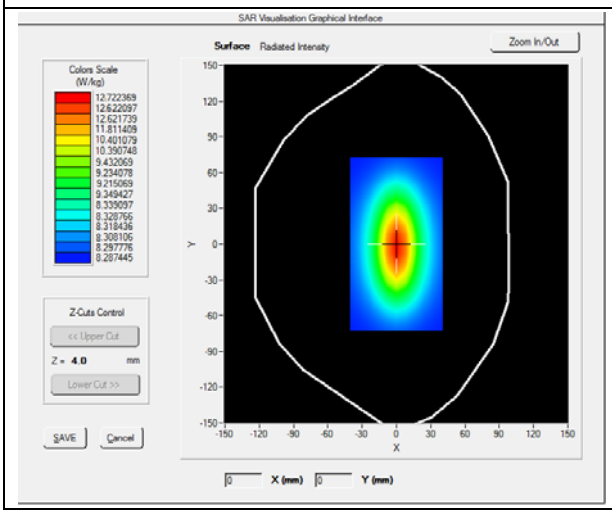
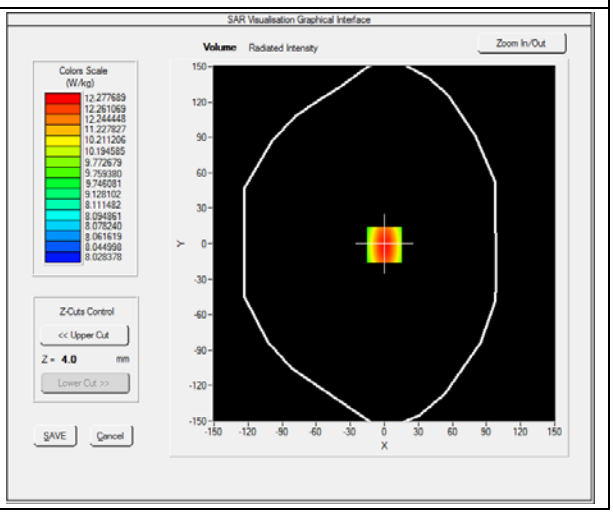
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.80; Calibrated: 06/01/2017

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)	52.010212
Conductivity (S/m)	1.910255
Power Variation (%)	1.369745
Ambient Temperature	21.1
Liquid Temperature	21.2

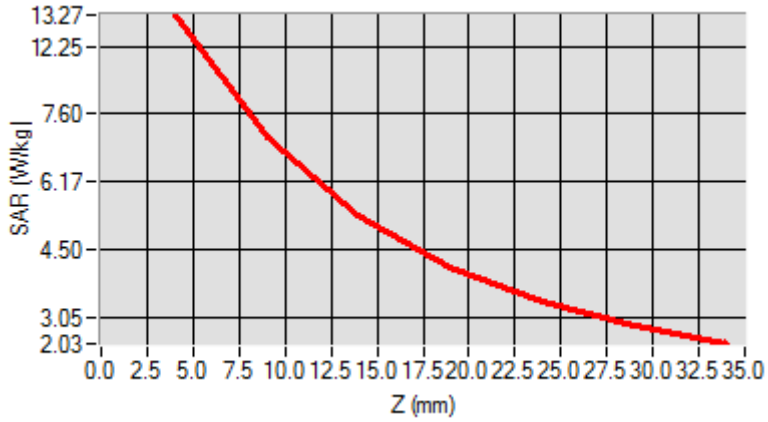
SURFACE SAR	VOLUME SAR
	

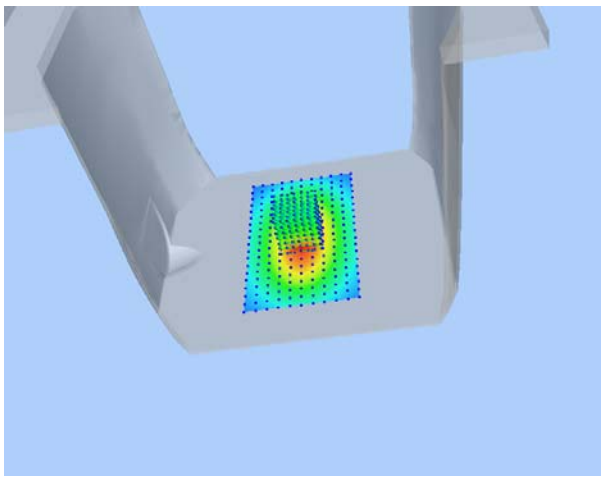
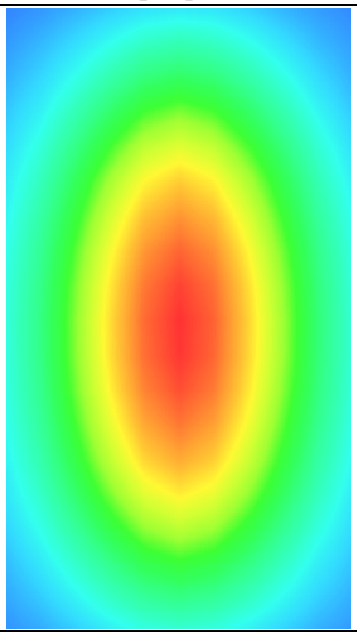
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**7.119522**
SAR 1g (W/Kg)	**12.592360**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**13.1911**	**11.7951**	**9.2945**	**8.5400**	**6.3712**	**4.6225**



3D screen shot	**Hot spot position**
	

MEASUREMENT 12

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/17/2018

Measurement duration: 12 minutes 21 seconds

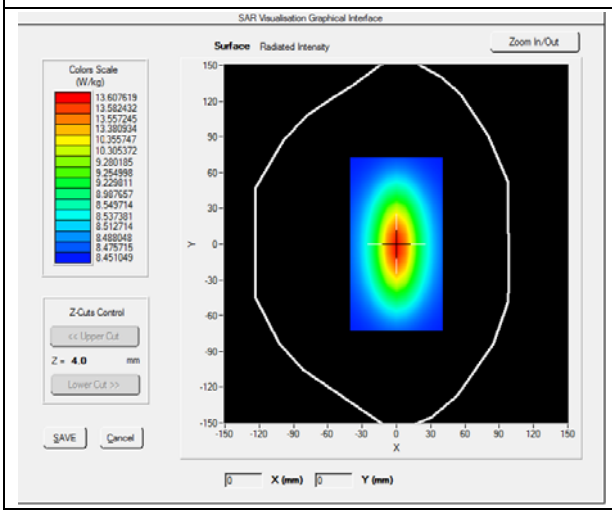
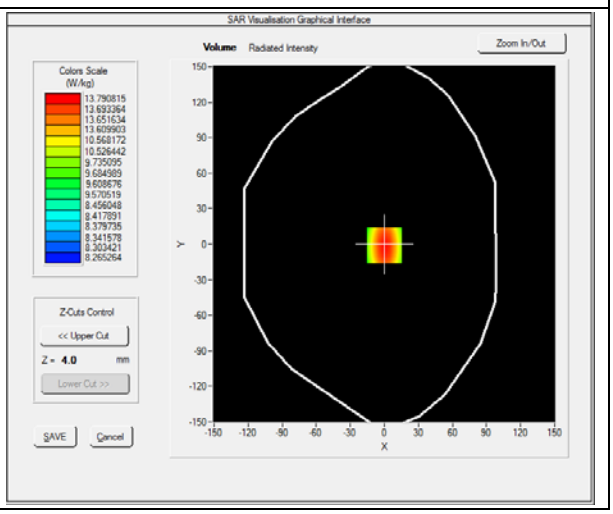
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2600.000000
Relative Permittivity (real part)	52.241202
Conductivity (S/m)	2.120943
Power Variation (%)	1.038832
Ambient Temperature	21.1
Liquid Temperature	21.2

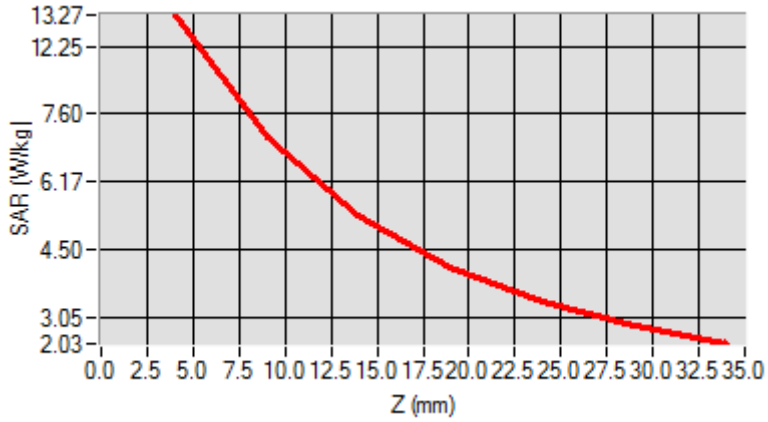
SURFACE SAR	VOLUME SAR
	

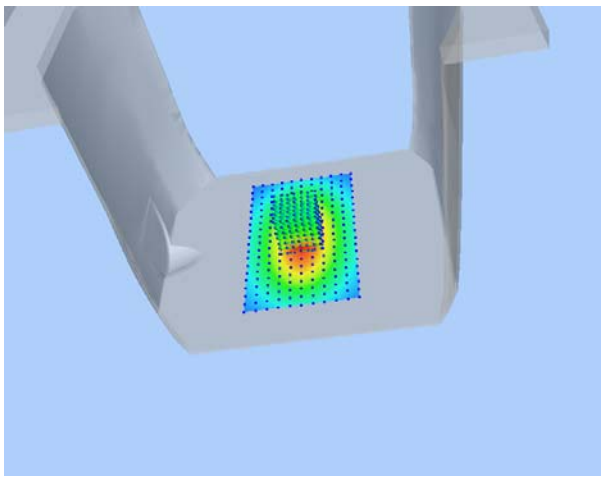
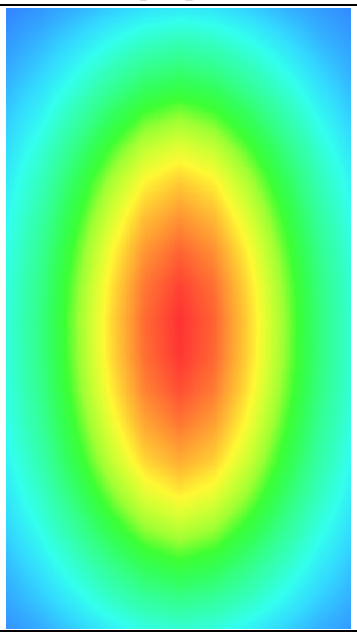
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**6.083781**
SAR 1g (W/Kg)	**13.430481**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**13.6473**	**11.8441**	**9.3627**	**8.5782**	**6.4357**	**4.6342**



3D screen shot	**Hot spot position**
	

MEASUREMENT 13

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/31/2018

Measurement duration: 7 minutes 21 seconds

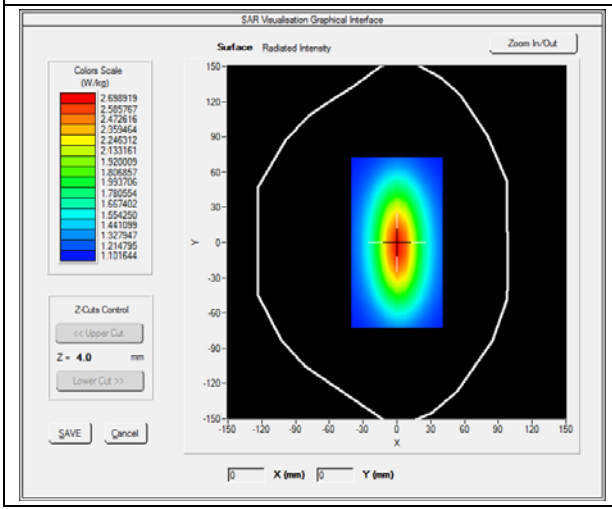
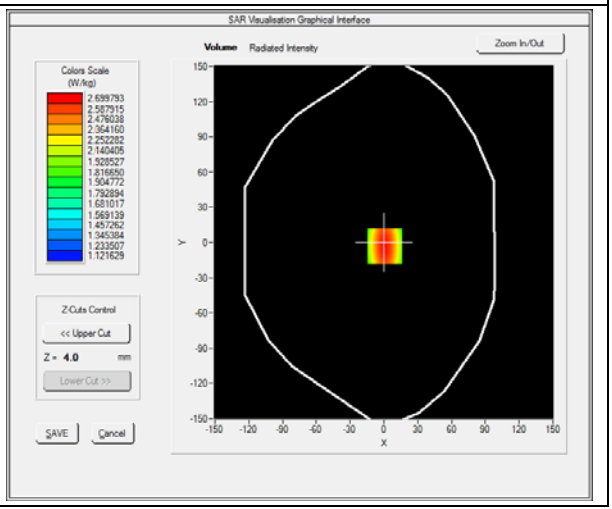
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2017

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)	41.170728
Conductivity (S/m)	0.880382
Power Variation (%)	0.097211
Ambient Temperature	21.1
Liquid Temperature	21.3

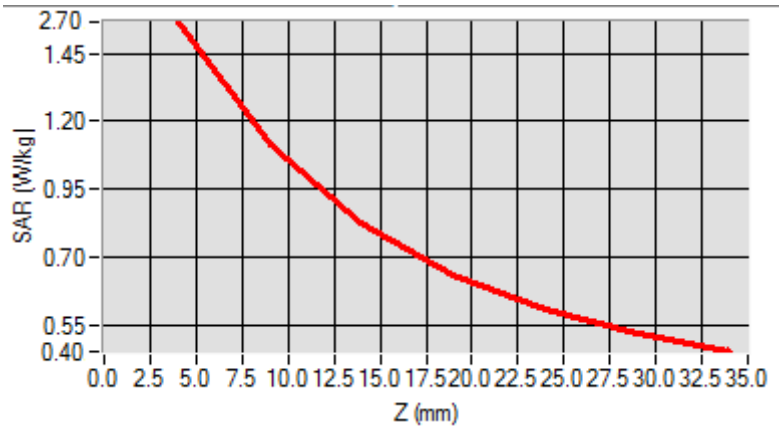
SURFACE SAR	VOLUME SAR
	

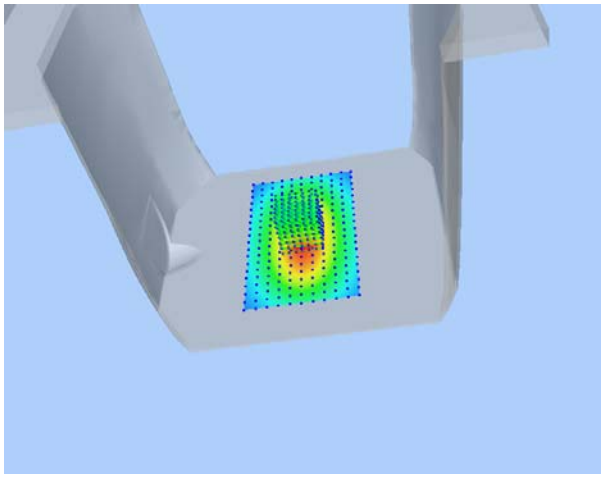
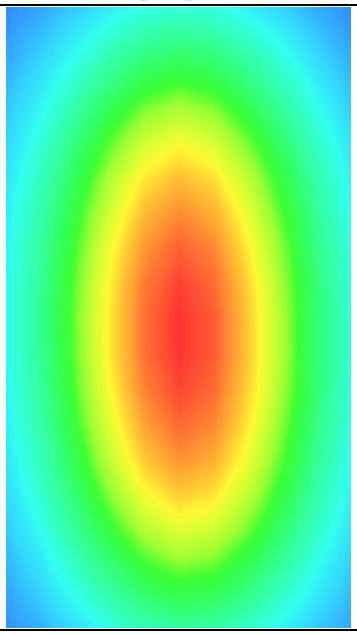
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**1.491646**
SAR 1g (W/Kg)	**2.432191**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**2.6122**	**1.1422**	**0.8890**	**0.5960**	**0.5024**	**0.5120**



3D screen shot	**Hot spot position**
	

MEASUREMENT 14

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 01/31/2018

Measurement duration: 12 minutes 21 seconds

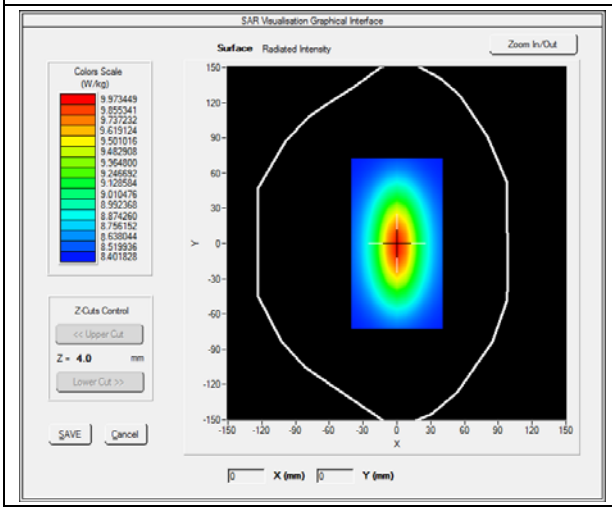
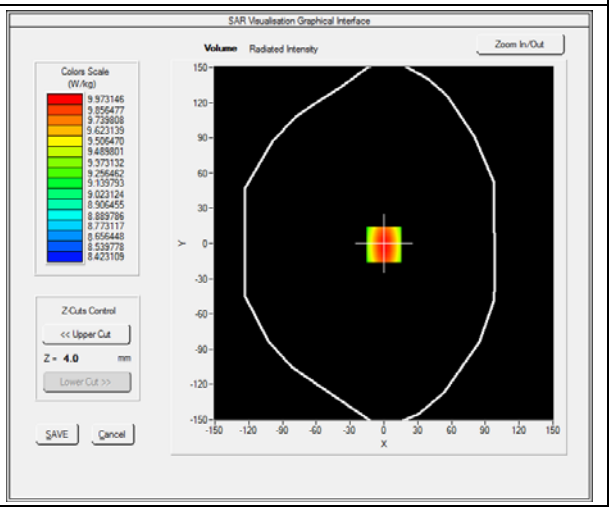
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2017

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)	38.530191
Conductivity (S/m)	1.360156
Power Variation (%)	1.083721
Ambient Temperature	21.1
Liquid Temperature	21.3

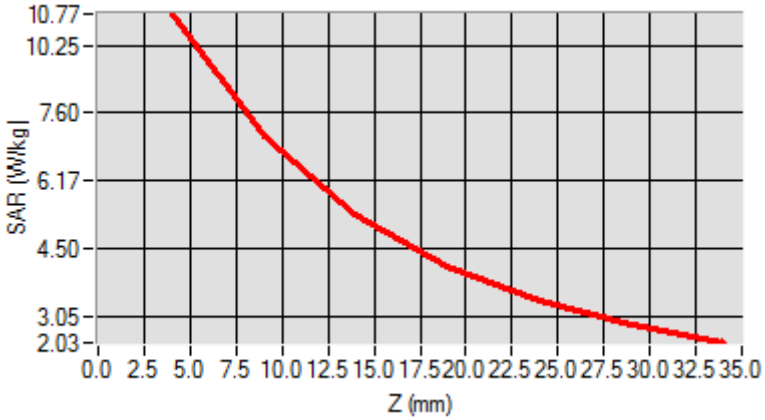
SURFACE SAR	VOLUME SAR
	

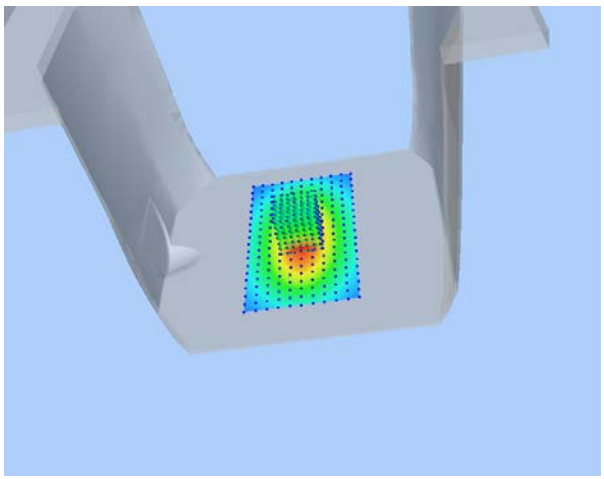
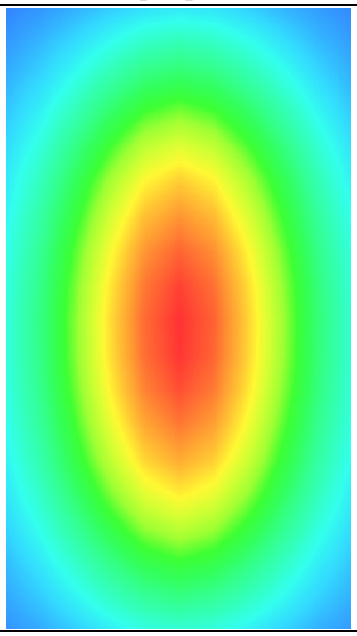
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**5.121455**
SAR 1g (W/Kg)	**9.980892**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**10.5421**	**6.8443**	**5.0134**	**4.1192**	**3.0524**	**2.8443**



3D screen shot	**Hot spot position**
	

Annex B. Plots of SAR Measurement

TYPE	BAND	PARAMETERS
Phone	GSM850	Measurement 3: Left Head with Cheek device position on Low Channel in GSM mode
Phone	GSM1900	Measurement 7: Left Head with Cheek device position on High Channel in GSM mode
Phone	GPRS850_4TX	Measurement 11: Left Head with Cheek device position on Low Channel in GPRS mode
Phone	GPRS1900_4TX	Measurement 15: Left Head with Cheek device position on High Channel in GPRS mode
Phone	WCDMA1900_RMC	Measurement 19: Left Head with Cheek device position on High Channel in WCDMA mode
Phone	WCDMA850_RMC	Measurement 23:Left Head with Cheek device position on High Channel in WCDMA mode
Phone	LTE Band 2_RMC	Measurement 27: Left Head with Cheek device position on High Channel in LTE mode
Phone	LTE Band 4_RMC	Measurement 35: Left Head with Cheek device position on High Channel in LTE mode
Phone	LTE Band 7_RMC	Measurement 43: Left Head with Cheek device position on Middle Channel in LTE mode
Phone	LTE Band 13_RMC	Measurement 51: Left Head with Cheek device position on Middle Channel in LTE mode
Phone	LTE Band 17_RMC	Measurement 59: Left Head with Cheek device position on Middle Channel in LTE mode
Phone	WiFi_802.11b	Measurement 67: Left Head with Cheek device position on High Channel in 802.11b mode
Phone	GSM850	Measurement 69: Flat Plane with Back(Body-worn) device position on Low Channel in GSM mode
Phone	GSM1900	Measurement 72: Flat Plane with Front(Body-worn) device position on High Channel in GSM mode
Phone	GPRS850_4TX	Measurement 73: Flat Plane with Back device position on Low Channel in GPRS mode
Phone	GPRS1900_4TX	Measurement 81: Flat Plane with Front device position on High Channel in GPRS mode
Phone	WCDMA1900_RMC	Measurement 85: Flat Plane with Back side device position on High Channel in WCDMA mode
Phone	WCDMA850_RMC	Measurement 90: Flat Plane with Back side device position on High Channel in WCDMA mode
Phone	LTE Band 2_RMC	Measurement 96: Flat Plane with Front device position on High Channel in LTE mode

Phone	**LTE Band 4_RMC**	Measurement 105: Flat Plane with Back device position on High Channel in LTE mode
Phone	**LTE Band 7_RMC**	Measurement 115: Flat Plane with Back device position on Middle Channel in LTE mode
Phone	**LTE Band 13_RMC**	Measurement 125: Flat Plane with Back device position on Middle Channel in LTE mode
Phone	**LTE Band 17_RMC**	Measurement 136: Flat Plane with Back device position on Middle Channel in LTE mode
Phone	**LTE Band 17_RMC**	Measurement 138: Flat Plane with Bottom device position on Middle Channel in LTE mode
Phone	**WiFi_802.11b**	Measurement 146: Flat Plane with Back side device position on High Channel in 802.11b mode
Remark: SAR plot is showed the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.		

TYPE	**BAND**	**PARAMETERS**
Phone	**GPRS850_4TX**	Measurement 150: Flat Plane with Front device position on Low Channel in PTT mode
Phone	**GPRS1900_4TX**	Measurement 151: Flat Plane with Front device position on High Channel in PTT mode

MEASUREMENT 3

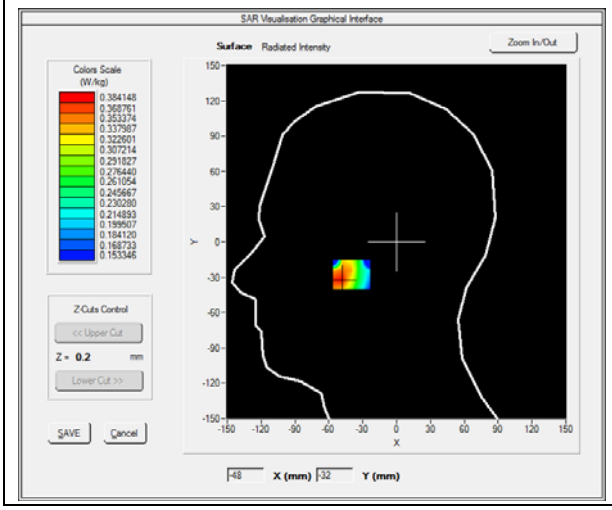
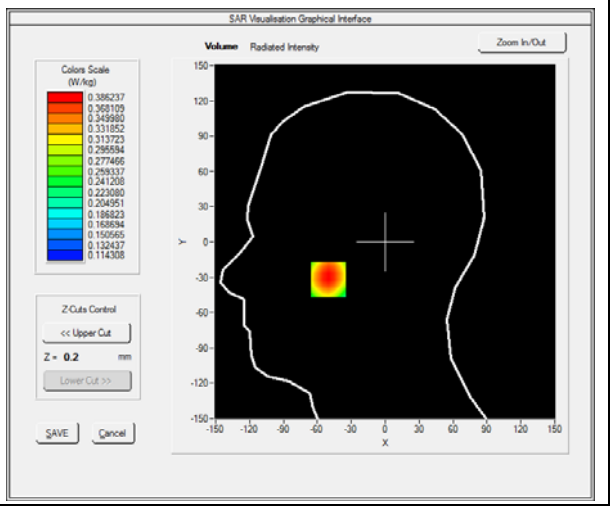
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 11 minutes 48 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2017

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)	824.200000
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.144536
Ambient Temperature	21.1
Liquid Temperature	21.3

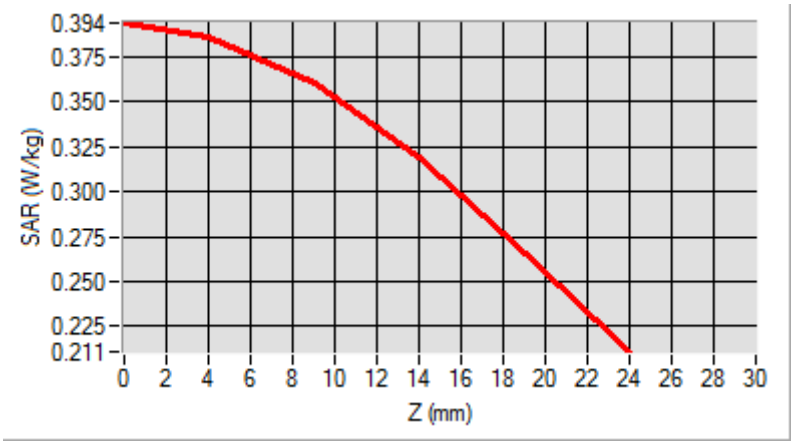
SURFACE SAR	VOLUME SAR
	

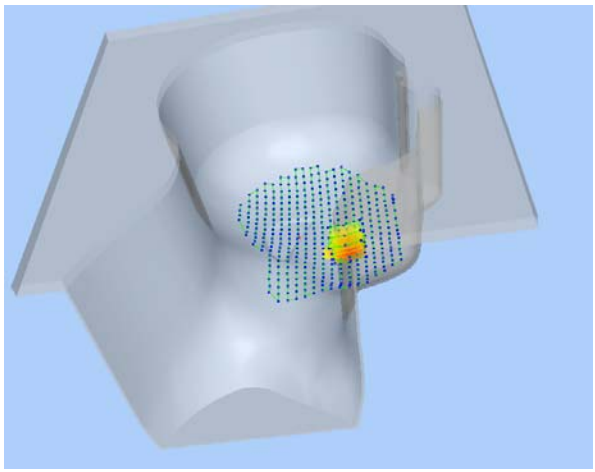
Maximum location: X=-50.00, Y=-32.00

SAR Peak: 0.41 W/kg

SAR 10g (W/Kg)	**0.312048**
SAR 1g (W/Kg)	**0.378688**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.3937**	**0.3862**	**0.3607**	**0.3186**	**0.2654**



3D screen shot	**Hot spot position**
	

MEASUREMENT 7

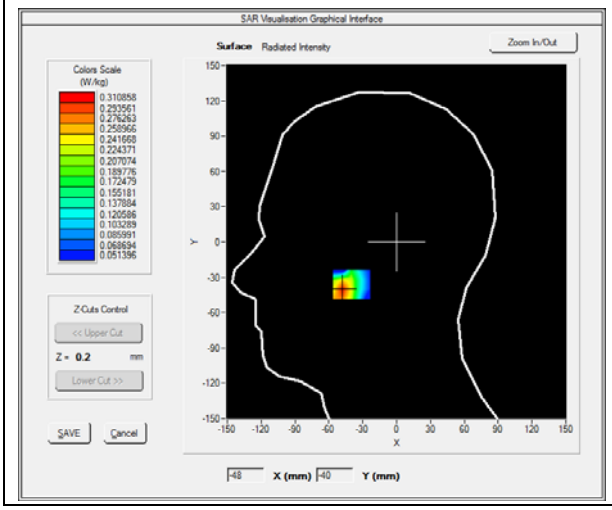
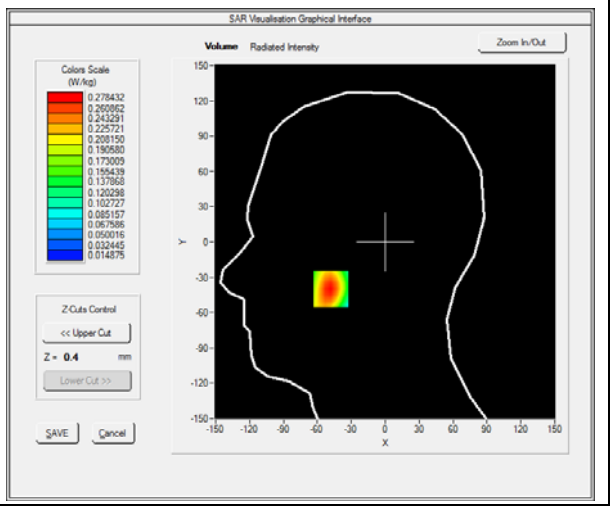
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 11 minutes 48 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2017

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)	1909.800000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.442440
Ambient Temperature	21.1
Liquid Temperature	21.3

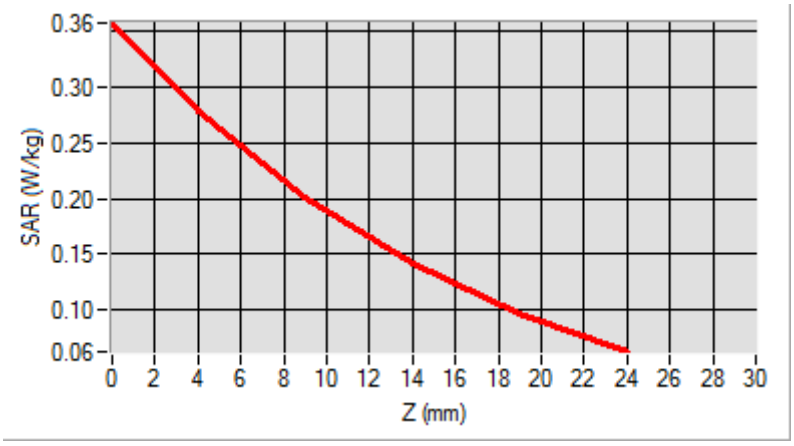
SURFACE SAR	VOLUME SAR
	

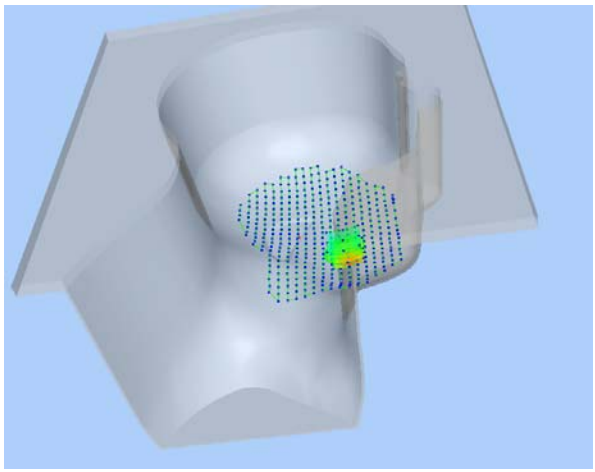
Maximum location: X=-48.00, Y=-40.00

SAR Peak: 0.36 W/kg

SAR 10g (W/Kg)	**0.165291**
SAR 1g (W/Kg)	**0.259671**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.3570**	**0.2784**	**0.2006**	**0.1416**	**0.0973**



3D screen shot	**Hot spot position**
	

MEASUREMENT 11

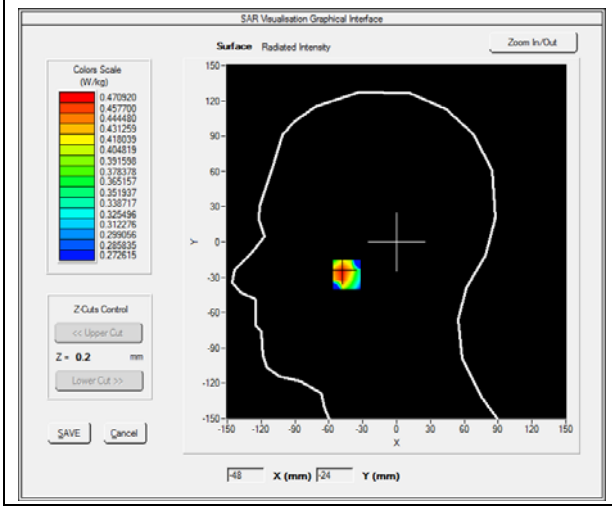
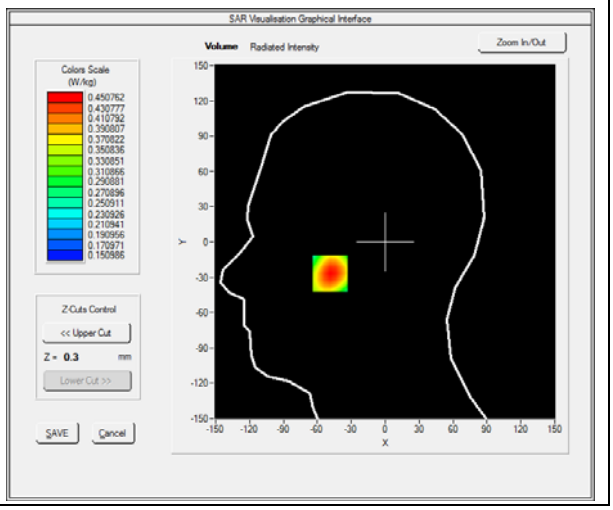
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GPRS850_4TX
Channels	Low
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

Frequency (MHz)	824.200000
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.536272
Ambient Temperature	21.1
Liquid Temperature	21.3

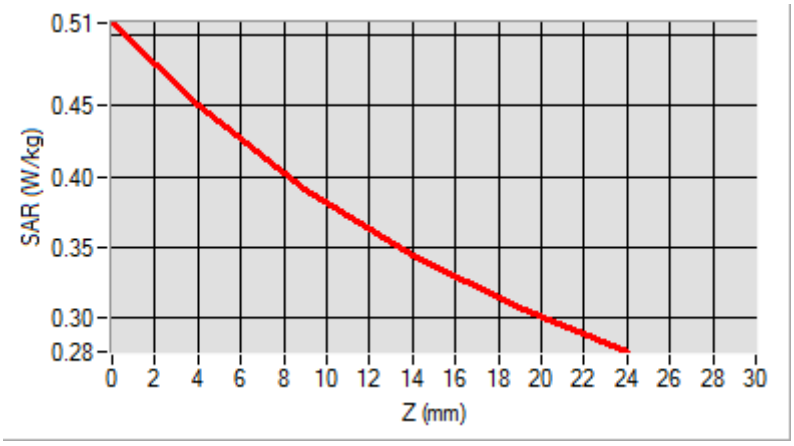
SURFACE SAR	VOLUME SAR
	

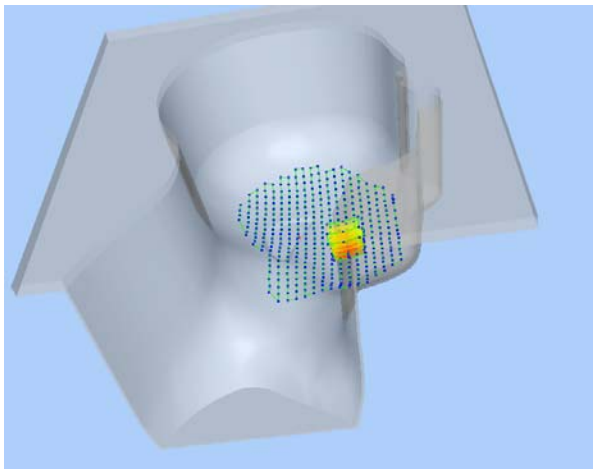
Maximum location: X=-49.00, Y=-27.00

SAR Peak: 0.51 W/kg

SAR 10g (W/Kg)	**0.351207**
SAR 1g (W/Kg)	**0.434524**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.5086**	**0.4508**	**0.3911**	**0.3444**	**0.3076**



3D screen shot	**Hot spot position**
	

MEASUREMENT 15

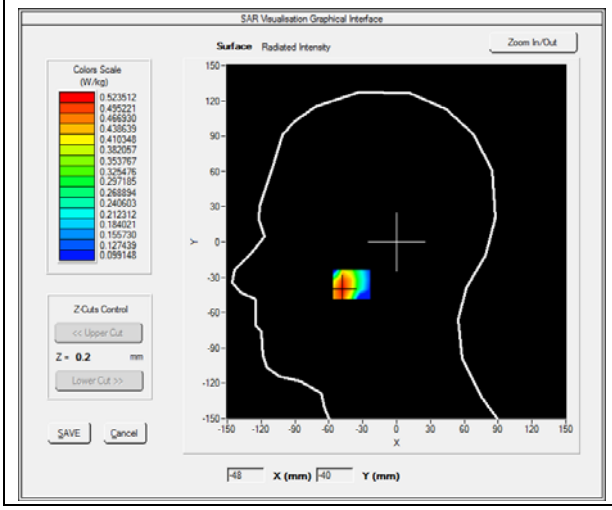
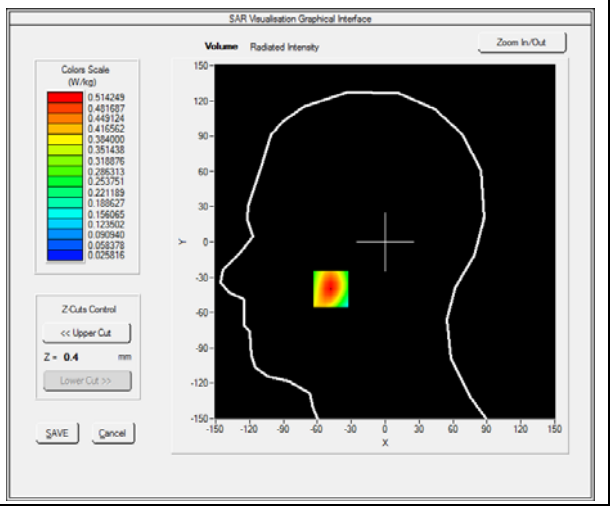
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	GPRS1900_4TX
Channels	High
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

Frequency (MHz)	1909.800000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.536272
Ambient Temperature	21.1
Liquid Temperature	21.3

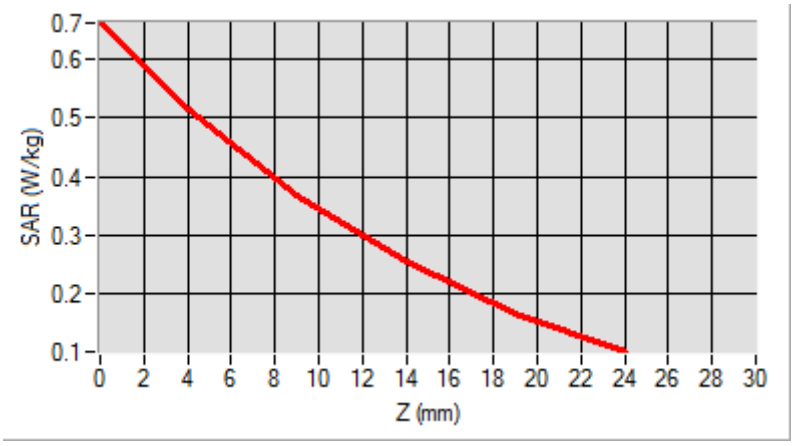
SURFACE SAR	VOLUME SAR
	

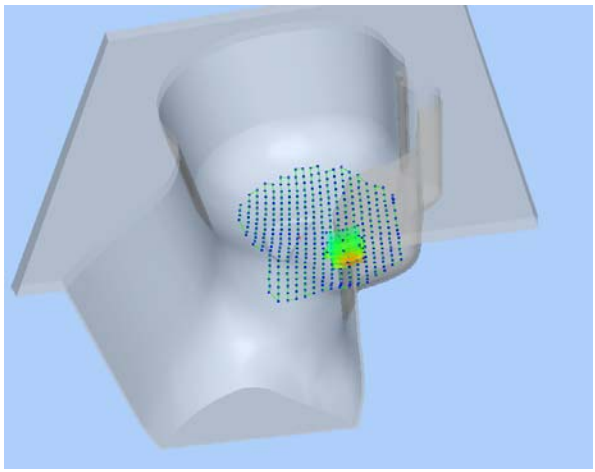
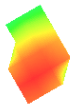
Maximum location: X=-48.00, Y=-40.00

SAR Peak: 0.66 W/kg

SAR 10g (W/Kg)	**0.301910**
SAR 1g (W/Kg)	**0.479388**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.6599**	**0.5142**	**0.3678**	**0.2549**	**0.1690**



3D screen shot	**Hot spot position**
	

MEASUREMENT 19

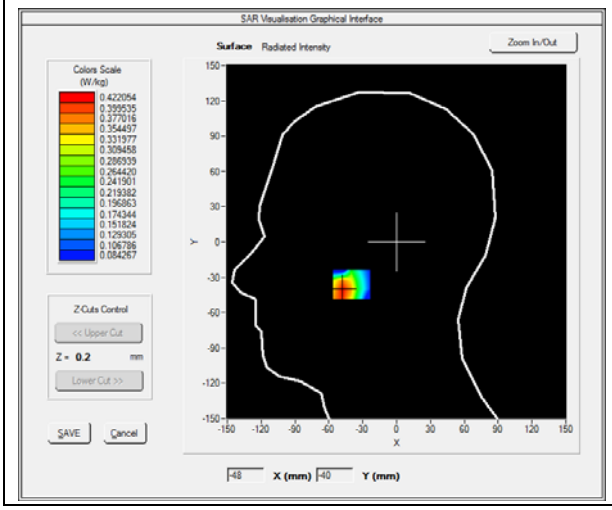
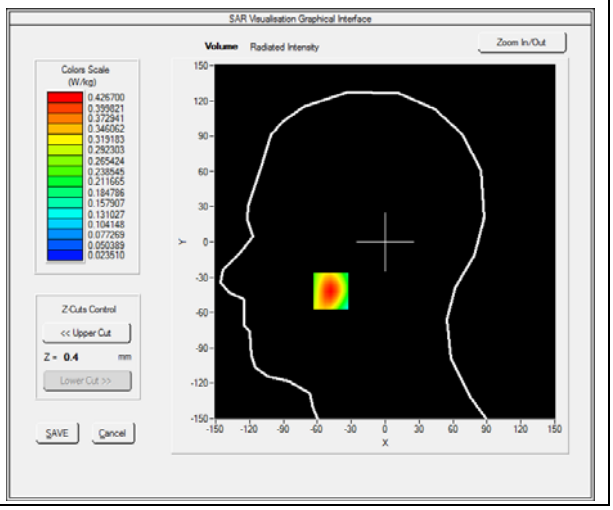
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	WCDMA1900_RMC
Channels	High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1907.600000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.524540
Ambient Temperature	21.1
Liquid Temperature	21.3

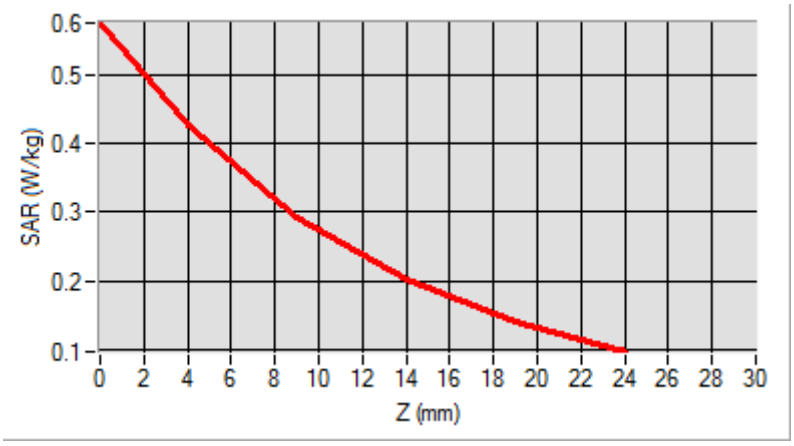
SURFACE SAR	VOLUME SAR
	

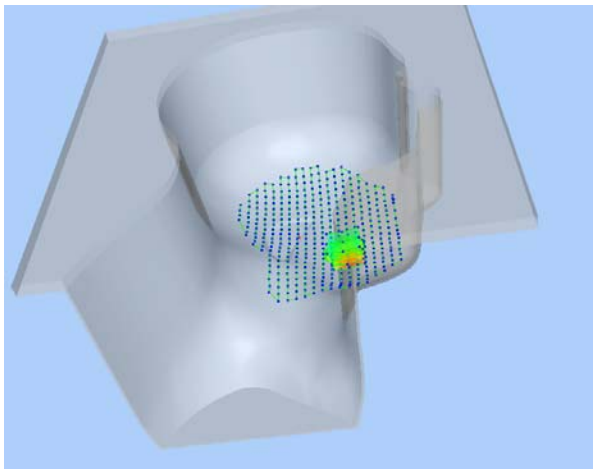
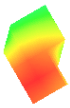
Maximum location: X=-48.00, Y=-42.00

SAR Peak: 0.58 W/kg

SAR 10g (W/Kg)	**0.248486**
SAR 1g (W/Kg)	**0.396705**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.5766**	**0.4267**	**0.2914**	**0.2006**	**0.1401**



3D screen shot	**Hot spot position**
	

MEASUREMENT 23

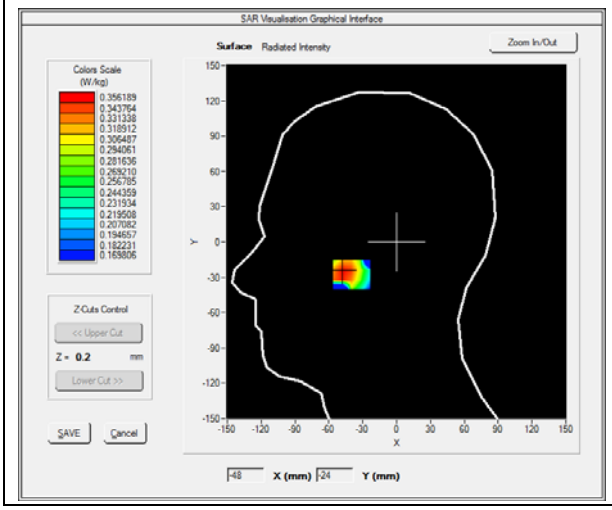
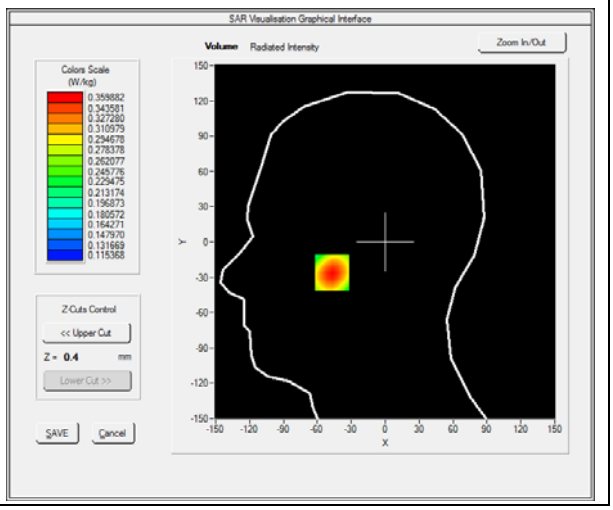
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	WCDMA850_RMC
Channels	High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	846.600000
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.342427
Ambient Temperature	21.1
Liquid Temperature	21.3

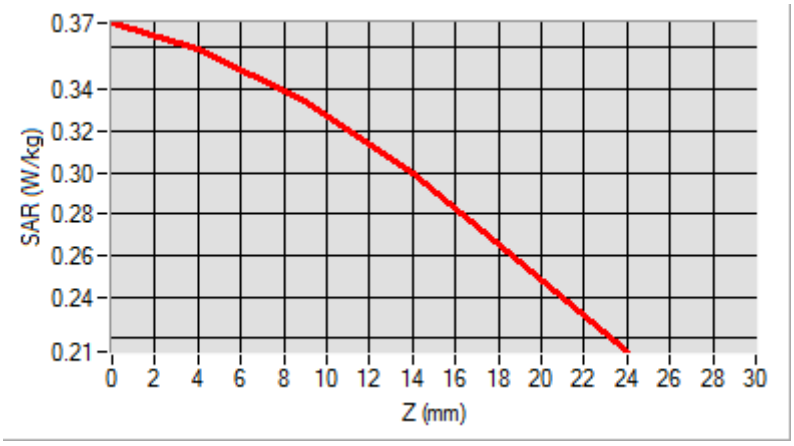
SURFACE SAR	VOLUME SAR
	

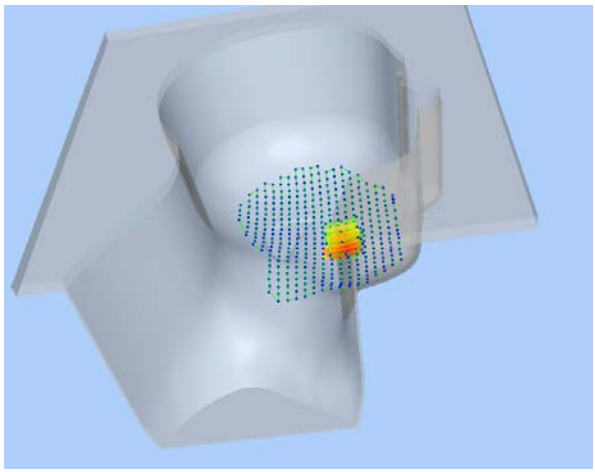
Maximum location: X=-47.00, Y=-26.00

SAR Peak: 0.37 W/kg

SAR 10g (W/Kg)	**0.290086**
SAR 1g (W/Kg)	**0.347908**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.3720**	**0.3599**	**0.3347**	**0.2992**	**0.2568**



3D screen shot	**Hot spot position**
	

MEASUREMENT 27

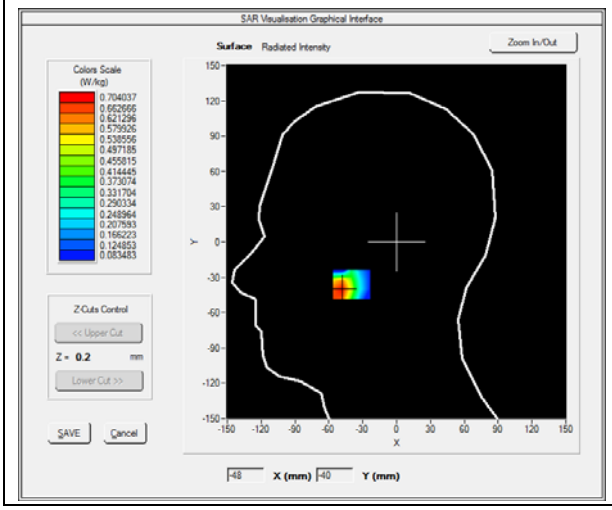
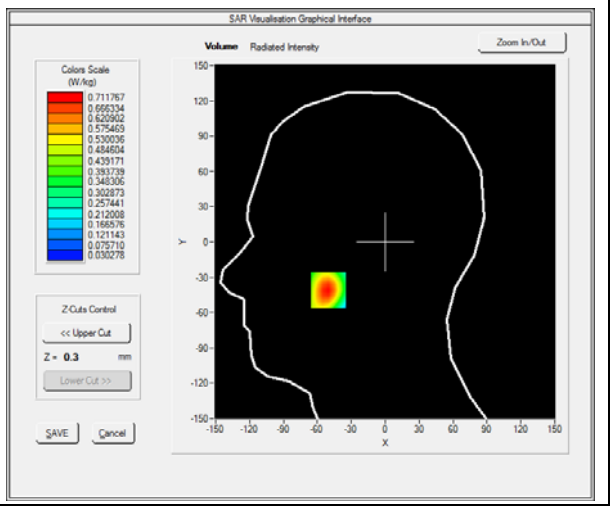
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	LTE Band 2_RMC
Channels	QPSK, 20MHz, 1RB, High
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 (%)	1.743564
Ambient Temperature	21.1
Liquid Temperature	21.3

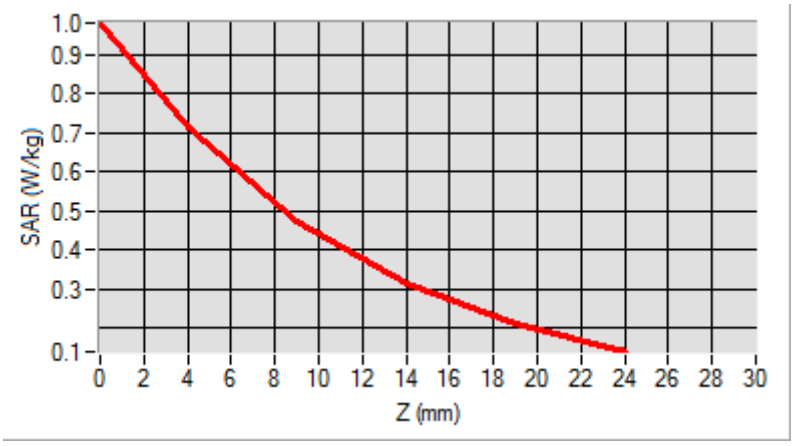
SURFACE SAR	VOLUME SAR
	

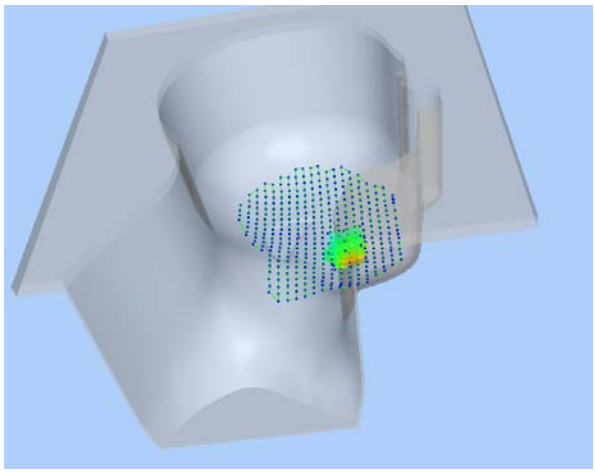
Maximum location: X=-50.00, Y=-41.00

SAR Peak: 0.98 W/kg

SAR 10g (W/Kg)	**0.399199**
SAR 1g (W/Kg)	**0.659345**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.9800**	**0.7118**	**0.4730**	**0.3154**	**0.2126**



3D screen shot	**Hot spot position**
	

MEASUREMENT 35

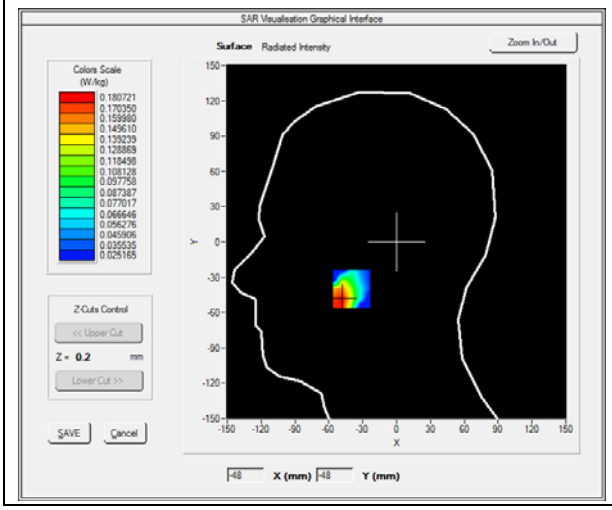
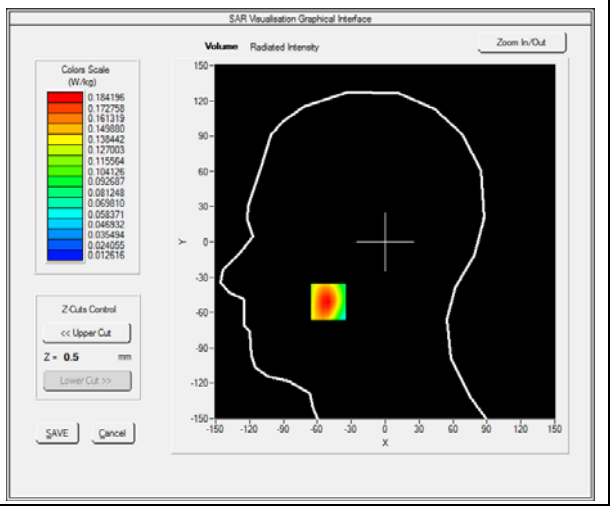
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	LTE Band 4_RMC
Channels	QPSK, 20MHz, 1RB,High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1745.000000
Relative Permittivity (real part)	39.024890
Conductivity (S/m)	1.371250
Power Variation (%)	1.374628
Ambient Temperature	21.1
Liquid Temperature	21.2

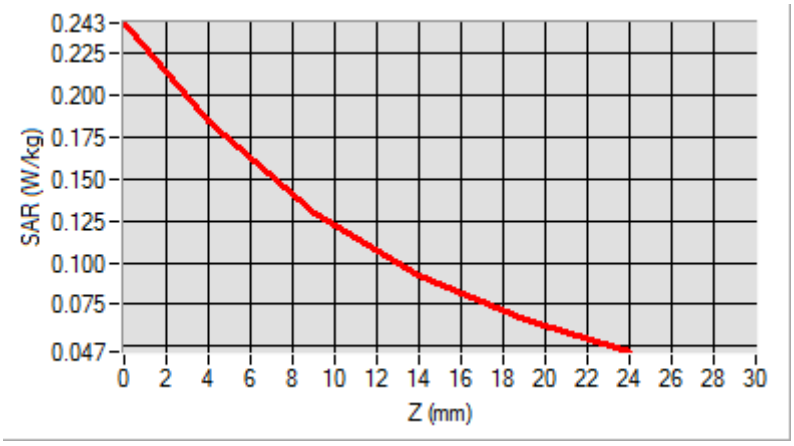
SURFACE SAR	VOLUME SAR
	

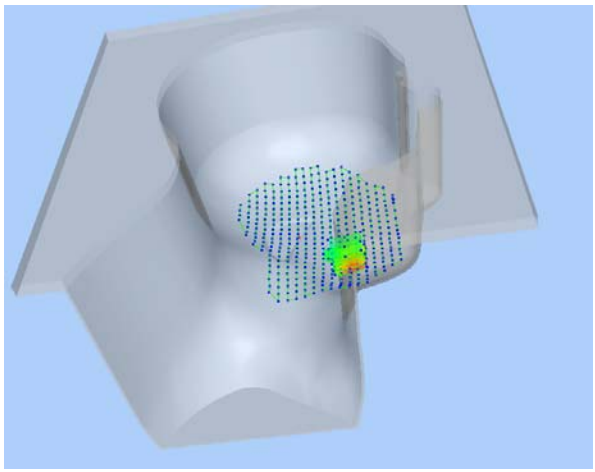
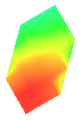
Maximum location: X=-50.00, Y=-51.00

SAR Peak: 0.24 W/kg

SAR 10g (W/Kg)	**0.111871**
SAR 1g (W/Kg)	**0.173151**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.2435**	**0.1842**	**0.1296**	**0.0919**	**0.0660**



3D screen shot	**Hot spot position**
	

MEASUREMENT 43

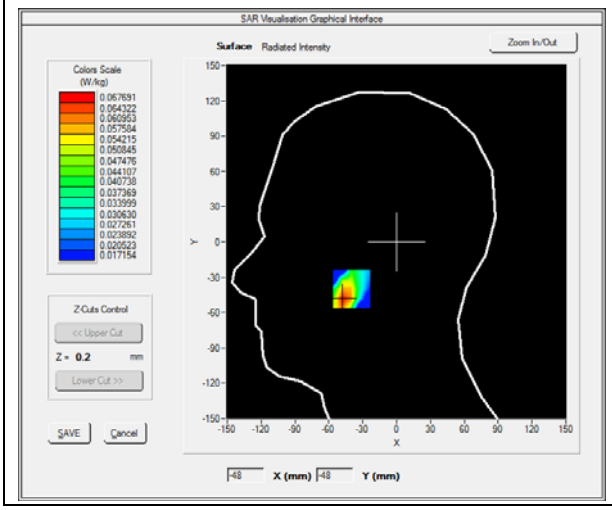
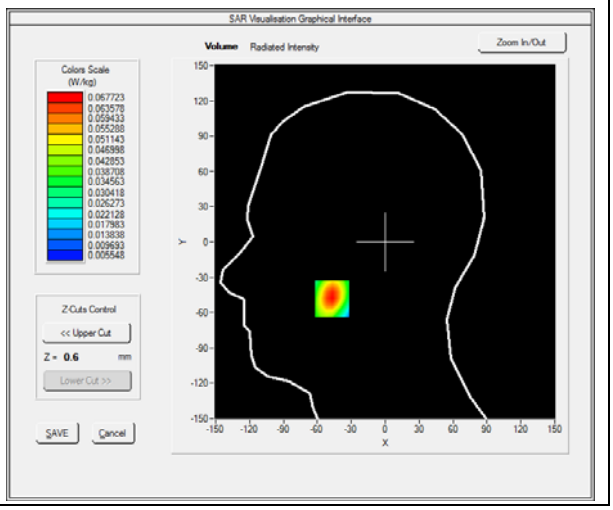
Type: Phone measurement (Complete)
Date of measurement: 01/17/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	LTE Band 7_RMC
Channels	QPSK, 20MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2535.000000
Relative Permittivity (real part)	38.631092
Conductivity (S/m)	1.930182
Power Variation (%)	0.924535
Ambient Temperature	21.1
Liquid Temperature	21.2

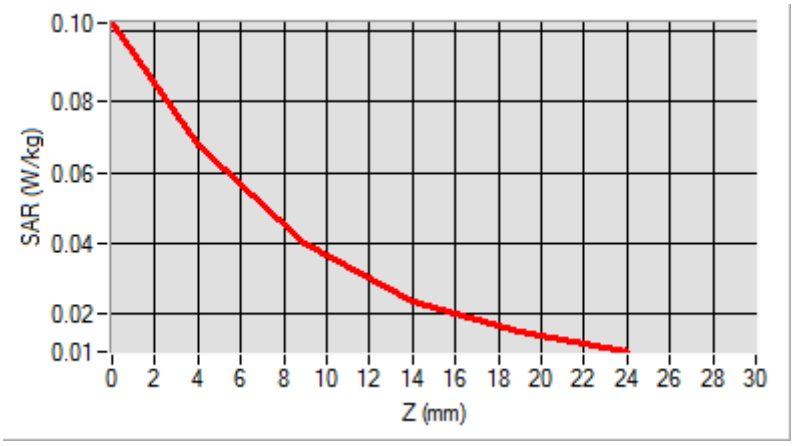
SURFACE SAR	VOLUME SAR
	

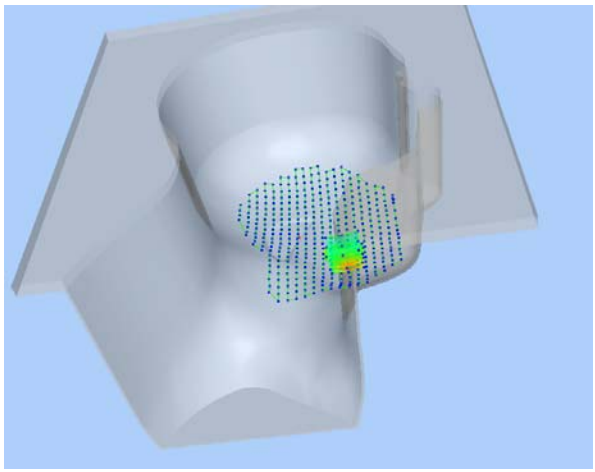
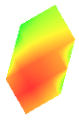
Maximum location: X=-47.00, Y=-48.00

SAR Peak: 0.10 W/kg

SAR 10g (W/Kg)	**0.035620**
SAR 1g (W/Kg)	**0.062841**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.1023**	**0.0677**	**0.0399**	**0.0239**	**0.0151**



3D screen shot	**Hot spot position**
	

MEASUREMENT 51

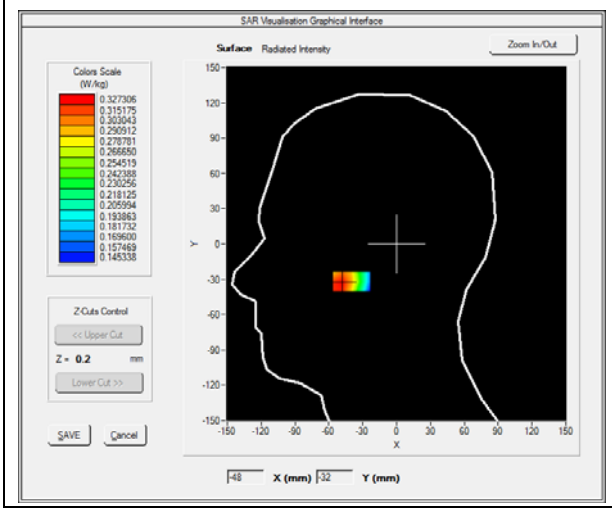
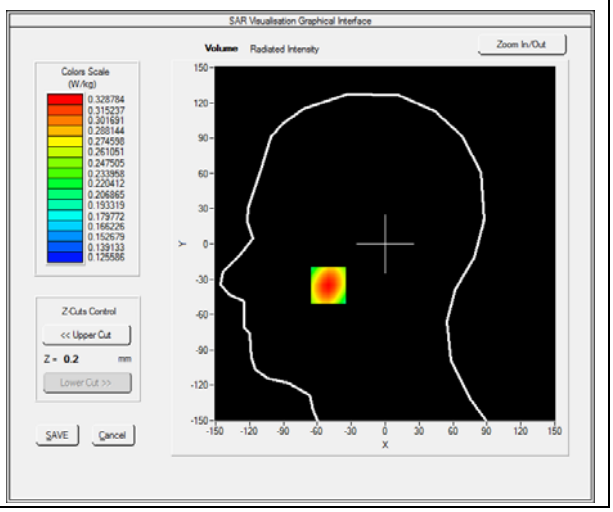
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.99; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	LTE Band 13_RMC
Channels	QPSK, 10MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	782.000000
Relative Permittivity (real part)	41.320574
Conductivity (S/m)	0.862373
Power Variation (%)	0.924535
Ambient Temperature	21.1
Liquid Temperature	21.2

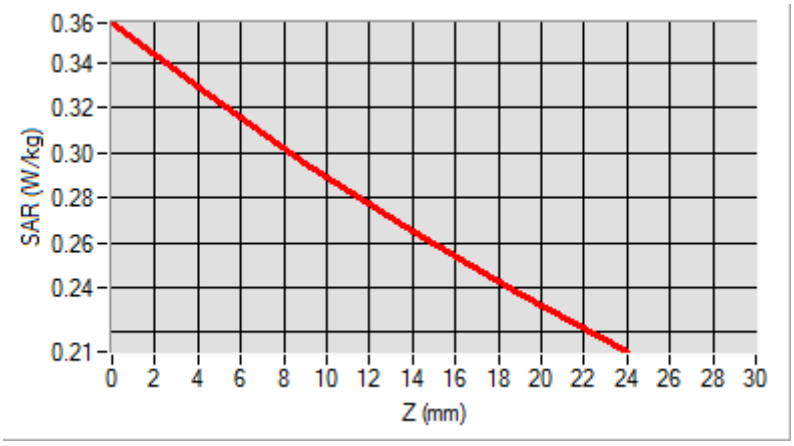
SURFACE SAR	VOLUME SAR
	

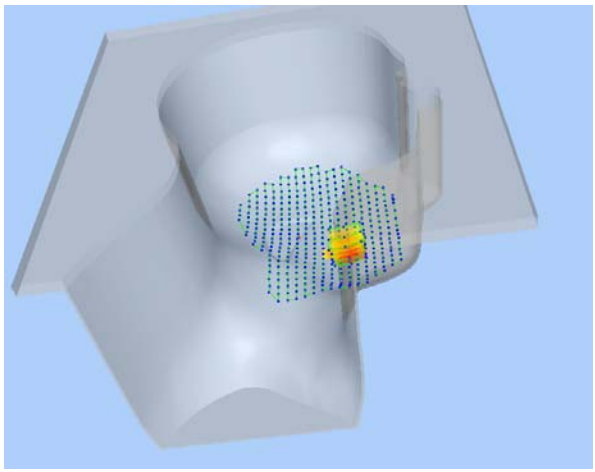
Maximum location: X=-50.00, Y=-35.00

SAR Peak: 0.36 W/kg

SAR 10g (W/Kg)	**0.268981**
SAR 1g (W/Kg)	**0.324021**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.3575**	**0.3288**	**0.2956**	**0.2652**	**0.2374**



3D screen shot	**Hot spot position**
	

MEASUREMENT 59

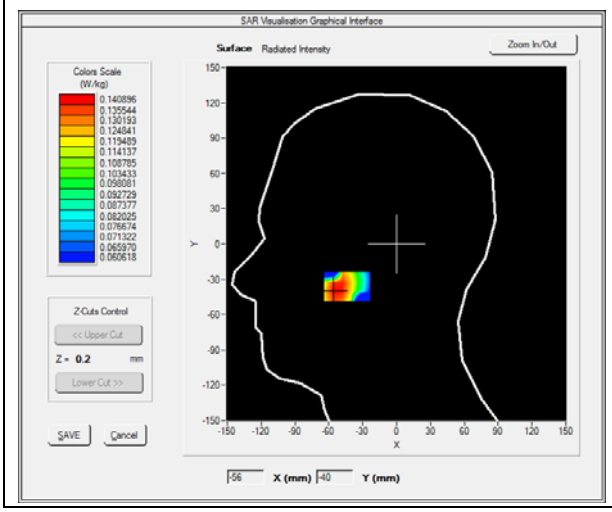
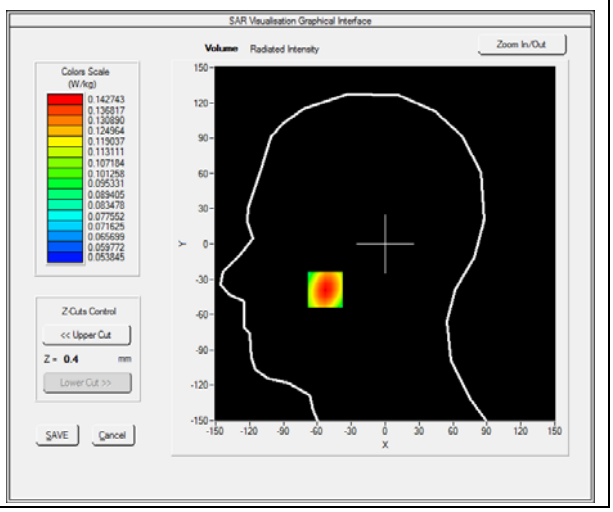
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.99; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	LTE Band 17_RMC
Channels	QPSK, 10MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	710.000000
Relative Permittivity (real part)	41.320574
Conductivity (S/m)	0.862373
Power Variation (%)	0.924535
Ambient Temperature	21.1
Liquid Temperature	21.2

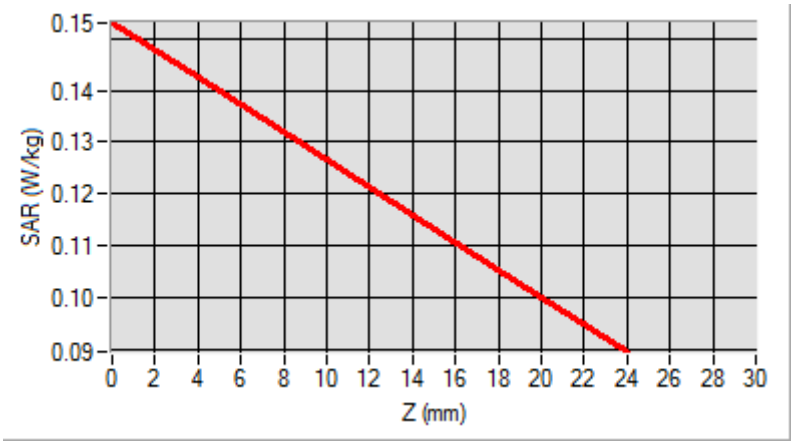
SURFACE SAR	VOLUME SAR
	

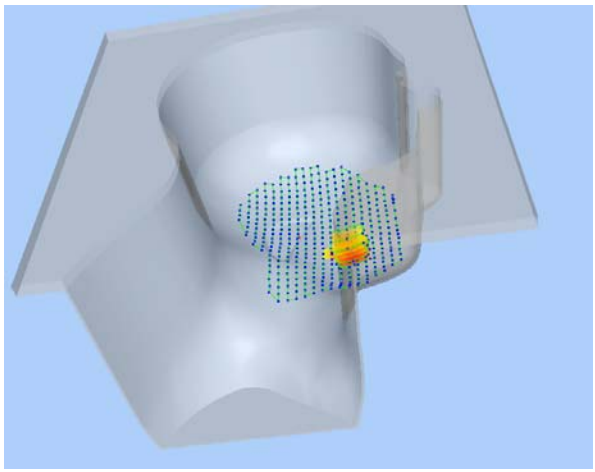
Maximum location: X=-53.00, Y=-39.00

SAR Peak: 0.15 W/kg

SAR 10g (W/Kg)	**0.118548**
SAR 1g (W/Kg)	**0.140951**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.1530**	**0.1427**	**0.1295**	**0.1160**	**0.1025**



3D screen shot	**Hot spot position**
	

MEASUREMENT 67

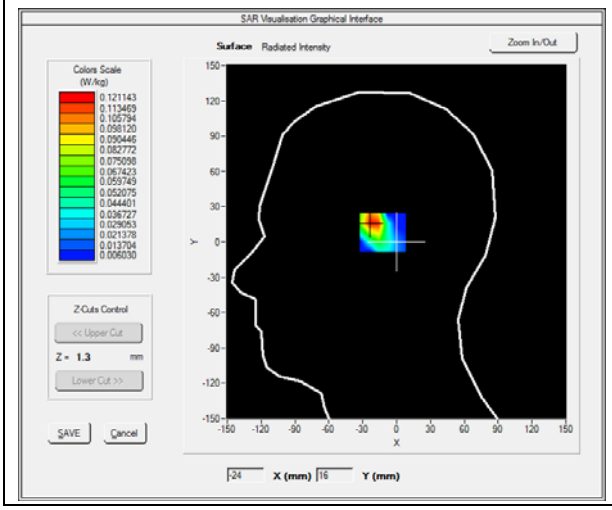
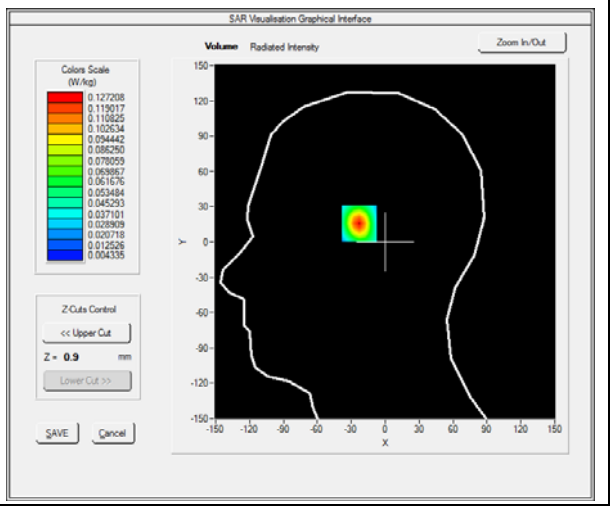
Type: Phone measurement (Complete)
Date of measurement: 01/17/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	WiFi_802.11b
Channels	High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2462.000000
Relative Permittivity (real part)	38.153660
Conductivity (S/m)	1.740236
Power Variation (%)	3.234772
Ambient Temperature	21.1
Liquid Temperature	21.2

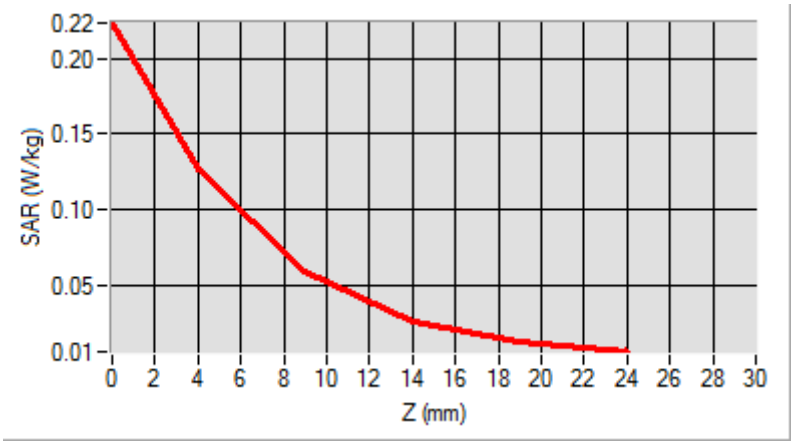
SURFACE SAR	VOLUME SAR
	

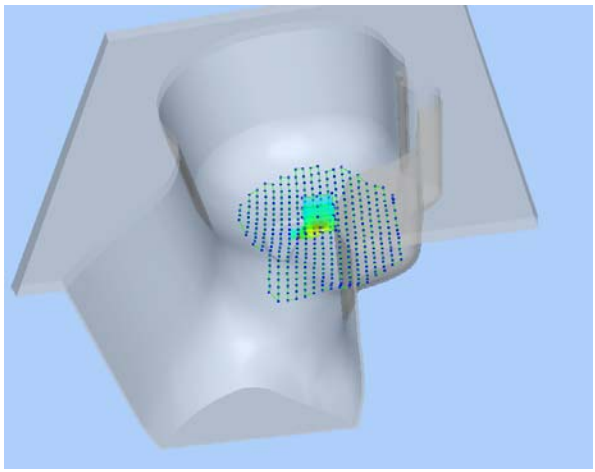
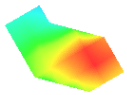
Maximum location: X=-22.00, Y=17.00

SAR Peak: 0.22 W/kg

SAR 10g (W/Kg)	**0.052182**
SAR 1g (W/Kg)	**0.113703**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.2235**	**0.1272**	**0.0590**	**0.0268**	**0.0130**



3D screen shot	**Hot spot position**
	

MEASUREMENT 69

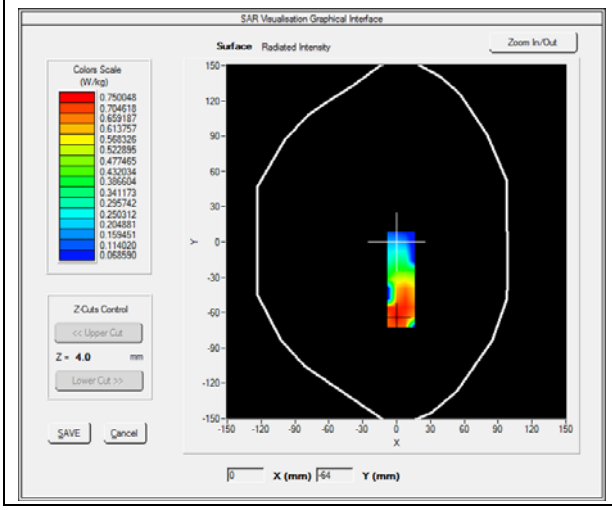
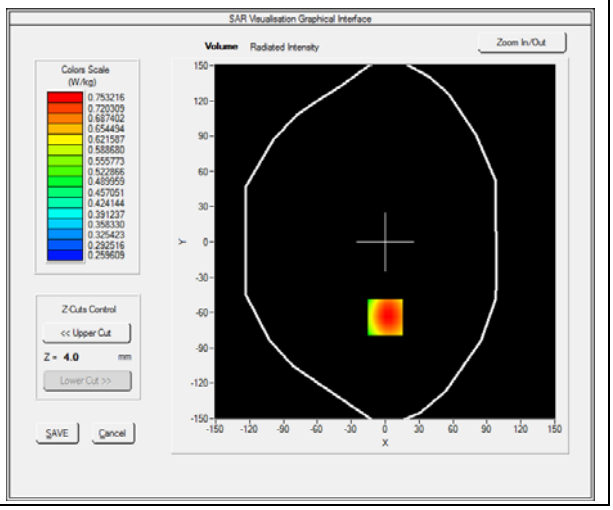
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2017

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)	824.200000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.901472
Ambient Temperature	21.1
Liquid Temperature	21.3

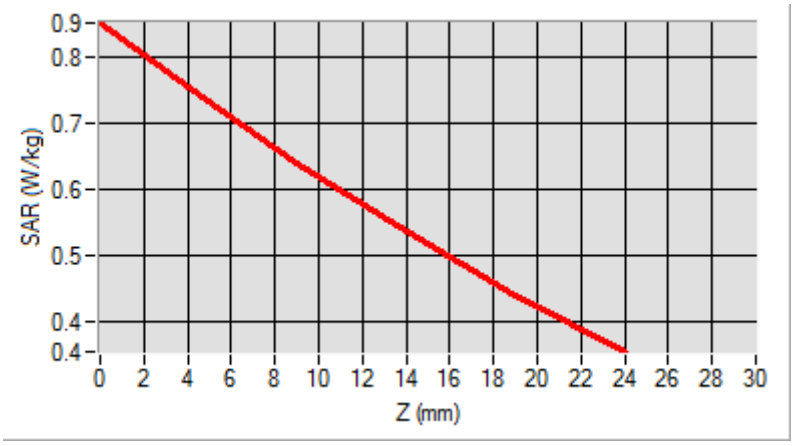
SURFACE SAR	VOLUME SAR
	

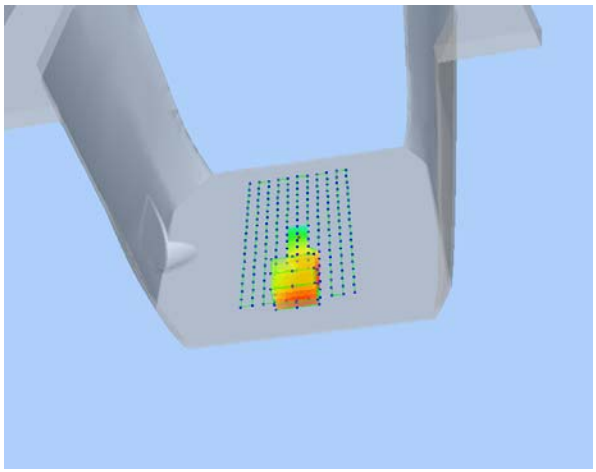
Maximum location: X=0.00, Y=-64.00

SAR Peak: 0.86 W/kg

SAR 10g (W/Kg)	**0.590133**
SAR 1g (W/Kg)	**0.737376**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.8510**	**0.7532**	**0.6394**	**0.5349**	**0.4398**



3D screen shot	**Hot spot position**
	

MEASUREMENT 72

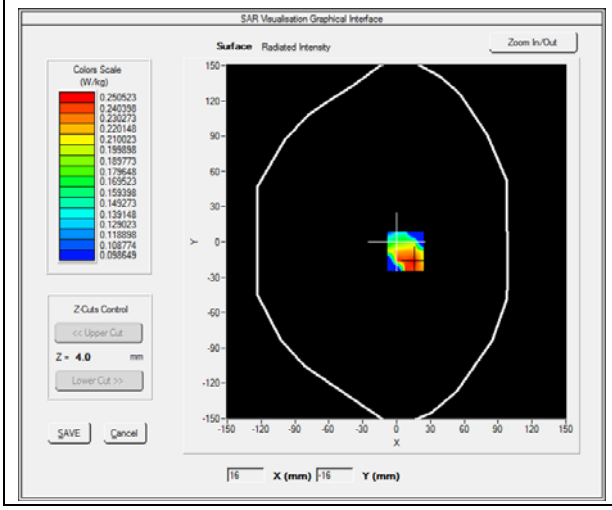
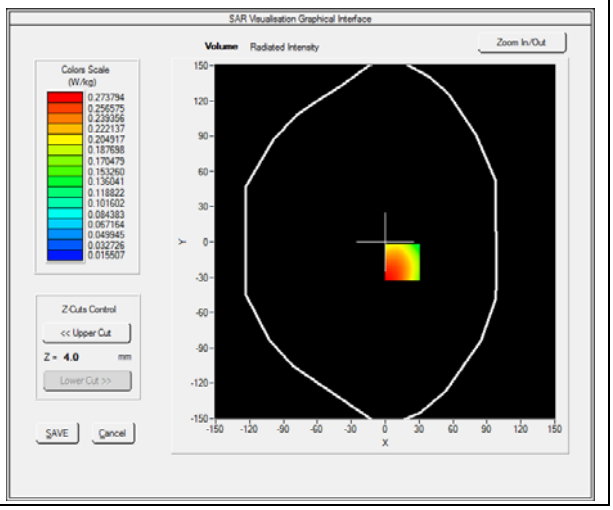
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2017

A. Experimental conditions

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

B. SAR Measurement Results

Frequency (MHz)	1909.800000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	1.474622
Ambient Temperature	21.1
Liquid Temperature	21.3

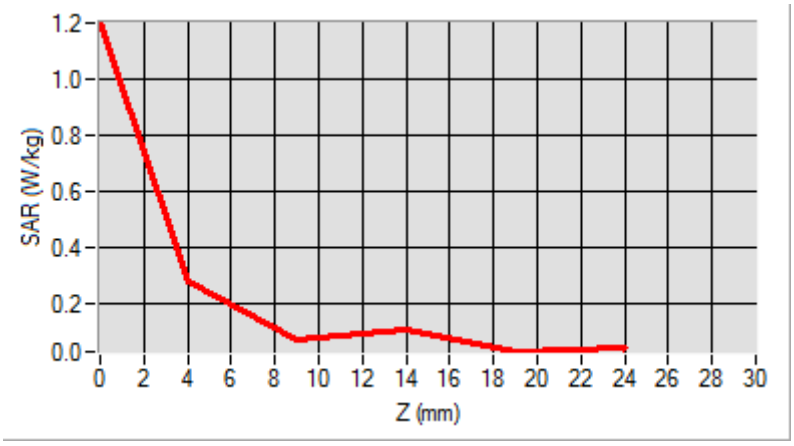
SURFACE SAR	VOLUME SAR
	

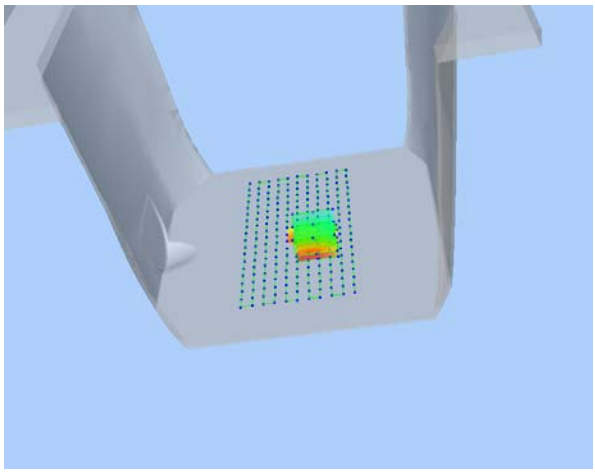
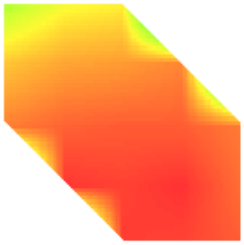
Maximum location: X=15.00, Y=-17.00

SAR Peak: 0.40 W/kg

SAR 10g (W/Kg)	**0.155733**
SAR 1g (W/Kg)	**0.254212**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**1.2026**	**0.2738**	**0.0715**	**0.1058**	**0.0252**



3D screen shot	**Hot spot position**
	

MEASUREMENT 73

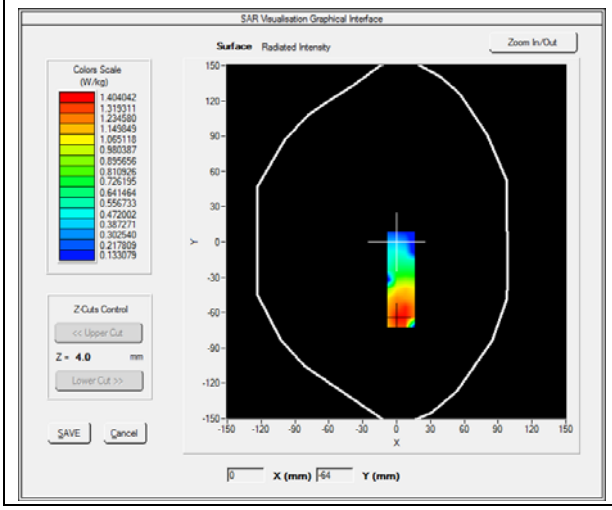
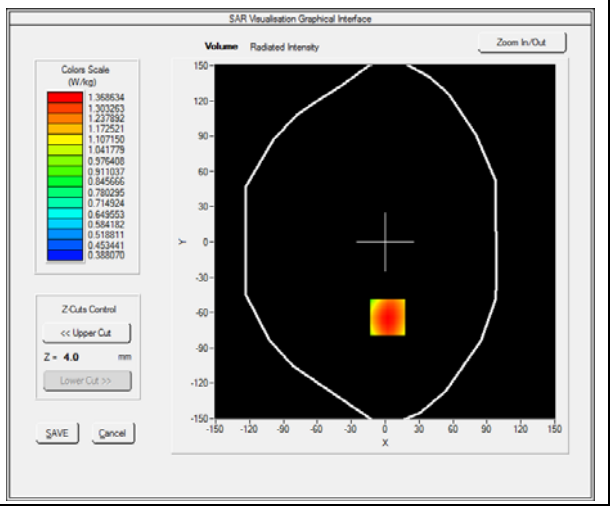
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Back
Band	GPRS850_4TX
Channels	Low
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

Frequency (MHz)	824.200000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.901472
Ambient Temperature	21.1
Liquid Temperature	21.3

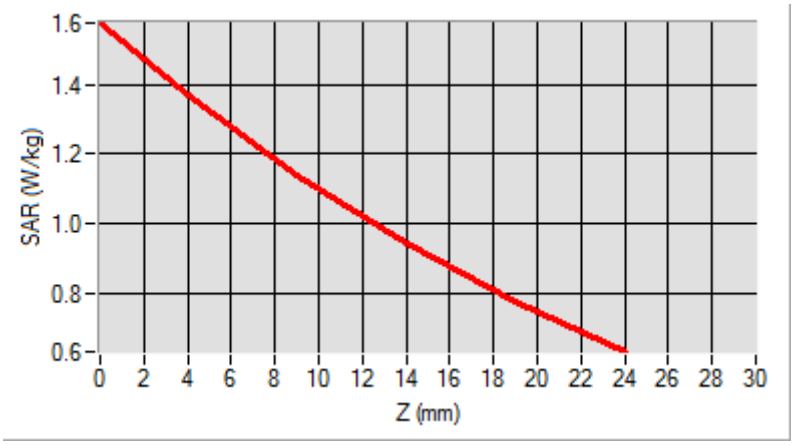
SURFACE SAR	VOLUME SAR
	

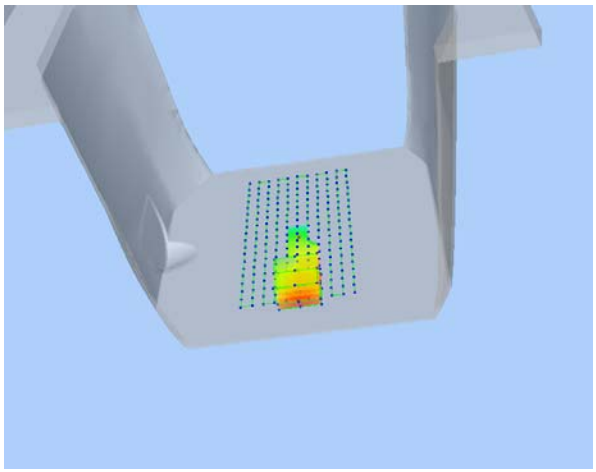
Maximum location: X=2.00, Y=-64.00

SAR Peak: 1.58 W/kg

SAR 10g (W/Kg)	**1.043848**
SAR 1g (W/Kg)	**1.232904**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**1.5775**	**1.3686**	**1.1401**	**0.9446**	**0.7770**



3D screen shot	**Hot spot position**
	

MEASUREMENT 81

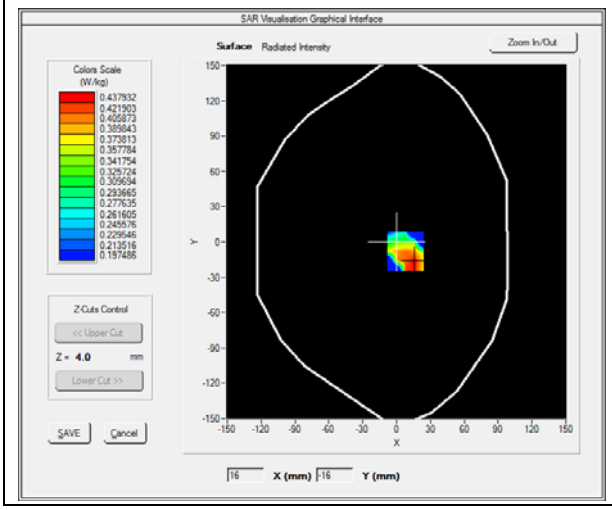
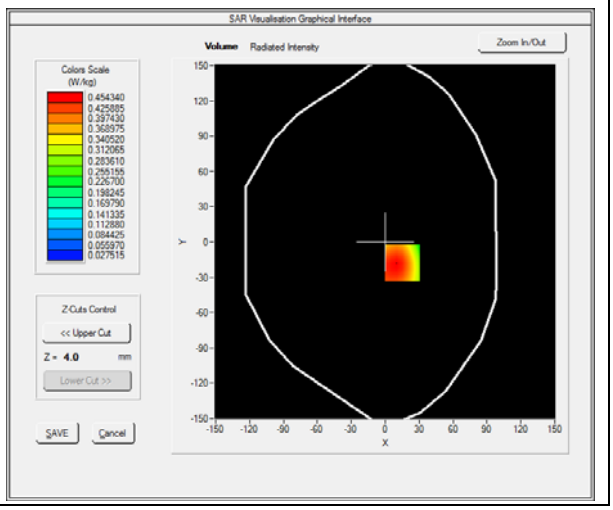
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Front
Band	GPRS1900_4TX
Channels	High
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

Frequency (MHz)	1909.800000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	2.483762
Ambient Temperature	21.1
Liquid Temperature	21.3

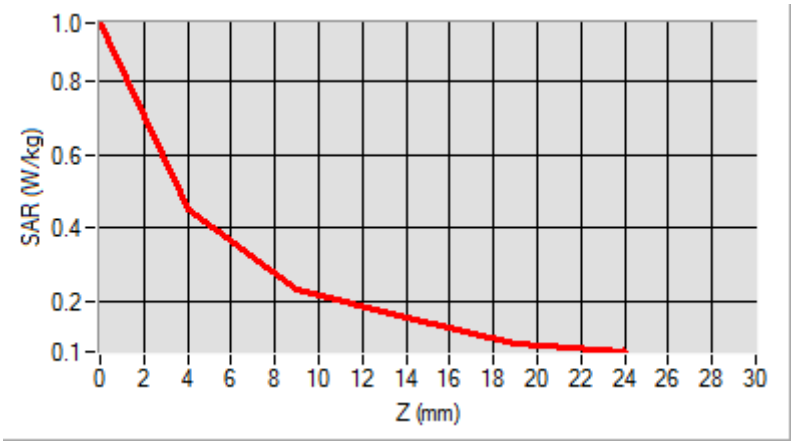
SURFACE SAR	VOLUME SAR
	

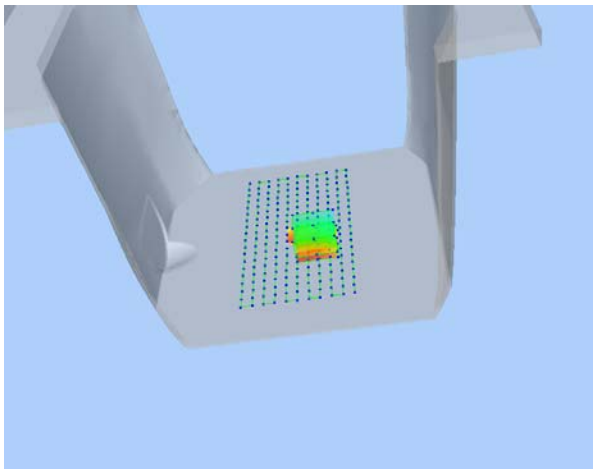
Maximum location: X=15.00, Y=-18.00

SAR Peak: 0.70 W/kg

SAR 10g (W/Kg)	**0.269731**
SAR 1g (W/Kg)	**0.437804**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.9613**	**0.4543**	**0.2310**	**0.1562**	**0.0841**



3D screen shot	**Hot spot position**
	

MEASUREMENT 85

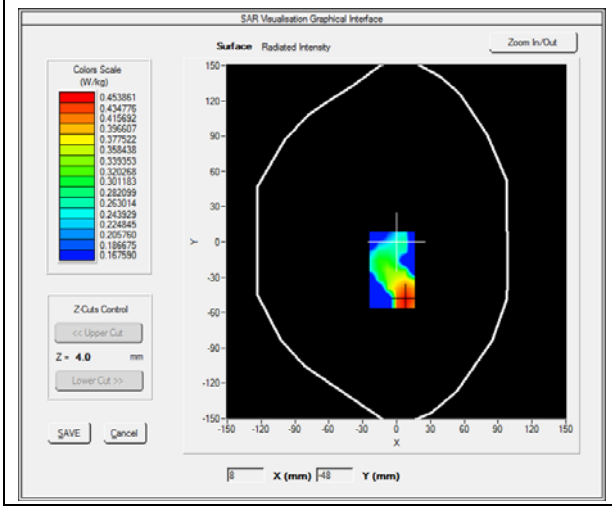
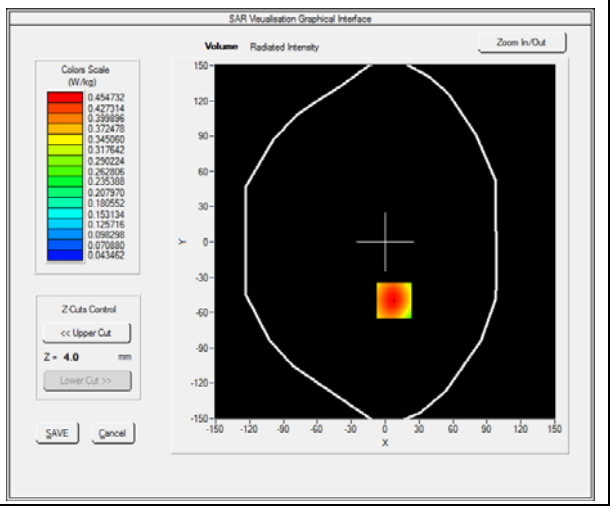
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	WCDMA1900_RMC
Channels	High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1907.600000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	1.163283
Ambient Temperature	21.1
Liquid Temperature	21.3

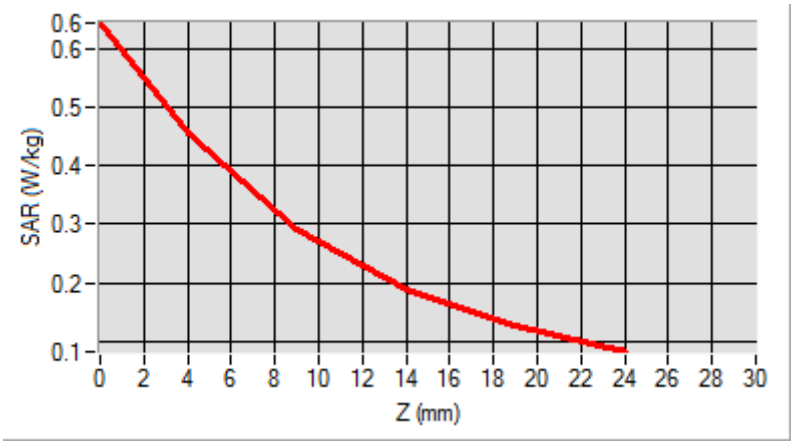
SURFACE SAR	VOLUME SAR
	

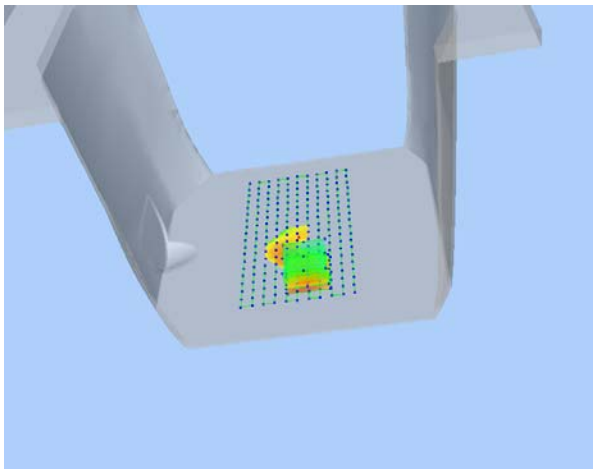
Maximum location: X=8.00, Y=-50.00

SAR Peak: 0.64 W/kg

SAR 10g (W/Kg)	**0.273608**
SAR 1g (W/Kg)	**0.431559**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.6433**	**0.4547**	**0.2923**	**0.1899**	**0.1264**



3D screen shot	**Hot spot position**
	

MEASUREMENT 90

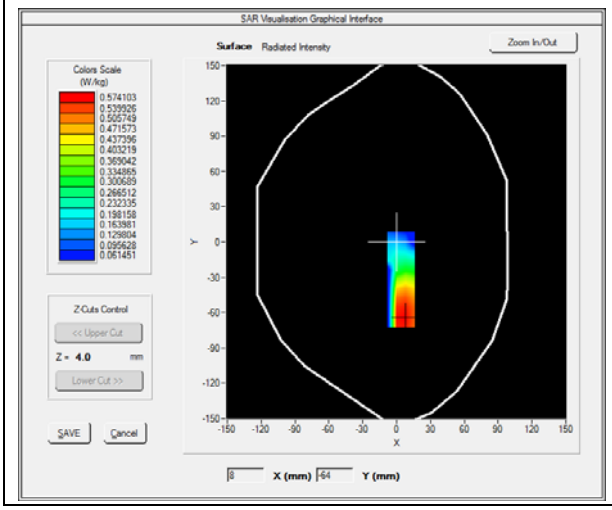
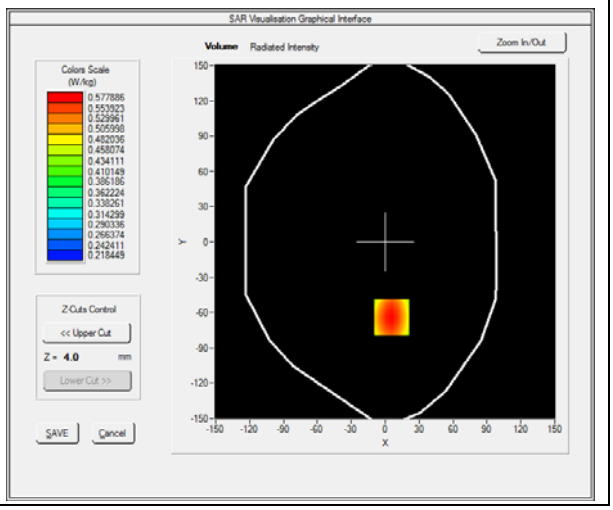
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	WCDMA850_RMC
Channels	High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	846.600000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	2.341234
Ambient Temperature	21.1
Liquid Temperature	21.3

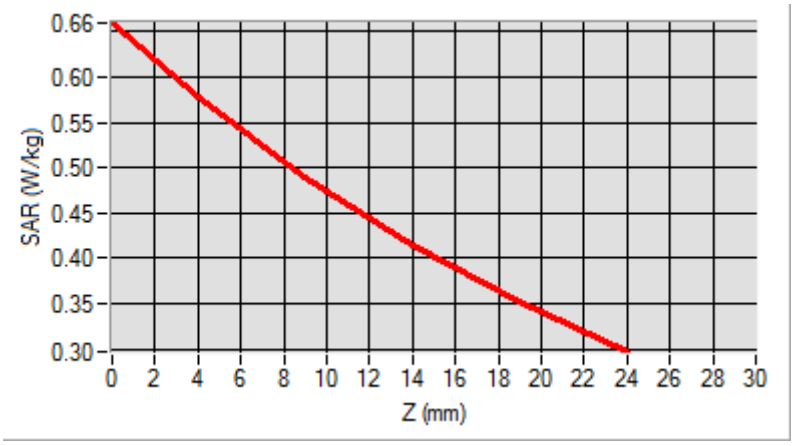
SURFACE SAR	VOLUME SAR
	

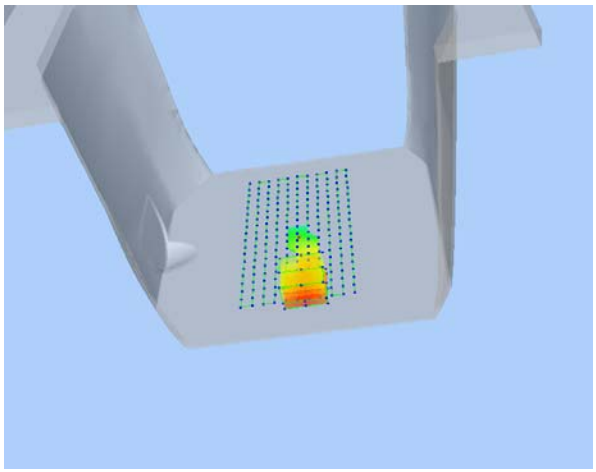
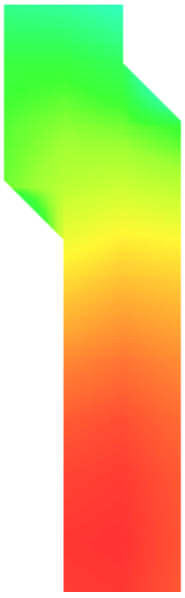
Maximum location: X=6.00, Y=-64.00

SAR Peak: 0.66 W/kg

SAR 10g (W/Kg)	**0.450876**
SAR 1g (W/Kg)	**0.566564**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.6597**	**0.5779**	**0.4895**	**0.4151**	**0.3522**



3D screen shot	**Hot spot position**
	

MEASUREMENT 96

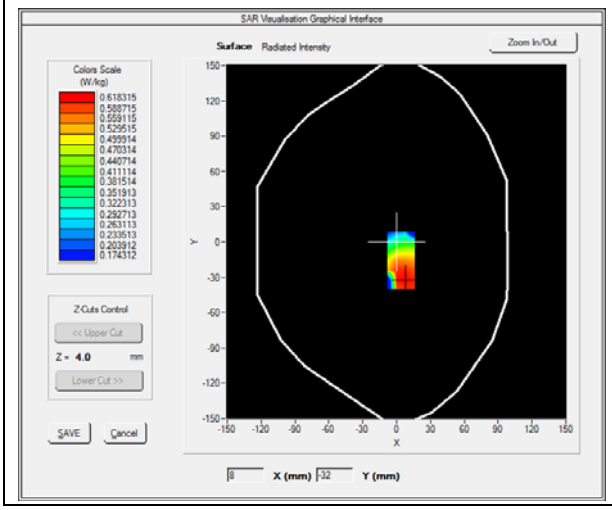
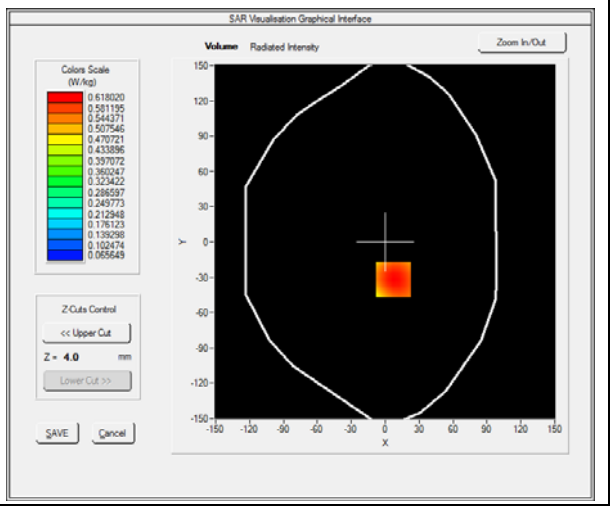
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Front
Band	LTE Band 2_RMC
Channels	QPSK, 20MHz, 1RB, High
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 (%)	1.327810
Ambient Temperature	21.1
Liquid Temperature	21.3

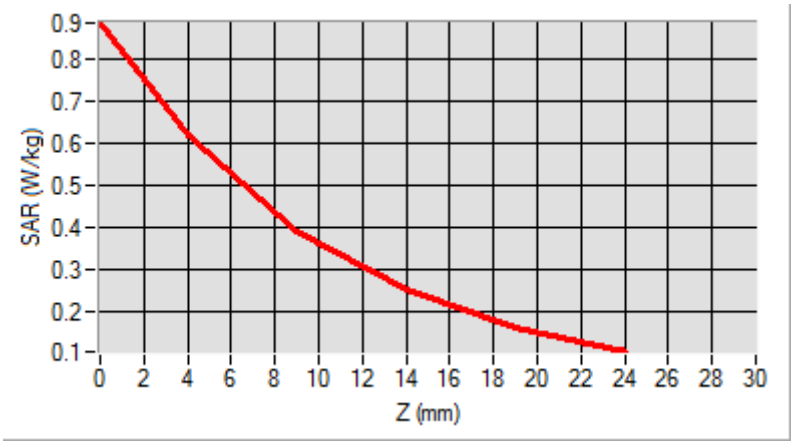
SURFACE SAR	VOLUME SAR
	

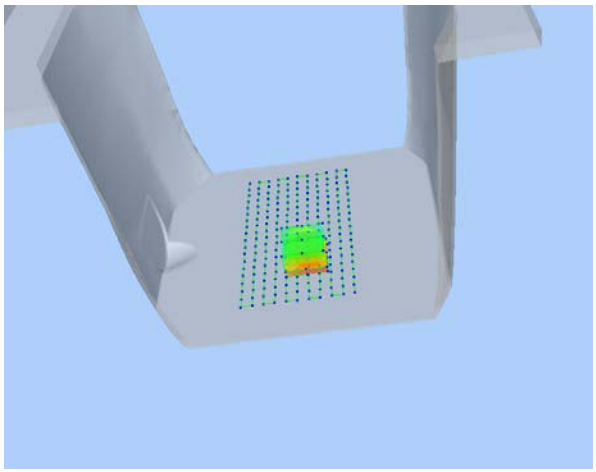
Maximum location: X=7.00, Y=-32.00

SAR Peak: 0.89 W/kg

SAR 10g (W/Kg)	**0.376438**
SAR 1g (W/Kg)	**0.590317**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.8840**	**0.6180**	**0.3906**	**0.2485**	**0.1614**



3D screen shot	**Hot spot position**
	

MEASUREMENT 105

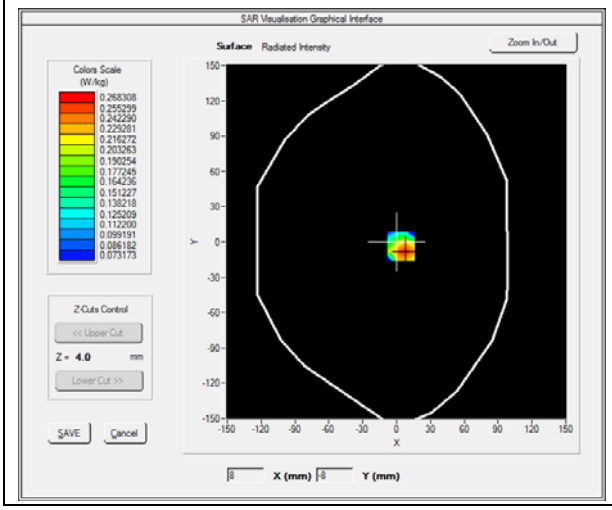
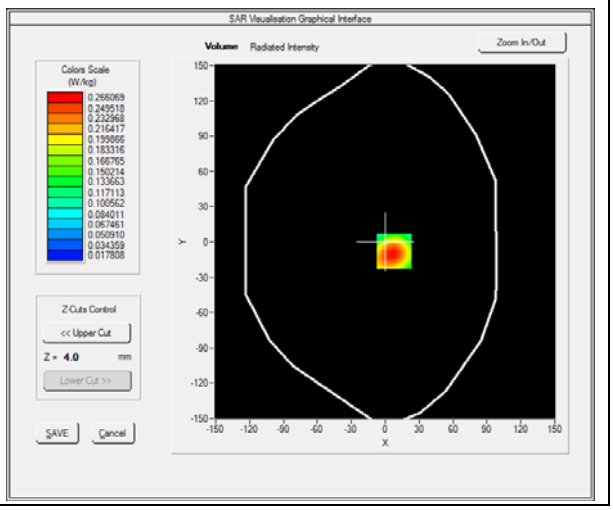
Type: Phone measurement (Complete)
Date of measurement: 01/16/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	LTE Band 4_RMC
Channels	QPSK, 20MHz, 1RB, High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1745.000000
Relative Permittivity (real part)	51.224510
Conductivity (S/m)	1.461261
Power Variation (%)	0.858383
Ambient Temperature	21.1
Liquid Temperature	21.2

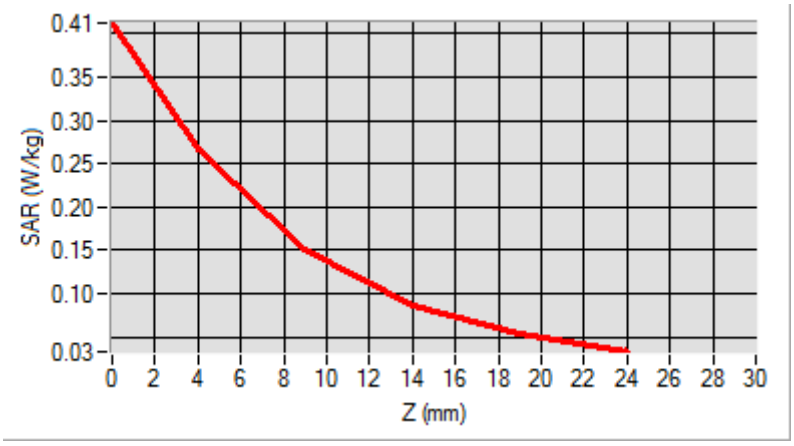
SURFACE SAR	VOLUME SAR
	

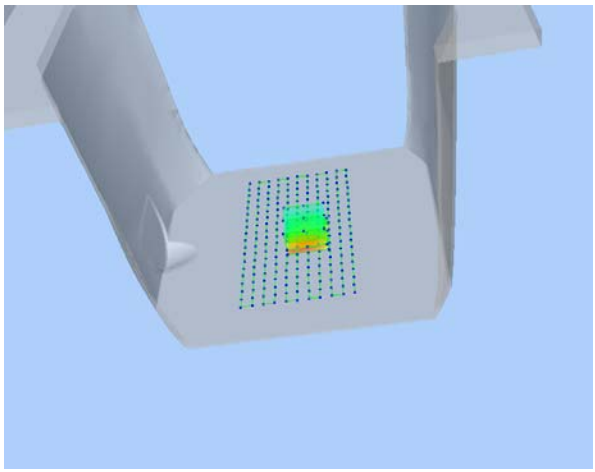
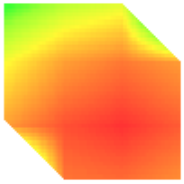
Maximum location: X=8.00, Y=-8.00

SAR Peak: 0.42 W/kg

SAR 10g (W/Kg)	**0.142621**
SAR 1g (W/Kg)	**0.250089**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.4121**	**0.2661**	**0.1511**	**0.0873**	**0.0535**



3D screen shot	**Hot spot position**
	

MEASUREMENT 115

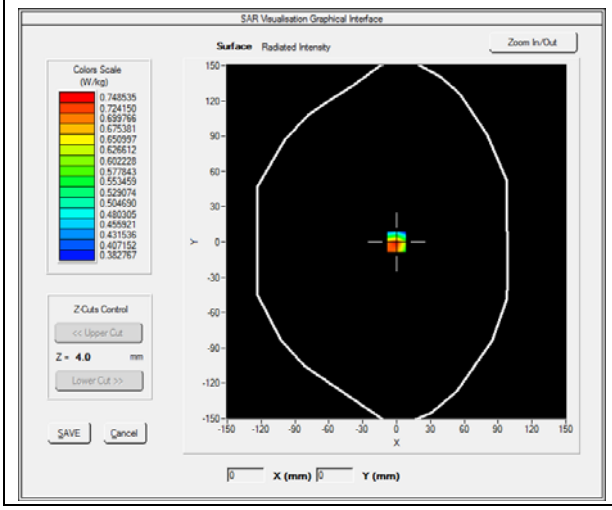
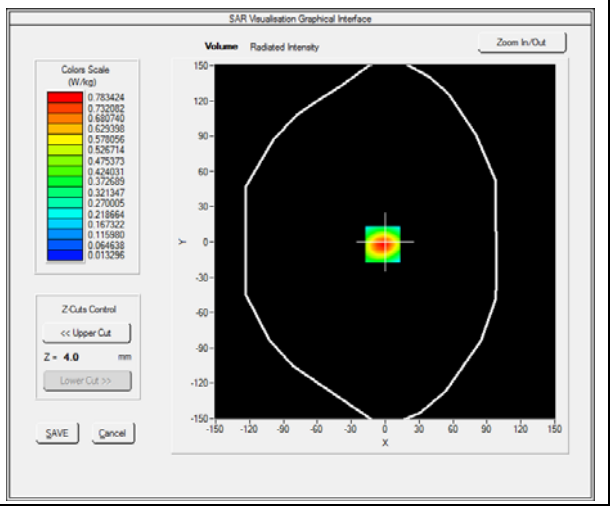
Type: Phone measurement (Complete)
Date of measurement: 01/17/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	LTE Band 7_RMC
Channels	QPSK, 20MHz, 1RB,Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2535.000000
Relative Permittivity (real part)	52.241202
Conductivity (S/m)	2.120943
Power Variation (%)	3.018829
Ambient Temperature	21.1
Liquid Temperature	21.2

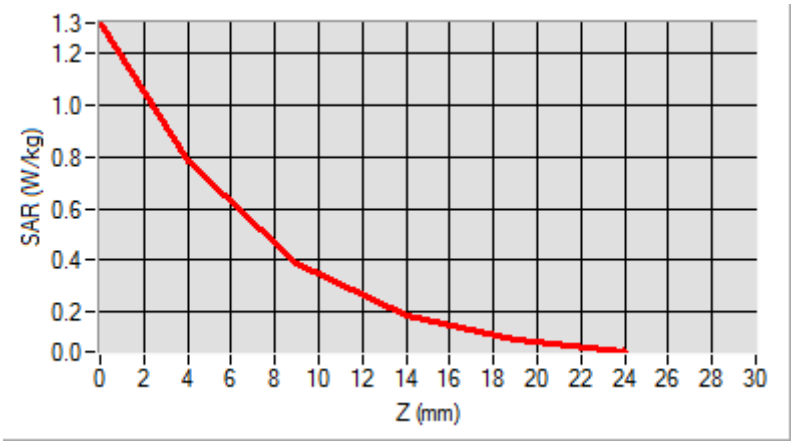
SURFACE SAR	VOLUME SAR
	

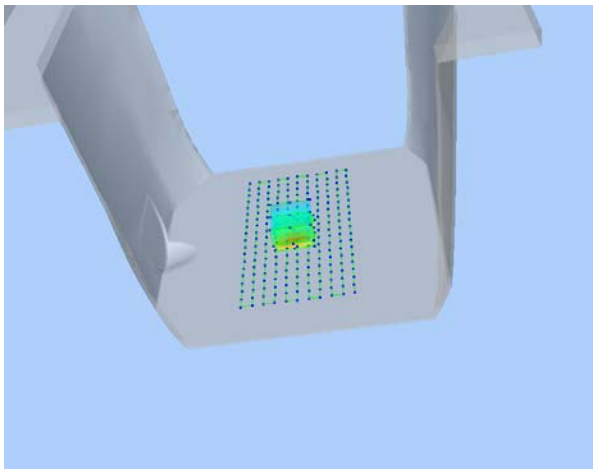
Maximum location: X=-2.00, Y=-2.00

SAR Peak: 1.32 W/kg

SAR 10g (W/Kg)	**0.350030**
SAR 1g (W/Kg)	**0.714058**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**1.3200**	**0.7834**	**0.3871**	**0.1870**	**0.0934**



3D screen shot	**Hot spot position**
	

MEASUREMENT 125

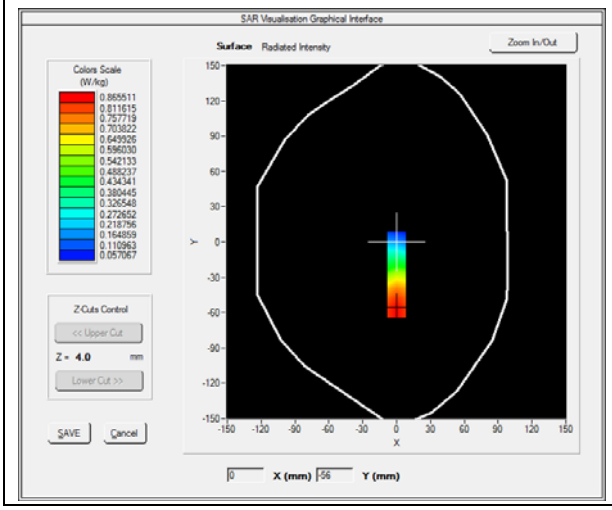
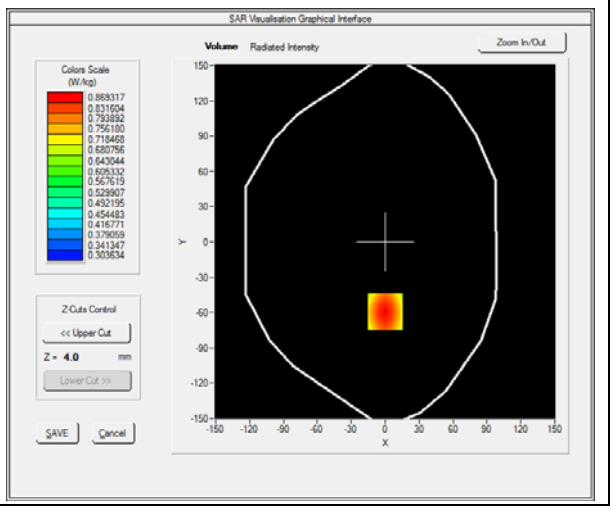
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.28; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	LTE Band 13_RMC
Channels	QPSK, 10MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	782.000000
Relative Permittivity (real part)	54.964739
Conductivity (S/m)	0.931048
Power Variation (%)	3.672346
Ambient Temperature	21.1
Liquid Temperature	21.2

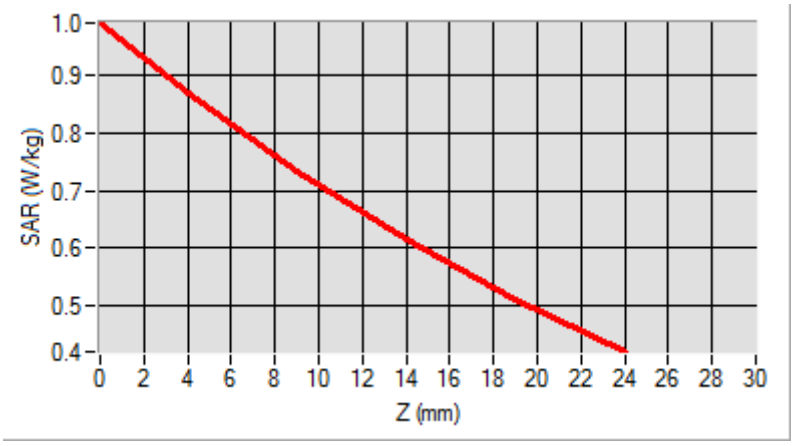
SURFACE SAR	VOLUME SAR
	

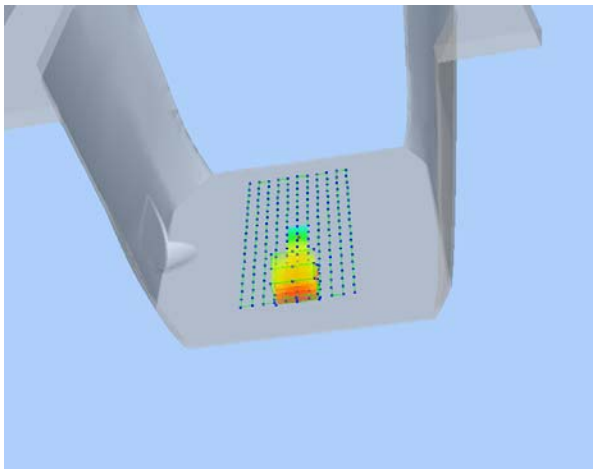
Maximum location: X=0.00, Y=-59.00

SAR Peak: 0.99 W/kg

SAR 10g (W/Kg)	**0.701329**
SAR 1g (W/Kg)	**0.887683**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.9916**	**0.8693**	**0.7333**	**0.6147**	**0.5110**



3D screen shot	**Hot spot position**
	

MEASUREMENT 136

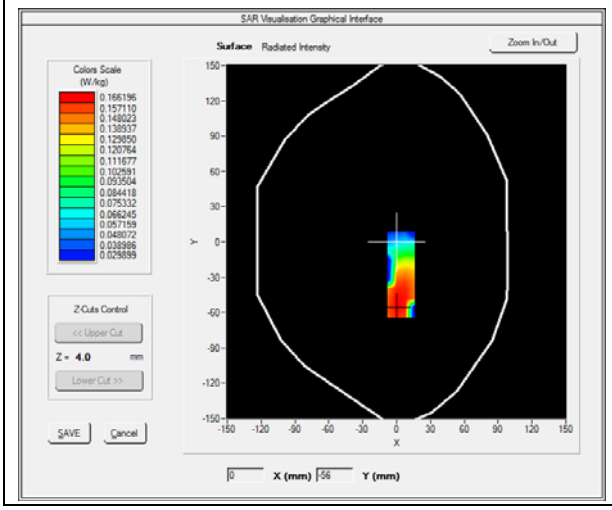
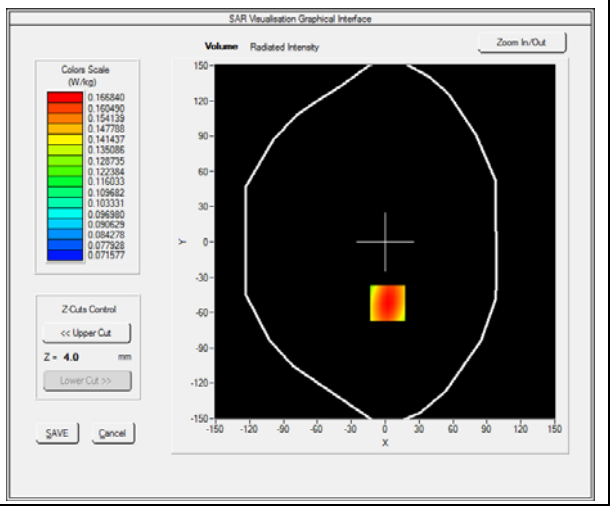
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.28; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	LTE Band 17_RMC
Channels	QPSK, 10MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	710.000000
Relative Permittivity (real part)	54.964739
Conductivity (S/m)	0.931048
Power Variation (%)	3.129191
Ambient Temperature	21.1
Liquid Temperature	21.2

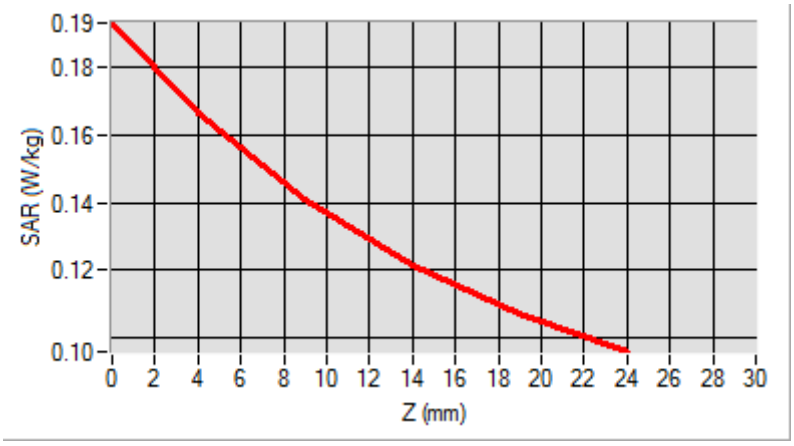
SURFACE SAR	VOLUME SAR
	

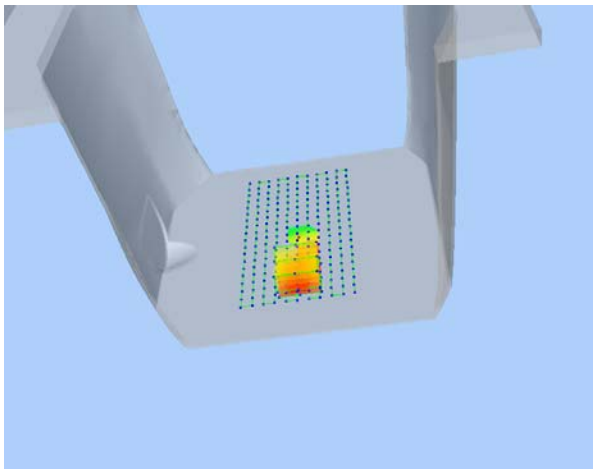
Maximum location: X=2.00, Y=-52.00

SAR Peak: 0.19 W/kg

SAR 10g (W/Kg)	**0.138933**
SAR 1g (W/Kg)	**0.171279**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.1933**	**0.1668**	**0.1408**	**0.1215**	**0.1074**



3D screen shot	**Hot spot position**
	

MEASUREMENT 138

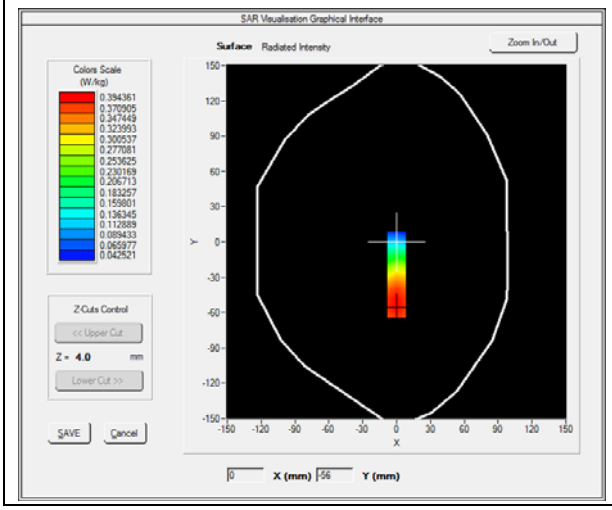
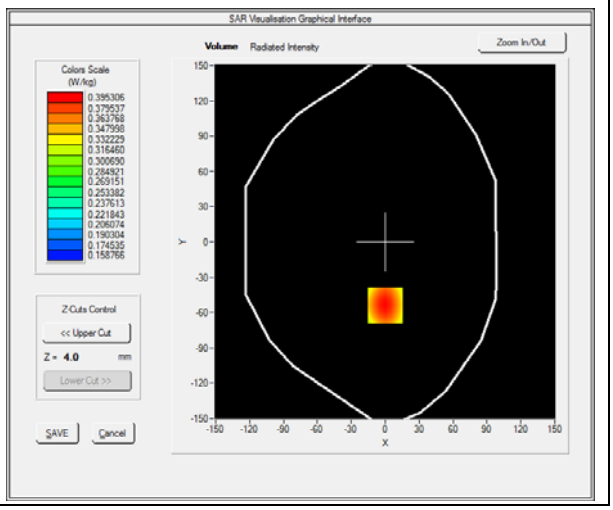
Type: Phone measurement (Complete)
Date of measurement: 01/15/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.28; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Bottom
Band	LTE Band 17_RMC
Channels	QPSK, 10MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	710.000000
Relative Permittivity (real part)	54.964739
Conductivity (S/m)	0.931048
Power Variation (%)	3.672346
Ambient Temperature	21.1
Liquid Temperature	21.2

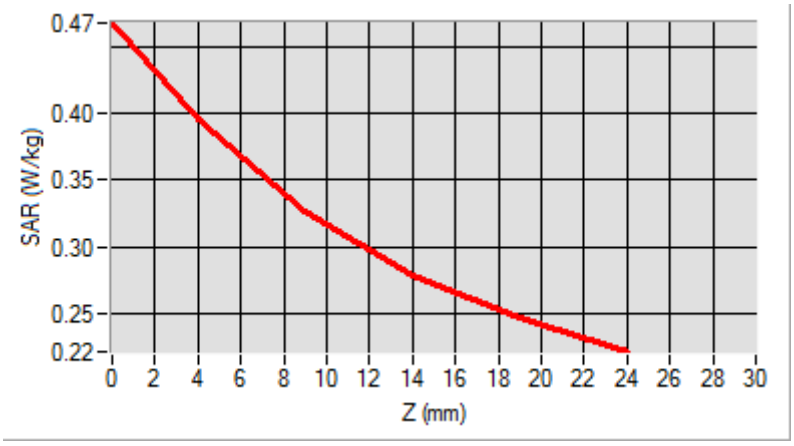
SURFACE SAR	VOLUME SAR
	

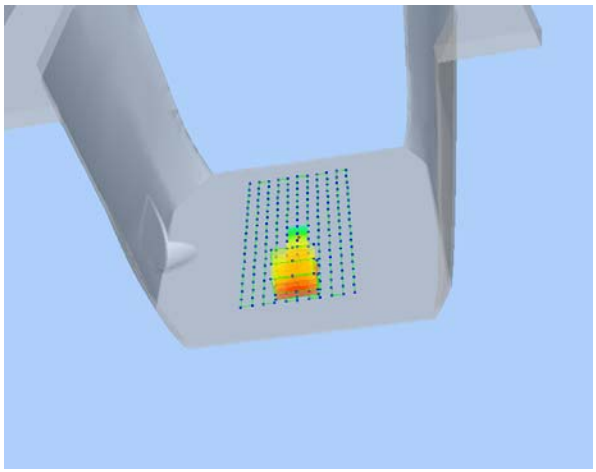
Maximum location: X=0.00, Y=-54.00

SAR Peak: 0.47 W/kg

SAR 10g (W/Kg)	**0.324009**
SAR 1g (W/Kg)	**0.404812**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.4674**	**0.3953**	**0.3268**	**0.2791**	**0.2467**



3D screen shot	**Hot spot position**
	

MEASUREMENT 146

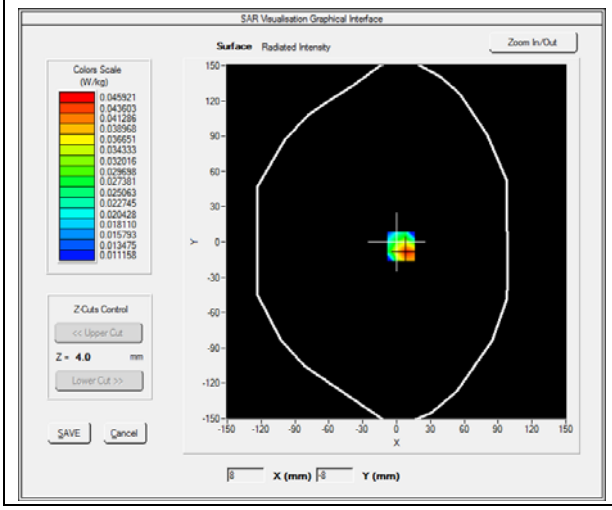
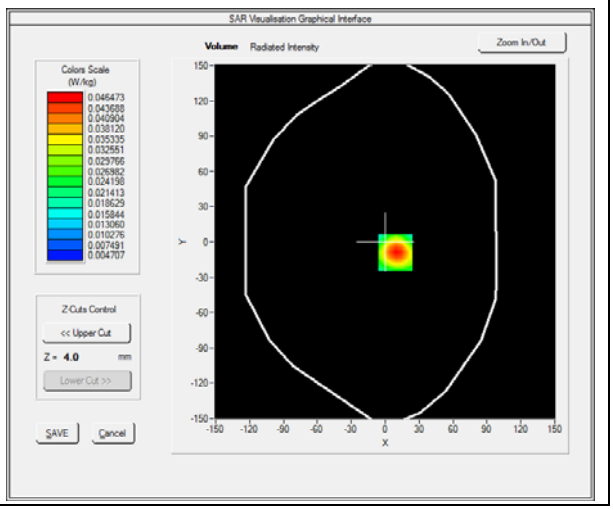
Type: Phone measurement (Complete)
Date of measurement: 01/17/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.80; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	WiFi_802.11b
Channels	High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2462.000000
Relative Permittivity (real part)	52.010212
Conductivity (S/m)	1.910255
Power Variation (%)	2.492743
Ambient Temperature	21.1
Liquid Temperature	21.2

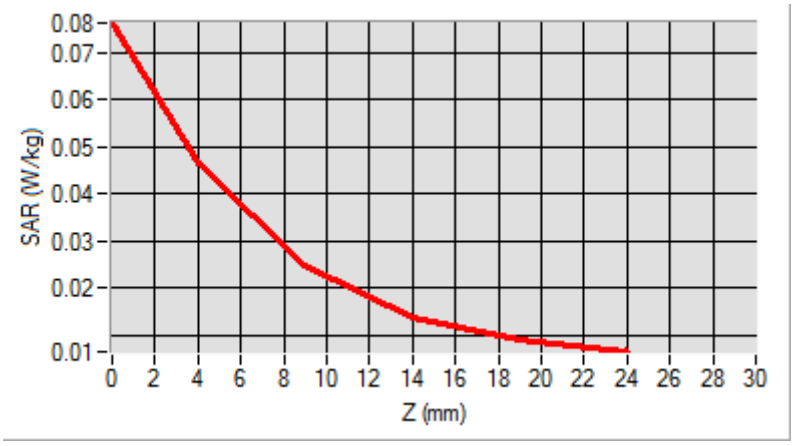
SURFACE SAR	VOLUME SAR
	

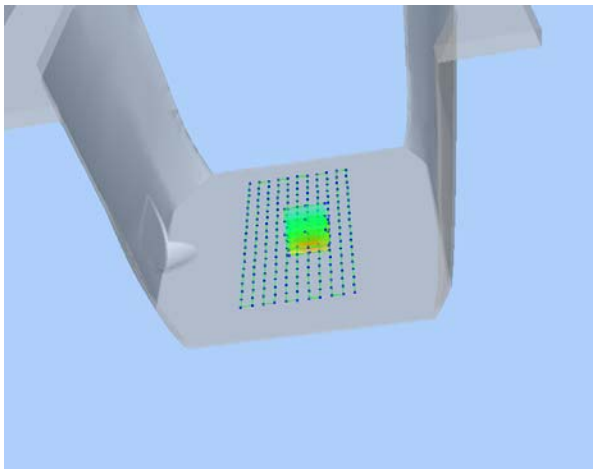
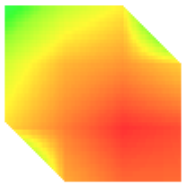
Maximum location: X=9.00, Y=-9.00

SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	**0.023715**
SAR 1g (W/Kg)	**0.043222**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.0762**	**0.0465**	**0.0247**	**0.0139**	**0.0091**



3D screen shot	**Hot spot position**
	

MEASUREMENT 150

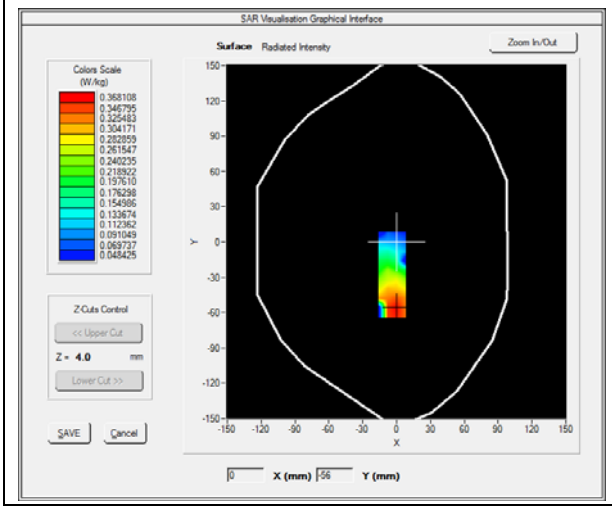
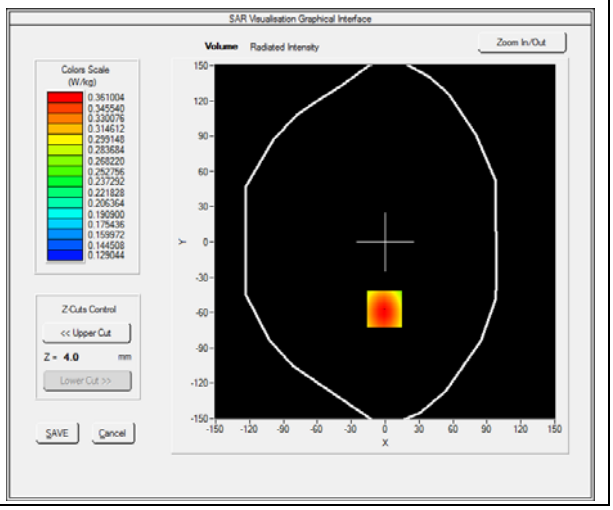
Type: Phone measurement (Complete)
Date of measurement: 01/31/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Front
Band	GPRS850_4TX
Channels	Low
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

Frequency (MHz)	824.200000
Relative Permittivity (real part)	41.170728
Conductivity (S/m)	0.880382
Power Variation (%)	1.502922
Ambient Temperature	21.1
Liquid Temperature	21.3

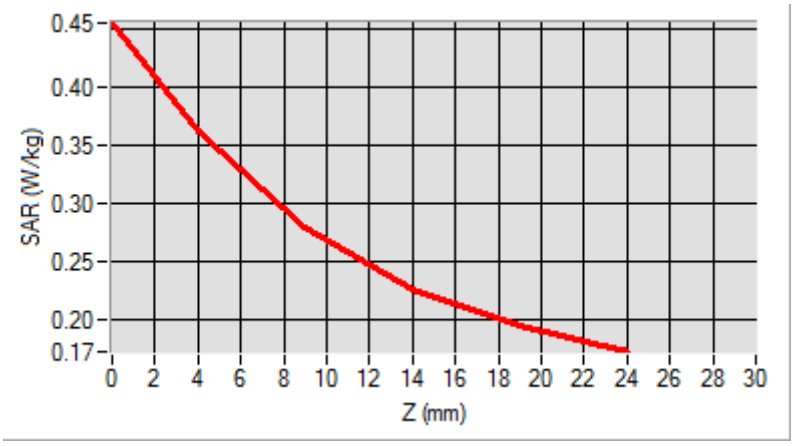
SURFACE SAR	VOLUME SAR
	

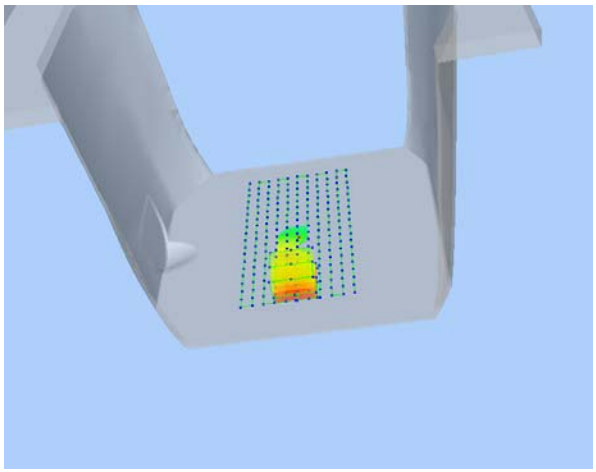
Maximum location: X=-1.00, Y=-57.00

SAR Peak: 0.46 W/kg

SAR 10g (W/Kg)	**0.267828**
SAR 1g (W/Kg)	**0.348646**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.4543**	**0.3610**	**0.2779**	**0.2252**	**0.1936**



3D screen shot	**Hot spot position**
	

MEASUREMENT 151

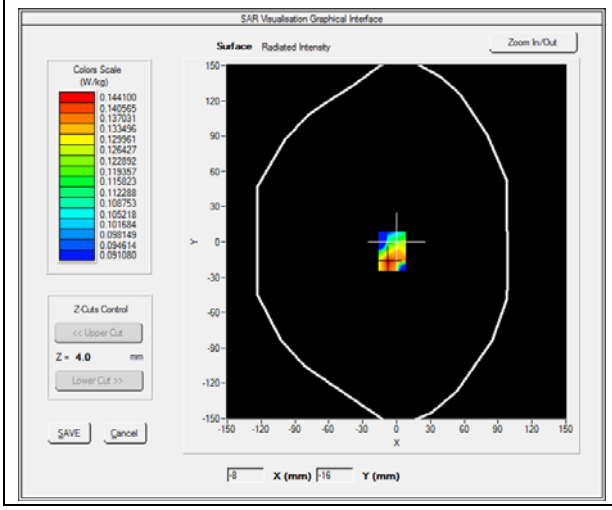
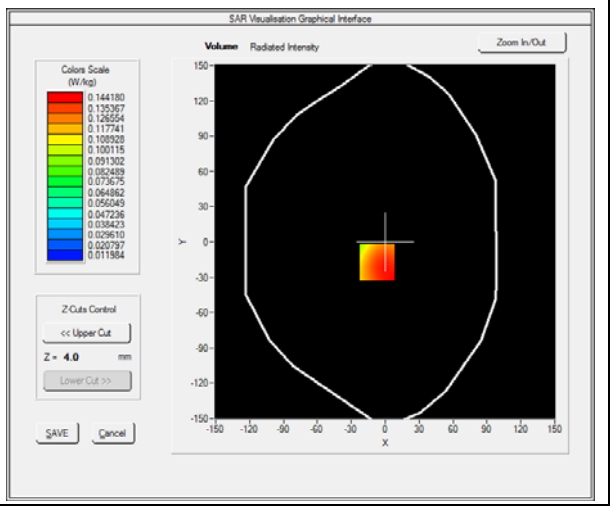
Type: Phone measurement (Complete)
Date of measurement: 01/31/2018
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2017

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Front
Band	GPRS1900_4TX
Channels	High
Signal	Duty Cycle: 1:2

B. SAR Measurement Results

Frequency (MHz)	1909.800000
Relative Permittivity (real part)	38.530191
Conductivity (S/m)	1.360156
Power Variation (%)	1.503921
Ambient Temperature	21.1
Liquid Temperature	21.3

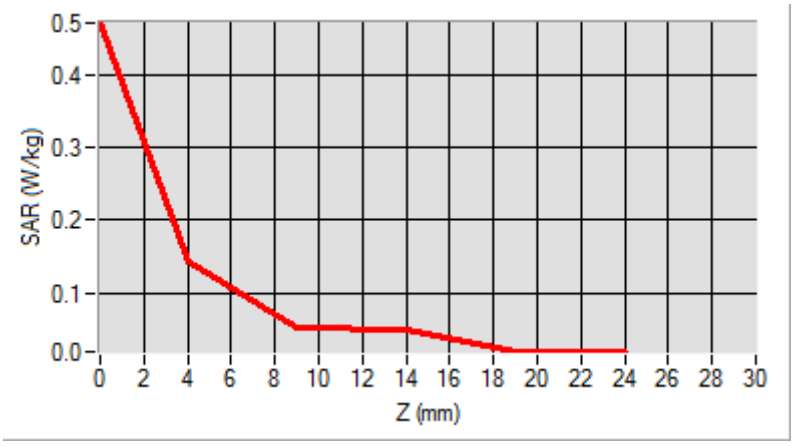
SURFACE SAR	VOLUME SAR
	

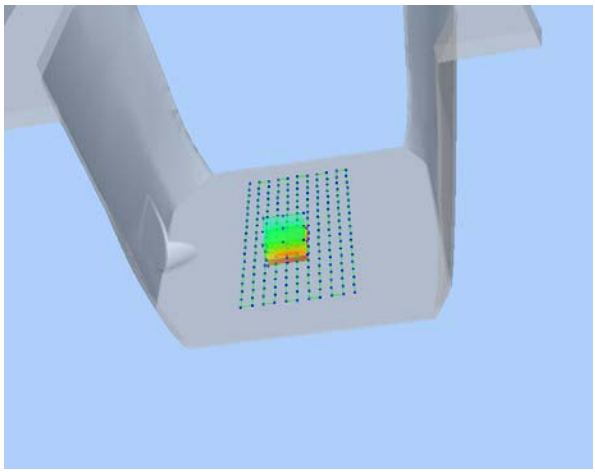
Maximum location: X=-7.00, Y=-17.00

SAR Peak: 0.22 W/kg

SAR 10g (W/Kg)	**0.084430**
SAR 1g (W/Kg)	**0.137165**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.4722**	**0.1442**	**0.0529**	**0.0503**	**0.0193**

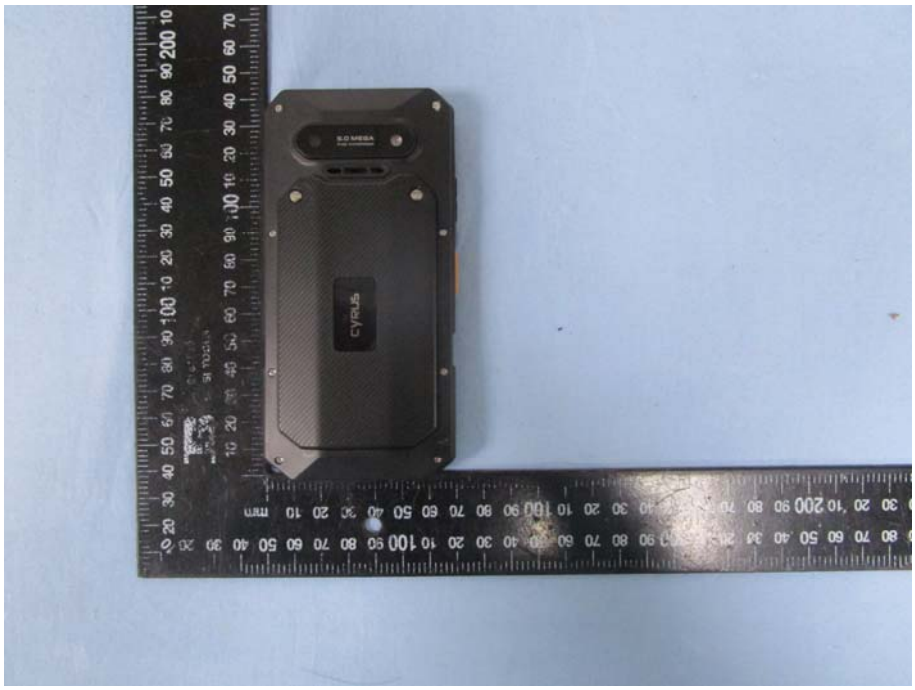


3D screen shot	**Hot spot position**
	

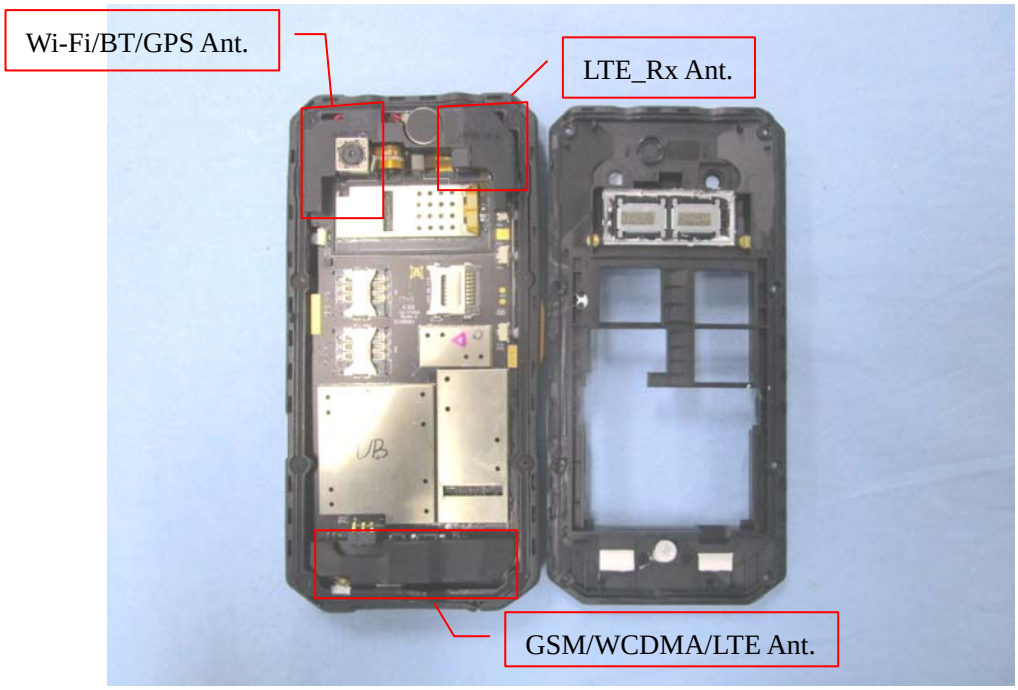
Annex C. EUT Photos

EUT View Front

EUT View Back



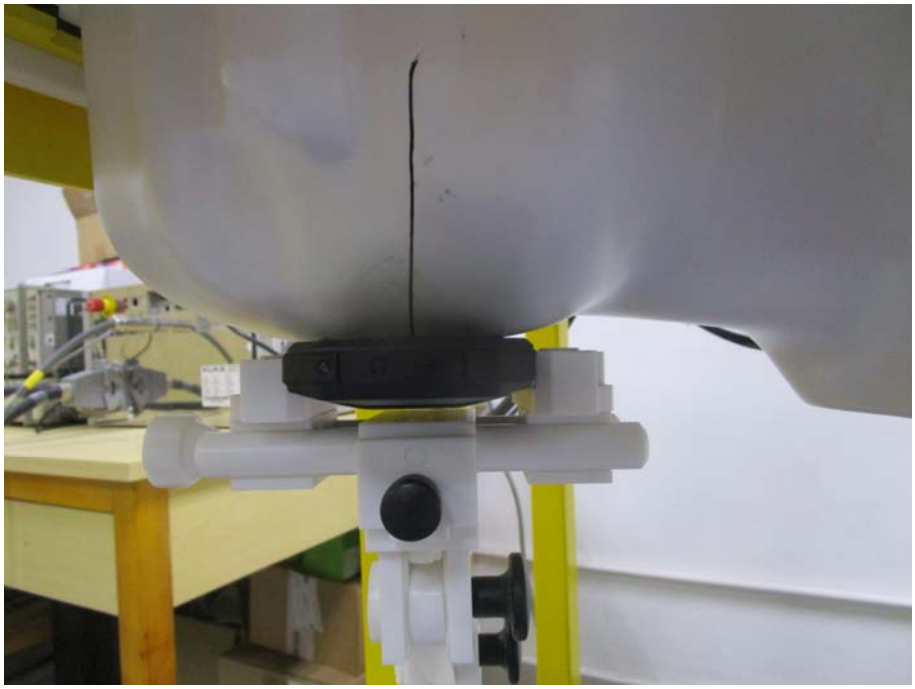
Antenna View



Annex D. Test Setup Photos

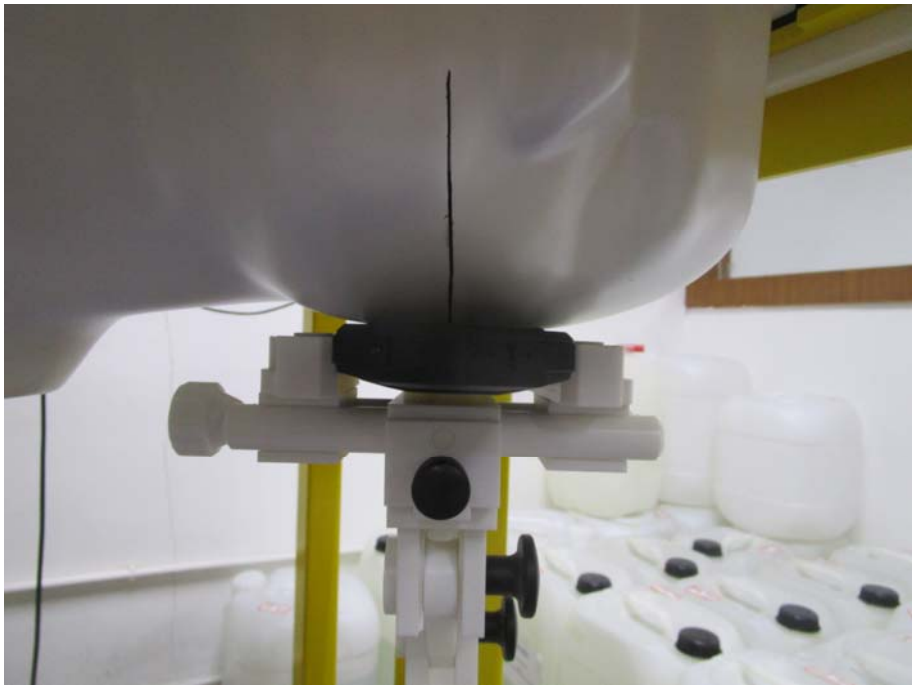
Head Exposure Conditions

Cheek



Tilt

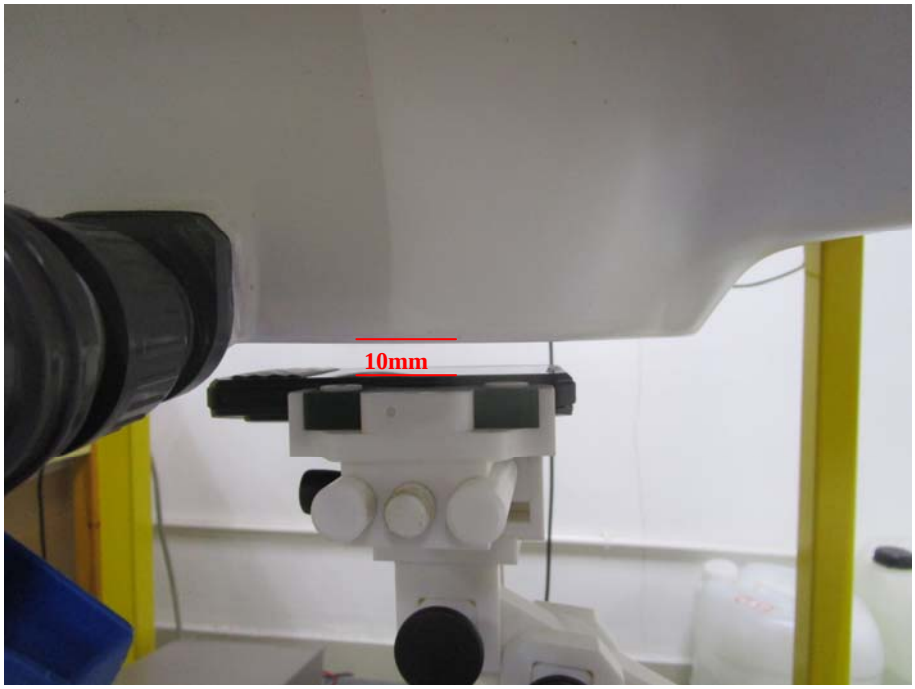
Cheek



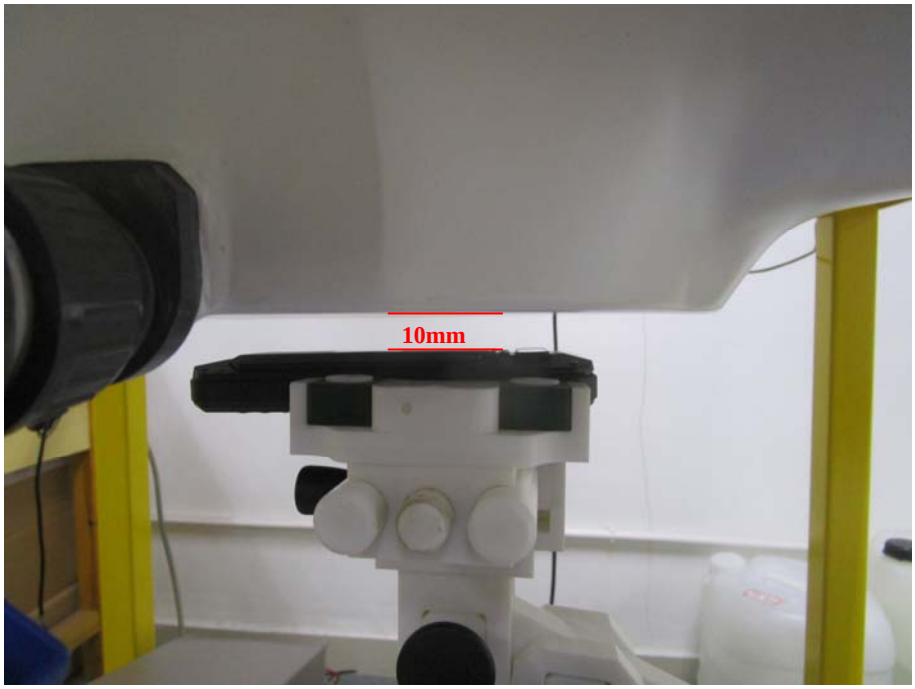
Tilt

Body-worn & Hotspot mode Exposure Conditions

Body Front

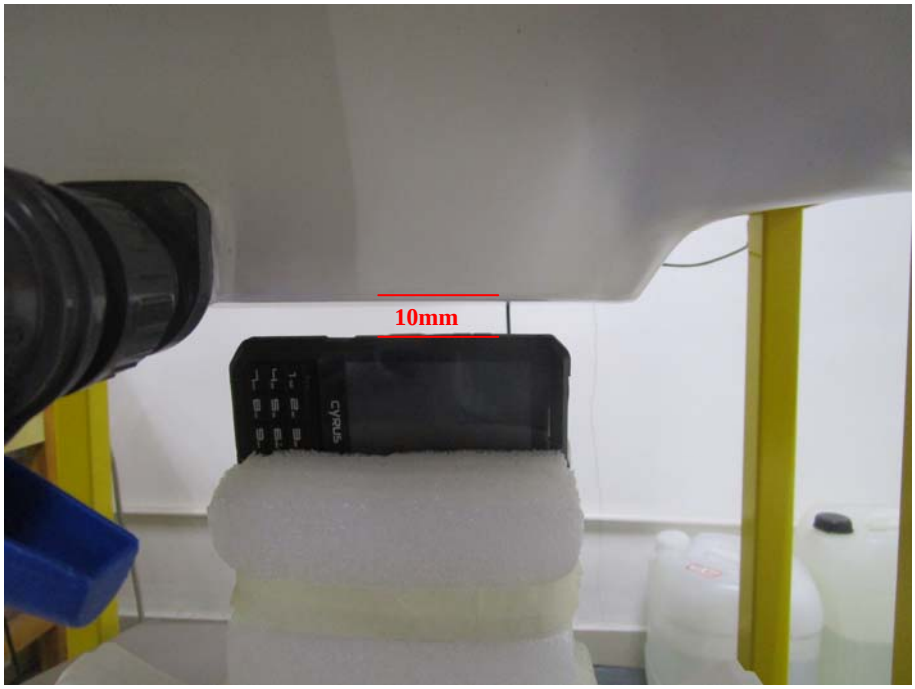


Body Back

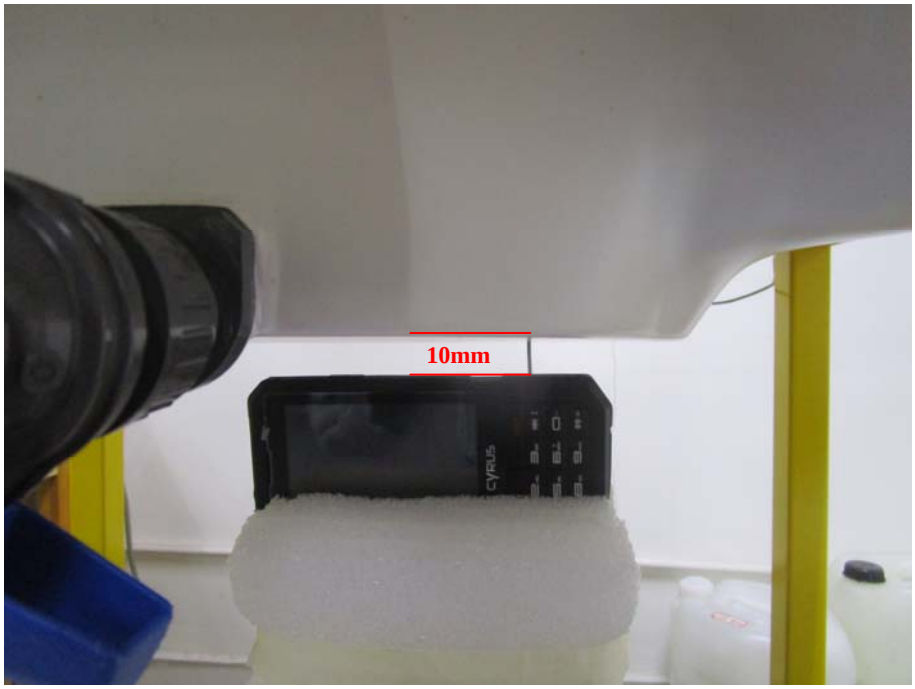


Hotspot Exposure Conditions

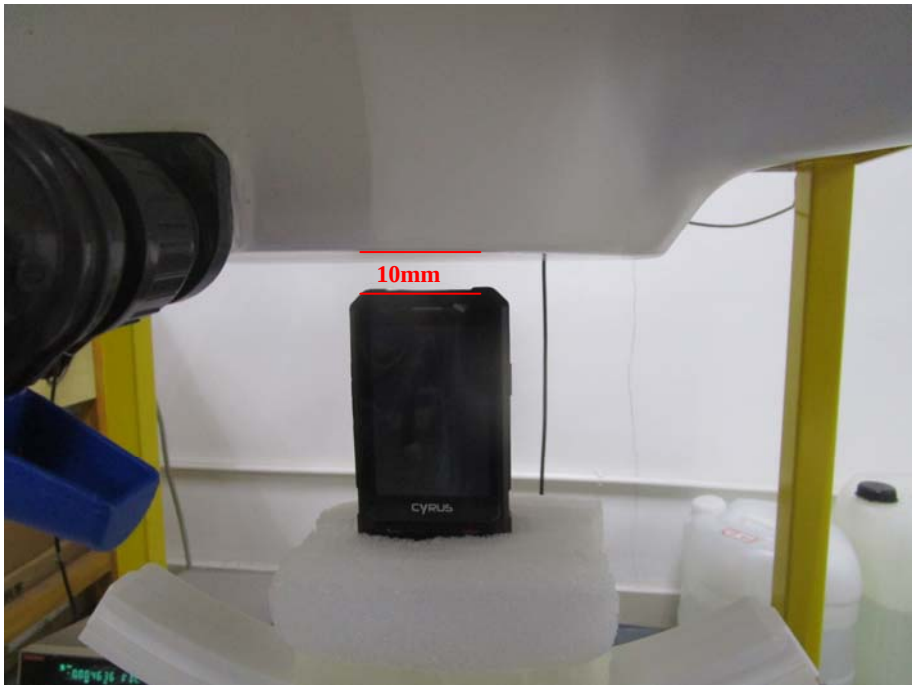
Body Left



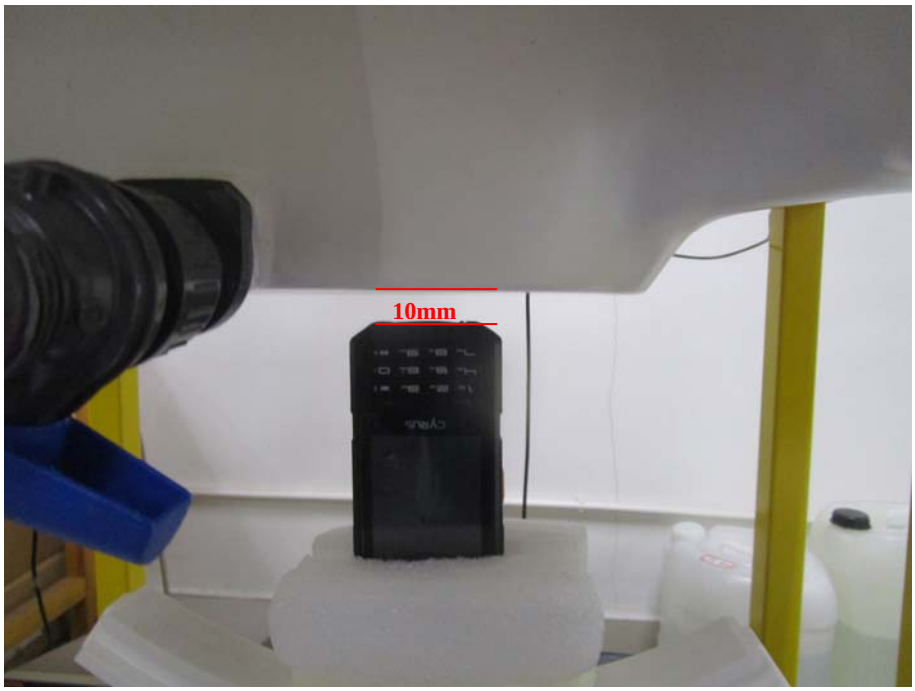
Body Right



Body Top

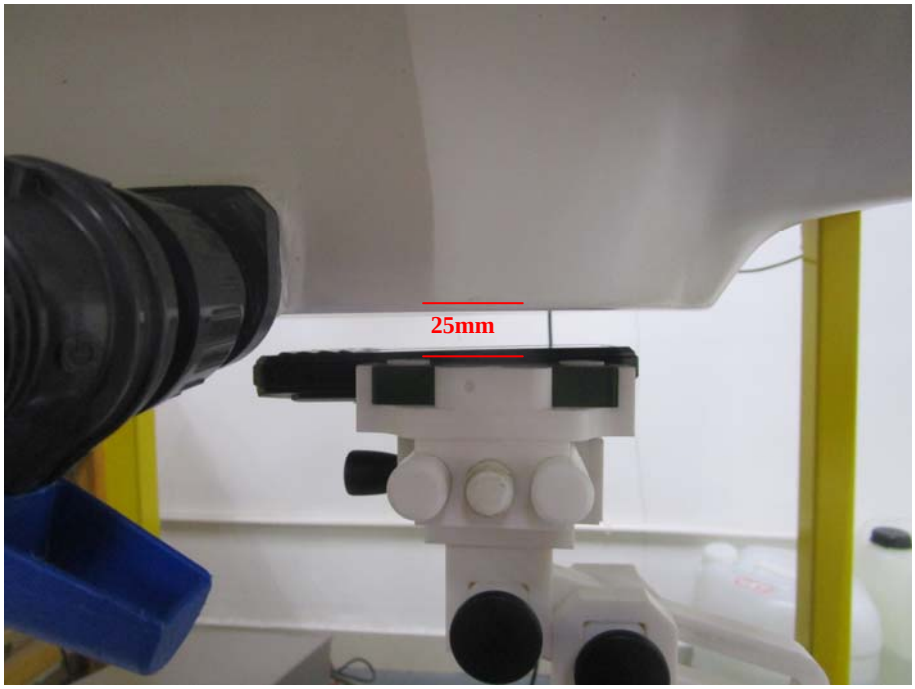


Body Bottom



Front-of the face mode Exposure Conditions

Front



Annex E. Calibration Certificate

Please refer to the exhibit for the calibration certificate

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