

SAR Test Report

Report No.: AGC01662180505FH01

FCC ID : CNFSPTM1

PRODUCT DESIGNATION : Camera

BRAND NAME : GoPro

MODEL NAME : SPTM1

CLIENT : GoPro, Inc.

DATE OF ISSUE : June 26, 2018

STANDARD(S) : IEEE Std. 1528:2013
FCC 47CFR § 2.1093
IEEE/ANSI C95.1:2005;

REPORT VERSION : V1.0

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	June 26,2018	Valid	Initial Release

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Test Report Certification

Applicant Name	GoPro, Inc.
Applicant Address	3000 Clearview Way, San Mateo, CA 94402, USA
Manufacturer Name	GoPro, Inc.
Manufacturer Address	3000 Clearview Way, San Mateo, CA 94402, USA
Product Designation	Camera
Brand Name	GoPro
Model Name	SPTM1
Different Description	See section 13.1.2(6).
EUT Voltage	3.85Vdc
Applicable Standard	IEEE Std. 1528:2013 FCC 47CFR § 2.1093 IEEE/ANSI C95.1:2005
Test Date	May 27,2018 to June 15,2018
Report Template	AGCRT-US-5G/SAR (2018-01-01)

Note: The results of testing in this report apply to the product/system which was tested only.

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June 15,2018

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June 26,2018

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June 26,2018

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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:

SPTM1 (Version W):

Frequency Band	Highest Reported 1g-SAR(W/Kg)		SAR Test Limit (W/Kg)
	Head SAR(with 0mm separation)	Body SAR (with 0mm separation)	
2.4 GHz WIFI	1.267	1.136	1.6
5.2 GHz WIFI	1.112	1.163	
5.3 GHz WIFI	1.086	1.280	
5.6 GHz WIFI	0.944	0.983	
5.8 GHz WIFI	0.348	0.361	
SAR Test Result	PASS		

SPTM1 (Version S):

Frequency Band	Highest Reported 1g-SAR(W/Kg)		SAR Test Limit (W/Kg)
	Head SAR(with 0mm separation)	Body SAR (with 0mm separation)	
2.4 GHz WIFI	0.724	0.845	1.6
5.2 GHz WIFI	1.150	1.391	
5.3 GHz WIFI	1.110	1.315	
5.6 GHz WIFI	1.310	1.332	
5.8 GHz WIFI	0.518	0.531	
SAR Test Result	PASS		

This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/Kg) specified in IEEE Std. 1528:2013; FCC 47CFR § 2.1093; IEEE/ANSI C95.1:2005 and the following specific FCC Test Procedures:

- KDB 447498 D01 General RF Exposure Guidance v06
- KDB 648474 D04 Handset SAR v01r03
- KDB 865664 D01 SAR Measurement 100MHz to 6GHz v01r04
- KDB 248227 D01 802 11 Wi-Fi SAR v02r02

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2. GENERAL INFORMATION

2.1. EUT Description

General Information	
Product Designation	Camera
Test Model	SPTM1
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
Bluetooth	
Operation Frequency	2402~2480MHz
Antenna Gain	0.5dBi max
Bluetooth Version	BR/EDR,BLE
Type of modulation	BR/EDR: GFSK, $\Pi/4$ -DQPSK, 8-DPSK; BLE: GFSK
Max Conducted Average Output Power	BR/EDR: 6.7dBm; BLE: 3.1dBm
2.4GHz WIFI	
WIFI Specification	☐ 802.11a ☒ 802.11b ☒ 802.11g ☒ 802.11n(20) ☒ 802.11n(40)
Operation Frequency	2412~2462MHz
Type of Modulation	BPSK, QPSK, CCK, 16-QAM, 64-QAM
Max Conducted Average Output Power	11b:15.9dBm,11g:15.6dBm,11n(20):15.6dBm,11n(40):15.6dBm
Antenna Gain	0.5dBi max
5GHz WIFI	
WIFI Specification	☒ 802.11a ☒ 802.11n20 ☒ 802.11ac20 ☒ 802.11n40 ☒ 802.11ac40 ☒ 802.11ac80
Operation Frequency	5.180GHz~5.825GHz
Type of modulation	BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM
Max Conducted Average Output Power	U-NII-1:10 dBm; U-NII-2A:10dBm; U-NII-2C:9.9 dBm; U-NII-3:10.6 dBm
Antenna Gain	3.7dBi max

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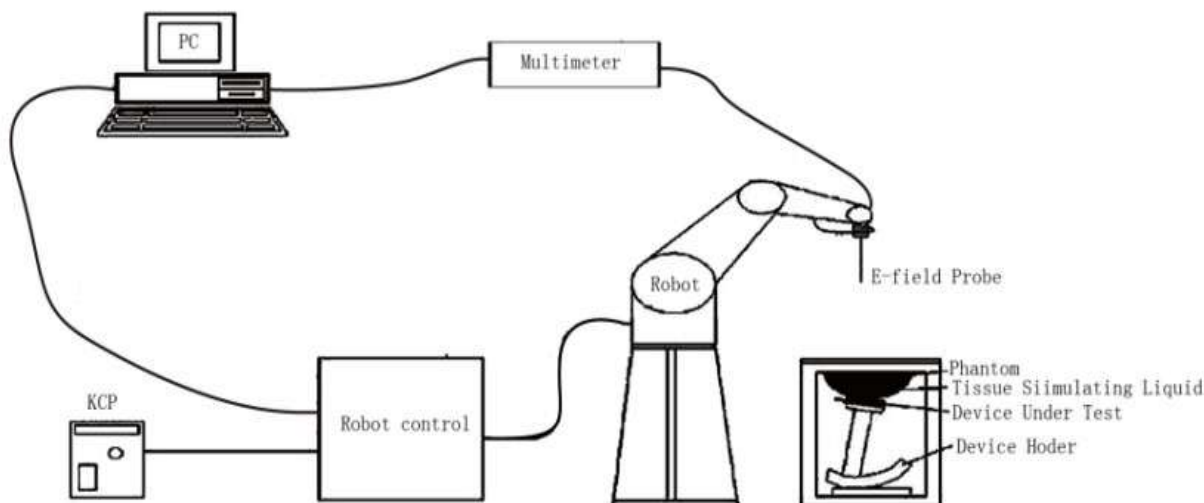
Li-ion Battery	
Brand Name	GoPro
Model Name	SPTM1B
Manufacturer Name	Sunwoda Electronic Co., LTD
Manufacturer Address	No.2 Yihe Road, Shilong Community, Shiyan Street, Baoan District, Shenzhen City, China 518108
Capacitance	1220mAh
Rated Voltage/ Charging Voltage	3.85Vdc/4.4Vdc

Note: The sample used for testing is end product.

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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.

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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. IEEE1528 etc.) Under ISO17025. The calibration data are in Appendix D.

Isotropic E-Field Probe Specification

Model	SSE2	
Manufacture	MVG	
Identification No.	SN 08/16 EPGO282	
Frequency	0.7GHz-6GHz Linearity:±0.06dB(700MHz-6GHz)	
Dynamic Range	0.01W/Kg-100W/Kg Linearity:±0.06dB	
Dimensions	Overall length:330mm Length of individual dipoles:2mm Maximum external diameter:8mm Probe Tip external diameter:2.5mm Distance between dipoles/ probe extremity:1mm	
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 6 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:

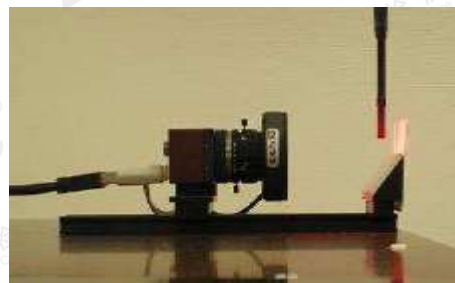
- ☐ High precision (repeatability 0.02 mm)
- ☐ High reliability (industrial design)
- ☐ Jerk-free straight movements
- ☐ Low ELF interference (the closed metallic construction shields against motor control fields)
- ☐ 6-axis controller



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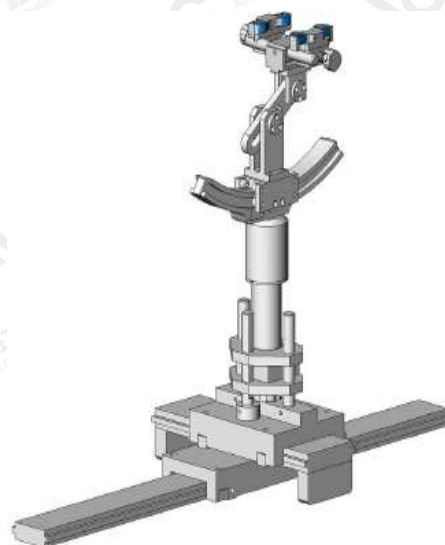
3.4. Video Positioning System

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.

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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

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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, 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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 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° ± 1°	20° ± 1°
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 ≤ 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.

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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 <u>area scan based 1-g SAR estimation</u> 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.

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4.3. RF Exposure Conditions

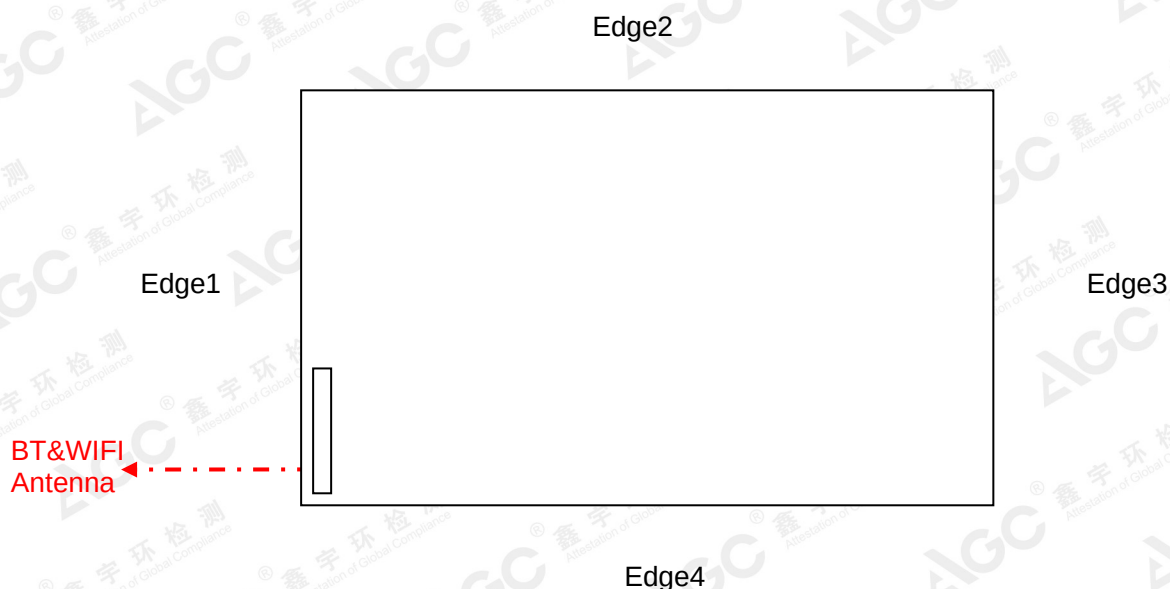
Test Configuration and setting:

The device is a sport Camera which support 2.4GHz & 5G Wifi, Bluetooth; And share one antenna.

For SAR testing, the EUT is configured with the WLAN continuous TX tool through qualcomm software.

Due the BT power is less than exemption limit, SAR is not required.

Antenna Location: (back view)



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SAR Test Exclusion Consideration for Adjacent Edges

Per KDB 447498 D01 cl. 4.3.1:

a) For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$

b) For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

1) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$ mW, for 100 MHz to 1500 MHz

2) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW, for > 1500 MHz and $d \leq 6$ GHz

Please refer to SAR test set-up photo for details.

2.4GHz WIFI

Edge 3(Bottom)

SAR test exclusion threshold

$$= (\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \times 10 \text{ mW}$$

$$= 96.15 + (59.6 - 50) \times 10 \text{ mW}$$

$$= 192.15 \text{ mW}$$

Edge 4(Left)

SAR test exclusion threshold

$$= [(\text{min. test separation distance, mm}) \cdot 3] / \sqrt{f(\text{GHz})}$$

$$= (30.5 \times 3) / \sqrt{2.437}$$

$$= 91.5 \text{ mW}$$

Conclusion

Since the Maximum Tune-up Power [39.81mW(16dBm)] is less than the SAR Exclusion Threshold for bottom, Right and left edges, SAR evaluation for these adjacent edges are not required.

5.2GHz WIFI

Edge 3(Bottom)

SAR test exclusion threshold

$$= (\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \times 10 \text{ mW}$$

$$= 65.84 + (59.6 - 50) \times 10 \text{ mW}$$

$$= 161.84 \text{ mW}$$

Edge 4 (Left)

SAR test exclusion threshold

$$= [(\text{min. test separation distance, mm}) \cdot 3] / \sqrt{f(\text{GHz})}$$

$$= (30.5 \times 3) / \sqrt{5.19}$$

$$= 40.16 \text{ mW}$$

Conclusion

Since the Maximum Tune-up Power [10mW(10dBm)] is less than the SAR Exclusion Threshold for bottom, Right and left edges, SAR evaluation for these adjacent edges are not required.

5.3GHz WIFI

Edge 3(Bottom)

SAR test exclusion threshold

= (Power allowed at numeric threshold for 50 mm in step 1)+(test separation distance - 50 mm) x 10 mW

= 65.09 + (59.6-50) x 10 mW

=161.09 mW.

Edge 4 (Left)

SAR test exclusion threshold

= [(min. test separation distance, mm) • 3]/ √ f(GHz)

=(30.5 x3)/ √ 5.31

= 39.71mW..

Conclusion

Since the Maximum Tune-up Power [10mW(10dBm)] is less than the SAR Exclusion Threshold for bottom, Right and left edges, SAR evaluation for these adjacent edges are not required.

5.6GHz WIFI

Edge 3(Bottom)

SAR test exclusion threshold

= (Power allowed at numeric threshold for 50 mm in step 1)+(test separation distance - 50 mm) x 10 mW

= 62.99 + (59.6-50) x 10 mW

=158.99 mW.

Edge 4(Left)

SAR test exclusion threshold

= [(min. test separation distance, mm) • 3]/ √ f(GHz)

=(30.5 x3)/ √ 5.67

= 38.43mW.

Conclusion

Since the Maximum Tune-up Power [10mW(10dBm)] is less than the SAR Exclusion Threshold for bottom, Right and left edges, SAR evaluation for these adjacent edges are not required.

5.8GHz WIFI

Edge 3(Bottom)

SAR test exclusion threshold

= (Power allowed at numeric threshold for 50 mm in step 1)+(test separation distance - 50 mm) x 10 mW

= 62.36 + (59.6-50) x 10 mW

=158.36 mW.

Edge 4(Left)

SAR test exclusion threshold

= [(min. test separation distance, mm) • 3]/ √ f(GHz)

=(30.5 x3)/ √ 5.785

= 38.04mW.

Conclusion

Since the Maximum Tune-up Power [12.59mW(11dBm)] is less than the SAR Exclusion Threshold for bottom, Right and left edges, SAR evaluation for these adjacent edges are not required.

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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 5.2

5.1. The composition of the tissue simulating liquid

Ingredient (% Weight) Frequency (MHz)	Water	NaCl	Polysorbate 20	DGBE	1,2- Propanediol	Triton X-100	Diethylen glycol monohex ylether
2450 Head	71.88	0.16	0.0	7.99	0.0	19.97	0.0
2450 Body	70	1	0.0	9	0.0	20	0.0
5000 Head	65.52	0.0	0.0	0.0	0.0	17.24	17.24
5000 Body	80	0.0	0.0	10	0.0	10	0.0

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	45.3	0.87
450	43.5	0.87	43.5	0.87
835	41.5	0.90	41.5	0.90
900	41.5	0.97	41.5	0.97
1450	40.5	1.20	40.5	1.20
1800 – 2000	40.0	1.40	40.0	1.40
2450	39.2	1.80	39.2	1.80
3000	38.5	2.40	38.5	2.40
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5600	35.5	5.07	48.5	5.77
5800	35.3	5.27	48.2	6.00

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

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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 2450MHz					
Head	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr 39.2(37.24-41.16)	δ[s/m] 1.80(1.71-1.89)		
	2412	40.52	1.75	21.5	May 27,2018
	2437	39.70	1.78		
	2450	39.15	1.80		
	2462	38.63	1.82		
Tissue Stimulant Measurement for 2450MHz					
Body	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr 52.7(50.065-55.335)	δ[s/m] 1.95(1.8525-2.0475)		
	2412	54.29	1.88	21.8	May 28,2018
	2437	53.51	1.90		
	2450	52.99	1.92		
	2462	52.37	1.95		

Tissue Stimulant Measurement for 5200MHz					
Head	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr 36(34.2-37.8)	δ[s/m] 4.66(1.71-1.89)		
	5190	36.85	4.62	21.5	June 13,2018
	5200	36.91	4.67		
	5230	36.88	4.63		
Tissue Stimulant Measurement for 5200MHz					
Body	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr 49.0(46.55-51.450)	δ[s/m]5.30(5.035 -5.565)		
	5190	48.90	5.38	21.4	June 05,2018
	5200	48.85	5.41		
5230	48.62	5.33			

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Tissue Stimulant Measurement for 5300MHz					
Head	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [°C]	Test time
		ϵ_r	$\delta[s/m]$		
		35.9(34.105-37.695)	4.76(4.522-4.998)		
	5270	36.81	4.70	21.4	June 14,2018
	5300	36.84	4.75		
	5310	36.77	4.72		

Tissue Stimulant Measurement for 5300MHz					
Body	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [°C]	Test time
		ϵ_r 48.9(46.455-51.345)	$\delta[s/m]$ 5.42(5.149-5.691)		
	5270	50.08	5.43	21.7	June 06,2018
	5300	50.04	5.38		
	5310	50.10	5.40		

Tissue Stimulant Measurement for 5600MHz					
Head	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [°C]	Test time
		ϵ_r	$\delta[s/m]$		
		35.5(33.725-37.275)	5.07(4.8165-5.3235)		
	5510	35.79	4.88	21.2	June 15,2018
	5550	35.82	4.91		
	5600	35.86	4.95		
	5670	35.81	4.93		

Tissue Stimulant Measurement for 5600MHz					
Body	Fr. (MHz)	Dielectric Parameters ($\pm 5\%$)		Tissue Temp [°C]	Test time
		ϵ_r 48.5 (46.075-50.925)	$\delta[s/m]$ 5.77(5.4815 -6.059)		
	5510	49.63	5.82	21.4	June 07,2018
	5550	49.52	5.92		
	5600	49.43	5.89		
	5670	49.60	5.77		

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Tissue Stimulant Measurement for 5800MHz					
Head	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr 35.3(33.535-37.065)	δ[s/m] 5.27(5.0065-5.5335)		
	5745	35.90	5.33	21.7	June 12,2018
	5785	35.93	5.30		
	5800	35.97	5.36		
	5825	35.82	5.27		
Tissue Stimulant Measurement for 5800MHz					
Body	Fr. (MHz)	Dielectric Parameters (±5%)		Tissue Temp [°C]	Test time
		εr 48.2 (45.79-50.610)	δ[s/m] 6.00 (5.70-6.30)		
	5745	48.39	5.90	21.5	June 03,2018
	5785	48.32	5.93		
	5800	48.37	5.99		
	5825	48.42	6.02		

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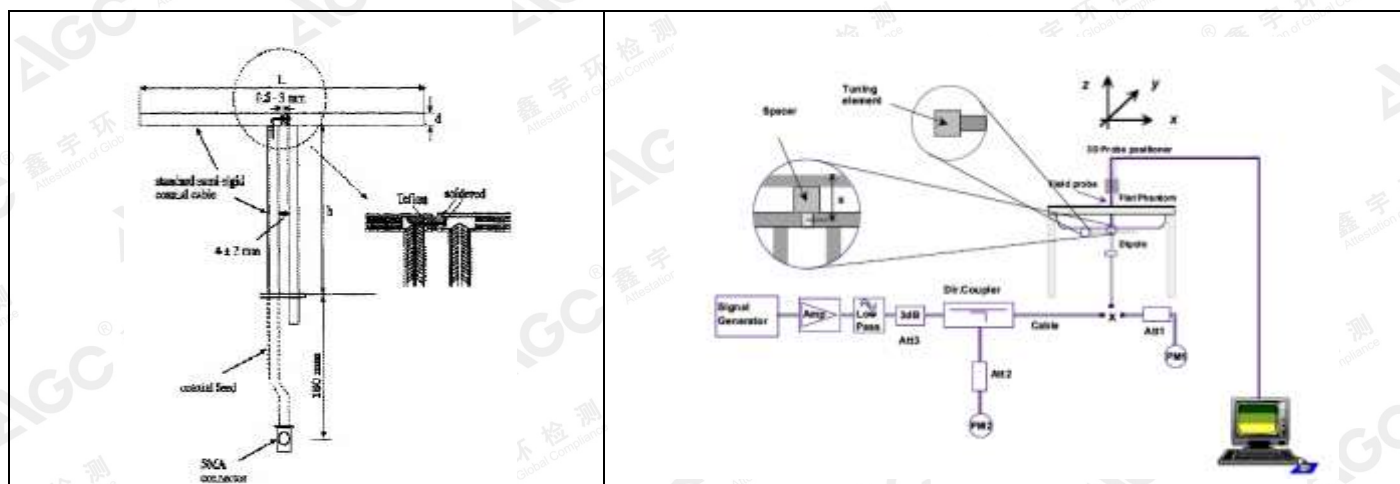
6. SAR SYSTEM CHECK PROCEDURE

6.1. SAR System Check Procedures

SAR system check is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are remeasured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

Each SATIMO system is equipped with one or more system check kits. These units, together with the predefined measurement procedures within the SATIMO software, enable the user to conduct the system check and system validation. System kit includes a dipole, and dipole device holder.

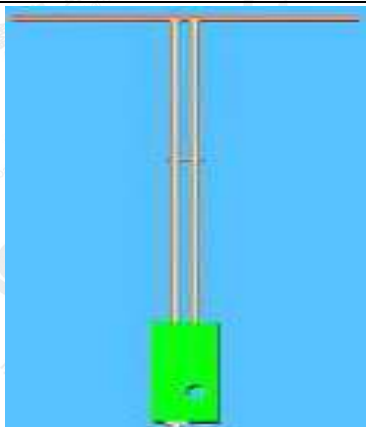
The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system check setup is shown as below.



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6.2. SAR System Check

6.2.1. Dipoles

	The dipole used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of IEEE. the table below provides details for the mechanical and electrical specifications for the dipole.
	The wave guide used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of IEEE. the table below provides details for the mechanical and electrical specifications for the wave guide.

Frequency	L (mm)	h (mm)	d (mm)
2450MHz	51.5	30.4	3.6

Frequency	L (mm)	W (mm)	L _f (mm)	W _f (mm)
5000MHz	40.39	20.19	81.03	61.98

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6.2.2. System Check Result

System Performance Check at 2450MHz &5000MHz for Head								
Validation Kit:SN29/15 DIP 2G450-393 &SN 15/15 WGA 36								
Frequency [MHz]	Target Value(W/Kg)		Reference Result ($\pm 10\%$)		Normalized to 1W(W/Kg)		Tissue Temp. [°C]	Test time
	1g	10g	1g	10g	1g	10g		
2450	54.53	24.30	49.077-59.983	21.87-26.73	54.24	23.38	21.5	May 27,2018
5200	159.92	56.13	143.928-175.912	50.517-61.743	169.65	56.82	21.5	June 13,2018
5200	159.92	56.13	143.928-175.912	50.517-61.743	168.33	55.45	21.4	June 14,2018
5600	174.05	59.89	156.645-191.455	53.901-65.879	182.89	61.17	21.2	June 15,2018
5800	180.38	61.46	162.342-198.418	55.314-67.606	188.56	63.14	21.7	June 12,2018
System Performance Check at 2450MHz &5000MHz for Body								
Frequency [MHz]	Target Value(W/Kg)		Reference Result ($\pm 10\%$)		Normalized to 1W(W/Kg)		Tissue Temp. [°C]	Test time
	1g	10g	1g	10g	1g	10g		
2450	49.92	23.16	44.928-54.912	20.844-25.476	49.42	22.95	21.8	May 28,2018
5200	158.49	56.44	142.641-174.339	50.796-62.084	169.38	56.44	21.4	June 05,2018
5200	158.49	56.44	142.641-174.339	50.796-62.084	171.03	57.12	21.7	June 06,2018
5600	171.11	59.96	153.999-188.221	53.964-65.956	183.88	61.24	21.4	June 07,2018
5800	176.30	61.30	158.67-193.93	55.17-67.43	179.37	59.30	21.5	June 03,2018

Note:

(1) We use a CW signal of 18dBm for system check, and then all SAR values are normalized to 1W forward power. The result must be within $\pm 10\%$ of target value.

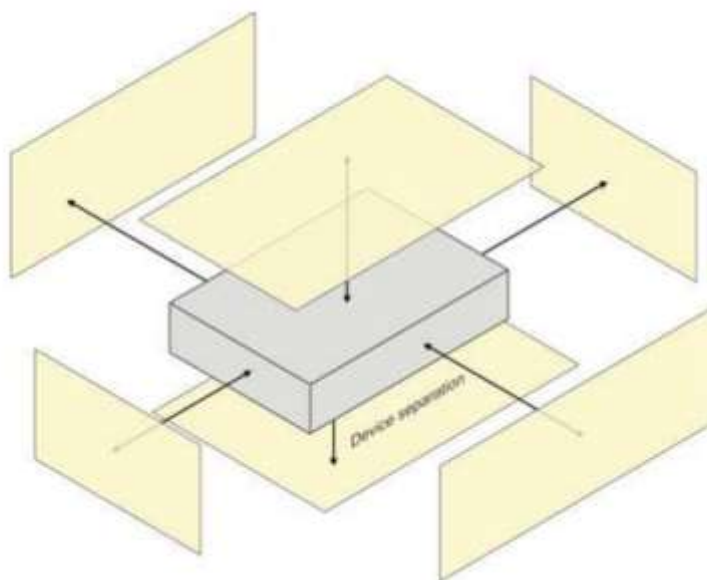
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7. EUT TEST POSITION

This EUT was tested in **Body back, Body front and 4 edges**.

7.1. 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 **0mm**.



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8. SAR EXPOSURE LIMITS

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

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

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9. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District B112-B113, Shenzhen 518012
NVLAP Lab Code	600153-0
Designation Number	CN5028
Test Firm Registration Number	682566
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by National Voluntary Laboratory Accreditation program, NVLAP Code 600153-0

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10. TEST EQUIPMENT LIST

Equipment description	Manufacturer/ Model	Identification No.	Current calibration date	Next calibration date
SAR Probe	MVG	SN 08/16 EPGO282	Aug. 08,2017	Aug. 07,2018
Phantom	SATIMO	SN_4511_SAM90	Validated. No cal required.	Validated. No cal required.
Liquid	SATIMO	-	Validated. No cal required.	Validated. No cal required.
Multimeter	Keithley 2000	1188656	Mar. 01,2018	Feb. 28,2019
Dipole	SATIMO SID2450	SN29/15 DIP 2G450-393	Jul. 05,2016	Jul. 04,2019
Wave guide	SWG5500	SN 15/15 WGA 36	Jul. 05,2016	Jul. 04,2019
Signal Generator	Agilent-E4438C	US41461365	Mar. 01,2018	Feb. 28,2019
Vector Analyzer	Agilent / E4440A	US41421290	Mar. 01,2018	Feb. 28,2019
Network Analyzer	Rhode & Schwarz ZVL6	SN100132	Mar. 01,2018	Feb. 28,2019
Attenuator	Warison /WATT-6SR1211	N/A	N/A	N/A
Attenuator	Mini-circuits / VAT-10+	N/A	N/A	N/A
Amplifier	EM30180	SN060552	Mar. 01,2018	Feb. 28,2019
Directional Couple	Werlatone/ C5571-10	SN99463	Jun. 20,2017	Jun. 19,2018
Directional Couple	Werlatone/ C6026-10	SN99482	Jun. 20,2017	Jun. 19,2018
Power Sensor	NRP-Z21	1137.6000.02	Oct. 12,2017	Oct. 11,2018
Power Sensor	NRP-Z23	US38261498	Mar. 01,2018	Feb. 28,2019
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.

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11. MEASUREMENT UNCERTAINTY

Measurement uncertainty for Dipole averaged over 1 gram / 10 gram.									
a	b	c	d	^e f(d,k)	f	g	^h c×f/e	ⁱ c×g/e	k
Uncertainty Component	Sec.	Tol (± %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (±%)	10g Ui (±%)	vi
Measurement System									
Probe calibration	E.2.1	5.831	N	1	1	1	5.83	5.83	∞
Axial Isotropy	E.2.2	0.695	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.28	0.28	∞
Hemispherical Isotropy	E.2.2	1.045	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.43	0.43	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	0.685	R	$\sqrt{3}$	1	1	0.40	0.40	∞
System detection limits	E.2.4	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	E.2.5	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Readout Electronics	E.2.6	0.021	N	1	1	1	0.021	0.021	∞
Response Time	E.2.7	0	R	$\sqrt{3}$	1	1	0	0	∞
Integration Time	E.2.8	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
RF ambient conditions-Noise	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	E.6.2	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	E.6.3	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
Test sample Related									
Test sample positioning	E.4.2	2.6	N	1	1	1	2.6	2.6	∞
Device holder uncertainty	E.4.1	3	N	1	1	1	3	3	∞
Output power variation—SAR drift measurement	E.2.9	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	E.6.5	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Phantom and tissue parameters									
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity measurement	E.3.3	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity measurement	E.3.3	5	N	1	0.23	0.26	1.15	1.30	M
Liquid conductivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid permittivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty			RSS				9.79	9.59	
Expanded Uncertainty (95% Confidence interval)			K=2				19.58	19.18	

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System check uncertainty for Dipole averaged over 1 gram / 10 gram.									
a	b	c	d	e f(d,k)	f	g	h c×f/e	i c×g/e	k
Uncertainty Component	Sec.	Tol (± %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (±%)	10g Ui (±%)	vi
Measurement System									
Probe calibration drift	E.2.1.3	0.5	N	1	1	1	0.50	0.50	∞
Axial Isotropy	E.2.2	0.695	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Hemispherical Isotropy	E.2.2	1.045	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Linearity	E.2.4	0.685	R	$\sqrt{3}$	0	0	0.00	0.00	∞
System detection limits	E.2.4	1.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Modulation response	E.2.5	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Readout Electronics	E.2.6	0.021	N	1	0	0	0.00	0.00	∞
Response Time	E.2.7	0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Integration Time	E.2.8	1.4	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-Noise	E.6.1	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-reflections	E.6.1	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Probe positioner mechanical tolerance	E.6.2	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	E.6.3	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	2.3	R	$\sqrt{3}$	0	0	0.00	0.00	∞
System check source (dipole)									
Deviation of experimental dipoles	E.6.4	2	N	1	1	1	2	2	∞
Input power and SAR drift measurement	8,6.6.4	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Dipole axis to liquid distance	8,E.6.6	2	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and tissue parameters									
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity measurement	E.3.3	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity measurement	E.3.3	5	N	1	0.23	0.26	1.15	1.30	M
Liquid conductivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid permittivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty			RSS				5.564	5.205	
Expanded Uncertainty (95% Confidence interval)			K=2				11.128	10.410	

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System Validation uncertainty for Dipole averaged over 1 gram / 10 gram.									
a	b	c	d	^e f(d,k)	f	g	^h c×f/e	ⁱ c×g/e	k
Uncertainty Component	Sec.	Tol (±%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (±%)	10g Ui (±%)	vi
Measurement System									
Probe calibration	E.2.1	5.831	N	1	1	1	5.83	5.83	∞
Axial Isotropy	E.2.2	0.695	R	$\sqrt{3}$	1	1	0.40	0.40	∞
Hemispherical Isotropy	E.2.2	1.045	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	E.2.4	0.685	R	$\sqrt{3}$	1	1	0.40	0.40	∞
System detection limits	E.2.4	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	E.2.5	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Readout Electronics	E.2.6	0.021	N	1	1	1	0.021	0.021	∞
Response Time	E.2.7	0.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Integration Time	E.2.8	1.4	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-Noise	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	E.6.2	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	E.6.3	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
System check source (dipole)									
Deviation of experimental dipole from numerical dipole	E.6.4	5.0	N	1	1	1	5.00	5.00	∞
Input power and SAR drift measurement	8,6.6.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Dipole axis to liquid distance	8,E.6.6	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and tissue parameters									
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity measurement	E.3.3	4.0	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity measurement	E.3.3	5.0	N	1	0.23	0.26	1.15	1.30	M
Liquid conductivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid permittivity—temperature uncertainty	E.3.4	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty			RSS				9.718	9.517	
Expanded Uncertainty (95% Confidence interval)			K=2				19.437	19.035	

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12. CONDUCTED POWER MEASUREMENT

2.4GHz WIFI

Mode	Data Rate (Mbps)	Channel	Frequency(MHz)	Max Conducted Average Output Power (dBm)
802.11b	1	1	2412	15.8
		6	2437	15.9
		11	2462	15.8
802.11g	6	1	2412	15.6
		6	2437	15.4
		11	2462	15.4
802.11n HT20	6.5	1	2412	15.6
		6	2437	15.4
		11	2462	15.4
802.11n HT40	13.5	3	2422	15.6
		6	2437	15.5
		9	2452	15.4

Bluetooth_V4.0(BR/EDR)

Modulation	Channel	Frequency(MHz)	Avg. Burst Power (dBm)
GFSK	0	2402	6.7
	39	2441	6.6
	78	2480	6.3
$\pi/4$ -DQPSK	0	2402	4.4
	39	2441	4.3
	78	2480	4
8-DPSK	0	2402	4.4
	39	2441	4.3
	78	2480	4

Bluetooth_V4.0(BLE)

Modulation	Channel	Frequency(MHz)	Peak Power (dBm)
GFSK	0	2402	3.1
	19	2440	3.1
	39	2480	2.7

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5GHz WIFI

Band	Mode	Channel	Frequency (MHz)	Max Conducted Average Output Power (dBm)
U-NII-1	802.11a20	36	5180	9.3
		40	5200	9.3
		44	5220	9.1
		48	5240	9.4
	802.11n HT20	36	5180	9
		40	5200	8.8
		44	5220	8.6
		48	5240	8.8
	802.11n HT40	38	5190	10
		46	5230	9.9
	802.11ac VHT20	36	5180	8.7
		40	5200	8.6
		44	5220	8.2
		48	5240	8.7
	802.11ac VHT40	38	5190	9.1
		46	5230	8.5
	802.11ac VHT80	42	5210	9.1
U-NII-2A	802.11a20	52	5260	9.6
		56	5280	9.7
		60	5300	9.3
		64	5320	9.5
	802.11n HT20	52	5260	9
		56	5280	8.9
		60	5300	8.5
		64	5320	9
	802.11n HT40	54	5270	10
		62	5310	10
	802.11ac VHT20	52	5260	8.7
		56	5280	9
		60	5300	8.8
		64	5320	9
	802.11ac VHT40	54	5270	8.9
		62	5310	9.2
	802.11ac VHT80	58	5290	8.1

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Band	Mode	Channel	Frequency (MHz)	Max Conducted Average Output Power (dBm)
U-NII-2C	802.11a	100	5500	9.2
		104	5520	9.5
		108	5540	9.1
		112	5560	8.9
		116	5580	9.7
		120	5600	9.1
		132	5660	9.2
		136	5680	8.8
		140	5700	9.7
	802.11n HT20	100	5500	8.6
		104	5520	8.5
		108	5540	8.2
		112	5560	8.0
		116	5580	8.8
		120	5600	8.5
		132	5660	7.9
		136	5680	8.1
	802.11n HT40	140	5700	8.7
		102	5510	9.5
		110	5550	9.5
	802.11ac VHT20	134	5670	9.9
		100	5500	8
		104	5520	7.9
		108	5540	7.5
		112	5560	7.3
		116	5580	8
		120	5600	7
		132	5660	6.9
		136	5680	7.1
		140	5700	8
	802.11ac VHT40	102	5510	8.2
		110	5550	8.3
		134	5670	8.8
	802.11ac VHT80	106	5530	8.7
		122	5610	8.8
		138	5690	9.5

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Band	Mode	Channel	Frequency (MHz)	Max Conducted Average Output Power (dBm)
U-NII-3	802.11a	149	5745	9.7
		153	5765	9.2
		157	5785	10.6
		161	5805	10.3
		165	5825	9.7
	802.11n HT20	149	5745	9.7
		153	5765	9.2
		157	5785	9.6
		161	5805	9.2
		165	5825	9.6
	802.11n HT40	151	5755	9.8
		159	5795	8.5
	802.11ac VHT20	149	5745	9
		153	5765	9.6
		157	5785	10
		161	5805	9.3
		165	5825	9
	802.11ac VHT40	151	5755	8.7
		159	5795	8.5
	802.11ac VHT80	155	5775	9.2

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13. TEST RESULTS

13.1. SAR Test Results Summary

13.1.1. Test position and configuration

1. The EUT is a sport Camera.
2. According to FCC PAG, Lab use the head liquid with a separation of 0mm at flat phantom to test;
3. For SAR testing, the device was controlled by software to test at reference fixed frequency points.

13.1.2. Operation Mode

1. Per KDB 447498 D01 v06 ,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. Per KDB 248227 D01 v02r02 Chapter 5.2.2,when SAR measurement is required for 2.4GHz 802.11g/n OFDM configurations, the measurement and test reducing procedures for OFDM are applied. SAR is not required for the following 2.4 GHz OFDM conditions.
 - (1) When KDB Publication 447498 D01 SAR test exclusion applies to the OFDM configuration.
 - (2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/Kg,
4. Per KDB 248227 D01 v02r02 Chapter 5.3.4, SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. The initial test position procedure is applied to next to the ear, UMPC mini-tablet and hotspot mode configurations. When the same maximum output power is specified for multiple transmission modes, the procedures in 5.3.2 are applied to determine the test configuration. Additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. The subsequent test configuration and SAR measurement procedures are described in the following.
 - (1) When SAR test exclusion provisions of KDB Publication 447498 D01 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.
 - (2) When the highest reported SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified

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maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

- (3) When the specified maximum output power is same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the report SAR for UNII 2A is < 1.2 W/Kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- (4) When the specified maximum output power different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/Kg, testing for the band with the lower specified output power is not required; otherwise test is remaining separately for SAR;
5. 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)]
6. The Model: SPTM1 supports Bluetooth BR+EDR/Bluetooth Low Energy/WIFI/GPS & Galileo receiving functions, power by 3.85Vdc, 1220mAh supplied by an internal rechargeable Lithium Ion Battery or 5Vdc supplied by USB type C port. The TX and RX range is 2402MHz-2480MHz for Bluetooth, 2412MHz – 2462MHz for 2.4GHzWIFI, 5180MHz – 5320MHz, 5500MHz – 5700MHz, 5745MHz – 5825MHz for 5GHzWIFI, 1575.42MHz for GNSS (only GPS and Galileo) Receiver, also supports two versions (Version W and Version S), the Version W is identical with the Version S except of the Version S is Dark grey color with GPS & Galileo receiving function, supported resolutions: 4K/30fps, 1440/30fps, 1440/60fps and 960/90fps. The Version W is Light grey color without GPS & Galileo receiving function; supported resolutions: 1440/30fps and 1440/60fps, therefore Spurious Emissions was tested with the two versions, and the others test items were only performed on the Version S.

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13.1.3. SAR Test Results Summary

SAR MEASUREMENT									
Depth of Liquid (cm):>15									
Product: Camera									
Test model: SPTM1(Version W)									
Test Mode: 2.4GHz 802.11b									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit W/kg
Head Back	DTS	6	2437	-0.18	0.275	16.0	15.9	0.281	1.6
Head Front	DTS	6	2437	-0.27	0.095	16.0	15.9	0.097	1.6
Edge 1 (Top)	DTS	1	2412	0.55	0.986	16.0	15.8	1.032	1.6
Edge 1 (Top)	DTS	6	2437	-0.36	1.110	16.0	15.9	1.136	1.6
Edge 1 (Top)	DTS	11	2462	-0.22	1.128	16.0	15.8	1.181	1.6
Edge 2 (Right)	DTS	1	2412	0.15	1.148	16.0	15.8	1.202	1.6
Edge 2 (Right)	DTS	6	2437	-0.23	1.192	16.0	15.9	1.220	1.6
Edge 2 (Right)	DTS	11	2462	0.11	1.210	16.0	15.8	1.267	1.6
Body Back	DTS	6	2437	-0.26	0.257	16.0	15.9	0.263	1.6
Body Front	DTS	6	2437	0.55	0.086	16.0	15.9	0.088	1.6
Edge 1 (Top)	DTS	1	2412	-0.18	1.028	16.0	15.8	1.076	1.6
Edge 1 (Top)	DTS	6	2437	0.47	1.093	16.0	15.9	1.118	1.6
Edge 1 (Top)	DTS	11	2462	0.39	1.085	16.0	15.8	1.136	1.6
Edge 2 (Right)	DTS	6	2437	-0.27	0.787	16.0	15.8	0.824	1.6
Edge 2 (Right)	DTS	6	2437	0.65	0.843	16.0	15.9	0.863	1.6
Edge 2 (Right)	DTS	6	2437	-0.56	0.872	16.0	15.8	0.913	1.6

Note:

- When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results.

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SAR MEASUREMENT								
Depth of Liquid (cm):>15								
Product: Camera								
Test model: SPTM1(Version W)								
Test Mode: 5.2GHz 802.11n HT40								
Position	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
Head Back	38	5190	-0.13	0.102	10	10	0.102	1.6
Head Front	38	5190	0.26	0.075	10	10	0.075	1.6
Edge 1 (Top)	38	5190	-0.35	1.112	10	10	1.112	1.6
Edge 1 (Top)	46	5230	0.61	0.890	10	9.9	0.911	1.6
Edge 2 (Right)	38	5190	-0.28	0.470	10	10	0.470	1.6
Body back	38	5190	-0.07	0.145	10	10	0.145	1.6
Body front	38	5190	-0.19	0.107	10	10	0.107	1.6
Edge 1 (Top)	38	5190	0.33	1.163	10	10	1.163	1.6
Edge 1 (Top)	46	5230	-0.53	0.921	10	9.9	0.942	1.6
Edge 2 (Right)	38	5190	-0.50	0.494	10	10	0.494	1.6

Note:

- When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results

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SAR MEASUREMENT								
Depth of Liquid (cm):>15								
Product: Camera								
Test model: SPTM1(Version W)								
Test Mode: 5.3GHz 802.11n HT40								
Position	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
Head Back	62	5310	-0.23	0.055	10	10	0.055	1.6
Head Front	62	5310	-0.06	0.022	10	10	0.022	1.6
Edge 1 (Top)	54	5270	-0.28	0.993	10	10	0.993	1.6
Edge 1 (Top)	62	5310	0.17	1.086	10	10	1.086	1.6
Edge 2 (Right)	62	5310	0.02	0.289	10	10	0.289	1.6
Body back	62	5310	-0.85	0.070	10	10	0.070	1.6
Body front	62	5310	0.26	0.027	10	10	0.027	1.6
Edge 1 (Top)	54	5270	-1.17	1.119	10	10	1.119	1.6
Edge 1 (Top)	62	5310	-1.03	1.280	10	10	1.280	1.6
Edge 2 (Right)	62	5310	0.53	0.317	10	10	0.317	1.6

Note:

- When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results

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SAR MEASUREMENT								
Depth of Liquid (cm):>15								
Product: Camera								
Test model: SPTM1(Version W)								
Test Mode: 5.6GHz 802.11n HT40								
Position	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
Head Back	134	5670	0.14	0.010	10.0	9.9	0.010	1.6
Head Front	134	5670	0.06	0.007	10.0	9.9	0.007	1.6
Edge 1 (Top)	102	5510	0.28	0.792	10.0	9.5	0.889	1.6
Edge 1 (Top)	110	5550	0.51	0.841	10.0	9.5	0.944	1.6
Edge 1 (Top)	134	5670	0.23	0.761	10.0	9.9	0.779	1.6
Edge 2 (Right)	134	5670	0.02	0.081	10.0	9.9	0.083	1.6
Body back	134	5670	0.52	0.014	10.0	9.9	0.014	1.6
Body front	134	5670	0.18	0.008	10.0	9.9	0.008	1.6
Edge 1 (Top)	102	5510	0.26	0.831	10.0	9.5	0.932	1.6
Edge 1 (Top)	110	5550	0.13	0.876	10.0	9.5	0.983	1.6
Edge 1 (Top)	134	5670	0.07	0.808	10.0	9.9	0.827	1.6
Edge 2 (Right)	134	5670	0.19	0.094	10.0	9.9	0.096	1.6

Note:

- When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results

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SAR MEASUREMENT								
Depth of Liquid (cm):>15								
Product: Camera								
Test model: SPTM1(Version W)								
Test Mode: 5.8GHz 802.11a								
Position	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
Head Back	157	5785	-0.10	0.012	11.0	10.6	0.013	1.6
Head Front	157	5785	-0.11	0.007	11.0	10.6	0.008	1.6
Edge 1 (Top)	157	5785	-0.43	0.317	11.0	10.6	0.348	1.6
Edge 2 (Right)	157	5785	0.32	0.214	11.0	10.6	0.235	1.6
Body Back	157	5785	-0.08	0.017	11.0	10.6	0.019	1.6
Body Front	157	5785	-0.13	0.008	11.0	10.6	0.009	1.6
Edge 1 (Top)	157	5785	-0.57	0.329	11.0	10.6	0.361	1.6
Edge 2 (Right)	157	5785	0.39	0.297	11.0	10.6	0.326	1.6

Note:

- When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results

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SAR MEASUREMENT									
Depth of Liquid (cm):>15									
Product: Camera									
Test model: SPTM1(Version S)									
Test Mode: 2.4GHz 802.11b									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit W/kg
Head Back	DTS	6	2437	-0.56	0.125	16.0	15.9	0.128	1.6
Head Front	DTS	6	2437	0.13	0.203	16.0	15.9	0.208	1.6
Edge 1 (Top)	DTS	6	2437	-0.02	0.652	16.0	15.9	0.667	1.6
Edge 2 (Right)	DTS	6	2437	-0.18	0.708	16.0	15.9	0.724	1.6
Body Back	DTS	6	2437	-0.09	0.150	16.0	15.9	0.153	1.6
Body Front	DTS	6	2437	-0.17	0.182	16.0	15.9	0.186	1.6
Edge 1 (Top)	DTS	1	2412	0.22	0.690	16.0	15.8	0.723	1.6
Edge 1 (Top)	DTS	6	2437	-0.18	0.826	16.0	15.9	0.845	1.6
Edge 1 (Top)	DTS	11	2462	-0.52	0.732	16.0	15.8	0.766	1.6
Edge 2 (Right)	DTS	6	2437	0.06	0.252	16.0	15.9	0.258	1.6

Note:

- When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results.

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SAR MEASUREMENT								
Depth of Liquid (cm):>15								
Product: Camera								
Test model: SPTM1(Version S)								
Test Mode: 5.2GHz 802.11n HT40								
Position	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
Head Back	38	5190	-0.19	0.068	10	10	0.068	1.6
Head Front	38	5190	0.23	0.012	10	10	0.012	1.6
Edge 1 (Top)	38	5190	-0.82	1.150	10	10	1.150	1.6
Edge 1 (Top)	46	5230	-0.40	0.999	10	9.9	1.022	1.6
Edge 2 (Right)	38	5190	0.11	0.211	10	10	0.211	1.6
Body back	38	5190	-0.07	0.115	10	10	0.115	1.6
Body front	38	5190	0.26	0.027	10	10	0.027	1.6
Edge 1 (Top)	38	5190	-1.85	1.391	10	10	1.391	1.6
Edge 1 (Top)	46	5230	-1.77	1.136	10	9.9	1.162	1.6
Edge 2 (Right)	38	5190	0.33	0.225	10	10	0.225	1.6

Note:

- When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results

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SAR MEASUREMENT								
Depth of Liquid (cm):>15								
Product: Camera								
Test model: SPTM1(Version S)								
Test Mode: 5.3GHz 802.11n HT40								
Position	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
Head Back	62	5310	-0.19	0.027	10	10	0.027	1.6
Head Front	62	5310	0.05	0.013	10	10	0.013	1.6
Edge 1 (Top)	54	5270	-0.83	1.043	10	10	1.043	1.6
Edge 1 (Top)	62	5310	-1.04	1.110	10	10	1.110	1.6
Edge 2 (Right)	62	5310	0.33	0.134	10	10	0.134	1.6
Body back	62	5310	-0.07	0.181	10	10	0.181	1.6
Body front	62	5310	0.20	0.071	10	10	0.071	1.6
Edge 1 (Top)	54	5270	-1.19	1.133	10	10	1.133	1.6
Edge 1 (Top)	62	5310	-1.20	1.315	10	10	1.315	1.6
Edge 2 (Right)	62	5310	0.35	0.268	10	10	0.268	1.6

Note:

- When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results

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SAR MEASUREMENT								
Depth of Liquid (cm):>15								
Product: Camera								
Test model: SPTM1(Version S)								
Test Mode: 5.6GHz 802.11n HT40								
Position	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
Head Back	134	5670	-0.27	0.030	10.0	9.9	0.031	1.6
Head Front	134	5670	0.15	0.011	10.0	9.9	0.011	1.6
Edge 1 (Top)	102	5510	-0.03	1.115	10.0	9.5	1.251	1.6
Edge 1 (Top)	110	5550	0.52	1.165	10.0	9.5	1.307	1.6
Edge 1 (Top)	134	5670	0.18	1.280	10.0	9.9	1.310	1.6
Edge 2 (Right)	134	5670	-0.07	0.127	10.0	9.9	0.130	1.6
Body back	134	5670	-0.25	0.122	10.0	9.9	0.125	1.6
Body front	134	5670	0.13	0.082	10.0	9.9	0.084	1.6
Edge 1 (Top)	102	5510	-0.08	1.115	10.0	9.5	1.251	1.6
Edge 1 (Top)	110	5550	-0.61	1.187	10.0	9.5	1.332	1.6
Edge 1 (Top)	134	5670	0.16	1.133	10.0	9.9	1.159	1.6
Edge 2 (Right)	134	5670	-0.09	0.176	10.0	9.9	0.180	1.6

Note:

- When the 1-g SAR is $\leq 0.8\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results

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SAR MEASUREMENT								
Depth of Liquid (cm):>15								
Product: Camera								
Test model: SPTM1(Version S)								
Test Mode: 5.8GHz 802.11a								
Position	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
Head Back	157	5785	-0.10	0.057	11.0	10.6	0.062	1.6
Head Front	157	5785	-0.03	0.008	11.0	10.6	0.009	1.6
Edge 1 (Top)	157	5785	0.06	0.472	11.0	10.6	0.518	1.6
Edge 2 (Right)	157	5785	0.15	0.089	11.0	10.6	0.098	1.6
Body Back	157	5785	-0.08	0.082	11.0	10.6	0.090	1.6
Body/ Front	157	5785	-0.17	0.008	11.0	10.6	0.009	1.6
Edge 1 (Top)	157	5785	0.09	0.484	11.0	10.6	0.531	1.6
Edge 2 (Right)	157	5785	0.20	0.131	11.0	10.6	0.144	1.6

Note:

- When the 1-g SAR is $\leq 0.8W/kg$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 0mm.
- Plots are only shown for the bold marked worst case SAR results

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Repeated SAR										
Test model: SPTM1(Version W)										
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	Once SAR (1g) (W/kg)	Power Drift (<±5%)	Twice SAR (1g) (W/kg)	Power Drift (<±5%)	Third SAR (1g) (W/kg)	Limit (W/kg)
2.4GHz										
Edge 2 (Right)	Head	11	2462	0.51	1.210	0.32	1.209	--	--	1.6
Edge 2 (Right)	Body	6	2437	-1.36	1.074	--	--	--	--	1.6
5.2GHz										
Edge 1 (Top)	Head	38	5190	-1.25	1.046	--	--	--	--	1.6
Edge 1 (Top)	Body	38	5190	2.77	1.094	--	--	--	--	1.6
5.3GHz										
Edge 1 (Top)	Head	62	5310	0.99	0.857	--	--	--	--	1.6
Edge 1 (Top)	Body	62	5310	3.57	1.133	2.51	1.089	--	--	1.6
5.6GHz										
Edge 1 (Top)	Head	110	5550	2.39	0.816	--	--	--	--	1.6
Edge 1 (Top)	Body	110	5550	-3.45	0.819	--	--	--	--	1.6

Repeated SAR										
Test model: SPTM1(Version S)										
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	Once SAR (1g) (W/kg)	Power Drift (<±5%)	Twice SAR (1g) (W/kg)	Power Drift (<±5%)	Third SAR (1g) (W/kg)	Limit (W/kg)
2.4GHz										
Edge 1 (Top)	Body	6	2437	1.35	0.739	--	--	--	--	1.6
5.2GHz										
Edge 1 (Top)	Head	38	5190	2.66	1.036	--	--	--	--	1.6
Edge 1 (Top)	Body	38	5190	-0.25	1.291	-0.21	1.206	--	--	1.6
5.3GHz										
Edge 1 (Top)	Head	62	5310	0.67	1.003	--	--	--	--	1.6
Edge 1 (Top)	Body	62	5310	-0.99	1.216	-1.86	1.041	--	--	1.6
5.6GHz										
Edge 1 (Top)	Head	134	5670	1.05	1.100	--	--	--	--	1.6
Edge 1 (Top)	Body	134	5670	2.07	1.062	--	--	--	--	1.6

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APPENDIX A. SAR SYSTEM CHECK DATA

Test Laboratory: AGC Lab

Date: May 27, 2018

System Check Head 2450 MHz

DUT: Dipole 2450 MHz Type: SID 2450

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1; Conv.F=2.52

Frequency: 2450 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.80$ mho/m; $\epsilon_r = 39.15$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

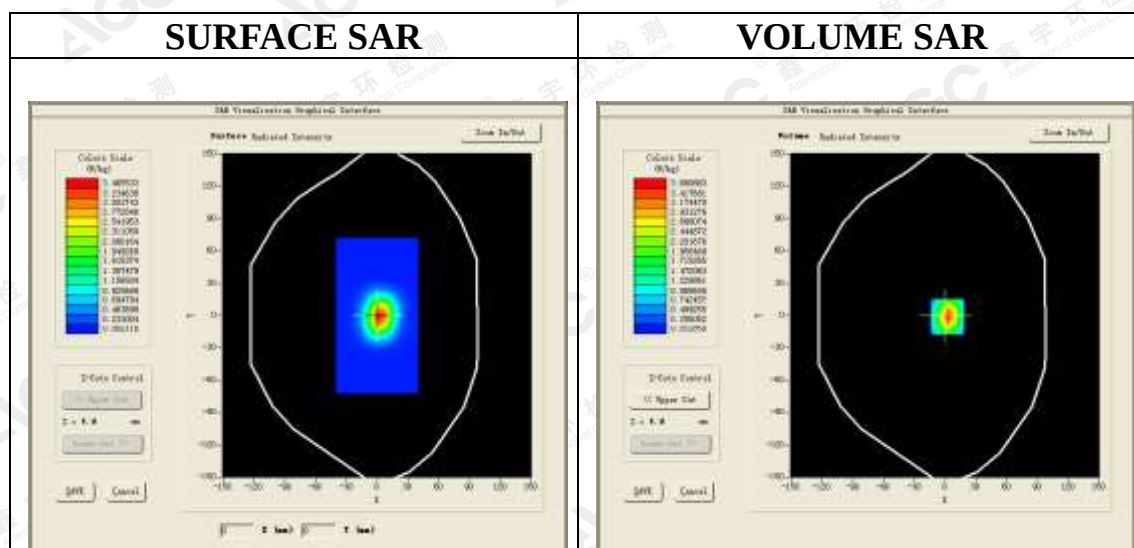
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.5, Relative Humidity (%): 43.5

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

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

Configuration/System Check 2450 MHz Head/Zoom Scan: Measurement grid: dx=8mm, dy=8mm, dz=5mm

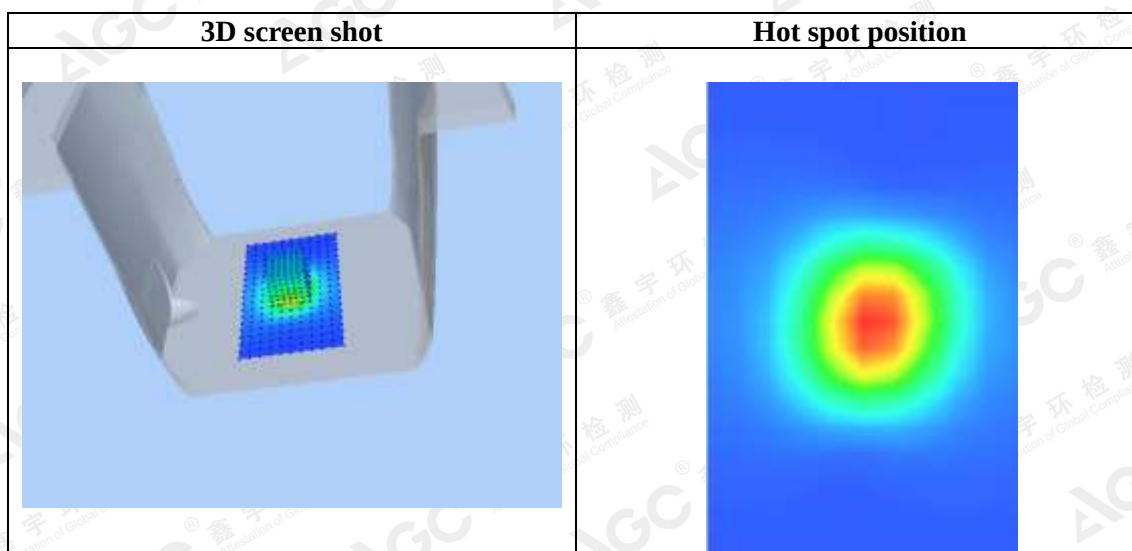
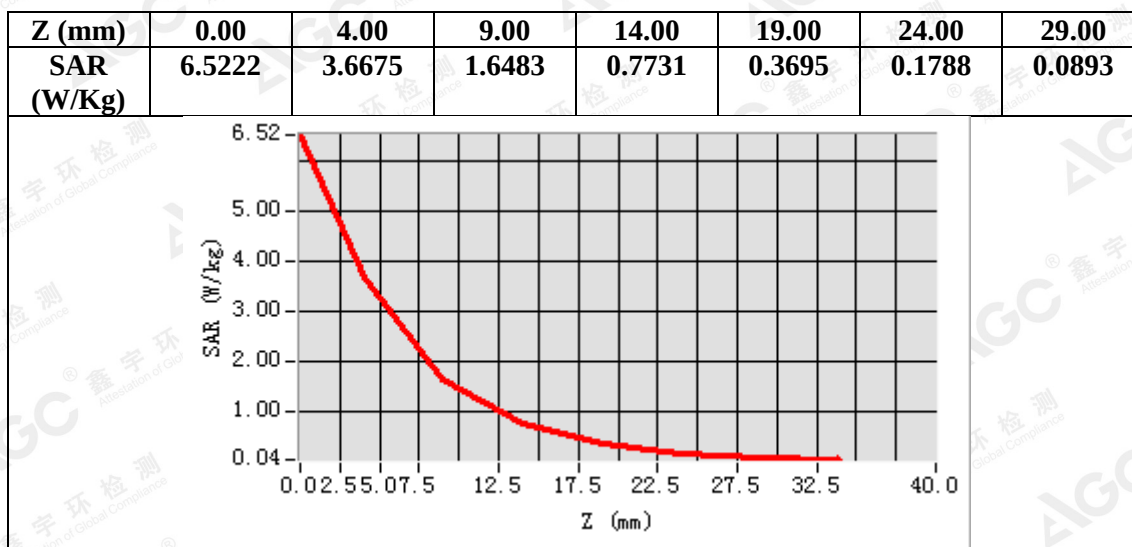


Maximum location: X=2.00, Y=-2.00

SAR Peak: 6.49 W/kg

SAR 10g (W/Kg)	1.475120
SAR 1g (W/Kg)	3.422107

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Test Laboratory: AGC Lab

Date: May 28, 2018

System Check Body 2450 MHz

DUT: Dipole 2450 MHz Type: SID 2450

Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1; Conv.F=2.58

Frequency: 2450 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.92$ mho/m; $\epsilon_r = 52.99$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

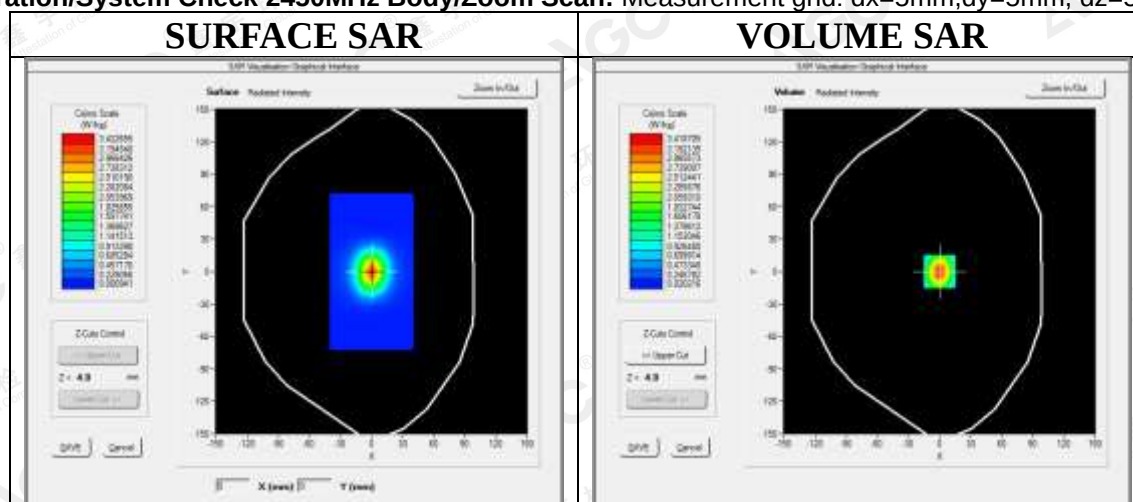
Ambient temperature (°C):22.4, Liquid temperature (°C): 21.8, Relative Humidity (%): 43.7

SATIMO Configuration

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

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

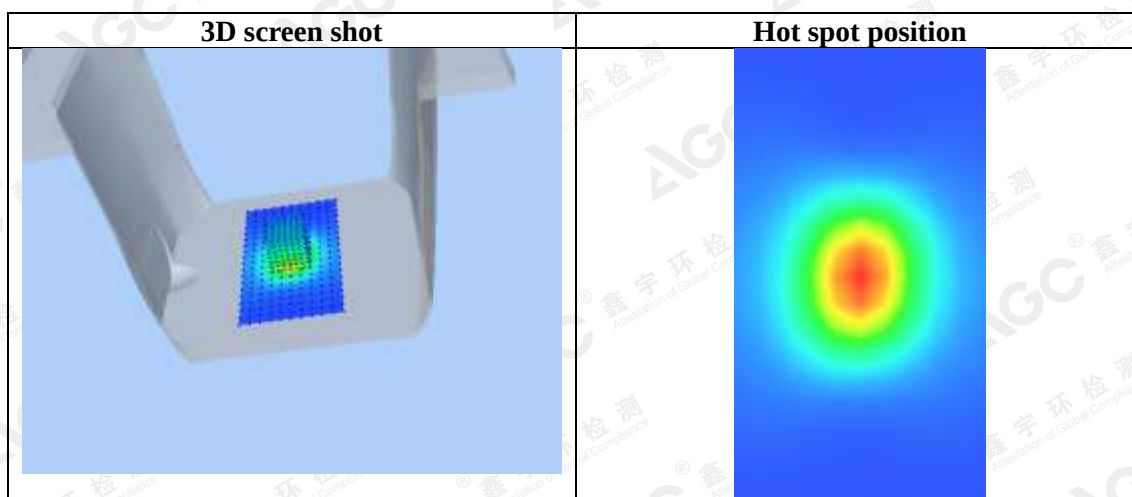
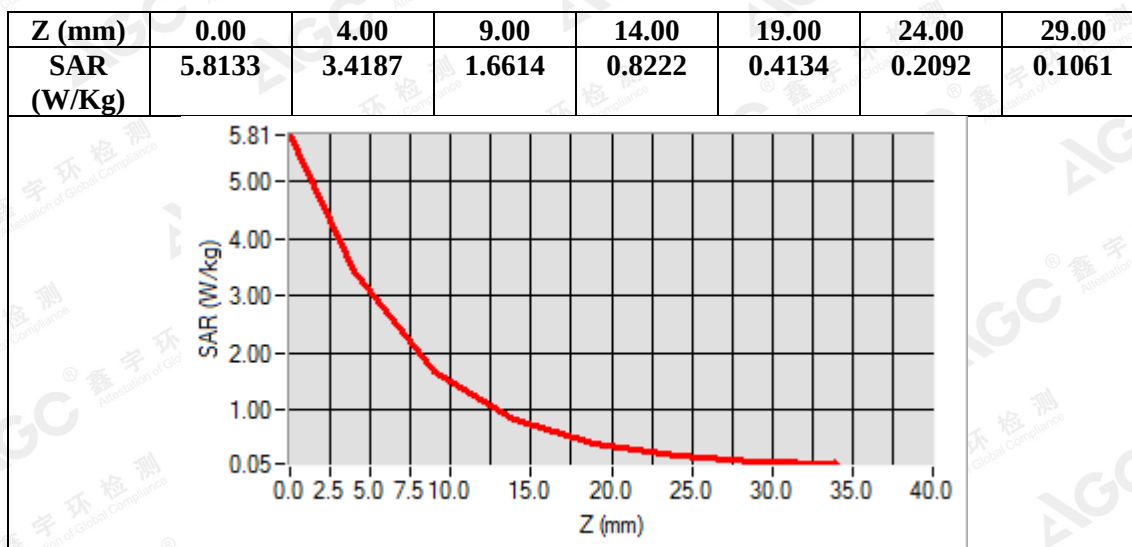


Maximum location: X=0.00, Y=0.00

SAR Peak: 5.74 W/kg

SAR 10g (W/Kg)	1.448049
SAR 1g (W/Kg)	3.118170

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Test Laboratory: AGC Lab

Date: June 13, 2018

System Check Head 5200 MHz

DUT: Dipole 5000MHz Type: SWG5500

Communication System: CW; Communication System Band: D5000 (5000.0 MHz); Duty Cycle: 1:1; Conv.F=2.35

Frequency: 5200 MHz; Medium parameters used: $f = 5200$ MHz; $\sigma = 4.67$ mho/m; $\epsilon_r = 36.91$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

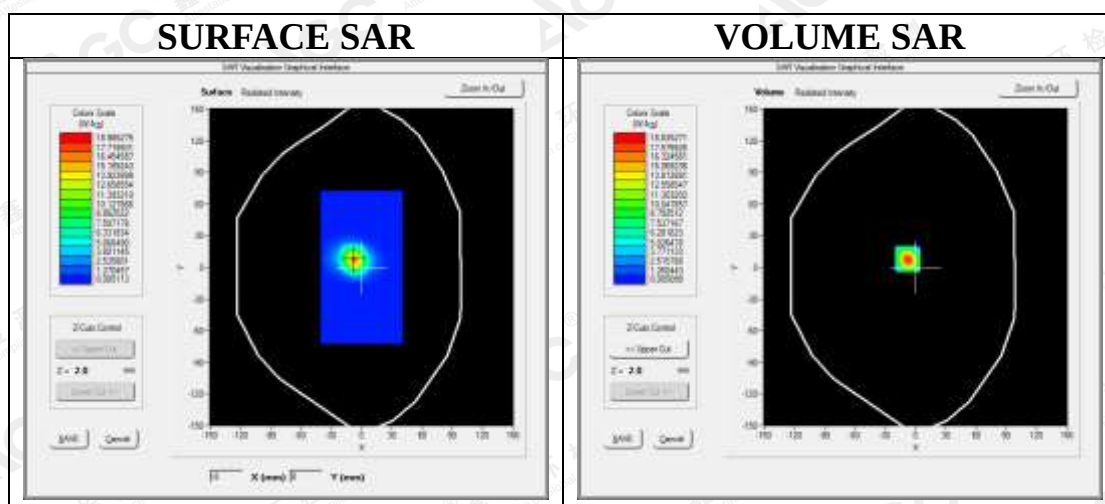
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.5, Relative Humidity (%): 50.7

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/System Check 5200 MHz Head/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 5200 MHz Head/Zoom Scan: Measurement grid: dx=4mm, dy=4mm, dz=2mm

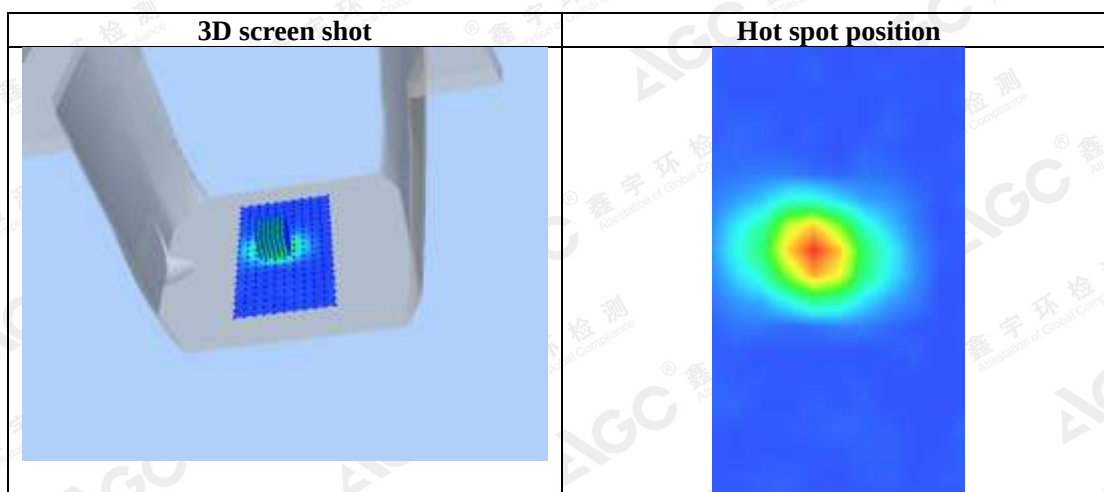
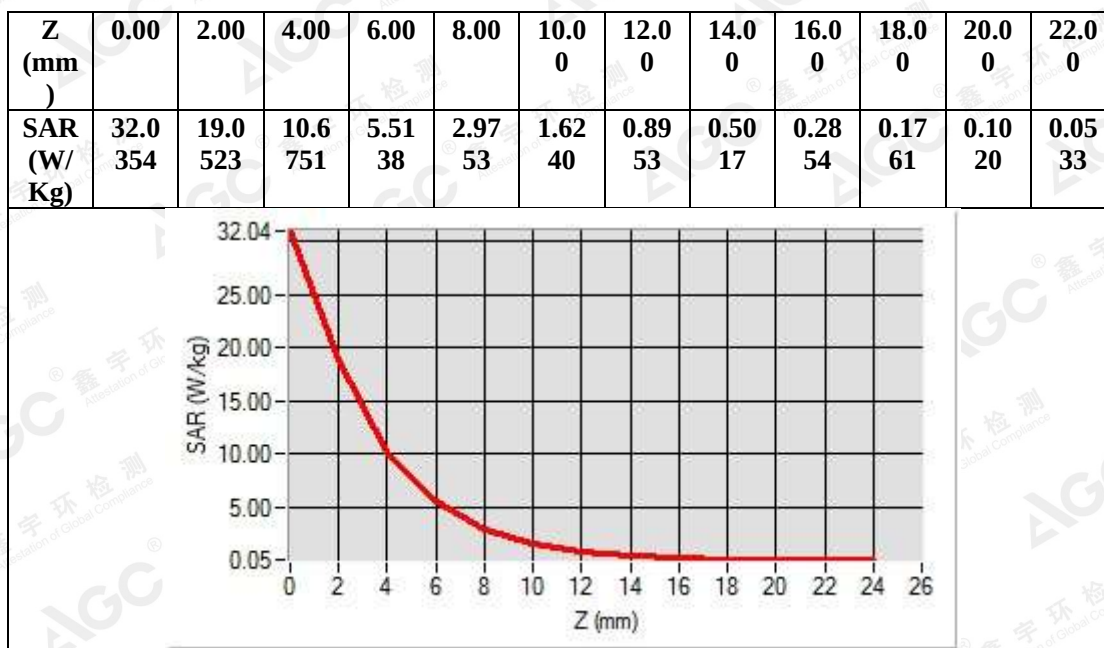


Maximum location: X=-8.00, Y=8.00

SAR Peak: 32.00 W/kg

SAR 10g (W/Kg)	3.585410
SAR 1g (W/Kg)	10.704381

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Test Laboratory: AGC Lab

Date: June 05, 2018

System Check Body 5200 MHz

DUT: Dipole 5000MHz Type: SWG5500

Communication System: CW; Communication System Band: D5000 (5000.0 MHz); Duty Cycle: 1:1; Conv.F=2.41

Frequency: 5200 MHz; Medium parameters used: $f = 5200$ MHz; $\sigma = 5.41$ mho/m; $\epsilon_r = 48.85$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

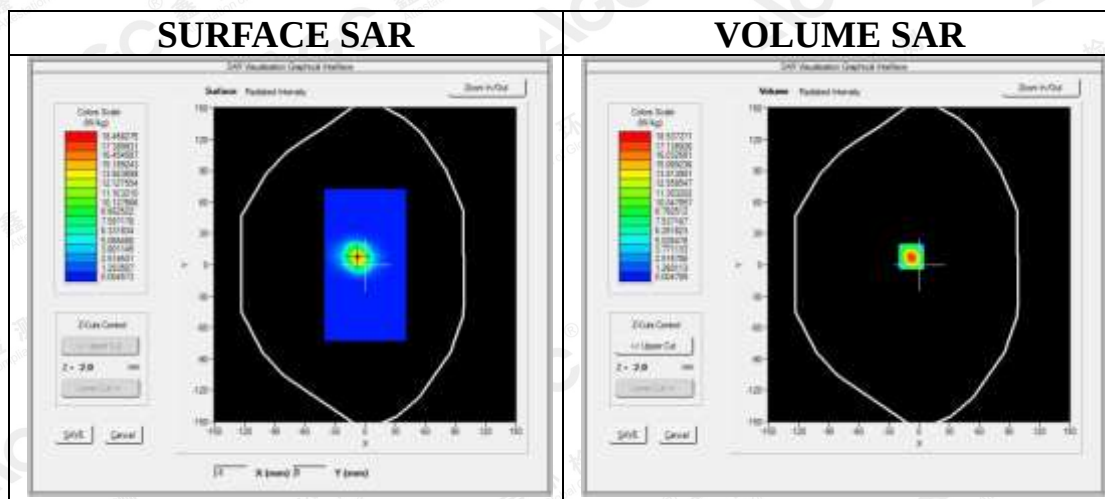
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4, Relative Humidity (%): 49.7

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/System Check 5200 MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 5200 MHz Body/Zoom Scan: Measurement grid: dx=4mm, dy=4mm, dz=2mm



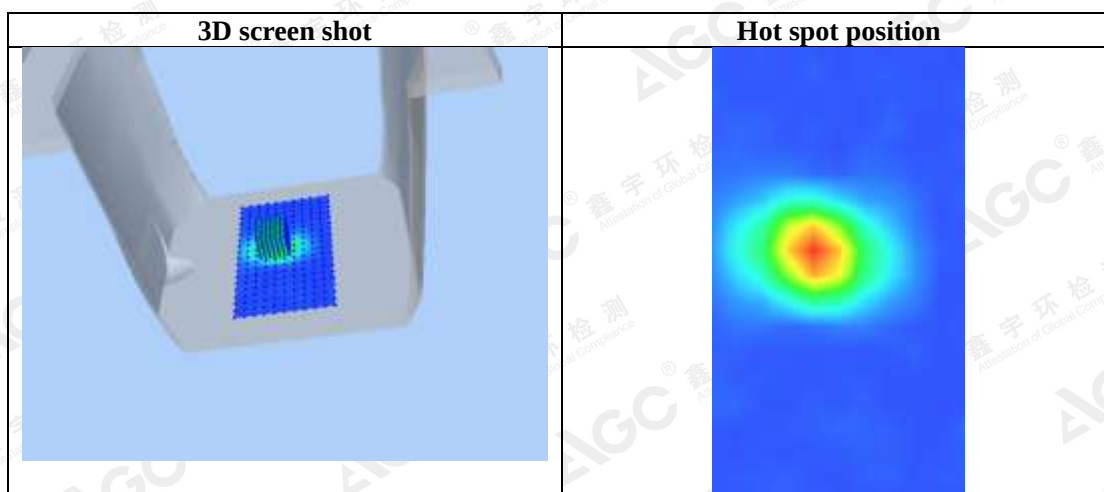
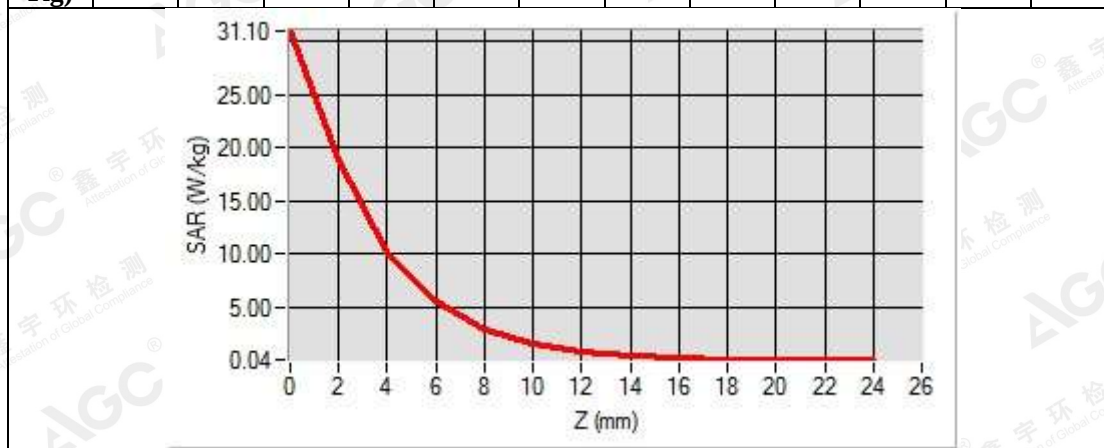
Maximum location: X=-8.00, Y=8.00

SAR Peak: 31.08 W/kg

SAR 10g (W/Kg)	3.561052
SAR 1g (W/Kg)	10.687417

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Z (mm)	0.00	2.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0
SAR (W/Kg)	31.0 954	18.9 993	10.1 628	5.47 85	2.89 51	1.56 37	0.82 95	0.47 44	0.22 85	0.12 96	0.09 37	0.05 26



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Test Laboratory: AGC Lab

Date: June 14, 2018

System Check Head 5300 MHz

DUT: Dipole 5000MHz Type: SWG5500

Communication System: CW; Communication System Band: D5000 (5000.0 MHz); Duty Cycle: 1:1; Conv.F=2.35

Frequency: 5300 MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 4.75$ mho/m; $\epsilon_r = 36.84$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

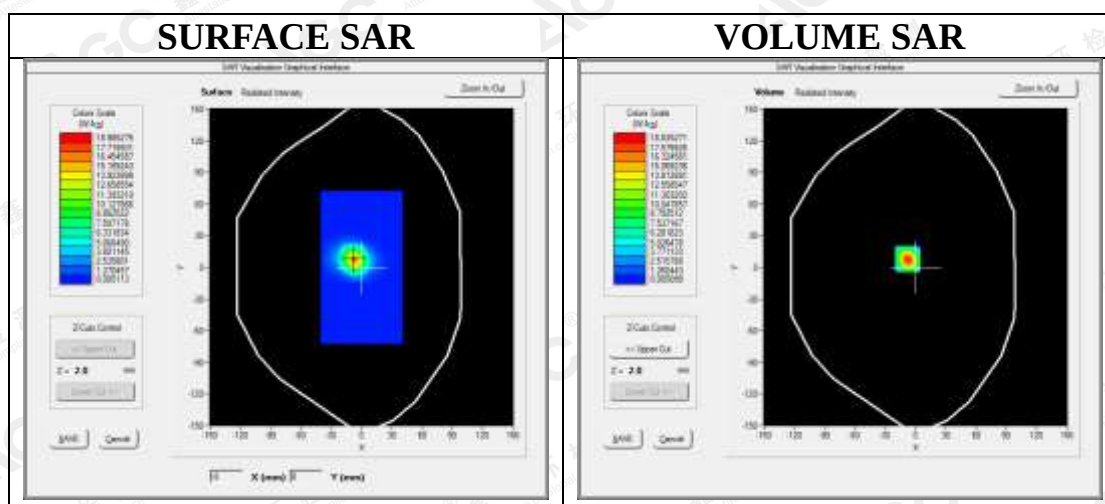
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4, Relative Humidity (%): 53.3

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/System Check 5300 MHz Head/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 5300 MHz Head/Zoom Scan: Measurement grid: dx=4mm, dy=4mm, dz=2mm

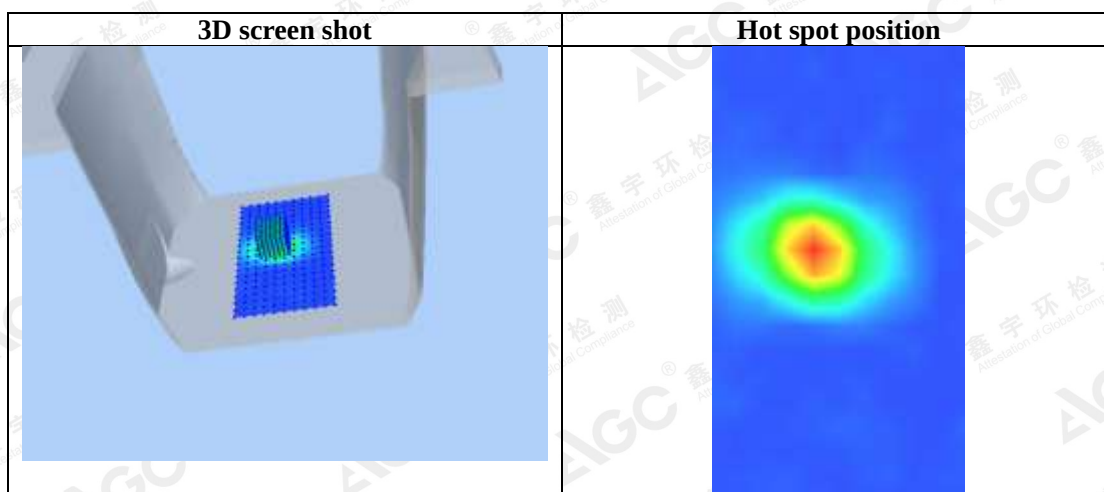
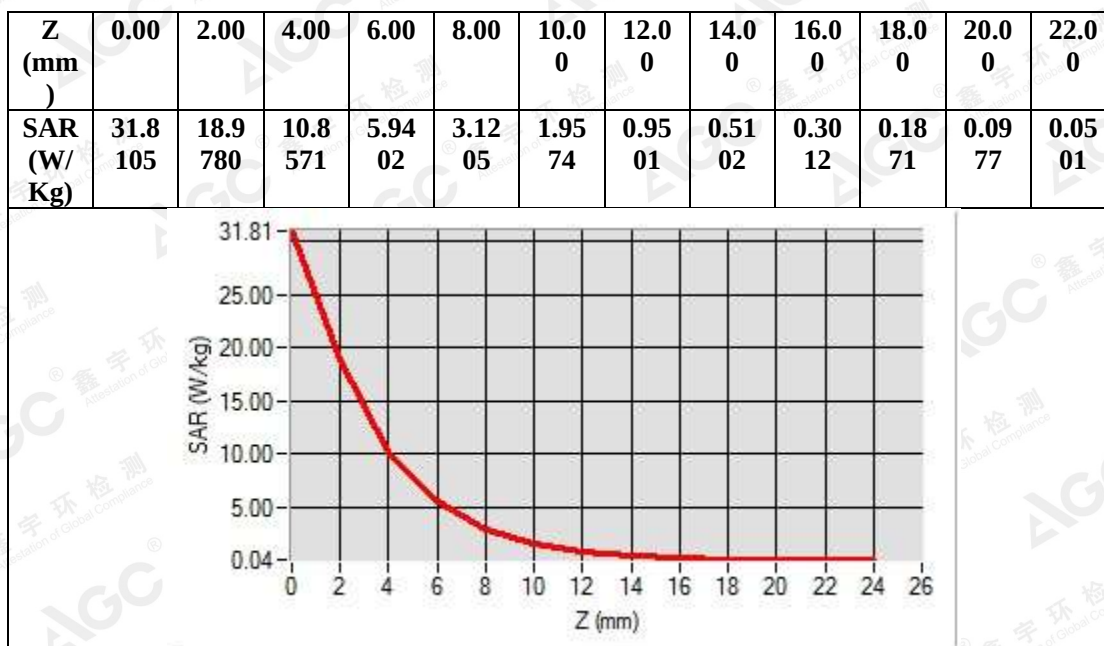


Maximum location: X=-8.00, Y=8.00

SAR Peak: 31.79 W/kg

SAR 10g (W/Kg)	3.498510
SAR 1g (W/Kg)	10.620972

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Test Laboratory: AGC Lab

Date: June 06,2018

System Check Body 5300 MHz

DUT: Dipole 5000MHz Type: SWG5500

Communication System: CW; Communication System Band: D5000 (5000.0 MHz); Duty Cycle: 1:1; Conv.F=2.41

Frequency: 5300 MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 5.38$ mho/m; $\epsilon_r = 50.04$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

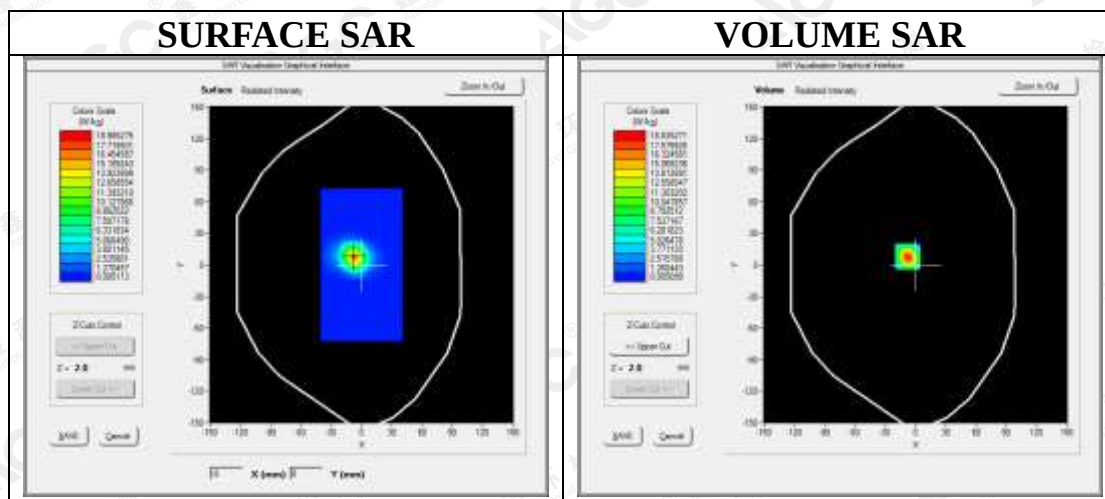
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.7, Relative Humidity (%): 53.4

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/System Check 5300 MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 5300 MHz Body/Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

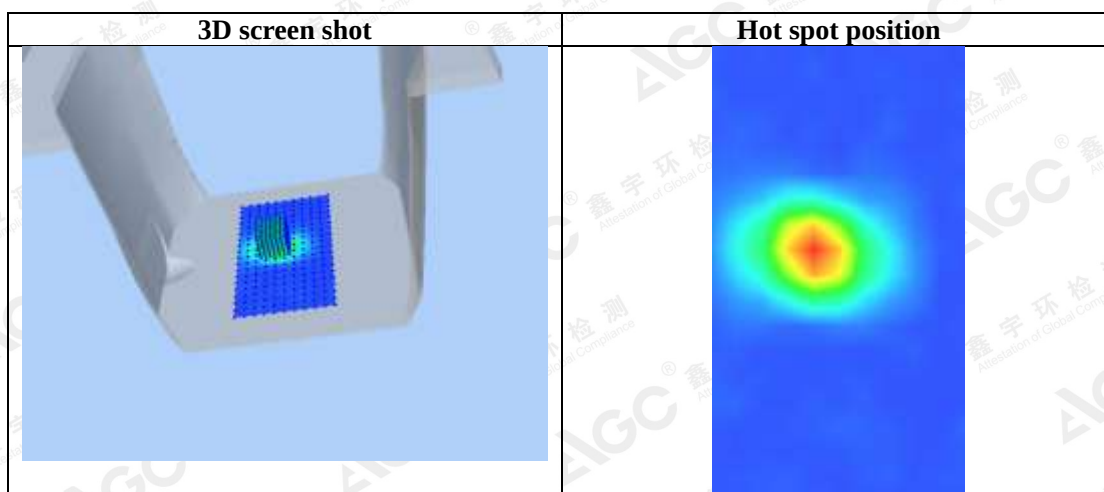
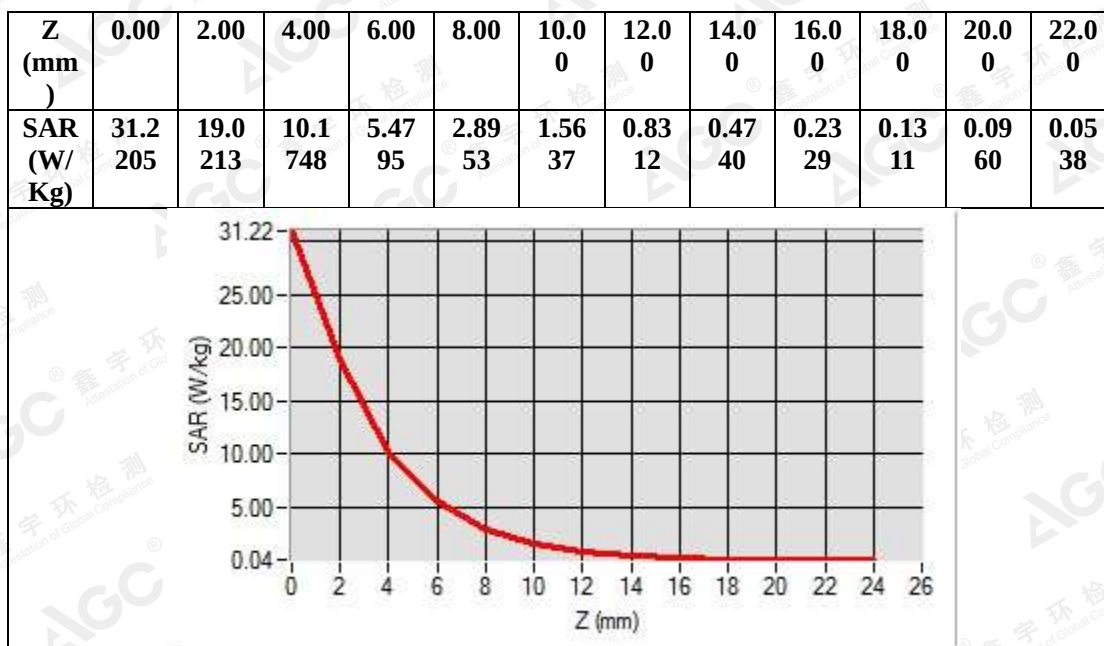


Maximum location: X=-8.00, Y=8.00

SAR Peak: 31.28 W/kg

SAR 10g (W/Kg)	3.604182
SAR 1g (W/Kg)	10.791465

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Test Laboratory: AGC Lab

Date: June 15, 2018

System Check Head 5600 MHz

DUT: Dipole 5000MHz Type: SWG5500

Communication System: CW; Communication System Band: D5000 (5000.0 MHz); Duty Cycle: 1:1; Conv.F=2.43

Frequency: 5600 MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 4.95$ mho/m; $\epsilon_r = 35.86$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

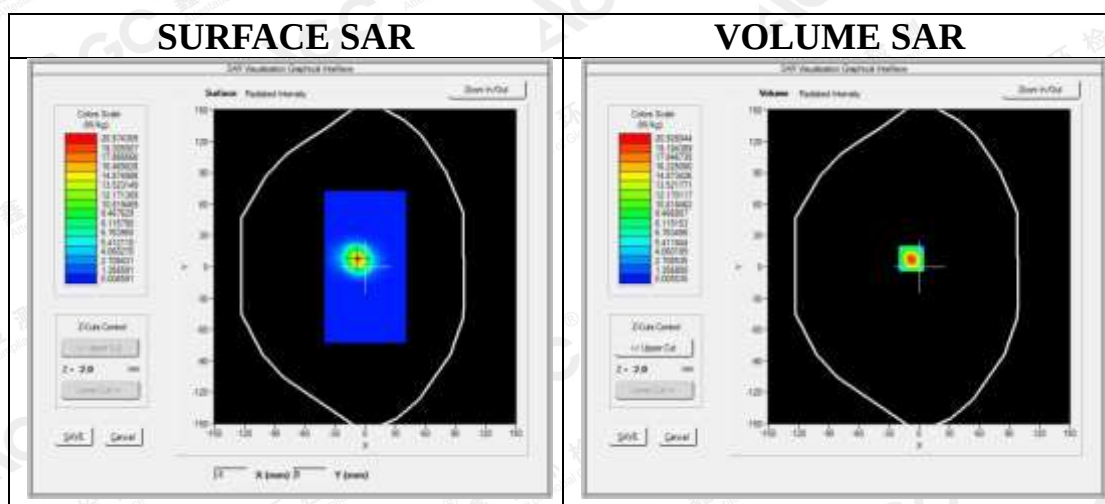
Ambient temperature (°C): 21.7, Liquid temperature (°C): 21.2, Relative Humidity (%): 48.7

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/System Check 5600 MHz Head/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 5600 MHz Head/Zoom Scan: Measurement grid: dx=4mm, dy=4mm, dz=2mm

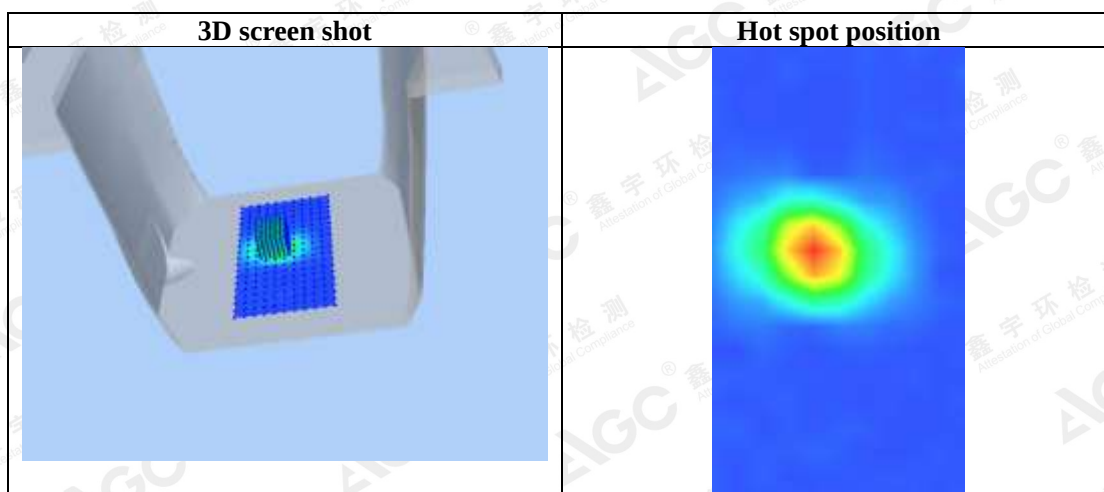
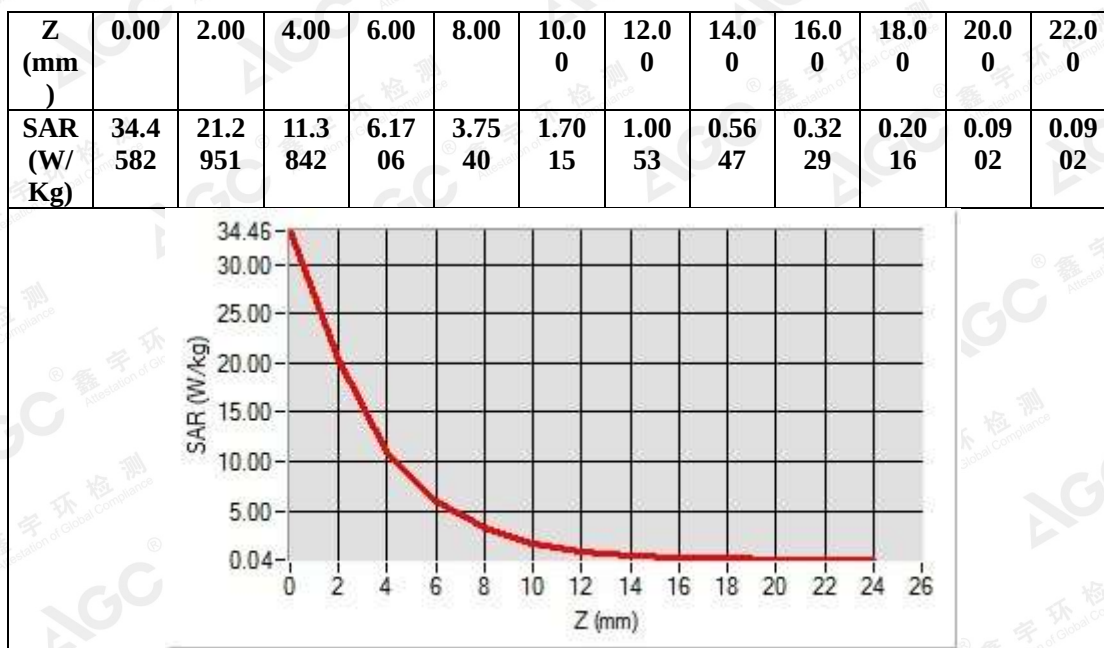


Maximum location: X=-8.00, Y=8.00

SAR Peak: 34.40 W/kg

SAR 10g (W/Kg)	3.859471
SAR 1g (W/Kg)	11.539520

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Test Laboratory: AGC Lab

Date: June 07, 2018

System Check Body 5600 MHz

DUT: Dipole 5000MHz Type: SWG5500

Communication System: CW; Communication System Band: D5000 (5000.0 MHz); Duty Cycle: 1:1; Conv.F=2.51

Frequency: 5600 MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 5.89$ mho/m; $\epsilon_r = 49.43$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

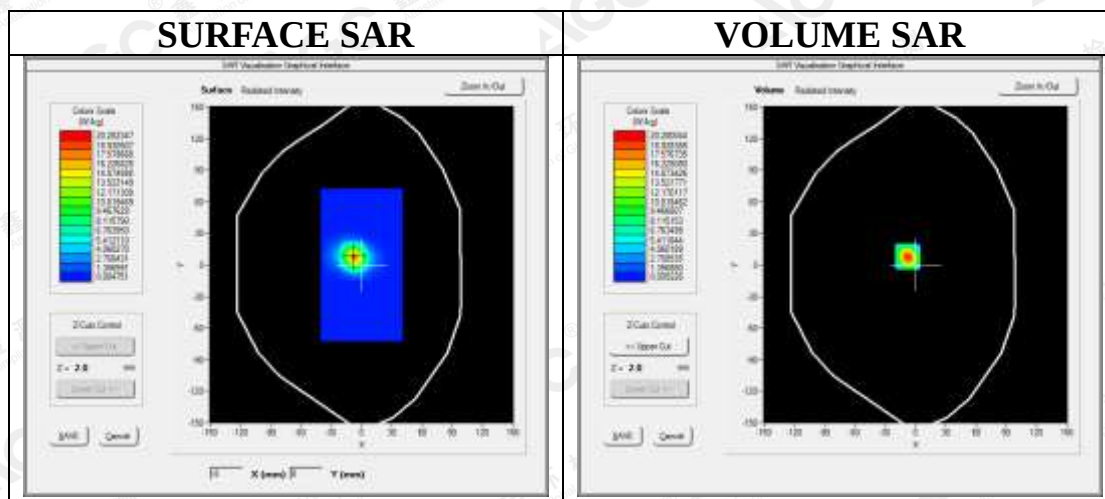
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.4, Relative Humidity (%): 51.8

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/System Check 5600 MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 5600 MHz Body/Zoom Scan: Measurement grid: dx=4mm, dy=4mm, dz=2mm

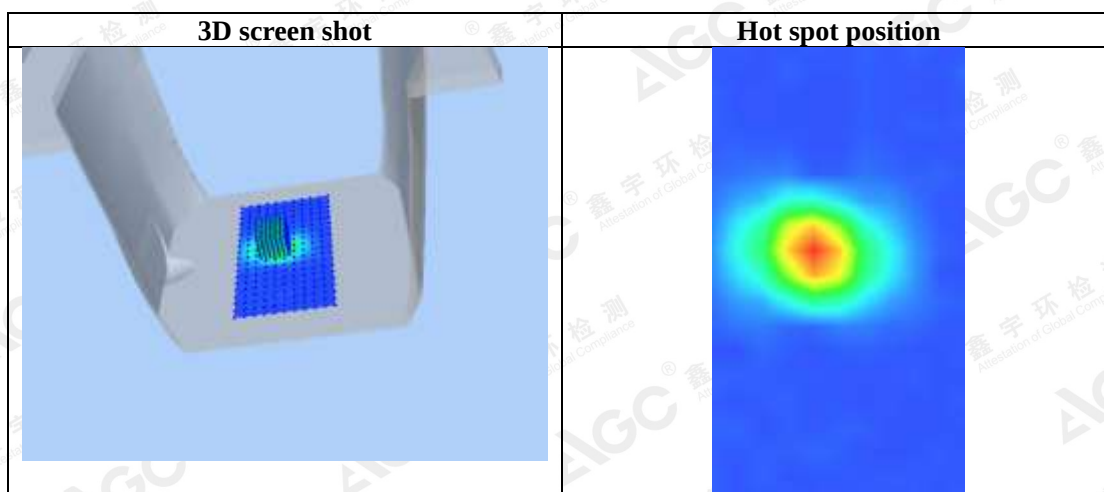
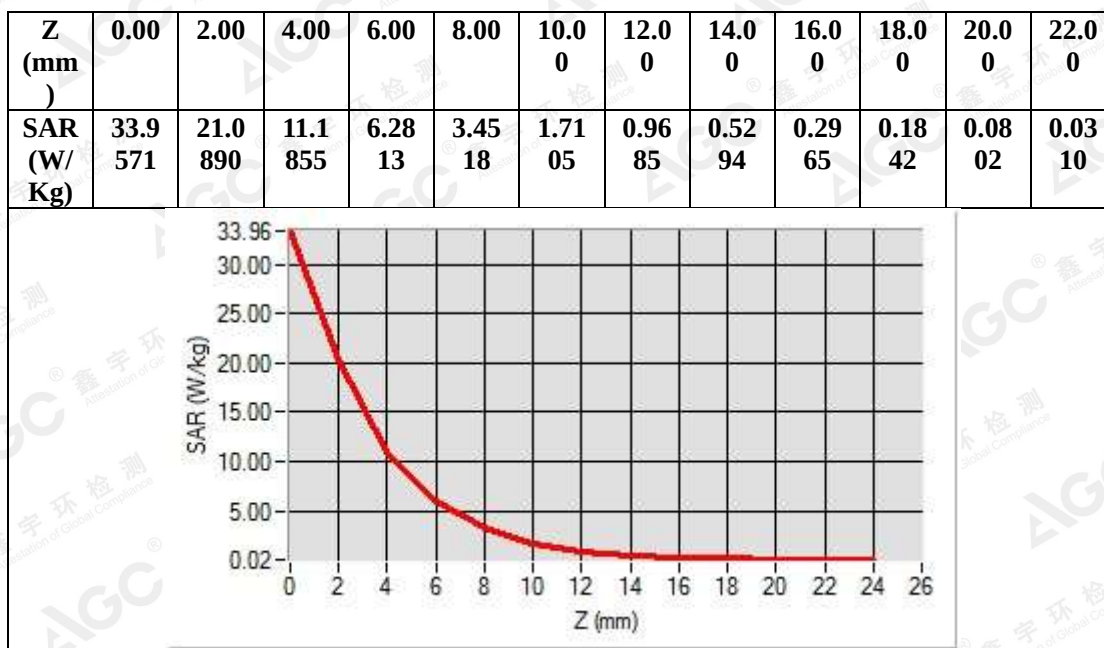


Maximum location: X=-8.00, Y=8.00

SAR Peak: 34.01 W/kg

SAR 10g (W/Kg)	3.864108
SAR 1g (W/Kg)	11.601848

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Test Laboratory: AGC Lab

Date: June 12, 2018

System Check Head 5800 MHz

DUT: Dipole 5000MHz Type: SWG5500

Communication System: CW; Communication System Band: D5000 (5000.0 MHz); Duty Cycle: 1:1; Conv.F=2.46

Frequency: 5800 MHz; Medium parameters used: $f = 5800$ MHz; $\sigma = 5.36$ mho/m; $\epsilon_r = 35.97$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

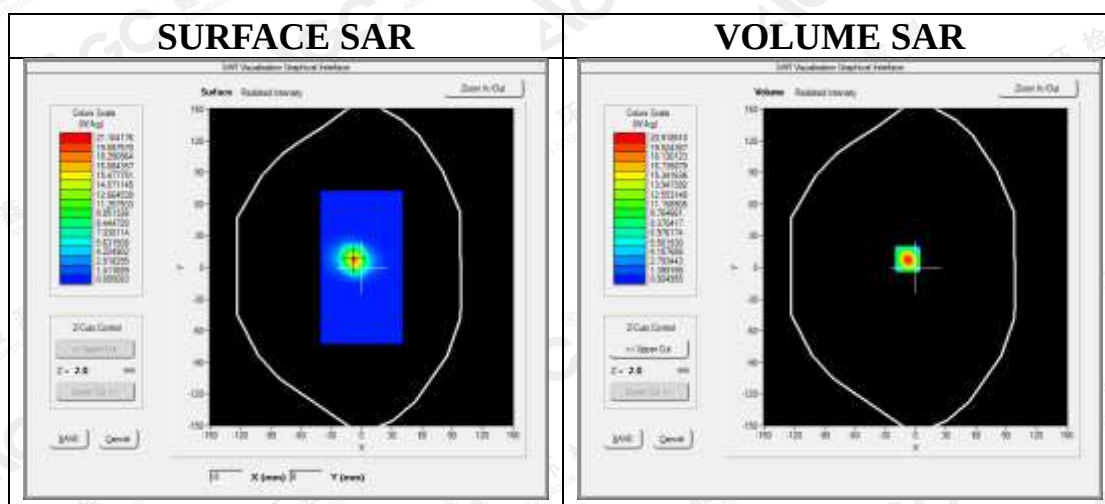
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.7, Relative Humidity (%): 51.8

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/System Check 5800 MHz Head/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 5800 MHz Head/Zoom Scan: Measurement grid: dx=4mm, dy=4mm, dz=2mm



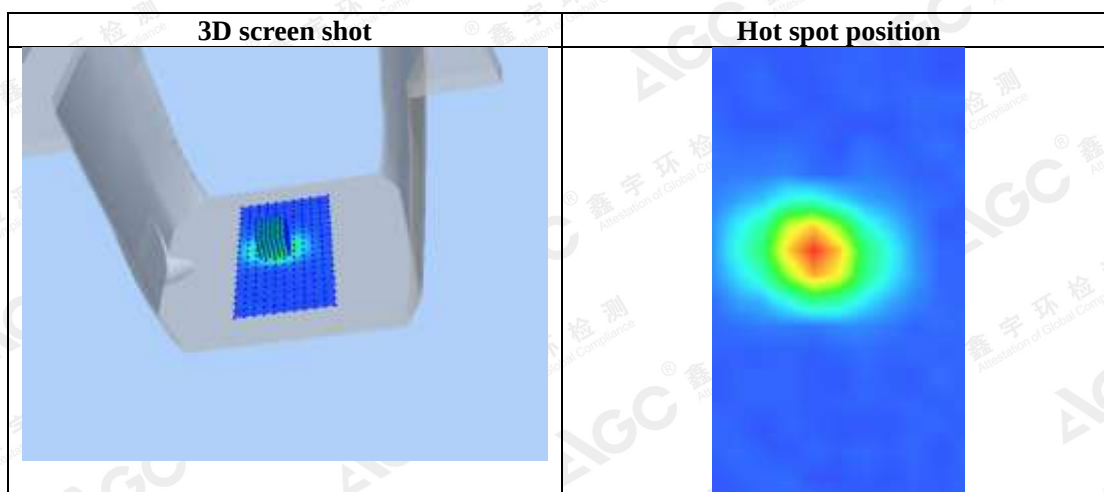
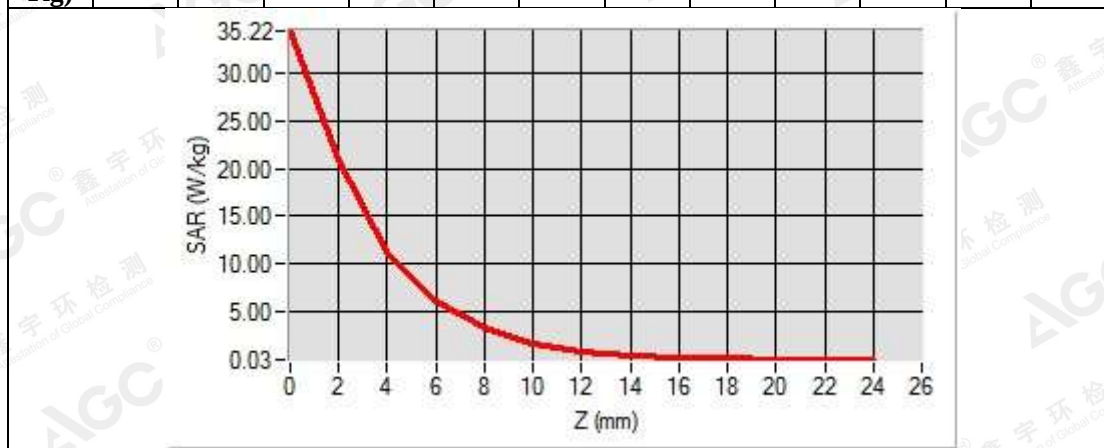
Maximum location: X=-8.00, Y=8.00

SAR Peak: 35.35 W/kg

SAR 10g (W/Kg)	3.984015
SAR 1g (W/Kg)	11.897401

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Z (mm)	0.00	2.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0
SAR (W/Kg)	35.2 209	20.9 384	11.4 281	6.17 53	3.34 10	1.79 95	0.97 41	0.55 08	0.29 70	0.20 15	0.06 59	0.04 11



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Test Laboratory: AGC Lab

Date: June 03, 2018

System Check Body 5800 MHz

DUT: Dipole 5000MHz Type: SWG5500

Communication System: CW; Communication System Band: D5000 (5000.0 MHz); Duty Cycle: 1:1; Conv.F=2.53

Frequency: 5800 MHz; Medium parameters used: $f = 5800$ MHz; $\sigma = 5.99$ mho/m; $\epsilon_r = 48.37$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

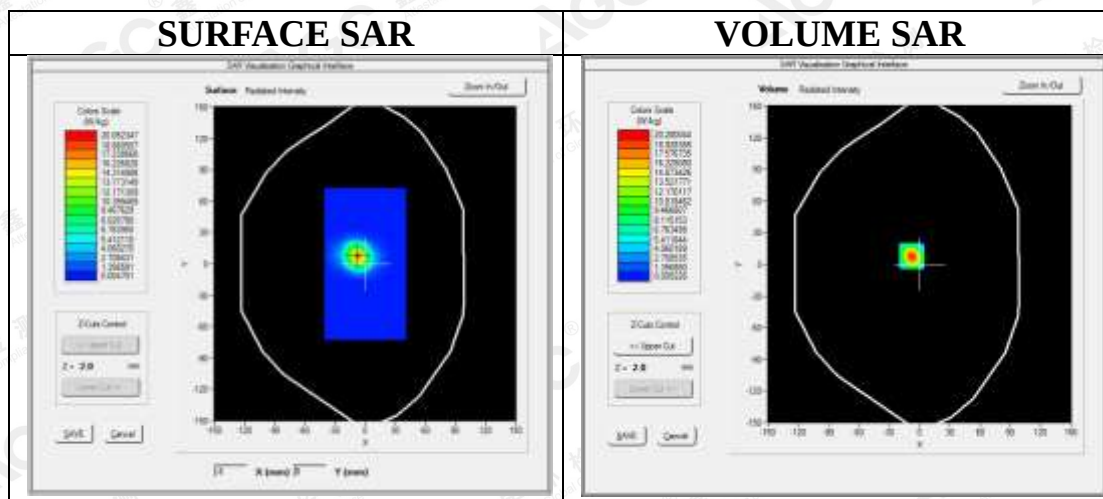
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.5, Relative Humidity (%): 50.1

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/System Check 5800 MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 5800 MHz Body/Zoom Scan: Measurement grid: dx=4mm, dy=4mm, dz=2mm

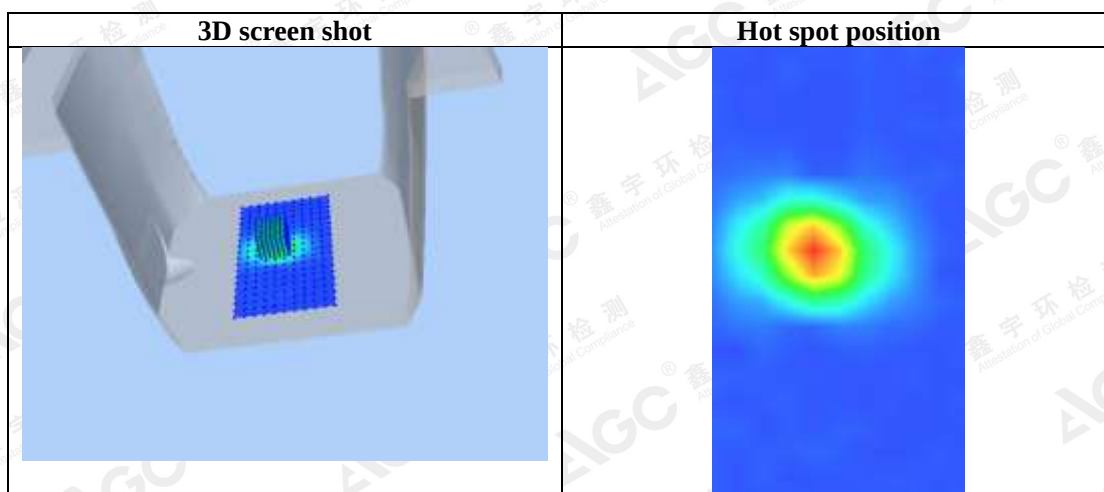
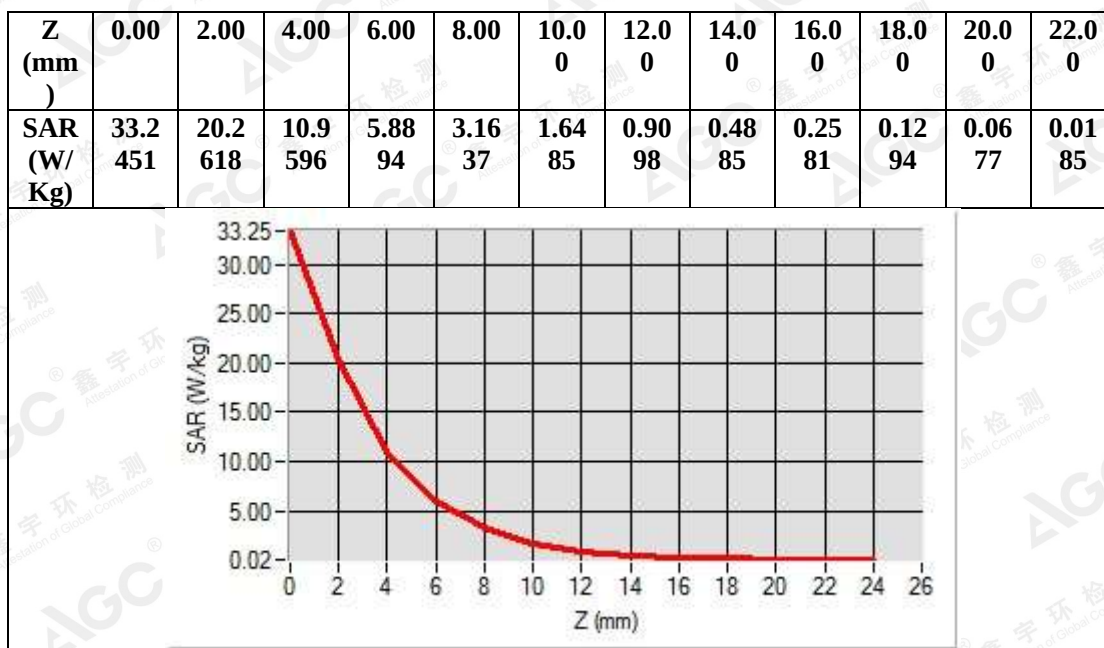


Maximum location: X=-8.00, Y=8.00

SAR Peak: 33.25 W/kg

SAR 10g (W/Kg)	3.741520
SAR 1g (W/Kg)	11.317415

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APPENDIX B. SAR MEASUREMENT DATA

SPTM1(Version W)-Head liquid

2.4GHz 802.11b

Test Laboratory: AGC Lab

802.11b High- Edge2

DUT: Camera; Type: SPTM1

Date: May 27,2018

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.52;
Frequency: 2462 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 38.63$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.1, Liquid temperature (°C): 21.5

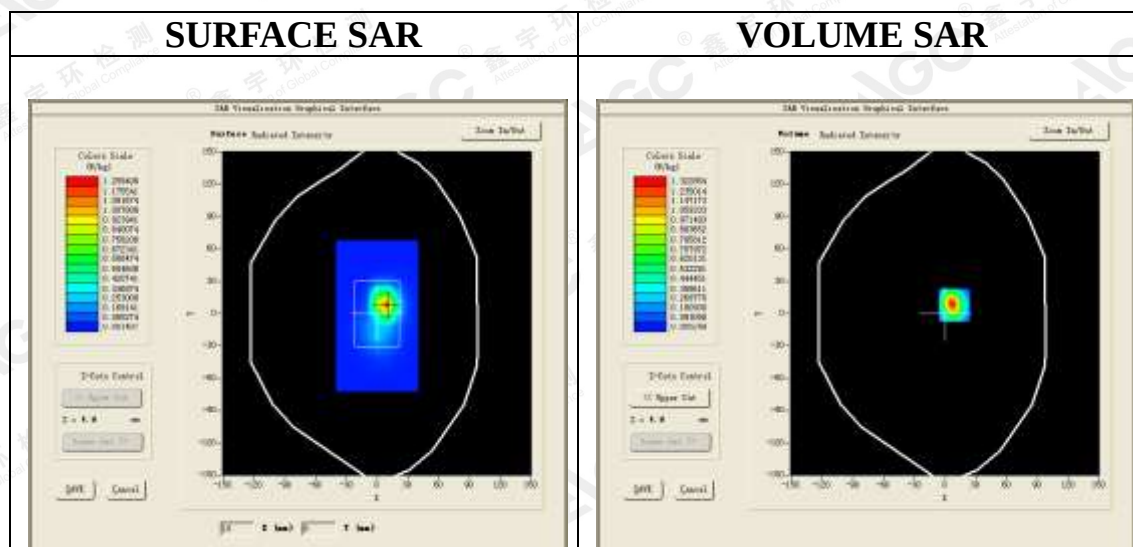
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

Configuration/802.11b High- Edge2 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11b High- Edge2 /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
Phantom	SAM twin phantom
Device Position	Edge2
Band	2450MHz
Channels	High
Signal	Crest factor: 1.0

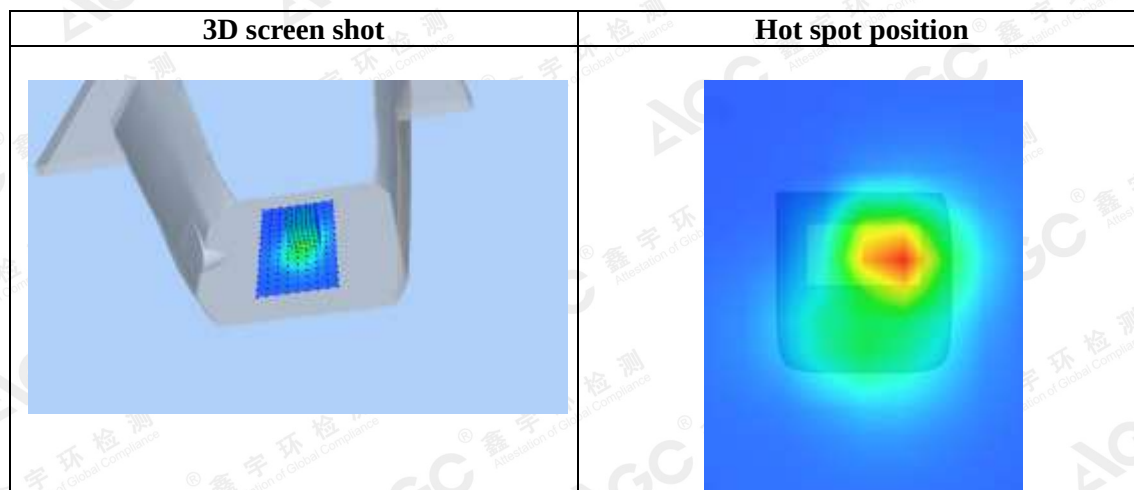
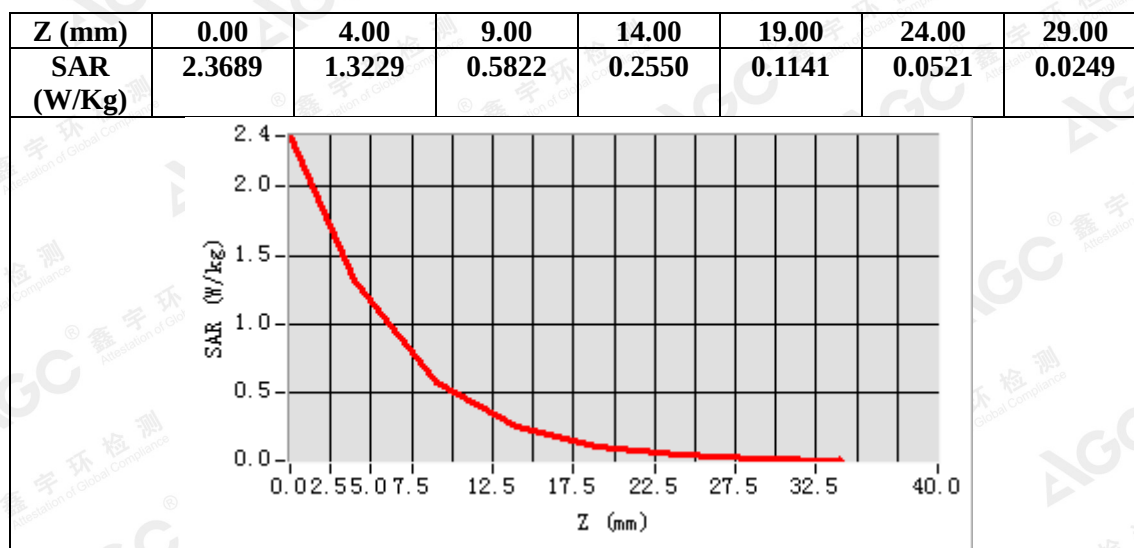


Maximum location: X=9.00, Y=8.00

SAR Peak: 2.49 W/kg

SAR 10g (W/Kg)	0.447763
SAR 1g (W/Kg)	1.210122

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5.2GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH38-Edge1

DUT: Camera; Type: SPTM1

Date: June 13,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.35;
Frequency: 5190MHz; Medium parameters used: $f = 5200$ MHz; $\sigma = 4.62$ mho/m; $\epsilon_r = 36.85$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.5

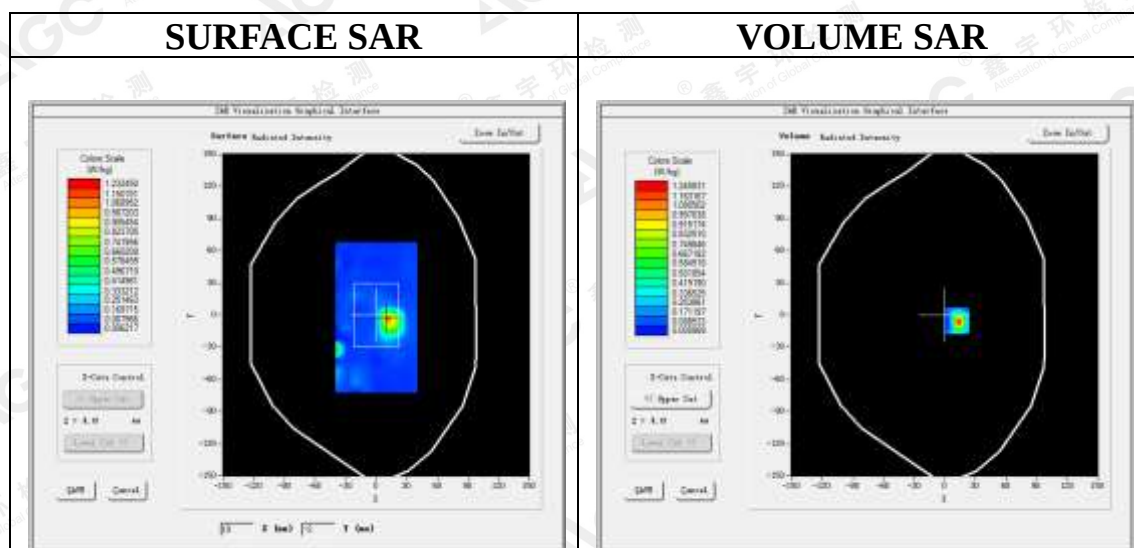
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH38- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH38- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5200MHz
Channels	CH38
Signal	Crest factor: 1.0

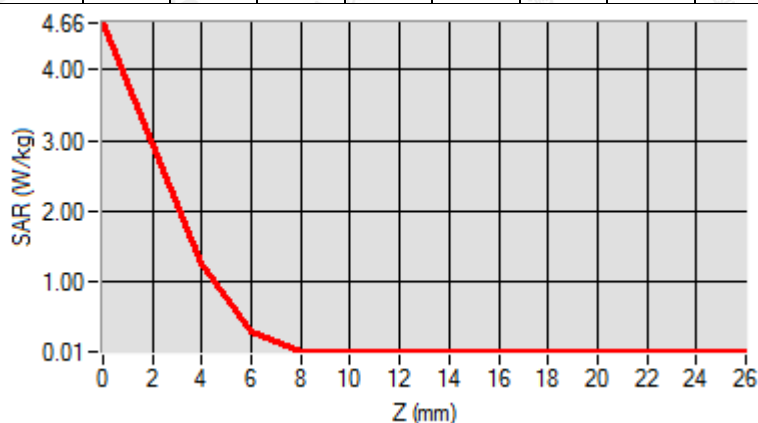


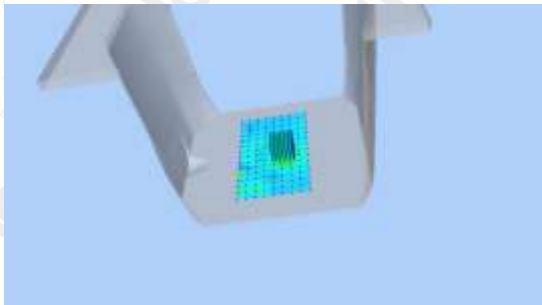
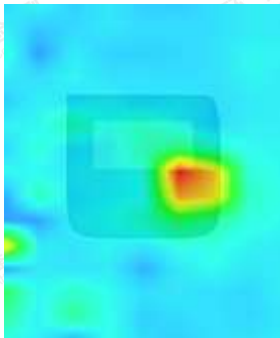
Maximum location: X=12.00, Y=-5.00
SAR Peak: 4.49 W/kg

SAR 10g (W/Kg)	0.234357
SAR 1g (W/Kg)	1.112054

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	4.65 01	1.24 24	0.29 09	0.00 25	0.00 25	0.00 25	0.00 25	0.00 25	0.00 25	0.00 25	0.00 25	0.00 25



3D screen shot	Hot spot position
	

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5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 14, 2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.35;
Frequency: 5310MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 4.72$ mho/m; $\epsilon_r = 36.77$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4

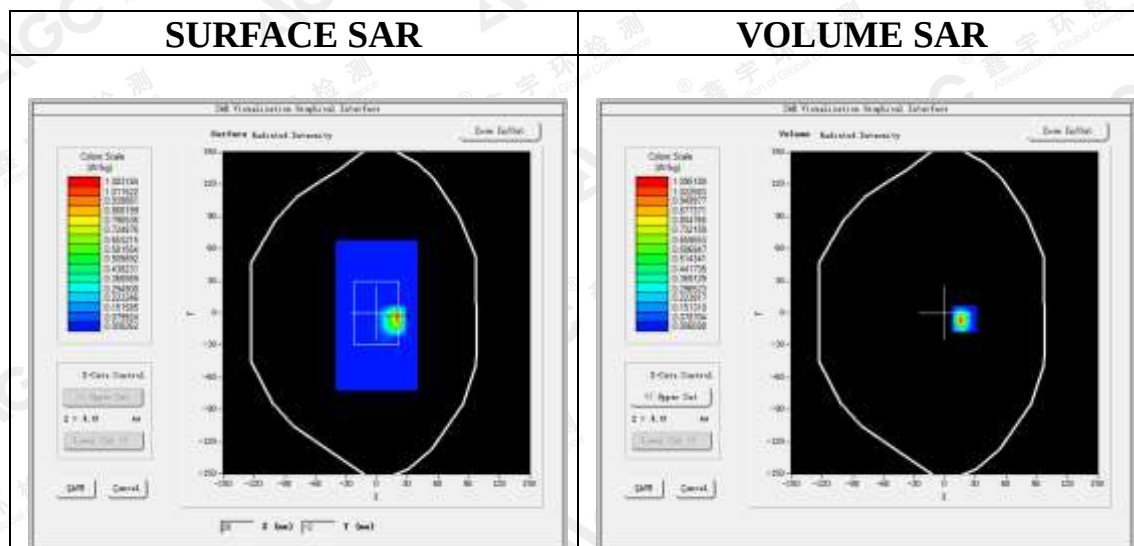
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0

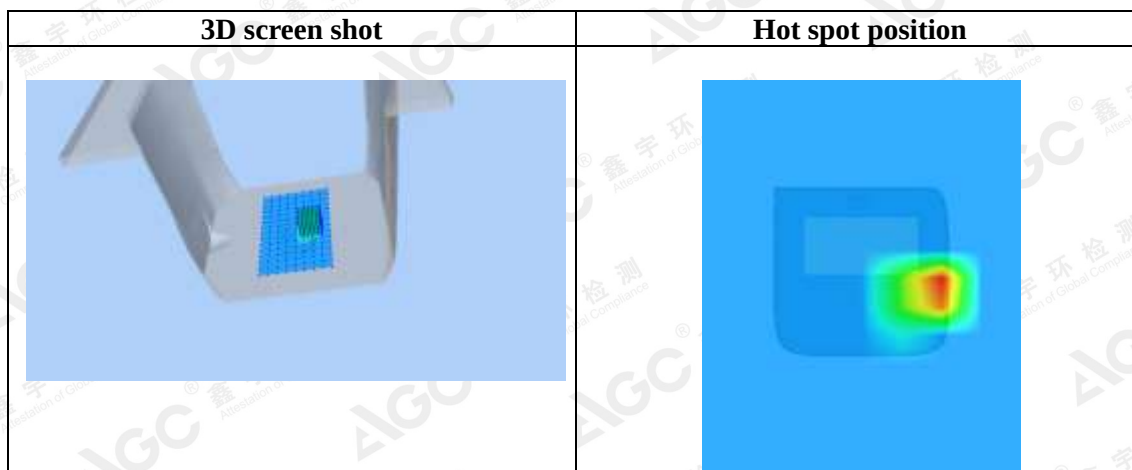
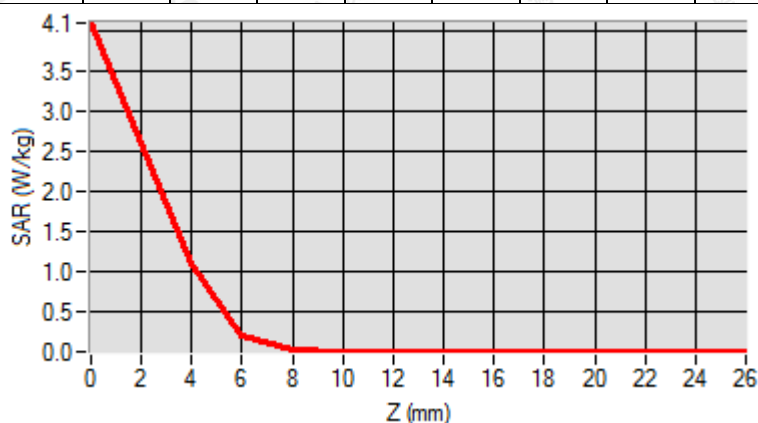


Maximum location: X=19.00, Y=-5.00
SAR Peak: 4.15 W/kg

SAR 10g (W/Kg)	0.219544
SAR 1g (W/Kg)	1.086017

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	4.10 54	1.10 22	0.20 91	0.02 93	0.00 82	0.00 82	0.00 82	0.00 82	0.00 82	0.00 82	0.00 82	0.00 82



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5.6GHz 802.11n HT40
Test Laboratory: AGC Lab
802.11n HT40 Mid-Edge1
DUT: Camera; Type: SPTM1

Date: June 15,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.43;
Frequency: 5550MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 4.91$ mho/m; $\epsilon_r = 35.82$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.7, Liquid temperature (°C): 21.2

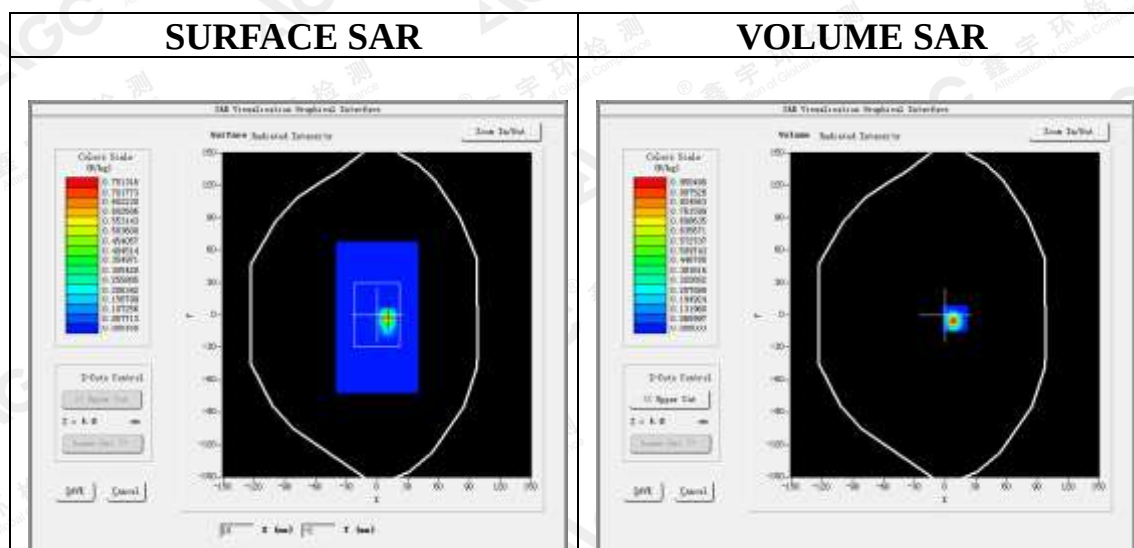
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 Mid- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

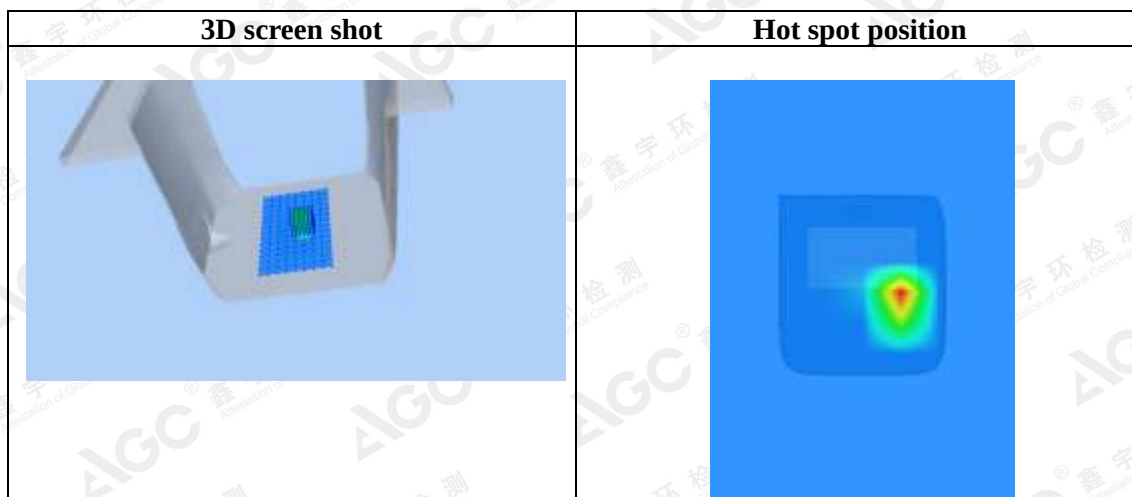
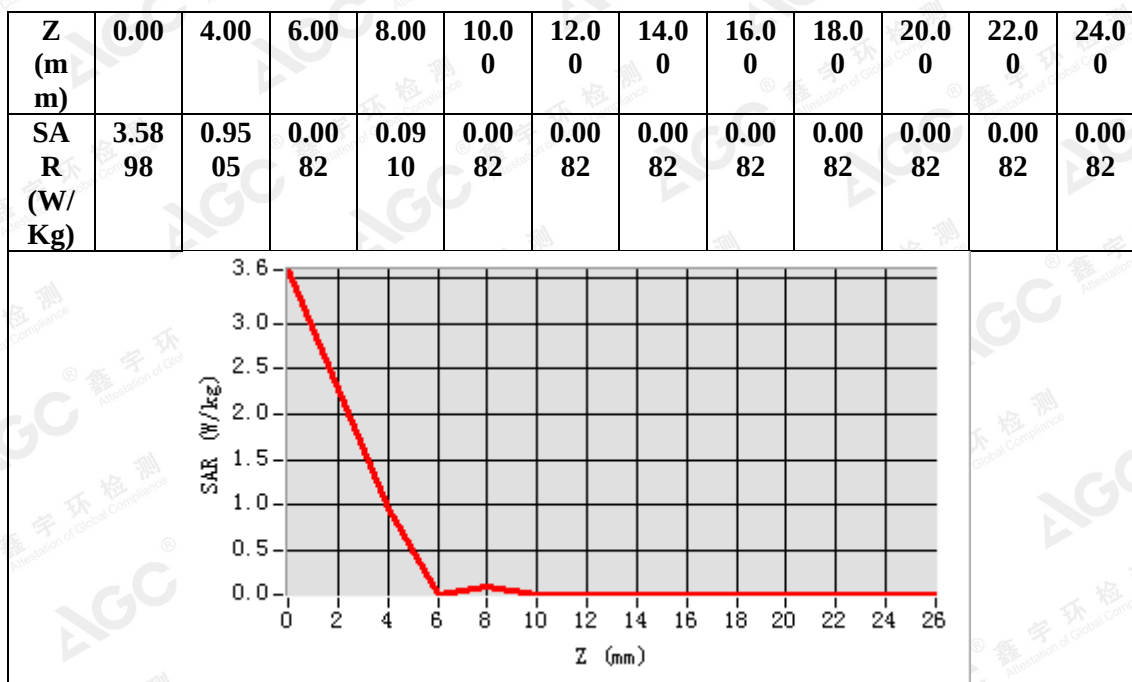
Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5600MHz
Channels	Middle
Signal	Crest factor: 1.0



Maximum location: X=10.00, Y=-3.00
SAR Peak: 3.63 W/kg

SAR 10g (W/Kg)	0.135729
SAR 1g (W/Kg)	0.841404

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5.8GHz 802.11a

Test Laboratory: AGC Lab

802.11a Mid-Edge1

DUT: Camera; Type: SPTM1

Date: June 12, 2018

Communication System: Wi-Fi; Communication System Band: 802.11a; Duty Cycle: 1:1; Conv.F=2.46;
Frequency: 5785MHz; Medium parameters used: $f = 5800$ MHz; $\sigma = 5.30$ mho/m; $\epsilon_r = 35.93$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.7

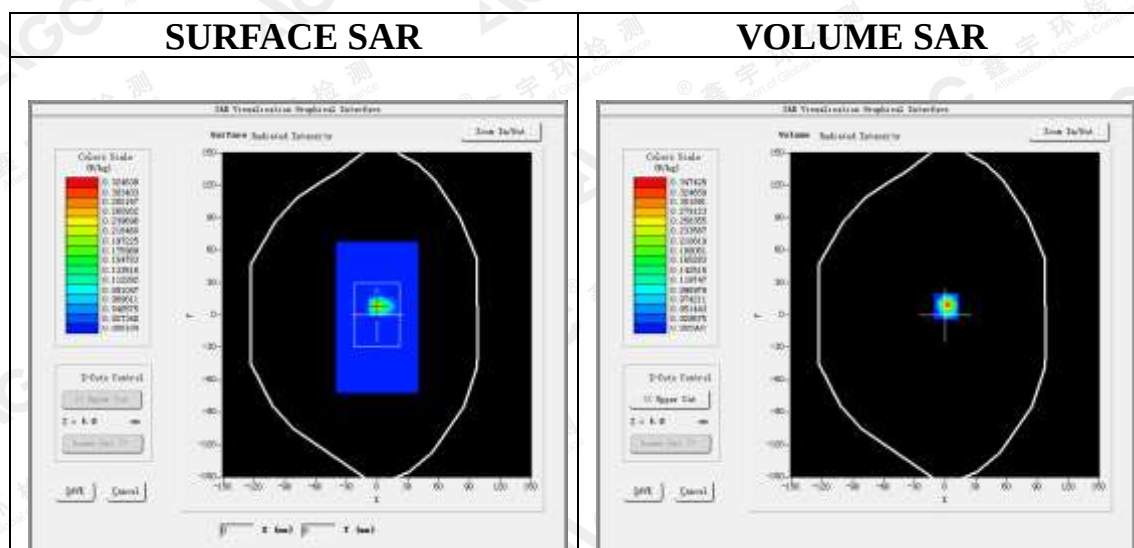
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ 802.11a Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/ 802.11a Mid- Edge1 /Zoom Scan: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5800MHz
Channels	Middle
Signal	Crest factor: 1.0

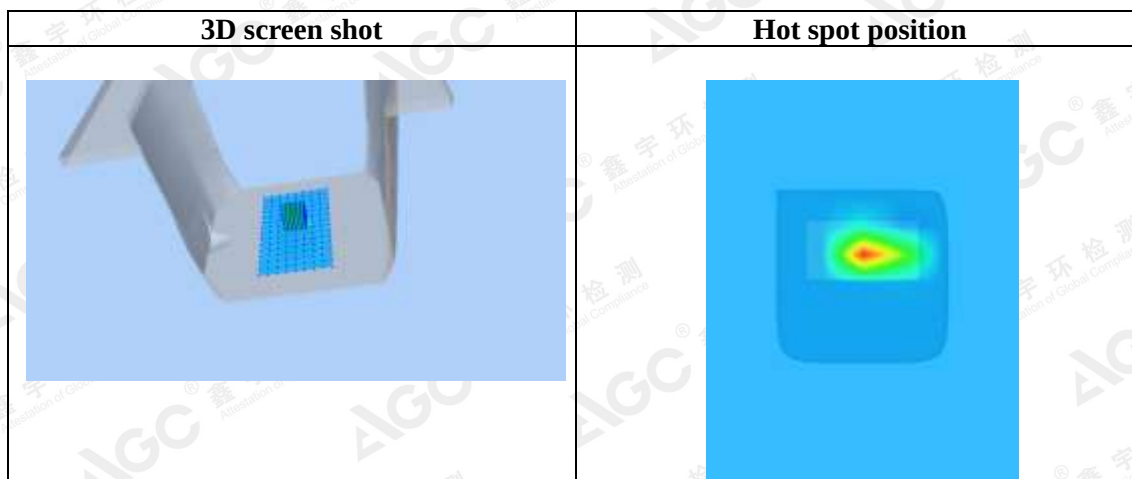
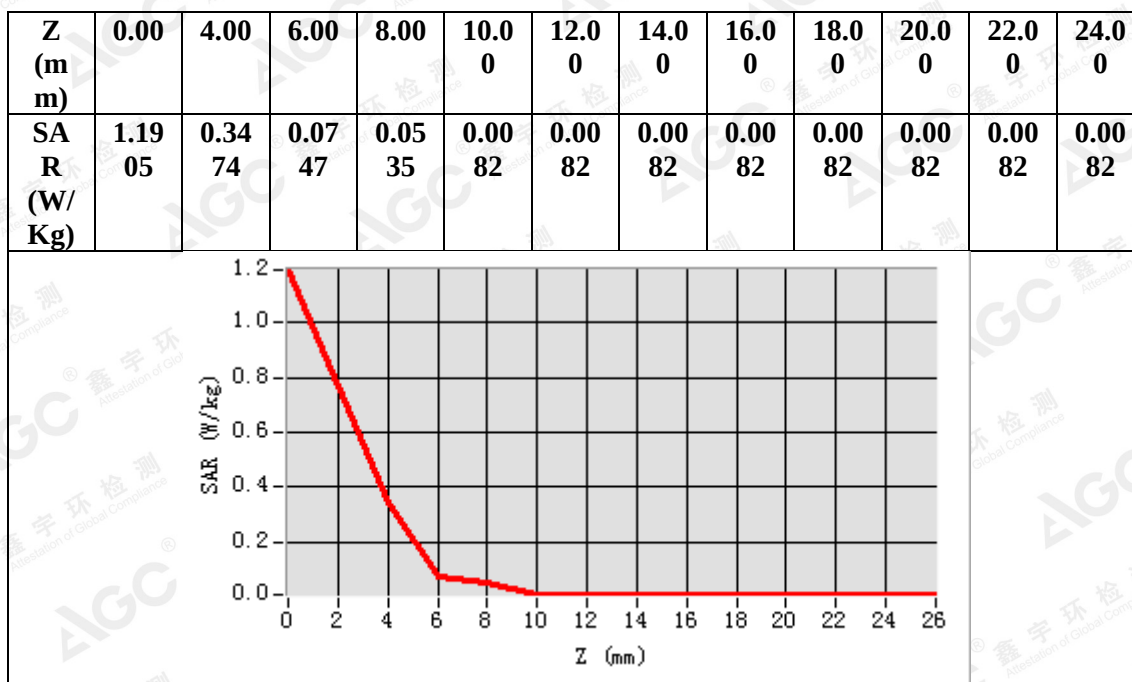


Maximum location: X=1.00, Y=8.00

SAR Peak: 1.10 W/kg

SAR 10g (W/Kg)	0.066064
SAR 1g (W/Kg)	0.317050

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SPTM1(Version W)-Body liquid

2.4GHz 802.11b

Test Laboratory: AGC Lab

802.11b Mid- Edge1

DUT: Camera; Type: SPTM1

Date: May 28,2018

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.58;
Frequency: 2437 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.90$ mho/m; $\epsilon_r = 53.51$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.4, Liquid temperature (°C): 21.8

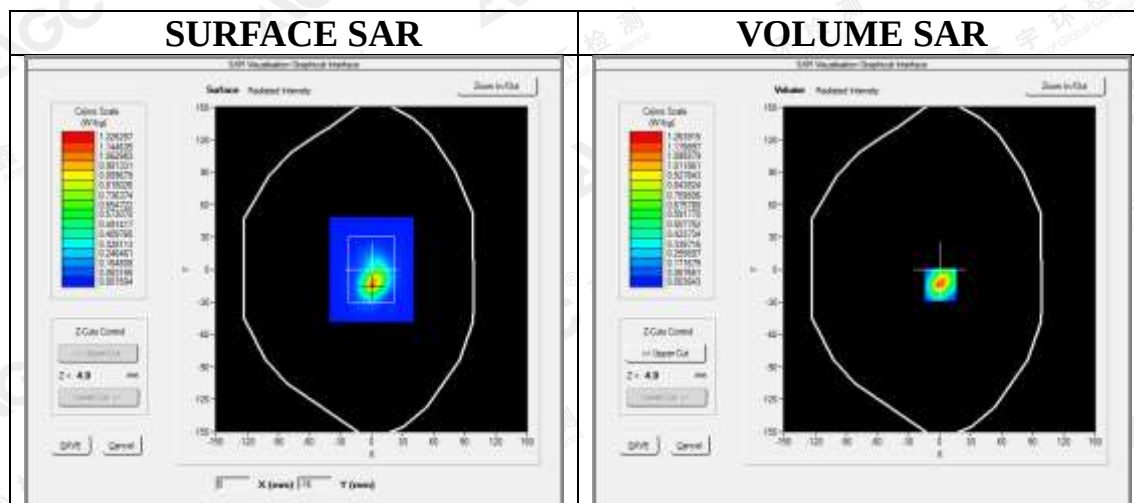
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

Configuration/802.11b Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11b Mid- Edge1 /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
Phantom	SAM twin phantom
Device Position	Edge1
Band	2450MHz
Channels	Middle
Signal	Crest factor: 1.0

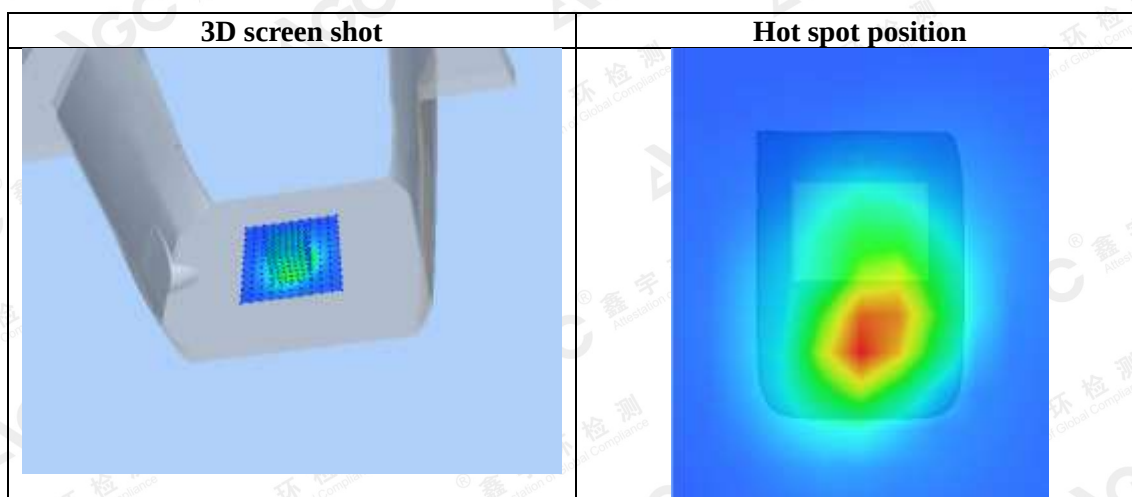
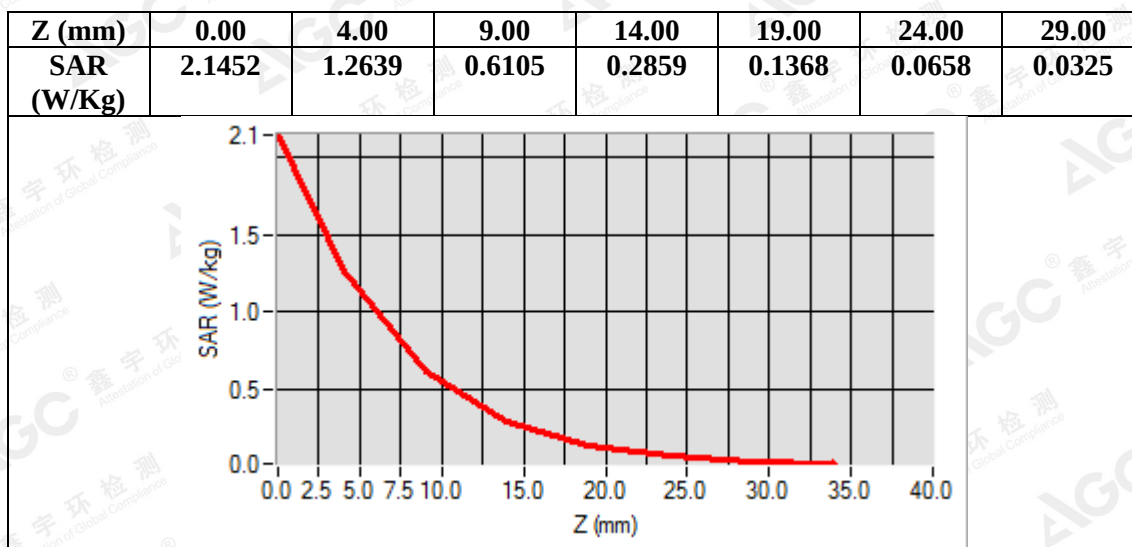


Maximum location: X=1.00, Y=-14.00

SAR Peak: 2.14 W/kg

SAR 10g (W/Kg)	0.424746
SAR 1g (W/Kg)	1.092850

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Test Laboratory: AGC Lab
802.11b High- Edge1
DUT: Camera; **Type:** SPTM1

Date: May 28,2018

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.58;
Frequency: 2462 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 52.37$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.4, Liquid temperature (°C): 21.8

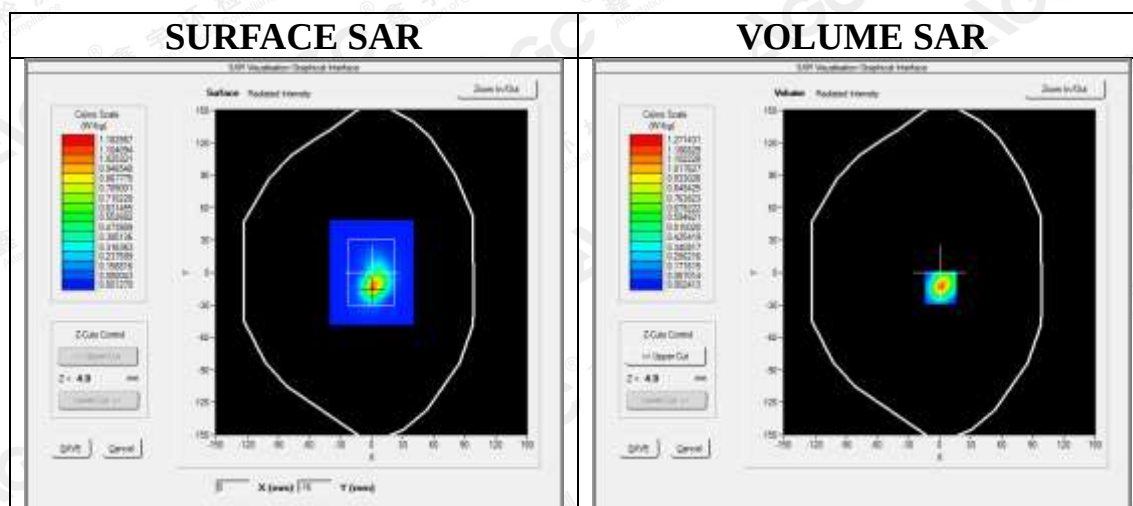
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

Configuration/802.11b High- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11b High- Edge1 /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
Phantom	SAM twin phantom
Device Position	Edge1
Band	2450MHz
Channels	High
Signal	Crest factor: 1.0

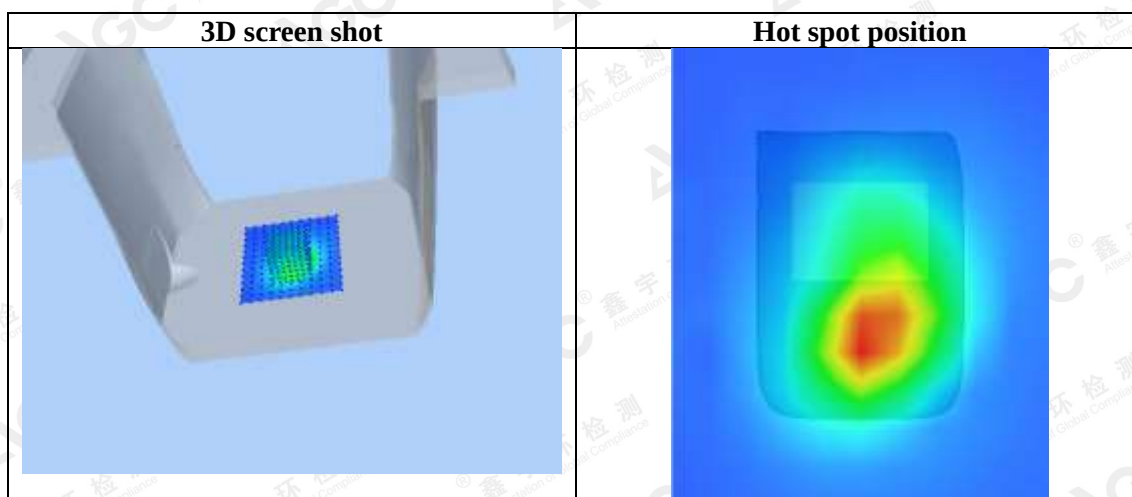
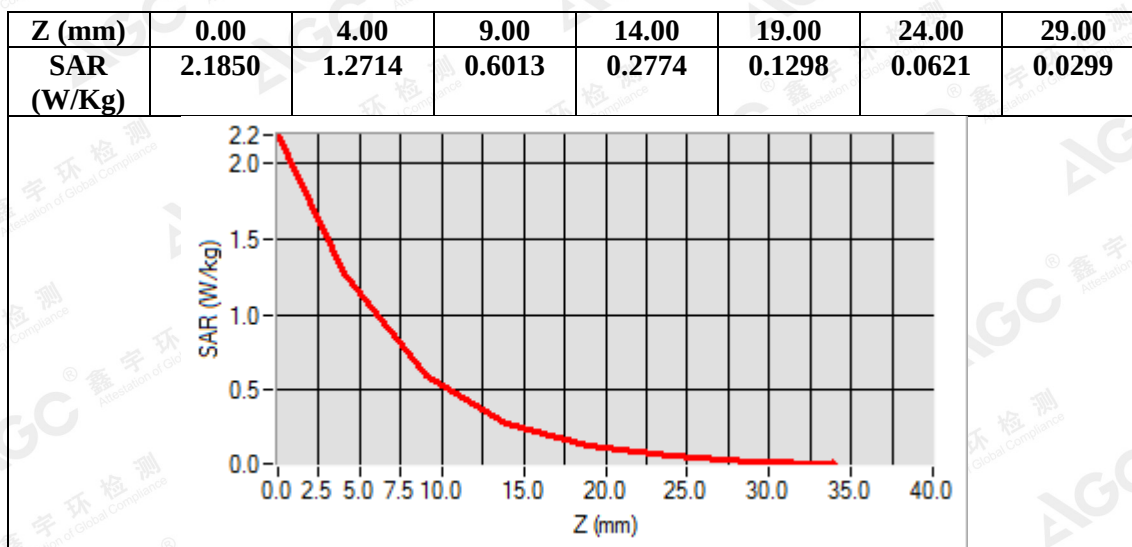


Maximum location: X=1.00, Y=-14.00

SAR Peak: 2.18 W/kg

SAR 10g (W/Kg)	0.412047
SAR 1g (W/Kg)	1.084976

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5.2GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH38-Edge1

DUT: Camera; Type: SPTM1

Date: June 05,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5190MHz; Medium parameters used: $f = 5200$ MHz; $\sigma = 5.38$ mho/m; $\epsilon_r = 48.90$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4

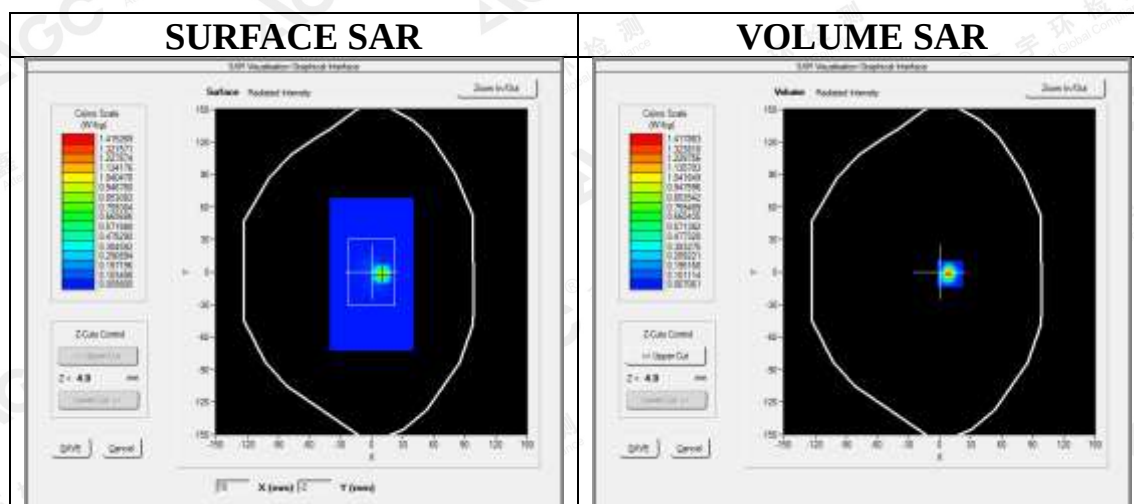
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH38- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH38- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5200MHz
Channels	CH38
Signal	Crest factor: 1.0



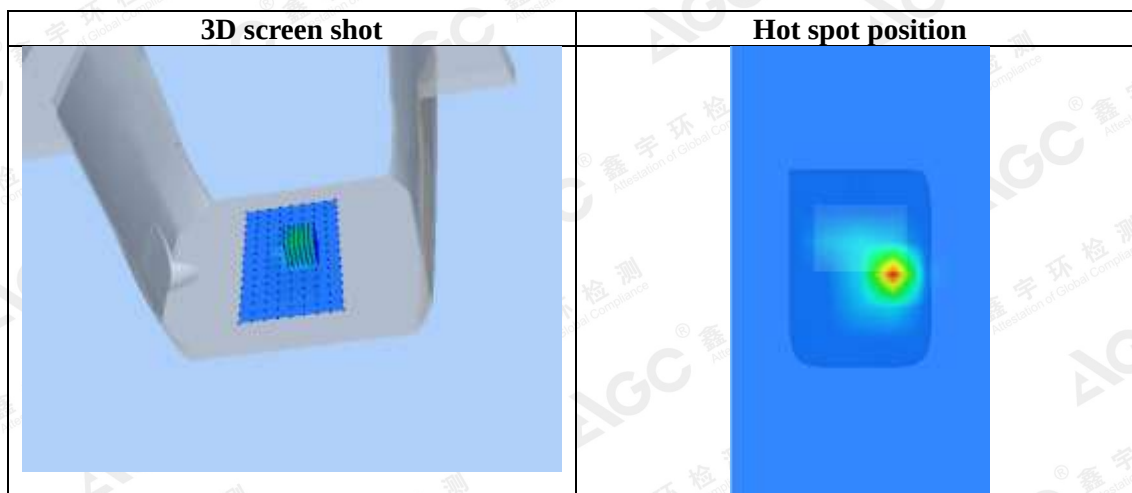
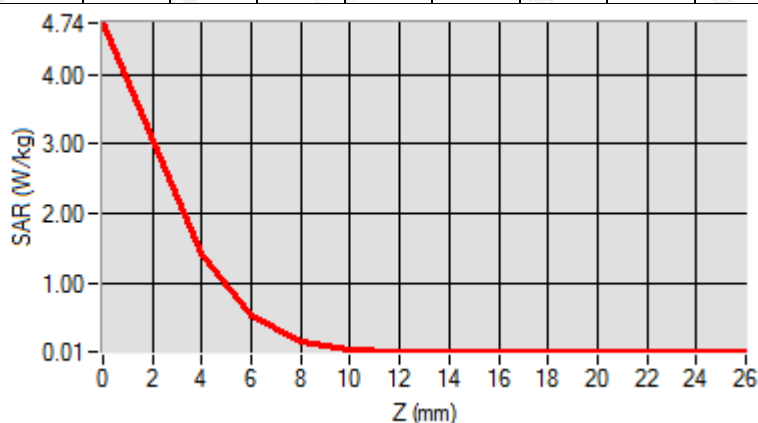
Maximum location: X=10.00, Y=-2.00

SAR Peak: 5.29 W/kg

SAR 10g (W/Kg)	0.176781
SAR 1g (W/Kg)	1.163498

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	4.73 69	1.41 79	0.53 78	0.13 73	0.04 45	0.00 73	0.00 98	0.00 98	0.00 98	0.00 98	0.00 98	0.00 98



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5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 06,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5310MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 5.40$ mho/m; $\epsilon_r = 50.10$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.7

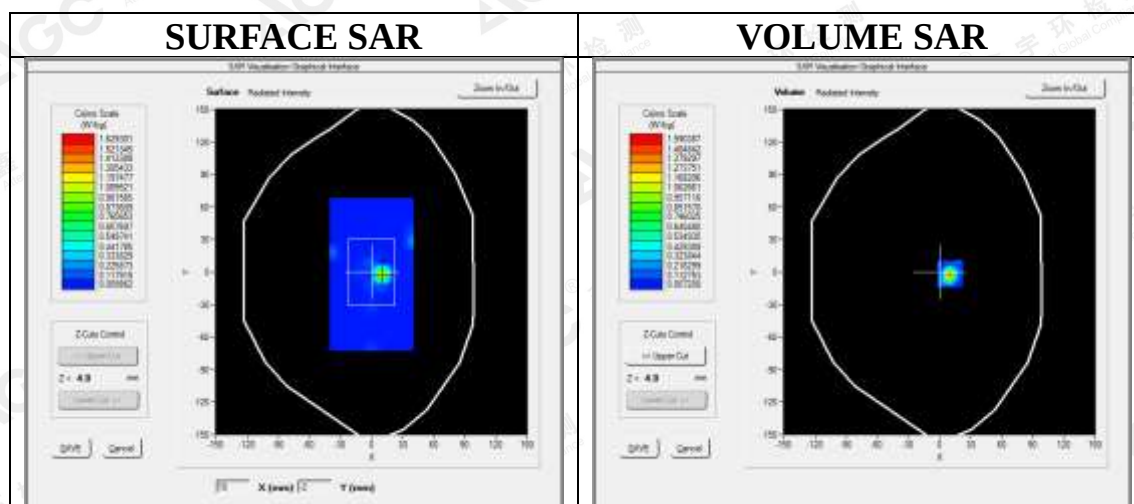
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0



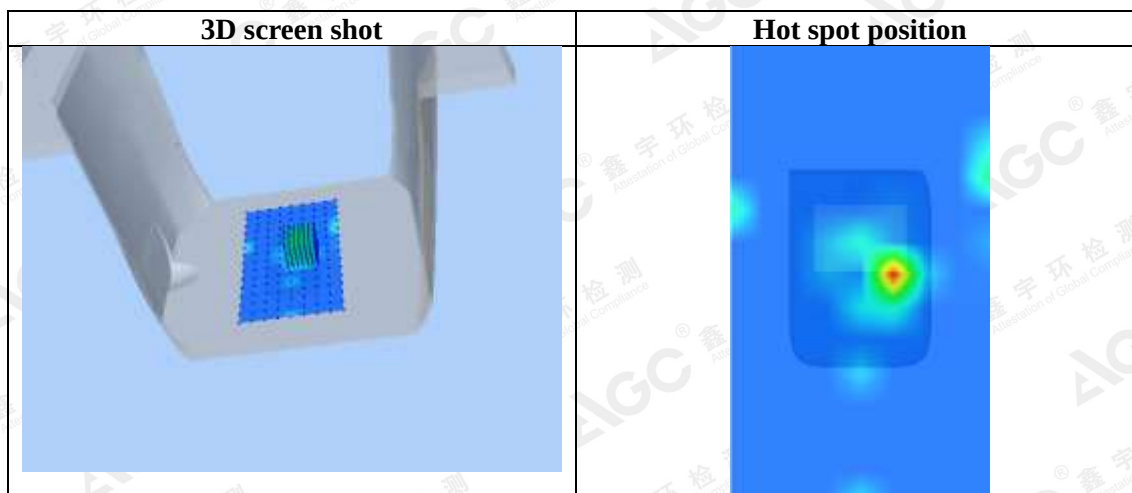
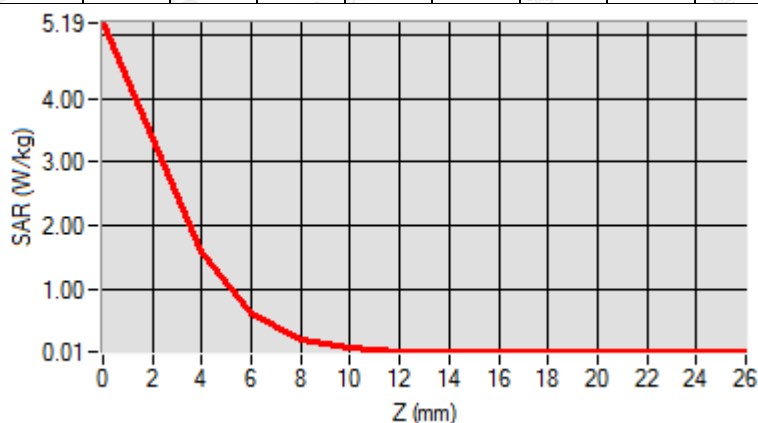
Maximum location: X=10.00, Y=-2.00

SAR Peak: 5.36 W/kg

SAR 10g (W/Kg)	0.206318
SAR 1g (W/Kg)	1.280268

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	5.18 99	1.59 04	0.60 87	0.18 43	0.07 73	0.02 14	0.01 00	0.01 00	0.01 00	0.01 00	0.01 00	0.01 00



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5.6GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 Mid-Edge1

DUT: Camera; Type: SPTM1

Date: June 07,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.51;
Frequency: 5550MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 5.92$ mho/m; $\epsilon_r = 49.52$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.4

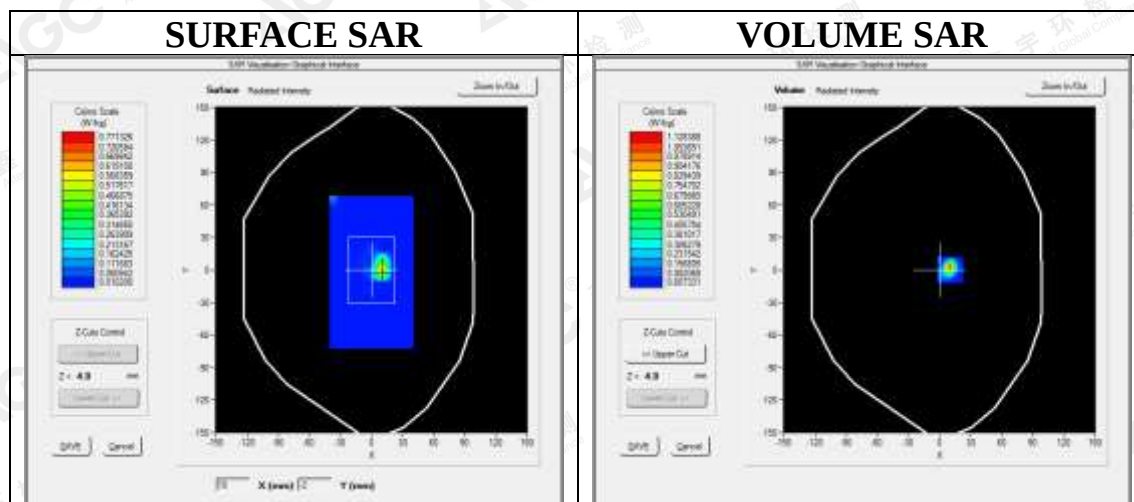
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 Mid- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5600MHz
Channels	Mid
Signal	Crest factor: 1.0



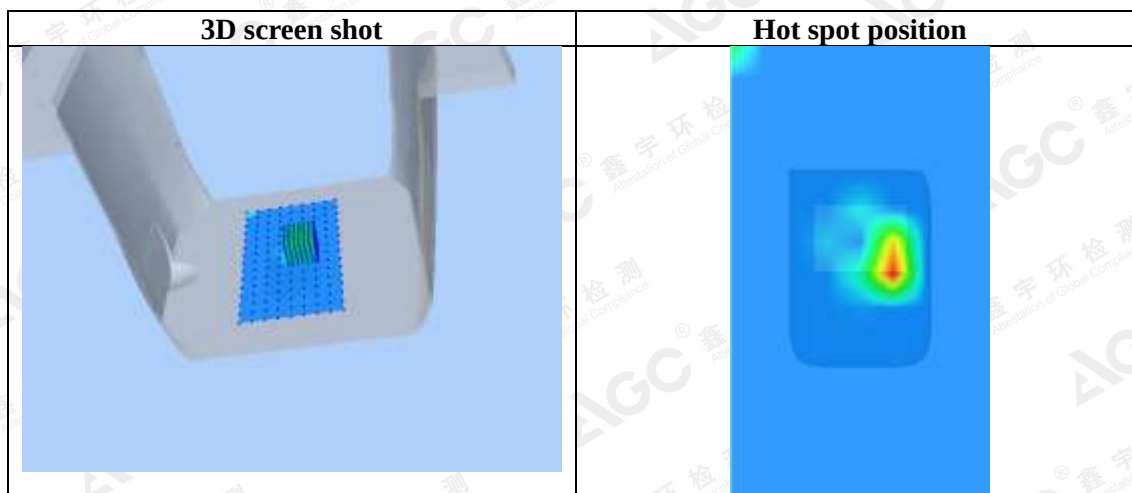
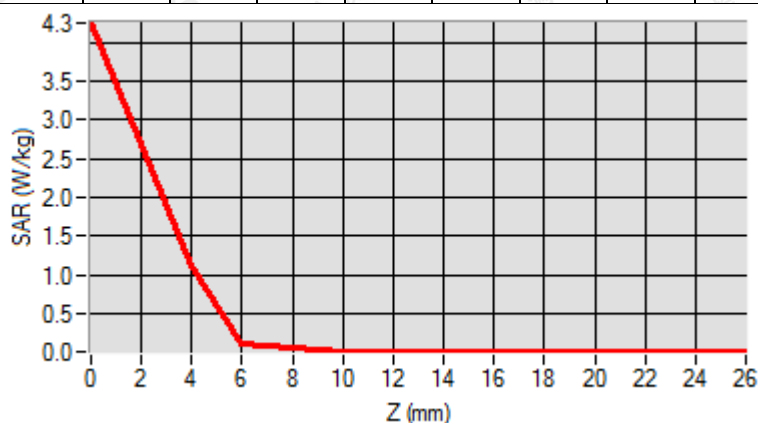
Maximum location: X=10.00, Y=0.00

SAR Peak: 4.25 W/kg

SAR 10g (W/Kg)	0.136033
SAR 1g (W/Kg)	0.875535

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR (W/ Kg)	4.25 08	1.12 84	0.10 63	0.06 88	0.01 02	0.01 02	0.01 02	0.01 02	0.01 02	0.01 02	0.01 02	0.01 02



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5.8GHz 802.11a

Test Laboratory: AGC Lab

802.11a Mid-Edge1

DUT: Camera; Type: SPTM1

Date: June 03,2018

Communication System: Wi-Fi; Communication System Band: 802.11a; Duty Cycle: 1:1; Conv.F=2.53;
Frequency: 5785MHz; Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 5.93 \text{ mho/m}$; $\epsilon_r = 48.32$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.5

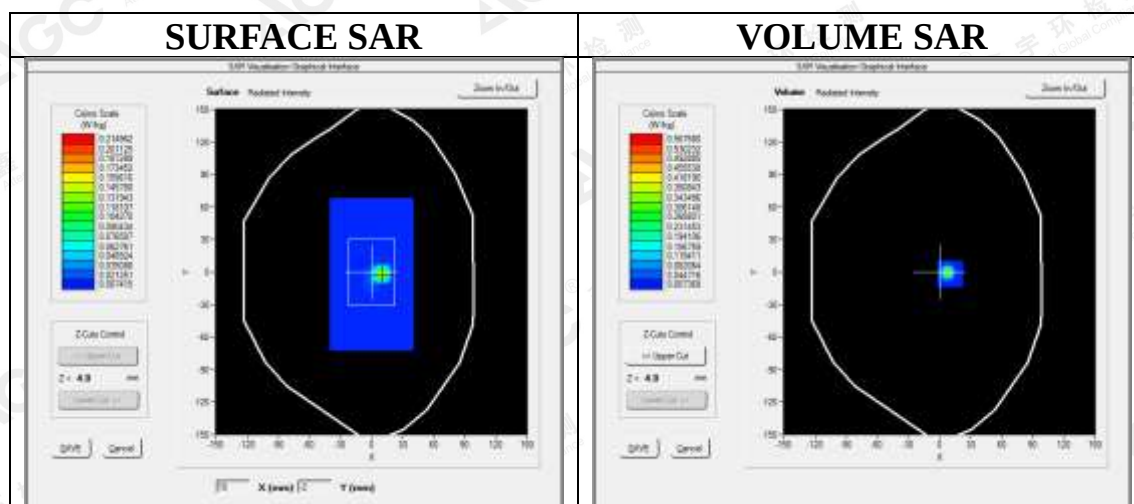
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ 802.11a Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/ 802.11a Mid- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5800MHz
Channels	Middle
Signal	Crest factor: 1.0

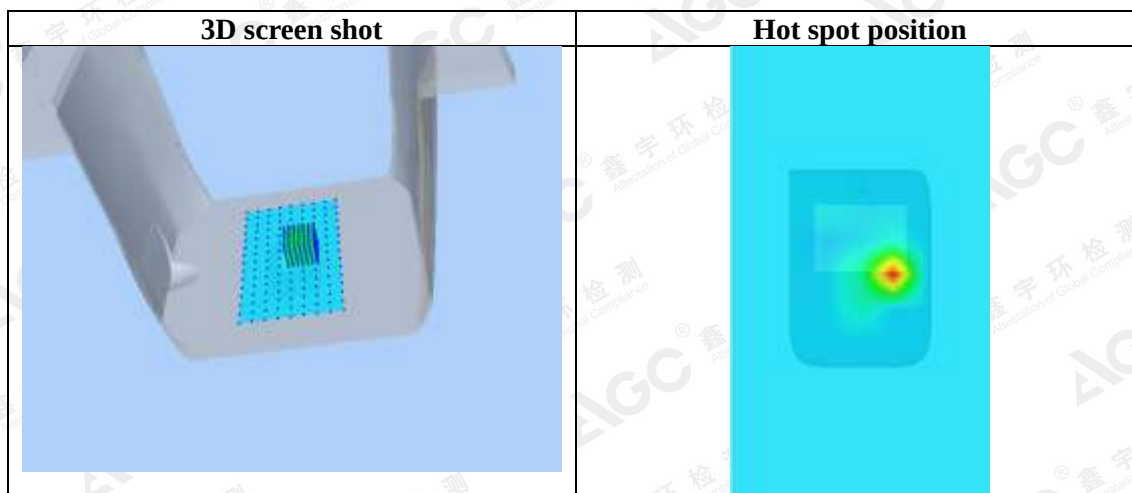
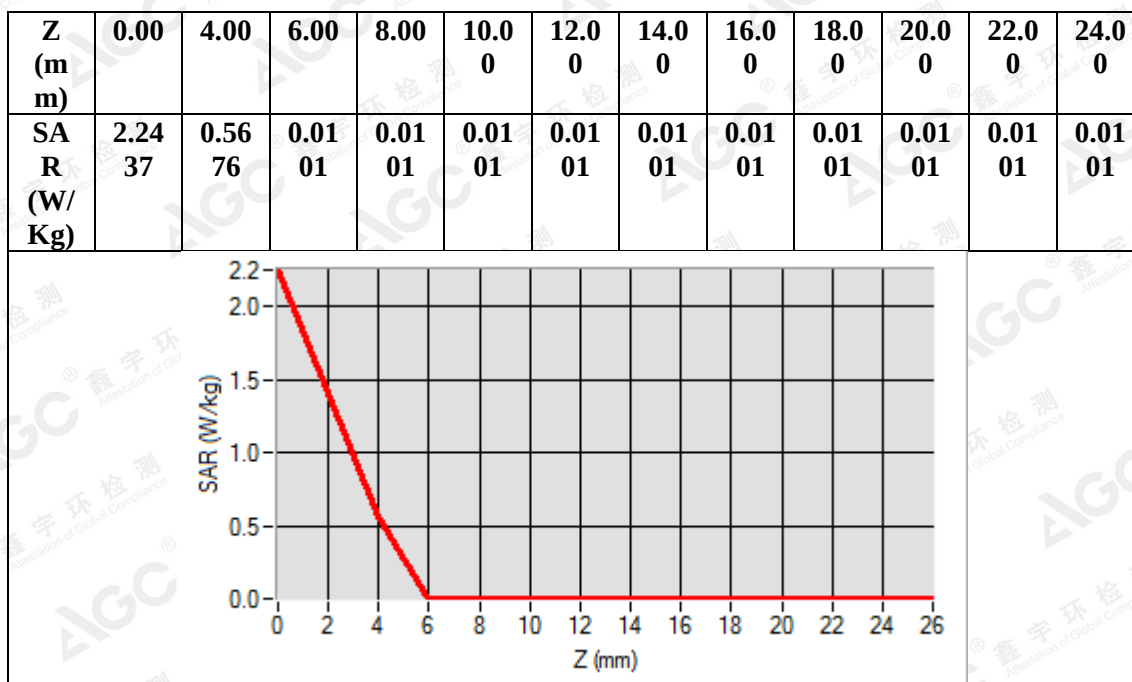


Maximum location: X=10.00, Y=-2.00

SAR Peak: 2.18 W/kg

SAR 10g (W/Kg)	0.044239
SAR 1g (W/Kg)	0.329244

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**SPTM1 (Version S)-Head liquidd
2.4GHz 802.11b**

Test Laboratory: AGC Lab

802.11b Mid- Edge2

DUT: Camera; Type: SPTM1

Date: May 27,2018

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.52;
Frequency: 2437 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.78$ mho/m; $\epsilon_r = 39.70$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.1, Liquid temperature (°C): 21.5

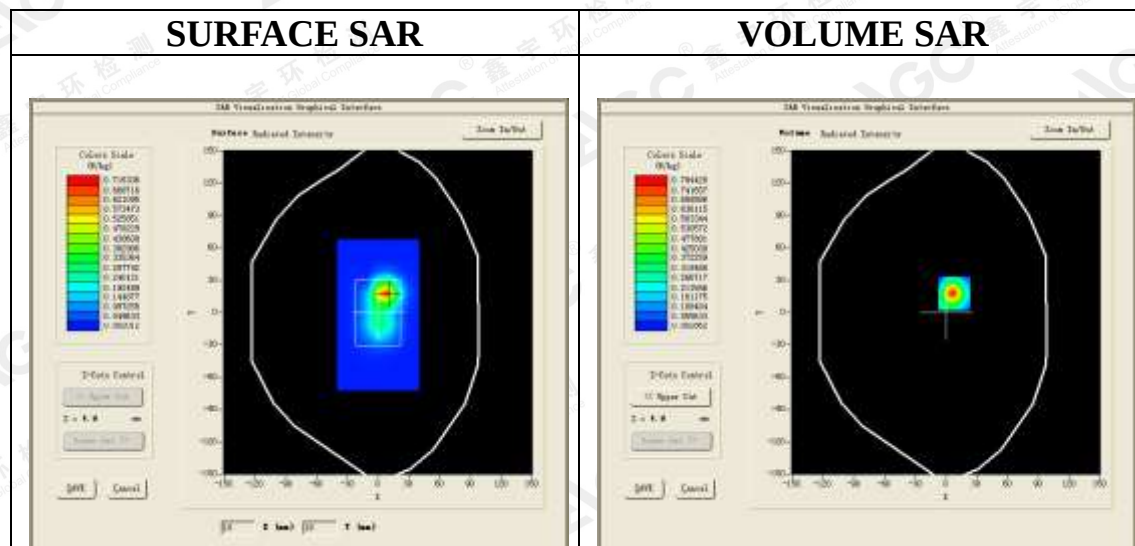
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

Configuration/802.11b Mid- Edge2 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11b Mid- Edge2 /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
Phantom	SAM twin phantom
Device Position	Edge2
Band	2450MHz
Channels	Middle
Signal	Crest factor: 1.0

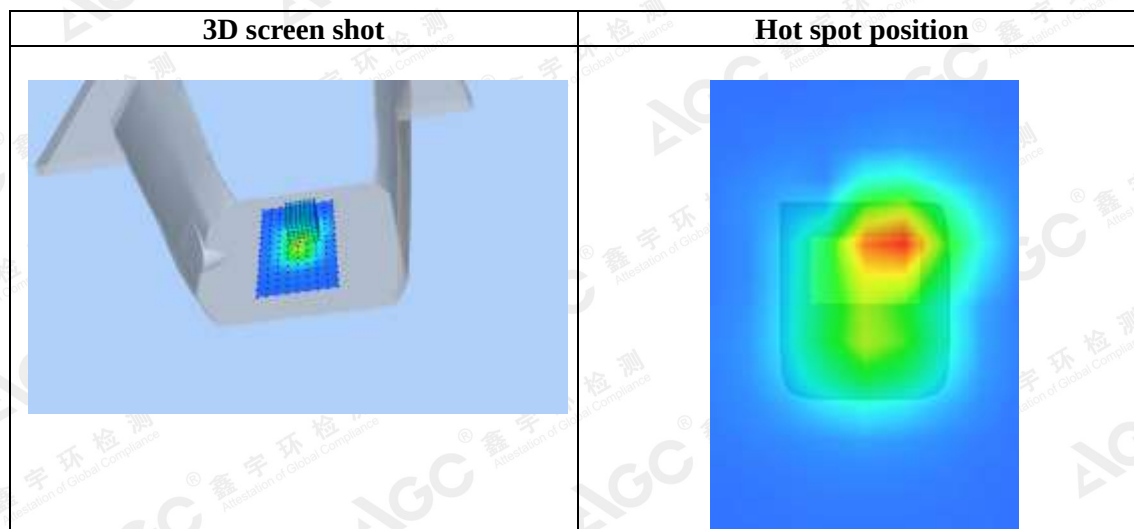
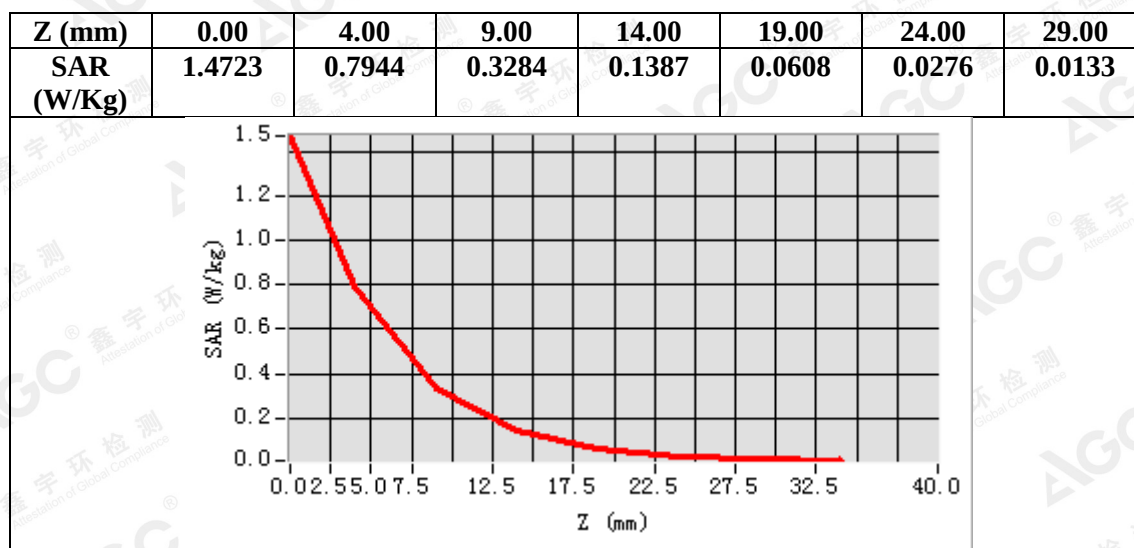


Maximum location: X=8.00, Y=18.00

SAR Peak: 1.50 W/kg

SAR 10g (W/Kg)	0.262711
SAR 1g (W/Kg)	0.707805

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5.2GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH38-Edge1

DUT: Camera; Type: SPTM1

Date: June 13,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.35;
Frequency: 5190MHz; Medium parameters used: $f = 5200$ MHz; $\sigma = 4.62$ mho/m; $\epsilon_r = 36.85$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.5

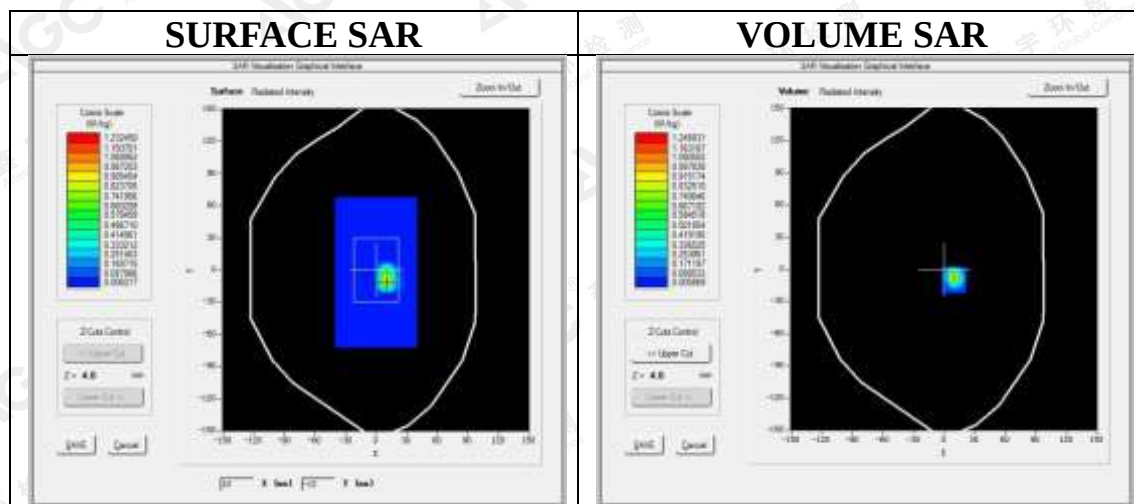
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH38- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH38- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5200MHz
Channels	CH38
Signal	Crest factor: 1.0



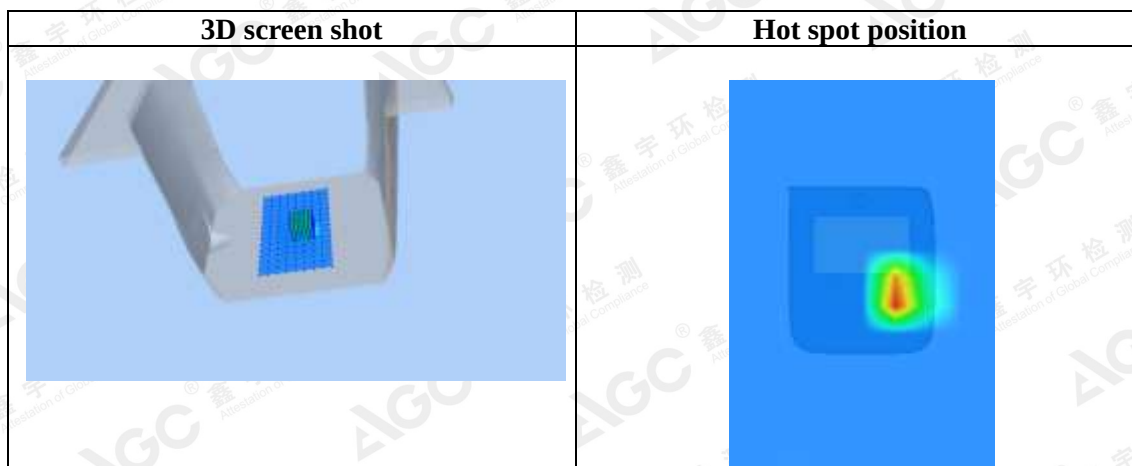
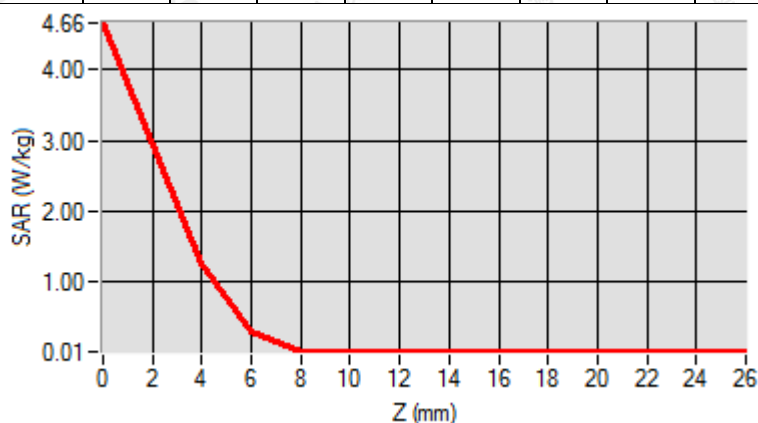
Maximum location: X=10.00, Y=-11.00

SAR Peak: 4.59 W/kg

SAR 10g (W/Kg)	0.241529
SAR 1g (W/Kg)	1.149755

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	4.66 22	1.25 01	0.30 05	0.00 83	0.00 83	0.00 83	0.00 83	0.00 83	0.00 83	0.00 83	0.00 83	0.00 83



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5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 14,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.35;
Frequency: 5310MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 4.72$ mho/m; $\epsilon_r = 36.77$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4

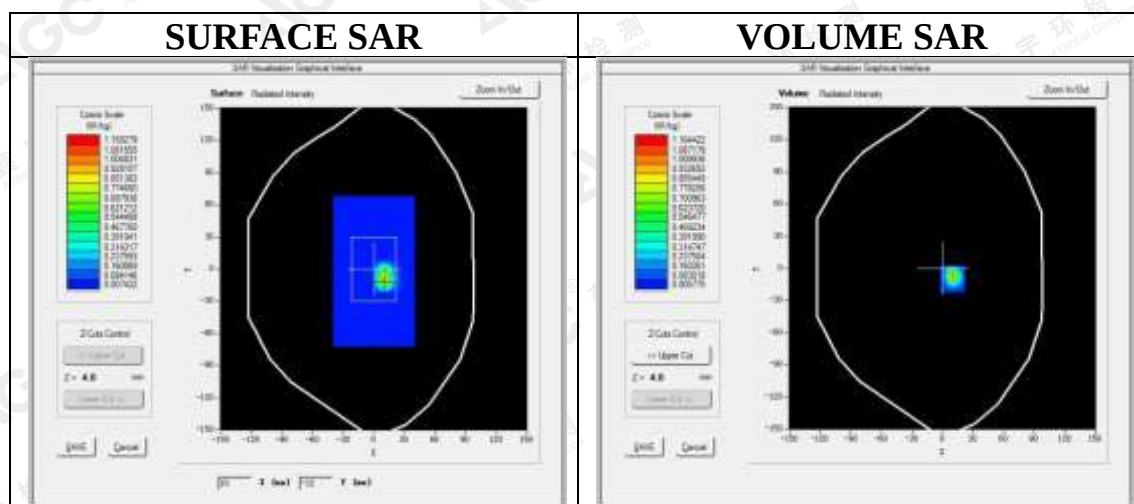
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0



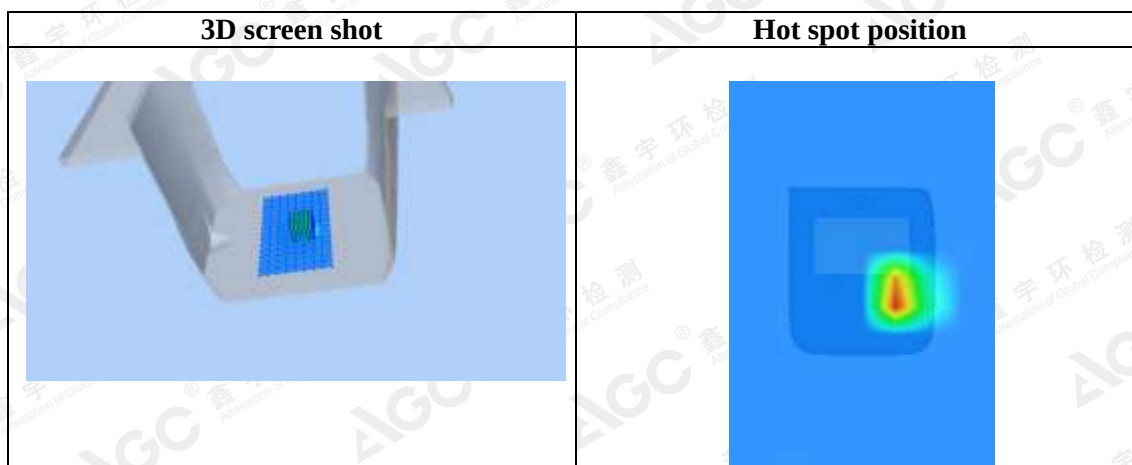
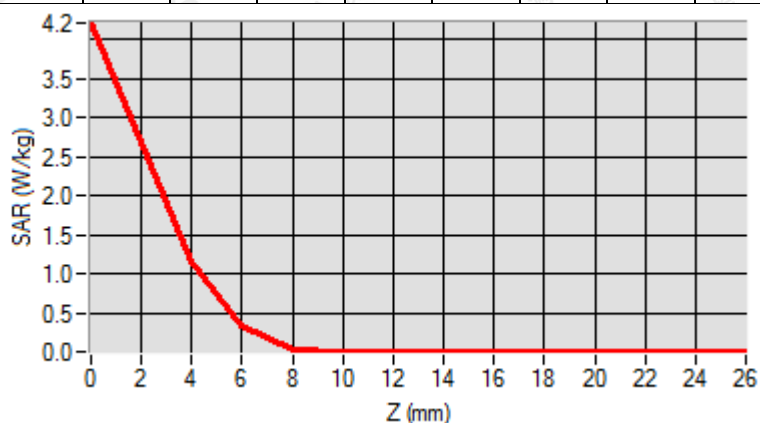
Maximum location: X=10.00, Y=-10.00

SAR Peak: 4.00 W/kg

SAR 10g (W/Kg)	0.247512
SAR 1g (W/Kg)	1.110253

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	4.20 22	1.16 01	0.33 17	0.03 95	0.00 82	0.00 82	0.00 82	0.00 82	0.00 82	0.00 82	0.00 82	0.00 82



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5.6GHz 802.11n HT40
Test Laboratory: AGC Lab
802.11n HT40 High-Edge1
DUT: Camera; Type: SPTM1

Date: June 15,2018

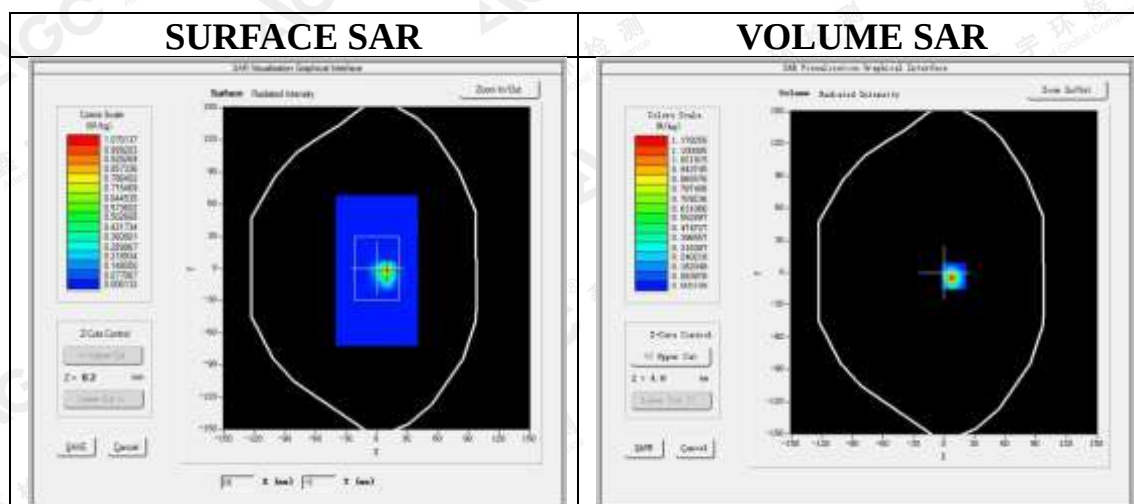
Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.43;
Frequency: 5670MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 4.91\text{mho/m}$; $\epsilon_r = 35.82$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.7, Liquid temperature (°C): 21.2

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 High- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/802.11n HT40 High- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5600MHz
Channels	High
Signal	Crest factor: 1.0

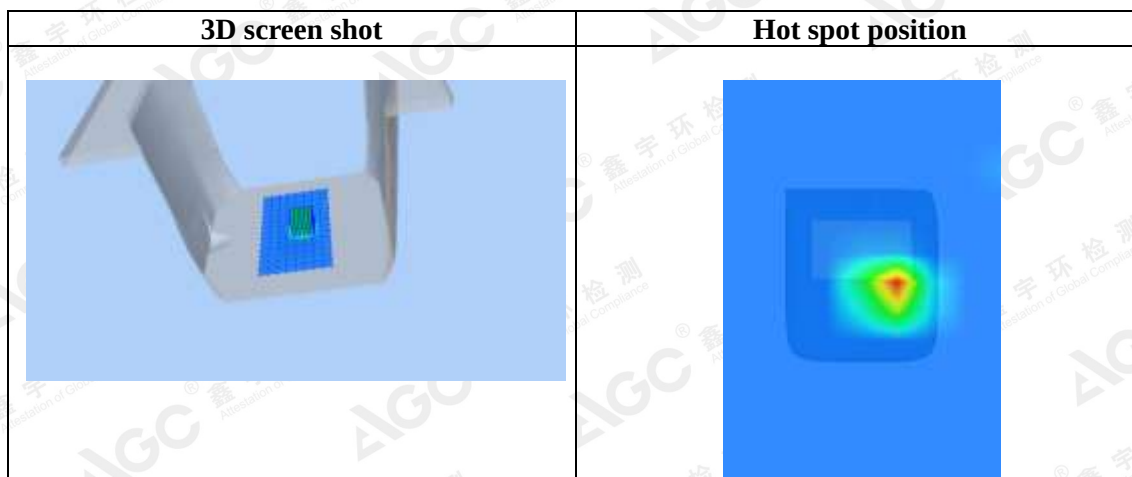
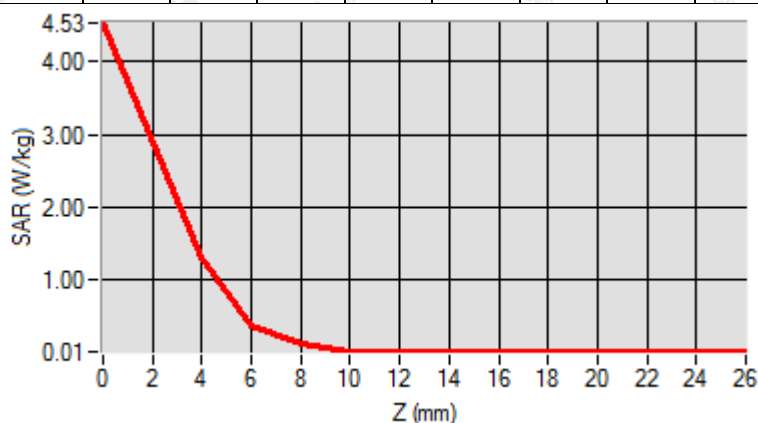


Maximum location: X=9.00, Y=-2.00
SAR Peak: 4.42 W/kg

SAR 10g (W/Kg)	0.353775
SAR 1g (W/Kg)	1.279521

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR (W/ Kg)	4.53 44	1.30 05	0.38 31	0.11 02	0.02 11	0.00 88	0.00 88	0.00 88	0.00 88	0.00 88	0.00 88	0.00 88



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5.8GHz 802.11a

Test Laboratory: AGC Lab

802.11a Mid-Edge1

DUT: Camera; Type: SPTM1

Date: June 12,2018

Communication System: Wi-Fi; Communication System Band: 802.11a; Duty Cycle: 1:1; Conv.F=2.46;
Frequency: 5785MHz; Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 5.30 \text{ mho/m}$; $\epsilon_r = 35.93$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Flat Section
Ambient temperature ($^{\circ}\text{C}$): 22.0, Liquid temperature ($^{\circ}\text{C}$): 21.7

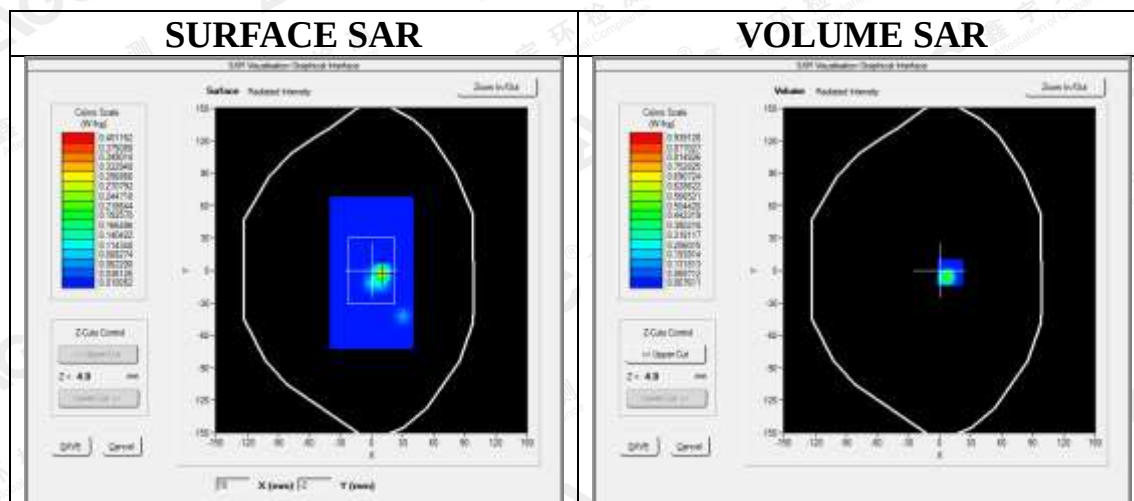
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ 802.11a Mid- Edge1 /Area Scan: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$

Configuration/ 802.11a Mid- Edge1 /Zoom Scan: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 $dx=4\text{mm}$ $dy=4\text{mm}$ $dz=2\text{mm}$
Phantom	Validation plane
Device Position	Edge1
Band	5800MHz
Channels	Middle
Signal	Crest factor: 1.0



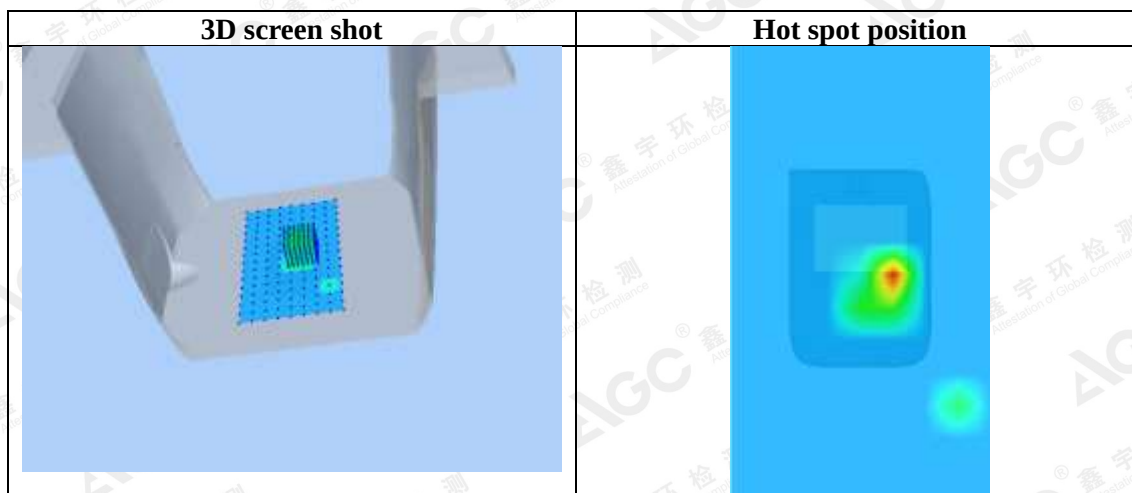
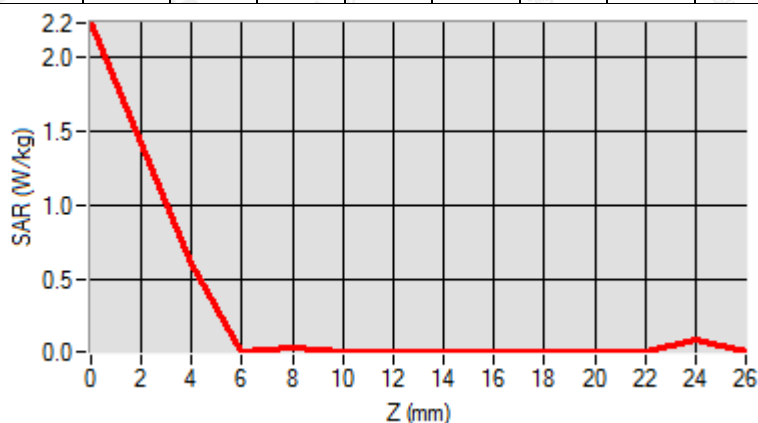
Maximum location: X=10.00, Y=-2.00

SAR Peak: 2.18 W/kg

SAR 10g (W/Kg)	0.081080
SAR 1g (W/Kg)	0.471651

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SA R (W/ Kg)	2.23 21	0.60 83	0.01 01	0.04 04	0.01 01	0.01 01	0.01 01	0.01 01	0.01 01	0.01 01	0.01 01	0.08 81



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SPTM1 (Version S)-Body liquid

2.4GHz 802.11b

Test Laboratory: AGC Lab

802.11b Mid- Edge1

DUT: Camera; Type: SPTM1

Date: May 28,2018

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.58;
Frequency: 2437 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.90$ mho/m; $\epsilon_r = 53.51$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.4, Liquid temperature (°C): 21.8

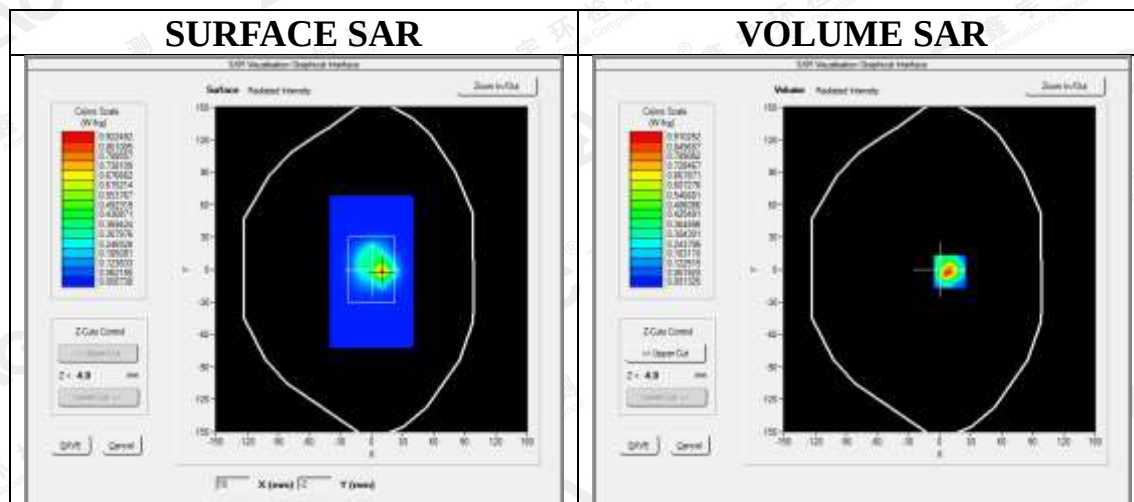
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

Configuration/802.11b Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11b Mid- Edge1 /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
Phantom	SAM twin phantom
Device Position	Edge1
Band	2450MHz
Channels	Middle
Signal	Crest factor: 1.0

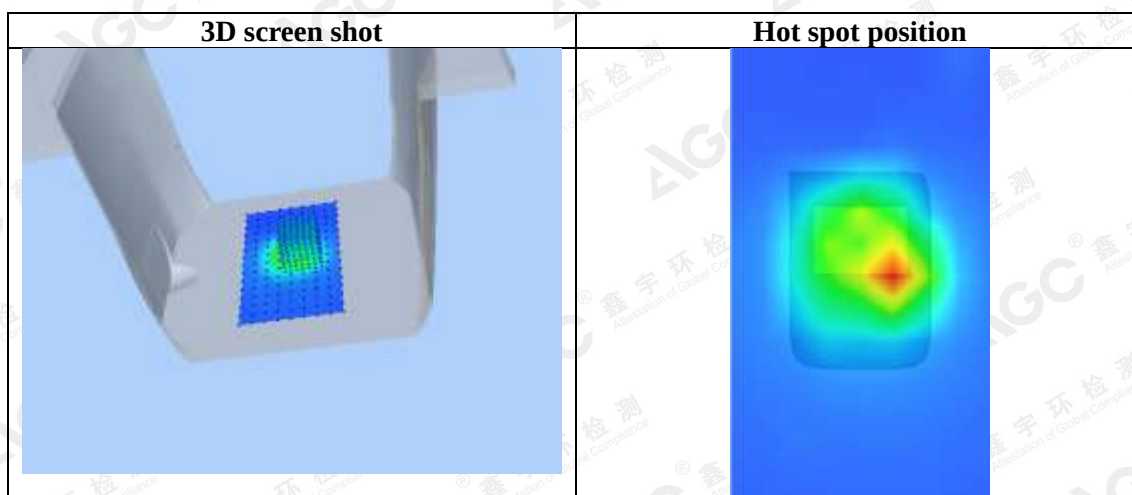
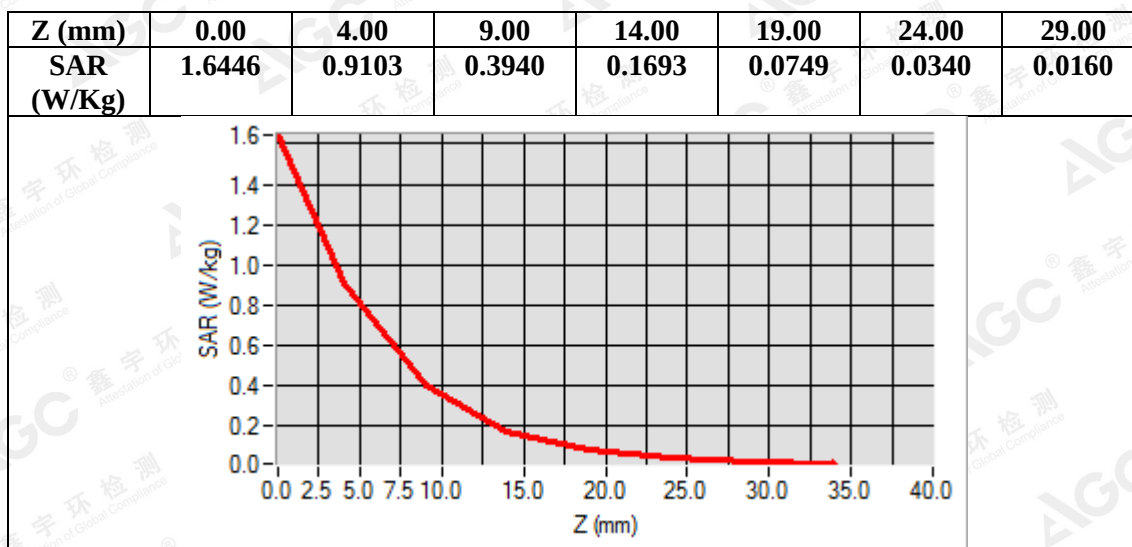


Maximum location: X=10.00, Y=-2.00

SAR Peak: 1.78 W/kg

SAR 10g (W/Kg)	0.292180
SAR 1g (W/Kg)	0.825823

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5.2GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH38-Edge1

DUT: Camera; Type: SPTM1

Date: June 05,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5190MHz; Medium parameters used: $f = 5200$ MHz; $\sigma = 5.38$ mho/m; $\epsilon_r = 48.90$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4

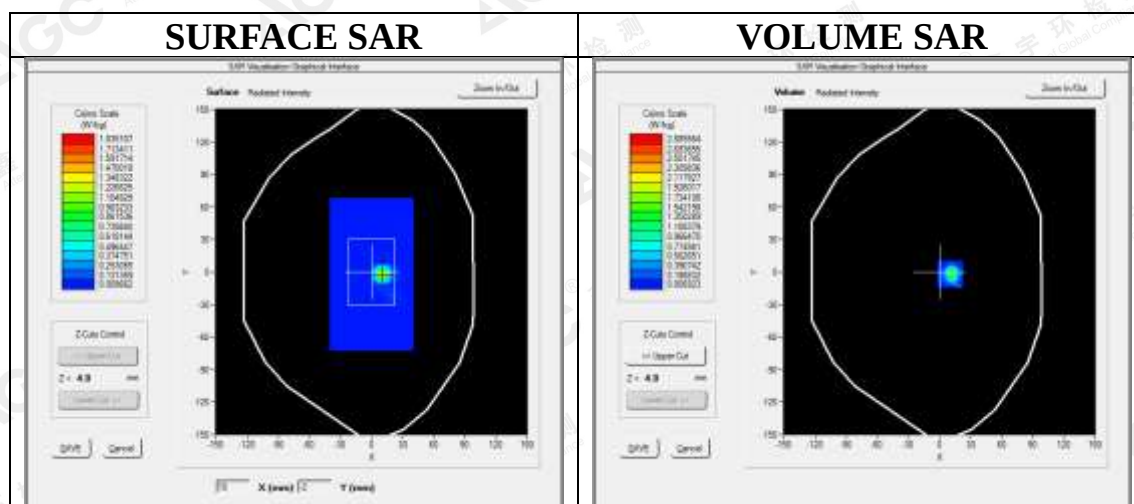
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH38- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH38- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5200MHz
Channels	CH38
Signal	Crest factor: 1.0



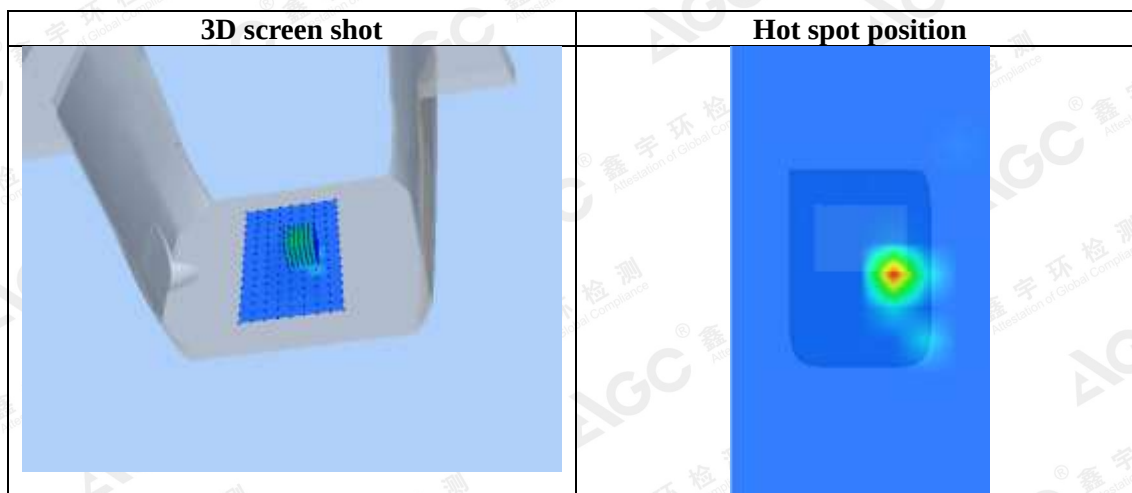
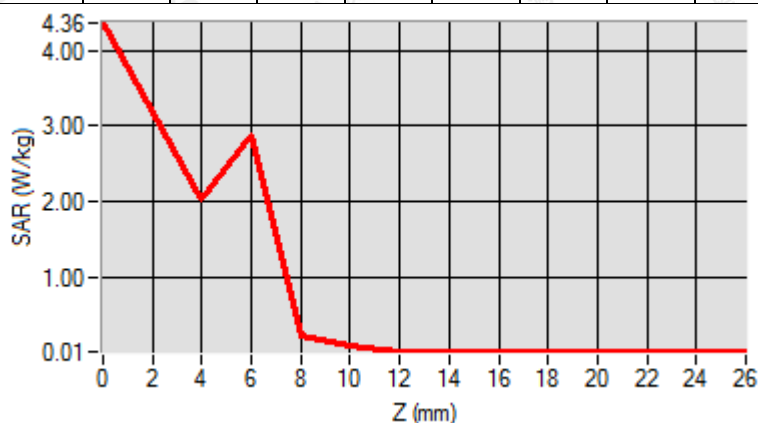
Maximum location: X=10.00, Y=-2.00

SAR Peak: 5.63 W/kg

SAR 10g (W/Kg)	0.241442
SAR 1g (W/Kg)	1.390730

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SA R (W/ Kg)	4.35 83	2.01 40	2.88 56	0.21 59	0.09 84	0.01 89	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97



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5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 06,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5310MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 5.40$ mho/m; $\epsilon_r = 50.10$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.7

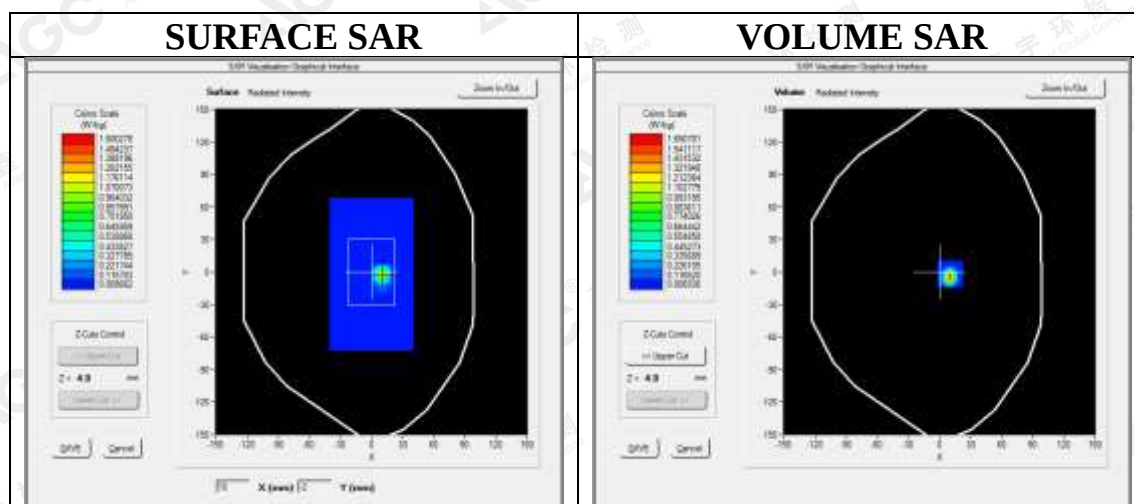
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0



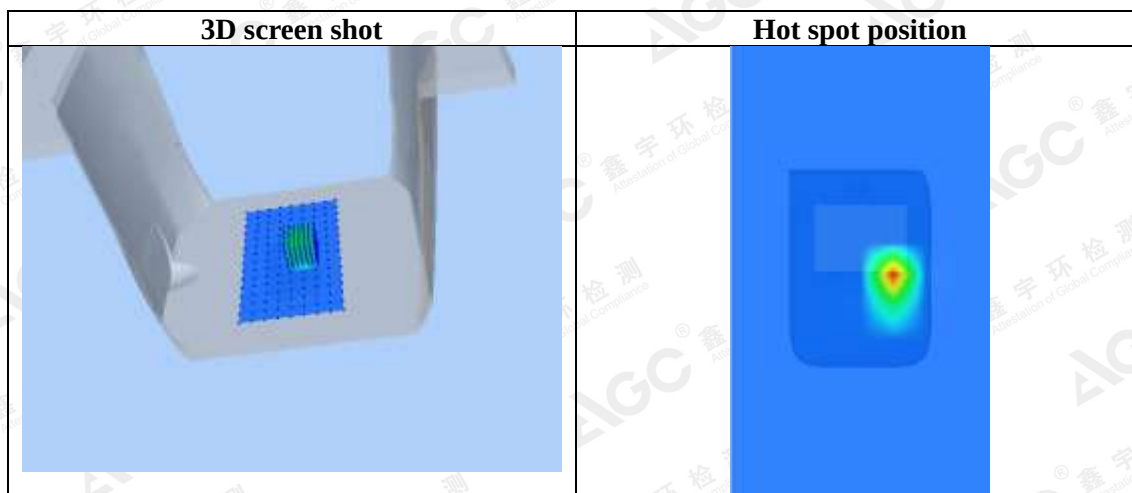
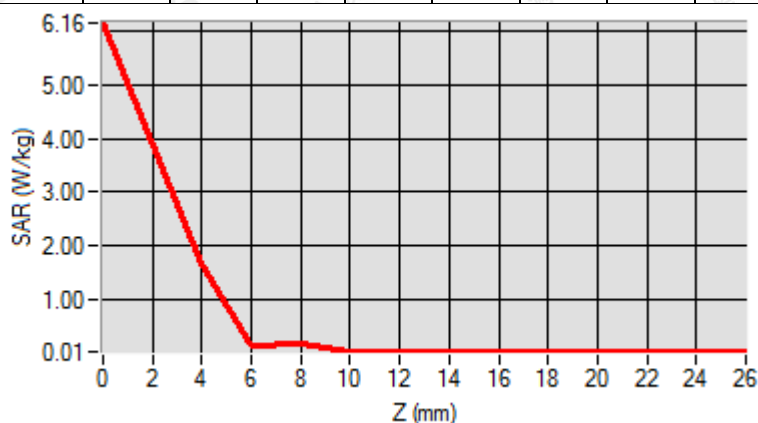
Maximum location: X=10.00, Y=-2.00

SAR Peak: 5.83 W/kg

SAR 10g (W/Kg)	0.193494
SAR 1g (W/Kg)	1.314960

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SA R (W/ Kg)	6.15 55	1.65 07	0.10 82	0.14 81	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97



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5.6GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 Mid-Edge1

DUT: Camera; Type: SPTM1

Date: June 07,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.51;
Frequency: 5550MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 5.92$ mho/m; $\epsilon_r = 49.52$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.4

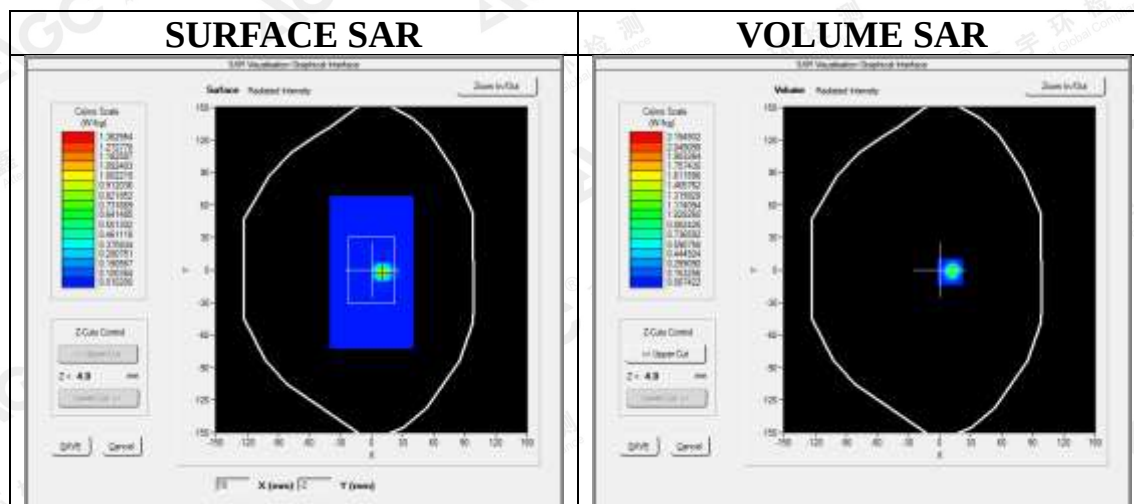
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 Mid- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5600MHz
Channels	Middle
Signal	Crest factor: 1.0



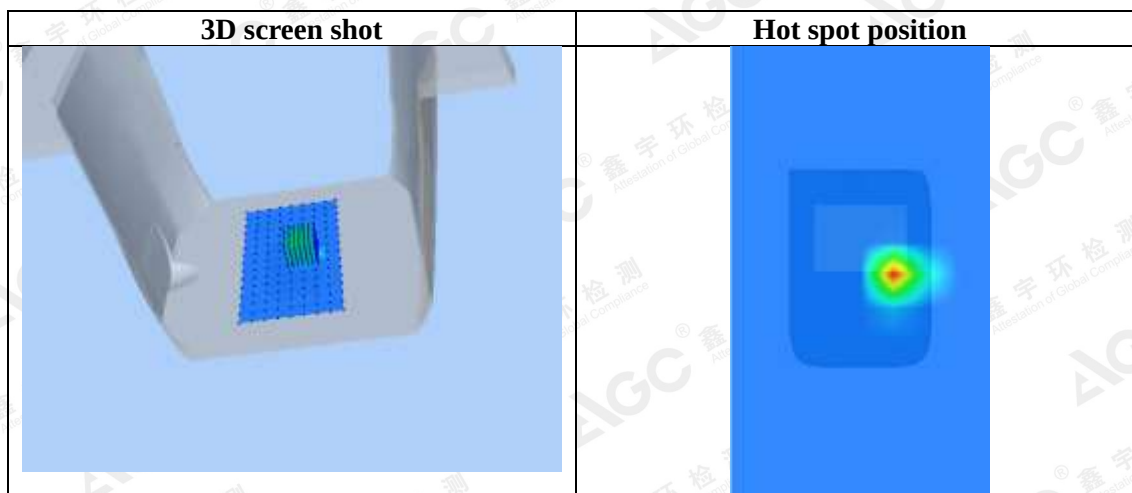
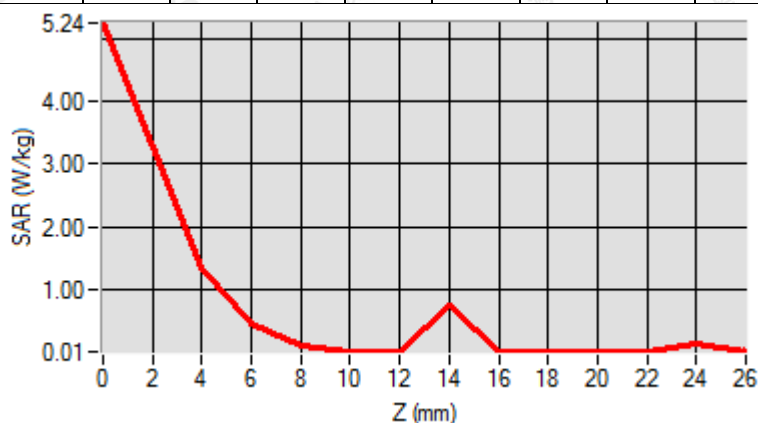
Maximum location: X=10.00, Y=-2.00

SAR Peak: 5.64 W/kg

SAR 10g (W/Kg)	0.195912
SAR 1g (W/Kg)	1.187388

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	5.24 03	1.34 58	0.45 19	0.10 89	0.02 54	0.01 02	0.72 79	0.01 02	0.01 02	0.01 02	0.01 02	0.14 92



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Test Laboratory: AGC Lab
802.11n HT40 High-Edge1
DUT: Camera; **Type:** SPTM1

Date: June 07,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.51;
Frequency: 5670MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 5.77$ mho/m; $\epsilon_r = 49.60$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.4

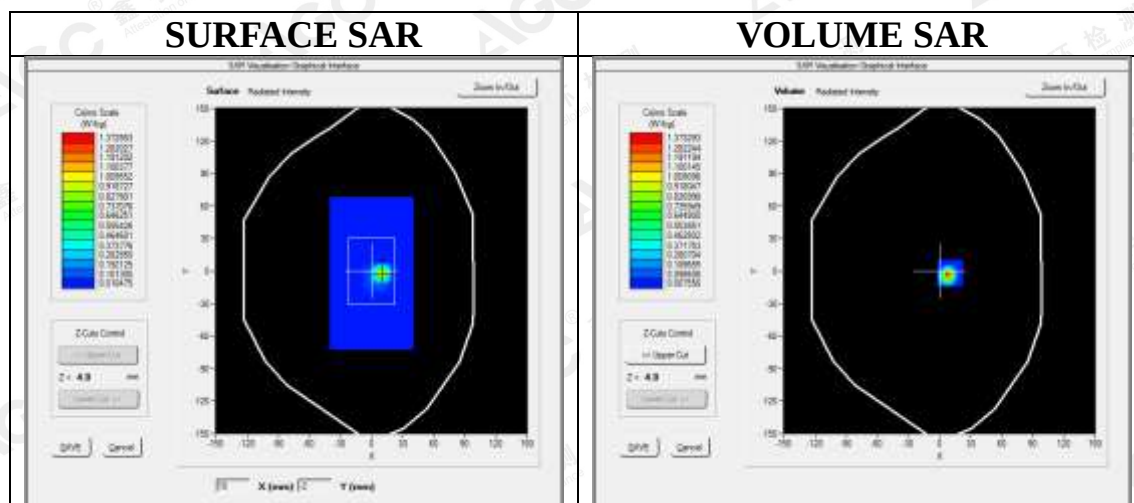
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 High- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 High- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5600MHz
Channels	High
Signal	Crest factor: 1.0



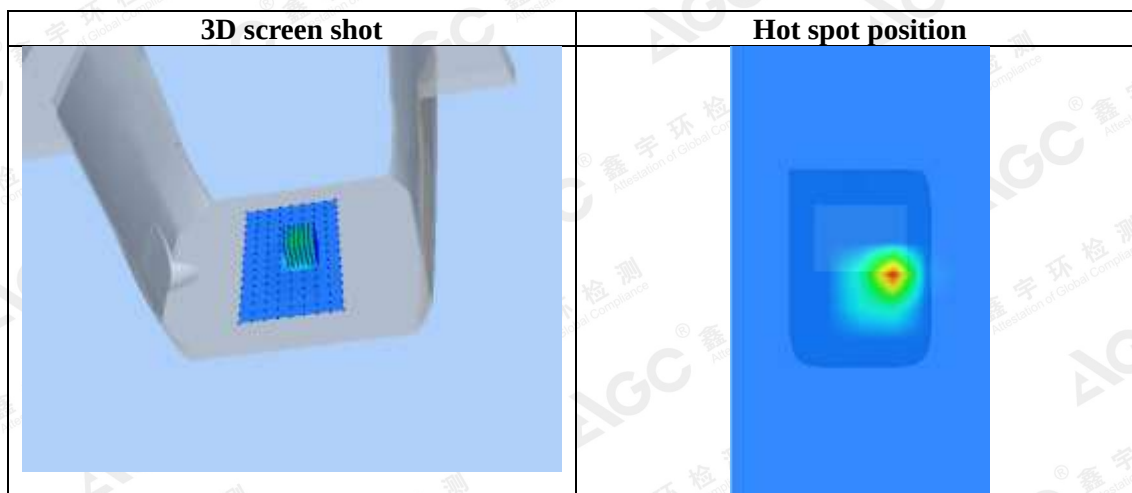
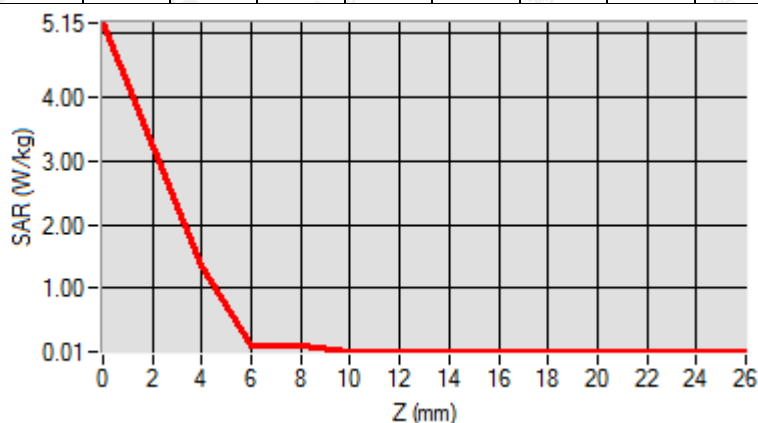
Maximum location: X=10.00, Y=-2.00

SAR Peak: 5.06 W/kg

SAR 10g (W/Kg)	0.180594
SAR 1g (W/Kg)	1.132974

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Z (m m)	0.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0
SA R (W/ Kg)	5.15 40	1.37 33	0.11 47	0.09 49	0.01 54	0.01 42	0.01 05	0.01 05	0.01 05	0.01 05	0.01 05	0.01 05



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5.8GHz 802.11a

Test Laboratory: AGC Lab

802.11a Mid-Edge1

DUT: Camera; Type: SPTM1

Date: June 03,2018

Communication System: Wi-Fi; Communication System Band: 802.11a; Duty Cycle: 1:1; Conv.F=2.53;
Frequency: 5785MHz; Medium parameters used: $f = 5800$ MHz; $\sigma = 5.93$ mho/m; $\epsilon_r = 48.32$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.5

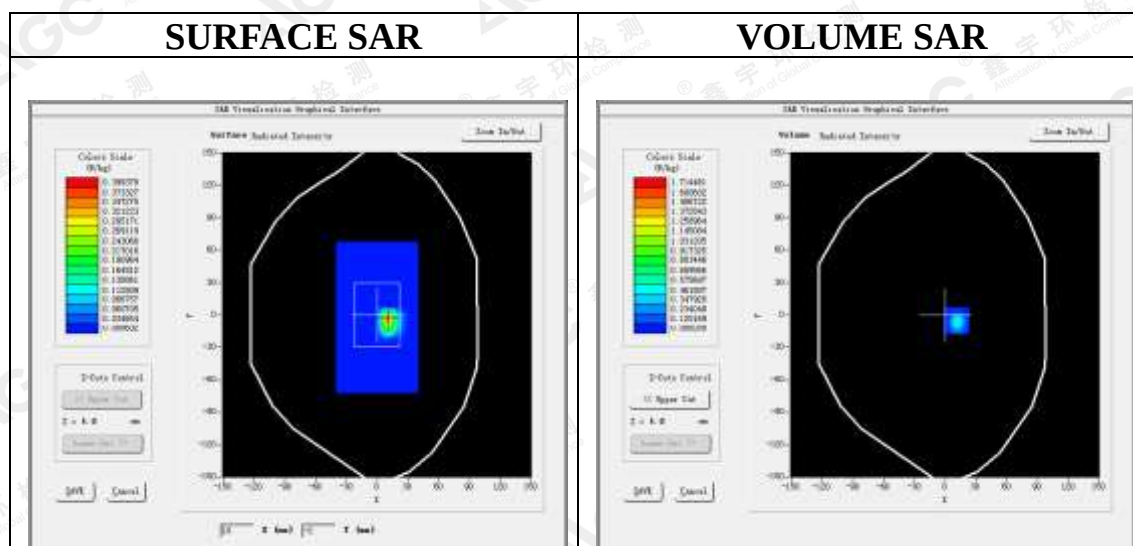
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ 802.11a Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/ 802.11a Mid- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5800MHz
Channels	Middle
Signal	Crest factor: 1.0

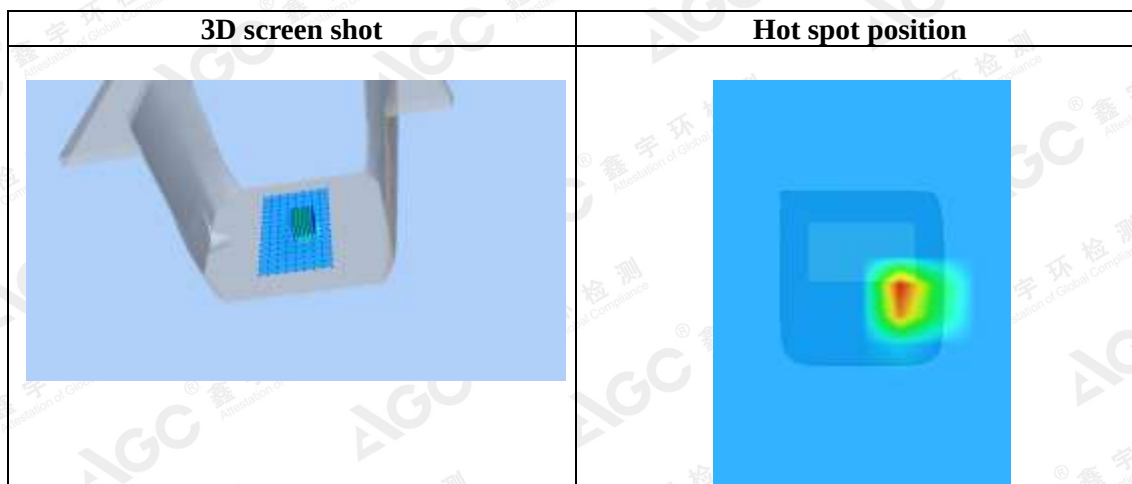
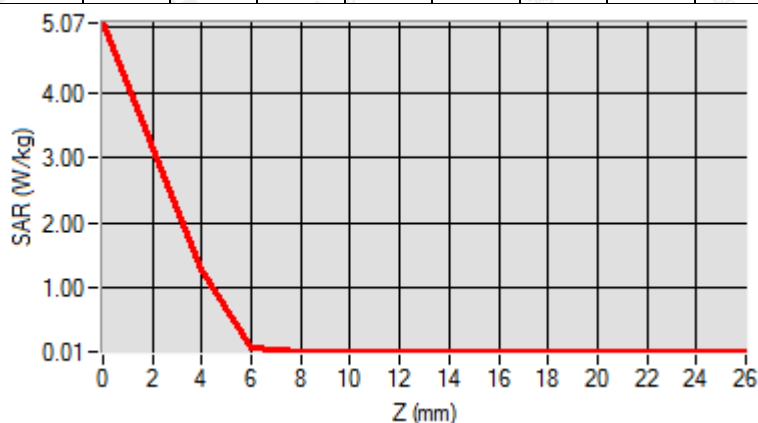


Maximum location: X=11.00, Y=-5.00
SAR Peak: 1.78 W/kg

SAR 10g (W/Kg)	0.099643
SAR 1g (W/Kg)	0.483519

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SA R (W/ Kg)	5.07 46	1.28 71	0.06 25	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80



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Repeated SAR once
SPTM1(Version W)-Head liquid
2.4GHz 802.11b

Test Laboratory: AGC Lab

802.11b High- Edge2

DUT: Camera; Type: SPTM1

Date: May 27, 2018

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.52;
Frequency: 2462 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 38.63$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.5

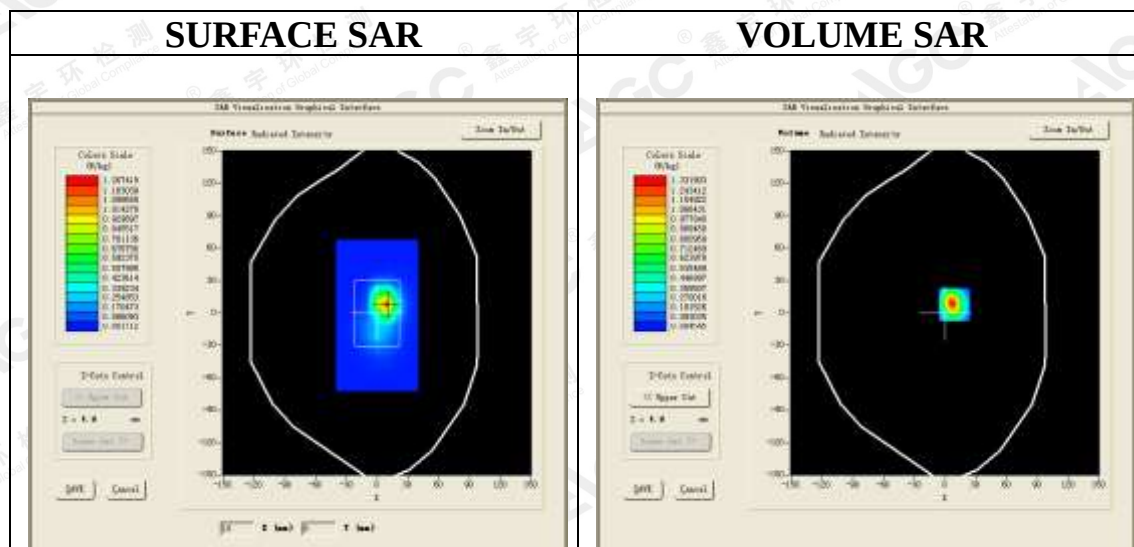
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08, 2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

Configuration/802.11b High- Edge2 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11b High- Edge2 /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
Phantom	SAM twin phantom
Device Position	Edge2
Band	2450MHz
Channels	High
Signal	Crest factor: 1.0

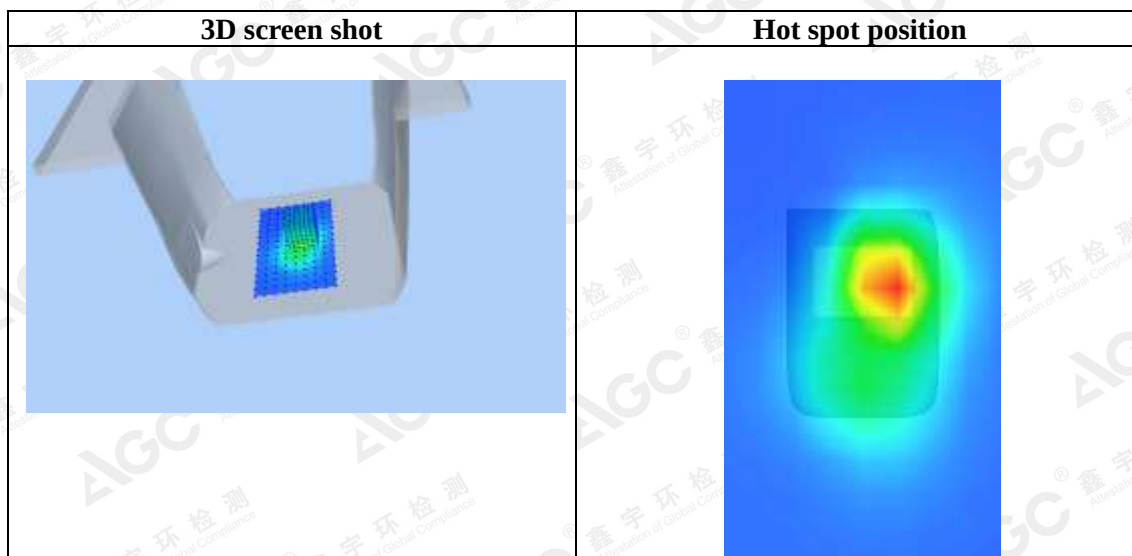
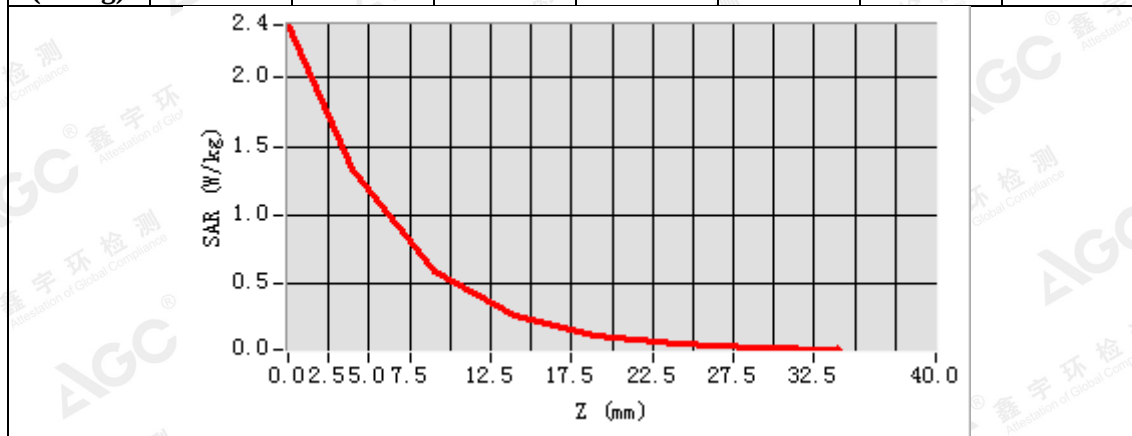


Maximum location: X=9.00, Y=8.00
SAR Peak: 2.50 W/kg

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SAR 10g (W/Kg)	0.449996
SAR 1g (W/Kg)	1.209789

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.3872	1.3319	0.5854	0.2563	0.1143	0.0521	0.0244



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5.2GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH38-Edge1

DUT: Camera; Type: SPTM1

Date: June 13,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.35;
Frequency: 5190MHz; Medium parameters used: $f = 5200$ MHz; $\sigma = 4.62$ mho/m; $\epsilon_r = 36.85$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.5

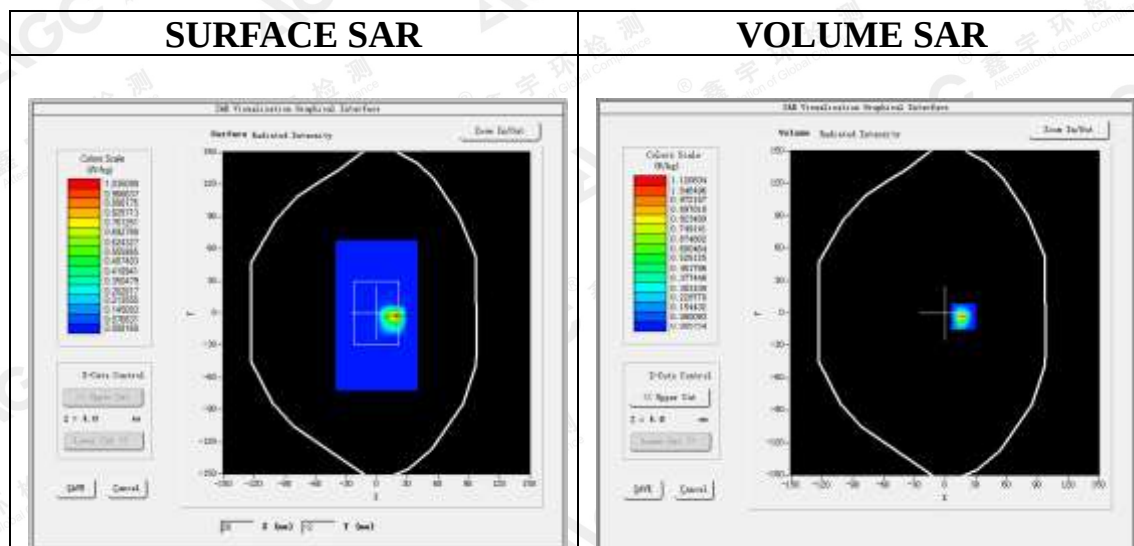
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH38- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH38- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5200MHz
Channels	CH38
Signal	Crest factor: 1.0

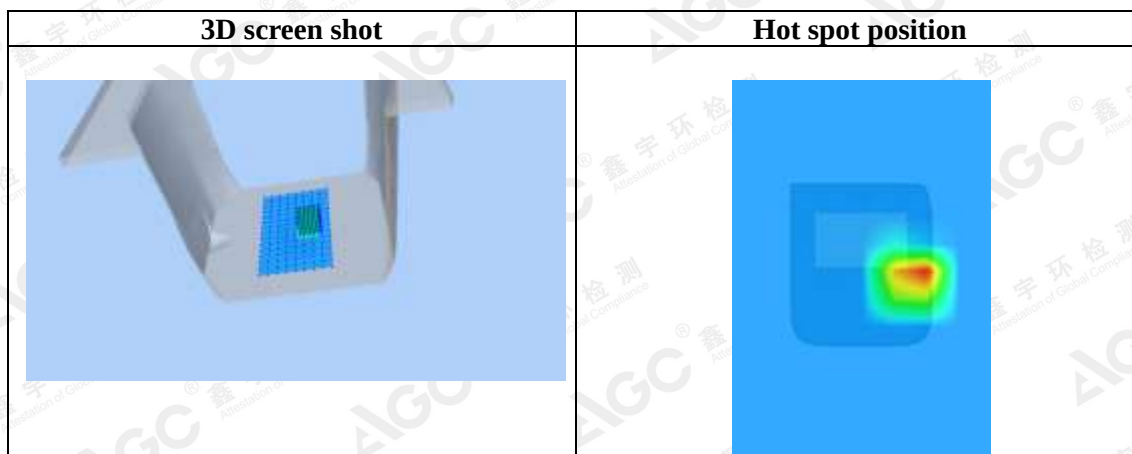
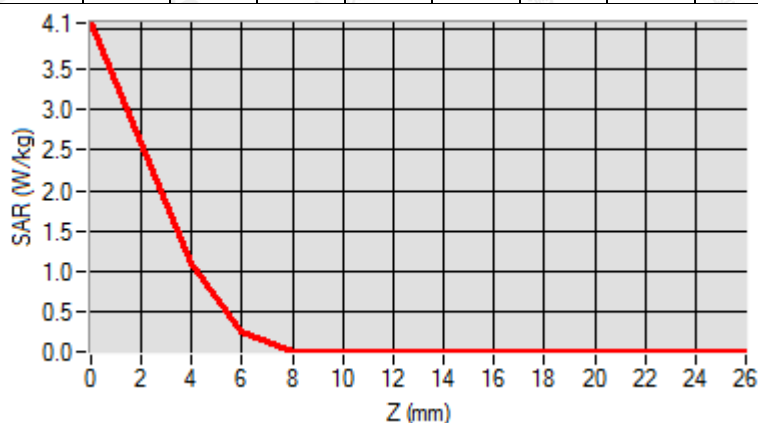


Maximum location: X=18.00, Y=-3.00
SAR Peak: 3.97 W/kg

SAR 10g (W/Kg)	0.228117
SAR 1g (W/Kg)	1.045726

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	4.10 13	1.12 08	0.30 60	0.09 29	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80



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5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 14,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.35;
Frequency: 5310MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 4.72$ mho/m; $\epsilon_r = 36.77$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4

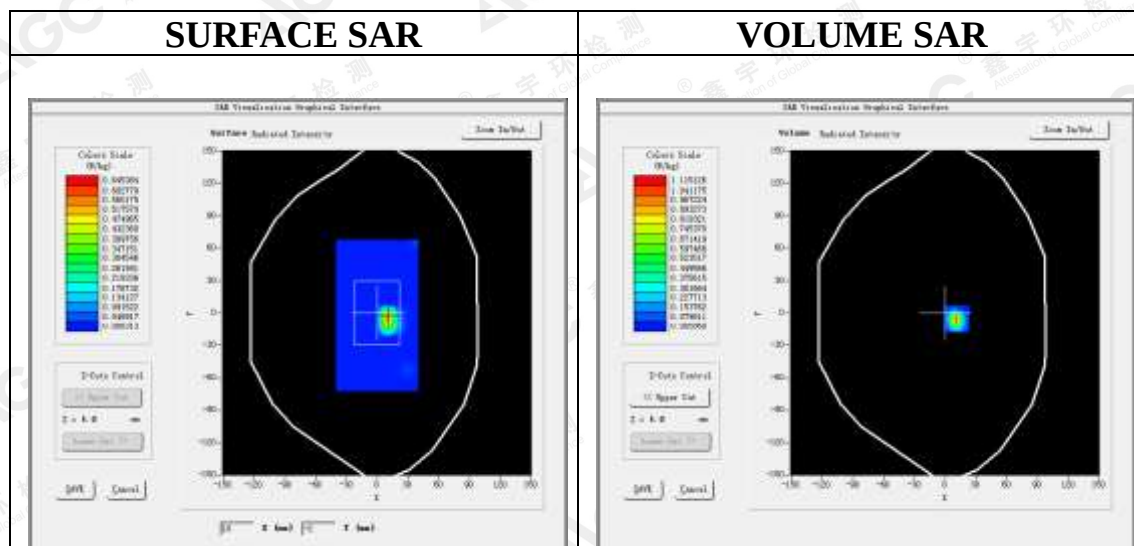
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

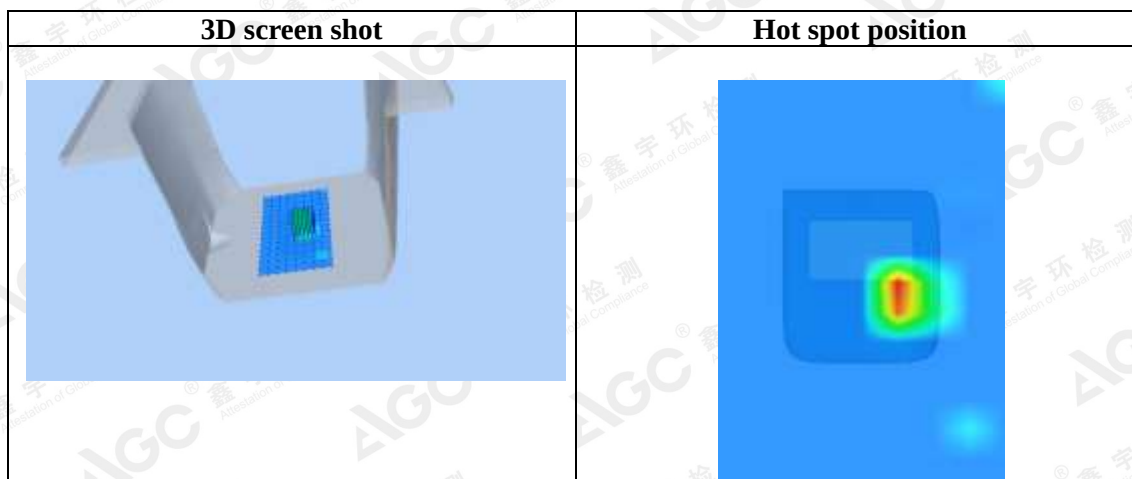
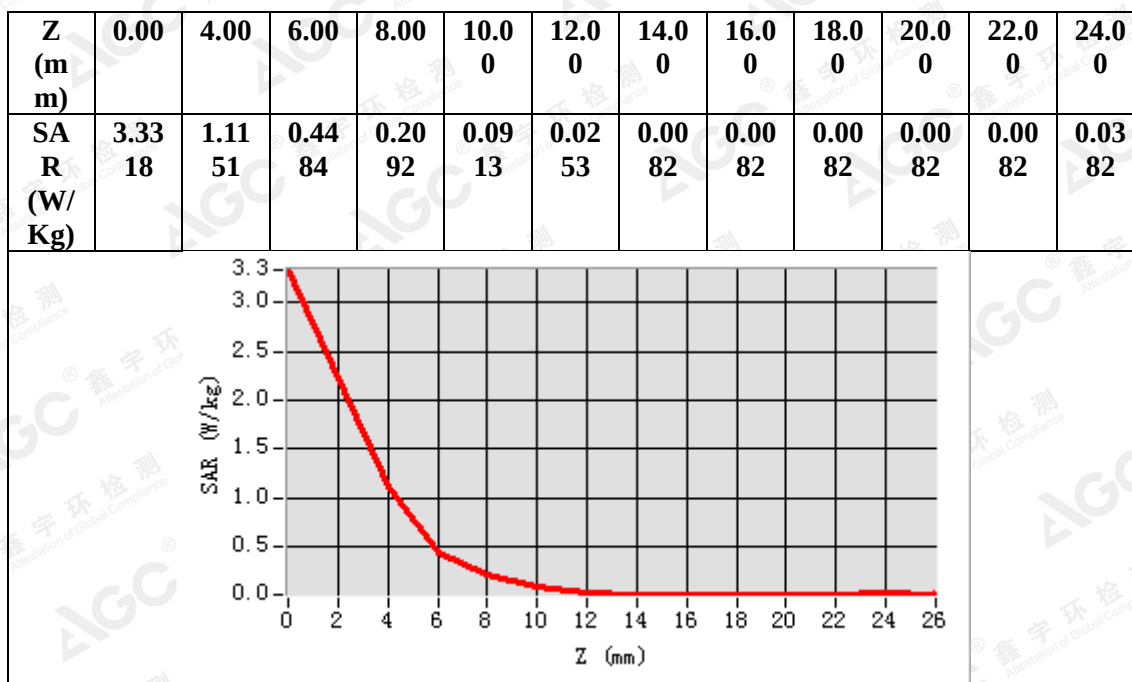
Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0



Maximum location: X=11.00, Y=-5.00
SAR Peak: 3.46 W/kg

SAR 10g (W/Kg)	0.156634
SAR 1g (W/Kg)	0.857410

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5.6GHz 802.11n HT40
Test Laboratory: AGC Lab
802.11n HT40 Mid-Edge1
DUT: Camera; Type: SPTM1

Date: June 15,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.43;
Frequency: 5550MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 4.91$ mho/m; $\epsilon_r = 35.82$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.7, Liquid temperature (°C): 21.2

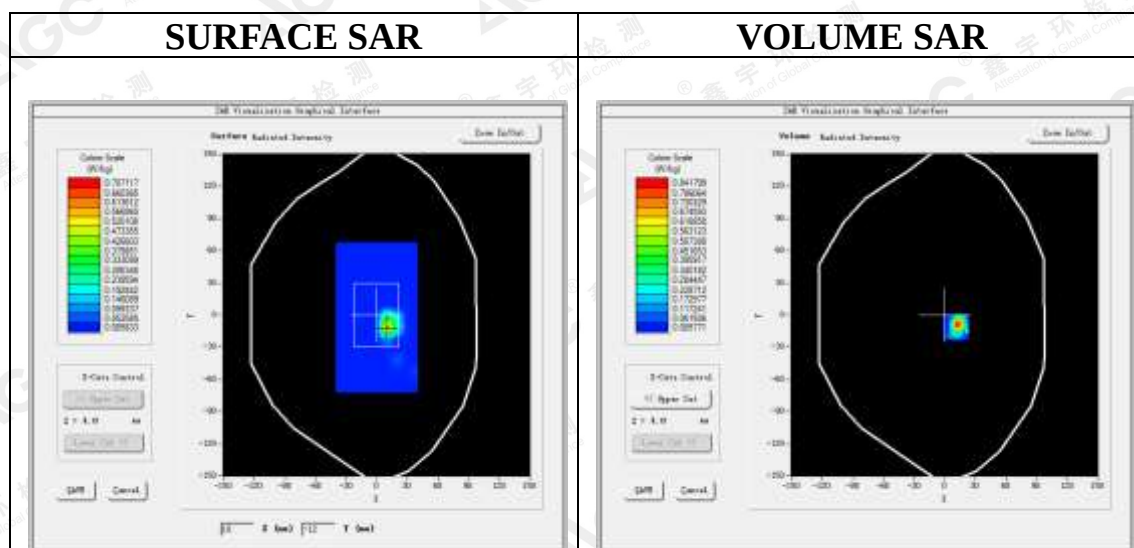
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 Mid- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5600MHz
Channels	Middle
Signal	Crest factor: 1.0

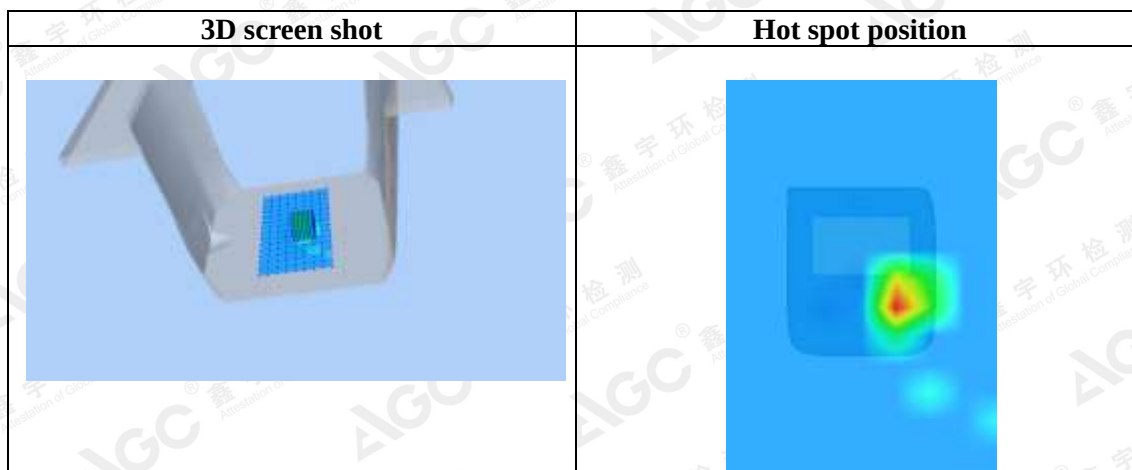
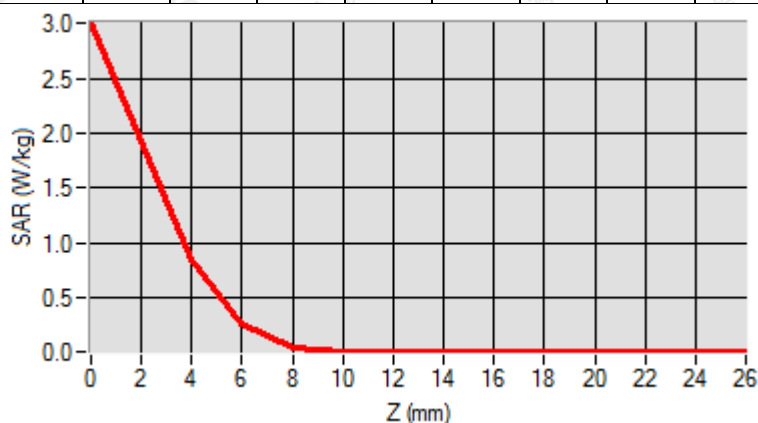


Maximum location: X=11.00, Y=-11.00
SAR Peak: 2.79 W/kg

SAR 10g (W/Kg)	0.208317
SAR 1g (W/Kg)	0.816049

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	3.00 21	0.84 04	0.26 53	0.03 46	0.01 00	0.00 85	0.00 85	0.00 85	0.00 85	0.00 85	0.00 85	0.00 85



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SPTM1(Version W)-Body liquid

2.4GHz 802.11b

Test Laboratory: AGC Lab

802.11b Mid- Edge1

DUT: Camera; Type: SPTM1

Date: May 28,2018

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.58;
Frequency: 2437 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.90$ mho/m; $\epsilon_r = 53.51$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.4, Liquid temperature (°C): 21.8

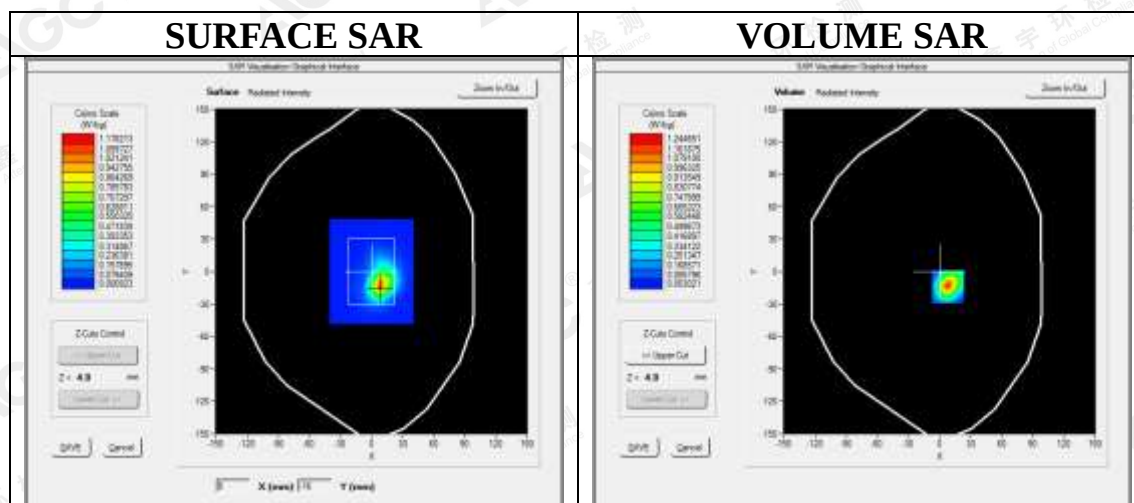
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

Configuration/802.11b Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11b Mid- Edge1 /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
Phantom	SAM twin phantom
Device Position	Edge1
Band	2450MHz
Channels	Middle
Signal	Crest factor: 1.0

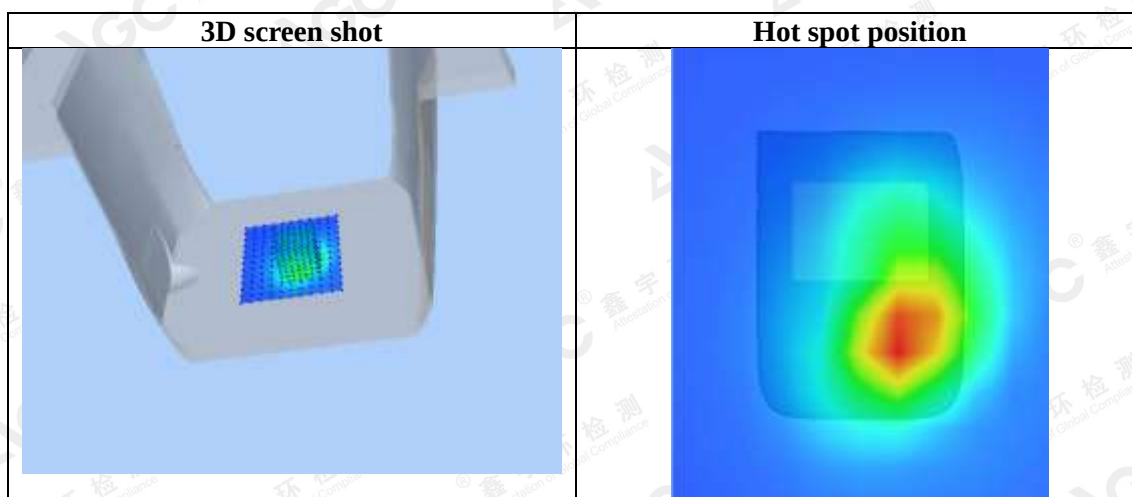
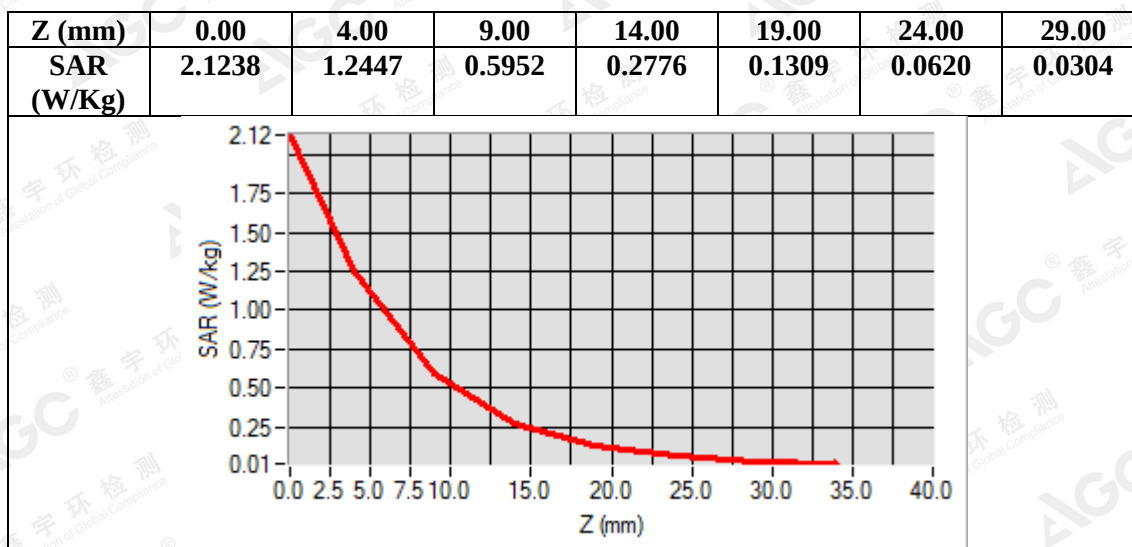


Maximum location: X=8.00, Y=-14.00

SAR Peak: 2.13 W/kg

SAR 10g (W/Kg)	0.409993
SAR 1g (W/Kg)	1.074392

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5.2GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH38-Edge1

DUT: Camera; Type: SPTM1

Date: June 05,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5190MHz; Medium parameters used: $f = 5200$ MHz; $\sigma = 5.38$ mho/m; $\epsilon_r = 48.90$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4

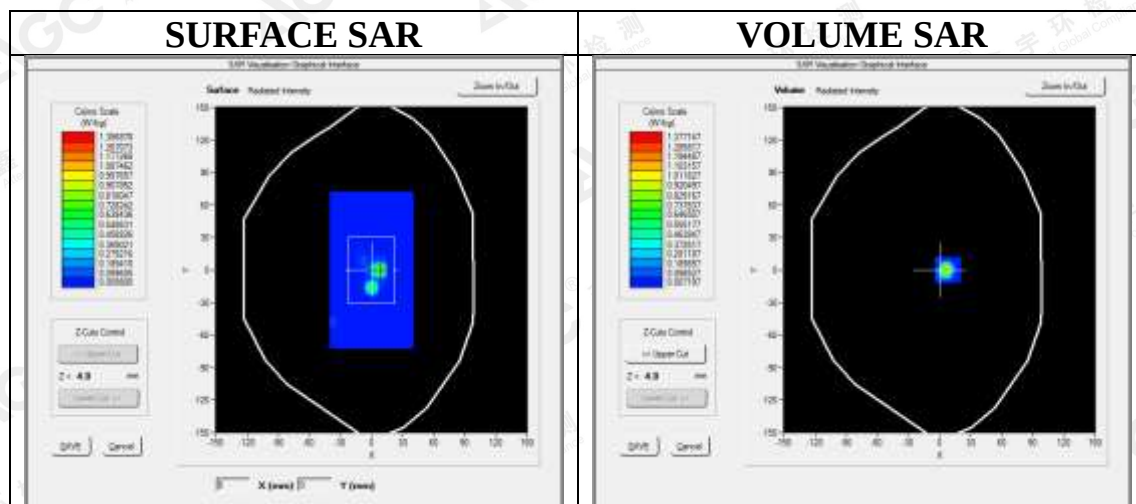
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH38- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH38- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5200MHz
Channels	CH38
Signal	Crest factor: 1.0



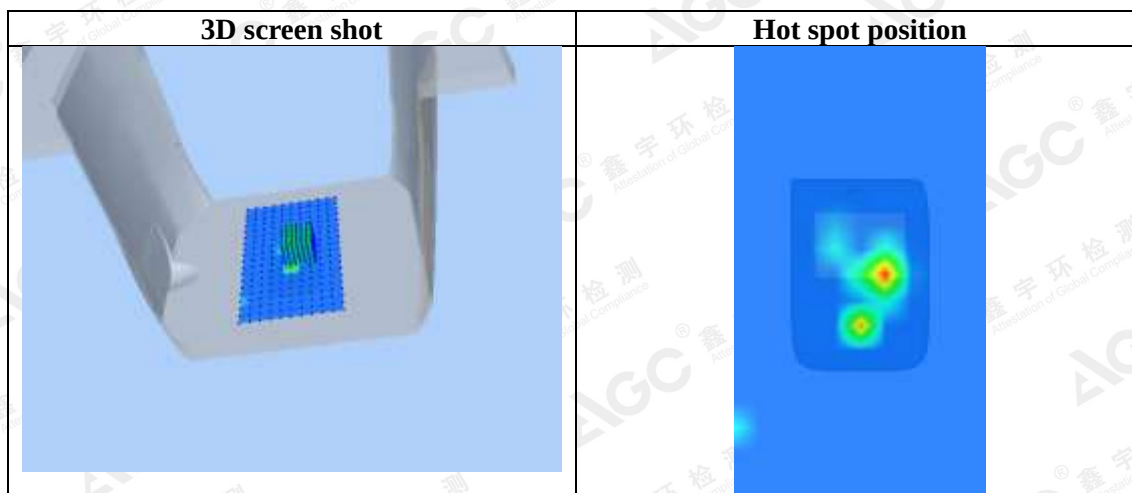
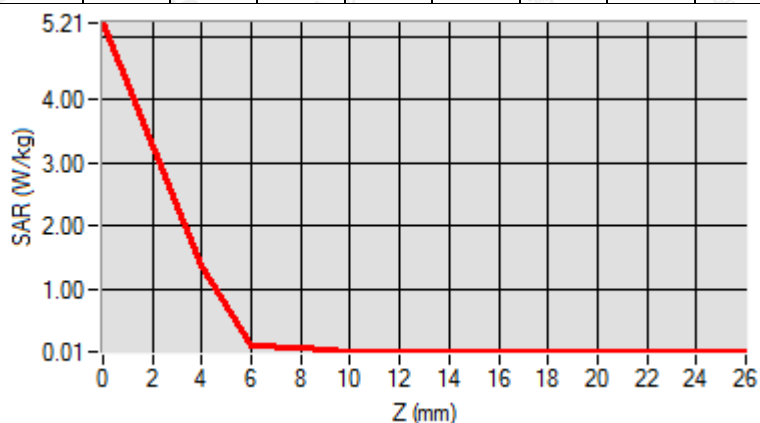
Maximum location: X=8.00, Y=0.00

SAR Peak: 5.10 W/kg

SAR 10g (W/Kg)	0.154763
SAR 1g (W/Kg)	1.094169

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	5.20 72	1.37 71	0.10 29	0.08 75	0.00 98	0.00 98	0.00 98	0.00 98	0.00 98	0.00 98	0.00 98	0.00 98



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5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 06,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5310MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 5.40$ mho/m; $\epsilon_r = 50.10$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.7

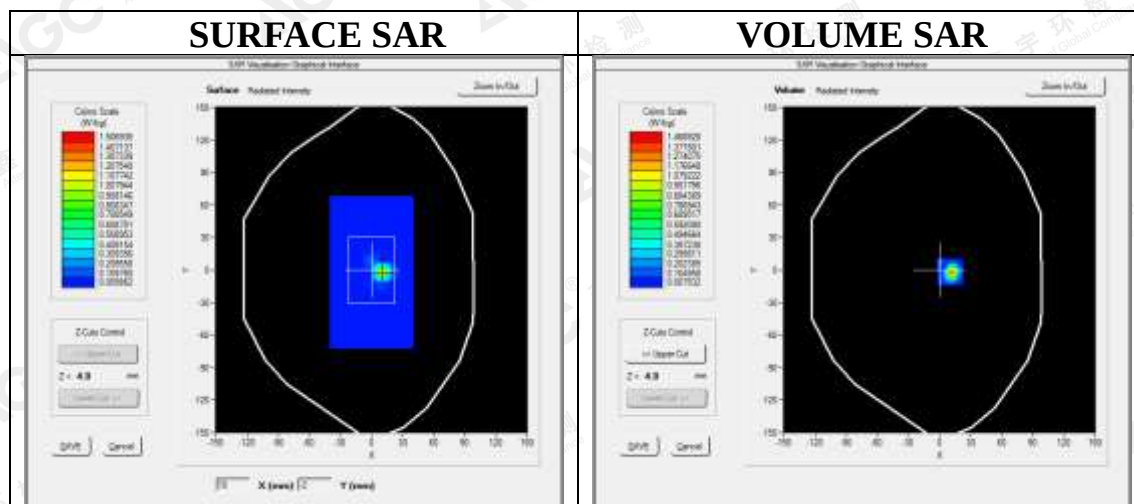
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0



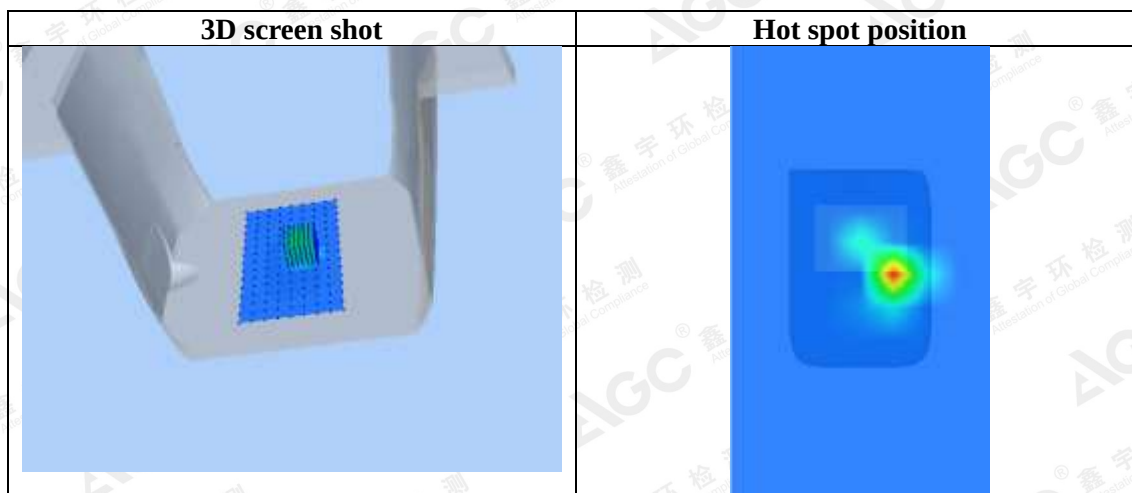
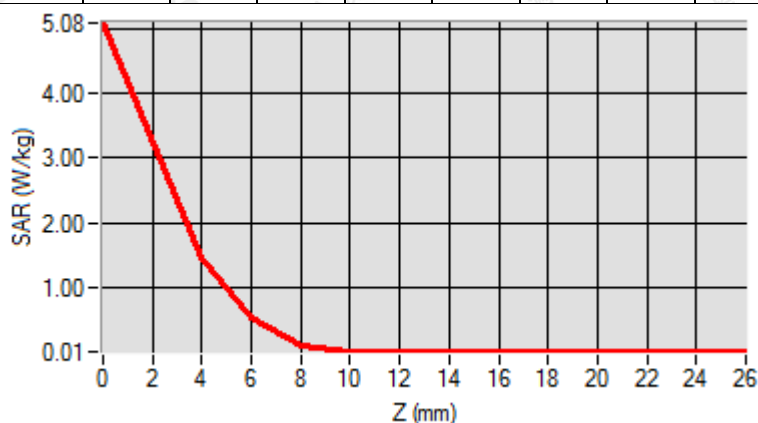
Maximum location: X=10.00, Y=-2.00

SAR Peak: 5.14 W/kg

SAR 10g (W/Kg)	0.180458
SAR 1g (W/Kg)	1.133223

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SA R (W/ Kg)	5.08 21	1.46 89	0.52 21	0.09 95	0.02 20	0.01 00	0.01 00	0.01 00	0.01 00	0.01 00	0.01 00	0.01 00



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5.6GHz 802.11n HT40
Test Laboratory: AGC Lab
802.11n HT40 Mid-Edge1
DUT: Camera; Type: SPTM1

Date: June 07,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.51;
Frequency: 5550MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 5.92$ mho/m; $\epsilon_r = 49.52$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.4

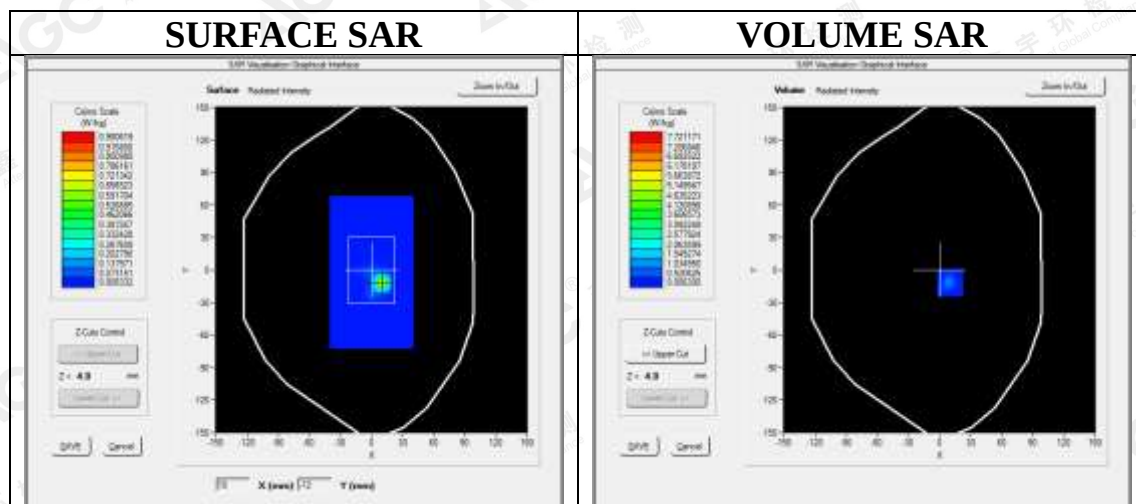
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 Mid- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5600MHz
Channels	Mid
Signal	Crest factor: 1.0



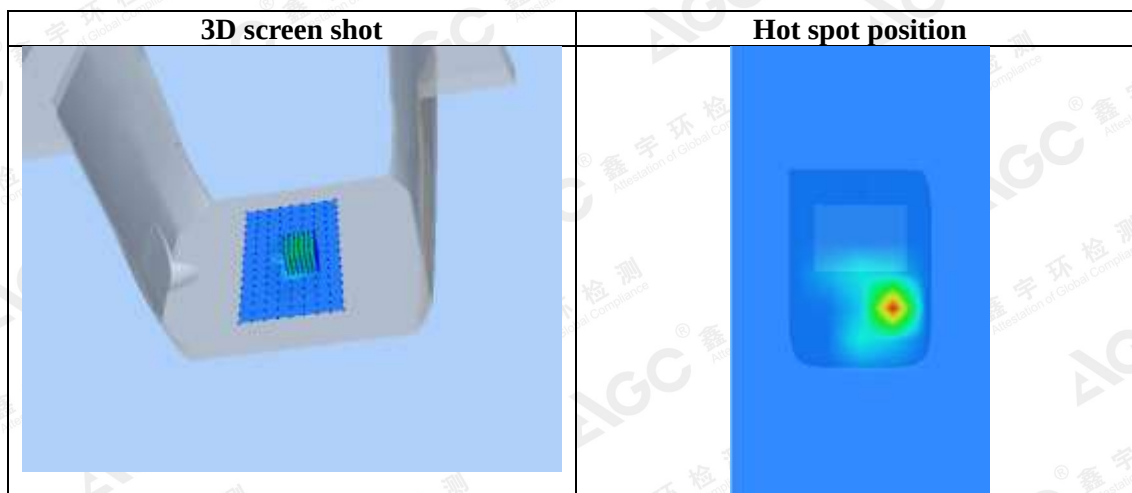
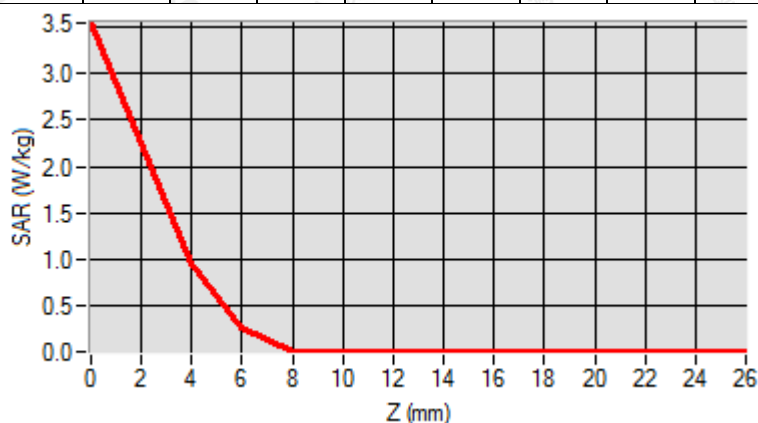
Maximum location: X=10.00, Y=-10.00

SAR Peak: 3.59 W/kg

SAR 10g (W/Kg)	0.117842
SAR 1g (W/Kg)	0.818586

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	3.54 85	0.96 92	0.27 77	0.01 69	0.00 85	0.00 85	0.00 85	0.00 85	0.00 85	0.00 85	0.00 85	0.00 85



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SPTM1 (Version S)-Head liquid

5.2GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH38-Edge1

DUT: Camera; Type: SPTM1

Date: June 13,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.35;
Frequency: 5190MHz; Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.62 \text{ mho/m}$; $\epsilon_r = 36.85$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.5

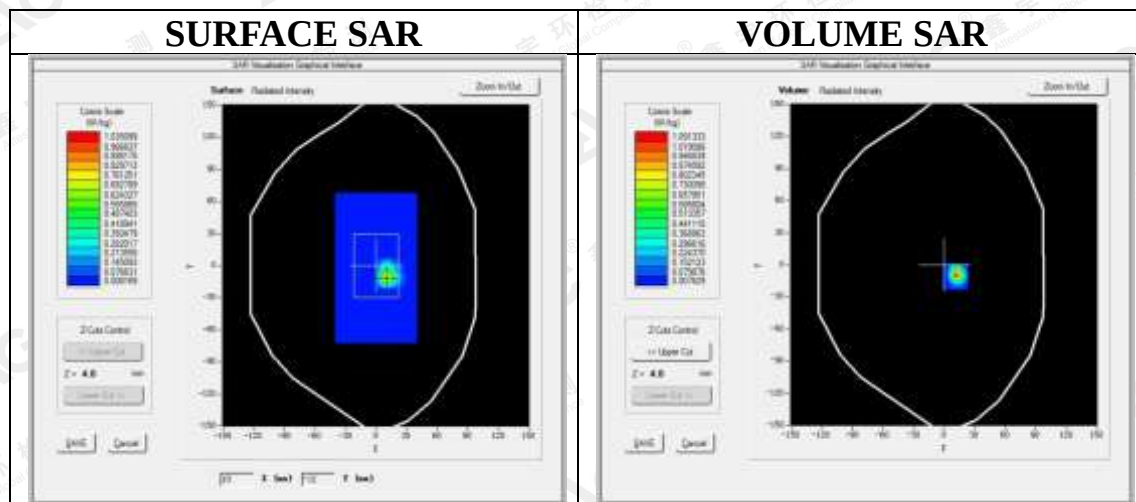
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH38- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH38- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5200MHz
Channels	CH38
Signal	Crest factor: 1.0



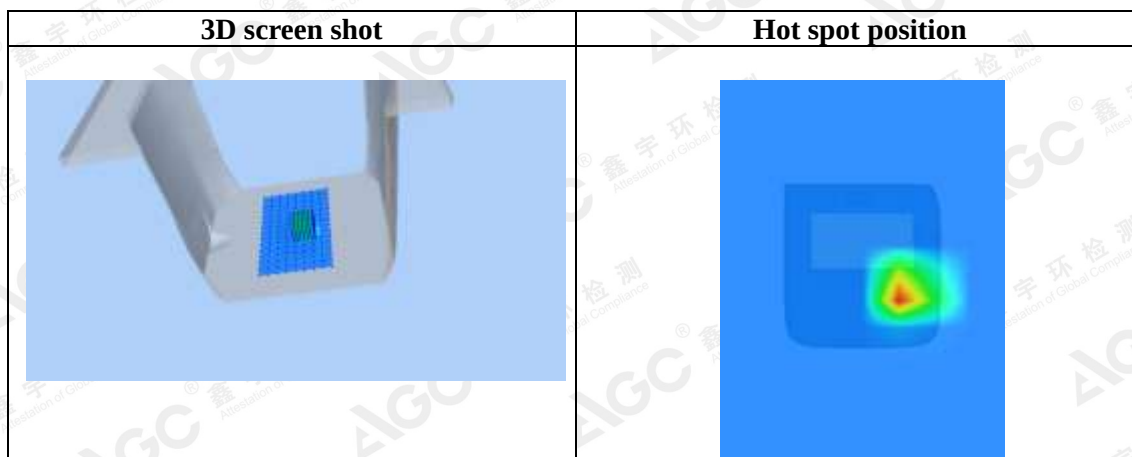
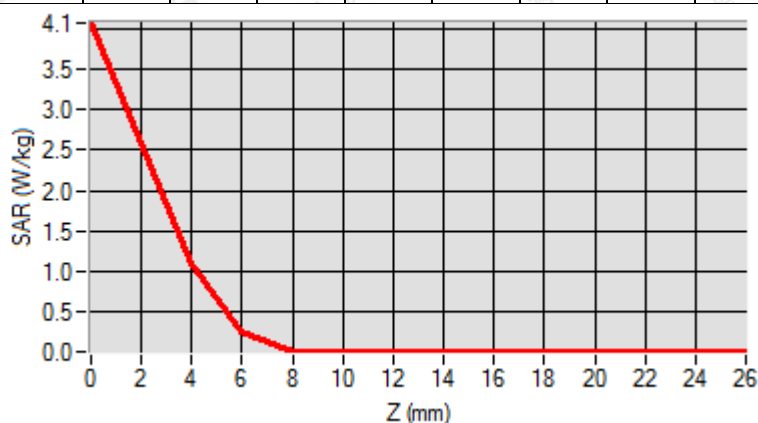
Maximum location: X=11.00, Y=-11.00

SAR Peak: 3.99 W/kg

SAR 10g (W/Kg)	0.216085
SAR 1g (W/Kg)	1.035770

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	4.08 95	1.10 23	0.27 11	0.00 84	0.00 84	0.00 84	0.00 84	0.00 84	0.00 84	0.00 84	0.00 84	0.00 84



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5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 14,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.35;
Frequency: 5310MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 4.72$ mho/m; $\epsilon_r = 36.77$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4

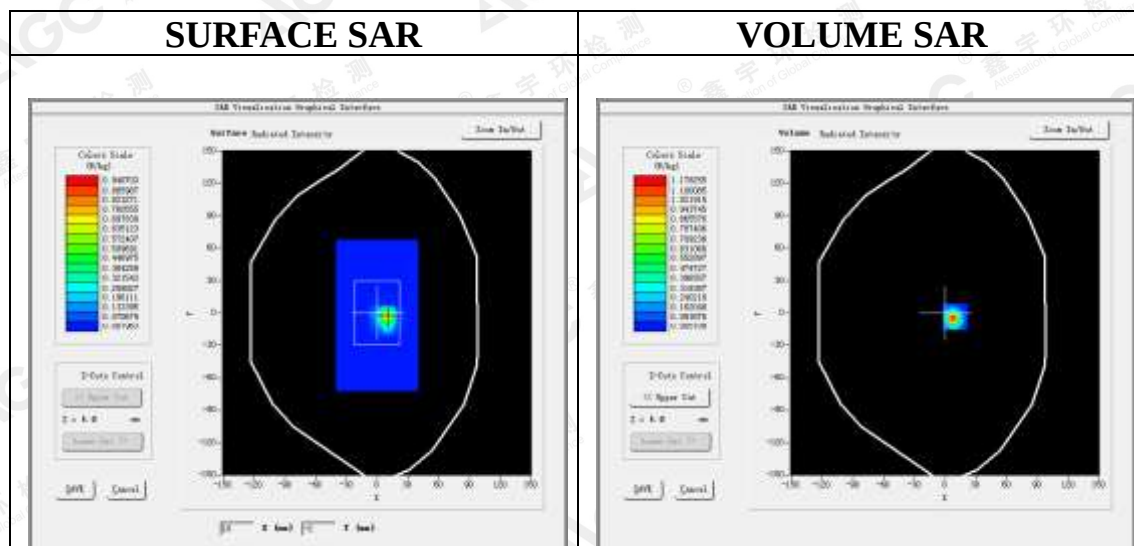
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

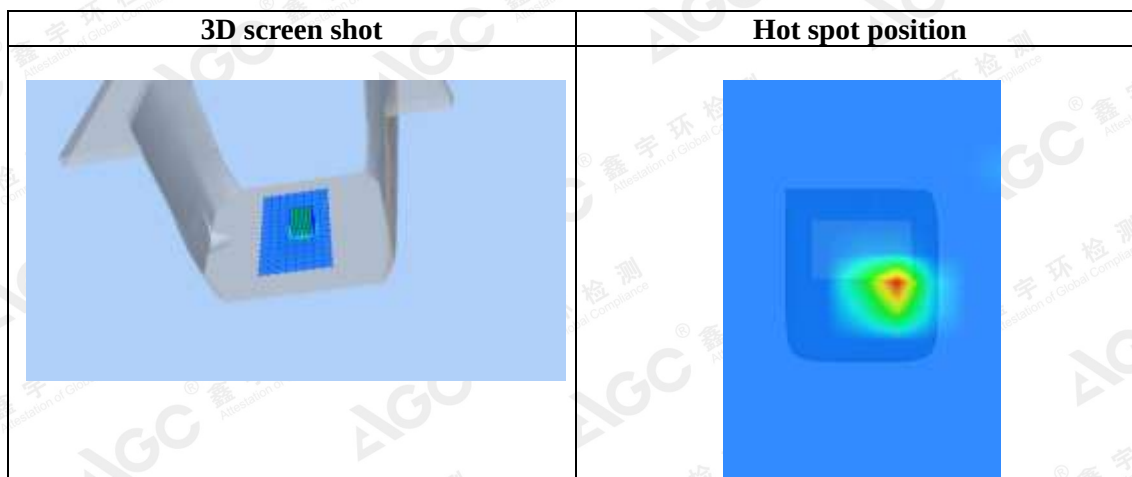
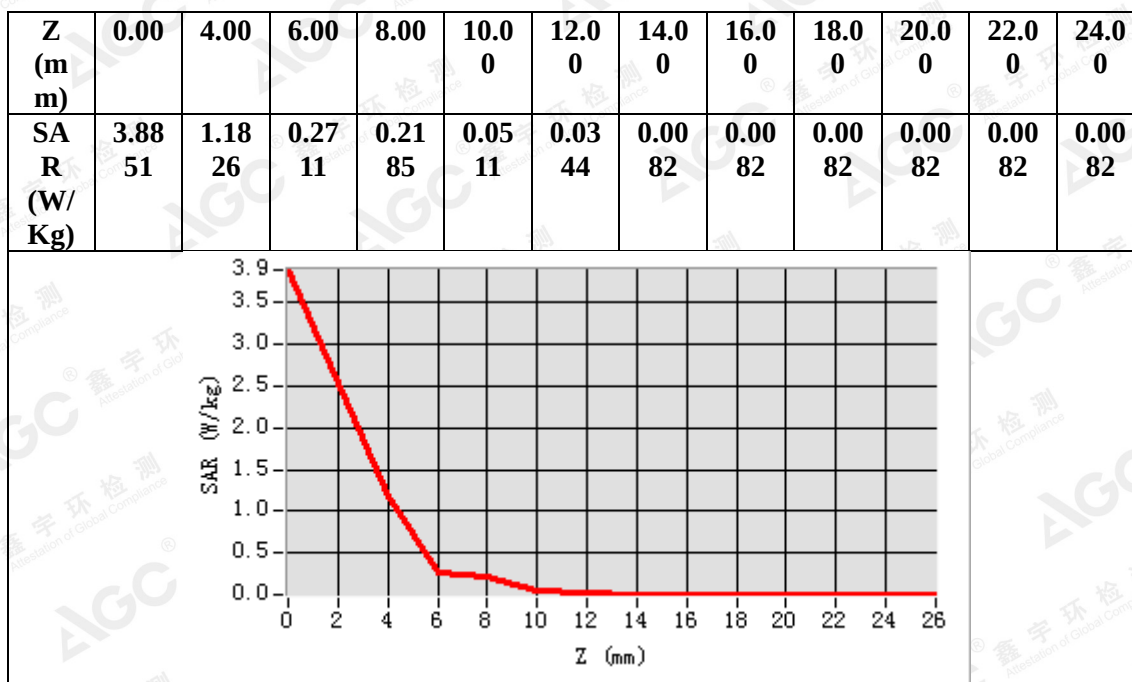
Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0



Maximum location: X=10.00, Y=-2.00
SAR Peak: 3.88 W/kg

SAR 10g (W/Kg)	0.189513
SAR 1g (W/Kg)	1.002540

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5.6GHz 802.11n HT40
Test Laboratory: AGC Lab
802.11n HT40 High-Edge1
DUT: Camera; Type: SPTM1

Date: June 15,2018

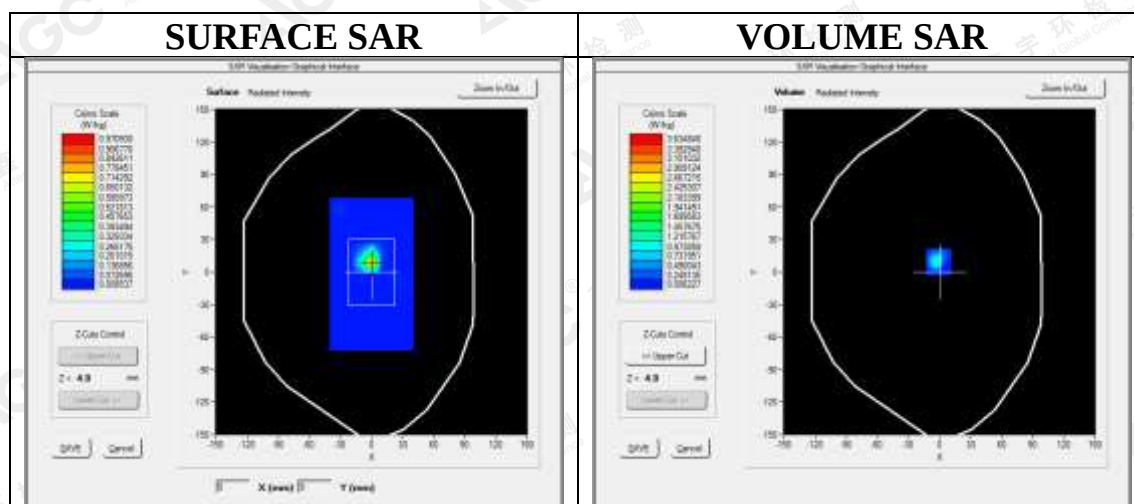
Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.43;
Frequency: 5670MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 4.91\text{mho/m}$; $\epsilon_r = 35.82$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.7, Liquid temperature (°C): 21.2

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 High- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/802.11n HT40 High- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5600MHz
Channels	High
Signal	Crest factor: 1.0



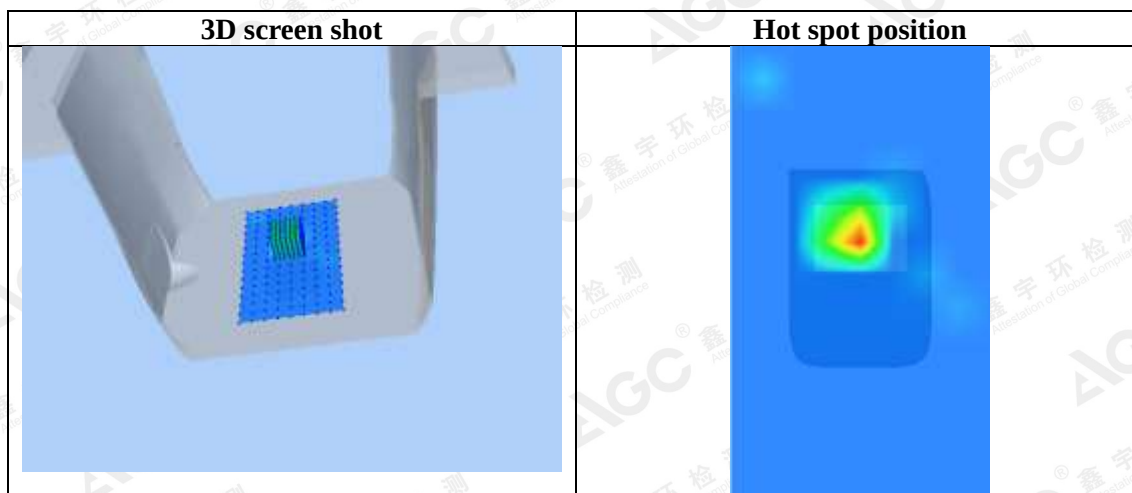
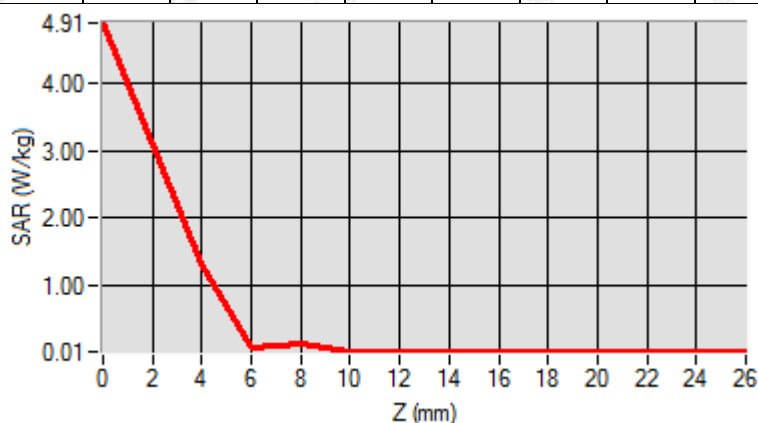
Maximum location: X=-2.00, Y=8.00

SAR Peak: 4.77 W/kg

SAR 10g (W/Kg)	0.195834
SAR 1g (W/Kg)	1.100210

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	4.90 59	1.31 83	0.07 27	0.12 99	0.00 88	0.00 88	0.00 88	0.00 88	0.00 88	0.00 88	0.00 88	0.00 88



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SPTM1 (Version S)-Body liquid

2.4GHz 802.11b

Test Laboratory: AGC Lab

802.11b Mid- Edge1

DUT: Camera; Type: SPTM1

Date: May 28,2018

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.58;
Frequency: 2437 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.90$ mho/m; $\epsilon_r = 53.51$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.4, Liquid temperature (°C): 21.8

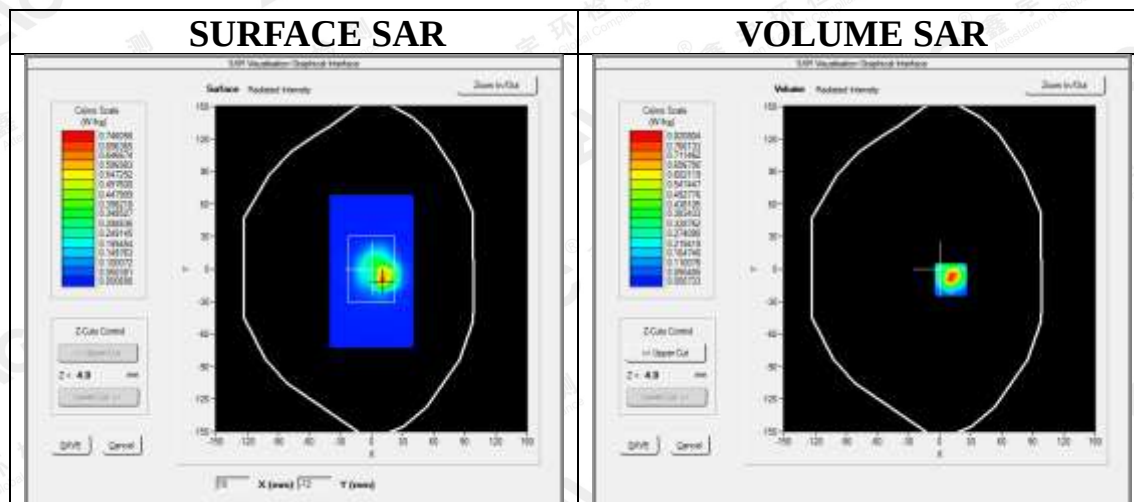
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

Configuration/802.11b Mid- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11b Mid- Edge1 /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
Phantom	SAM twin phantom
Device Position	Edge1
Band	2450MHz
Channels	Middle
Signal	Crest factor: 1.0

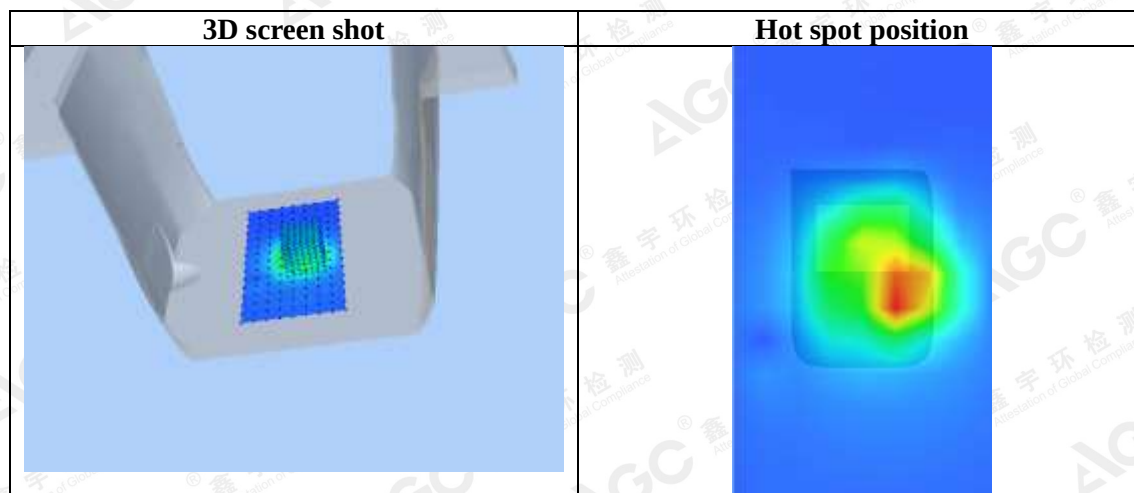
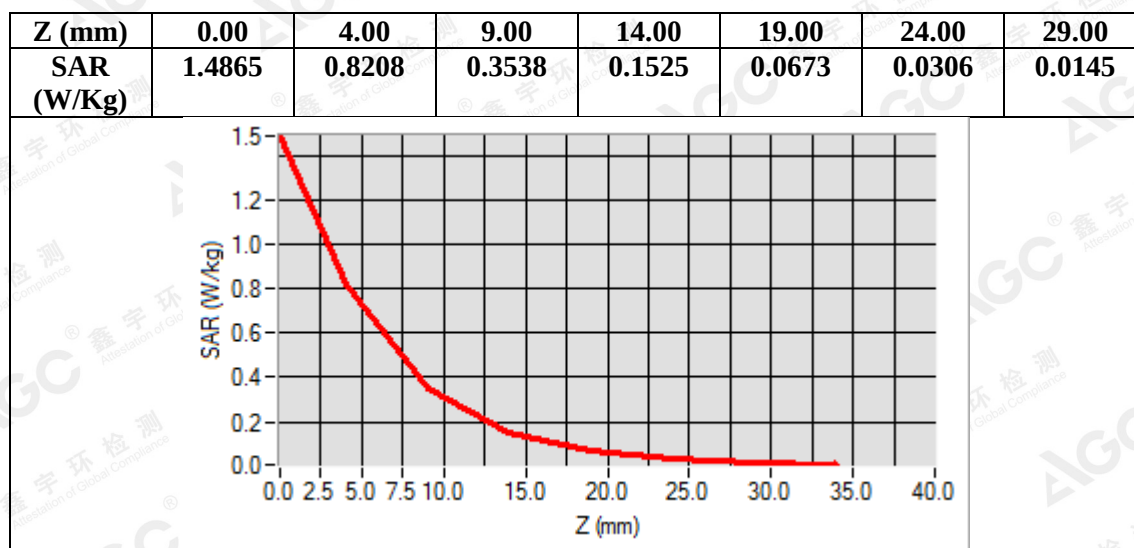


Maximum location: X=11.00, Y=-10.00

SAR Peak: 1.55 W/kg

SAR 10g (W/Kg)	0.265762
SAR 1g (W/Kg)	0.739398

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5.2GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH38-Edge1

DUT: Camera; Type: SPTM1

Date: June 05,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5190MHz; Medium parameters used: $f = 5200$ MHz; $\sigma = 5.38$ mho/m; $\epsilon_r = 48.90$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.4

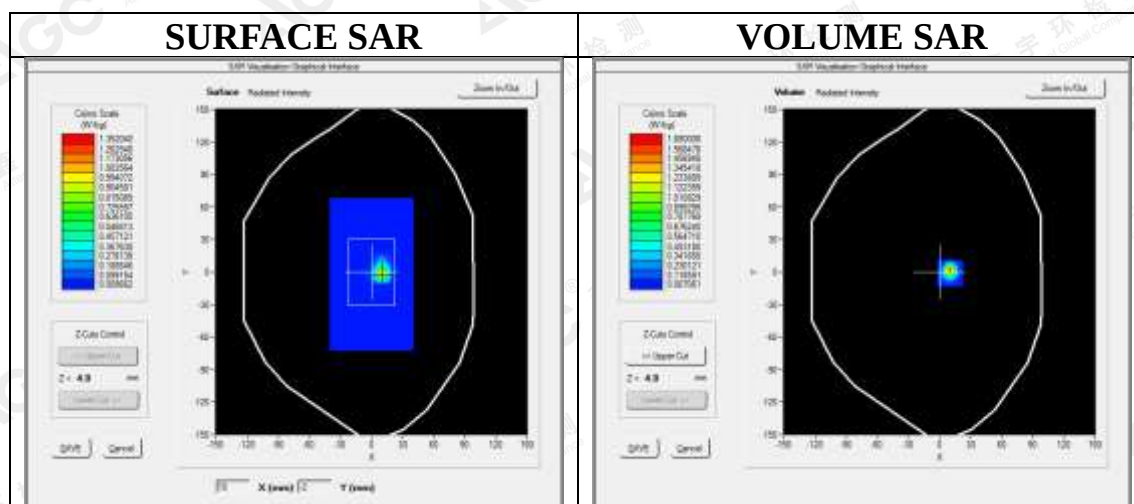
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH38- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH38- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5200MHz
Channels	CH38
Signal	Crest factor: 1.0



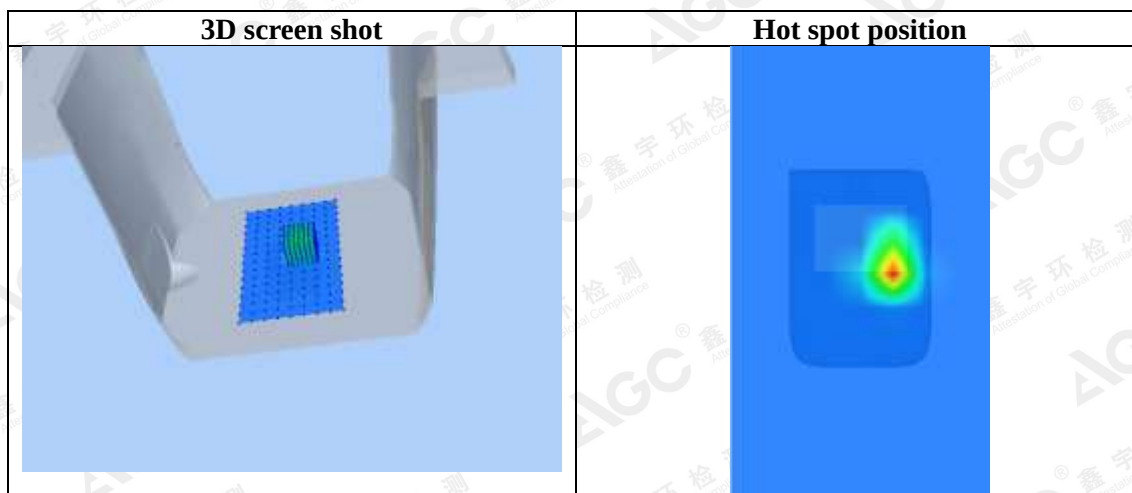
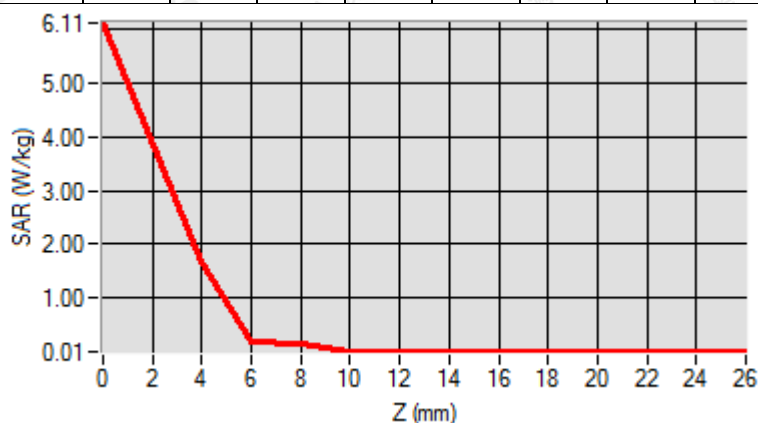
Maximum location: X=10.00, Y=-1.00

1- SAR Peak: 5.64 W/kg

SAR 10g (W/Kg)	0.197543
SAR 1g (W/Kg)	1.291231

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR (W/ Kg)	6.11 47	1.68 00	0.18 57	0.17 47	0.01 86	0.00 72	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97



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5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 06,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5310MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 5.40$ mho/m; $\epsilon_r = 50.10$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.7

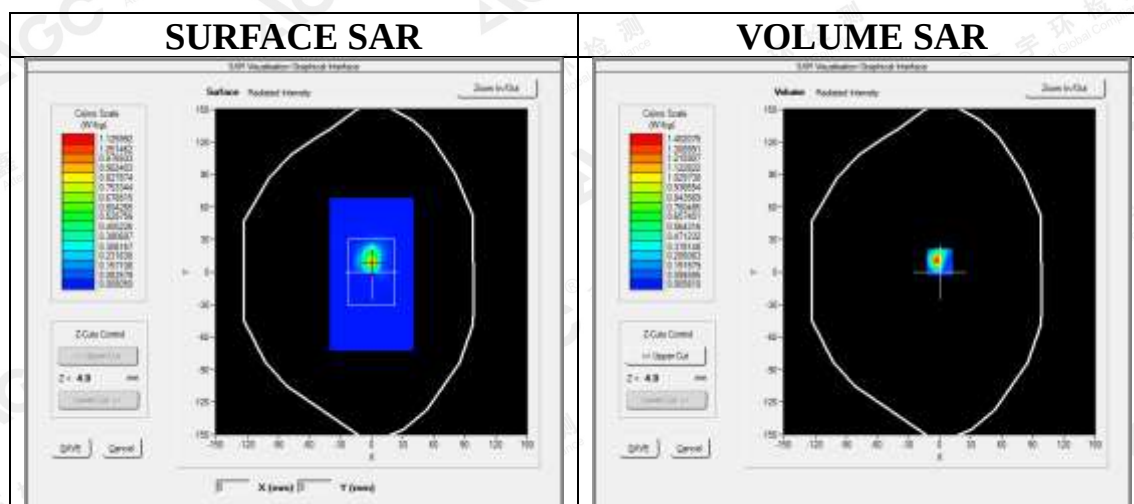
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0



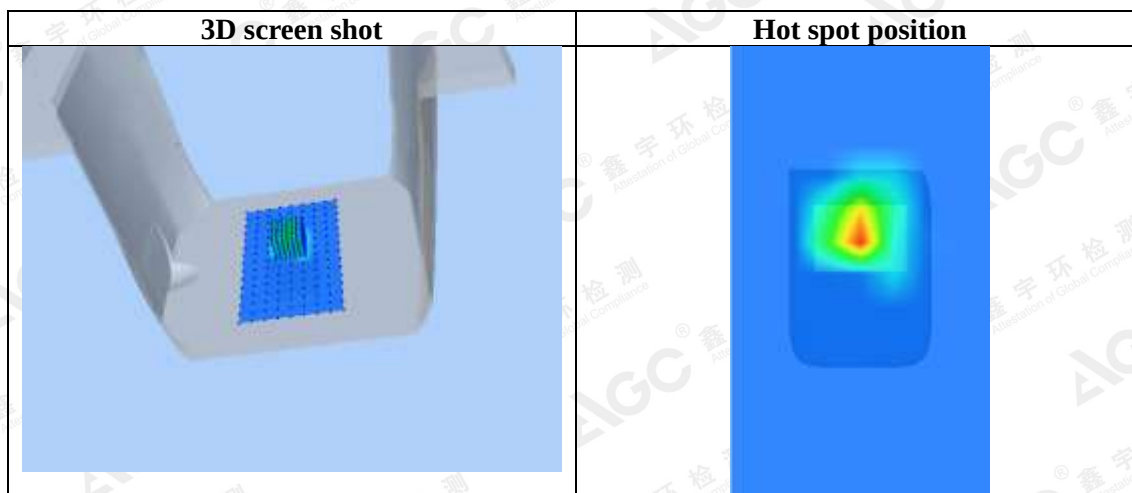
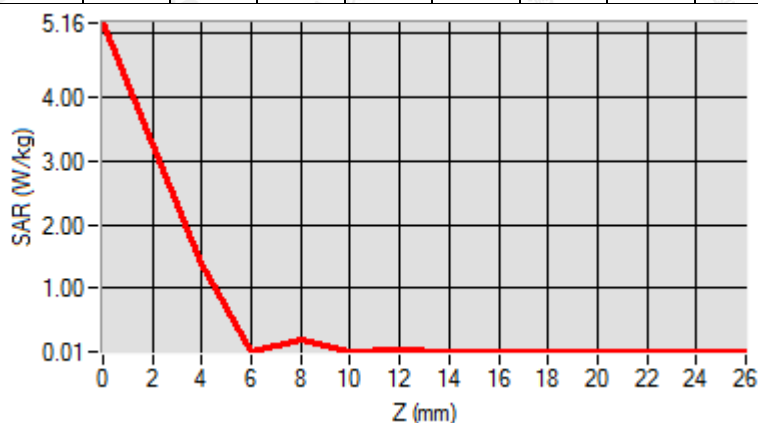
Maximum location: X=0.00, Y=9.00

SAR Peak: 4.92 W/kg

SAR 10g (W/Kg)	0.230851
SAR 1g (W/Kg)	1.216023

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Z (m m)	0.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0
SA R (W/ Kg)	5.16 22	1.40 88	0.01 97	0.19 35	0.01 09	0.02 89	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80	0.00 80



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5.6GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 High-Edge1

DUT: Camera; Type: SPTM1

Date: June 07,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.51;
Frequency: 5670MHz; Medium parameters used: $f = 5600$ MHz; $\sigma = 5.77$ mho/m; $\epsilon_r = 49.60$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.9, Liquid temperature (°C): 21.4

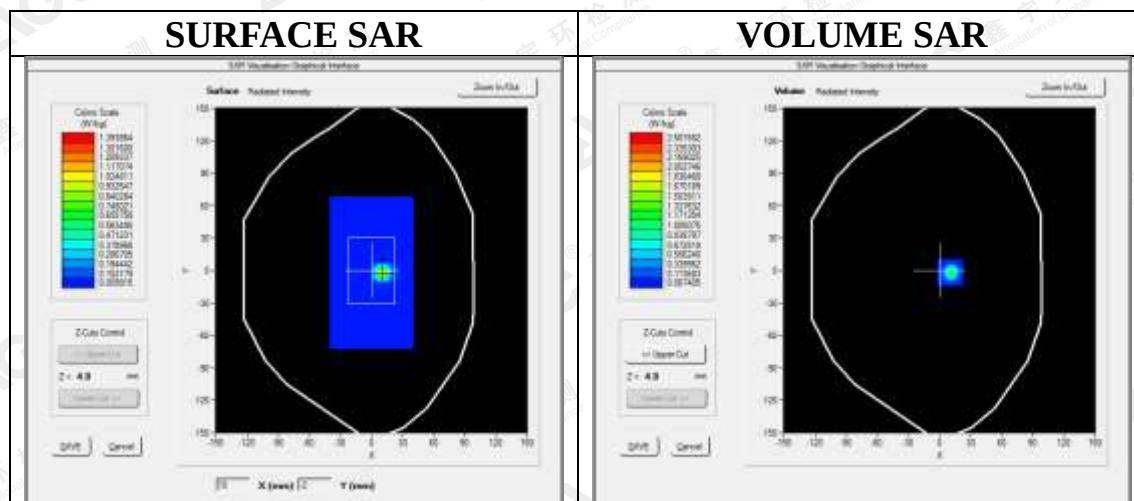
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 High- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 High- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5600MHz
Channels	High
Signal	Crest factor: 1.0



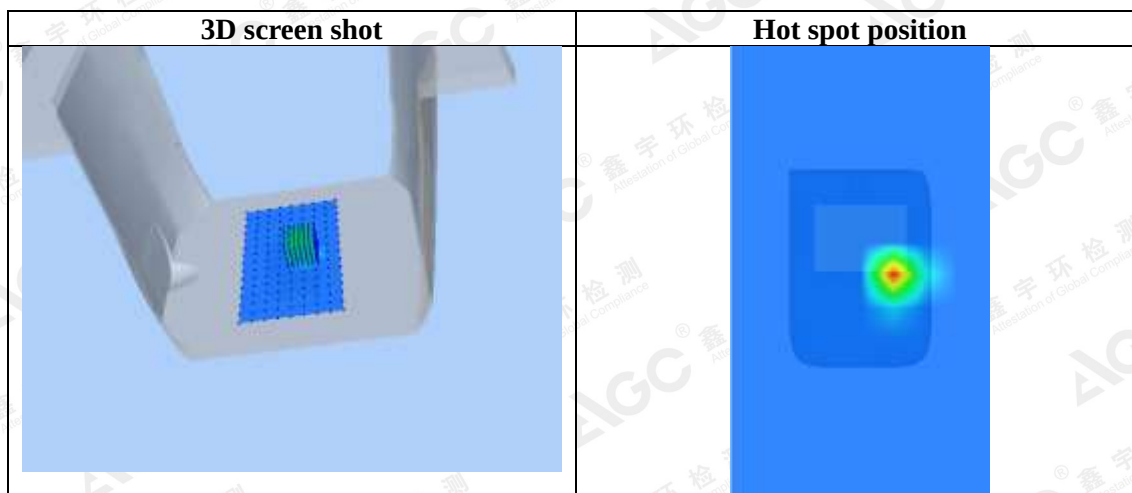
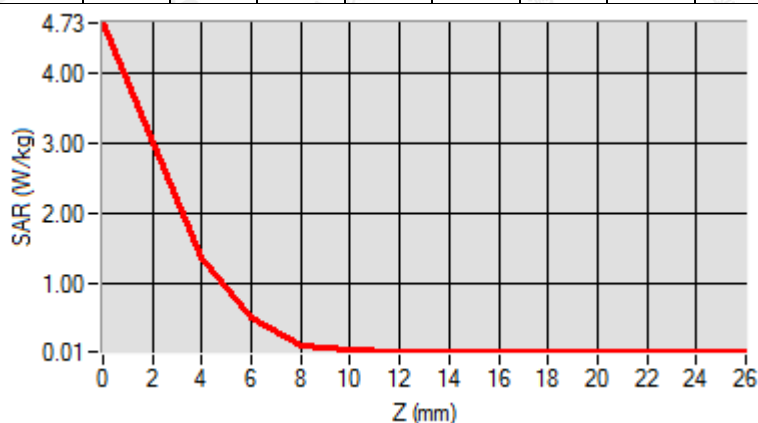
Maximum location: X=10.00, Y=-2.00

SAR Peak: 4.72 W/kg

SAR 10g (W/Kg)	0.149858
SAR 1g (W/Kg)	1.062467

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	4.73 02	1.37 60	0.49 36	0.09 94	0.02 84	0.00 99	0.00 99	0.00 99	0.00 99	0.00 99	0.00 99	0.00 99



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Repeated SAR twice
SPTM1(Version W)-Head liquid
2.4GHz 802.11b
Test Laboratory: AGC Lab
802.11b High- Edge2
DUT: Camera; Type: SPTM1

Date: May 27,2018

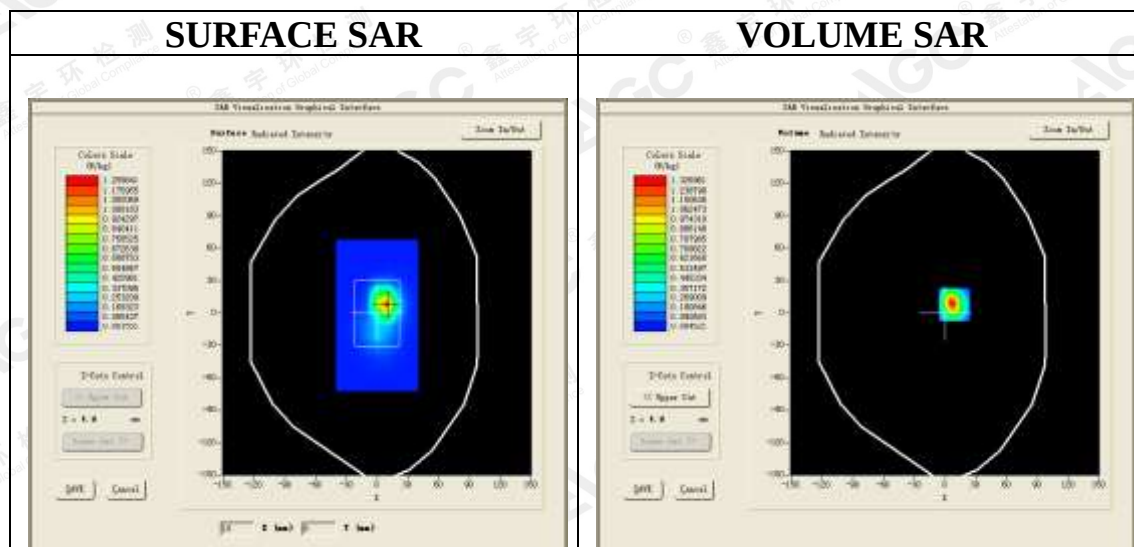
Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.52;
Frequency: 2462 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 38.63$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.1, Liquid temperature (°C): 21.5

SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_32

Configuration/802.11b High- Edge2 /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/802.11b High- Edge2 /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
Phantom	SAM twin phantom
Device Position	Edge2
Band	2450MHz
Channels	High
Signal	Crest factor: 1.0

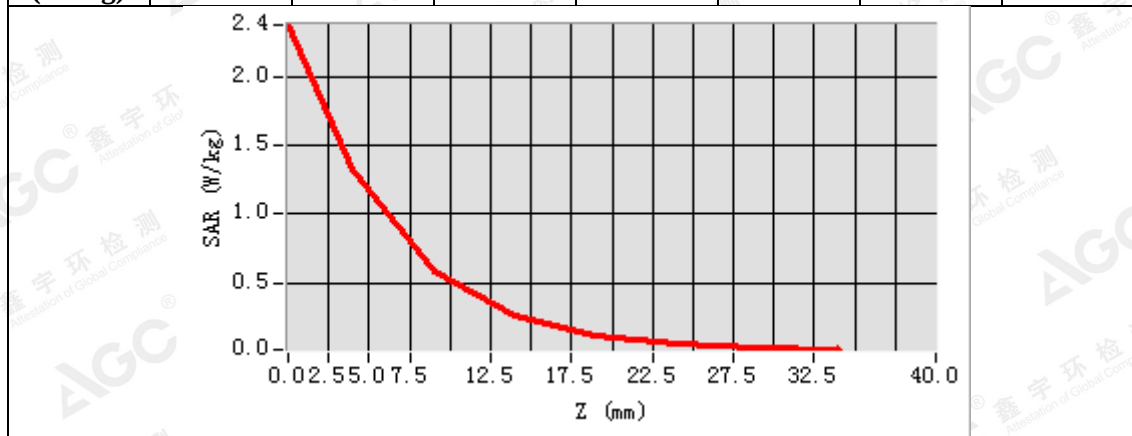


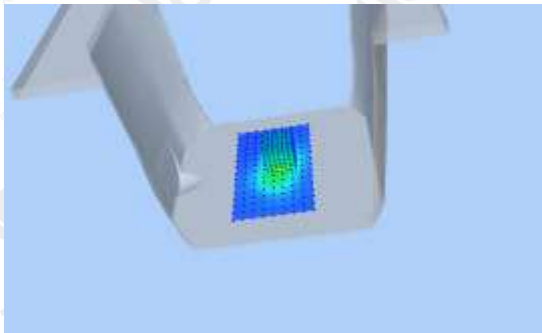
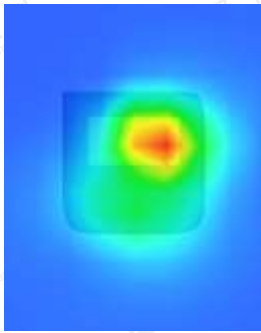
Maximum location: X=9.00, Y=8.00
SAR Peak: 2.50 W/kg

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SAR 10g (W/Kg)	0.448884
SAR 1g (W/Kg)	1.208674

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.3718	1.3270	0.5855	0.2561	0.1141	0.0522	0.0248



3D screen shot	Hot spot position
	

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SPTM1(Version W)-Body liquid

5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 06,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5310MHz; Medium parameters used: $f = 5300 \text{ MHz}$; $\sigma = 5.40 \text{ mho/m}$; $\epsilon_r = 50.10$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Flat Section
Ambient temperature ($^{\circ}\text{C}$): 22.1, Liquid temperature ($^{\circ}\text{C}$): 21.7

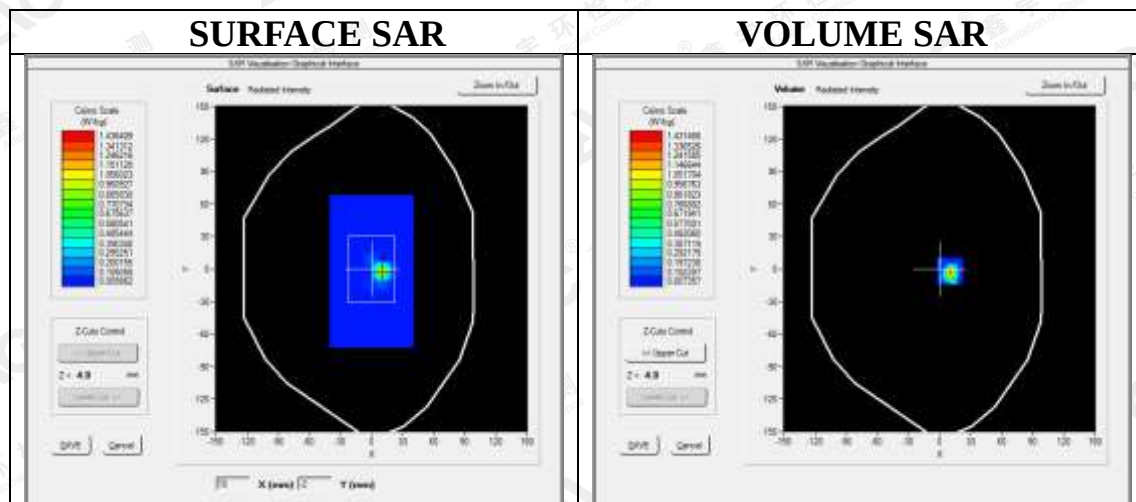
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0



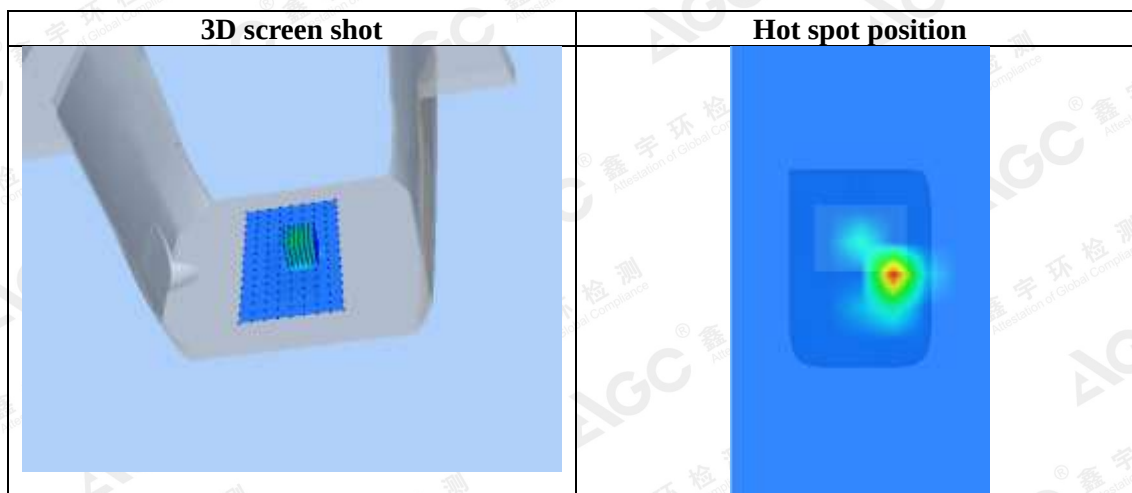
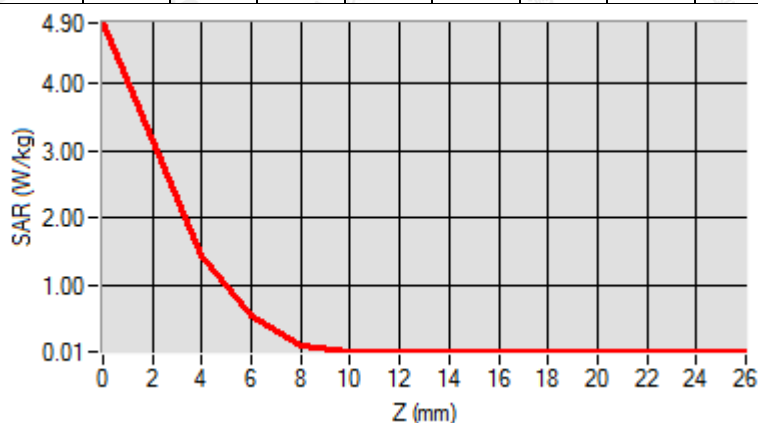
Maximum location: X=10.00, Y=-2.00

SAR Peak: 4.91 W/kg

SAR 10g (W/Kg)	0.177066
SAR 1g (W/Kg)	1.088745

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Z (m m)	0.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0
SAR R (W/ Kg)	4.90 03	1.43 15	0.56 14	0.09 51	0.02 22	0.01 00	0.01 00	0.01 00	0.01 00	0.01 00	0.01 00	0.01 00



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SPTM1(Version S)-Body liquidd

5.2GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH38-Edge1

DUT: Camera; Type: SPTM1

Date: June 05,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5190MHz; Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 5.38 \text{ mho/m}$; $\epsilon_r = 48.90$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Flat Section
Ambient temperature ($^{\circ}\text{C}$): 22.0, Liquid temperature ($^{\circ}\text{C}$): 21.4

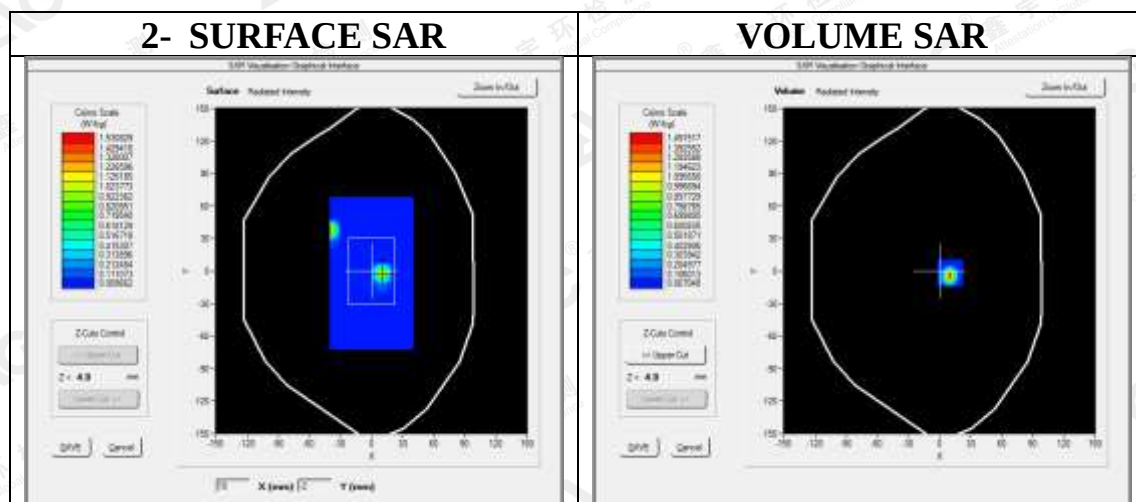
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH38- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH38- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5200MHz
Channels	CH38
Signal	Crest factor: 1.0



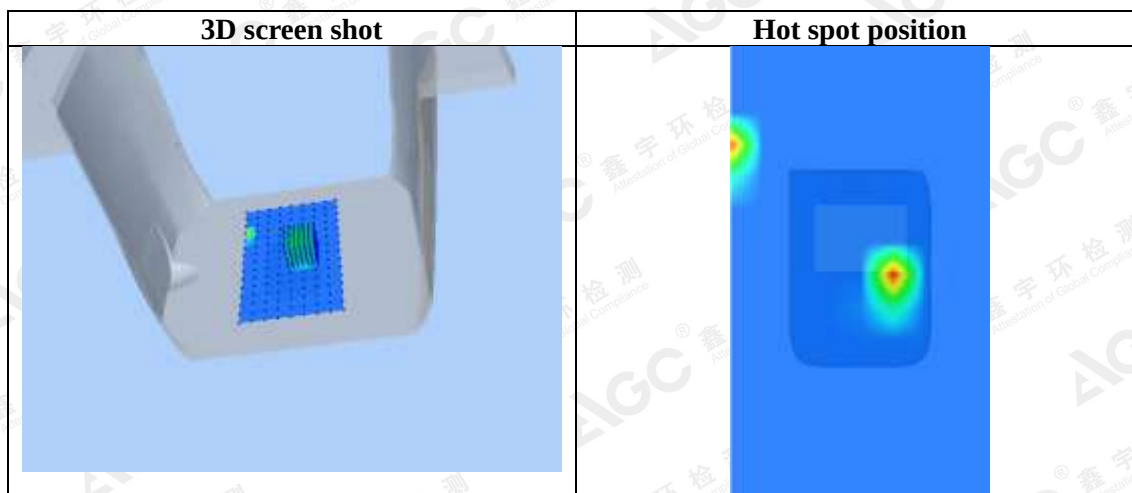
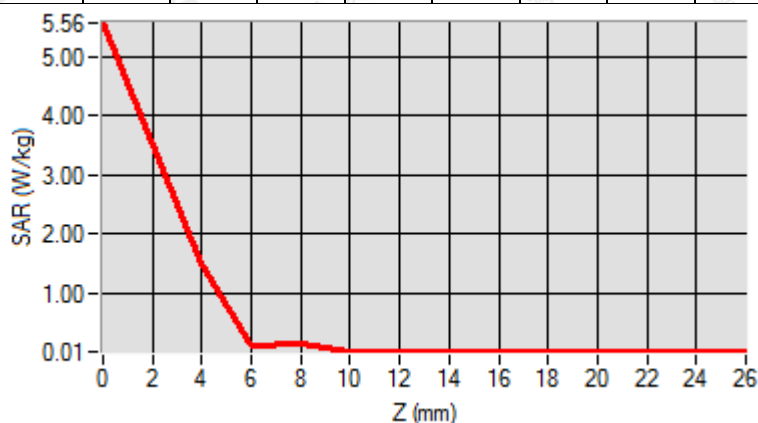
Maximum location: X=10.00, Y=-2.00

SAR Peak: 5.37 W/kg

SAR 10g (W/Kg)	0.177658
SAR 1g (W/Kg)	1.205986

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	5.56 06	1.49 15	0.09 94	0.13 38	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97	0.00 97



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5.3GHz 802.11n HT40

Test Laboratory: AGC Lab

802.11n HT40 CH62-Edge1

DUT: Camera; Type: SPTM1

Date: June 06,2018

Communication System: Wi-Fi; Communication System Band: 802.11n HT40; Duty Cycle: 1:1; Conv.F=2.41;
Frequency: 5310MHz; Medium parameters used: $f = 5300$ MHz; $\sigma = 5.40$ mho/m; $\epsilon_r = 50.10$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.7

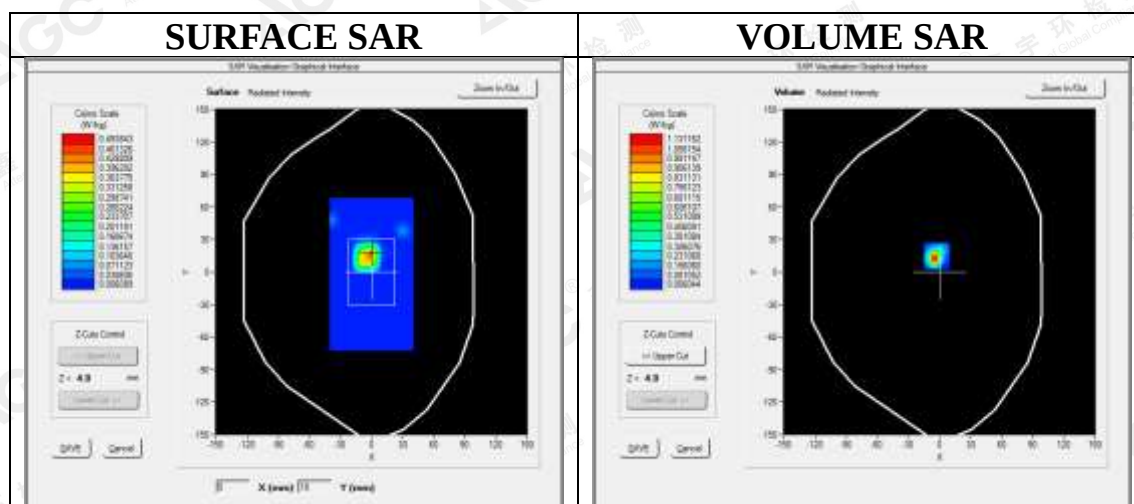
SATIMO Configuration:

- Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11n HT40 CH62- Edge1 /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/802.11n HT40 CH62- Edge1 /Zoom Scan: Measurement grid: dx=4mm,dy=4mm, dz=2mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	8x8x13 dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Edge1
Band	5300MHz
Channels	CH62
Signal	Crest factor: 1.0



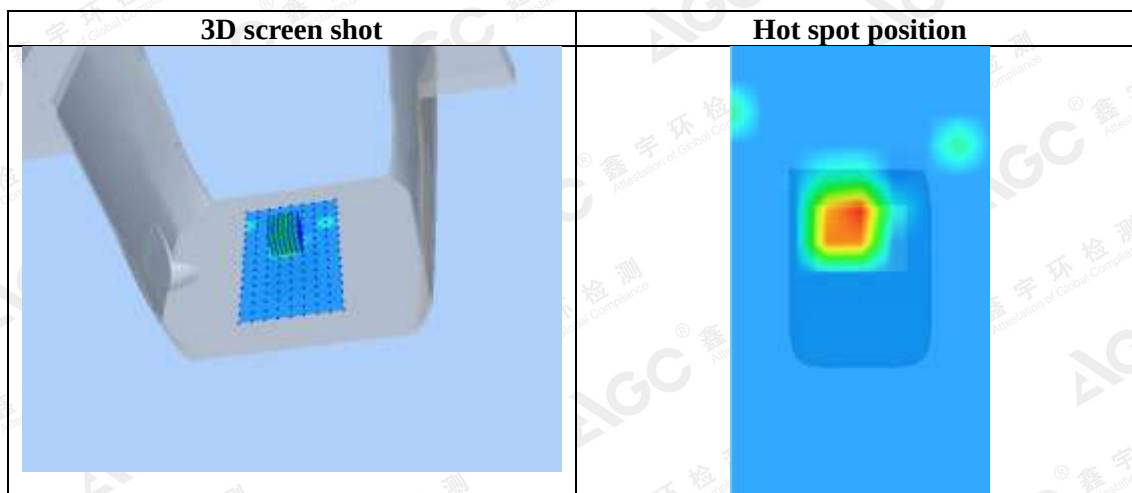
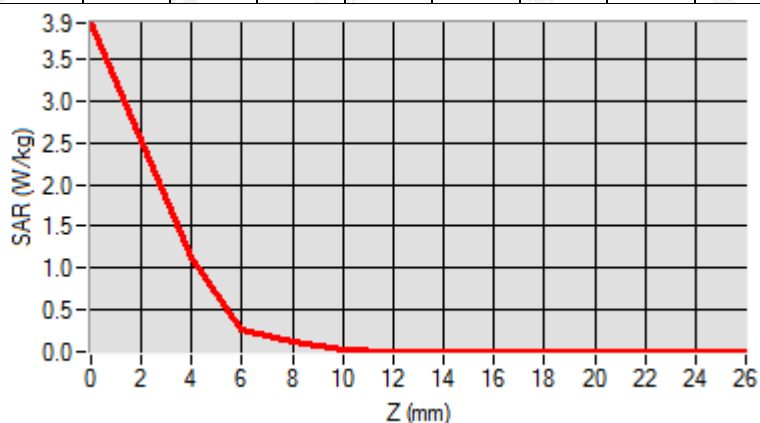
Maximum location: X=-3.00, Y=15.00

SAR Peak: 3.99 W/kg

SAR 10g (W/Kg)	0.202453
SAR 1g (W/Kg)	1.041349

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Z (m m)	0.00	4.00	6.00	8.00	10.0 0	12.0 0	14.0 0	16.0 0	18.0 0	20.0 0	22.0 0	24.0 0
SAR R (W/ Kg)	3.92 08	1.13 12	0.26 16	0.12 29	0.03 90	0.01 08	0.00 83	0.00 83	0.00 83	0.00 83	0.00 83	0.00 83



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APPENDIX C. TEST SETUP PHOTOGRAPHS

Refer to Attached files.

APPENDIX D. CALIBRATION DATA

Refer to Attached files.

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