

FCC SAR

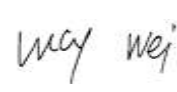
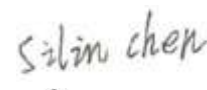
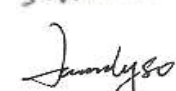
Measurement and Test Report

For

NEWSAN S.A.

Roque Perez 3650, Saavedra, Cdad. Autonoma de Buenos Aires, Argentina

FCC ID: 2AQAI-N601

Test Standards:	FCC Part 2.1093 ANSI / IEEE C95.1 ::2005+A1:2010 ANSI / IEEE C95.3 : 2002(R2008) <u>IEEE 1528 :2013</u>
Product Description:	<u>FCC CERTIFICATION FOR MOBILE PHONE</u>
Tested Model:	<u>N601</u>
Report No.:	<u>STR18068385H</u>
Sample Received Date:	<u>2018-08-27</u>
Tested Date:	<u>2018-08-27 to 2018-08-31</u>
Issued Date:	<u>2018-09-05</u>
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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: NEWSAN S.A.
Address of applicant: Roque Perez 3650, Saavedra, Cdad. Autonoma de Buenos Aires, Argentina

Manufacturer: NEWSAN S.A.
Address of manufacturer: Roque Perez 3650, Saavedra, Cdad. Autonoma de Buenos Aires, Argentina

General Description of EUT:	
Product Name:	FCC CERTIFICATION FOR MOBILE PHONE
Brand Name:	/
Model No.:	N601
Adding Model(s):	/
Rated Voltage:	DC 3.85V
Battery:	3000mAh
Software Version:	Android 8.0.0
Hardware Version:	V1.0
Device Category:	Portable Device
<i>The EUT Main board support GSM850/PCS1900, WCDMA Band 2/5, FDD LTE Band 2/4/7 function. It is intended for speech, Multimedia Message Service (MMS) transmission. It is equipped with GPRS/EDGE class 12 for GSM850/PCS1900, GPS, FM, NFC, Bluetooth and Wi-Fi functions. For more information see the following datasheet.</i>	
<i>Note: The test data is gathered from a production sample provided by the manufacturer.</i>	

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
Max RF Output Power:	GSM850: 33.37dBm, GSM1900: 29.61dBm EDGE850: 27.28dBm, EDGE1900: 24.62dBm
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: -3.5dBi; GSM1900: -1dBi
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: 22.77dBm, WCDMA Band 5: 22.97dBm
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: -1dBi, WCDMA Band 5: -3.5dBi
4G	
Support Networks:	FDD-LTE
Support Band:	FDD-LTE Band 2, 4, 7
Uplink Frequency:	FDD-LTE Band 2: Tx: 1850-1910MHz, FDD-LTE Band 4: Tx: 1710-1755MHz, FDD-LTE Band 7: Tx: 2500-2570MHz,
Downlink Frequency:	FDD-LTE Band 2: Rx: 1930-1990MHz, FDD-LTE Band 4: Rx: 2110-2155MHz, FDD-LTE Band 7: Rx: 2620-2690MHz,
RF Output Power:	FDD-LTE Band 2: 22.86dBm, FDD-LTE Band 4: 23.91dBm, FDD-LTE Band 7: 21.89dBm
Type of Modulation:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 2: -1dBi, FDD-LTE Band 4: -3dBi,

	FDD-LTE Band 7: -3dBi,
WIFI	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 11b/g/n(HT20)
RF Output Power:	16.45dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 72.2Mbps
Quantity of Channels:	11
Channel Separation:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	-2.4dBi
Bluetooth	
Bluetooth Version:	V4.0
Frequency Range:	2402-2480MHz
RF Output Power:	8.711dBm (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:	-2.4dBi
NFC	
Support Standards:	NFC
Frequency Range:	13.56MHz
Max. Field Strength:	77.67dBuV/m (at 3m)/ -17.56dBm
Antenna Type:	Integral Antenna
Device Category:	Portable Device

1.2 Test Standards

The following report is prepared on behalf of the NEWSAN S.A. 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)	Maximum SAR _{10g} (W/kg)
GSM	0.422	0.661	1.079	1.6
WCDMA	0.441	0.656	1.080	1.6
FDD-LTE	0.306	1.053	1.275	1.6
WLAN 2.4G	0.117	0.048	0.048	1.6
Simultaneous Transmission	0.772	1.218	1.275	1.6

Frequency Band	Extremity SAR(0mm Gap)	SAR _{10g} Limit (W/kg)
	Maximum SAR _{10g} (W/kg)	
FDD-LTE	0.733	4.0

Remark:

*The highest reported SAR values for head, body-worn accessory, wireless router(hotspot), Extremity SAR and simultaneous transmission conditions are **0.441W/kg, 1.053W/kg, 1.275W/kg, 0.733W/kg, and 1.275W/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 techniques 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:

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

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

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

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

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

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.

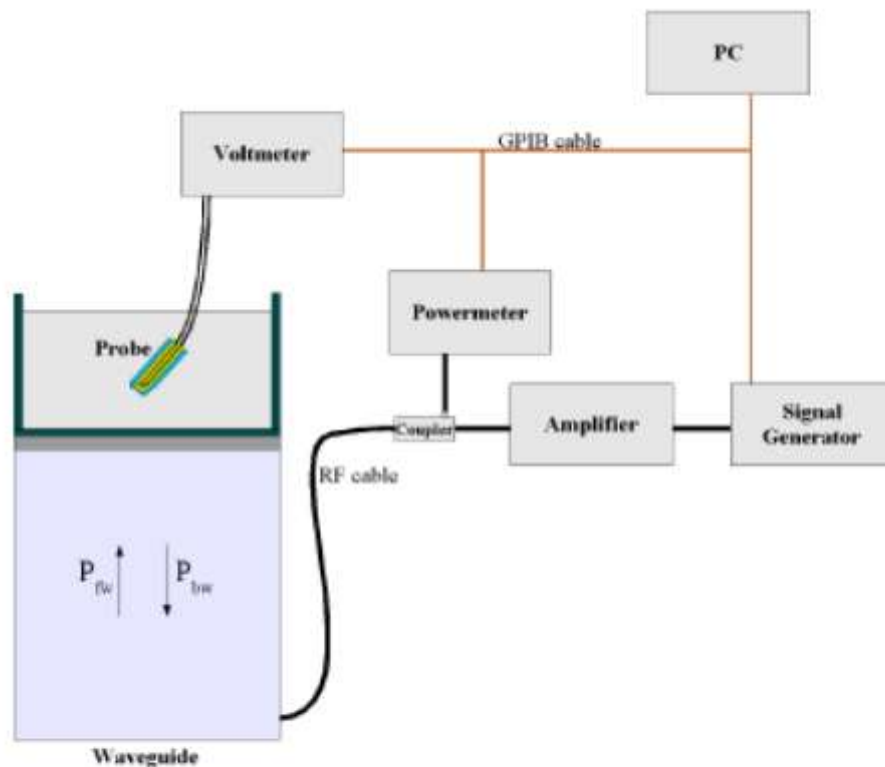
4.2 Probe

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 surface normal line: less than 30°

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



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

Where :

P_{fw} = Forward Power

P_{bw} = Backward Power

a and b = Waveguide dimensions

l = 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:

$$CF(N)=SAR(N)/V_{lin}(N) \quad (N=1,2,3)$$

The linearised output voltage $V_{lin}(N)$ is obtained from the displayed output voltage $V(N)$ using

$$V_{lin}(N)=V(N)*(1+V(N)/DCP(N)) \quad (N=1,2,3)$$

where DCP is the diode compression point in mV.

4.3 Probe Calibration Process

Dosimetric Assessment Procedure

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

Free Space Assessment Procedure

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

Temperature Assessment Procedure

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

Where:

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

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,

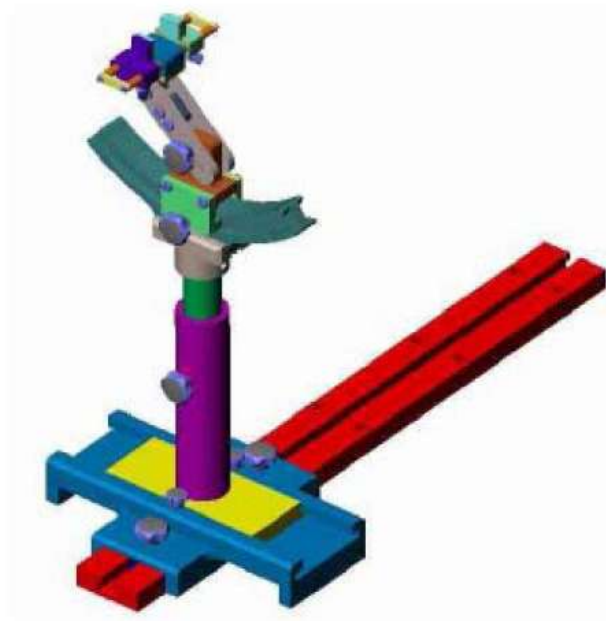
ρ = Tissue density (1.25 g/cm³ for brain tissue)

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	2018-06-01	2019-05-31
835MHz Dipole	MVG	SID835	SN 47/12 DIP 0G835-204	2018-03-20	2019-03-19
1800MHz Dipole	MVG	SID1800	SN 47/12 DIP 1G800-206	2018-03-20	2019-03-19
1900MHz Dipole	MVG	SID1900	SN 47/12 DIP 1G900-207	2018-03-20	2019-03-19
2450MHz Dipole	MVG	SID2450	SN 13/15 DIP 2G450-364	2018-03-20	2019-03-19
2600MHz Dipole	MVG	SID2600	SN 13/15 DIP 2G600-365	2018-03-20	2019-03-19
Dielectric Probe Kit	SATIMO	SCLMP	SN 47/12 OCPG49	2018-03-20	2019-03-19
SAM Phantom	SATIMO	SAM	SN/ 47/12 SAM95	N/A	N/A
MULTIMETER	KEITHLEY	Keithley 2000	4006367	2018-05-22	2019-05-21
Signal Generator	Rohde & Schwarz	SMR20	100047	2018-05-22	2019-05-21
Universal Tester	Rohde & Schwarz	CMU200	112012	2018-05-22	2019-05-21
Communications Tester	Rohde & Schwarz	CMW500	148650	2018-05-22	2019-05-21
Network Analyzer	HP	8753C	2901A00831	2018-05-22	2019-05-21
Directional Couplers	Agilent	778D	20160	2018-05-22	2019-05-21

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. The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm with $\leq \pm 0.5$ cm variation for SAR measurements ≤ 3 GHz. 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						
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						
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. (°C)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ϵ_r)	Target (ϵ_r)	Delta (%)		
835	21.2	0.87	0.90	-3.33	41.11	41.50	-0.94	± 5	2018-08-27
1750	21.3	1.37	1.37	0.00	39.02	40.1	-2.69	± 5	2018-08-28
1800	21.3	1.37	1.40	-2.14	39.02	40.0	-2.45	± 5	2018-08-28
1900	21.3	1.38	1.40	-1.43	38.56	40.00	-3.60	± 5	2018-08-28
2450	21.3	1.74	1.80	-3.33	38.15	39.20	-2.68	± 5	2018-08-29
2600	21.3	1.93	1.96	-1.53	38.63	39.0	-0.95	± 5	2018-08-29

Body Tissue Simulating Liquid									
Freq. MHz.	Temp. (°C)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ϵ_r)	Target (ϵ_r)	Delta (%)		
835	21.2	0.95	0.97	-2.06	54.85	55.20	-0.63	± 5	2018-08-27
1750	21.3	1.46	1.49	-2.01	51.22	53.40	-4.08	± 5	2018-08-28
1800	21.3	1.46	1.52	-3.95	51.22	53.30	-3.90	± 5	2018-08-28
1900	21.3	1.50	1.52	-1.32	52.42	53.30	-1.65	± 5	2018-08-28
2450	21.3	1.91	1.95	-2.05	52.01	52.70	-1.31	± 5	2018-08-29
2600	21.3	2.12	2.16	-1.85	52.24	52.50	-0.50	± 5	2018-08-29

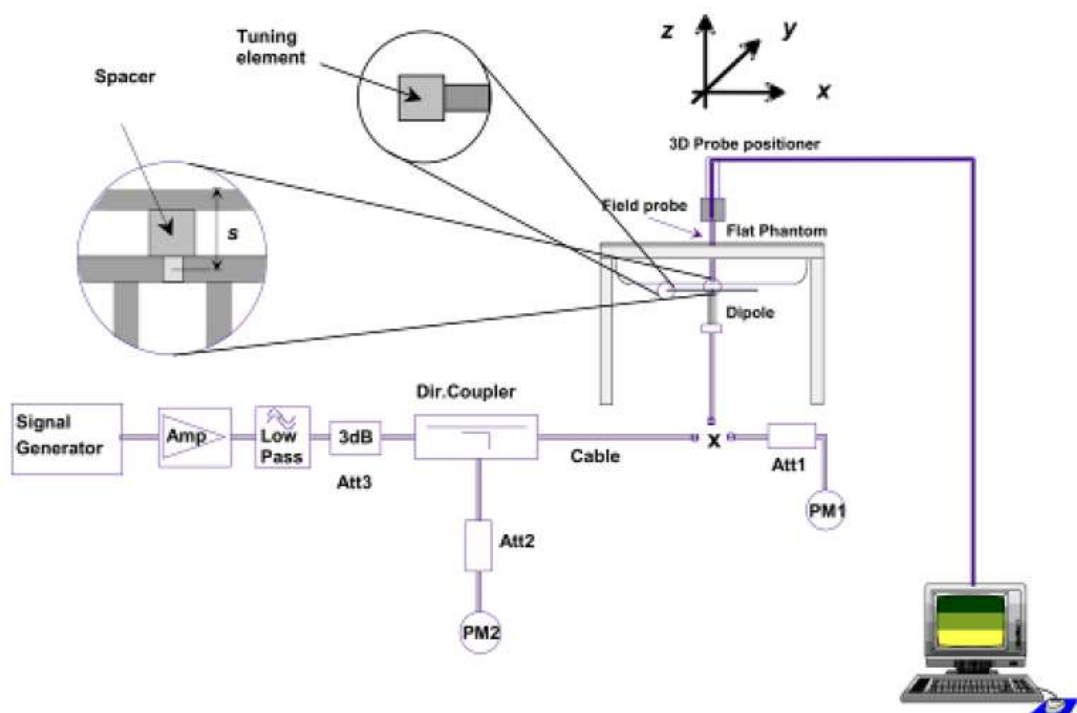
6. SAR Measurement Evaluation

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 1900MHz. 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	Targeted SAR _{1g}	Measured SAR _{1g}	Normalized SAR _{1g}	Tolerance
MHz	(W/kg)	(W/kg)	(W/kg)	(%)
Head				
835	9.67	2.41	9.64	-0.31
1800	38.51	9.61	38.44	-0.18
1900	39.58	9.91	39.64	0.15
2450	53.69	13.45	53.8	0.20
2600	55.13	13.67	54.68	-0.82
Body				
835	9.38	2.35	9.4	0.21
1800	38.31	9.58	38.32	0.03
1900	39.10	9.78	39.12	0.05
2450	50.41	12.59	50.36	-0.10
2600	53.89	13.43	53.72	-0.32

Frequency	Targeted SAR _{10g}	Measured SAR _{10g}	Normalized SAR _{10g}	Tolerance
MHz	(W/kg)	(W/kg)	(W/kg)	(%)
Body				
1800	20.85	5.22	20.88	0.14

Remark: Referring to IEEE 1528-2013, Section 8.2, The system check shall be performed at a test frequency that is within $\pm 10\%$ or ± 100 MHz of the compliance test mid-band frequency, so the 1750 MHz system verification is made of 1800MHz Dipole.

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.

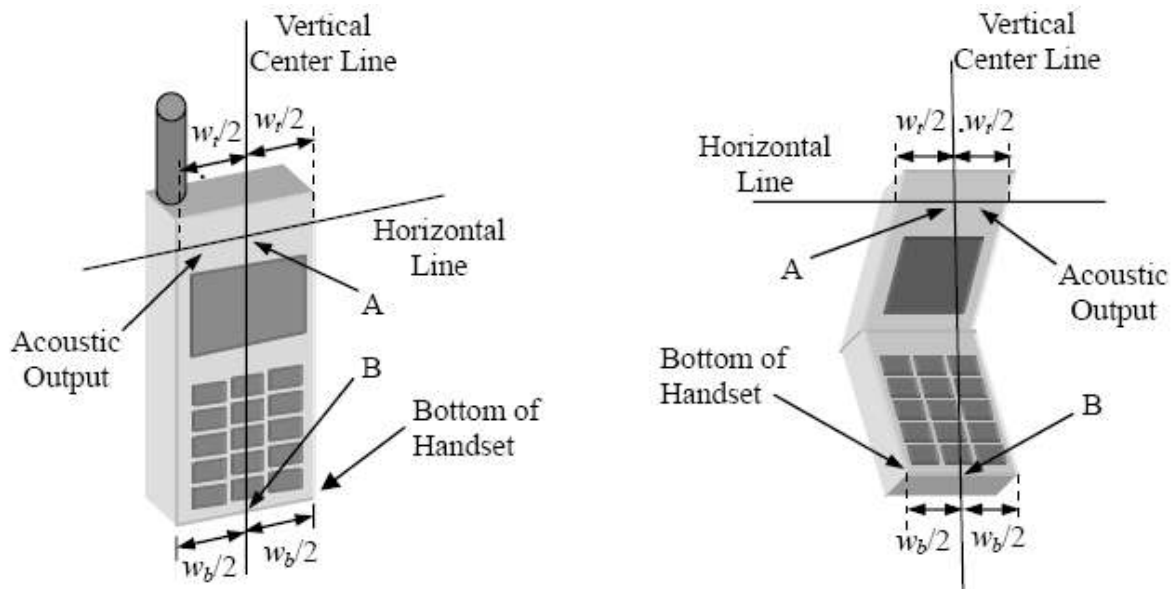


Illustration for Handset Vertical and Horizontal Reference Lines

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

- To position the device parallel to the phantom surface with either keypad up or down.
- To adjust the device parallel to the flat phantom.
- To adjust the distance between the device surface and the flat phantom to 10mm.

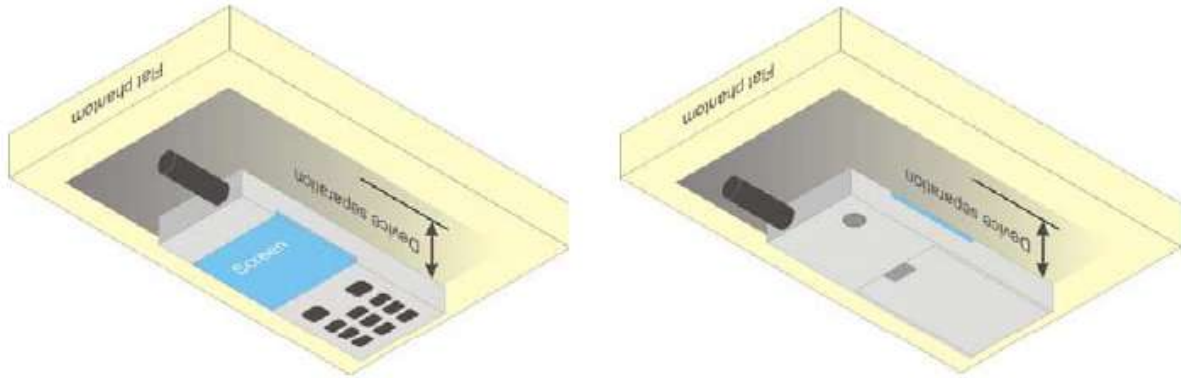
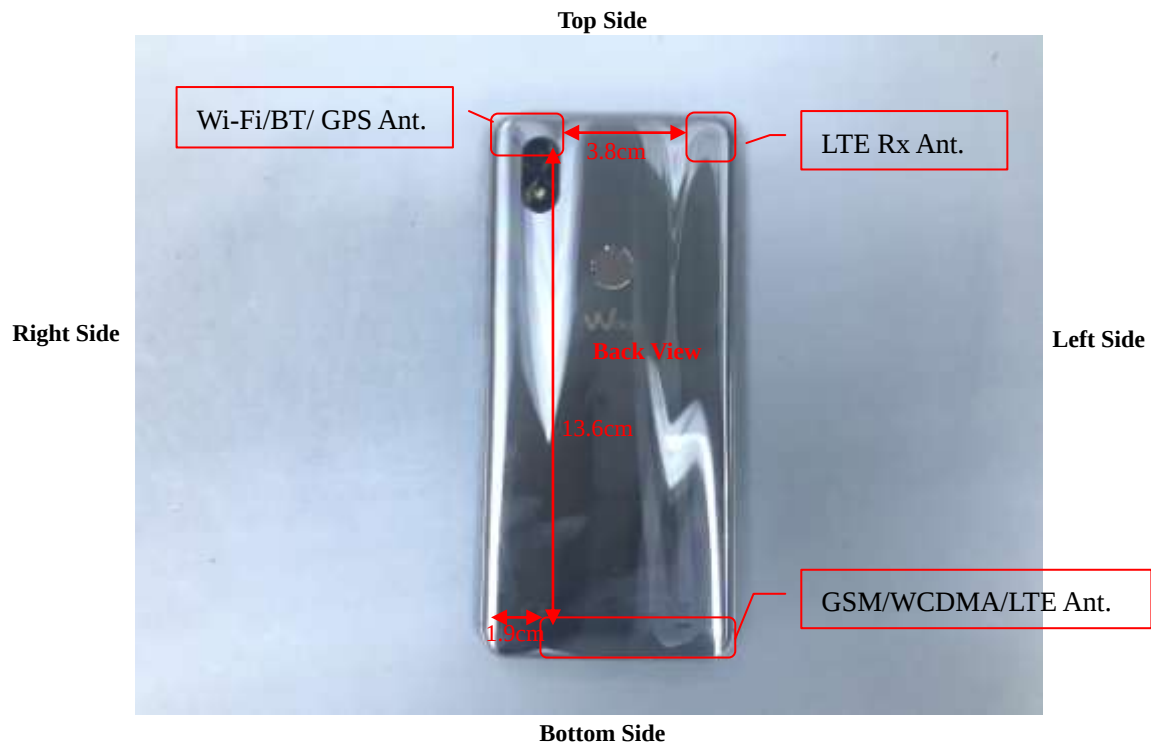


Illustration for Body Worn Position

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, Test distance: 10mm		
Antennas	Front	Back
WWAN	Yes	Yes
WLAN	Yes	Yes

Extremity SAR tests	
Antennas	Bottom
WWAN	Yes
WLAN	No

Remark:

- Referring to KDB 941225 D06, when the overall device length and width are $\geq 9\text{cm} \times 5\text{cm}$, 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.
- Referring to KDB 648474 D04 Handset SAR v01r03, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR $> 1.2 \text{ W/kg}$
- For Body-worn SAR testing, a separation distance of 10mm is used because the manufacturer will supply a body-worn accessories with the phone to support this separation distance.
- For Body-worn SAR testing ,the typical use of the product would be the front and back of the device to the body, Thus, we only tested the front and back sides of body-worn positions of the product. The other four sides of body-worn positions (top, bottom, left and right) were not tested.

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 from 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	33.26	33.04	33.03	33.5	29.25	29.39	29.49	30.0
GPRS (1 slot)	33.37	33.13	33.10	33.5	29.36	29.52	29.61	30.0
GPRS (2 slots)	32.27	32.13	32.09	32.5	27.51	27.40	27.45	28.0
GPRS (3 slots)	30.07	29.97	29.97	30.5	25.27	25.24	25.24	25.5
GPRS (4 slots)	27.93	27.77	27.78	28.5	23.36	23.30	23.40	23.5
EDGE (1 slot)	27.28	27.14	27.00	27.5	24.62	24.48	24.58	25.0
EDGE (2 slots)	25.17	24.97	24.87	25.5	22.41	22.28	22.42	23.5
EDGE (3 slots)	24.38	24.17	24.20	24.5	21.27	21.18	21.14	21.5
EDGE (4 slots)	22.13	22.06	22.08	22.5	19.16	18.96	19.02	19.5

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	24.26	24.04	24.03	24.5	20.25	20.39	20.49	21.0
GPRS (1 slot)	24.37	24.13	24.10	24.5	20.36	20.52	20.61	21.0
GPRS (2 slots)	26.27	26.13	26.09	26.5	21.51	21.40	21.45	22.0
GPRS (3 slots)	25.82	25.72	25.72	26.0	21.02	20.99	20.99	21.5
GPRS (4 slots)	24.93	24.77	24.78	25.5	20.36	20.30	20.40	21.0
EDGE (1 slot)	18.28	18.14	18.00	18.5	15.62	15.48	15.58	16.0
EDGE (2 slots)	19.17	18.97	18.87	19.5	16.41	16.28	16.42	17.0
EDGE (3 slots)	20.13	19.92	19.95	20.5	17.02	16.93	16.89	17.5
EDGE (4 slots)	19.13	19.06	19.08	19.5	16.16	15.96	16.02	16.5

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:

- For Head SAR testing, GSM and GPRS (2TX slots) should be evaluated, therefore the EUT was set in GSM and GPRS (2TX slots) for GSM850 and GPRS (2TX slots) for GSM1900 due to its highest source-based time-average power.
- For Body SAR testing, GPRS should be evaluated, therefore the EUT was set in GPRS (2TX 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.
6. The DUT do not support power reduction function.

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	
AMR 12.2k	22.67	22.69	22.74	23.0	22.95	22.86	22.94	23.5
RMC 12.2k	22.69	22.70	22.77	23.0	22.97	22.87	22.96	23.5
HSDPA Subtest-1	21.89	21.88	21.88	22.0	21.96	21.88	21.91	22.5
HSDPA Subtest-2	21.86	21.87	21.85	22.0	21.95	21.85	21.89	22.5
HSDPA Subtest-3	21.87	21.85	21.84	22.0	21.93	21.83	21.88	22.5
HSDPA Subtest-4	21.86	21.84	21.83	22.0	21.91	21.84	21.86	22.5
HSUPA Subtest-1	21.24	21.41	21.36	22.0	21.45	21.37	21.43	22.5
HSUPA Subtest-2	21.2	21.4	21.32	22.0	21.42	21.35	21.41	22.5
HSUPA Subtest-3	21.21	21.38	21.34	22.0	21.42	21.34	21.4	22.5
HSUPA Subtest-4	21.22	21.37	21.34	22.0	21.43	21.34	21.42	22.5
HSUPA Subtest-5	21.22	21.37	21.33	22.0	21.43	21.35	21.42	22.5

Remark:

1. per KDB 941225 D01 v03, The 12.2kbps RMC mode was selected for SAR testing(the primary mode).
2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode

FDD-LTE Band 2:

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.85	0
		1	3	21.87	0
		1	5	21.78	0
		3	0	21.31	0
		3	2	21.37	0
		3	3	21.33	0
		6	0	20.75	1
	MCH	1	0	21.96	0
		1	3	21.95	0
		1	5	22.03	0
		3	0	21.38	0
		3	2	21.39	0
		3	3	21.3	0
		6	0	20.85	1
	HCH	1	0	21.99	0
		1	3	21.98	0
		1	5	21.96	0
		3	0	21.39	0
		3	2	21.40	0
		3	3	21.43	0
		6	0	20.45	1
16QAM	LCH	1	0	20.86	1
		1	3	20.59	1
		1	5	20.42	1
		3	0	20.56	1
		3	2	20.48	1
		3	3	20.47	1
		6	0	20.35	2
	MCH	1	0	20.62	1
		1	3	20.60	1
		1	5	20.51	1
		3	0	20.81	1
		3	2	20.86	1
		3	3	20.82	1
		6	0	20.42	2
	HCH	1	0	20.57	1

		1	3	20.69	1
		1	5	20.62	1
		3	0	20.42	1
		3	2	20.51	1
		3	3	20.45	1
		6	0	20.57	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.37	0
		1	7	22.32	0
		1	14	22.23	0
		8	0	21.27	1
		8	4	21.19	1
		8	7	21.18	1
		15	0	21.2	1
	MCH	1	0	21.9	0
		1	7	21.79	0
		1	14	21.92	0
		8	0	20.91	1
		8	4	20.89	1
		8	7	20.87	1
		15	0	20.80	1
	HCH	1	0	22.25	0
		1	7	22.37	0
		1	14	22.23	0
		8	0	21.19	1
		8	4	21.28	1
		8	7	21.2	1
		15	0	21.28	1
16QAM	LCH	1	0	21.64	1
		1	7	21.53	1
		1	14	21.49	1
		8	0	20.54	2
		8	4	20.52	2
		8	7	20.38	2
		15	0	20.41	2
	MCH	1	0	21.33	1
		1	7	21.34	1
		1	14	21.37	1
		8	0	20.93	2
		8	4	20.86	2

		8	7	20.88	2
		15	0	20.91	2
	HCH	1	0	21.72	1
		1	7	21.80	1
		1	14	21.62	1
		8	0	20.45	2
		8	4	20.45	2
		8	7	20.36	2
		15	0	20.50	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.46	0
		1	12	22.54	0
		1	24	22.14	0
		12	0	20.98	1
		12	6	20.9	1
		12	13	20.88	1
		25	0	20.91	1
	MCH	1	0	21.77	0
		1	12	21.66	0
		1	24	21.77	0
		12	0	20.96	1
		12	6	20.94	1
		12	13	20.87	1
		25	0	20.93	1
	HCH	1	0	21.54	0
		1	12	21.48	0
		1	24	21.53	0
		12	0	20.50	1
		12	6	20.48	1
		12	13	20.51	1
		25	0	20.47	1
16QAM	LCH	1	0	20.94	1
		1	12	20.65	1
		1	24	20.68	1
		12	0	20.52	2
		12	6	20.55	2
		12	13	20.41	2
		25	0	20.40	2
	MCH	1	0	20.87	1
		1	12	20.88	1

		1	24	20.80	1
		12	0	20.35	2
		12	6	20.34	2
		12	13	20.99	2
		25	0	20.96	2
	HCH	1	0	20.68	1
		1	12	20.81	1
		1	24	20.70	1
		12	0	20.45	2
		12	6	20.50	2
		12	13	20.49	2
		25	0	20.49	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.52	0
		1	24	22.33	0
		1	49	21.41	0
		25	0	21.21	1
		25	12	21.27	1
		25	25	21.18	1
		50	0	21.2	1
	MCH	1	0	22.15	0
		1	24	21.55	0
		1	49	21.79	0
		25	0	21.64	1
		25	12	21.63	1
		25	25	21.68	1
		50	0	21.39	1
	HCH	1	0	21.80	0
		1	24	21.60	0
		1	49	22.34	0
		25	0	21.17	1
		25	12	21.18	1
		25	25	21.21	1
		50	0	21.16	1
16QAM	LCH	1	0	20.79	1
		1	24	21.27	1
		1	49	20.76	1
		25	0	20.39	2
		25	12	20.38	2
		25	25	20.41	2

	MCH	50	0	20.33	2
		1	0	20.93	1
		1	24	20.74	1
		1	49	20.92	1
		25	0	20.87	2
		25	12	20.87	2
		25	25	20.96	2
		50	0	20.94	2
	HCH	1	0	20.87	1
		1	24	20.91	1
		1	49	21.33	1
		25	0	20.38	2
		25	12	20.33	2
		25	25	20.44	2
		50	0	20.42	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.61	0
		1	37	22.43	0
		1	74	21.62	0
		37	0	21.27	1
		37	18	21.45	1
		37	38	21.27	1
		75	0	21.47	1
	MCH	1	0	21.92	0
		1	37	22.05	0
		1	74	21.73	0
		37	0	21.55	1
		37	18	21.54	1
		37	38	21.54	1
		75	0	21.42	1
	HCH	1	0	21.24	0
		1	37	21.35	0
		1	74	22.02	0
		37	0	21.39	1
		37	18	21.34	1
		37	38	21.31	1
		75	0	21.41	1
16QAM	LCH	1	0	21.08	1
		1	37	21.48	1
		1	74	20.59	1

		37	0	20.35	2
		37	18	20.44	2
		37	38	20.32	2
		75	0	20.42	2
	MCH	1	0	21.37	1
		1	37	21.42	1
		1	74	21.61	1
		37	0	20.70	2
		37	18	20.98	2
		37	38	20.97	2
		75	0	20.93	2
	HCH	1	0	21.34	1
		1	37	21.46	1
		1	74	21.87	1
		37	0	20.41	2
		37	18	20.38	2
		37	38	20.41	2
		75	0	20.43	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.78	0
		1	49	22.86	0
		1	99	21.49	0
		50	0	21.52	1
		50	25	21.46	1
		50	50	21.39	1
		100	0	21.55	1
	MCH	1	0	21.83	0
		1	49	21.85	0
		1	99	22.42	0
		50	0	21.12	1
		50	25	21.63	1
		50	50	21.69	1
		100	0	21.12	1
	HCH	1	0	22.69	0
		1	49	21.94	0
		1	99	22.15	0
		50	0	21.09	1
		50	25	21.13	1
		50	50	21.14	1
		100	0	21.04	1

16QAM	LCH	1	0	21.15	1
		1	49	21.35	1
		1	99	21.07	1
		50	0	20.41	2
		50	25	20.51	2
		50	50	20.44	2
		100	0	20.39	2
	MCH	1	0	21.27	1
		1	49	20.90	1
		1	99	21.16	1
		50	0	20.38	2
		50	25	20.41	2
		50	50	20.93	2
		100	0	20.89	2
	HCH	1	0	21.52	1
		1	49	21.43	1
		1	99	21.58	1
		50	0	20.57	2
		50	25	20.61	2
		50	50	20.32	2
		100	0	20.42	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	22.92	0
		1	3	23.06	0
		1	5	22.95	0
		3	0	22.35	0
		3	2	22.11	0
		3	3	22.13	0
		6	0	22.07	1
	MCH	1	0	23.32	0
		1	3	23.42	0
		1	5	23.73	0
		3	0	22.38	0
		3	2	22.39	0
		3	3	22.45	0
		6	0	22.38	1
	HCH	1	0	23.6	0

		1	3	23.67	0
		1	5	23.72	0
		3	0	22.69	0
		3	2	22.77	0
		3	3	22.68	0
		6	0	22.7	1
16QAM	LCH	1	0	22.04	1
		1	3	21.99	1
		1	5	21.87	1
		3	0	22.28	1
		3	2	22.15	1
		3	3	22.11	1
		6	0	21.21	2
	MCH	1	0	22.71	1
		1	3	22.51	1
		1	5	22.68	1
		3	0	22.36	1
		3	2	22.55	1
		3	3	22.44	1
		6	0	21.4	2
	HCH	1	0	22.85	1
		1	3	22.91	1
		1	5	22.31	1
		3	0	22.76	1
		3	2	22.87	1
		3	3	22.72	1
		6	0	21.84	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.83	0
		1	7	22.63	0
		1	14	22.92	0
		8	0	22.21	1
		8	4	22.05	1
		8	7	22.17	1
		15	0	22.15	1
	MCH	1	0	23.43	0
		1	7	23.37	0
		1	14	23.39	0
		8	0	22.51	1
		8	4	22.5	1

		8	7	22.46	1
		15	0	22.45	1
	HCH	1	0	23.6	0
		1	7	23.64	0
		1	14	23.79	0
		8	0	22.78	1
		8	4	22.73	1
		8	7	22.69	1
		15	0	22.72	1
16QAM	LCH	1	0	22.02	1
		1	7	21.99	1
		1	14	21.93	1
		8	0	21.14	2
		8	4	21	2
		8	7	21.23	2
		15	0	21.13	2
	MCH	1	0	22.8	1
		1	7	22.79	1
		1	14	22.66	1
		8	0	21.5	2
		8	4	21.49	2
		8	7	21.5	2
		15	0	21.5	2
	HCH	1	0	22.55	1
		1	7	22.5	1
		1	14	22.39	1
		8	0	21.74	2
		8	4	21.73	2
		8	7	21.69	2
		15	0	21.73	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.23	0
		1	12	23.49	0
		1	24	22.57	0
		12	0	22.12	1
		12	6	22.25	1
		12	13	22.16	1
		25	0	22.14	1
	MCH	1	0	23.54	0
		1	12	23.57	0

		1	24	23.31	0
		12	0	22.53	1
		12	6	22.49	1
		12	13	22.47	1
		25	0	22.54	1
	HCH	1	0	23.89	0
		1	12	23.84	0
		1	24	23.65	0
		12	0	22.74	1
		12	6	22.73	1
		12	13	22.51	1
		25	0	22.77	1
16QAM	LCH	1	0	22.69	1
		1	12	22.11	1
		1	24	22.12	1
		12	0	21.23	2
		12	6	21.29	2
		12	13	21.25	2
		25	0	21.15	2
	MCH	1	0	22.82	1
		1	12	22.74	1
		1	24	22.59	1
		12	0	21.76	2
		12	6	21.65	2
		12	13	21.57	2
		25	0	21.58	2
	HCH	1	0	22.34	1
		1	12	22.86	1
		1	24	22.07	1
		12	0	21.95	2
		12	6	21.8	2
		12	13	21.78	2
		25	0	21.78	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.53	0
		1	24	23.88	0
		1	49	22.75	0
		25	0	22.25	1
		25	12	22.26	1
		25	25	22.42	1
		50	0	22.28	1
	MCH	1	0	23.81	0
		1	24	23.88	0
		1	49	23.19	0
		25	0	22.48	1
		25	12	22.51	1
		25	25	22.79	1
		50	0	22.66	1
	HCH	1	0	23.83	0
		1	24	23.42	0
		1	49	23.8	0
		25	0	22.84	1
		25	12	22.86	1
		25	25	22.35	1
		50	0	22.54	1
16QAM	LCH	1	0	22.62	1
		1	24	22.11	1
		1	49	21.89	1
		25	0	21.28	2
		25	12	21.35	2
		25	25	21.64	2
		50	0	21.32	2
	MCH	1	0	22.55	1
		1	24	22.68	1
		1	49	22.43	1
		25	0	21.59	2
		25	12	21.53	2
		25	25	21.64	2
		50	0	21.7	2
	HCH	1	0	22.87	1
		1	24	22.65	1
		1	49	22.31	1
		25	0	21.53	2

		25	12	21.89	2
		25	25	21.88	2
		50	0	21.56	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.76	0
		1	37	23.4	0
		1	74	22.99	0
		37	0	22.23	1
		37	18	22.16	1
		37	38	22.21	1
		75	0	22.09	1
	MCH	1	0	23.38	0
		1	37	23.86	0
		1	74	23.12	0
		37	0	22.35	1
		37	18	22.45	1
		37	38	22.46	1
		75	0	22.43	1
	HCH	1	0	23.64	0
		1	37	23.51	0
		1	74	23.61	0
		37	0	22.61	1
		37	18	22.53	1
		37	38	22.7	1
		75	0	22.73	1
16QAM	LCH	1	0	22.11	1
		1	37	22.01	1
		1	74	22.5	1
		37	0	21.15	2
		37	18	21.24	2
		37	38	21.17	2
		75	0	21.27	2
	MCH	1	0	22.54	1
		1	37	22.74	1
		1	74	22.59	1
		37	0	21.33	2
		37	18	21.46	2
		37	38	21.64	2
		75	0	21.53	2
	HCH	1	0	22.6	1

		1	37	22.38	1
		1	74	22.3	1
		37	0	21.71	2
		37	18	21.75	2
		37	38	21.73	2
		75	0	21.66	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.72	0
		1	49	22.8	0
		1	99	23.48	0
		50	0	22.14	1
		50	25	22.23	1
		50	50	22.17	1
		100	0	22.29	1
	MCH	1	0	23.15	0
		1	49	23.86	0
		1	99	23.47	0
		50	0	22.51	1
		50	25	22.43	1
		50	50	22.54	1
		100	0	22.48	1
	HCH	1	0	23.91	0
		1	49	23.09	0
		1	99	23.55	0
		50	0	22.52	1
		50	25	22.61	1
		50	50	22.85	1
		100	0	22.7	1
16QAM	LCH	1	0	22.05	1
		1	49	22.18	1
		1	99	22.68	1
		50	0	21.08	2
		50	25	20.87	2
		50	50	21.2	2
		100	0	21.21	2
	MCH	1	0	22.6	1
		1	49	22.11	1
		1	99	22.32	1
		50	0	21.36	2
		50	25	21.49	2

		50	50	21.75	2
		100	0	21.52	2
	HCH	1	0	22.31	1
		1	49	22.46	1
		1	99	22.87	1
		50	0	21.59	2
		50	25	21.64	2
		50	50	21.8	2
		100	0	21.69	2

FDD-LTE Band 7:

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.64	0
		1	12	21.35	0
		1	24	21.44	0
		12	0	20.58	0
		12	6	20.37	0
		12	13	20.39	0
		25	0	20.40	0
	MCH	1	0	21.14	0
		1	12	21.68	0
		1	24	21.89	0
		12	0	21.17	0
		12	6	21.10	0
		12	13	21.07	0
		25	0	21.10	0
	HCH	1	0	20.81	0
		1	12	20.82	0
		1	24	20.85	0
		12	0	20.86	0
		12	6	20.81	0
		12	13	20.82	0
		25	0	20.85	0
16QAM	LCH	1	0	20.93	0
		1	12	20.73	0
		1	24	21.23	0
		12	0	21.59	0
		12	6	21.36	0
		12	13	21.33	0
		25	0	21.44	0
	MCH	1	0	21.54	0
		1	12	21.18	0
		1	24	21.64	0
		12	0	21.37	0
		12	6	21.23	0
		12	13	21.23	0
		25	0	21.17	0
	HCH	1	0	21.09	0
		1	12	21.63	0

		1	24	21.64	0
		12	0	21.57	0
		12	6	21.45	0
		12	13	21.59	0
		25	0	21.56	0

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.1	0
		1	24	21.29	0
		1	49	20.9	0
		25	0	20.58	1
		25	12	20.41	1
		25	25	20.51	1
		50	0	20.63	1
	MCH	1	0	21.03	0
		1	24	21.36	0
		1	49	21.17	0
		25	0	20.69	1
		25	12	20.70	1
		25	25	20.77	1
		50	0	20.50	1
	HCH	1	0	21.20	0
		1	24	21.44	0
		1	49	20.88	0
		25	0	20.69	1
		25	12	20.66	1
		25	25	20.63	1
		50	0	20.73	1
16QAM	LCH	1	0	20.75	1
		1	24	20.72	1
		1	49	20.41	1
		25	0	20.47	1
		25	12	20.43	1
		25	25	20.67	1
		50	0	20.47	1
	MCH	1	0	20.71	1
		1	24	20.83	1
		1	49	20.63	1
		25	0	20.76	1
		25	12	20.55	1
		25	25	20.98	1

	HCH	50	0	20.39	1
		1	0	20.53	1
		1	24	20.42	1
		1	49	20.85	1
		25	0	20.68	1
		25	12	20.70	1
		25	25	20.74	1
		50	0	20.71	1

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.09	0
		1	37	20.95	0
		1	74	21.22	0
		37	0	20.64	1
		37	18	20.38	1
		37	38	20.88	1
		75	0	20.32	1
	MCH	1	0	20.78	0
		1	37	20.75	0
		1	74	21.20	0
		37	0	20.45	1
		37	18	20.47	1
		37	38	20.46	1
		75	0	20.54	1
	HCH	1	0	20.73	0
		1	37	21.10	0
		1	74	20.54	0
		37	0	20.80	1
		37	18	20.38	1
		37	38	20.57	1
		75	0	20.62	1
16QAM	LCH	1	0	20.90	1
		1	37	20.77	1
		1	74	20.35	1
		37	0	20.49	1
		37	18	20.79	1
		37	38	20.74	1
		75	0	20.47	1
	MCH	1	0	20.89	1
		1	37	20.62	1
		1	74	20.81	1

		37	0	20.47	1
		37	18	20.44	1
		37	38	20.51	1
		75	0	20.42	1
	HCH	1	0	20.76	1
		1	37	20.98	1
		1	74	20.88	1
		37	0	20.89	1
		37	18	20.32	1
		37	38	20.97	1
		75	0	20.97	1

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.53	0
		1	49	21.05	0
		1	99	21.21	0
		50	0	21.60	0
		50	25	21.00	0
		50	50	21.41	0
		100	0	21.24	0
	MCH	1	0	21.64	0
		1	49	21.01	0
		1	99	21.07	0
		50	0	21.43	0
		50	25	21.30	0
		50	50	21.28	0
		100	0	21.53	0
	HCH	1	0	21.89	0
		1	49	20.99	0
		1	99	21.36	0
		50	0	20.67	0
		50	25	20.95	0
		50	50	20.97	0
		100	0	20.87	0
16QAM	LCH	1	0	20.83	0
		1	49	20.35	0
		1	99	20.51	0
		50	0	20.53	1
		50	25	20.73	1
		50	50	20.61	1
		100	0	20.42	1

	MCH	1	0	21.83	0
		1	49	21.30	0
		1	99	20.52	0
		50	0	20.42	1
		50	25	20.53	1
		50	50	20.50	1
		100	0	20.44	1
	HCH	1	0	20.40	0
		1	49	21.90	0
		1	99	21.81	0
		50	0	20.70	1
		50	25	20.86	1
		50	50	20.56	1
		100	0	20.63	1

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 $> \frac{1}{2}$ 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	16.45	17.0
		CH 06	2437	15.91	17.0
		CH 11	2462	16.26	17.0
802.11g	54Mbps	CH 01	2412	15.25	16.0
		CH 06	2437	15.42	16.0
		CH 11	2462	15.23	16.0
802.11n (20MHz)	MCS7	CH 01	2412	14.04	15.5
		CH 06	2437	14.9	15.5
		CH 11	2462	14.33	15.5

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 ≤ 1.2 W/kg.

Bluetooth - Maximum Average Power			
Test Mode	Data Rate	Average Power(dBm)	Tune-up power (dBm)
GFSK	1Mbps	7.834	9.0
Pi/4 QDPSK	2Mbps	8.711	9.0
8DPSK	3Mbps	7.693	9.0

Bluetooth - Maximum Average Power					
Test Mode	Data Rate	Channel	Frequency (MHz)	Average Power (dBm)	Tune-up power (dBm)
BLE	1Mbps	CH 00	2402	-1.837	0
		CH 19	2440	-0.367	0
		CH 39	2480	-2.538	0

NFC - Maximum Average Power			
Test Mode	Frequency (MHz)	Average Power(dBm)	Tune-up power (dBm)
NFC	13.56	-17.56	-15

Remark:

Bluetooth maximum output power is 8.711dBm and -17.56dBm *respectively*, and Maximum Tune-Up output power is 9.0dBm and -15dBm *respectively*. 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:

$[(\text{max. power of channel, including tune-up tolerance, 4.87mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, 16 where

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

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
9.0	7.94	5	2.441	2.48	3

The exclusion threshold is $2.48 < 3$, therefore, the RF exposure evaluation is not required.

NFC:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
-15	0.03162	5	0.01356	0.0007	3

The exclusion threshold is $0.0007 < 3$, 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	33.26	33.5	1.057	0.311	0.329
2.	GSM	Right Tilted	128	824.2	33.26	33.5	1.057	0.165	0.174
3.	GSM	Left Cheek	128	824.2	33.26	33.5	1.057	0.343	0.362
4.	GSM	Left Tilted	128	824.2	33.26	33.5	1.057	0.183	0.193

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	29.49	30.0	1.125	0.176	0.198
6.	GSM	Right Tilted	810	1909.8	29.49	30.0	1.125	0.092	0.103
7.	GSM	Left Cheek	810	1909.8	29.49	30.0	1.125	0.145	0.163
8.	GSM	Left Tilted	810	1909.8	29.49	30.0	1.125	0.078	0.088

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_2TX	Right Cheek	128	824.2	32.27	32.5	1.054	0.400	0.422
10.	GPRS_2TX	Right Tilted	128	824.2	32.27	32.5	1.054	0.264	0.278
11.	GPRS_2TX	Left Cheek	128	824.2	32.27	32.5	1.054	0.357	0.376
12.	GPRS_2TX	Left Tilted	128	824.2	32.27	32.5	1.054	0.205	0.216

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_2TX	Right Cheek	512	1850.2	27.51	28.0	1.119	0.147	0.165
14.	GPRS_2TX	Right Tilted	512	1850.2	27.51	28.0	1.119	0.062	0.069
15.	GPRS_2TX	Left Cheek	512	1850.2	27.51	28.0	1.119	0.063	0.071
16.	GPRS_2TX	Left Tilted	512	1850.2	27.51	28.0	1.119	0.037	0.041

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	22.77	23.0	1.054	0.418	0.441
18.	RMC	Right Tilted	9538	1907.6	22.77	23.0	1.054	0.263	0.277
19.	RMC	Left Cheek	9538	1907.6	22.77	23.0	1.054	0.277	0.292
20.	RMC	Left Tilted	9538	1907.6	22.77	23.0	1.054	0.154	0.162

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	4132	826.4	22.97	23.5	1.130	0.239	0.270
22.	RMC	Right Tilted	4132	826.4	22.97	23.5	1.130	0.121	0.137
23.	RMC	Left Cheek	4132	826.4	22.97	23.5	1.130	0.243	0.275
24.	RMC	Left Tilted	4132	826.4	22.97	23.5	1.130	0.165	0.186

LTE Band 2– Head SAR Test								
Plot No.	Mode	Test Position Head	Freque ncy	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	1860.0	22.86	23.0	1.033	0.228	0.235
26.	RMC QPSK 20MHz 1RB	Right Tilted	1860.0	22.86	23.0	1.033	0.132	0.136
27.	RMC QPSK 20MHz 1RB	Left Cheek	1860.0	22.86	23.0	1.033	0.144	0.149
28.	RMC QPSK 20MHz 1RB	Left Tilted	1860.0	22.86	23.0	1.033	0.062	0.064
29.	RMC QPSK 20MHz 50%RB	Right Cheek	1880.0	21.69	22.0	1.074	0.148	0.159
30.	RMC QPSK 20MHz 50%RB	Right Tilted	1880.0	21.69	22.0	1.074	0.074	0.079
31.	RMC QPSK 20MHz 50%RB	Left Cheek	1880.0	21.69	22.0	1.074	0.072	0.077
32.	RMC QPSK 20MHz 50%RB	Left Tilted	1880.0	21.69	22.0	1.074	0.033	0.035

LTE Band 4– Head SAR Test								
Plot No.	Mode	Test Position Head	Freque ncy	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
33.	RMC QPSK 20MHz 1RB	Right Cheek	1745.0	23.91	24.0	1.021	0.300	0.306
34.	RMC QPSK 20MHz 1RB	Right Tilted	1745.0	23.91	24.0	1.021	0.121	0.124
35.	RMC QPSK 20MHz 1RB	Left Cheek	1745.0	23.91	24.0	1.021	0.222	0.227
36.	RMC QPSK 20MHz 1RB	Left Tilted	1745.0	23.91	24.0	1.021	0.105	0.107
37.	RMC QPSK 20MHz 50%RB	Right Cheek	1745.0	22.85	23.0	1.035	0.238	0.246
38.	RMC QPSK 20MHz 50%RB	Right Tilted	1745.0	22.85	23.0	1.035	0.084	0.087
39.	RMC QPSK 20MHz 50%RB	Left Cheek	1745.0	22.85	23.0	1.035	0.168	0.174
40.	RMC QPSK 20MHz 50%RB	Left Tilted	1745.0	22.85	23.0	1.035	0.035	0.036

LTE Band 7– 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					
41.	RMC QPSK 20MHz 1RB	Right Cheek	2560.0	21.89	22.0	1.026	0.185	0.190
42.	RMC QPSK 20MHz 1RB	Right Tilted	2560.0	21.89	22.0	1.026	0.073	0.075
43.	RMC QPSK 20MHz 1RB	Left Cheek	2560.0	21.89	22.0	1.026	0.092	0.094
44.	RMC QPSK 20MHz 1RB	Left Tilted	2560.0	21.89	22.0	1.026	0.053	0.054
45.	RMC QPSK 20MHz 50%RB	Right Cheek	2510.0	21.60	22.0	1.096	0.152	0.167
46.	RMC QPSK 20MHz 50%RB	Right Tilted	2510.0	21.60	22.0	1.096	0.061	0.067
47.	RMC QPSK 20MHz 50%RB	Left Cheek	2510.0	21.60	22.0	1.096	0.073	0.080
48.	RMC QPSK 20MHz 50%RB	Left Tilted	2510.0	21.60	22.0	1.096	0.042	0.046

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					
49.	802.11b	Right Cheek	01	2412	16.45	17.0	1.135	0.062	0.070
50.	802.11b	Right Tilted	01	2412	16.45	17.0	1.135	0.036	0.041
51.	802.11b	Left Cheek	01	2412	16.45	17.0	1.135	0.103	0.117
52.	802.11b	Left Tilted	01	2412	16.45	17.0	1.135	0.049	0.056

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					
53.	GSM	Back	128	824.2	33.26	33.5	1.057	0.197	0.208
54.	GSM	Front	128	824.2	33.26	33.5	1.057	0.12	0.127

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					
55.	GSM	Back	810	1909.8	29.49	30.0	1.125	0.588	0.661
56.	GSM	Front	810	1909.8	29.49	30.0	1.125	0.580	0.652

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					
69	RMC 12.2k	Back Side	9538	1907.6	22.77	23.0	1.054	0.622	0.656
70	RMC 12.2k	Front Side	9538	1907.6	22.77	23.0	1.054	0.621	0.655

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					
76	RMC 12.2k	Back Side	4132	826.4	22.97	23.5	1.130	0.233	0.263
77	RMC 12.2k	Front Side	4132	826.4	22.97	23.5	1.130	0.139	0.157

LTE Band 2–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position Body	Freque ncy	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
81	RMC QPSK 20MHz 1RB	Back Side	1860.0	22.86	23.0	1.033	0.769	0.794
82	RMC QPSK 20MHz 1RB	Front Side	1860.0	22.86	23.0	1.033	0.542	0.560
88	RMC QPSK 20MHz 50%RB	Back Side	1880.0	21.69	22.0	1.074	0.423	0.454
89	RMC QPSK 20MHz 50%RB	Front Side	1880.0	21.69	22.0	1.074	0.325	0.349

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					
94	RMC QPSK 20MHz 1RB	Back Side	1745.0	23.91	24.0	1.021	0.828	0.845
95	RMC QPSK 20MHz 1RB	Back Side	1720.0	23.72	24.0	1.067	0.987	1.053
96	RMC QPSK 20MHz 1RB	Back Side	1732.5	23.86	24.0	1.033	0.958	0.989
97	RMC QPSK 20MHz 1RB	Front Side	1745.0	23.91	24.0	1.021	0.816	0.833
98	RMC QPSK 20MHz 1RB	Front Side	1720.0	23.72	24.0	1.067	0.888	0.947
99	RMC QPSK 20MHz 1RB	Front Side	1732.5	23.86	24.0	1.033	0.874	0.903
105	RMC QPSK 20MHz 50%RB	Back Side	1745.0	22.85	23.0	1.035	0.42	0.435
106	RMC QPSK 20MHz 50%RB	Front Side	1745.0	22.85	23.0	1.035	0.4	0.414
110	RMC QPSK 20MHz 100%RB	Back Side	1745.0	22.7	23.0	1.072	0.387	0.415
111	RMC QPSK 20MHz 100%RB	Front Side	1745.0	22.7	23.0	1.072	0.397	0.425

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					
113	RMC QPSK 20MHz 1RB	Back Side	2560.0	21.89	22.0	1.026	0.564	0.578
114	RMC QPSK 20MHz 1RB	Front Side	2560.0	21.89	22.0	1.026	0.393	0.403
118	RMC QPSK 20MHz 50%RB	Back Side	2510.0	21.60	22.0	1.096	0.321	0.352
119	RMC QPSK 20MHz 50%RB	Front Side	2510.0	21.60	22.0	1.096	0.297	0.326

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					
123	802.11b	Back Side	01	2412	16.45	17.0	1.135	0.042	0.048
124	802.11b	Front Side	01	2412	16.45	17.0	1.135	0.03	0.034

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					
57.	GPRS_2TX	Back Side	128	824.2	32.27	32.5	1.054	0.268	0.283
58.	GPRS_2TX	Front Side	128	824.2	32.27	32.5	1.054	0.166	0.175
59.	GPRS_2TX	Bottom side	128	824.2	32.27	32.5	1.054	0.037	0.039
60.	GPRS_2TX	Right side	128	824.2	32.27	32.5	1.054	0.01	0.011
61.	GPRS_2TX	Left side	128	824.2	32.27	32.5	1.054	0.012	0.013

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					
62.	GPRS_2TX	Back Side	512	1850.2	27.51	28.0	1.119	0.521	0.583
63.	GPRS_2TX	Front Side	512	1850.2	27.51	28.0	1.119	0.515	0.577
64.	GPRS_2TX	Bottom side	512	1850.2	27.51	28.0	1.119	0.964	1.079
65.	GPRS_2TX	Bottom side	661	1880.0	27.40	28.0	1.148	0.596	0.684
66.	GPRS_2TX	Bottom side	810	1909.8	27.45	28.0	1.135	0.515	0.585
67.	GPRS_2TX	Right side	512	1850.2	27.51	28.0	1.119	0.022	0.025
68.	GPRS_2TX	Left side	512	1850.2	27.51	28.0	1.119	0.07	0.078

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					
69.	RMC 12.2k	Back Side	9538	1907.6	22.77	23.0	1.054	0.622	0.656
70.	RMC 12.2k	Front Side	9538	1907.6	22.77	23.0	1.054	0.621	0.655
71.	RMC 12.2k	Bottom side	9538	1907.6	22.77	23.0	1.054	0.874	0.922
72.	RMC 12.2k	Bottom side	9262	1852.4	22.69	23.0	1.074	1.006	1.080
73.	RMC 12.2k	Bottom side	9400	1880.0	22.70	23.0	1.072	0.917	0.983
74.	RMC 12.2k	Right side	9538	1907.6	22.77	23.0	1.054	0.115	0.121
75.	RMC 12.2k	Left side	9538	1907.6	22.77	23.0	1.054	0.200	0.211

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					
76.	RMC 12.2k	Back Side	4132	826.4	22.97	23.5	1.130	0.233	0.263
77.	RMC 12.2k	Front Side	4132	826.4	22.97	23.5	1.130	0.139	0.157
78.	RMC 12.2k	Bottom side	4132	826.4	22.97	23.5	1.130	0.05	0.056
79.	RMC 12.2k	Right side	4132	826.4	22.97	23.5	1.130	0.011	0.012
80.	RMC 12.2k	Left side	4132	826.4	22.97	23.5	1.130	0.021	0.024

LTE Band 2–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position Body	Freque ncy	Output Power (dBm)	Rate d Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
81.	RMC QPSK 20MHz 1RB	Back Side	1860.0	22.86	23.0	1.033	0.769	0.794
82.	RMC QPSK 20MHz 1RB	Front Side	1860.0	22.86	23.0	1.033	0.542	0.560
83.	RMC QPSK 20MHz 1RB	Bottom Side	1860.0	22.86	23.0	1.033	0.971	1.003
84.	RMC QPSK 20MHz 1RB	Bottom Side	1880.0	22.42	23.0	1.143	0.885	1.011
85.	RMC QPSK 20MHz 1RB	Bottom Side	1900.0	22.69	23.0	1.074	0.698	0.750
86.	RMC QPSK 20MHz 1RB	Right side	1860.0	22.86	23.0	1.033	0.132	0.136
87.	RMC QPSK 20MHz 1RB	Left side	1860.0	22.86	23.0	1.033	0.22	0.227
88.	RMC QPSK 20MHz 50%RB	Back Side	1880.0	21.69	22.0	1.074	0.423	0.454
89.	RMC QPSK 20MHz 50%RB	Front Side	1880.0	21.69	22.0	1.074	0.325	0.349
90.	RMC QPSK 20MHz 50%RB	Bottom side	1880.0	21.69	22.0	1.074	0.501	0.538
91.	RMC QPSK 20MHz 50%RB	Right side	1880.0	21.69	22.0	1.074	0.082	0.088
92.	RMC QPSK 20MHz 50%RB	Left side	1880.0	21.69	22.0	1.074	0.11	0.118
93.	RMC QPSK 20MHz 100%RB	Bottom Side	1860.0	21.55	22.0	1.109	0.513	0.569

LTE Band 4–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position Body	Frequency	Output Power (dBm)	Rate d Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
94.	RMC QPSK 20MHz 1RB	Back Side	1745.0	23.91	24.0	1.021	0.828	0.845
95.	RMC QPSK 20MHz 1RB	Back Side	1720.0	23.72	24.0	1.067	0.987	1.053
96.	RMC QPSK 20MHz 1RB	Back Side	1732.5	23.86	24.0	1.033	0.958	0.989
97.	RMC QPSK 20MHz 1RB	Front Side	1745.0	23.91	24.0	1.021	0.816	0.833
98.	RMC QPSK 20MHz 1RB	Front Side	1720.0	23.72	24.0	1.067	0.888	0.947
99.	RMC QPSK 20MHz 1RB	Front Side	1732.5	23.86	24.0	1.033	0.874	0.903
100.	RMC QPSK 20MHz 1RB	Bottom side	1745.0	23.91	24.0	1.021	0.92	0.939
101.	RMC QPSK 20MHz 1RB	Bottom side	1720.0	23.72	24.0	1.067	1.195	1.275
102.	RMC QPSK 20MHz 1RB	Bottom side	1732.5	23.86	24.0	1.033	1.19	1.229
103.	RMC QPSK 20MHz 1RB	Right side	1745.0	23.91	24.0	1.021	0.153	0.156
104.	RMC QPSK 20MHz 1RB	Left side	1745.0	23.91	24.0	1.021	0.25	0.255
105.	RMC QPSK 20MHz 50%RB	Back Side	1745.0	22.85	23.0	1.035	0.42	0.435
106.	RMC QPSK 20MHz 50%RB	Front Side	1745.0	22.85	23.0	1.035	0.400	0.414
107.	RMC QPSK 20MHz 50%RB	Bottom side	1745.0	22.85	23.0	1.035	0.610	0.631
108.	RMC QPSK 20MHz 50%RB	Right side	1745.0	22.85	23.0	1.035	0.103	0.107
109.	RMC QPSK 20MHz 50%RB	Left side	1745.0	22.85	23.0	1.035	0.200	0.207
110.	RMC QPSK 20MHz 100%RB	Back Side	1745.0	22.7	23.0	1.072	0.387	0.415
111.	RMC QPSK 20MHz 100%RB	Front Side	1745.0	22.7	23.0	1.072	0.397	0.425
112.	RMC QPSK 20MHz 100%RB	Bottom side	1745.0	22.7	23.0	1.072	0.501	0.537

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					
113.	RMC QPSK 20MHz 1RB	Back Side	2560.0	21.89	22.0	1.026	0.564	0.578
114.	RMC QPSK 20MHz 1RB	Front Side	2560.0	21.89	22.0	1.026	0.393	0.403
115.	RMC QPSK 20MHz 1RB	Bottom Side	2560.0	21.89	22.0	1.026	0.685	0.703
116.	RMC QPSK 20MHz 1RB	Right side	2560.0	21.89	22.0	1.026	0.135	0.138
117.	RMC QPSK 20MHz 1RB	Left side	2560.0	21.89	22.0	1.026	0.103	0.106
118.	RMC QPSK 20MHz 50%RB	Back Side	2510.0	21.60	22.0	1.096	0.321	0.352
119.	RMC QPSK 20MHz 50%RB	Front Side	2510.0	21.60	22.0	1.096	0.297	0.326
120.	RMC QPSK 20MHz 50%RB	Bottom side	2510.0	21.60	22.0	1.096	0.508	0.557
121.	RMC QPSK 20MHz 50%RB	Right side	2510.0	21.60	22.0	1.096	0.063	0.069
122.	RMC QPSK 20MHz 50%RB	Left side	2510.0	21.60	22.0	1.096	0.094	0.103

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					
123.	802.11b	Back Side	01	2412	16.45	17.0	1.135	0.042	0.048
124.	802.11b	Front Side	01	2412	16.45	17.0	1.135	0.03	0.034
125.	802.11b	Right side	01	2412	16.45	17.0	1.135	0.011	0.012
126.	802.11b	Top Side	01	2412	16.45	17.0	1.135	0.032	0.036

Extremity SAR

LTE Band 4–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position Body	Freque ncy	Output Power (dBm)	Rate d Limit (dBm)	Scaling Factor	SAR10 g (W/kg)	Scaled SAR10 g (W/kg)
	Modulation, Bandwidth, RB		MHz					
127.	RMC QPSK 20MHz 1RB	Bottom side	1745.0	23.91	24.0	1.021	0.718	0.733

Repeated SAR

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					
128.	GPRS_2TX	Bottom side	512	1850.2	27.51	28.0	1.119	0.958	1.072

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					
129.	RMC 12.2k	Bottom side	9262	1852.4	22.69	23.0	1.074	1.001	1.075

LTE Band 2–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position Body	Freque ncy	Output Power (dBm)	Rate d Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
130.	RMC QPSK 20MHz 1RB	Bottom Side	1860.0	22.86	23.0	1.033	0.967	0.999

LTE Band 4–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position Body	Freque ncy	Output Power (dBm)	Rate d Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
131.	RMC QPSK 20MHz 1RB	Bottom side	1720.0	23.72	24.0	1.067	1.189	1.268

Remark:

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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/Data) + WLAN(Data)	Yes	Yes	Yes
2	WCDMA (Voice/Data)+ WLAN(Data)	Yes	Yes	Yes
3	LTE(Data) + WLAN(Data)	Yes	Yes	Yes
4	GSM(Voice/Data) + Bluetooth(Data)	Yes	Yes	-
5	WCDMA(Voice) + Bluetooth(Data)	Yes	Yes	-
6	LTE(Data) + Bluetooth(Data)	Yes	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:

$(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})}/x]$ 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
9.0	7.94	5/10	2.441	7.5	0.331	0.165

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	0.329	0.070	0.399
Right Tilted	GSM850	0.174	0.041	0.215
Left Cheek	GSM850	0.362	0.117	0.479
Left Tilted	GSM850	0.193	0.056	0.249
Right Cheek	GSM1900	0.198	0.070	0.268
Right Tilted	GSM1900	0.103	0.041	0.144
Left Cheek	GSM1900	0.163	0.117	0.28
Left Tilted	GSM1900	0.088	0.056	0.144
Right Cheek	GPRS850	0.422	0.070	0.492
Right Tilted	GPRS850	0.278	0.041	0.319
Left Cheek	GPRS850	0.376	0.117	0.493
Left Tilted	GPRS850	0.216	0.056	0.272
Right Cheek	GPRS1900	0.165	0.070	0.235
Right Tilted	GPRS1900	0.069	0.041	0.11
Left Cheek	GPRS1900	0.071	0.117	0.188
Left Tilted	GPRS1900	0.041	0.056	0.097
Right Cheek	WCDMA Band 2	0.441	0.070	0.511
Right Tilted	WCDMA Band 2	0.277	0.041	0.318
Left Cheek	WCDMA Band 2	0.292	0.117	0.409
Left Tilted	WCDMA Band 2	0.162	0.056	0.218
Right Cheek	WCDMA Band 5	0.270	0.070	0.34
Right Tilted	WCDMA Band 5	0.137	0.041	0.178
Left Cheek	WCDMA Band 5	0.275	0.117	0.392
Left Tilted	WCDMA Band 5	0.186	0.056	0.242
Right Cheek	LTE Band 2	0.235	0.070	0.305
Right Tilted	LTE Band 2	0.136	0.041	0.177
Left Cheek	LTE Band 2	0.149	0.117	0.266
Left Tilted	LTE Band 2	0.064	0.056	0.12
Right Cheek	LTE Band 4	0.306	0.070	0.376
Right Tilted	LTE Band 4	0.124	0.041	0.165
Left Cheek	LTE Band 4	0.227	0.117	0.344
Left Tilted	LTE Band 4	0.107	0.056	0.163
Right Cheek	LTE Band 7	0.190	0.070	0.26
Right Tilted	LTE Band 7	0.075	0.041	0.116
Left Cheek	LTE Band 7	0.094	0.117	0.211
Left Tilted	LTE Band 7	0.054	0.056	0.11

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Right Cheek	GSM850	0.329	0.331	0.66
Right Tilted	GSM850	0.174	0.331	0.505
Left Cheek	GSM850	0.362	0.331	0.693
Left Tilted	GSM850	0.193	0.331	0.524
Right Cheek	GSM1900	0.198	0.331	0.529
Right Tilted	GSM1900	0.103	0.331	0.434
Left Cheek	GSM1900	0.163	0.331	0.494
Left Tilted	GSM1900	0.088	0.331	0.419
Right Cheek	GPRS850	0.422	0.331	0.753
Right Tilted	GPRS850	0.278	0.331	0.609
Left Cheek	GPRS850	0.376	0.331	0.707
Left Tilted	GPRS850	0.216	0.331	0.547
Right Cheek	GPRS1900	0.165	0.331	0.496
Right Tilted	GPRS1900	0.069	0.331	0.4
Left Cheek	GPRS1900	0.071	0.331	0.402
Left Tilted	GPRS1900	0.041	0.331	0.372
Right Cheek	WCDMA Band 2	0.441	0.331	0.772
Right Tilted	WCDMA Band 2	0.277	0.331	0.608
Left Cheek	WCDMA Band 2	0.292	0.331	0.623
Left Tilted	WCDMA Band 2	0.162	0.331	0.493
Right Cheek	WCDMA Band 5	0.270	0.331	0.601
Right Tilted	WCDMA Band 5	0.137	0.331	0.468
Left Cheek	WCDMA Band 5	0.275	0.331	0.606
Left Tilted	WCDMA Band 5	0.186	0.331	0.517
Right Cheek	LTE Band 2	0.235	0.331	0.566
Right Tilted	LTE Band 2	0.136	0.331	0.467
Left Cheek	LTE Band 2	0.149	0.331	0.48
Left Tilted	LTE Band 2	0.064	0.331	0.395
Right Cheek	LTE Band 4	0.306	0.331	0.637
Right Tilted	LTE Band 4	0.124	0.331	0.455
Left Cheek	LTE Band 4	0.227	0.331	0.558
Left Tilted	LTE Band 4	0.107	0.331	0.438
Right Cheek	LTE Band 7	0.190	0.331	0.521
Right Tilted	LTE Band 7	0.075	0.331	0.406
Left Cheek	LTE Band 7	0.094	0.331	0.425
Left Tilted	LTE Band 7	0.054	0.331	0.385

Body-worn SAR

WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Back	GSM850	0.208	0.048	0.256
Front	GSM850	0.127	0.034	0.161
Back	GSM1900	0.661	0.048	0.709
Front	GSM1900	0.652	0.034	0.686
Back	WCDMA Band 2	0.656	0.048	0.704
Front	WCDMA Band 2	0.655	0.034	0.689
Back	WCDMA Band 5	0.263	0.048	0.311
Front	WCDMA Band 5	0.157	0.034	0.191
Back	LTE Band 2	0.794	0.048	0.842
Front	LTE Band 2	0.560	0.034	0.594
Back	LTE Band 4	1.053	0.048	1.101
Front	LTE Band 4	0.947	0.034	0.981
Back	LTE Band 7	0.578	0.048	0.626
Front	LTE Band 7	0.403	0.034	0.437

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Back	GSM850	0.208	0.165	0.373
Front	GSM850	0.127	0.165	0.292
Back	GSM1900	0.661	0.165	0.826
Front	GSM1900	0.652	0.165	0.817
Back	WCDMA Band 2	0.656	0.165	0.821
Front	WCDMA Band 2	0.655	0.165	0.82
Back	WCDMA Band 5	0.263	0.165	0.428
Front	WCDMA Band 5	0.157	0.165	0.322
Back	LTE Band 2	0.794	0.165	0.959
Front	LTE Band 2	0.560	0.165	0.725
Back	LTE Band 4	1.053	0.165	1.218
Front	LTE Band 4	0.947	0.165	1.112
Back	LTE Band 7	0.578	0.165	0.743
Front	LTE Band 7	0.403	0.165	0.568

Hotspot SAR

WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Back	GSM850	0.283	0.048	0.331
Front	GSM850	0.175	0.034	0.209
Top side	GSM850	--	0.036	0.036
Bottom side	GSM850	0.039	--	0.039
Right side	GSM850	0.011	0.012	0.023
Left side	GSM850	0.013	--	0.013
Back	GSM1900	0.583	0.048	0.631
Front	GSM1900	0.577	0.034	0.611
Top side	GSM1900	--	0.036	0.036
Bottom side	GSM1900	1.079	--	1.079
Right side	GSM1900	0.025	0.012	0.037
Left side	GSM1900	0.078	--	0.078
Back	WCDMA Band 2	0.656	0.048	0.704
Front	WCDMA Band 2	0.655	0.034	0.689
Top side	WCDMA Band 2	--	0.036	0.036
Bottom side	WCDMA Band 2	1.080	--	1.080
Right side	WCDMA Band 2	0.121	0.012	0.133
Left side	WCDMA Band 2	0.211	--	0.211
Back	WCDMA Band 5	0.263	0.048	0.311
Front	WCDMA Band 5	0.157	0.034	0.191
Top side	WCDMA Band 5	--	0.036	0.036
Bottom side	WCDMA Band 5	0.056	--	0.056
Right side	WCDMA Band 5	0.012	0.012	0.024
Left side	WCDMA Band 5	0.024	--	0.024
Back	LTE Band 2	0.794	0.048	0.842
Front	LTE Band 2	0.560	0.034	0.594
Top side	LTE Band 2	--	0.036	0.036
Bottom side	LTE Band 2	1.011	--	1.011
Right side	LTE Band 2	0.136	0.012	0.148
Left side	LTE Band 2	0.227	--	0.227
Back	LTE Band 4	1.053	0.048	1.101
Front	LTE Band 4	0.947	0.034	0.981
Top side	LTE Band 4	--	0.036	0.036
Bottom side	LTE Band 4	1.275	--	1.275
Right side	LTE Band 4	0.156	0.012	0.168
Left side	LTE Band 4	0.255	--	0.255
Back	LTE Band 7	0.578	0.048	0.626

Front	LTE Band 7	0.403	0.034	0.437
Top side	LTE Band 7	--	0.036	0.036
Bottom side	LTE Band 7	0.703	--	0.703
Right side	LTE Band 7	0.138	0.012	0.15
Left side	LTE Band 7	0.106	--	0.106

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	$\sqrt{3}$	$(1_{Cp})^{1/2}$	$(1_{Cp})^{1/2}$	1.02	1.02	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	$(Cp)^{1/2}$	$(Cp)^{1/2}$	1.63	1.63	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	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	$\sqrt{3}$	1	1	1.73	1.73	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
RF ambient Conditions – Noise	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	E.5	5.0	R	$\sqrt{3}$	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	$\sqrt{3}$	1	1	6.94	6.94	∞
SAR scaling	E6.5	0.0	R	$\sqrt{3}$	1	1	0.0	0.0	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E3.2	1.9	R	$\sqrt{3}$	1	0.84	1.10	0.90	∞
Liquid conductivity - deviation	E.3.2	5.00	R	$\sqrt{3}$	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	$\sqrt{3}$	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	$\sqrt{3}$	$(1_Cp)^{1/2}$	$(1_Cp)^{1/2}$	1.02	1.02	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	$(Cp)^{1/2}$	$(Cp)^{1/2}$	1.63	1.63	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	E.2.5	0	R	$\sqrt{3}$	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	$\sqrt{3}$	1	1	1.73	1.73	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
RF ambient Conditions – Noise	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and integration Algorithms for Max.	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞

SAR Evaluation									
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	$\sqrt{3}$	1	1	0.58	0.58	N-1
Input power and SAR drift measurement	8,6.6.2	12.02	R	$\sqrt{3}$	1	1	6.94	6.94	∞
Deviation of experimental dipole from numerical dipole	E.6.4	5.5	R	$\sqrt{3}$	1	1	3.20	3.20	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	2.0	R	$\sqrt{3}$	1	0.84	1.10	1.10	∞
Liquid conductivity - deviation from target value	E.3.2	5.00	R	$\sqrt{3}$	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	$\sqrt{3}$	0.6	0.49	0.13	0.10	
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M
Combined Standard Uncertainty			RSS				12.00	11.50	
Expanded Uncertainty (95% Confidence interval)			K=2				23.39	22.43	

Annex A. Plots of System Performance Check

MEASUREMENT 1

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/27/2018

Measurement duration: 7 minutes 21 seconds

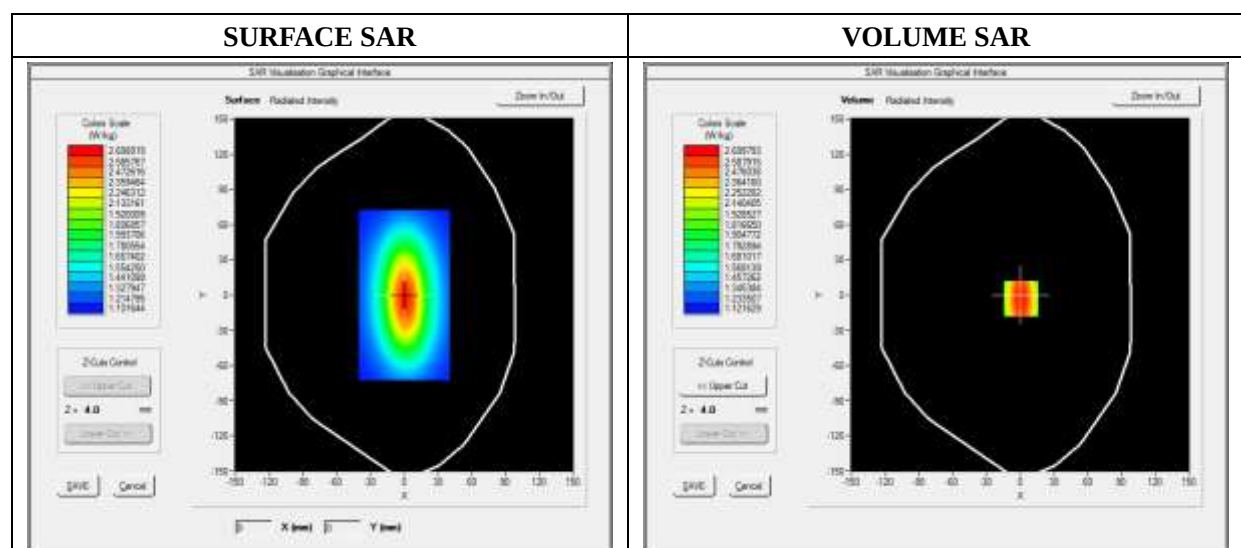
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2018

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

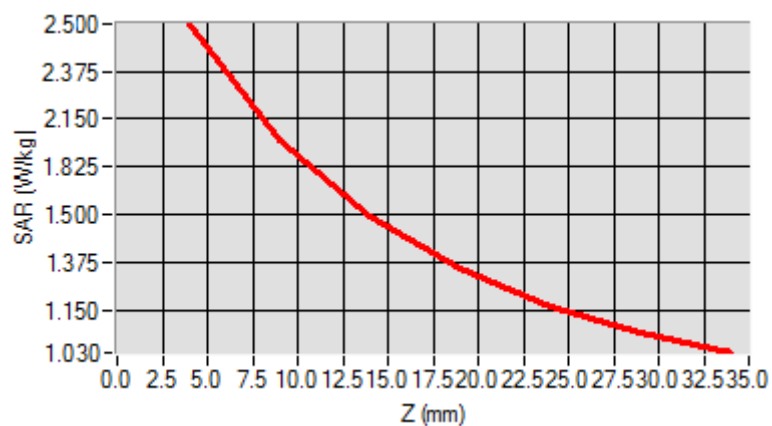


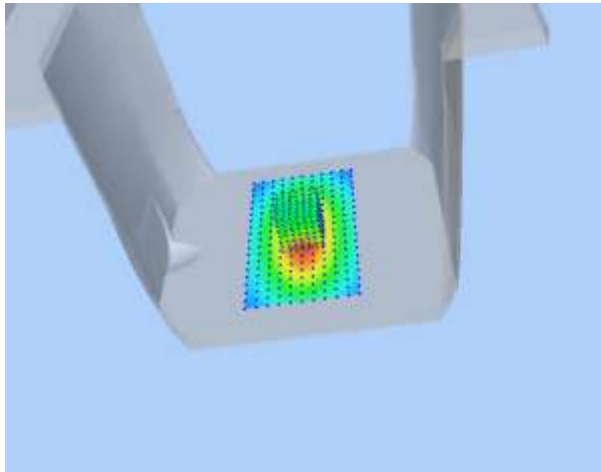
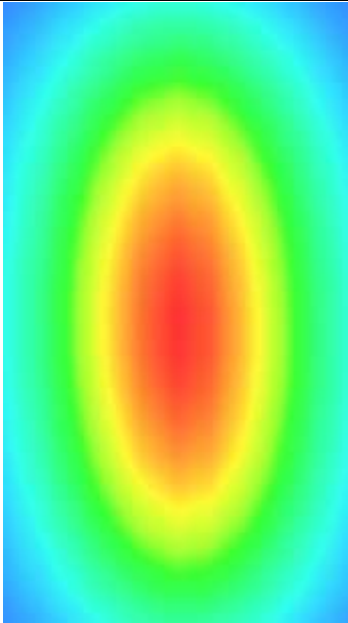
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.129489
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 2

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 21 seconds

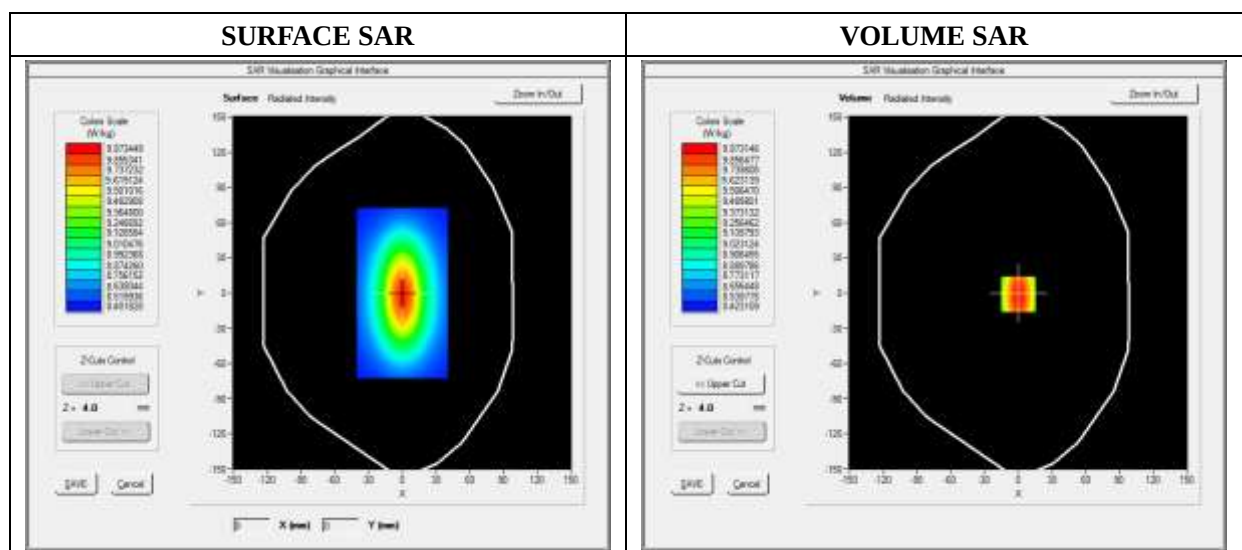
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 06/01/2018

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

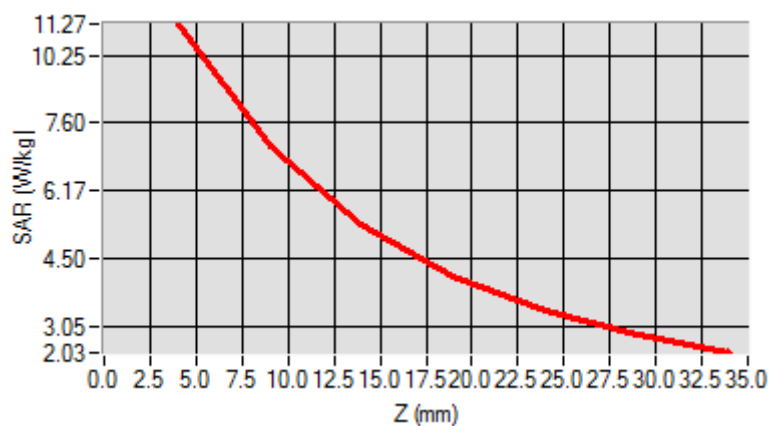


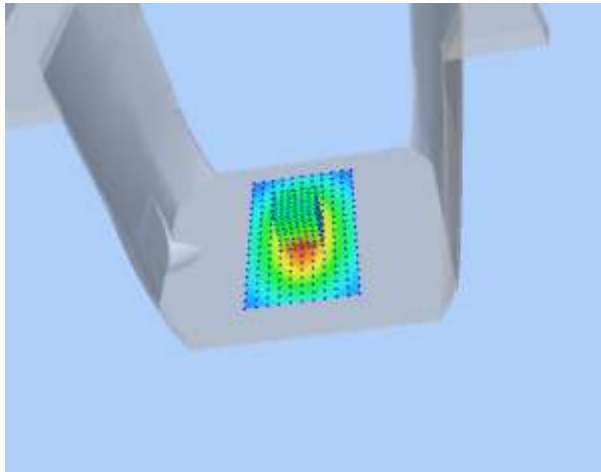
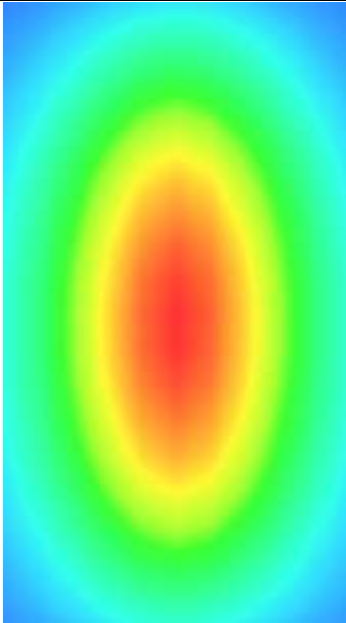
Maximum location: X=0.00, Y=0.00

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 3

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 21 seconds

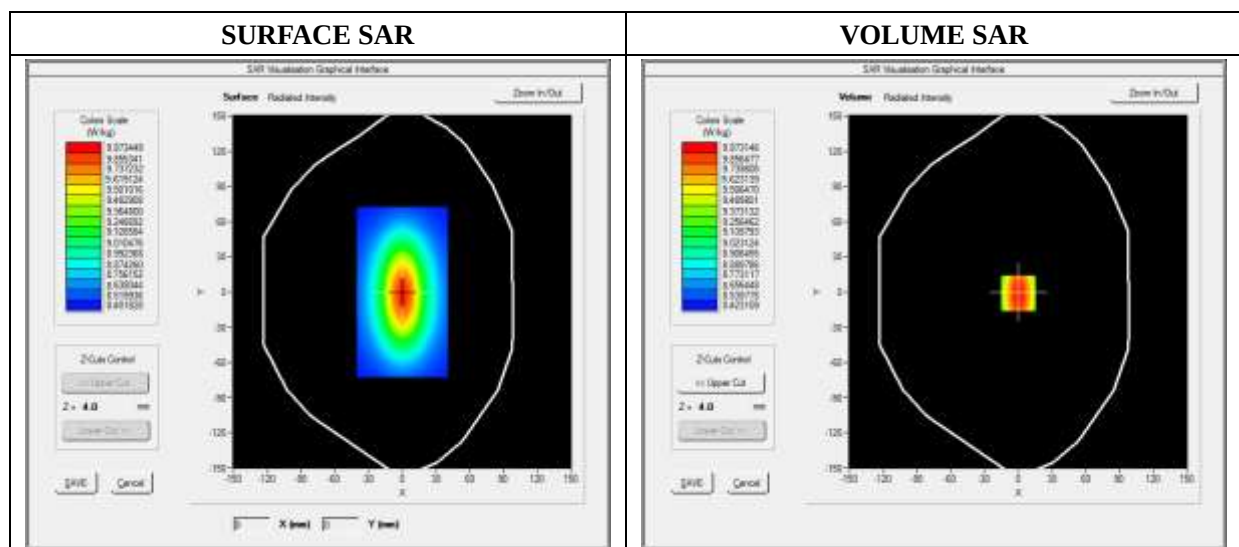
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

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

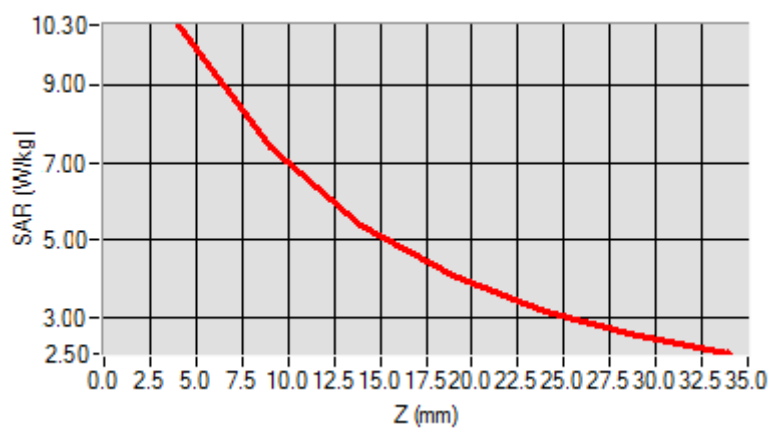


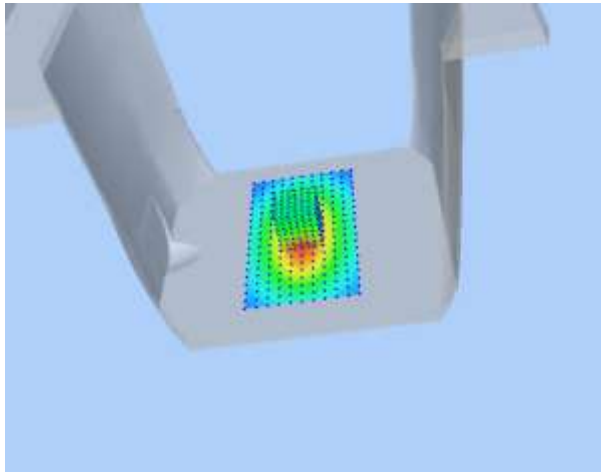
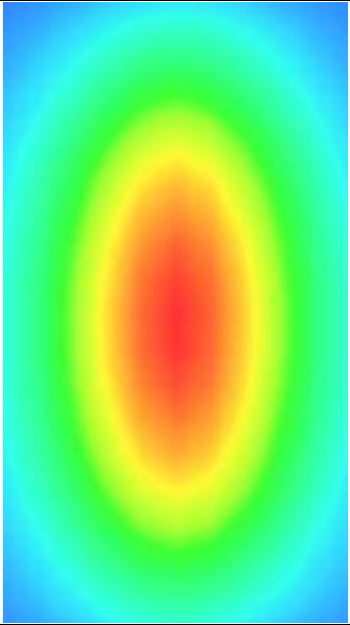
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	7.174526
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 4

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/29/2018

Measurement duration: 12 minutes 21 seconds

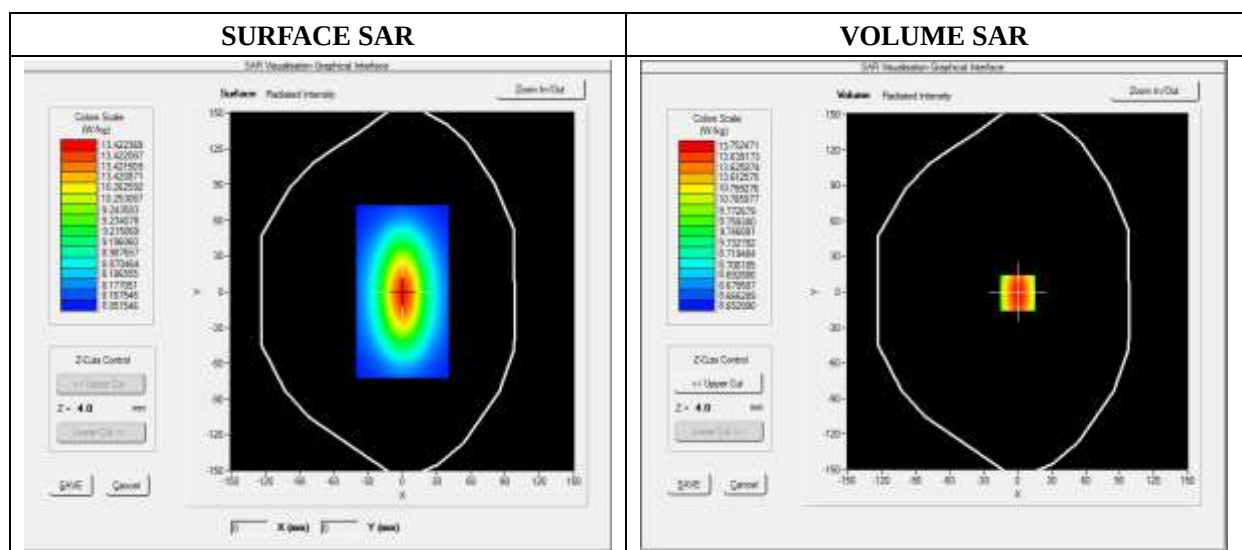
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 06/01/2018

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

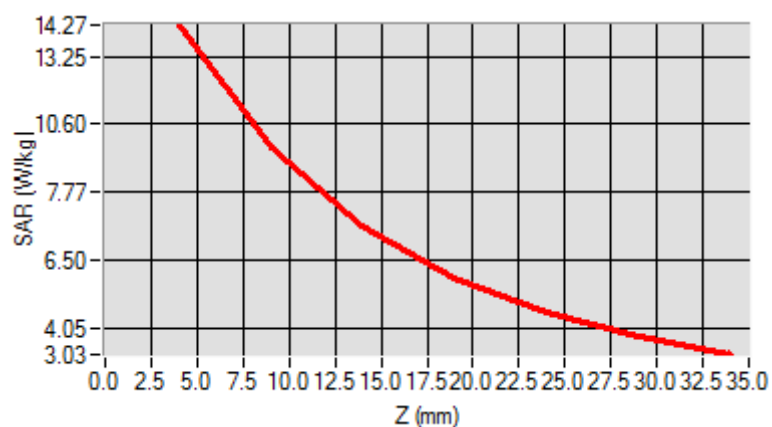


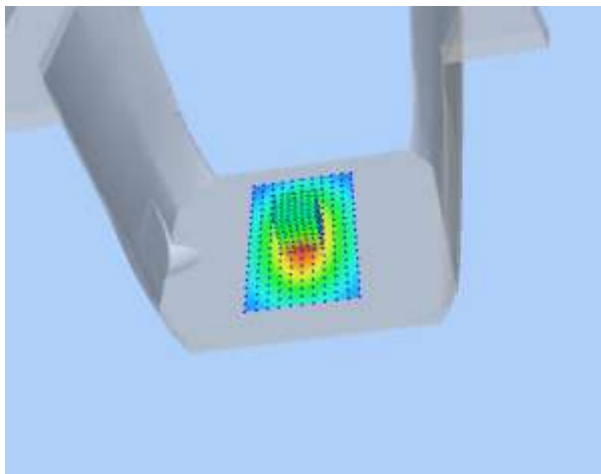
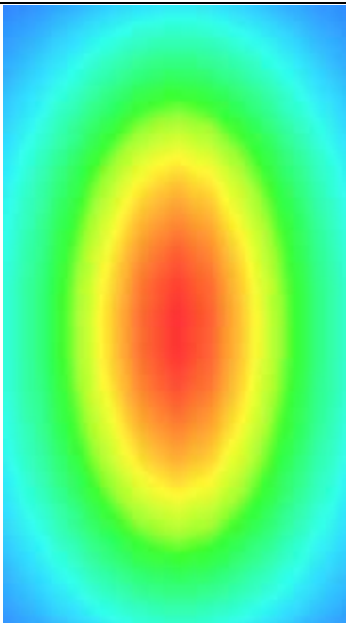
Maximum location: X=0.00, Y=0.00

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 5

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/29/2018

Measurement duration: 12 minutes 21 seconds

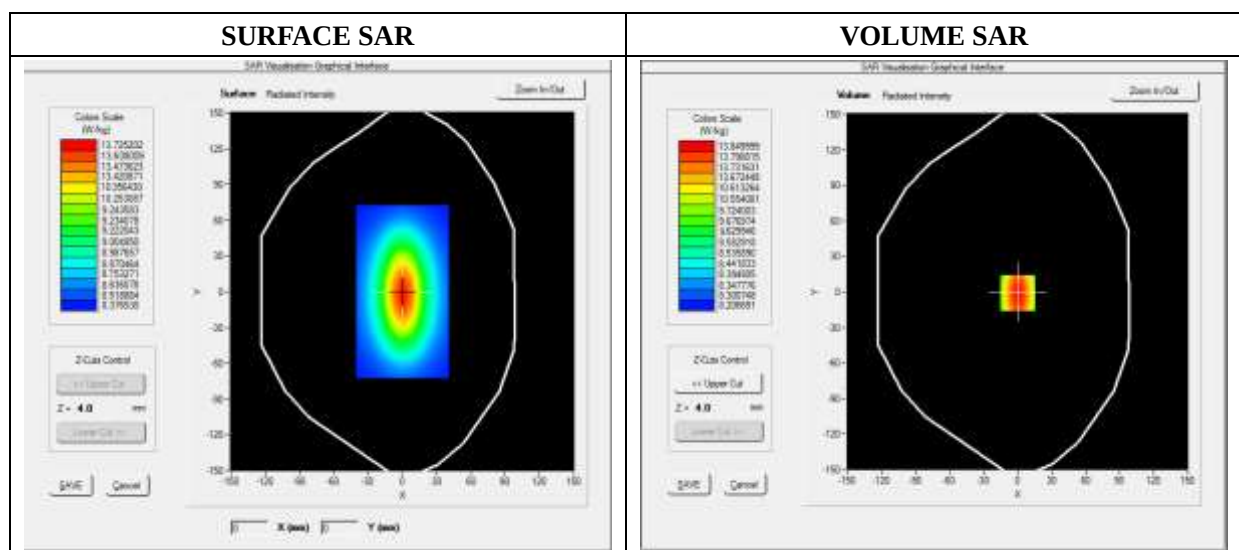
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 06/01/2018

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

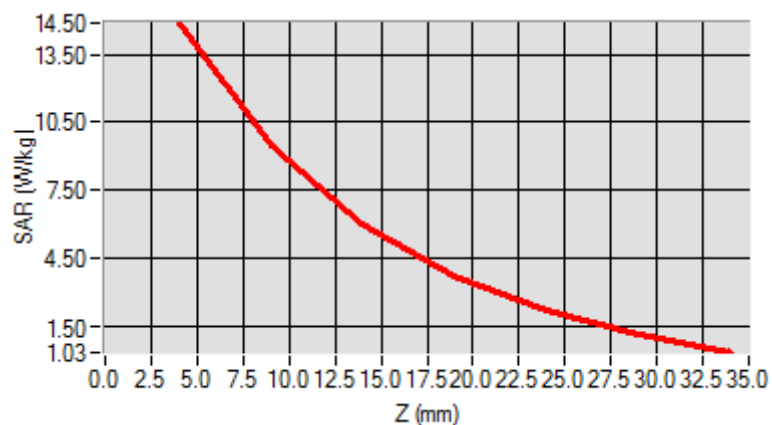


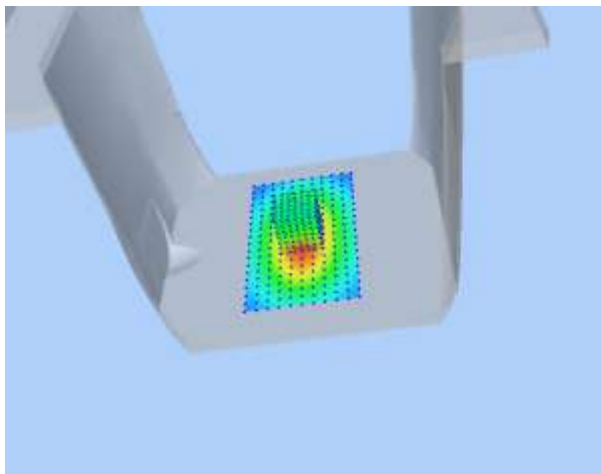
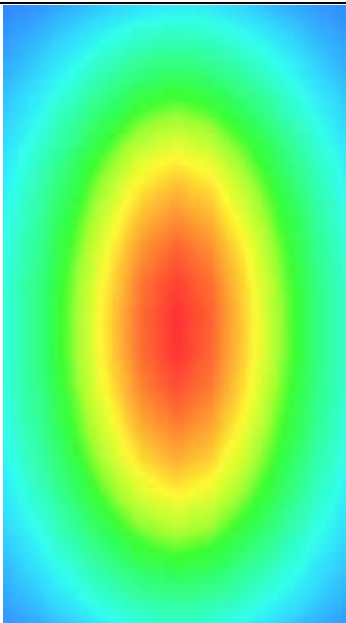
Maximum location: X=0.00, Y=0.00

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	14.0426	12.1354	10.2965	7.4854	5.9354	4.5186



3D screen shot	Hot spot position
	

MEASUREMENT 6

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/27/2018

Measurement duration: 12 minutes 21 seconds

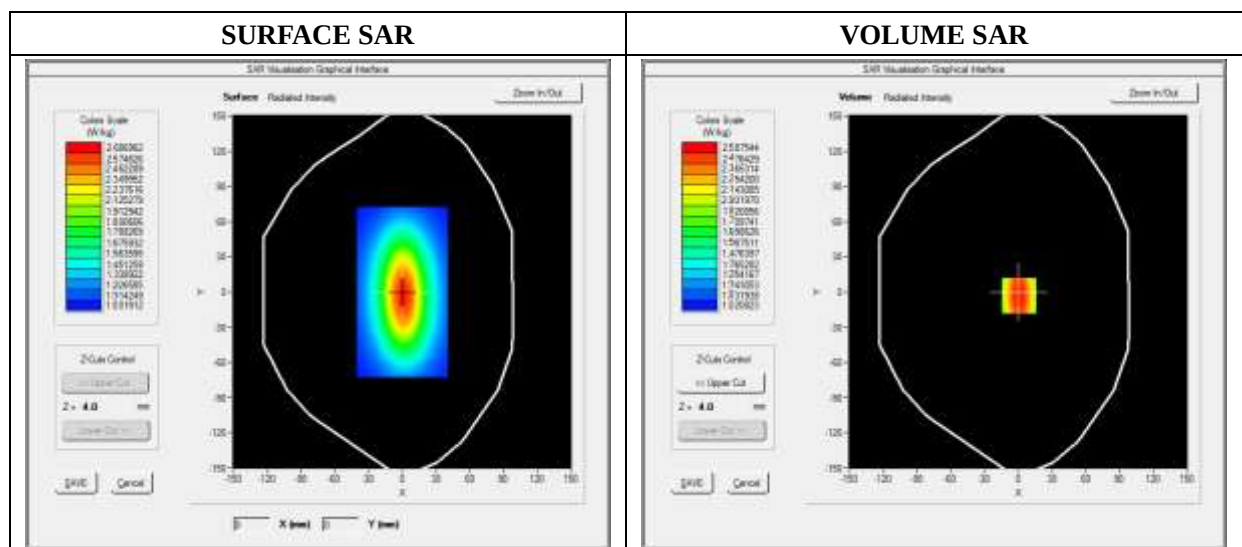
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2018

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

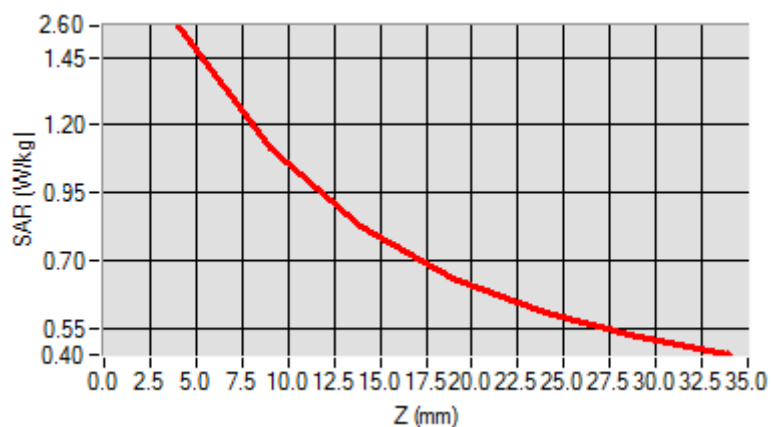


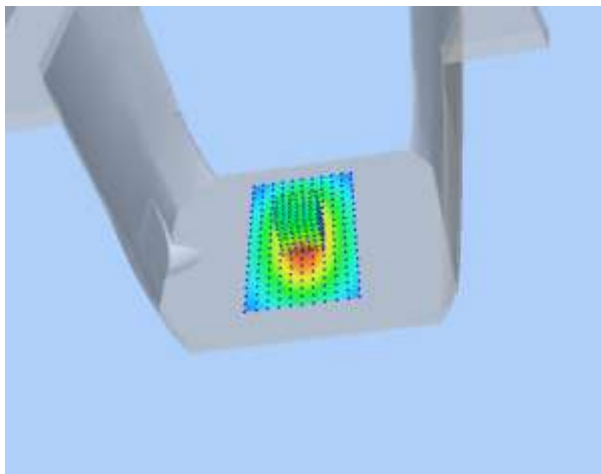
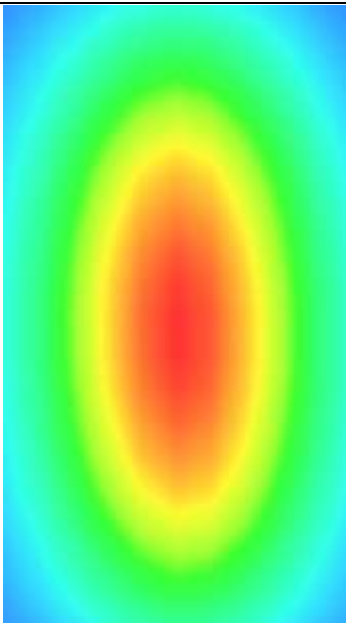
Maximum location: X=0.00, Y=0.00

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 7

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 21 seconds

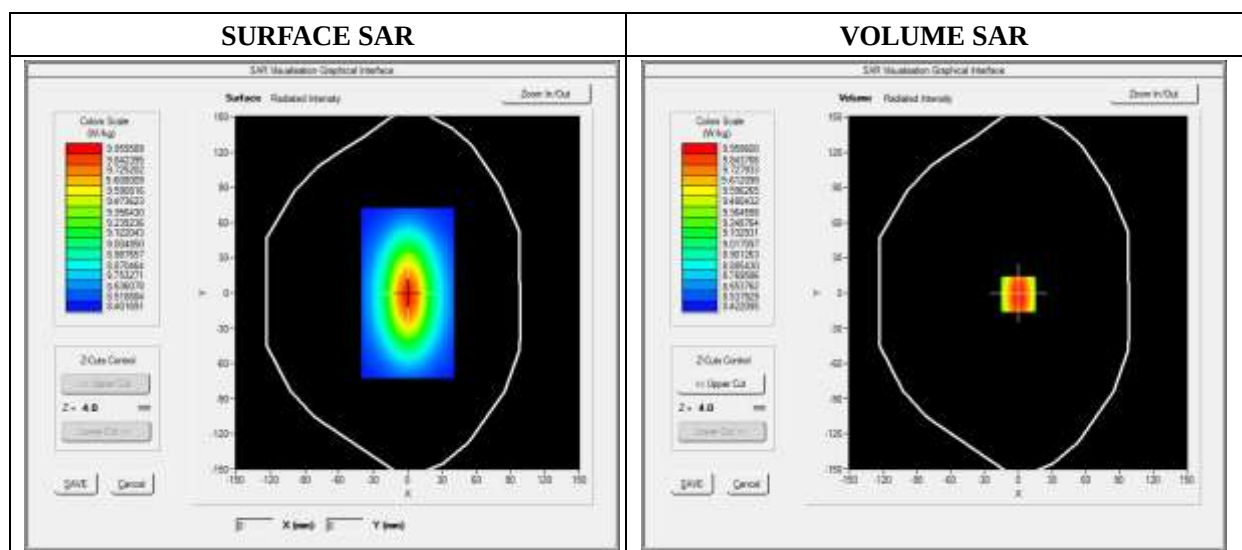
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 06/01/2018

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

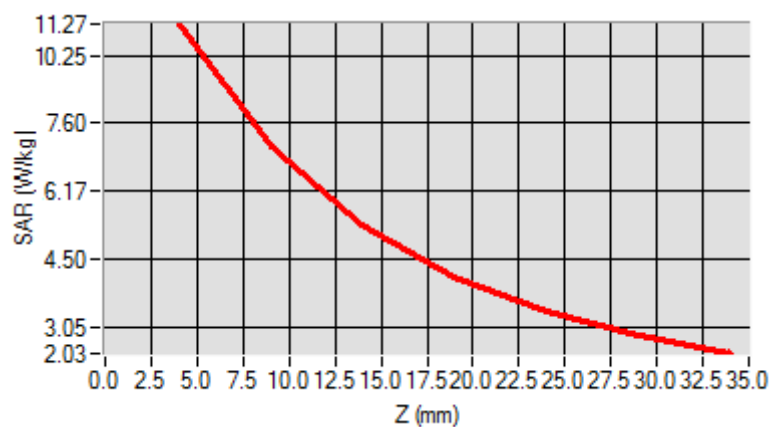


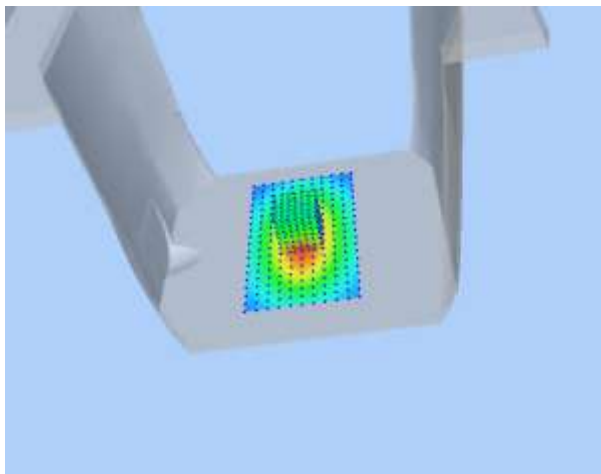
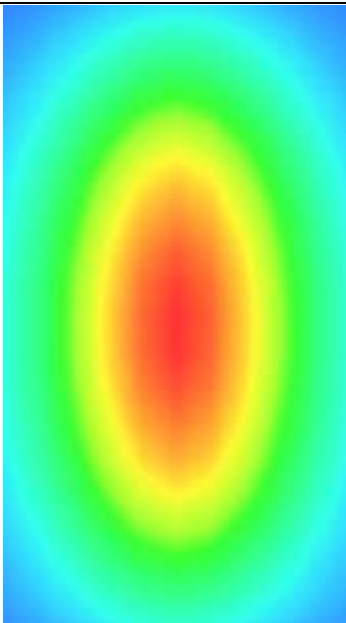
Maximum location: X=0.00, Y=0.00

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 8

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 21 seconds

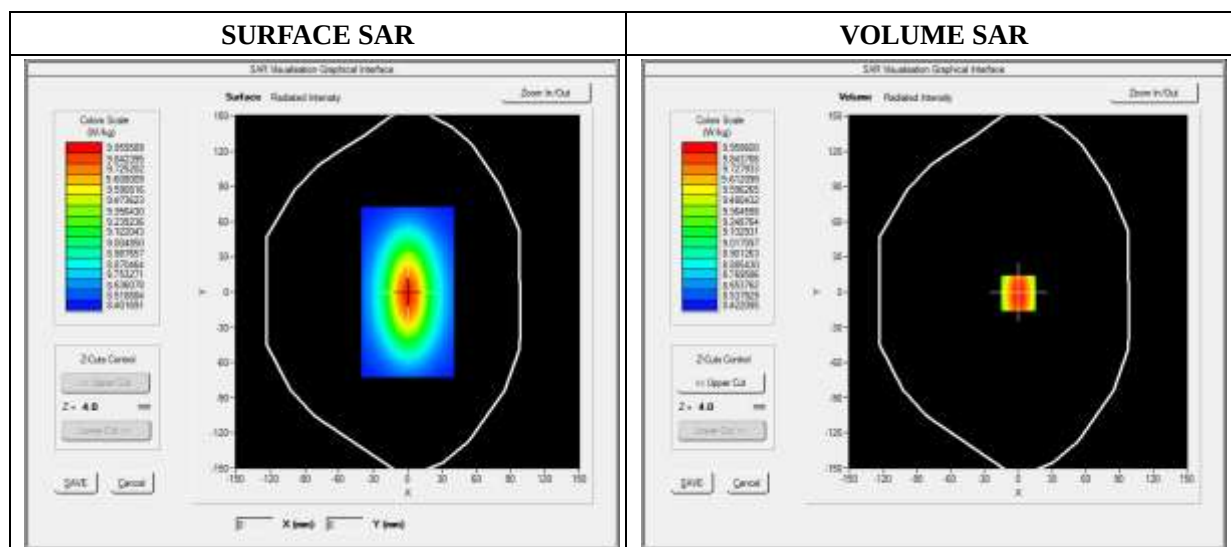
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

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

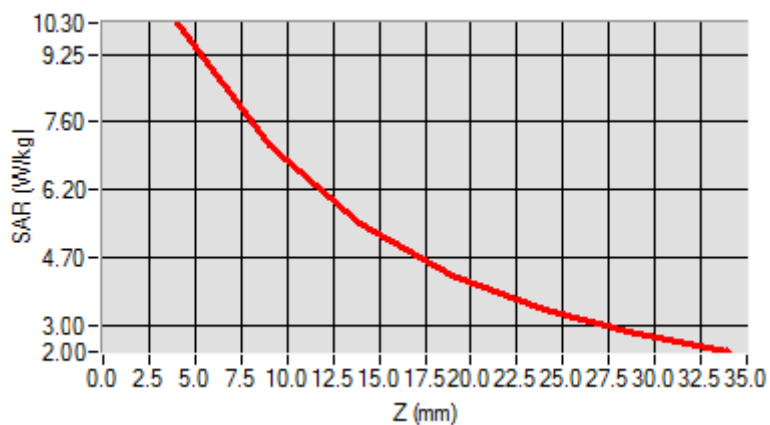


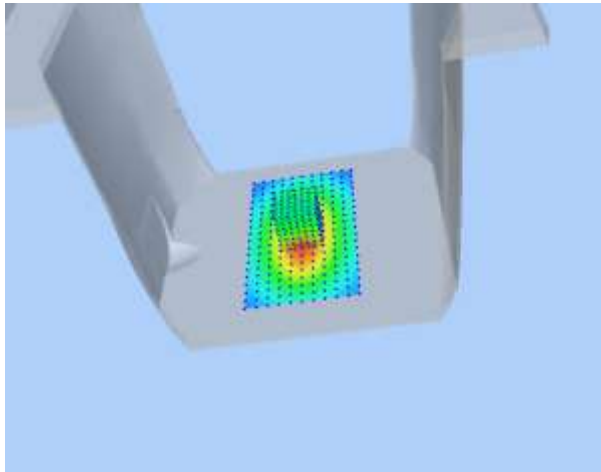
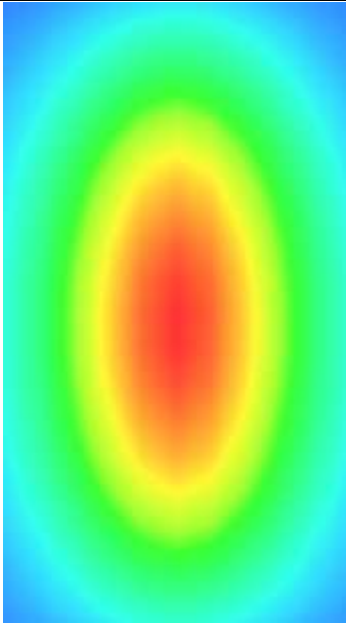
Maximum location: X=0.00, Y=0.00

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 9

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/29/2018

Measurement duration: 12 minutes 21 seconds

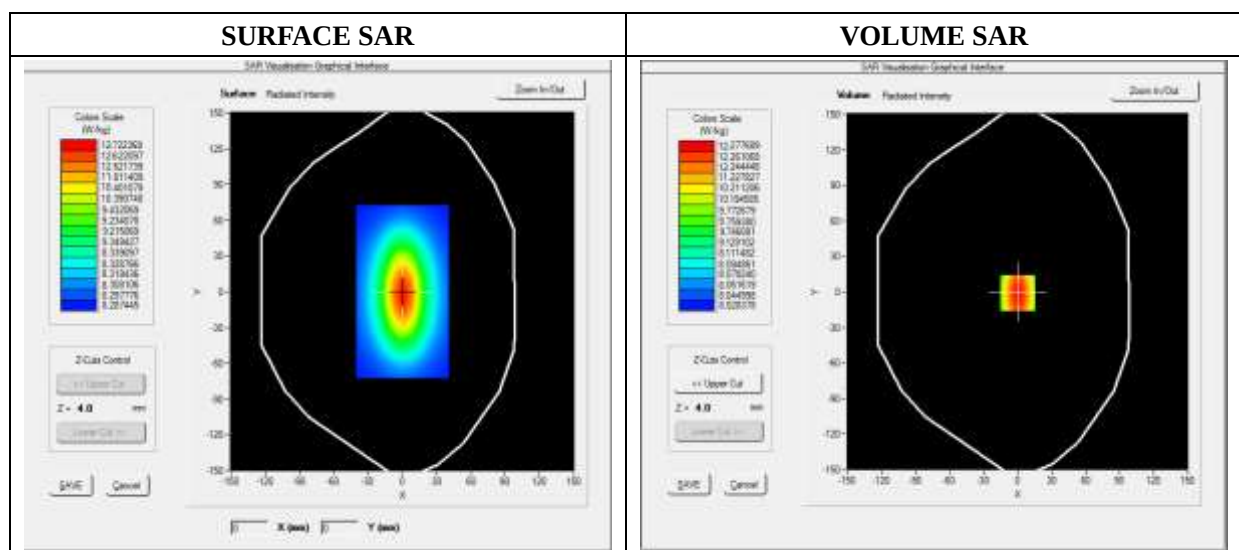
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.80; Calibrated: 06/01/2018

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

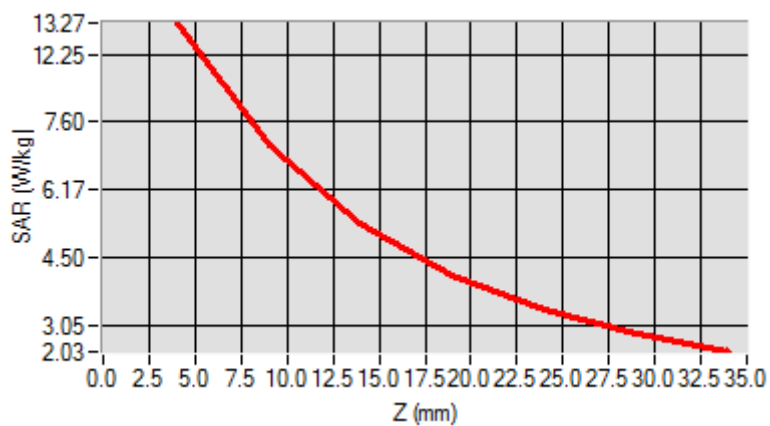


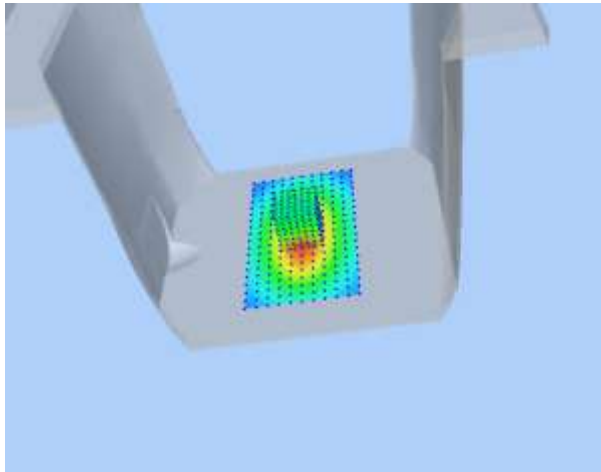
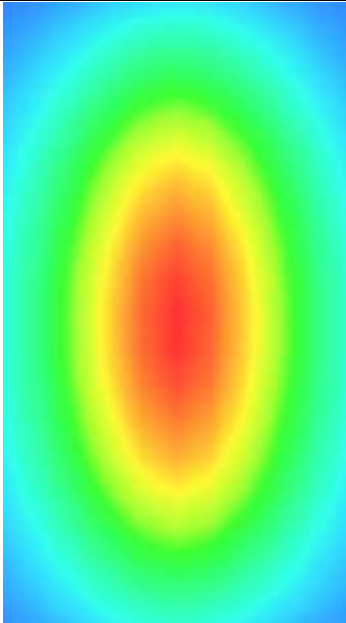
Maximum location: X=0.00, Y=0.00

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 10

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 08/29/2018

Measurement duration: 12 minutes 21 seconds

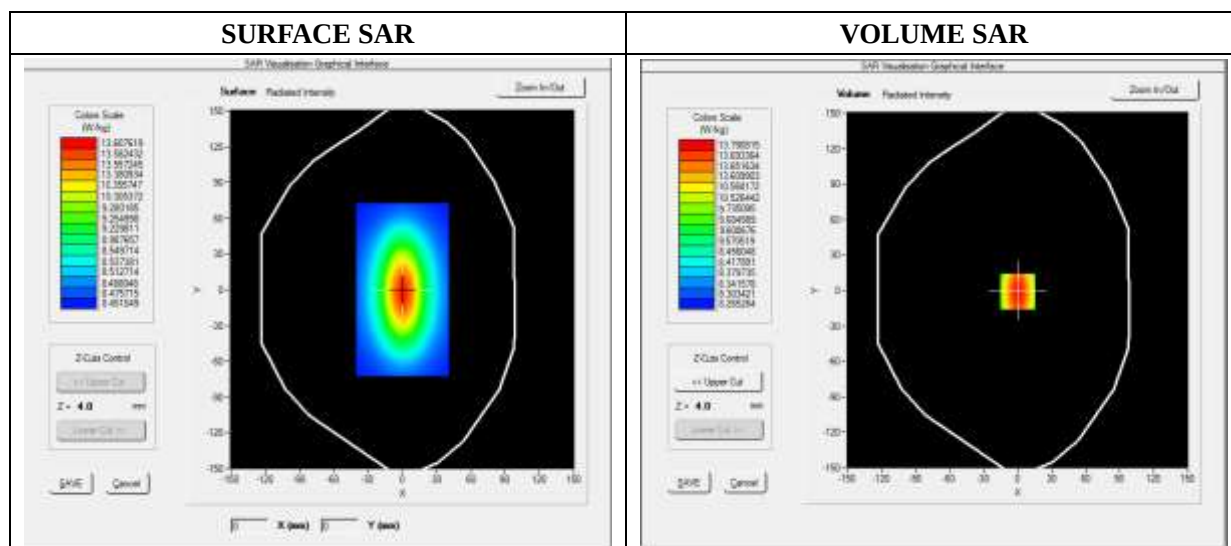
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 06/01/2018

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

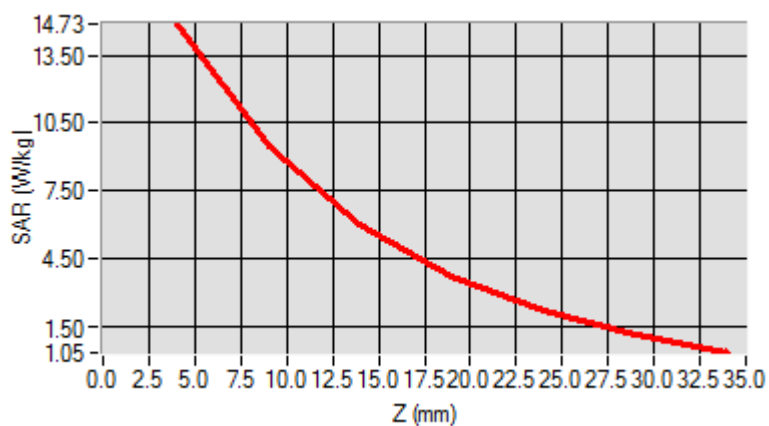


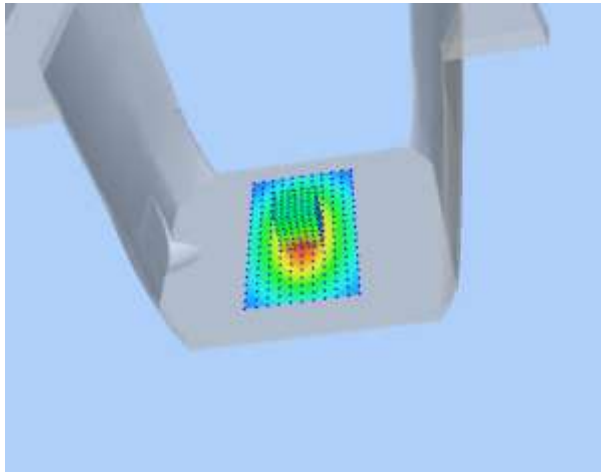
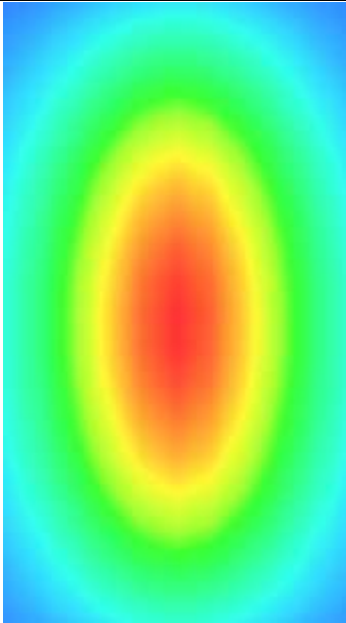
Maximum location: X=0.00, Y=0.00

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
	

Annex B. Plots of SAR Measurement

<u>TYPE</u>	<u>BAND</u>	<u>PARAMETERS</u>
Phone	GSM850	<u>Measurement 3:</u> Left Head with Cheek device position on Low Channel in GSM mode
Phone	GSM1900	<u>Measurement 5:</u> Right Head with Cheek device position on High Channel in GSM mode
Phone	GPRS850_2TX	<u>Measurement 9:</u> Right Head with Cheek device position on Low Channel in GPRS mode
Phone	GPRS1900_2TX	<u>Measurement 13:</u> Right Head with Cheek device position on Low Channel in GPRS mode
Phone	WCDMA1900_RMC	<u>Measurement 17:</u> Right Head with Cheek device position on High Channel in WCDMA mode
Phone	WCDMA850_RMC	<u>Measurement 23:</u> Left Head with Cheek device position on Low Channel in WCDMA mode
Phone	LTE Band 2_RMC	<u>Measurement 25:</u> Right Head with Cheek device position on Low Channel in LTE mode
Phone	LTE Band 4_RMC	<u>Measurement 33:</u> Right Head with Cheek device position on High Channel in LTE mode
Phone	LTE Band 7_RMC	<u>Measurement 41:</u> Right Head with Cheek device position on High Channel in LTE mode
Phone	WiFi_802.11b	<u>Measurement 51:</u> Left Head with Cheek device position on Low Channel in 802.11b mode
Phone	GSM850	<u>Measurement 53:</u> Flat Plane with Back(Body-worn) device position on Low Channel in GSM mode
Phone	GSM1900	<u>Measurement 55:</u> Flat Plane with Back(Body-worn) device position on High Channel in GSM mode
Phone	GPRS850_2TX	<u>Measurement 57:</u> Flat Plane with Back device position on Low Channel in GPRS mode
Phone	GPRS1900_2TX	<u>Measurement 64:</u> Flat Plane with Bottom device position on Low Channel in GPRS mode
Phone	WCDMA1900_RMC	<u>Measurement 69:</u> Flat Plane with Back side device position on High Channel in WCDMA mode
Phone	WCDMA1900_RMC	<u>Measurement 72:</u> Flat Plane with Bottom side device position on Low Channel in WCDMA mode
Phone	WCDMA850_RMC	<u>Measurement 76:</u> Flat Plane with Back device position on Low Channel in WCDMA mode
Phone	LTE Band 2_RMC	<u>Measurement 81:</u> Flat Plane with Back device position on Low Channel in LTE mode
Phone	LTE Band 2_RMC	<u>Measurement 83:</u> Flat Plane with Bottom device position on Low Channel in LTE mode
Phone	LTE Band 4_RMC	<u>Measurement 95:</u> Flat Plane with Back device position on

		Low Channel in LTE mode
Phone	LTE Band 4_RMC	<u>Measurement 101</u> : Flat Plane with Bottom device position on Low Channel in LTE mode
Phone	LTE Band 7_RMC	<u>Measurement 113</u> : Flat Plane with Back device position on High Channel in LTE mode
Phone	LTE Band 7_RMC	<u>Measurement 115</u> : Flat Plane with Bottom device position on High Channel in LTE mode
Phone	WiFi_802.11b	<u>Measurement 123</u> : Flat Plane with Back side device position on Low Channel in 802.11b mode
<i>Remark: SAR plot is showed the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.</i>		

Extremity SAR

<u>TYPE</u>	<u>BAND</u>	<u>PARAMETERS</u>
Phone	LTE Band 4_RMC	<u>Measurement 127</u> : Flat Plane with Bottom device position on High Channel in LTE mode
<i>Remark: SAR plot is showed the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.</i>		

MEASUREMENT 3

Type: Phone measurement (Complete)

Date of measurement: 08/27/2018

Measurement duration: 11 minutes 48 seconds

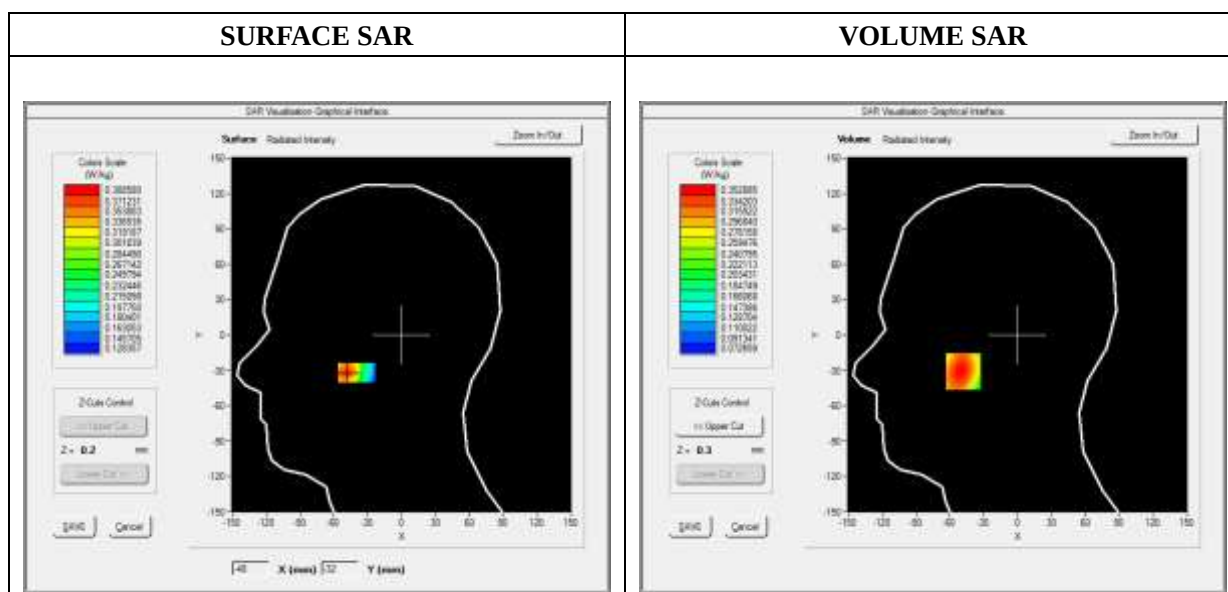
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2018

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

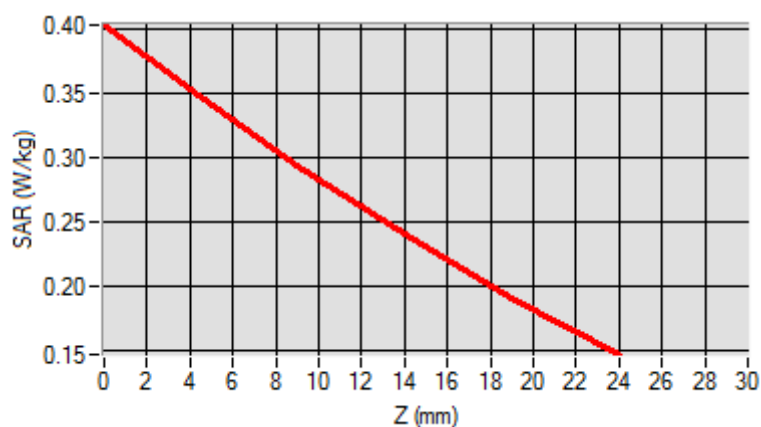


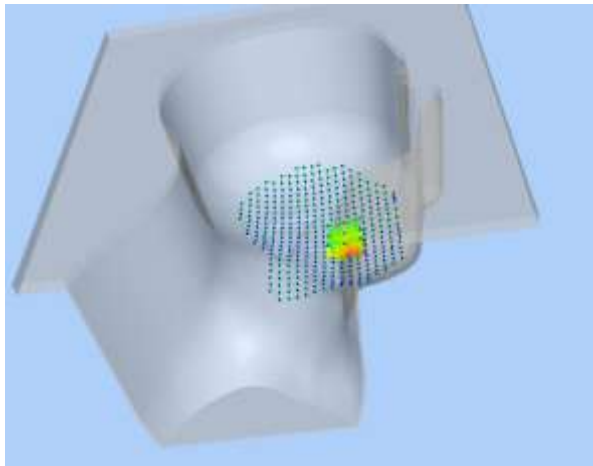
Maximum location: X=-48.00, Y=-31.00

SAR Peak: 0.41 W/kg

SAR 10g (W/Kg)	0.263235
SAR 1g (W/Kg)	0.343044

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.4028	0.3529	0.2943	0.2403	0.1911



3D screen shot	Hot spot position
	

MEASUREMENT 5

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 11 minutes 48 seconds

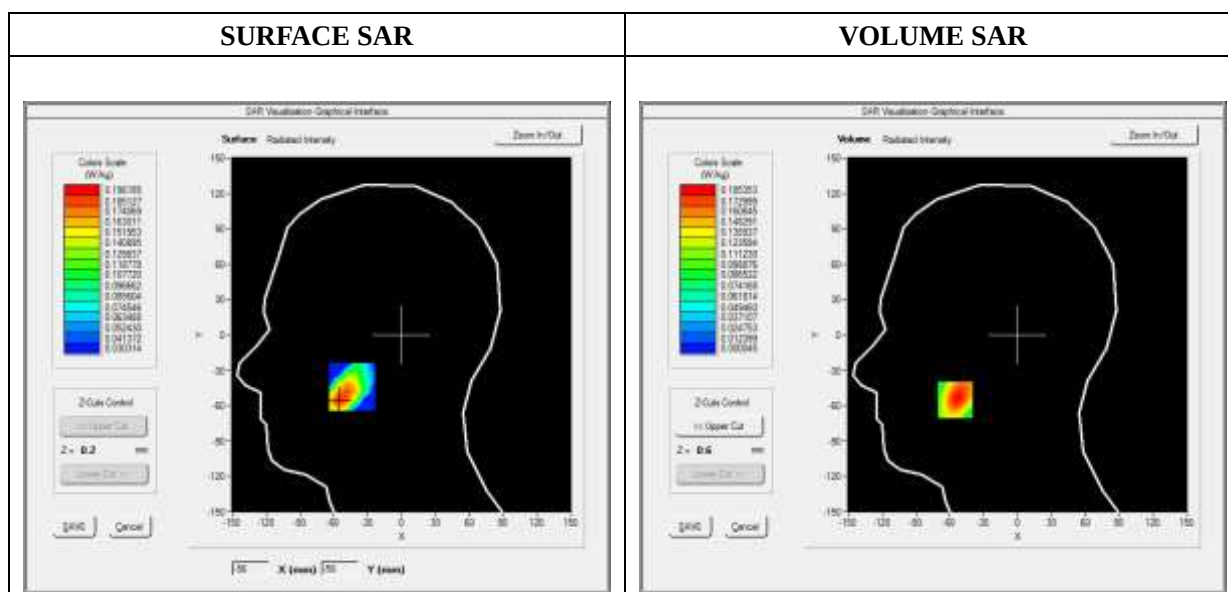
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

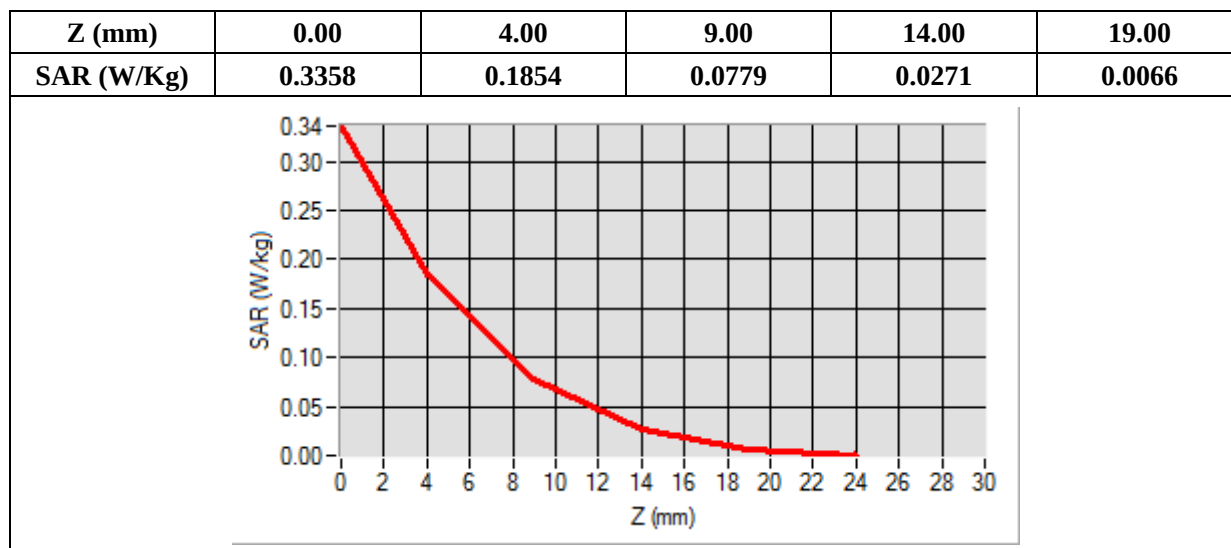
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.442440
Ambient Temperature	21.1
Liquid Temperature	21.3

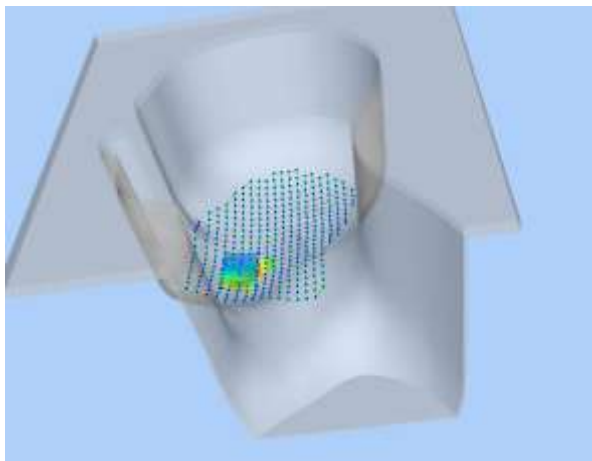
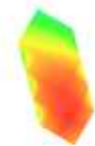


Maximum location: X=-55.00, Y=-55.00

SAR Peak: 0.34 W/kg

SAR 10g (W/Kg)	0.084934
SAR 1g (W/Kg)	0.176089



3D screen shot	Hot spot position
	

MEASUREMENT 9

Type: Phone measurement (Complete)

Date of measurement: 08/27/2018

Measurement duration: 12 minutes 3 seconds

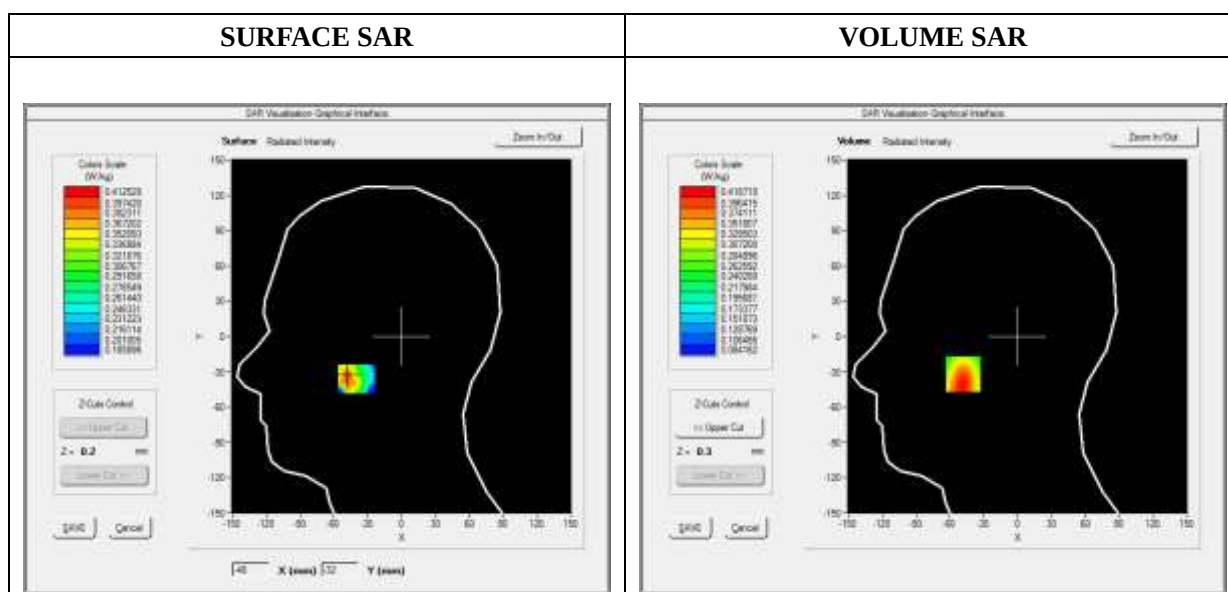
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	GPRS850_2TX
Channels	Low
Signal	Duty Cycle: 1:4

B. SAR Measurement Results

Frequency (MHz)	824.200000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.536272
Ambient Temperature	21.1
Liquid Temperature	21.3

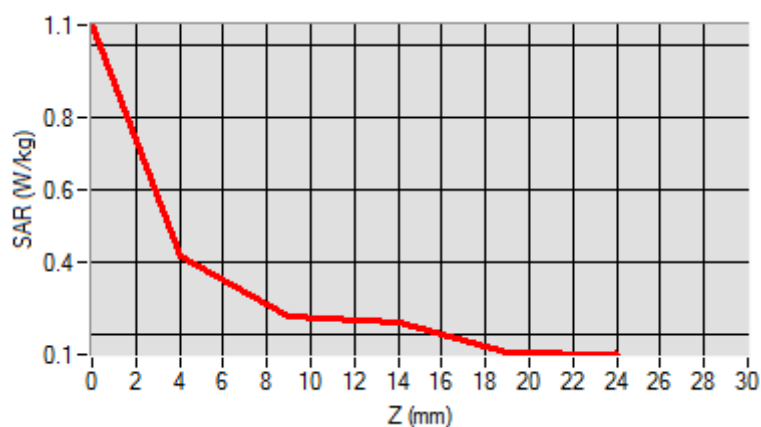


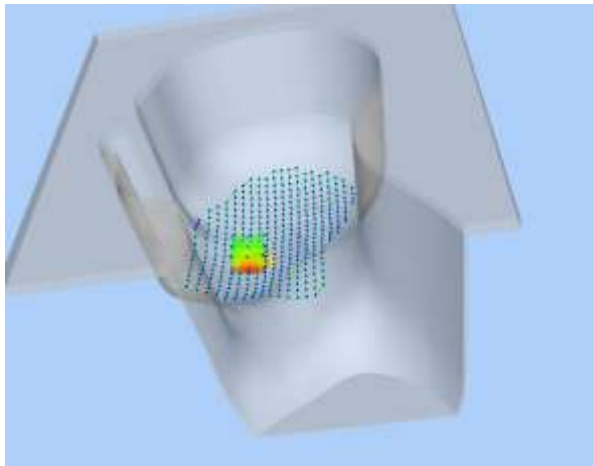
Maximum location: X=-48.00, Y=-32.00

SAR Peak: 0.54 W/kg

SAR 10g (W/Kg)	0.281233
SAR 1g (W/Kg)	0.399803

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.0575	0.4187	0.2490	0.2346	0.1503



3D screen shot	Hot spot position
	

MEASUREMENT 13

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

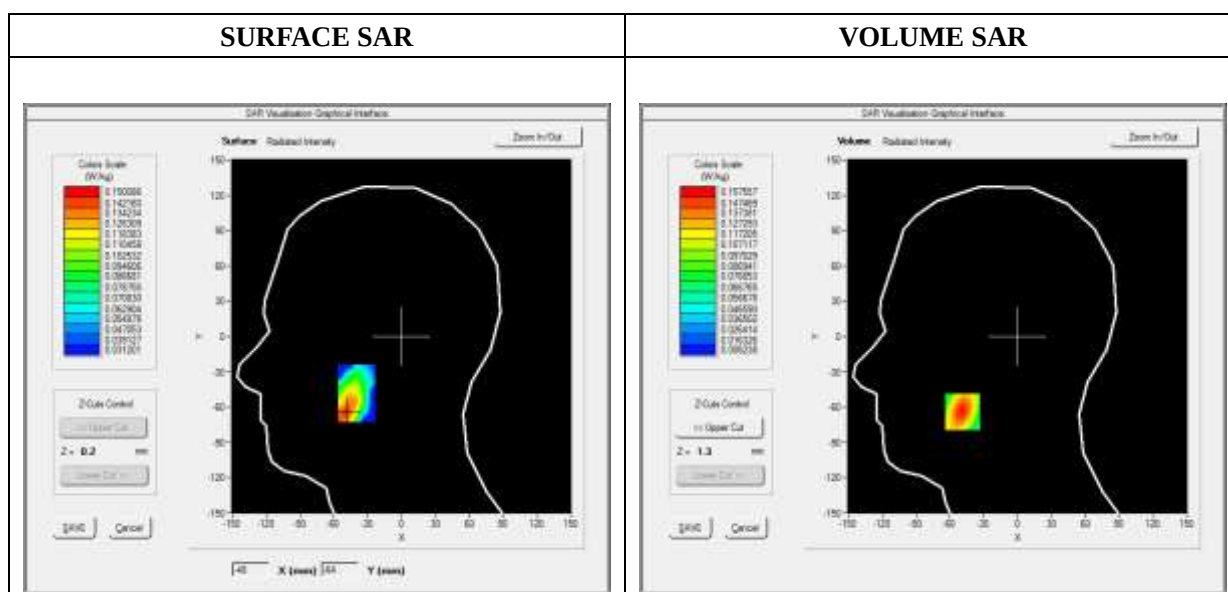
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	GPRS1900_2TX
Channels	Low
Signal	Duty Cycle: 1:4

B. SAR Measurement Results

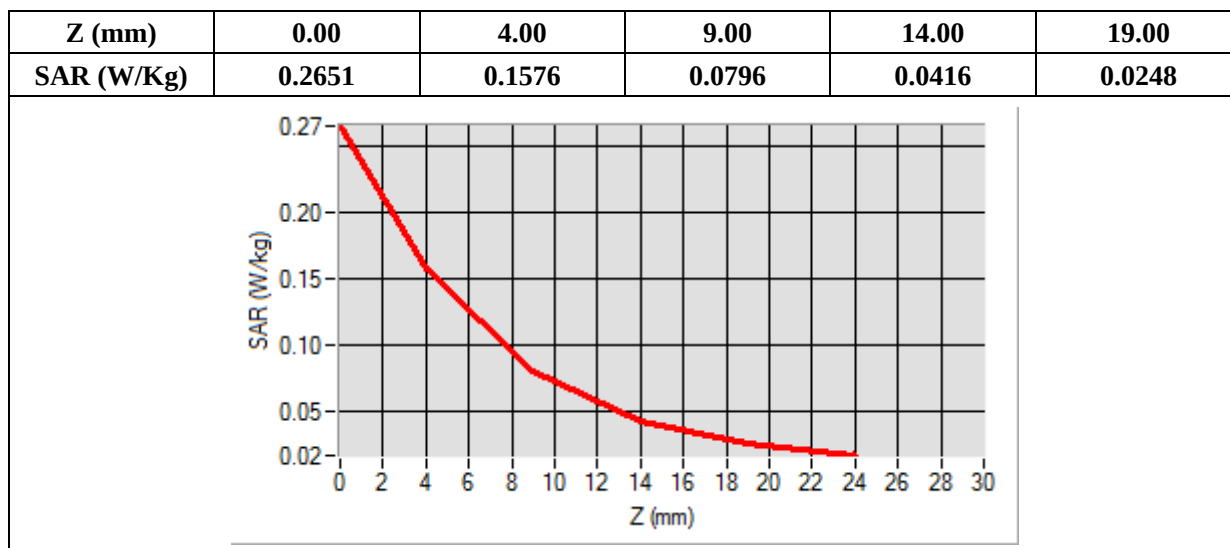
Frequency (MHz)	1850.200000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.536272
Ambient Temperature	21.1
Liquid Temperature	21.3

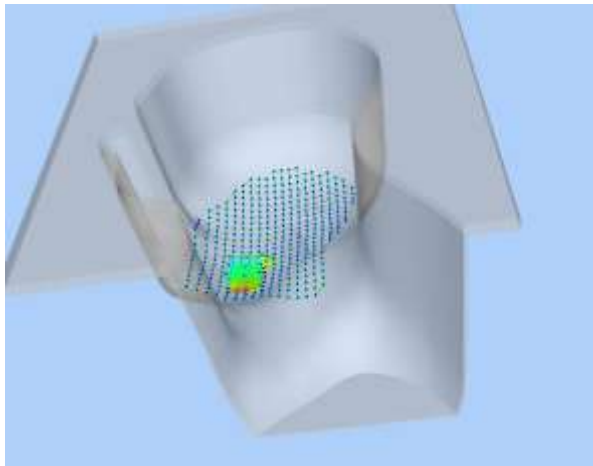
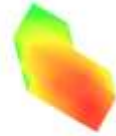


Maximum location: X=-49.00, Y=-64.00

SAR Peak: 0.26 W/kg

SAR 10g (W/Kg)	0.078612
SAR 1g (W/Kg)	0.146893



3D screen shot	Hot spot position
	

MEASUREMENT 17

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

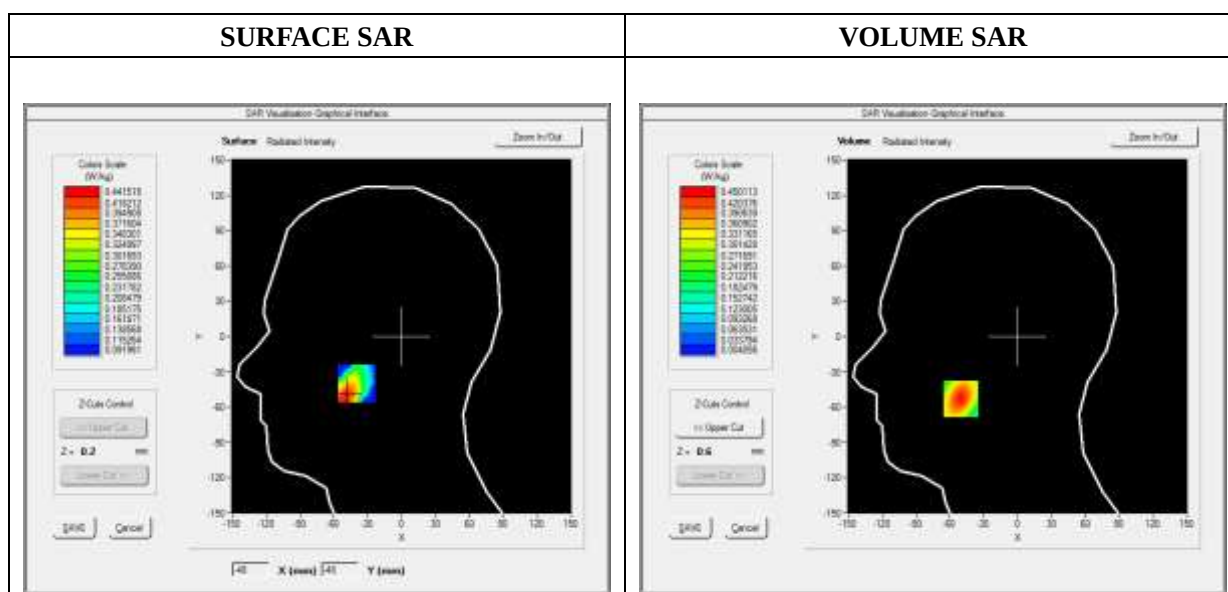
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right 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

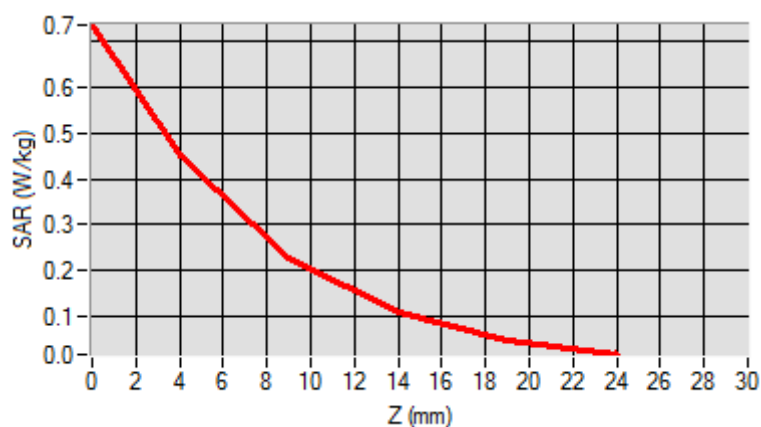


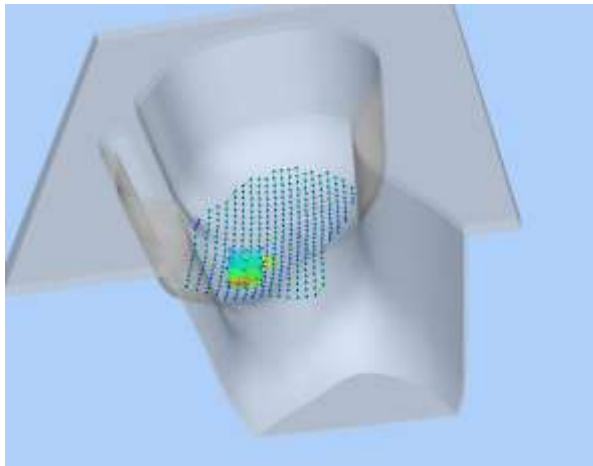
Maximum location: X=-50.00, Y=-53.00

SAR Peak: 0.74 W/kg

SAR 10g (W/Kg)	0.216367
SAR 1g (W/Kg)	0.418038

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.7373	0.4501	0.2277	0.1071	0.0462



3D screen shot	Hot spot position
	

MEASUREMENT 23

Type: Phone measurement (Complete)

Date of measurement: 08/27/2018

Measurement duration: 12 minutes 3 seconds

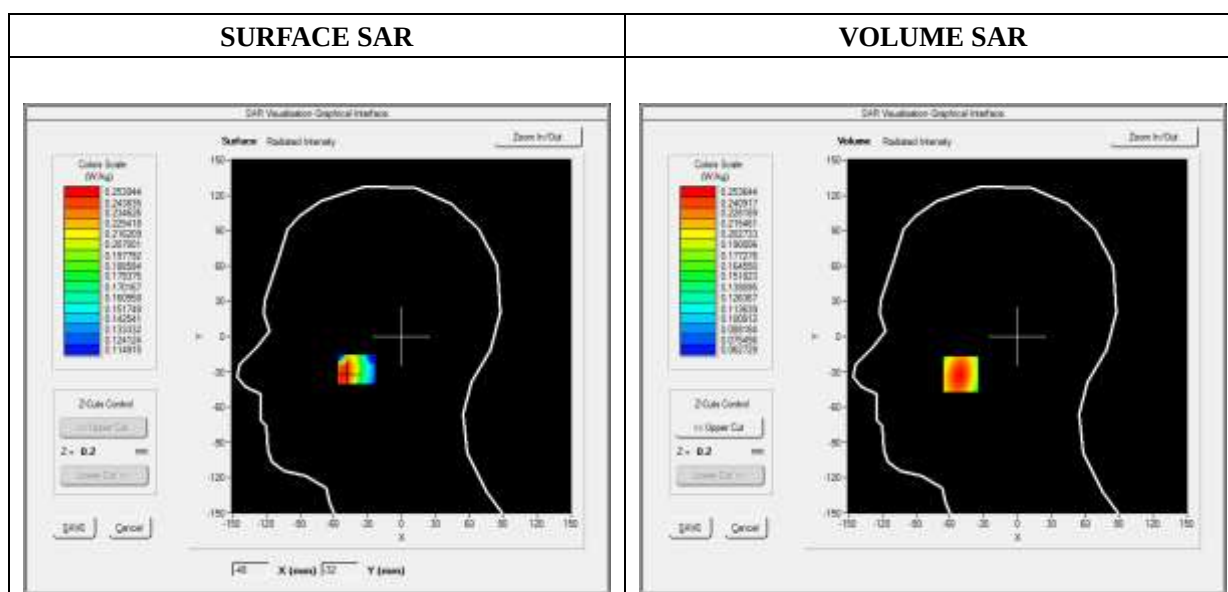
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

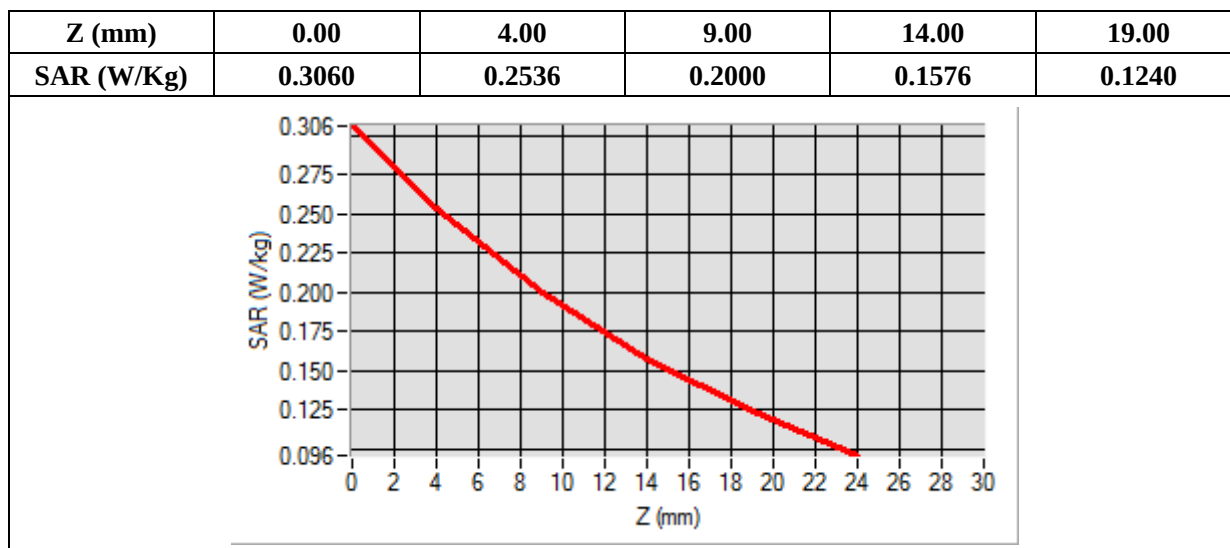
Frequency (MHz)	826.400000
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.342427
Ambient Temperature	21.1
Liquid Temperature	21.3

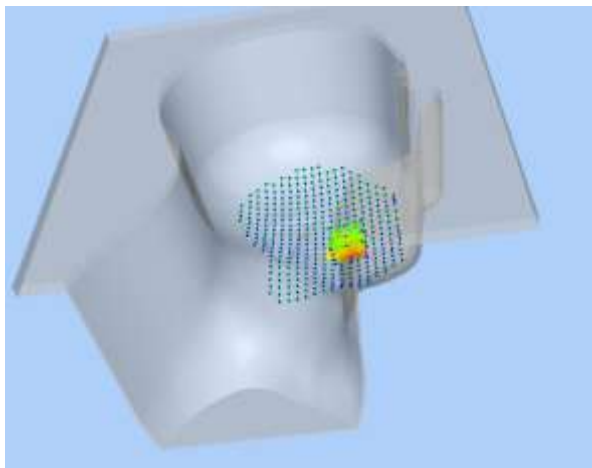


Maximum location: X=-50.00, Y=-32.00

SAR Peak: 0.31 W/kg

SAR 10g (W/Kg)	0.179681
SAR 1g (W/Kg)	0.242673



3D screen shot	Hot spot position
	

MEASUREMENT 25

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

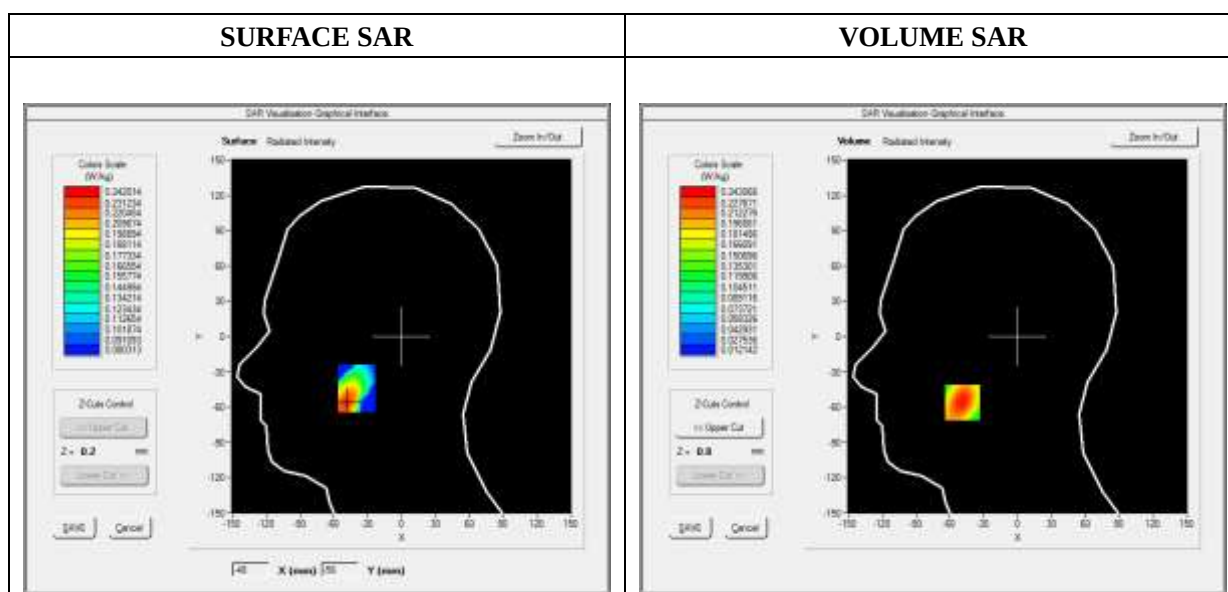
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	LTE Band 2_RMC
Channels	QPSK, 20MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

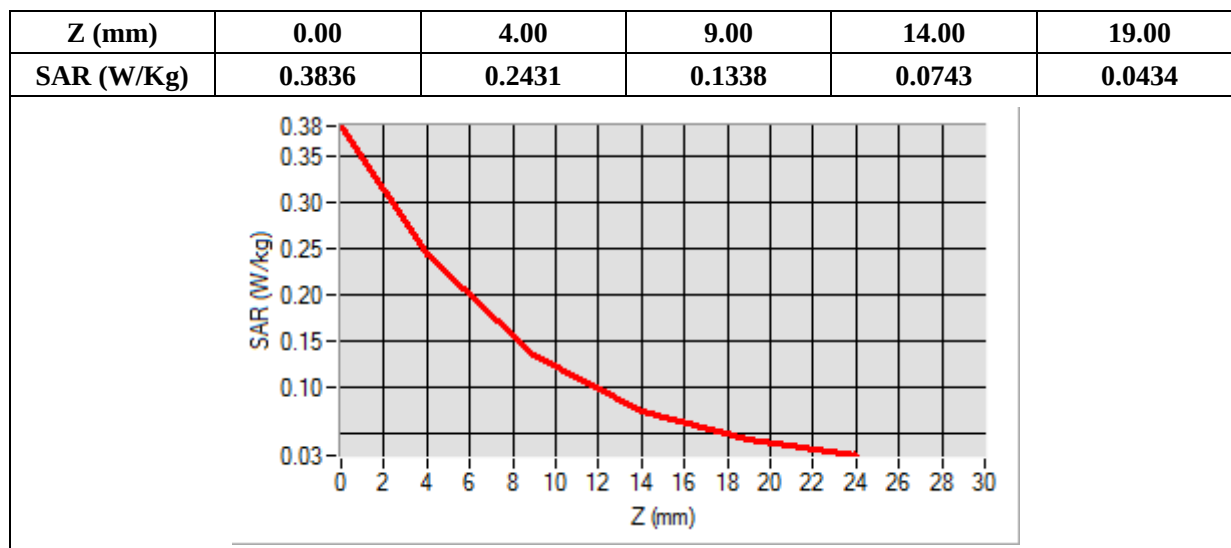
Frequency (MHz)	1860.000000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.743564
Ambient Temperature	21.1
Liquid Temperature	21.3

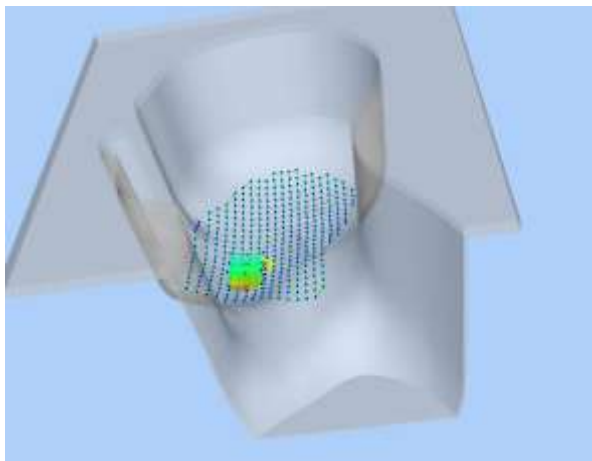


Maximum location: X=-49.00, Y=-56.00

SAR Peak: 0.38 W/kg

SAR 10g (W/Kg)	0.129183
SAR 1g (W/Kg)	0.228392



3D screen shot	Hot spot position
	

MEASUREMENT 33

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

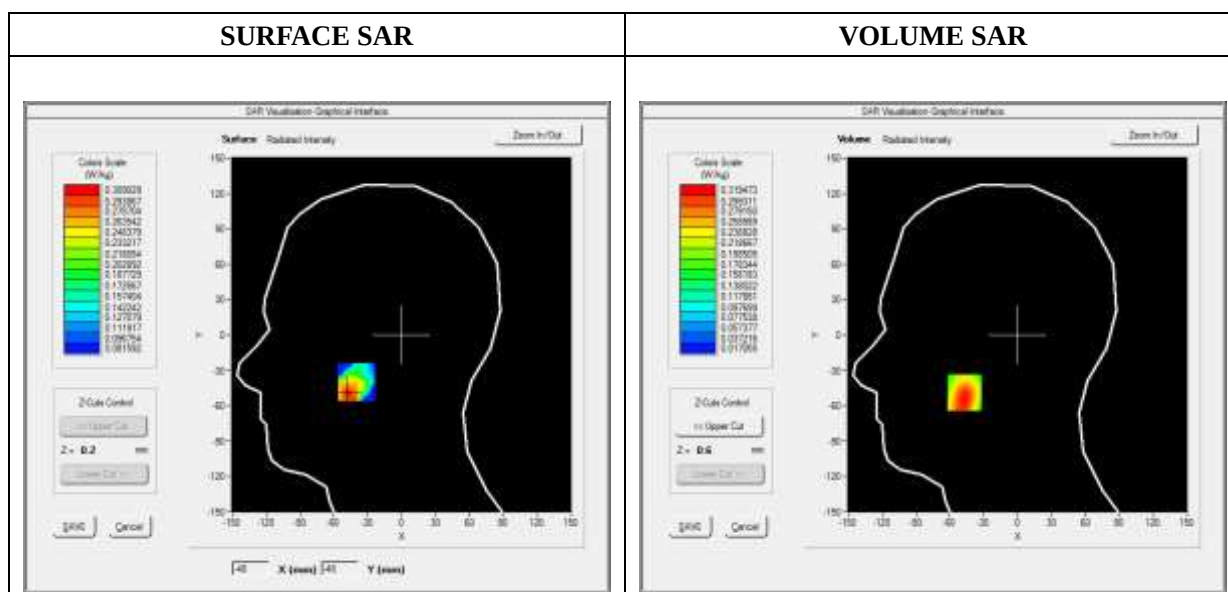
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right 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

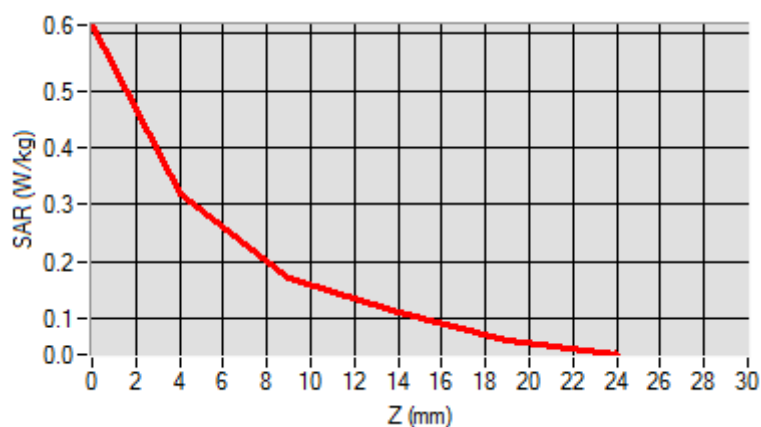


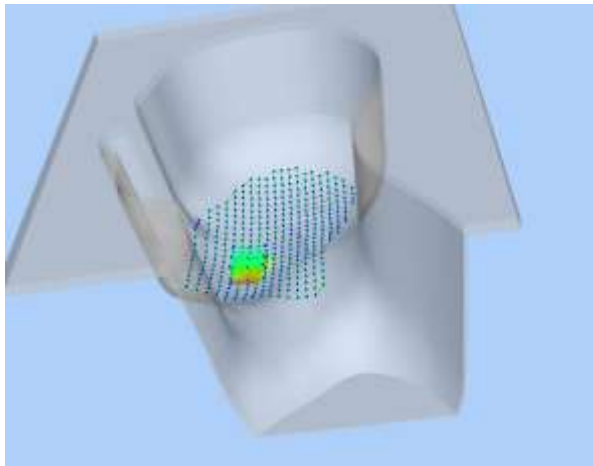
Maximum location: X=-47.00, Y=-49.00

SAR Peak: 0.48 W/kg

SAR 10g (W/Kg)	0.173550
SAR 1g (W/Kg)	0.299850

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.6147	0.3195	0.1696	0.1094	0.0606



3D screen shot	Hot spot position
	

MEASUREMENT 41

Type: Phone measurement (Complete)

Date of measurement: 08/29/2018

Measurement duration: 12 minutes 3 seconds

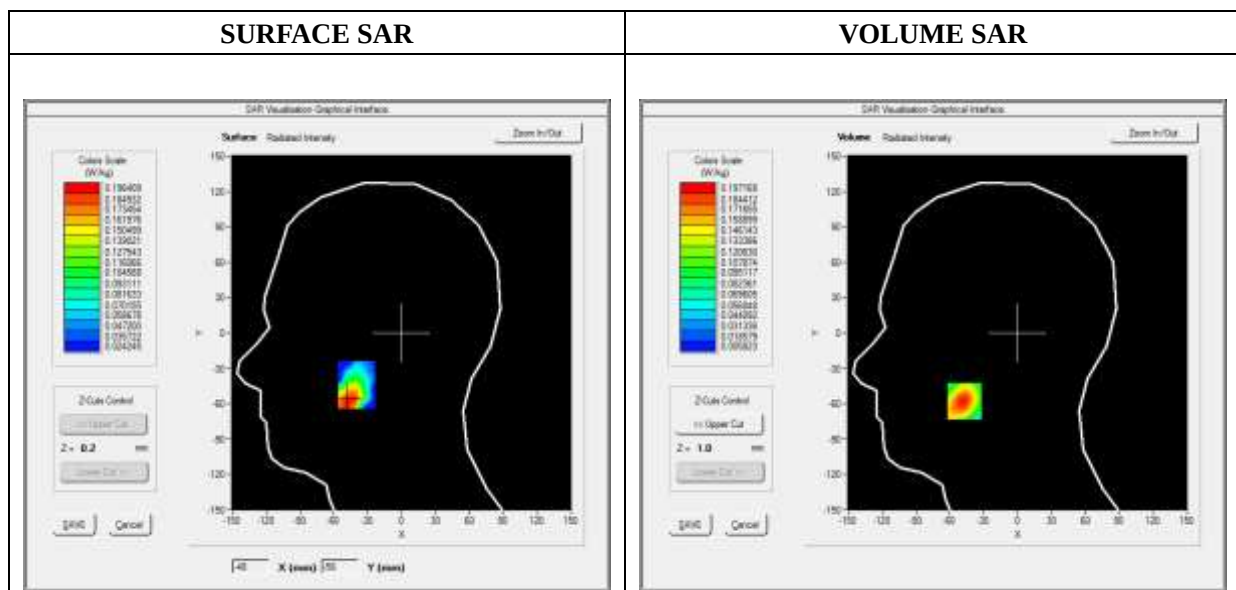
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

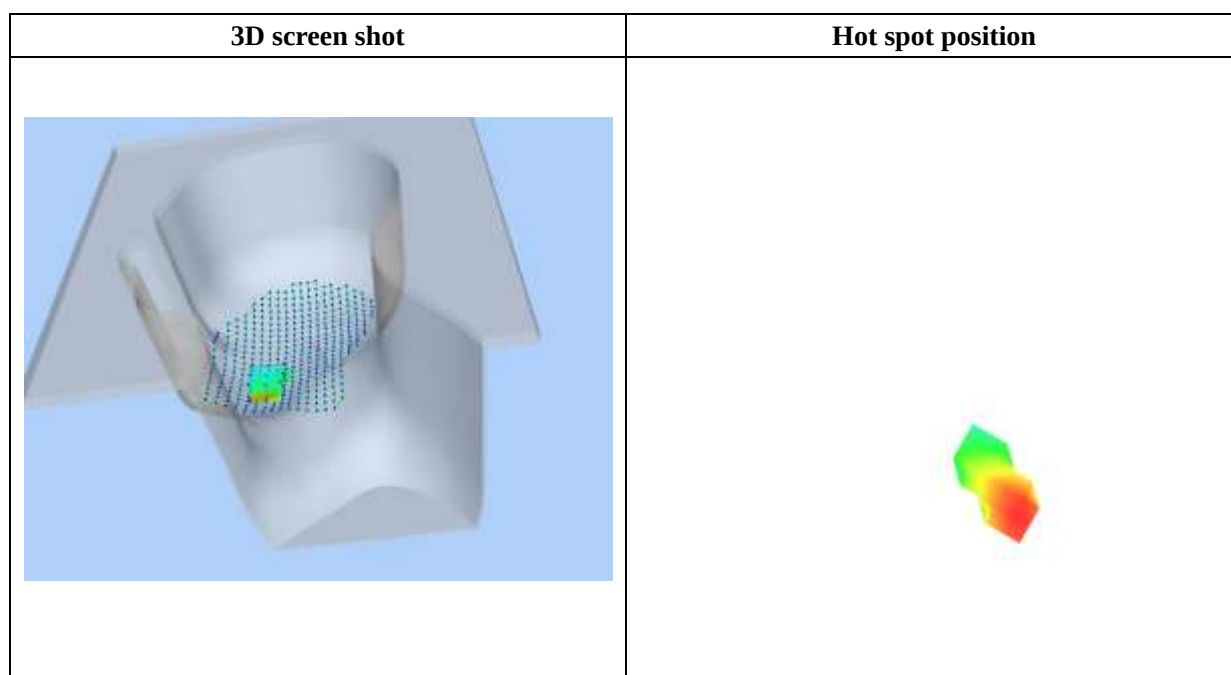
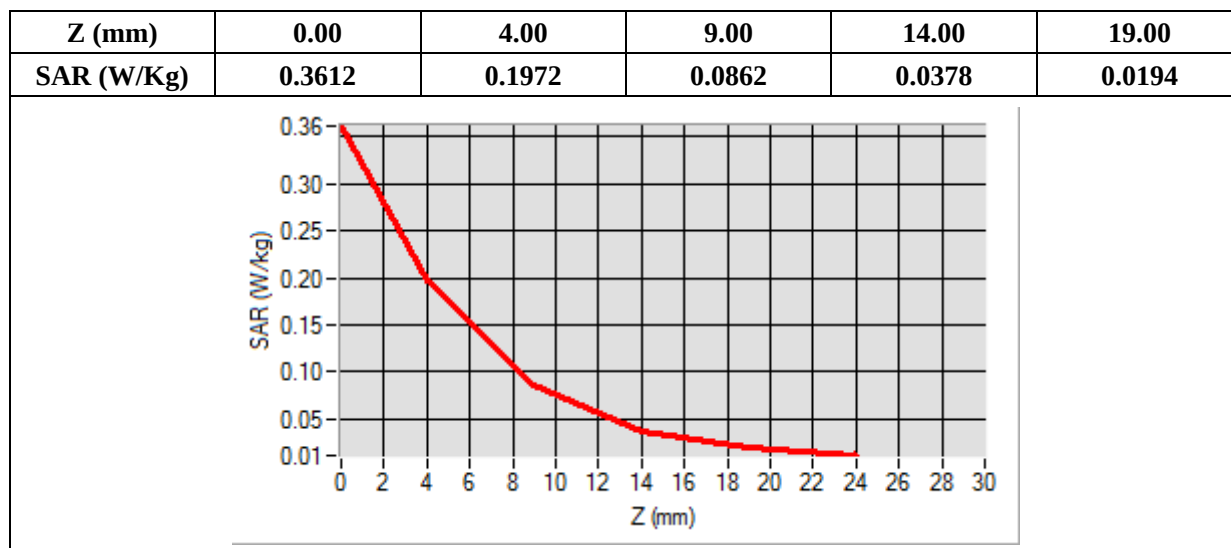
Frequency (MHz)	2560.000000
Relative Permittivity (real part)	38.631092
Conductivity (S/m)	1.930182
Power Variation (%)	0.924535
Ambient Temperature	21.1
Liquid Temperature	21.2



Maximum location: X=-47.00, Y=-58.00

SAR Peak: 0.36 W/kg

SAR 10g (W/Kg)	0.091183
SAR 1g (W/Kg)	0.184916



MEASUREMENT 51

Type: Phone measurement (Complete)

Date of measurement: 08/29/2018

Measurement duration: 12 minutes 3 seconds

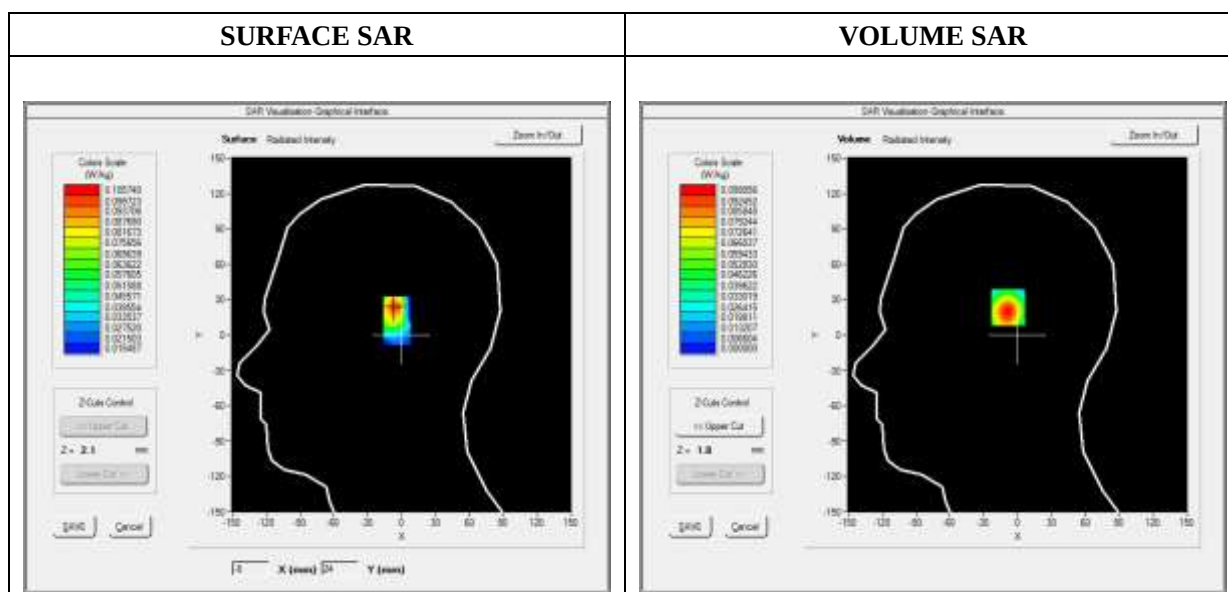
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

Frequency (MHz)	2412.000000
Relative Permittivity (real part)	38.153660
Conductivity (S/m)	1.740236
Power Variation (%)	3.234772
Ambient Temperature	21.1
Liquid Temperature	21.2

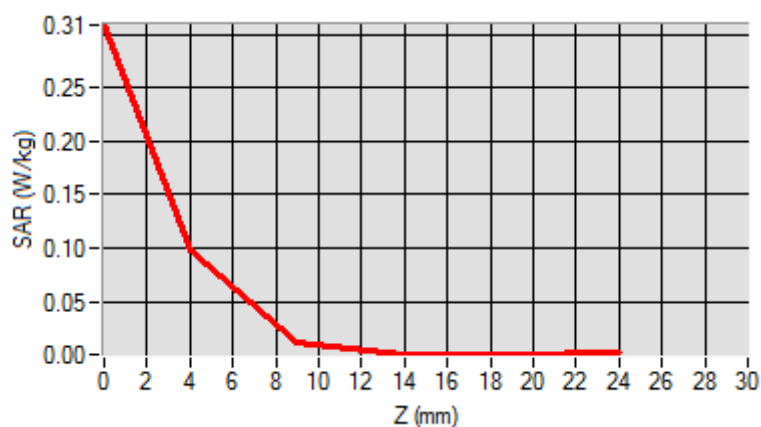


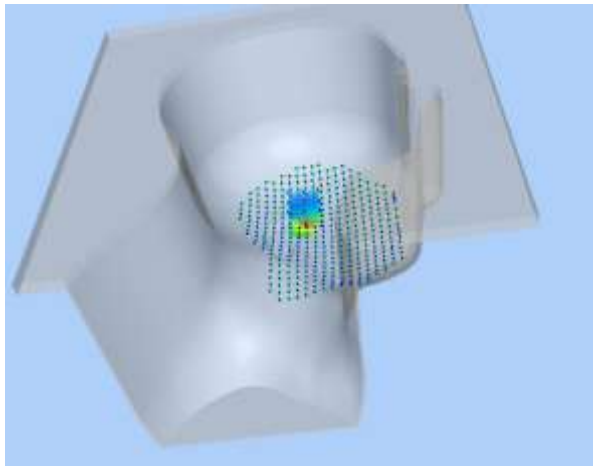
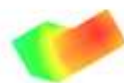
Maximum location: X=-7.00, Y=24.00

SAR Peak: 0.28 W/kg

SAR 10g (W/Kg)	0.041867
SAR 1g (W/Kg)	0.102766

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.3091	0.0991	0.0113	0.0009	0.0002



3D screen shot	Hot spot position
	

MEASUREMENT 53

Type: Phone measurement (Complete)

Date of measurement: 08/27/2018

Measurement duration: 12 minutes 3 seconds

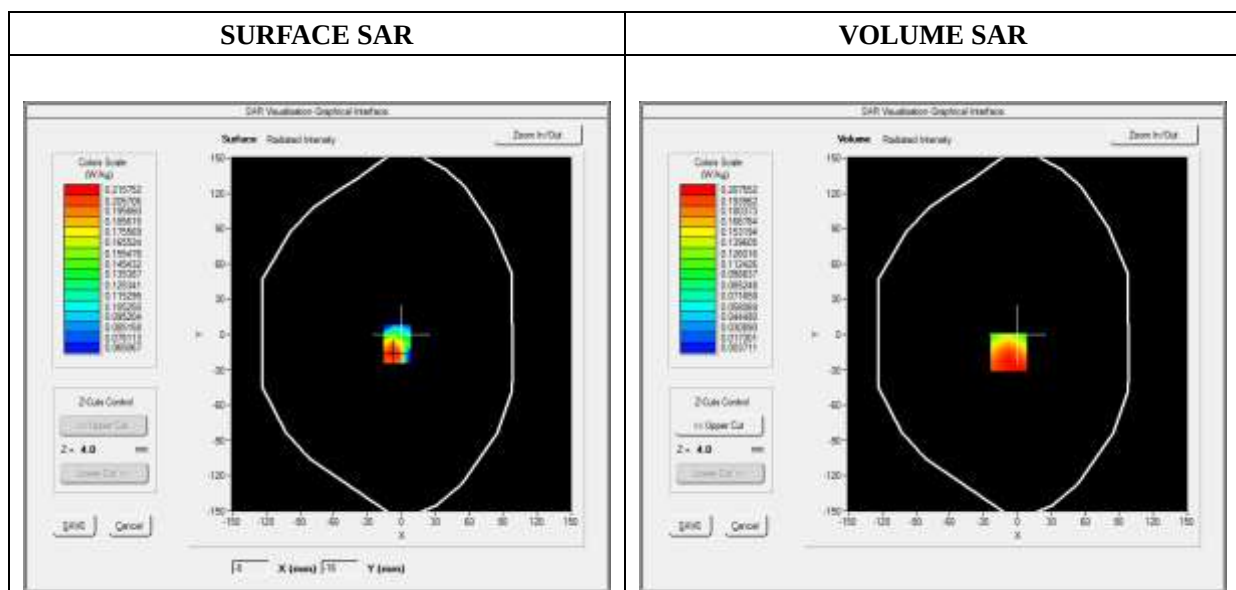
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2018

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

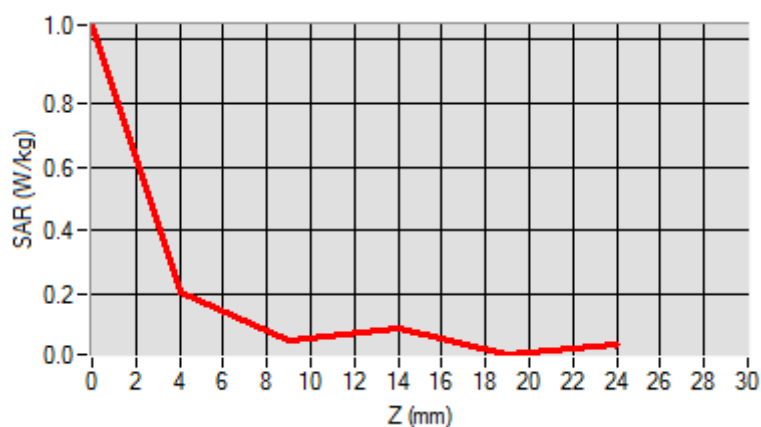


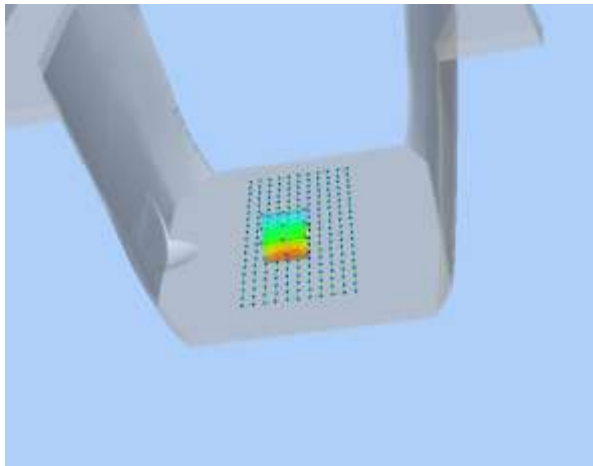
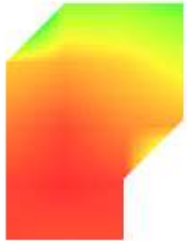
Maximum location: X=-8.00, Y=-15.00

SAR Peak: 0.28 W/kg

SAR 10g (W/Kg)	0.128430
SAR 1g (W/Kg)	0.197497

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.0439	0.2076	0.0542	0.0955	0.0119



3D screen shot	Hot spot position
	

MEASUREMENT 55

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

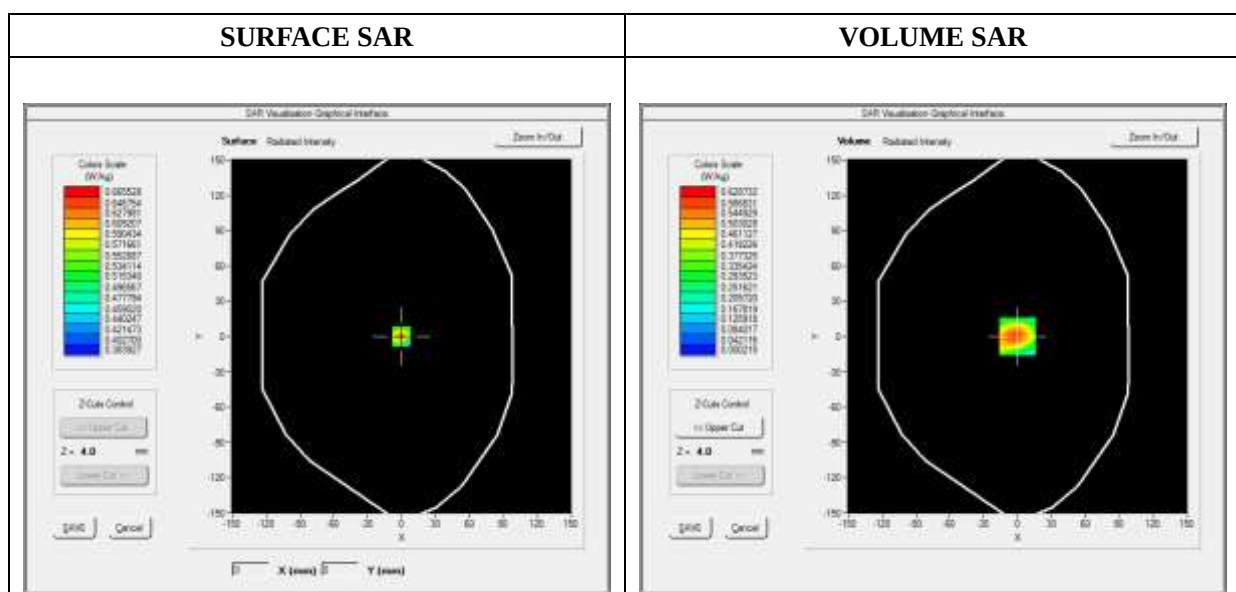
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

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

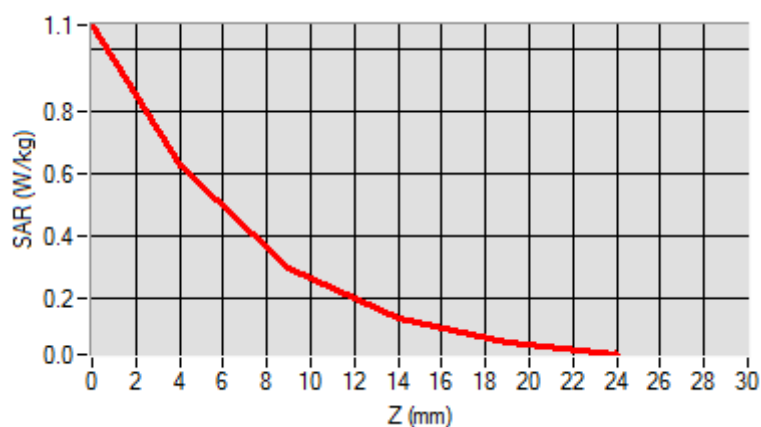


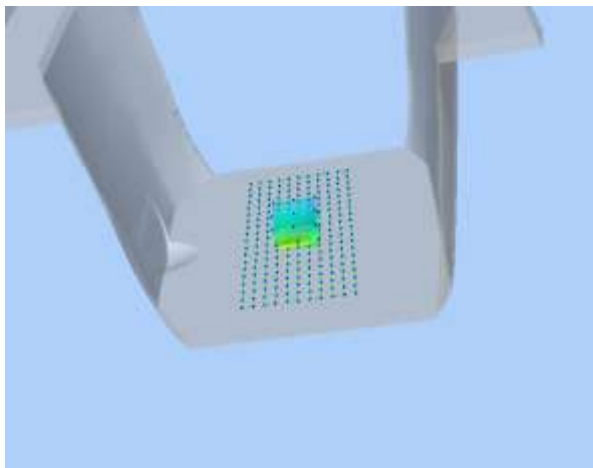
Maximum location: X=0.00, Y=0.00

SAR Peak: 1.08 W/kg

SAR 10g (W/Kg)	0.287150
SAR 1g (W/Kg)	0.588006

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.0754	0.6287	0.3003	0.1357	0.0599



3D screen shot	Hot spot position
	

MEASUREMENT 57

Type: Phone measurement (Complete)

Date of measurement: 08/27/2018

Measurement duration: 12 minutes 3 seconds

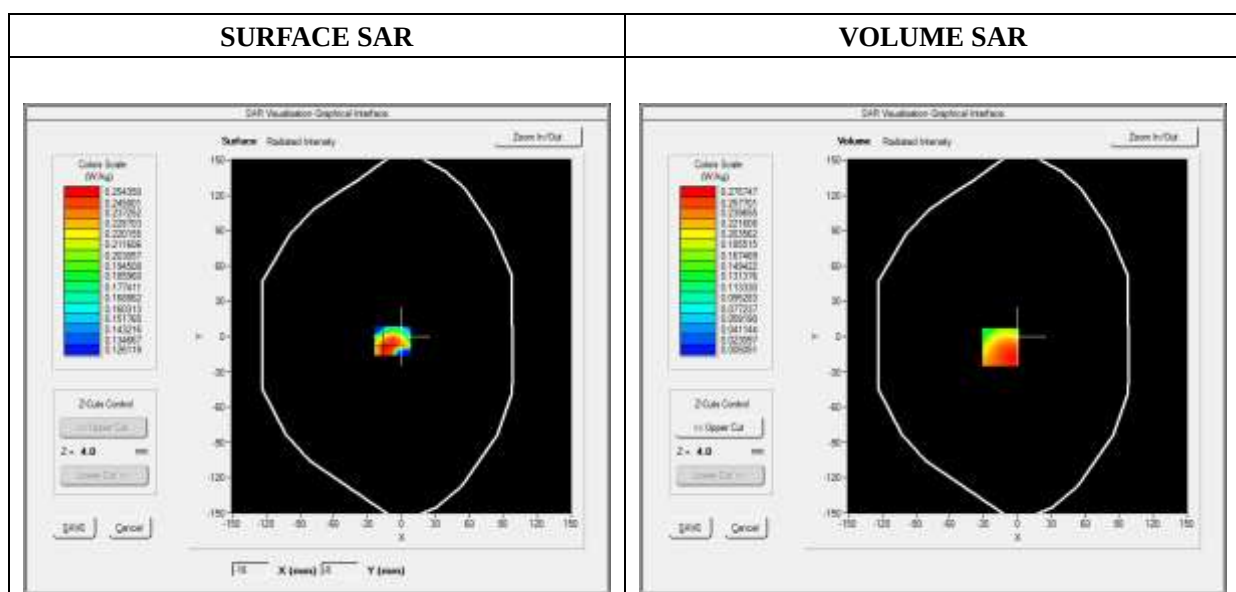
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

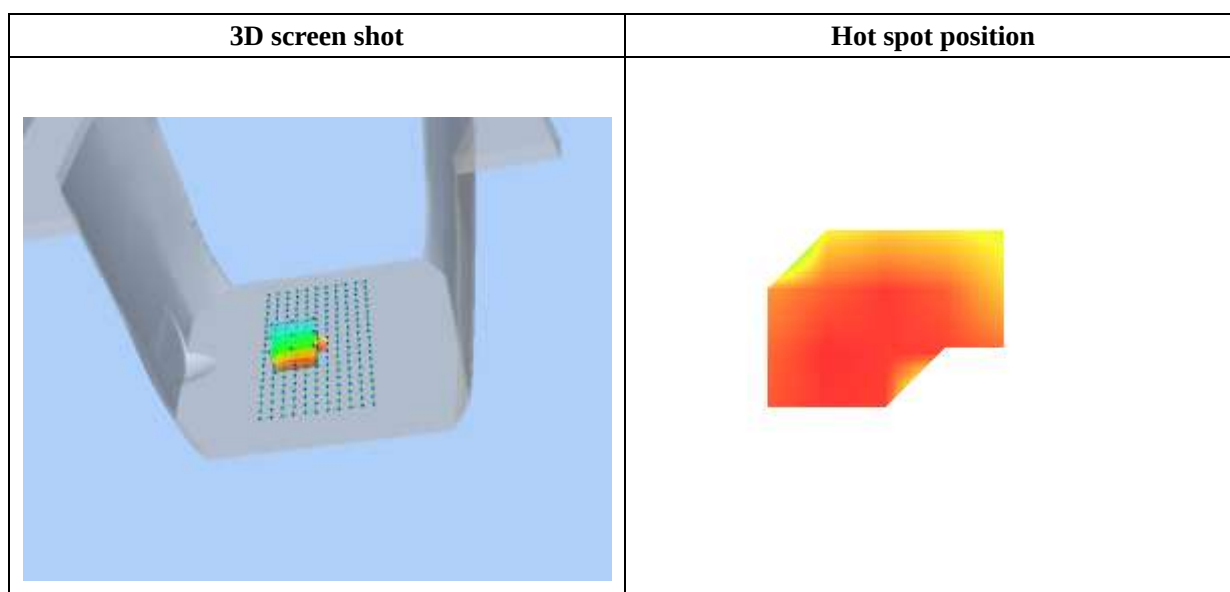
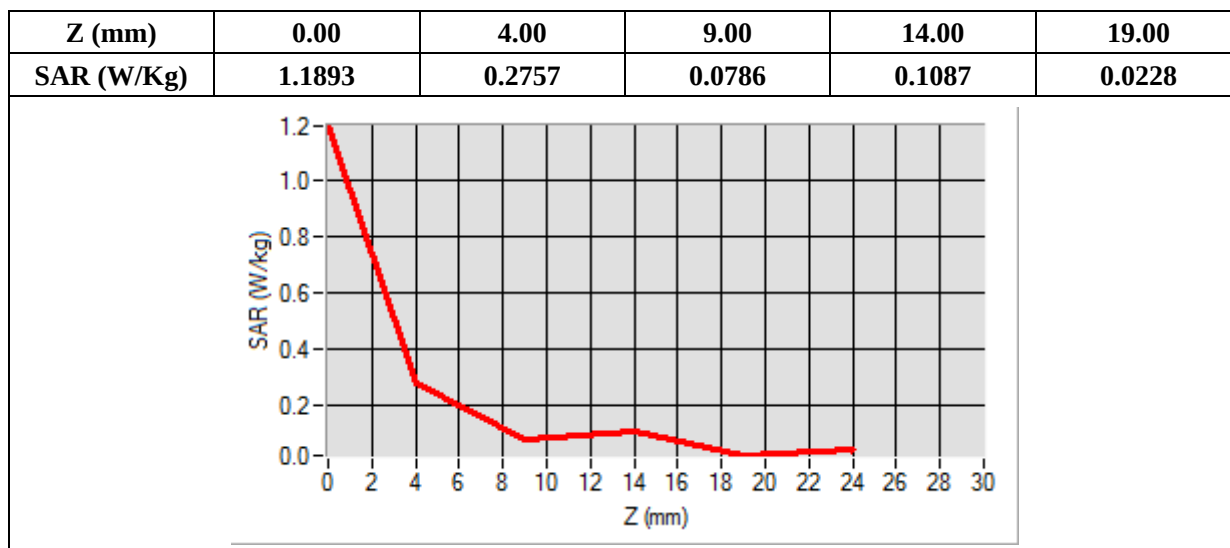
Frequency (MHz)	824.200000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.901472
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=-15.00, Y=-9.00

SAR Peak: 0.41 W/kg

SAR 10g (W/Kg)	0.165129
SAR 1g (W/Kg)	0.268149



MEASUREMENT 64

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

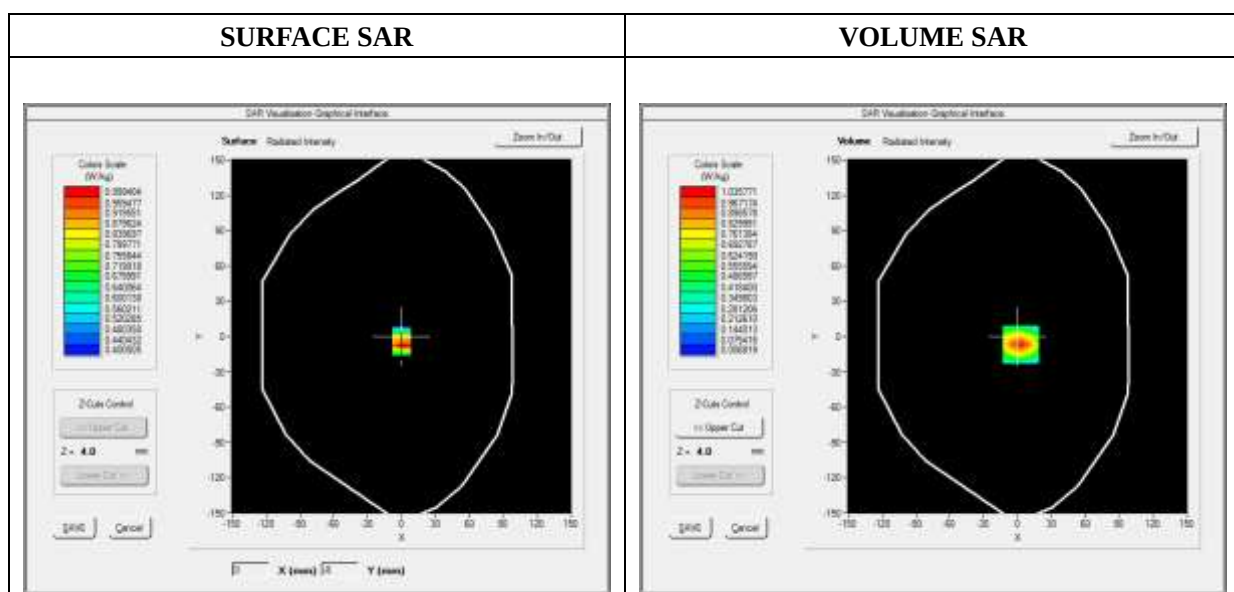
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat plane
Device Position	Bottom
Band	GPRS1900_2TX
Channels	Low
Signal	Duty Cycle: 1:4

B. SAR Measurement Results

Frequency (MHz)	1850.200000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	2.483762
Ambient Temperature	21.1
Liquid Temperature	21.3

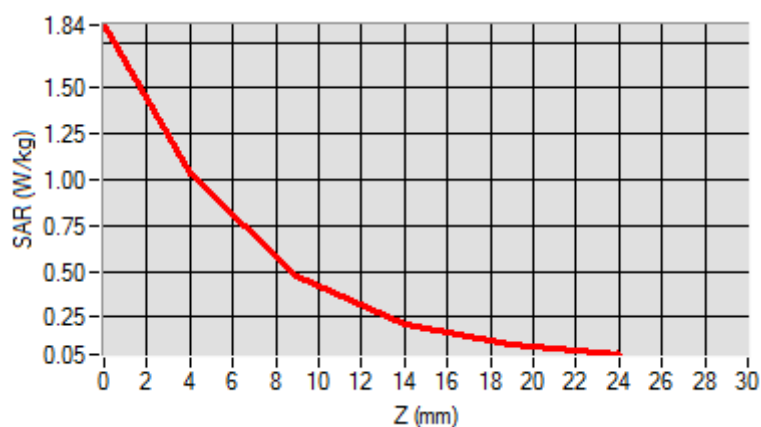


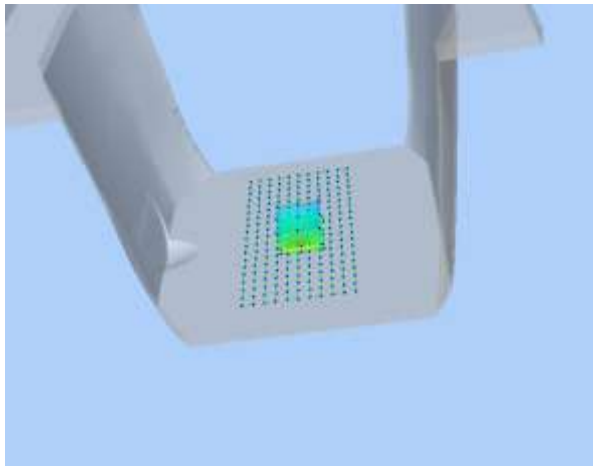
Maximum location: X=3.00, Y=-7.00

SAR Peak: 1.84 W/kg

SAR 10g (W/Kg)	0.457285
SAR 1g (W/Kg)	0.964106

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.8438	1.0358	0.4696	0.2072	0.0979



3D screen shot	Hot spot position
	

MEASUREMENT 69

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

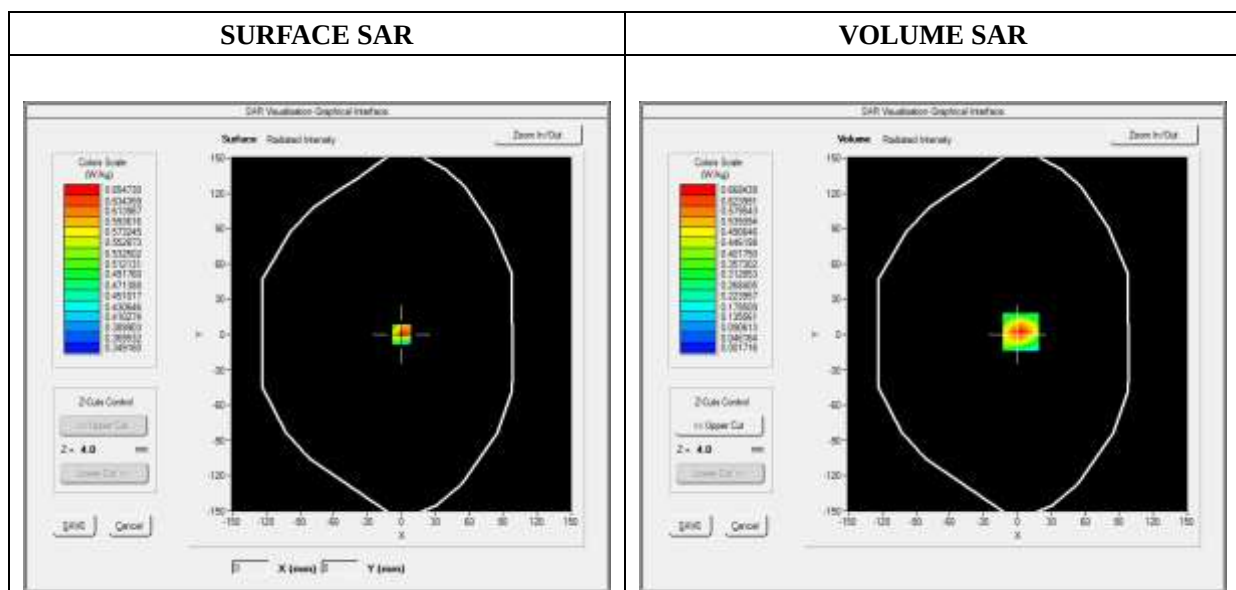
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

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 (%)	1.808271
Ambient Temperature	21.1
Liquid Temperature	21.3

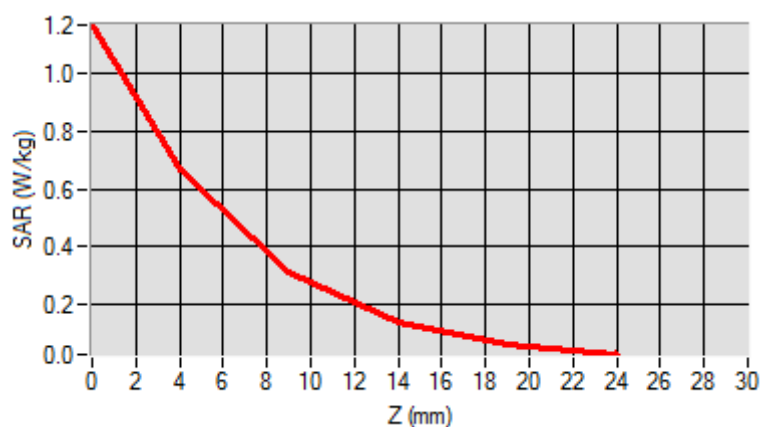


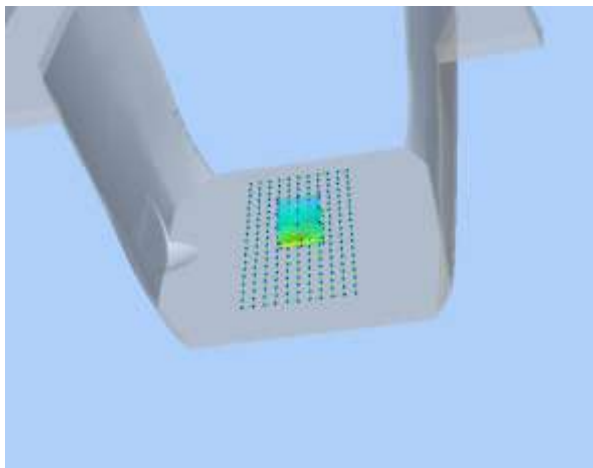
Maximum location: X=3.00, Y=2.00

SAR Peak: 1.17 W/kg

SAR 10g (W/Kg)	0.297816
SAR 1g (W/Kg)	0.622053

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.1704	0.6684	0.3092	0.1367	0.0615



3D screen shot	Hot spot position
	

MEASUREMENT 72

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

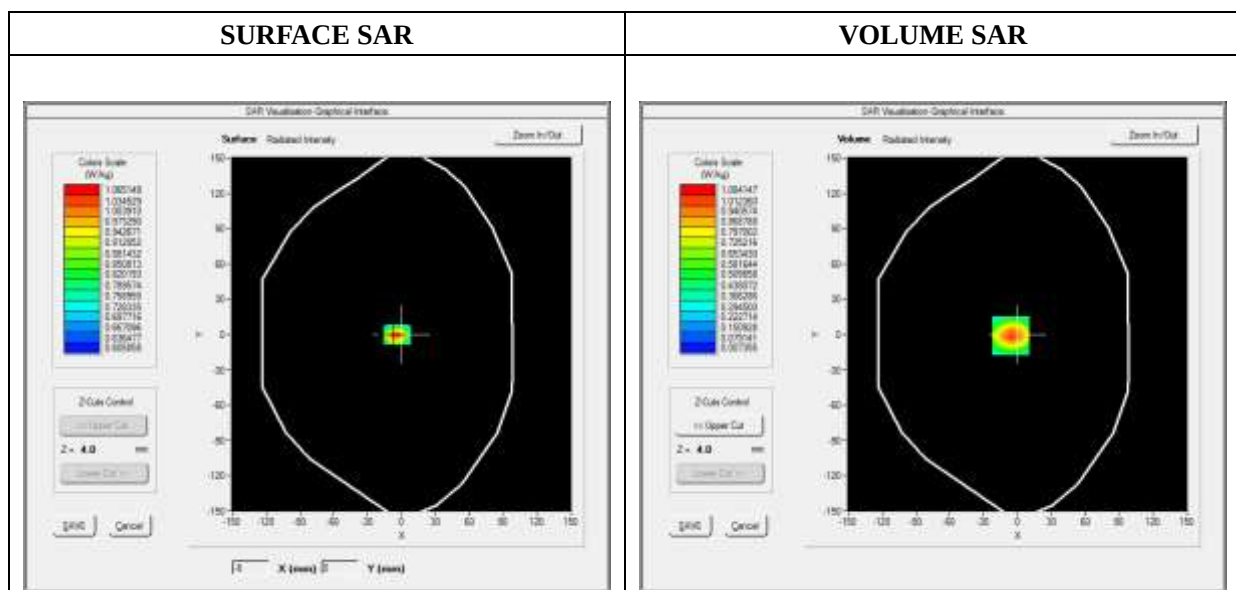
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

Frequency (MHz)	1852.400000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	1.847552
Ambient Temperature	21.1
Liquid Temperature	21.3

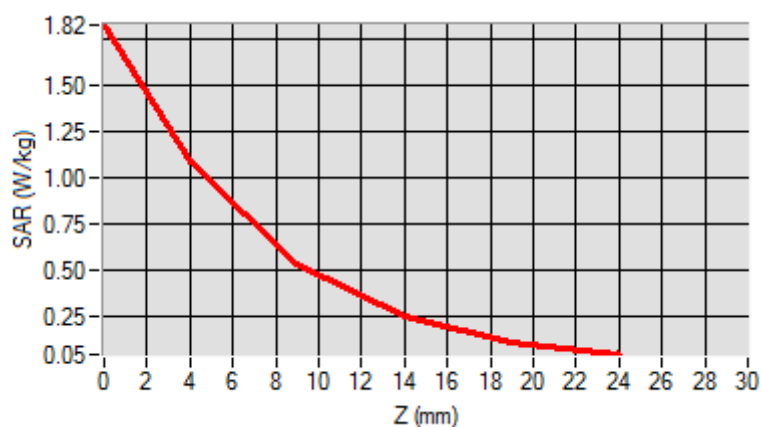


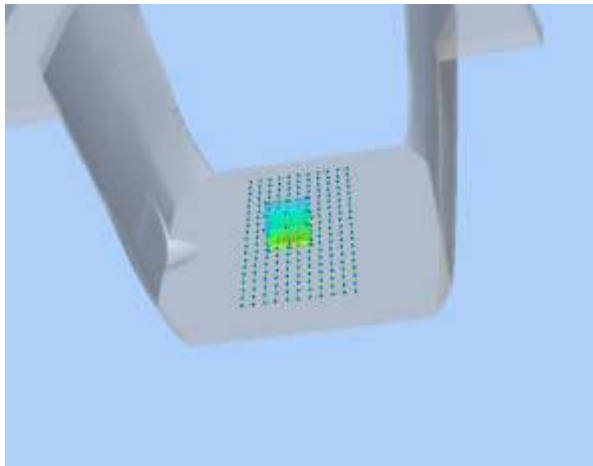
Maximum location: X=-6.00, Y=-1.00

SAR Peak: 1.82 W/kg

SAR 10g (W/Kg)	0.490076
SAR 1g (W/Kg)	1.006231

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.8210	1.0841	0.5344	0.2524	0.1181



3D screen shot	Hot spot position
	

MEASUREMENT 76

Type: Phone measurement (Complete)

Date of measurement: 08/27/2018

Measurement duration: 12 minutes 3 seconds

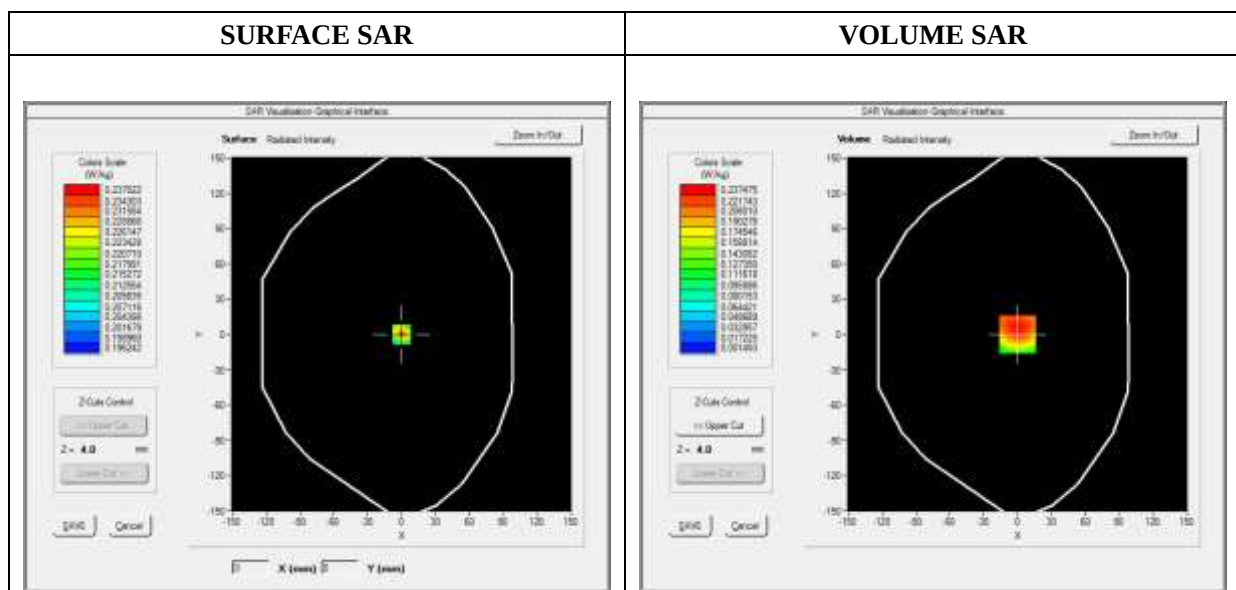
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

Frequency (MHz)	826.400000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	2.341234
Ambient Temperature	21.1
Liquid Temperature	21.3

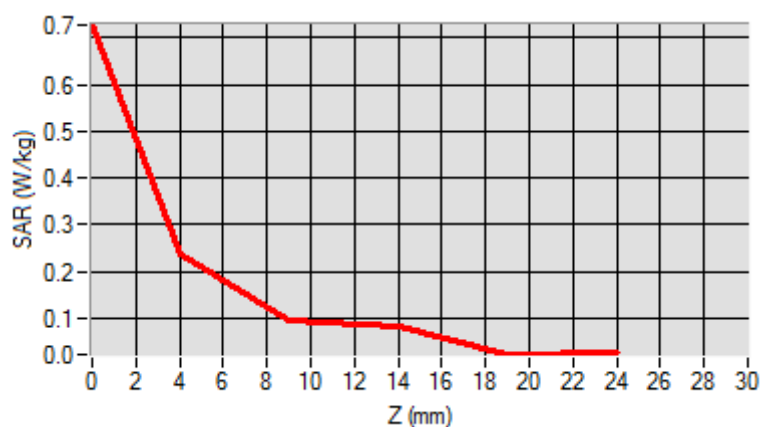


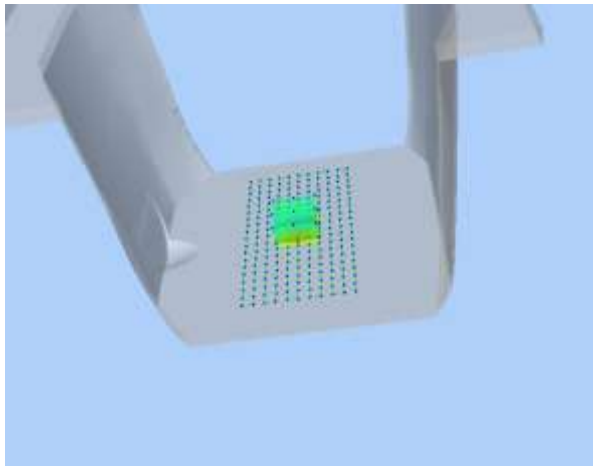
Maximum location: X=0.00, Y=0.00

SAR Peak: 0.38 W/kg

SAR 10g (W/Kg)	0.136273
SAR 1g (W/Kg)	0.232584

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.7277	0.2375	0.0968	0.0808	0.0218



3D screen shot	Hot spot position
	

MEASUREMENT 81

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

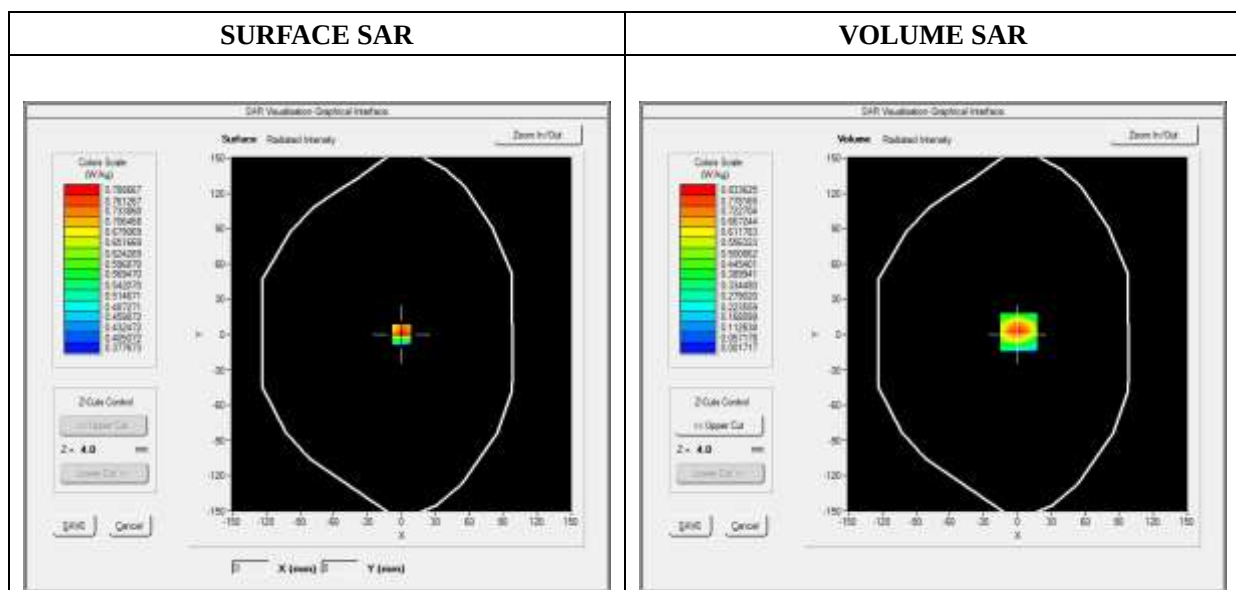
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	LTE Band 2_RMC
Channels	QPSK, 20MHz, 1RB,Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1860.000000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	1.507282
Ambient Temperature	21.1
Liquid Temperature	21.3

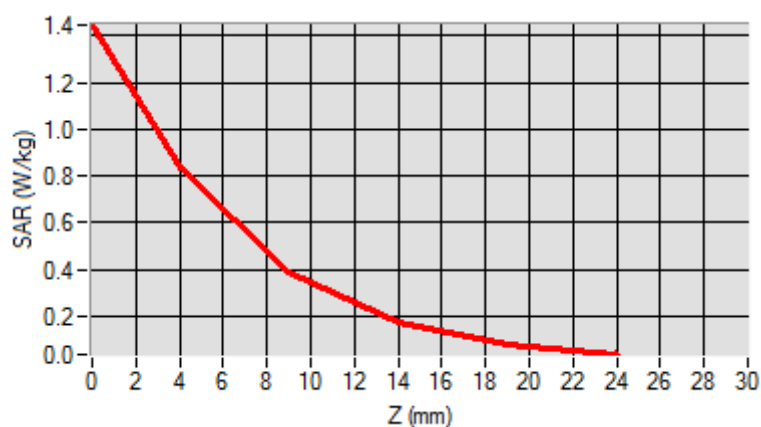


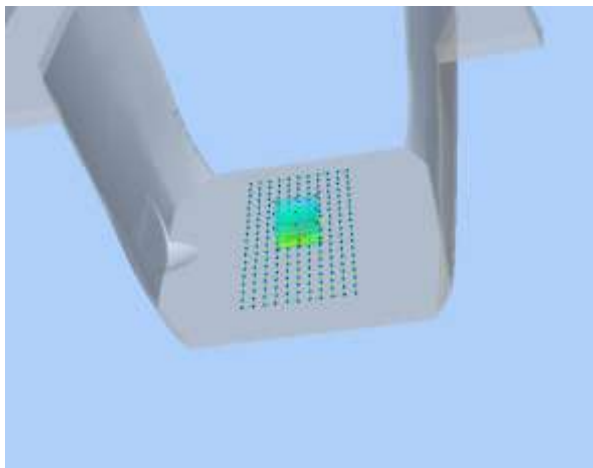
Maximum location: X=1.00, Y=2.00

SAR Peak: 1.45 W/kg

SAR 10g (W/Kg)	0.372687
SAR 1g (W/Kg)	0.769176

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.4472	0.8336	0.3917	0.1774	0.0825



3D screen shot	Hot spot position
	

MEASUREMENT 83

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

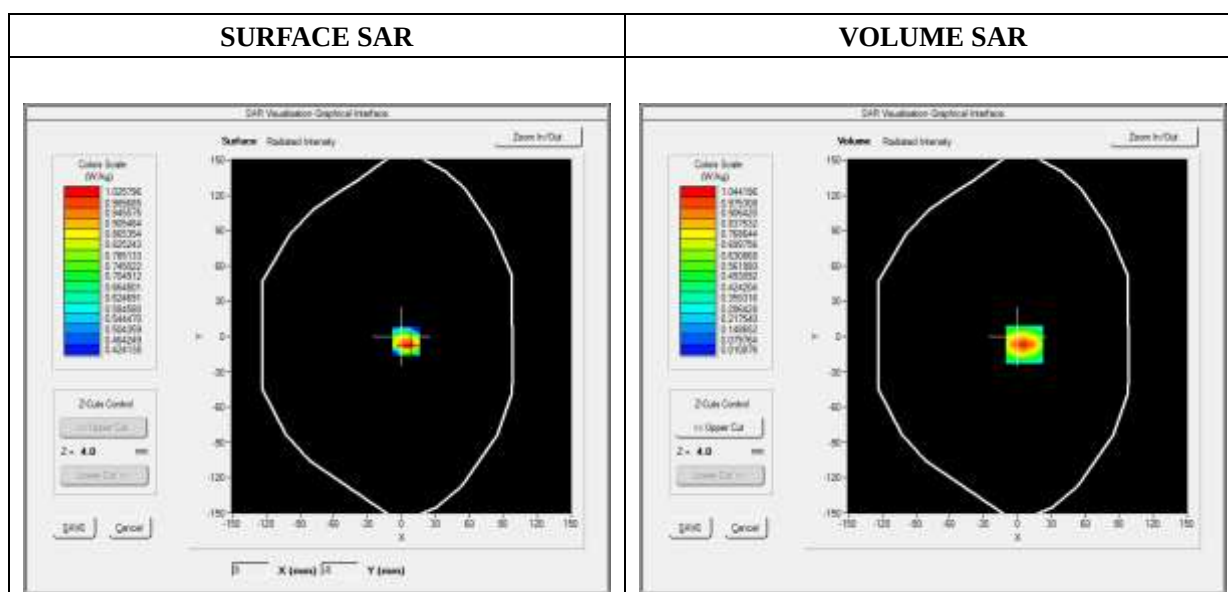
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Bottom
Band	LTE Band 2_RMC
Channels	QPSK, 20MHz, 1RB,Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1860.000000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	1.523573
Ambient Temperature	21.1
Liquid Temperature	21.3

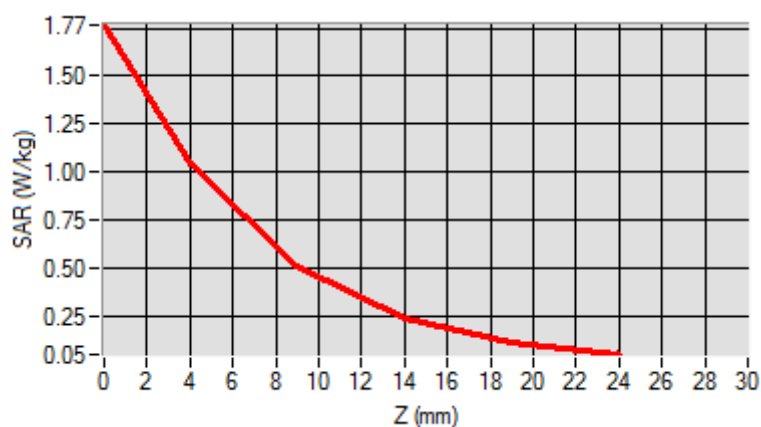


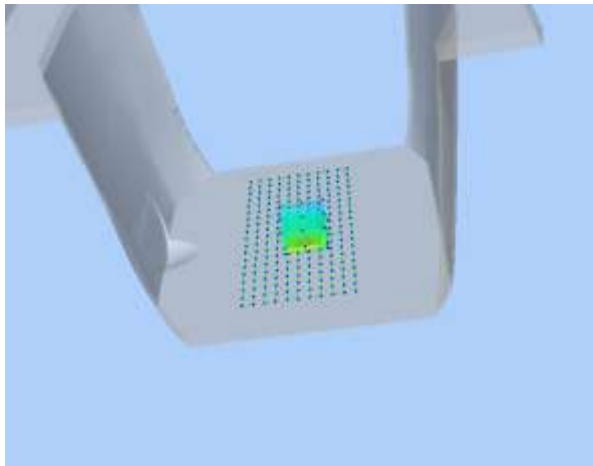
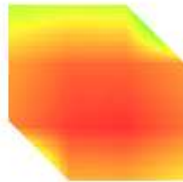
Maximum location: X=6.00, Y=-7.00

SAR Peak: 1.76 W/kg

SAR 10g (W/Kg)	0.473442
SAR 1g (W/Kg)	0.970951

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.7659	1.0442	0.5105	0.2406	0.1142



3D screen shot	Hot spot position
	

MEASUREMENT 95

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

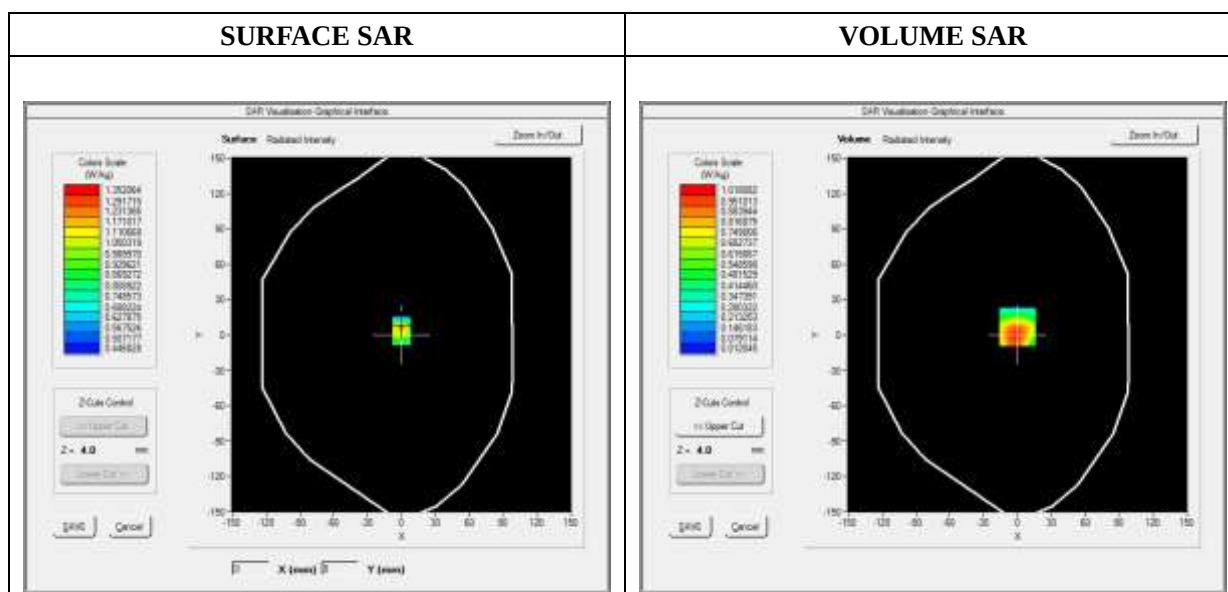
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 06/01/2018

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, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	1720.000000
Relative Permittivity (real part)	51.224510
Conductivity (S/m)	1.461261
Power Variation (%)	0.858383
Ambient Temperature	21.1
Liquid Temperature	21.2

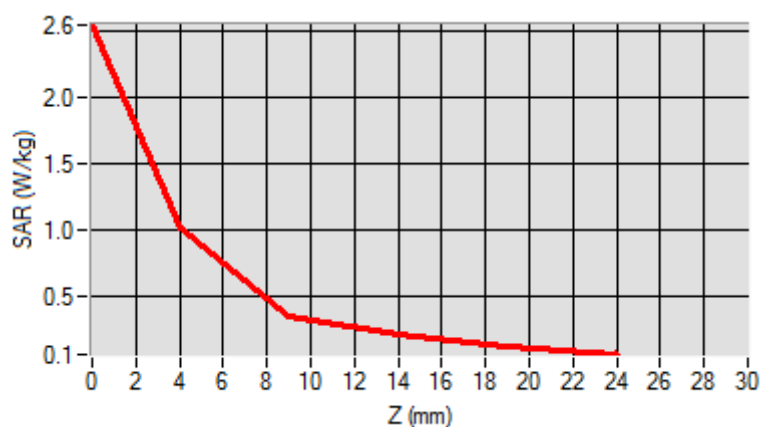


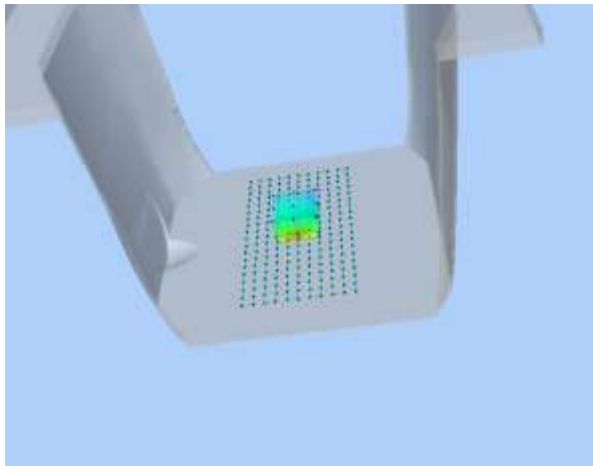
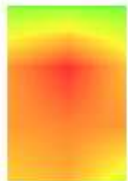
Maximum location: X=0.00, Y=7.00

SAR Peak: 1.91 W/kg

SAR 10g (W/Kg)	0.507444
SAR 1g (W/Kg)	0.986704

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	2.5518	1.0181	0.3508	0.2107	0.1187



3D screen shot	Hot spot position
	

MEASUREMENT 101

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

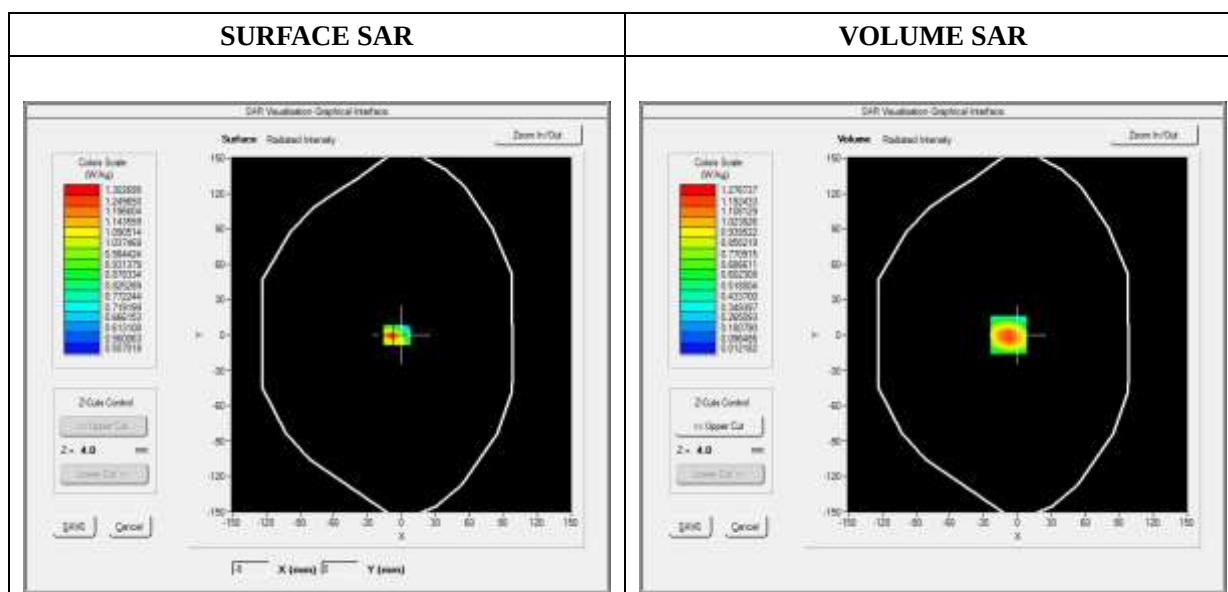
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

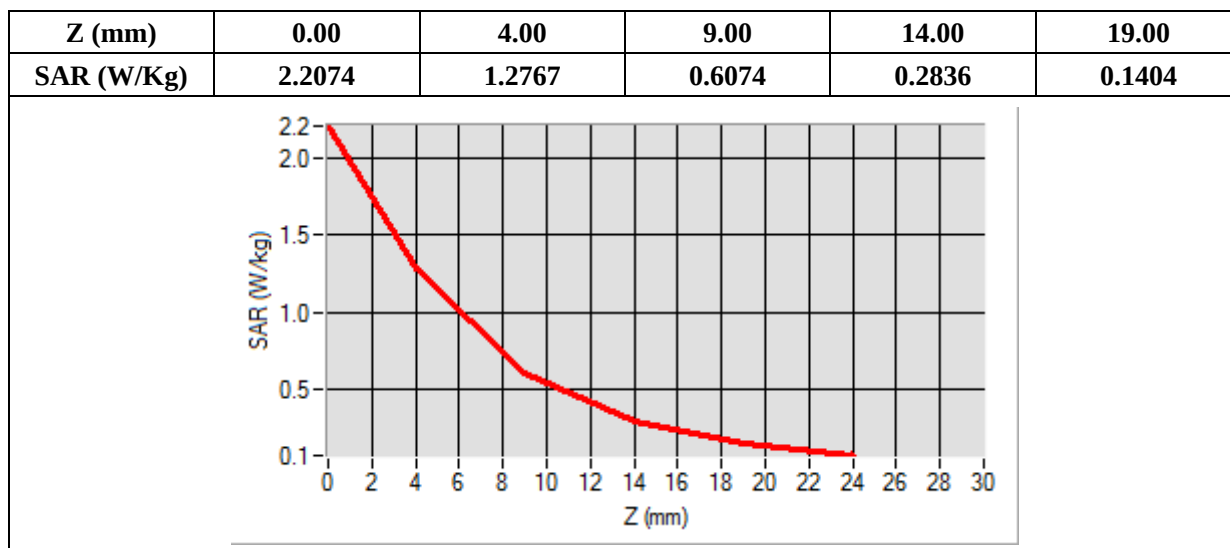
Frequency (MHz)	1720.000000
Relative Permittivity (real part)	51.224510
Conductivity (S/m)	1.461261
Power Variation (%)	0.858383
Ambient Temperature	21.1
Liquid Temperature	21.2

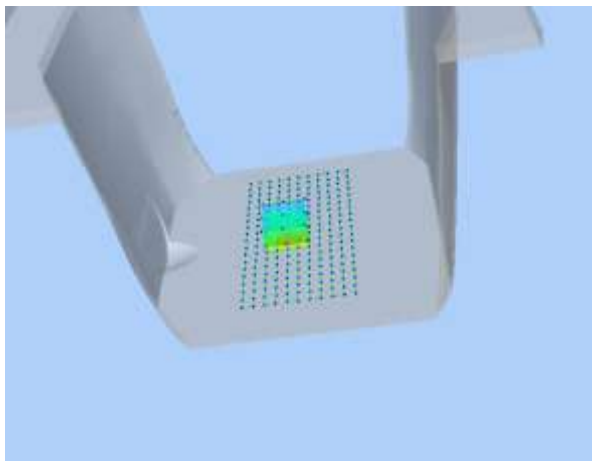
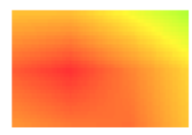


Maximum location: X=-8.00, Y=0.00

SAR Peak: 2.21 W/kg

SAR 10g (W/Kg)	0.587758
SAR 1g (W/Kg)	1.195054



3D screen shot	Hot spot position
	

MEASUREMENT 113

Type: Phone measurement (Complete)

Date of measurement: 08/29/2018

Measurement duration: 12 minutes 3 seconds

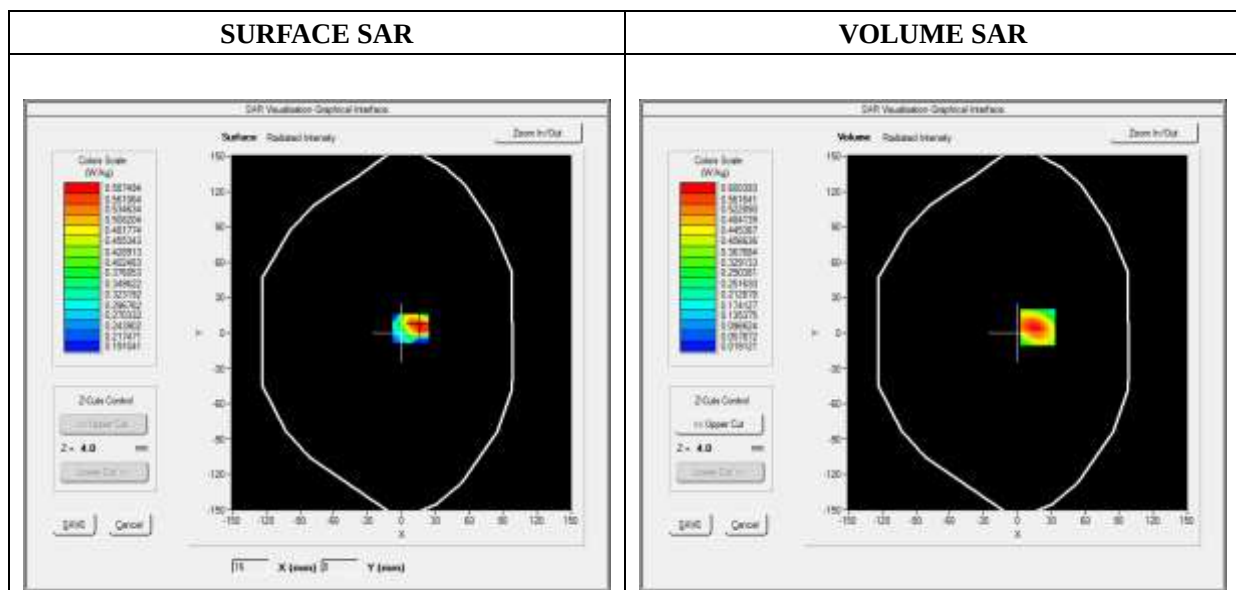
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 06/01/2018

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, High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

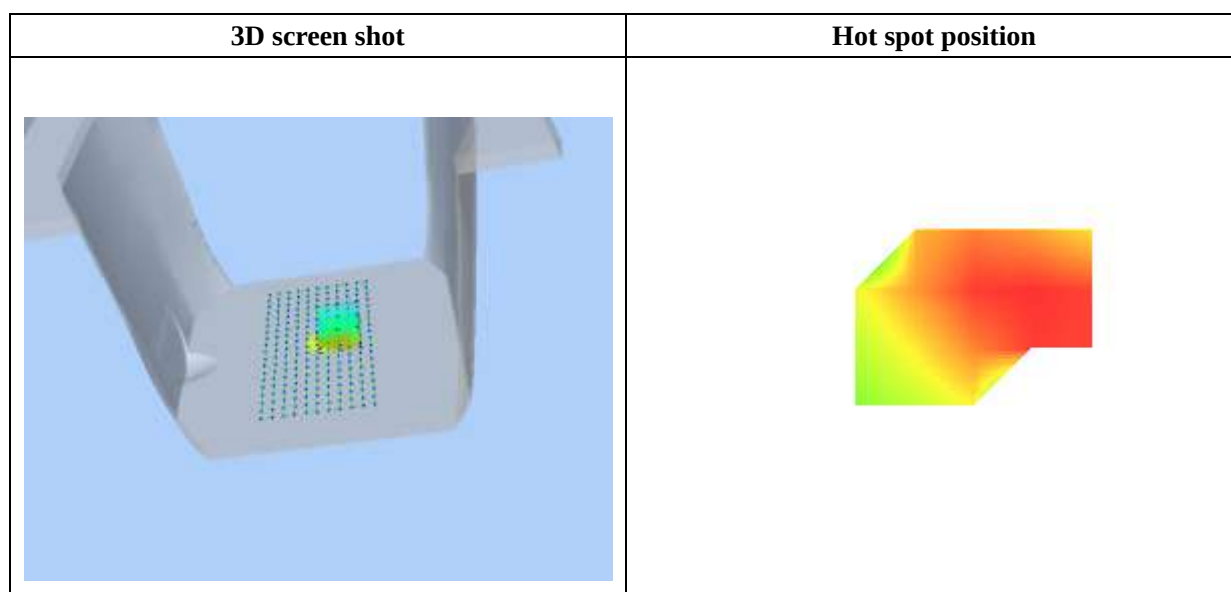
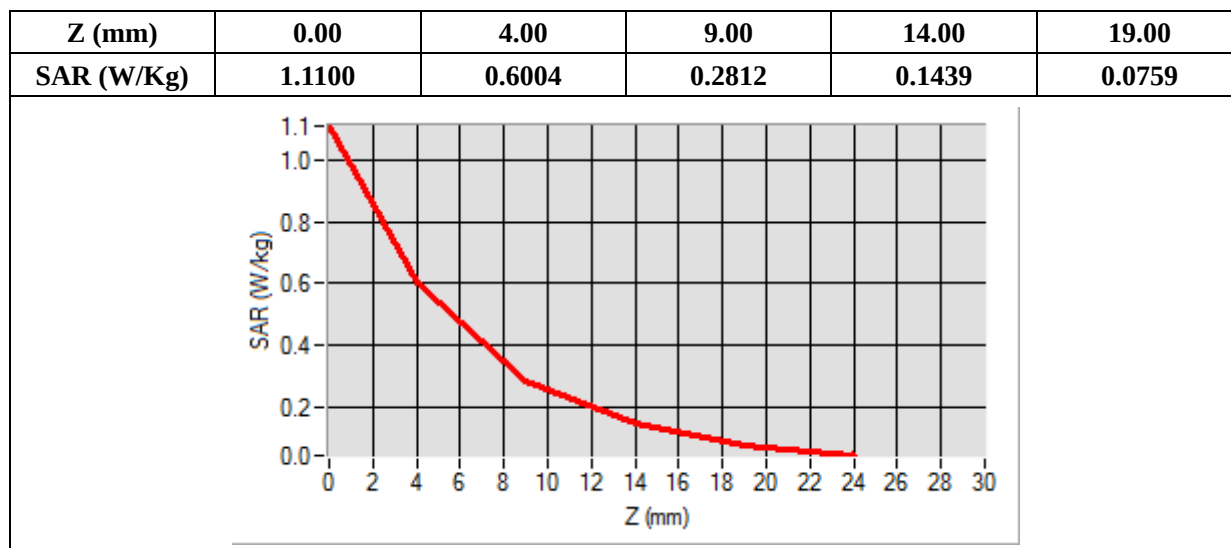
Frequency (MHz)	2560.000000
Relative Permittivity (real part)	52.241202
Conductivity (S/m)	2.120943
Power Variation (%)	3.261771
Ambient Temperature	21.1
Liquid Temperature	21.2



Maximum location: X=18.00, Y=5.00

SAR Peak: 1.02 W/kg

SAR 10g (W/Kg)	0.295027
SAR 1g (W/Kg)	0.563607



MEASUREMENT 115

Type: Phone measurement (Complete)

Date of measurement: 08/29/2018

Measurement duration: 12 minutes 3 seconds

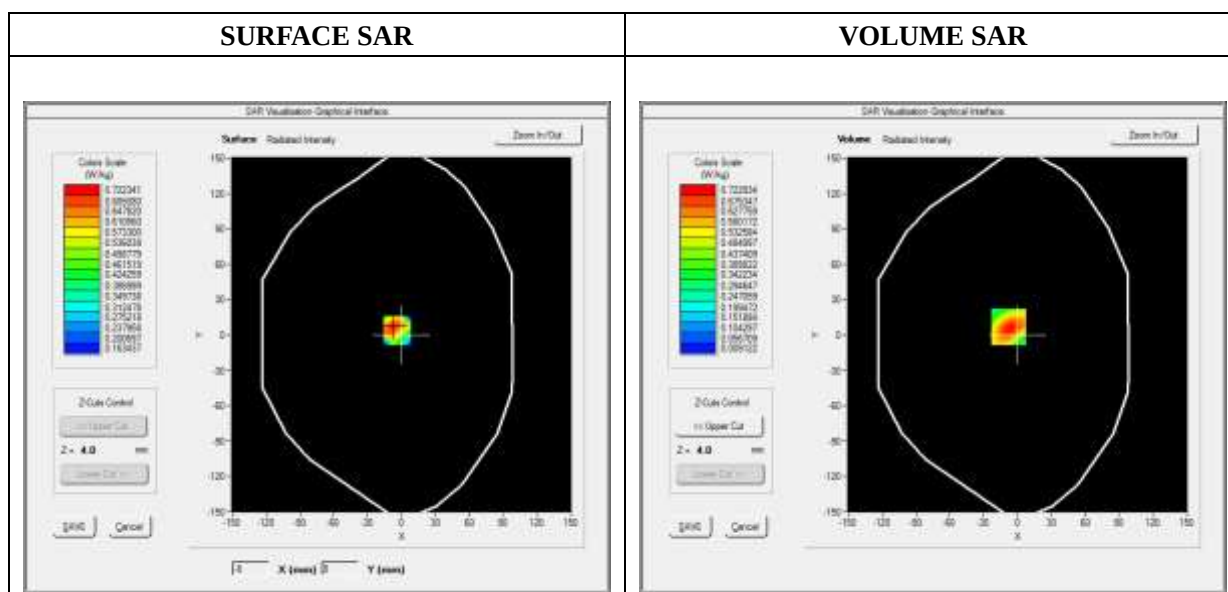
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

Frequency (MHz)	2560.000000
Relative Permittivity (real part)	52.241202
Conductivity (S/m)	2.120943
Power Variation (%)	3.672346
Ambient Temperature	21.1
Liquid Temperature	21.2

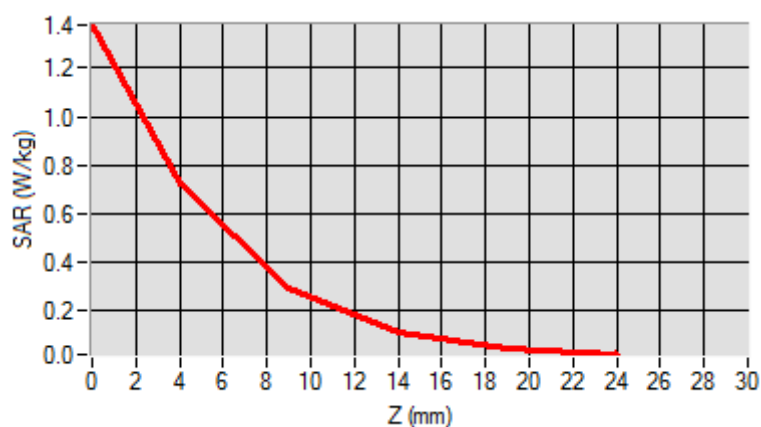


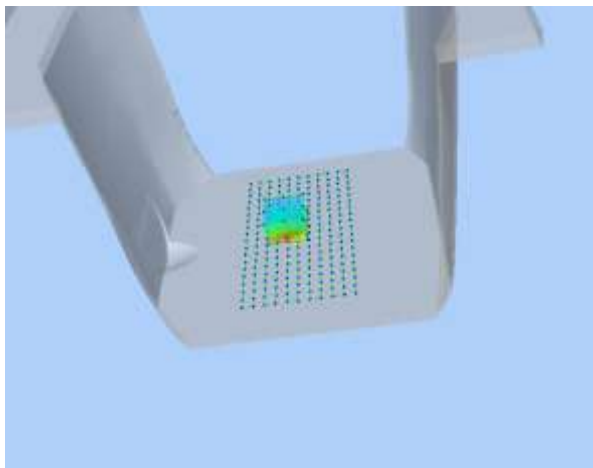
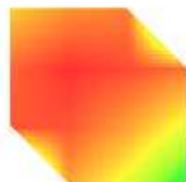
Maximum location: X=-8.00, Y=7.00

SAR Peak: 1.39 W/kg

SAR 10g (W/Kg)	0.327644
SAR 1g (W/Kg)	0.685331

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.3780	0.7229	0.2907	0.1100	0.0453



3D screen shot	Hot spot position
	

MEASUREMENT 123

Type: Phone measurement (Complete)

Date of measurement: 08/29/2018

Measurement duration: 12 minutes 3 seconds

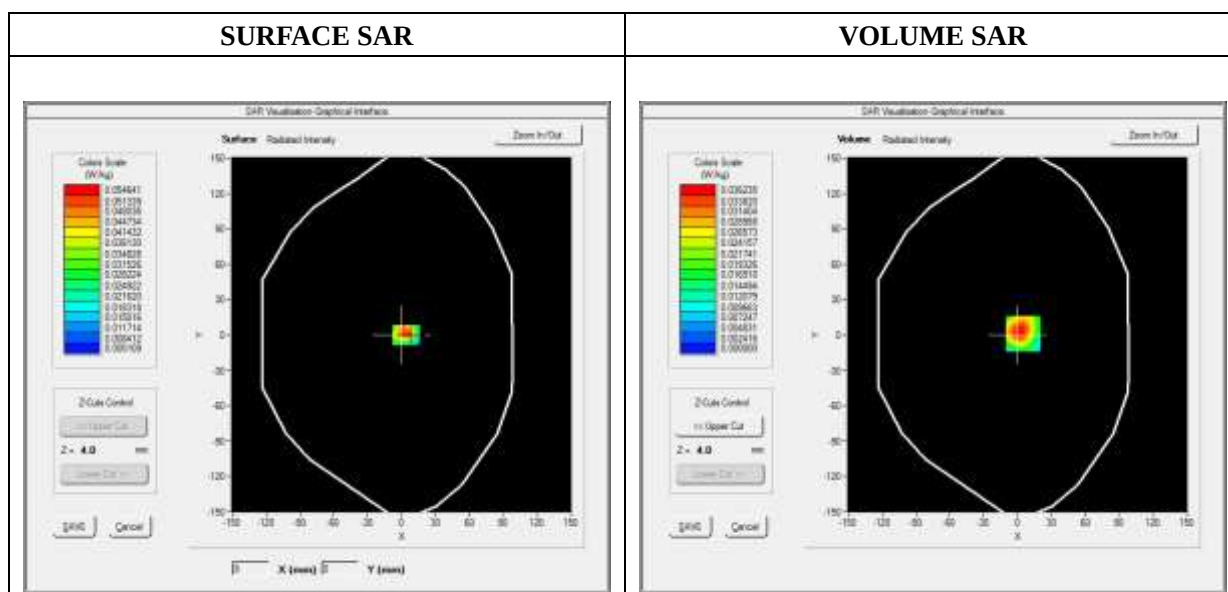
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.80; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

Frequency (MHz)	2412.000000
Relative Permittivity (real part)	52.010212
Conductivity (S/m)	1.910255
Power Variation (%)	2.492743
Ambient Temperature	21.1
Liquid Temperature	21.2

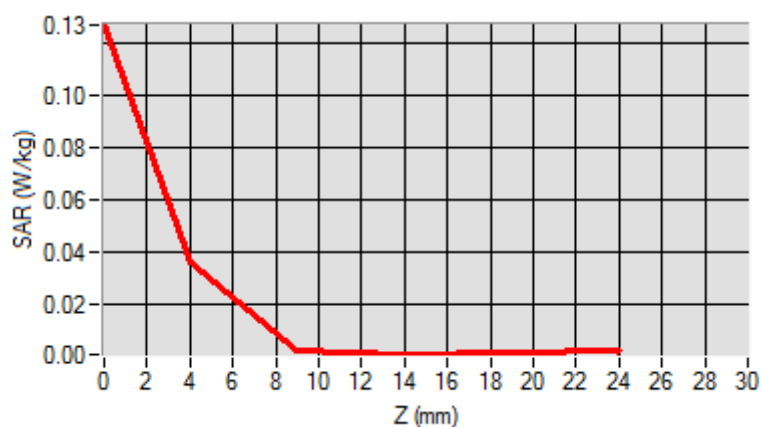


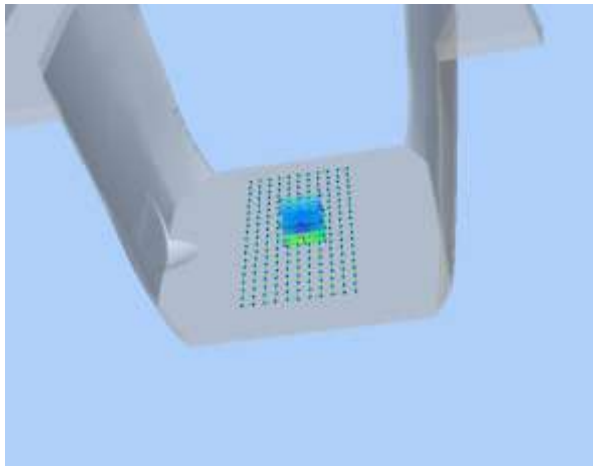
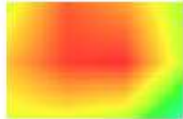
Maximum location: X=5.00, Y=1.00

SAR Peak: 0.13 W/kg

SAR 10g (W/Kg)	0.016274
SAR 1g (W/Kg)	0.042200

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1271	0.0362	0.0018	0.0004	0.0012



3D screen shot	Hot spot position
	

MEASUREMENT 127

Type: Phone measurement (Complete)

Date of measurement: 08/28/2018

Measurement duration: 12 minutes 3 seconds

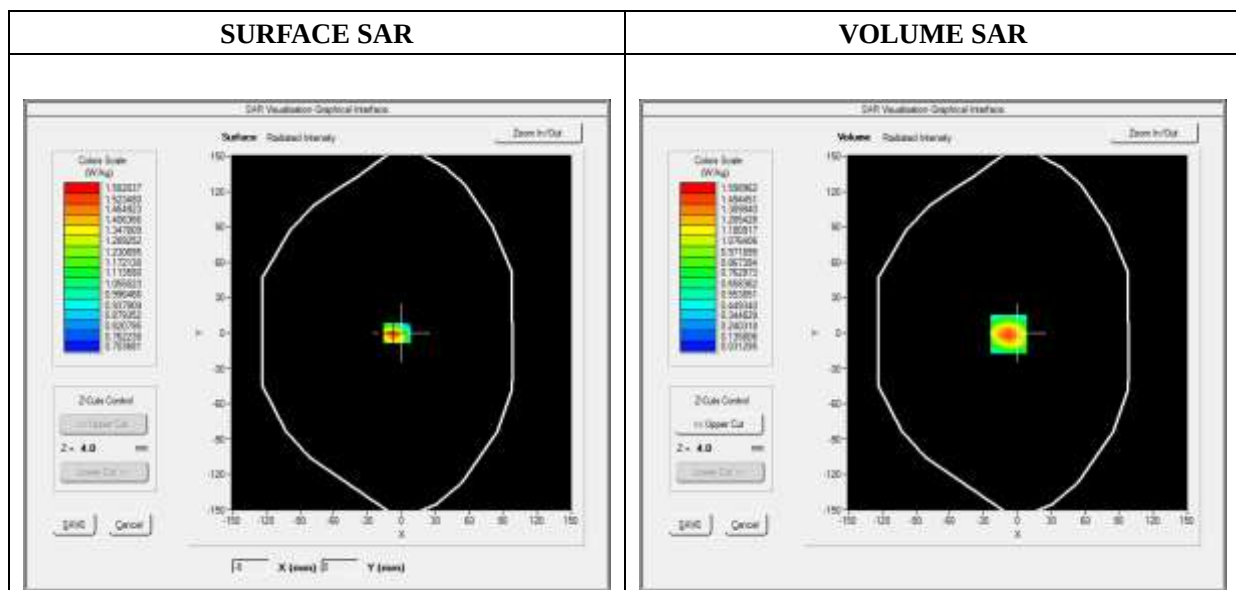
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

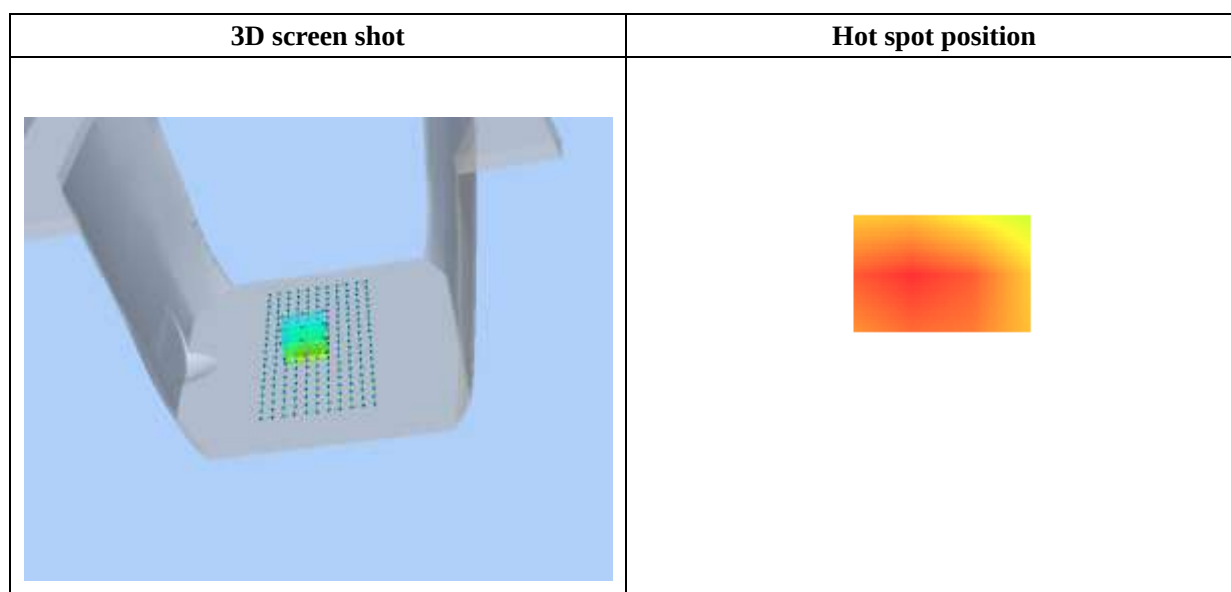
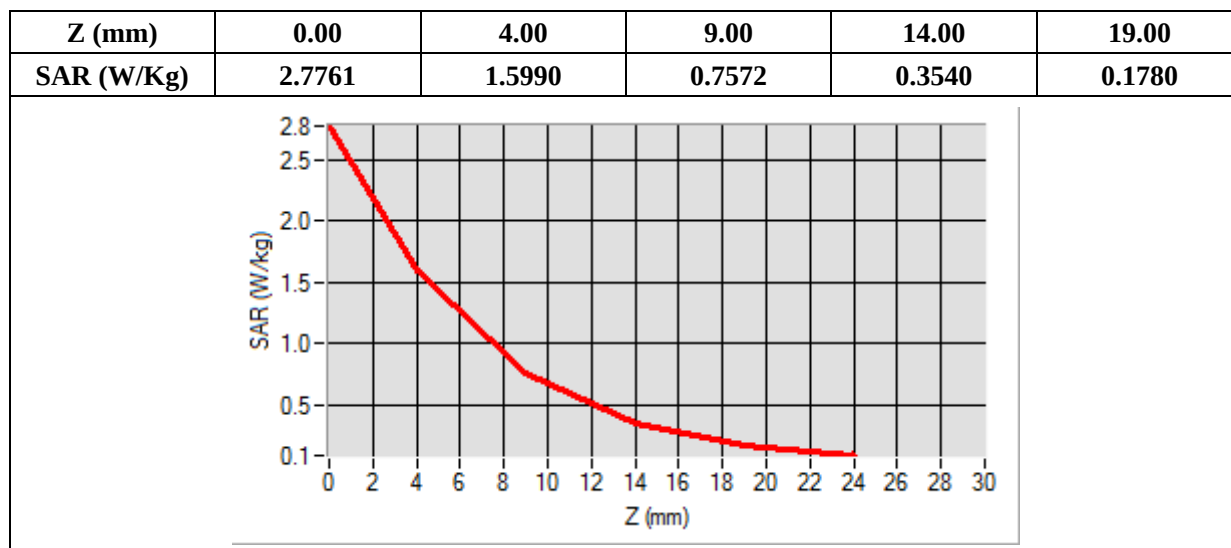
Frequency (MHz)	1745.000000
Relative Permittivity (real part)	51.224510
Conductivity (S/m)	1.461261
Power Variation (%)	0.858383
Ambient Temperature	21.1
Liquid Temperature	21.2



Maximum location: X=-8.00, Y=-1.00

SAR Peak: 2.77 W/kg

SAR 10g (W/Kg)	0.718429
SAR 1g (W/Kg)	1.484892



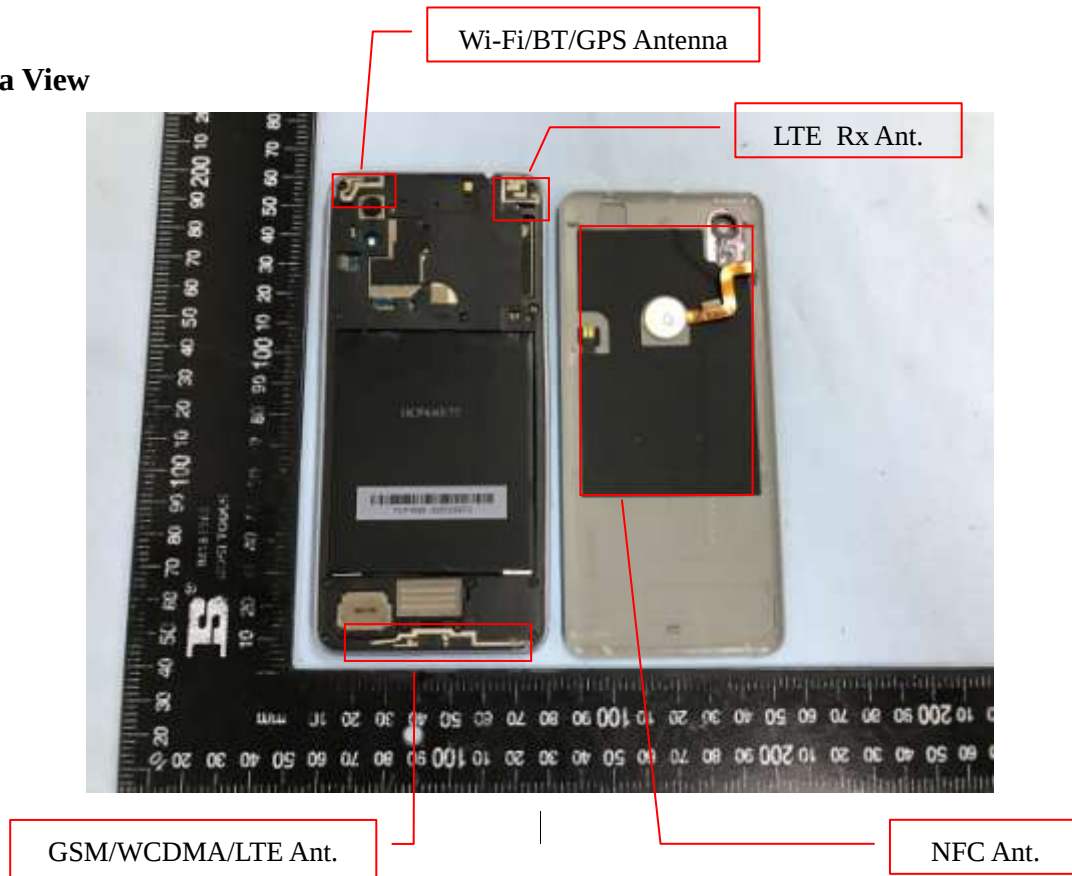
Annex C. EUT Photos

EUT View Front



EUT View Back

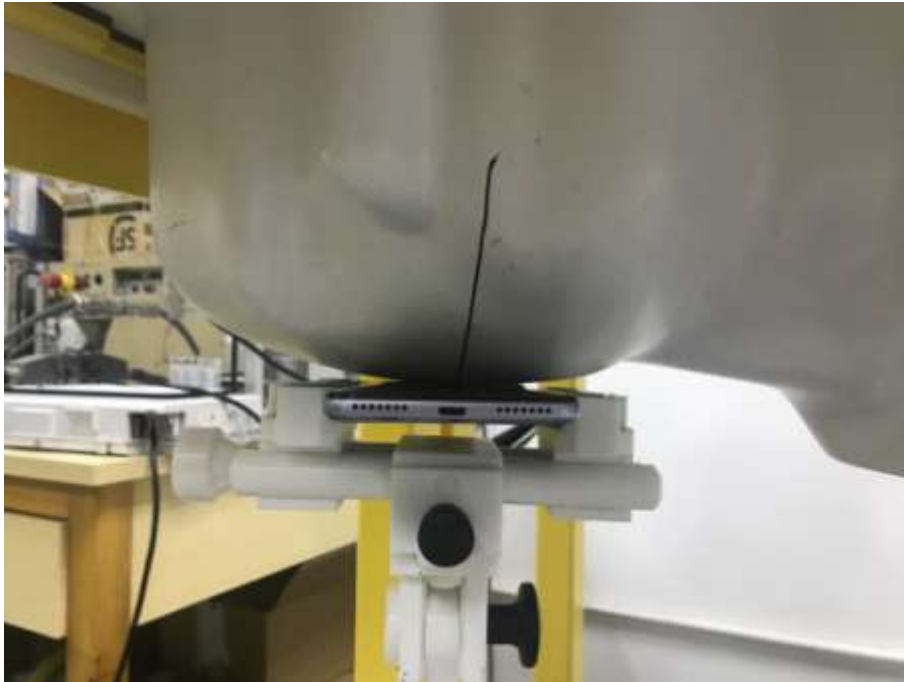


Antenna View

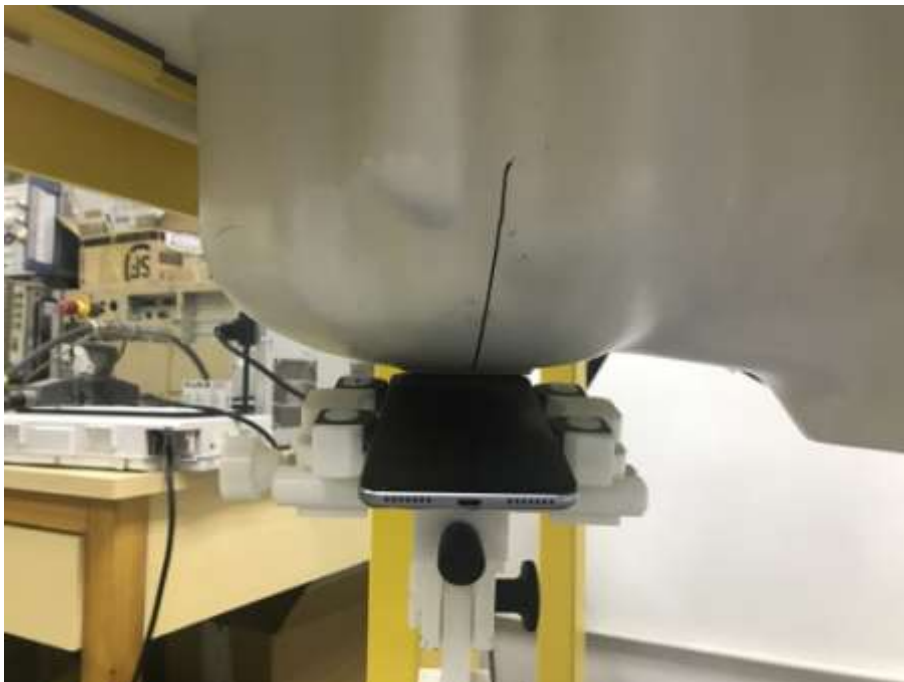
Annex D. Test Setup Photos

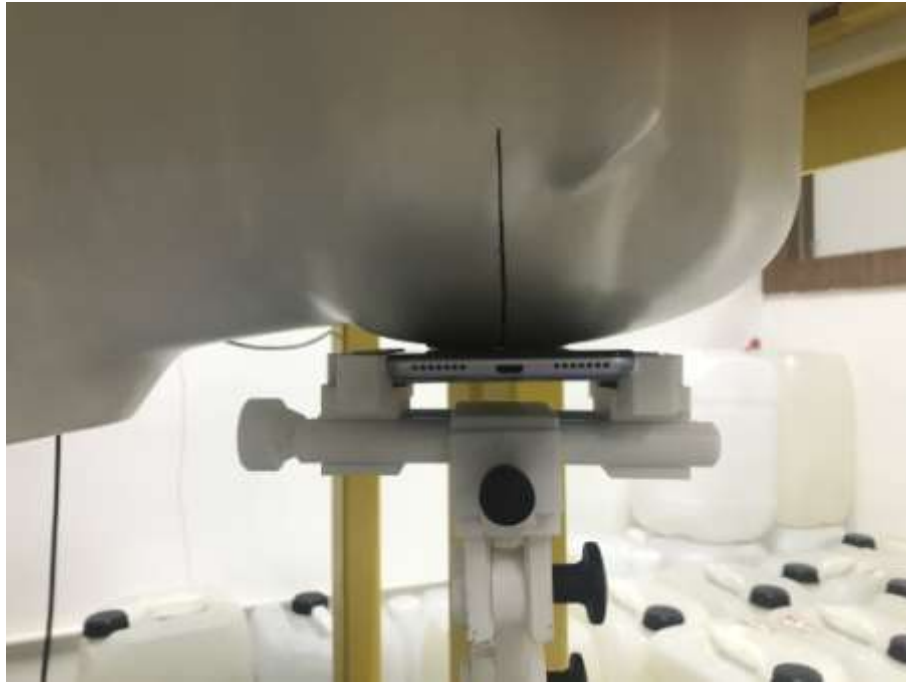
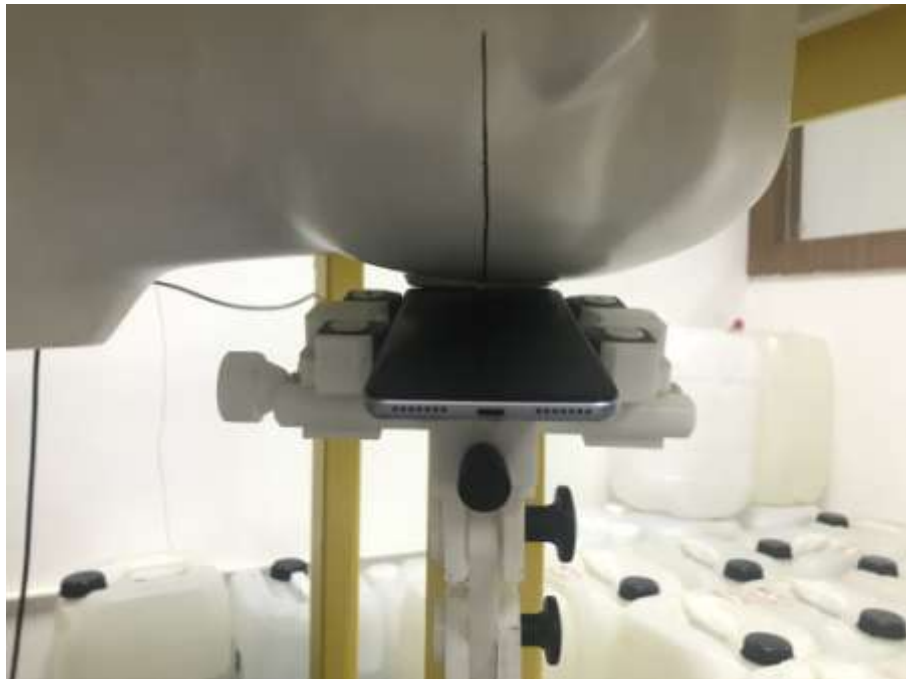
Head Exposure Conditions

Cheek



Tilt



Cheek**Tilt**

Body-worn & Hotspot mode Exposure Conditions

Body Front



Body Back



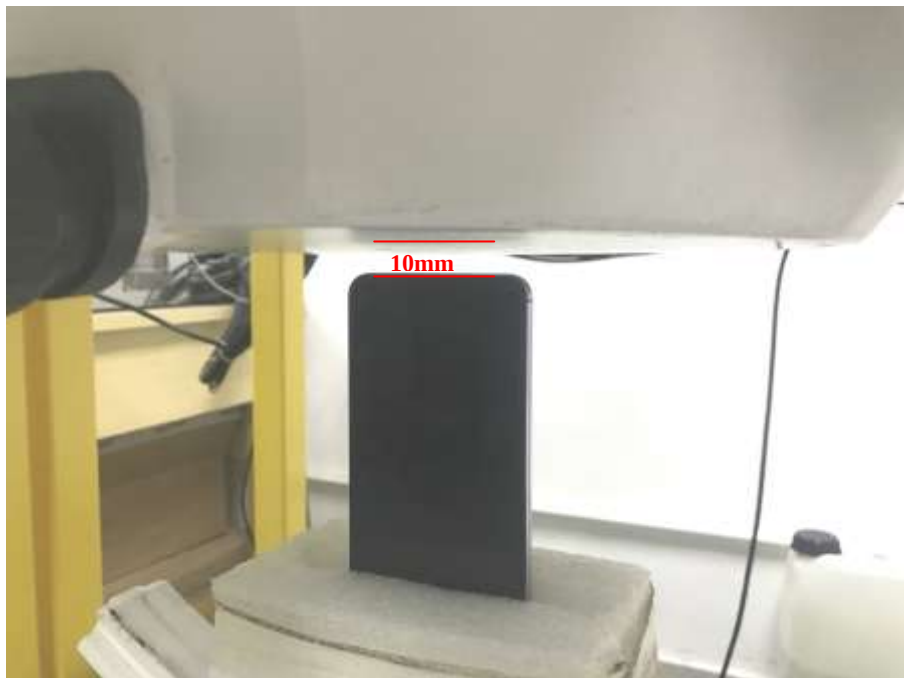
Hotspot Exposure Conditions

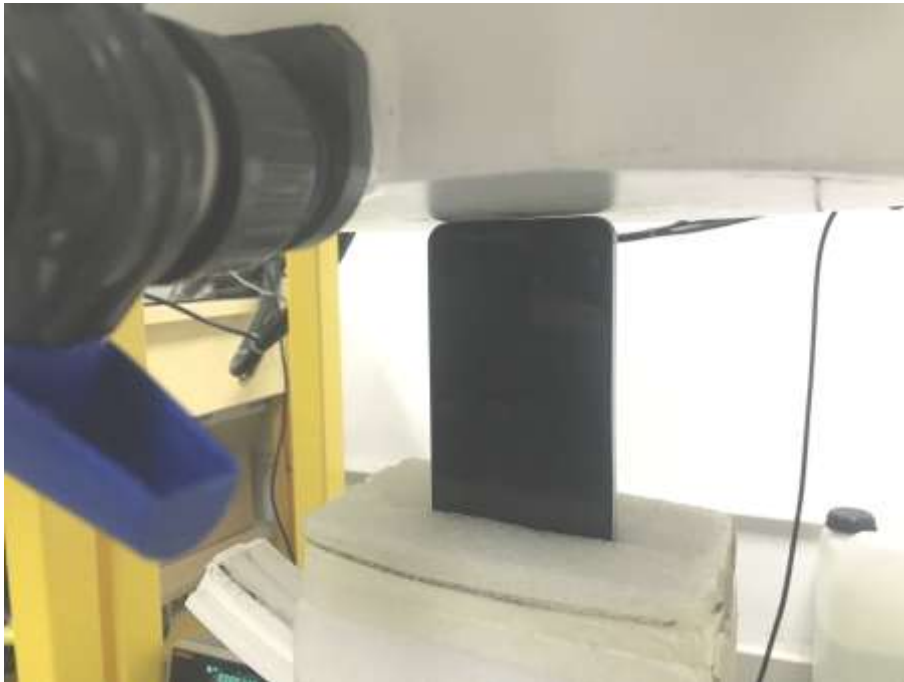
Body Left



Body Right



Body Top**Body Bottom**

Extremity SAR**Body Bottom**

Annex E. Calibration Certificate

Please refer to the exhibit for the calibration certificate

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