

FCC SAR

Measurement and Test Report

For

Cyrus Technology GmbH

Hergelsbendenstrasse 49, 52080 Aachen, Germany

FCC ID: 2AI3KCS24NA

Test Standards: FCC Part 2.1093
ANSI / IEEE C95.1 ::2005+A1:2010
ANSI / IEEE C95.3 : 2002(R2008)
IEEE 1528 :2013

Product Description: Rugged Phone

Tested Model: CS24NA

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1. General Information

1.1 Product Description for Equipment Under Test (EUT)

Client Information

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

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

General Description of EUT:	
Product Name:	Rugged Phone
Brand Name:	Cyrus
Model No.:	CS24NA
Adding Model(s):	/
Rated Voltage:	3.85V
Battery:	4500mAh
Software Version:	CS24_V2.12_2018_01_17
Hardware Version:	L808F-MB
Device Category:	Portable Device
<i>The EUT Main board support GSM850/900/DCS1800/PCS1900, WCDMA Band 2/4/5, LTE Band 2/4/5/7/12 function. It is intended for speech, Multimedia Message Service (MMS) transmission. It is equipped with GPRS/EDGE class 12 for GSM850/900/DCS1800/PCS1900, GPS, FM, Bluetooth 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: 32.40dBm, GSM1900: 29.89dBm EDGE850: 27.94dBm, EDGE1900: 22.98dBm
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: -1.30dBi; GSM1900: 1.30dBi
GPRS/EDGE Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 5, WCDMA Band 4
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz WCDMA Band 4: 1710~1755MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz WCDMA Band 4: 2110~2155MHz
RF Output Power:	WCDMA Band 2: 22.80dBm, WCDMA Band 5: 22.43dBm WCDMA Band4: 22.81dBm
Type of Modulation:	BPSK, QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: 1.30dBi, WCDMA Band 4: -0.60dBi, WCDMA Band 5: -1.30dBi
4G	
Support Networks:	FDD-LTE
Support Band:	FDD-LTE Band 2, 4, 5, 7, 12
Uplink Frequency:	FDD-LTE Band 2: Tx: 1850-1910MHz, FDD-LTE Band 4: Tx: 1710-1755MHz, FDD-LTE Band 5: Tx: 824-849MHz FDD-LTE Band 7: Tx: 2500-2570MHz, FDD-LTE Band 12: Tx: 699-716MHz
Downlink Frequency:	FDD-LTE Band 2: Rx: 1930-1990MHz, FDD-LTE Band 4: Rx: 2110-2155MHz, FDD-LTE Band 5: Rx: 869-894MHz FDD-LTE Band 7: Rx: 2620-2690MHz,

	FDD-LTE Band 12: Rx: 729-746MHz
RF Output Power:	FDD-LTE Band 2: 24.56dBm, FDD-LTE Band 4: 23.09dBm, FDD-LTE Band 5: 23.94dBm, FDD-LTE Band 7: 22.84dBm, FDD-LTE Band 12: 22.95dBm
Type of Modulation:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 2: 1.30dBi, FDD-LTE Band 4: -0.60dBi, FDD-LTE Band 5: -1.30dBi, FDD-LTE Band 7: 1.20dBi, FDD-LTE Band 12: -0.30dBi,
WIFI	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
RF Output Power:	12.45dBm (Conducted)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels:	11/7
Channel Separation:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	0.80dBi
Bluetooth	
Bluetooth Version:	V4.0
Frequency Range:	2402-2480MHz
RF Output Power:	0.815dBm (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:	0.80dBi
NFC	
Support Standards:	NFC
Frequency Range:	13.56MHz
Max. Field Strength:	66.70dBuV/m (at 3m)/ -28.53dBm
Antenna Type:	Integral Antenna
Device Category:	Portable Device

1.2 Test Standards

The following report is prepared on behalf of the Cyrus Technology GmbH Cyrus Technology GmbH in accordance with FCC 47 CFR Part 2.1093, ANSI/IEEE C95.1-2005, ANSI / IEEE C95.3 :2002, IEEE 1528-2013, KDB 447498 D01 v06, KDB 648474 D04 v01r03, KDB 248227 D01 v02r02, KDB 941225 D01 v03r01, KDB 941225 D05 v02r05 ,KDB 941225 D06 v02r01, and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02.

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

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

1.3 Test Methodology

All measurements contained in this report were conducted with KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02. The public notice KDB 447498 D01 v06 for Mobile and Portable Devices RF Exposure Procedure also.

1.4 Test Facility

FCC – Registration No.: 125990

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

Industry Canada (IC) Registration No.: 11464A

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

2. Summary of Test Results

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

Frequency Band	Head SAR	Body-worn (10mm Gap)	Hotspot (10mm Gap)	SAR _{1g} Limit (W/kg)
	Maximum SAR _{1g} (W/kg)	Maximum SAR _{1g} (W/kg)	Maximum SAR _{1g} (W/kg)	
GSM	0.451	0.275	0.546	1.6
WCDMA	0.383	0.503	0.511	1.6
FDD-LTE	0.518	1.095	1.294	1.6
WLAN 2.4G	0.043	0.027	0.027	1.6
Simultaneous Transmission	0.571	1.122	1.294	1.6

Frequency Band	Extremity SAR(0mm Gap)	SAR _{10g} Limit (W/kg)
	Maximum SAR _{10g} (W/kg)	
FDD-LTE	1.084	4.0

Remark:

*The highest reported SAR values for head, body-worn accessory, wireless router(hotspot), Extremity SAR and simultaneous transmission conditions are **0.518W/kg, 1.095W/kg, 1.294W/kg, 1.084W/kg, and 1.294W/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.

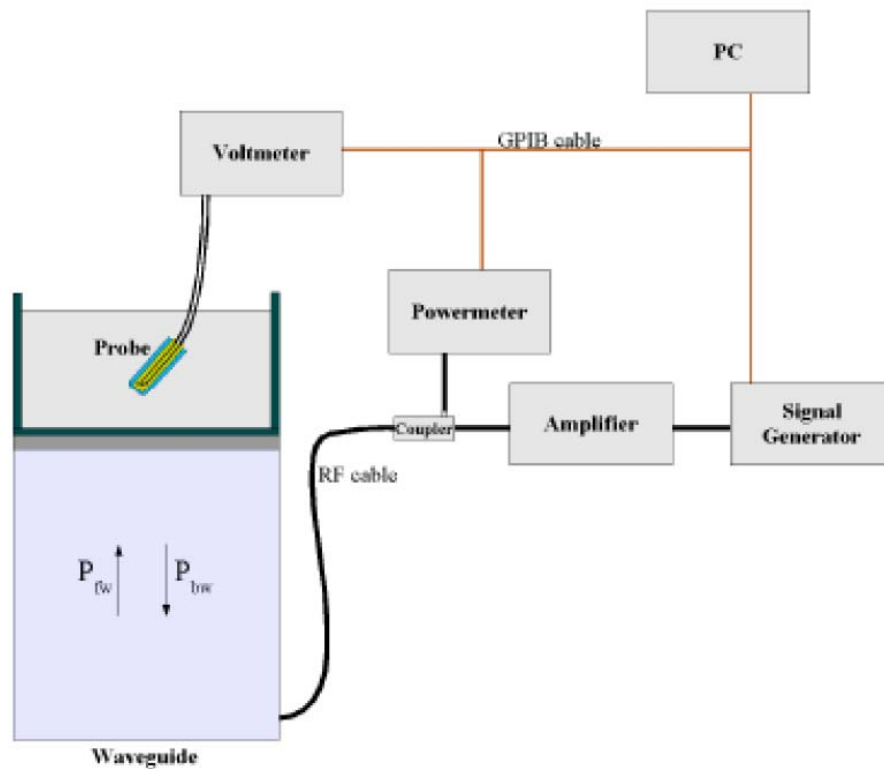
4.2 Probe

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 annex 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,

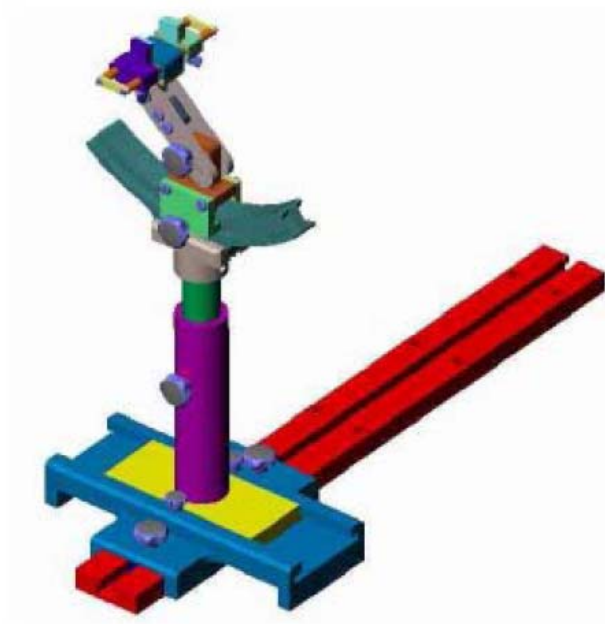
ρ = Tissue density (1.25 g/cm³ for brain tissue)

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	SATIMO	SSE5	SN 09/13 EP168	2018-06-01	2019-05-31
750MHz Dipole	MVG	SID750	SN 47/12 DIP 0G750-203	2018-03-20	2019-03-19
835MHz Dipole	SATIMO	SID835	SN 47/12 DIP 0G835-204	2018-03-20	2019-03-19
1800MHz Dipole	SATIMO	SID1800	SN 47/12 DIP 1G800-206	2018-03-20	2019-03-19
1900MHz Dipole	SATIMO	SID1900	SN 47/12 DIP 1G900-207	2018-03-20	2019-03-19
2450MHz Dipole	SATIMO	SID2450	SN 13/15 DIP 2G450-364	2018-03-20	2019-03-19
2600MHz Dipole	SATIMO	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. Please see the following photos for the liquid height.



Liquid Height for Head SAR



Liquid Height for Body SAR

The Composition of Tissue Simulating Liquid

Frequency (MHz)	Water (%)	Salt (%)	Sugar (%)	HEC (%)	Preventol (%)	DGBE (%)
Head						
750	41.1	1.4	57.0	0.2	0.3	0
835	40.3	1.4	57.9	0.2	0.2	0
1800-1900	55.2	0.3	0	0	0	44.5
2450	55.0	0.1	0	0	0	44.9
2600	54.9	0.1	0	0	0	45.0
Body						
750	50.0	0.8	48.8	0.2	0.2	0
835	50.8	0.9	48.1	0.1	0.1	0
1800-1900	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 (%)		
750	21.2	0.86	0.89	-3.37	41.32	41.90	-1.38	± 5	2018-09-03
835	21.2	0.87	0.90	-3.33	41.11	41.50	-0.94	± 5	2018-09-03
1750	21.3	1.37	1.37	0.00	39.02	40.1	-2.69	± 5	2018-09-04
1800	21.3	1.37	1.40	-2.14	39.02	40.0	-2.45	± 5	2018-09-04
1900	21.3	1.38	1.40	-1.43	38.56	40.00	-3.60	± 5	2018-09-04
2450	21.3	1.74	1.80	-3.33	38.15	39.20	-2.68	± 5	2018-09-05
2600	21.3	1.93	1.96	-1.53	38.63	39.0	-0.95	± 5	2018-09-05

Body Tissue Simulating Liquid									
Freq. MHz.	Temp. (°C)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ϵ_r)	Target (ϵ_r)	Delta (%)		
750	21.2	0.93	0.96	-3.12	54.96	55.50	-0.97	± 5	2018-09-03
835	21.2	0.95	0.97	-2.06	54.85	55.20	-0.63	± 5	2018-09-03
1750	21.3	1.46	1.49	-2.01	51.22	53.40	-4.08	± 5	2018-09-04
1800	21.3	1.46	1.52	-3.95	51.22	53.30	-3.90	± 5	2018-09-04
1900	21.3	1.50	1.52	-1.32	52.42	53.30	-1.65	± 5	2018-09-04
2450	21.3	1.91	1.95	-2.05	52.01	52.70	-1.31	± 5	2018-09-05
2600	21.3	2.12	2.16	-1.85	52.24	52.50	-0.50	± 5	2018-09-05

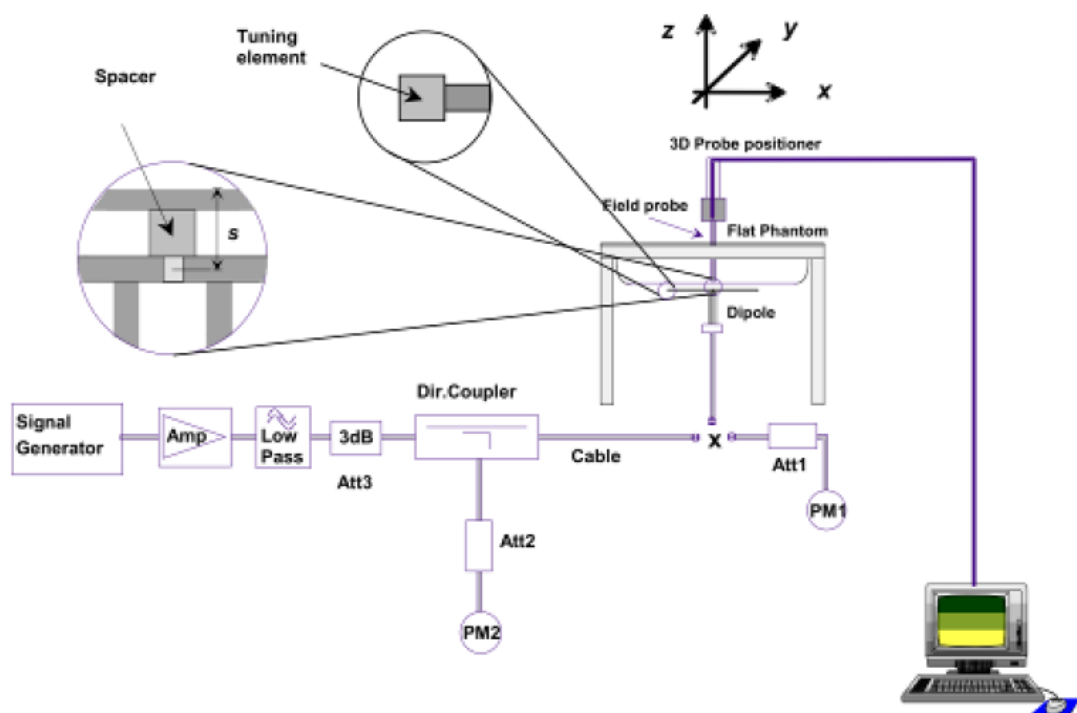
6. SAR Measurement Evaluation

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				
750	8.40	2.16	8.64	2.86
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				
750	8.40	2.12	8.48	0.95
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

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.

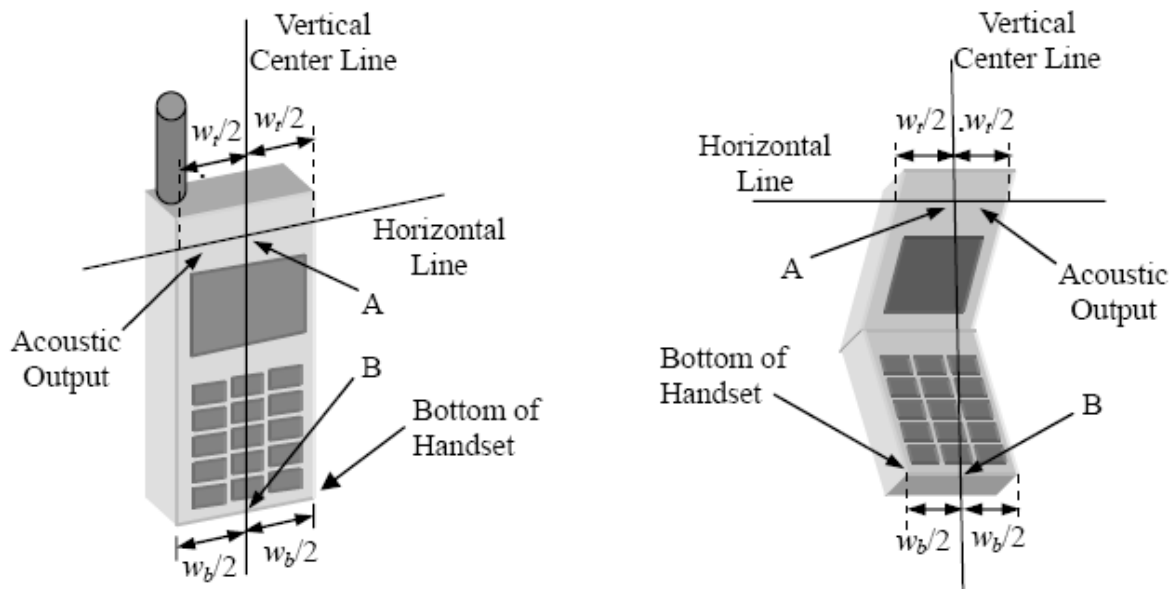


Illustration for Handset Vertical and Horizontal Reference Lines

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).

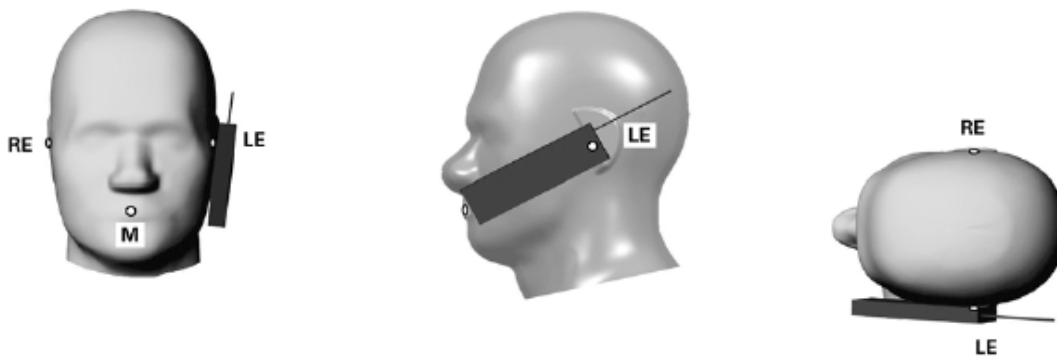


Illustration for Cheek Position

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).

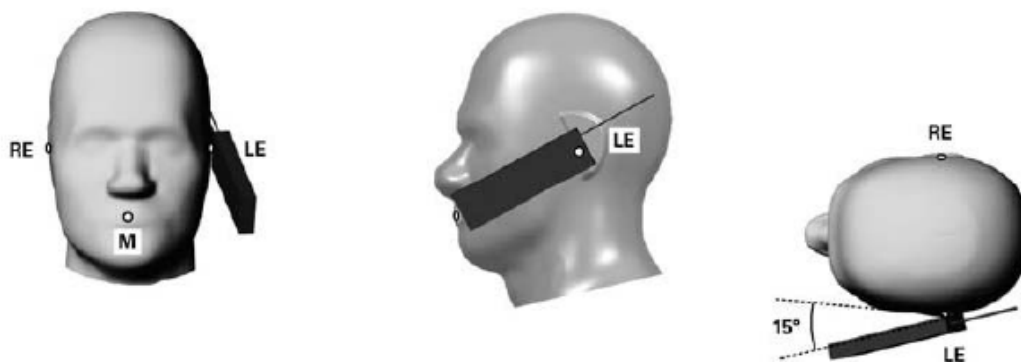


Illustration for Tilted Position

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.

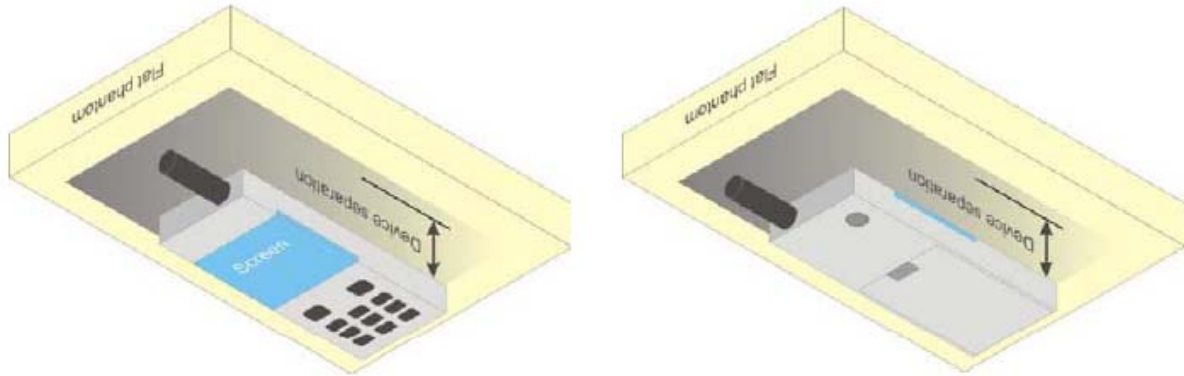
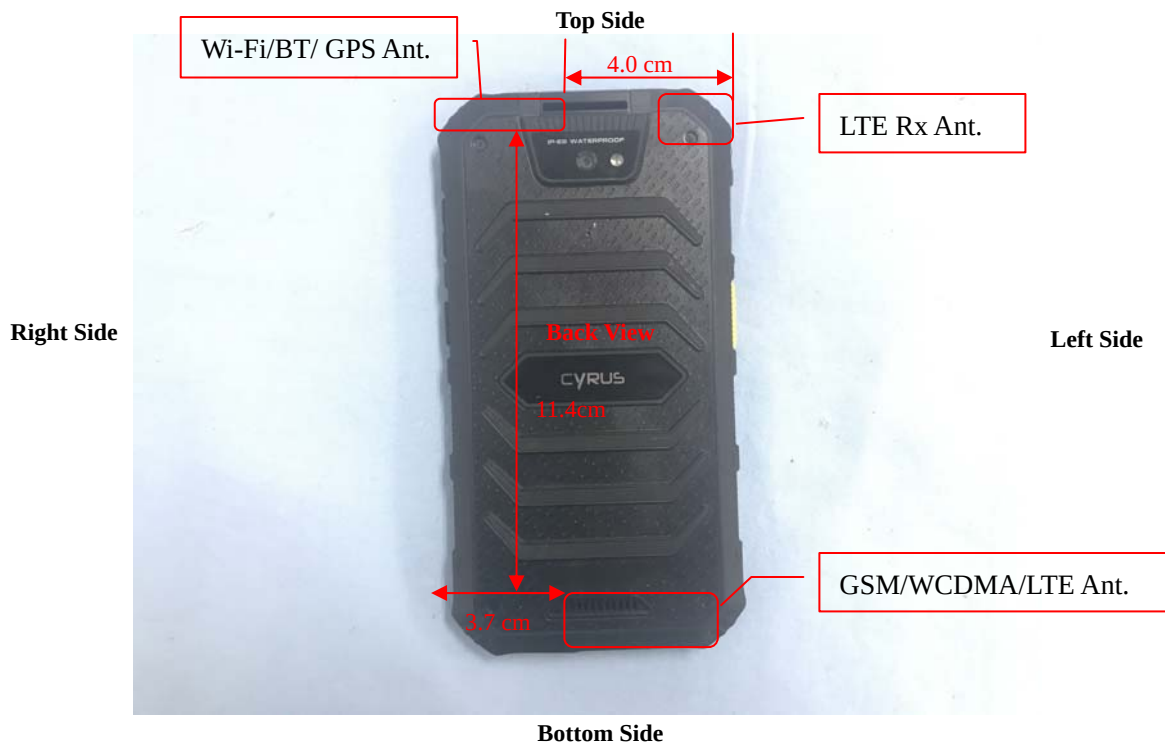
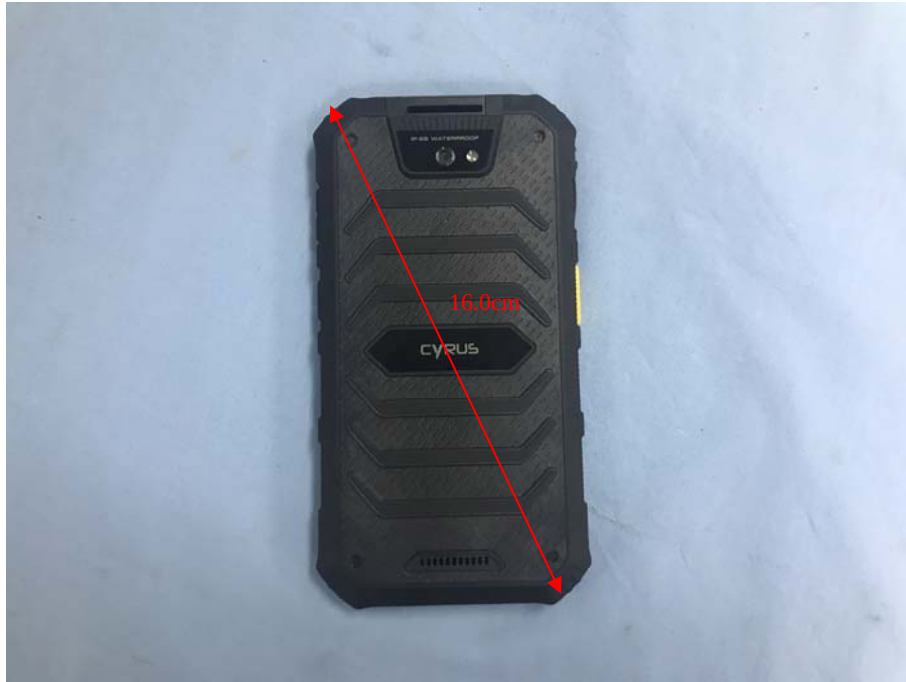


Illustration for Body Worn Position

7.5 EUT Antenna Position





Block Diagram for EUT Antenna Position

7.6 EUT Testing Position

Head/Body-worn/Hotspot/ Extremity 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	No	Yes	No	Yes
WLAN	Yes	Yes	Yes	No	Yes	No

Body-worn SAR tests		
Antennas	Front	Back
WWAN	Yes	Yes
WLAN	Yes	Yes

Extremity SAR tests	
Antennas	Bottom
WWAN	Yes
WLAN	No

Remark:

1. 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.

2. 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 $> 1.2 \text{ W/kg}$

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	32.35	32.21	32.08	32.5	29.55	29.66	29.63	30.0
GPRS (1 slot)	32.4	32.29	32.16	32.5	29.86	29.89	29.89	30.0
GPRS (2 slots)	31.87	31.73	31.6	32.0	29.04	29.14	29.08	29.5
GPRS (3 slots)	30.40	30.28	30.19	30.5	27.32	27.35	27.38	27.5
GPRS (4 slots)	29.24	29.19	29.06	29.5	26.17	26.24	26.24	26.5
EDGE (1 slot)	27.94	27.88	27.74	28.5	22.98	22.81	22.69	23.5
EDGE (2 slots)	27.54	27.48	27.32	28.0	20.93	20.77	20.7	21.0
EDGE (3 slots)	26.6	26.54	26.33	27.0	18.8	18.65	18.56	19.0
EDGE (4 slots)	25.99	25.91	25.72	26.5	17.66	17.55	17.42	18.0

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	23.35	23.21	23.08	23.5	20.55	20.66	20.63	21.0
GPRS (1 slot)	23.40	23.29	23.16	23.5	20.86	20.89	20.89	21.0
GPRS (2 slots)	25.87	25.73	25.60	26.0	23.04	23.14	23.08	23.5
GPRS (3 slots)	26.15	26.03	25.94	26.5	23.07	23.10	23.13	23.5
GPRS (4 slots)	26.24	26.19	26.06	26.5	23.17	23.24	23.24	23.5
EDGE (1 slot)	18.94	18.88	18.74	19.5	13.98	13.81	13.69	14.5
EDGE (2 slots)	21.54	21.48	21.32	22.0	14.93	14.77	14.70	15.5
EDGE (3 slots)	22.35	22.29	22.08	22.5	14.55	14.40	14.31	15.0
EDGE (4 slots)	22.99	22.91	22.72	23.5	14.66	14.55	14.42	15.0

Note: The source-based time-averaged power is linearly scaled the maximum burst averaged power based on time slots. The calculated method are shown as below:

Source based time-average power = Burst averaged power - Duty cycle factor in dB

Duty cycle factor = 9 dB for 1 Tx slot, 6 dB for 2 Tx slots, 4.25 dB for 3 Tx slots, 3 dB for 4 Tx slots

Remark:

1. For Head SAR testing, GSM and GPRS (4TX slots) should be evaluated, therefore the EUT was set in GSM and GPRS (4TX slots) for GSM850 and GSM1900 due to its highest source-based time-average power.
2. For Body SAR testing, GPRS should be evaluated, therefore the EUT was set in GPRS (4TX slots) for GSM850 and GSM1900 due to its highest source-based time-average power.

3. Per KDB 447498 D01 v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
4. The DUT do not support DTM function.
5. This device supports VOIP capability through 3rd party apps software.

WCDMA - Average Power (dBm)								
Band	WCDMA Band II				WCDMA Band V			
Channel	9262	9400	9538	Tune-up power (dBm)	4132	4182	4233	Tune-up power (dBm)
Frequency (MHz)	1852.4	1880.0	1907.6		826.4	836.6	846.6	
RMC 12.2k	22.56	22.64	22.80	23.0	22.32	22.43	22.29	23.0
HSDPA Subtest-1	21.73	21.79	21.92	22.5	21.54	21.59	21.42	22.0
HSDPA Subtest-2	21.71	21.78	21.91	22.5	21.52	21.56	21.40	22.0
HSDPA Subtest-3	21.71	21.76	21.90	22.5	21.52	21.54	21.41	22.0
HSDPA Subtest-4	21.70	21.76	21.91	22.5	21.51	21.57	21.41	22.0
HSUPA Subtest-1	21.75	21.77	22.03	22.5	21.49	21.55	21.40	22.0
HSUPA Subtest-2	21.73	21.74	22.02	22.5	21.47	21.53	21.38	22.0
HSUPA Subtest-3	21.72	21.76	22.01	22.5	21.46	21.54	21.37	22.0
HSUPA Subtest-4	21.72	21.75	22	22.5	21.45	21.53	21.36	22.0
HSUPA Subtest-5	21.71	21.74	22.01	22.5	21.43	21.54	21.37	22.0

WCDMA - Average Power (dBm)								
Band	WCDMA Band IV							
Channel	1312	1412	1513	Tune-up power (dBm)				
Frequency (MHz)	1712.4	1732.4	1752.6					
RMC 12.2k	22.81	22.67	22.73	23.0				
HSDPA Subtest-1	21.82	21.86	21.89	22.0				
HSDPA Subtest-2	21.81	21.83	21.85	22.0				
HSDPA Subtest-3	21.8	21.84	21.85	22.0				
HSDPA Subtest-4	21.8	21.83	21.86	22.0				
HSUPA Subtest-1	21.85	21.87	21.9	22.0				
HSUPA Subtest-2	21.83	21.86	21.89	22.0				
HSUPA Subtest-3	21.82	21.85	21.87	22.0				
HSUPA Subtest-4	21.83	21.83	21.88	22.0				
HSUPA Subtest-5	21.84	21.84	21.87	22.0				

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	23.04	0
		1	3	23.13	0
		1	5	23.09	0
		3	0	23.19	0
		3	2	23.18	0
		3	3	23.22	0
		6	0	22.21	1
	MCH	1	0	24.04	0
		1	3	24.13	0
		1	5	23.05	0
		3	0	23.24	0
		3	2	23.15	0
		3	3	23.18	0
		6	0	23.25	1
	HCH	1	0	23.86	0
		1	3	23.85	0
		1	5	23.82	0
		3	0	23.73	0
		3	2	23.67	0
		3	3	23.67	0
		6	0	22.91	1
16QAM	LCH	1	0	22.31	1
		1	3	22.47	1
		1	5	22.36	1
		3	0	22.36	1
		3	2	22.32	1
		3	3	22.34	1
		6	0	22.12	2
	MCH	1	0	23.16	1
		1	3	23.33	1
		1	5	23.26	1
		3	0	23.27	1
		3	2	23.24	1
		3	3	23.27	1
		6	0	22.19	2
	HCH	1	0	22.98	1
		1	3	22.98	1

		1	5	22.92	1
		3	0	22.68	1
		3	2	22.64	1
		3	3	22.66	1
		6	0	21.73	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.14	0
		1	7	23.71	0
		1	14	23.28	0
		8	0	22.33	1
		8	4	22.34	1
		8	7	22.38	1
		15	0	22.35	1
	MCH	1	0	24.21	0
		1	7	24.34	0
		1	14	24.23	0
		8	0	23.36	1
		8	4	23.34	1
		8	7	23.34	1
		15	0	23.24	1
	HCH	1	0	23.95	0
		1	7	23.9	0
		1	14	23.78	0
		8	0	23.02	1
		8	4	22.95	1
		8	7	22.91	1
		15	0	22.92	1
16QAM	LCH	1	0	22.4	1
		1	7	22.55	1
		1	14	22.52	1
		8	0	21.37	2
		8	4	21.4	2
		8	7	21.42	2
		15	0	21.34	2
	MCH	1	0	23.47	1
		1	7	23.57	1
		1	14	23.48	1
		8	0	22.28	2
		8	4	22.27	2
		8	7	22.28	2

		15	0	22.24	2
	HCH	1	0	22.95	1
		1	7	22.95	1
		1	14	22.77	1
		8	0	21.85	2
		8	4	21.81	2
		8	7	21.76	2
		15	0	21.84	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.38	0
		1	12	23.34	0
		1	24	23.5	0
		12	0	22.36	1
		12	6	22.33	1
		12	13	22.54	1
		25	0	22.42	1
	MCH	1	0	24.38	0
		1	12	24.15	0
		1	24	24.32	0
		12	0	23.35	1
		12	6	23.38	1
		12	13	23.36	1
		25	0	23.31	1
	HCH	1	0	24.03	0
		1	12	23.77	0
		1	24	23.93	0
		12	0	23.05	1
		12	6	23.02	1
		12	13	22.96	1
		25	0	22.95	1
16QAM	LCH	1	0	22.59	1
		1	12	22.63	1
		1	24	22.7	1
		12	0	21.49	2
		12	6	21.5	2
		12	13	21.58	2
		25	0	21.42	2
	MCH	1	0	23.46	1
		1	12	23.52	1
		1	24	23.47	1

		12	0	22.43	2
		12	6	22.47	2
		12	13	22.43	2
		25	0	22.3	2
	HCH	1	0	23.19	1
		1	12	23.05	1
		1	24	22.93	1
		12	0	21.98	2
		12	6	21.94	2
		12	13	21.9	2
		25	0	21.9	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.03	0
		1	24	23.5	0
		1	49	23.53	0
		25	0	22.38	1
		25	12	22.58	1
		25	25	22.69	1
		50	0	22.6	1
	MCH	1	0	23.79	0
		1	24	24.04	0
		1	49	24	0
		25	0	23.25	1
		25	12	23.29	1
		25	25	23.32	1
		50	0	23.32	1
	HCH	1	0	23.74	0
		1	24	23.41	0
		1	49	23.39	0
		25	0	22.96	1
		25	12	22.8	1
		25	25	22.91	1
		50	0	22.95	1
16QAM	LCH	1	0	22.3	1
		1	24	22.74	1
		1	49	22.84	1
		25	0	21.48	2
		25	12	21.57	2
		25	25	21.64	2
		50	0	21.6	2

	MCH	1	0	23.28	1
		1	24	23.55	1
		1	49	23.55	1
		25	0	22.33	2
		25	12	22.36	2
		25	25	22.34	2
		50	0	22.38	2
	HCH	1	0	23.06	1
		1	24	22.73	1
		1	49	22.78	1
		25	0	21.97	2
		25	12	21.94	2
		25	25	21.91	2
		50	0	21.96	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.27	0
		1	37	23.71	0
		1	74	23.59	0
		37	0	22.78	1
		37	18	22.56	1
		37	38	22.89	1
		75	0	22.7	1
	MCH	1	0	24.06	0
		1	37	23.91	0
		1	74	24.31	0
		37	0	23.58	1
		37	18	23.59	1
		37	38	23.21	1
		75	0	23.23	1
	HCH	1	0	24.3	0
		1	37	23.76	0
		1	74	23.94	0
		37	0	23.44	1
		37	18	23.35	1
		37	38	23.24	1
		75	0	23.34	1
16QAM	LCH	1	0	22.58	1
		1	37	22.97	1
		1	74	22.96	1
		37	0	21.25	2

		37	18	21.67	2
		37	38	21.95	2
		75	0	21.53	2
	MCH	1	0	23.28	1
		1	37	23.5	1
		1	74	23.14	1
		37	0	22.34	2
		37	18	22.3	2
		37	38	22.45	2
		75	0	22.46	2
	HCH	1	0	23.34	1
		1	37	23.16	1
		1	74	22.95	1
		37	0	22.26	2
		37	18	22.15	2
		37	38	22.07	2
		75	0	22.18	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	24.56	0
		1	49	24	0
		1	99	24.19	0
		50	0	23.75	1
		50	25	23.39	1
		50	50	23.39	1
		100	0	23.38	1
	MCH	1	0	24.55	0
		1	49	24.48	0
		1	99	24.51	0
		50	0	23.32	1
		50	25	23.21	1
		50	50	23.11	1
		100	0	22.86	1
	HCH	1	0	24.34	0
		1	49	24.21	0
		1	99	23.93	0
		50	0	23.27	1
		50	25	23.11	1
		50	50	23.06	1
		100	0	23.16	1
16QAM	LCH	1	0	22.74	1

		1	49	23	1
		1	99	23.33	1
		50	0	21.67	2
		50	25	21.73	2
		50	50	21.86	2
		100	0	21.79	2
	MCH	1	0	23.54	1
		1	49	23.21	1
		1	99	23.14	1
		50	0	22.37	2
		50	25	22.42	2
		50	50	22.42	2
		100	0	22.36	2
	HCH	1	0	23.46	1
		1	49	23.19	1
		1	99	22.98	1
		50	0	22.22	2
		50	25	22.03	2
		50	50	21.98	2
		100	0	22.1	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	22.93	0
		1	3	22.98	0
		1	5	22.94	0
		3	0	22.05	0
		3	2	22.04	0
		3	3	22.04	0
		6	0	22.07	1
	MCH	1	0	22.9	0
		1	3	22.95	0
		1	5	22.9	0
		3	0	21.95	0
		3	2	21.9	0
		3	3	21.94	0
		6	0	21.95	1
	HCH	1	0	22.44	0
		1	3	22.49	0

		1	5	22.42	0
		3	0	21.58	0
		3	2	21.52	0
		3	3	21.53	0
		6	0	21.56	1
16QAM	LCH	1	0	21.65	1
		1	3	21.68	1
		1	5	21.65	1
		3	0	21.05	1
		3	2	21.16	1
		3	3	21.17	1
		6	0	21.03	2
	MCH	1	0	21.19	1
		1	3	21.16	1
		1	5	21.19	1
		3	0	21.9	1
		3	2	21.88	1
		3	3	21.92	1
		6	0	20.85	2
	HCH	1	0	21.68	1
		1	3	21.8	1
		1	5	21.65	1
		3	0	21.63	1
		3	2	21.56	1
		3	3	21.61	1
		6	0	20.66	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	22.91	0
		1	14	22.84	0
		8	0	22.07	1
		8	4	22.05	1
		8	7	22.06	1
		15	0	22.05	1
	MCH	1	0	22.87	0
		1	7	22.93	0
		1	14	22.8	0
		8	0	22.01	1
		8	4	21.99	1
		8	7	21.97	1

	HCH	15	0	21.9	1
		1	0	22.46	0
		1	7	22.51	0
		1	14	22.41	0
		8	0	21.61	1
		8	4	21.59	1
		8	7	21.59	1
		15	0	21.58	1
16QAM	LCH	1	0	21.82	1
		1	7	21.24	1
		1	14	21.16	1
		8	0	20.65	2
		8	4	20.47	2
		8	7	21.1	2
		15	0	21.03	2
	MCH	1	0	21.21	1
		1	7	21.24	1
		1	14	21.12	1
		8	0	20.97	1
		8	4	20.92	2
		8	7	20.92	2
		15	0	20.9	2
	HCH	1	0	21.72	2
		1	7	21.77	1
		1	14	21.62	1
		8	0	20.58	1
		8	4	20.54	1
		8	7	20.51	2
		15	0	20.58	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.02	0
		1	12	23.06	0
		1	24	22.96	0
		12	0	21.35	1
		12	6	22.1	1
		12	13	22.08	1
		25	0	22.03	1
	MCH	1	0	22.95	0
		1	12	22.97	0
		1	24	22.85	0

		12	0	21.98	1
		12	6	21.96	1
		12	13	21.93	1
		25	0	21.91	1
	HCH	1	0	22.63	0
		1	12	22.65	0
		1	24	22.49	0
		12	0	21.69	1
		12	6	21.65	1
		12	13	21.64	1
		25	0	21.59	1
16QAM	LCH	1	0	21.28	1
		1	12	21.34	1
		1	24	21.75	1
		12	0	20.85	2
		12	6	20.65	2
		12	13	20.65	2
		25	0	20.6	2
	MCH	1	0	20.68	1
		1	12	20.79	1
		1	24	22.02	1
		12	0	21.07	2
		12	6	21.05	2
		12	13	21.03	2
		25	0	20.91	2
	HCH	1	0	21.82	1
		1	12	21.84	1
		1	24	21.68	1
		12	0	20.68	2
		12	6	20.64	2
		12	13	20.61	2
		25	0	20.61	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.94	0
		1	24	22.93	0
		1	49	22.92	0
		25	0	22.07	1
		25	12	22.09	1
		25	25	22.09	1
		50	0	22.02	1
	MCH	1	0	22.91	0
		1	24	22.84	0
		1	49	22.75	0
		25	0	21.93	1
		25	12	21.9	1
		25	25	21.87	1
		50	0	21.9	1
	HCH	1	0	22.62	0
		1	24	22.51	0
		1	49	22.42	0
		25	0	21.65	1
		25	12	21.63	1
		25	25	21.56	1
		50	0	21.63	1
16QAM	LCH	1	0	21.27	1
		1	24	21.28	1
		1	49	21.35	1
		25	0	20.89	2
		25	12	20.79	2
		25	25	21.02	2
		50	0	21.03	2
	MCH	1	0	21.27	1
		1	24	22.01	1
		1	49	22.07	1
		25	0	20.97	2
		25	12	20.91	2
		25	25	20.88	2
		50	0	20.95	2
	HCH	1	0	21.86	1
		1	24	21.79	1
		1	49	21.67	1
		25	0	20.69	2

		25	12	20.63	2
		25	25	20.56	2
		50	0	20.68	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.97	0
		1	37	23.02	0
		1	74	22.95	0
		37	0	21.15	1
		37	18	21.17	1
		37	38	21.35	1
		75	0	21.19	1
	MCH	1	0	22.98	0
		1	37	22.97	0
		1	74	22.83	0
		37	0	22.08	1
		37	18	22.07	1
		37	38	22.03	1
		75	0	22.09	1
	HCH	1	0	22.75	0
		1	37	22.65	0
		1	74	22.45	0
		37	0	21.86	1
		37	18	21.78	1
		37	38	21.69	1
		75	0	21.79	1
16QAM	LCH	1	0	21.26	1
		1	37	21.37	1
		1	74	21.26	1
		37	0	20.58	2
		37	18	20.75	2
		37	38	20.65	2
		75	0	20.16	2
	MCH	1	0	21.65	1
		1	37	21.61	1
		1	74	22	1
		37	0	21.04	2
		37	18	21.01	2
		37	38	20.98	2
		75	0	21	2
	HCH	1	0	21.92	1

		1	37	21.9	1
		1	74	21.69	1
		37	0	20.8	2
		37	18	20.73	2
		37	38	20.65	2
		75	0	20.77	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.09	0
		1	49	23.01	0
		1	99	23.09	0
		50	0	22.35	1
		50	25	22.08	1
		50	50	22.08	1
		100	0	22.09	1
	MCH	1	0	23.04	0
		1	49	22.97	0
		1	99	22.86	0
		50	0	21.99	1
		50	25	21.92	1
		50	50	21.87	1
		100	0	21.93	1
	HCH	1	0	22.76	0
		1	49	22.51	0
		1	99	22.38	0
		50	0	21.83	1
		50	25	21.72	1
		50	50	21.64	1
		100	0	21.77	1
16QAM	LCH	1	0	21.26	1
		1	49	21.24	1
		1	99	21.26	1
		50	0	21.08	2
		50	25	21.07	2
		50	50	21.06	2
		100	0	21.07	2
	MCH	1	0	21.65	1
		1	49	21.25	1
		1	99	21.35	1
		50	0	21.02	2
		50	25	20.99	2

		50	50	20.92	2
		100	0	20.92	2
	HCH	1	0	21.96	1
		1	49	21.82	1
		1	99	21.67	1
		50	0	20.84	2
		50	25	20.74	2
		50	50	20.67	2
		100	0	20.74	2

FDD-LTE Band 5:

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.62	0
		1	3	23.67	0
		1	5	23.65	0
		3	0	23.17	0
		3	2	23.16	0
		3	3	23.16	0
		6	0	22.65	1
	MCH	1	0	23.55	0
		1	3	23.34	0
		1	5	23.69	0
		3	0	23.21	0
		3	2	23.17	0
		3	3	23.22	0
		6	0	22.21	1
	HCH	1	0	23.19	0
		1	3	23.2	0
		1	5	23.23	0
		3	0	22.98	0
		3	2	22.95	0
		3	3	23.18	0
		6	0	22.32	1
16QAM	LCH	1	0	22.62	1
		1	3	22.71	1
		1	5	22.65	1
		3	0	22.59	1
		3	2	22.53	1
		3	3	22.54	1
		6	0	21.46	2
	MCH	1	0	22.4	1
		1	3	22.14	1
		1	5	22.43	1
		3	0	22.18	1
		3	2	22.17	1
		3	3	22.2	1
		6	0	21.2	2
	HCH	1	0	22.16	1
		1	3	22.19	1

		1	5	21.79	1
		3	0	22.22	1
		3	2	22	1
		3	3	22	1
		6	0	21.74	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.48	0
		1	7	23.59	0
		1	14	23.58	0
		8	0	22.62	1
		8	4	22.63	1
		8	7	22.64	1
		15	0	22.58	1
	MCH	1	0	23.53	0
		1	7	23.5	0
		1	14	23.41	0
		8	0	22.67	1
		8	4	22.77	1
		8	7	22.47	1
		15	0	22.54	1
	HCH	1	0	23.7	0
		1	7	23.73	0
		1	14	23.58	0
		8	0	22.91	1
		8	4	22.77	1
		8	7	22.78	1
		15	0	22.73	1
16QAM	LCH	1	0	22.61	1
		1	7	22.71	1
		1	14	22.64	1
		8	0	21.6	2
		8	4	21.58	2
		8	7	21.57	2
		15	0	21.48	2
	MCH	1	0	22.88	1
		1	7	22.88	1
		1	14	22.93	1
		8	0	21.73	2
		8	4	21.43	2
		8	7	21.42	2

	HCH	15	0	21.71	2
		1	0	22.99	1
		1	7	22.85	1
		1	14	22.84	1
		8	0	21.75	2
		8	4	21.78	2
		8	7	21.73	2
		15	0	21.63	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.69	0
		1	12	23.73	0
		1	24	23.73	0
		12	0	22.62	1
		12	6	22.64	1
		12	13	22.66	1
		25	0	22.58	1
	MCH	1	0	23.79	0
		1	12	23.17	0
		1	24	23.6	0
		12	0	22.35	1
		12	6	22.15	1
		12	13	22.24	1
		25	0	22.27	1
	HCH	1	0	23.91	0
		1	12	23.88	0
		1	24	23.75	0
		12	0	22.86	1
		12	6	22.81	1
		12	13	22.78	1
		25	0	22.74	1
16QAM	LCH	1	0	22.74	1
		1	12	22.8	1
		1	24	22.79	1
		12	0	21.6	2
		12	6	21.59	2
		12	13	21.62	2
		25	0	21.52	2
	MCH	1	0	22.96	1
		1	12	22.42	1
		1	24	22.91	1

		12	0	21.53	2
		12	6	21.31	2
		12	13	21.44	2
		25	0	21.55	2
	HCH	1	0	22.65	1
		1	12	22.95	1
		1	24	22.86	1
		12	0	21.83	2
		12	6	21.78	2
		12	13	21.75	2
		25	0	21.71	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	23.94	0
		1	24	23.68	0
		1	49	23.34	0
		25	0	23.25	1
		25	12	22.94	1
		25	25	22.66	1
		50	0	22.89	1
	MCH	1	0	23.75	0
		1	24	23.06	0
		1	49	23.71	0
		25	0	22.44	1
		25	12	22.14	1
		25	25	22.44	1
		50	0	22.51	1
	HCH	1	0	23.83	0
		1	24	23.79	0
		1	49	23.44	0
		25	0	22.82	1
		25	12	22.79	1
		25	25	22.71	1
		50	0	22.78	1
16QAM	LCH	1	0	22.72	1
		1	24	22.79	1
		1	49	22.73	1
		25	0	21.53	2
		25	12	21.6	2
		25	25	21.64	2
		50	0	21.6	2
	MCH	1	0	22.65	1
		1	24	22.5	1
		1	49	22.65	1
		25	0	21.5	2
		25	12	21.21	2
		25	25	21.52	2
		50	0	21.43	2
	HCH	1	0	22.45	1
		1	24	22.91	1
		1	49	22.79	1
		25	0	21.77	2

		25	12	21.75	2
		25	25	21.69	2
		50	0	21.75	2

FDD-LTE Band 7:

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.47	0
		1	12	22.16	0
		1	24	22.67	0
		12	0	21.26	1
		12	6	21.25	1
		12	13	21.57	1
		25	0	21.38	1
	MCH	1	0	22.17	0
		1	12	22.16	0
		1	24	22.74	0
		12	0	21.21	1
		12	6	21.35	1
		12	13	21.67	1
		25	0	21.42	1
	HCH	1	0	22.61	0
		1	12	22.4	0
		1	24	22.81	0
		12	0	21.7	1
		12	6	21.71	1
		12	13	21.69	1
		25	0	21.61	1
16QAM	LCH	1	0	21.36	1
		1	12	21.15	1
		1	24	21.82	1
		12	0	20.65	2
		12	6	20.31	2
		12	13	20.57	2
		25	0	20.3	2
	MCH	1	0	21.38	1
		1	12	21.4	1
		1	24	21.78	1
		12	0	20.4	2
		12	6	20.52	2

		12	13	20.85	2
		25	0	20.51	2
	HCH	1	0	21.87	1
		1	12	21.6	1
		1	24	21.89	1
		12	0	20.67	2
		12	6	20.7	2
		12	13	20.65	2
		25	0	20.87	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.24	0
		1	24	21.71	0
		1	49	21.86	0
		25	0	21.17	1
		25	12	21.44	1
		25	25	21.65	1
		50	0	21.53	1
	MCH	1	0	21.16	0
		1	24	21.95	0
		1	49	22.23	0
		25	0	20.76	1
		25	12	21.21	1
		25	25	21.56	1
		50	0	21.2	1
	HCH	1	0	21.57	0
		1	24	22.03	0
		1	49	22.2	0
		25	0	21.13	1
		25	12	21.34	1
		25	25	21.62	1
		50	0	21.38	1
16QAM	LCH	1	0	20.59	1
		1	24	21.09	1
		1	49	21.29	1
		25	0	20.65	2
		25	12	20.38	2
		25	25	20.7	2
		50	0	20.49	2
	MCH	1	0	20.53	1
		1	24	21.36	1

		1	49	21.66	1
		25	0	20.65	2
		25	12	20.34	2
		25	25	20.61	2
		50	0	20.65	2
	HCH	1	0	20.86	1
		1	24	21.34	1
		1	49	21.57	1
		25	0	20.45	2
		25	12	20.42	2
		25	25	20.65	2
		50	0	20.41	2

Channel Bandwidth: 15 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	21.31	0
		1	37	21.86	0
		1	74	21.07	0
		37	0	21.33	1
		37	18	21.5	1
		37	38	21.29	1
		75	0	21.41	2
	MCH	1	0	21.07	0
		1	37	21.99	0
		1	74	22.5	0
		37	0	20.49	1
		37	18	21.07	1
		37	38	21.59	1
		75	0	21.11	2
	HCH	1	0	21.18	0
		1	37	21.87	0
		1	74	22.27	0
		37	0	20.54	1
		37	18	21.01	1
		37	38	21.43	1
		75	0	20.95	2
16QAM	LCH	1	0	20.67	1
		1	37	21.29	1
		1	74	20.51	1
		37	0	20.33	2
		37	18	20.55	2
		37	38	20.47	2

	MCH	75	0	20.42	2
		1	0	20.31	1
		1	37	21.27	1
		1	74	21.75	1
		37	0	20.68	2
		37	18	20.65	2
		37	38	20.66	2
		75	0	20.47	2
	HCH	1	0	20.44	1
		1	37	21.22	1
		1	74	21.65	1
		37	0	20.65	2
		37	18	20.47	2
		37	38	20.79	2
		75	0	20.66	2

Channel Bandwidth: 20 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.84	0
		1	49	21.91	0
		1	99	21.25	0
		50	0	21.79	1
		50	25	21.27	1
		50	50	20.52	1
		100	0	21.75	1
	MCH	1	0	21.32	0
		1	49	22.01	0
		1	99	22.38	0
		50	0	20.69	1
		50	25	21.07	1
		50	50	21.62	1
		100	0	21.05	1
	HCH	1	0	21.52	0
		1	49	21.44	0
		1	99	22.15	0
		50	0	20.42	1
		50	25	20.78	1
		50	50	21.25	1
		100	0	20.83	1
16QAM	LCH	1	0	20.68	1
		1	49	21.16	1
		1	99	20.65	1

		50	0	20.44	2
		50	25	20.34	2
		50	50	20.76	2
		100	0	20.69	2
	MCH	1	0	20.95	1
		1	49	21.33	1
		1	99	21.71	1
		50	0	20.98	2
		50	25	20.64	2
		50	50	20.68	2
		100	0	20.65	2
	HCH	1	0	20.84	1
		1	49	20.82	1
		1	99	21.6	1
		50	0	20.51	2
		50	25	20.47	2
		50	50	20.36	2
		100	0	20.89	2

FDD-LTE Band 12:

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.6	0
		1	3	22.62	0
		1	5	22.58	0
		3	0	22.22	0
		3	2	22.19	0
		3	3	22.17	0
		6	0	21.68	1
	MCH	1	0	22.68	0
		1	3	22.75	0
		1	5	22.66	0
		3	0	22.13	0
		3	2	22.19	0
		3	3	22.14	0
		6	0	21.32	1
	HCH	1	0	22.82	0
		1	3	22.84	0
		1	5	22.73	0
		3	0	22.13	0
		3	2	22.19	0

		3	3	22.14	0
		6	0	21.36	1
16QAM	LCH	1	0	21.32	1
		1	3	21.65	1
		1	5	21.47	1
		3	0	21.36	1
		3	2	21.47	1
		3	3	21.3	1
		6	0	20.98	2
	MCH	1	0	21.02	1
		1	3	21.32	1
		1	5	21.41	1
		3	0	21.32	1
		3	2	21.32	1
		3	3	21.32	1
		6	0	20.98	2
	HCH	1	0	20.96	1
		1	3	20.79	1
		1	5	20.79	1
		3	0	20.98	1
		3	2	20.79	1
		3	3	20.97	1
		6	0	20.94	2

Channel Bandwidth: 3 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.4	0
		1	7	22.5	0
		1	14	22.4	0
		8	0	21.65	1
		8	4	21.68	1
		8	7	21.63	1
		15	0	21.52	1
	MCH	1	0	22.63	0
		1	7	22.73	0
		1	14	22.65	0
		8	0	21.81	1
		8	4	21.65	1
		8	7	21.66	1
		15	0	21.67	1
	HCH	1	0	22.84	0
		1	7	22.88	0

		1	14	22.71	0
		8	0	21.65	1
		8	4	21.45	1
		8	7	21.89	1
		15	0	21.78	1
16QAM	LCH	1	0	21.59	1
		1	7	21.62	1
		1	14	21.54	1
		8	0	20.89	2
		8	4	20.9	2
		8	7	20.98	2
		15	0	20.98	2
	MCH	1	0	20.65	1
		1	7	20.79	1
		1	14	20.69	1
		8	0	20.72	2
		8	4	20.7	2
		8	7	20.98	2
		15	0	20.68	2
	HCH	1	0	21.88	1
		1	7	21	1
		1	14	21.83	1
		8	0	20.81	2
		8	4	20.8	2
		8	7	20.78	2
		15	0	20.81	2

Channel Bandwidth: 5 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.91	0
		1	12	22.6	0
		1	24	22.55	0
		12	0	21.98	1
		12	6	21.58	1
		12	13	21.57	1
		25	0	21.25	1
	MCH	1	0	22.73	0
		1	12	22.8	0
		1	24	22.75	0
		12	0	21.76	1
		12	6	21.78	1
		12	13	21.82	1

	HCH	25	0	21.98	1
		1	0	22.89	0
		1	12	22.93	0
		1	24	22.79	0
		12	0	21.85	1
		12	6	21.84	1
		12	13	21.84	1
		25	0	21.78	1
16QAM	LCH	1	0	21.72	1
		1	12	21.72	1
		1	24	21.7	1
		12	0	20.58	2
		12	6	20.55	2
		12	13	20.56	2
		25	0	20.68	2
	MCH	1	0	21.86	1
		1	12	21.98	1
		1	24	21.68	1
		12	0	20.79	2
		12	6	20.78	2
		12	13	20.88	2
		25	0	20.72	2
	HCH	1	0	21.74	1
		1	12	21	1
		1	24	21.85	1
		12	0	20.8	2
		12	6	20.73	2
		12	13	20.78	2
		25	0	20.7	2

Channel Bandwidth: 10 MHz					
Modulation	Channel	RB Configuration		Average Power [dBm]	MPR (dB)
		Size	Offset		
QPSK	LCH	1	0	22.95	0
		1	24	22.52	0
		1	49	22.63	0
		25	0	21.91	1
		25	12	21.81	1
		25	25	22.23	1
		50	0	22.13	1
	MCH	1	0	22.61	0
		1	24	22.69	0
		1	49	22.85	0
		25	0	21.67	1
		25	12	21.75	1
		25	25	21.59	1
		50	0	21.74	1
	HCH	1	0	22.73	0
		1	24	22.78	0
		1	49	22.75	0
		25	0	21.75	1
		25	12	21.76	1
		25	25	21.78	1
		50	0	21.74	1
16QAM	LCH	1	0	21.68	1
		1	24	21.72	1
		1	49	21.83	1
		25	0	20.98	2
		25	12	20.58	2
		25	25	20.69	2
		50	0	20.65	2
	MCH	1	0	21.81	1
		1	24	21.69	1
		1	49	21.35	1
		25	0	20.71	2
		25	12	20.64	2
		25	25	20.79	2
		50	0	20.65	2
	HCH	1	0	21.89	1
		1	24	21.82	1
		1	49	21.86	1
		25	0	20.74	2

		25	12	20.72	2
		25	25	20.76	2
		50	0	20.8	2

Remark:

1. Per KDB941225 D05 v02r05, Start with the largest channel bandwidth then measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle, and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. 6 When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
2. Per KDB941225 D05 v02r05, The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.
3. Per KDB941225 D05 v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations, and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB941225 D05 v02r05, For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in 5.2.1, 5.2.2, and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ 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	12.45	13.0
		CH 06	2437	11.81	13.0
		CH 11	2462	11.32	13.0
802.11g	6Mbps	CH 01	2412	7.89	9.5
		CH 06	2437	9.03	9.5
		CH 11	2462	9.08	9.5
802.11n (20MHz)	MCS0	CH 01	2412	7.95	9.5
		CH 06	2437	9.21	9.5
		CH 11	2462	9.17	9.5
802.11n (40MHz)	MCS0	CH 03	2422	8.38	8.5
		CH 06	2437	8.13	8.5
		CH 09	2452	8.23	8.5

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	0.815	1.0
Pi/4 QDPSK	2Mbps	0.327	1.0
8DPSK	3Mbps	0.379	1.0

Bluetooth - Maximum Average Power					
Test Mode	Data Rate	Channel	Frequency (MHz)	Average Power (dBm)	Tune-up power (dBm)
BLE	1Mbps	CH 00	2402	0.347	1.0
		CH 19	2440	0.177	1.0
		CH 39	2480	0.768	1.0

NFC - Maximum Average Power			
Test Mode	Frequency (MHz)	Average Power(dBm)	Tune-up power (dBm)
NFC	13.56	-28.53	-25

Remark:

Bluetooth and NFC maximum output power is 0.815dBm and--28.53dBm respectively, and Maximum Tune-Up output power is 1.0dBm and-25dBm 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:

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

- f(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
1.0	1.26	5	2.480	0.40	3

The exclusion thresholds is $0.40 < 3$, therefore, the RF exposure evaluation is not required.

NFC:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
-25	0.0032	5	0.01356	0.00007	3

The exclusion thresholds is $0.00007 < 3$, therefore, the RF exposure evaluation is not required.

9.2 Test Results for Standalone SAR Test

Head SAR

GSM850 – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
1.	GSM	Right Cheek	128	824.2	32.35	32.5	1.035	0.270	0.279
2.	GSM	Right Tilted	128	824.2	32.35	32.5	1.035	0.145	0.150
3.	GSM	Left Cheek	128	824.2	32.35	32.5	1.035	0.225	0.233
4.	GSM	Left Tilted	128	824.2	32.35	32.5	1.035	0.115	0.119

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	661	1880.0	29.66	30.0	1.081	0.188	0.203
6.	GSM	Right Tilted	661	1880.0	29.66	30.0	1.081	0.109	0.118
7.	GSM	Left Cheek	661	1880.0	29.66	30.0	1.081	0.198	0.214
8.	GSM	Left Tilted	661	1880.0	29.66	30.0	1.081	0.117	0.127

GPRS850 – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
9.	GPRS_4TX	Right Cheek	128	824.2	29.24	29.5	1.062	0.118	0.125
10.	GPRS_4TX	Right Tilted	128	824.2	29.24	29.5	1.062	0.065	0.069
11.	GPRS_4TX	Left Cheek	128	824.2	29.24	29.5	1.062	0.113	0.120
12.	GPRS_4TX	Left Tilted	128	824.2	29.24	29.5	1.062	0.058	0.062

GPRS1900 – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	M Hz					
13.	GPRS_4TX	Right Cheek	810	1909.8	26.24	26.5	1.062	0.144	0.153
14.	GPRS_4TX	Right Tilted	810	1909.8	26.24	26.5	1.062	0.113	0.120
15.	GPRS_4TX	Left Cheek	810	1909.8	26.24	26.5	1.062	0.425	0.451
16.	GPRS_4TX	Left Tilted	810	1909.8	26.24	26.5	1.062	0.251	0.266

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	22.80	23.0	1.047	0.308	0.323
18.	RMC	Right Tilted	9538	1907.6	22.80	23.0	1.047	0.135	0.141
19.	RMC	Left Cheek	9538	1907.6	22.80	23.0	1.047	0.345	0.361
20.	RMC	Left Tilted	9538	1907.6	22.80	23.0	1.047	0.147	0.154

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	4182	836.6	22.43	23.0	1.140	0.282	0.322
22.	RMC	Right Tilted	4182	836.6	22.43	23.0	1.140	0.125	0.143
23.	RMC	Left Cheek	4182	836.6	22.43	23.0	1.140	0.257	0.293
24.	RMC	Left Tilted	4182	836.6	22.43	23.0	1.140	0.109	0.124

WCDMA Band 4 – 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					
25.	RMC	Right Cheek	1312	1712.4	22.81	23.0	1.045	0.235	0.246
26.	RMC	Right Tilted	1312	1712.4	22.81	23.0	1.045	0.115	0.120
27.	RMC	Left Cheek	1312	1712.4	22.81	23.0	1.045	0.367	0.383
28.	RMC	Left Tilted	1312	1712.4	22.81	23.0	1.045	0.198	0.207

LTE Band 2– Head SAR Test								
Pl ot 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					
29.	RMC QPSK 20MHz 1RB	Right Cheek	1860.0	24.56	25.0	1.107	0.222	0.246
30.	RMC QPSK 20MHz 1RB	Right Tilted	1860.0	24.56	25.0	1.107	0.118	0.131
31.	RMC QPSK 20MHz 1RB	Left Cheek	1860.0	24.56	25.0	1.107	0.468	0.518
32.	RMC QPSK 20MHz 1RB	Left Tilted	1860.0	24.56	25.0	1.107	0.206	0.228
33.	RMC QPSK 20MHz 50%RB	Right Cheek	1860.0	23.75	24.0	1.059	0.121	0.128
34.	RMC QPSK 20MHz 50%RB	Right Tilted	1860.0	23.75	24.0	1.059	0.109	0.115
35.	RMC QPSK 20MHz 50%RB	Left Cheek	1860.0	23.75	24.0	1.059	0.215	0.228
36.	RMC QPSK 20MHz 50%RB	Left Tilted	1860.0	23.75	24.0	1.059	0.107	0.113

LTE Band 4– Head SAR Test								
Plot No.	Mode	Test Position Head	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
37.	RMC QPSK 20MHz 1RB	Right Cheek	1720.0	23.09	23.5	1.099	0.171	0.188
38.	RMC QPSK 20MHz 1RB	Right Tilted	1720.0	23.09	23.5	1.099	0.112	0.123
39.	RMC QPSK 20MHz 1RB	Left Cheek	1720.0	23.09	23.5	1.099	0.316	0.347
40.	RMC QPSK 20MHz 1RB	Left Tilted	1720.0	23.09	23.5	1.099	0.154	0.169
41.	RMC QPSK 20MHz 50%RB	Right Cheek	1720.0	22.35	22.5	1.035	0.106	0.110
42.	RMC QPSK 20MHz 50%RB	Right Tilted	1720.0	22.35	22.5	1.035	0.068	0.070
43.	RMC QPSK 20MHz 50%RB	Left Cheek	1720.0	22.35	22.5	1.035	0.139	0.144
44.	RMC QPSK 20MHz 50%RB	Left Tilted	1720.0	22.35	22.5	1.035	0.113	0.117

LTE 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)
	Modulation, Bandwidth, RB		MHz					
45.	RMC QPSK 10MHz 1RB	Right Cheek	829.0	23.94	24.5	1.138	0.319	0.363
46.	RMC QPSK 10MHz 1RB	Right Tilted	829.0	23.94	24.5	1.138	0.158	0.180
47.	RMC QPSK 10MHz 1RB	Left Cheek	829.0	23.94	24.5	1.138	0.3	0.341
48.	RMC QPSK 10MHz 1RB	Left Tilted	829.0	23.94	24.5	1.138	0.139	0.158
49.	RMC QPSK 10MHz 50%RB	Right Cheek	829.0	23.25	23.5	1.059	0.171	0.181
50.	RMC QPSK 10MHz 50%RB	Right Tilted	829.0	23.25	23.5	1.059	0.113	0.120
51.	RMC QPSK 10MHz 50%RB	Left Cheek	829.0	23.25	23.5	1.059	0.165	0.175
52.	RMC QPSK 10MHz 50%RB	Left Tilted	829.0	23.25	23.5	1.059	0.121	0.128

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					
53.	RMC QPSK 20MHz 1RB	Right Cheek	2510.0	22.84	23.0	1.038	0.105	0.109
54.	RMC QPSK 20MHz 1RB	Right Tilted	2510.0	22.84	23.0	1.038	0.067	0.070
55.	RMC QPSK 20MHz 1RB	Left Cheek	2510.0	22.84	23.0	1.038	0.178	0.185
56.	RMC QPSK 20MHz 1RB	Left Tilted	2510.0	22.84	23.0	1.038	0.113	0.117
57.	RMC QPSK 20MHz 50%RB	Right Cheek	2510.0	21.79	22.0	1.050	0.069	0.072
58.	RMC QPSK 20MHz 50%RB	Right Tilted	2510.0	21.79	22.0	1.050	0.036	0.038
59.	RMC QPSK 20MHz 50%RB	Left Cheek	2510.0	21.79	22.0	1.050	0.104	0.109
60.	RMC QPSK 20MHz 50%RB	Left Tilted	2510.0	21.79	22.0	1.050	0.051	0.054

LTE Band 12– Head SAR Test								
Plot No.	Mode	Test Position Head	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
61.	RMC QPSK 10MHz 1RB	Right Cheek	704.0	22.95	23.5	1.135	0.089	0.101
62.	RMC QPSK 10MHz 1RB	Right Tilted	704.0	22.95	23.5	1.135	0.048	0.054
63.	RMC QPSK 10MHz 1RB	Left Cheek	704.0	22.95	23.5	1.135	0.093	0.106
64.	RMC QPSK 10MHz 1RB	Left Tilted	704.0	22.95	23.5	1.135	0.053	0.060
65.	RMC QPSK 10MHz 50%RB	Right Cheek	704.0	22.23	22.5	1.064	0.041	0.044
66.	RMC QPSK 10MHz 50%RB	Right Tilted	704.0	22.23	22.5	1.064	0.027	0.029
67.	RMC QPSK 10MHz 50%RB	Left Cheek	704.0	22.23	22.5	1.064	0.061	0.065
68.	RMC QPSK 10MHz 50%RB	Left Tilted	704.0	22.23	22.5	1.064	0.029	0.031

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					
69.	802.11b	Right Cheek	01	2412	12.45	13.0	1.135	0.017	0.019
70.	802.11b	Right Tilted	01	2412	12.45	13.0	1.135	0.011	0.012
71.	802.11b	Left Cheek	01	2412	12.45	13.0	1.135	0.038	0.043
72.	802.11b	Left Tilted	01	2412	12.45	13.0	1.135	0.019	0.022

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					
73.	GSM	Back	128	824.2	32.35	32.5	1.035	0.176	0.182
74.	GSM	Front	128	824.2	32.35	32.5	1.035	0.098	0.101

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					
75.	GSM	Back	661	1880.0	29.66	30.0	1.081	0.254	0.275
76.	GSM	Front	661	1880.0	29.66	30.0	1.081	0.253	0.274

WCDMA Band 2 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
85	RMC 12.2k	Back Side	9538	1907.6	22.80	23.0	1.047	0.478	0.501
86	RMC 12.2k	Front Side	9538	1907.6	22.80	23.0	1.047	0.480	0.503

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					
89	RMC 12.2k	Back Side	4182	836.6	22.43	23.0	1.140	0.338	0.385
90	RMC 12.2k	Front Side	4182	836.6	22.43	23.0	1.140	0.277	0.316

WCDMA 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)
			CH.	MHz					
93	RMC 12.2k	Back Side	1312	1712.4	22.81	23.0	1.045	0.421	0.440
94	RMC 12.2k	Front Side	1312	1712.4	22.81	23.0	1.045	0.392	0.410

LTE Band 2–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position Body	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
97	RMC QPSK 20MHz 1RB	Back Side	1860.0	24.56	25.0	1.107	0.429	0.475
98	RMC QPSK 20MHz 1RB	Front Side	1860.0	24.56	25.0	1.107	0.566	0.626
101	RMC QPSK 20MHz 50%RB	Back Side	1860.0	23.75	24.0	1.059	0.222	0.235
102	RMC QPSK 20MHz 50%RB	Front Side	1860.0	23.75	24.0	1.059	0.313	0.332

LTE Band 4–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position Body	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
105	RMC QPSK 20MHz 1RB	Back Side	1720.0	23.09	23.5	1.099	0.345	0.379
106	RMC QPSK 20MHz 1RB	Front Side	1720.0	23.09	23.5	1.099	0.332	0.365
109	RMC QPSK 20MHz 50%RB	Back Side	1720.0	22.35	22.5	1.035	0.208	0.215
110	RMC QPSK 20MHz 50%RB	Front Side	1720.0	22.35	22.5	1.035	0.189	0.196

LTE 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)
	Modulation, Bandwidth, RB		MHz					
113	RMC QPSK 10MHz 1RB	Back Side	829.0	23.94	24.5	1.138	0.396	0.451
114	RMC QPSK 10MHz 1RB	Front Side	829.0	23.94	24.5	1.138	0.317	0.361
117	RMC QPSK 10MHz 50%RB	Back Side	829.0	23.25	23.5	1.059	0.165	0.175
118	RMC QPSK 10MHz 50%RB	Front Side	829.0	23.25	23.5	1.059	0.143	0.151

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					
121	RMC QPSK 20MHz 1RB	Back Side	2510.0	22.84	23.0	1.038	0.985	1.022
122	RMC QPSK 20MHz 1RB	Back Side	2535.0	22.38	23.0	1.153	0.949	1.095
123	RMC QPSK 20MHz 1RB	Back Side	2560.0	22.15	23.0	1.216	0.629	0.765
124	RMC QPSK 20MHz 1RB	Front Side	2510.0	22.84	23.0	1.038	0.436	0.452
129	RMC QPSK 20MHz 50%RB	Back Side	2510.0	21.79	22.0	1.050	0.517	0.543
130	RMC QPSK 20MHz 50%RB	Front Side	2510.0	21.79	22.0	1.050	0.231	0.242
133	RMC QPSK 20MHz 100%RB	Back Side	2510.0	21.75	22.0	1.059	0.476	0.504

LTE Band 12–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					
135	RMC QPSK 10MHz 1RB	Back Side	704.0	22.95	23.5	1.135	0.194	0.220
136	RMC QPSK 10MHz 1RB	Front Side	704.0	22.95	23.5	1.135	0.133	0.151
139	RMC QPSK 10MHz 50%RB	Back Side	704.0	22.23	22.5	1.064	0.111	0.118
140	RMC QPSK 10MHz 50%RB	Front Side	704.0	22.23	22.5	1.064	0.068	0.072

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					
143	802.11b	Back Side	01	2412	12.45	13.0	1.135	0.024	0.027
144	802.11b	Front Side	01	2412	12.45	13.0	1.135	0.014	0.016

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					
77.	GPRS_4TX	Back Side	128	824.2	29.24	29.5	1.062	0.514	0.546
78.	GPRS_4TX	Front Side	128	824.2	29.24	29.5	1.062	0.133	0.141
79.	GPRS_4TX	Bottom side	128	824.2	29.24	29.5	1.062	0.223	0.237
80.	GPRS_4TX	Left side	128	824.2	29.24	29.5	1.062	0.112	0.119

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					
81.	GPRS_4TX	Back Side	810	1909.8	26.24	26.5	1.062	0.355	0.377
82.	GPRS_4TX	Front Side	810	1909.8	26.24	26.5	1.062	0.433	0.460
83.	GPRS_4TX	Bottom side	810	1909.8	26.24	26.5	1.062	0.376	0.399
84.	GPRS_4TX	Left side	810	1909.8	26.24	26.5	1.062	0.165	0.175

WCDMA Band 2 – Body SAR Test (Gap: 10mm)									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
85.	RMC 12.2k	Back Side	9538	1907.6	22.80	23.0	1.047	0.478	0.501
86.	RMC 12.2k	Front Side	9538	1907.6	22.80	23.0	1.047	0.48	0.503
87.	RMC 12.2k	Bottom side	9538	1907.6	22.80	23.0	1.047	0.488	0.511
88.	RMC 12.2k	Left side	9538	1907.6	22.80	23.0	1.047	0.223	0.234

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					
89.	RMC 12.2k	Back Side	4182	836.6	22.43	23.0	1.140	0.338	0.385
90.	RMC 12.2k	Front Side	4182	836.6	22.43	23.0	1.140	0.277	0.316
91.	RMC 12.2k	Bottom side	4182	836.6	22.43	23.0	1.140	0.152	0.173
92.	RMC 12.2k	Left side	4182	836.6	22.43	23.0	1.140	0.113	0.129

WCDMA 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)
			CH.	MHz					
93.	RMC 12.2k	Back Side	1312	1712.4	22.81	23.0	1.045	0.421	0.440
94.	RMC 12.2k	Front Side	1312	1712.4	22.81	23.0	1.045	0.392	0.410
95.	RMC 12.2k	Bottom side	1312	1712.4	22.81	23.0	1.045	0.339	0.354
96.	RMC 12.2k	Left side	1312	1712.4	22.81	23.0	1.045	0.165	0.172

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					
97.	RMC QPSK 20MHz 1RB	Back Side	1860.0	24.56	25.0	1.107	0.429	0.475
98.	RMC QPSK 20MHz 1RB	Front Side	1860.0	24.56	25.0	1.107	0.566	0.626
99.	RMC QPSK 20MHz 1RB	Bottom side	1860.0	24.56	25.0	1.107	0.487	0.539
100.	RMC QPSK 20MHz 1RB	Left side	1860.0	24.56	25.0	1.107	0.213	0.236
101.	RMC QPSK 20MHz 50%RB	Back Side	1860.0	23.75	24.0	1.059	0.222	0.235
102.	RMC QPSK 20MHz 50%RB	Front Side	1860.0	23.75	24.0	1.059	0.313	0.332
103.	RMC QPSK 20MHz 50%RB	Bottom side	1860.0	23.75	24.0	1.059	0.269	0.285
104.	RMC QPSK 20MHz 50%RB	Left side	1860.0	23.75	24.0	1.059	0.11	0.117

LTE Band 4–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position	Freque ncy	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
105.	RMC QPSK 20MHz 1RB	Back Side	1720.0	23.09	23.5	1.099	0.345	0.379
106.	RMC QPSK 20MHz 1RB	Front Side	1720.0	23.09	23.5	1.099	0.332	0.365
107.	RMC QPSK 20MHz 1RB	Bottom side	1720.0	23.09	23.5	1.099	0.248	0.273
108.	RMC QPSK 20MHz 1RB	Left side	1720.0	23.09	23.5	1.099	0.124	0.136
109.	RMC QPSK 20MHz 50%RB	Back Side	1720.0	22.35	22.5	1.035	0.208	0.215
110.	RMC QPSK 20MHz 50%RB	Front Side	1720.0	22.35	22.5	1.035	0.189	0.196
111.	RMC QPSK 20MHz 50%RB	Bottom side	1720.0	22.35	22.5	1.035	0.108	0.112
112.	RMC QPSK 20MHz 50%RB	Left side	1720.0	22.35	22.5	1.035	0.087	0.090

LTE 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)
	Modulation, Bandwidth, RB		MHz					
113.	RMC QPSK 10MHz 1RB	Back Side	829.0	23.94	24.5	1.138	0.396	0.451
114.	RMC QPSK 10MHz 1RB	Front Side	829.0	23.94	24.5	1.138	0.317	0.361
115.	RMC QPSK 10MHz 1RB	Bottom side	829.0	23.94	24.5	1.138	0.162	0.184
116.	RMC QPSK 10MHz 1RB	Left side	829.0	23.94	24.5	1.138	0.103	0.117
117.	RMC QPSK 10MHz 50%RB	Back Side	829.0	23.25	23.5	1.059	0.165	0.175
118.	RMC QPSK 10MHz 50%RB	Front Side	829.0	23.25	23.5	1.059	0.143	0.151
119.	RMC QPSK 10MHz 50%RB	Bottom side	829.0	23.25	23.5	1.059	0.104	0.110
120.	RMC QPSK 10MHz 50%RB	Left side	829.0	23.25	23.5	1.059	0.056	0.059

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					
121.	RMC QPSK 20MHz 1RB	Back Side	2510.0	22.84	23.0	1.038	0.985	1.022
122.	RMC QPSK 20MHz 1RB	Back Side	2535.0	22.38	23.0	1.153	0.949	1.095
123.	RMC QPSK 20MHz 1RB	Back Side	2560.0	22.15	23.0	1.216	0.629	0.765
124.	RMC QPSK 20MHz 1RB	Front Side	2510.0	22.84	23.0	1.038	0.436	0.452
125.	RMC QPSK 20MHz 1RB	Bottom side	2510.0	22.84	23.0	1.038	1.126	1.168
126.	RMC QPSK 20MHz 1RB	Bottom side	2535.0	22.38	23.0	1.153	1.122	1.294
127.	RMC QPSK 20MHz 1RB	Bottom side	2560.0	22.15	23.0	1.216	0.73	0.888
128.	RMC QPSK 20MHz 1RB	Left side	2510.0	22.84	23.0	1.038	0.451	0.468
129.	RMC QPSK 20MHz 50%RB	Back Side	2510.0	21.79	22.0	1.050	0.517	0.543
130.	RMC QPSK 20MHz 50%RB	Front Side	2510.0	21.79	22.0	1.050	0.231	0.242
131.	RMC QPSK 20MHz 50%RB	Bottom side	2510.0	21.79	22.0	1.050	0.632	0.663
132.	RMC QPSK 20MHz 50%RB	Left side	2510.0	21.79	22.0	1.050	0.239	0.251
133.	RMC QPSK 20MHz 100%RB	Back Side	2510.0	21.75	22.0	1.059	0.476	0.504
134.	RMC QPSK 20MHz 100%RB	Bottom side	2510.0	21.75	22.0	1.059	0.643	0.681

LTE Band 12–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					
135.	RMC QPSK 10MHz 1RB	Back Side	704.0	22.95	23.5	1.135	0.194	0.220
136.	RMC QPSK 10MHz 1RB	Front Side	704.0	22.95	23.5	1.135	0.133	0.151
137.	RMC QPSK 10MHz 1RB	Bottom side	704.0	22.95	23.5	1.135	0.055	0.062
138.	RMC QPSK 10MHz 1RB	Left side	704.0	22.95	23.5	1.135	0.027	0.031
139.	RMC QPSK 10MHz 50%RB	Back Side	704.0	22.23	22.5	1.064	0.111	0.118
140.	RMC QPSK 10MHz 50%RB	Front Side	704.0	22.23	22.5	1.064	0.068	0.072
141.	RMC QPSK 10MHz 50%RB	Bottom side	704.0	22.23	22.5	1.064	0.037	0.039
142.	RMC QPSK 10MHz 50%RB	Left side	704.0	22.23	22.5	1.064	0.015	0.016

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					
143.	802.11b	Back Side	01	2412	12.45	13.0	1.135	0.024	0.027
144.	802.11b	Front Side	01	2412	12.45	13.0	1.135	0.014	0.016
145.	802.11b	Right side	01	2412	12.45	13.0	1.135	0.007	0.008
146.	802.11b	Top Side	01	2412	12.45	13.0	1.135	0.011	0.012

Extremity SAR

LTE Band 7–Body SAR Test (Gap: 0mm)								
Plot No.	Mode	Test Position Body	Freque ncy	Outp ut Powe r (dBm)	Rated Limit (dBm)	Scaling Factor	SAR10 g (W/kg)	Scaled SAR10 g (W/kg)
	Modulation, Bandwidth, RB		MHz					
147.	RMC QPSK 20MHz 1RB	Bottom side	2510.0	22.84	23.0	1.038	1.045	1.084

Repeated SAR

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					
148.	RMC QPSK 20MHz 1RB	Bottom side	2510.0	22.84	23.0	1.038	1.120	1.162

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/Data) + Bluetooth(Data)	Yes	Yes	-
6	LTE(Data) + Bluetooth(Data)	Yes	Yes	-

Remark:

1. GSM and WCDMA share the same antenna, and cannot transmit simultaneously.
2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. According to the KDB 447498 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:

$(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / x] \text{ W/kg}$ for test separation distances $\leq 50 \text{ mm}$;

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
1.0	1.26	5/10	2.480	7.5	0.053	0.026

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	0.279	0.019	0.298
Right Tilted	GSM850	0.150	0.012	0.162
Left Cheek	GSM850	0.233	0.043	0.276
Left Tilted	GSM850	0.119	0.022	0.141
Right Cheek	GSM1900	0.203	0.019	0.222
Right Tilted	GSM1900	0.118	0.012	0.13
Left Cheek	GSM1900	0.214	0.043	0.257
Left Tilted	GSM1900	0.127	0.022	0.149
Right Cheek	GPRS850	0.125	0.019	0.144
Right Tilted	GPRS850	0.069	0.012	0.081
Left Cheek	GPRS850	0.120	0.043	0.163
Left Tilted	GPRS850	0.062	0.022	0.084
Right Cheek	GPRS1900	0.153	0.019	0.172
Right Tilted	GPRS1900	0.120	0.012	0.132
Left Cheek	GPRS1900	0.451	0.043	0.494
Left Tilted	GPRS1900	0.266	0.022	0.288
Right Cheek	WCDMA Band 2	0.323	0.019	0.342
Right Tilted	WCDMA Band 2	0.141	0.012	0.153
Left Cheek	WCDMA Band 2	0.361	0.043	0.404
Left Tilted	WCDMA Band 2	0.154	0.022	0.176
Right Cheek	WCDMA Band 5	0.322	0.019	0.341
Right Tilted	WCDMA Band 5	0.143	0.012	0.155
Left Cheek	WCDMA Band 5	0.293	0.043	0.336
Left Tilted	WCDMA Band 5	0.124	0.022	0.146
Right Cheek	WCDMA Band 4	0.246	0.019	0.265
Right Tilted	WCDMA Band 4	0.120	0.012	0.132
Left Cheek	WCDMA Band 4	0.383	0.043	0.426
Left Tilted	WCDMA Band 4	0.207	0.022	0.229
Right Cheek	LTE Band 2	0.246	0.019	0.265
Right Tilted	LTE Band 2	0.131	0.012	0.143
Left Cheek	LTE Band 2	0.518	0.043	0.561
Left Tilted	LTE Band 2	0.228	0.022	0.25
Right Cheek	LTE Band 4	0.188	0.019	0.207
Right Tilted	LTE Band 4	0.123	0.012	0.135
Left Cheek	LTE Band 4	0.347	0.043	0.39
Left Tilted	LTE Band 4	0.169	0.022	0.191
Right Cheek	LTE Band 5	0.363	0.019	0.382

Right Tilted	LTE Band 5	0.180	0.012	0.192
Left Cheek	LTE Band 5	0.341	0.043	0.384
Left Tilted	LTE Band 5	0.158	0.022	0.18
Right Cheek	LTE Band 7	0.109	0.019	0.128
Right Tilted	LTE Band 7	0.070	0.012	0.082
Left Cheek	LTE Band 7	0.185	0.043	0.228
Left Tilted	LTE Band 7	0.117	0.022	0.139
Right Cheek	LTE Band 12	0.101	0.019	0.12
Right Tilted	LTE Band 12	0.054	0.012	0.066
Left Cheek	LTE Band 12	0.106	0.043	0.149
Left Tilted	LTE Band 12	0.060	0.022	0.082

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Right Cheek	GSM850	0.279	0.053	0.332
Right Tilted	GSM850	0.150	0.053	0.203
Left Cheek	GSM850	0.233	0.053	0.286
Left Tilted	GSM850	0.119	0.053	0.172
Right Cheek	GSM1900	0.203	0.053	0.256
Right Tilted	GSM1900	0.118	0.053	0.171
Left Cheek	GSM1900	0.214	0.053	0.267
Left Tilted	GSM1900	0.127	0.053	0.18
Right Cheek	GPRS850	0.125	0.053	0.178
Right Tilted	GPRS850	0.069	0.053	0.122
Left Cheek	GPRS850	0.120	0.053	0.173
Left Tilted	GPRS850	0.062	0.053	0.115
Right Cheek	GPRS1900	0.153	0.053	0.206
Right Tilted	GPRS1900	0.120	0.053	0.173
Left Cheek	GPRS1900	0.451	0.053	0.504
Left Tilted	GPRS1900	0.266	0.053	0.319
Right Cheek	WCDMA Band 2	0.323	0.053	0.376
Right Tilted	WCDMA Band 2	0.141	0.053	0.194
Left Cheek	WCDMA Band 2	0.361	0.053	0.414
Left Tilted	WCDMA Band 2	0.154	0.053	0.207
Right Cheek	WCDMA Band 5	0.322	0.053	0.375
Right Tilted	WCDMA Band 5	0.143	0.053	0.196
Left Cheek	WCDMA Band 5	0.293	0.053	0.346
Left Tilted	WCDMA Band 5	0.124	0.053	0.177
Right Cheek	WCDMA Band 4	0.246	0.053	0.299
Right Tilted	WCDMA Band 4	0.120	0.053	0.173
Left Cheek	WCDMA Band 4	0.383	0.053	0.436
Left Tilted	WCDMA Band 4	0.207	0.053	0.26
Right Cheek	LTE Band 2	0.246	0.053	0.299
Right Tilted	LTE Band 2	0.131	0.053	0.184
Left Cheek	LTE Band 2	0.518	0.053	0.571
Left Tilted	LTE Band 2	0.228	0.053	0.281
Right Cheek	LTE Band 4	0.188	0.053	0.241
Right Tilted	LTE Band 4	0.123	0.053	0.176
Left Cheek	LTE Band 4	0.347	0.053	0.4
Left Tilted	LTE Band 4	0.169	0.053	0.222
Right Cheek	LTE Band 5	0.363	0.053	0.416
Right Tilted	LTE Band 5	0.180	0.053	0.233

Left Cheek	LTE Band 5	0.341	0.053	0.394
Left Tilted	LTE Band 5	0.158	0.053	0.211
Right Cheek	LTE Band 7	0.109	0.053	0.162
Right Tilted	LTE Band 7	0.070	0.053	0.123
Left Cheek	LTE Band 7	0.185	0.053	0.238
Left Tilted	LTE Band 7	0.117	0.053	0.17
Right Cheek	LTE Band 12	0.101	0.053	0.154
Right Tilted	LTE Band 12	0.054	0.053	0.107
Left Cheek	LTE Band 12	0.106	0.053	0.159
Left Tilted	LTE Band 12	0.060	0.053	0.113

Body-worn SAR
WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Back	GSM850	0.182	0.027	0.209
Front	GSM850	0.101	0.016	0.117
Back	GSM1900	0.275	0.027	0.302
Front	GSM1900	0.274	0.016	0.29
Back	WCDMA Band 2	0.501	0.027	0.528
Front	WCDMA Band 2	0.503	0.016	0.519
Back	WCDMA Band 5	0.385	0.027	0.412
Front	WCDMA Band 5	0.316	0.016	0.332
Back	WCDMA Band 4	0.440	0.027	0.467
Front	WCDMA Band 4	0.410	0.016	0.426
Back	LTE Band 2	0.475	0.027	0.502
Front	LTE Band 2	0.626	0.016	0.642
Back	LTE Band 4	0.379	0.027	0.406
Front	LTE Band 4	0.365	0.016	0.381
Back	LTE Band 5	0.451	0.027	0.478
Front	LTE Band 5	0.361	0.016	0.377
Back	LTE Band 7	1.095	0.027	1.122
Front	LTE Band 7	0.452	0.016	0.468
Back	LTE Band 12	0.220	0.027	0.247
Front	LTE Band 12	0.151	0.016	0.167

WWAN and Bluetooth

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Back	GSM850	0.182	0.026	0.208
Front	GSM850	0.101	0.026	0.127
Back	GSM1900	0.275	0.026	0.301
Front	GSM1900	0.274	0.026	0.3
Back	WCDMA Band 2	0.501	0.026	0.527
Front	WCDMA Band 2	0.503	0.026	0.529
Back	WCDMA Band 5	0.385	0.026	0.411
Front	WCDMA Band 5	0.316	0.026	0.342
Back	WCDMA Band 4	0.440	0.026	0.466
Front	WCDMA Band 4	0.410	0.026	0.436
Back	LTE Band 2	0.475	0.026	0.501
Front	LTE Band 2	0.626	0.026	0.652

Back	LTE Band 4	0.379	0.026	0.405
Front	LTE Band 4	0.365	0.026	0.391
Back	LTE Band 5	0.451	0.026	0.477
Front	LTE Band 5	0.361	0.026	0.387
Back	LTE Band 7	1.095	0.026	1.121
Front	LTE Band 7	0.452	0.026	0.478
Back	LTE Band 12	0.220	0.026	0.246
Front	LTE Band 12	0.151	0.026	0.177

Hotspot SAR

WWAN and WLAN

	WWAN		WLAN	Summed SAR (W/kg)
Position	Band	Scaled SAR (W/kg)	Scaled SAR (W/kg)	
Back	GSM850	0.546	0.027	0.573
Front	GSM850	0.141	0.016	0.157
Top side	GSM850	--	0.012	0.012
Bottom side	GSM850	0.237	--	0.237
Right side	GSM850	--	0.008	0.008
Left side	GSM850	0.119	--	0.119
Back	GSM1900	0.377	0.027	0.404
Front	GSM1900	0.460	0.016	0.476
Top side	GSM1900	--	0.012	0.012
Bottom side	GSM1900	0.399	--	0.399
Right side	GSM1900	--	0.008	0.008
Left side	GSM1900	0.175	--	0.175
Back	WCDMA Band 2	0.501	0.027	0.528
Front	WCDMA Band 2	0.503	0.016	0.519
Top side	WCDMA Band 2	--	0.012	0.012
Bottom side	WCDMA Band 2	0.511	--	0.511
Right side	WCDMA Band 2	--	0.008	0.008
Left side	WCDMA Band 2	0.234	--	0.234
Back	WCDMA Band 5	0.385	0.027	0.412
Front	WCDMA Band 5	0.316	0.016	0.332
Top side	WCDMA Band 5	--	0.012	0.012
Bottom side	WCDMA Band 5	0.173	--	0.173
Right side	WCDMA Band 5	--	0.008	0.008
Left side	WCDMA Band 5	0.129	--	0.129
Back	WCDMA Band 4	0.440	0.027	0.467
Front	WCDMA Band 4	0.410	0.016	0.426
Top side	WCDMA Band 4	--	0.012	0.012
Bottom side	WCDMA Band 4	0.354	--	0.354
Right side	WCDMA Band 4	--	0.008	0.008

Left side	WCDMA Band 4	0.172	--	0.172
Back	LTE Band 2	0.475	0.027	0.502
Front	LTE Band 2	0.626	0.016	0.642
Top side	LTE Band 2	--	0.012	0.012
Bottom side	LTE Band 2	0.539	--	0.539
Right side	LTE Band 2	--	0.008	0.008
Left side	LTE Band 2	0.236	--	0.236
Back	LTE Band 4	0.379	0.027	0.406
Front	LTE Band 4	0.365	0.016	0.381
Top side	LTE Band 4	--	0.012	0.012
Bottom side	LTE Band 4	0.273	--	0.273
Right side	LTE Band 4	--	0.008	0.008
Left side	LTE Band 4	0.136	--	0.136
Back	LTE Band 5	0.451	0.027	0.478
Front	LTE Band 5	0.361	0.016	0.377
Top side	LTE Band 5	--	0.012	0.012
Bottom side	LTE Band 5	0.184	--	0.184
Right side	LTE Band 5	--	0.008	0.008
Left side	LTE Band 5	0.117	--	0.117
Back	LTE Band 7	1.095	0.027	1.122
Front	LTE Band 7	0.452	0.016	0.468
Top side	LTE Band 7	--	0.012	0.012
Bottom side	LTE Band 7	1.294	--	1.294
Right side	LTE Band 7	--	0.008	0.008
Left side	LTE Band 7	0.468	--	0.468
Back	LTE Band 12	0.220	0.027	0.247
Front	LTE Band 12	0.151	0.016	0.167
Top side	LTE Band 12	--	0.012	0.012
Bottom side	LTE Band 12	0.062	--	0.062
Right side	LTE Band 12	--	0.008	0.008
Left side	LTE Band 12	0.031	--	0.031

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: 09/03/2018

Measurement duration: 7 minutes 21 seconds

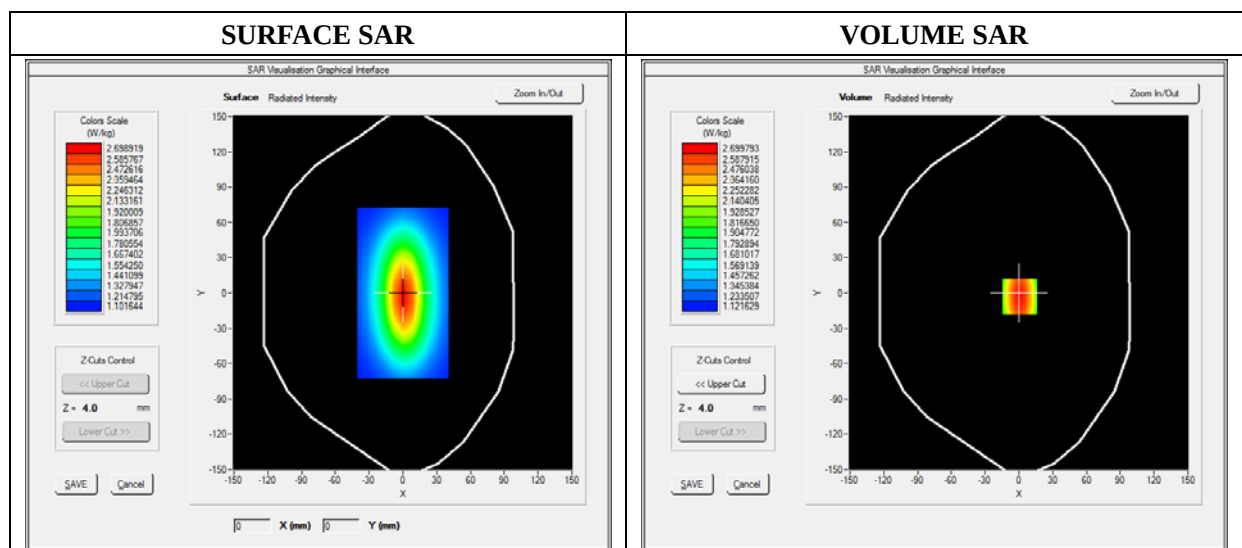
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.99; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

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

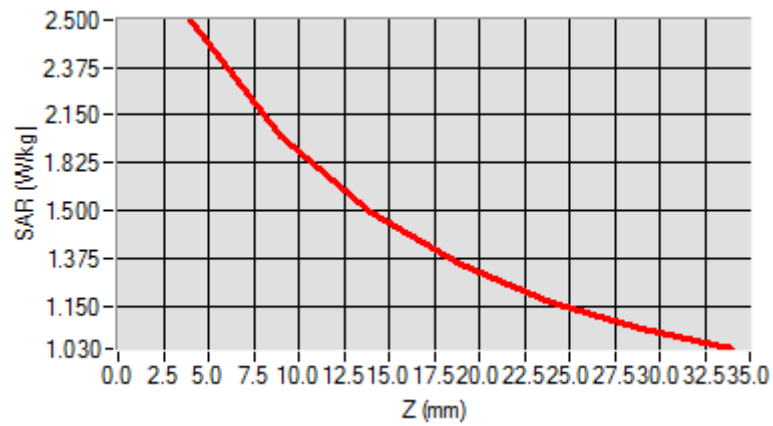


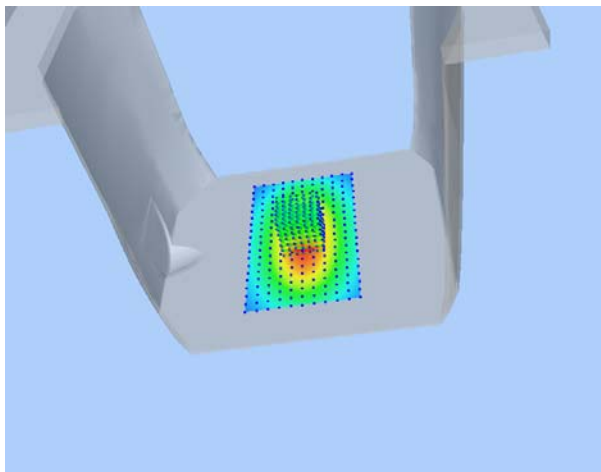
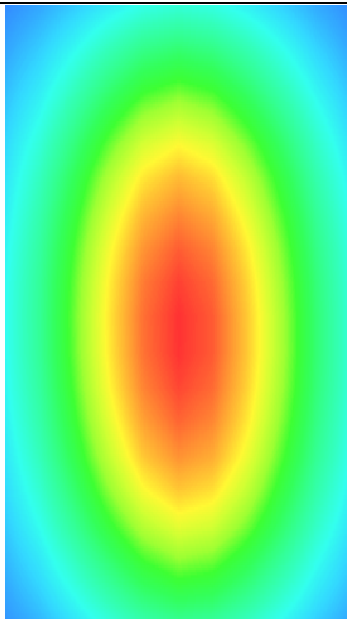
Maximum location: X=0.00, Y=0.00

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

Z Axis Scan

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



3D screen shot	Hot spot position
	

MEASUREMENT 2

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/03/2018

Measurement duration: 7 minutes 21 seconds

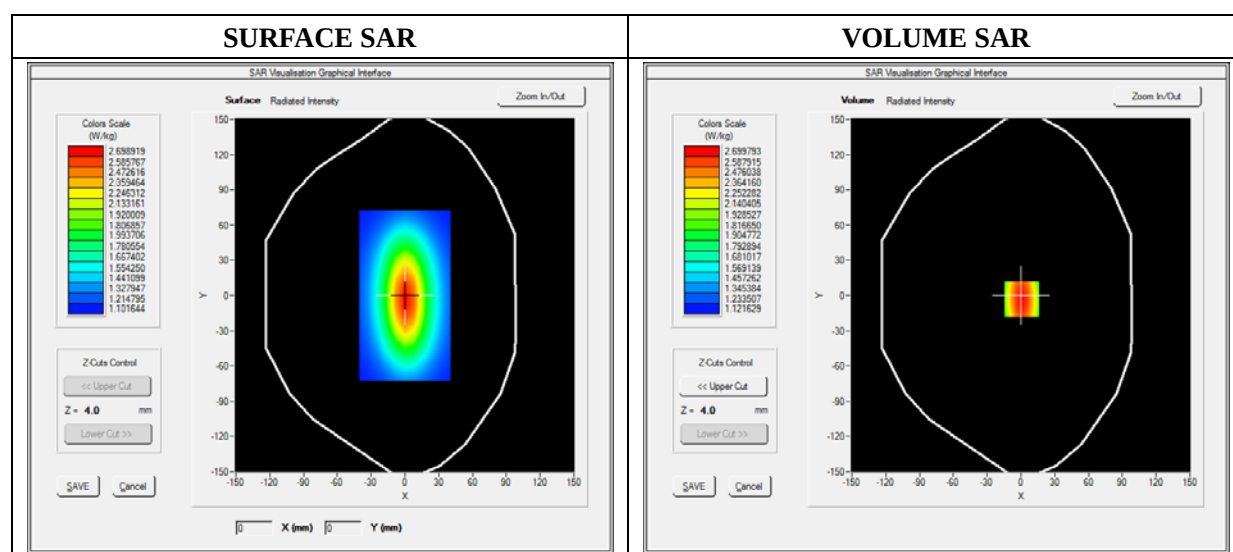
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2018

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

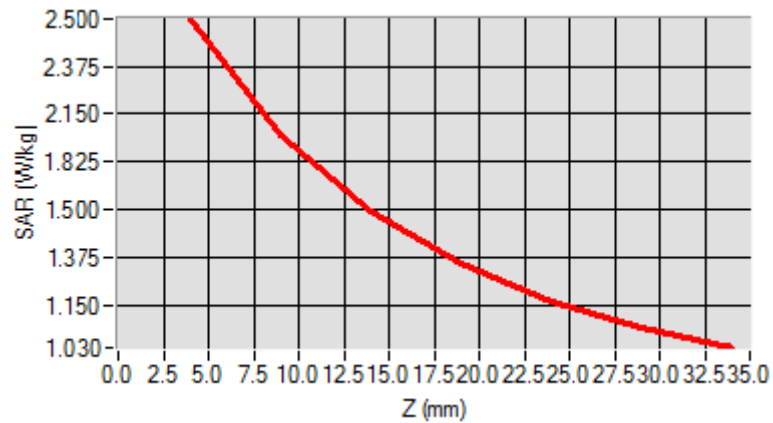


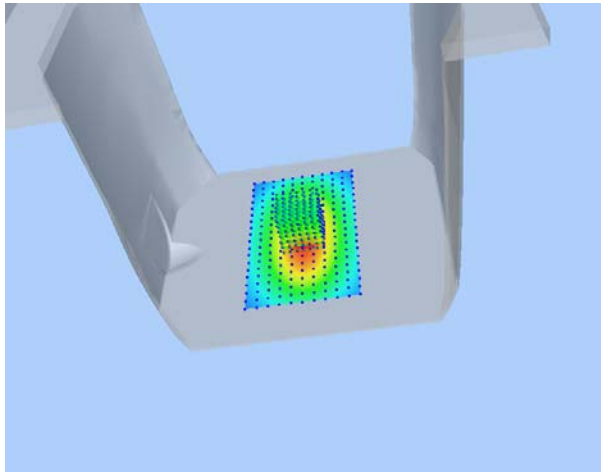
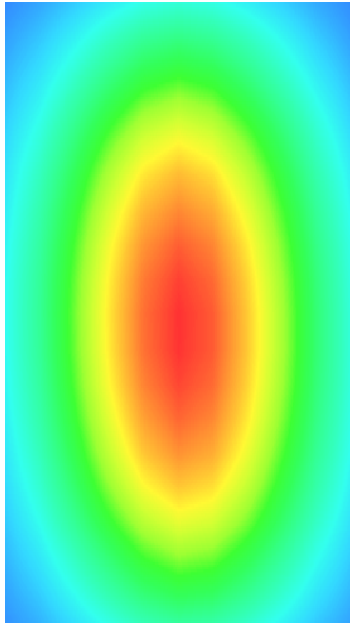
Maximum location: X=0.00, Y=0.00

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 3

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 21 seconds

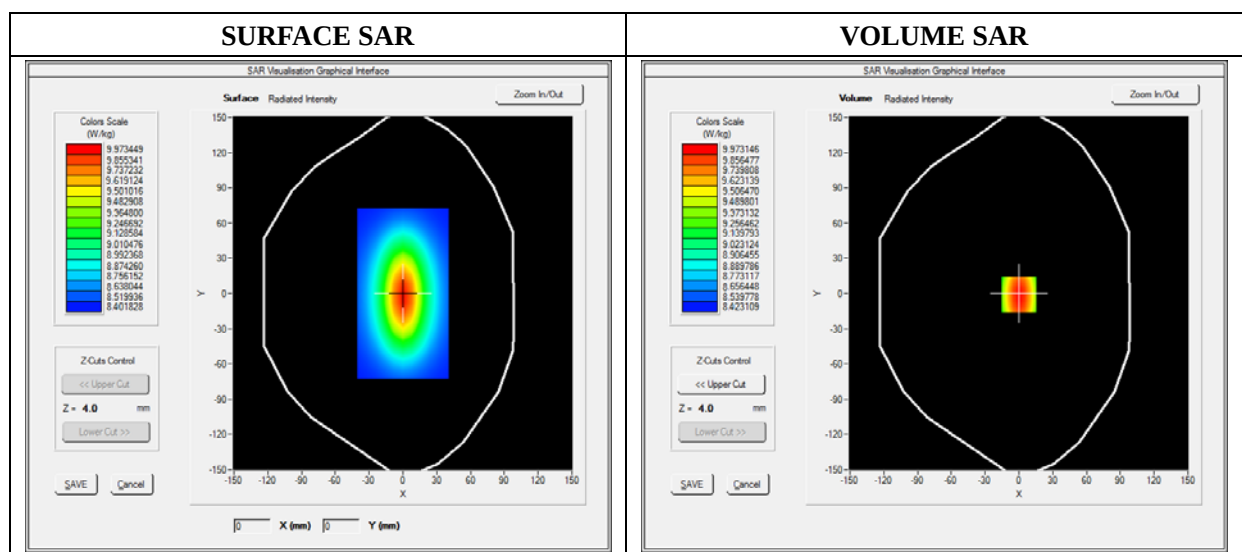
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 06/01/2018

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

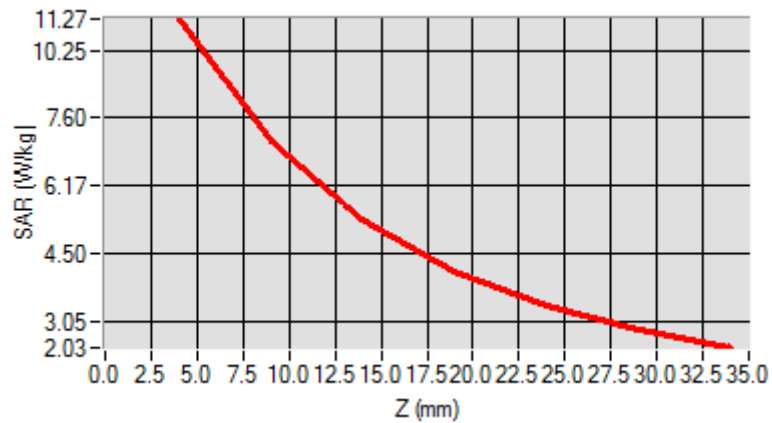


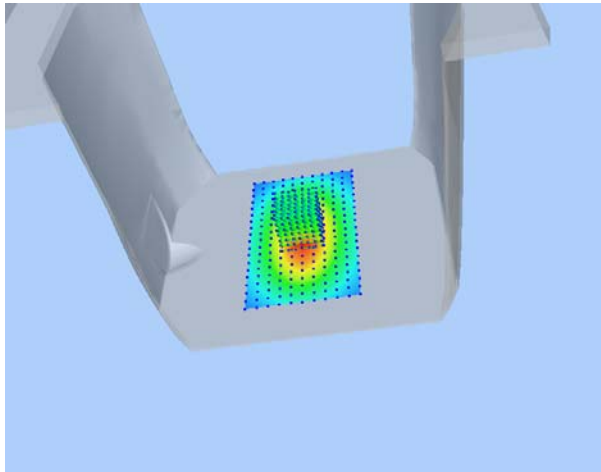
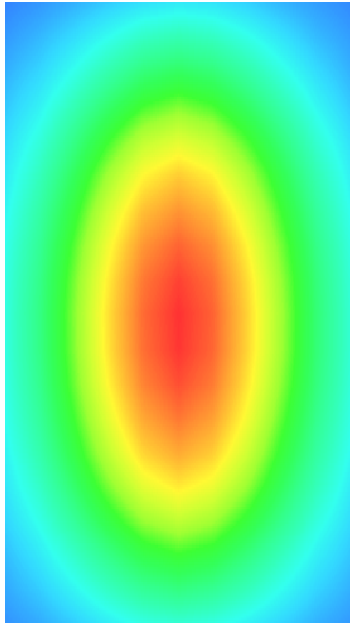
Maximum location: X=0.00, Y=0.00

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 4

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 21 seconds

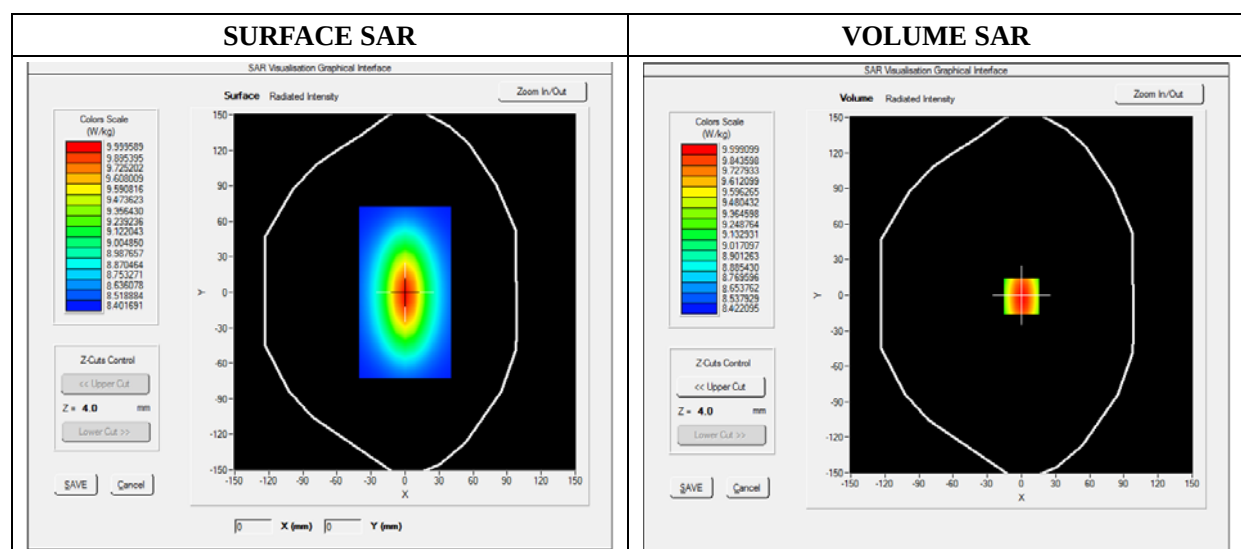
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

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

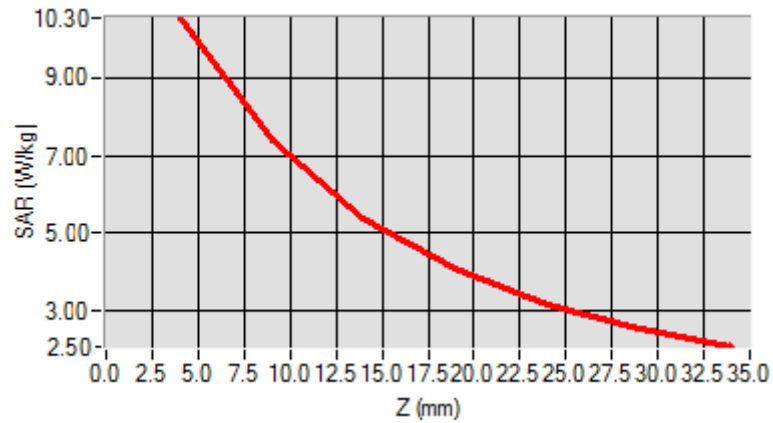


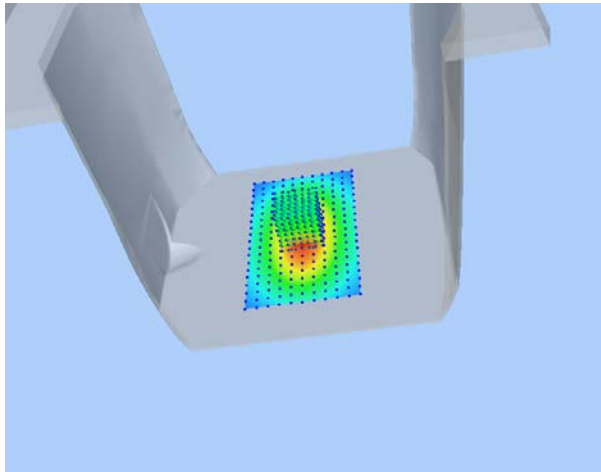
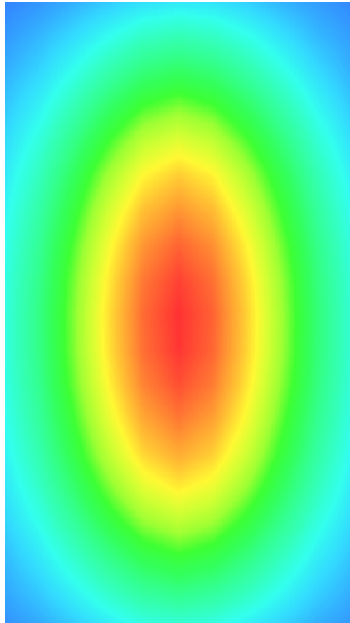
Maximum location: X=0.00, Y=0.00

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 5

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 21 seconds

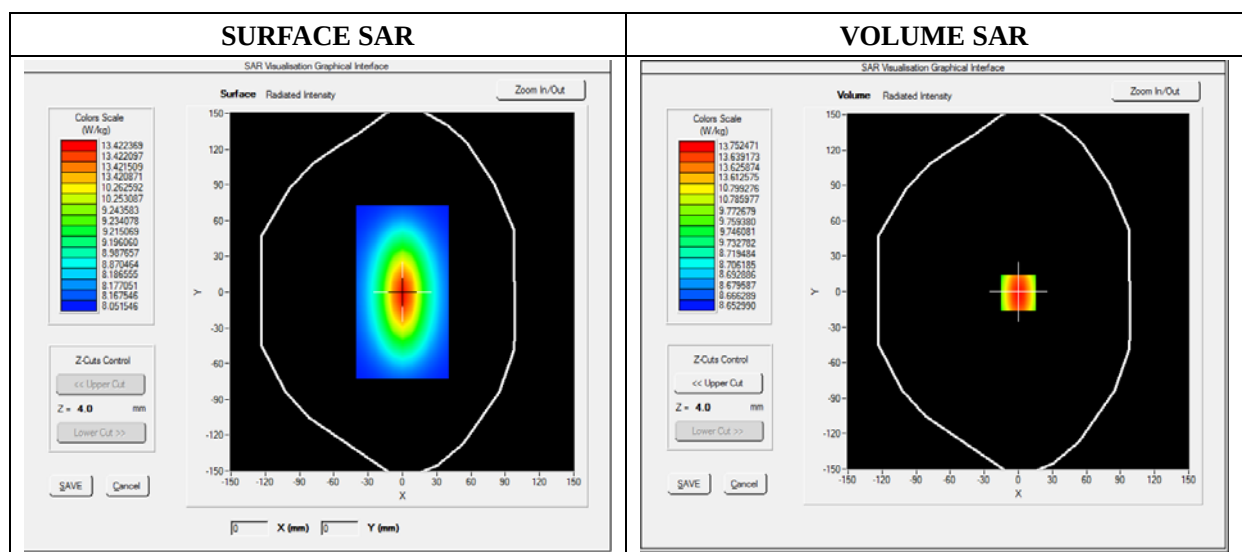
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 06/01/2018

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

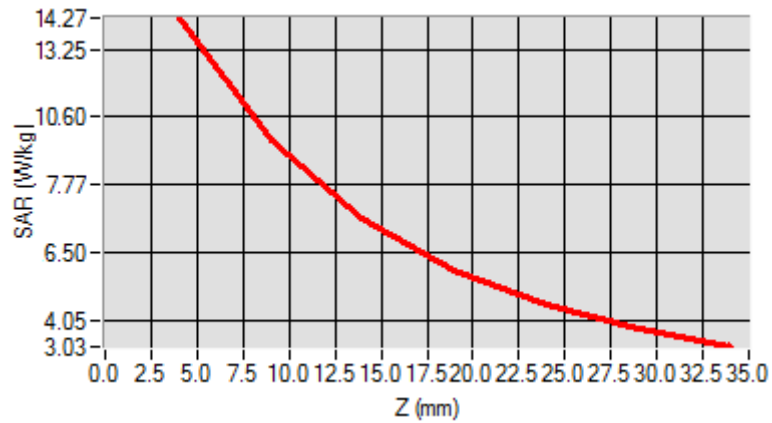


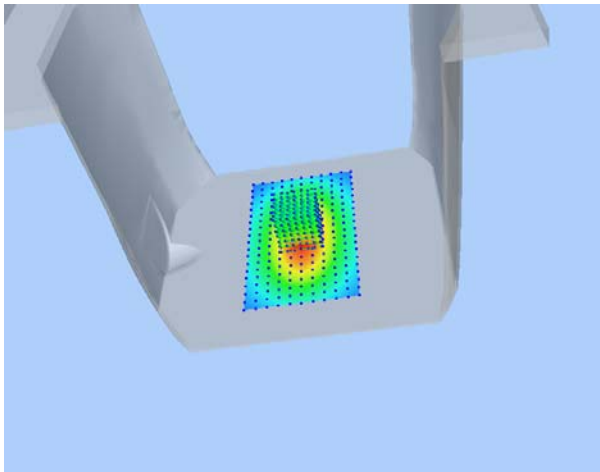
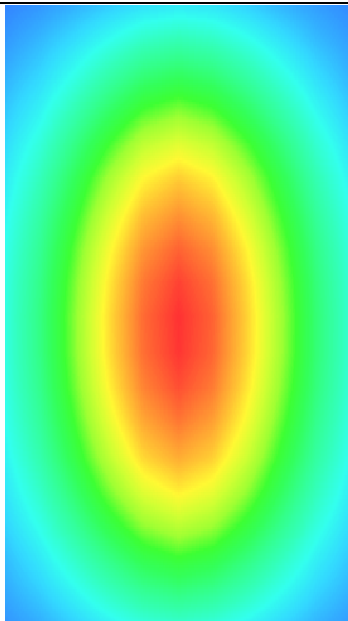
Maximum location: X=0.00, Y=0.00

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 6

For Head Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 21 seconds

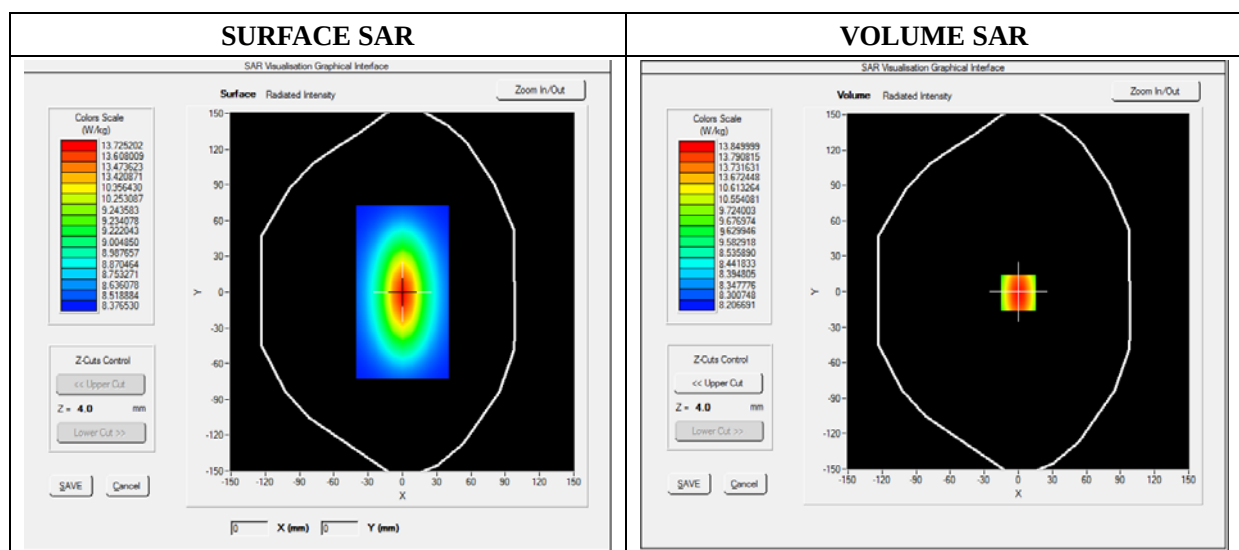
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 06/01/2018

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

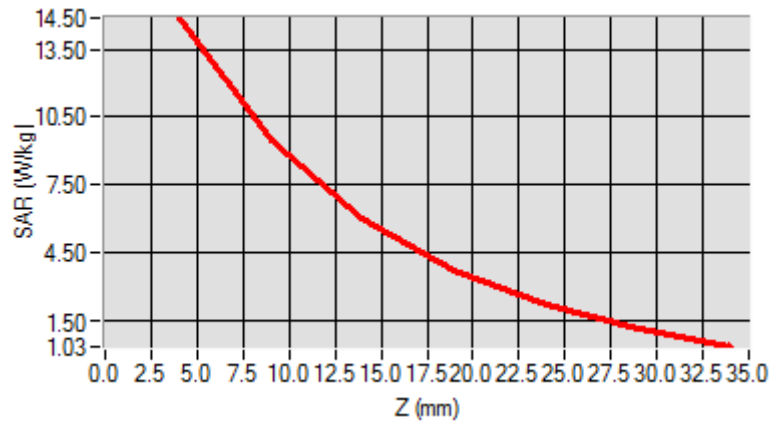


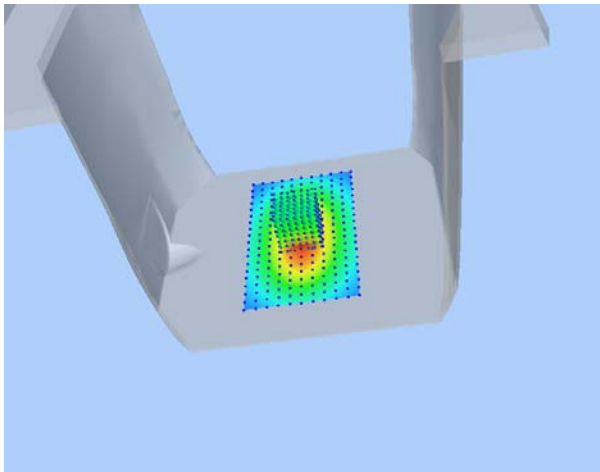
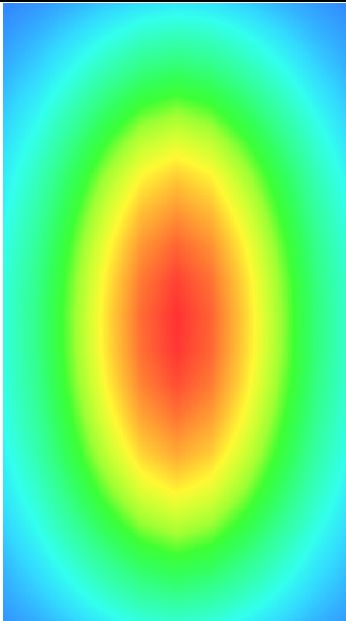
Maximum location: X=0.00, Y=0.00

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 7

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 21 seconds

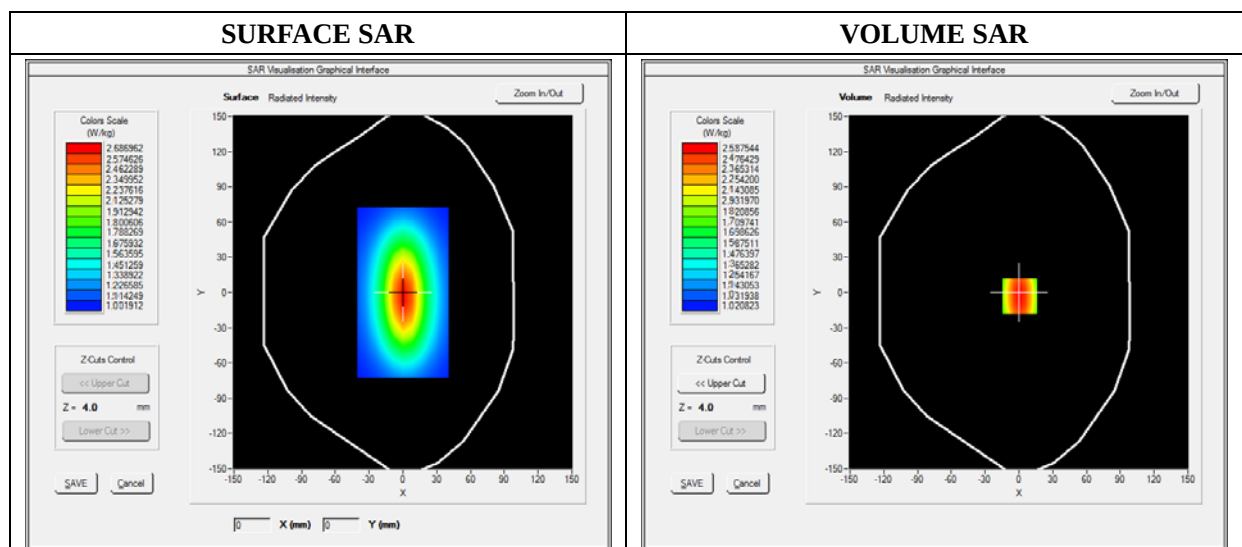
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.28; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

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

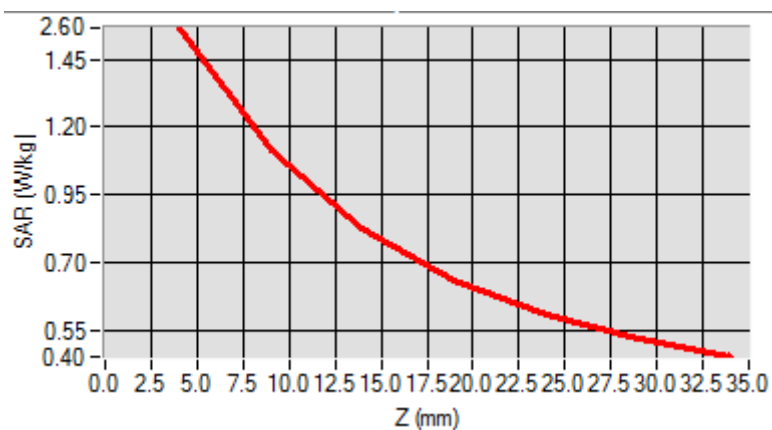


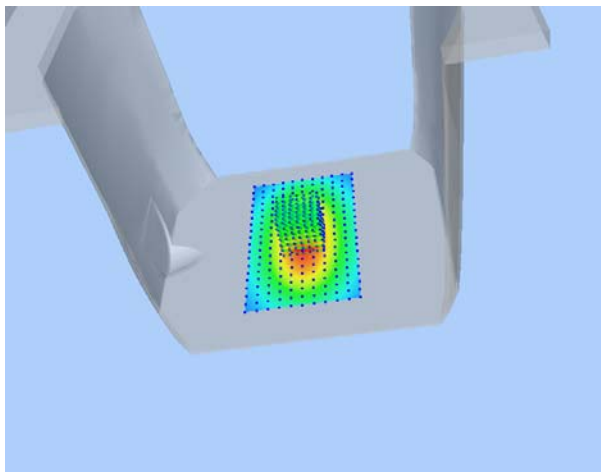
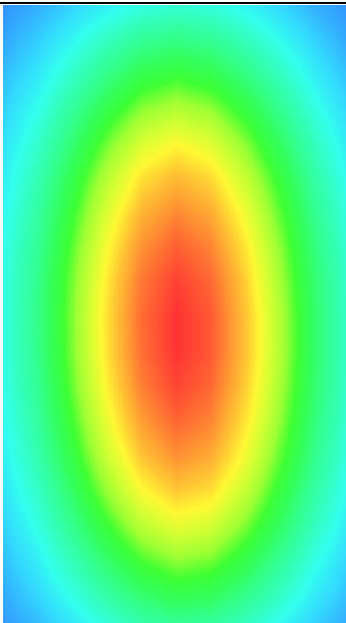
Maximum location: X=0.00, Y=0.00

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

Z Axis Scan

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



3D screen shot	Hot spot position
	

MEASUREMENT 8

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 21 seconds

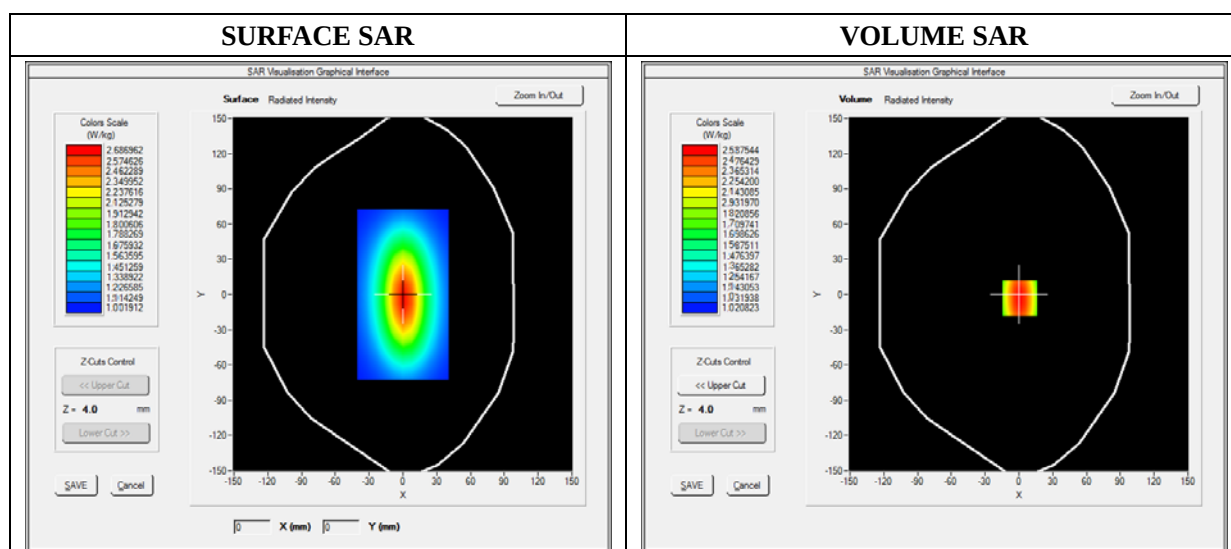
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2018

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

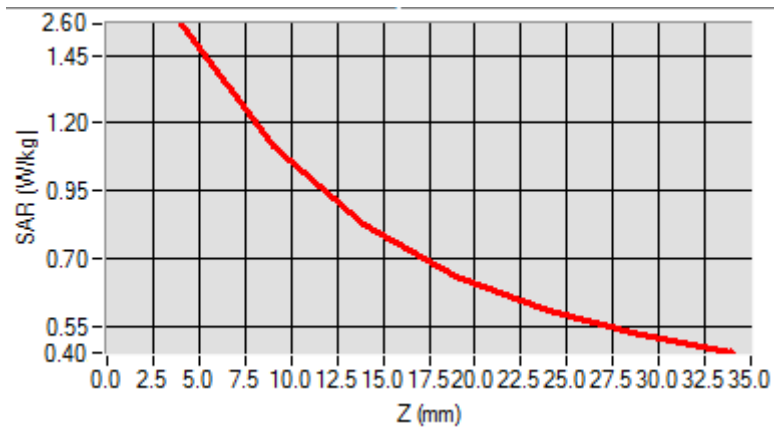


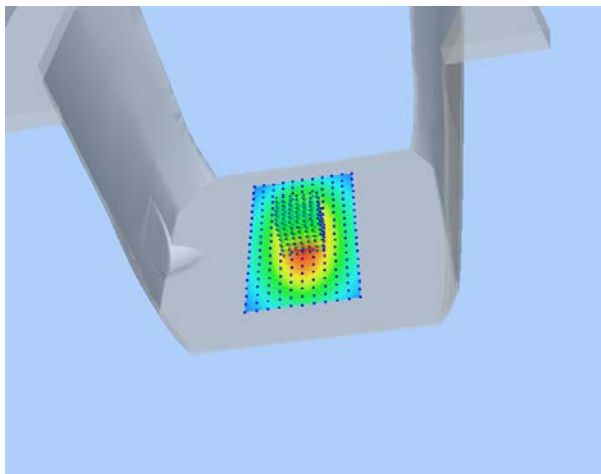
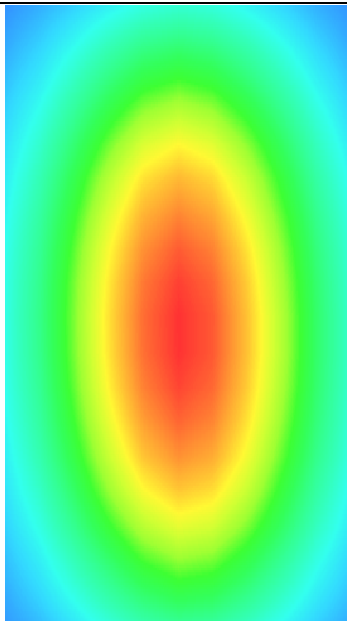
Maximum location: X=0.00, Y=0.00

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 9

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 21 seconds

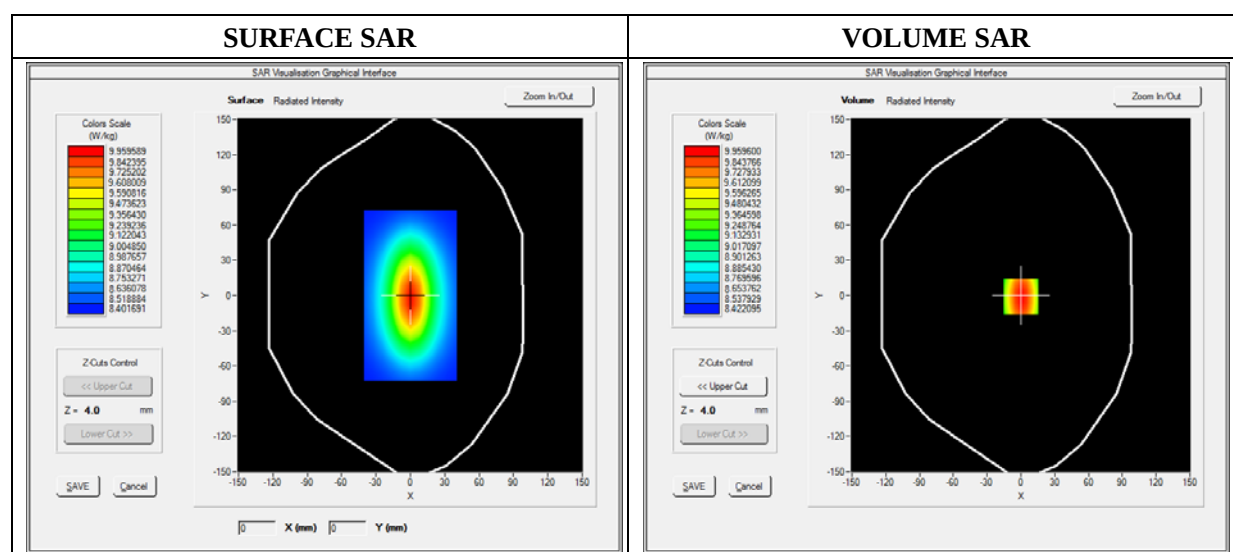
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 06/01/2018

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

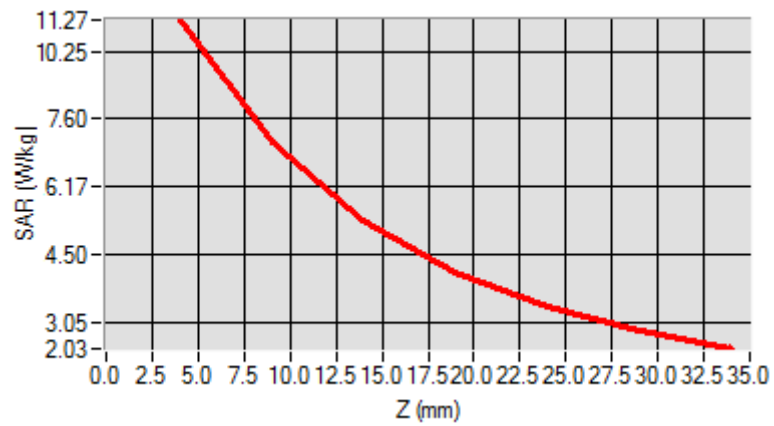


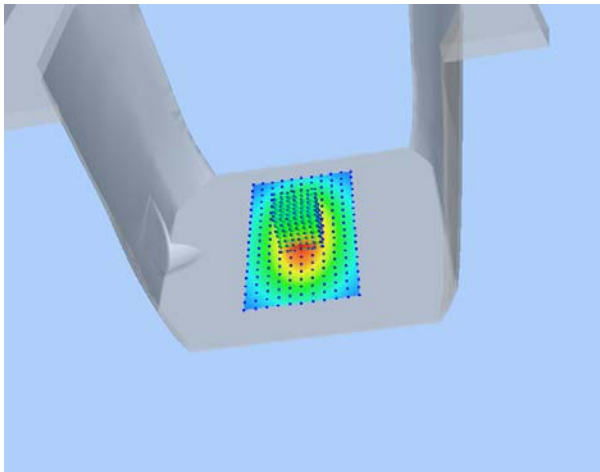
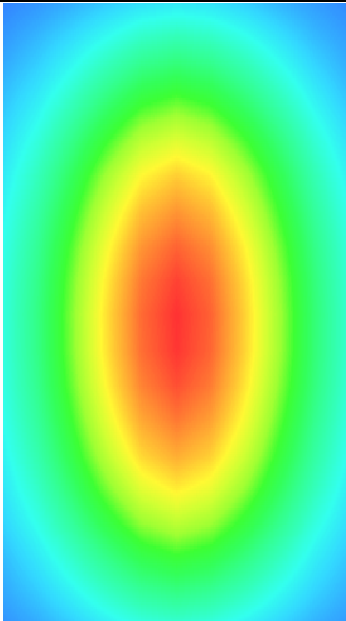
Maximum location: X=0.00, Y=0.00

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 10

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 21 seconds

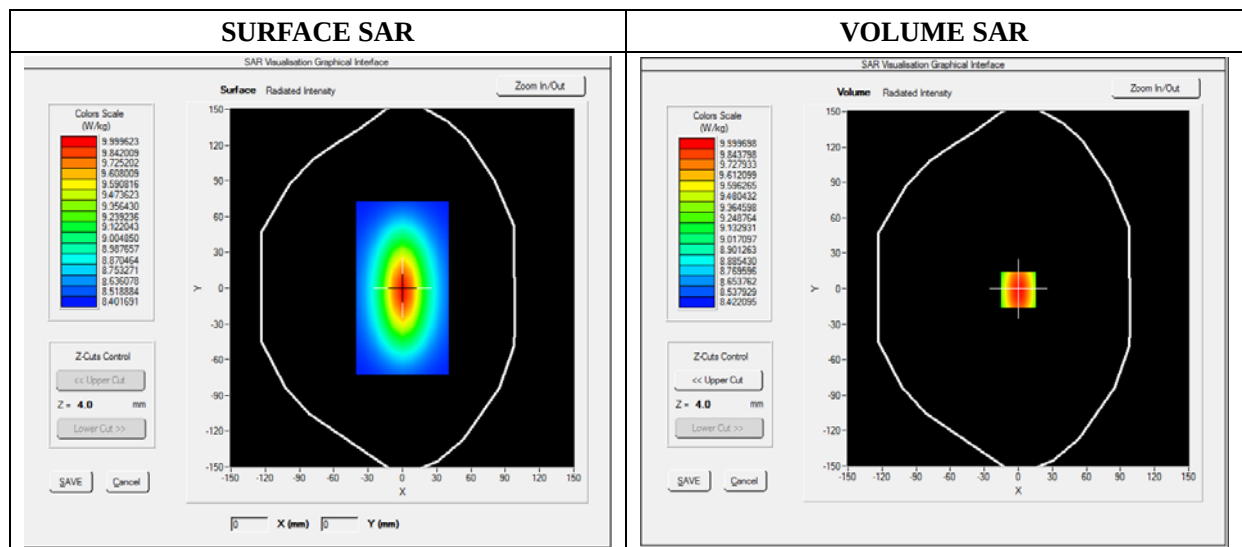
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

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

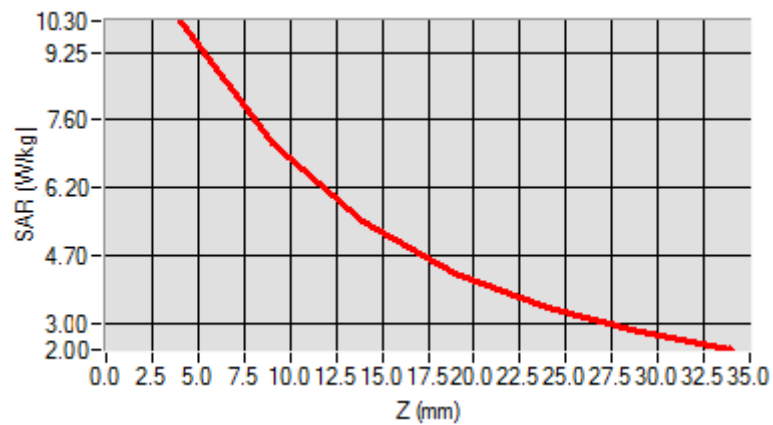


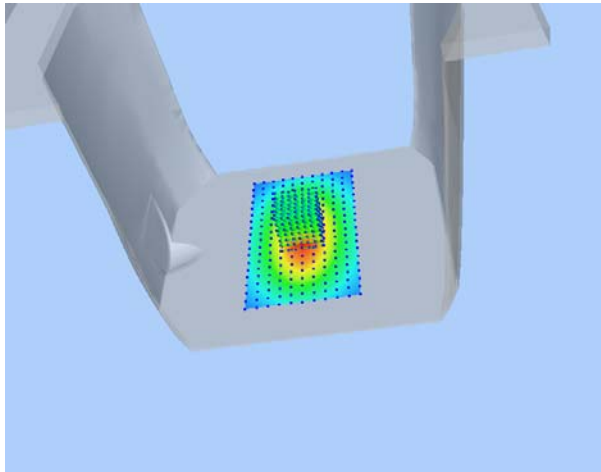
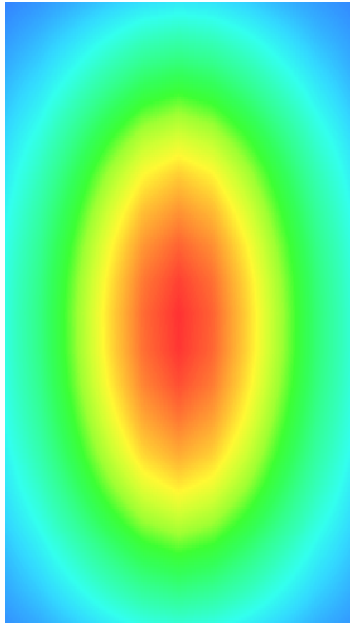
Maximum location: X=0.00, Y=0.00

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 11

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 21 seconds

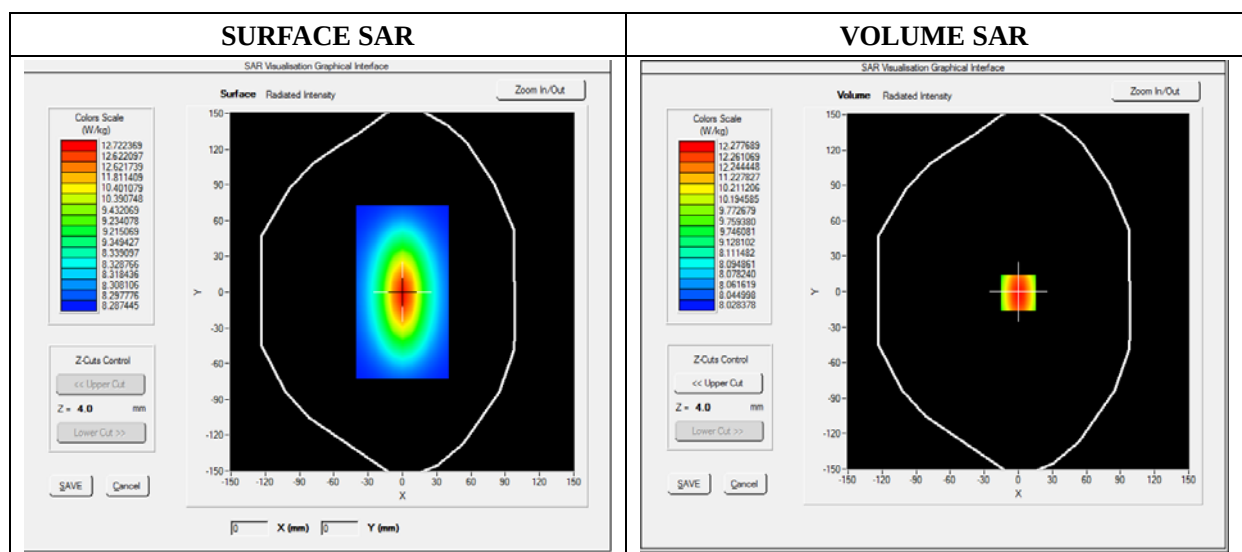
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.80; Calibrated: 06/01/2018

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

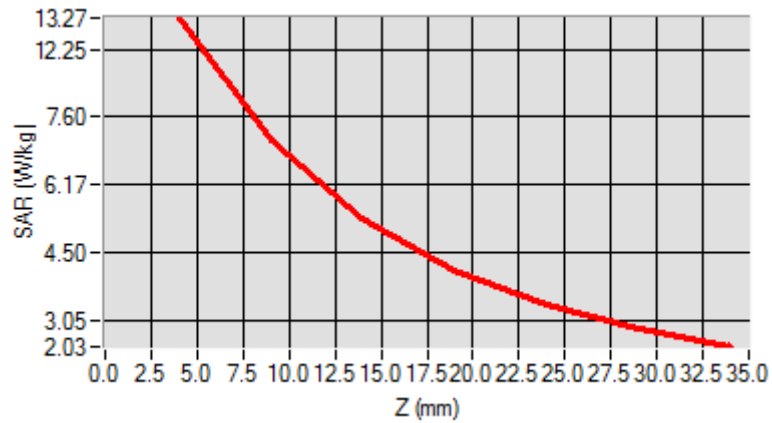


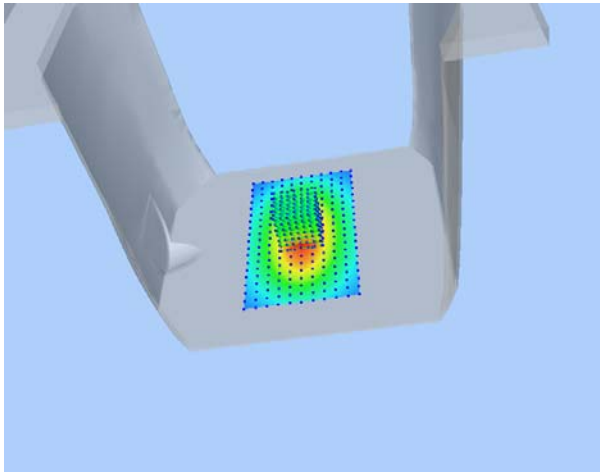
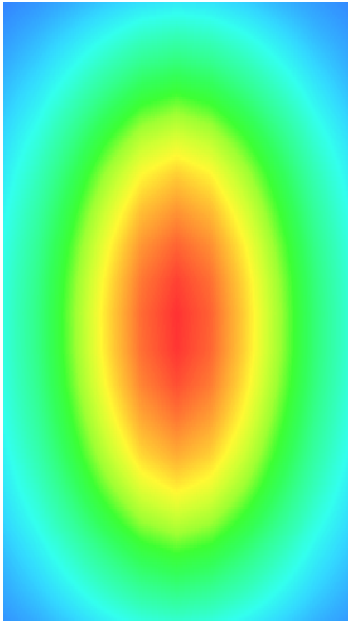
Maximum location: X=0.00, Y=0.00

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 12

For Body Liquid

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 21 seconds

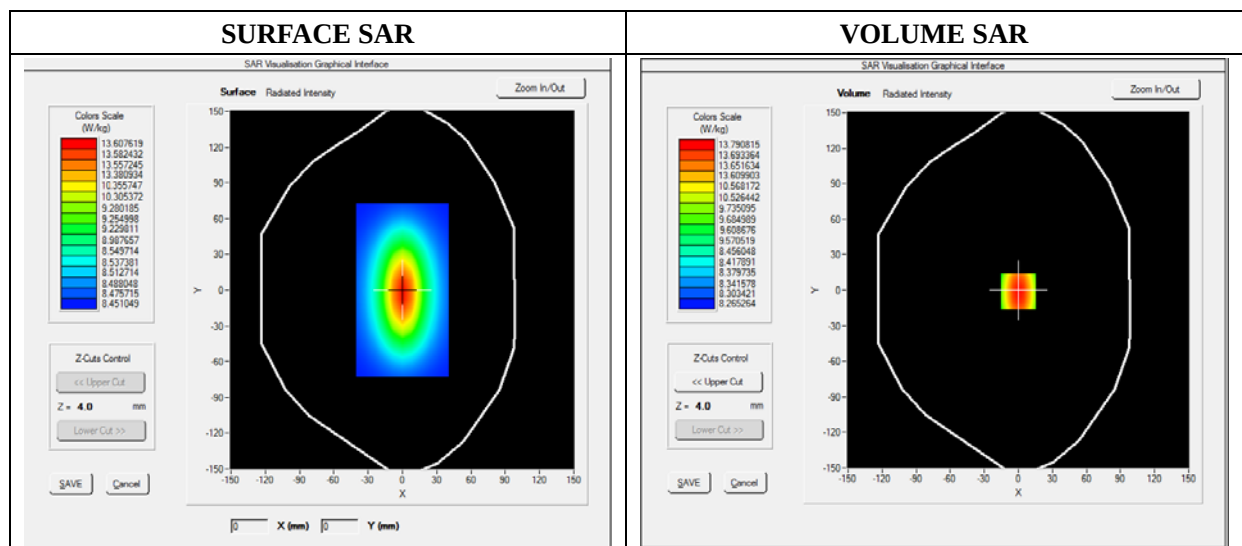
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 06/01/2018

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

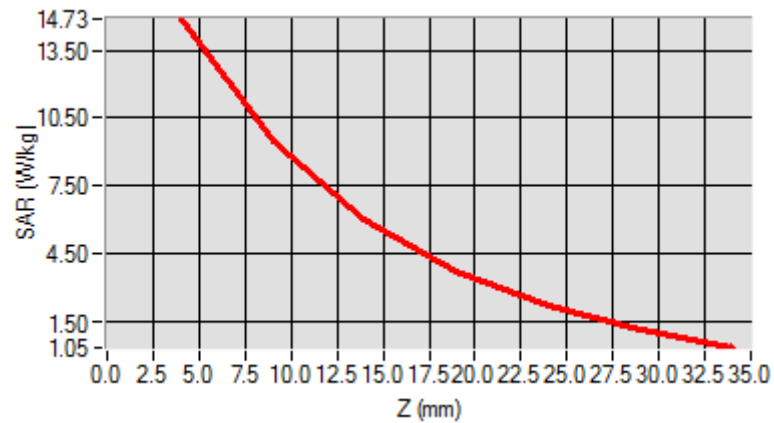


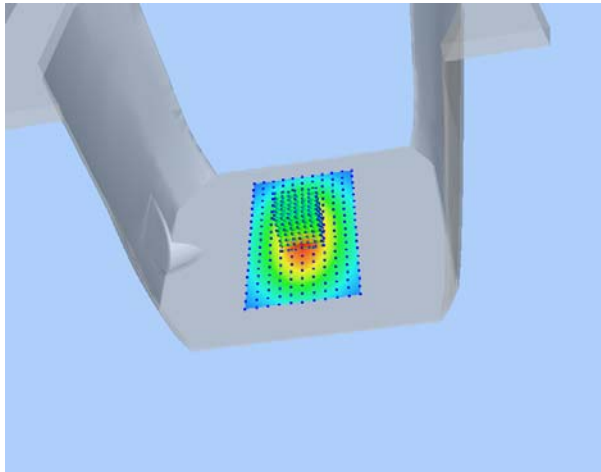
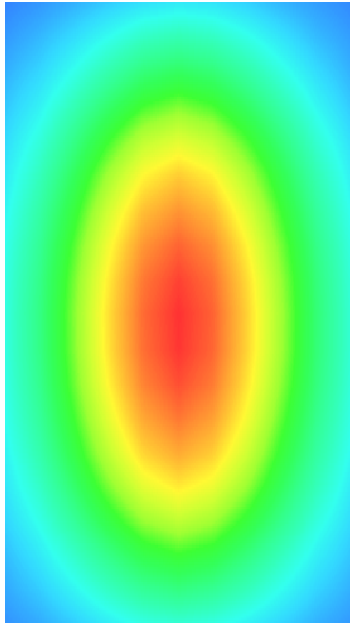
Maximum location: X=0.00, Y=0.00

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 1:</u> Right Head with Cheek device position on Low Channel in GSM mode
Phone	GSM1900	<u>Measurement 7:</u> Left Head with Cheek device position on Middle Channel in GSM mode
Phone	GPRS850_4TX	<u>Measurement 9:</u> Right Head with Cheek device position on Low Channel in GPRS mode
Phone	GPRS1900_4TX	<u>Measurement 15:</u> Left Head with Cheek device position on High Channel in GPRS mode
Phone	WCDMA1900_RMC	<u>Measurement 19:</u> Left Head with Cheek device position on High Channel in WCDMA mode
Phone	WCDMA850_RMC	<u>Measurement 21:</u> Right Head with Cheek device position on Middle Channel in WCDMA mode
Phone	WCDMA1700_RMC	<u>Measurement 27:</u> Left Head with Cheek device position on Low Channel in WCDMA mode
Phone	LTE Band 2_RMC	<u>Measurement 31:</u> Left Head with Cheek device position on Low Channel in LTE mode
Phone	LTE Band 4_RMC	<u>Measurement 39:</u> Left Head with Cheek device position on Low Channel in LTE mode
Phone	LTE Band 5_RMC	<u>Measurement 45:</u> Right Head with Cheek device position on Low Channel in LTE mode
Phone	LTE Band 7_RMC	<u>Measurement 55:</u> Left Head with Cheek device position on Low Channel in LTE mode
Phone	LTE Band 12_RMC	<u>Measurement 63:</u> Left Head with Cheek device position on Low Channel in LTE mode
Phone	WiFi_802.11b	<u>Measurement 71:</u> Left Head with Cheek device position on Low Channel in 802.11b mode
Phone	GSM850	<u>Measurement 73:</u> Flat Plane with Back(Body-worn) device position on Low Channel in GSM mode
Phone	GSM1900	<u>Measurement 75:</u> Flat Plane with Back(Body-worn) device position on Middle Channel in GSM mode
Phone	GPRS850_4TX	<u>Measurement 77:</u> Flat Plane with Back device position on Low Channel in GPRS mode
Phone	GPRS1900_4TX	<u>Measurement 82:</u> Flat Plane with Front device position on High Channel in GPRS mode
Phone	WCDMA1900_RMC	<u>Measurement 86:</u> Flat Plane with Front side device position on High Channel in WCDMA mode
Phone	WCDMA1900_RMC	<u>Measurement 87:</u> Flat Plane with Bottom side device position on High Channel in WCDMA mode

Phone	WCDMA850_RMC	<u>Measurement 89:</u> Flat Plane with Back device position on Middle Channel in WCDMA mode
Phone	WCDMA1700_RMC	<u>Measurement 93:</u> Flat Plane with Back device position on Low Channel in WCDMA mode
Phone	LTE Band 2_RMC	<u>Measurement 98:</u> Flat Plane with Front device position on Low Channel in LTE mode
Phone	LTE Band 4_RMC	<u>Measurement 105:</u> Flat Plane with Back device position on Low Channel in LTE mode
Phone	LTE Band 5_RMC	<u>Measurement 113:</u> Flat Plane with Back device position on Low Channel in LTE mode
Phone	LTE Band 7_RMC	<u>Measurement 121:</u> Flat Plane with Back device position on Low Channel in LTE mode
Phone	LTE Band 7_RMC	<u>Measurement 125:</u> Flat Plane with Bottom device position on Low Channel in LTE mode
Phone	LTE Band 12_RMC	<u>Measurement 135:</u> Flat Plane with Back device position on Low Channel in LTE mode
Phone	WiFi_802.11b	<u>Measurement 143:</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 7_RMC	<u>Measurement 147:</u> Flat Plane with Bottom device position on Low 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 1

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 11 minutes 48 seconds

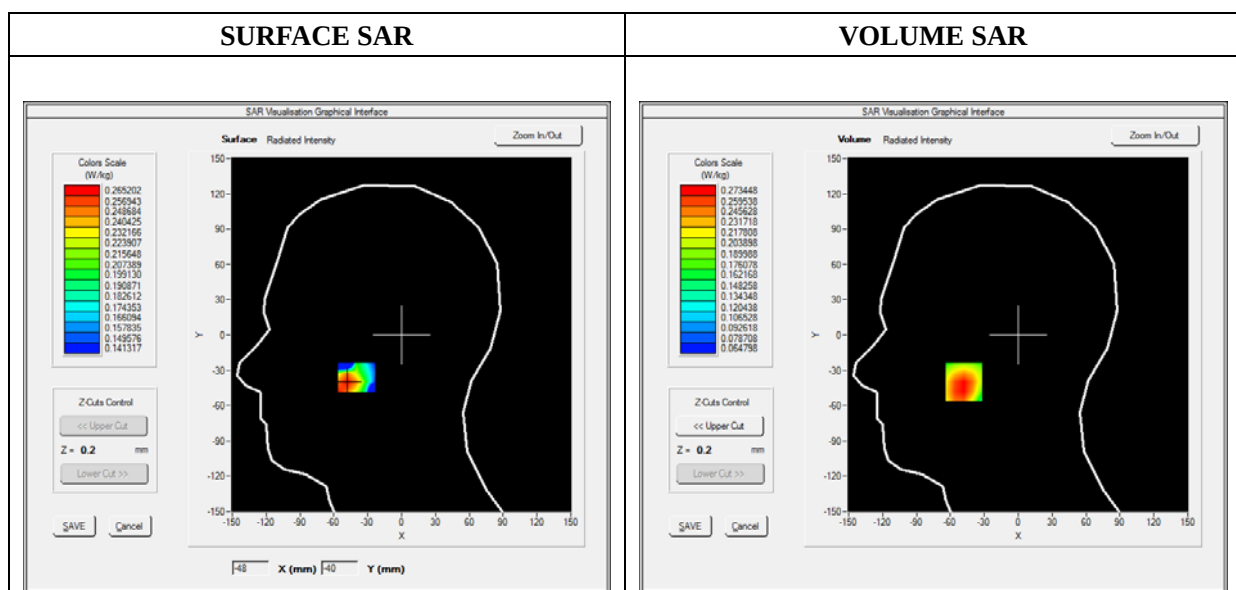
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

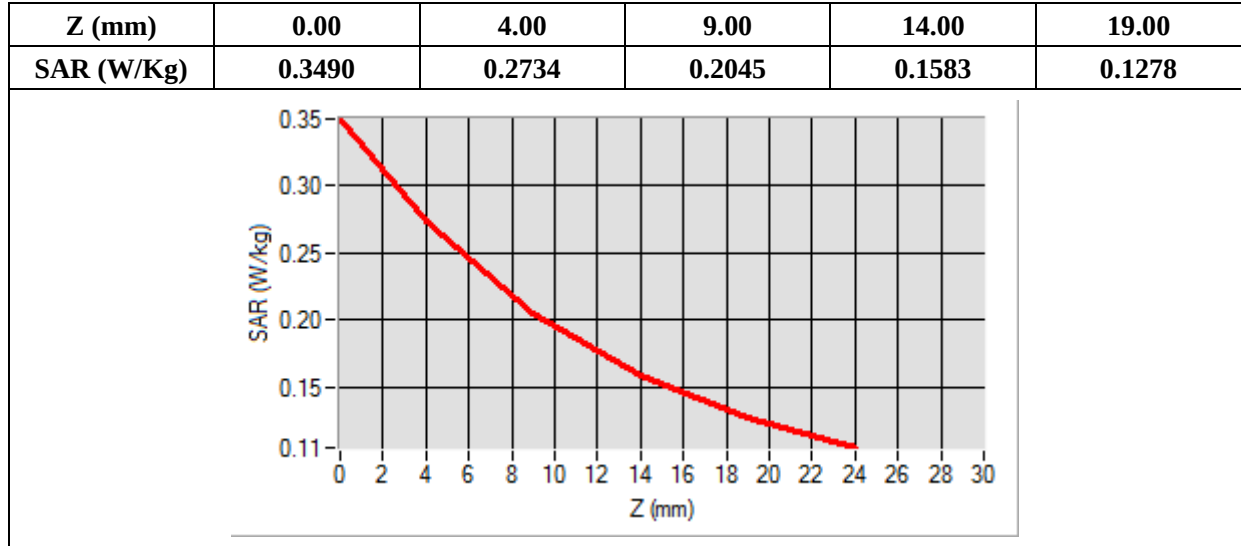
Frequency (MHz)	824.200000
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.144536
Ambient Temperature	21.1
Liquid Temperature	21.3

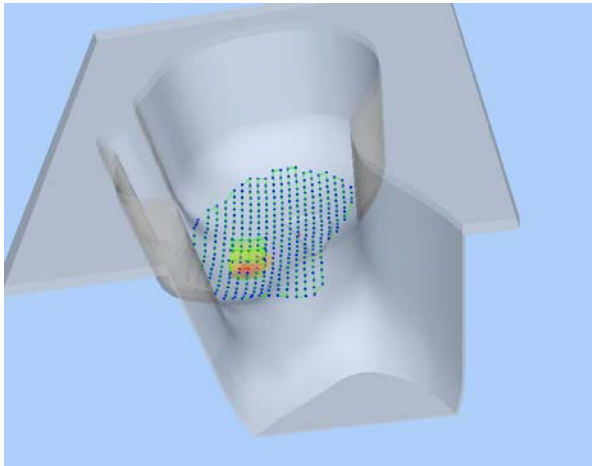


Maximum location: X=-48.00, Y=-40.00

SAR Peak: 0.36 W/kg

SAR 10g (W/Kg)	0.193718
SAR 1g (W/Kg)	0.267905



3D screen shot	Hot spot position
	

MEASUREMENT 7

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 11 minutes 48 seconds

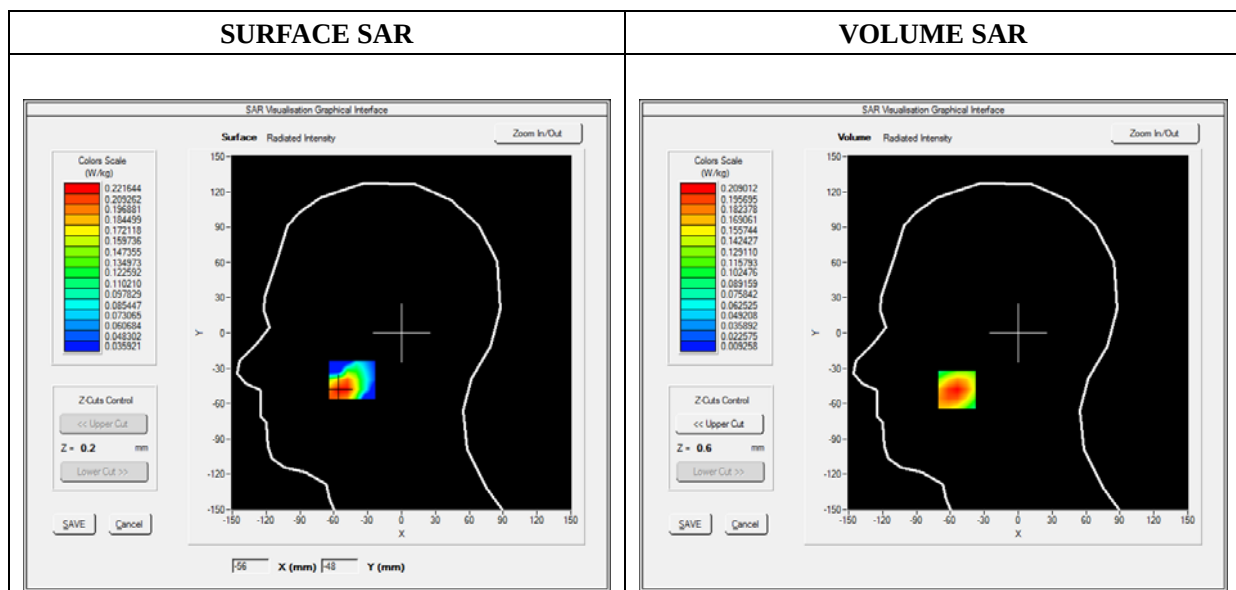
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

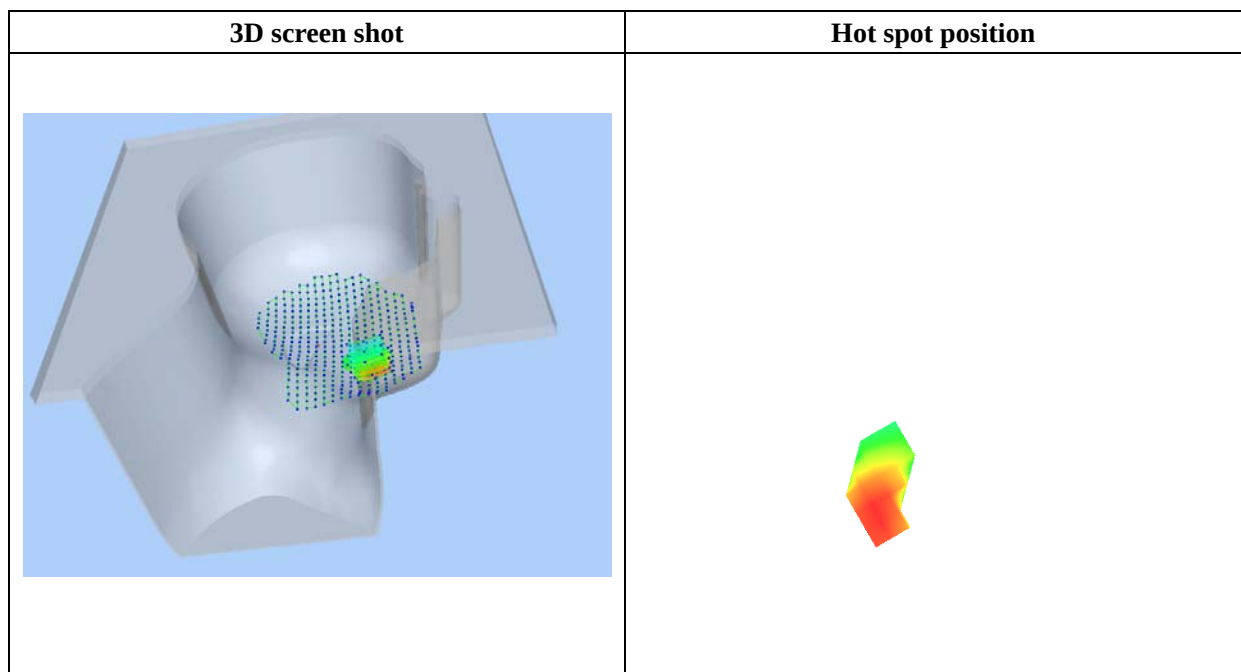
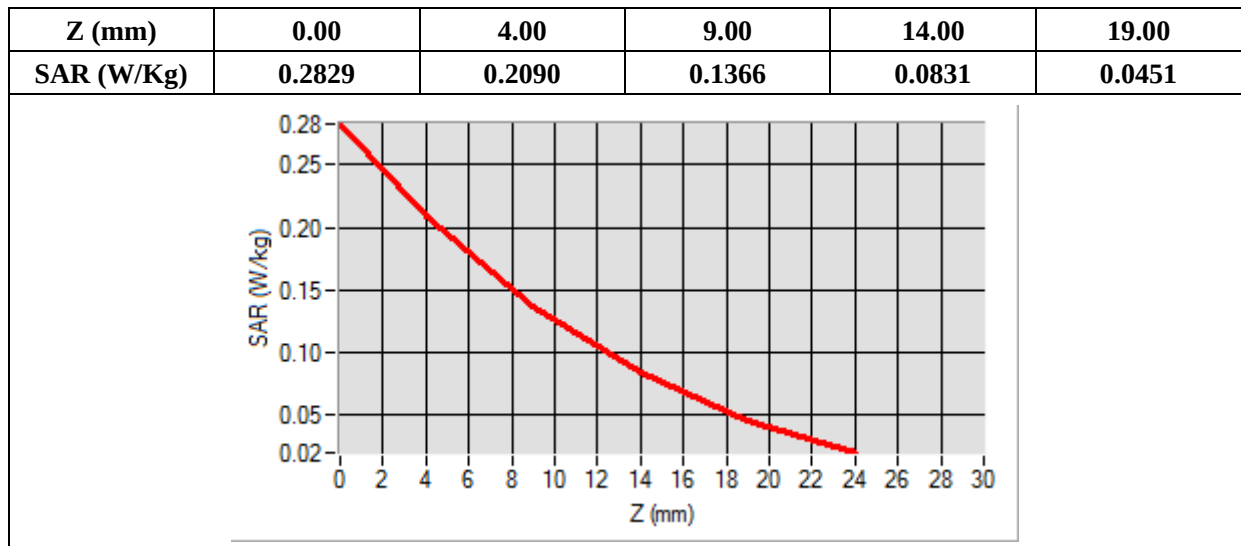
Frequency (MHz)	1880.000000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.442440
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=-54.00, Y=-48.00

SAR Peak: 0.29 W/kg

SAR 10g (W/Kg)	0.115525
SAR 1g (W/Kg)	0.197685



MEASUREMENT 9

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 3 seconds

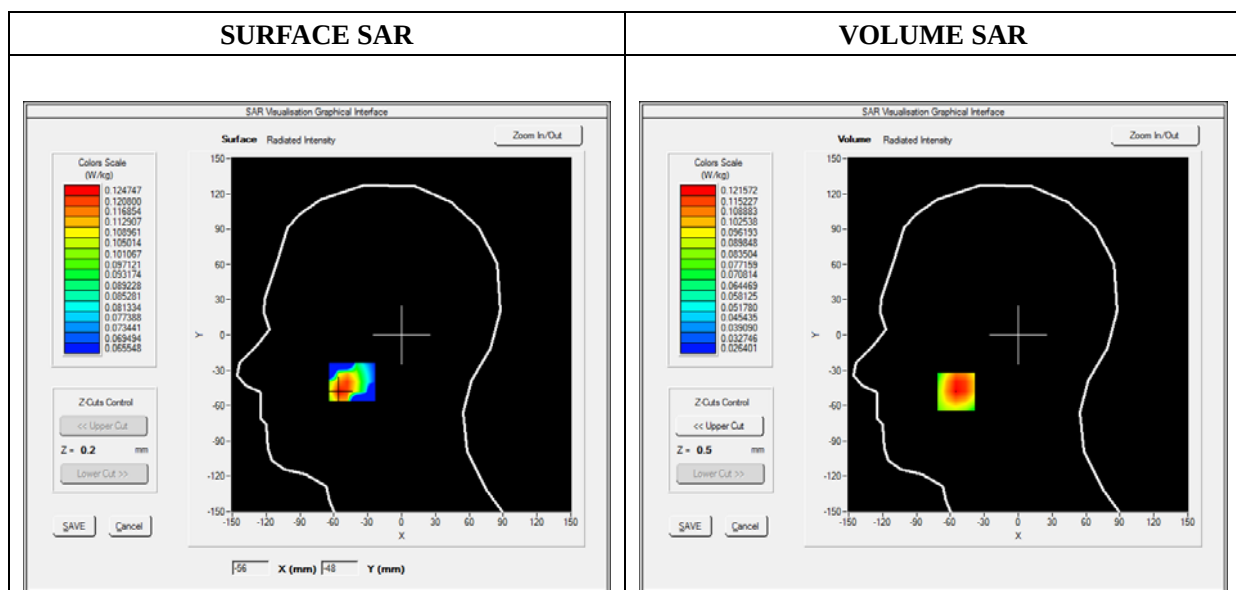
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

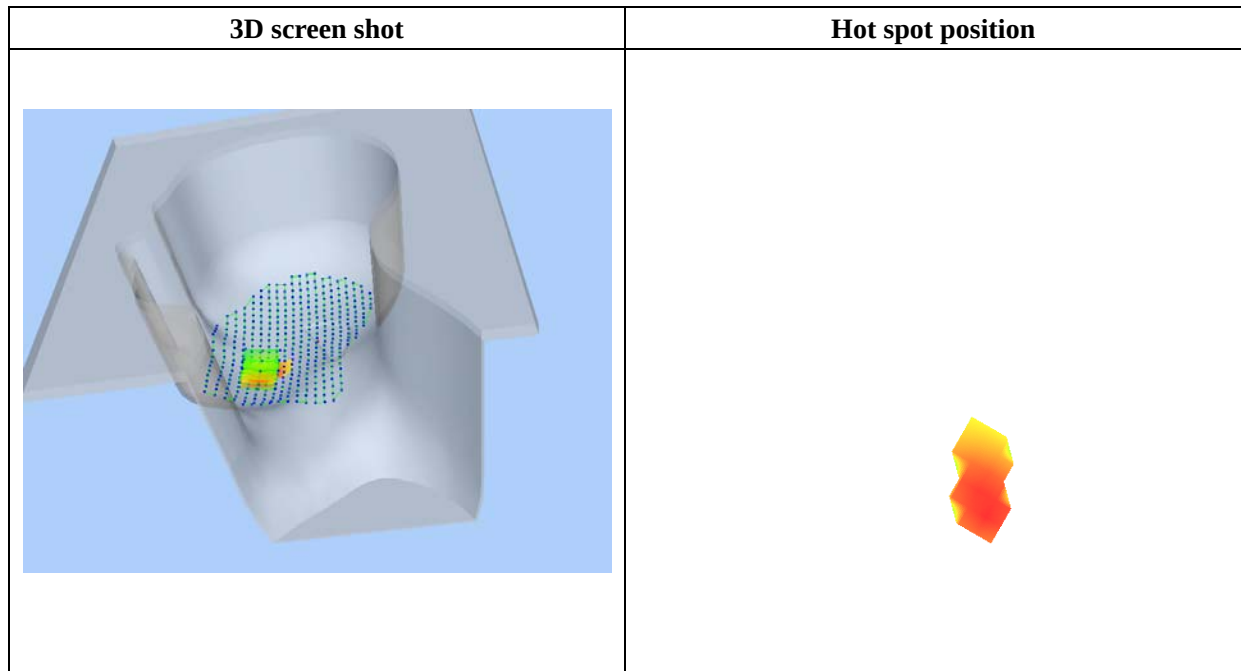
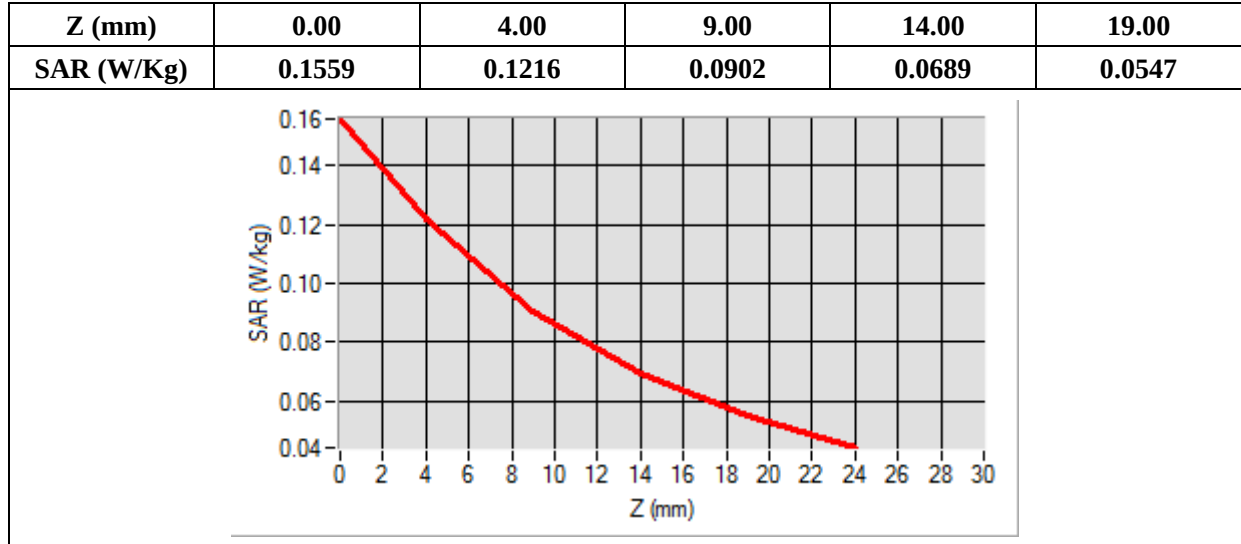
Frequency (MHz)	824.200000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.536272
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=-55.00, Y=-48.00

SAR Peak: 0.16 W/kg

SAR 10g (W/Kg)	0.083982
SAR 1g (W/Kg)	0.117780



MEASUREMENT 15

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

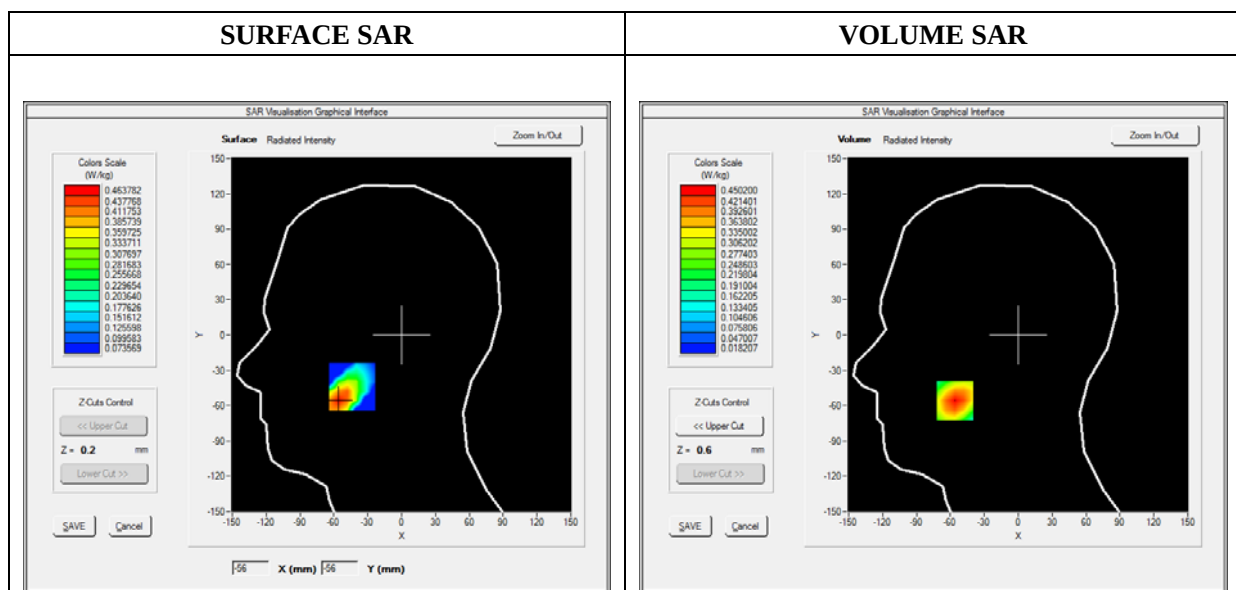
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

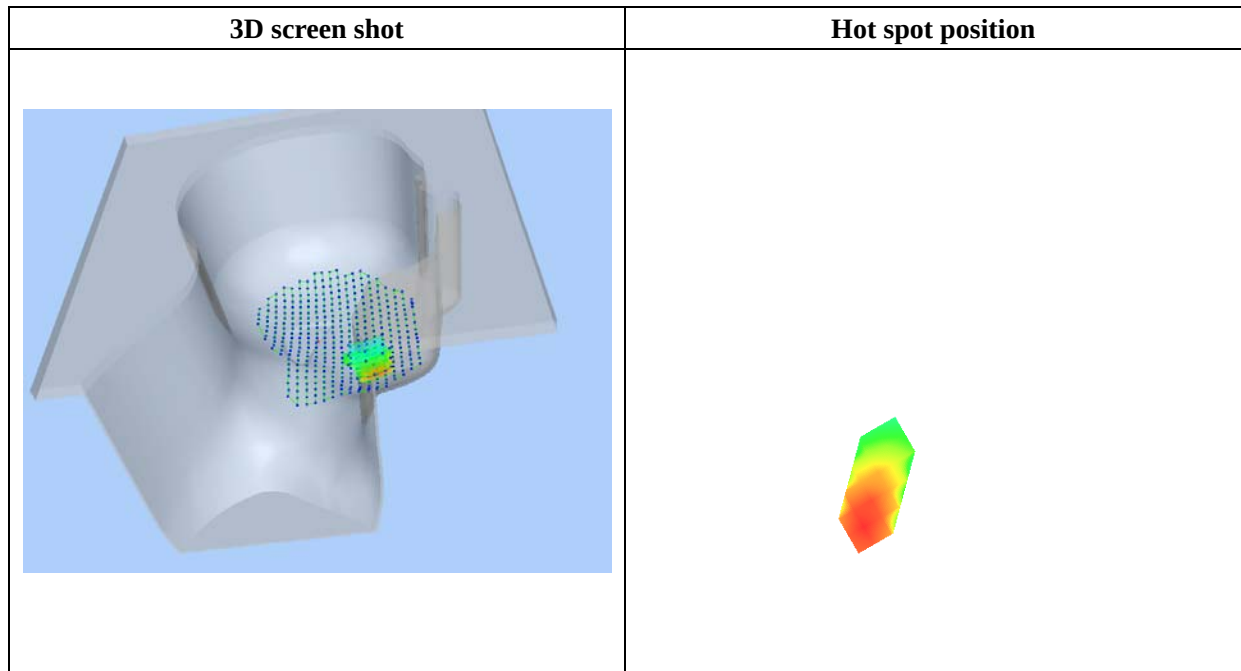
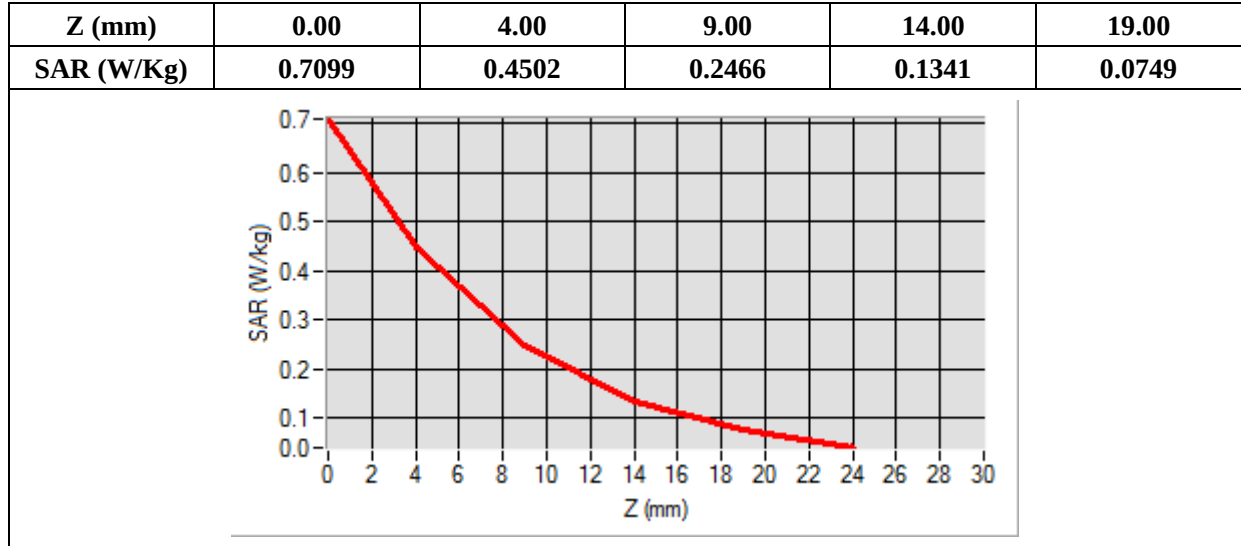
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.536272
Ambient Temperature	21.1
Liquid Temperature	21.3



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

SAR Peak: 0.71 W/kg

SAR 10g (W/Kg)	0.234161
SAR 1g (W/Kg)	0.425150



MEASUREMENT 19

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

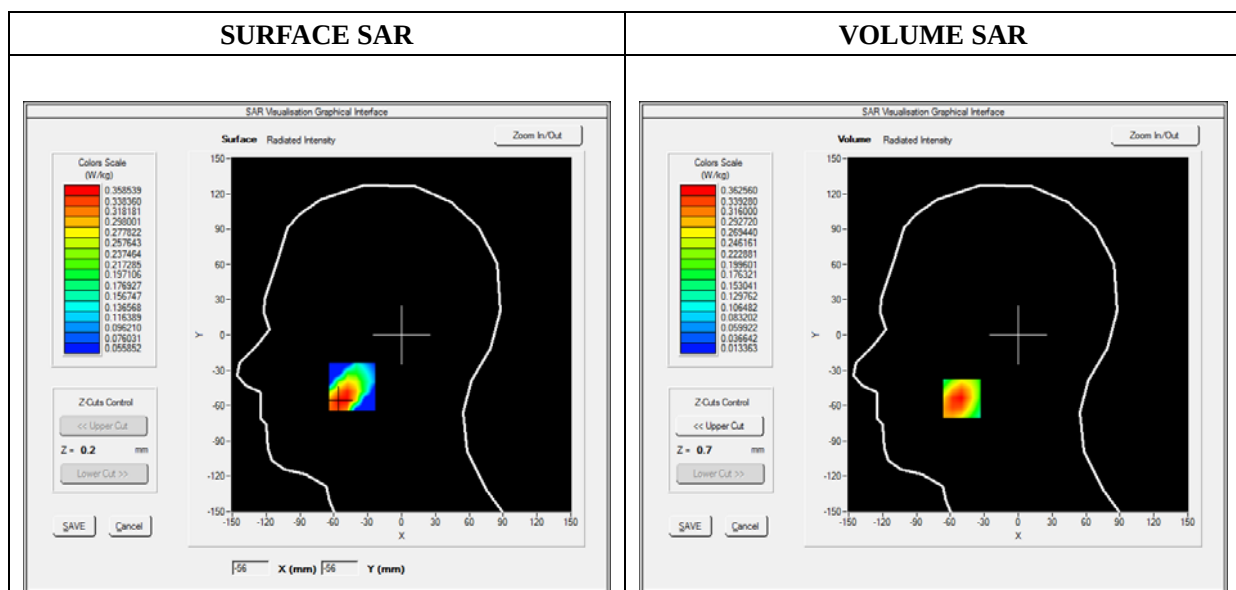
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

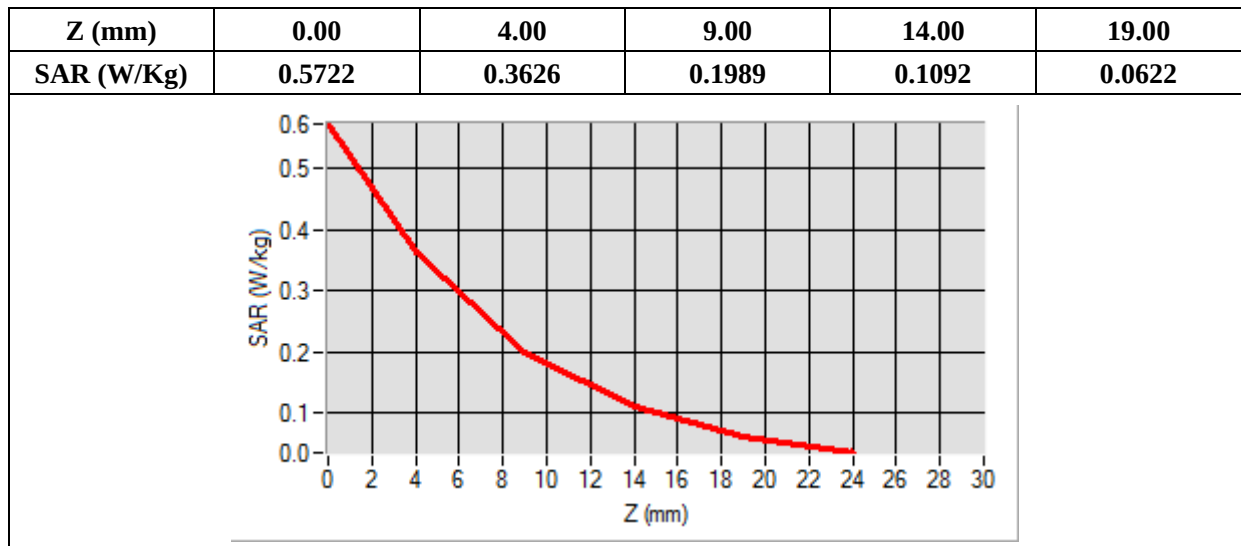
Frequency (MHz)	1907.600000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.524540
Ambient Temperature	21.1
Liquid Temperature	21.3

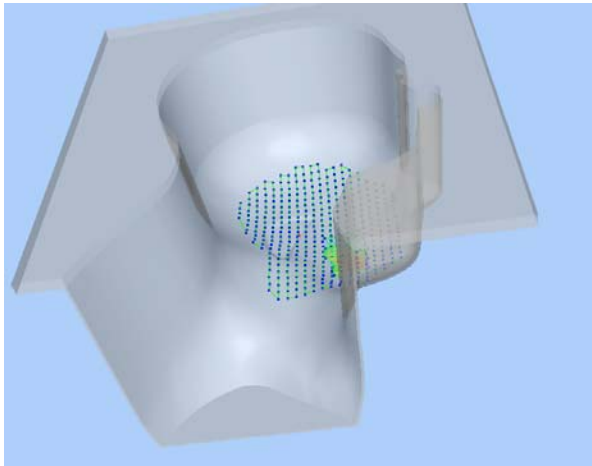
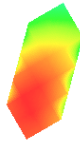


Maximum location: X=-50.00, Y=-54.00

SAR Peak: 0.58 W/kg

SAR 10g (W/Kg)	0.191479
SAR 1g (W/Kg)	0.345495



3D screen shot	Hot spot position
	

MEASUREMENT 21

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 3 seconds

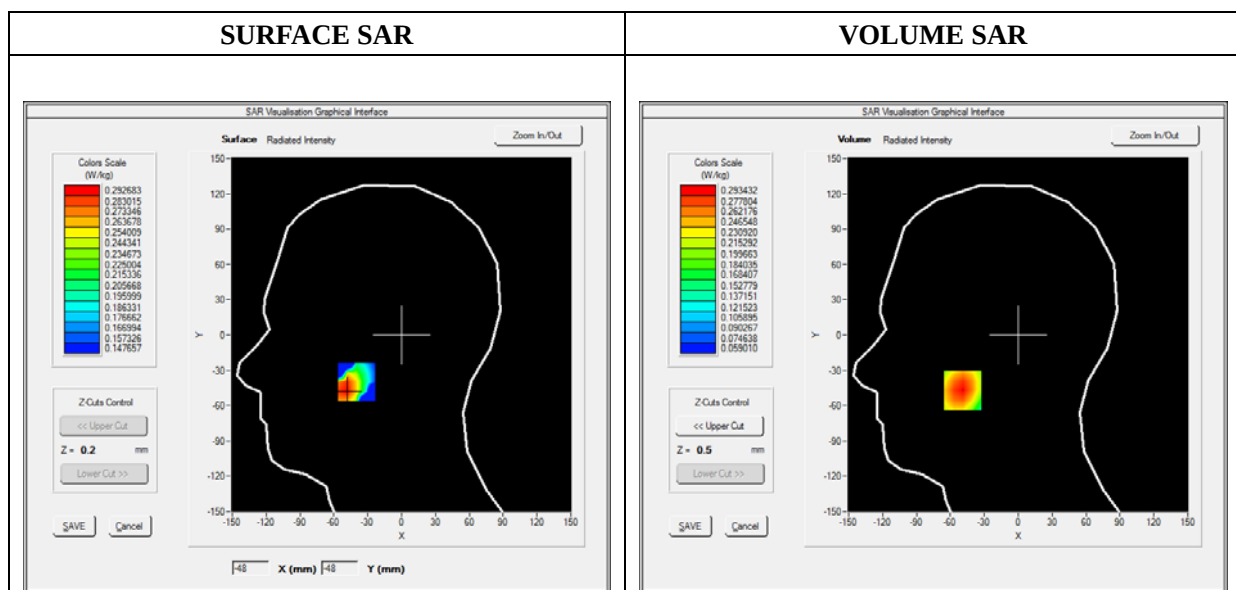
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

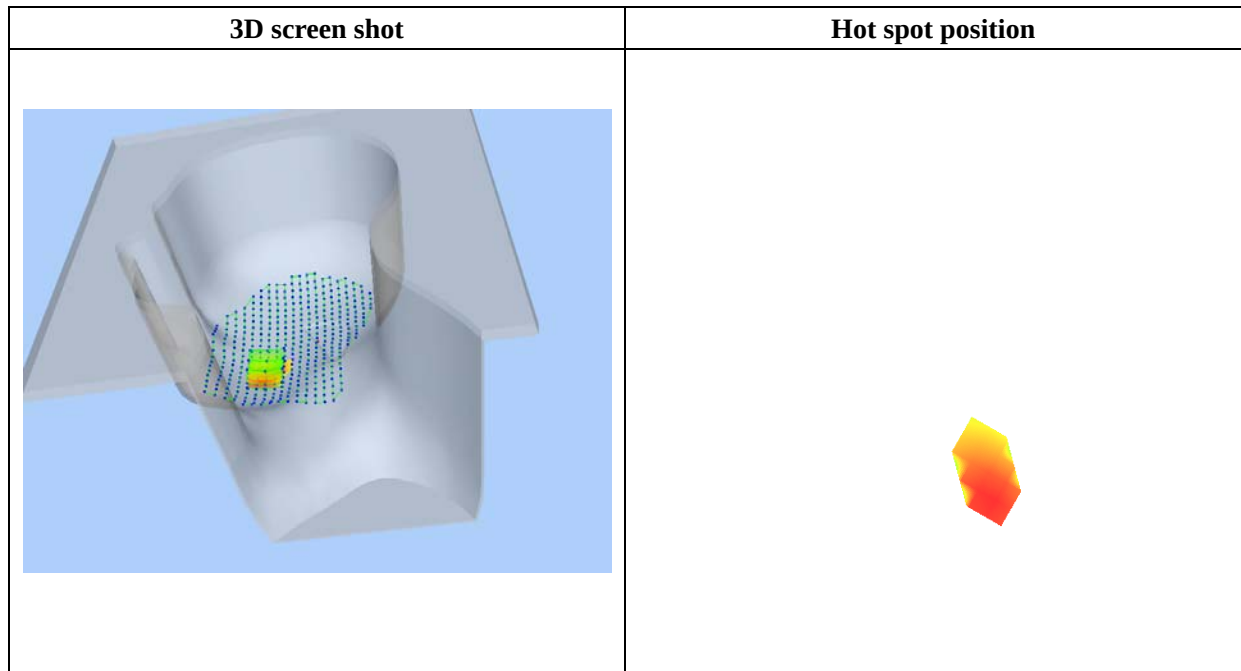
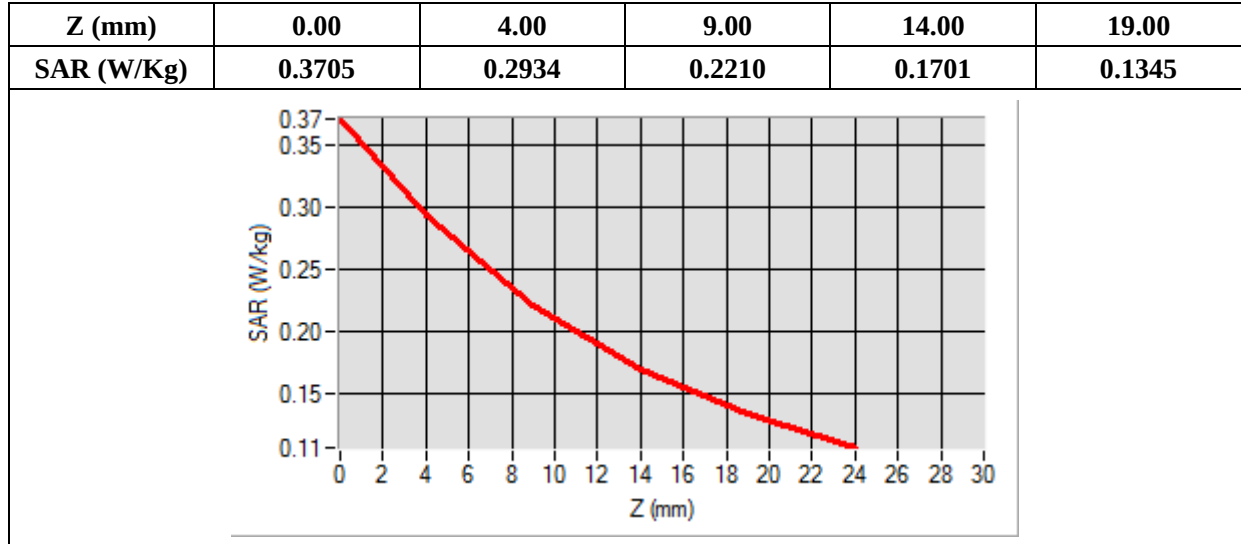
Frequency (MHz)	836.600000
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	1.342427
Ambient Temperature	21.1
Liquid Temperature	21.3



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

SAR Peak: 0.37 W/kg

SAR 10g (W/Kg)	0.203057
SAR 1g (W/Kg)	0.282152



MEASUREMENT 27

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

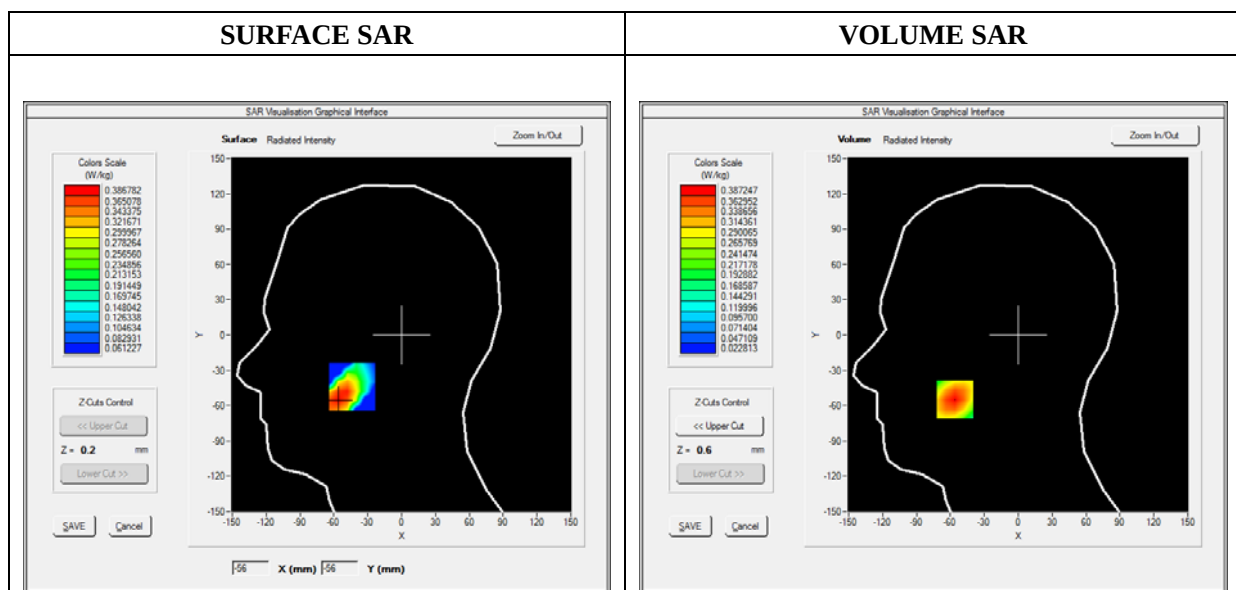
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	WCDMA1700_RMC
Channels	Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

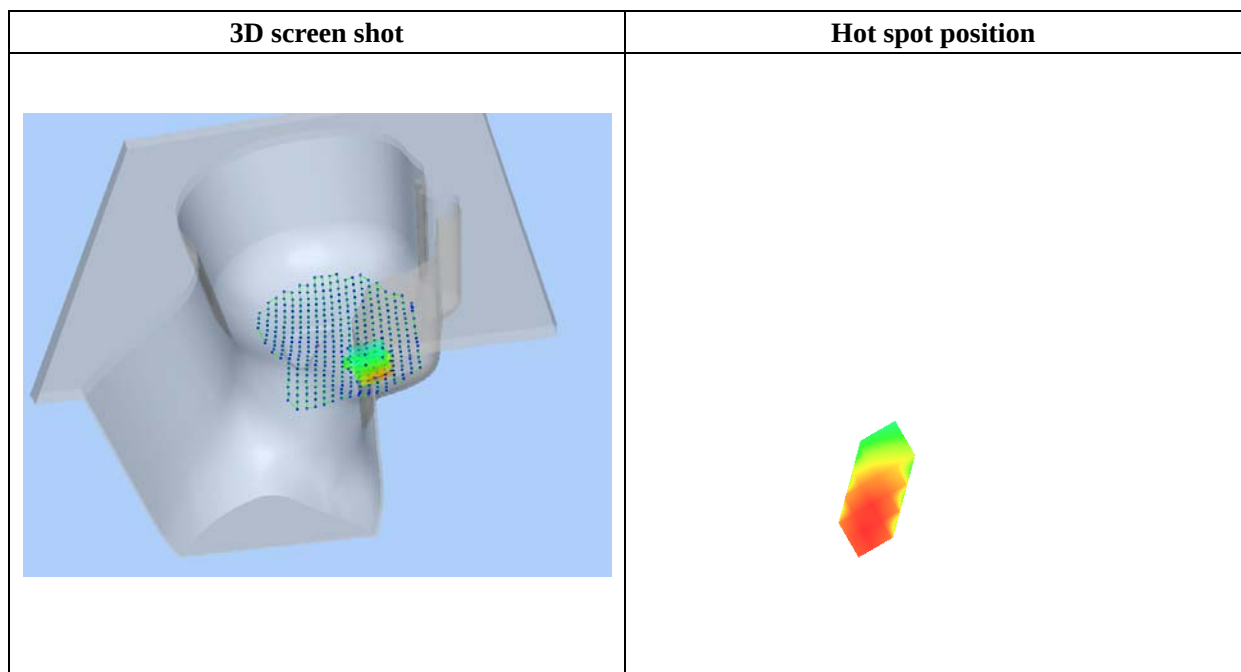
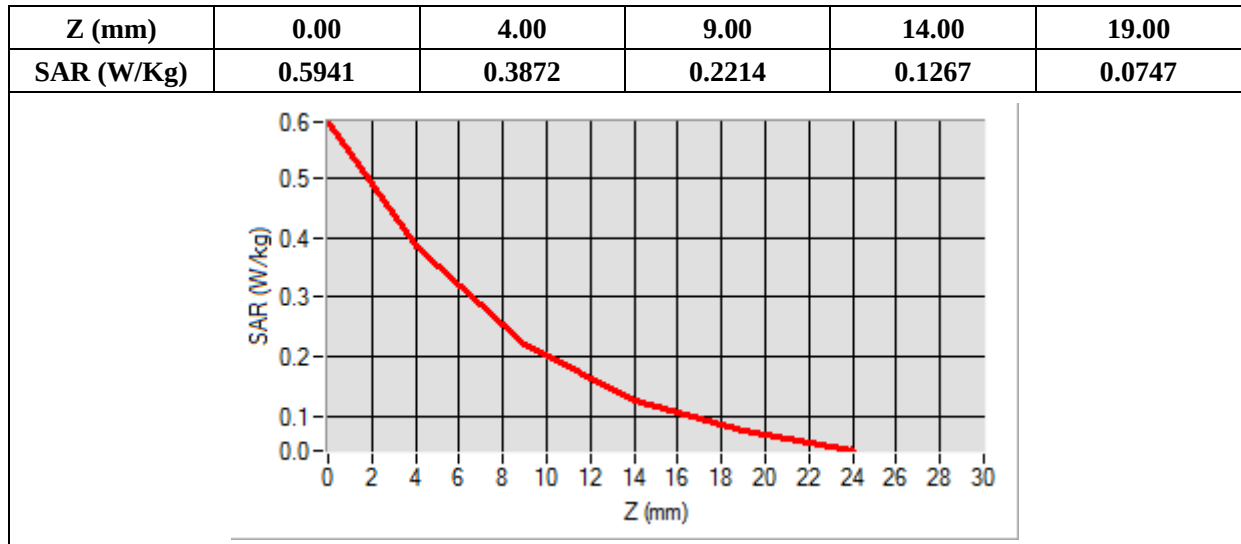
Frequency (MHz)	1712.400000
Relative Permittivity (real part)	39.025421
Conductivity (S/m)	1.370123
Power Variation (%)	1.342427
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=-56.00, Y=-55.00

SAR Peak: 0.59 W/kg

SAR 10g (W/Kg)	0.211246
SAR 1g (W/Kg)	0.366906



MEASUREMENT 31

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

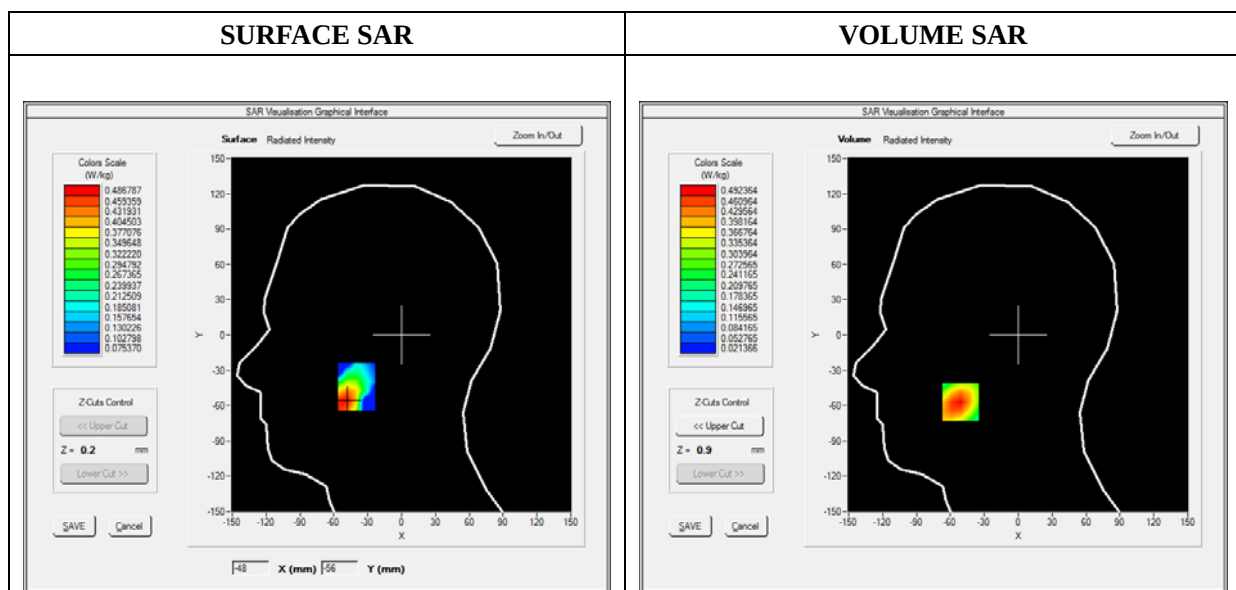
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

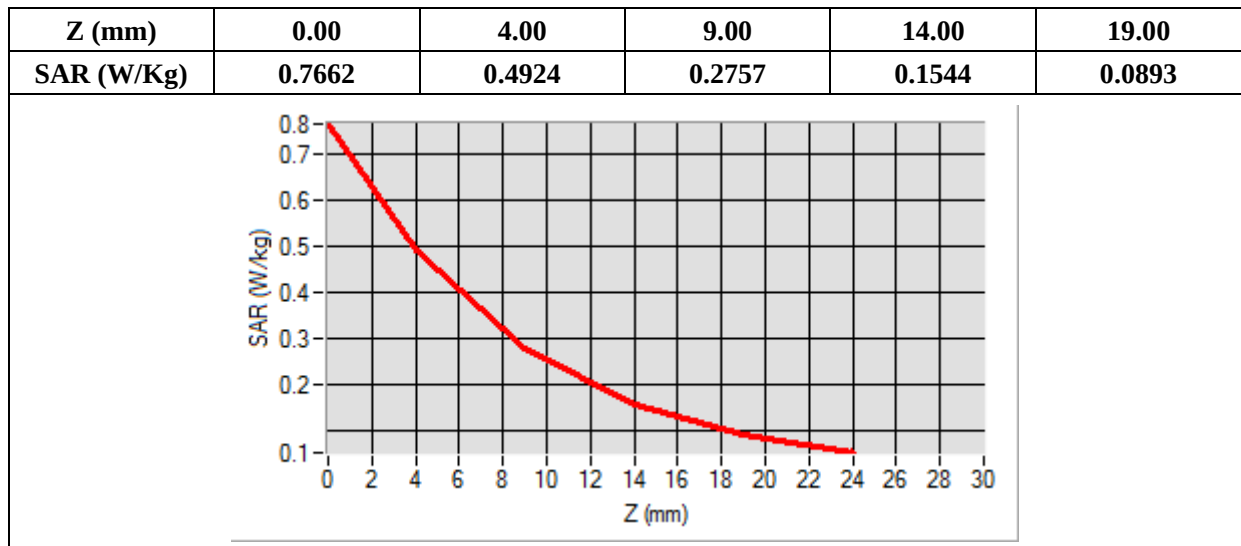
Frequency (MHz)	1860.000000
Relative Permittivity (real part)	38.560124
Conductivity (S/m)	1.380369
Power Variation (%)	1.743564
Ambient Temperature	21.1
Liquid Temperature	21.3

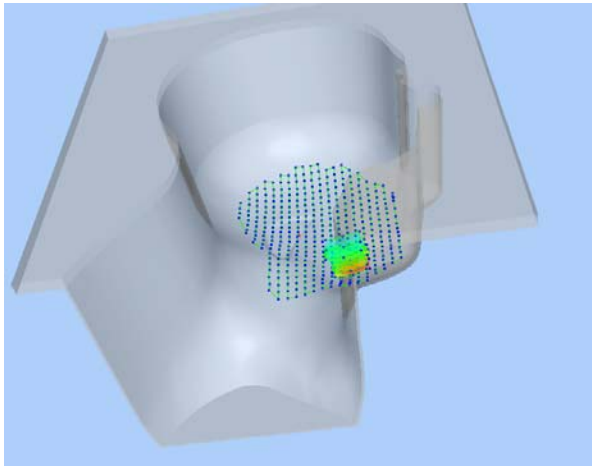
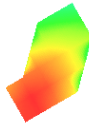


Maximum location: X=-51.00, Y=-57.00

SAR Peak: 0.77 W/kg

SAR 10g (W/Kg)	0.261589
SAR 1g (W/Kg)	0.467804



3D screen shot	Hot spot position
	

MEASUREMENT 39

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

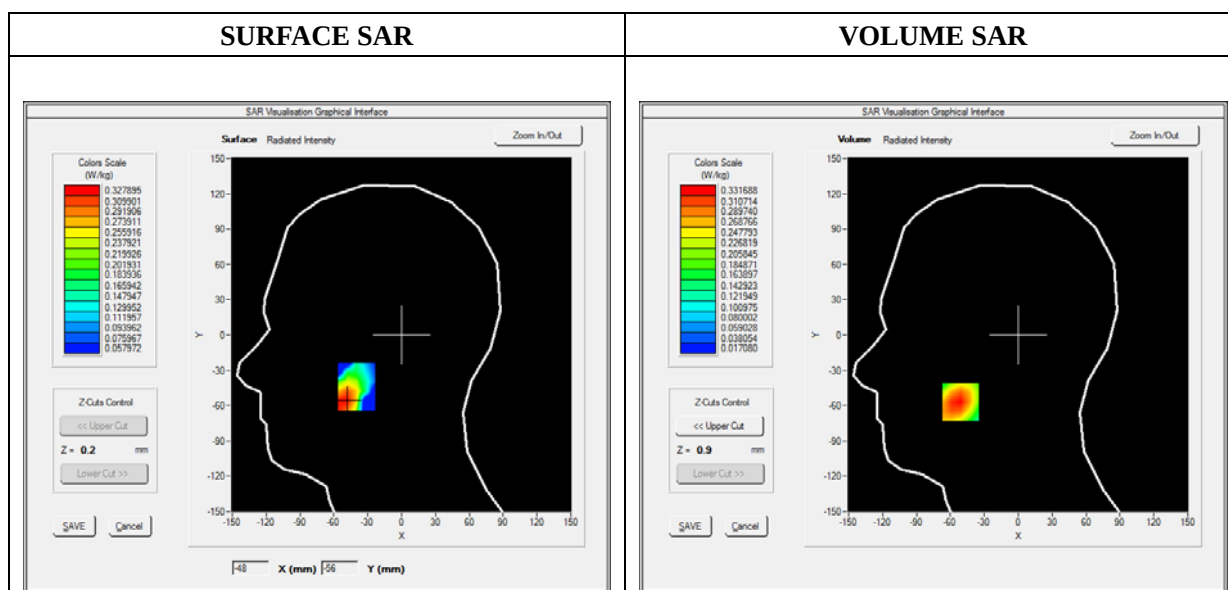
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
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)	39.025421
Conductivity (S/m)	1.370123
Power Variation (%)	1.374628
Ambient Temperature	21.1
Liquid Temperature	21.2

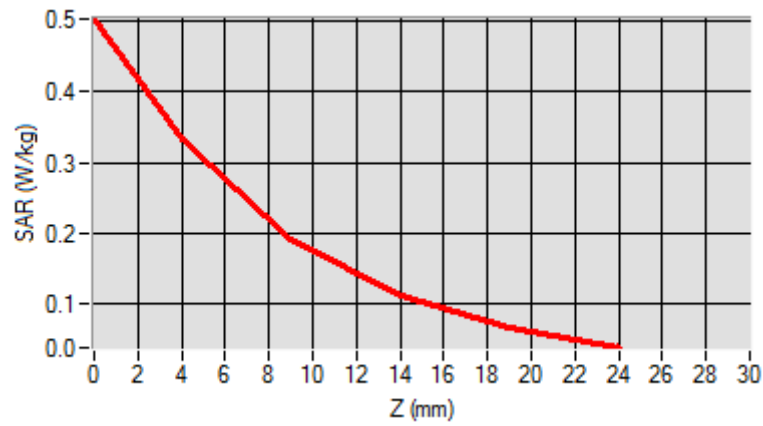


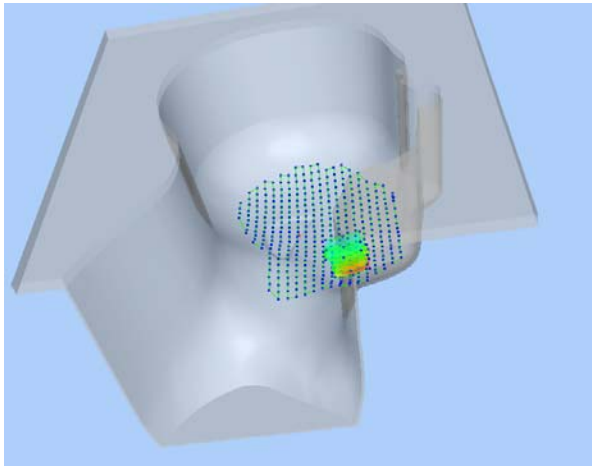
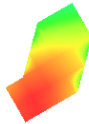
Maximum location: X=-51.00, Y=-57.00

SAR Peak: 0.51 W/kg

SAR 10g (W/Kg)	0.181763
SAR 1g (W/Kg)	0.315789

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.5029	0.3317	0.1928	0.1122	0.0669



3D screen shot	Hot spot position
	

MEASUREMENT 45

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 3 seconds

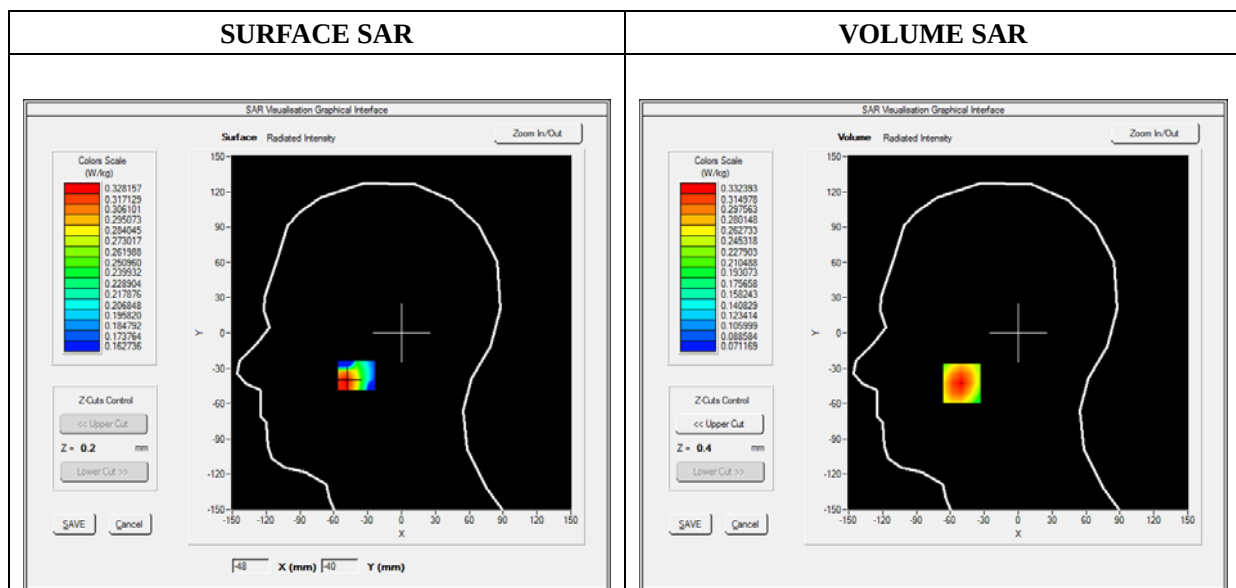
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Right head
Device Position	Cheek
Band	LTE Band 5_RMC
Channels	QPSK, 10MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

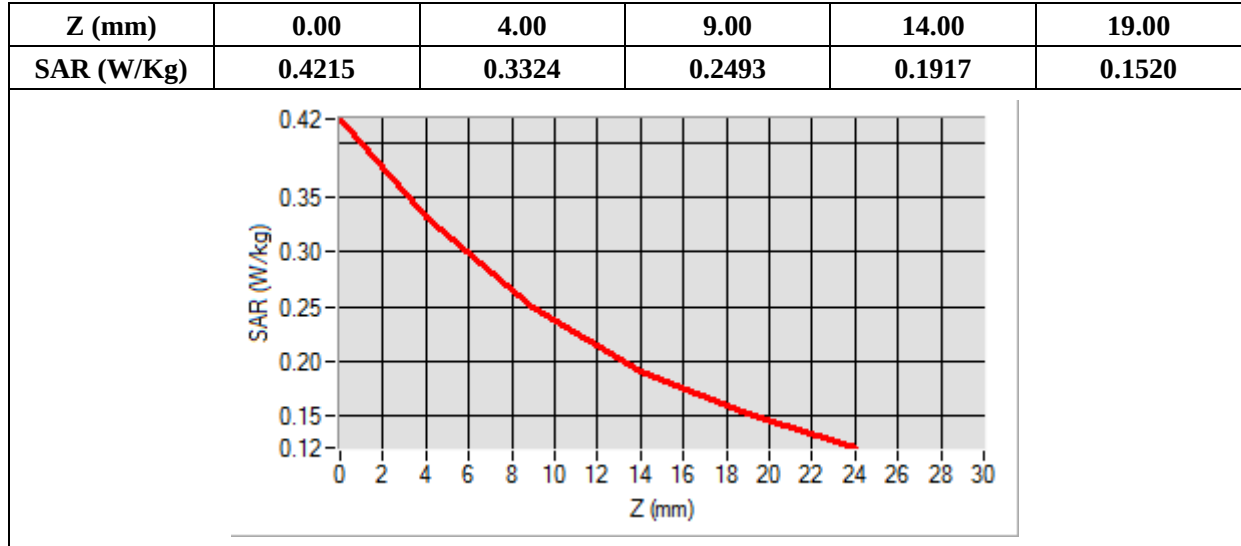
Frequency (MHz)	829.000000
Relative Permittivity (real part)	41.110245
Conductivity (S/m)	0.871245
Power Variation (%)	0.924535
Ambient Temperature	21.1
Liquid Temperature	21.2

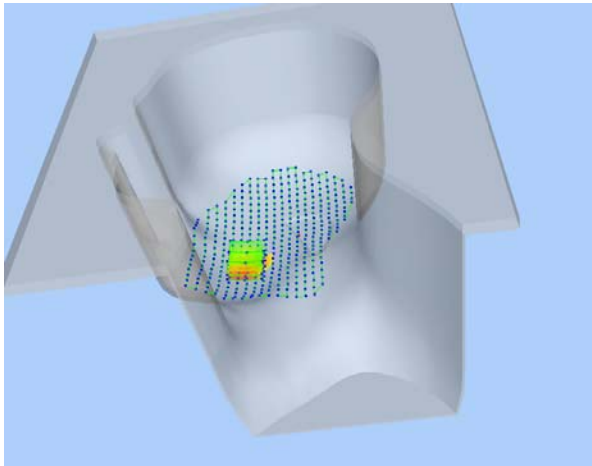


Maximum location: X=-50.00, Y=-43.00

SAR Peak: 0.42 W/kg

SAR 10g (W/Kg)	0.229113
SAR 1g (W/Kg)	0.319199



3D screen shot	Hot spot position
	

MEASUREMENT 55

Type: Phone measurement (Complete)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 3 seconds

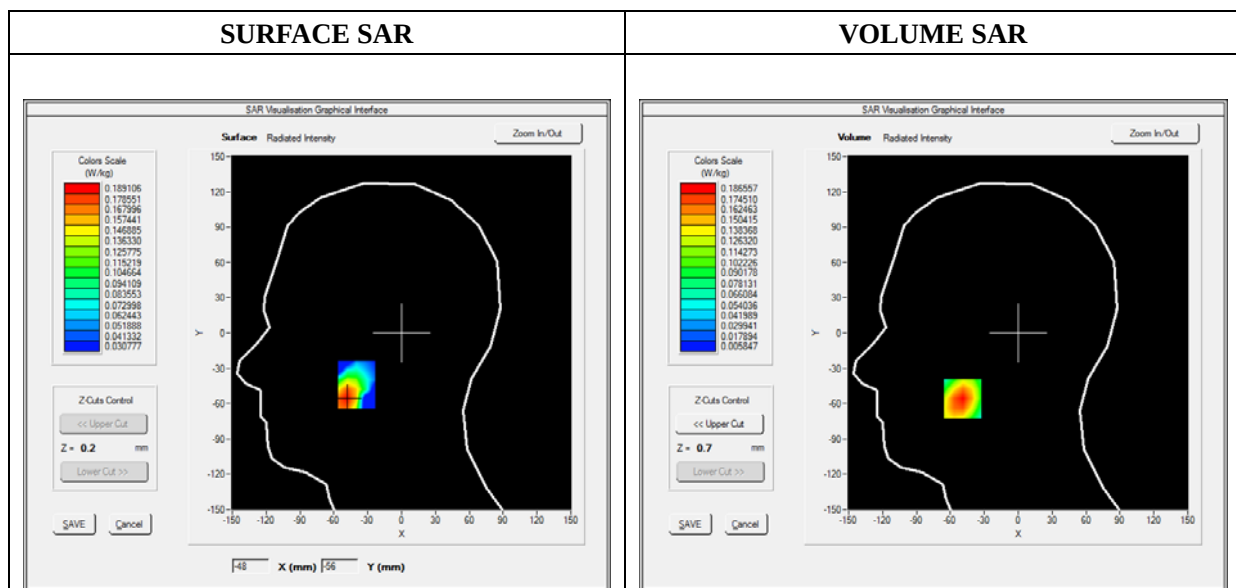
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

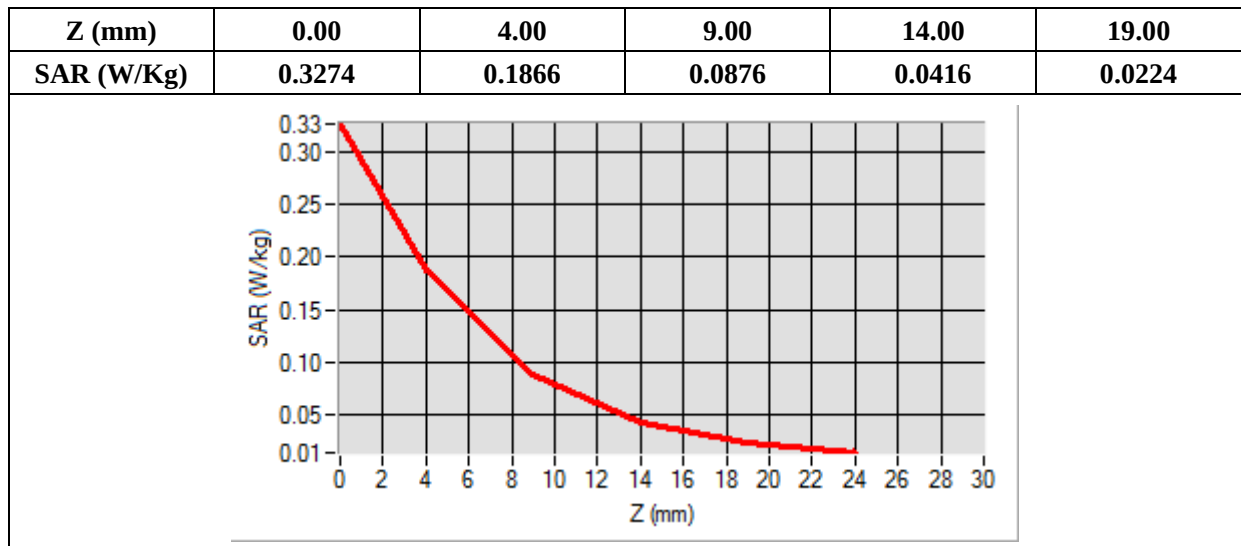
Frequency (MHz)	2510.000000
Relative Permittivity (real part)	38.631092
Conductivity (S/m)	1.930182
Power Variation (%)	0.924535
Ambient Temperature	21.1
Liquid Temperature	21.2

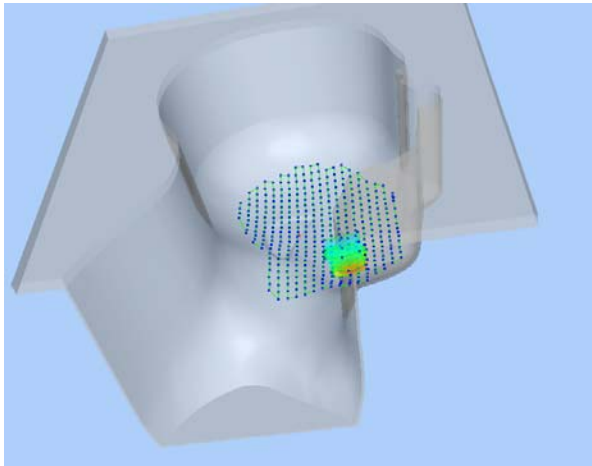
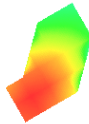


Maximum location: X=-49.00, Y=-56.00

SAR Peak: 0.33 W/kg

SAR 10g (W/Kg)	0.091073
SAR 1g (W/Kg)	0.177521



3D screen shot	Hot spot position
	

MEASUREMENT 63

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 3 seconds

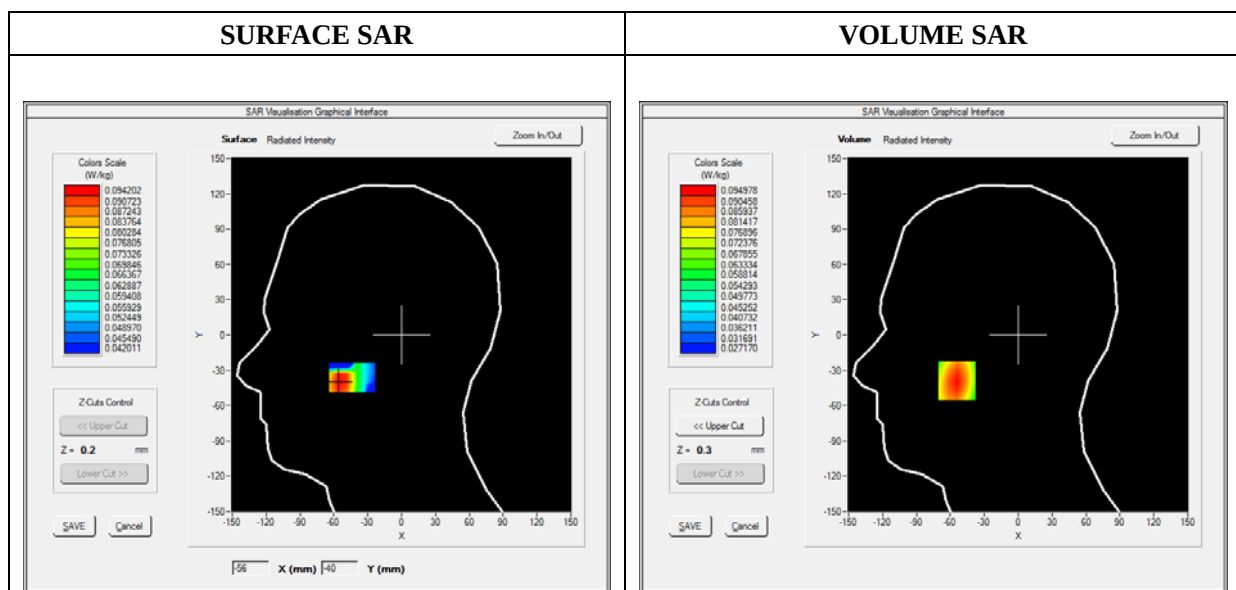
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.99; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Left head
Device Position	Cheek
Band	LTE Band 12_RMC
Channels	QPSK, 10MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

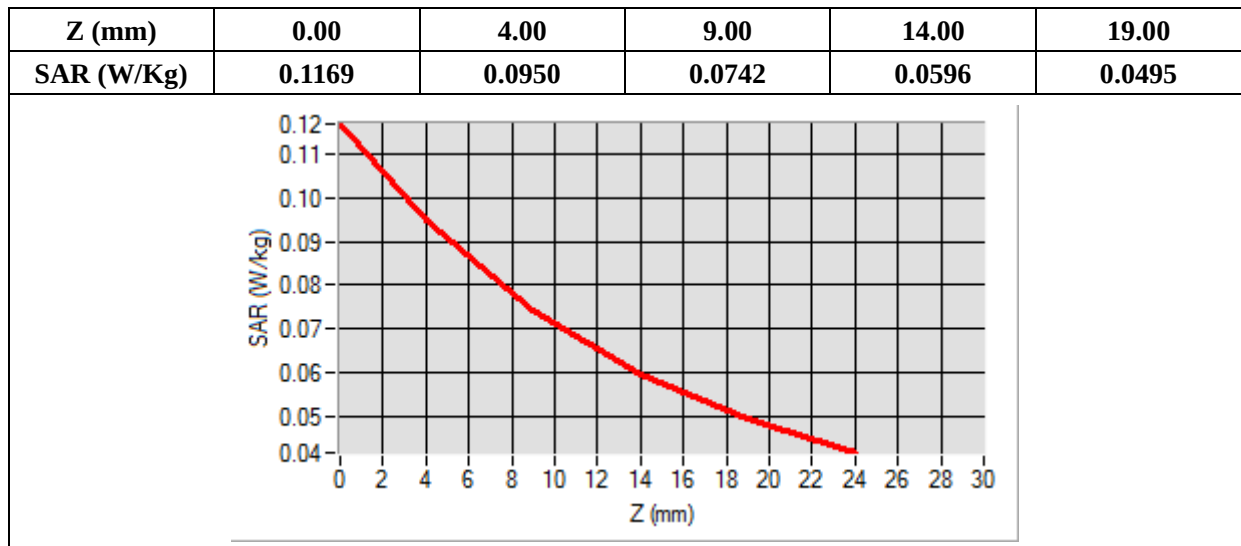
Frequency (MHz)	704.000000
Relative Permittivity (real part)	41.320574
Conductivity (S/m)	0.862373
Power Variation (%)	0.924535
Ambient Temperature	21.1
Liquid Temperature	21.2

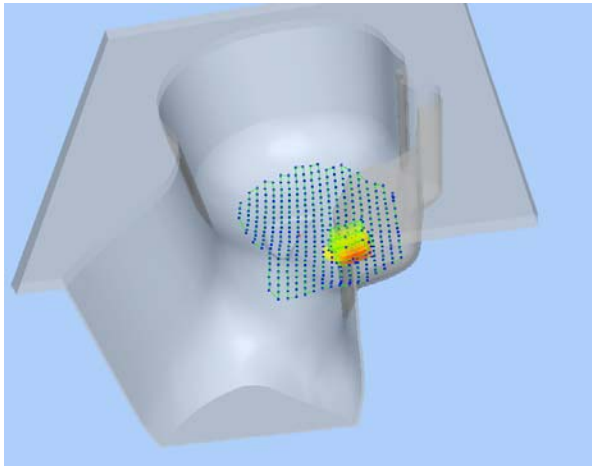


Maximum location: X=-54.00, Y=-39.00

SAR Peak: 0.12 W/kg

SAR 10g (W/Kg)	0.070136
SAR 1g (W/Kg)	0.093403



3D screen shot	Hot spot position
	

MEASUREMENT 71

Type: Phone measurement (Complete)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 3 seconds

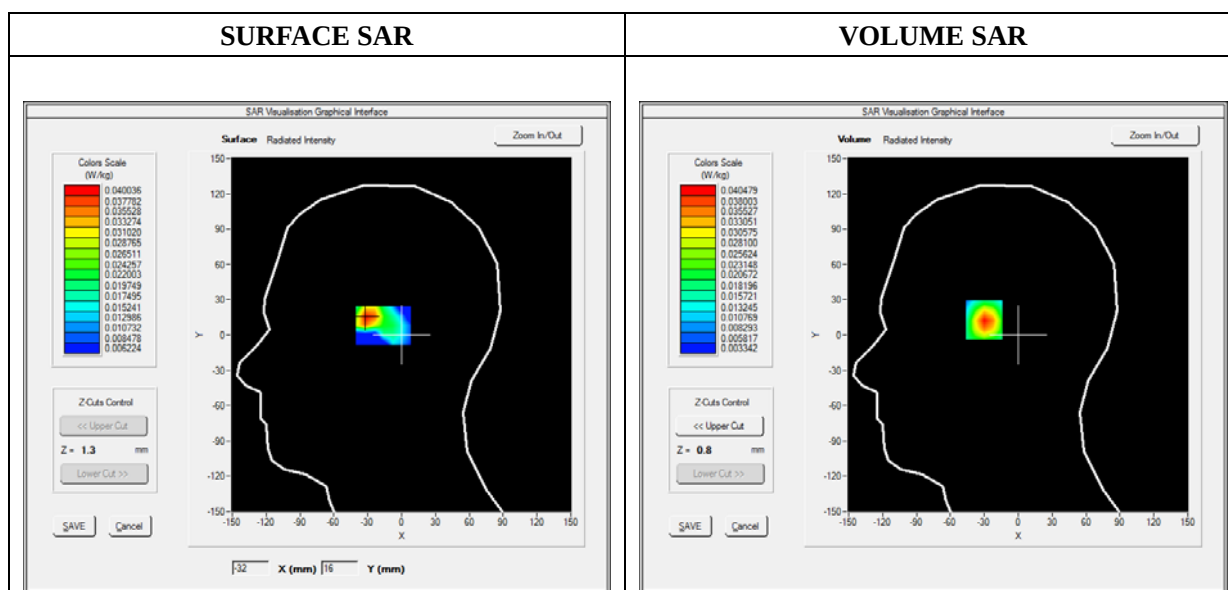
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 06/01/2018

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

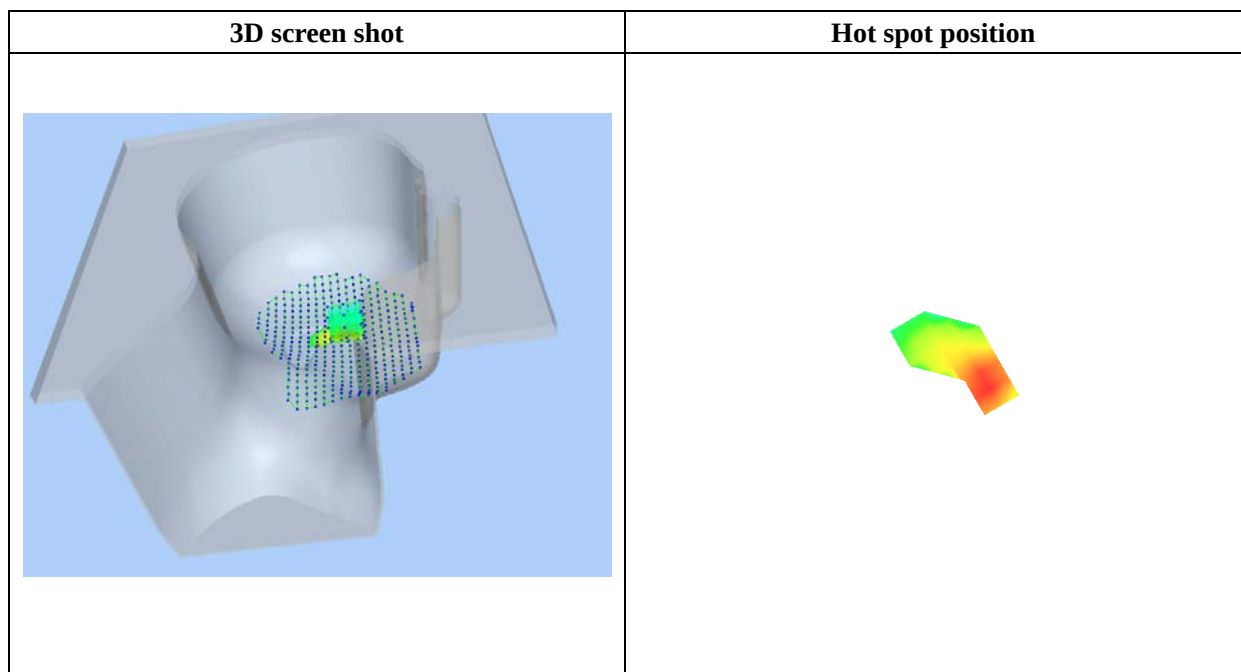
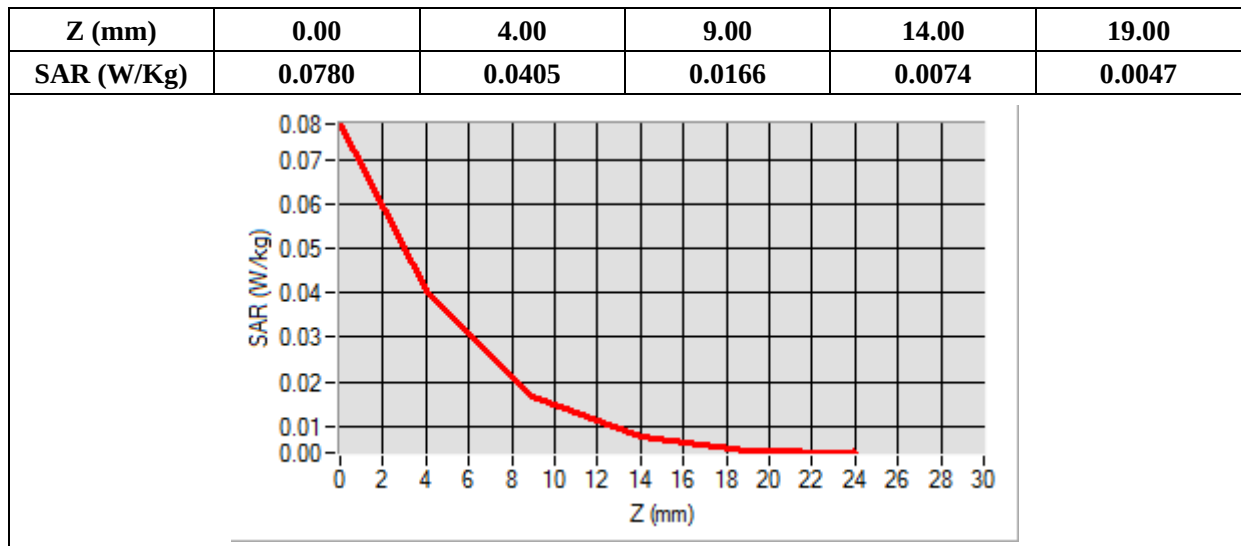
Frequency (MHz)	2412.000000
Relative Permittivity (real part)	38.153660
Conductivity (S/m)	1.740236
Power Variation (%)	3.234772
Ambient Temperature	21.1
Liquid Temperature	21.2



Maximum location: X=-30.00, Y=15.00

SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.018442
SAR 1g (W/Kg)	0.038437



MEASUREMENT 73

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 3 seconds

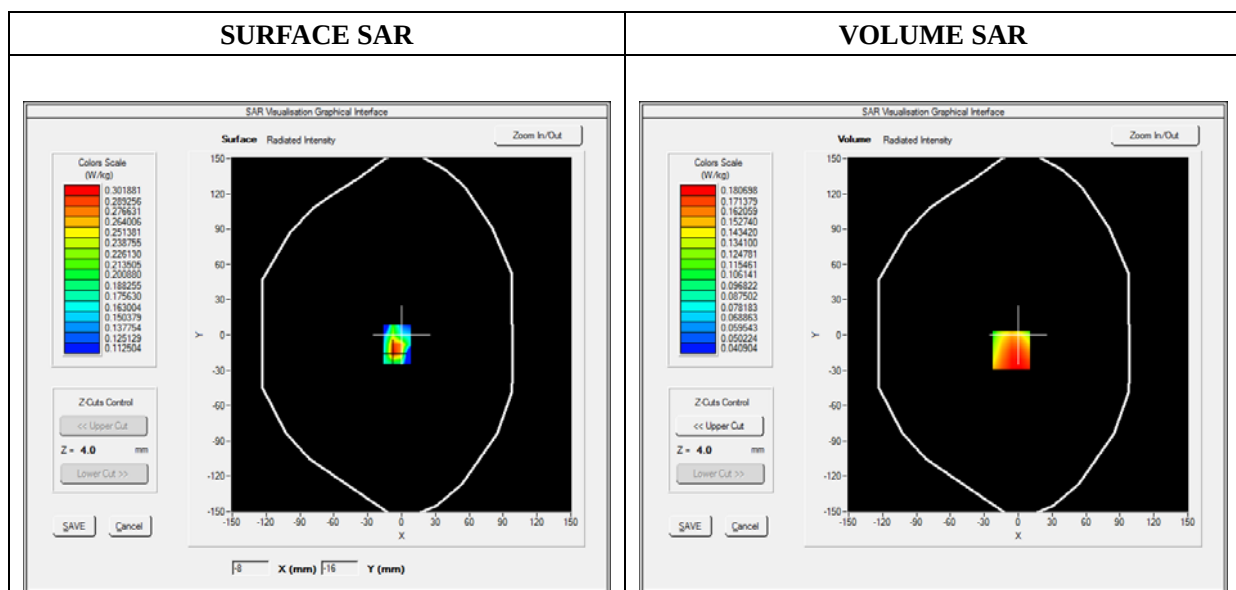
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2018

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

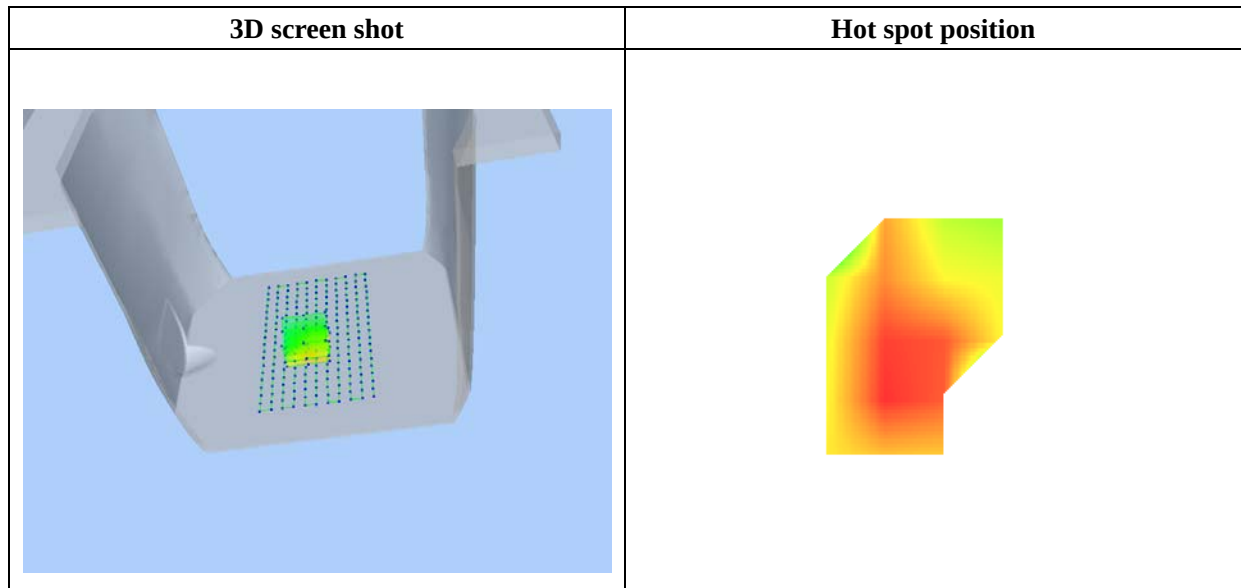
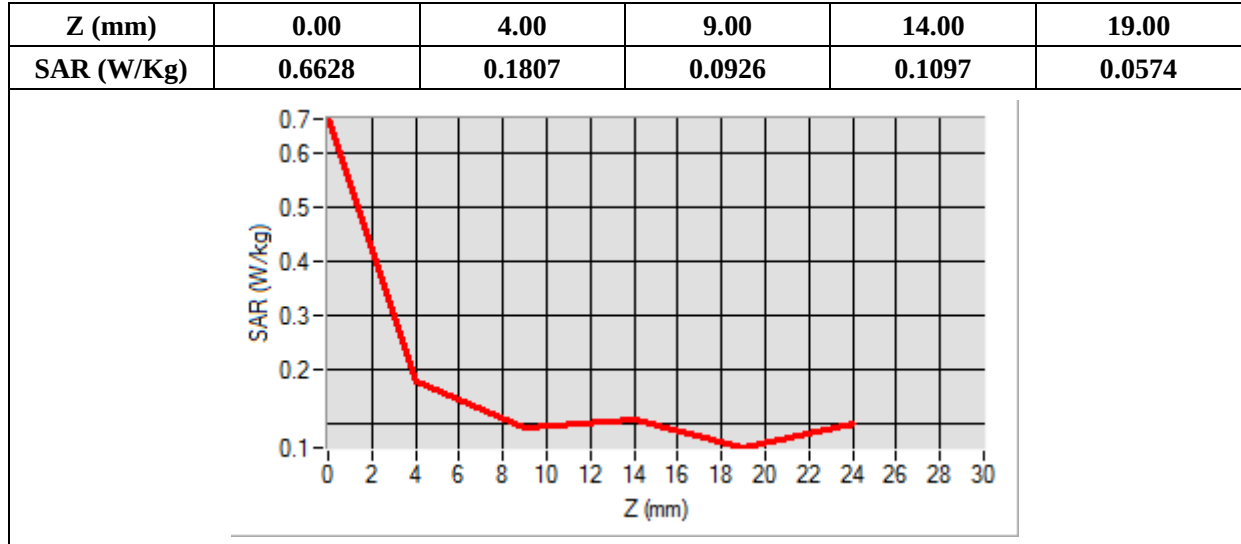
Frequency (MHz)	824.200000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.901472
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=-6.00, Y=-13.00

SAR Peak: 0.24 W/kg

SAR 10g (W/Kg)	0.132931
SAR 1g (W/Kg)	0.175992



MEASUREMENT 75

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

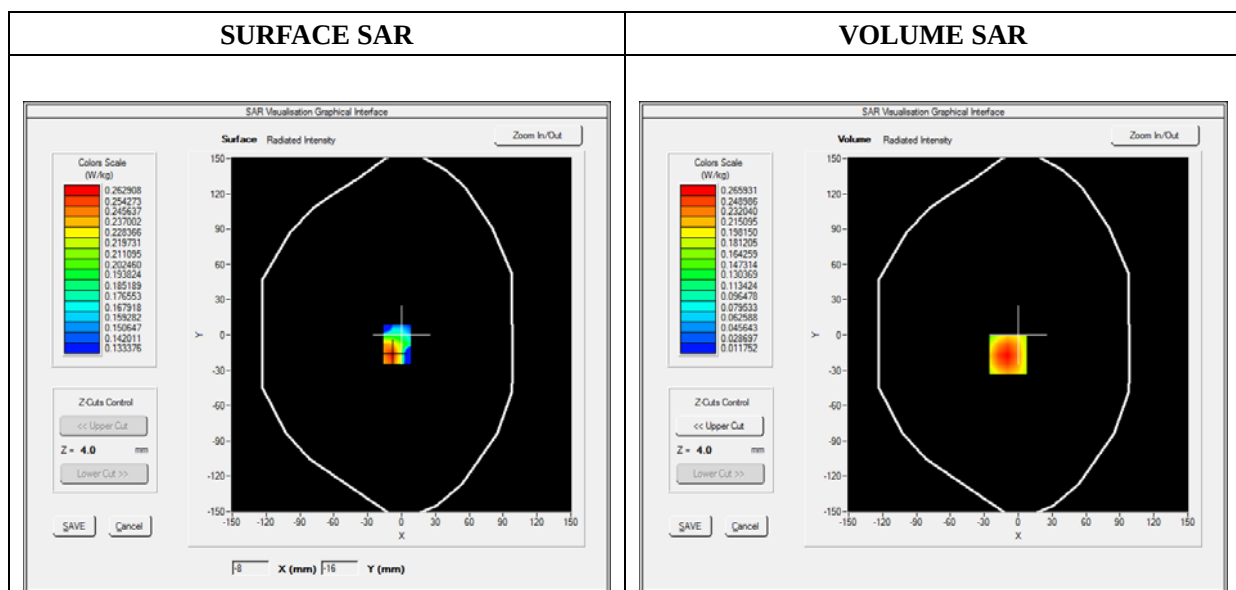
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

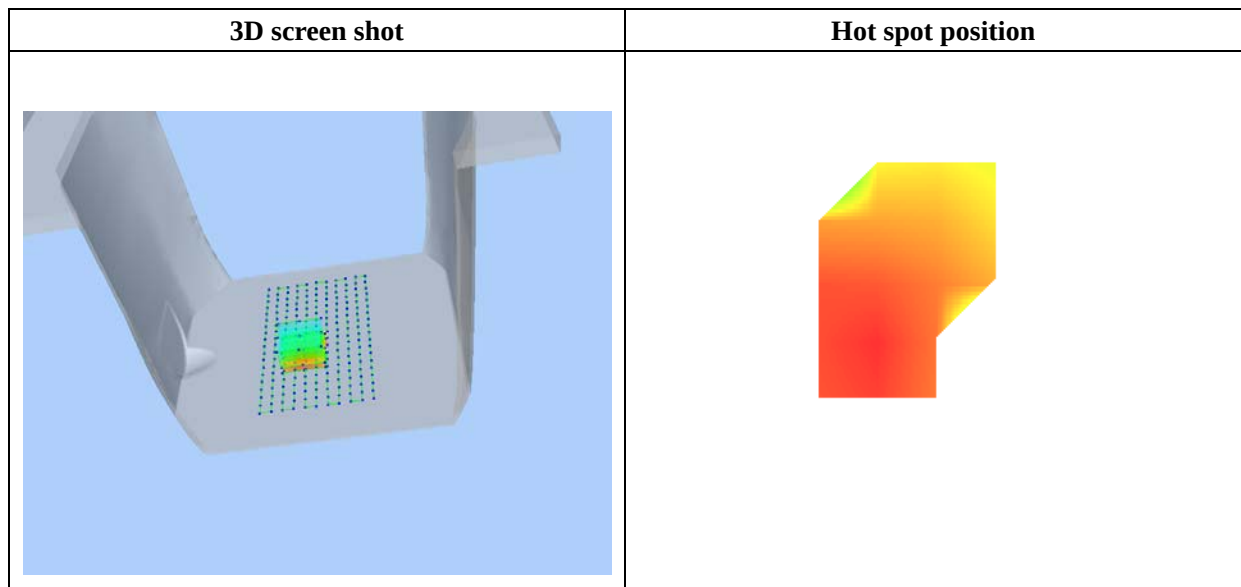
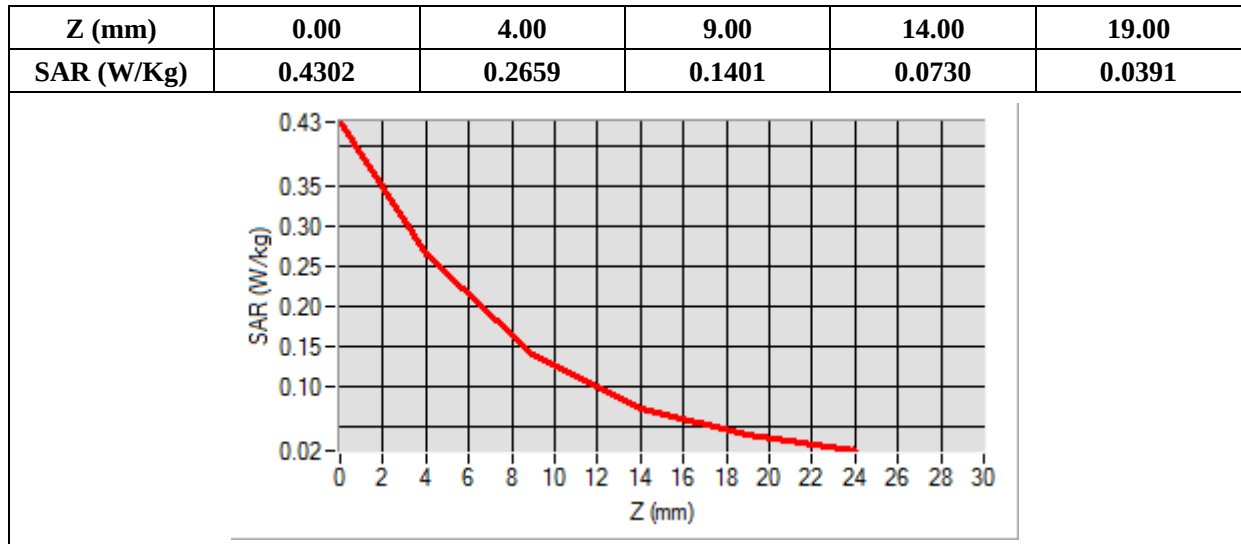
Frequency (MHz)	1880.000000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	1.474622
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=-9.00, Y=-17.00

SAR Peak: 0.43 W/kg

SAR 10g (W/Kg)	0.141704
SAR 1g (W/Kg)	0.253653



MEASUREMENT 77

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 3 seconds

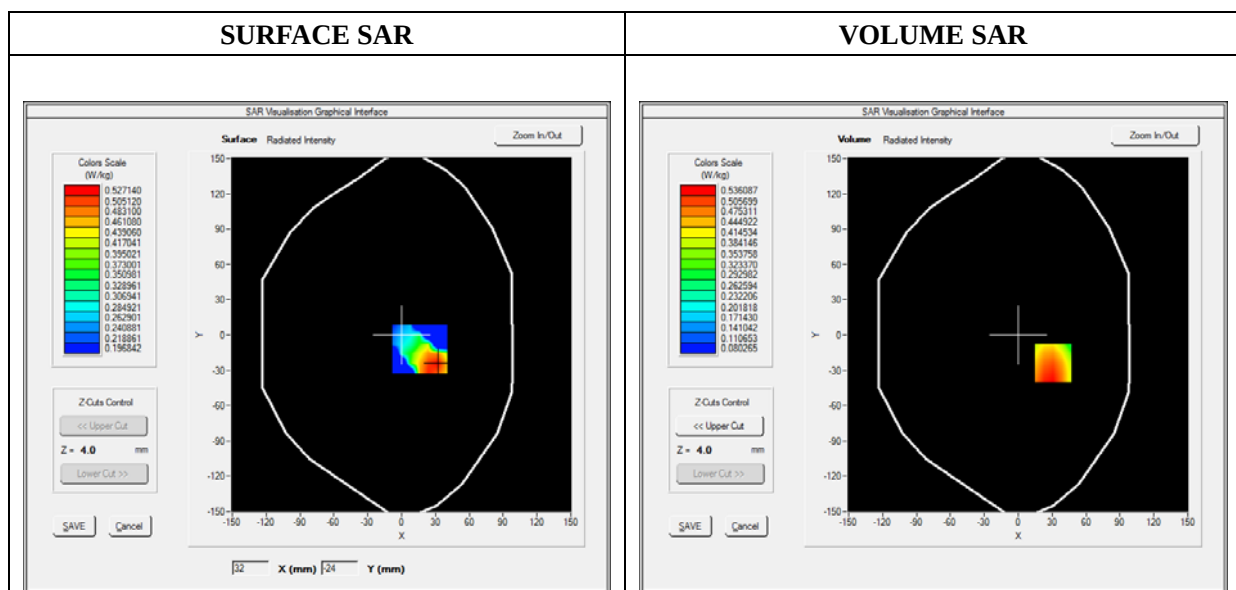
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

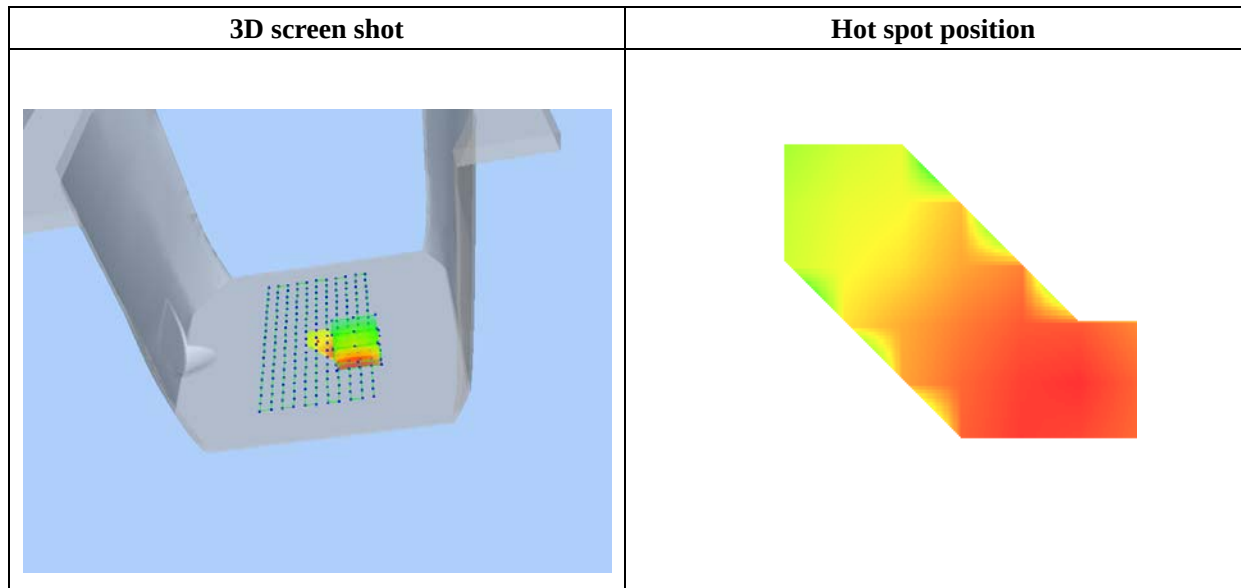
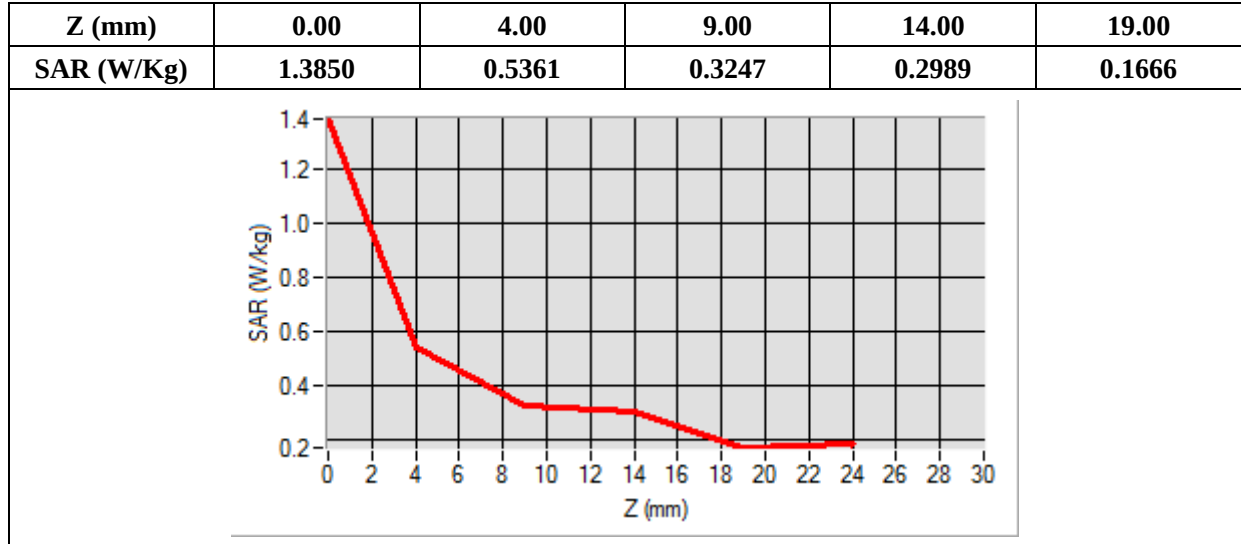
Frequency (MHz)	824.200000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	0.901472
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=31.00, Y=-24.00

SAR Peak: 0.70 W/kg

SAR 10g (W/Kg)	0.361084
SAR 1g (W/Kg)	0.514059



MEASUREMENT 82

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

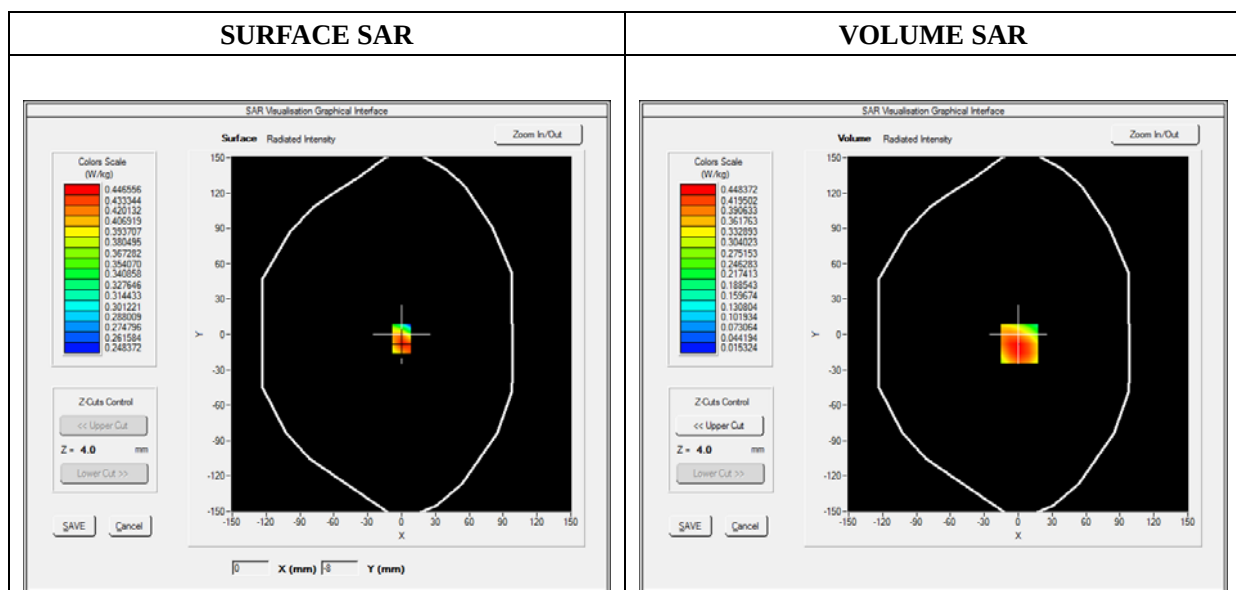
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

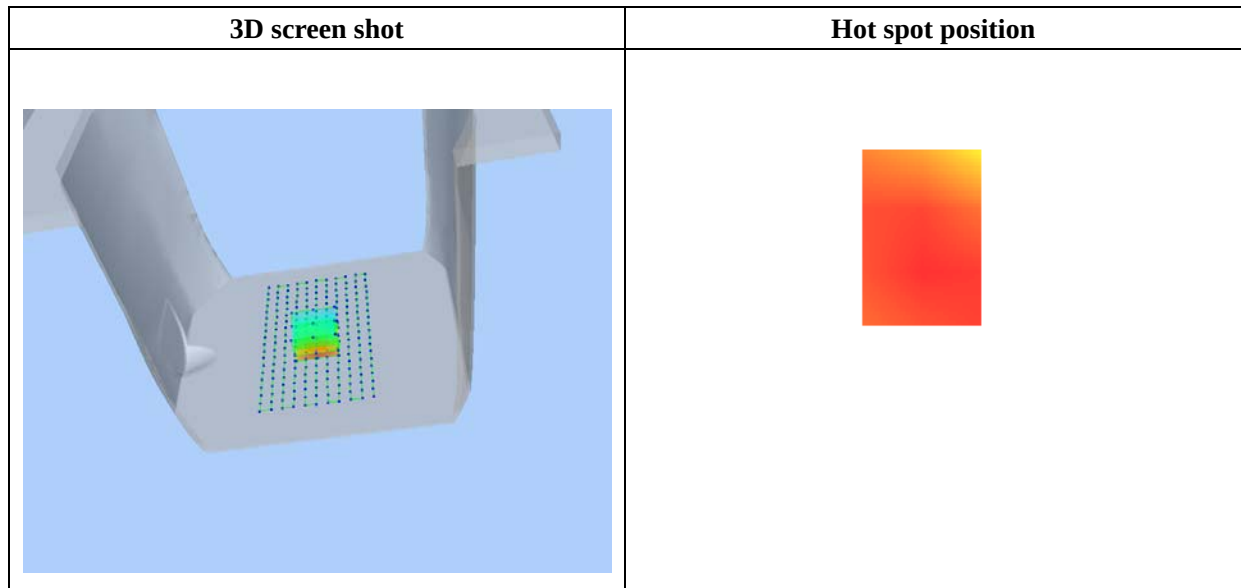
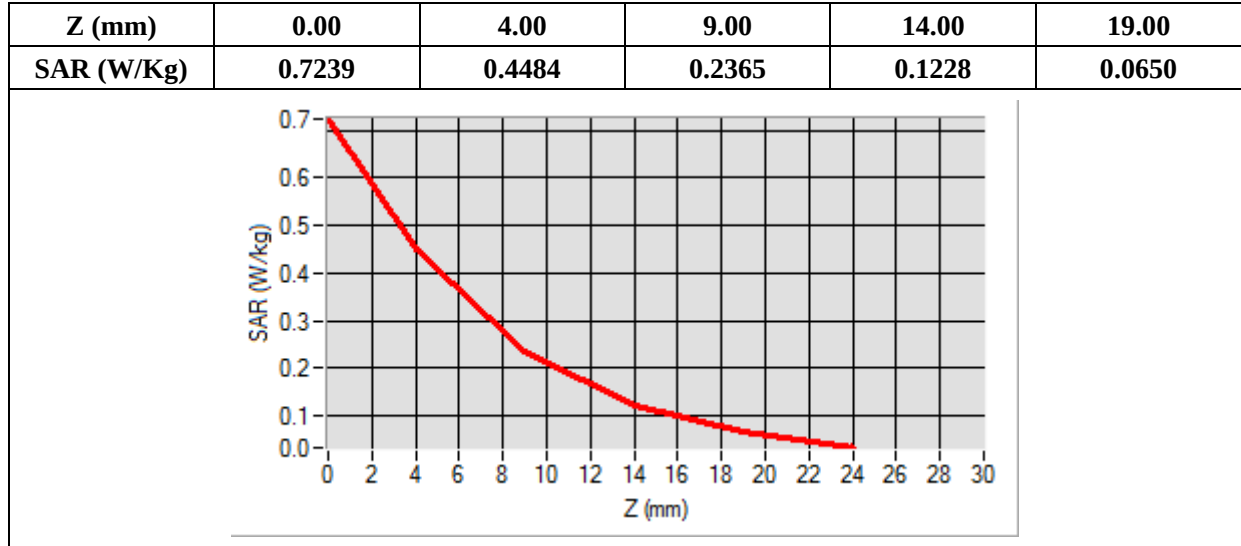
Frequency (MHz)	1909.800000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	2.483762
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=1.00, Y=-8.00

SAR Peak: 0.74 W/kg

SAR 10g (W/Kg)	0.240885
SAR 1g (W/Kg)	0.433100



MEASUREMENT 86

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

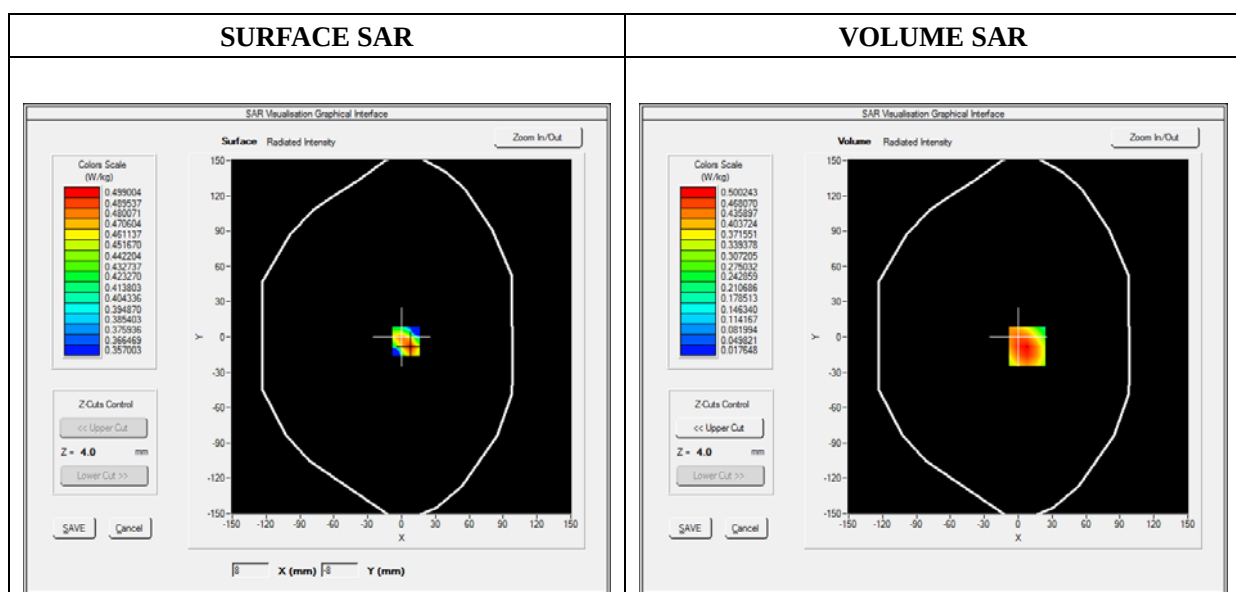
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

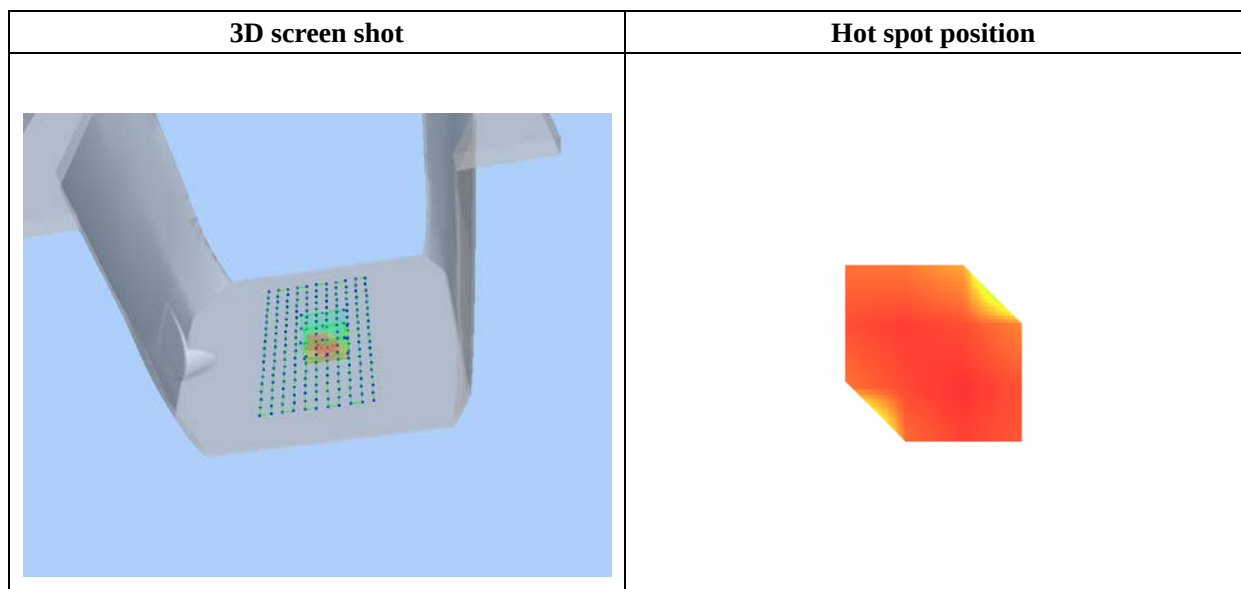
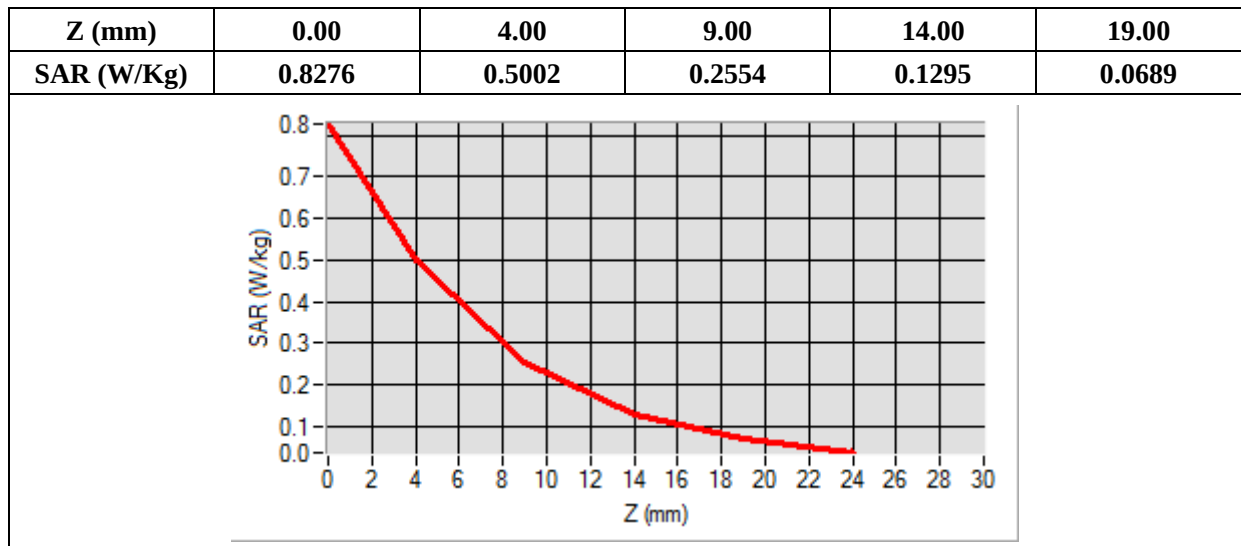
Frequency (MHz)	1907.600000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	1.789272
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=8.00, Y=-8.00

SAR Peak: 0.83 W/kg

SAR 10g (W/Kg)	0.264104
SAR 1g (W/Kg)	0.479529



MEASUREMENT 87

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

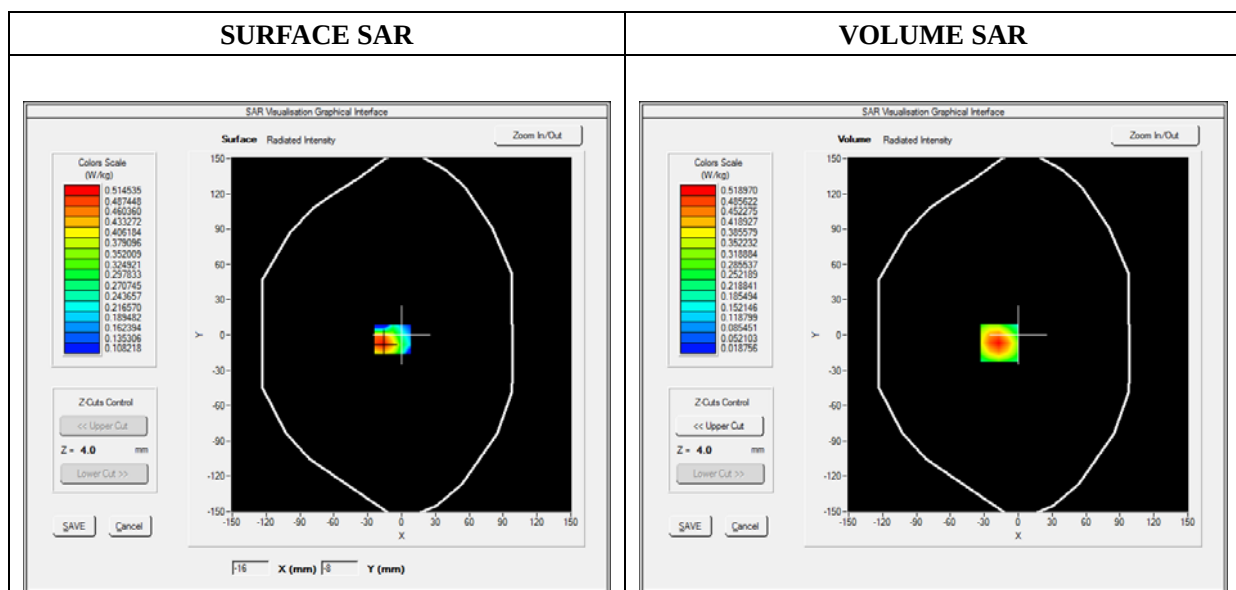
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

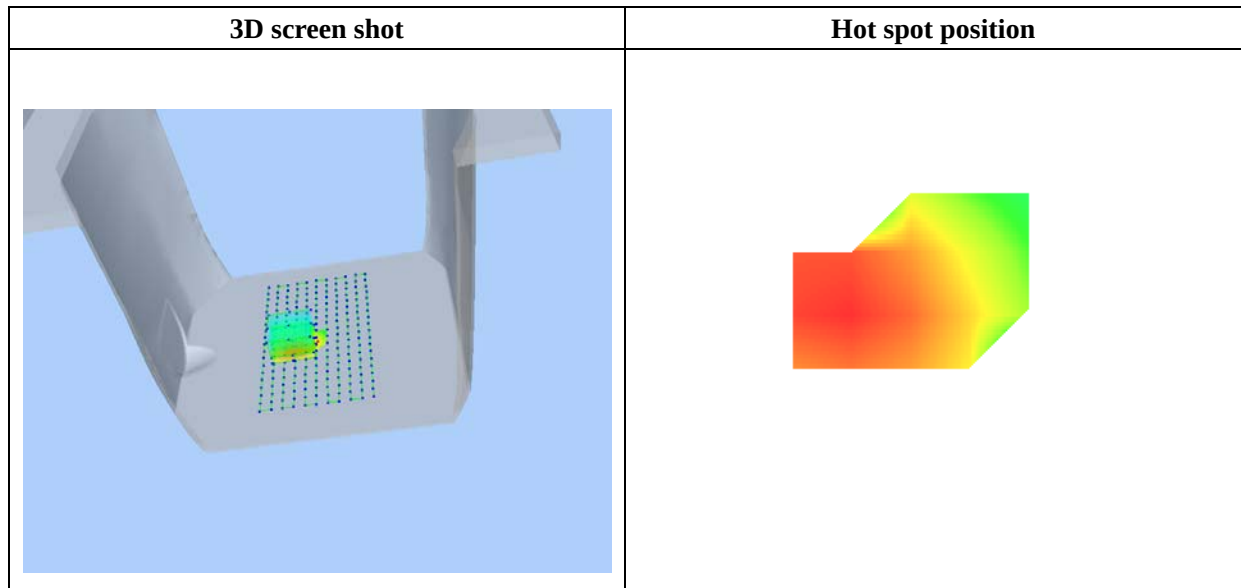
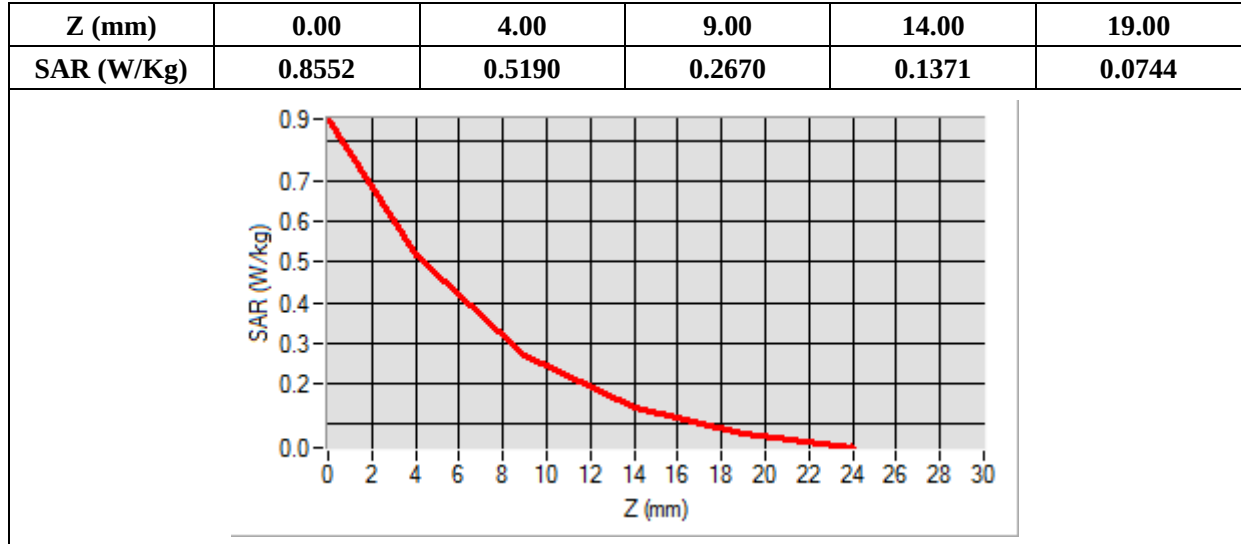
Frequency (MHz)	1907.600000
Relative Permittivity (real part)	52.420415
Conductivity (S/m)	1.501966
Power Variation (%)	1.847552
Ambient Temperature	21.1
Liquid Temperature	21.3



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

SAR Peak: 0.85 W/kg

SAR 10g (W/Kg)	0.256706
SAR 1g (W/Kg)	0.488281



MEASUREMENT 89

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 3 seconds

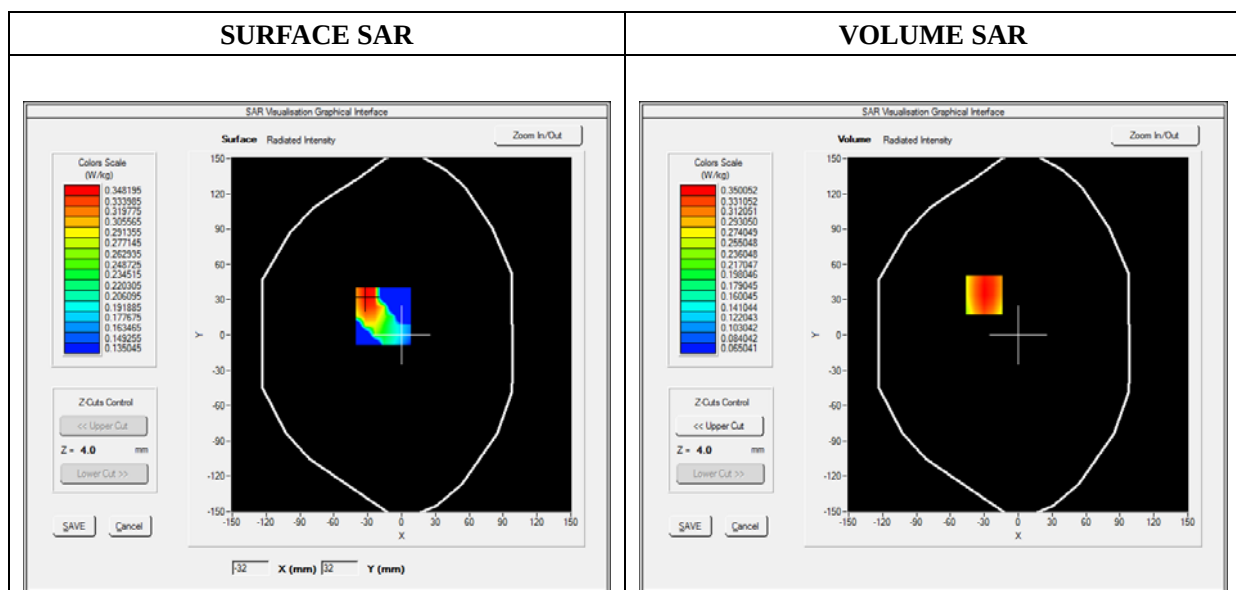
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2018

A. Experimental conditions

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

B. SAR Measurement Results

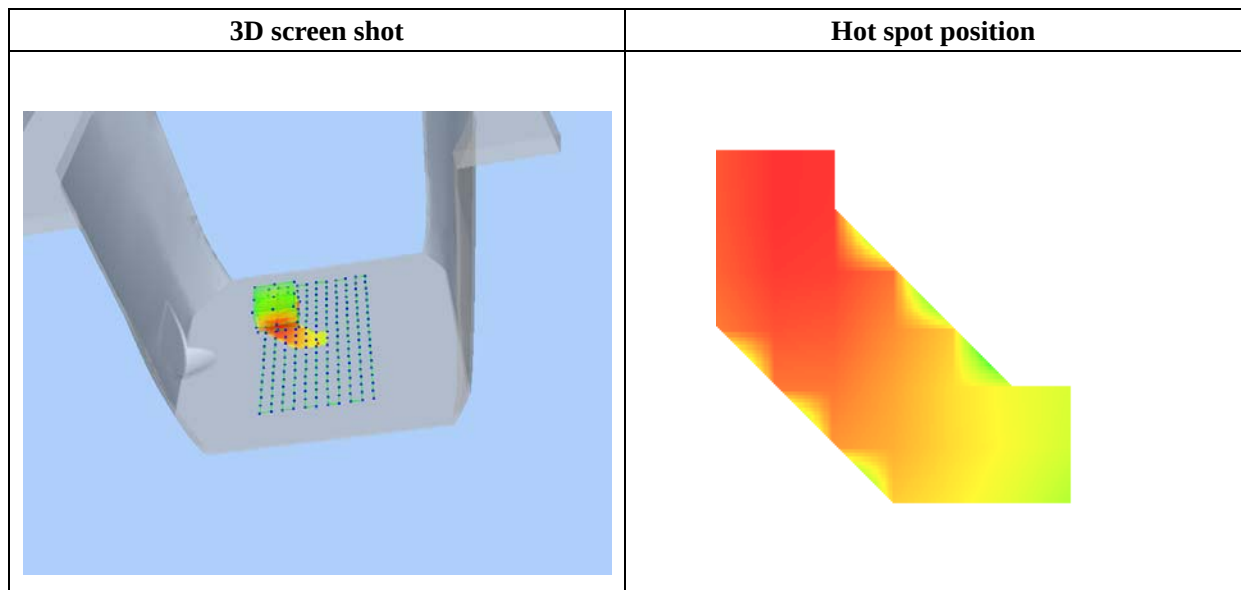
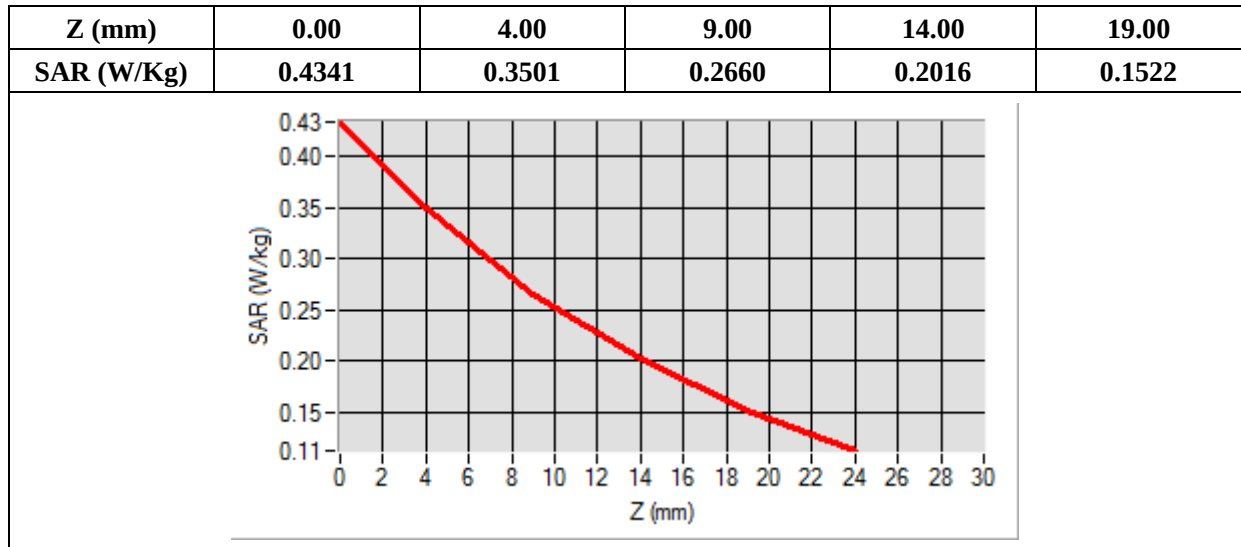
Frequency (MHz)	836.600000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	2.341234
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=-30.00, Y=34.00

SAR Peak: 0.44 W/kg

SAR 10g (W/Kg)	0.247844
SAR 1g (W/Kg)	0.338475



MEASUREMENT 93

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

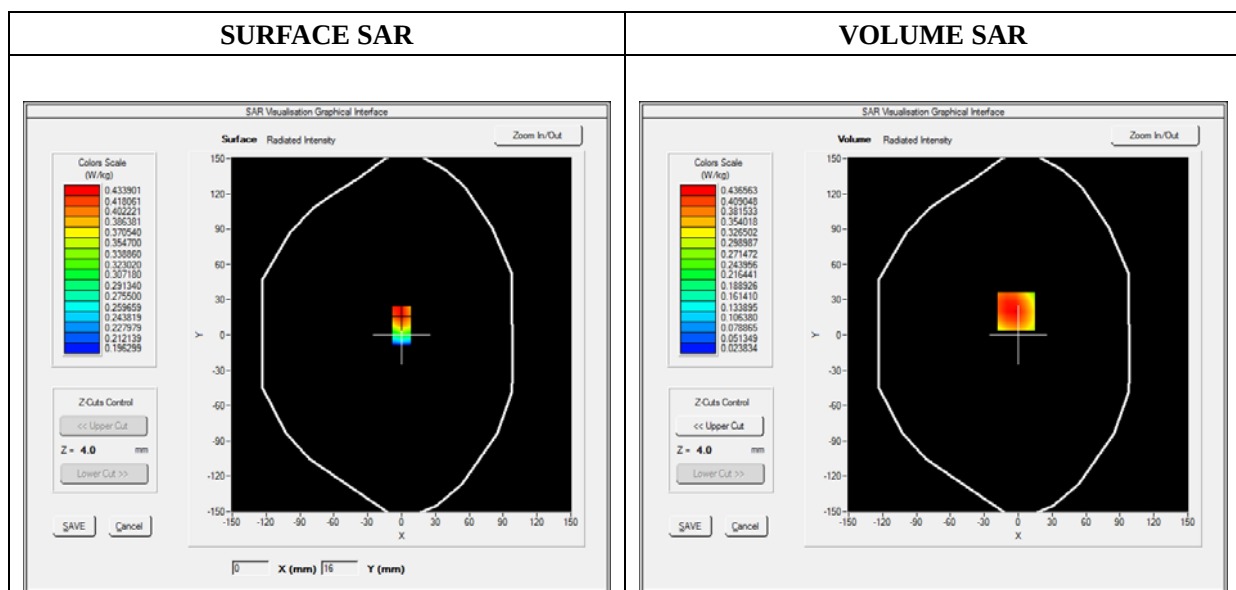
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	WCDMA1700_RMC
Channels	Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

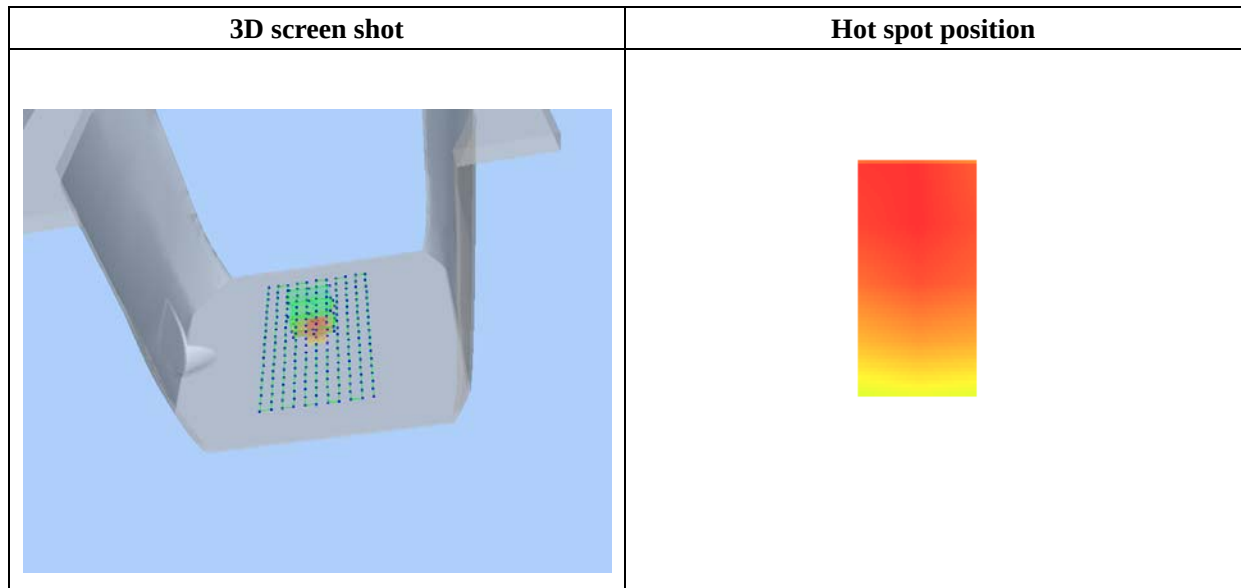
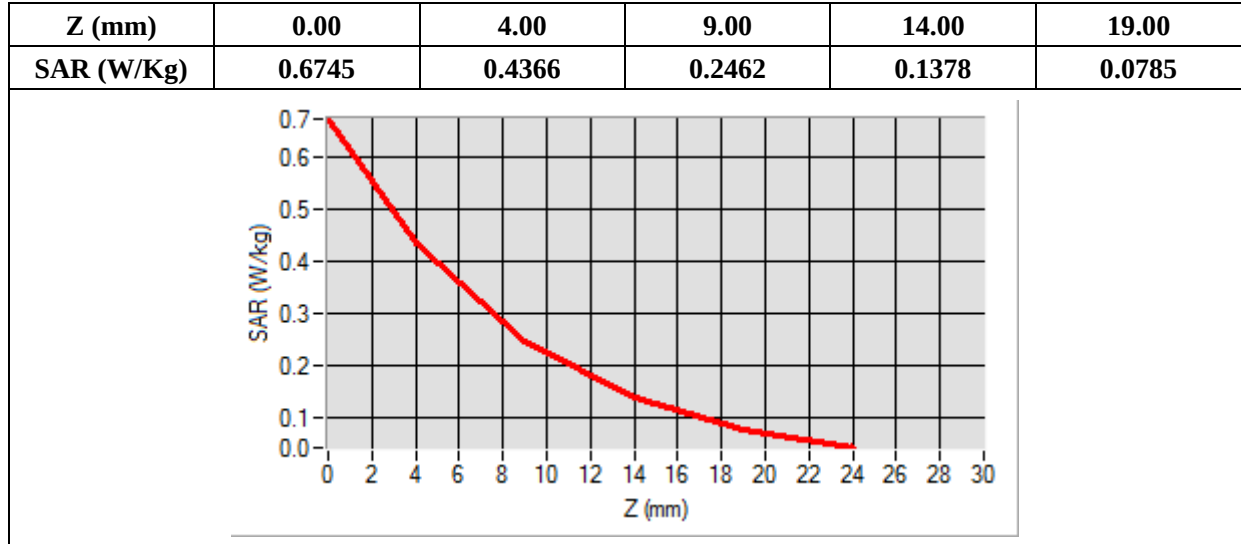
Frequency (MHz)	1712.400000
Relative Permittivity (real part)	51.220432
Conductivity (S/m)	1.460124
Power Variation (%)	2.341221
Ambient Temperature	21.1
Liquid Temperature	21.3



Maximum location: X=-2.00, Y=20.00

SAR Peak: 0.68 W/kg

SAR 10g (W/Kg)	0.250463
SAR 1g (W/Kg)	0.420978



MEASUREMENT 98

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

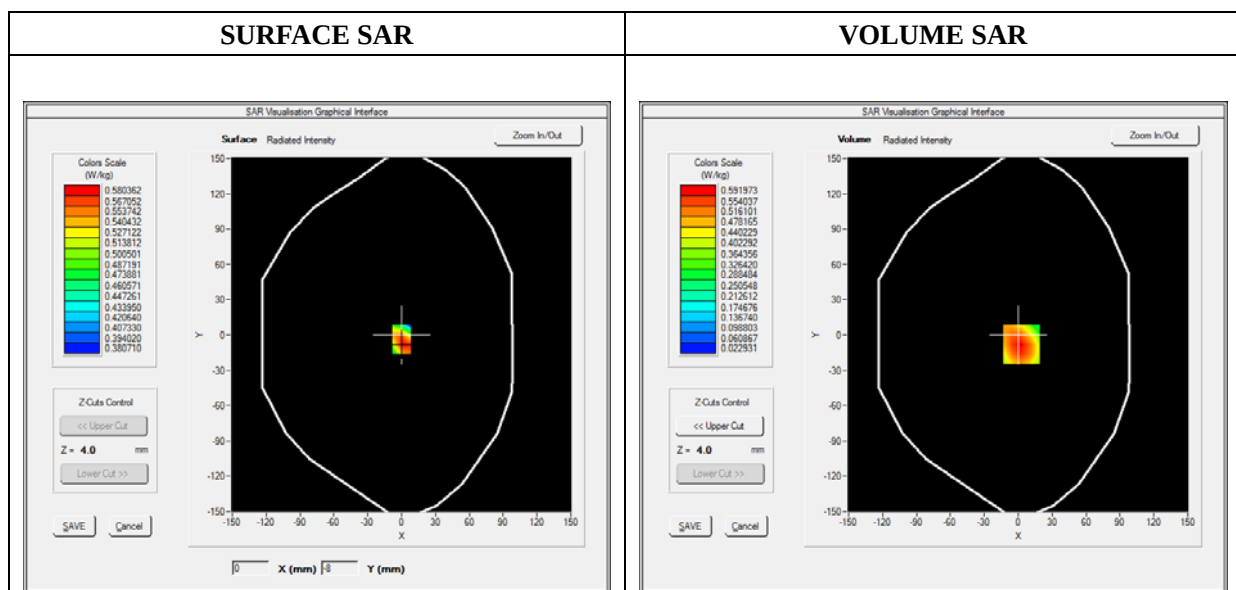
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Front
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

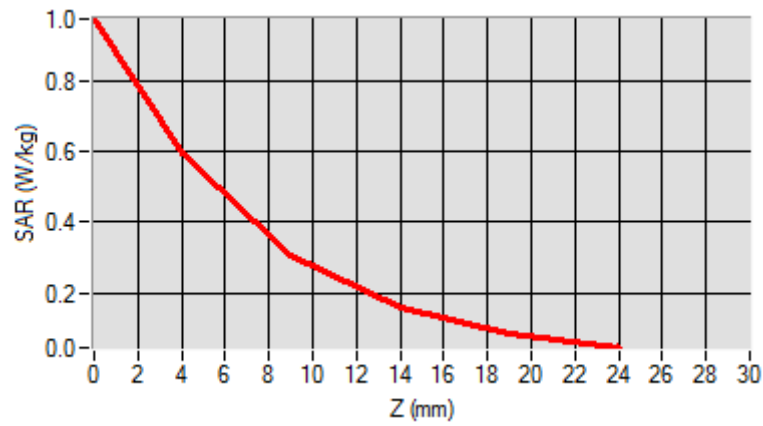


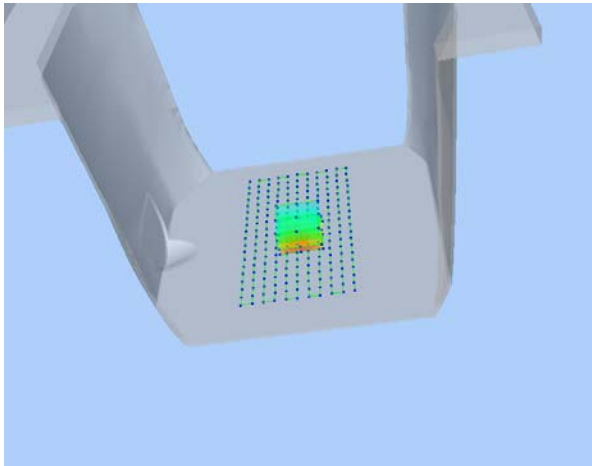
Maximum location: X=3.00, Y=-8.00

SAR Peak: 0.97 W/kg

SAR 10g (W/Kg)	0.312844
SAR 1g (W/Kg)	0.565659

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.9734	0.5920	0.3052	0.1565	0.0842



3D screen shot	Hot spot position
	

MEASUREMENT 105

Type: Phone measurement (Complete)

Date of measurement: 09/04/2018

Measurement duration: 12 minutes 3 seconds

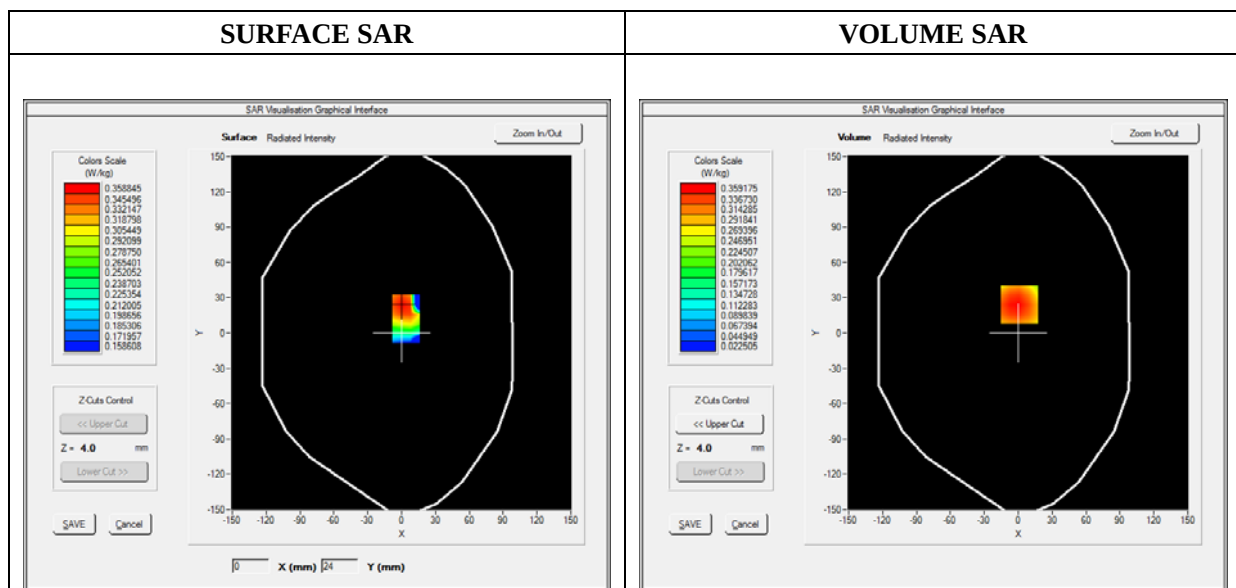
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 06/01/2018

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

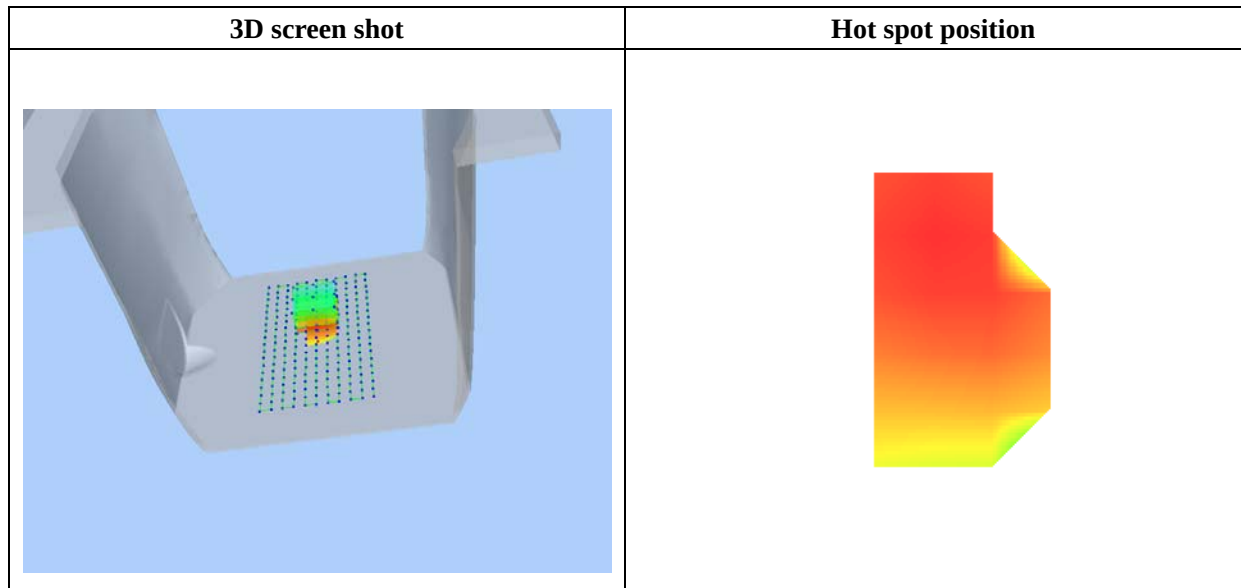
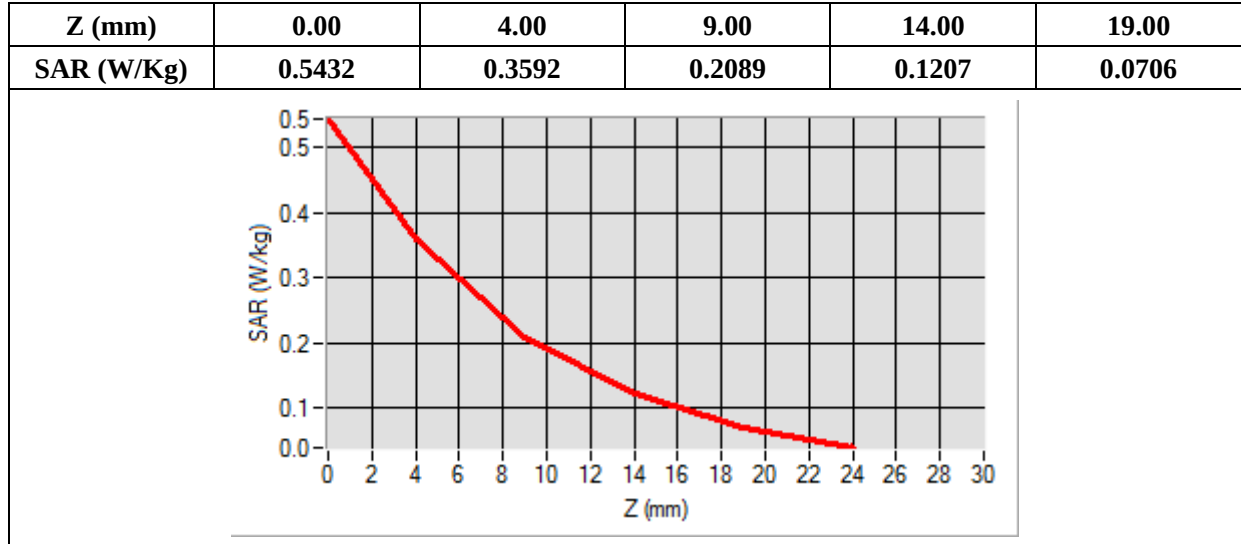
Frequency (MHz)	1720.000000
Relative Permittivity (real part)	51.220432
Conductivity (S/m)	1.460124
Power Variation (%)	0.858383
Ambient Temperature	21.1
Liquid Temperature	21.2



Maximum location: X=1.00, Y=24.00

SAR Peak: 0.55 W/kg

SAR 10g (W/Kg)	0.207279
SAR 1g (W/Kg)	0.344691



MEASUREMENT 113

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 3 seconds

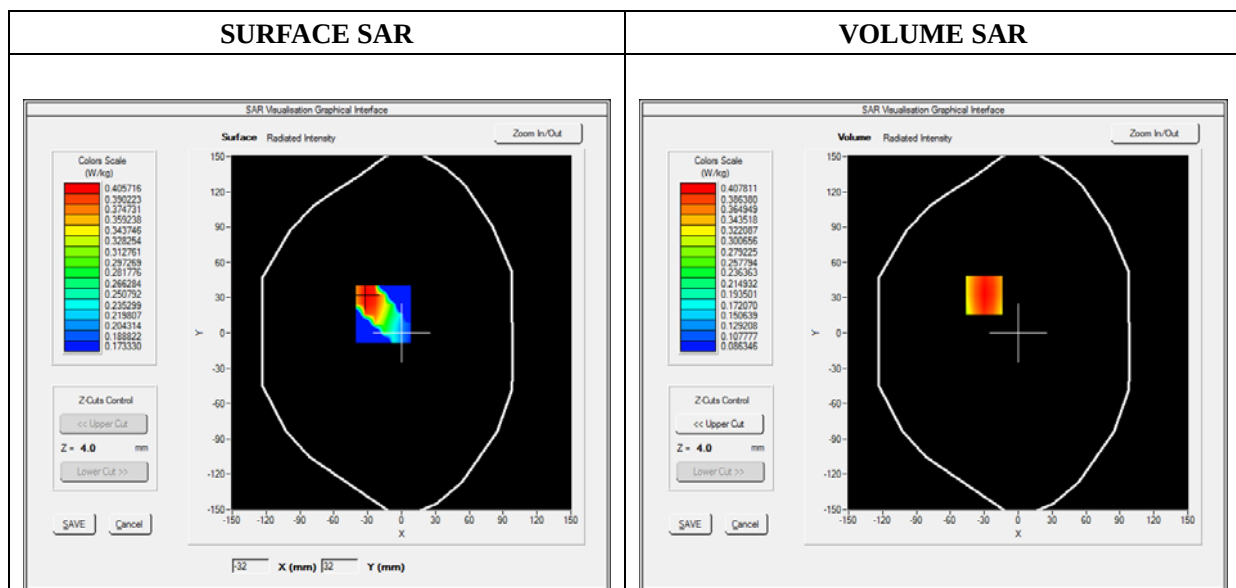
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	LTE Band 5_RMC
Channels	QPSK, 10MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

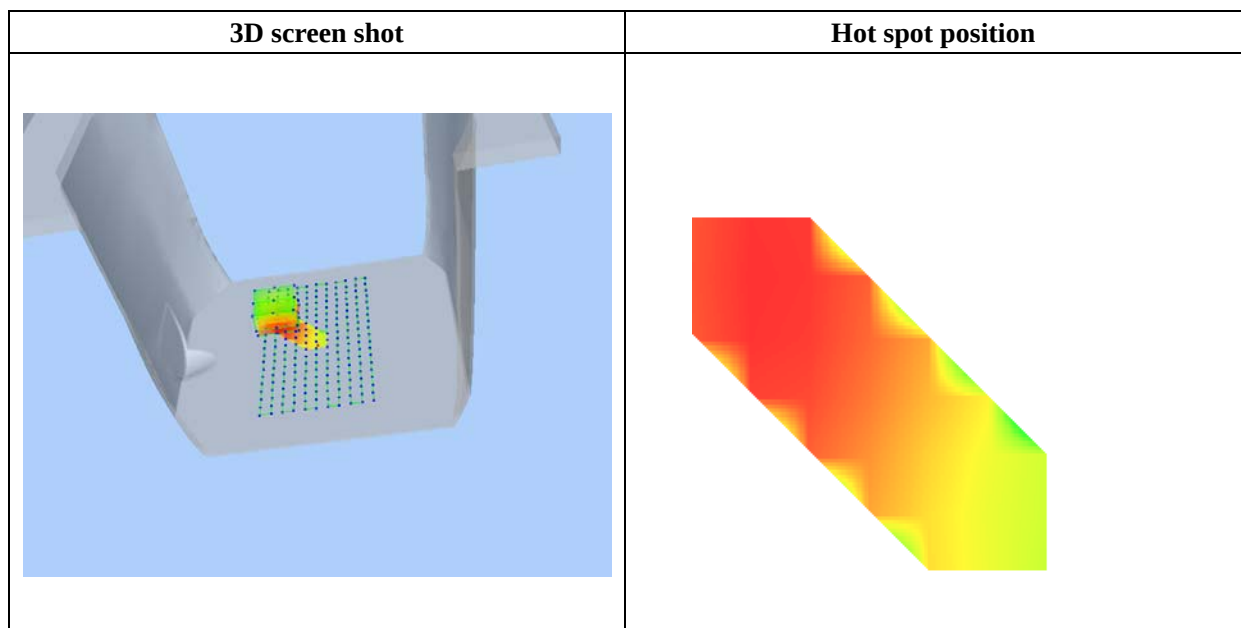
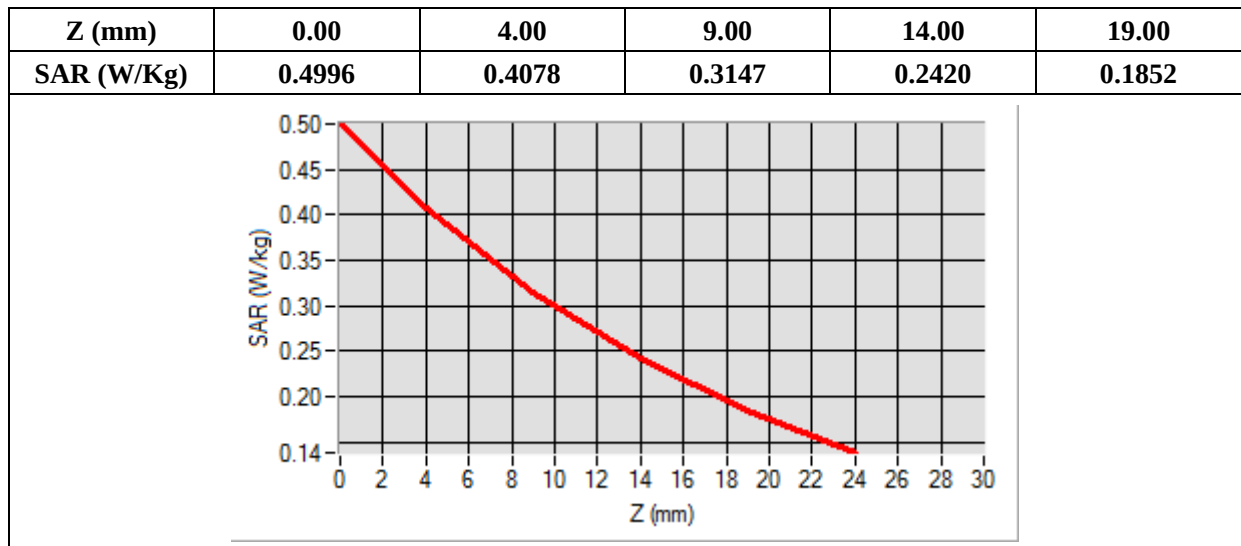
Frequency (MHz)	829.000000
Relative Permittivity (real part)	54.851214
Conductivity (S/m)	0.951454
Power Variation (%)	1.037332
Ambient Temperature	21.1
Liquid Temperature	21.2



Maximum location: X=-30.00, Y=32.00

SAR Peak: 0.50 W/kg

SAR 10g (W/Kg)	0.293350
SAR 1g (W/Kg)	0.395845



MEASUREMENT 121

Type: Phone measurement (Complete)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 3 seconds

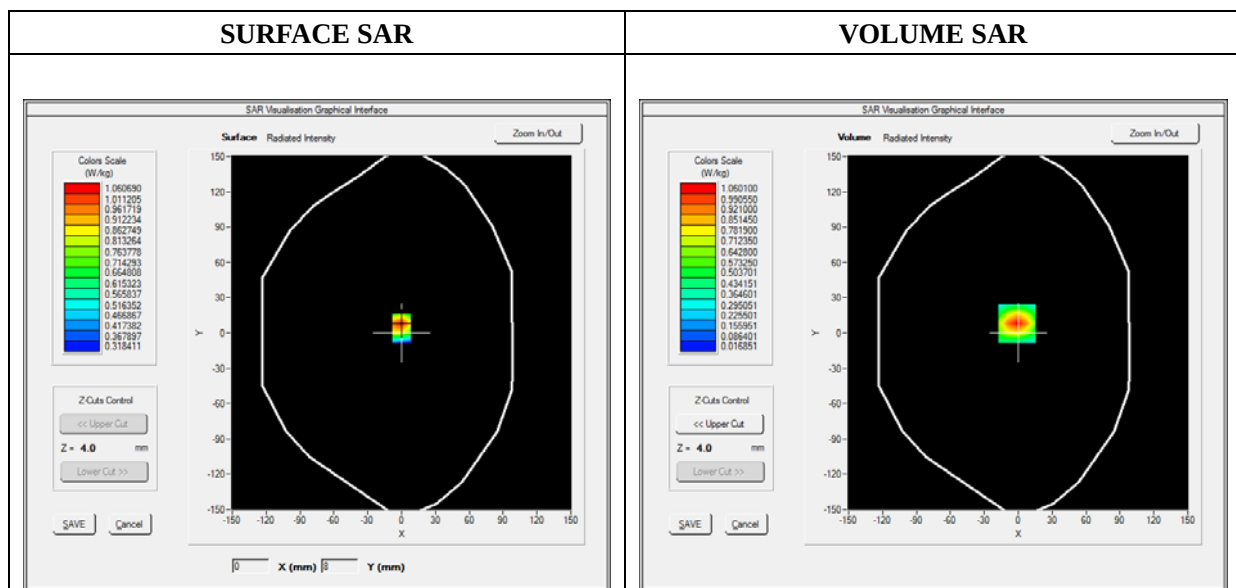
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 06/01/2018

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, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

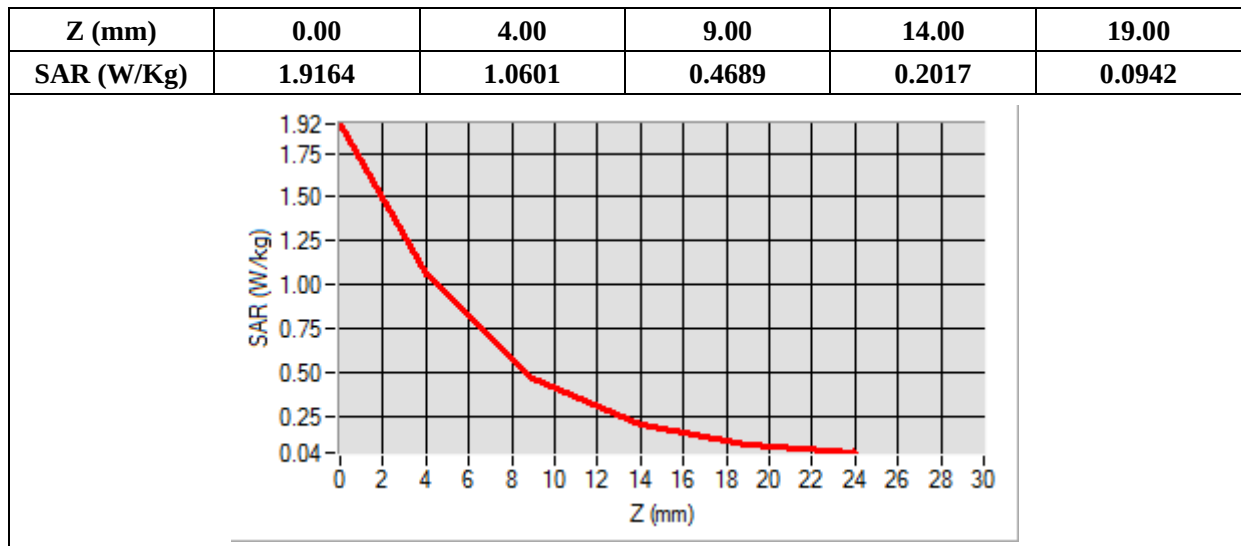
Frequency (MHz)	2510.000000
Relative Permittivity (real part)	52.241202
Conductivity (S/m)	2.120943
Power Variation (%)	3.124788
Ambient Temperature	21.1
Liquid Temperature	21.2

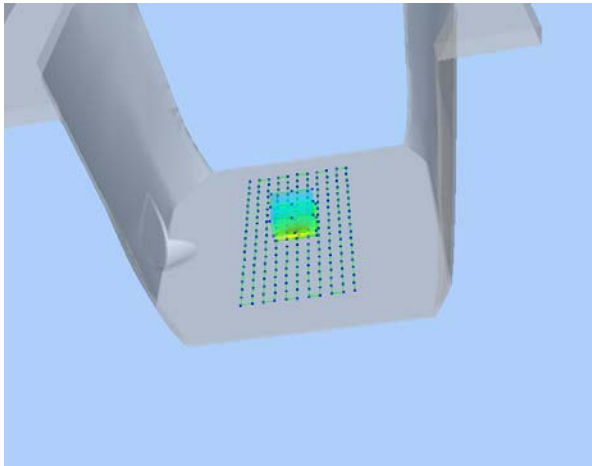


Maximum location: X=-1.00, Y=8.00

SAR Peak: 1.91 W/kg

SAR 10g (W/Kg)	0.461510
SAR 1g (W/Kg)	0.985094



3D screen shot	Hot spot position
	

MEASUREMENT 125

Type: Phone measurement (Complete)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 3 seconds

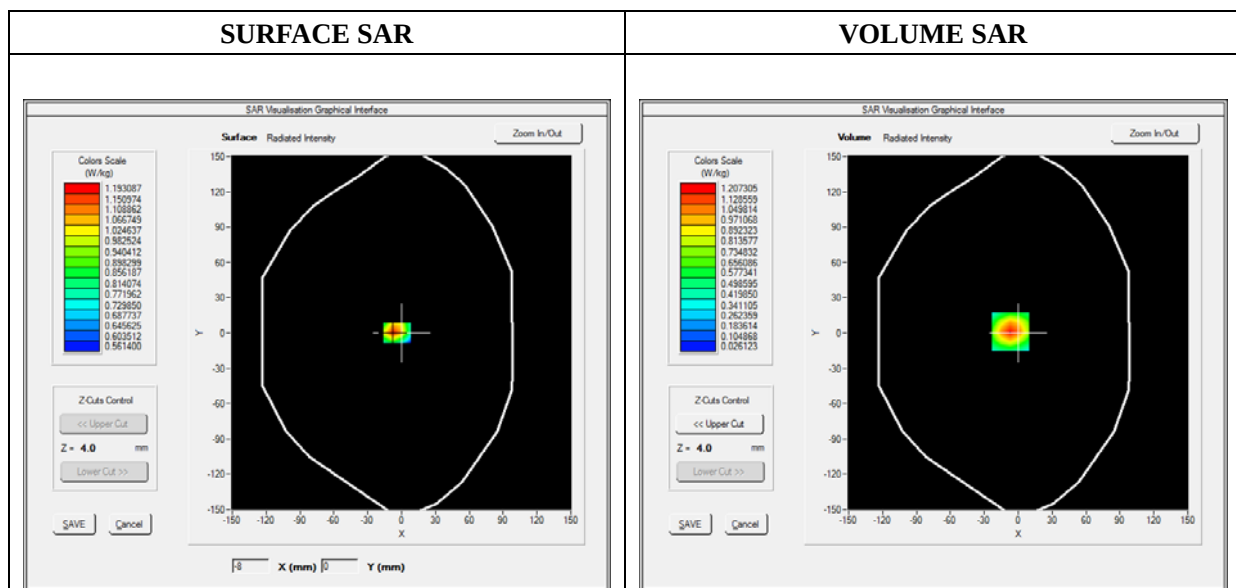
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 06/01/2018

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, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

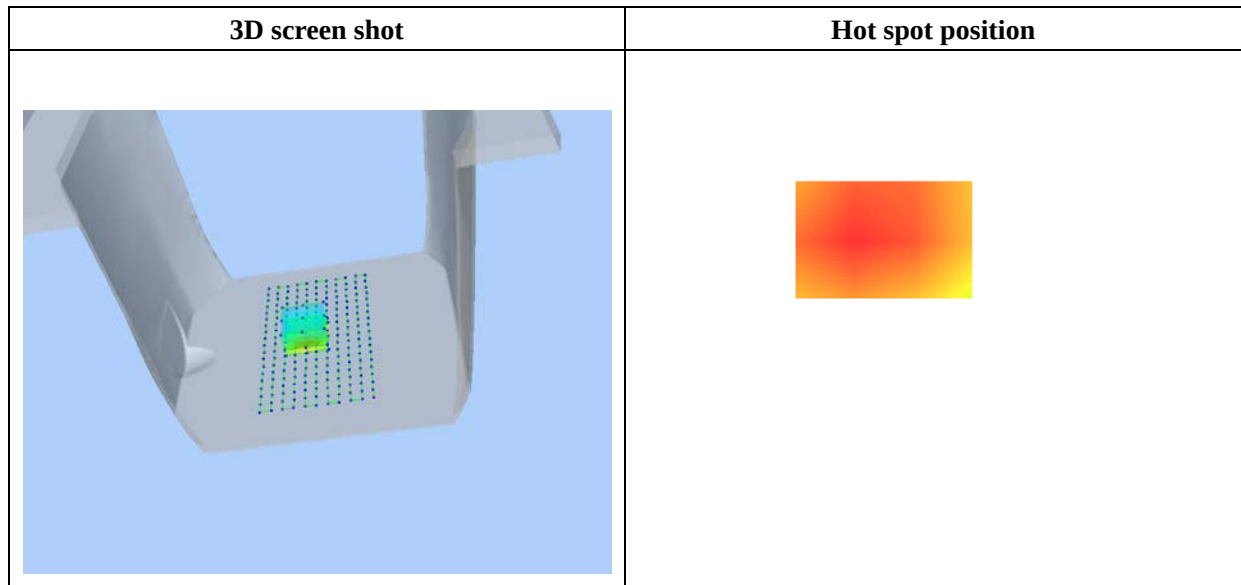
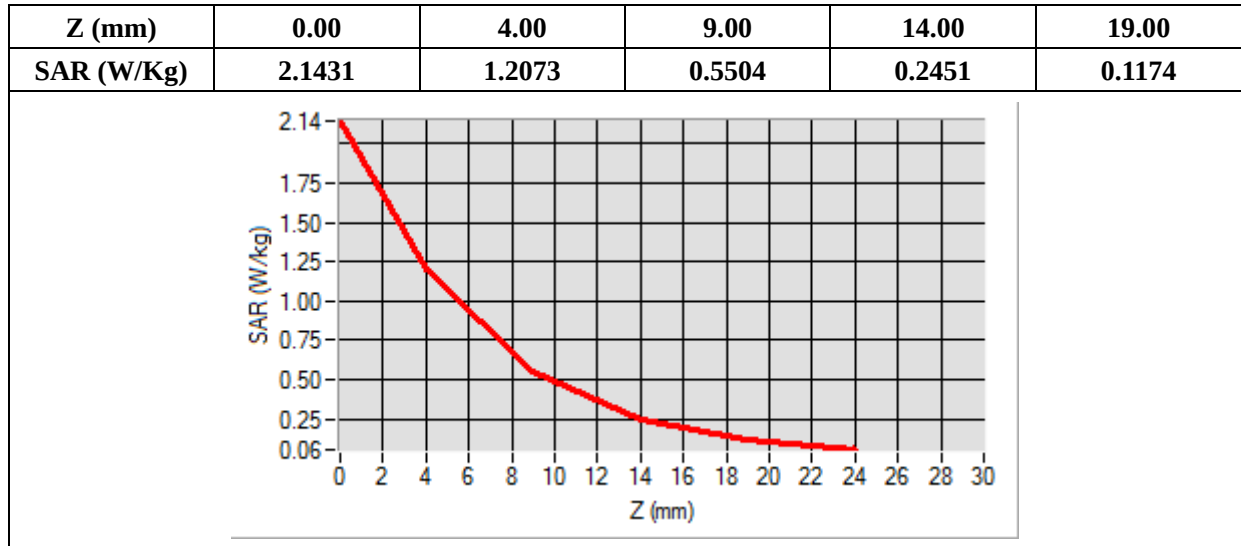
Frequency (MHz)	2510.000000
Relative Permittivity (real part)	52.241202
Conductivity (S/m)	2.120943
Power Variation (%)	3.672346
Ambient Temperature	21.1
Liquid Temperature	21.2



Maximum location: X=-7.00, Y=1.00

SAR Peak: 2.14 W/kg

SAR 10g (W/Kg)	0.541760
SAR 1g (W/Kg)	1.125609



MEASUREMENT 135

Type: Phone measurement (Complete)

Date of measurement: 09/03/2018

Measurement duration: 12 minutes 3 seconds

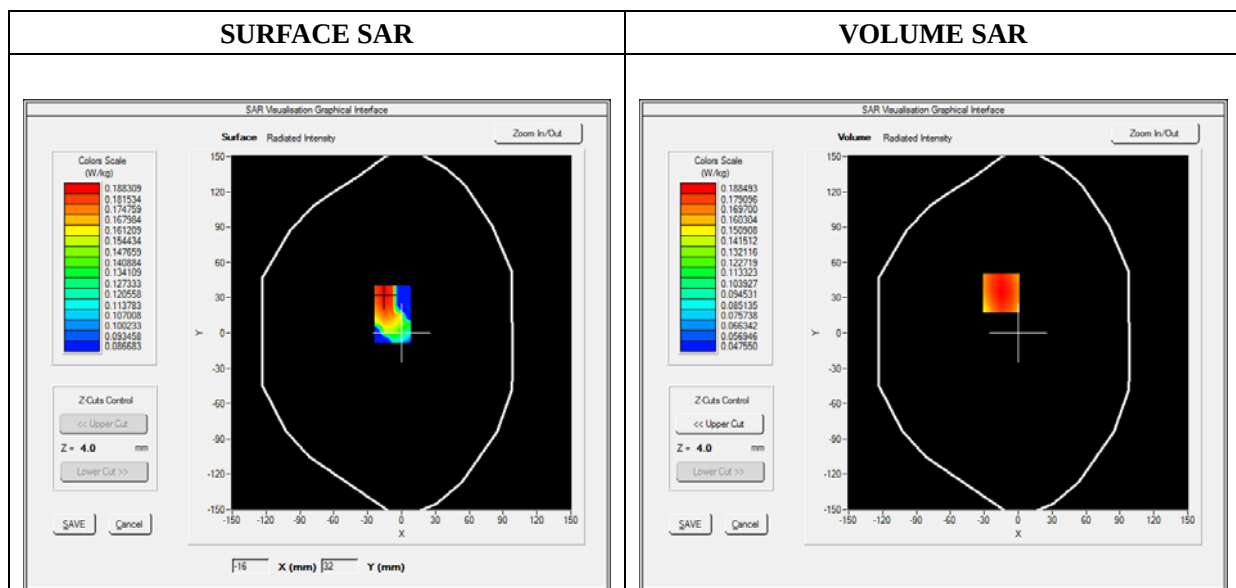
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.28; Calibrated: 06/01/2018

A. Experimental conditions

Area Scan	sam_direct_droit2_surf8mm.txt
Phantom	Flat Plane
Device Position	Back
Band	LTE Band 12_RMC
Channels	QPSK, 10MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

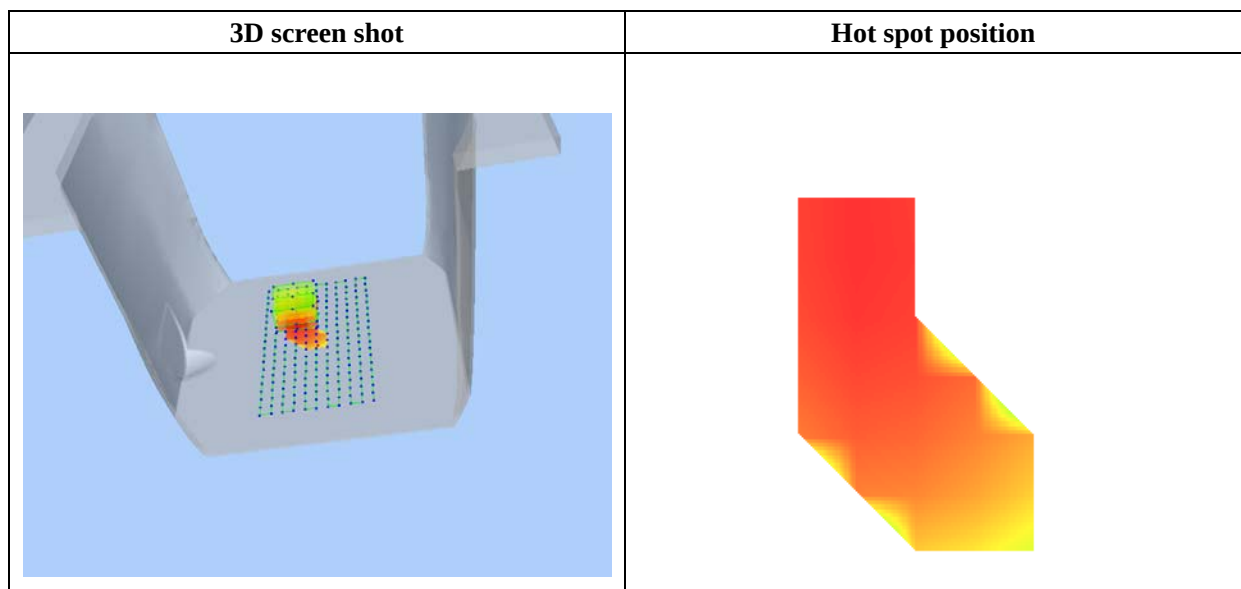
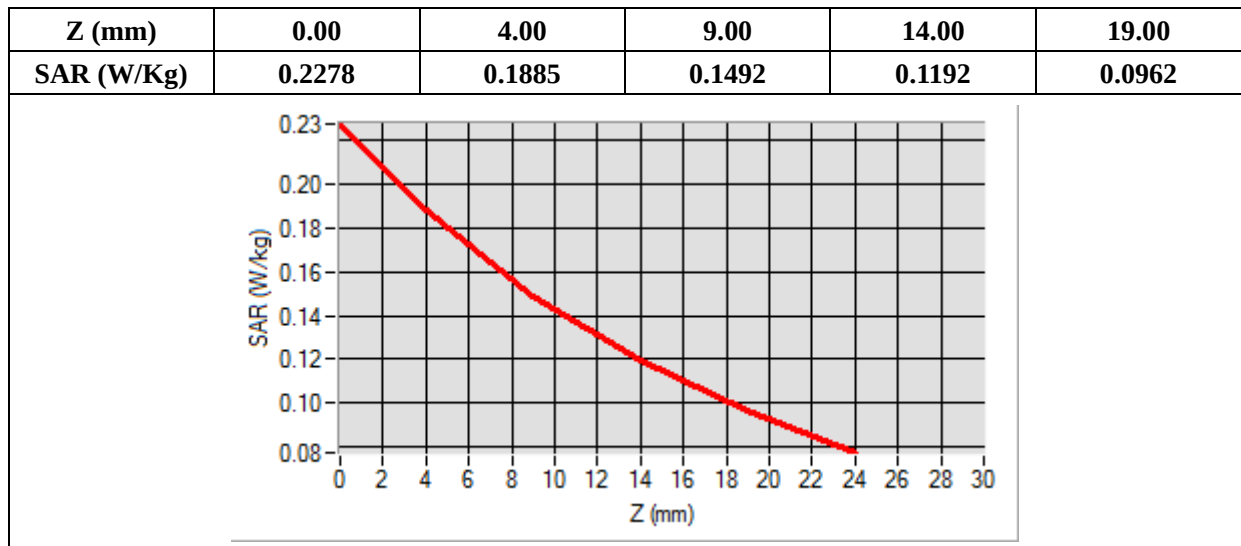
Frequency (MHz)	704.000000
Relative Permittivity (real part)	54.964739
Conductivity (S/m)	0.931048
Power Variation (%)	3.672346
Ambient Temperature	21.1
Liquid Temperature	21.2



Maximum location: X=-15.00, Y=34.00

SAR Peak: 0.23 W/kg

SAR 10g (W/Kg)	0.148474
SAR 1g (W/Kg)	0.193703



MEASUREMENT 143

Type: Phone measurement (Complete)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 3 seconds

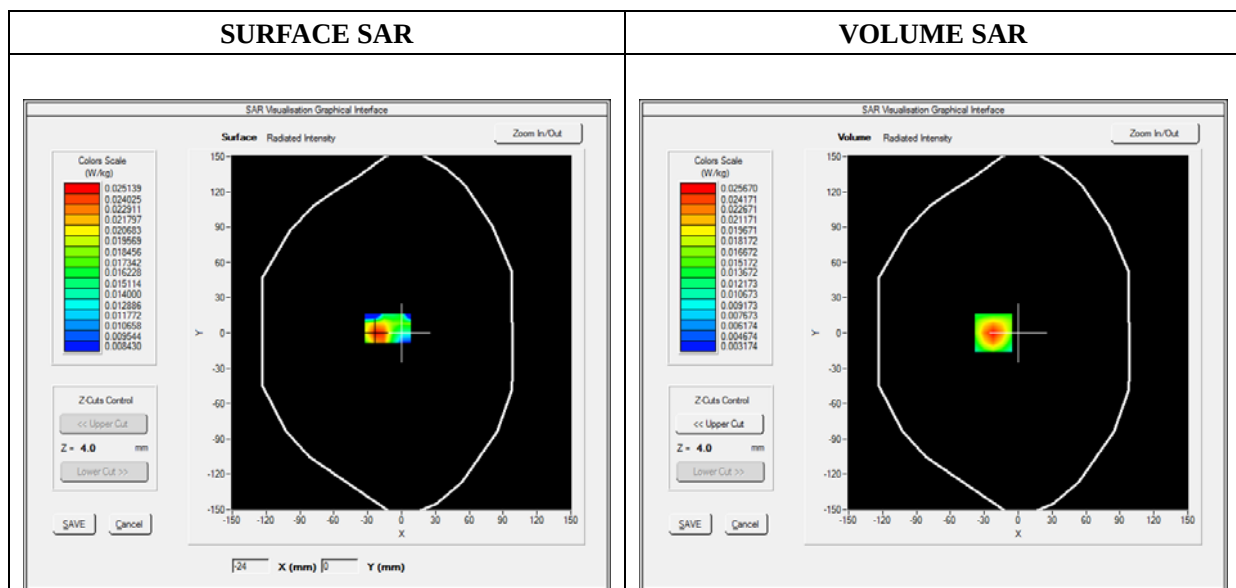
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.80; Calibrated: 06/01/2018

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

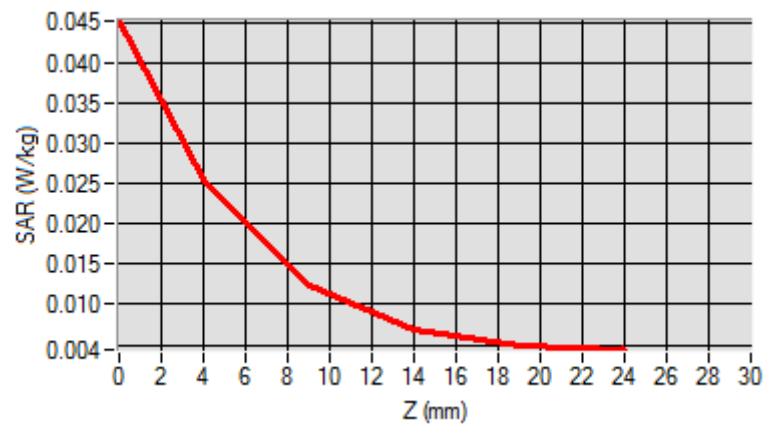


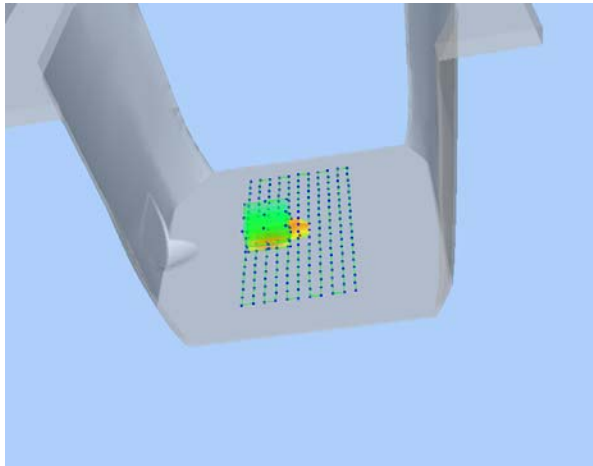
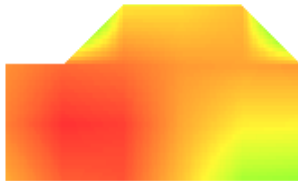
Maximum location: X=-22.00, Y=0.00

SAR Peak: 0.05 W/kg

SAR 10g (W/Kg)	0.013245
SAR 1g (W/Kg)	0.024357

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0452	0.0257	0.0124	0.0068	0.0049



3D screen shot	Hot spot position
	

MEASUREMENT 147

Type: Phone measurement (Complete)

Date of measurement: 09/05/2018

Measurement duration: 12 minutes 3 seconds

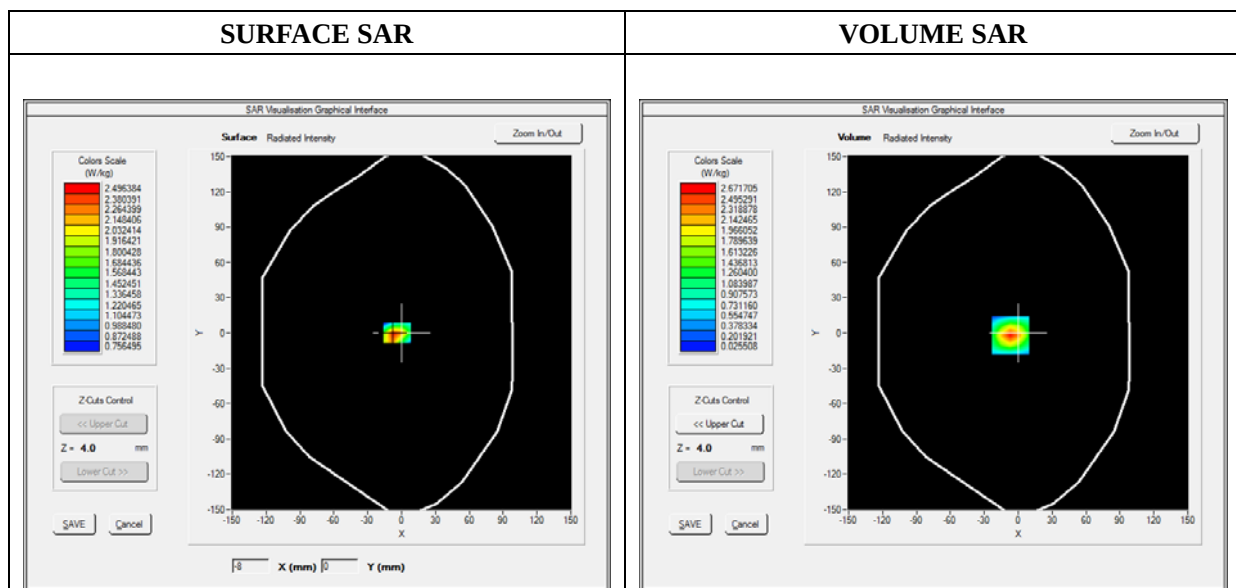
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 06/01/2018

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,Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

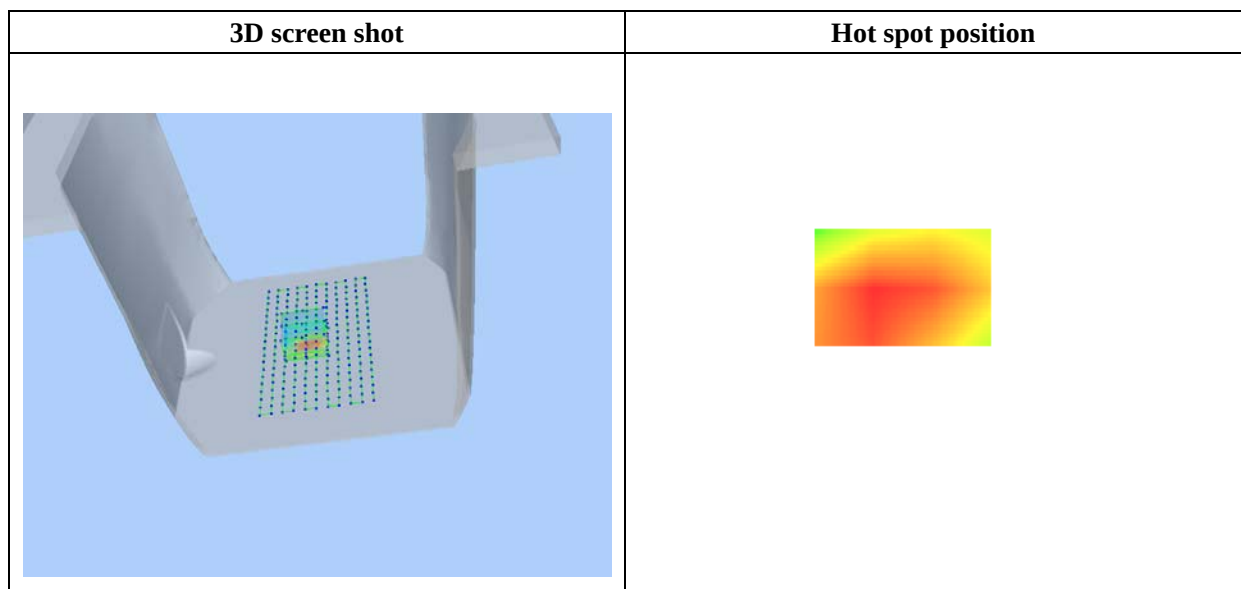
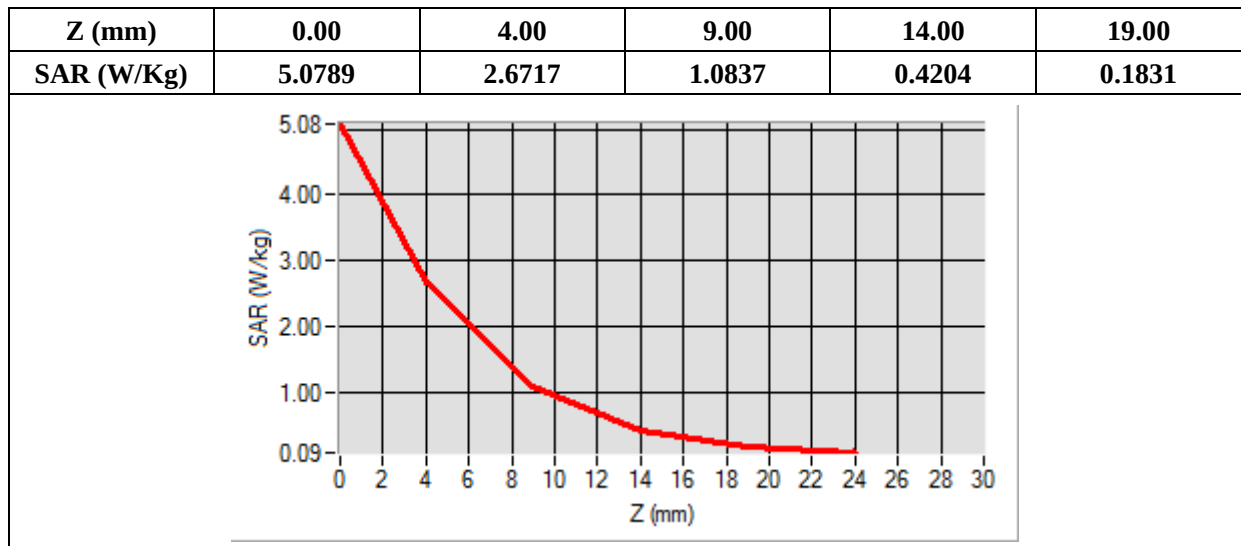
Frequency (MHz)	2510.000000
Relative Permittivity (real part)	52.241202
Conductivity (S/m)	2.120943
Power Variation (%)	3.325754
Ambient Temperature	21.1
Liquid Temperature	21.2



Maximum location: X=-7.00, Y=-2.00

SAR Peak: 5.06 W/kg

SAR 10g (W/Kg)	1.045381
SAR 1g (W/Kg)	2.443063



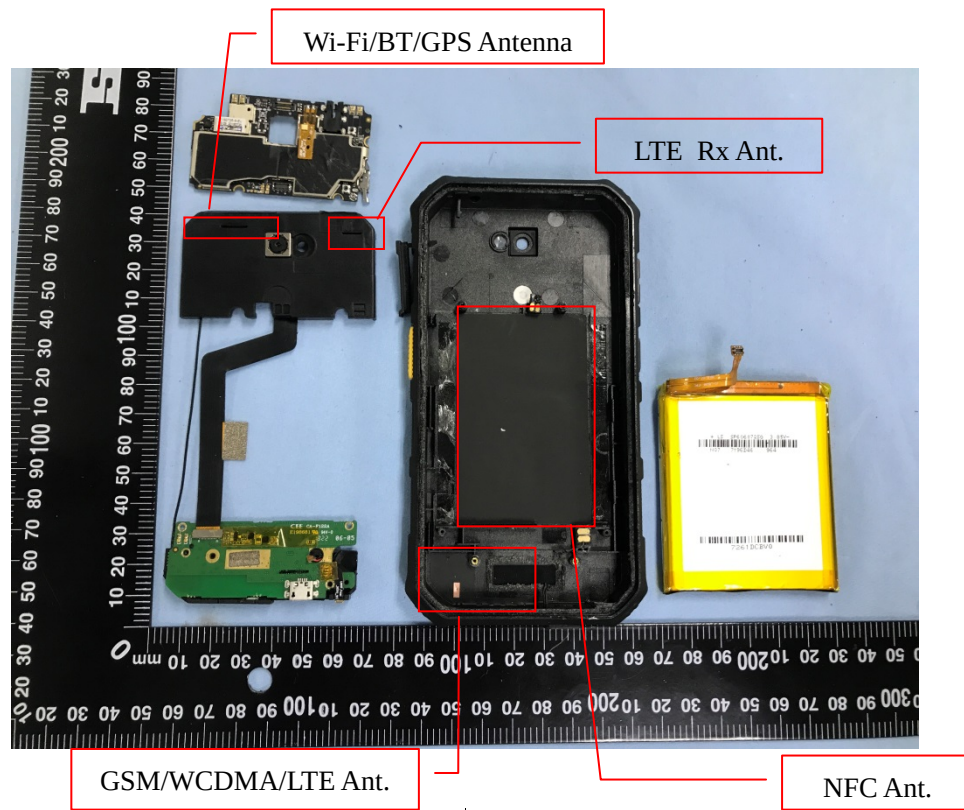
Annex C. EUT Photos

EUT View Front



EUT View Back

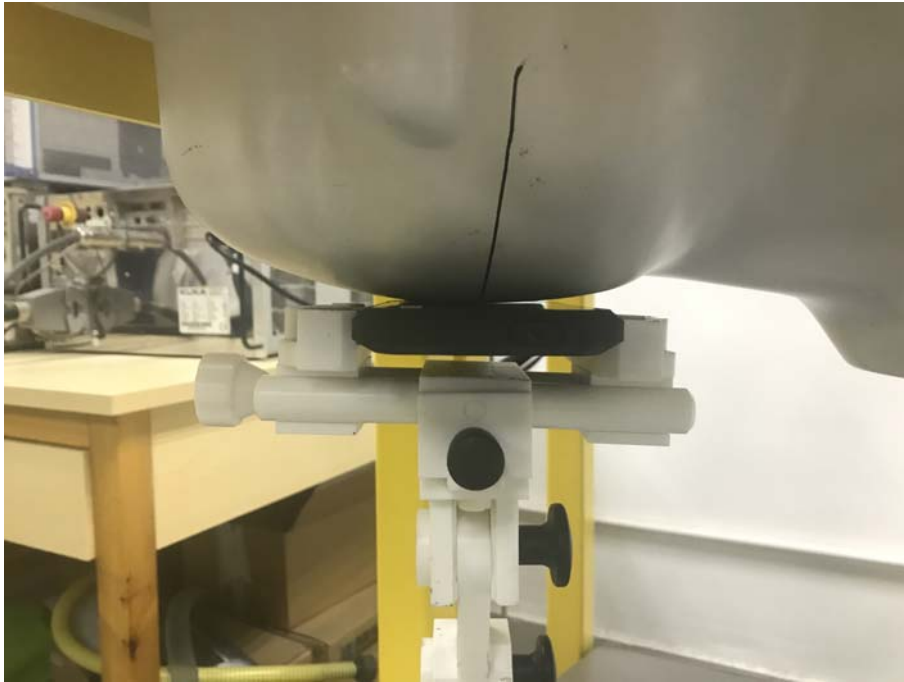


Antenna View

Annex D. Test Setup Photos

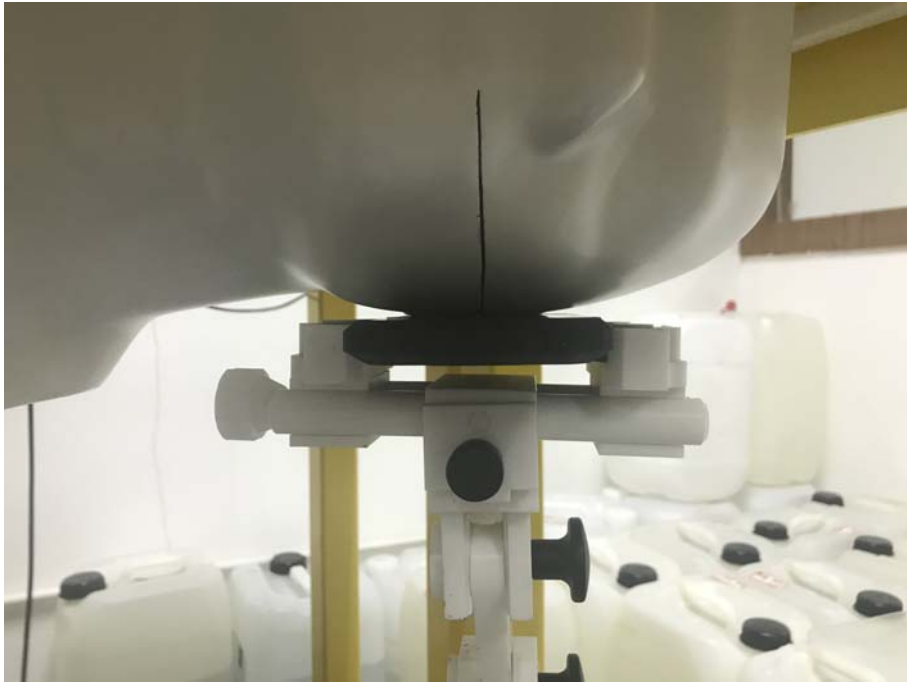
Head Exposure Conditions

Cheek



Tilt



Cheek**Tilt**

Body-worn & Hotspot mode Exposure Conditions

Body Front

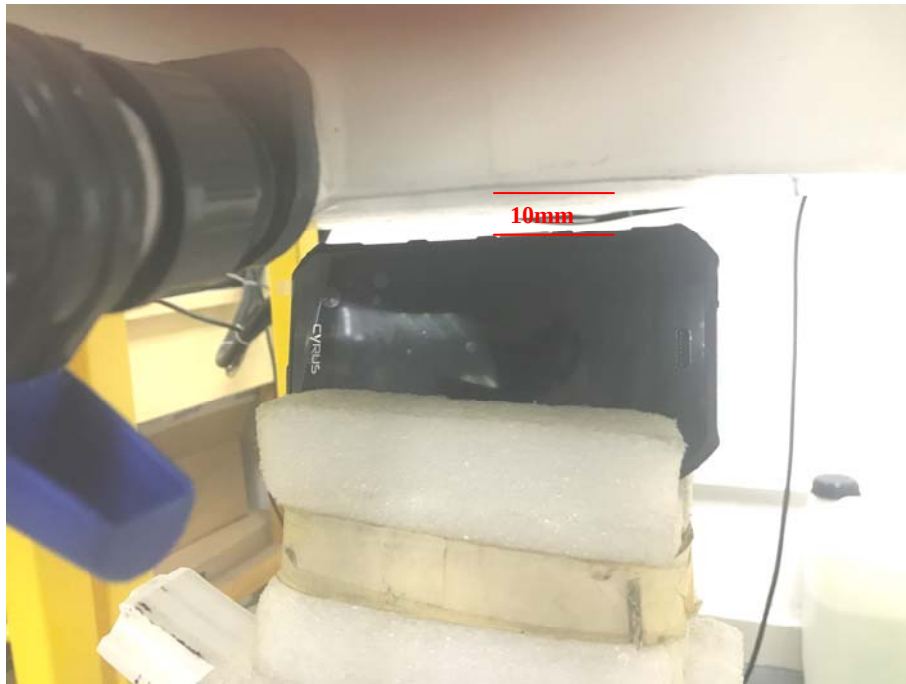


Body Back



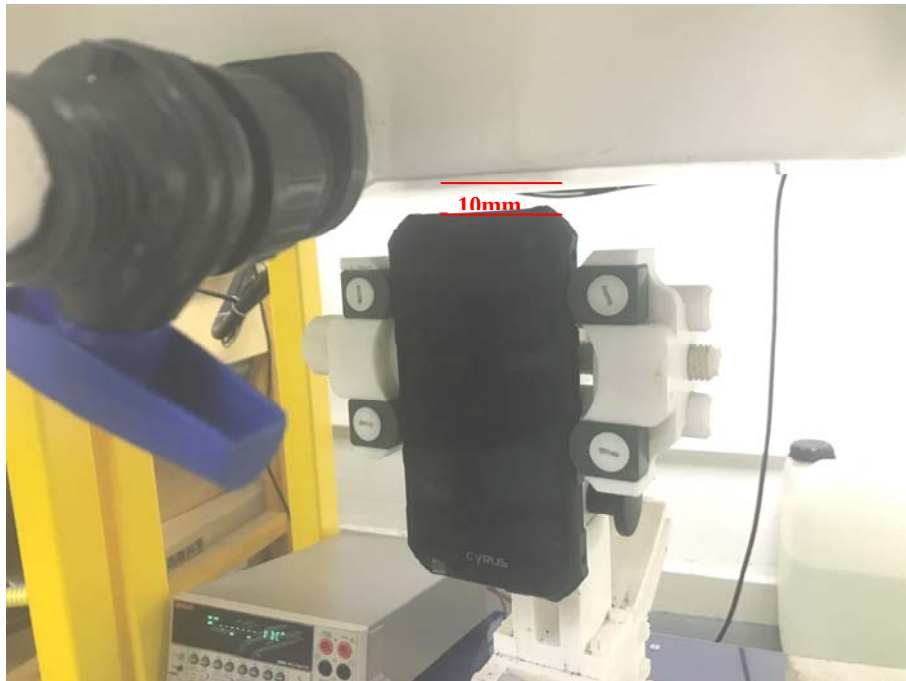
Hotspot Exposure Conditions

Body Left



Body Right



Body Top**Body Bottom**

Extremity Exposure Conditions

Body Bottom



Annex E. Calibration Certificate

Please refer to the exhibit for the calibration certificate

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