
SAR Test Report

Report No.: AGC00069150807FH01

FCC ID : 2AE56K1

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION : Smart Phone

BRAND NAME : KENXINDA

MODEL NAME : K1

CLIENT : KENXINDA TECHNOLOGY CO., LIMITED

DATE OF ISSUE : Sep. 8,2015

STANDARD(S) : IEEE Std. 1528:2003
IEEE Std. 1528a:2005
FCC 47CFR § 2.1093
IEEE/ANSI C95.1:1992
V1.0

REPORT VERSION :

Attestation of Global Compliance(Shenzhen) Co., Ltd.

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Sep. 8,2015	Valid	Original Report

Test Report Certification

Applicant Name	KENXINDA TECHNOLOGY CO., LIMITED
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Manufacturer Name	SHENZHEN KENXINDA TECHNOLOGY CO., LTD. (BAO'AN BRANCH)
Manufacturer Address	1-6 Floor, No.105 Work Shop & 1-5 Floor, No.104 Work Shop, Xinweihuaning Road, Dalang Community, Dalang Street, Bao'an District, Shenzhen, P.R.C
Product Designation	Smart Phone
Brand Name	KENXINDA
Model Name	K1
Different Description	N/A
EUT Voltage	DC3.7V by battery
Applicable Standard	IEEE Std. 1528:2003 IEEE Std. 1528a:2005 FCC 47CFR § 2.1093 IEEE/ANSI C95.1:1992
Test Date	Sep. 1,2015 to Sep. 5,2015
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1. SUMMARY OF MAXIMUM SAR VALUE

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

Frequency Band	Highest Reported 1g-SAR(W/Kg)	
	Head	Body-worn(with 10mm separation)
GSM 850	0.614	0.781
PCS 1900	0.588	0.478
UMTS Band V	0.609	1.036
UMTS Band II	0.882	0.982
WIFI 2.4G	0.085	0.129
Simultaneous Reported SAR	1.126	

This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/Kg) specified in IEEE Std. 1528:2003; IEEE1528a-2005;FCC 47CFR § 2.1093; IEEE/ANSI C95.1:1992 and the following specific FCC Test Procedures:

- KDB 447498 D01 General RF Exposure Guidance v05r02
- KDB 648474 D04 Handset SAR v01r02
- KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- KDB 941225 D01 3G SAR Procedures v03
- KDB 941225 D06 Hot Spot SAR v02
- KDB 248227 D01 802.11 Wi-Fi SAR v02r01

2. GENERAL INFORMATION

2.1. EUT Description

General Information	
Product Designation	Smart Phone
Test Model	K1
Hardware Version	M180_V6.0
Software Version	kk.mt6572.phone.name.model.nand_180_4_0.p1
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
GSM and GPRS	
Support Band	☒ GSM 850 ☒ PCS 1900 ☒ GSM 900 ☒ DCS 1800
GPRS Type	Class B
GPRS Class	Class 12(1Tx+4Rx, 2Tx+3Rx, 3Tx+2Rx, 4Tx+1Rx)
TX Frequency Range	GSM 850 : 820~850MHz; PCS 1900: 1850~1910MHz;
RX Frequency Range	GSM 850 : 869~894MHz; PCS 1900: 1930~1990MHz;
Release Version	R99
Type of modulation	GMSK for GSM/GPRS
Antenna Gain	-1.0dBi
Max. Average Power (Max. Peak Power)	GSM850: 31.18dBm(32.61dBm); PCS1900: 28.19dBm(29.64dBm)
WCDMA	
Support Band	☒ UMTS FDD Band II ☒ UMTS FDD Band V ☐ UMTS FDD Band IV ☐ UMTS FDD Band I ☐ UMTS FDD Band III ☐ UMTS FDD Band VIII
HS Type	HSPA(HSUPA/HSDPA)
TX Frequency Range	WCDMA FDD Band II: 1850-1910MHz; WCDMA FDD Band V: 820-850MHz
RX Frequency Range	WCDMA FDD Band II: 1930-1990MHz WCDMA FDD Band V: 869-894MHz
Release Version	Rel-6
Type of modulation	HSDPA:QPSK/16QAM; HSUPA:BPSK; WCDMA:QPSK
Antenna Gain	-1.0dBi
Max. Average Power (Max. Peak Power)	Band II: 21.39dBm (23.72dBm); Band V: 21.31dBm (23.57dBm)

EUT Description(Continue)

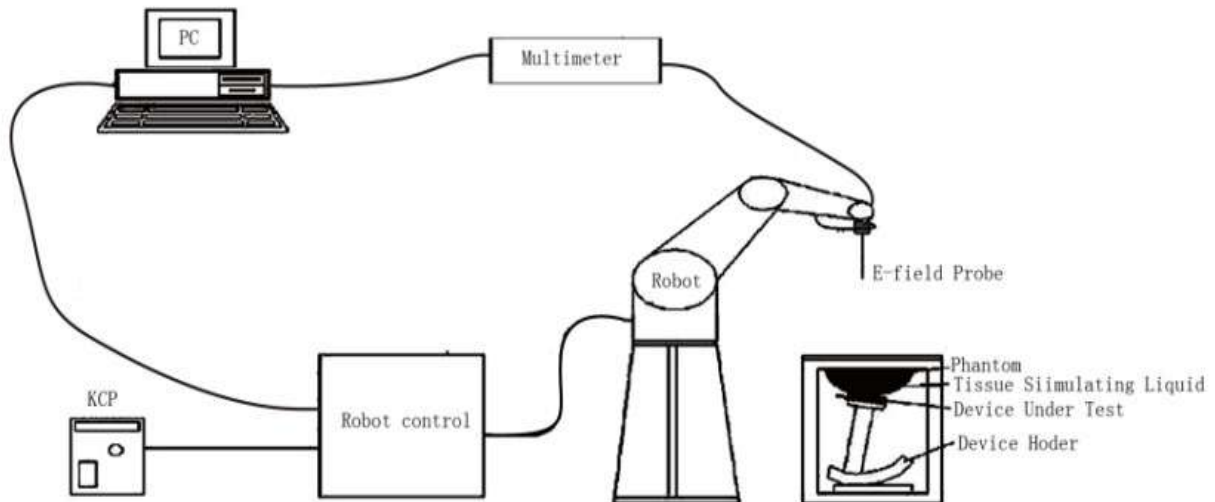
Bluetooth	
Bluetooth Version	☐ V2.0 ☐ V2.1 ☐ V2.1+EDR ☒ V3.0 ☐ V3.0+HS ☒ V4.0
Operation Frequency	2402~2480MHz
Type of modulation	☒ GFSK ☒ π/4-DQPSK ☒ 8-DPSK
Avg. Burst Power	2.88dBm
Antenna Gain	0.8dBi
WIFI	
WIFI Specification	☐ 802.11a ☒ 802.11b ☒ 802.11g ☒ 802.11n(20) ☒ 802.11n(40)
Operation Frequency	2412~2462MHz
Avg. Burst Power	11b:11.42dBm,11g:9.45Bm,11n(20):9.32dBm,11n(40):7.65dBm
Antenna Gain	0.8dBi
Accessories	
Battery	Brand name: KENXINDA Model No. : K1 Voltage and Capacitance: 3.7 V & 1300mAh
Adapter	Brand name: KENXINDA Model No. : K1 Input: AC 100-240V, 50/60Hz, 100mA Output: DC 5V, 1000mA
Earphone	Brand name: N/A Model No. : N/A

Note: CMU200 can measure the average power and Peak power at the same time

Product	Type
	☒ Production unit ☐ Identical Prototype

3. SAR MEASUREMENT SYSTEM

3.1. The SATIMO system used for performing compliance tests consists of following items



The COMOSAR system for performing compliance tests consists of the following items:

- The PC. It controls most of the bench devices and stores measurement data. A computer running WinXP and the Opensar software.
- The E-Field probe. The probe is a 3-axis system made of 3 distinct dipoles. Each dipole returns a voltage in function of the ambient electric field.
- The Keithley multimeter measures each probe dipole voltages.
- The SAM phantom simulates a human head. The measurement of the electric field is made inside the phantom.
- The liquids simulate the dielectric properties of the human head tissues.
- The network emulator controls the mobile phone under test.
- The validation dipoles are used to measure a reference SAR. They are used to periodically check the bench to make sure that there is no drift of the system characteristics over time.
- The phantom, the device holder and other accessories according to the targeted measurement.

3.2. COMOSAR E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SATIMO. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. SATIMO conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528 and relevant KDB files.) The calibration data are in Appendix D.

Isotropic E-Field Probe Specification

Model	SSE5	
Manufacture	MVG	
Frequency	0.3GHz-3GHz Linearity:±0.12dB(300MHz-3GHz)	
Dynamic Range	0.01W/Kg-100W/Kg Linearity:±0.12dB	
Dimensions	Overall length:330mm Length of individual dipoles:4.5mm Maximum external diameter:8mm Probe Tip external diameter:5mm Distance between dipoles/ probe extremity:2.7mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 3 GHz with precision of better 30%.	

3.3. Robot

The COMOSAR system uses the KUKA robot from SATIMO SA (France).For the 6-axis controller COMOSAR system, the KUKA robot controller version from SATIMO is used.

The XL robot series have many features that are important for our application:

- ☐ High precision (repeatability 0.02 mm)
- ☐ High reliability (industrial design)
- ☐ Jerk-free straight movements
- ☐ Low ELF interference (the closed metallic construction shields against motor control fields)
- ☐ 6-axis controller

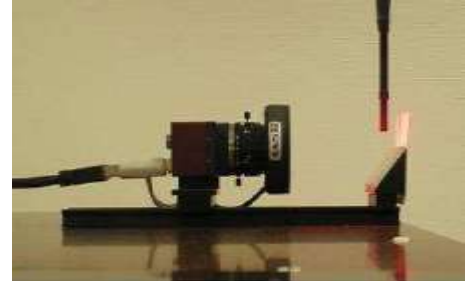


3.4. Video Positioning System

The video positioning system is used in OpenSAR to check the probe. Which is composed of a camera, LED, mirror and mechanical parts. The camera is piloted by the main computer with firewire link.

During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.

The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

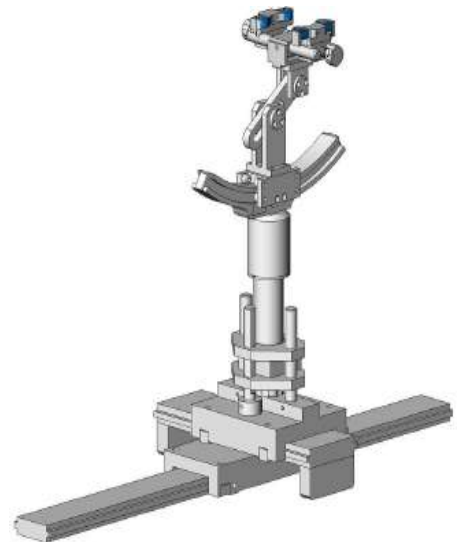


3.5. Device Holder

The COMOSAR device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).

Thus the device needs no repositioning when changing the angles.

The COMOSAR device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon_r = 3$ and loss tangent $\delta = 0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



3.6. SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

- ☐ Left head
- ☐ Right head
- ☐ Flat phantom



The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

4. SAR MEASUREMENT PROCEDURE

4.1. Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in 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 occupational/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.

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 given mass density (ρ). The equation description is as below:

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

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

SAR can be obtained using either of the following equations:

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

$$SAR = c_h \left. \frac{dT}{dt} \right|_{t=0}$$

Where

SAR	is the specific absorption rate in watts per kilogram;
E	is the r.m.s. value of the electric field strength in the tissue in volts per meter;
σ	is the conductivity of the tissue in siemens per metre;
ρ	is the density of the tissue in kilograms per cubic metre;
c _h	is the heat capacity of the tissue in joules per kilogram and Kelvin;

$\left. \frac{dT}{dt} \right|_{t=0}$ is the initial time derivative of temperature in the tissue in kelvins per second

4.2. SAR Measurement Procedure

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurement are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface is 2.7mm This distance cannot be smaller than the distance os sensor calibration points to probe tip as `defined in the probe properties,

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in SATIMO software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in db) is specified in the standards for compliance testing. For example, a 2db range is required in IEEE Standard 1528 and IEC62209 standards, whereby 3db is a requirement when compliance is assessed in accordance with the ARIB standard (Japan) If one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximum are detected, the number of Zoom Scan has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100MHz to 6GHz

	$\leq 3 \text{ GHz}$	$> 3 \text{ GHz}$
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	$5 \pm 1 \text{ mm}$	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5 \text{ mm}$
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$	$\leq 2 \text{ GHz: } \leq 15 \text{ mm}$ $2 - 3 \text{ GHz: } \leq 12 \text{ mm}$	$3 - 4 \text{ GHz: } \leq 12 \text{ mm}$ $4 - 6 \text{ GHz: } \leq 10 \text{ mm}$
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

Zoom Scan are used to assess the peak spatial SAR value within a cubic average volume containing 1g abd 10g of simulated tissue. The Zoom Scan measures points(refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1g and 10g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB865664 d01 SAR Measurement 100MHz to 6GHz

Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			$\leq 2 \text{ GHz}: \leq 8 \text{ mm}$ $2 - 3 \text{ GHz}: \leq 5 \text{ mm}^*$	$3 - 4 \text{ GHz}: \leq 5 \text{ mm}^*$ $4 - 6 \text{ GHz}: \leq 4 \text{ mm}^*$
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$		$\leq 5 \text{ mm}$	$3 - 4 \text{ GHz}: \leq 4 \text{ mm}$ $4 - 5 \text{ GHz}: \leq 3 \text{ mm}$ $5 - 6 \text{ GHz}: \leq 2 \text{ mm}$
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	$\leq 4 \text{ mm}$	$3 - 4 \text{ GHz}: \leq 3 \text{ mm}$ $4 - 5 \text{ GHz}: \leq 2.5 \text{ mm}$ $5 - 6 \text{ GHz}: \leq 2 \text{ mm}$
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$	
Minimum zoom scan volume	x, y, z		$\geq 30 \text{ mm}$	$3 - 4 \text{ GHz}: \geq 28 \text{ mm}$ $4 - 5 \text{ GHz}: \geq 25 \text{ mm}$ $5 - 6 \text{ GHz}: \geq 22 \text{ mm}$
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.				
* When zoom scan is required and the <u>reported</u> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is $\leq 1.4 \text{ W/kg}$, $\leq 8 \text{ mm}$, $\leq 7 \text{ mm}$ and $\leq 5 \text{ mm}$ zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power Drift Measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the same settings. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

4.3. RF Exposure Conditions

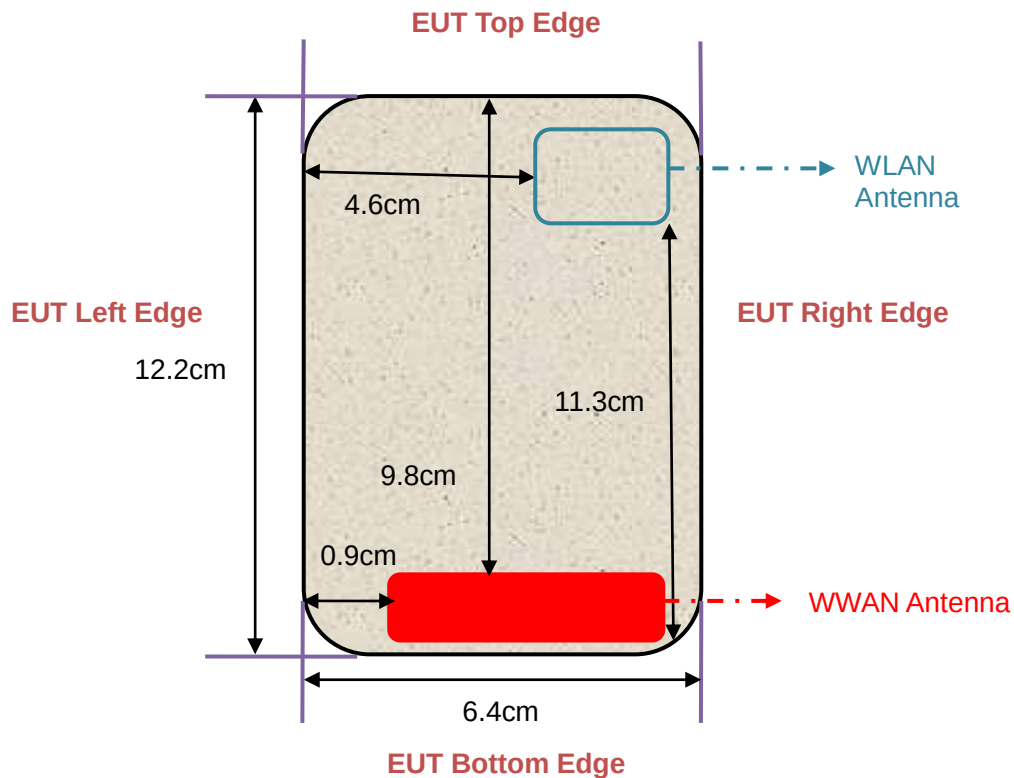
Test Configuration and setting:

The EUT is a model of GSM Portable Mobile Station (MS). It supports GSM/GPRS, WCDMA/HSPA, BT, WIFI, and support hotspot mode.

For WWAN SAR testing, the device was controlled by using a base station emulator. Communication between the device and the emulator were established by air link. The distance between the EUT and the antenna is larger than 50cm, and the output power radiated from the emulator antenna is at least 30db smaller than the output power of EUT.

For WLAN testing, the EUT is configured with the WLAN continuous TX tool through engineering command.

Antenna Location: (back view)



For WWAN mode:

Test Configurations	Antenna to edges/surface	SAR required	Note
Head			
Left Touch		Yes	
Left Tilt		Yes	
Right Touch		Yes	
Right Tilt		Yes	
Body			
Back	<25mm	Yes	
Front	<25mm	Yes	
Hotspot			
Back	<25mm	Yes	
Front	<25mm	Yes	
Edge 1 (Top)	98	No	SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225D06 Hotspot SAR
Edge 2 (Right)	5	Yes	
Edge 3 (Bottom)	9	Yes	
Edge 4 (Left)	1	Yes	

For WLAN mode:

Test Configurations	Antenna to edges/surface	SAR required	Note
Head			
Left Touch		Yes	
Left Tilt		Yes	
Right Touch		Yes	
Right Tilt		Yes	
Body			
Back	<25mm	Yes	
Front	<25mm	Yes	
Hotspot			
Back	<25mm	Yes	
Front	<25mm	Yes	
Edge 1 (Top)	2	Yes	
Edge 2 (Right)	6	Yes	
Edge 3 (Bottom)	113	No	SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225D06 Hotspot SAR
Edge 4 (Left)	46	No	SAR is not required for the distance between the antenna and the edge is >25mm as per KDB 941225D06 Hotspot SAR

5. TISSUE SIMULATING LIQUID

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15cm. For head SAR testing the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15cm For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in 4.2

5.1. The composition of the tissue simulating liquid

Ingredient	Water	Salt	Sugar	HEC	Preventol	DGBE	TWEEN	Triton X-100
835MHz Head	✓	✓	✓	✓	✓	--	--	--
835MHz Body	✓	✓	✓	✓	✓	--	--	--
1900MHz Head	✓	✓	--	--	--	✓	--	--
1900MHz Body	✓	✓	✓	✓	✓	--	--	--
2450MHz Head	✓	✓	--	--	--	--	--	✓
2450MHz Body	✓	✓	--	--	--	✓	--	--

5.2. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE 1528 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 IEEE 1528 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 IEEE 1528.

Target Frequency (MHz)	head		body	
	ϵ_r	σ (S/m)	ϵ_r	σ (S/m)
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	1.01	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73

(ϵ_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m³)

5.3. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using SATIMO Dielectric Probe Kit and R&S Network Analyzer ZVL6.

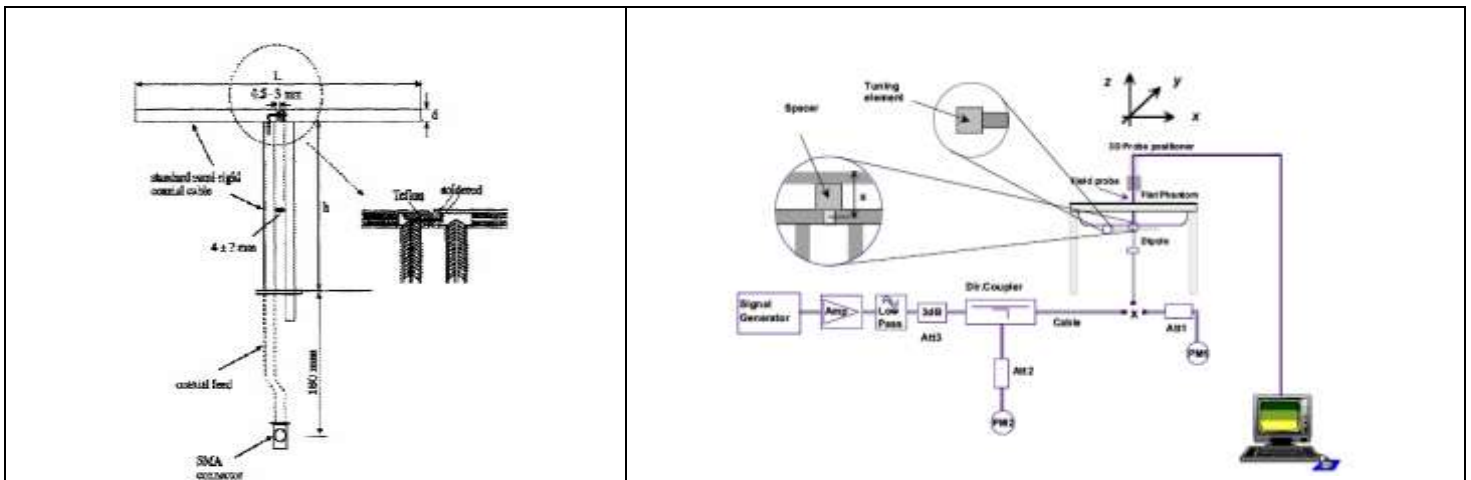
Tissue Stimulant Measurement for 835MHz					
Head	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [$^{\circ}\text{C}$]	Test time
		ϵ_r 41.5 (39.425-43.575)	δ [s/m] 0.90(0.855-0.945)		
	824.2	42.86	0.87	22.3	Sep. 5,2015
	826.4	42.51	0.87		
	835	42.17	0.89		
	836.6	41.60	0.90		
	846.6	41.14	0.90		
	848.8	40.75	0.92		
Body	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [$^{\circ}\text{C}$]	Test time
		ϵ_r 55.20(52.44-57-96)	δ [s/m]0.97(0.9215-1.0185)		
	824.2	55.98	0.94	22.1	Sep. 5,2015
	826.4	55.71	0.95		
	835	55.24	0.95		
	836.6	55.01	0.96		
	846.6	54.69	0.97		
	848.8	54.21	0.98		

Tissue Stimulant Measurement for 1900MHz					
Head	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [$^{\circ}\text{C}$]	Test time
		ϵ_r 40.00(38.00-42.00)	δ [s/m]1.40(1.33-1.47)		
	1850.2	41.53	1.36	21.9	Sep. 3,2015
	1852.4	41.06	1.37		
	1880	40.95	1.40		
	1900	40.80	1.40		
	1907.6	40.28	1.42		
	1909.8	40.07	1.45		
Body	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [$^{\circ}\text{C}$]	Test time
		ϵ_r 53.30(50.635-55.965)	δ [s/m]1.52(1.444-1.596)		
	1850.2	54.77	1.48	21.6	Sep. 3,2015
	1852.4	54.19	1.51		
	1880	53.62	1.53		
	1900	53.05	1.54		
	1907.6	52.96	1.54		
	1909.8	52.46	1.57		

Tissue Stimulant Measurement for 2450MHz					
Head	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [$^{\circ}\text{C}$]	Test time
		$\epsilon_r 39.2(37.24-41.16)$	$\delta [\text{s/m}] 1.80(1.71-1.89)$		
	2412	40.65	1.76	21.9	Sep. 1, 2015
	2437	40.26	1.77		
	2450	40.08	1.79		
	2462	39.67	1.83		
Body	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [$^{\circ}\text{C}$]	Test time
		$\epsilon_r 52.7(50.065-55.335)$	$\delta [\text{s/m}] 1.95(1.8525-2.0475)$		
	2412	54.62	1.89	22.0	Sep. 1, 2015
	2437	53.20	1.94		
	2450	53.00	1.94		
	2462	52.50	1.97		

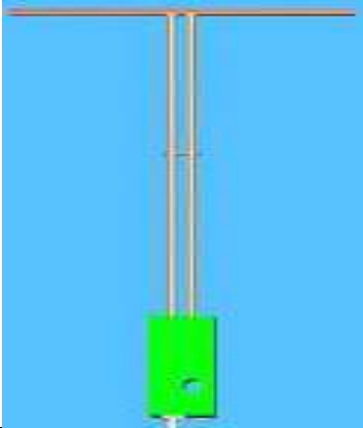
6.1. SAR System Check Procedures

The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system check setup is shown as below.



6.2. SAR System Check

6.2.1. Dipoles

	The dipoles used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. the table below provides details for the mechanical and electrical Specifications for the dipoles.
---	---

Frequency	L (mm)	h (mm)	d (mm)
835MHz	161.0	89.8	3.6
1900MHz	68	39.5	3.6
2450MHz	51.5	30.4	3.6

6.2.2. System Check Result

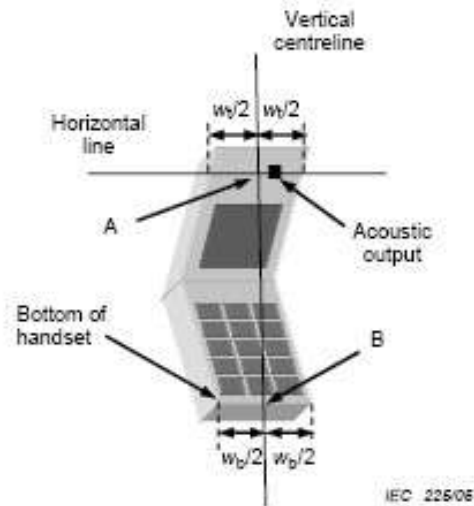
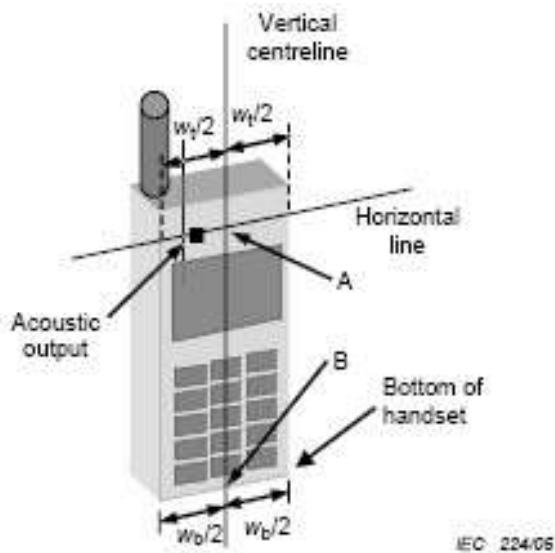
System Performance Check at 835MHz&1900MHz &2450MHz for Head								
Validation Kit: SN 46/11DIP 0G835-190 & SN 46/11DIP 1G900-187& SN 46/11 DIP 2G450-189								
Frequency [MHz]	Target Value(W/Kg)		Reference Result ($\pm 10\%$)		Tested Value(W/Kg)		Tissue Temp. [°C]	Test time
	1g	10g	1g	10g	1g	10g		
835	9.60	6.20	8.64-10.56	5.58-6.82	9.548	6.242	22.3	Sep. 5,2015
1900	39.65	20.24	35.685-43.615	18.216-22.264	39.078	19.994	21.9	Sep. 3,2015
2450	54.40	23.75	48.96-59.84	21.375-26.125	56.538	25.790	21.9	Sep. 1,2015
System Performance Check at 835 MHz &1900MHz & 2450MHz for Body								
Frequency [MHz]	Target Value(W/Kg)		Reference Result ($\pm 10\%$)		Tested Value(W/Kg)		Tissue Temp. [°C]	Test time
	1g	10g	1g	10g	1g	10g		
835	9.90	6.39	8.91-10.89	5.75-7.03	10.221	6.496	22.1	Sep. 5,2015
1900	40.74	21.43	36.666-44.814	19.287-23.573	40.147	20.358	21.6	Sep. 3,2015
2450	54.19	24.96	48.771-59.609	22.464-27.456	58.503	26.331	22.0	Sep. 1,2015

7. EUT TEST POSITION

This EUT was tested in **Right Cheek, Right Titled, Left Cheek, Left Titled, Body back and Body front and 4 edges.**

7.1. Define Two Imaginary Lines on the Handset

- (1) 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 handset.
- (2) 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.
- (3) 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 to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



7.2. Cheek Position

- (1) 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 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.
- (2) To move the device towards the phantom with the ear piece aligned with the the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with 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



7.3. Title Position

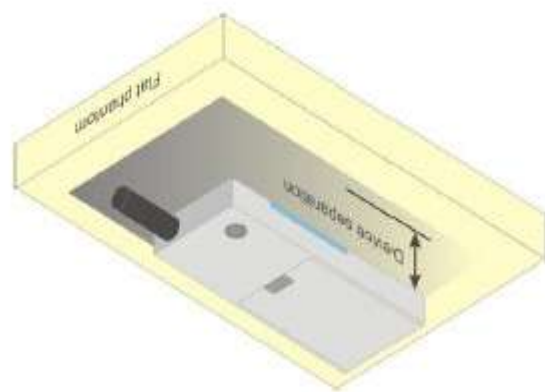
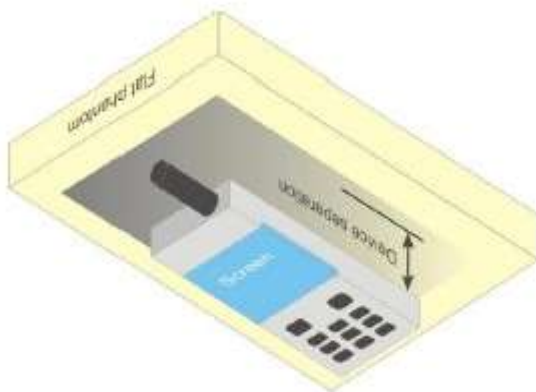
- (1) To position the device in the “cheek” position described above.
- (2) While maintaining the device in the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until with the ear is lost.



7.4. Body Worn Position

- (1) To position the EUT parallel to the phantom surface.
- (2) To adjust the EUT parallel to the flat phantom.
- (3) To adjust the distance between the EUT surface and the flat phantom to **10mm**.

General Note: Referring KDB941225 D06 v02, when the overall device length and width are $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 10mm. SAR must be measured for all sides and surfaces with a transmitting antenna within 25mm from that surface or edge.



8. SAR EXPOSURE LIMITS

SAR assessments have been made in line with the requirements of IEEE-1528, FCC Supplement C, and comply with ANSI/IEEE C95.1-1992 “Uncontrolled Environments” limits. These limits apply to a location which is deemed as “Uncontrolled Environment” which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

Limits for General Population/Uncontrolled Exposure (W/kg)

Type Exposure	Uncontrolled Environment Limit (W/kg)
Spatial Peak SAR (1g cube tissue for brain or body)	1.60
Spatial Average SAR (Whole body)	0.08
Spatial Peak SAR (Limbs)	4.0

9. TEST EQUIPMENT LIST

Equipment description	Manufacturer/ Model	Identification No.	Current calibration date	Next calibration date
SAR Probe	MVG	SN 19/15 EP254	07/10/2015	07/09/2016
TISSUE Probe	SATIMO	SN 45/11 OCPG45	12/03/2014	12/02/2015
Phantom	SATIMO	SN_4511_SAM90	Validated. No cal required.	Validated. No cal required.
Liquid	SATIMO	-	Validated. No cal required.	Validated. No cal required.
Comm Tester	R&S - CMU200	069Y7-158-13-712	03/06/2015	03/05/2016
Comm Tester	R&S- CMW500	S/N120909	10/21/2014	10/20/2015
Comm Tester	Agilent-8960	GB46310822	03/06/2015	03/05/2016
Multimeter	Keithley 2000	1188656	03/06/2015	03/05/2016
Dipole	SATIMO SID835	SN46/11 DIP 0G835-190	10/02/2014	10/01/2017
Dipole	SATIMO SID1900	SN46/11 DIP 1G900-187	11/14/2013	11/13/2016
Dipole	SATIMO SID2450	SN46/11 DIP 2G450-189	11/14/2013	11/13/2016
Signal Generator	Agilent-E4438C	MY44260051	03/06/2015	03/05/2016
Power Sensor	NRP-Z23	US38261498	03/06/2015	03/05/2016
Spectrum Analyzer E4440	Agilent	US41421290	07/23/2015	07/22/2016
Network Analyzer	Rhode & Schwarz ZVL6	SN100132	03/06/2015	03/05/2016
Attenuator	Warison /WATT-6SR1211	N/A	N/A	N/A
Attenuator	Mini-circuits / VAT-10+	N/A	N/A	N/A
Amplifier	EM30180	SN060552	03/06/2015	03/05/2016
Directional Couple	Werlatone/ C5571-10	SN99463	07/29/2015	07/28/2016
Directional Couple	Werlatone/ C6026-10	SN99482	07/29/2015	07/28/2016
Power Sensor	NRP-Z21	1137.6000.02	10/22/2014	10/21/2015
Power Viewer	R&S	V2.3.1.0	N/A	N/A

Note: Per KDB 865664 Dipole SAR Validation, AGC Lab has adopted 3 years calibration intervals. On annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss is within 20% of calibrated measurement;
4. Impedance is within 5Ω of calibrated measurement.

10. MEASUREMENT UNCERTAINTY

SATIMO Uncertainty									
Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram / 10 gram.									
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	6.98	6.98	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	1	1	1.16	1.16	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	1	1	2.33	2.33	∞
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	2.87	2.87	∞
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	0.03	0.03	∞
Response Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.70	1.70	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.16	1.16	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.71	1.71	∞
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.5.2	5.0	R	$\sqrt{3}$	1	1	2.91	2.91	∞
Test sample Related									
Test sample positioning	E.4.2.1	0.03	N	1	1	1	0.05	0.05	N-1
Device Holder Uncertainty	E.4.1.1	5.00	N	1	1	1	4.95	4.95	∞
Output power Variation - SAR drift measurement	6.6.2	0.65	R	$\sqrt{3}$	1	1	0.36	0.36	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.02	0.02	∞
Liquid conductivity deviation from target value	E.3.2	5.00	R	$\sqrt{3}$	0.64	0.43	1.83	1.23	∞
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.18	2.14	∞
Liquid permittivity - deviation from target value	E.3.2	0.03	R	$\sqrt{3}$	0.6	0.49	0.01	0.01	∞
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.06	4.95	M
Combined Standard Uncertainty			RSS				11.17	10.63	∞
Expanded Uncertainty (95% Confidence interval)			k				22.34	21.26	

SATIMO Uncertainty									
System uncertainty for 300 MHz to 3 GHz averaged over 1 gram / 10 gram.									
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	6.98	6.98	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	1	1	1.16	1.16	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	1	1	2.33	2.33	∞
Boundary Effects	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	2.87	2.87	∞
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	0.03	0.03	∞
Response Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.70	1.70	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.16	1.16	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.71	1.71	∞
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.5.2	5.0	R	$\sqrt{3}$	1	1	2.91	2.91	∞
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	$\sqrt{3}$	1	1	0.55	0.55	N-1
Input power and SAR drift measurement	8,6.6.2	0.65	R	$\sqrt{3}$	1	1	0.36	0.36	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.02	0.02	∞
Liquid conductivity - deviation from target value	E.3.2	5.00	R	$\sqrt{3}$	0.64	0.43	1.83	1.23	∞
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.18	2.14	∞
Liquid permittivity - deviation from target value	E.3.2	0.03	R	$\sqrt{3}$	0.6	0.49	0.01	0.01	∞
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.06	4.95	M
Combined Standard Uncertainty			RSS				10.03	9.42	
Expanded Uncertainty (95% Confidence interval)			k				20.05	18.85	

11. CONDUCTED POWER MEASUREMENT

GSM BAND

Mode	Frequency(MHz)	Avg. Burst Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <1>				
GSM 850	824.2	31.18	-9	22.18
	836.6	31.14	-9	22.14
	848.8	31.12	-9	22.12
GPRS 850 (1 Slot)	824.2	30.75	-9	21.75
	836.6	30.72	-9	21.72
	848.8	30.71	-9	21.71
GPRS 850 (2 Slot)	824.2	28.42	-6	22.42
	836.6	28.36	-6	22.36
	848.8	28.32	-6	22.32
GPRS850 (3 Slot)	824.2	26.31	-4.26	22.05
	836.6	26.25	-4.26	21.99
	848.8	26.23	-4.26	21.97
GPRS 850 (4 Slot)	824.2	25.37	-3	22.37
	836.6	25.33	-3	22.33
	848.8	25.29	-3	22.29
Maximum Power <2>				
GSM 850	824.2	31.08	-9	22.08
	836.6	31.04	-9	22.04
	848.8	31.06	-9	22.06

GSM BAND CONTINUE

Mode	Frequency(MHz)	Avg. Burst Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
PCS1900	1850.2	28.19	-9	19.19
	1880	28.16	-9	19.16
	1909.8	28.12	-9	19.12
GPRS1900 (1 Slot)	1850.2	27.68	-9	18.68
	1880	27.63	-9	18.63
	1909.8	27.61	-9	18.61
GPRS1900 (2 Slot)	1850.2	25.34	-6	19.34
	1880	25.32	-6	19.32
	1909.8	25.29	-6	19.29
GPRS1900 (3 Slot)	1850.2	23.46	-4.26	19.2
	1880	23.41	-4.26	19.15
	1909.8	23.35	-4.26	19.09
GPRS1900 (4 Slot)	1850.2	22.37	-3	19.37
	1880	22.34	-3	19.34
	1909.8	22.32	-3	19.32
Maximum Power <2>				
PCS1900	1850.2	28.12	-9	19.12
	1880	28.08	-9	19.08
	1909.8	28.05	-9	19.05

Note 1:

The Frame Power (Source-based time-averaged Power) is scaled the maximum burst average power based on time slots. The calculated methods are show as following:

Frame Power = Max burst power (1 Up Slot) – 9 dB

Frame Power = Max burst power (2 Up Slot) – 6 dB

Frame Power = Max burst power (3 Up Slot) – 4.26 dB

Frame Power = Max burst power (4 Up Slot) – 3 dB

HSDPA Setup Configuration:

The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.

The RF path losses were compensated into the measurements.

A call was established between EUT and Based Station with following setting:

Set Gain Factors(β_c and β_d) parameters set according to each

Specific sub-test in the following table.C10.1.4.quoted from the TS34.121

Set RMC 12.2Kbps + HSDPA mode

Set Cell Power=-86dBm

Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)

Select HSDPA Uplink Parameters

Set Delta ACK, Delta NACK and Delta CQI=8

Set Ack-Nack Repetition Factor to 3

Set CQI Feedback Cycle (k) to 4ms

Set CQI Repetition Factor to 2

Power Ctrl Mode=All Up bits

The transmitted maximum output power was recorded.

Table C.10.2.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c (Note5)	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15(Note 4)	15/15(Note 4)	64	12/15(Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: ΔACK , $\Delta NACK$ and $\Delta CQI = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, ΔACK and $\Delta NACK = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta CQI = 24/15$ with $\beta_{hs} = 24/15 * \beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

HSUPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting * :
 - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
 - ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
 - iii. Set Cell Power = -86 dBm
 - iv. Set Channel Type = 12.2k + HSPA
 - v. Set UE Target Power
 - vi. Power Ctrl Mode= Alternating bits
 - vii. Set and observe the E-TFCI
 - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-t est	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TF CI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/22 5	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, ΔACK , $\Delta NACK$ and $\Delta CQI = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, ΔACK , $\Delta NACK$ and $\Delta CQI = 5/15$ with $\beta_{hs} = 5/15 * \beta_c$.

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

UMTS BAND II

Mode	Frequency (MHz)	Avg. Burst Power (dBm)
WCDMA 1900 RMC	1852.4	21.39
	1880	21.35
	1907.6	21.31
WCDMA 1900 AMR	1852.4	21.14
	1880	21.11
	1907.6	21.18
HSDPA Subtest 1	1852.4	20.28
	1880	20.25
	1907.6	20.22
HSDPA Subtest 2	1852.4	20.34
	1880	20.27
	1907.6	20.25
HSDPA Subtest 3	1852.4	20.32
	1880	20.26
	1907.6	20.24
HSDPA Subtest 4	1852.4	20.33
	1880	20.31
	1907.6	20.28
HSUPA Subtest 1	1852.4	20.24
	1880	20.19
	1907.6	20.25
HSUPA Subtest 2	1852.4	20.27
	1880	20.23
	1907.6	20.25
HSUPA Subtest 3	1852.4	20.32
	1880	20.26
	1907.6	20.31
HSUPA Subtest 4	1852.4	20.37
	1880	20.34
	1907.6	20.31
HSUPA Subtest 5	1852.4	20.36
	1880	20.32
	1907.6	20.29

UMTS BAND V

Mode	Frequency (MHz)	Avg. Burst Power (dBm)
WCDMA 850 RMC	826.4	21.31
	836.6	21.22
	846.6	21.21
WCDMA 850 AMR	826.4	21.15
	836.6	21.13
	846.6	21.11
HSDPA Subtest 1	826.4	20.36
	836.6	20.32
	846.6	20.27
HSDPA Subtest 2	826.4	20.29
	836.6	20.24
	846.6	20.21
HSDPA Subtest 3	826.4	20.32
	836.6	20.27
	846.6	20.24
HSDPA Subtest 4	826.4	20.31
	836.6	20.28
	846.6	20.25
HSUPA Subtest 1	826.4	20.22
	836.6	20.21
	846.6	20.18
HSUPA Subtest 2	826.4	20.26
	836.6	20.23
	846.6	20.19
HSUPA Subtest 3	826.4	20.31
	836.6	20.29
	846.6	20.25
HSUPA Subtest 4	826.4	20.32
	836.6	20.29
	846.6	20.26
HSUPA Subtest 5	826.4	20.31
	836.6	20.28
	846.6	20.25

According to 3GPP 25.101 sub-clause 6.2.2 , the maximum output power is allowed to be reduced by following the table.

Table 6.1aA: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM(db)	MPR(db)
For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH	$0 \leq CM \leq 3.5$	$\text{MAX}(CM-1,0)$
Note: $CM=1$ for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$.For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.		

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensation for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.

WIFI

Mode	Data Rate (Mbps)	Channel	Frequency(MHz)	Avg. Burst Power(dBm)
802.11b	1	01	2412	11.42
		06	2437	11.31
		11	2462	11.29
802.11g	6	01	2412	9.45
		06	2437	9.37
		11	2462	9.28
802.11n(20)	6.5	01	2412	9.32
		06	2437	9.25
		11	2462	9.23
802.11n(40)	13.5	03	2422	7.65
		06	2437	7.51
		09	2452	7.44

Bluetooth_V3.0

Modulation	Channel	Frequency(MHz)	Average Power (dBm)
GFSK	0	2402	2.19
	39	2441	2.58
	78	2480	2.88
$\pi/4$ -DQPSK	0	2402	1.36
	39	2441	1.76
	78	2480	1.99
8-DPSK	0	2402	2.49
	39	2441	1.78
	78	2480	2.06

Bluetooth_V4.0

Modulation	Channel	Frequency(MHz)	Peak Power (dBm)
GFSK	0	2402	-3.79
	19	2440	-3.39
	39	2480	-3.23

12. TEST RESULTS

12.1. SAR Test Results Summary

12.1.1. Test position and configuration

Head SAR was performed with the device configured in the positions according to IEEE 1528-2003, and Body SAR was performed with the device 10mm from the phantom.

12.1.2. Operation Mode

1. Per KDB 447498 D01 v05r02 ,for each exposure position, if the highest 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional.
2. Per KDB 865664 D01 v01r04,for each frequency band, if the measured SAR is ≥ 0.8 W/Kg, testing for repeated SAR measurement is required , that the highest measured SAR is only to be tested. When the SAR results are near the limit, the following procedures are required for each device to verify these types of SAR measurement related variation concerns by repeating the highest measured SAR configuration in each frequency band.
 - (1) When the original highest measured SAR is ≥ 0.8 W/Kg, repeat that measurement once.
 - (2) 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.
 - (3) Perform a third repeated measurement only if the original, first and second repeated measurement is ≥ 1.5 W/Kg and ratio of largest to smallest SAR for the original, first and second measurement is ≥ 1.20 .
3. Body-worn exposure conditions are intended to voice call operations, therefore GSM voice call mode is selected to be test.
4. Per KDB 648474 D04 v01r02,when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/Kg, SAR testing with a headset connected is not required.
5. Per 941225 D06 v02, when the overall device length and width are $> 9\text{cm} \times 5\text{cm}$, Hotspot mode with a test separation distance of 10mm. For device with form factors smaller than $9\text{cm} \times 5\text{cm}$, Hotspot mode with a test separation distance of 5mm. Body SAR was also performed with the headset attached and without.
6. Per 248227 D01 v02r01, SAR is not required for 802.11g channels when the maximum average output power is less than 1/4dB higher than measured on the corresponding 802.11b channels.
7. Maximum Scaling SAR in order to calculate the Maximum SAR values to test under the standard Peak Power, Calculation method is as follows:
Maximum Scaling SAR =tested SAR (Max.) $\times$ [maximum turn-up power (mw)/ maximum measurement output power(mw)]

12.1.3. Test Result

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%): 50.6				
Product: Smart Phone									
Test Mode: GSM850 with GMSK modulation									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Turn-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit W/kg
SIM 1 Card									
Left Cheek	voice	190	836.6	0.15	0.504	32	31.14	0.614	1.6
Left Tilt	voice	190	836.6	-0.02	0.275	32	31.14	0.335	1.6
Right Cheek	voice	190	836.6	-0.06	0.447	32	31.14	0.545	1.6
Right Tilt	voice	190	836.6	0.00	0.319	32	31.14	0.389	1.6
Body back	voice	190	836.6	0.07	0.641	32	31.14	0.781	1.6
Body front	voice	190	836.6	0.11	0.496	32	31.14	0.605	1.6
Left Cheek	GPRS-2 slot	190	836.6	-1.00	0.240	29	28.36	0.278	1.6
Left Tilt	GPRS-2 slot	190	836.6	0.08	0.149	29	28.36	0.173	1.6
Right Cheek	GPRS-2 slot	190	836.6	0.23	0.218	29	28.36	0.253	1.6
Right Tilt	GPRS-2 slot	190	836.6	0.34	0.165	29	28.36	0.191	1.6
Body back	GPRS-2 slot	190	836.6	-0.05	0.337	29	28.36	0.391	1.6
Body front	GPRS-2 slot	190	836.6	-0.01	0.263	29	28.36	0.305	1.6
Edge 1 (Top)	GPRS-2 slot	190	836.6	0.07	0.013	29	28.36	0.015	1.6
Edge 2(Right)	GPRS-2 slot	190	836.6	0.16	0.182	29	28.36	0.211	1.6
Edge 3(Bottom)	GPRS-2 slot	190	836.6	0.24	0.040	29	28.36	0.046	1.6
Edge 4(Left)	GPRS-2 slot	190	836.6	-1.03	0.157	29	28.36	0.182	1.6
SIM 2 Card									
Left Cheek	voice	190	836.6	0.43	0.475	32	31.04	0.593	1.6
Body back	voice	190	836.6	-0.07	0.624	32	31.04	0.778	1.6

Note:

- When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
- The test separation for body is 10mm of all above table.

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%): 52.7				
Product: Smart Phone									
Test Mode: PCS1900 with GMSK modulation									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Turn-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit W/kg
SIM 1 Card									
Left Cheek	voice	661	1880.0	0.05	0.507	28.50	28.16	0.548	1.6
Left Tilt	voice	661	1880.0	0.13	0.086	28.50	28.16	0.093	1.6
Right Cheek	voice	661	1880.0	-0.04	0.544	28.50	28.16	0.588	1.6
Right Tilt	voice	661	1880.0	0.26	0.111	28.50	28.16	0.120	1.6
Body back	voice	661	1880.0	0.30	0.399	28.50	28.16	0.431	1.6
Body front	voice	661	1880.0	-0.05	0.420	28.50	28.16	0.454	1.6
Left Cheek	GPRS-4 slot	661	1880.0	0.11	0.345	23	22.34	0.402	1.6
Left Tilt	GPRS-4 slot	661	1880.0	-1.05	0.063	23	22.34	0.073	1.6
Right Cheek	GPRS-4 slot	661	1880.0	0.27	0.393	23	22.34	0.458	1.6
Right Tilt	GPRS-4 slot	661	1880.0	-0.06	0.079	23	22.34	0.092	1.6
Body back	GPRS-4 slot	661	1880.0	-0.09	0.321	23	22.34	0.374	1.6
Body front	GPRS-4 slot	661	1880.0	1.00	0.314	23	22.34	0.366	1.6
Edge 1 (Top)	GPRS-4 slot	661	1880.0	-0.08	0.046	23	22.34	0.054	1.6
Edge 2(Right)	GPRS-4 slot	661	1880.0	0.45	0.139	23	22.34	0.162	1.6
Edge 3(Bottom)	GPRS-4 slot	661	1880.0	0.03	0.411	23	22.34	0.478	1.6
Edge 4(Left)	GPRS-4 slot	661	1880.0	0.37	0.077	23	22.34	0.090	1.6
SIM 2 Card									
Right Cheek	voice	661	1880.0	-0.20	0.532	28.50	28.08	0.586	1.6
Body front	voice	661	1880.0	-0.07	0.400	28.50	28.08	0.441	1.6

Note:

- When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
- The test separation for body is 10mm of all above table.

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%): 50.6				
Product: Smart Phone									
Test Mode: WCDMA Band V with QPSK modulation									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Turn-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit W/kg
SIM 1 Card									
Left Cheek	RMC 12.2kbps	4183	836.6	-0.25	0.571	21.50	21.22	0.609	1.6
Left Tilt	RMC 12.2kbps	4183	836.6	0.03	0.452	21.50	21.22	0.482	1.6
Right Cheek	RMC 12.2kbps	4183	836.6	-0.06	0.536	21.50	21.22	0.572	1.6
Right Tilt	RMC 12.2kbps	4183	836.6	0.21	0.408	21.50	21.22	0.435	1.6
Body back	RMC 12.2kbps	4132	826.4	0.59	0.788	21.50	21.31	0.823	1.6
Body back	RMC 12.2kbps	4183	836.6	0.44	0.718	21.50	21.22	0.766	1.6
Body back	RMC 12.2kbps	4233	846.6	0.15	0.938	21.50	21.21	1.003	1.6
Body front	RMC 12.2kbps	4132	826.4	-0.11	0.795	21.50	21.31	0.831	1.6
Body front	RMC 12.2kbps	4183	836.6	-0.02	0.728	21.50	21.22	0.776	1.6
Body front	RMC 12.2kbps	4233	846.6	0.07	0.969	21.50	21.21	1.036	1.6
Edge 1 (Top)	RMC 12.2kbps	4183	836.6	-0.03	0.004	21.50	21.22	0.004	1.6
Edge 2(Right)	RMC 12.2kbps	4183	836.6	0.20	0.503	21.50	21.22	0.536	1.6
Edge 3(Bottom)	RMC 12.2kbps	4183	836.6	-1.00	0.025	21.50	21.22	0.027	1.6
Edge 4(Left)	RMC 12.2kbps	4183	836.6	0.05	0.497	21.50	21.22	0.530	1.6

Note:

- When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
- The test separation for body is 10mm of all above table.

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%): 52.7				
Product: Smart Phone									
Test Mode: WCDMA Band II with QPSK modulation									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Turn-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit W/kg
SIM 1 Card									
Left Cheek	RMC 12.2kbps	9400	1880	-1.00	0.622	21.50	21.35	0.644	1.6
Left Tilt	RMC 12.2kbps	9400	1880	0.02	0.159	21.50	21.35	0.165	1.6
Right Cheek	RMC 12.2kbps	9262	1852.4	0.03	0.825	21.50	21.39	0.846	1.6
Right Cheek	RMC 12.2kbps	9400	1880	-0.05	0.703	21.50	21.35	0.728	1.6
Right Cheek	RMC 12.2kbps	9538	1907.6	0.16	0.844	21.50	21.31	0.882	1.6
Right Tilt	RMC 12.2kbps	9400	1880	0.27	0.183	21.50	21.35	0.189	1.6
Body back	RMC 12.2kbps	9262	1852.4	0.34	0.906	21.50	21.39	0.929	1.6
Body back	RMC 12.2kbps	9400	1880	0.50	0.885	21.50	21.35	0.916	1.6
Body back	RMC 12.2kbps	9538	1907.6	-0.08.	0.940	21.50	21.31	0.982	1.6
Body front	RMC 12.2kbps	9400	1880	-0.09	0.407	21.50	21.35	0.421	1.6
Edge 1 (Top)	RMC 12.2kbps	9400	1880	1.00	0.049	21.50	21.35	0.051	1.6
Edge 2(Right)	RMC 12.2kbps	9400	1880	0.02	0.230	21.50	21.35	0.238	1.6
Edge 3(Bottom)	RMC 12.2kbps	9400	1880	0.14	0.445	21.50	21.35	0.461	1.6
Edge 4(Left)	RMC 12.2kbps	9400	1880	-0.07	0.092	21.50	21.35	0.095	1.6

Note:

- When the 1-g Reported SAR is ≤ 0.8 W/kg, testing for low and high channel is optional. Refer to KDB 447498.
- The test separation for body is 10mm of all above table.

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%): 52.3				
Product: Smart Phone									
Test Mode:802.11b									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Turn-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit W/kg
Left Cheek	DTS	6	2437	0.02	0.074	11.50	11.31	0.077	1.6
Left Tilt	DTS	6	2437	-0.06	0.036	11.50	11.31	0.038	1.6
Right Cheek	DTS	6	2437	0.13	0.062	11.50	11.31	0.065	1.6
Right Tilt	DTS	6	2437	-0.02	0.081	11.50	11.31	0.085	1.6
Body back	DTS	6	2437	0.04	0.113	11.50	11.31	0.118	1.6
Body front	DTS	6	2437	1.00	0.086	11.50	11.31	0.090	1.6
Edge 1 (Top)	DTS	6	2437	-0.08	0.123	11.50	11.31	0.129	1.6
Edge 2(Right)	DTS	6	2437	0.27	0.073	11.50	11.31	0.076	1.6
Edge 3(Bottom)	DTS	6	2437	-0.06	0.018	11.50	11.31	0.019	1.6
Edge 4(Left)	DTS	6	2437	0.04	0.025	11.50	11.31	0.026	1.6

Note:

- According to KDB248227, SAR is not required for 802.11n HT20/HT40 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11a/b channels.
- All of above "DTS" means data transmitters.
- The test separation of all above table for body part is 10mm.

Repeated SAR										
Product: Smart Phone										
Test Mode: WCDMA Band II & WCDMA Band V with QPSK modulation										
Position	Mode	Ch.	Fr. (MHz)	Power Drift ($<\pm 5\%$)	Once SAR (1g) (W/kg)	Power Drift ($<\pm 5\%$)	Twice SAR (1g) (W/kg)	Power Drift ($<\pm 5\%$)	Third SAR (1g) (W/kg)	Limit W/kg
Right Cheek	RMC 12.2kbps	9538	1907.6	0.01	0.837	--	--	--	--	1.6
Body back	RMC 12.2kbps	9538	1907.6	-1.32	0.927	--	--	--	--	1.6
Body front	RMC 12.2kbps	4233	846.6	-0.02	0.965	--	--	--	--	1.6

Simultaneous Multi-band Transmission Evaluation:
Application Simultaneous Transmission information:

NO	Simultaneous state	Portable Handset		
		Head	Body-worn	Hotspot
1	GSM(voice)+WLAN 2.4GHz (data)	Yes	Yes	-
2	WCDMA(voice)+WLAN 2.4GHz (data)	Yes	Yes	-
3	GSM(voice)+Bluetooth(data)	-	Yes	-
4	WCDMA(voice)+Bluetooth(data)	-	Yes	-
5	GSM (Data) + Bluetooth(data)	-	Yes	
6	GSM (Data) + WLAN 2.4GHz (data)	Yes	Yes	Yes
7	WCDMA (Data) + Bluetooth(data)	--	Yes	
8	WCDMA (Data) + WLAN 2.4GHz (data)	Yes	Yes	Yes

NOTE:

1. WLAN and BT share the same antenna, and cannot transmit simultaneously.
2. Simultaneous with every transmitter must be the same test position.
3. KDB 447498 D01, BT SAR is excluded as below table.
4. KDB 447498 D01, for handsets the test separation distance is determined by the smallest distance between the outer surface of the device and the user; which is 0mm for head SAR and 10mm for body-worn SAR.
5. If the test separation distance is <5mm, 5mm is used for excluded SAR calculation.
6. According to KDB447497 D01 4.3.2, simultaneous transmission SAR test exclusion is as follow:
 - (1) Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna.
 - (2) Any transmitters and antennas should be considered when calculating simultaneous mode.
 - (3) For mobile phone and PC, it's the sum of all transmitters and antennas at the same mode with same position in each applicable exposure condition
 - (4) When the standalone SAR test exclusion of section 4.3.1 is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the 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.
7. When the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio. The simultaneous transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SAR to peak location separation ratio to qualify for test exclusion. The ratio is determined by $(\text{SAR}_1 + \text{SAR}_2)^{1.5}/R_i$, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

Estimated SAR		Max Power including Tune-up Tolerance		Separation Distance (mm)	Estimated SAR (W/kg)
		dBm	mW		
BT	Head	3	1.995	0	0.133
	Body	3	1.995	10	0.066

Maximum test results (WWAN) with BT SAR:

BT: Head (0 cm gap): 0.133 W/kg and Body (1.0cm gap): 0.066 W/kg

Sum of the SAR for GSM 850 & Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ 1-g SAR (W/Kg)	SPLSR (Yes/No)
		GSM 850 Band	Wi-Fi DTS Band	Bluetooth		
Head (voice)	Left Touch	0.614	0.077		0.691	No
	Left Tilt	0.335	0.038		0.373	No
	Right Touch	0.545	0.065		0.610	No
	Right Tilt	0.389	0.085		0.474	No
Body-worn	Rear	0.781	0.118		0.899	No
		0.781		0.066	0.847	No
	Front	0.605	0.090		0.695	No
		0.605		0.066	0.671	No
Head (VoIP)	Left Touch	0.278	0.077		0.355	No
	Left Tilt	0.173	0.038		0.211	No
	Right Touch	0.253	0.065		0.318	No
	Right Tilt	0.191	0.085		0.276	No
Hotspot	Rear	0.391	0.118		0.509	No
	Front	0.305	0.090		0.395	No
	Edge 1	0.015	0.129		0.144	No
	Edge 2	0.211	0.076		0.287	No
	Edge 3	0.046	0.019		0.065	No
	Edge 4	0.182	0.026		0.208	No
	Rear	0.391		0.066	0.457	No
	Front	0.305		0.066	0.371	No
	Edge 1	0.015		0.066	0.081	No
	Edge 2	0.211		0.066	0.277	No
	Edge 3	0.046		0.066	0.112	No
	Edge 4	0.182		0.066	0.248	No

Note:

- According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than 1.6 W/Kg, SPLSR assessment is not required.
- SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for GSM 1900 & Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ 1-g SAR (W/Kg)	SPLSR (Yes/No)
		GSM 1900 Band	Wi-Fi DTS Band	Bluetooth		
Head (voice)	Left Touch	0.548	0.077		0.625	No
	Left Tilt	0.093	0.038		0.131	No
	Right Touch	0.588	0.065		0.653	No
	Right Tilt	0.120	0.085		0.205	No
Body-worn	Rear	0.431	0.118		0.549	No
		0.431		0.066	0.497	No
	Front	0.454	0.090		0.544	No
		0.454		0.066	0.520	No
Head (VoIP)	Left Touch	0.402	0.077		0.479	No
	Left Tilt	0.073	0.038		0.111	No
	Right Touch	0.458	0.065		0.523	No
	Right Tilt	0.092	0.085		0.177	No
Hotspot	Rear	0.374	0.118		0.492	No
	Front	0.366	0.090		0.456	No
	Edge 1	0.054	0.129		0.183	No
	Edge 2	0.162	0.076		0.238	No
	Edge 3	0.478	0.019		0.497	No
	Edge 4	0.090	0.026		0.116	No
	Rear	0.374		0.066	0.440	No
	Front	0.366		0.066	0.432	No
	Edge 1	0.054		0.066	0.120	No
	Edge 2	0.162		0.066	0.228	No
	Edge 3	0.478		0.066	0.544	No
	Edge 4	0.090		0.066	0.156	No

Note:

- According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than 1.6 W/Kg, SPLSR assessment is not required.
- SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for WCDMA Band II & Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ 1-g SAR (W/Kg)	SPLSR (Yes/No)
		WCDMA Band II	Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.644	0.077		0.721	No
	Left Tilt	0.165	0.038		0.203	No
	Right Touch	0.882	0.065		0.947	No
	Right Tilt	0.189	0.085		0.274	No
Hotspot	Rear	0.982	0.118		1.100	No
	Front	0.421	0.090		0.511	No
	Edge 1	0.051	0.129		0.180	No
	Edge 2	0.238	0.076		0.314	No
	Edge 3	0.461	0.019		0.480	No
	Edge 4	0.095	0.026		0.121	No
	Rear	0.982		0.066	1.048	No
	Front	0.421		0.066	0.487	No
	Edge 1	0.051		0.066	0.117	No
	Edge 2	0.238		0.066	0.304	No
	Edge 3	0.461		0.066	0.527	No
	Edge 4	0.095		0.066	0.161	No

Note:

- According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than 1.6 W/Kg, SPLSR assessment is not required.
- SPLSR mean is "The SAR to Peak Location Separation Ratio "

Sum of the SAR for WCDMA Band V & Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ 1-g SAR (W/Kg)	SPLSR (Yes/No)
		WCDMA Band V	Wi-Fi DTS Band	Bluetooth		
Head	Left Touch	0.609	0.077		0.686	No
	Left Tilt	0.482	0.038		0.520	No
	Right Touch	0.572	0.065		0.637	No
	Right Tilt	0.435	0.085		0.520	No
Hotspot	Rear	1.003	0.118		1.121	No
	Front	1.036	0.090		1.126	No
	Edge 1	0.004	0.129		0.133	No
	Edge 2	0.536	0.076		0.612	No
	Edge 3	0.027	0.019		0.046	No
	Edge 4	0.530	0.026		0.556	No
	Rear	1.003		0.066	1.069	No
	Front	1.036		0.066	1.102	No
	Edge 1	0.004		0.066	0.070	No
	Edge 2	0.536		0.066	0.602	No
	Edge 3	0.027		0.066	0.093	No
	Edge 4	0.530		0.066	0.596	No

Note:

- According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than 1.6 W/Kg, SPLSR assessment is not required.
- SPLSR mean is "The SAR to Peak Location Separation Ratio "

APPENDIX A. SAR SYSTEM CHECK DATA

Test Laboratory: AGC Lab

Date: Sep. 5,2015

System Check Head 835 MHz

DUT: Dipole 835 MHz Type: SID 835

Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1; Conv.F=6.36

Frequency: 835 MHz; Medium parameters used: $f = 835$ MHz; $\sigma = 0.90$ mho/m; $\epsilon_r = 41.60$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

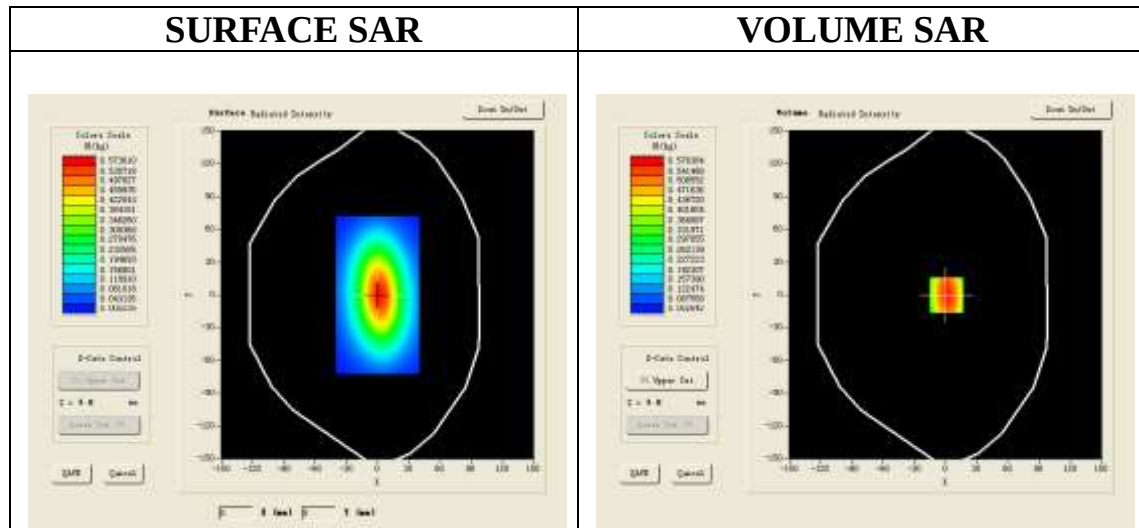
Ambient temperature (°C):22.4, Liquid temperature (°C): 22.3

SATIMO Configuration

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

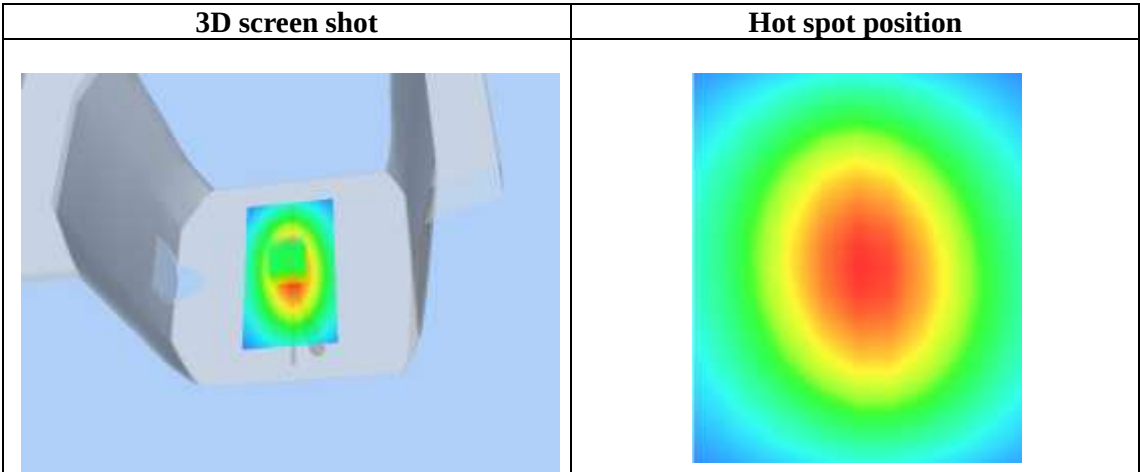
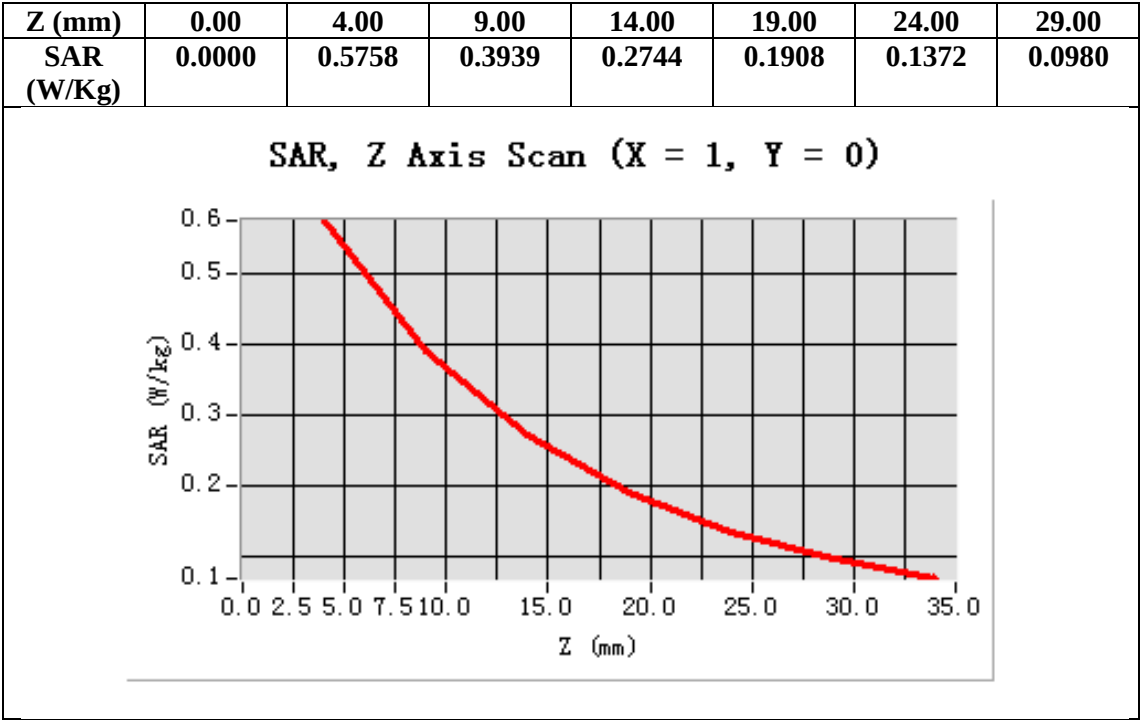
Configuration/System Check 835MHz Head/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 835MHz Head/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm



Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	0.390120
SAR 1g (W/Kg)	0.596781



Test Laboratory: AGC Lab
System Check Body 835 MHz
DUT: Dipole 835 MHz Type: SID 835

Date: Sep. 5,2015

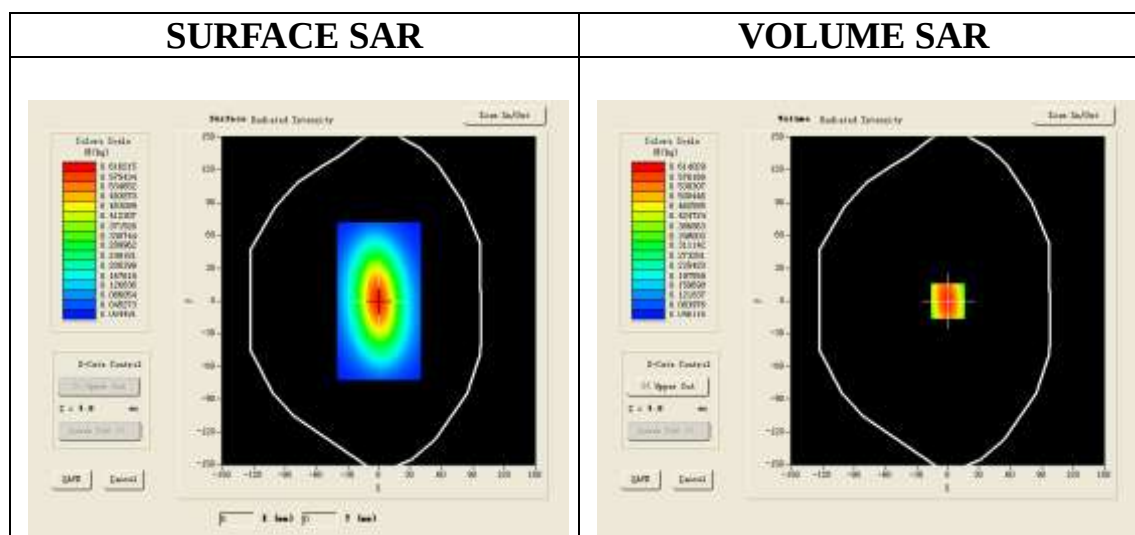
Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1; Conv.F=6.56
Frequency: 835 MHz; Medium parameters used: $f = 835$ MHz; $\sigma=0.96$ mho/m; $\epsilon_r=55.01$; $\rho= 1000$ kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (°C):22.4, Liquid temperature (°C): 22.1

SATIMO Configuration

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

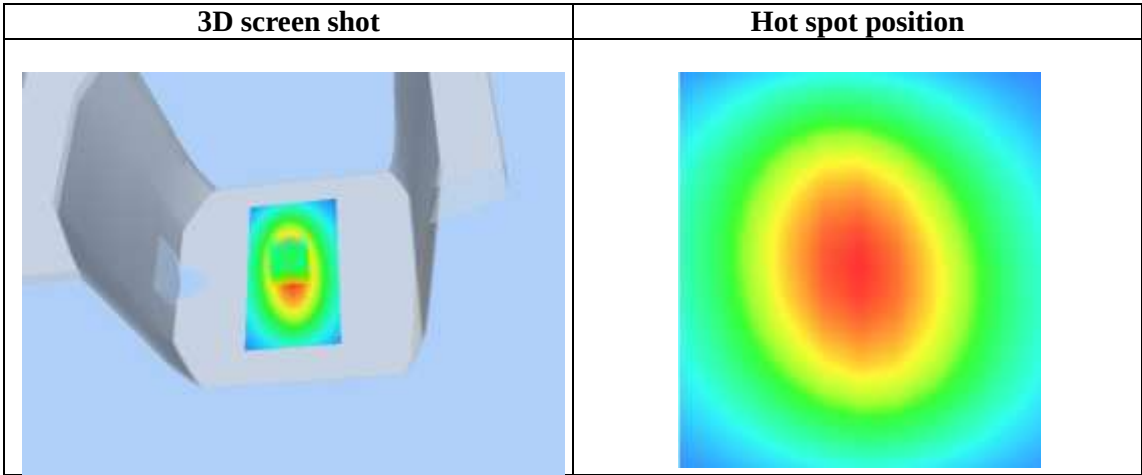
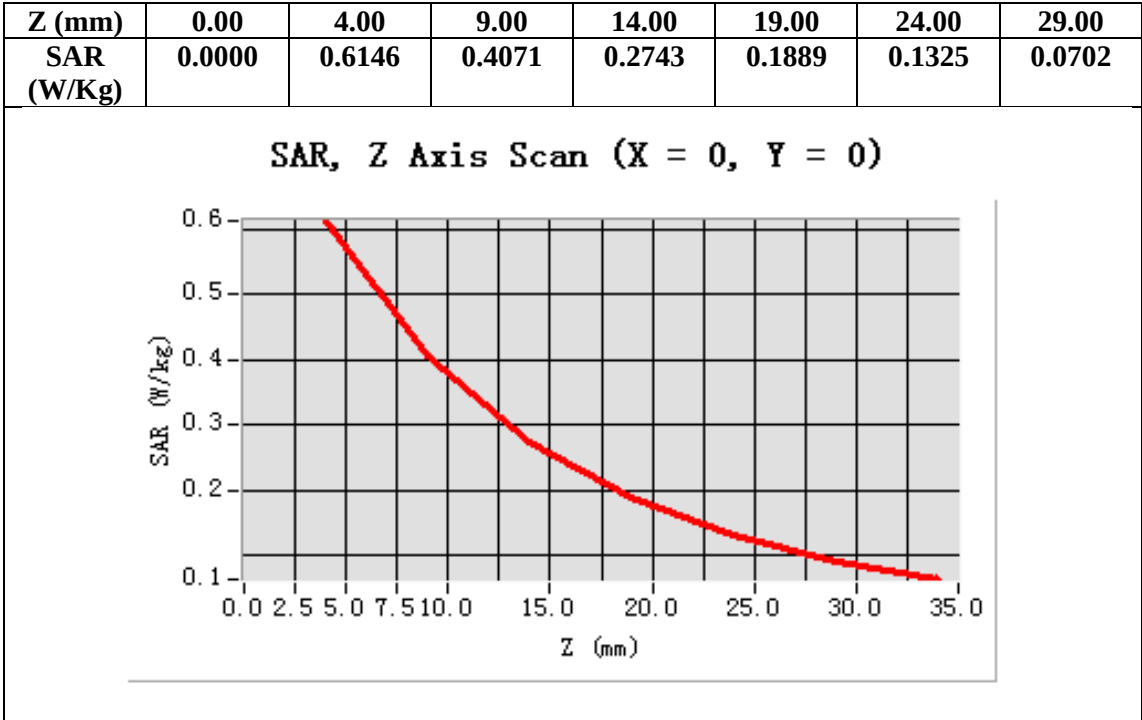
Configuration/System Check 835MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 835MHz Body/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm



Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	0.406024
SAR 1g (W/Kg)	0.638821



Test Laboratory: AGC Lab
System Check Head 1900MHz

Date: Sep. 3,2015

DUT: Dipole 1900 MHz; Type: SID 1900

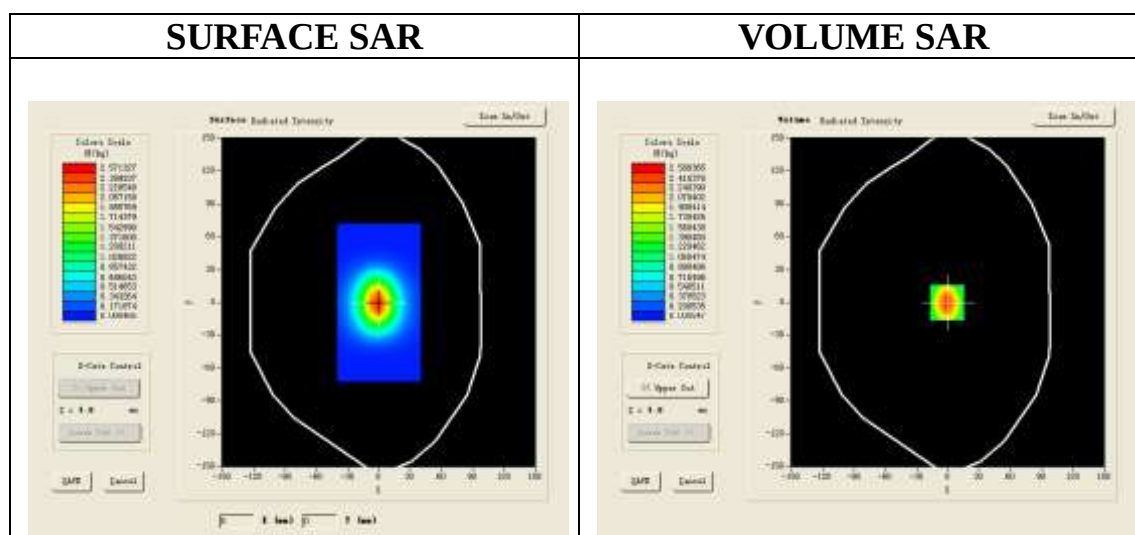
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1; Conv.F=5.50
Frequency: 1900 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 40.95$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (°C):21.9, Liquid temperature (°C): 21.9

SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

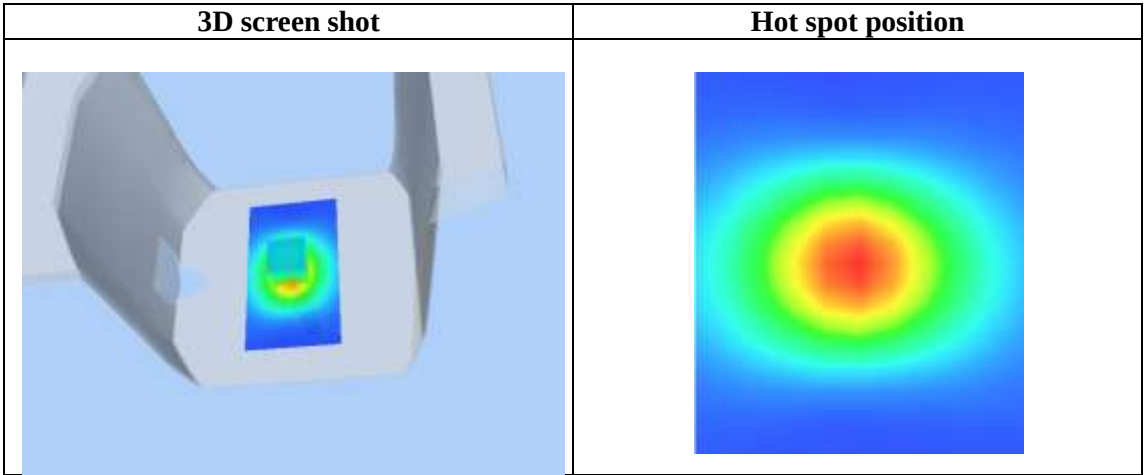
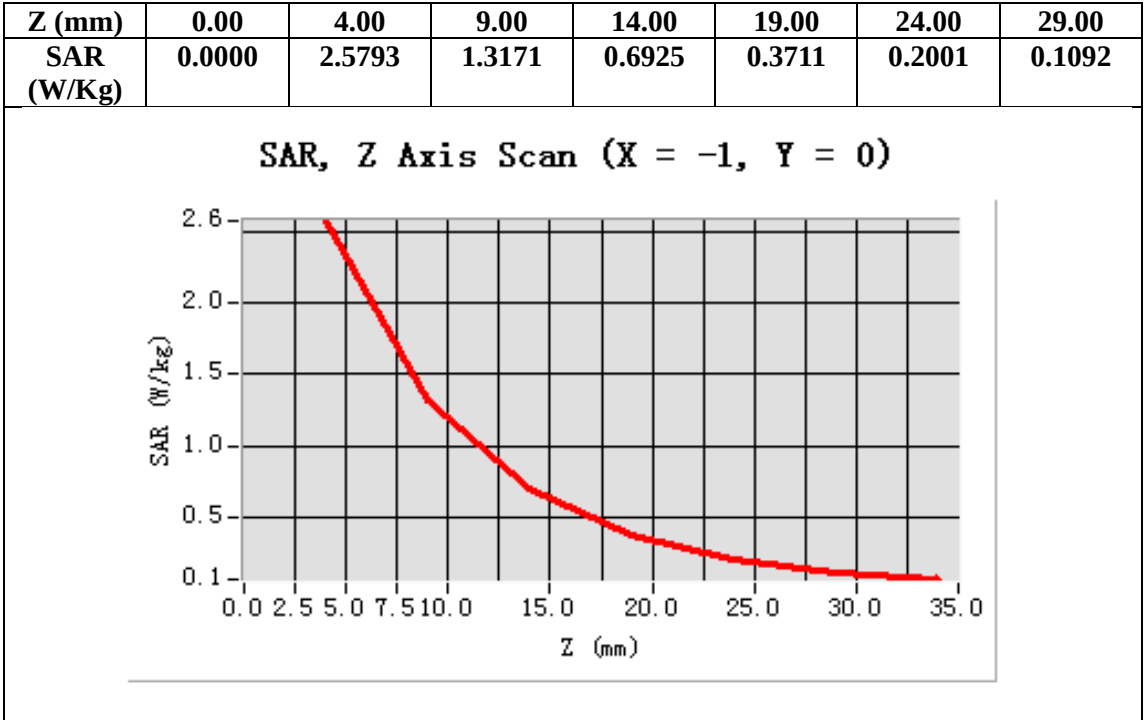
Configuration/System Check 1900MHz Head/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 1900MHz Head/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm



Maximum location: X=-1.00, Y=0.00

SAR 10g (W/Kg)	1.249647
SAR 1g (W/Kg)	2.442358



Test Laboratory: AGC Lab
System Check Body 1900MHz
DUT: Dipole 1900 MHz; Type: SID 1900

Date: Sep. 3,2015

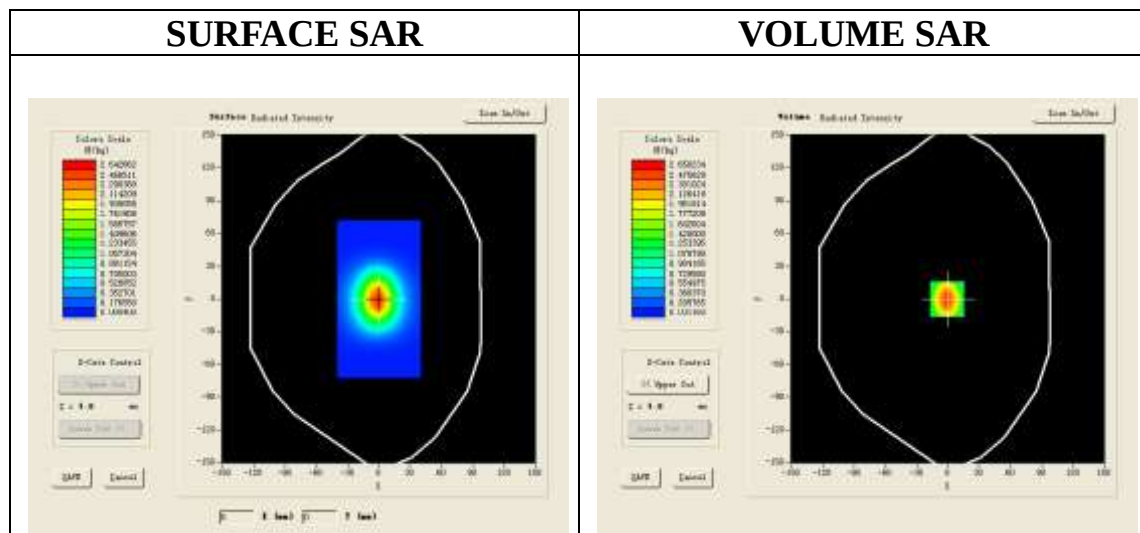
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1; Conv.F=5.61
Frequency: 1900 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma=1.53$ mho/m; $\epsilon_r=53.62$; $\rho= 1000$ kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (°C):21.9, Liquid temperature (°C): 21.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

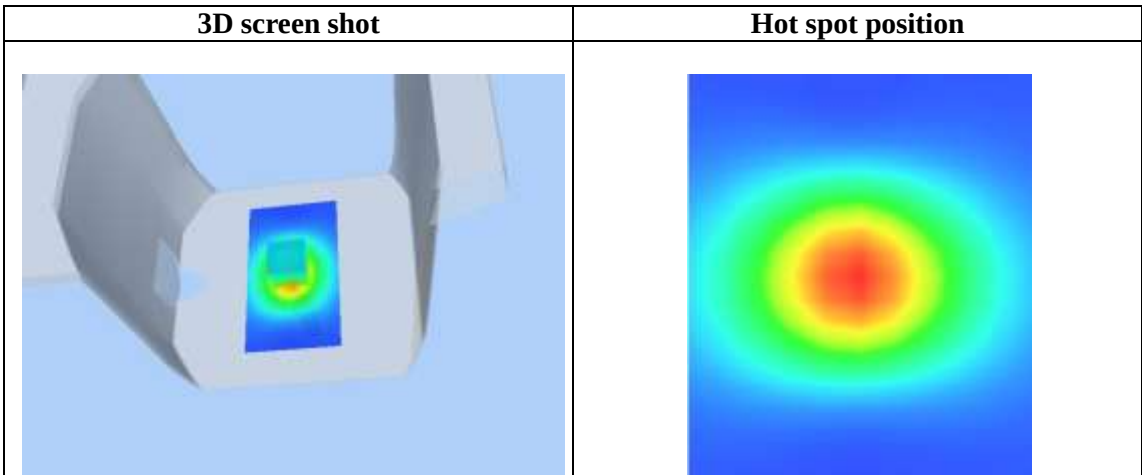
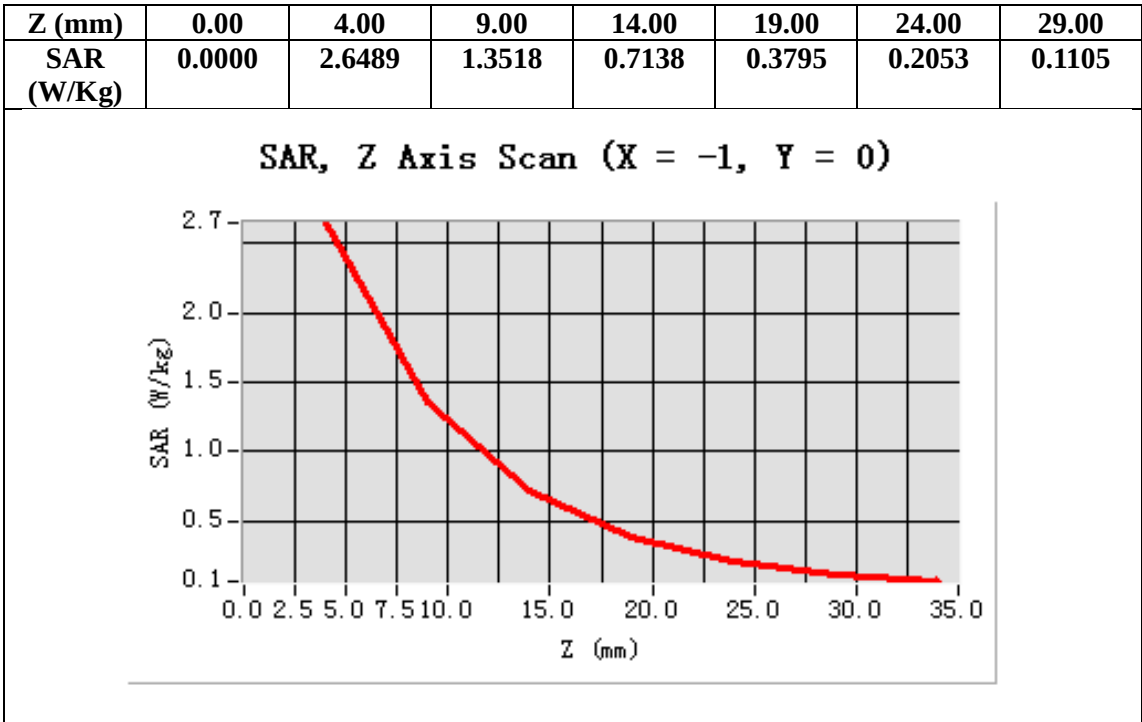
Configuration/System Check 1900MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 1900MHz Body/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm



Maximum location: X=-1.00, Y=0.00

SAR 10g (W/Kg)	1.272347
SAR 1g (W/Kg)	2.509198



Test Laboratory: AGC Lab
System Check Head 2450 MHz

Date: Sep. 1,2015

DUT: Dipole 2450 MHz Type: SID 2450

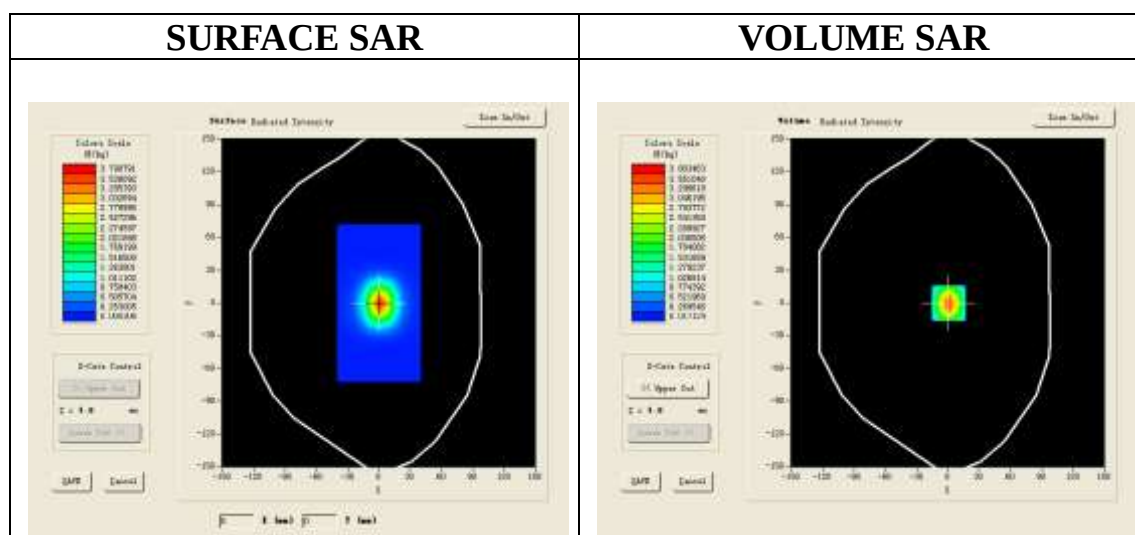
Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1; Conv.F=4.84
Frequency: 2450 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.77$ mho/m; $\epsilon_r = 40.26$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (°C):22.1, Liquid temperature (°C): 21.9

SATIMO Configuration

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

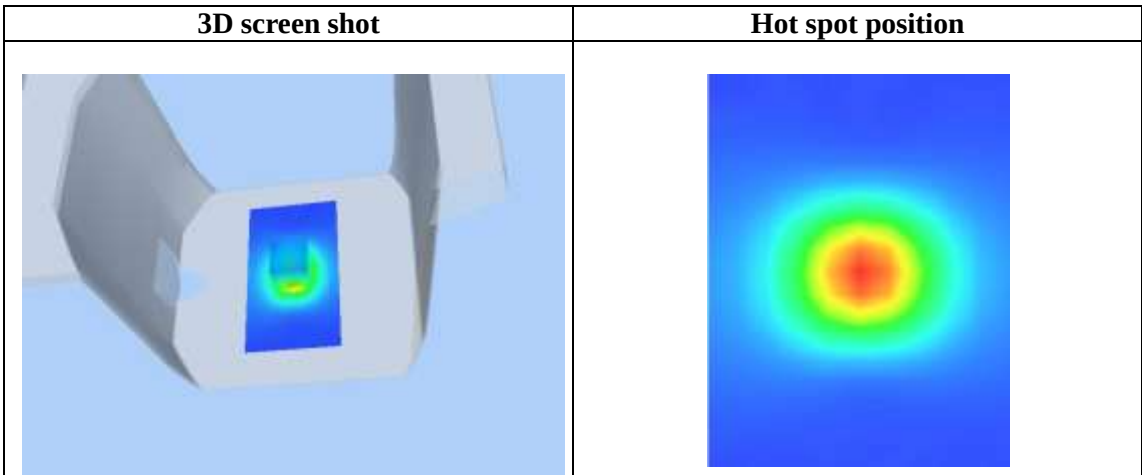
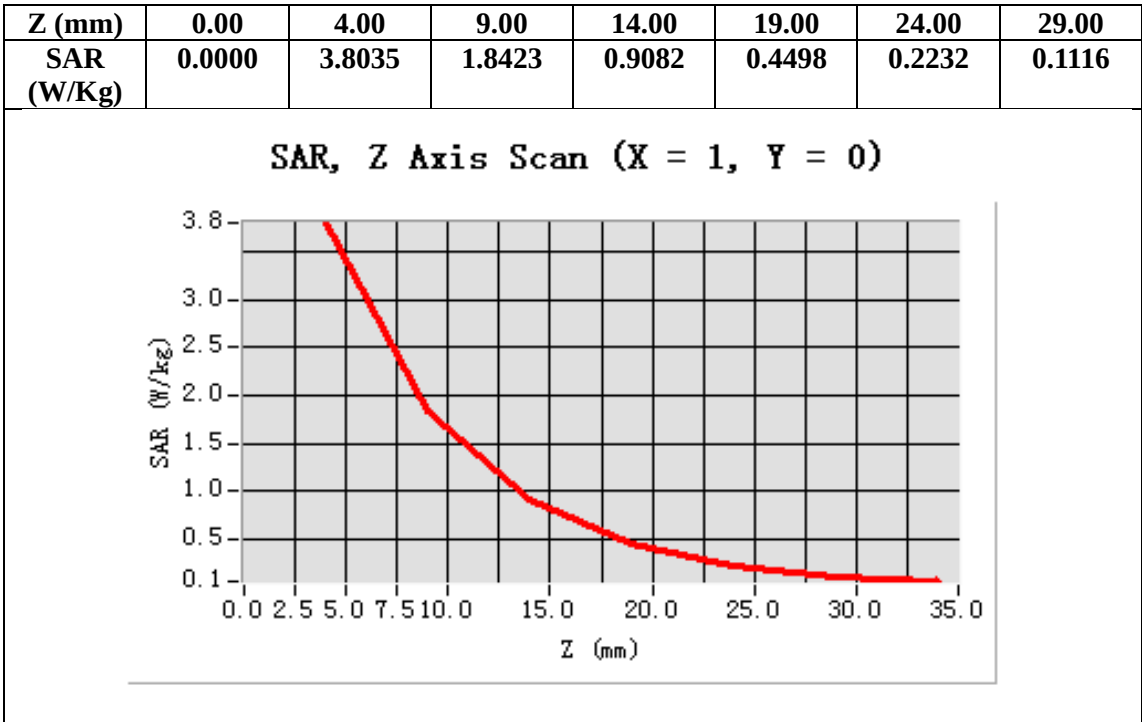
Configuration/System Check 2450MHz Head/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 2450MHz Head/Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm



Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	1.611895
SAR 1g (W/Kg)	3.533599



Test Laboratory: AGC Lab
System Check Body 2450 MHz

Date: Sep. 1,2015

DUT: Dipole 2450 MHz Type: SID 2450

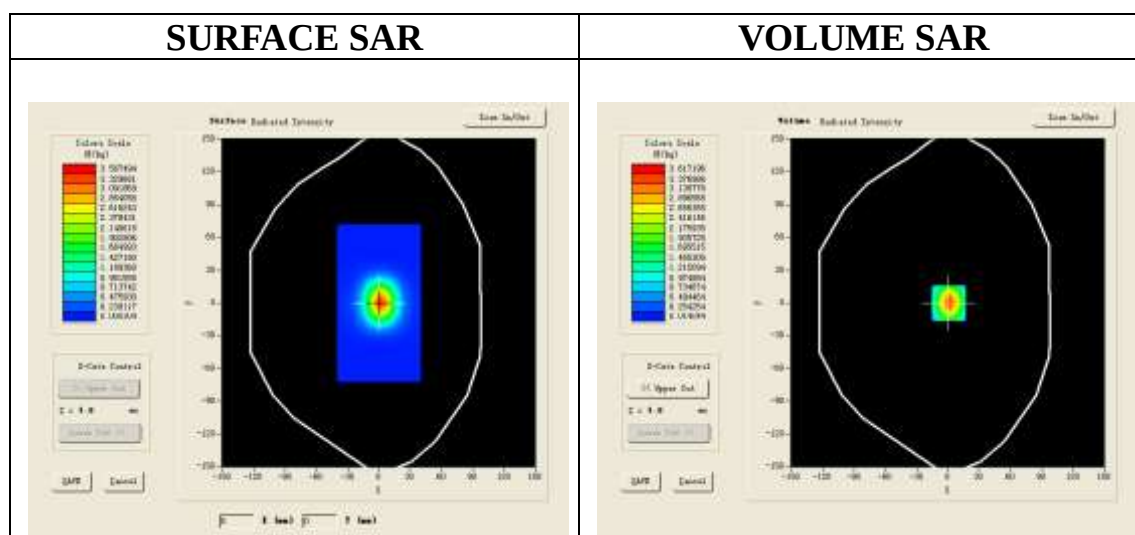
Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1; Conv.F=4.97
Frequency: 2450 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.94$ mho/m; $\epsilon_r = 53.20$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (°C):22.1, Liquid temperature (°C): 22.0

SATIMO Configuration

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

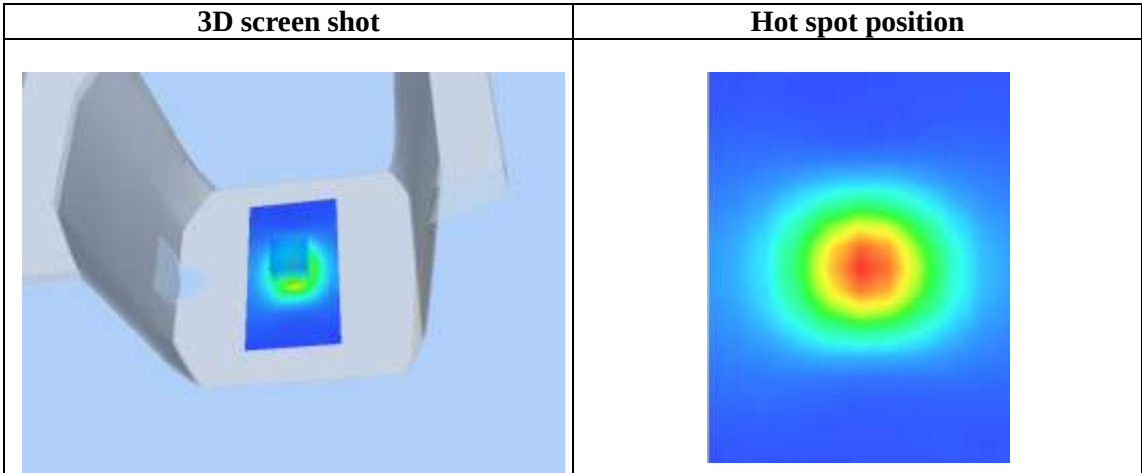
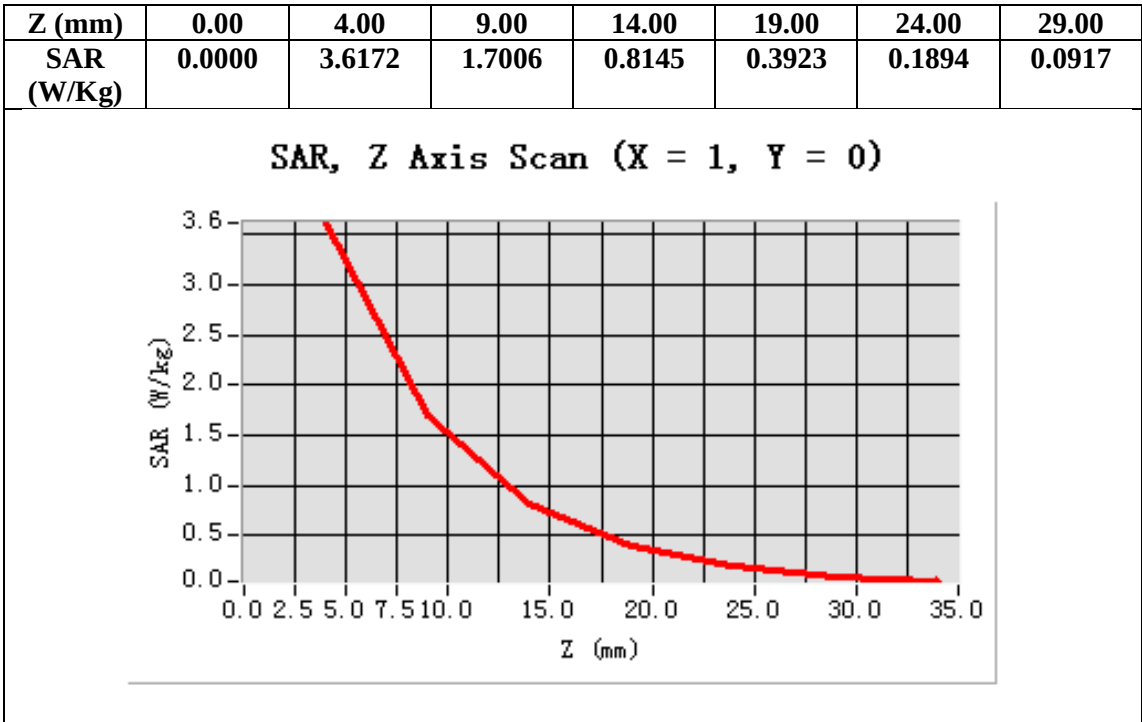
Configuration/System Check 2450MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 2450MHz Body/Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm



Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	1.645665
SAR 1g (W/Kg)	3.656410



APPENDIX B. SAR MEASUREMENT DATA

Test Laboratory: AGC Lab
GSM 850 Mid-Touch-Left <SIM 1>
DUT: Smart Phone; Type: K1

Date: Sep. 5,2015

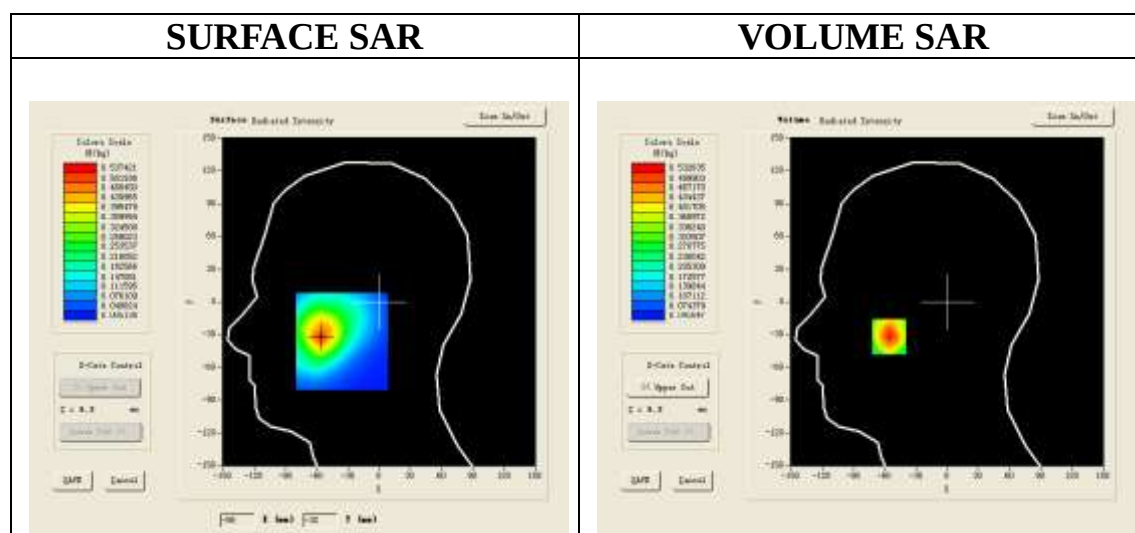
Communication System: Generic GSM; Communication System Band: GSM 850; Duty Cycle: 1:8.3; Conv.F=6.36;
Frequency: 836.6 MHz; Medium parameters used: $f = 835$ MHz; $\sigma = 0.90$ mho/m; $\epsilon_r = 41.60$; $\rho = 1000$ kg/m³;
Phantom section: Left Section
Ambient temperature (°C): 22.4, Liquid temperature (°C): 22.3

SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

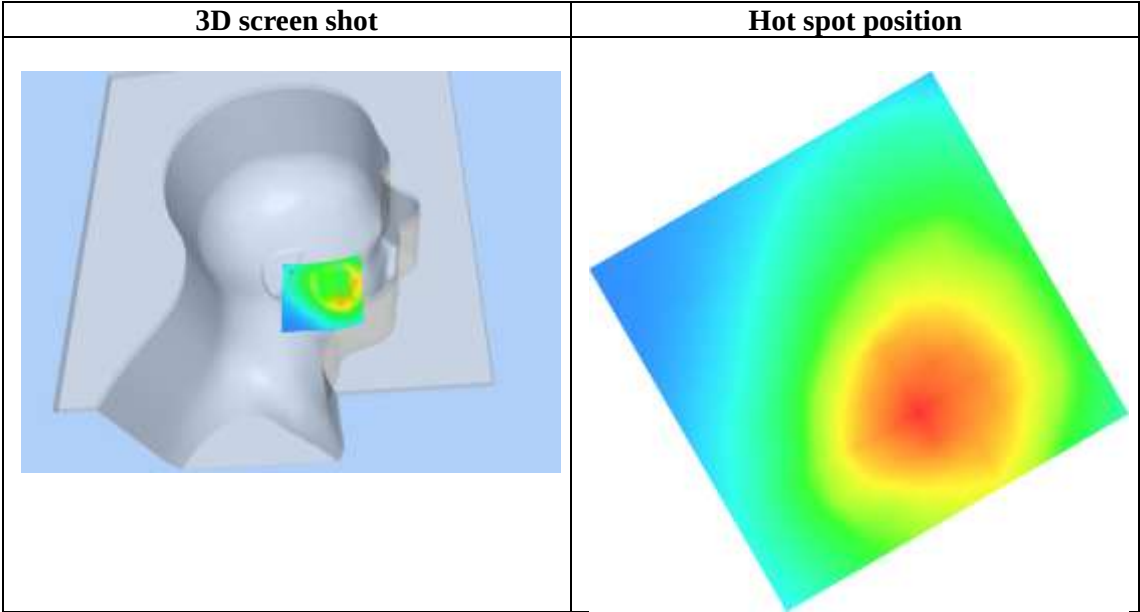
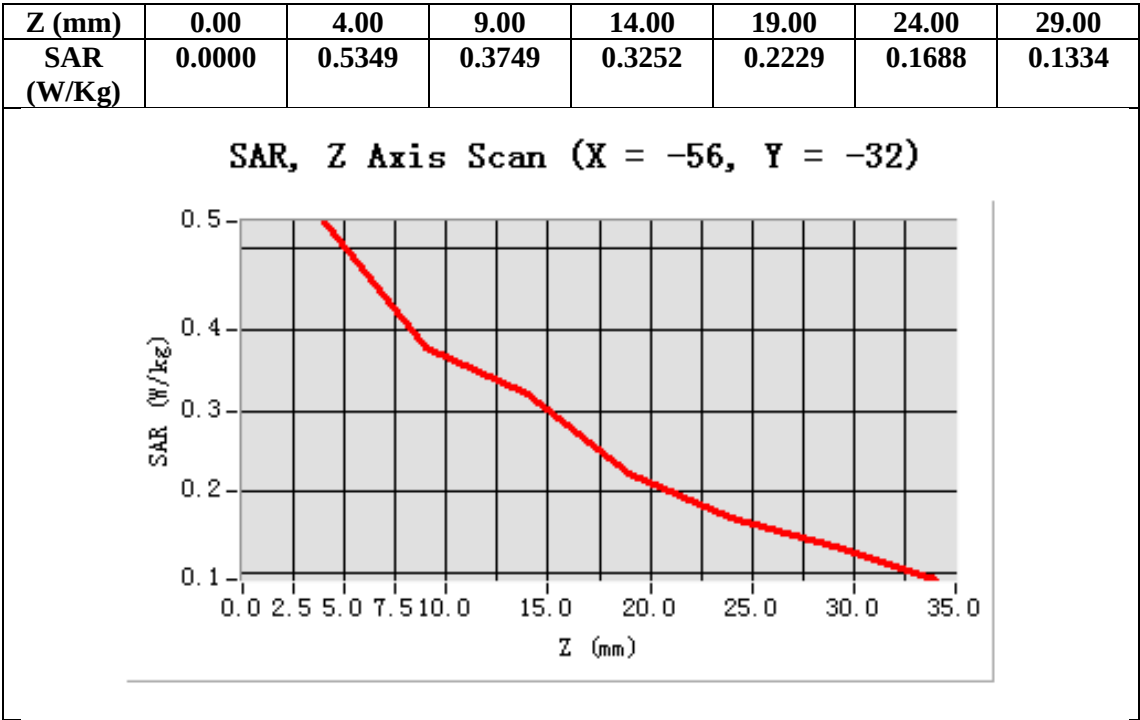
Configuration/GSM 850 Mid-Touch-Left/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/GSM 850 Mid-Touch-Left/Zoom Scan : Measurement grid: dx=8mm,dy=8mm, dz=5mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Left head
Device Position	Cheek
Band	GSM 850
Channels	Middle
Signal	TDMA (Crest factor: 8.0)



Maximum location: X=-56.00, Y=-32.00

SAR 10g (W/Kg)	0.340540
SAR 1g (W/Kg)	0.504270



Test Laboratory: AGC Lab
GSM 850 Mid-Touch-Left <SIM 2>
DUT: Smart Phone; Type: K1

Date: Sep. 5,2015

Communication System: Generic GSM; Communication System Band: GSM 850; Duty Cycle: 1:8.3; Conv.F=6.36;
Frequency: 836.6 MHz; Medium parameters used: $f = 835$ MHz; $\sigma = 0.90$ mho/m; $\epsilon_r = 41.60$; $\rho = 1000$ kg/m³ ;
Phantom section: Left Section
Ambient temperature (°C): 22.4, Liquid temperature (°C): 22.3

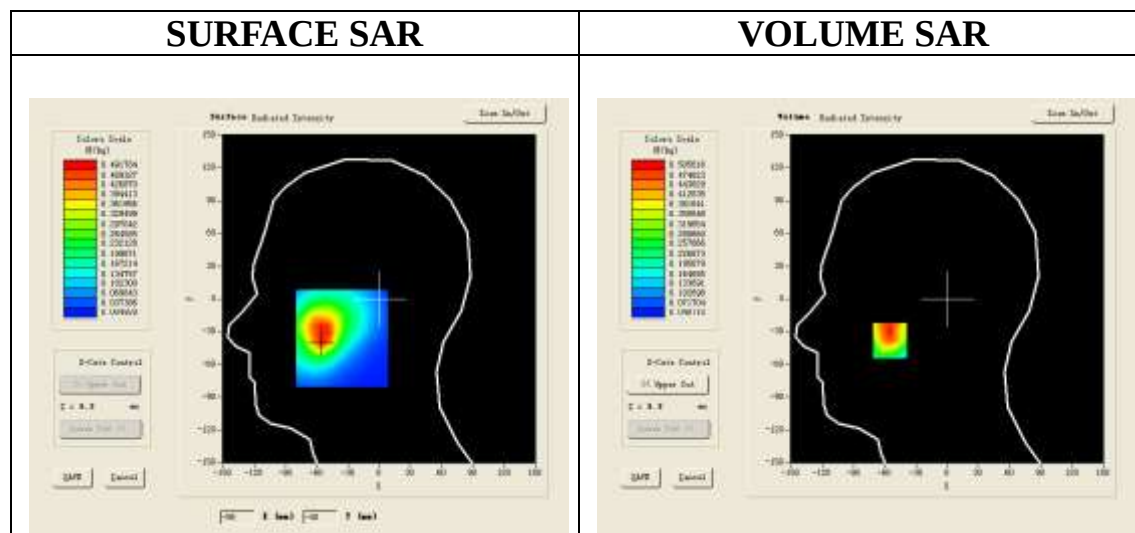
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/GSM 850 Mid-Touch-Left/Area Scan: Measurement grid: dx=8mm, dy=8mm

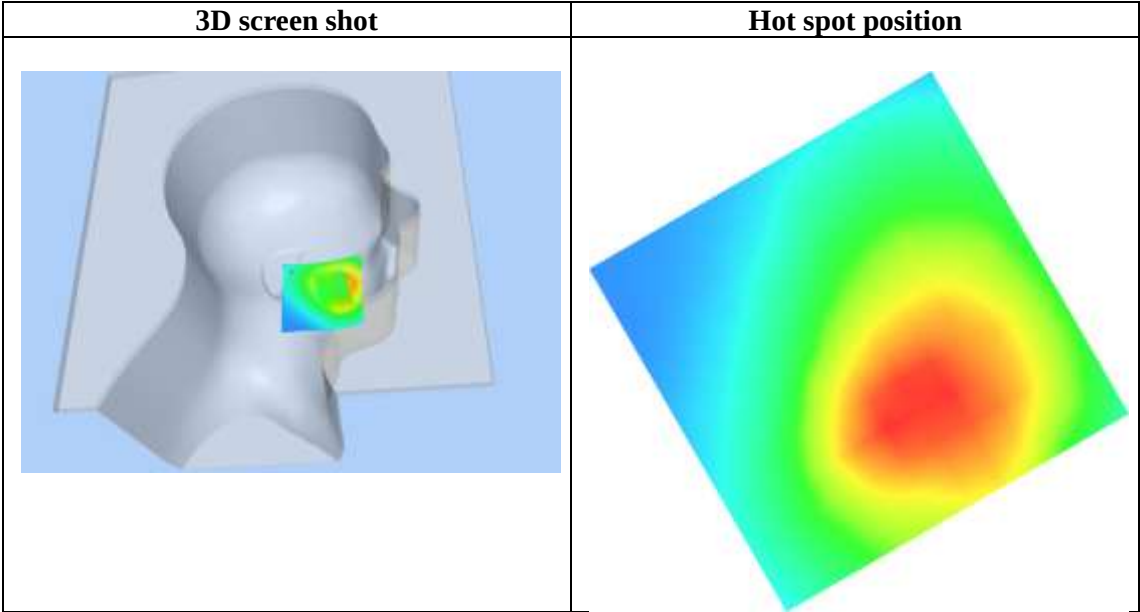
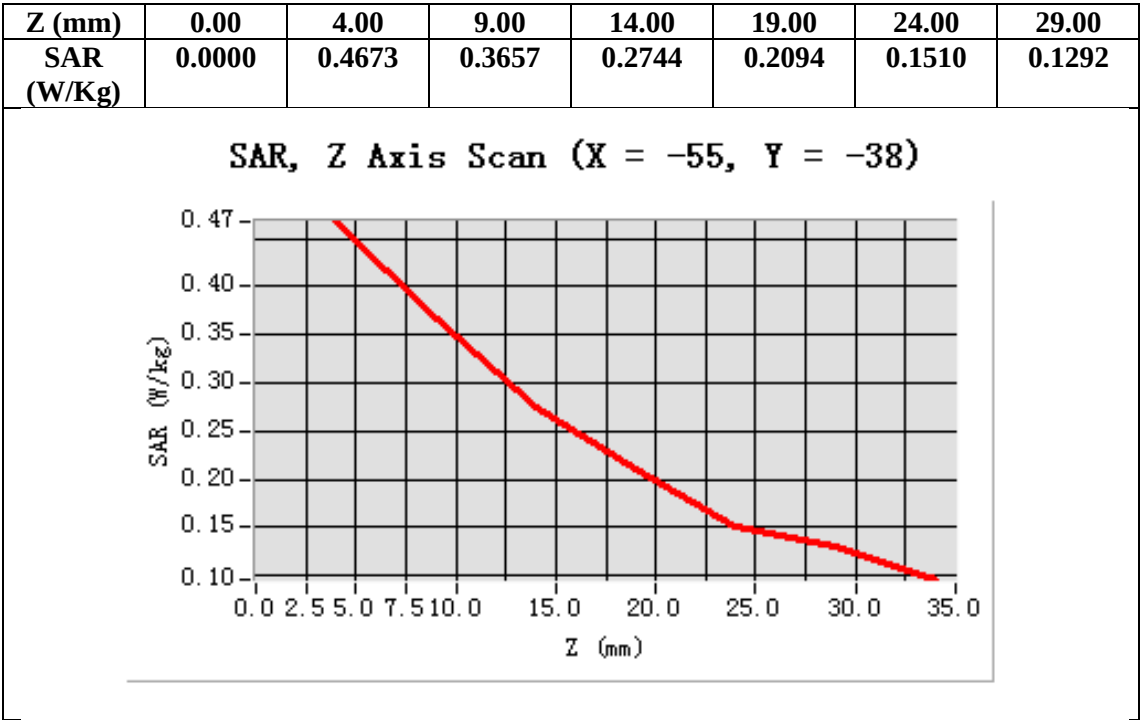
Configuration/GSM 850 Mid-Touch-Left/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm

Area Scan	sam_direct droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Left head
Device Position	Cheek
Band	GSM 850
Channels	Middle
Signal	TDMA (Crest factor: 8.0)



Maximum location: X=-55.00, Y=-38.00

SAR 10g (W/Kg)	0.335849
SAR 1g (W/Kg)	0.474783



Test Laboratory: AGC Lab
GSM 850 Mid- Body- Back (MS)<SIM 1>
DUT: Smart Phone; Type: K1

Date: Sep. 5,2015

Communication System: Generic GSM; Communication System Band: GSM 850; Duty Cycle: 1:8.3; Conv.F=6.56;
Frequency: 836.6 MHz; Medium parameters used: $f = 835$ MHz; $\sigma = 0.96$ mho/m; $\epsilon_r = 55.01$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.4, Liquid temperature (°C): 22.1

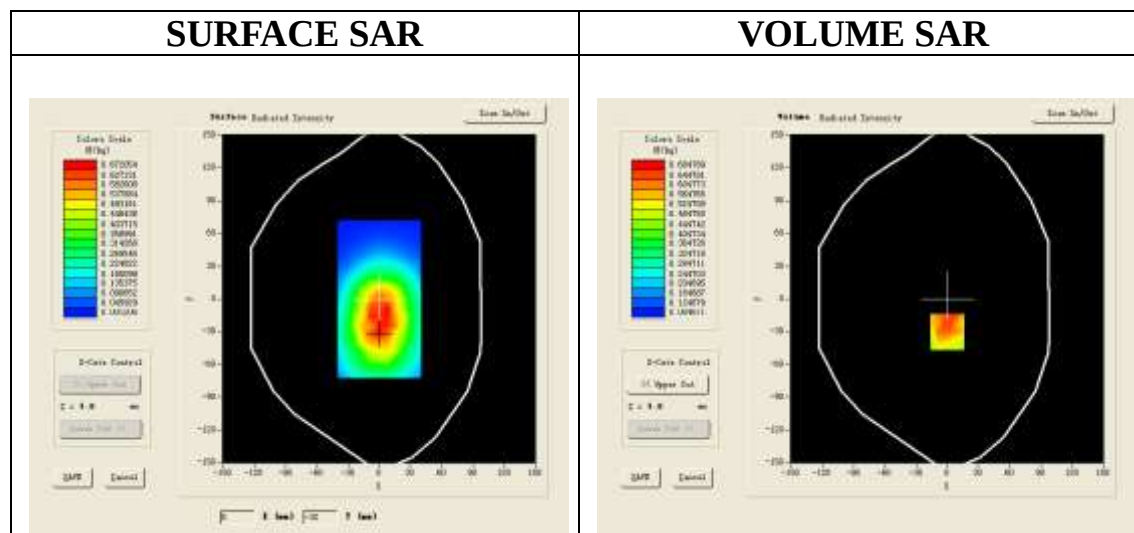
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/GSM 850 Mid-Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm

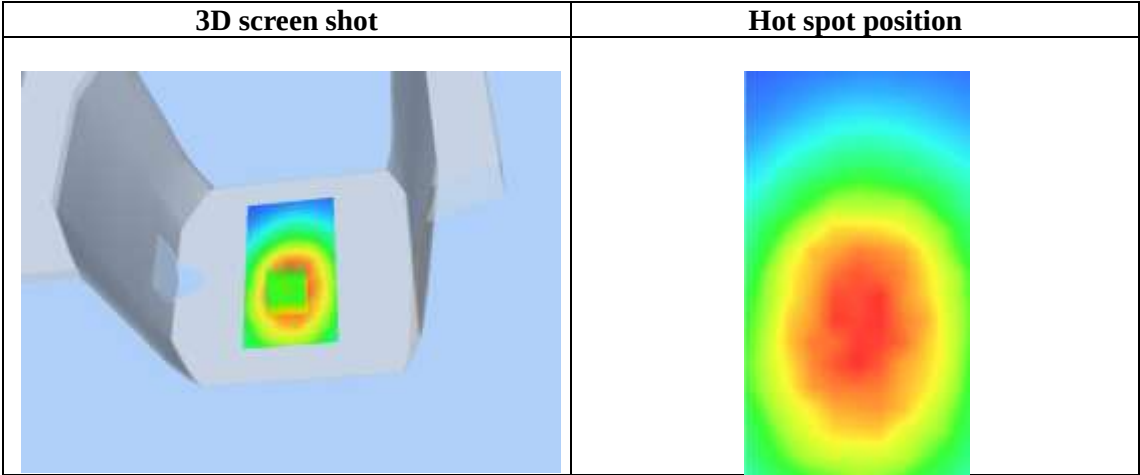
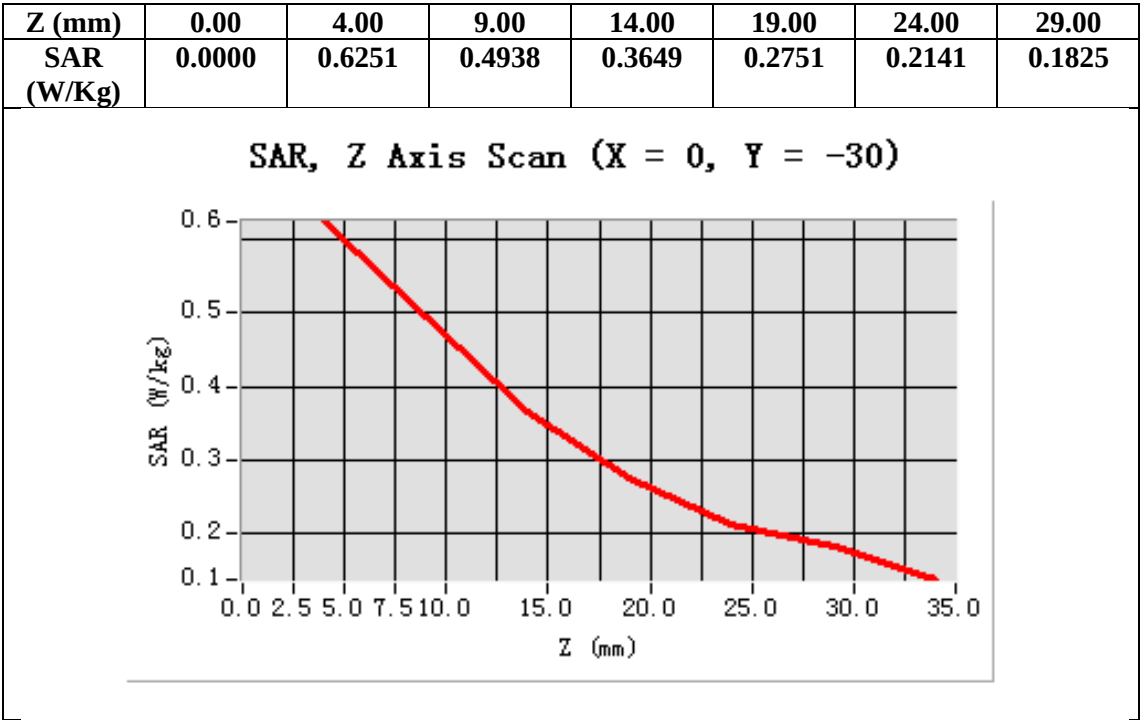
Configuration/GSM 850 Mid-Body-Back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	surf_sam_plan.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	GSM 850
Channels	Middle
Signal	TDMA (Crest factor: 8.0)



Maximum location: X=0.00, Y=-30.00

SAR 10g (W/Kg)	0.456830
SAR 1g (W/Kg)	0.641084



Test Laboratory: AGC Lab
GSM 850 Mid- Body- Back (MS)<SIM 2>
DUT: Smart Phone; Type: K1

Date: Sep. 5,2015

Communication System: Generic GSM; Communication System Band: GSM 850; Duty Cycle: 1:8.3; Conv.F=6.56;
Frequency: 836.6 MHz; Medium parameters used: $f = 835$ MHz; $\sigma = 0.96$ mho/m; $\epsilon_r = 55.01$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.4, Liquid temperature (°C): 22.1

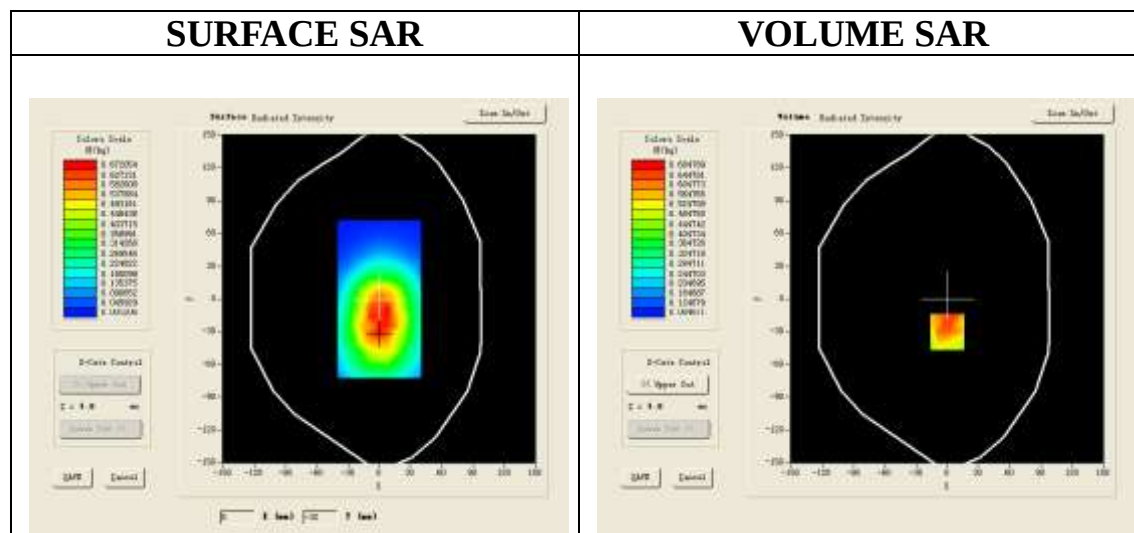
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/GSM 850 Mid-Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm

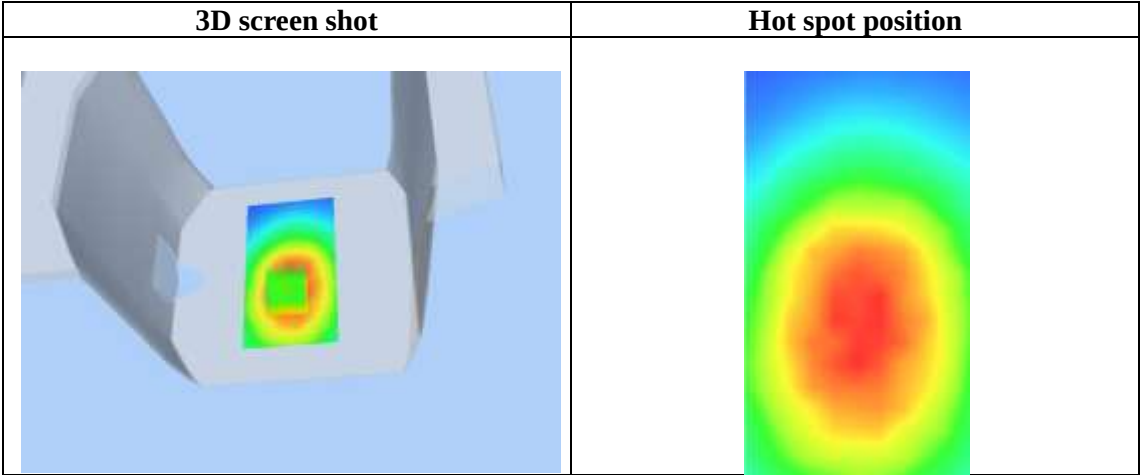
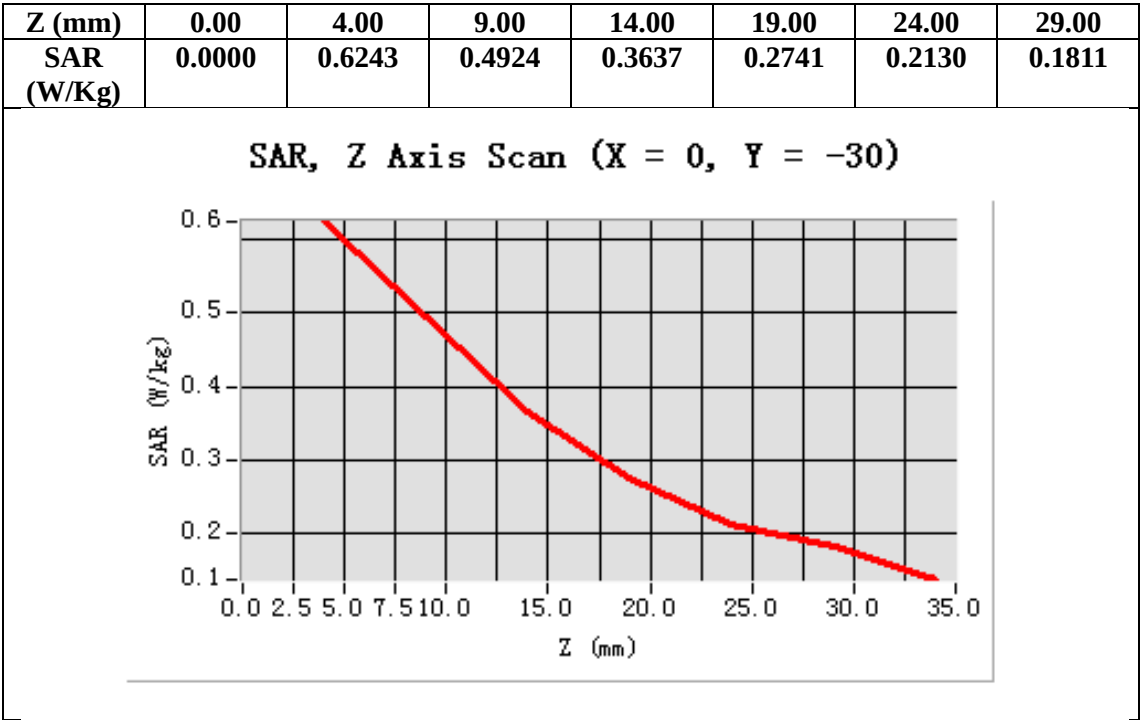
Configuration/GSM 850 Mid-Body-Back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	surf_sam_plan.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	GSM 850
Channels	Middle
Signal	TDMA (Crest factor: 8.0)



Maximum location: X=0.00, Y=-30.00

SAR 10g (W/Kg)	0.455289
SAR 1g (W/Kg)	0.624348



Test Laboratory: AGC Lab
GPRS 850 Mid-Touch-Left (2up)
DUT: Smart Phone; Type: K1

Date: Sep. 5,2015

Communication System: GPRS-2 Slot; Communication System Band: GSM 850; Duty Cycle: 1:4.2; Conv.F=6.36
Frequency: 836.6 MHz; Medium parameters used: $f = 835$ MHz; $\sigma = 0.90$ mho/m; $\epsilon_r = 41.60$; $\rho = 1000$ kg/m³;
Phantom section: Left Section
Ambient temperature (°C): 22.4, Liquid temperature (°C): 22.3

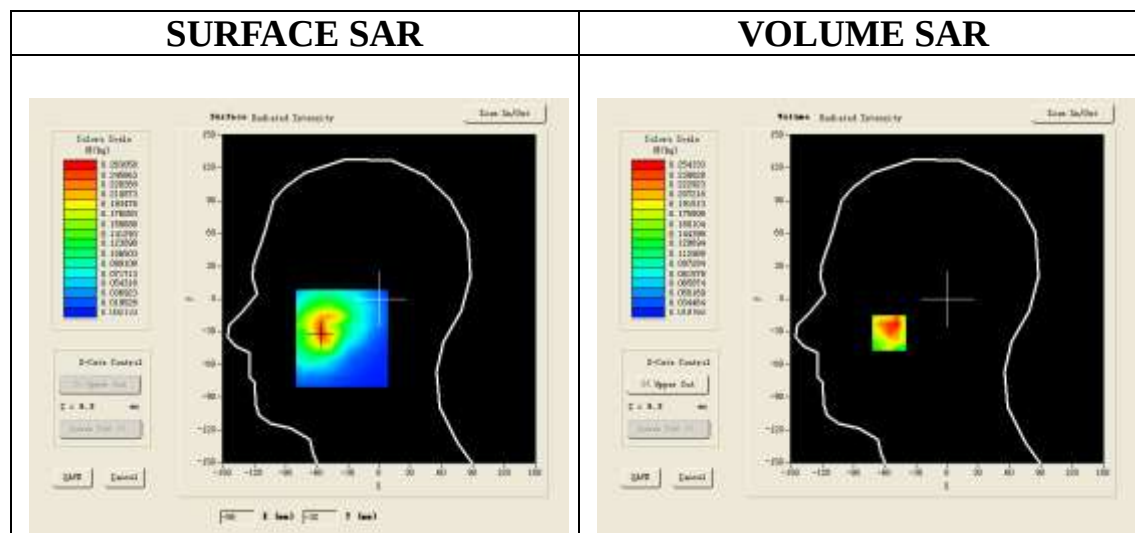
SATIMO Configuration:

- Probe: SSE5; Calibrated: 12/03/2014; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/GPRS 850 Mid-Touch-Left/Area Scan: Measurement grid: dx=8mm, dy=8mm

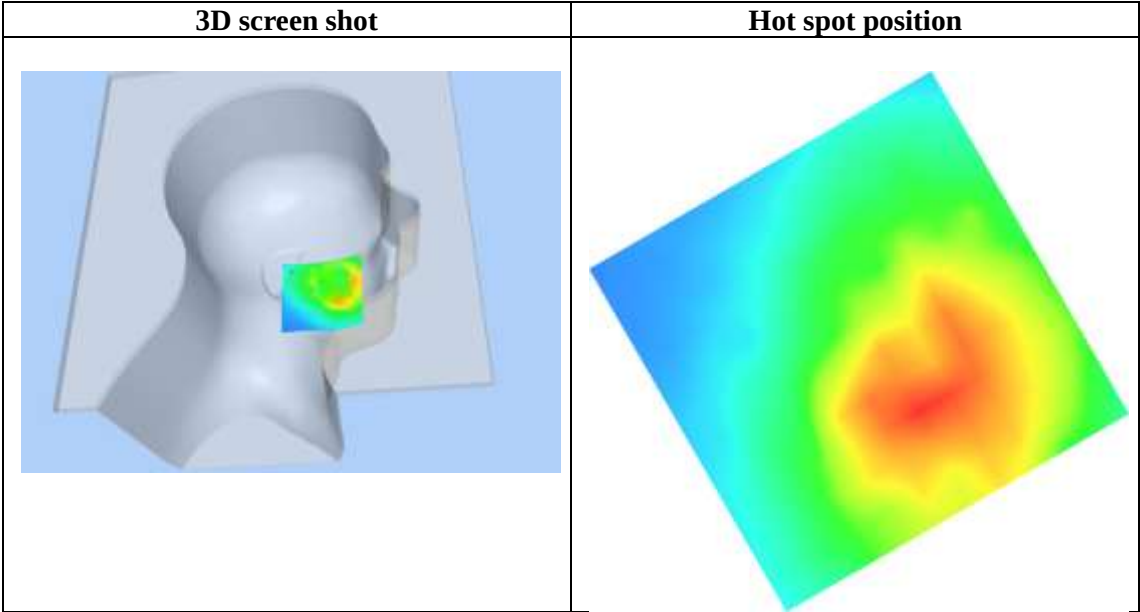
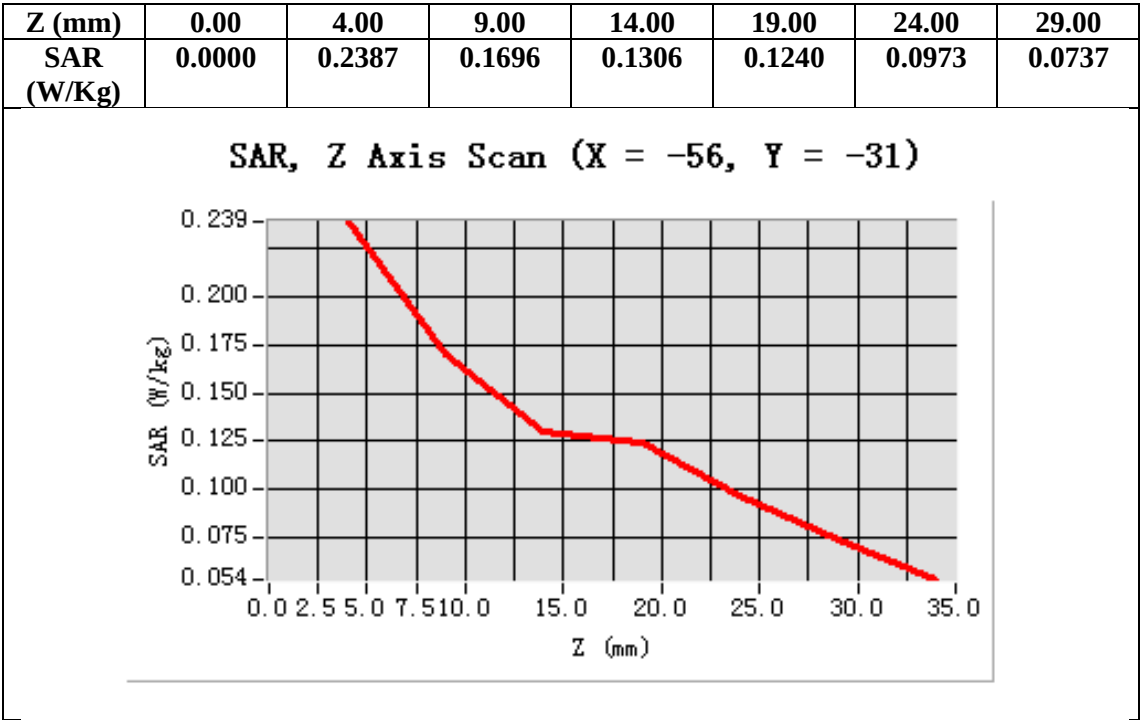
Configuration/GPRS 850 Mid-Touch-Left/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm

Area Scan	sam_direct droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Left head
Device Position	Cheek
Band	GSM 850
Channels	Middle
Signal	TDMA (Crest factor: 4.0)



Maximum location: X=-56.00, Y=-31.00

SAR 10g (W/Kg)	0.159808
SAR 1g (W/Kg)	0.240420



Test Laboratory: AGC Lab
GPRS 850 Mid- Body- Back (2up)
DUT: Smart Phone; Type: K1

Date: Sep. 5,2015

Communication System: GPRS-2 Slot; Communication System Band: GSM 850; Duty Cycle: 1:4.2; Conv.F=6.56;
Frequency: 836.6 MHz; Medium parameters used: $f = 835$ MHz; $\sigma = 0.96$ mho/m; $\epsilon_r = 55.01$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.4, Liquid temperature (°C): 22.1

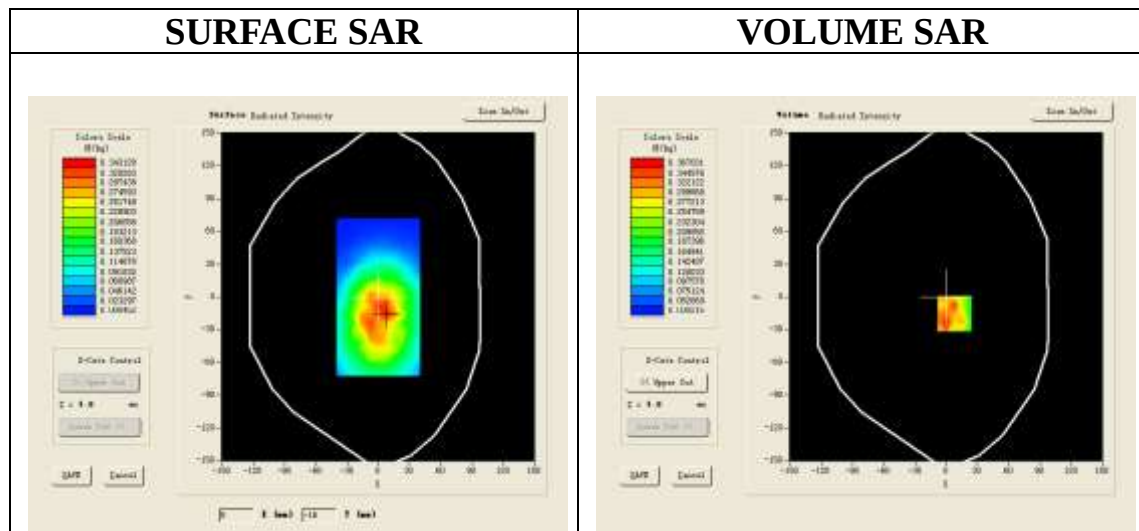
SATIMO Configuration:

- Probe: SSE5; Calibrated: 12/03/2014; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/GPRS 850 Mid-Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm

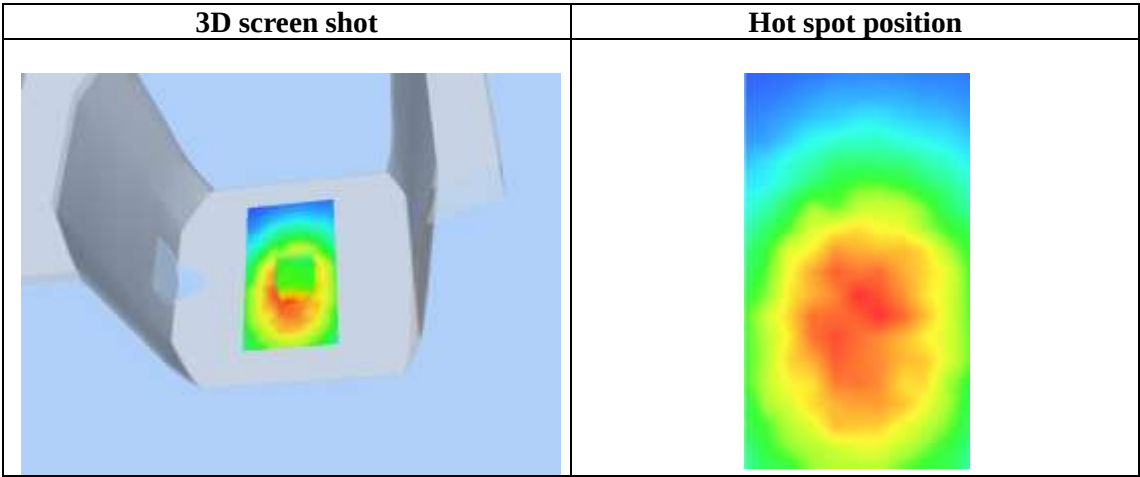
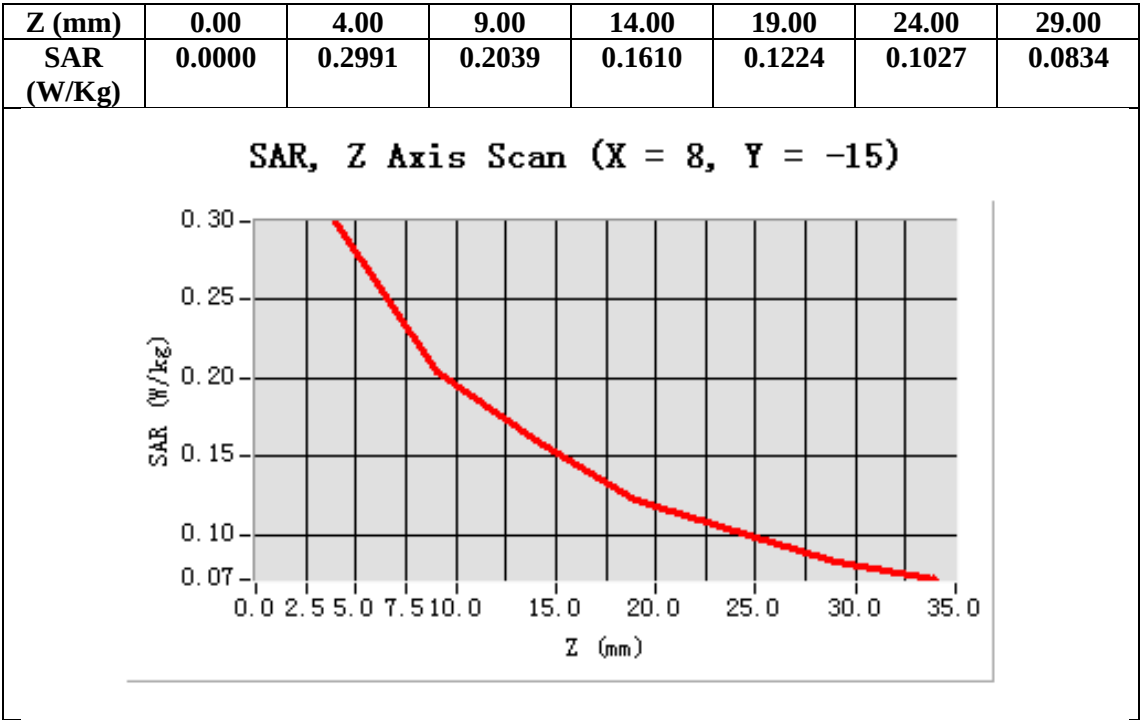
Configuration/GPRS 850 Mid-Body-Back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	GSM 850
Channels	Middle
Signal	TDMA (Crest factor: 4.0)



Maximum location: X=8.00, Y=-15.00

SAR 10g (W/Kg)	0.228397
SAR 1g (W/Kg)	0.336531



Test Laboratory: AGC Lab
PCS 1900 Mid-Touch-Right <SIM 1>
DUT: Smart Phone; Type: K1

Date: Sep. 3,2015

Communication System: Generic GSM; Communication System Band: PCS 1900; Duty Cycle: 1:8.3; Conv.F=5.50;
Frequency: 1880 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 40.95$; $\rho = 1000$ kg/m³ ;
Phantom section: Right Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.9

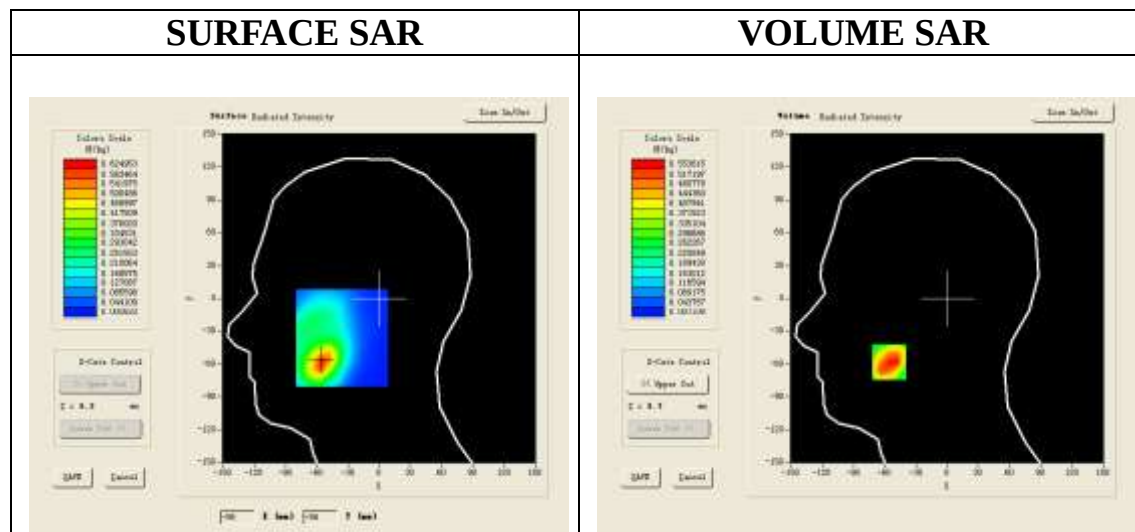
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/PCS1900 Mid-Touch-Right/Area Scan: Measurement grid: dx=8mm, dy=8mm

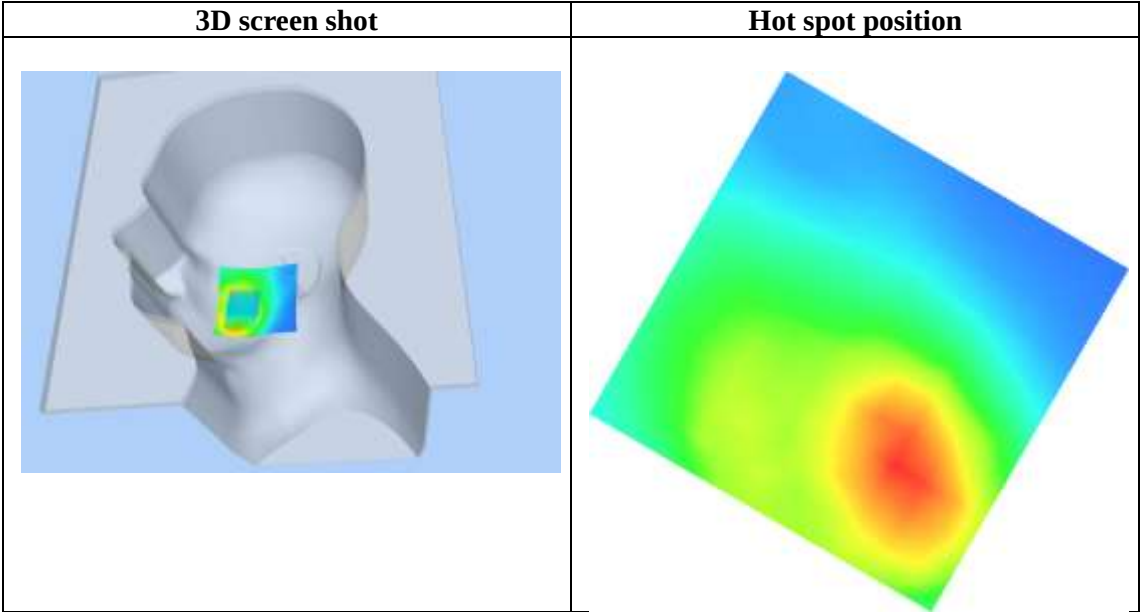
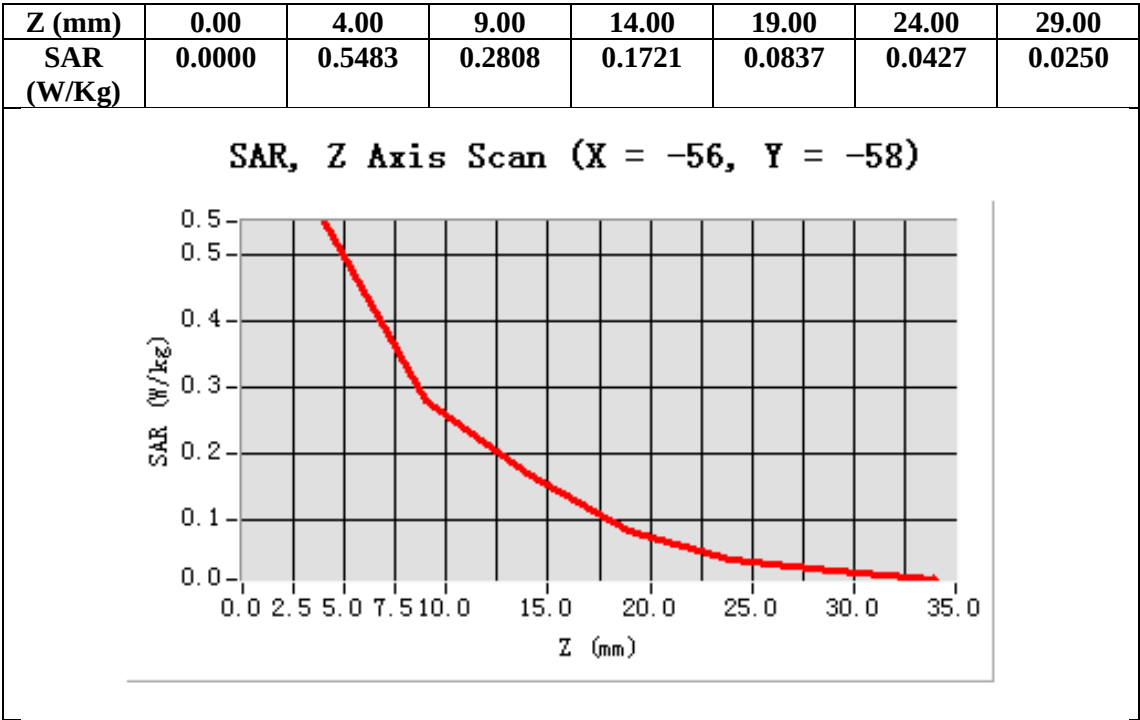
Configuration/PCS1900 Mid-Touch-Right/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	PCS 1900
Channels	Middle
Signal	TDMA (Crest factor: 8.0)



Maximum location: X=-56.00, Y=-58.00

SAR 10g (W/Kg)	0.277442
SAR 1g (W/Kg)	0.544406



Test Laboratory: AGC Lab
PCS 1900 Mid-Touch-Right <SIM 2>
DUT: Smart Phone; Type: K1

Date: Sep. 3,2015

Communication System: Generic GSM; Communication System Band: PCS 1900; Duty Cycle: 1:8.3; Conv.F=5.50;
Frequency: 1880 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 40.95$; $\rho = 1000$ kg/m³ ;
Phantom section: Right Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.9

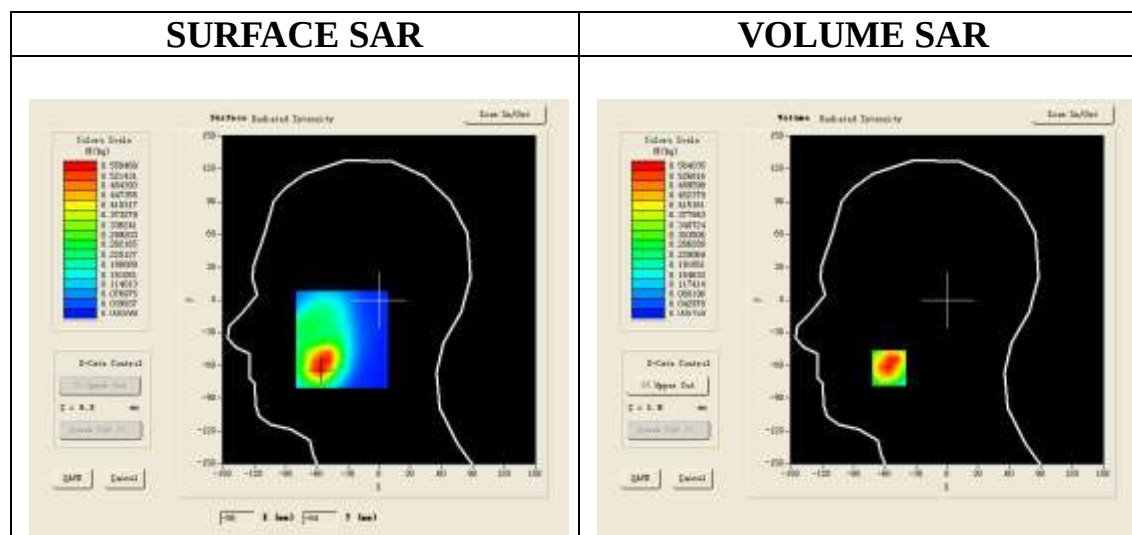
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/PCS1900 Mid-Touch-Right/Area Scan: Measurement grid: dx=8mm, dy=8mm

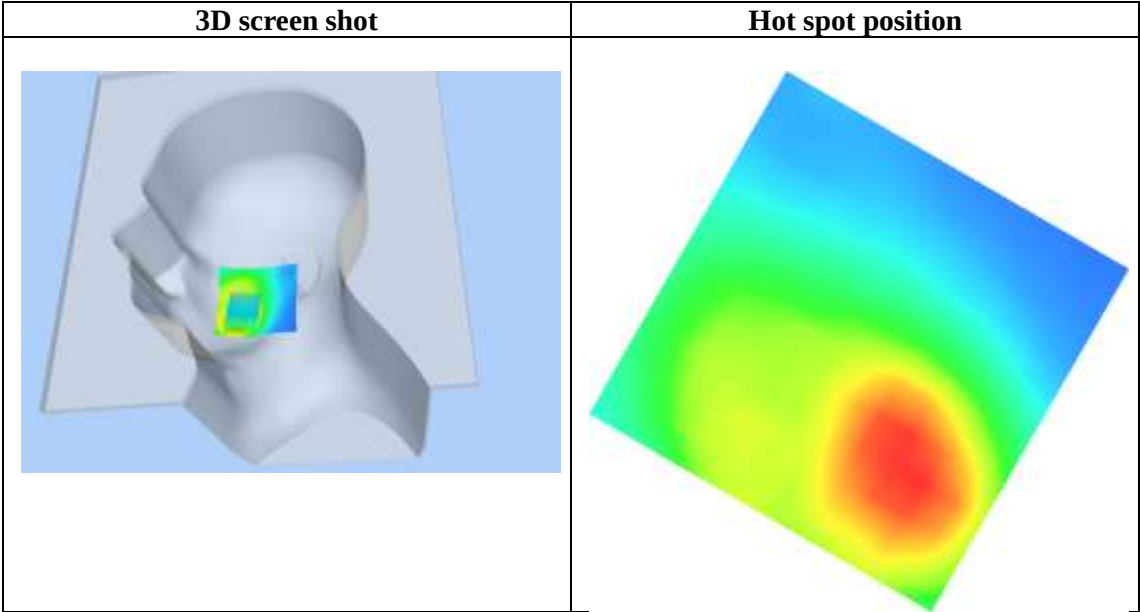
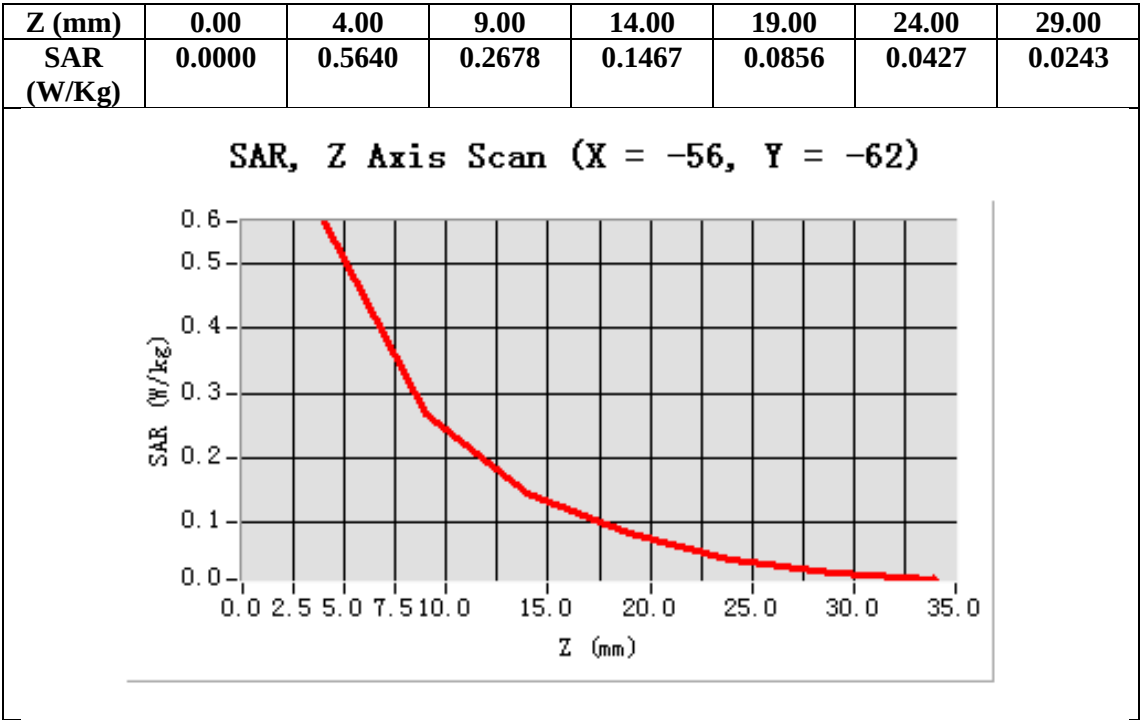
Configuration/PCS1900 Mid-Touch-Right/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	PCS 1900
Channels	Middle
Signal	TDMA (Crest factor: 8.0)



Maximum location: X=-56.00, Y=-62.00

SAR 10g (W/Kg)	0.274330
SAR 1g (W/Kg)	0.532419



Test Laboratory: AGC Lab
PCS 1900 Mid-Body -Front (MS) <SIM 1>
DUT: Smart Phone; Type: K1

Date: Sep. 3,2015

Communication System: Generic GSM; Communication System Band: PCS 1900; Duty Cycle: 1:8.3; Conv.F=5.61;
Frequency: 1880 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 53.62$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.6

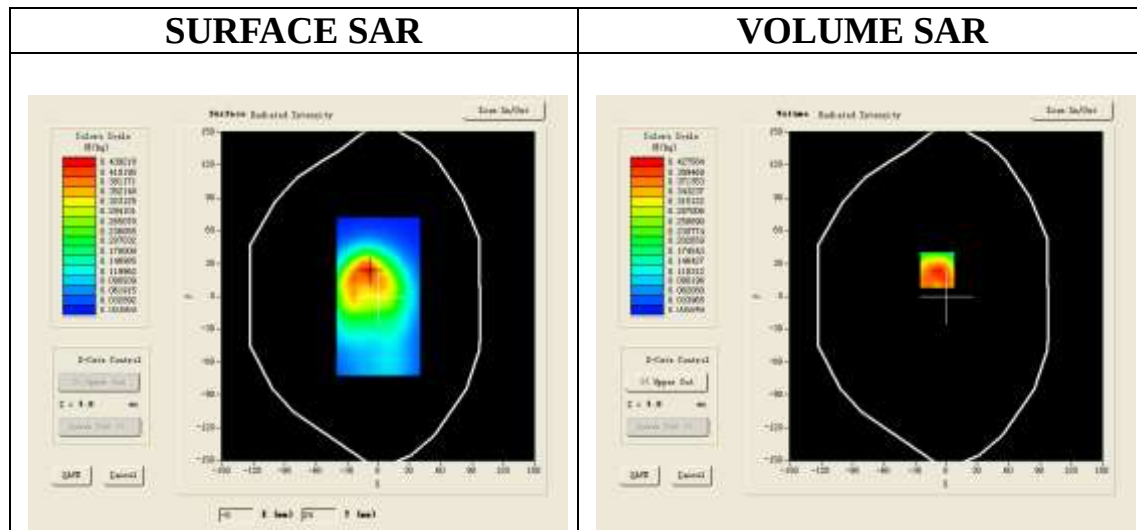
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/PCS1900 Mid-Body- Front /Area Scan: Measurement grid: dx=8mm, dy=8mm

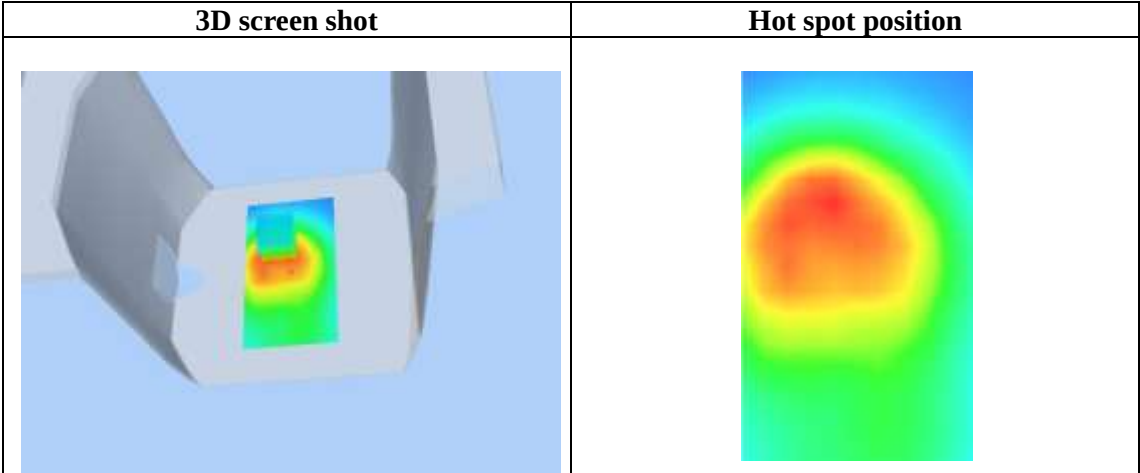
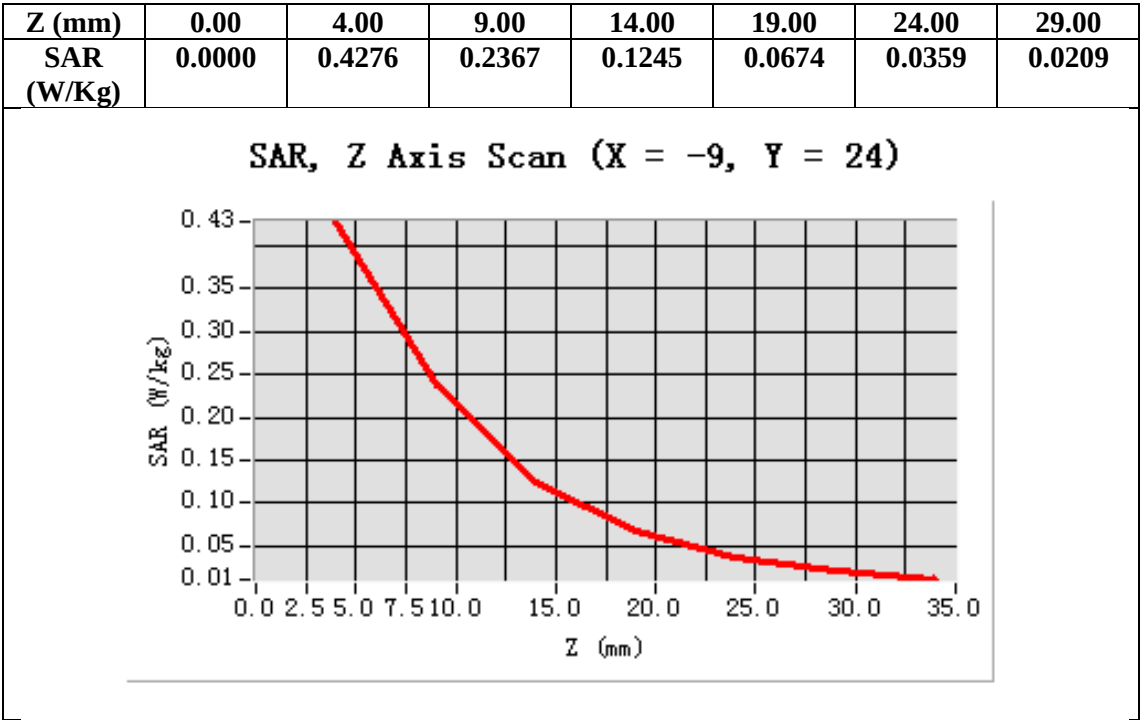
Configuration/PCS1900 Mid-Body- Front /Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	surf_sam_plan.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Front
Band	PCS 1900
Channels	Middle
Signal	TDMA (Crest factor: 8.0)



Maximum location: X=-9.00, Y=24.00

SAR 10g (W/Kg)	0.229172
SAR 1g (W/Kg)	0.420075



Test Laboratory: AGC Lab
PCS 1900 Mid-Body -Front (MS) <SIM 2>
DUT: Smart Phone; Type: K1

Date: Sep. 3,2015

Communication System: Generic GSM; Communication System Band: PCS 1900; Duty Cycle: 1:8.3; Conv.F=5.61;
Frequency: 1880 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 53.62$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.6

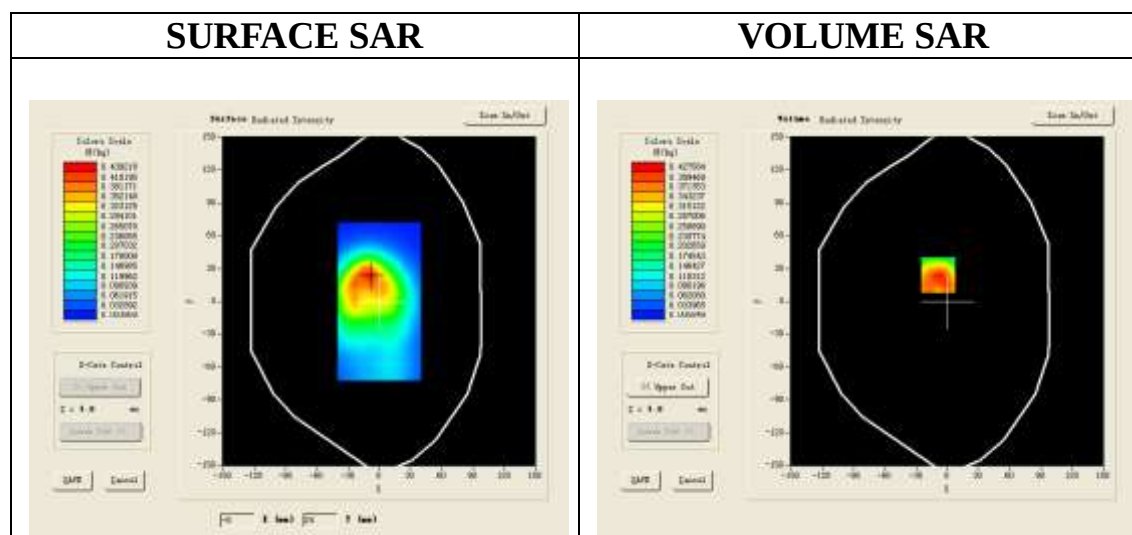
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/PCS1900 Mid-Body- Front /Area Scan: Measurement grid: dx=8mm, dy=8mm

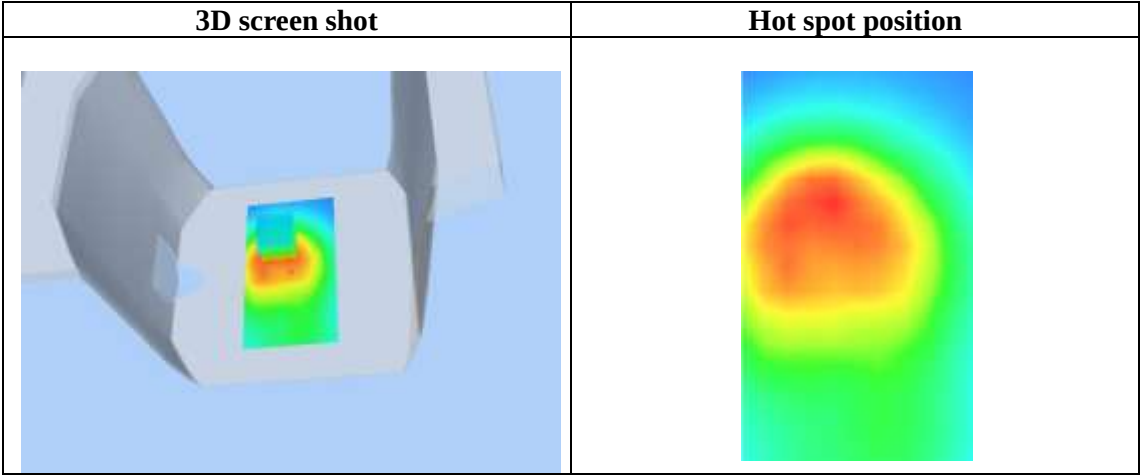
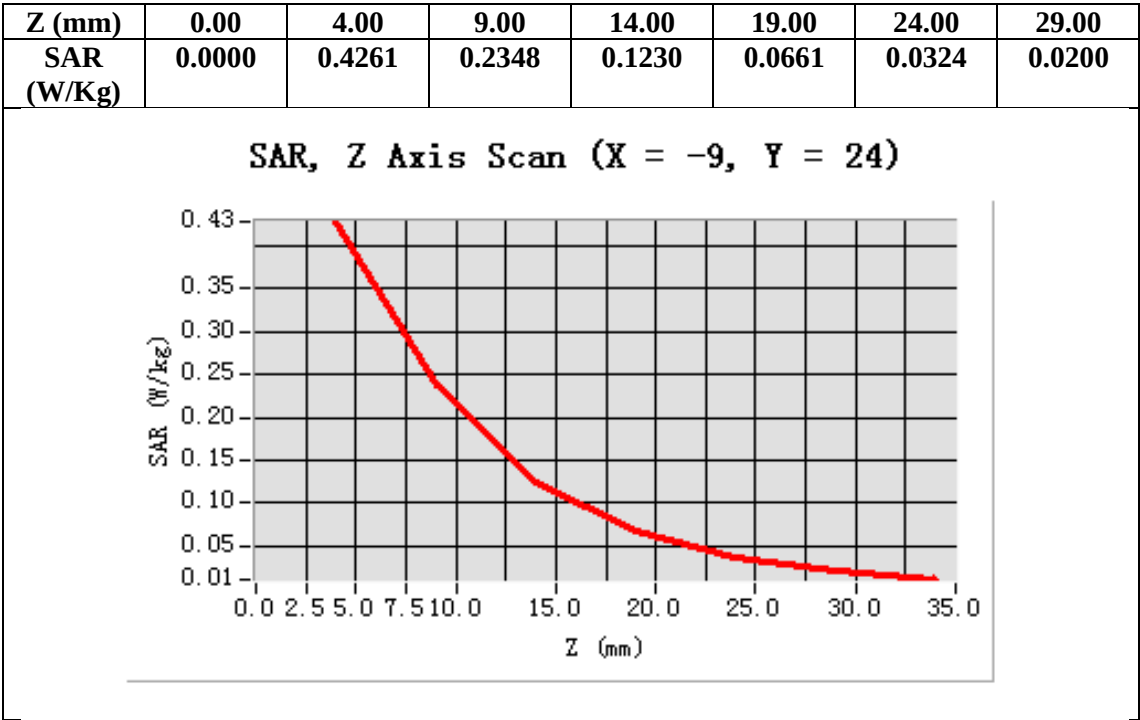
Configuration/PCS1900 Mid-Body- Front /Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	surf_sam_plan.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Front
Band	PCS 1900
Channels	Middle
Signal	TDMA (Crest factor: 8.0)



Maximum location: X=-9.00, Y=24.00

SAR 10g (W/Kg)	0.228049
SAR 1g (W/Kg)	0.400385



Test Laboratory: AGC Lab
GPRS1900 Mid-Touch-Right (4up)
DUT: Smart Phone; Type: K1

Date: Sep. 3,2015

Communication System: GPRS-4Slot; Communication System Band: PCS 1900; Duty Cycle: 1:2.1; Conv.F=5.50;
Frequency: 1880 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 40.95$; $\rho = 1000$ kg/m³ ;
Phantom section: Right Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.9

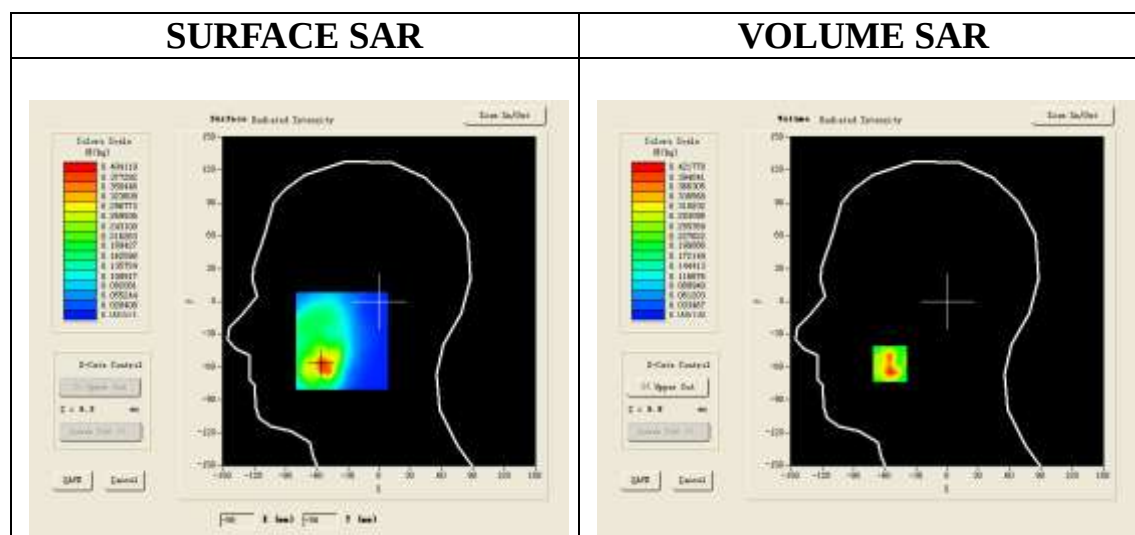
SATIMO Configuration:

- Probe: SSE5; Calibrated: 12/03/2014; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/GPRS1900 Mid-Touch-Right/Area Scan: Measurement grid: dx=8mm, dy=8mm

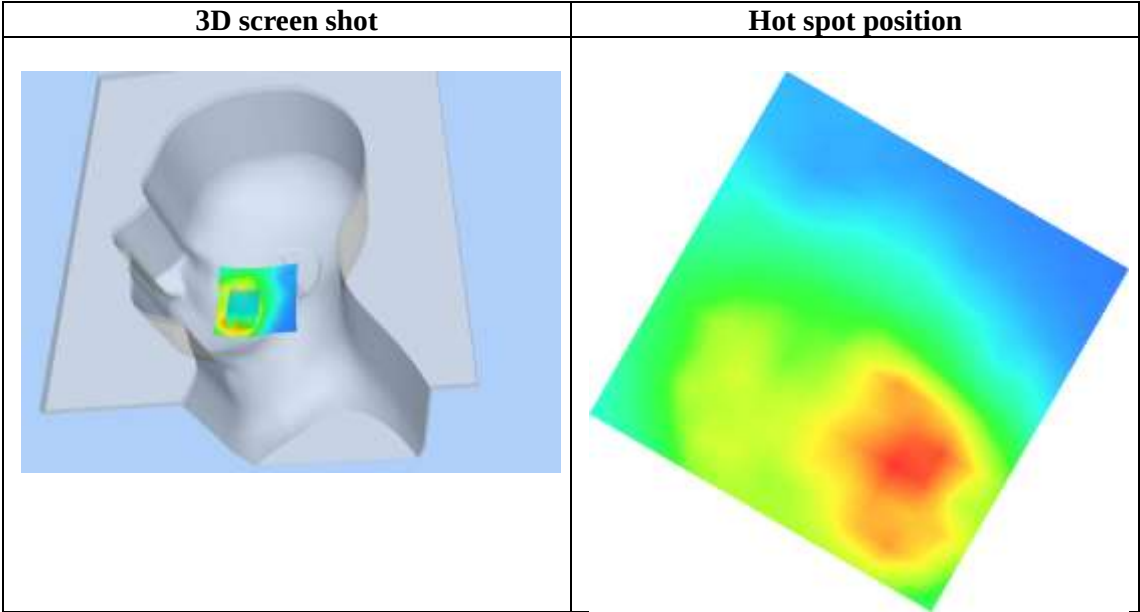
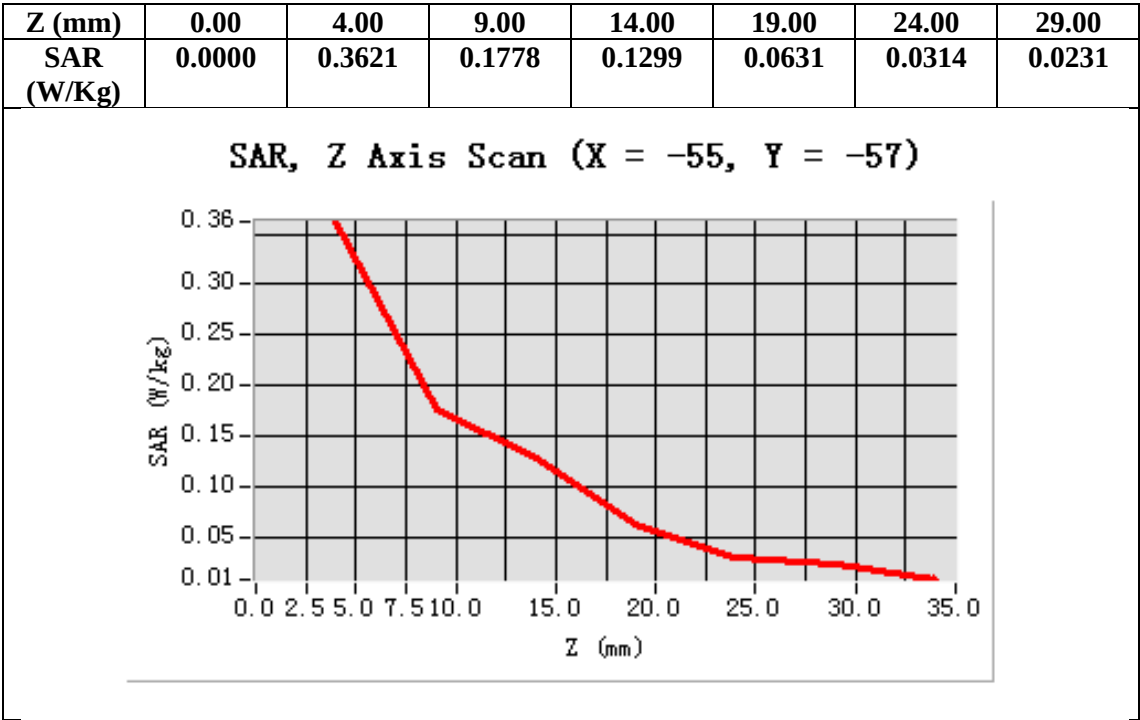
Configuration/GPRS1900 Mid-Touch-Right/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	PCS 1900
Channels	Middle
Signal	TDMA (Crest factor: 2.0)



Maximum location: X=-55.00, Y=-57.00

SAR 10g (W/Kg)	0.180709
SAR 1g (W/Kg)	0.392920



Test Laboratory: AGC Lab
GPRS 1900 Mid-Edge 3(4up)
DUT: Smart Phone; Type: K1

Date: Sep. 3,2015

Communication System: GPRS-4Slot; Communication System Band: PCS 1900; Duty Cycle: 1:2.1; Conv.F=5.61;
Frequency: 1880 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 53.62$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.6

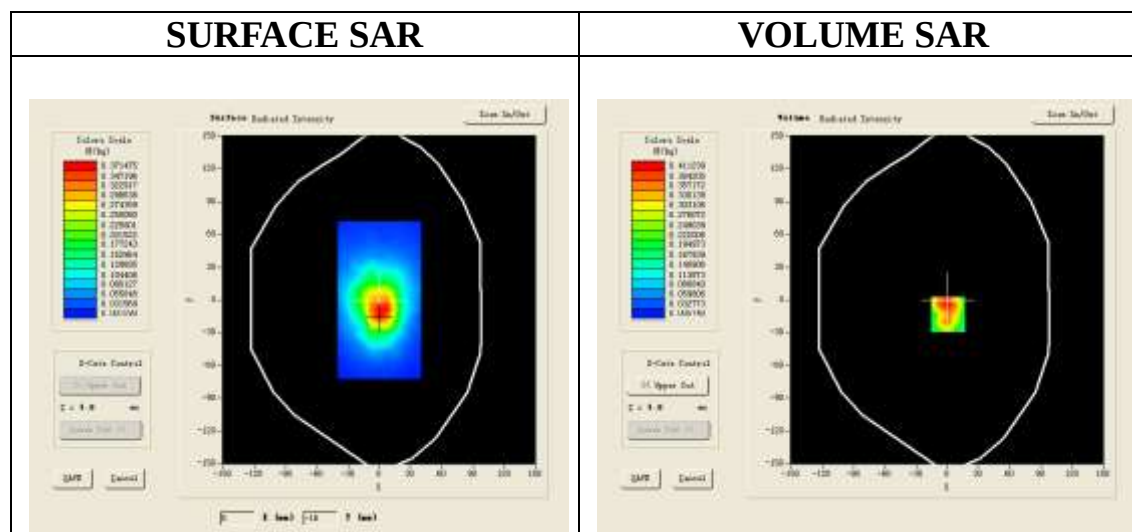
SATIMO Configuration:

- Probe: SSE5; Calibrated: 12/03/2014; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/GPRS1900 Mid-Edge 3/Area Scan: Measurement grid: dx=8mm, dy=8mm

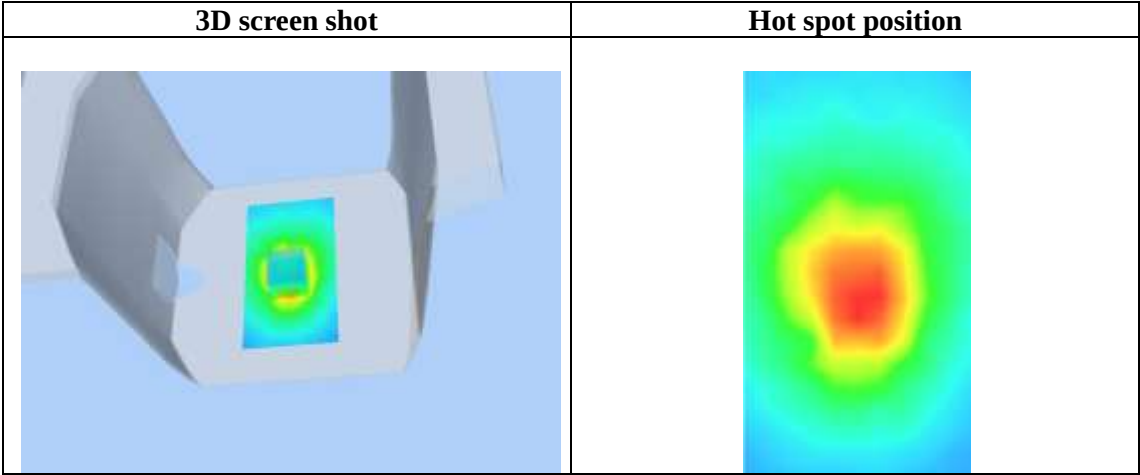
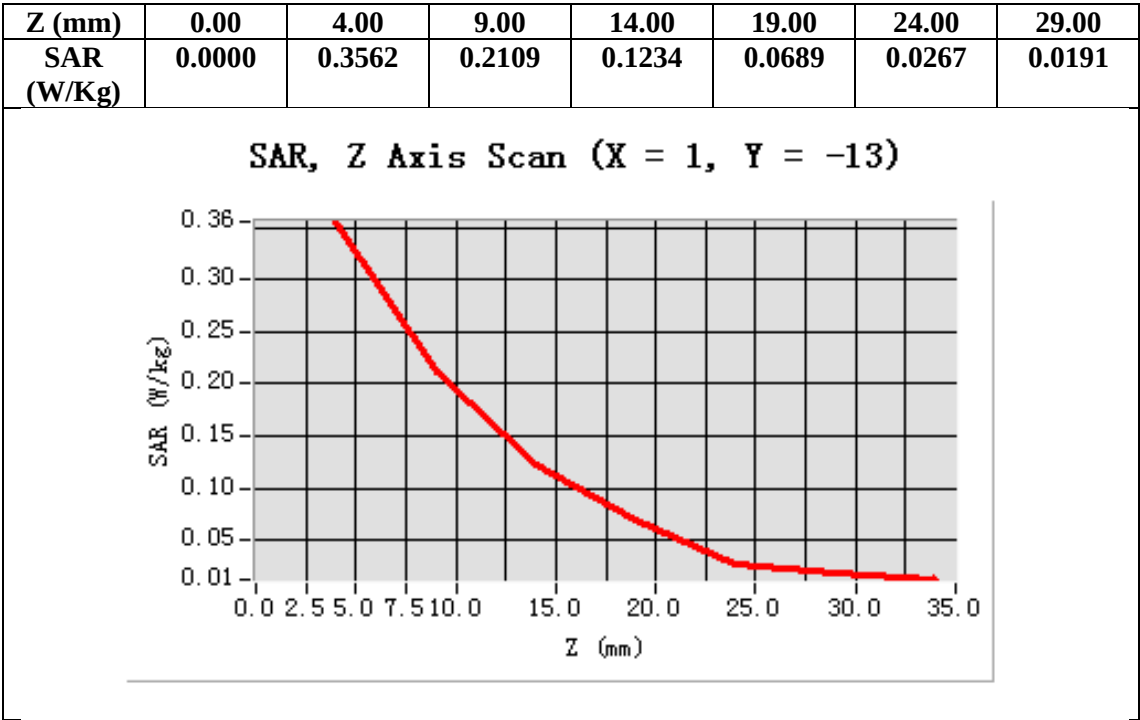
Configuration/GPRS1900 Mid-Edge 3/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Edge 3
Band	PCS 1900
Channels	Middle
Signal	TDMA (Crest factor: 2.0)



Maximum location: X=1.00, Y=-13.00

SAR 10g (W/Kg)	0.205185
SAR 1g (W/Kg)	0.411132



Test Laboratory: AGC Lab
WCDMA Band II High-Touch-Right (RMC)
DUT: Smart Phone; **Type:** K1

Date: Sep. 3,2015

Communication System: UMTS; Communication System Band: Band II UTRA/FDD ;Duty Cycle:1:1; Conv.F=5.50;
Frequency: 1907.6 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 40.95$; $\rho = 1000$ kg/m³ ;
Phantom section: Right Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.9

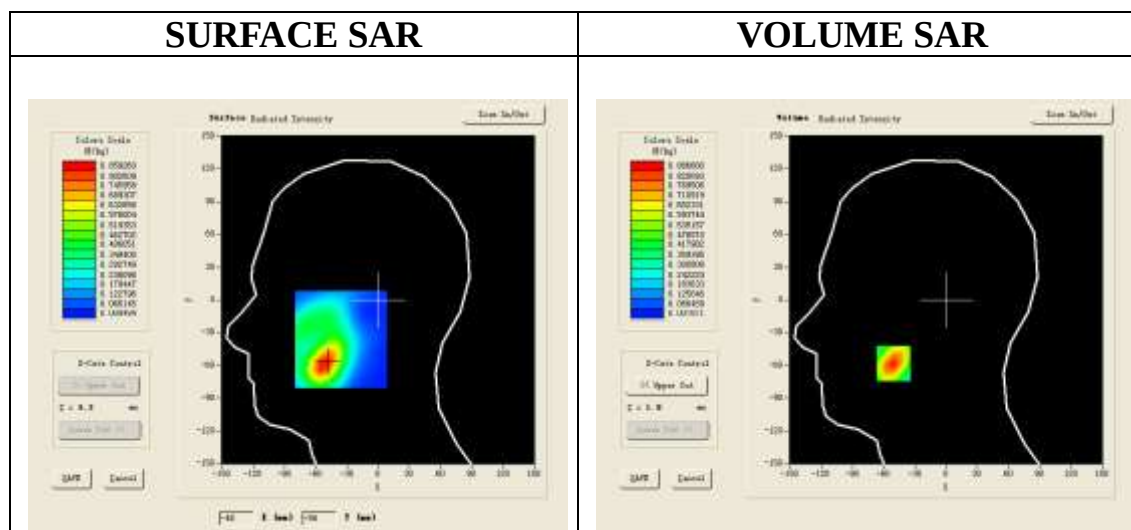
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/WCDMA band II High-Touch-Right/Area Scan: Measurement grid: dx=8mm, dy=8mm

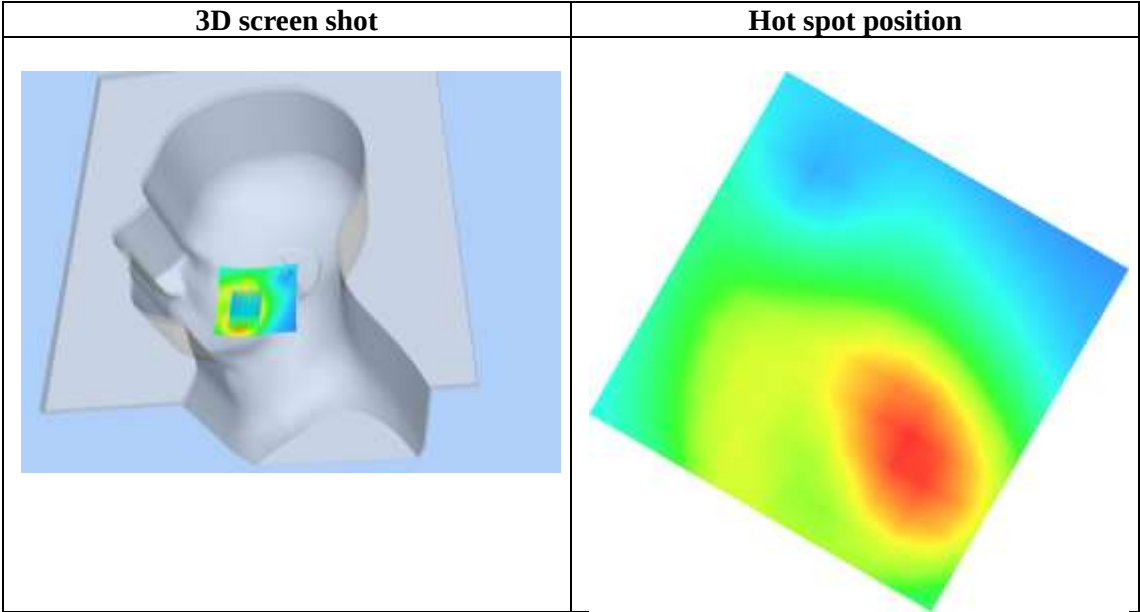
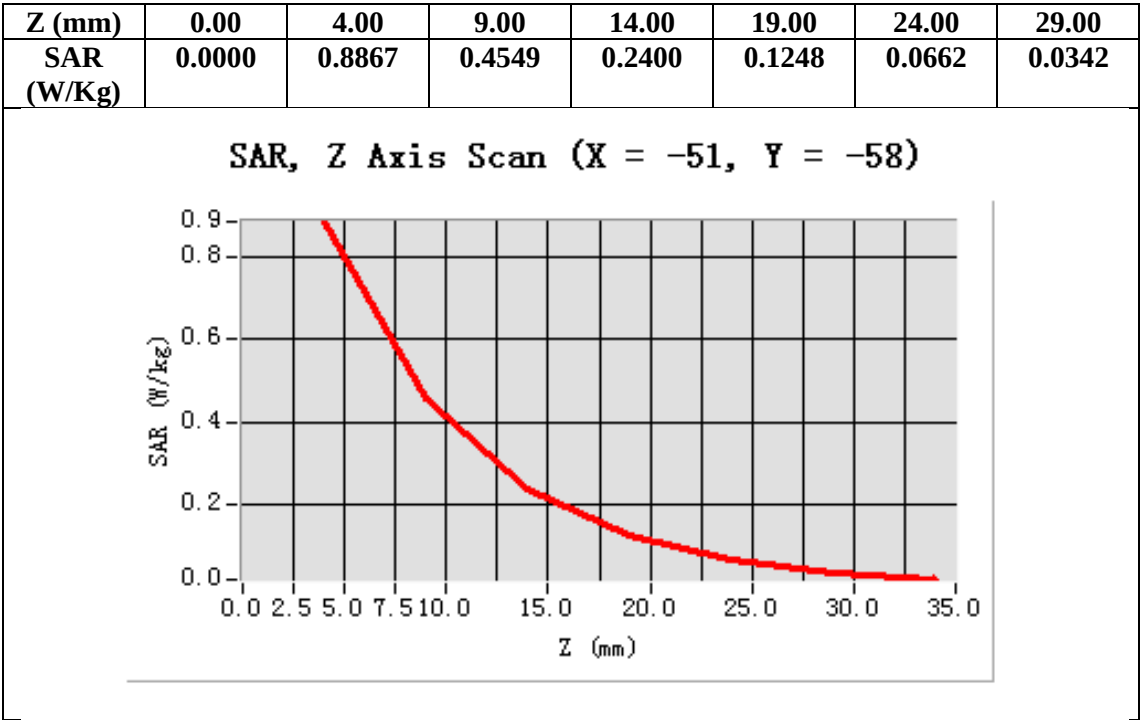
Configuration/WCDMA band II High-Touch-Right/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	WCDMA band II
Channels	High
Signal	CDMA (Crest factor: 1.0)



Maximum location: X=-51.00, Y=-58.00

SAR 10g (W/Kg)	0.429941
SAR 1g (W/Kg)	0.844213



Test Laboratory: AGC Lab
WCDMA Band II High-Body-Towards Grounds (RMC 12.2kbps)
DUT: Smart Phone; Type: K1

Date: Sep. 3,2015

Communication System: UMTS; Communication System Band: Band II UTRA/FDD ;Duty Cycle:1:1; Conv.F=5.61;
Frequency: 1907.6 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma=1.53$ mho/m; $\epsilon_r=53.62$; $\rho= 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.6

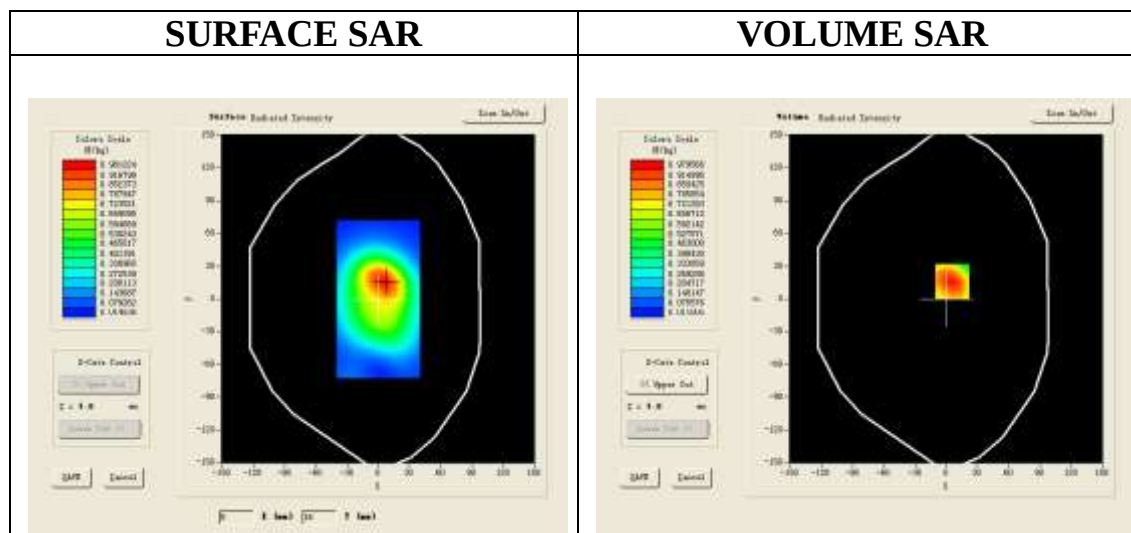
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/ WCDMA band II High-Body-back/Area Scan: Measurement grid: dx=8mm, dy=8mm

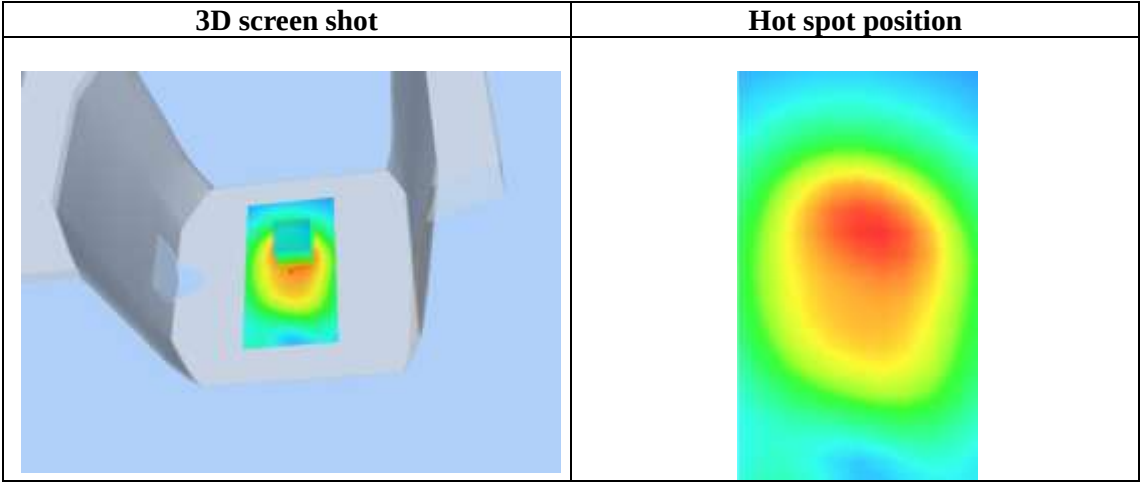
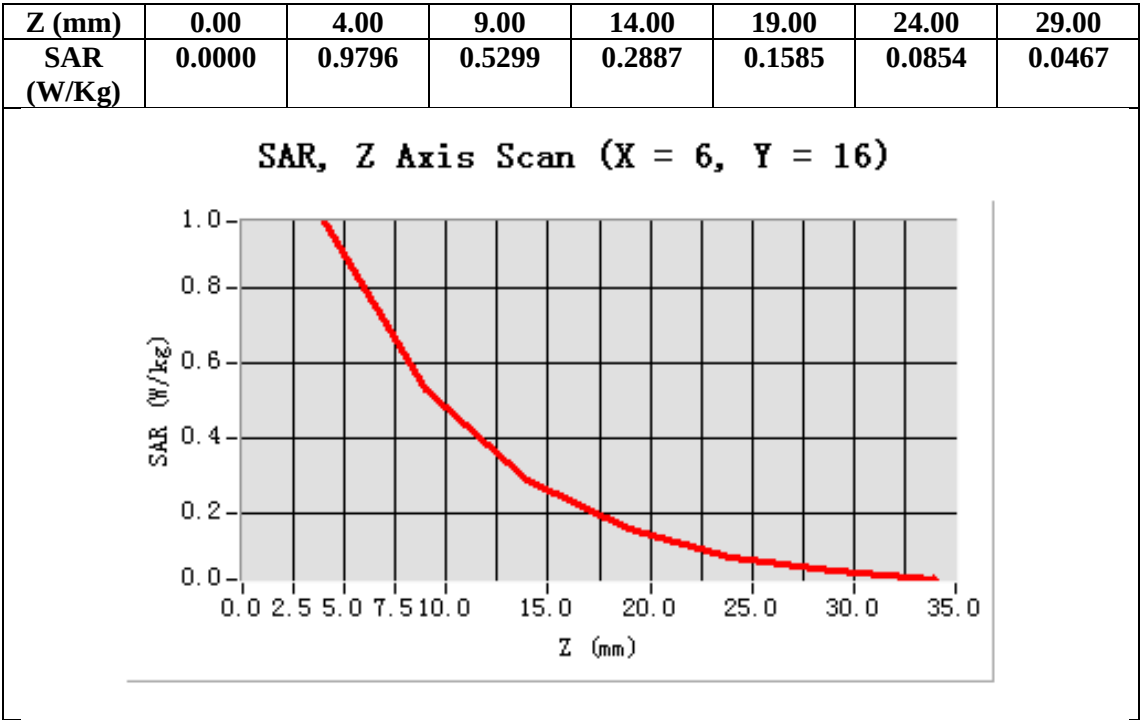
Configuration/ WCDMA band II High-Body-back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	surf_sam_plan.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	WCDMA band II
Channels	High
Signal	CDMA (Crest factor: 1.0)



Maximum location: X=6.00, Y=16.00

SAR 10g (W/Kg)	0.519532
SAR 1g (W/Kg)	0.940281



Test Laboratory: AGC Lab

Date: Sep. 5,2015

WCDMA Band V Mid-Touch-Left (RMC)

DUT: Smart Phone; Type: K1

Communication System: UMTS; Communication System Band: BAND V UTRA/FDD ; Duty Cycle:1: 1; Conv.F=6.36;
Frequency: 836.6 MHz; Medium parameters used: $f = 835\text{MHz}$; $\sigma = 0.90 \text{ mho/m}$; $\epsilon_r = 41.60$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Left Section
Ambient temperature ($^{\circ}\text{C}$): 22.4, Liquid temperature ($^{\circ}\text{C}$): 22.3

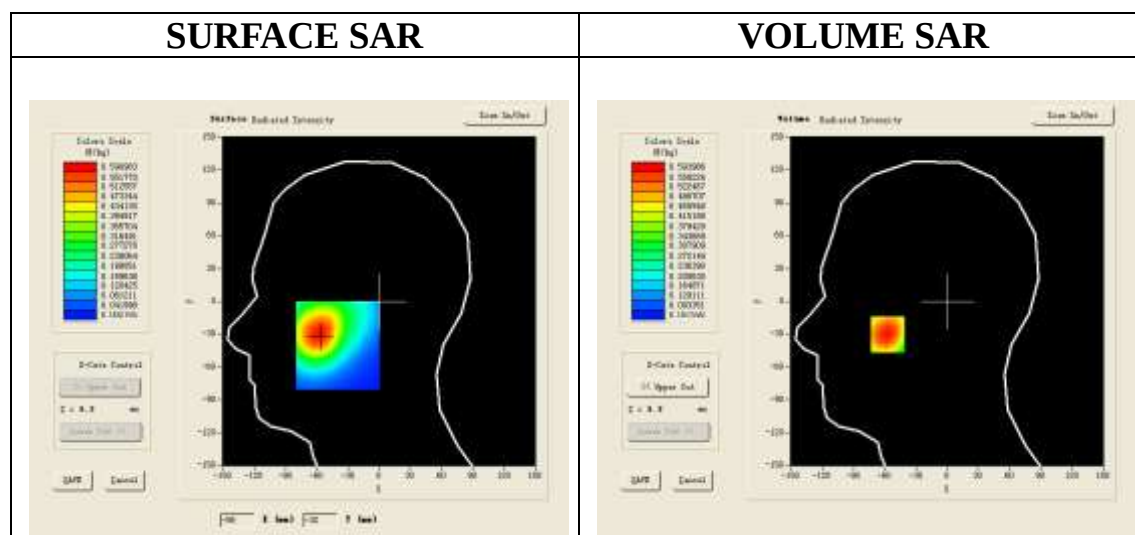
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/ WCDMA Band V Mid-Touch-Left/Area Scan: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$

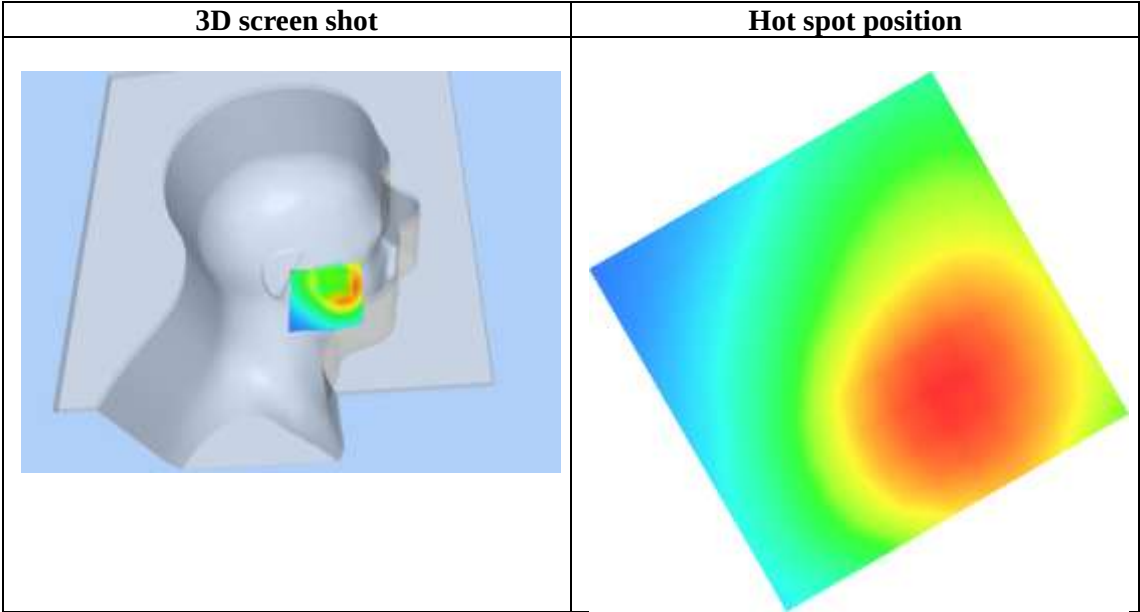
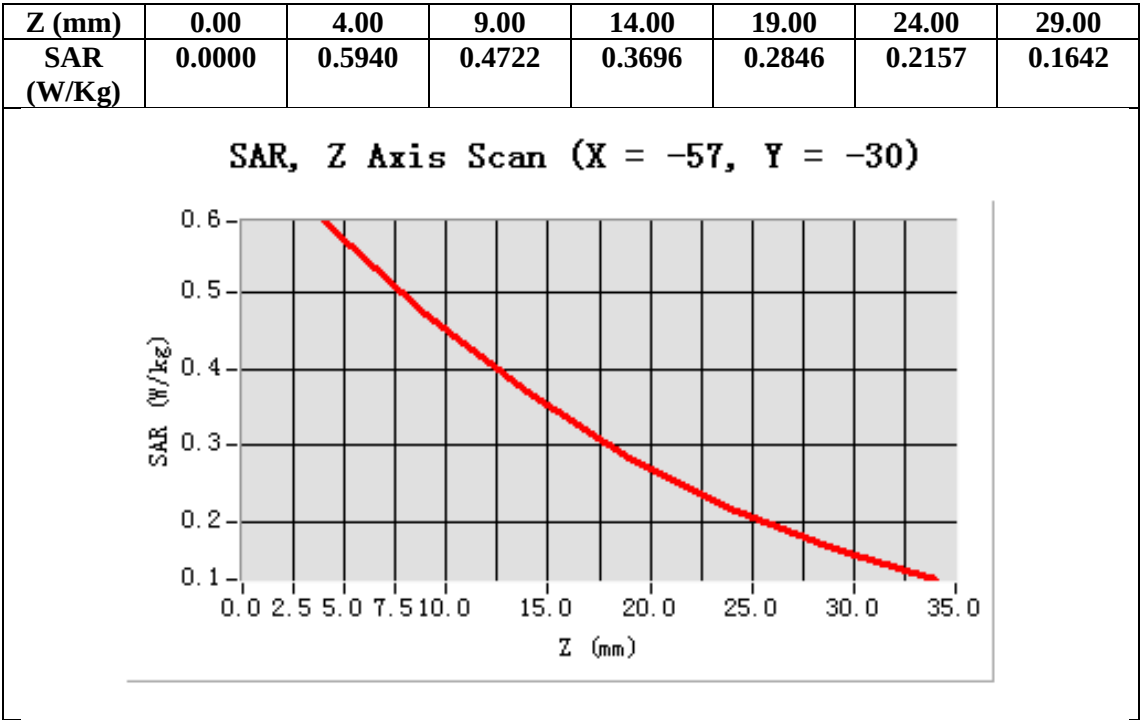
Configuration/ WCDMA Band V Mid-Touch-Left/Zoom Scan: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Left head
Device Position	Cheek
Band	WCDMA Band V
Channels	Middle
Signal	CDMA (Crest factor: 1.0)



Maximum location: X=-57.00, Y=-30.00

SAR 10g (W/Kg)	0.415727
SAR 1g (W/Kg)	0.570974



Test Laboratory: AGC Lab

Date: Sep. 5,2015

WCDMA Band V High- Body - Towards Phantom (RMC)

DUT: Smart Phone; Type: K1

Communication System: UMTS; Communication System Band: BAND V UTRA/FDD ; Duty Cycle:1: 1; Conv.F=6.56;
Frequency: 846.6 MHz; Medium parameters used: $f = 835\text{MHz}$; $\sigma = 0.96 \text{ mho/m}$; $\epsilon_r = 55.01$; $\rho = 1000\text{kg/m}^3$;
Phantom section: Flat Section
Ambient temperature ($^{\circ}\text{C}$): 22.4, Liquid temperature ($^{\circ}\text{C}$): 22.1

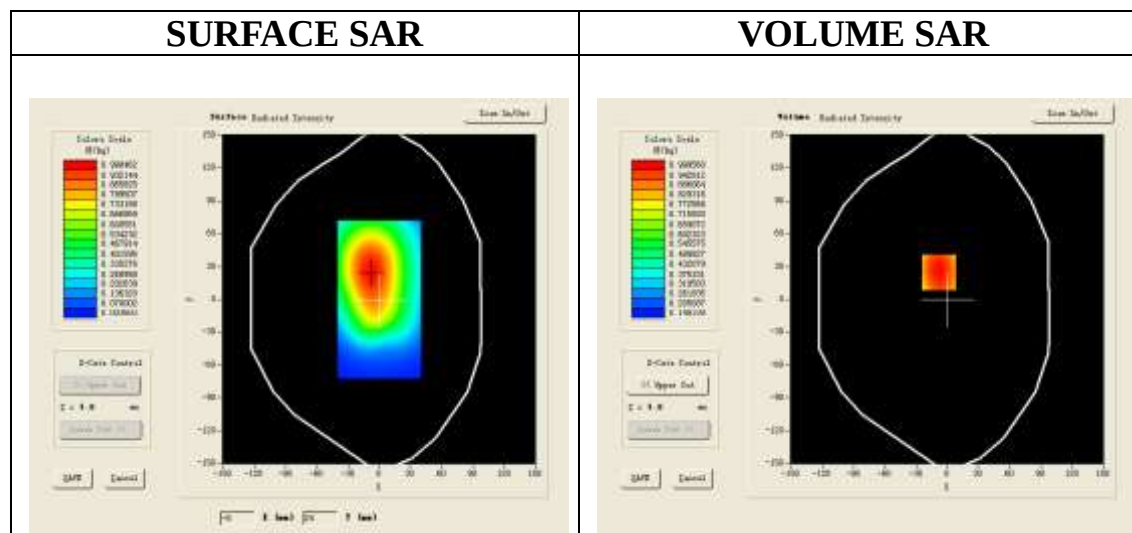
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/ WCDMA Band V High-Body-Front/Area Scan: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$

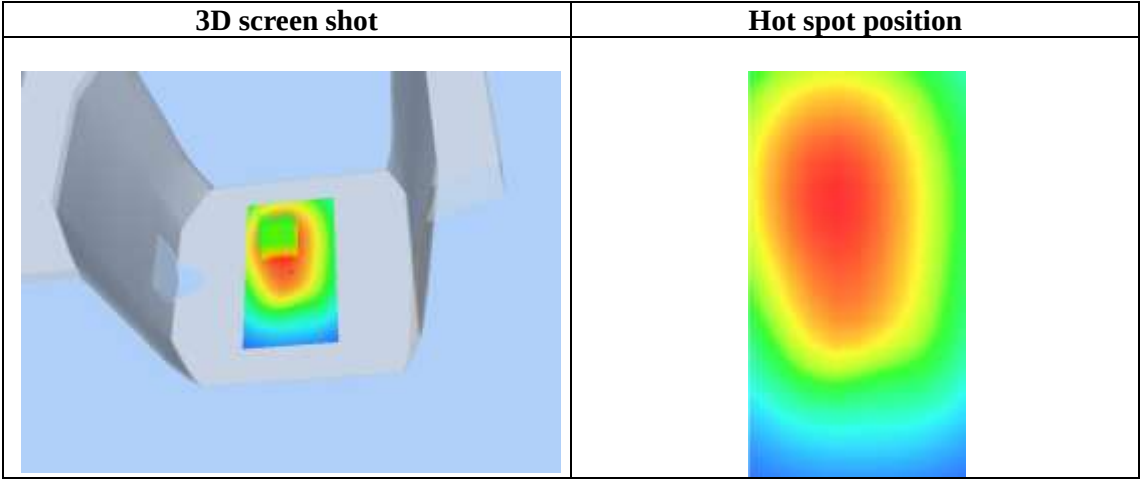
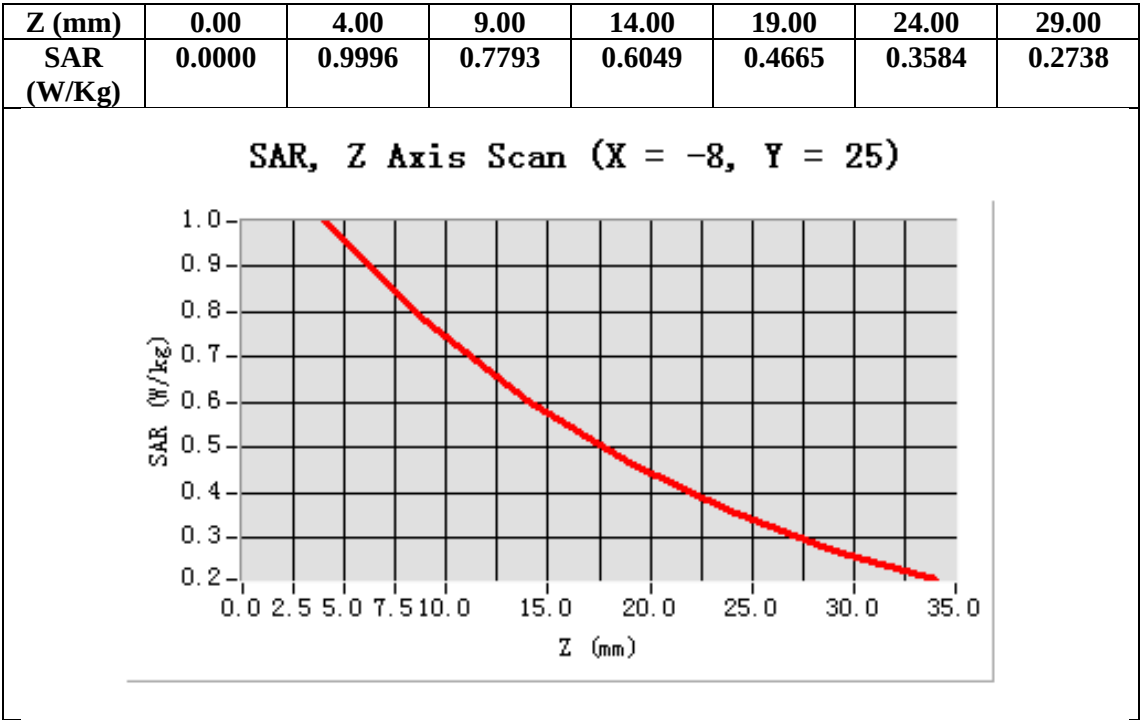
Configuration/ WCDMA Band V High-Body-Front/Zoom Scan: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$;

Area Scan	surf_sam_plan.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Front
Band	WCDMA Band V
Channels	High
Signal	CDMA (Crest factor: 1.0)



Maximum location: X=-8.00, Y=25.00

SAR 10g (W/Kg)	0.720571
SAR 1g (W/Kg)	0.968746



Repeated SAR

Test Laboratory: AGC Lab
WCDMA Band II High-Touch-Right (RMC)
DUT: Smart Phone; Type: K1

Date: Sep. 3,2015

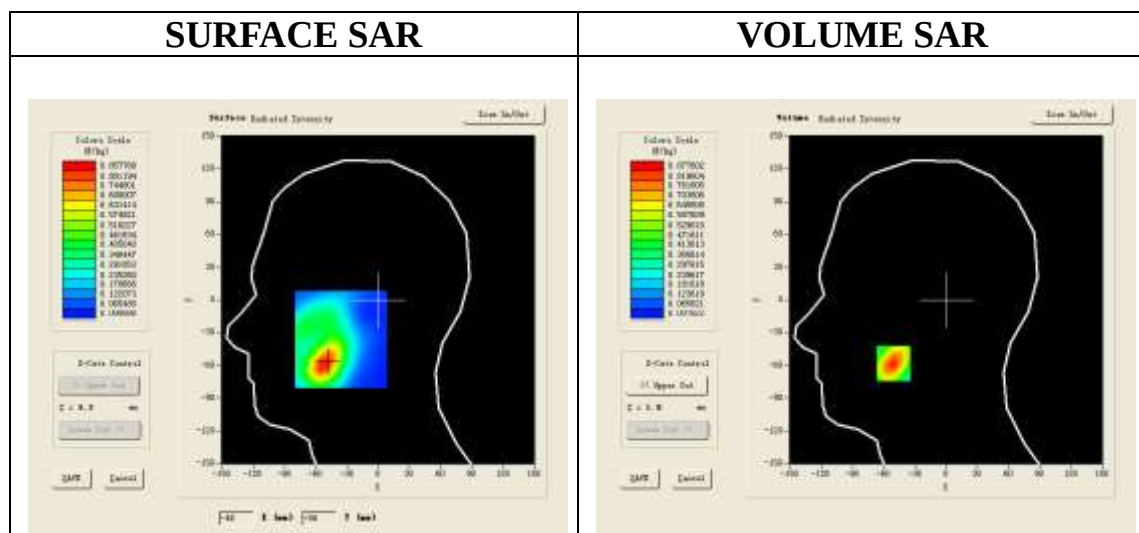
Communication System: UMTS; Communication System Band: Band II UTRA/FDD ;Duty Cycle:1:1; Conv.F=5.50;
Frequency: 1907.6 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 40.95$; $\rho = 1000$ kg/m³ ;
Phantom section: Right Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.9

SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

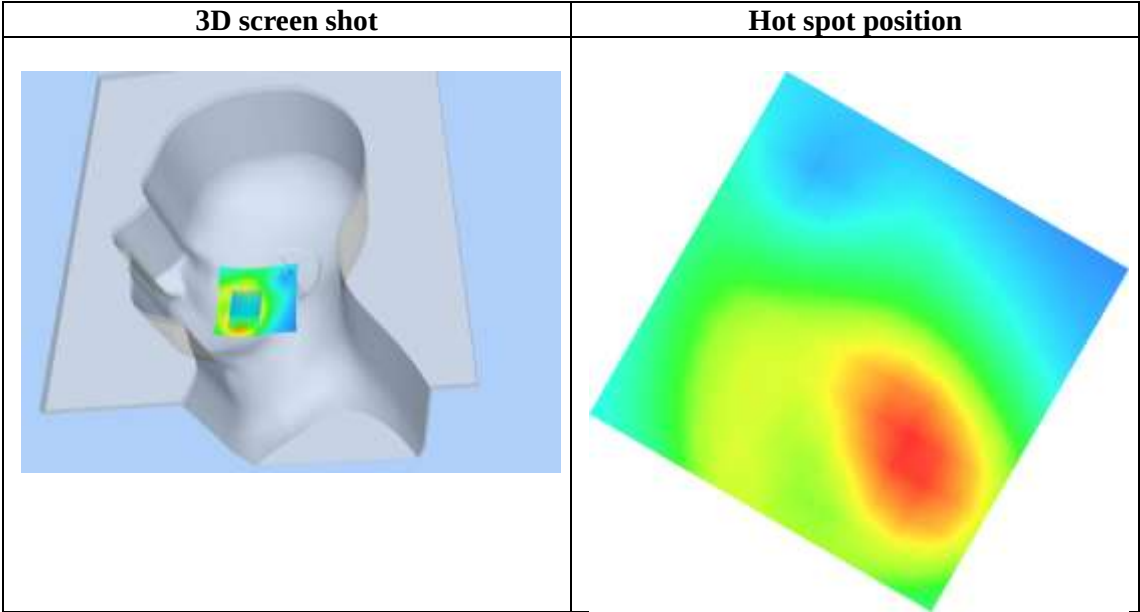
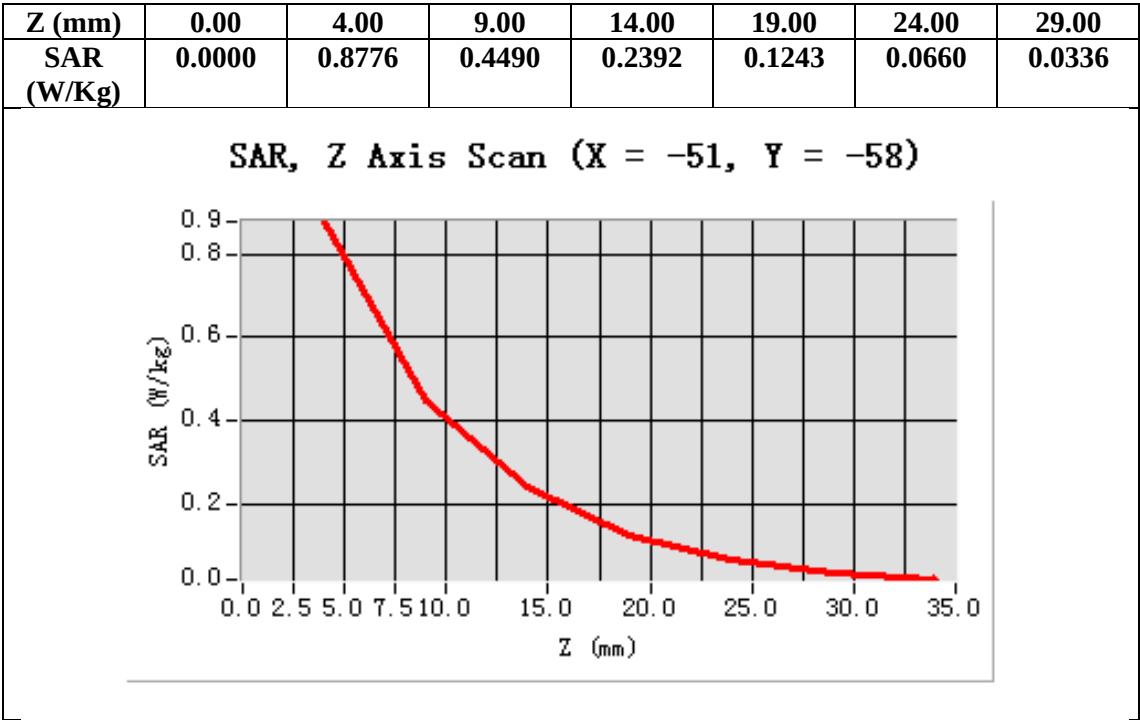
Configuration/WCDMA band II High-Touch-Right/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/WCDMA band II High-Touch-Right/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	WCDMA band II
Channels	High
Signal	CDMA (Crest factor: 1.0)



Maximum location: X=-51.00, Y=-58.00

SAR 10g (W/Kg)	0.426045
SAR 1g (W/Kg)	0.836769



Test Laboratory: AGC Lab
WCDMA Band II High-Body-Towards Grounds (RMC 12.2kbps)
DUT: Smart Phone; Type: K1

Date: Sep. 3,2015

Communication System: UMTS; Communication System Band: Band II UTRA/FDD ;Duty Cycle:1:1; Conv.F=5.61;
Frequency: 1907.6 MHz; Medium parameters used: $f = 1900$ MHz; $\sigma=1.53$ mho/m; $\epsilon_r=53.62$; $\rho= 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.6

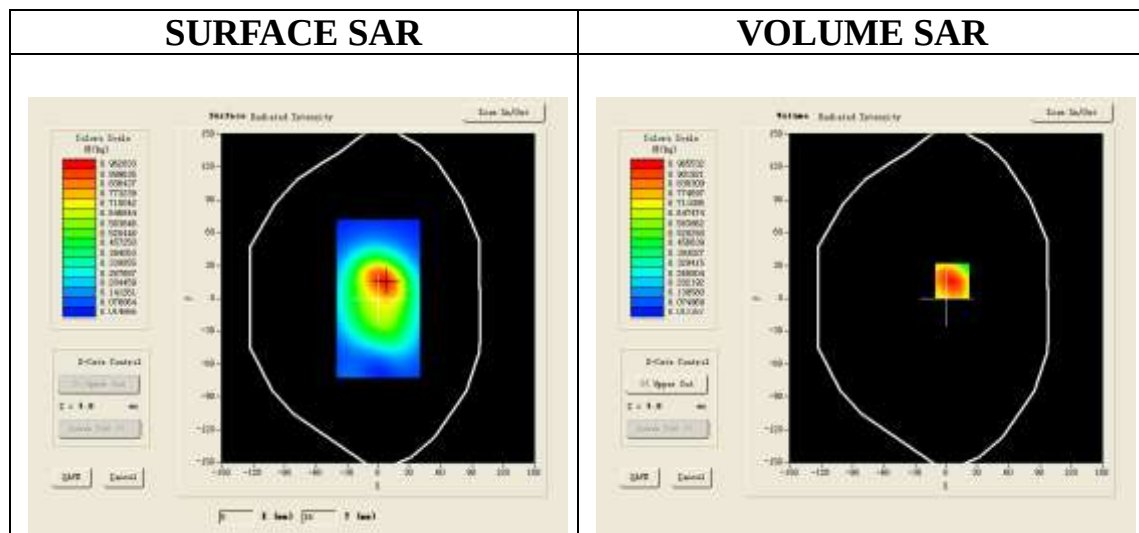
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/ WCDMA band II High-Body-back/Area Scan: Measurement grid: dx=8mm, dy=8mm

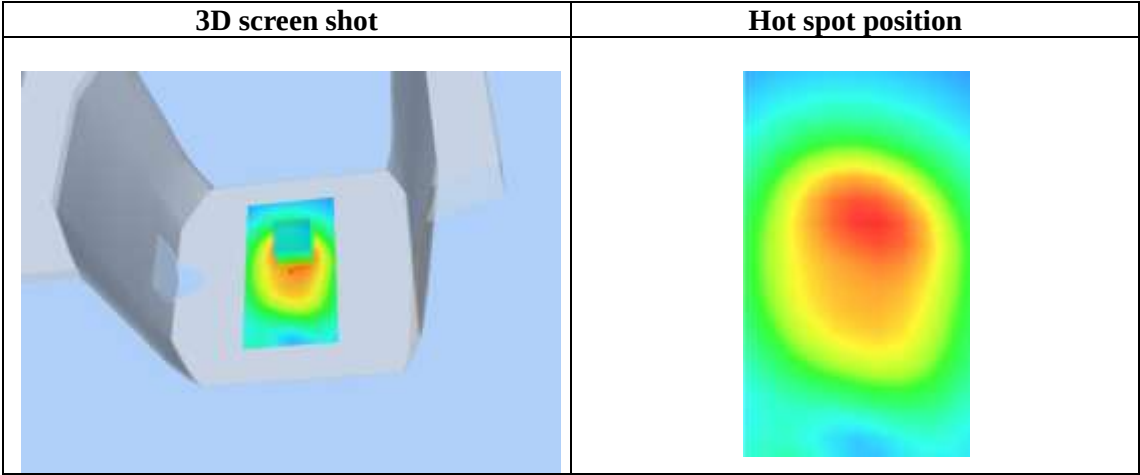
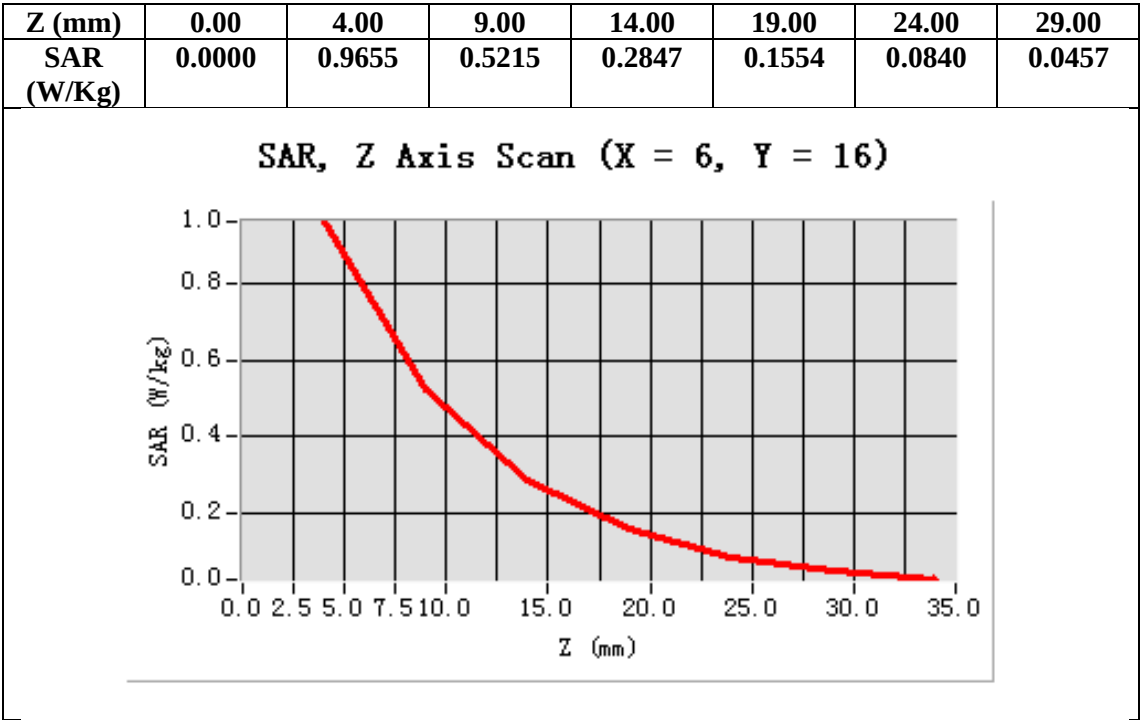
Configuration/ WCDMA band II High-Body-back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5m;

Area Scan	surf_sam_plan.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	WCDMA band II
Channels	High
Signal	CDMA (Crest factor: 1.0)



Maximum location: X=6.00, Y=16.00

SAR 10g (W/Kg)	0.511838
SAR 1g (W/Kg)	0.927029



Test Laboratory: AGC Lab

Date: Sep. 5,2015

WCDMA Band V High- Body - Towards Phantom (RMC)

DUT: Smart Phone; Type: K1

Communication System: UMTS; Communication System Band: BAND V UTRA/FDD ; Duty Cycle:1: 1; Conv.F=6.56;
Frequency: 846.6 MHz; Medium parameters used: $f = 835\text{MHz}$; $\sigma = 0.96\text{ mho/m}$; $\epsilon_r = 55.01$; $\rho = 1000\text{kg/m}^3$;
Phantom section: Flat Section
Ambient temperature ($^{\circ}\text{C}$): 22.4, Liquid temperature ($^{\circ}\text{C}$): 22.1

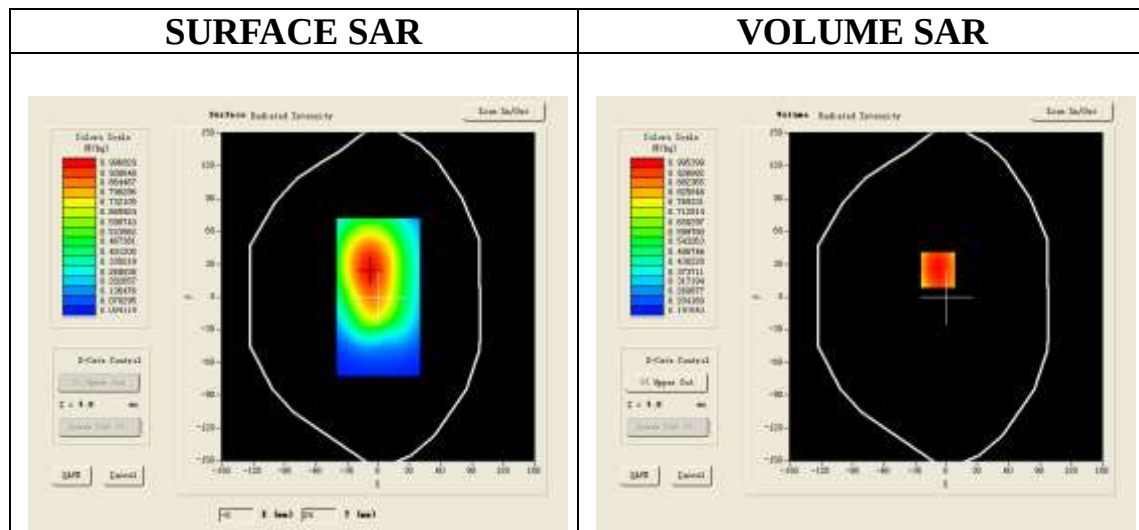
SATIMO Configuration:

- Probe: SSE5; Calibrated: 07/10/2015; Serial No.: SN 19/15 EP254
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/ WCDMA Band V High-Body-Front/Area Scan: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$

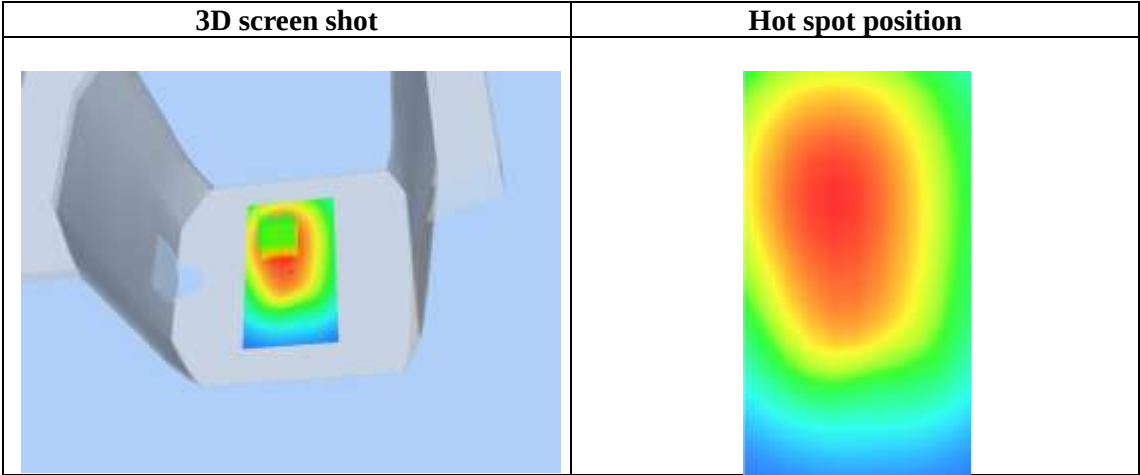
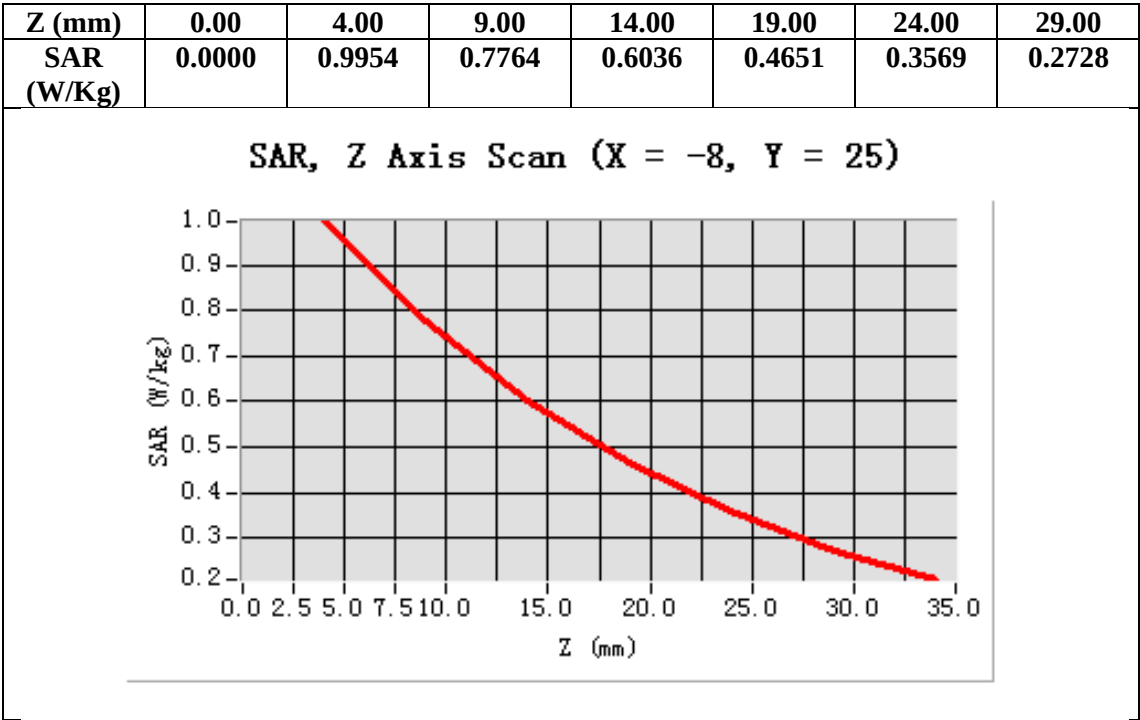
Configuration/ WCDMA Band V High-Body-Front/Zoom Scan: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$;

Area Scan	surf_sam_plan.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Front
Band	WCDMA Band V
Channels	High
Signal	CDMA (Crest factor: 1.0)



Maximum location: X=-8.00, Y=25.00

SAR 10g (W/Kg)	0.718391
SAR 1g (W/Kg)	0.964985



WIFI MODE

Test Laboratory: AGC Lab

Date: Sep. 1,2015

802.11b Mid-Tilt-Right

DUT: Smart Phone; Type: K1

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=4.84;
Frequency: 2437 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.77$ mho/m; $\epsilon_r = 40.26$; $\rho = 1000$ kg/m³ ;
Phantom section: Right Section
Ambient temperature (°C):22.1, Liquid temperature (°C): 21.9

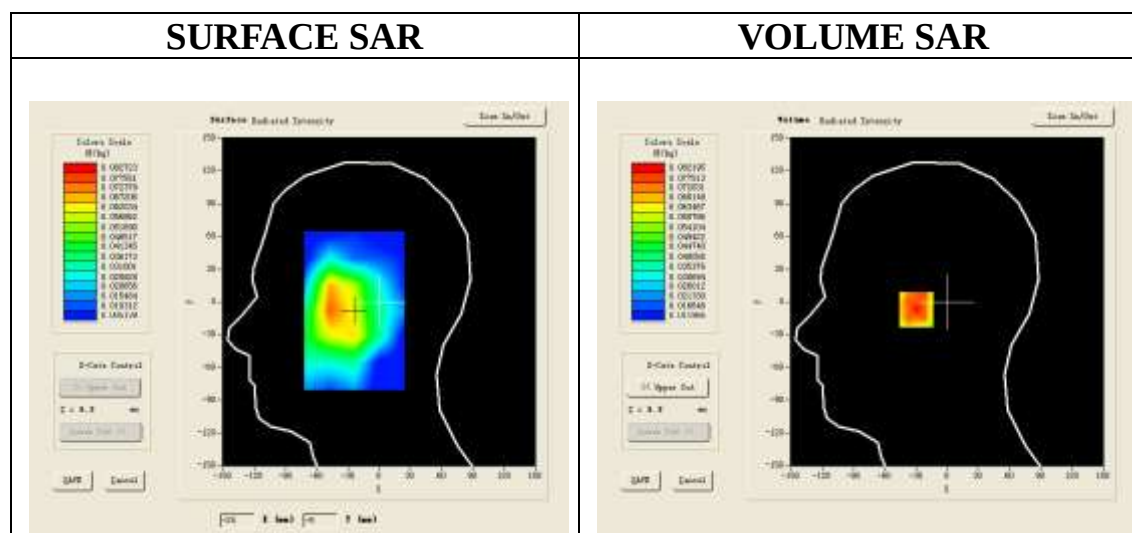
SATIMO Configuration:

- Probe: SSE5; Calibrated: 12/03/2014; Serial No.:SN22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/802.11b Mid- Tilt-Right/Area Scan: Measurement grid: dx=8mm, dy=8mm

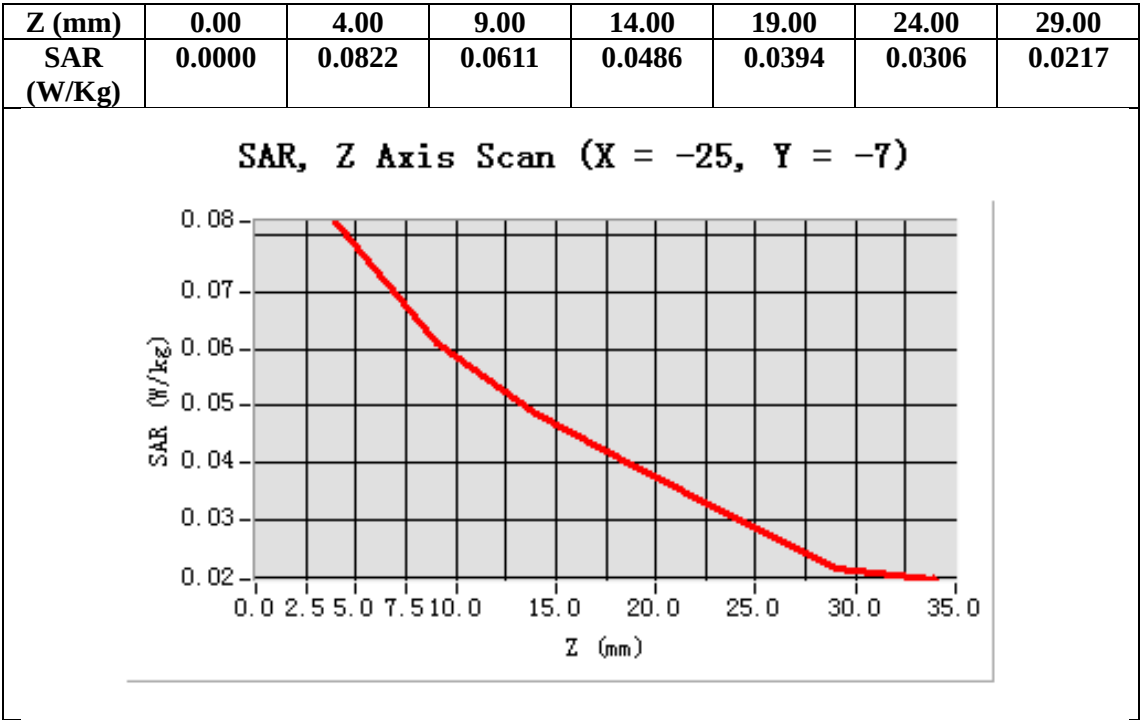
Configuration/802.11b Mid- Tilt-Right/Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Right head
Device Position	Tilt
Band	2450MHz
Channels	Middle
Signal	Crest factor: 1.0



Maximum location: X=-25.00, Y=-7.00

SAR 10g (W/Kg)	0.057114
SAR 1g (W/Kg)	0.080715



Test Laboratory: AGC Lab
802.11b Mid- Edge (DTS)
DUT: Smart Phone; Type: K1

Date: Sep. 1,2015

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=4.97;
Frequency: 2437 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.94$ mho/m; $\epsilon_r = 53.20$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.1, Liquid temperature (°C): 22.0

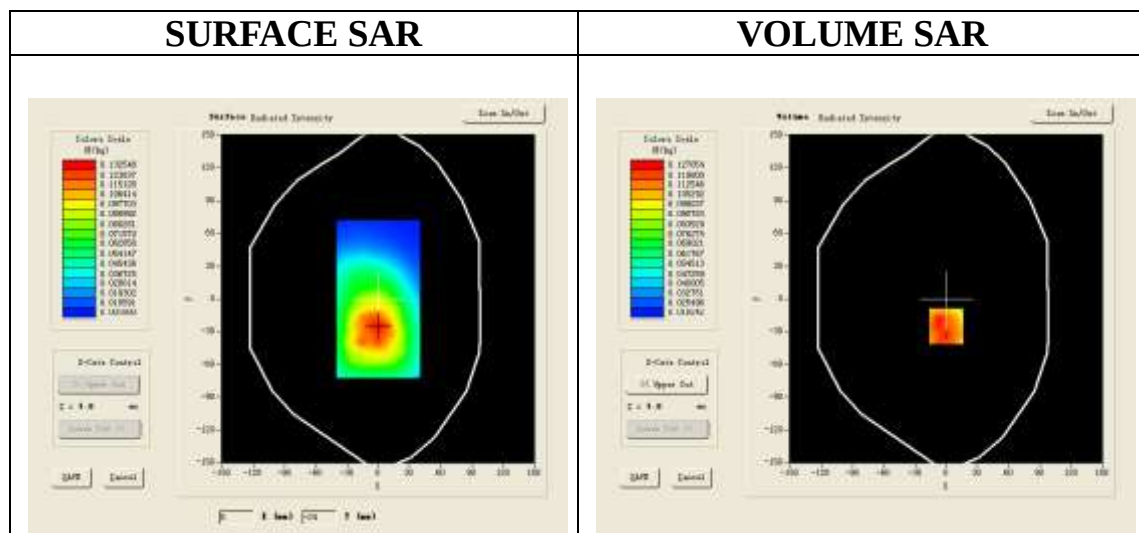
SATIMO Configuration:

- Probe: SSE5; Calibrated: 12/03/2014; Serial No.:SN22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_01

Configuration/802.11b Mid- Body- Back /Area Scan: Measurement grid: dx=8mm, dy=8mm

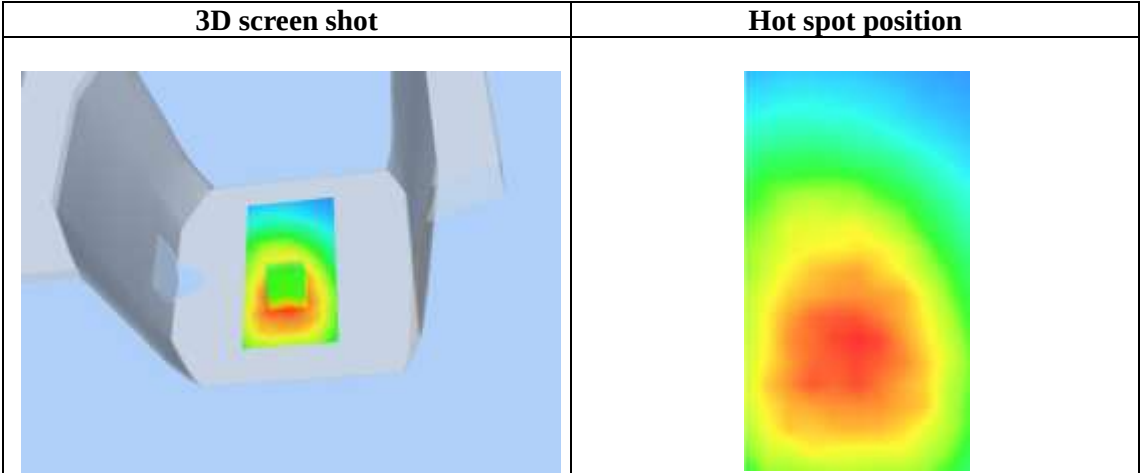
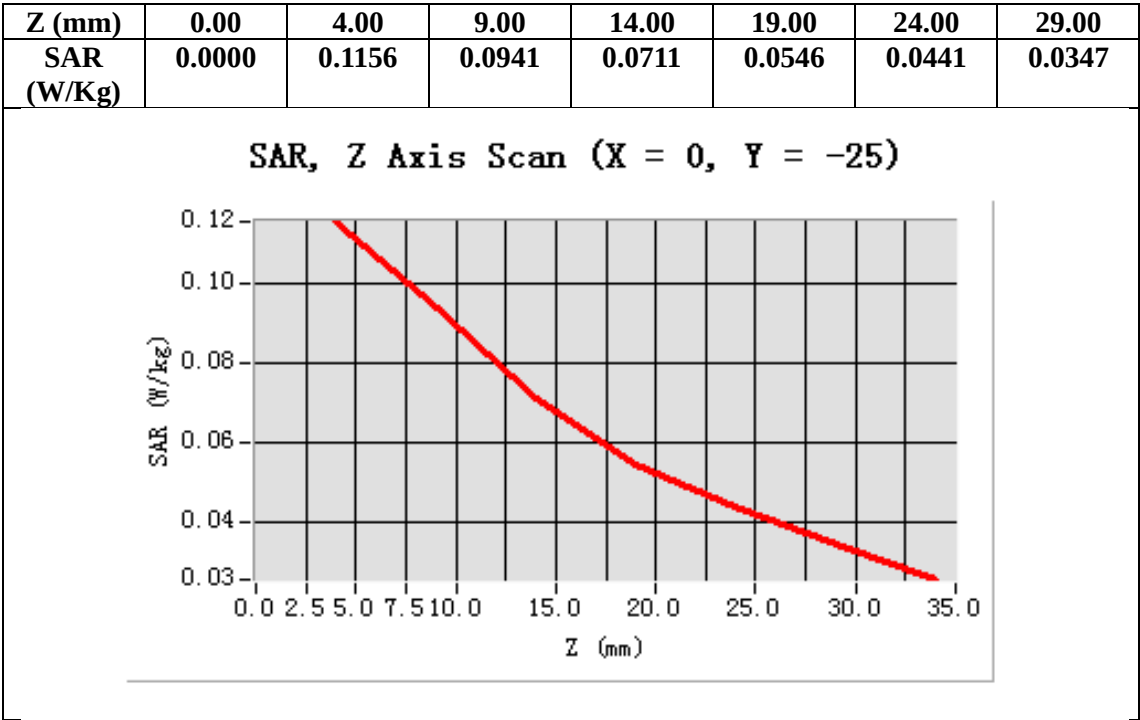
Configuration/802.11b Mid- Body- Back /Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm;

Area Scan	surf_sam_plan.txt
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	2450MHz
Channels	Middle
Signal	Crest factor: 1.0



Maximum location: X=0.00, Y=-25.00

SAR 10g (W/Kg)	0.088030
SAR 1g (W/Kg)	0.123310



PHS &EUT PHOTOGRAPHS

Refer to Attached files.

APPENDIX D. CALIBRATION DATA

Refer to Attached files.