

SAR Test Report

Report No.: AGC00552180304EH01

PRODUCT DESIGNATION : Smart Phone

BRAND NAME : CUBOT

MODEL NAME : NOVA

MANUFACTURER : Shenzhen Huafului Technology Co., Ltd

DATE OF ISSUE : Apr. 27,2018

STANDARD(S) : EN 50360:2017; EN 62209-1: 2016;
EN 62209-2:2010; EN 50566:2017; EN 62479:2010

REPORT VERSION : V1.1

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

CAUTION:

This report shall not be reproduced except in full without the written permission of the test laboratory and shall not be quoted out of context.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 24,2018	Invalid	Initial Release
V1.1	1 st	Apr. 27,2018	Valid	Modify the Page 62 Body back+Ear.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Report Certification

Manufacturer Name	Shenzhen Huafului Technology Co., Ltd
Manufacturer Address	Unit 1401 & 1402, 14/F, Jin qi zhi gu Mansion (No. 4 Building of Chong wen Garden), Crossing of the Liu Bian Street and Tang ling Road, Tao yuan Street, Nan shan District, Shenzhen, P.R. China
Factory Name	Shenzhen Huafului Technology Co., Ltd.
Factory Address	Unit 1401 & 1402, 14/F, Jin qi zhi gu Mansion (No. 4 Building of Chong wen Garden), Crossing of the Liu Bian Street and Tang ling Road, Tao yuan Street, Nan shan District, Shenzhen, P.R. China
Product Designation	Smart Phone
Brand Name	CUBOT
Model Name	NOVA
Different Description	N/A
EUT Voltage	DC3.8V by battery
Applicable Standard	EN 50360:2017; EN 62209-1: 2016; EN 62209-2:2010; EN 50566:2017; EN 62479:2010
Test Date	Apr. 03, 2018 to Apr. 19, 2018
Performed Location	Attestation of Global Compliance(Shenzhen) Co., Ltd. 2 F, Building 2, No.1-No.4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang Street, Bao'an District, Shenzhen, China
Report Template	AGCRT-EC-4G/SAR (2018-01-01)

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



Tested By

Eric Zhou (Zhou Yongkang) Apr. 19, 2018



Checked By

Angela Li (Li Jiao) Apr. 27, 2018



Authorized By

 Forrest Lei (Lei Yonggang) Apr. 27, 2018
 Authorized Officer

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

TABLE OF CONTENTS

1. SUMMARY OF MAXIMUM SAR VALUE	5
2. GENERAL INFORMATION.....	6
2.1. EUT DESCRIPTION.....	6
3. SAR MEASUREMENT SYSTEM.....	8
3.1. THE SATIMO SYSTEM USED FOR PERFORMING COMPLIANCE TESTS CONSISTS OF FOLLOWING ITEMS	8
3.2. COMOSAR E-FIELD PROBE	9
3.3. ROBOT.....	9
3.4. VIDEO POSITIONING SYSTEM	10
3.5. DEVICE HOLDER	10
3.6. SAM TWIN PHANTOM.....	11
4. SAR MEASUREMENT PROCEDURE.....	12
4.1. SPECIFIC ABSORPTION RATE (SAR).....	12
4.2. SAR MEASUREMENT PROCEDURE	13
5. TISSUE SIMULATING LIQUID.....	16
5.1. THE COMPOSITION OF THE TISSUE SIMULATING LIQUID.....	16
5.2. TISSUE DIELECTRIC PARAMETERS FOR HEAD AND BODY PHANTOMS	16
5.3. TISSUE CALIBRATION RESULT	17
6. SAR SYSTEM CHECK PROCEDURE	18
6.1. SAR SYSTEM CHECK PROCEDURES	18
6.2. SAR SYSTEM CHECK.....	19
7. EUT TEST POSITION.....	21
7.1. DEFINE TWO IMAGINARY LINES ON THE HANDSET.....	21
7.2. CHEEK POSITION	22
7.3. TILT POSITION.....	22
7.4. BODY WORN POSITION	23
8. SAR EXPOSURE LIMITS	24
9. TEST EQUIPMENT LIST	25
10. MEASUREMENT UNCERTAINTY	26
11. TRANSMITTER MAXIMUM OUTPUT POWER.....	29
12. TEST RESULTS.....	52
12.1. SAR TEST RESULTS SUMMARY.....	52
APPENDIX A. SAR SYSTEM CHECK DATA	70
APPENDIX B. SAR MEASUREMENT DATA.....	88
APPENDIX C. TEST SETUP PHOTOGRAPHS.....	144
APPENDIX D. CALIBRATION DATA	150

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

1. SUMMARY OF MAXIMUM SAR VALUE

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

Frequency Band	Highest Reported 10g-SAR(W/Kg)		SAR Test Limit (W/Kg)
	Head	Body-worn (with 5mm separation)	
GSM 900	0.276	0.512	2.0
DCS 1800	0.182	0.794	
WCDMA Band I	0.030	0.672	
WCDMA Band VIII	0.253	0.390	
LTE Band 1	0.206	0.489	
LTE Band 3	0.268	0.505	
LTE Band 7	0.257	0.450	
LTE Band 8	0.278	0.430	
LTE Band 20	0.194	0.234	
WIFI 2.4G	0.032	0.026	
Simultaneous Reported SAR	0.820		
SAR Test Result	PASS		

This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (2.0W/Kg).

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

2. GENERAL INFORMATION

2.1. EUT Description

General Information	
Product Designation	Smart Phone
Test Model	NOVA
Hardware Version	C719_MB_PCB_V1.0
Software Version	CUBOT_NOVA_8071C_V01_20180327
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
GSM and GPRS & EGPRS	
Support Band	<input checked="" type="checkbox"/> GSM 900 <input checked="" type="checkbox"/> DCS 1800 (EU Frequency) <input checked="" type="checkbox"/> GSM 850 <input checked="" type="checkbox"/> PCS 1900 (none EU Frequency)
GPRS & EGPRS Type	Class B
GPRS & EGPRS Class	Class 12(1Tx+4Rx, 2Tx+3Rx, 3Tx+2Rx, 4Tx+1Rx)
TX Frequency Range	GSM900:880-915MHz ; DCS1800:1710-1785MHz
RX Frequency Range	GSM900:925-960MHz ; DCS1800:1805-1880MHz
Release Version	R99
Type of modulation	GMSK for GSM/GPRS; GMSK & 8-PSK for EGPRS
Antenna Gain	GSM900:-0.25dBi; DCS1800:-0.54dBi
Max. Avg. Output Power	GSM900:34.22dBm; DCS1800:30.84dBm
Bluetooth	
Operation Frequency	2402~2480MHz
Antenna Gain	1.0dBi
Bluetooth Version	BR/EDR, BLE
Type of modulation	BR/EDR :GFSK, $\pi/4$ -DQPSK, 8-DPSK; BLE : GFSK
EIRP	BR/EDR :7.66dBm; BLE : 7.52dBm
WIFI	
WIFI Specification	<input type="checkbox"/> 802.11a <input checked="" type="checkbox"/> 802.11b <input checked="" type="checkbox"/> 802.11g <input checked="" type="checkbox"/> 802.11n(20) <input checked="" type="checkbox"/> 802.11n(40)
Operation Frequency	2412~2472MHz
EIRP	11b:12.86dBm, 11g:9.92dBm, 11n(20):9.89dBm, 11n(40):9.85dBm
Antenna Gain	1.0dBi

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

EUT Description(Continue)

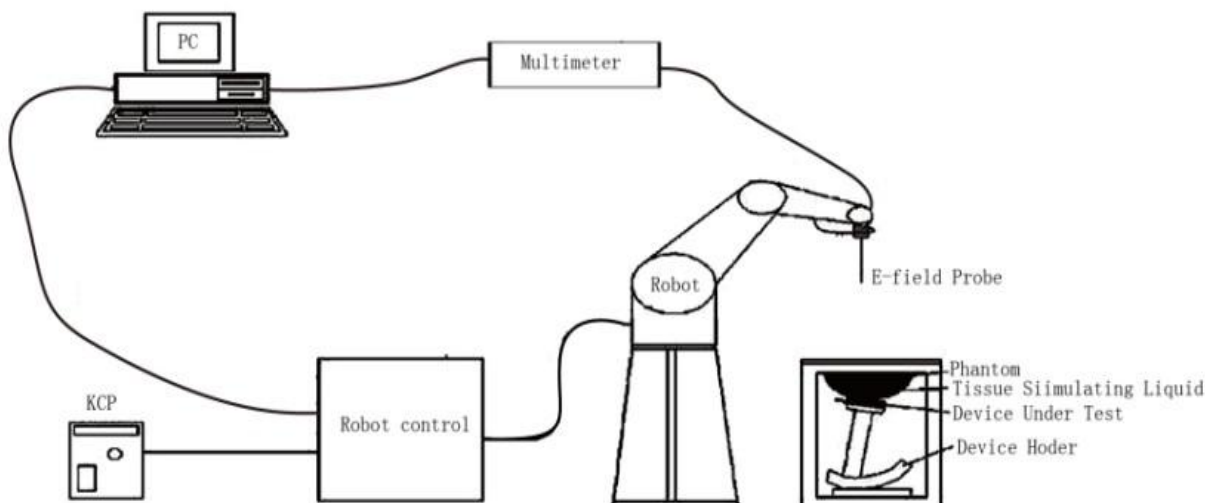
WCDMA	
Support Band	<input checked="" type="checkbox"/> UMTS FDD Band I <input checked="" type="checkbox"/> UMTS FDD Band VIII (EU Frequency) <input type="checkbox"/> UMTS FDD Band II <input type="checkbox"/> UMTS FDD Band V (none EU Frequency)
HS Type	HSPA(HSUPA/HSDPA)
TX Frequency Range	FDD Band I : 1920-1980MHz; FDD Band VIII : 880-915MHz;
RX Frequency Range	FDD Band I : 2110-2170MHz; FDD Band VIII : 925-960MHz ;
Release Version	Rel-6
Type of modulation	HSDPA:QPSK/16QAM; HSUPA:BPSK; WCDMA:QPSK
Antenna Gain	Band I:-0.63dBi; Band VIII:-0.26dBi
Max. Avg. Output Power	Band I:23.73dBm; Band VIII:23.53dBm
LTE	
Support Band	<input checked="" type="checkbox"/> Band 1 <input checked="" type="checkbox"/> Band 3 <input checked="" type="checkbox"/> Band 7 <input checked="" type="checkbox"/> Band 8 <input checked="" type="checkbox"/> Band 20
TX Frequency Range	Band 1:1920-1980 MHz; Band 3: 1710-1785 MHz; Band 7:2500-2570MHz Band 8:880-915 MHz; Band 20:832-862 MHz
RX Frequency Range	Band 1:2110-2170 MHz; Band 3: 1805-1880 MHz; Band 7:2620-2690MHz Band 8: 925-960 MHz; Band 20: 791-821 MHz
Release Version	Rel-8
Type of modulation	QPSK,16QAM
Antenna Gain	Band 1 :-0.58dBi; Band 3 :-0.54dBi; Band 7 :-1.13dBi; Band 8 :-0.65dBi; Band 20 :-0.18dBi;
Diversity Antenna Gain	Band 1 :-0.64dBi; Band 3 :-0.65dBi; Band 7 :-1.20dBi; Band 8 :-0.70dBi; Band 20 :-0.21dBi;
Max. Avg. Output Power	Band 1: 22.06dBm, Band 3: 21.65dBm , Band 7:22.85dBm Band 8:23.08dBm; Band 20:23.42dBm;
Li-ion Battery	
Brand Name	CUBOT
Model Name	C5
Manufacturer Name	Zhongshan Tianmao Battery CO., Ltd
Manufacturer Address	NO.208, Qian Jin One Road, The Third Industrial Zone, Tanzhou Town, Zhongshan City, China
Capacitance	2800mAh
Rated Voltage	DC3.8V
Charging Voltage	DC4.35V

Note: 1.The sample used for testing is end product;
 2.Diversity antenna just for receive;

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

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.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

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.EN62209, 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:

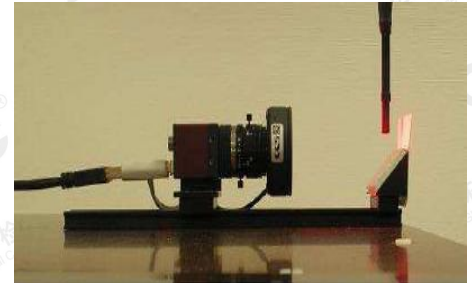
- ☐ High precision (repeatability 0.02 mm)
- ☐ High reliability (industrial design)
- ☐ Jerk-free straight movements
- ☐ Low ELF interference (the closed metallic construction shields against motor control fields)
- ☐ 6-axis controller



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

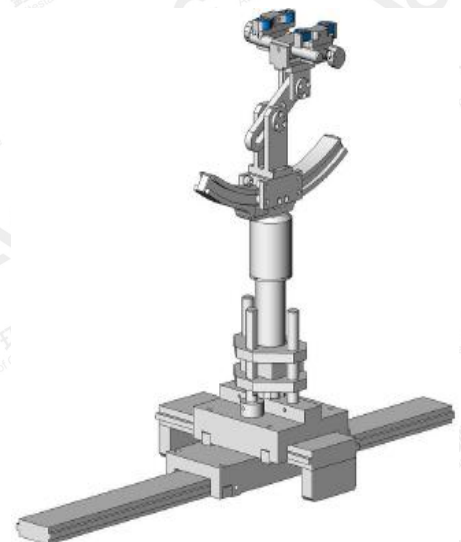
3.4. Video Positioning System

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.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

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

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

4.2. SAR Measurement Procedure

a) Measure the local SAR at a test point within 10 mm of the inner surface of the phantom where the measured local SAR exceeds the lower detection limit of the measurement system. Preferably, the test point will be above the expected peak SAR location within said distance from the phantom surface. As explained at Step f) below, a comparative measurement will be made by the system at the same point after completion of the SAR measurement.

b) The area over which the SAR measurement is performed shall cover at least an area larger than the projection of the handset and antenna. For some handsets, the area projected onto the phantom can be large such that the probe may not reach all points. In this case, rotated phantoms may be used and the area may be assessed by multiple overlapping area scans. Measure the two-dimensional SAR distribution within the phantom (area scan procedure). The boundary of the measurement area shall be with respect to the SAM phantom requirements. The measurement resolution and spatial resolution for interpolation shall be chosen to allow identification of the local peak locations to within one-half of the linear dimension of the corresponding side of the zoom-scan volume. The maximum grid spacing shall be 20 mm for frequencies equal to or below 3 GHz and $(60/f \text{ [GHz]})$ mm for frequencies above 3 GHz. The resolution SAR uncertainty of the measurement can be estimated using the functions in 7.2.10. The maximum distance between the geometrical centre of the probe detectors and the inner surface of the phantom shall be ≤ 5 mm for frequencies equal to or below 3 GHz and $\delta \ln(2)/2$ mm for frequencies above 3 GHz, where δ is the plane wave penetration depth and $\ln(x)$ is the natural logarithm [80]. The maximum variation of the sensor-phantom surface distance shall be ± 1 mm for frequencies equal to or below 3 GHz and $\pm 0,5$ mm for frequencies above 3 GHz. At all measurement points, the angle of the probe with respect to the line normal to the surface shall be less than 30° for frequencies equal to or below 3 GHz and 20° for frequencies above 3 GHz (see Figure 6). Table 1 provides the measurement parameters required for the area scan.

c) From the scanned SAR distribution, identify the position of the maximum SAR value, in addition identify the positions of any local maxima with SAR values within 2 dB of the maximum value that will not be within the zoom scan of other peaks. Additional peaks shall be measured only when the primary peak is within 2 dB of the SAR compliance limit (e.g. 1 W/kg for 1,6 W/kg, 1 g limit; or 1,26 W/kg for 2 W/kg, 10 g limit).

d) Measure the three-dimensional SAR distribution at the local maxima locations identified in Step c) (zoom scan procedure). The horizontal grid step shall be $(24/f \text{ [GHz]})$ mm or less but not more than 8 mm. The minimum zoom scan size is 30 mm by 30 mm by 30 mm for frequencies equal to or below 3 GHz. For higher frequencies, the minimum zoom scan size can be reduced to 22 mm by 22 mm by 22 mm. A smaller volume zoom scan with tighter spacing between the measurement points is allowed due to steeper decay of the E-field, which may reduce the measurement time. For frequencies above 3 GHz, the grid step in the vertical direction shall not exceed $(8 - f \text{ [GHz]})$ mm, and for frequencies equal to or below 3 GHz if uniform spacing is used the grid step shall not exceed 5 mm. If variable spacing is used in the vertical direction (non-uniform grids or graded grids), the maximum spacing between the two closest measured points to the phantom shell shall not exceed $(12/f \text{ [GHz]})$ mm for frequencies above 3 GHz, and shall not exceed 4 mm for frequencies at or below 3 GHz. Furthermore the spacing between farther adjacent points shall increase by an incremental factor not exceeding 1,5. When graded grids are used, extrapolation routines shall be tested according to 7.2.10.3.2 with the same spacing as used in measurements. The maximum distance between the geometrical centre of the probe detectors and the inner surface of the phantom shall be 5 mm for frequencies equal to or below 3 GHz and $\delta \ln(2)/2$ mm for frequencies above 3 GHz, where δ is the plane wave penetration depth and $\ln(x)$ is the natural logarithm. Separate grids shall be centred on each of the local SAR maxima found in Step c). At all measurement points, the angle of the probe with respect to the line normal to the surface shall be less than 30° for frequencies equal to or below 3 GHz and 20° for frequencies above 3 GHz.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

e) Use the post-processing, i.e. the interpolation and extrapolation procedures defined in 6.5, to determine peak spatial-average SAR values.

f) Measure the local SAR at exactly the same test point location as in Step a). The SAR drift of the DUT may be estimated by the difference between the two measured single-point SAR values in Steps a) and f). The SAR drift shall be kept within $\pm 5\%$; otherwise, see 7.2.8 for more information on addressing SAR measurement drift.

Table 1 – Area scan parameters

Parameter	DUT transmit frequency being tested	
	$f \leq 3 \text{ GHz}$	$3 \text{ GHz} < f \leq 6 \text{ GHz}$
Maximum distance between the measured points (geometric centre of the sensors) and the inner phantom surface (z_{M1} in Figure 6 in mm)	5 ± 1	$\delta \ln(2)/2 \pm 0,5^a$
Maximum spacing between adjacent measured points (see 7.2.10.3.1, in mm) ^b	20 or half of the corresponding zoom scan length, whichever is smaller	$60/f$ or half of the corresponding zoom scan length, whichever is smaller
Maximum angle between the probe axis and the phantom surface normal (α in Figure 6) ^c	30°	20°
Tolerance in the probe angle	1°	1°
^a δ is the penetration depth for a plane-wave incident normally on a planar half-space. ^b See 7.2.10 on how Δx and Δy may be selected for individual area scan requirements. ^c The probe angle with respect to the phantom surface normal is restricted due to the degradation in the measurement accuracy in fields with steep spatial gradients. The measurement accuracy decreases with increasing probe angle and increasing frequency. This is the reason for the tighter probe angle restriction at frequencies above 3 GHz.		

Table 2 – Zoom scan parameters

Parameter	DUT transmit frequency being tested	
	$f \leq 3 \text{ GHz}$	$3 \text{ GHz} < f \leq 6 \text{ GHz}$
Maximum distance between the closest measured points and the phantom surface (z_{M1} in Figure 6 and Table 1, in mm)	5	$\delta \ln(2)/2^a$
Maximum angle between the probe axis and the phantom surface normal (α in Figure 6)	30°	20°
Maximum spacing between measured points in the x- and y-directions (7.2.10.3.2, in mm)	8	$24/f^b$
For uniform grids: Maximum spacing between measured points in the direction normal to the phantom shell (Δz_1 in Figure 6, in mm)	5	$8 - f$

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Parameter	DUT transmit frequency being tested	
	$f \leq 3 \text{ GHz}$	$3 \text{ GHz} < f \leq 6 \text{ GHz}$
For graded grids: Maximum spacing between the two closest measured points in the direction normal to the phantom shell (Δz_1 in Figure 6, in mm)	4	$12/f$
For graded grids: Maximum incremental increase in the spacing between measured points in the direction normal to the phantom shell ($R_z = \Delta z_2 / \Delta z_1$ in Figure 6)	1,5	1,5
Minimum edge length of the zoom scan volume in the x- and y-directions (L_z in 7.2.10.3.2, in mm)	30	22
Minimum edge length of the zoom scan volume in the direction normal to the phantom shell (L_h in 7.2.10.3.2, in mm)	30	22
Tolerance in the probe angle	1°	1°
^a δ is the penetration depth for a plane-wave incident normally on a planar half-space. ^b This is the maximum spacing allowed, which may not work for all circumstances.		

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

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

Frequency (MHz) \ Ingredient (% Weight)	Water	NaCl	Polysorbate 20	DGBE	1,2-Propanediol	Triton X-100
835	50.36	1.25	48.39	0.0	0.0	0.0
900	34.40	0.79	0.0	0.0	64.81	0.0
1800	55.36	0.35	0.0	13.84	0.0	30.45
2000	50	0.0	0.0	50	0.0	0.0
2450	71.88	0.16	0.0	7.99	0.0	19.97
2600	55.242	0.306	0.0	44.452	0.0	0.0

5.2. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the EN62209-1 have been incorporated in the following table. The body tissue dielectric parameters recommended by the EN62209-2 have been incorporated in the following table.

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
2600	39.00	1.96	39.00	1.96
3000	38.5	2.40	38.5	2.40

(ϵ_r = relative permittivity, σ = conductivity and $\rho = 1000 \text{ kg/m}^3$)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

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.

Frequency (MHz)	Target Value		Measurement Value		Tissue Temp [°C]	Test Date
	ϵ_r	$\delta[s/m]$	ϵ_r	$\delta[s/m]$		
900	41.50 39.425-43.575	0.97 0.9225-1.0185	41.81	0.98	21.5	Apr. 14, 2018
1800	40.00 38.00-42.00	1.40 1.33-1.47	40.87	1.41	21.5	Apr. 15, 2018
2000	40.00 38.00-42.00	1.40 1.33-1.47	38.96	1.44	21.7	Apr. 09, 2018
835	41.5 39.425-43.575	0.90 0.855-0.945	40.59	0.89	21.0	Apr. 03, 2018
900	41.50 39.425-43.575	0.97 0.9225-1.0185	42.11	0.96	20.3	Apr. 17, 2018
1800	40.00 38.00-42.00	1.40 1.33-1.47	40.85	1.43	21.0	Apr. 18, 2018
2000	40.00 38.00-42.00	1.40 1.33-1.47	40.85	1.41	21.3	Apr. 11, 2018
2450	39.2 37.24-41.16	1.80 1.71-1.89	38.95	1.76	21.0	Apr. 16, 2018
2600	39.0 37.05-40.95	1.96 1.86-2.06	38.77	1.91	21.2	Apr. 19, 2018

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

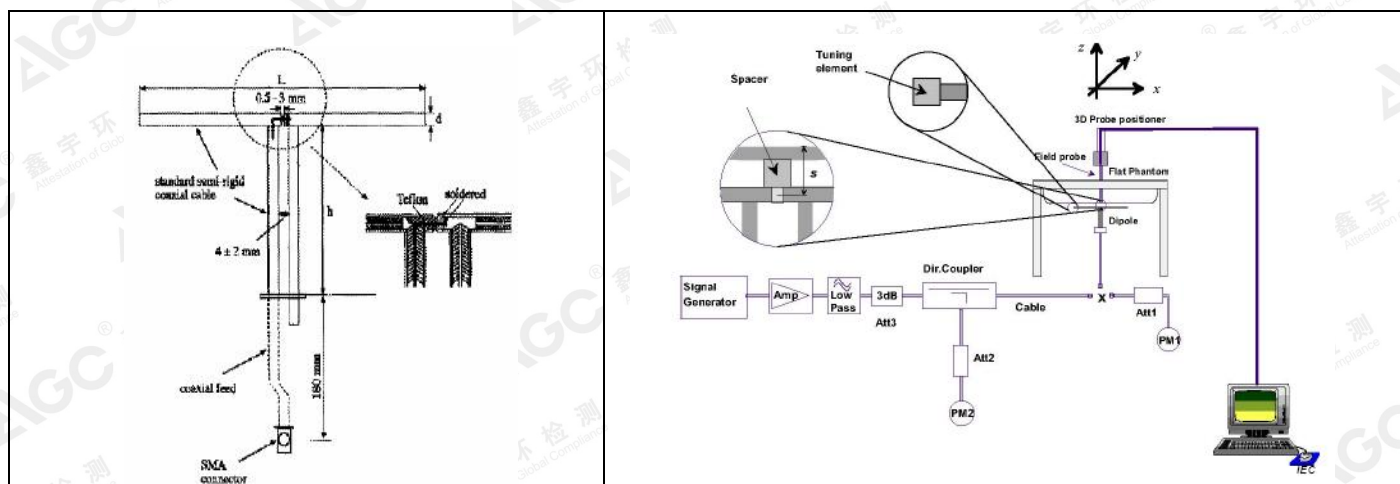
6. SAR SYSTEM CHECK PROCEDURE

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.

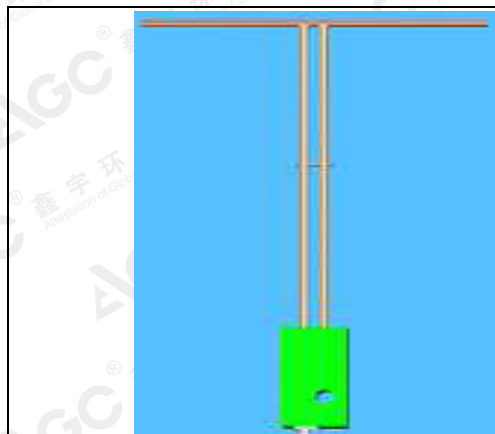
The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system check setup is shown as below.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

6.2. SAR System Check

6.2.1. Dipoles



The dipoles used are based on the EN62209-1 standard, the table below provides details for the mechanical and electrical Specifications for the dipoles.

Frequency	L (mm)	h (mm)	d (mm)
835MHz	161.0	89.8	3.6
900 MHz	149.0	83.3	3.6
1800MHz	71.6	41.7	3.6
2000 MHz	64.5	37.5	3.6
2450MHz	51.5	30.4	3.6
2600MHz	48.5	28.8	3.6

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

6.2.2. System Check Result

System Performance Check at 835MHz & 900 MHz & 1800MHz & 2000MHz & 2450MHz & 2600MHz								
Validation Kit SN29/15 DIP 0G835-383 & SN 15/16DIP 0G900-400 & SN 29/15DIP 1G800-387 & SN 29/15DIP 2G000-390 & SN 29/15DIP 2G450-393 & SN22/16 DIP 2G600-407								
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		
900	10.99	6.88	9.891-12.089	6.192-7.568	10.24	6.30	21.5	Apr. 14, 2018
1800	37.43	19.88	33.687-41.173	17.892-21.868	38.47	20.56	21.5	Apr. 15, 2018
2000	43.15	21.41	38.835-47.465	19.269-23.551	41.58	21.37	21.7	Apr. 09, 2018
835	10.04	6.43	9.036-11.044	5.787 -7.073	9.89	6.04	21.0	Apr. 03, 2018
900	10.99	6.88	9.891-12.089	6.192-7.568	11.09	6.67	20.3	Apr. 17, 2018
1800	37.43	19.88	33.687-41.173	17.892-21.868	37.79	19.79	21.0	Apr. 18, 2018
2000	43.15	21.41	38.835-47.465	19.269-23.551	39.00	20.53	21.3	Apr. 11, 2018
2450	54.53	24.30	49.077-59.983	21.87-26.730	52.47	22.63	21.0	Apr. 16, 2018
2600	53.26	23.87	47.934-58.586	21.483-26.257	48.90	21.94	21.2	Apr. 19, 2018

Note:

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

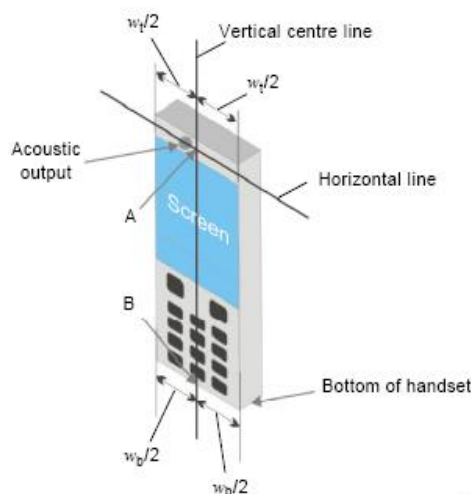
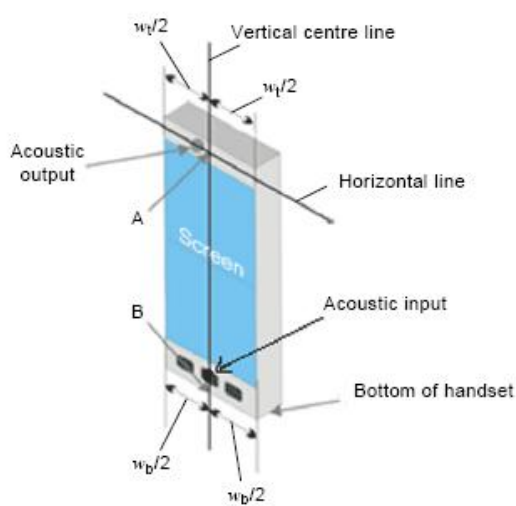
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

7. EUT TEST POSITION

This EUT was tested in **Right Cheek, Right Tilted, Left Cheek, Left Tilted, Body back and Body front.**

7.1. Define Two Imaginary Lines on the Handset

- (1) The vertical centreline passes through two points on the front side of the DUT: the midpoint of the width w_t of the handset at the level of the acoustic output (Point A in Figure 1), and the midpoint of the width w_b at the bottom of the handset (Point B).
- (2) The horizontal line is perpendicular to the vertical centreline and passes through the centre of the acoustic output.
- (3) The two lines intersect at Point A. Note that for many handsets, Point A coincides with the centre of the acoustic output. However, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centreline is not necessarily parallel to the front face of the DUT, especially for clam-shell handsets, handsets with flip cover pieces, and other irregularly shaped handsets.



IEC

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

7.2. Cheek Position

- (1) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
- (2) To move the device towards the phantom with the ear piece aligned with the the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost



7.3. Tilt Position

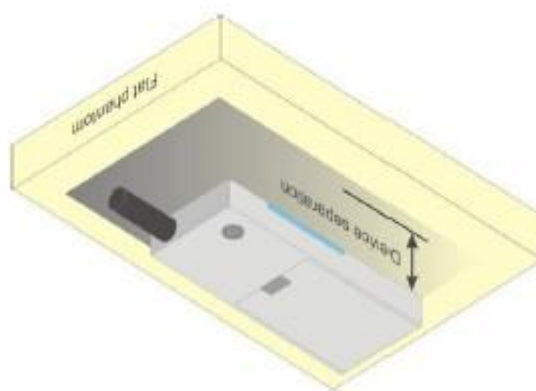
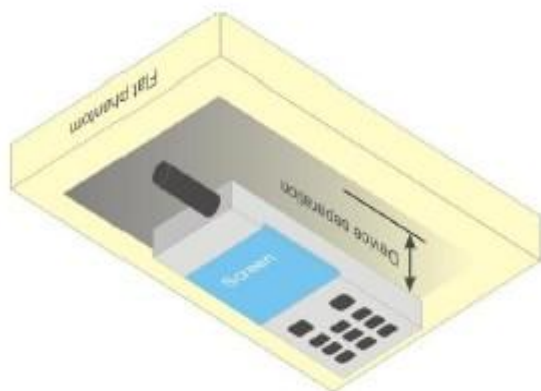
- (1) To position the device in the “cheek” position described above.
- (2) While maintaining the device in the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until with the ear is lost.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

7.4. Body Worn Position

- (1) To position the EUT parallel to the phantom surface.
- (2) To adjust the EUT parallel to the flat phantom.
- (3) To adjust the distance between the EUT surface and the flat phantom to **5mm**.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

8. SAR EXPOSURE LIMITS

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

Type Exposure	Uncontrolled Environment Limit (W/kg)
Spatial Peak SAR (10 g cube tissue for brain or body)	2.00
Spatial Average SAR (Whole body)	0.08
Spatial Peak SAR (Limbs)	4.00

Note:

These limits are derived from EN50360 "Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields" and EN50566 "Product standard to demonstrate compliance of radio frequency fields from handheld and body-mounted wireless communication devices used by the general public"

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

9. 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.
Comm Tester	Agilent-8960	GB46310822	Mar. 01,2018	Feb. 28,2019
Comm Tester	R&S- CMW500	S/N121209	July 13,2017	July 12,2018
Multimeter	Keithley 2000	1188656	Mar. 01,2018	Feb. 28,2019
Dipole	SATIMO SID835	SN29/15 DIP 0G835-383	July 05,2016	July 04,2019
Dipole	SATIMO SID900	SN15/16 DIP 0G900-400	July 05,2016	July 04,2019
Dipole	SATIMO SID1800	SN29/15 DIP 1G800-387	July 05,2016	July 04,2019
Dipole	SATIMO SID2000	SN 29/15DIP 2G000-390	July 05,2016	July 04,2019
Dipole	SATIMO SID2450	SN29/15 DIP 2G450-393	July 05,2016	July 04,2019
Dipole	SATIMO SID2600	SN22/16 DIP 2G600-407	July 05,2016	July 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	June 20,2017	June 19,2018
Directional Couple	Werlatone/ C6026-10	SN99482	June 20,2017	June 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 EN62209-1/2 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.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

10. MEASUREMENT UNCERTAINTY

SATIMO Uncertainty- SN 08/16 EPGO282									
Measurement uncertainty for DUT averaged over 1 gram / 10 gram.									
Uncertainty Component	Sec.	Tol (+ %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+%)	10g Ui (+%)	vi
Measurement System									
Probe calibration	Annex B	5.831	N	1	1	1	5.83	5.83	∞
Axial Isotropy	7.2.2.2	0.695	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.28	0.28	∞
Hemispherical Isotropy	7.2.2.2	1.045	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.43	0.43	∞
Boundary effect	7.2.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	7.2.2.3	0.685	R	$\sqrt{3}$	1	1	0.40	0.40	∞
System detection limits	7.2.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	7.2.2.4	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Readout Electronics	7.2.2.6	0.021	N	1	1	1	0.021	0.021	∞
Response Time	7.2.2.7	0	R	$\sqrt{3}$	1	1	0	0	∞
Integration Time	7.2.2.8	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
RF ambient conditions-Noise	7.2.9	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	7.2.9	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	7.2.3.1	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	7.2.3.2	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Post-processing	7.2.10	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
Test sample Related									
Test sample positioning	7.2.5.3	2.6	N	1	1	1	2.6	2.6	∞
Device holder uncertainty	7.2.5.2	3	N	1	1	1	3	3	∞
SAR drift measurement	7.2.8	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	7.2.11	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Phantom and tissue parameters									
Phantom uncertainty (shape and thickness uncertainty)	7.2.4	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	7.2.7.2	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity (temperature uncertainty)	7.2.6.6 7.2.6.5	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid conductivity (measured)	7.2.6.3 7.2.6.5	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity (temperature uncertainty)	7.2.6.6 7.2.6.5	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity (measured)	7.2.6.4 7.2.6.5	5	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty			RSS				9.79	9.59	
Expanded Uncertainty (95% Confidence interval)			K=2				19.58	19.18	

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SATIMO Uncertainty- SN 08/16 EPG0282 System Validation uncertainty for DUT averaged over 1 gram / 10 gram.									
Uncertainty Component	Sec.	Tol (+/- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+/-%)	10g Ui (+/-%)	vi
Measurement System									
Probe calibration	Annex B	5.831	N	1	1	1	5.83	5.83	∞
Axial Isotropy	7.2.2.2	0.695	R	$\sqrt{3}$	1	1	0.40	0.40	∞
Hemispherical Isotropy	7.2.2.2	1.045	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	7.2.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	7.2.2.3	0.685	R	$\sqrt{3}$	1	1	0.40	0.40	∞
System detection limits	7.2.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	7.2.2.4	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Readout Electronics	7.2.2.6	0.021	N	1	1	1	0.021	0.021	∞
Response Time	7.2.2.7	0.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Integration Time	7.2.2.8	1.4	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-Noise	7.2.9	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	7.2.9	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	7.2.3.1	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	7.2.3.2	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Post-Processing	7.2.10	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
System validation source									
Deviation of experimental dipole from numerical dipole	7.2.12	5.0	N	1	1	1	5.00	5.00	∞
Input power and SAR drift measurement	7.2.8	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Other source contribution Uncertainty	7.2.13	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and set-up									
Phantom uncertainty (shape and thickness uncertainty)	7.2.4	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	7.2.7.2	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity (temperature uncertainty)	7.2.6.6 7.2.6.5	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid conductivity (measured)	7.2.6.3 7.2.6.5	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity (temperature uncertainty)	7.2.6.6 7.2.6.5	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity (measured)	7.2.6.4 7.2.6.5	5	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty			RSS				9.718	9.517	
Expanded Uncertainty (95% Confidence interval)			K=2				19.437	19.035	

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SATIMO Uncertainty- SN 08/16 EPG0282 System Check uncertainty for DUT averaged over 1 gram / 10 gram.									
Uncertainty Component	Sec.	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
Measurement System									
Probe calibration drift	Table 13 note a	0.5	N	1	1	1	0.50	0.50	∞
Axial Isotropy	7.2.2.2	0.695	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Hemispherical Isotropy	7.2.2.2	1.045	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	7.2.2.5	1.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Linearity	7.2.2.3	0.685	R	$\sqrt{3}$	0	0	0.00	0.00	∞
System detection limits	7.2.2.3	1.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Modulation response	7.2.2.4	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Readout Electronics	7.2.2.6	0.021	N	1	0	0	0.00	0.00	∞
Response Time	7.2.2.7	0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Integration Time	7.2.2.8	1.4	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-Noise	7.2.9	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-reflections	7.2.9	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Probe positioner mechanical tolerance	7.2.3.1	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	7.2.3.2	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Post-processing	7.2.10	2.3	R	$\sqrt{3}$	0	0	0.00	0.00	∞
System check source									
Deviation between experimental dipoles	7.2.12	2.0	N	1	1	1	2.00	2.00	∞
Input power and SAR drift measurement	7.2.8	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Other source contribution Uncertainty	7.2.13	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and set-up									
Phantom uncertainty (shape and thickness uncertainty)	7.2.4	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	7.2.7.2	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity (temperature uncertainty)	7.2.6.6 7.2.6.5	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid conductivity (measured)	7.2.6.3 7.2.6.5	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity (temperature uncertainty)	7.2.6.6 7.2.6.5	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity (measured)	7.2.6.4 7.2.6.5	5	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty			RSS				5.564	5.205	
Expanded Uncertainty (95% Confidence interval)			K=2				11.128	10.410	

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

11. TRANSMITTER MAXIMUM OUTPUT POWER

Mode	Frequency(MHz)	Avg. Output Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <1>				
GSM 900	880.2	34.22	-9	25.22
	897.4	34.17	-9	25.17
	914.8	34.03	-9	25.03
GPRS 900 (1 Slot)	880.2	31.98	-9	22.98
	897.4	31.68	-9	22.68
	914.8	31.54	-9	22.54
GPRS 900 (2 Slot)	880.2	28.88	-6	22.88
	897.4	28.65	-6	22.65
	914.8	28.32	-6	22.32
GPRS 900 (3 Slot)	880.2	26.45	-4.26	22.19
	897.4	26.09	-4.26	21.83
	914.8	26.18	-4.26	21.92
GPRS 900 (4 Slot)	880.2	27.87	-3	24.87
	897.4	27.80	-3	24.80
	914.8	27.79	-3	24.79
EGPRS 900 (1 Slot)	880.2	22.91	-9	13.91
	897.4	22.96	-9	13.96
	914.8	22.98	-9	13.98
EGPRS 900 (2 Slot)	880.2	21.23	-6	15.23
	897.4	21.27	-6	15.27
	914.8	21.25	-6	15.25
EGPRS 900 (3 Slot)	880.2	21.45	-4.26	17.19
	897.4	21.56	-4.26	17.30
	914.8	21.21	-4.26	16.95
EGPRS 900 (4 Slot)	880.2	21.14	-3	18.14
	897.4	21.09	-3	18.09
	914.8	21.54	-3	18.54

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Mode	Frequency(MHz)	Avg. Output Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <2>				
GSM 900	880.2	34.00	-9	25.00
	897.4	34.09	-9	25.09
	914.8	34.01	-9	25.01
GPRS 900 (1 Slot)	880.2	31.89	-9	22.89
	897.4	31.56	-9	22.56
	914.8	31.45	-9	22.45
GPRS 900 (2 Slot)	880.2	28.68	-6	22.68
	897.4	28.53	-6	22.53
	914.8	28.20	-6	22.20
GPRS 900 (3 Slot)	880.2	26.35	-4.26	22.09
	897.4	26.01	-4.26	21.75
	914.8	26.11	-4.26	21.85
GPRS 900 (4 Slot)	880.2	27.74	-3	24.74
	897.4	27.65	-3	24.65
	914.8	27.45	-3	24.45
EGPRS 900 (1 Slot)	880.2	22.68	-9	13.68
	897.4	22.45	-9	13.45
	914.8	22.25	-9	13.25
EGPRS 900 (2 Slot)	880.2	21.01	-6	15.01
	897.4	21.11	-6	15.11
	914.8	21.09	-6	15.09
EGPRS 900 (3 Slot)	880.2	21.23	-4.26	16.97
	897.4	21.45	-4.26	17.19
	914.8	21.11	-4.26	16.85
EGPRS 900 (4 Slot)	880.2	21.07	-3	18.07
	897.4	21.04	-3	18.04
	914.8	21.34	-3	18.34

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Mode	Frequency(MHz)	Avg. Output Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <1>				
DCS1800	1710.2	30.84	-9	21.84
	1747.4	30.49	-9	21.49
	1784.8	30.31	-9	21.31
GPRS1800 (1 Slot)	1710.2	28.22	-9	19.22
	1747.4	28.35	-9	19.35
	1784.8	28.29	-9	19.29
GPRS1800 (2 Slot)	1710.2	25.24	-6	19.24
	1747.4	25.37	-6	19.37
	1784.8	25.26	-6	19.26
GPRS1800 (3 Slot)	1710.2	24.45	-4.26	20.19
	1747.4	24.23	-4.26	19.97
	1784.8	24.58	-4.26	20.32
GPRS1800 (4 Slot)	1710.2	24.61	-3	21.61
	1747.4	24.90	-3	21.90
	1784.8	25.45	-3	22.45
EGPRS1800 (1 Slot)	1710.2	21.08	-9	12.08
	1747.4	20.95	-9	11.95
	1784.8	21.16	-9	12.16
EGPRS1800 (2 Slot)	1710.2	23.08	-6	17.08
	1747.4	23.18	-6	17.18
	1784.8	23.67	-6	17.67
EGPRS1800 (3 Slot)	1710.2	22.74	-4.26	18.48
	1747.4	22.68	-4.26	18.42
	1784.8	22.54	-4.26	18.28
EGPRS1800 (4 Slot)	1710.2	20.23	-3	17.23
	1747.4	20.34	-3	17.34
	1784.8	20.28	-3	17.28

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Mode	Frequency(MHz)	Avg. Output Power(dBm)	Duty cycle Factor(dBm)	Frame Power(dBm)
Maximum Power <2>				
DCS1800	1710.2	30.48	-9	21.48
	1747.4	30.32	-9	21.32
	1784.8	30.25	-9	21.25
GPRS1800 (1 Slot)	1710.2	28.19	-9	19.19
	1747.4	28.20	-9	19.20
	1784.8	28.12	-9	19.12
GPRS1800 (2 Slot)	1710.2	25.14	-6	19.14
	1747.4	25.25	-6	19.25
	1784.8	25.08	-6	19.08
GPRS1800 (3 Slot)	1710.2	24.35	-4.26	20.09
	1747.4	24.11	-4.26	19.85
	1784.8	24.20	-4.26	19.94
GPRS1800 (4 Slot)	1710.2	24.35	-3	21.35
	1747.4	24.21	-3	21.21
	1784.8	25.32	-3	22.32
EGPRS1800 (1 Slot)	1710.2	21.05	-9	12.05
	1747.4	20.90	-9	11.90
	1784.8	21.11	-9	12.11
EGPRS1800 (2 Slot)	1710.2	23.04	-6	17.04
	1747.4	23.10	-6	17.10
	1784.8	23.45	-6	17.45
EGPRS1800 (3 Slot)	1710.2	22.54	-4.26	18.28
	1747.4	22.21	-4.26	17.95
	1784.8	22.32	-4.26	18.06
EGPRS1800 (4 Slot)	1710.2	20.09	-3	17.09
	1747.4	20.12	-3	17.12
	1784.8	20.10	-3	17.10

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

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

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

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

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

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

UMTS BAND I

Mode	Frequency(MHz)	Avg. Output Power(dBm)
WCDMA 2100 RMC(12.2bps)	1922.4	23.71
	1950	23.73
	1977.6	23.50
HSDPA Subtest 1	1922.4	22.87
	1950	22.78
	1977.6	22.56
HSDPA Subtest 2	1922.4	22.10
	1950	22.00
	1977.6	21.73
HSDPA Subtest 3	1922.4	22.00
	1950	21.94
	1977.6	21.66
HSDPA Subtest 4	1922.4	21.96
	1950	21.87
	1977.6	21.59
HSUPA Subtest 1	1922.4	20.56
	1950	20.54
	1977.6	20.26
HSUPA Subtest 2	1922.4	20.69
	1950	20.69
	1977.6	20.49
HSUPA Subtest 3	1922.4	21.68
	1950	21.55
	1977.6	21.33
HSUPA Subtest 4	1922.4	20.09
	1950	19.99
	1977.6	19.73
HSUPA Subtest 5	1922.4	19.62
	1950	19.35
	1977.6	20.36

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

UMTS BAND VIII

Mode	Frequency (MHz)	Avg. Output Power(dBm)
WCDMA 900 RMC(12.2bps)	882.4	23.35
	897.6	23.28
	912.6	23.53
HSDPA Subtest 1	882.4	22.35
	897.6	22.30
	912.6	22.49
HSDPA Subtest 2	882.4	21.64
	897.6	21.65
	912.6	21.77
HSDPA Subtest 3	882.4	21.60
	897.6	21.62
	912.6	21.76
HSDPA Subtest 4	882.4	21.59
	897.6	21.61
	912.6	21.73
HSUPA Subtest 1	882.4	20.05
	897.6	19.96
	912.6	20.23
HSUPA Subtest 2	882.4	20.09
	897.6	20.03
	912.6	20.28
HSUPA Subtest 3	882.4	21.06
	897.6	21.01
	912.6	21.25
HSUPA Subtest 4	882.4	19.59
	897.6	19.56
	912.6	19.69
HSUPA Subtest 5	882.4	21.53
	897.6	21.87
	912.6	21.82

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

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

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

UE Transmit Channel Configuration	CM(db)	MPR(db)
For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH	$0 \leq CM \leq 3.5$	$MAX(CM-1,0)$

Note: CM=1 for $\beta_d/\beta_{d0}=12/15$, $\beta_{hs}/\beta_c=24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

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

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

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

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

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

LTE Band

LTE (TDD) Considerations

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band 40 supports 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Table 4.2-2: Uplink-downlink configurations

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Calculated Duty Cycle

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle(%)
		0	1	2	3	4	5	6	7	8	9	
0	5ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5ms	D	S	U	U	U	D	S	U	U	D	53.33

Note: Calculated Duty Cycle = Extended cyclic prefix in uplink x (Ts) x # of S + # of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:

Calculated Duty Cycle = $5120 \times [1/(15000 \times 2048)] \times 2 + 6 \text{ ms} = 63.33\%$

where

$T_s = 1/(15000 \times 2048)$ seconds

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

LTE BAND

Average Output Power of LTE Band 1(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					18025	18300	18575
5MHz	QPSK	1	0	0	22.06	21.29	20.69
			12	0	21.56	21.32	20.92
			24	0	22.02	21.28	20.60
		12	0	1	21.62	21.38	20.80
			6	1	21.03	21.36	21.56
			13	1	21.66	21.28	20.66
		25	0	1	20.91	20.88	20.74
	16QAM	1	0	1	22.02	21.11	20.56
			12	1	21.32	21.20	20.89
			24	1	22.00	21.12	20.45
		12	0	2	21.45	21.23	20.65
			6	2	21.01	21.10	21.45
			13	2	21.56	21.14	20.36
		25	0	2	20.88	20.56	20.45
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					18050	18300	18550
10MHz	QPSK	1	0	0	22.00	21.09	20.45
			24	0	21.23	21.15	20.68
			49	0	22.01	21.14	20.25
		25	0	1	21.25	21.12	20.45
			12	1	21.00	21.09	21.32
			25	1	21.45	21.10	20.12
		50	0	1	20.68	20.45	20.24
	16QAM	1	0	1	21.98	21.08	20.23
			24	1	21.23	21.14	20.45
			49	1	21.99	21.10	20.20
		25	0	2	21.25	21.15	20.14
			12	2	21.00	21.09	21.12
			25	2	21.45	21.04	20.26
		50	0	2	20.65	20.26	20.24

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 1(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					18075	18300	18525
15MHz	QPSK	1	0	0	21.25	21.10	20.74
			37	0	20.32	21.21	20.11
			74	0	21.12	20.45	20.21
		37	0	1	21.35	21.23	20.45
			19	1	20.45	20.21	20.20
			38	1	21.19	20.17	20.35
		75	0	1	20.20	20.20	20.09
	16QAM	1	0	1	21.14	21.19	20.45
			37	1	20.13	21.24	20.12
			74	1	21.20	20.15	20.31
		37	0	2	21.25	21.21	20.68
			19	2	20.39	20.32	20.45
			38	2	21.19	20.68	20.25
		75	0	2	20.29	20.19	20.01
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					18100	18300	18500
20MHz	QPSK	1	0	0	21.50	21.27	20.91
			49	0	20.45	21.32	20.23
			99	0	21.23	20.99	20.51
		50	0	1	21.47	21.33	20.99
			25	1	20.56	20.45	20.68
			50	1	21.30	20.91	20.56
		100	0	1	20.45	20.36	20.19
	16QAM	1	0	1	21.23	21.11	20.87
			49	1	20.24	21.10	20.19
			99	1	21.19	20.85	20.45
		50	0	2	21.35	21.21	20.94
			25	2	20.45	20.30	20.45
			50	2	21.21	20.45	20.25
		100	0	2	20.24	20.21	20.10

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 3 (dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					19207	19575	19943
1.4MHz	QPSK	1	0	0	21.58	21.16	20.83
			2	0	20.95	20.93	20.90
			5	0	21.52	21.16	20.82
		3	0	0	21.63	21.18	20.94
			1	0	21.45	20.88	20.78
			3	0	21.65	21.19	20.97
		6	0	1	20.45	20.56	20.68
	16QAM	1	0	1	21.45	21.10	20.68
			2	1	20.89	20.89	20.78
			5	1	21.45	21.10	20.68
		3	0	1	21.56	21.12	20.85
			1	1	21.36	20.65	20.74
			3	1	21.58	21.09	20.45
		6	0	2	20.50	20.45	20.65
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					19215	19575	19935
3MHz	QPSK	1	0	0	21.32	21.08	20.25
			7	0	20.45	20.65	20.47
			14	0	21.30	21.11	20.51
		8	0	1	21.20	21.14	20.75
			4	1	21.21	20.45	20.32
			8	1	21.45	21.05	20.20
		15	0	1	20.32	20.25	20.41
	16QAM	1	0	1	21.25	21.05	20.25
			7	1	20.74	20.68	20.41
			14	1	21.32	21.12	20.36
		8	0	2	21.20	21.01	20.45
			4	2	21.21	20.26	20.14
			8	2	21.45	21.01	20.30
		15	0	2	20.36	20.24	20.21

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 3(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					19225	19575	19925
5MHz	QPSK	1	0	0	21.47	21.09	20.86
			12	0	20.92	20.95	20.99
			24	0	21.44	21.03	20.87
		12	0	1	21.55	21.17	20.89
			6	1	20.68	20.74	20.88
			13	1	21.61	21.16	20.89
		25	0	1	20.56	20.54	20.51
	16QAM	1	0	1	21.32	21.05	20.54
			12	1	20.87	20.87	20.78
			24	1	21.37	21.00	20.74
		12	0	2	21.45	21.12	20.45
			6	2	20.23	20.65	20.69
			13	2	21.45	21.14	20.58
		25	0	2	20.36	20.45	20.32
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					19250	19575	19900
10MHz	QPSK	1	0	0	21.37	21.02	20.54
			24	0	20.89	20.85	20.78
			49	0	21.32	21.00	20.65
		25	0	1	21.45	21.12	20.54
			12	1	20.39	20.68	20.24
			25	1	21.45	21.10	20.15
		50	0	1	20.32	20.25	20.10
	16QAM	1	0	1	21.36	21.04	20.36
			24	1	20.56	20.45	20.14
			49	1	21.31	21.00	20.12
		25	0	2	21.19	21.14	20.32
			12	2	20.45	20.32	20.28
			25	2	21.37	21.10	20.45
		50	0	2	20.45	20.35	20.20

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 3 (dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					19275	19575	19875
15MHz	QPSK	1	0	0	21.29	21.05	20.20
			37	0	20.54	20.45	20.57
			74	0	21.18	20.68	20.31
		37	0	1	21.20	21.00	20.41
			19	1	20.36	20.27	20.25
			38	1	21.24	20.45	20.36
		75	0	1	20.21	20.32	20.35
	16QAM	1	0	1	21.36	21.05	20.45
			37	1	20.54	20.24	20.40
			74	1	21.10	20.21	20.31
		37	0	2	21.21	21.00	20.25
			19	2	20.37	20.31	20.27
			38	2	21.19	20.15	20.54
		75	0	2	20.25	20.32	20.32
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					19300	19575	19850
20MHz	QPSK	1	0	0	21.33	21.10	20.45
			49	0	20.68	20.54	20.35
			99	0	21.23	20.68	20.26
		50	0	1	21.33	21.00	20.45
			25	1	20.45	20.19	20.74
			50	1	21.22	20.47	20.65
		100	0	1	20.39	20.35	20.34
	16QAM	1	0	1	21.21	21.09	20.20
			49	1	20.45	20.36	20.45
			99	1	21.19	20.45	20.30
		50	0	2	21.21	21.00	20.21
			25	2	20.35	20.32	20.30
			50	2	21.11	20.68	20.56
		100	0	2	20.20	20.32	20.41

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 7 (dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					20775	21100	21425
5MHz	QPSK	1	0	0	22.56	21.78	21.57
			12	0	20.98	20.99	20.94
			24	0	21.98	22.57	21.65
		12	0	1	21.92	21.41	20.35
			6	1	20.87	20.89	20.88
			13	1	21.86	21.40	21.79
		25	0	1	20.45	20.47	20.79
	16QAM	1	0	1	22.45	21.69	21.17
			12	1	20.90	20.87	20.84
			24	1	21.89	22.47	21.47
		12	0	2	21.87	21.39	20.20
			6	2	20.74	20.74	20.67
			13	2	21.76	21.35	21.58
		25	0	2	20.39	20.27	20.51
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					20800	21100	21400
10MHz	QPSK	1	0	0	22.32	21.47	21.10
			24	0	20.68	20.54	20.47
			49	0	21.78	22.37	21.35
		25	0	1	21.69	21.27	20.19
			12	1	20.57	20.44	20.54
			25	1	21.64	21.27	21.20
		50	0	1	20.25	20.19	20.35
	16QAM	1	0	1	22.27	21.32	21.09
			24	1	20.54	20.41	20.27
			49	1	21.45	22.20	21.18
		25	0	2	21.47	21.18	20.11
			12	2	20.39	20.32	20.37
			25	2	21.40	21.14	21.08
		50	0	2	20.18	20.11	20.14

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 7 (dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					20825	21100	21375
15MHz	QPSK	1	0	0	22.47	22.32	21.92
			37	0	21.51	21.21	21.68
			74	0	22.20	21.10	21.39
		37	0	1	22.01	22.12	21.74
			19	1	21.58	21.65	21.50
			38	1	22.10	20.21	21.40
		75	0	1	20.13	20.41	20.35
	16QAM	1	0	1	22.30	22.21	21.47
			37	1	21.25	21.19	21.56
			74	1	22.18	21.08	21.21
		37	0	2	22.00	22.07	21.45
			19	2	21.21	21.45	21.32
			38	2	22.04	20.10	21.21
		75	0	2	20.06	20.35	20.25
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					20850	21100	21350
20MHz	QPSK	1	0	0	22.85	22.51	22.03
			49	0	21.98	21.99	21.89
			99	0	22.34	21.98	21.66
		50	0	1	22.09	22.24	21.90
			25	1	21.78	21.85	21.68
			50	1	22.16	20.97	21.52
		100	0	1	20.95	20.98	20.90
	16QAM	1	0	1	22.68	22.41	22.01
			49	1	21.57	21.32	21.78
			99	1	22.25	21.15	21.49
		50	0	2	22.05	22.19	21.80
			25	2	21.69	21.68	21.56
			50	2	22.12	20.47	21.49
		100	0	2	20.47	20.59	20.58

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 8 (dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					21457	21625	21793
1.4MHz	QPSK	1	0	0	22.71	22.66	22.85
			2	0	21.95	21.98	21.93
			5	0	22.69	22.65	22.88
		3	0	0	22.78	22.71	23.08
			1	0	21.85	21.86	21.88
			3	0	22.81	22.74	23.15
		6	0	1	22.58	22.45	22.65
	16QAM	1	0	1	22.47	22.45	22.87
			2	1	21.56	21.84	21.90
			5	1	22.58	22.51	22.85
		3	0	1	22.47	22.41	23.04
			1	1	21.68	21.68	21.78
			3	1	22.67	22.67	23.11
		6	0	2	22.49	22.40	22.56
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					21465	21625	21785
3MHz	QPSK	1	0	0	22.32	22.29	22.48
			7	0	21.45	21.30	21.65
			14	0	22.57	22.14	22.25
		8	0	1	22.41	22.12	23.00
			4	1	21.51	21.45	21.14
			8	1	22.54	22.32	23.05
		15	0	1	22.39	22.19	22.45
	16QAM	1	0	1	22.40	22.30	22.36
			7	1	21.35	21.45	21.25
			14	1	22.21	22.29	22.27
		8	0	2	22.19	22.38	23.00
			4	2	21.36	21.45	21.14
			8	2	22.30	22.41	23.02
		15	0	2	22.41	22.28	22.21

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 8(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					21475	21625	21775
5MHz	QPSK	1	0	0	22.67	22.60	22.89
			12	0	21.92	21.93	21.98
			24	0	22.66	22.59	22.97
		12	0	1	22.69	22.69	22.94
			6	1	21.65	21.68	21.66
			13	1	22.72	22.65	22.83
		25	0	1	22.45	22.56	22.54
	16QAM	1	0	1	22.45	22.45	22.47
			12	1	21.58	21.56	21.58
			24	1	22.47	22.25	22.54
		12	0	2	22.51	22.39	22.36
			6	2	21.50	21.48	21.21
			13	2	22.61	22.57	22.54
		25	0	2	22.39	22.25	22.14
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					21500	21625	21750
10MHz	QPSK	1	0	0	22.72	22.67	22.90
			24	0	21.98	21.99	21.96
			49	0	22.70	22.64	22.91
		25	0	1	22.68	22.73	22.95
			12	1	21.68	21.78	21.69
			25	1	22.71	22.67	22.82
		50	0	1	22.54	22.35	22.52
	16QAM	1	0	1	22.47	22.47	22.41
			24	1	21.54	21.58	21.36
			49	1	22.41	22.37	22.25
		25	0	2	22.56	22.61	22.45
			12	2	21.48	21.60	21.56
			25	2	22.54	22.50	22.25
		50	0	2	22.39	22.21	22.32

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 20(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					24175	24300	24425
5MHz	QPSK	1	0	0	23.28	23.21	23.28
			12	0	22.98	22.95	22.94
			24	0	23.22	23.22	23.17
		12	0	1	23.42	23.25	23.39
			6	1	22.68	22.89	22.85
			13	1	23.31	23.26	23.30
		25	0	1	22.78	22.79	22.77
	16QAM	1	0	1	23.21	23.19	23.25
			12	1	22.58	22.47	22.87
			24	1	23.19	23.18	23.14
		12	0	2	23.37	23.20	23.27
			6	2	22.45	22.47	22.68
			13	2	23.27	23.23	23.29
		25	0	2	22.69	22.68	22.58
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					24200	24300	24400
10MHz	QPSK	0	0	0	23.18	23.10	23.10
			24	0	22.47	22.37	22.54
			49	0	23.15	23.12	23.09
		25	0	1	23.27	23.21	23.11
			12	1	22.37	22.35	22.21
			25	1	23.14	23.15	23.11
		50	0	1	22.56	22.36	22.12
	16QAM	0	0	1	23.11	23.14	23.10
			24	1	22.45	22.23	22.45
			49	1	23.12	23.09	23.10
		25	0	2	23.25	23.14	23.32
			12	2	22.37	22.32	22.12
			25	2	23.14	23.11	23.10
		50	0	2	22.56	22.45	22.45

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Average Output Power of LTE Band 20(dBm)							
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					24225	24300	24375
15MHz	QPSK	1	0	0	23.08	23.04	22.95
			37	0	22.45	22.56	22.54
			74	0	23.01	23.09	22.69
		37	0	1	23.10	23.07	23.00
			19	1	22.56	22.54	22.45
			38	1	22.85	23.00	23.01
		75	0	1	22.45	22.36	22.21
	16QAM	1	0	1	23.09	23.05	23.00
			37	1	22.45	22.45	22.36
			74	1	22.95	23.10	22.54
		37	0	2	23.04	23.05	22.36
			19	2	22.36	22.21	22.20
			38	2	22.56	22.96	23.00
		75	0	2	22.37	22.36	22.36
Bandwidth	Modulation	RB size	RB offset	Target MPR	Channel	Channel	Channel
					24250	24300	24350
20MHz	QPSK	1	0	0	23.16	23.12	23.07
			49	0	22.98	22.95	22.93
			99	0	23.06	23.18	23.11
		50	0	1	23.13	23.13	23.02
			25	1	22.89	22.87	22.81
			50	1	23.00	23.08	23.15
		100	0	1	22.69	22.69	22.74
	16QAM	1	0	1	23.11	23.09	23.01
			49	1	22.68	22.85	22.85
			99	1	23.05	23.14	23.01
		50	0	2	23.11	23.10	23.02
			25	2	22.69	22.74	22.74
			50	2	22.95	23.02	23.10
		100	0	2	22.56	22.56	22.56

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3.3-1 of the 3GPP TS36.101.

Table 6.2.3.3-1 Maximum Power Reduction (MPR) for Power class3

Modulation	Maximum Power Reduction (MPR) for Power[RB]						MPR(dB)
	1.4MHz	3.0MHz	5MHz	10MHz	15MHz	20MHz	
QPSK	>5	>4	>8	>12	>16	>18	≤1
16QAM	≤5	≤4	≤8	≤12	≤16	≤18	≤1
16QAM	>5	>4	>8	>12	>16	>18	≤2

The allowed A-MPR values specified below in Table 6.2.4.3-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".3

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Table 6.2.4.3-1: Additional Maximum Power Reduction (A-MPR) / Spectrum Emission requirements

Network Signaling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.2-1	1.4,3,5,10,15,20	Table 5.4.2-1	N/A
NS_03	6.6.2.2.3.1	2,4,10, 23, 25,35,36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.3.2	41	5	>6	≤ 1
			10, 15, 20	Table 6.2.4.3-4	
NS_05	6.6.3.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.4.2-1	N/A
NS_07	6.6.2.2.3.3 6.6.3.3.3.2	13	10	Table 6.2.4.3-2	Table 6.2.4.3-2
NS_08	6.6.3.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4.3-3	Table 6.2.4.3-3
NS_11	6.6.2.2.1 6.6.3.3.13	231	1.4, 3, 5, 10,15,20	Table 6.2.4.3-5	Table 6.2.4.3-5
NS_12	6.6.3.3.5	26	1.4, 3, 5	Table 6.2.4.3-6	Table 6.2.4.3-6
NS_13	6.6.3.3.6	26	5	Table 6.2.4.3-7	Table 6.2.4.3-7
NS_14	6.6.3.3.7	26	10, 15	Table 6.2.4.3-8	Table 6.2.4.3-8
NS_15	6.6.3.3.8	26	1.4, 3, 5, 10, 15	Table 6.2.4.3-9 Table 6.2.4.3-10	Table 6.2.4.3-9, Table 6.2.4.3-10
NS_16	6.6.3.3.9	27	3, 5, 10	Table 6.2.4.3-11, Table 6.2.4.3-12, Table 6.2.4.3-13	
NS_17	6.6.3.3.10	28	5, 10	Table 5.4.2-1	N/A
	6.6.3.3.11	28	5	≥ 2	≤ 1
NS_18			10, 15, 20	≥ 1	≤ 4
NS_19			10, 15, 20	Table 6.2.4.3-15	Table 6.2.4.3-15
NS_20			5, 10, 15, 20	Table 6.2.4.3-14	Table 6.2.4.3-14
...					
NS_20	-	-	-	-	-

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

WIFI

Mode	Data Rate (Mbps)	Channel	Frequency(MHz)	EIRP (dBm)
802.11b	1	1	2412	12.86
		2	2417	11.92
		7	2442	12.40
		12	2467	11.98
		13	2472	12.36
802.11g	6	1	2412	9.92
		7	2442	9.61
		13	2472	9.71
802.11n(20)	6.5	1	2412	9.74
		7	2442	9.89
		13	2472	9.48
802.11n(40)	13.5	3	2422	9.85
		7	2442	9.41
		11	2462	9.63

Note: For wifi RF test, there is no required about band edge; we test the power for channel 2&12 which is lower than channel 1&13; SAR need to test at low & high channel 1&13.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

12. TEST RESULTS

12.1. SAR Test Results Summary

12.1.1. Test position and configuration

Head SAR was performed with the device configured in the positions according to EN62209-1, and Body SAR was performed with the device 5mm from the phantom according to EN62209-2.

12.1.2. Operation Mode

1 For GSM900, the power control is set to Maximum Power Class. For GPRS 900(GMSK, CS1), the power control level is set to Maximum Power Class. For E-GPRS 900(GMSK: MCS1, 8PSK:MCS5), the power control is set to Maximum Power Class. For DCS 1800, the power control is set to Maximum Power Class. For GPRS 1800(GMSK, CS1), the power control level is set to Maximum Power Class. For E-GPRS 1800 (GMSK: MCS1, 8PSK:MCS5), the power control level is set to Maximum Power Class.

This is a multi-slot class 12 device capable of 4 uplink timeslots. During the head SAR test, the device was transmitting with maximum 1 uplink timeslot; during the body SAR test, it was transmitting with maximum 4 uplink timeslots. Additionally, this device doesn't support dual transfer mode (DTM)

Testing with the headset was performed at the position and channels that resulted in the highest body SAR. This testing was performed with GPRS transmitting with 2/3/4 uplink timeslots. In the Body SAR test result table, body-worn means display of device down, body-front means display of device up.

2 For WCDMA, head and body SAR is tested under RMC 12.2k mode with power control set all up bits SAR for AMR is not required since its power is less than RMC. For HSDPA/HSUPA, SAR is test with its maximum power mode.

3 The following test measurement is LTE procedure:

a) Largest channel bandwidth standalone SAR test requirements

(a1) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.

When the measured SAR is ≤ 1.0 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel.

When the measured SAR of a required test channel is > 1.80 W/kg, SAR is required for all three RB offset configurations for that required test channel.

(a2) QPSK with 50% RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 50% RB allocation at the worst position for 1 RB allocation in a1)

When the measured SAR is ≤ 1.0 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 50% RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel.

When the measured SAR of a required test channel is > 1.80 W/kg, SAR is required for all three RB offset configurations for that required test channel.

(a3) QPSK with 100% RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 100% RB allocation at the worst position for 1 RB&50%RB allocation in a1&a2)

When the measured SAR is ≤ 1.0 W/kg, testing of the remaining channels is not required for 100% RB

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

allocation; otherwise, SAR is required for the remaining channels and only for the highest output power for that channel.

When the measured SAR of a required test channel is $> 1.80 \text{ W/kg}$, SAR is required for low,mid,high channel.

(a4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2} \text{ dB}$ higher than the highest maximum output power in QPSK or when the measured SAR for the QPSK configuration is $> 1.8 \text{ W/kg}$.

b) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section 4.1) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> \frac{1}{2} \text{ dB}$ higher than the highest maximum output power of the largest channel bandwidth configuration or the measured SAR of a configuration for the largest channel bandwidth is $> 1.8 \text{ W/kg}$.

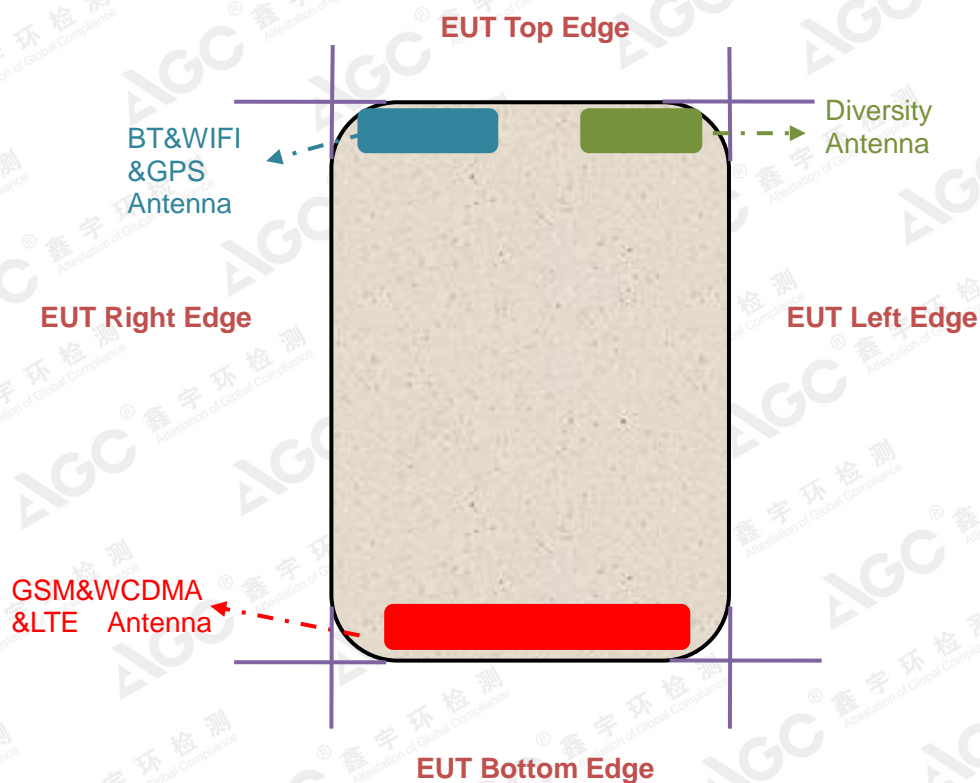
4. For WIFI SAR testing, the EUT has installed WIFI engineering testing software which can provide continuous transmitting RF signal.

5 Sensors have no any influence on power level or SAR result.

6 The portion of the EUT which area scan did not scan has been off the phantom

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

12.1.3. Antenna Location: (back view)



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

12.1.4. SAR Test Results Summary

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%): 49.5				
Product: Smart Phone									
Test Mode: GSM900 with GMSK modulation									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (10g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/Kg)
SIM 1 Card									
Left Cheek	voice	37	897.4	0.01	0.212	34.50	34.17	0.229	2.0
Left Tilt	voice	37	897.4	-0.03	0.155	34.50	34.17	0.167	2.0
Right Cheek	voice	975	880.2	0.04	0.212	34.50	34.22	0.226	2.0
Right Cheek	voice	37	897.4	-0.00	0.231	34.50	34.17	0.249	2.0
Right Cheek	voice	124	914.8	0.05	0.248	34.50	34.03	0.276	2.0
Right Tilt	voice	37	897.4	-0.02	0.135	34.50	34.17	0.146	2.0
Body back	GPRS-4 slots	975	880.2	-0.03	0.407	27.90	27.87	0.410	2.0
Body back	GPRS-4 slots	37	897.4	0.01	0.470	27.90	27.80	0.481	2.0
Body back	GPRS-4 slots	124	914.8	0.04	0.499	27.90	27.79	0.512	2.0
Body Front	GPRS-4 slots	37	897.4	-0.00	0.354	27.90	27.80	0.362	2.0
Body back + Ear.	voice	124	914.8	0.02	0.366	34.50	34.03	0.408	2.0

Note:

- When the 10-g SAR is $\leq 1.0\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table (body part) is 5mm.
- Since GPRS with 4 TX provides the highest output power, only this mode was considered for SAR assessment in body worn configuration
- Measurements for SIM Card 2 are not conducted since SIM Card 1 show the highest output power
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%): 57.3				
Product: Smart Phone									
Test Mode: DCS1800 with GMSK modulation									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (10g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/Kg)
SIM 1 Card									
Left Cheek	voice	512	1710.2	0.03	0.165	30.90	30.84	0.167	2.0
Left Cheek	voice	698	1747.4	-0.02	0.151	30.90	30.49	0.166	2.0
Left Cheek	voice	885	1784.8	0.01	0.159	30.90	30.31	0.182	2.0
Left Tilt	voice	698	1747.4	-0.02	0.037	30.90	30.49	0.041	2.0
Right Cheek	voice	698	1747.4	0.00	0.083	30.90	30.49	0.091	2.0
Right Tilt	voice	698	1747.4	0.04	0.025	30.90	30.49	0.027	2.0
Body back	GPRS-4 slots	512	1710.2	0.00	0.647	25.50	24.61	0.794	2.0
Body back	GPRS-4 slots	698	1747.4	0.03	0.604	25.50	24.90	0.693	2.0
Body back	GPRS-4 slots	885	1784.8	0.00	0.632	25.50	25.45	0.639	2.0
Body Front	GPRS-4 slots	698	1747.4	0.02	0.501	25.50	24.90	0.575	2.0
Body back + Ear.	voice	512	1710.2	0.01	0.444	30.90	30.84	0.450	2.0

Note:

- When the 10-g SAR is $\leq 1.0\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table (body part) is 5mm.
- Since GPRS with 4 TX provides the highest output power, only this mode was considered for SAR assessment in body worn configuration
- Measurements for SIM Card 2 are not conducted since SIM Card 1 show the highest output power
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%): 43.6				
Product: Smart Phone									
Test Mode: WCDMA Band I with QPSK modulation									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (10g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit W/kg
SIM 1 Card									
Left Cheek	RMC12.2kbps	9612	1922.4	0.05	0.020	23.80	23.71	0.020	2.0
Left Cheek	RMC12.2kbps	9750	1950	0.02	0.030	23.80	23.73	0.030	2.0
Left Cheek	RMC12.2kbps	9888	1977.6	-0.01	0.020	23.80	23.50	0.021	2.0
Left Tilt	RMC12.2kbps	9750	1950	0.00	0.007	23.80	23.73	0.007	2.0
Right Cheek	RMC12.2kbps	9750	1950	0.01	0.020	23.80	23.73	0.020	2.0
Right Tilt	RMC12.2kbps	9750	1950	0.04	0.007	23.80	23.73	0.007	2.0
Body back	RMC12.2kbps	9612	1922.4	-0.02	0.657	23.80	23.71	0.671	2.0
Body back	RMC12.2kbps	9750	1950	0.03	0.639	23.80	23.73	0.649	2.0
Body back	RMC12.2kbps	9888	1977.6	-0.01	0.627	23.80	23.50	0.672	2.0
Body front	RMC12.2kbps	9750	1950	0.02	0.503	23.80	23.73	0.511	2.0
Body back	HSDPA Subtest 1	9750	1950	0.00	0.635	22.90	22.78	0.653	2.0
Body back	HSUPA Subtest 1	9750	1950	-0.05	0.635	20.60	20.54	0.644	2.0
Body back + Ear.	RMC12.2kbps	9612	1922.4	0.01	0.635	23.80	23.71	0.648	2.0

Note:

- When the 10-g SAR is $\leq 1.0\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 5mm.
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%):49.5				
Product: Smart Phone									
Test Mode: WCDMA Band VIII with QPSK modulation									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (10g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit W/kg
SIM 1 Card									
Left Cheek	RMC12.2kbps	2788	897.6	0.03	0.206	23.60	23.28	0.222	2.0
Left Tilt	RMC12.2kbps	2788	897.6	-0.01	0.141	23.60	23.28	0.152	2.0
Right Cheek	RMC12.2kbps	2712	882.4	0.02	0.212	23.60	23.35	0.225	2.0
Right Cheek	RMC12.2kbps	2788	897.6	0.00	0.235	23.60	23.28	0.253	2.0
Right Cheek	RMC12.2kbps	2863	912.6	-0.04	0.242	23.60	23.53	0.246	2.0
Right Tilt	RMC12.2kbps	2788	897.6	0.00	0.144	23.60	23.28	0.155	2.0
Body back	RMC12.2kbps	2712	882.4	-0.05	0.297	23.60	23.35	0.315	2.0
Body back	RMC12.2kbps	2788	897.6	0.01	0.362	23.60	23.28	0.390	2.0
Body back	RMC12.2kbps	2863	912.6	0.02	0.367	23.60	23.53	0.373	2.0
Body front	RMC12.2kbps	2788	897.6	-0.03	0.257	23.60	23.28	0.277	2.0
Body back	HSDPA Subtest 1	2788	897.6	0.01	0.367	22.50	22.30	0.384	2.0
Body back	HSUPA Subtest 1	2788	897.6	-0.00	0.357	20.30	19.96	0.386	2.0
Body back + Ear.	RMC12.2kbps	2863	912.6	0.01	0.317	23.60	23.53	0.322	2.0

Note:

- When the 10-g SAR is $\leq 1.0W/kg$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 5mm.
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SAR MEASUREMENT												
Depth of Liquid (cm):>15						Relative Humidity (%): 55.3						
Product: Smart Phone												
Test Mode: LTE Band 1												
BW MHz	MOD	Position	Test Mode		Ch.	Freq. (MHz)	Power Drift (≤±5%)	SAR (10g) (W/kg)	Max. Tune up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
			UL RB Allocation	UL RB START								
20	QPSK	Left Cheek	1	0	18100	1930	0.05	0.156	22.10	21.50	0.179	2.0
		Left Cheek	1	0	18300	1950	-0.03	0.154	22.10	21.27	0.186	2.0
		Left Cheek	1	0	18500	1970	0.01	0.157	22.10	20.91	0.206	2.0
		Left Tilt	1	0	18300	1950	0.05	0.038	22.10	21.27	0.046	2.0
		Right Cheek	1	0	18300	1950	-0.03	0.093	22.10	21.27	0.113	2.0
		Right Tilt	1	0	18300	1950	0.04	0.026	22.10	21.27	0.031	2.0
		Body back	1	0	18300	1950	0.02	0.311	22.10	21.27	0.376	2.0
		Body front	1	0	18100	1930	0.00	0.391	22.10	21.50	0.449	2.0
		Body front	1	0	18300	1950	-0.02	0.331	22.10	21.27	0.401	2.0
		Body front	1	0	18500	1970	-0.03	0.372	22.10	20.91	0.489	2.0
		Body back+Ear.	1	0	18100	1930	0.00	0.355	22.10	21.50	0.408	2.0

Note:

- When the 10-g SAR is $\leq 1.0\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 5mm.
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SAR MEASUREMENT												
Depth of Liquid (cm):>15					Relative Humidity (%): 57.9							
Product: Smart Phone												
Test Mode: LTE Band 3												
BW MHz	MOD	Position	Test Mode		Ch.	Freq. (MHz)	Power Drift (<±5%)	SAR (10g) (W/kg)	Max. Tune up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
			UL RB Allocation	UL RB START								
20	QPSK	Left Cheek	1	0	19300	1720	-0.03	0.200	21.63	21.33	0.214	2.0
		Left Cheek	1	0	19575	1747.5	0.05	0.187	21.63	21.10	0.211	2.0
		Left Cheek	1	0	19850	1775	-0.00	0.204	21.63	20.45	0.268	2.0
		Left Tilt	1	0	19575	1747.5	0.01	0.041	21.63	21.10	0.046	2.0
		Right Cheek	1	0	19575	1747.5	-0.02	0.131	21.63	21.10	0.148	2.0
		Right Tilt	1	0	19575	1747.5	0.03	0.034	21.63	21.10	0.038	2.0
		Body back	1	0	19575	1747.5	0.01	0.392	21.63	21.10	0.443	2.0
		Body front	1	0	19300	1720	-0.00	0.394	21.63	21.33	0.422	2.0
		Body front	1	0	19575	1747.5	0.05	0.426	21.63	21.10	0.481	2.0
		Body front	1	0	19850	1775	-.04	0.385	21.63	20.45	0.505	2.0
		Body back+Ear	1	0	19575	1747.5	0.03	0.382	21.63	21.10	0.432	2.0

Note:

- When the 10-g SAR is $\leq 1.0\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 5mm.
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SAR MEASUREMENT												
Depth of Liquid (cm):>15						Relative Humidity (%): 54.1						
Product: Smart Phone												
Test Mode: LTE Band 7												
BW MHz	MOD	Position	Test Mode		Ch.	Freq. (MHz)	Power Drift (≤±5%)	SAR (10g) (W/kg)	Max. Tune- up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
			UL RB Allocation	UL RB START								
20	QPSK	Left Cheek	1	0	20850	2510	0.03	0.204	22.90	22.85	0.206	2.0
		Left Cheek	1	0	21100	2535	0.02	0.171	22.90	22.51	0.187	2.0
		Left Cheek	1	0	21350	2560	0.05	0.210	22.90	22.03	0.257	2.0
		Left Tilt	1	0	21100	2535	-0.00	0.034	22.90	22.51	0.037	2.0
		Right Cheek	1	0	21100	2535	0.04	0.064	22.90	22.51	0.070	2.0
		Right Tilt	1	0	21100	2535	-0.03	0.039	22.90	22.51	0.043	2.0
		Body back	1	0	20850	2510	0.02	0.379	22.90	22.85	0.383	2.0
		Body back	1	0	21100	2535	-0.01	0.385	22.90	22.51	0.421	2.0
		Body back	1	0	21350	2560	0.00	0.368	22.90	22.03	0.450	2.0
		Body front	1	0	21100	2535	-0.05	0.336	22.90	22.51	0.368	2.0
		Body back+Ear.	1	0	21100	2535	0.02	0.385	22.90	22.51	0.421	2.0

Note:

- When the 10-g SAR is $\leq 1.0\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 5mm.
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SAR MEASUREMENT												
Depth of Liquid (cm):>15						Relative Humidity (%): 60.5						
Product: Smart Phone												
Test Mode: LTE Band 8												
BW MHz	MOD	Position	Test Mode		Ch.	Freq. (MHz)	Power Drift ($\leq \pm 5\%$)	SAR (10g) (W/kg)	Max. Tune up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
			UL RB Allocation	UL RB START								
10	QPSK	Left Cheek	1	0	21625	897.5	-0.01	0.230	23.10	22.67	0.254	2.0
		Left Tilt	1	0	21625	897.5	0.05	0.169	23.10	22.67	0.187	2.0
		Right Cheek	1	0	21500	885	-0.01	0.242	23.10	22.72	0.264	2.0
		Right Cheek	1	0	21625	897.5	0.03	0.252	23.10	22.67	0.278	2.0
		Right Cheek	1	0	21750	910	-0.01	0.247	23.10	22.90	0.259	2.0
		Right Tilt	1	0	21625	897.5	0.01	0.173	23.10	22.67	0.191	2.0
		Body back	1	0	21625	897.5	0.02	0.320	23.10	22.67	0.353	2.0
		Body front	1	0	21625	897.5	0.01	0.270	23.10	22.67	0.298	2.0
		Body back+Ear.	1	0	21500	885	0.00	0.385	23.10	22.72	0.420	2.0
		Body back+Ear.	1	0	21625	897.5	-0.03	0.394	23.10	22.67	0.435	2.0
		Body back+Ear.	1	0	21750	910	0.02	0.378	23.10	22.90	0.396	2.0

Note:

- When the 10-g SAR is ≤ 1.0W/kg, testing for low and high channel is optional.
- The test separation of all above table(body part) is 5mm.
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SAR MEASUREMENT												
Depth of Liquid (cm):>15						Relative Humidity (%): 53.5						
Product: Smart Phone												
Test Mode: LTE Band 20												
BW MHz	MOD	Position	Test Mode		Ch.	Freq. (MHz)	Power Drift (<±5%)	SAR (10g) (W/kg)	Max. Tune up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
			UL RB Allocation	UL RB START								
20	QPSK	Left Cheek	1	0	24300	847	-0.01	0.155	23.50	23.12	0.169	2.0
		Left Tilt	1	0	24300	847	0.00	0.109	23.50	23.12	0.119	2.0
		Right Cheek	1	0	24250	842	-0.01	0.167	23.50	23.16	0.181	2.0
		Right Cheek	1	0	24300	847	0.03	0.178	23.50	23.12	0.194	2.0
		Right Cheek	1	0	24350	852	-0.01	0.169	23.50	23.07	0.187	2.0
		Right Tilt	1	0	24300	847	0.04	0.093	23.50	23.12	0.102	2.0
		Body back	1	0	24250	842	-0.02	0.210	23.50	23.16	0.227	2.0
		Body back	1	0	24300	847	0.02	0.204	23.50	23.12	0.223	2.0
		Body back	1	0	24350	852	-0.00	0.212	23.50	23.07	0.234	2.0
		Body front	1	0	24300	847	0.02	0.145	23.50	23.12	0.158	2.0
		Body back+Ear.	1	0	24350	852	-0.03	0.210	23.50	23.07	0.232	2.0

Note:

- When the 10-g SAR is $\leq 1.0\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 5mm.
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

WIFI Health Evaluation:

Per EN 62209-2:2010 Annex K, Test reduction based on simultaneous multi-band transmission considerations. For secondary transmitter (i.e. lower power transmitters), we use the following formula to evaluate the threshold power for the secondary transmitter that allows it to be excluded from SAR testing:

$$P_{\text{available}} = P_{\text{max}_m} \times (SAR_{\text{lim}} - SAR_1) / SAR_{\text{lim}}$$

Where

P_{max_m} is the maximum threshold exclusion power level, which is calculated by $SAR_{\text{lim}} \times m$, where m is an averaging mass.

$P_{\text{available}}$ is the threshold value there need to be tested;

SAR_{lim} is the SAR limit;

SAR_1 is the maximum SAR value of first transmitter mode result;

Restrictive power threshold;

$$\begin{aligned} P_{\text{available}} &= P_{\text{th}_m} \times (SAR_{\text{lim}} - SAR_1) / SAR_{\text{lim}} = 20\text{mW} \times (2\text{W/Kg} - 0.794\text{ W/Kg}) / 2\text{W/Kg} \\ &= 12.06\text{ mW} < 19.320\text{ mW} (12.86\text{ dBm}) \text{ for WIFI} \end{aligned}$$

There is need to test WIFI SAR and need to evaluate simultaneous transmission

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

SAR MEASUREMENT									
Depth of Liquid (cm):>15					Relative Humidity (%): 58.4				
Product: Smart Phone									
Test Mode: 802.11b									
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (10g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/Kg)	Limit (W/kg)
Left Cheek	DTS	7	2442	0.01	0.027	12.90	12.40	0.030	2.0
Left Tilt	DTS	1	2412	0.00	0.027	12.90	12.86	0.027	2.0
Left Tilt	DTS	7	2442	-0.02	0.028	12.90	12.40	0.031	2.0
Left Tilt	DTS	13	2472	0.03	0.028	12.90	12.36	0.032	2.0
Right Cheek	DTS	7	2442	-0.01	0.014	12.90	12.40	0.016	2.0
Right Tilt	DTS	7	2442	0.05	0.015	12.90	12.40	0.017	2.0
Body back	DTS	1	2412	-0.02	0.022	12.90	12.86	0.022	2.0
Body back	DTS	7	2442	0.03	0.023	12.90	12.40	0.026	2.0
Body back	DTS	13	2472	-0.00	0.023	12.90	12.36	0.026	2.0
Body front	DTS	7	2442	0.02	0.014	12.90	12.40	0.016	2.0
Body back + Ear.	DTS	13	2472	-0.01	0.020	12.90	12.36	0.023	2.0

Note:

- When the 10-g SAR is $\leq 1.0\text{W/kg}$, testing for low and high channel is optional.
- The test separation of all above table(body part) is 5mm.
- Plots are only shown for the bold marked worst case SAR results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

BT Health Evaluation:

Per EN 62209-2:2010 Annex K, Test reduction based on simultaneous multi-band transmission considerations.

For secondary transmitter (i.e. lower power transmitters), we use the following Formula to evaluate the threshold power for the secondary transmitter that allows it to be excluded from SAR testing:

$$P_{\text{available}} = P_{\text{max}_m} \times (SAR_{\text{lim}} - SAR_1) / SAR_{\text{lim}}$$

Where

P_{max_m} is the maximum threshold exclusion power level, which is calculated by $SAR_{\text{lim}} \times m$, where m is an averaging mass.

$P_{\text{available}}$ is the threshold value there need to be tested;

SAR_{lim} is the SAR limit;

SAR_1 is the maximum SAR value of first transmitter mode result;

Restrictive power threshold;

$$P_{\text{available}} = P_{\text{th}_m} \times (SAR_{\text{lim}} - SAR_1) / SAR_{\text{lim}} = 20\text{mW} \times (2\text{W/Kg} - 0.794\text{ W/Kg}) / 2\text{W/Kg} \\ = 12.06\text{mW} > 5.834\text{mW} (7.66\text{dBm}) \text{ for BT}$$

According to EN62479:2010, the maximum output power of BT is 7.66dBm (5.834mW less than 20mW) refer to ETSI EN 300328 (V2.1.1) Test report (AGC00552180304EE04) for the result of Maximum Transmit Power, which deemed to comply with the basic restrictions without testing.

Simultaneous Multi-band Transmission Evaluation:

According to EN62209-1:2016 section 6.4.3, when the handsets with multiple antennas or multiple transmitters (with single or multiple antennas), transmitting simultaneously require special test considerations;

- (1) The EUT has GSM/WCDMA/LTE antenna, BT/WIFI antenna;
- (2) BT and WIFI share one antenna, and cannot transmit simultaneously;
- (3) GSM/WCDMA and LTE can't work at the same time;
- (4) GSM and GPRS/WCDMA can't work at the same time;
- (5) EN 62209-1:2016 section 6.4.3.2 ,SAR measurements for non-correlated signals, Alternative 1: Summation of peak spatial-average SAR values – simplest but most conservative method to find upper bound is always applicable:
 - a) For a test combination where simultaneous operation is intended, add the peak spatial-average SAR values for each antenna and frequency band where simultaneous operation is intended
 - b) Check if the maximum summed SAR value is within 3 dB of the applicable SAR limit. If so, ensure that all of the required test frequency channels have been measured in all frequency bands and for all antennas at which simultaneous operation is intended and repeat Step a).
 - c) The maximum summed SAR value in Steps a) and b) is the combined SAR.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Simultaneous Multi-band Transmission SAR:

NO	Simultaneous state	Portable Handset	
		Head	Body-worn
1	GSM(voice)+ WIFI 2.4GHz (data)	Yes	Yes
2	GSM(Data)+ WIFI 2.4GHz (data)	Yes	Yes
3	WCDMA(RMC12.2kbps)+ WIFI 2.4GHz (data)	Yes	Yes
4	LTE+WIFI 2.4GHz (data)	Yes	Yes

Frequency	RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario		Σ 10-g SAR (W/Kg)	Limit (W/Kg)
			GSM/WCDMA	WIFI		
GSM 900	Head (voice)	Left Touch	0.229	0.030	0.259	2.0
		Left Tilt	0.167	0.032	0.199	2.0
		Right Touch	0.276	0.016	0.292	2.0
		Right Tilt	0.146	0.017	0.163	2.0
	Body-worn	Body back	0.512	0.026	0.538	2.0
		Body Front	0.362	0.016	0.378	2.0
		Earphone	0.408	0.023	0.431	2.0
DCS 1800	Head (voice)	Left Touch	0.182	0.030	0.212	2.0
		Left Tilt	0.041	0.032	0.073	2.0
		Right Touch	0.091	0.016	0.107	2.0
		Right Tilt	0.027	0.017	0.044	2.0
	Body-worn	Body back	0.794	0.026	0.820	2.0
		Body Front	0.575	0.016	0.591	2.0
		Earphone	0.450	0.023	0.473	2.0
WCDMA Band I	Head	Left Touch	0.030	0.030	0.060	2.0
		Left Tilt	0.007	0.032	0.039	2.0
		Right Touch	0.020	0.016	0.036	2.0
		Right Tilt	0.007	0.017	0.024	2.0
	Body-worn	Body back	0.672	0.026	0.698	2.0
		Body Front	0.511	0.016	0.527	2.0
		HSDPA	0.653	0.026	0.679	2.0
		HSUPA	0.644	0.026	0.670	2.0
		Earphone	0.648	0.023	0.671	2.0
WCDMA Band VIII	Head	Left Touch	0.222	0.030	0.252	2.0
		Left Tilt	0.152	0.032	0.184	2.0
		Right Touch	0.253	0.016	0.269	2.0
		Right Tilt	0.155	0.017	0.172	2.0
	Body-worn	Body back	0.390	0.026	0.416	2.0
		Body Front	0.277	0.016	0.293	2.0
		HSDPA	0.384	0.026	0.410	2.0
		HSUPA	0.386	0.026	0.412	2.0
		Earphone	0.322	0.023	0.345	2.0

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Frequency	RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario		Σ 10-g SAR (W/Kg)	Limit (W/Kg)
			LTE	WIFI		
LTE Band 1	Head	Left Touch	0.206	0.030	0.236	2.0
		Left Tilt	0.046	0.032	0.078	2.0
		Right Touch	0.113	0.016	0.129	2.0
		Right Tilt	0.031	0.017	0.048	2.0
	Body-worn	Body back	0.376	0.026	0.402	2.0
		Body Front	0.489	0.016	0.505	2.0
		Earphone	0.408	0.023	0.431	2.0
LTE Band 3	Head	Left Touch	0.268	0.030	0.298	2.0
		Left Tilt	0.046	0.032	0.078	2.0
		Right Touch	0.148	0.016	0.164	2.0
		Right Tilt	0.038	0.017	0.055	2.0
	Body-worn	Body back	0.443	0.026	0.469	2.0
		Body Front	0.505	0.016	0.521	2.0
		Earphone	0.432	0.023	0.455	2.0
LTE Band 7	Head	Left Touch	0.257	0.030	0.287	2.0
		Left Tilt	0.037	0.032	0.069	2.0
		Right Touch	0.070	0.016	0.086	2.0
		Right Tilt	0.043	0.017	0.060	2.0
	Body-worn	Body back	0.450	0.026	0.476	2.0
		Body Front	0.368	0.016	0.384	2.0
		Earphone	0.421	0.023	0.444	2.0
LTE Band 8	Head	Left Touch	0.254	0.030	0.284	2.0
		Left Tilt	0.187	0.032	0.219	2.0
		Right Touch	0.278	0.016	0.294	2.0
		Right Tilt	0.191	0.017	0.208	2.0
	Body-worn	Body back	0.353	0.026	0.379	2.0
		Body Front	0.298	0.016	0.314	2.0
		Earphone	0.435	0.023	0.458	2.0
LTE Band 20	Head	Left Touch	0.169	0.030	0.199	2.0
		Left Tilt	0.119	0.032	0.151	2.0
		Right Touch	0.194	0.016	0.210	2.0
		Right Tilt	0.102	0.017	0.119	2.0
	Body-worn	Body back	0.234	0.026	0.260	2.0
		Body Front	0.158	0.016	0.174	2.0
		Earphone	0.232	0.023	0.255	2.0

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

APPENDIX A. SAR SYSTEM CHECK DATA

Test Laboratory: AGC Lab

Date: Apr. 14, 2018

System Check Head 900 MHz

DUT: Dipole 900 MHz Type: SID 900

Communication System: CW; Communication System Band: D900 (900.0 MHz); Duty Cycle: 1:1; Conv.F=1.77

Frequency: 900 MHz; Medium parameters used: $f = 900$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 41.81$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

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)

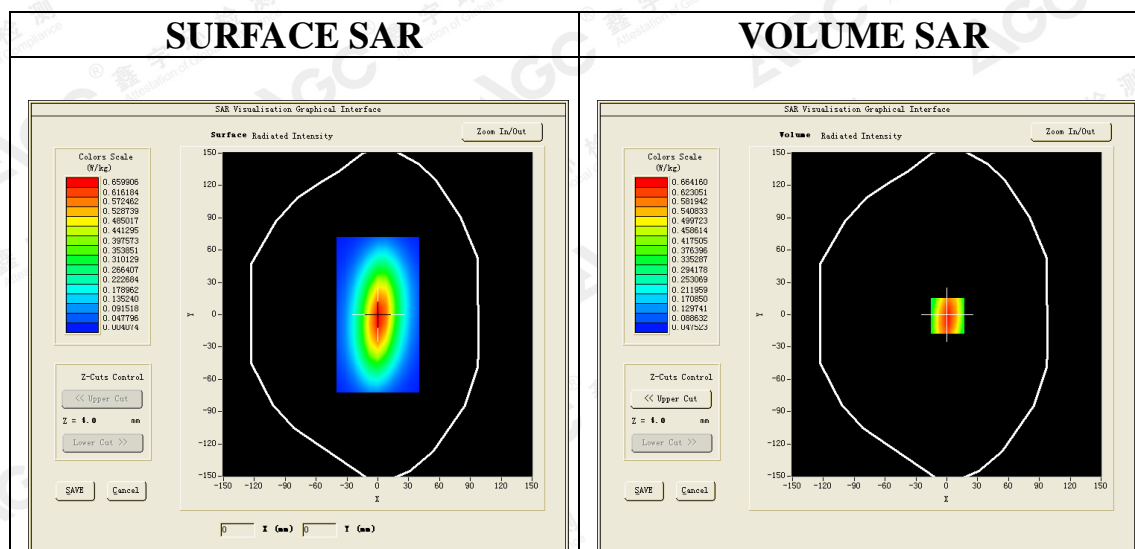
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_32

Configuration/System Check 900 Head/Area Scan: Measurement grid: dx=8mm,dy=8mm

Configuration/System Check 900 Head/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	Flat
Band	CW 900
Channels	Middle
Signal	Crest factor: 1.0

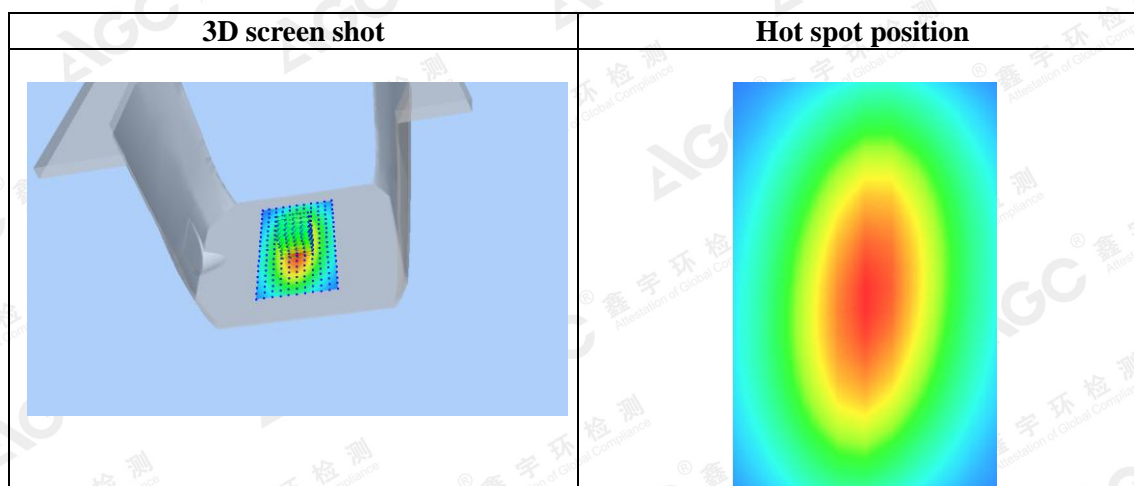
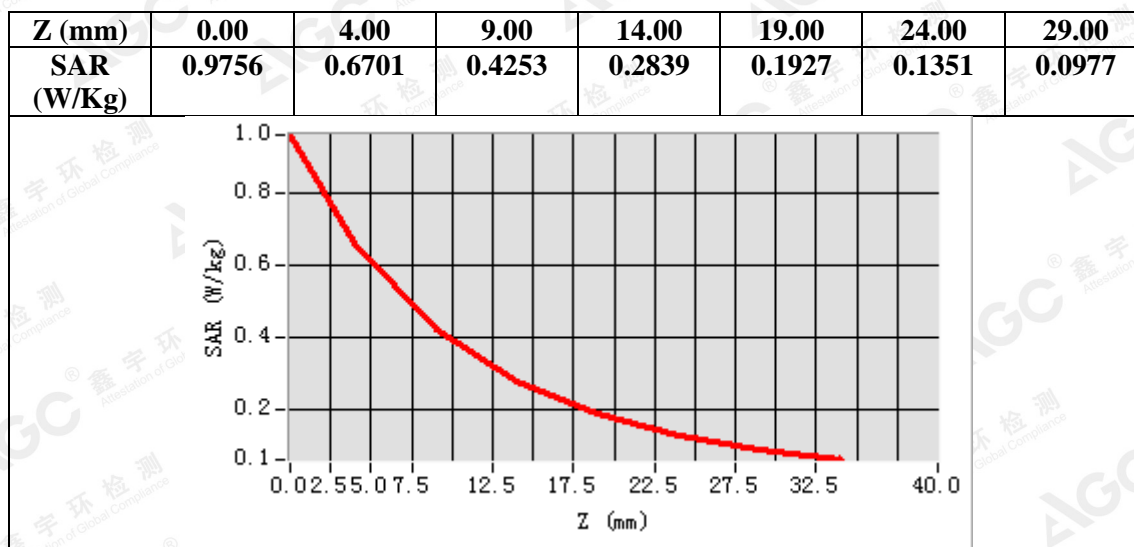


Maximum location: X=1.00, Y=-0.00

SAR Peak: 0.98 W/kg

SAR 10g (W/Kg)	0.397198
SAR 1g (W/Kg)	0.645817

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab

Date: Apr. 15, 2018

System Check Head 1800MHz

DUT: Dipole 1800 MHz; Type: SID 1800

Communication System: CW; Communication System Band: D1800 (1800.0 MHz); Duty Cycle: 1:1; Conv.F=2.03

Frequency: 1800 MHz; Medium parameters used: $f = 1800$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40.87$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (°C): 21.7, 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)

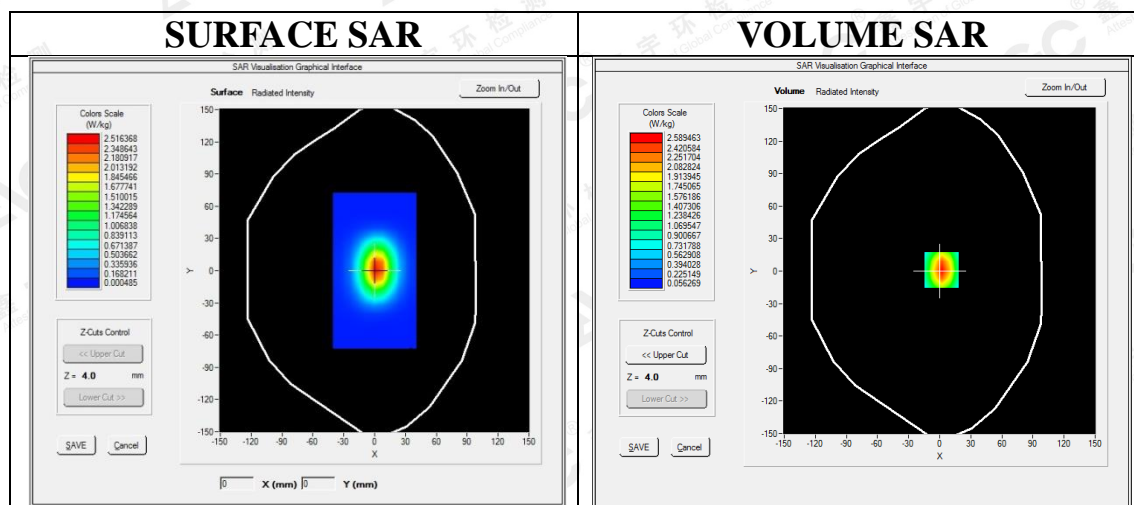
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_35

Configuration/System Check 1800 Head/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 1800 Head/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	Flat
Band	CW 1800
Channels	Middle
Signal	Crest factor: 1.0

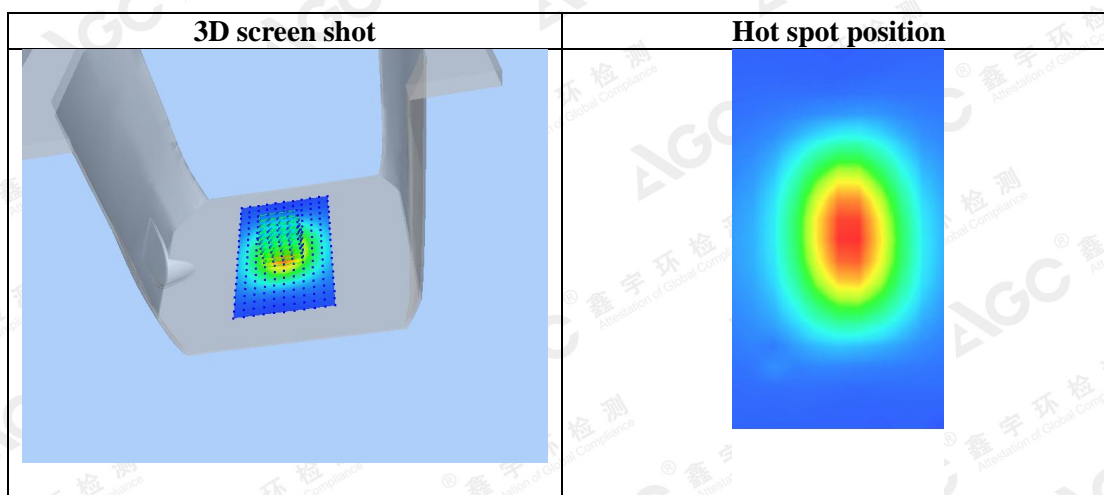
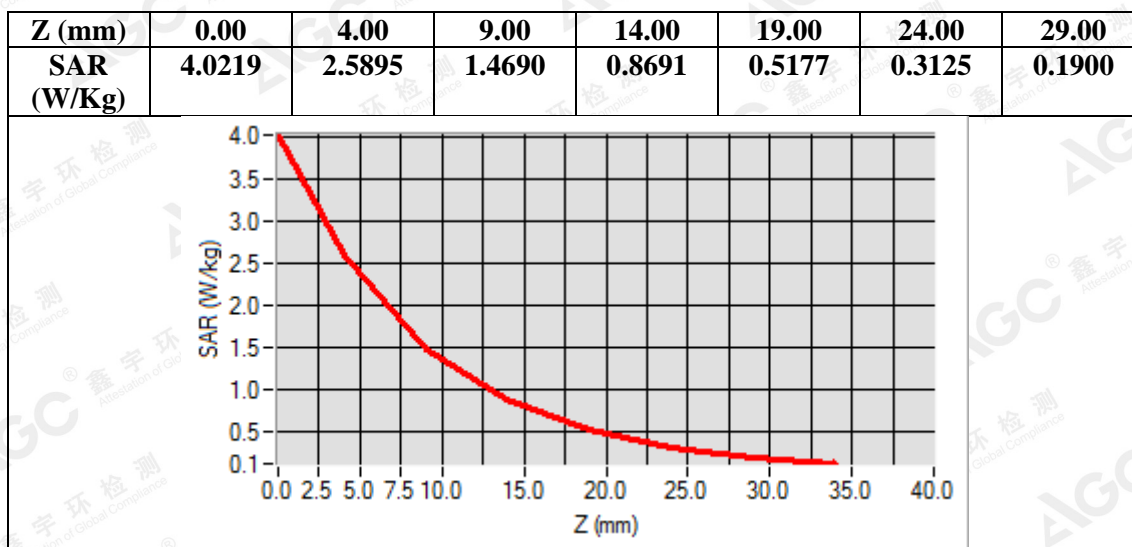


Maximum location: X=2.00, Y=1.00

SAR Peak: 3.99 W/kg

SAR 10g (W/Kg)	1.296934
SAR 1g (W/Kg)	2.427184

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab

Date: Apr. 09, 2018

System Check Head 2000MHz

DUT: Dipole 2000 MHz; Type: SID 2000

Communication System: CW; Communication System Band: D2000 (2000.0 MHz); Duty Cycle: 1:1; Conv.F=2.28

Frequency: 2000MHz; Medium parameters used: $f = 2000$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.96$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (°C): 22.3, 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)

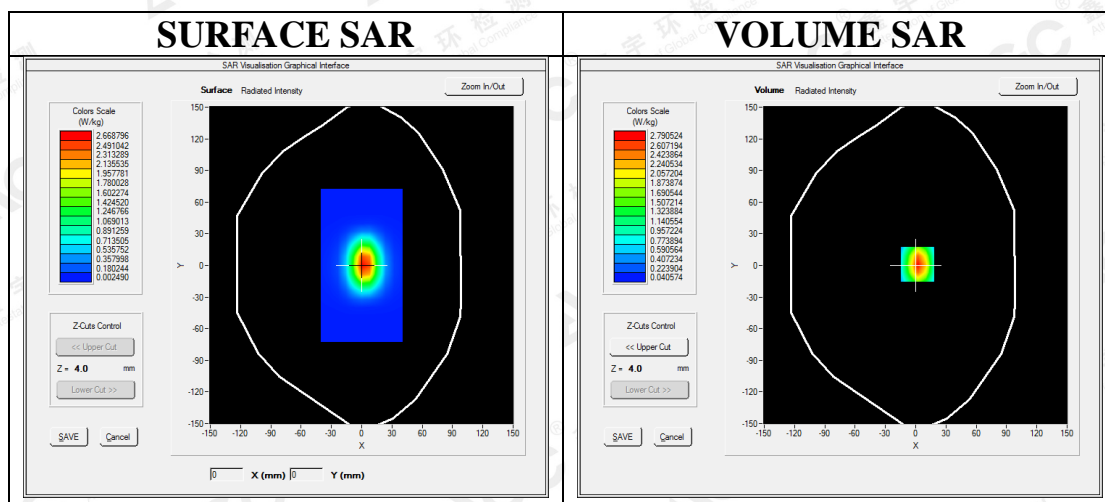
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_35

Configuration/System Check 2000 Head/Area Scan: Measurement grid: dx=8mm,dy=8mm

Configuration/System Check 2000 Head/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	Flat
Band	CW 2000
Channels	Middle
Signal	Crest factor: 1.0

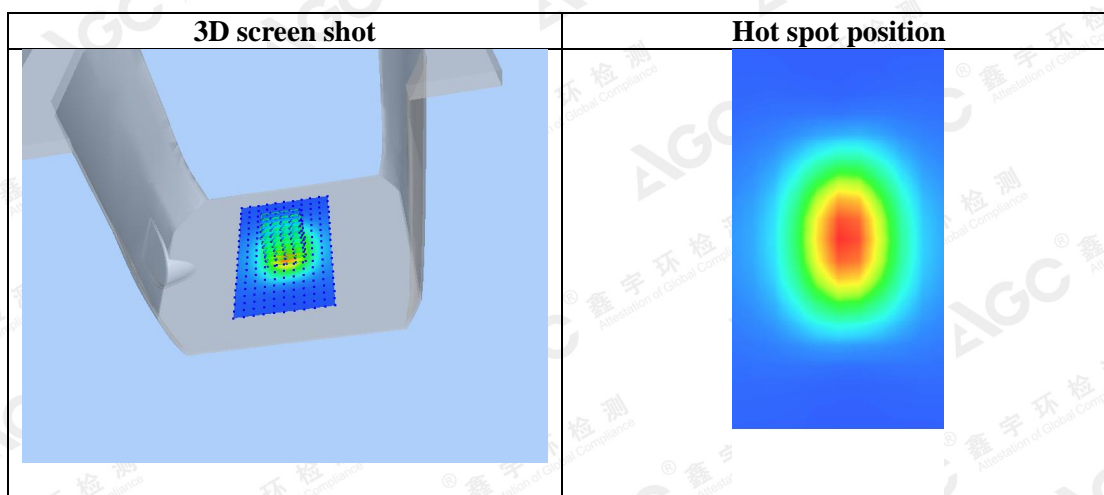
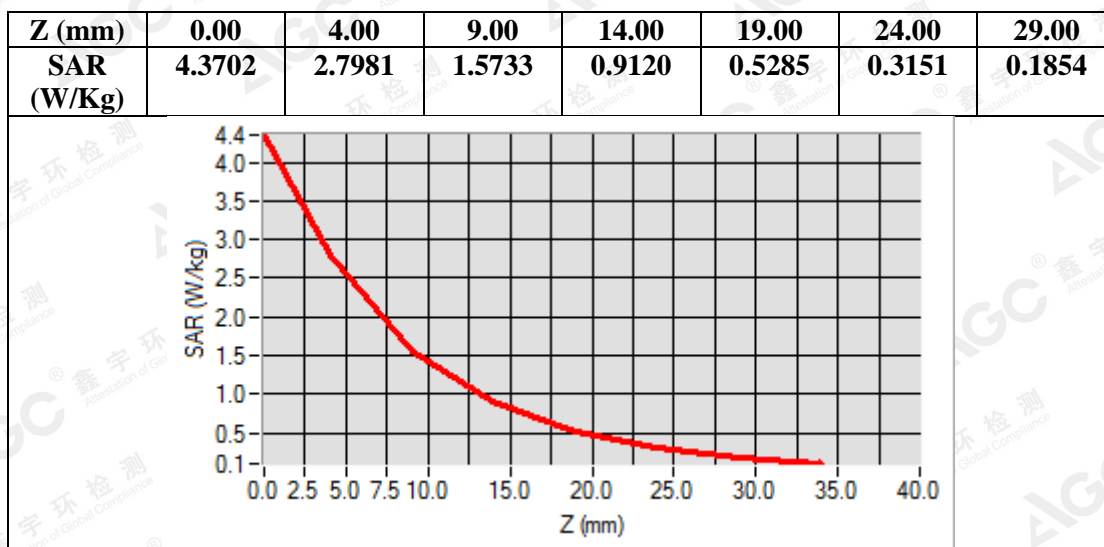


Maximum location: X=1.00, Y=1.00

SAR Peak: 4.37 W/kg

SAR 10g (W/Kg)	1.348102
SAR 1g (W/Kg)	2.623771

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab

Date: Apr. 03, 2018

System Check Head 835MHz

DUT: Dipole 835 MHz Type: SID 835

Communication System: CW; Communication System Band: D835(835.0 MHz); Duty Cycle: 1:1; Conv.F=1.74

Frequency: 835MHz; Medium parameters used: $f = 835\text{MHz}$; $\sigma = 0.89\text{mho/m}$; $\epsilon_r = 40.59$; $\rho = 1000\text{ kg/m}^3$;

Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (°C): 21.2, Liquid temperature (°C): 21.0

SATIMO Configuration:

Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282

Sensor-Surface: 4mm (Mechanical Surface Detection)

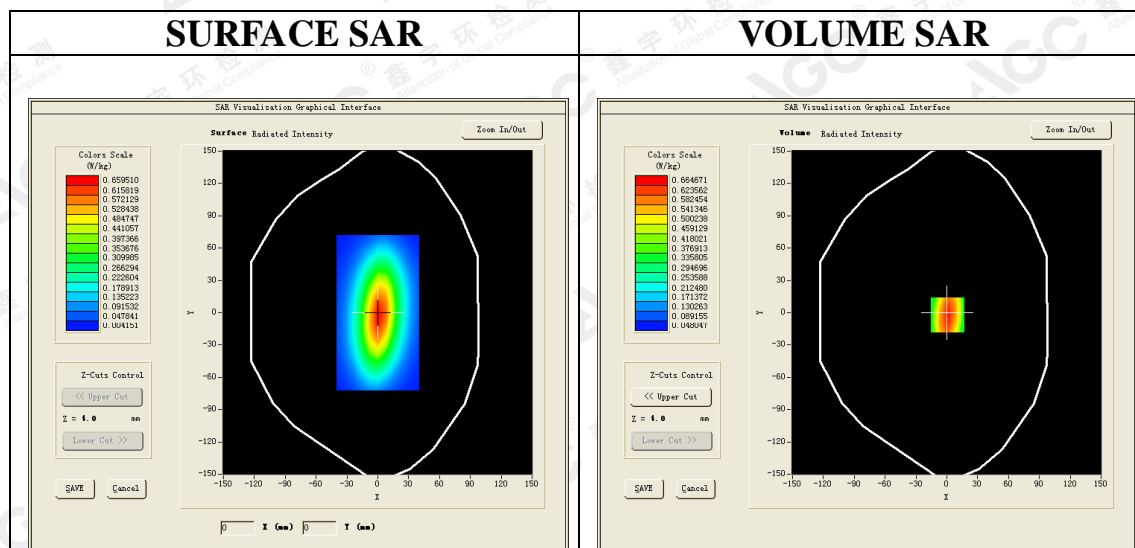
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_32

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

Configuration/System Check 835 Head/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	Flat
Band	CW 835
Channels	Middle
Signal	Crest factor: 1.0

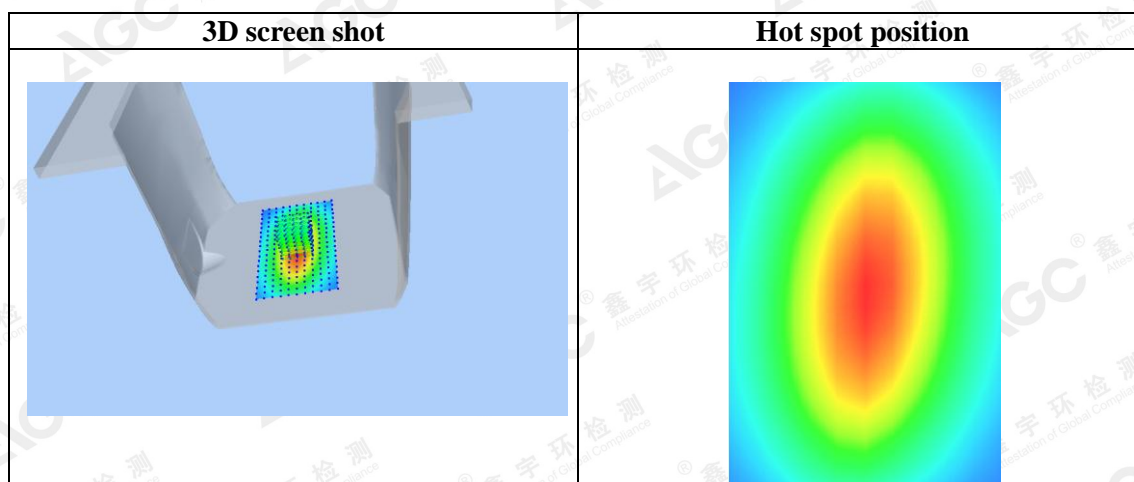
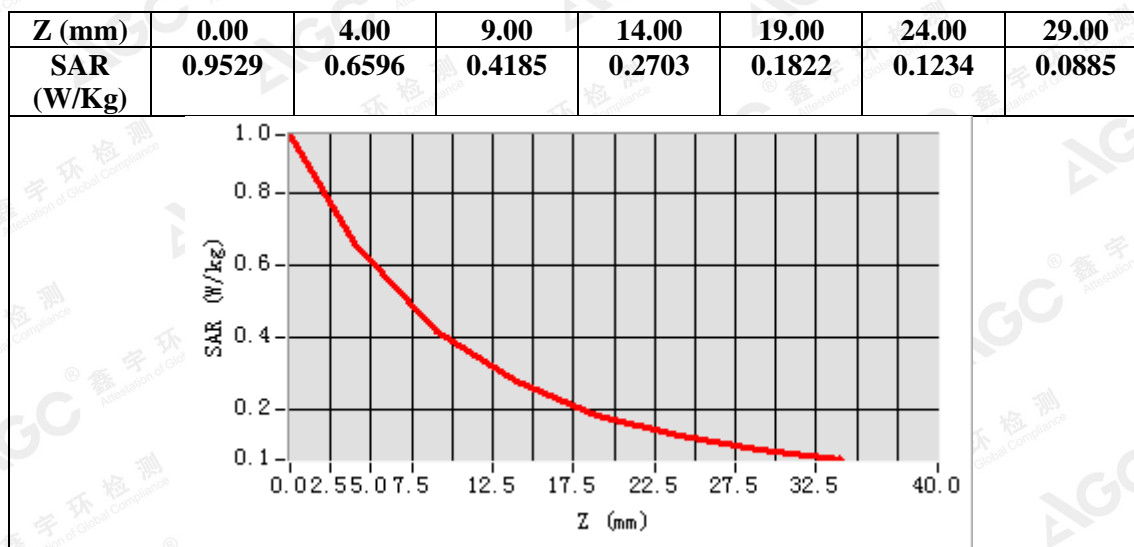


Maximum location: X=0.00, Y=-1.00

SAR Peak: 0.95 W/kg

SAR 10g (W/Kg)	0.381053
SAR 1g (W/Kg)	0.623841

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab

Date: Apr. 17, 2018

System Check Head 900 MHz

DUT: Dipole 900 MHz Type: SID 900

Communication System: CW; Communication System Band: D900 (900.0 MHz); Duty Cycle: 1:1; Conv.F=1.77

Frequency: 900 MHz; Medium parameters used: $f = 900$ MHz; $\sigma = 0.96$ mho/m; $\epsilon_r = 42.11$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (°C): 22.10, Liquid temperature (°C): 20.3

SATIMO Configuration:

Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282

Sensor-Surface: 4mm (Mechanical Surface Detection)

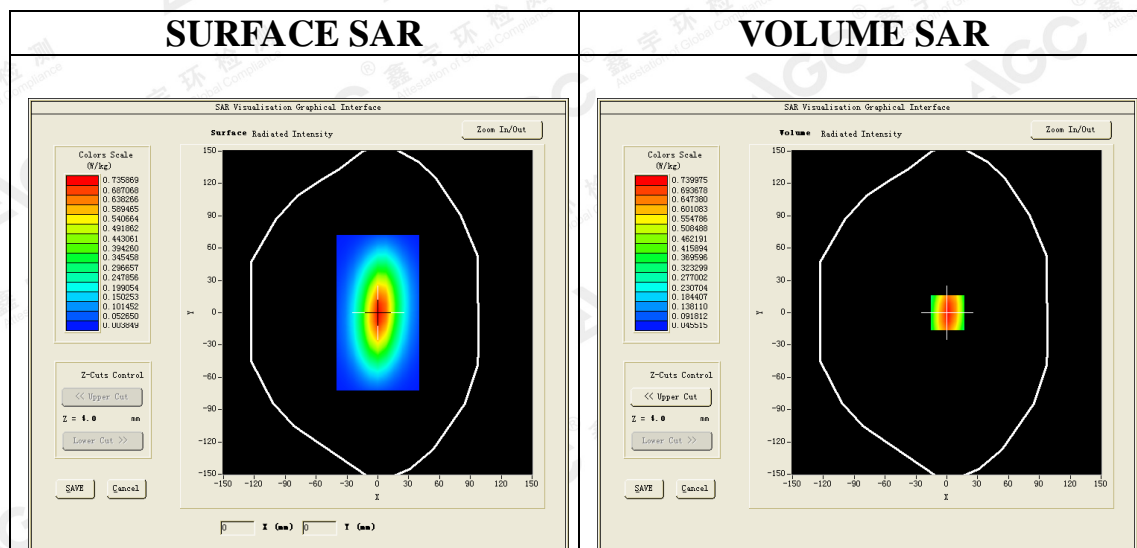
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_32

Configuration/System Check 900 Head/Area Scan: Measurement grid: dx=8mm,dy=8mm

Configuration/System Check 900 Head/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	Flat
Band	CW 900
Channels	Middle
Signal	Crest factor: 1.0

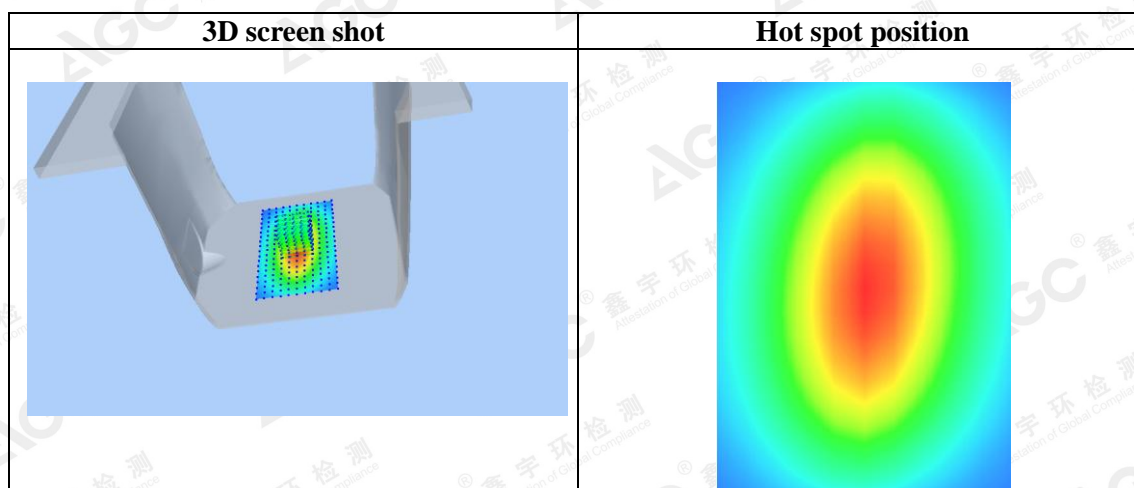
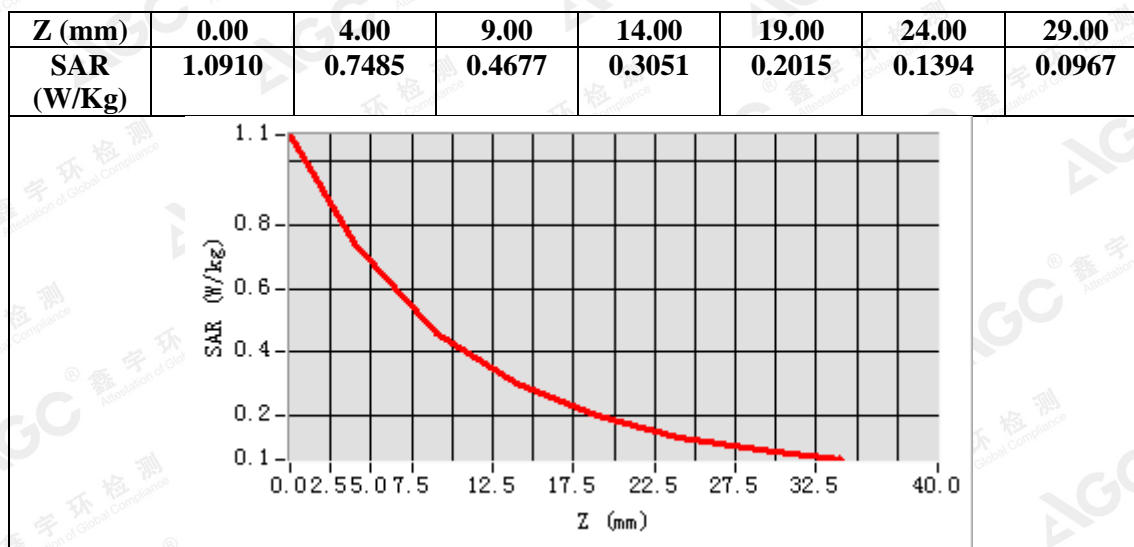


Maximum location: X=1.00, Y=1.00

SAR Peak: 1.07 W/kg

SAR 10g (W/Kg)	0.421052
SAR 1g (W/Kg)	0.699571

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab

Date: Apr. 18, 2018

System Check Head 1800MHz

DUT: Dipole 1800 MHz; Type: SID 1800

Communication System: CW; Communication System Band: D1800 (1800.0 MHz); Duty Cycle: 1:1; Conv.F=2.03

Frequency: 1800 MHz; Medium parameters used: $f = 1800$ MHz; $\sigma = 1.43$ mho/m; $\epsilon_r = 40.85$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (°C): 21.4, Liquid temperature (°C): 21.0

SATIMO Configuration:

Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282

Sensor-Surface: 4mm (Mechanical Surface Detection)

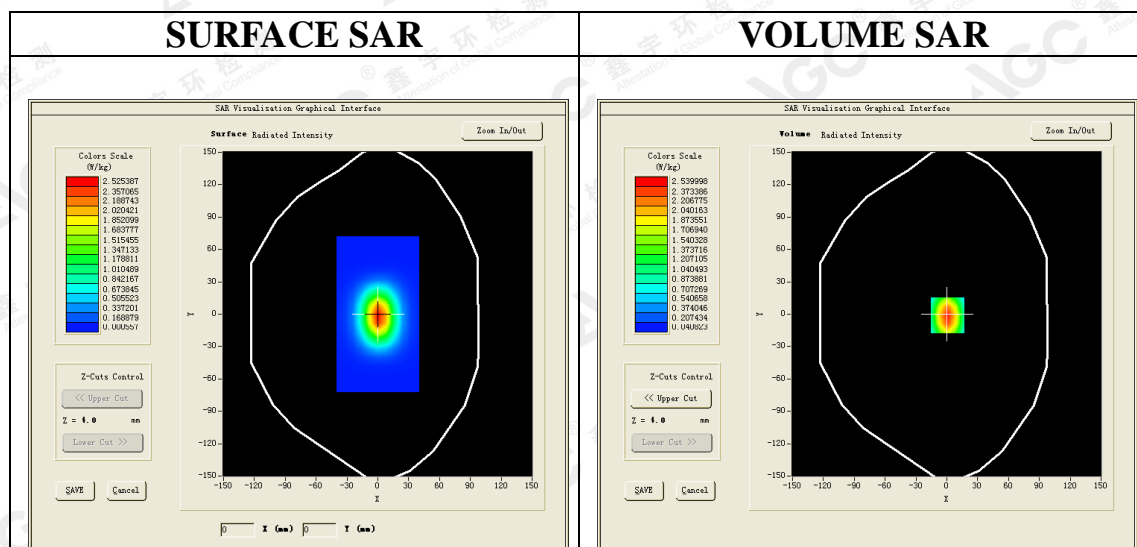
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_32

Configuration/System Check 1800 Head/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/System Check 1800 Head/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	Flat
Band	CW 1800
Channels	Middle
Signal	Crest factor: 1.0

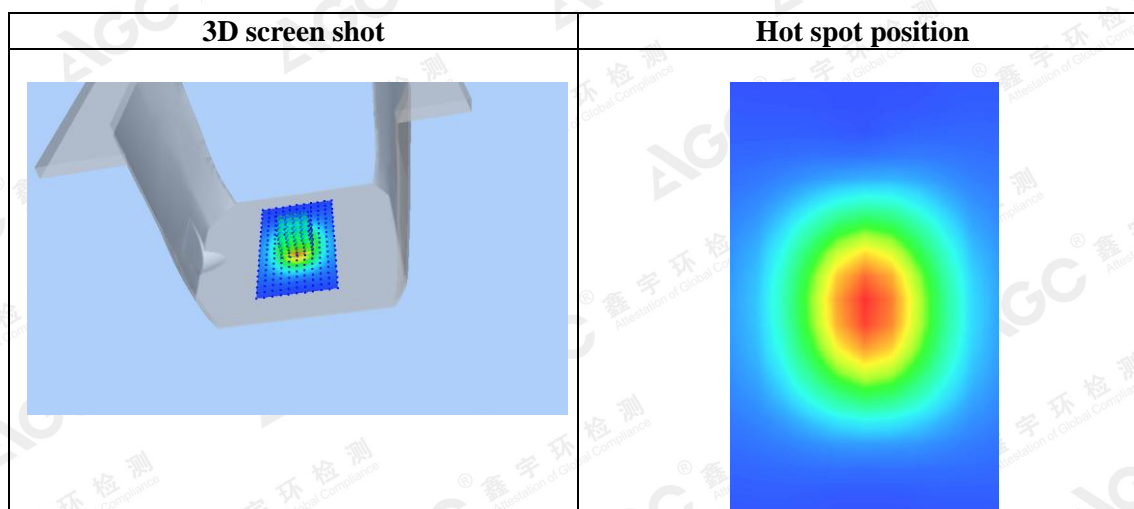
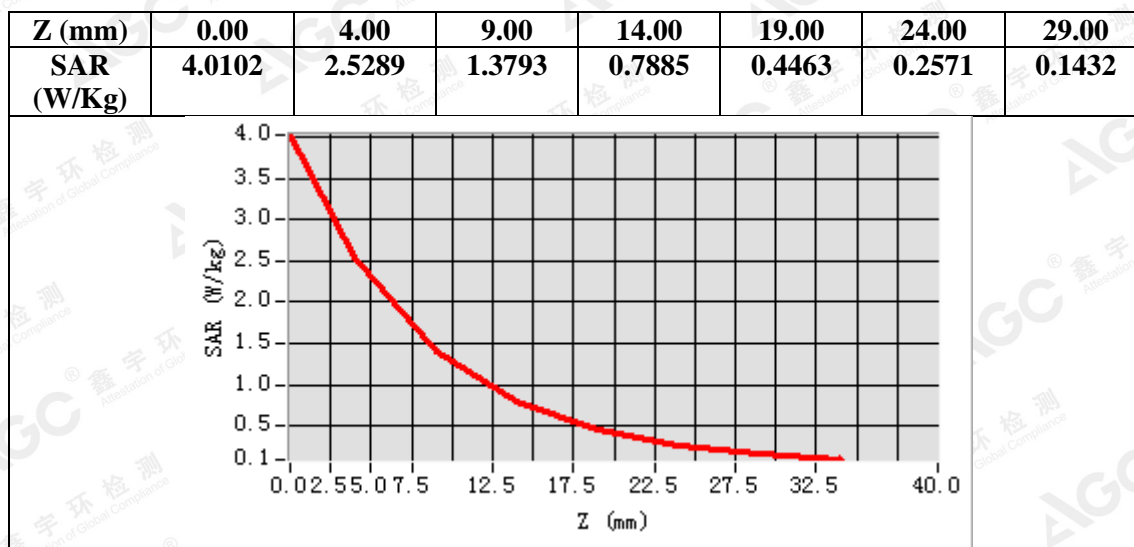


Maximum location: X=1.00, Y=-0.00

SAR Peak: 3.99 W/kg

SAR 10g (W/Kg)	1.248513
SAR 1g (W/Kg)	2.384221

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab

Date: Apr. 11, 2018

System Check Head 2000MHz

DUT: Dipole 2000 MHz; Type: SID 2000

Communication System: CW; Communication System Band: D2000 (2000.0 MHz); Duty Cycle: 1:1; Conv.F=2.28

Frequency: 2000MHz; Medium parameters used: $f = 2000$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40.85$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (°C): 22.0, Liquid temperature (°C): 21.3

SATIMO Configuration:

Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282

Sensor-Surface: 4mm (Mechanical Surface Detection)

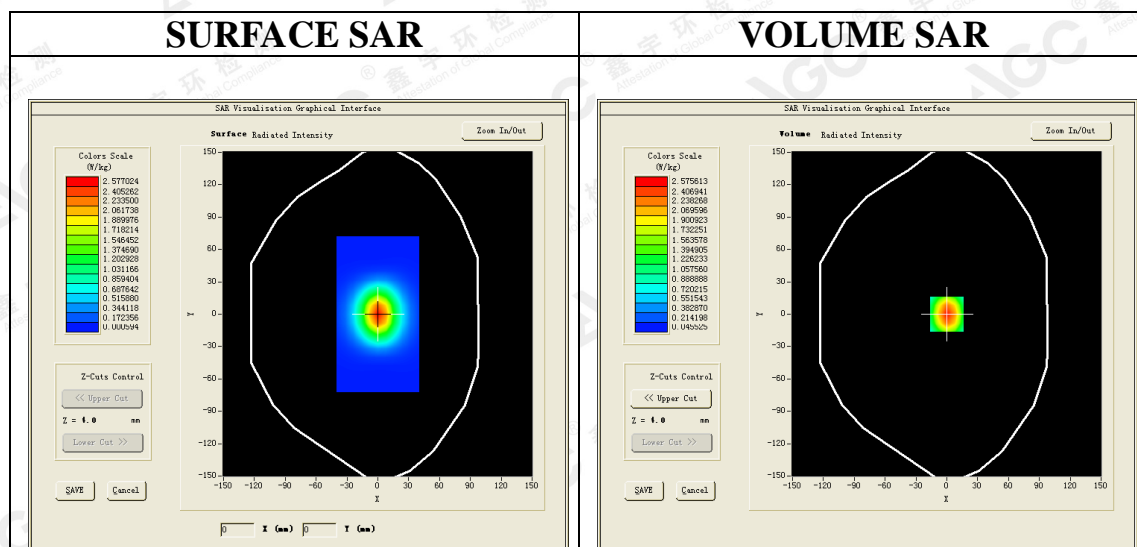
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_32

Configuration/System Check 2000 Head/Area Scan: Measurement grid: dx=8mm,dy=8mm

Configuration/System Check 2000 Head/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	Flat
Band	CW 2000
Channels	Middle
Signal	Crest factor: 1.0

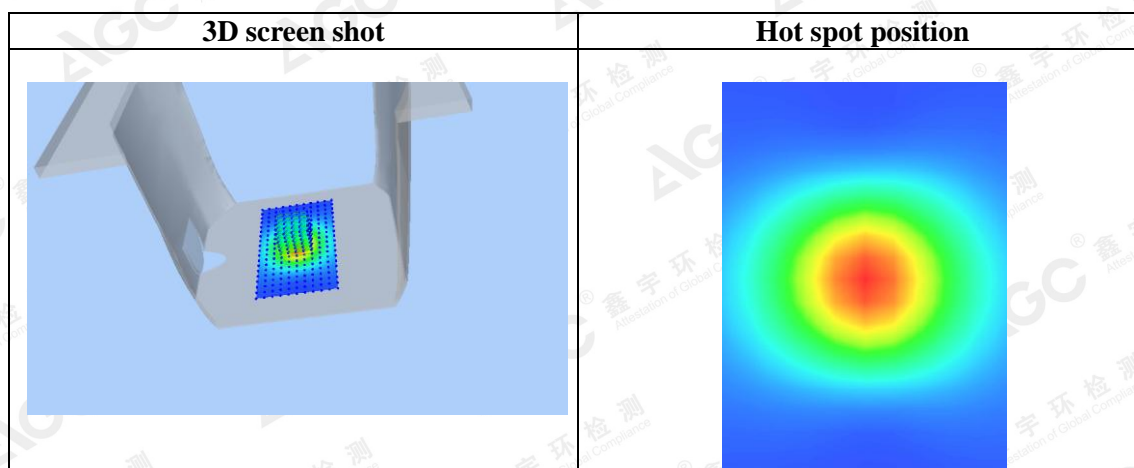
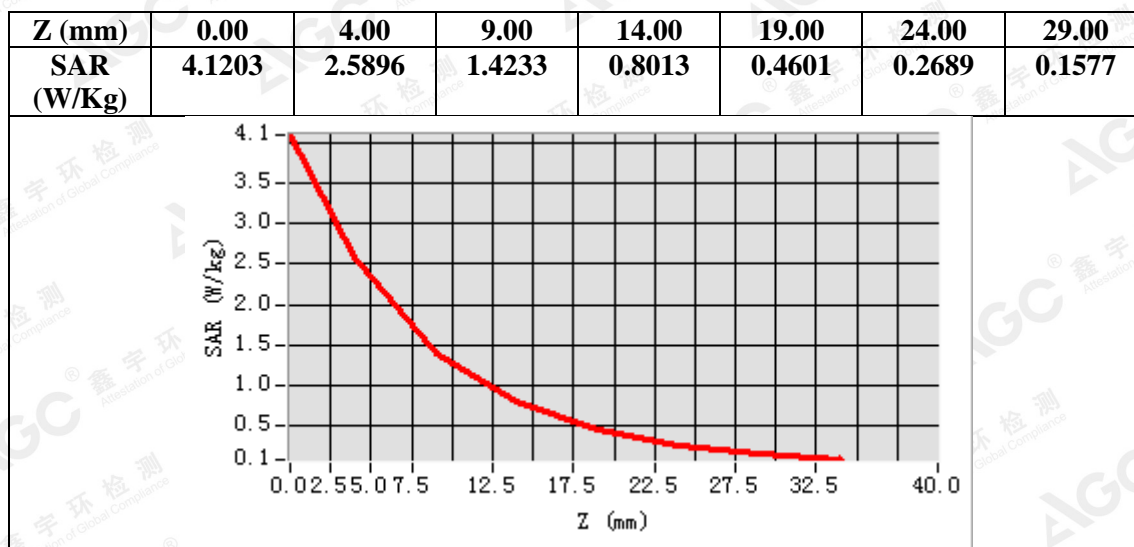


Maximum location: X=0.00, Y=0.00

SAR Peak: 4.08 W/kg

SAR 10g (W/Kg)	1.295337
SAR 1g (W/Kg)	2.460551

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab

Date: Apr. 16, 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; $\sigma = 1.76$ mho/m; $\epsilon_r = 38.95$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (°C): 21.2, Liquid temperature (°C): 21.0

SATIMO Configuration:

Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPGO282

Sensor-Surface: 4mm (Mechanical Surface Detection)

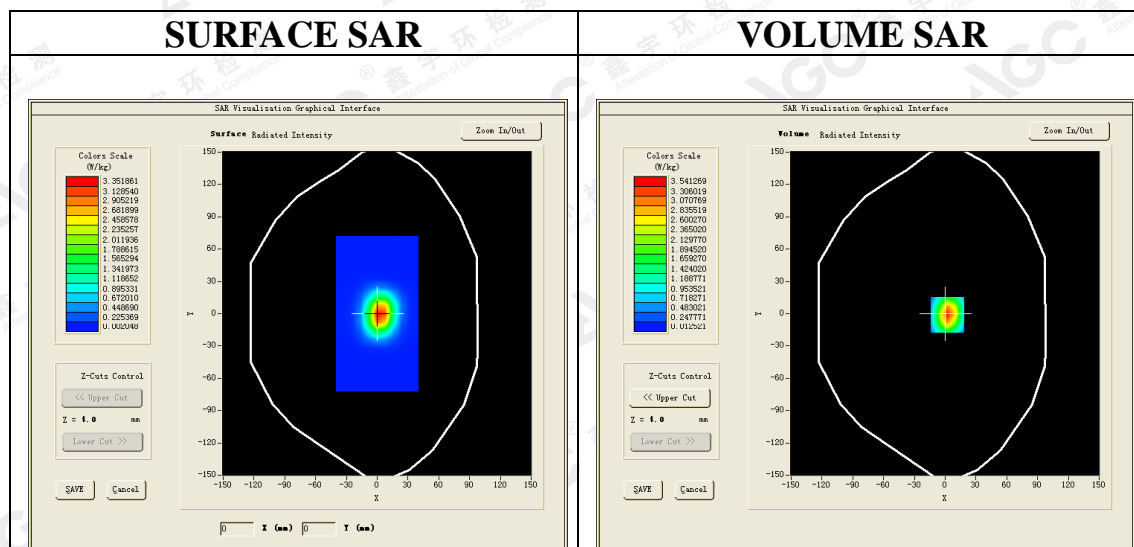
Phantom: SAM twin phantom

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

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	SAM twin phantom
Device Position	Flat
Band	CW 2450
Channels	Middle
Signal	Crest factor: 1.0

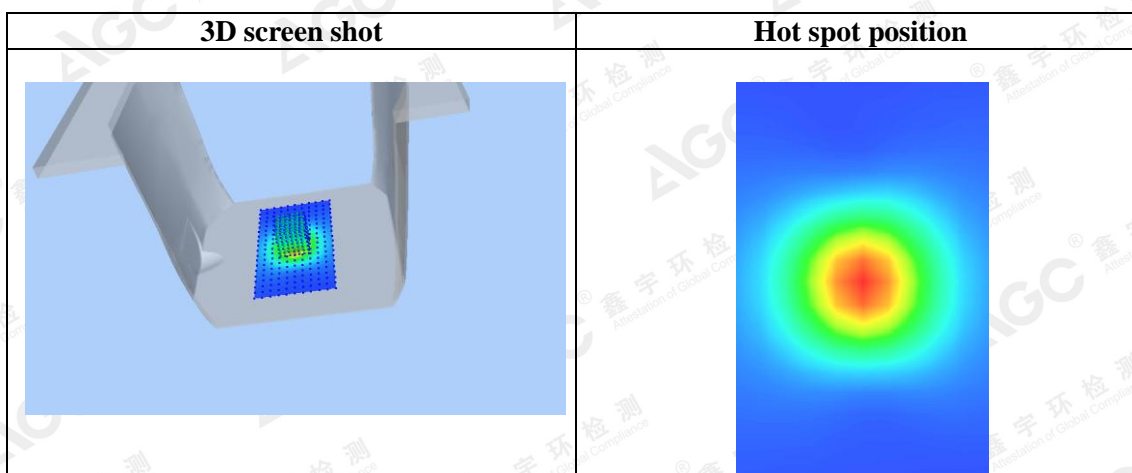
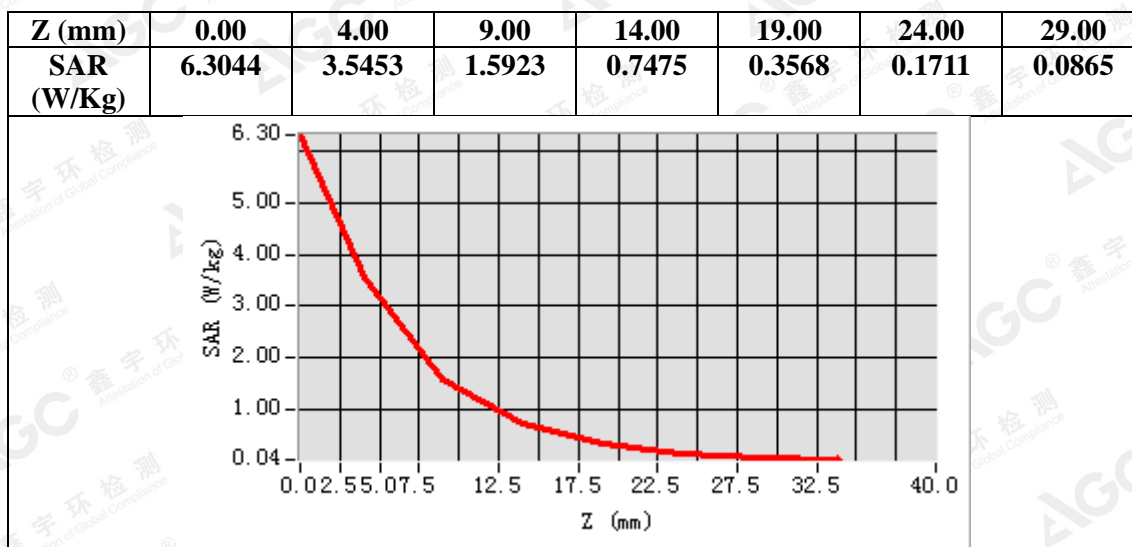


Maximum location: X=2.00, Y=-1.00

SAR Peak: 6.27 W/kg

SAR 10g (W/Kg)	1.427595
SAR 1g (W/Kg)	3.310547

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab

Date: Apr. 19, 2018

System Check Head 2600MHz

DUT: Dipole 2600 MHz; Type: SID 2600

Communication System: CW; Communication System Band: D2600 (2600.0 MHz); Duty Cycle: 1:1; Conv.F=2.40

Frequency:2600 MHz; Medium parameters used: $f = 2600$ MHz; $\sigma = 21.2$ mho/m; $\epsilon_r = 38.77$; $\rho = 1000$ kg/m³ ;

Phantom section: Flat Section; Input Power=18dBm

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)

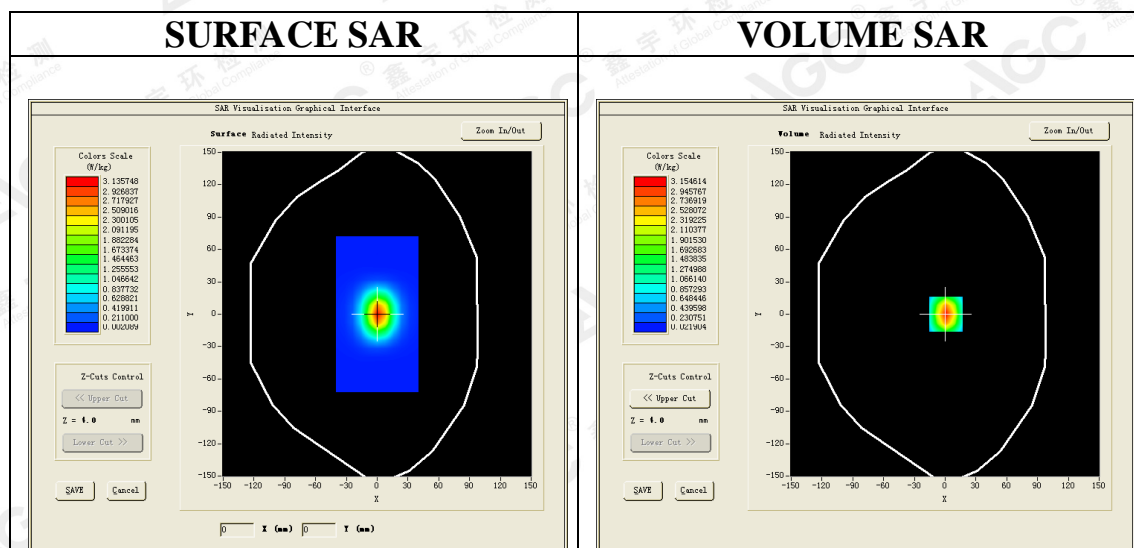
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_32

Configuration/System Check 2600 Head/Area Scan: Measurement grid: dx=8mm,dy=8mm

Configuration/System Check 2600 Head/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	Flat
Band	CW 2600
Channels	Middle
Signal	Crest factor: 1.0

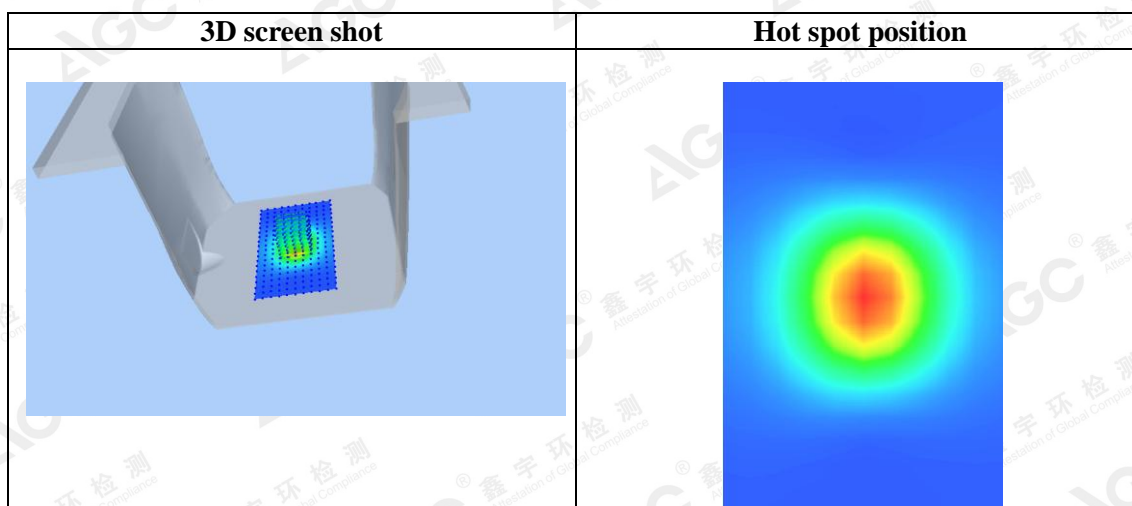
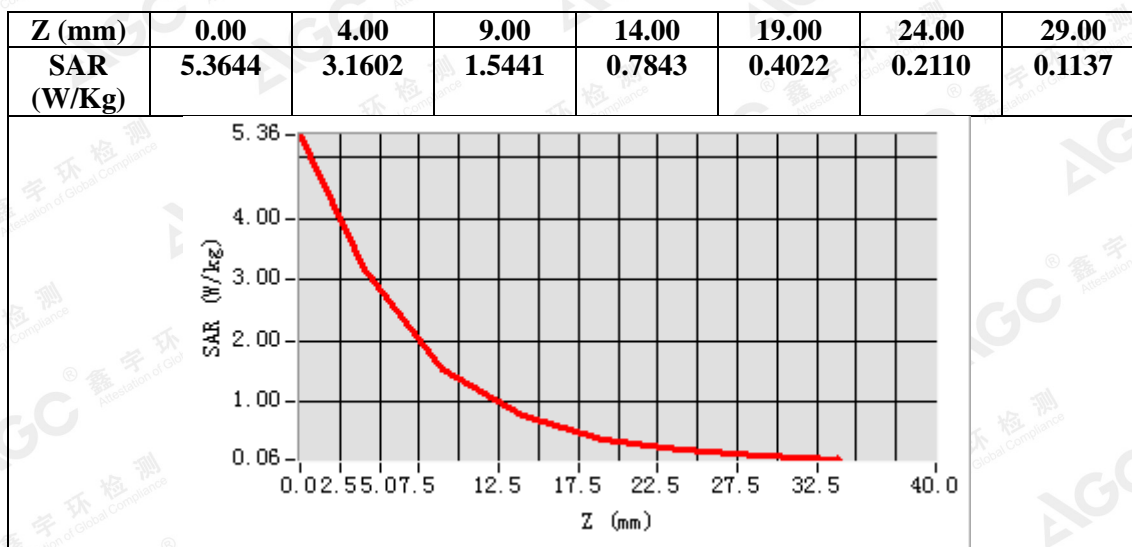


Maximum location: X=1.00, Y=1.00

SAR Peak: 5.33 W/kg

SAR 10g (W/Kg)	1.384129
SAR 1g (W/Kg)	3.085518

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

APPENDIX B. SAR MEASUREMENT DATA

Test Laboratory: AGC Lab
GSM 900 High- Touch-Right <SIM 1>
DUT: Smart Phone; Type: NOVA

Date: Apr. 14, 2018

Communication System: Generic GSM; Communication System Band: GSM 900; Duty Cycle: 1: 8; Conv.F=1.77
Frequency:914.8 MHz; Medium parameters used: $f = 900$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 41.81$; $\rho = 1000$ kg/m³ ;
Phantom section: Right Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.5

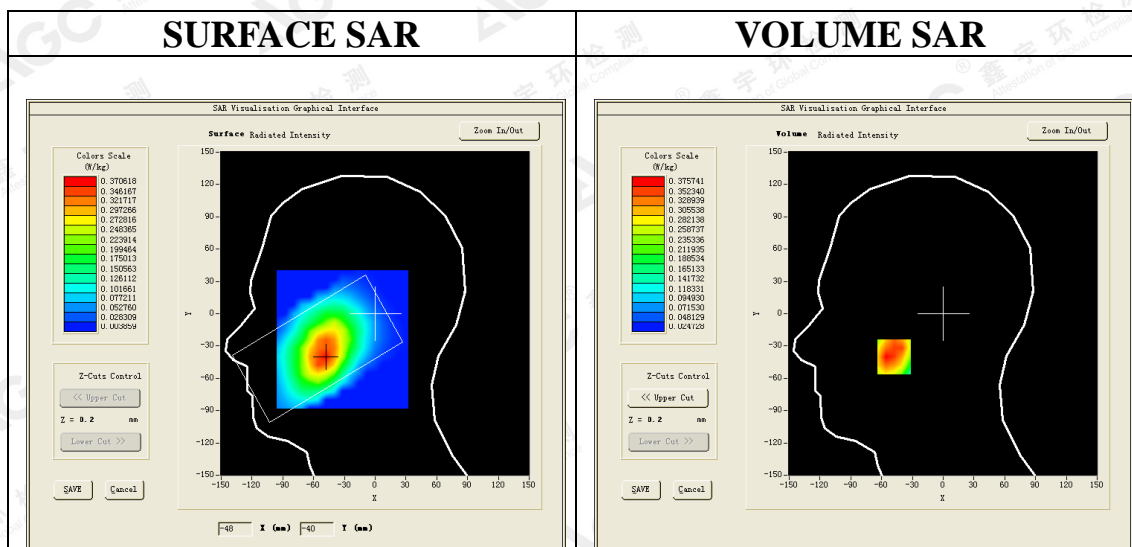
SATIMO Configuration:

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/GSM 900 High - Touch-Right /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/GSM 900 High - Touch-Right /Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	GSM 900
Channels	High
Signal	TDMA (Crest factor: 8.0)

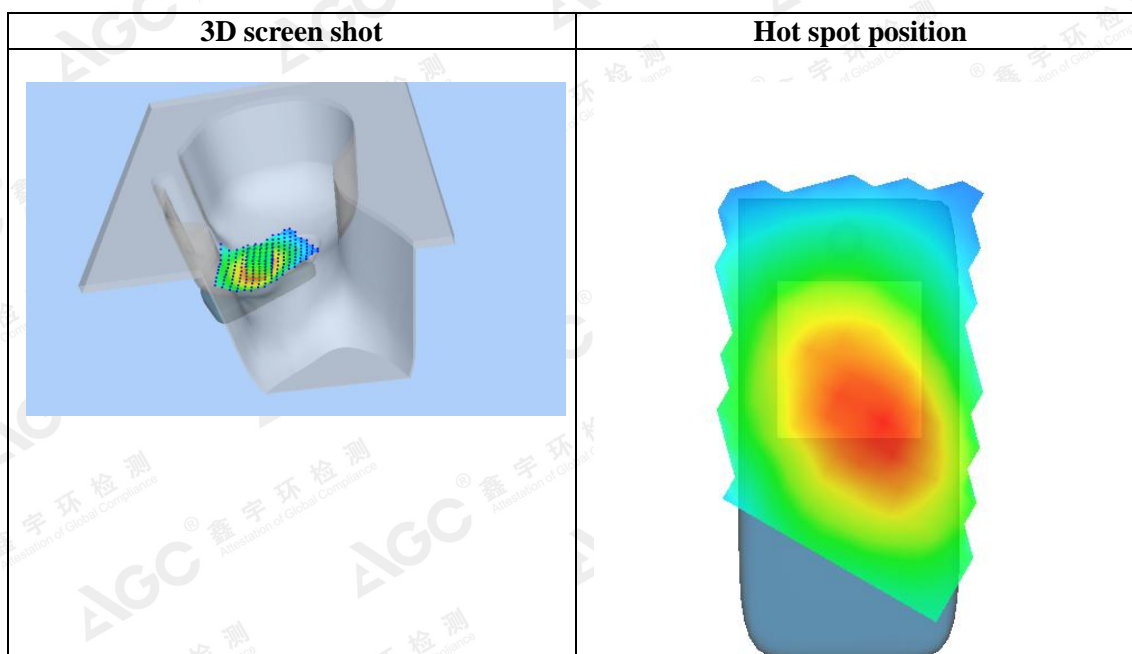
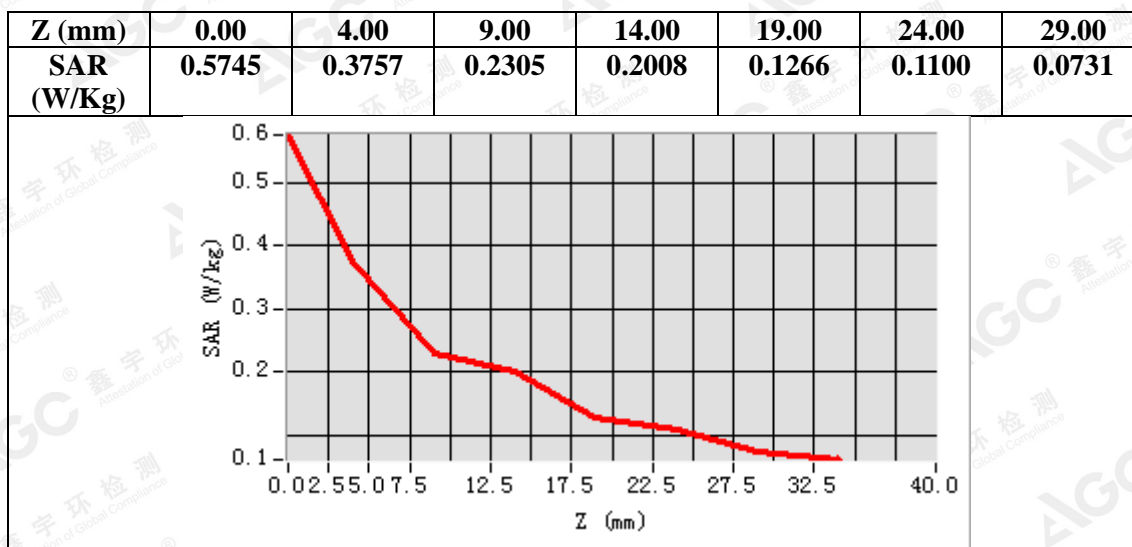


Maximum location: X=-48.00, Y=-40.00

SAR Peak: 0.52 W/kg

SAR 10g (W/Kg)	0.248034
SAR 1g (W/Kg)	0.359618

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
GPRS 900 High-Body- Worn- Back (4up) <SIM 1>
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 14, 2018

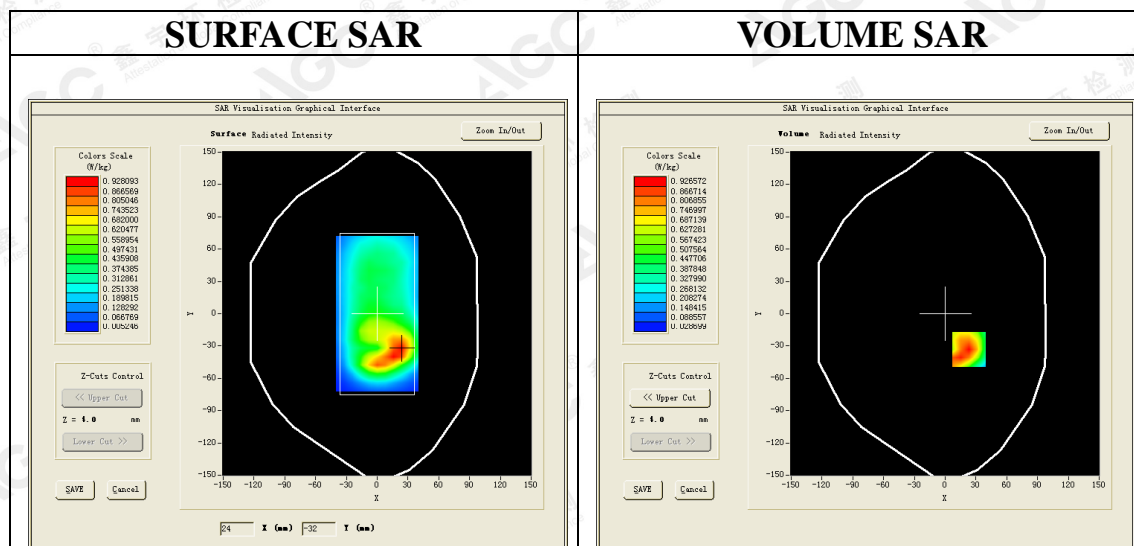
Communication System: GPRS-4 Slot; Communication System Band: GSM 900;Duty Cycle:1:2.1 ; Conv.F=1.77
Frequency: 914.8MHz; Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 41.81$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Flat Section
Ambient temperature (°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_32

Configuration/GPRS 900 High - Body- Back /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/GPRS 900 High - Body- Back /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	Validation plane
Device Position	Body Back
Band	GSM 900
Channels	High
Signal	TDMA (Crest factor: 2.0)

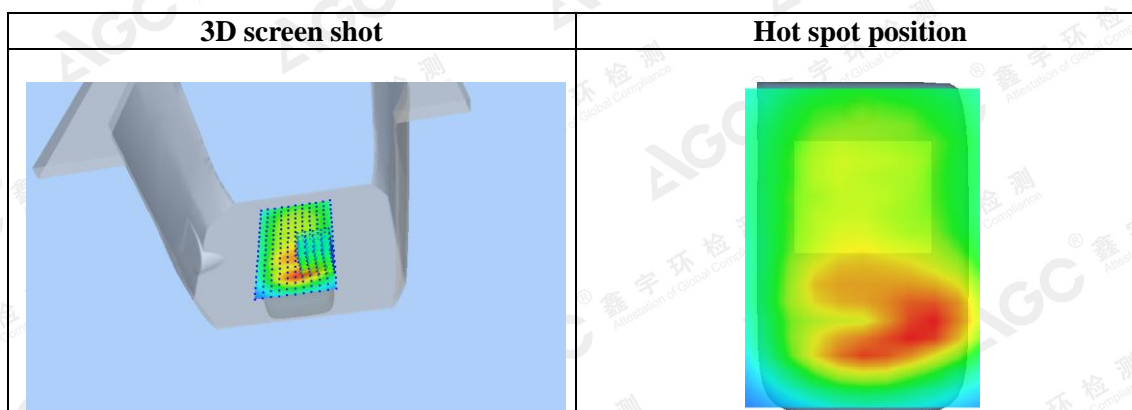
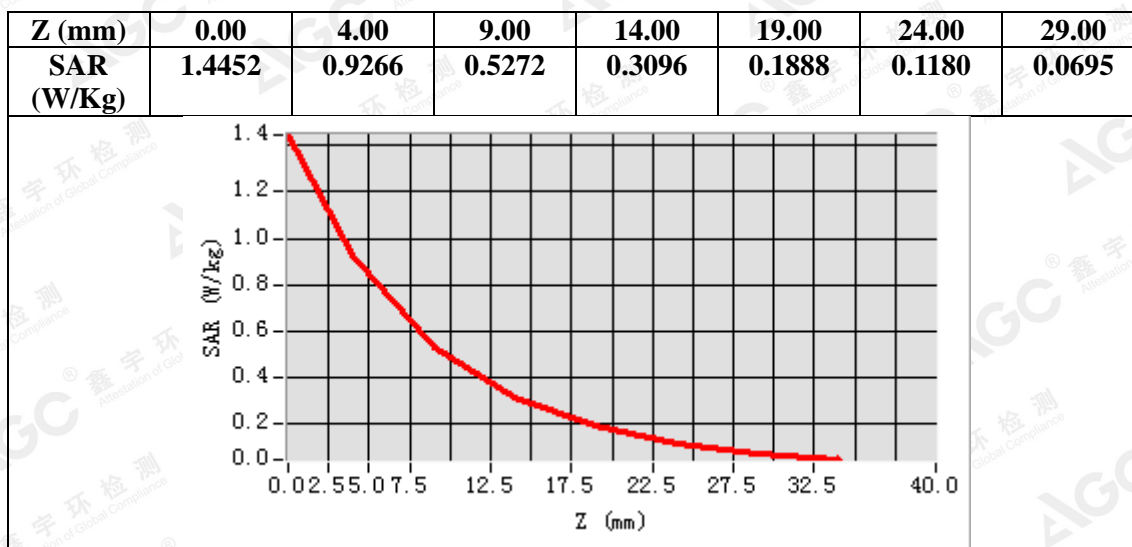


Maximum location: X=23.00, Y=-33.00

SAR Peak: 1.45 W/kg

SAR 10g (W/Kg)	0.498844
SAR 1g (W/Kg)	0.884012

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
DCS 1800 Low-Touch-Left <SIM1>
DUT: Smart Phone; Type: NOVA

Date: Apr. 15, 2018

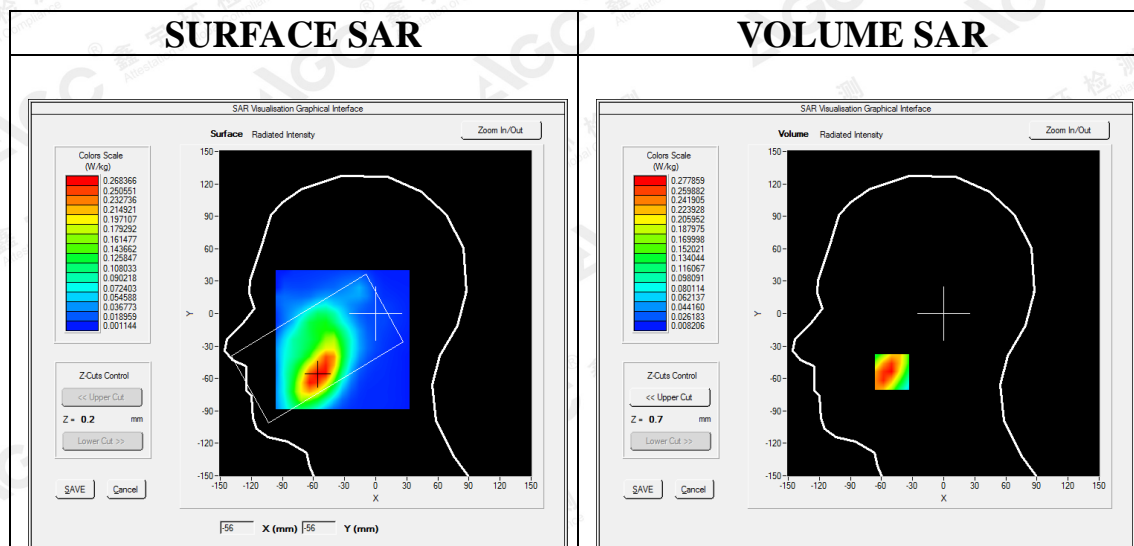
Communication System: Generic GSM; Communication System Band: DCS 1800; Duty Cycle: 1:8; Conv.F=2.03
Frequency: 1710.2 MHz; Medium parameters used: $f = 1800$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40.87$; $\rho = 1000$ kg/m³ ;
Phantom section: Left Section
Ambient temperature (°C): 21.7, Liquid temperature (°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/DCS1800 Low- Touch-Left/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/DCS1800 Low- Touch-Left/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	DCS 1800
Channels	Low
Signal	TDMA (Crest factor: 8.0)

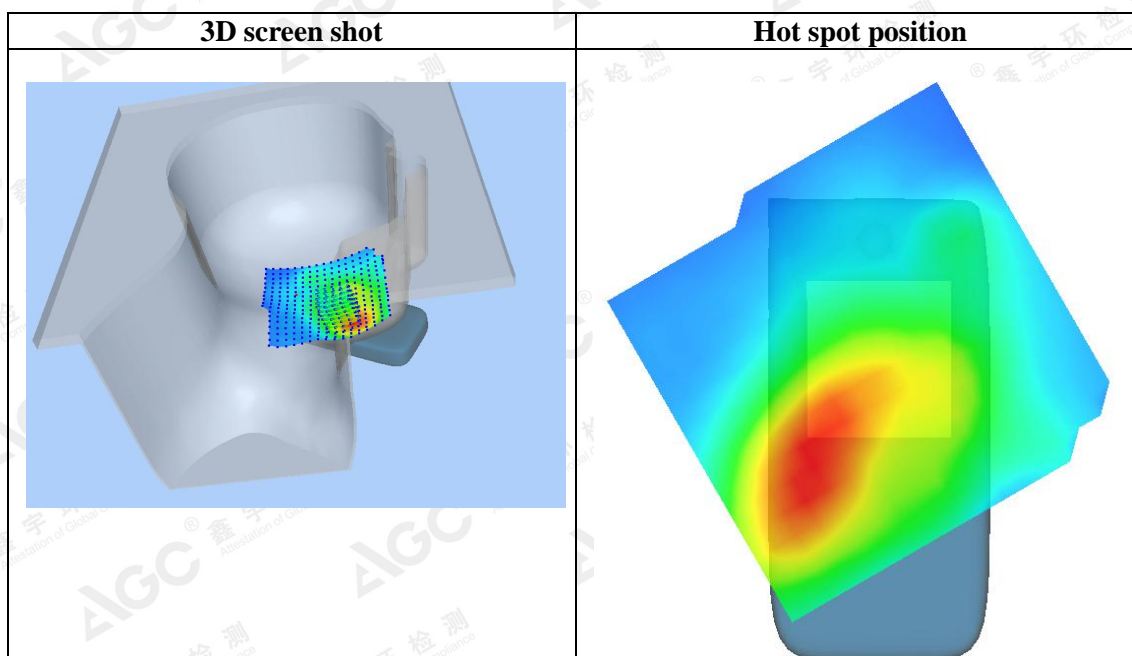
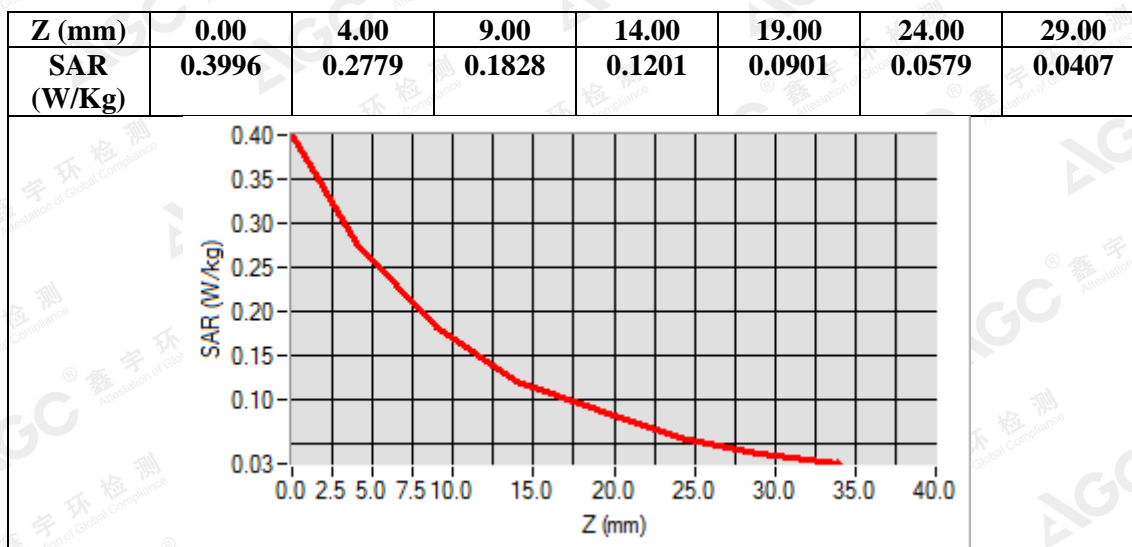


Maximum location: X=-50.00, Y=-54.00

SAR Peak: 0.41 W/kg

SAR 10g (W/Kg)	0.165412
SAR 1g (W/Kg)	0.268052

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
DCS 1800 High-Touch-Left <SIM1>
DUT: Smart Phone; Type: NOVA

Date: Apr. 15, 2018

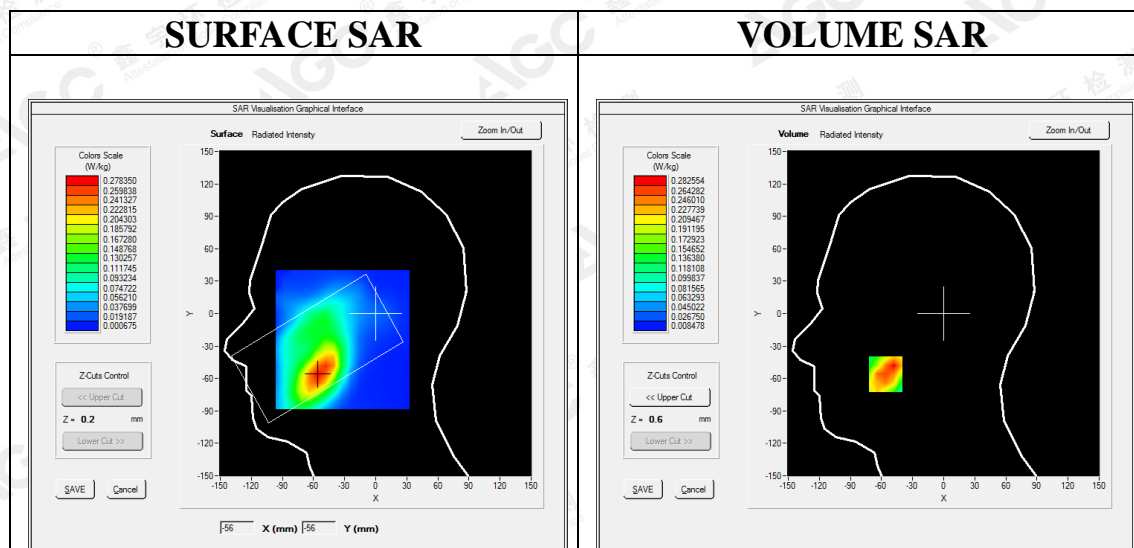
Communication System: Generic GSM; Communication System Band: DCS 1800; Duty Cycle: 1:8; Conv.F=2.03
Frequency: 1784.8 MHz; Medium parameters used: $f = 1800$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40.87$; $\rho = 1000$ kg/m³ ;
Phantom section: Left Section
Ambient temperature (°C): 21.7, Liquid temperature (°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/DCS1800 High - Touch-Left/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/DCS1800 High - Touch-Left/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	DCS 1800
Channels	High
Signal	TDMA (Crest factor: 8.0)

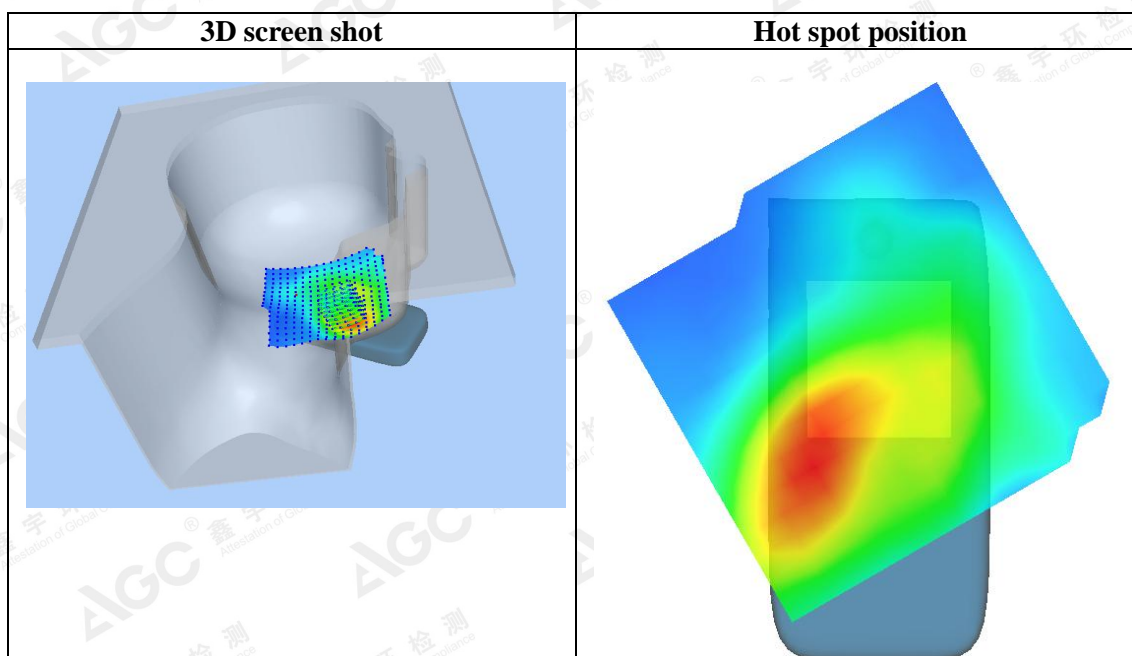
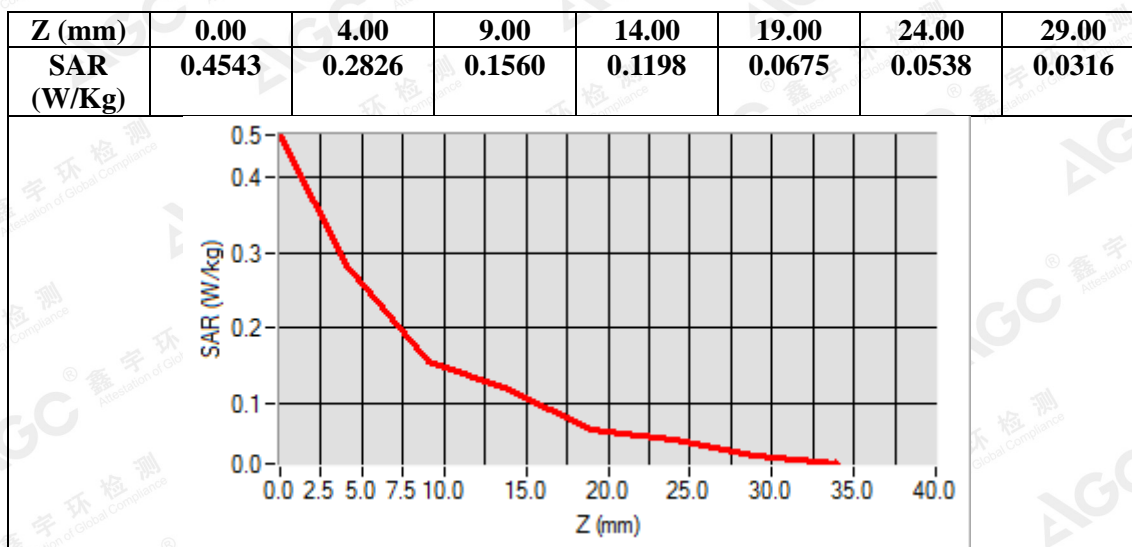


Maximum location: X=-56.00, Y=-56.00

SAR Peak: 0.42 W/kg

SAR 10g (W/Kg)	0.159112
SAR 1g (W/Kg)	0.259826

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
GPRS 1800 Low-Body- Worn- Back (4up) <SIM1>
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 15, 2018

Communication System: GPRS-4 Slot; Communication System Band: DCS1800; Duty Cycle: 1:2.1; Conv.F=2.03
Frequency: 1710.2 MHz; Medium parameters used: $f = 1800$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40.87$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.7, Liquid temperature (°C): 21.5

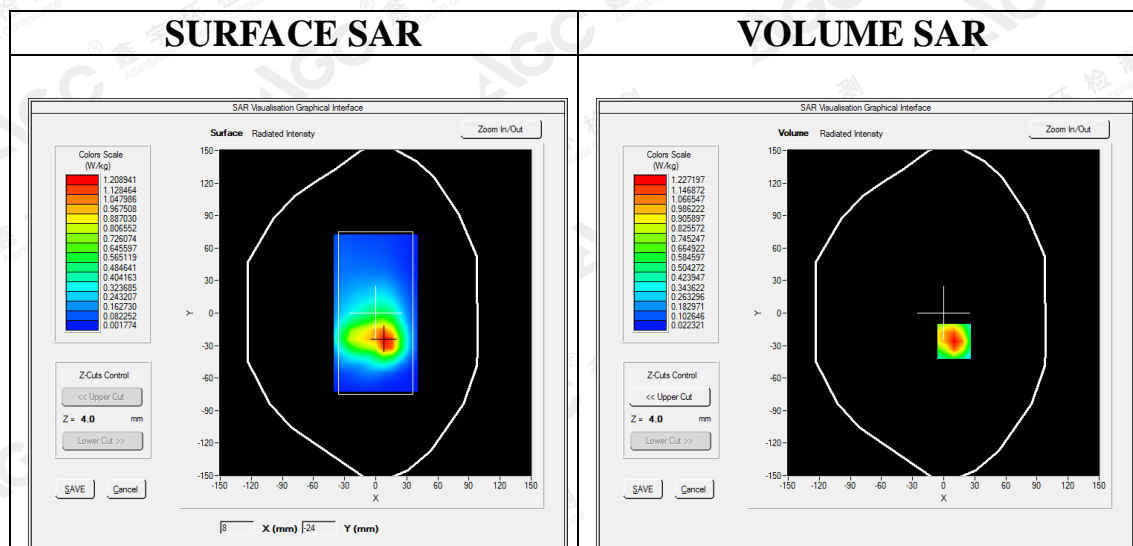
SATIMO Configuration:

Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPG0282
Sensor-Surface: 4mm (Mechanical Surface Detection)
Phantom: SAM twin phantom
Measurement SW: OpenSAR V4_02_35

Configuration/GPRS 1800 Low - Body- Back /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/GPRS 1800 Low - Body- Back /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	Validation plane
Device Position	Body Back
Band	DCS 1800
Channels	Low
Signal	TDMA (Crest factor: 2.0)

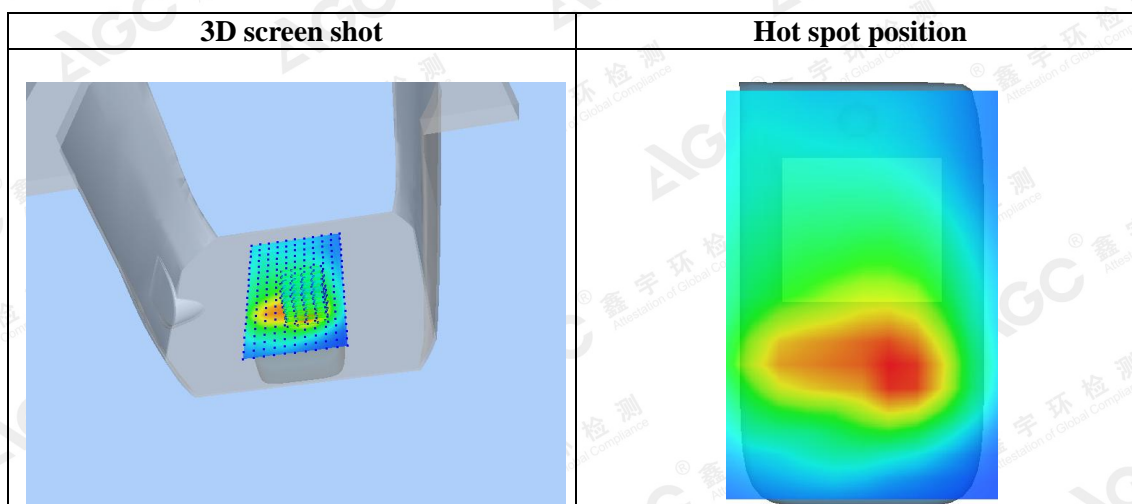
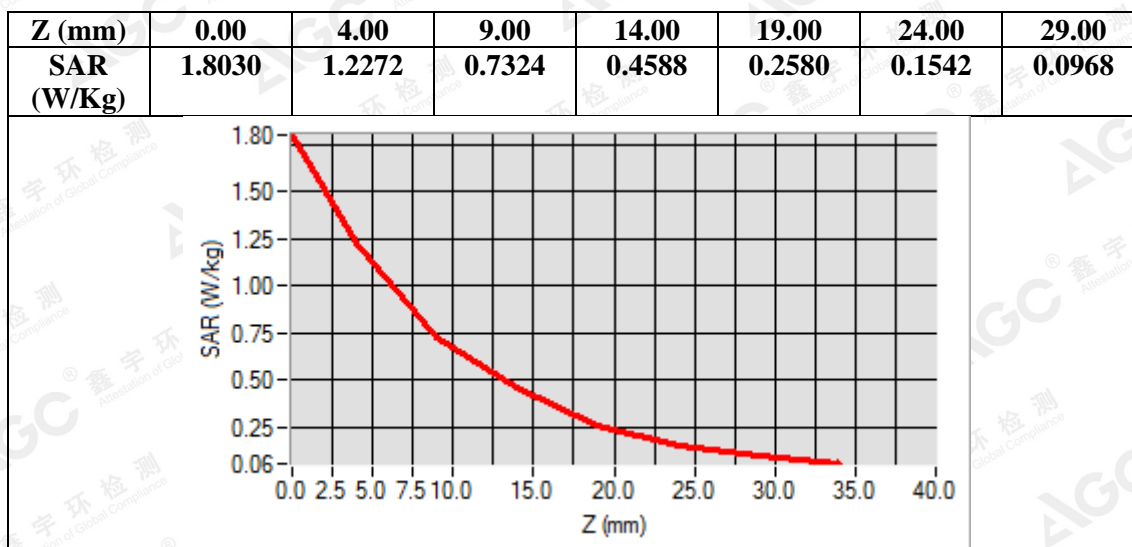


Maximum location: X=10.00, Y=-26.00

SAR Peak: 1.95 W/kg

SAR 10g (W/Kg)	0.646912
SAR 1g (W/Kg)	1.175420

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
WCDMA Band I Mid-Touch-Left (RMC)
DUT: Smart Phone; Type: NOVA

Date: Apr. 09, 2018

Communication System: UMTS; Communication System Band: Band I UTRA/FDD ; Duty Cycle: 1:1; Conv.F=2.28;
Frequency: 1950MHz; Medium parameters used: $f = 2000 \text{ MHz}$; $\sigma = 1.44 \text{ mho/m}$; $\epsilon_r = 38.96$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Left Section
Ambient temperature ($^{\circ}\text{C}$): 22.3, 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)

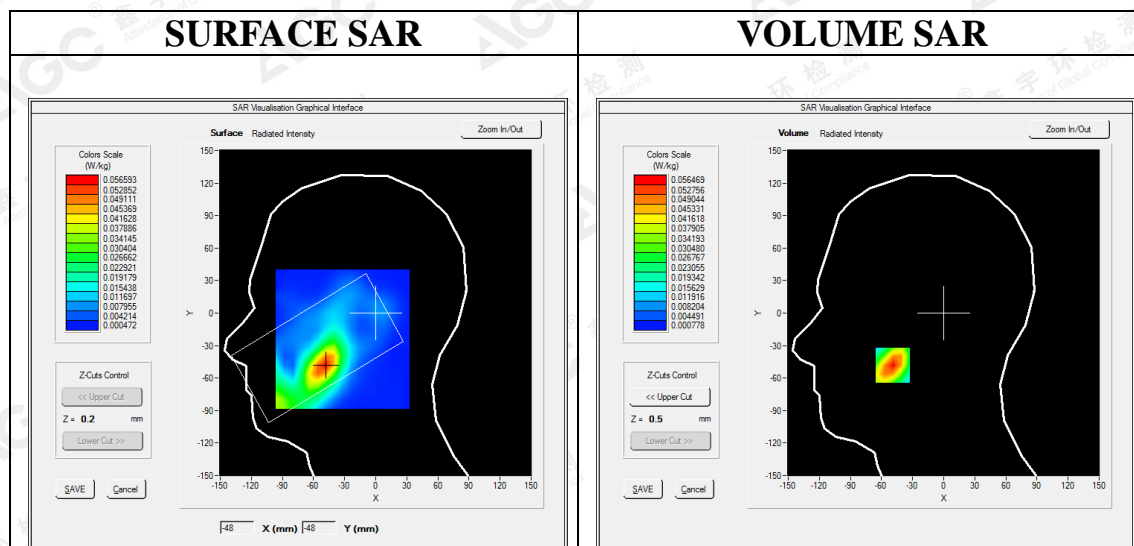
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_35

Configuration/ WCDMA Band I Mid-Touch-Left/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/ WCDMA Band I Mid-Touch-Left/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

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

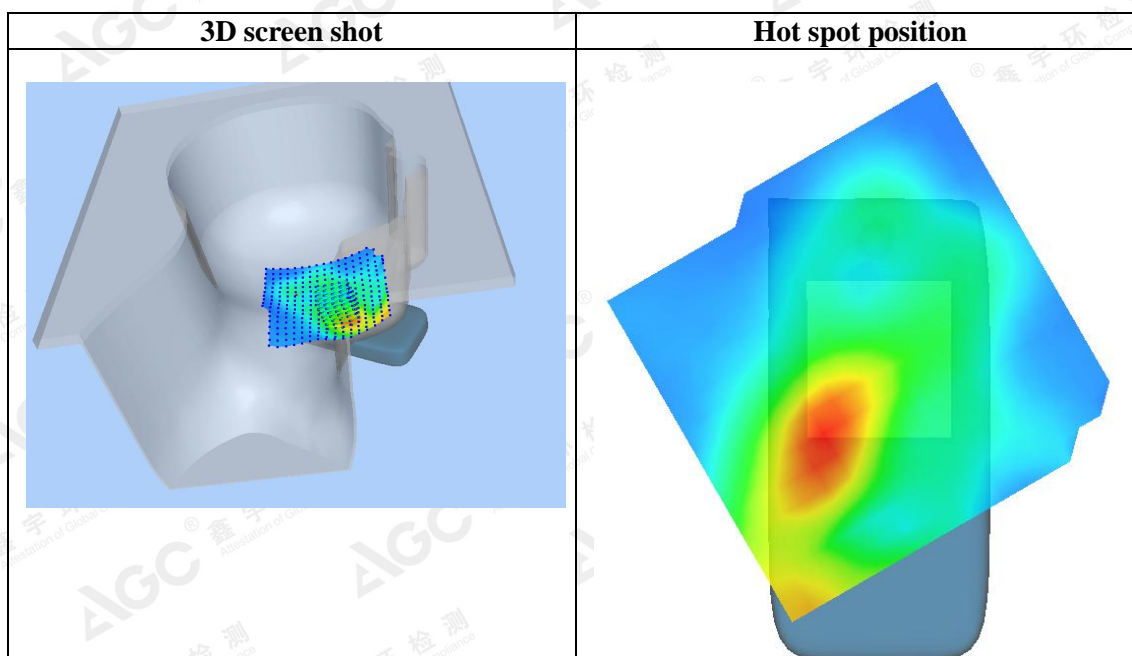
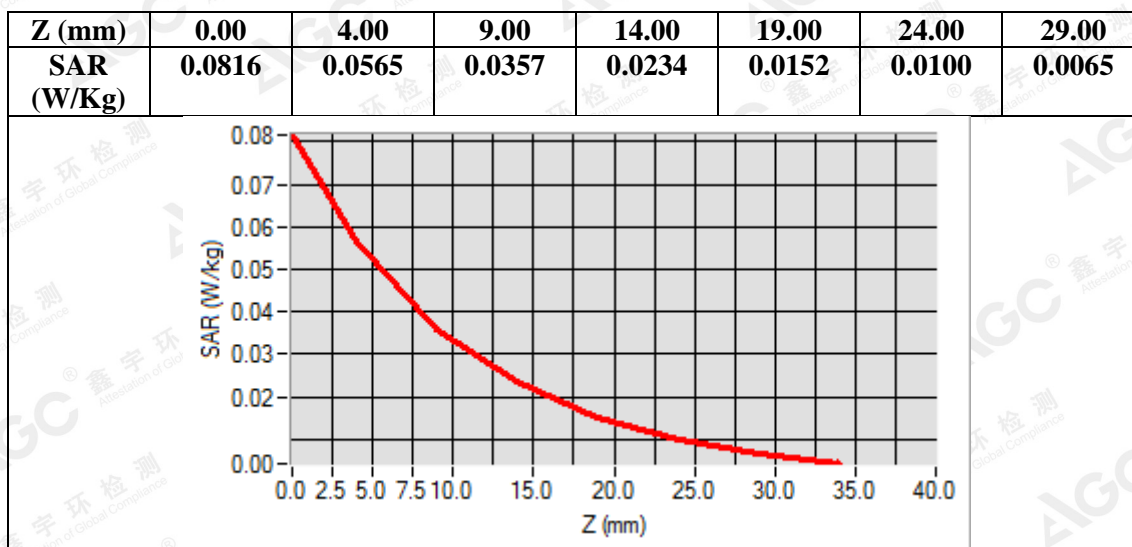


Maximum location: X=-49.00, Y=-48.00

SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.030478
SAR 1g (W/Kg)	0.053234

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
WCDMA Band I Low-Body-Towards Grounds (RMC)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 09, 2018

Communication System: UMTS; Communication System Band: Band I UTRA/FDD ;Duty Cycle:1:1; Conv.F=2.28;
Frequency: 1922.4MHz; Medium parameters used: $f = 2000$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.96$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.3, Liquid temperature (°C): 21.7

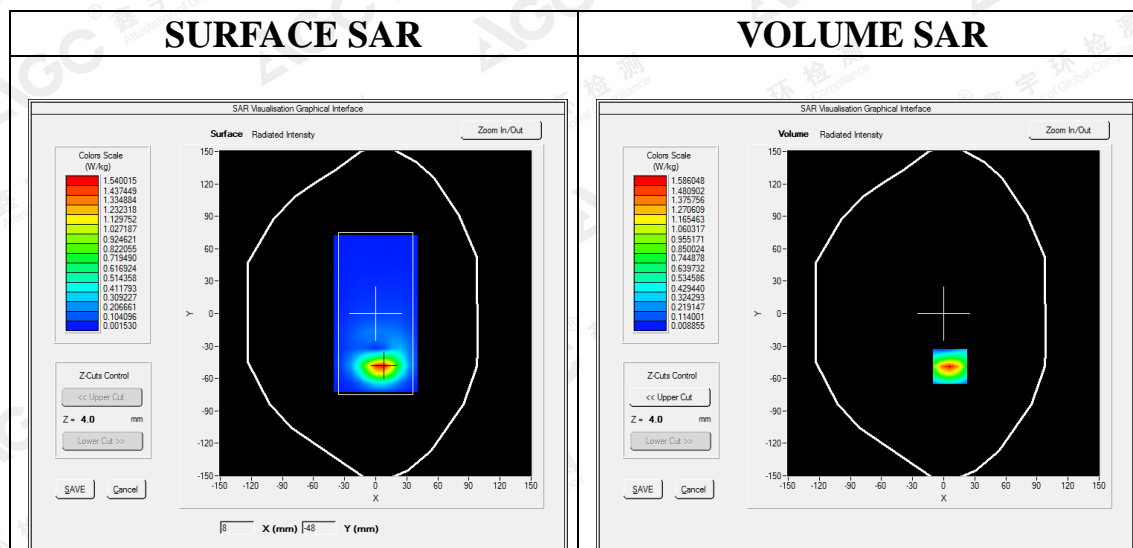
SATIMO Configuration:

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/WCDMA BAND I Low -Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/WCDMA BAND I Low -Body-Back//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	Validation plane
Device Position	Body Back
Band	WCDMA Band I
Channels	Low
Signal	CDMA (Crest factor: 1.0)

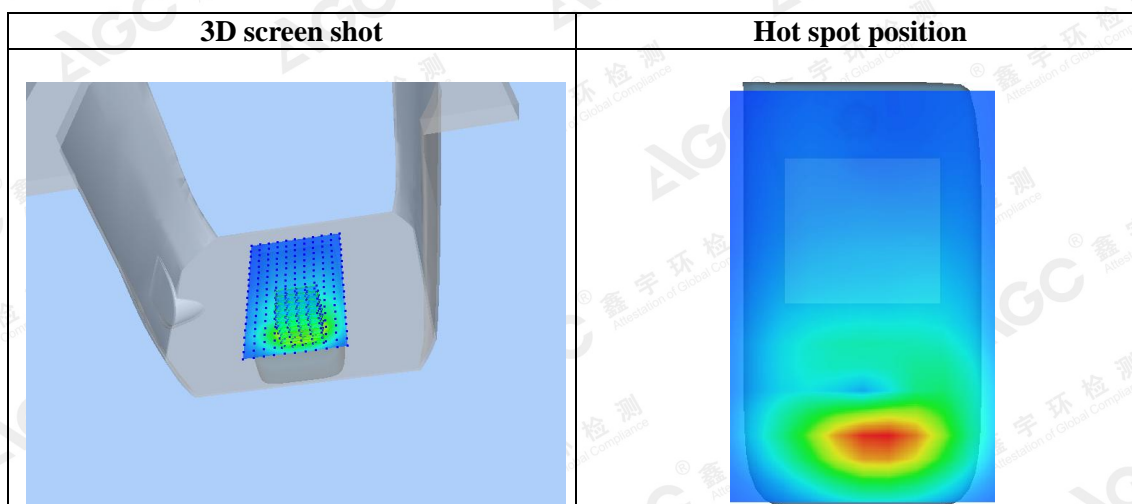
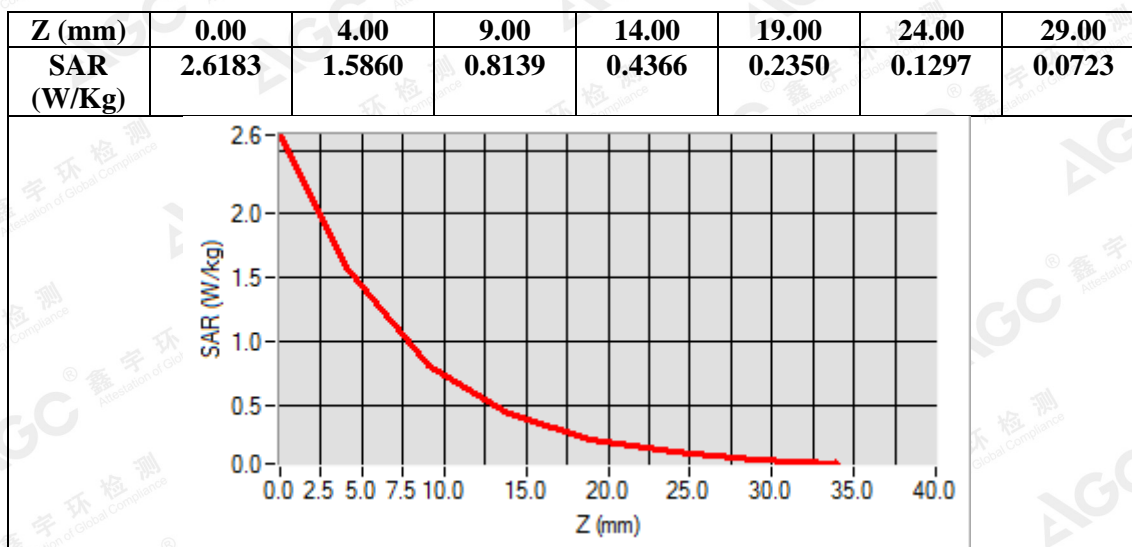


Maximum location: X=6.00, Y=-49.00

SAR Peak: 2.59 W/kg

SAR 10g (W/Kg)	0.656520
SAR 1g (W/Kg)	1.431488

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
WCDMA Band I High-Body-Towards Grounds (RMC)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 09, 2018

Communication System: UMTS; Communication System Band: Band I UTRA/FDD ;Duty Cycle:1:1; Conv.F=2.28;
Frequency: 1977.6MHz; Medium parameters used: $f = 2000$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.96$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.3, Liquid temperature (°C): 21.7

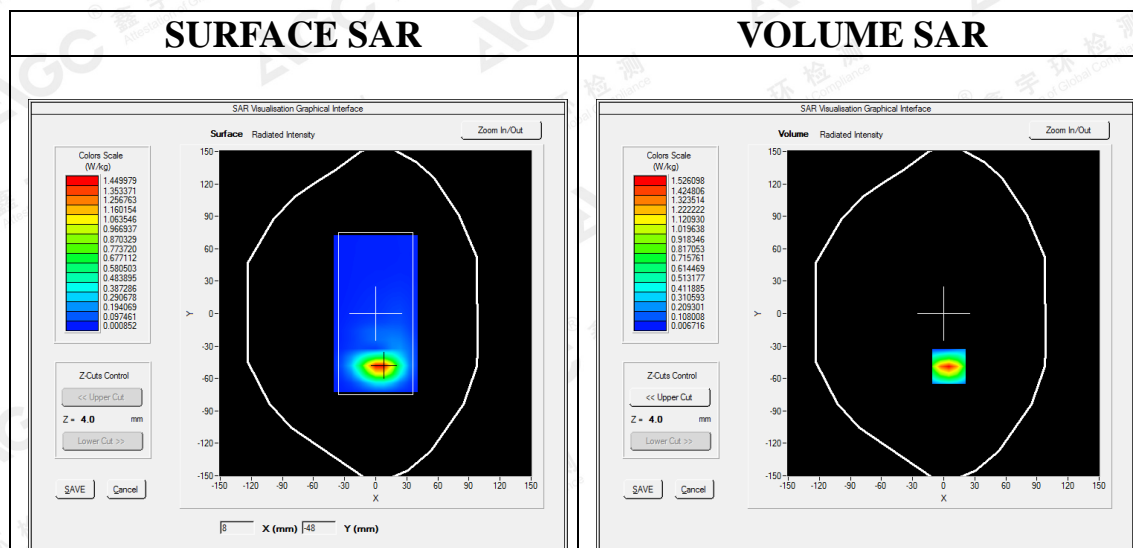
SATIMO Configuration:

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/WCDMA BAND I High -Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/WCDMA BAND I High -Body-Back//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	Validation plane
Device Position	Body Back
Band	WCDMA Band I
Channels	High
Signal	CDMA (Crest factor: 1.0)

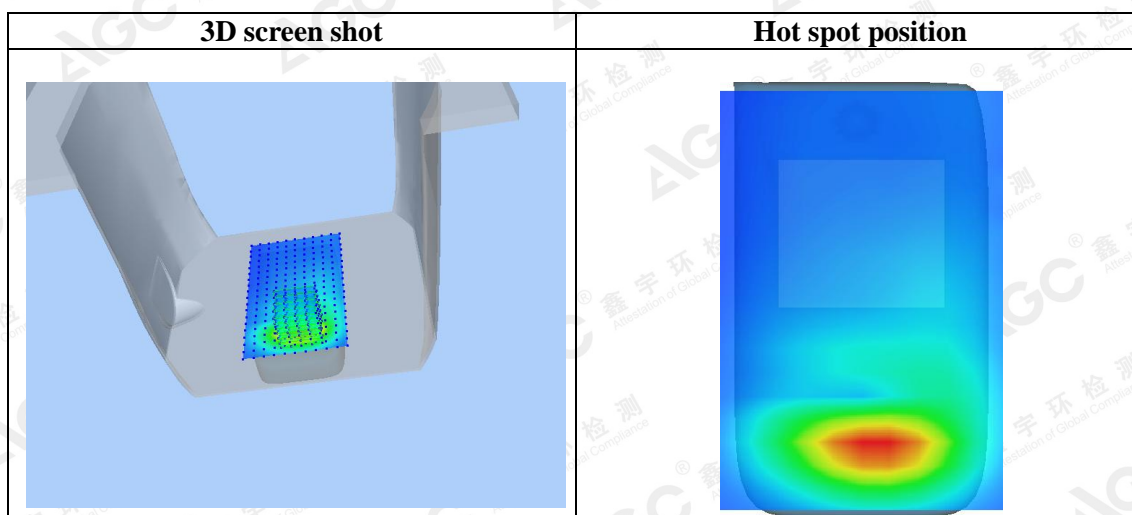
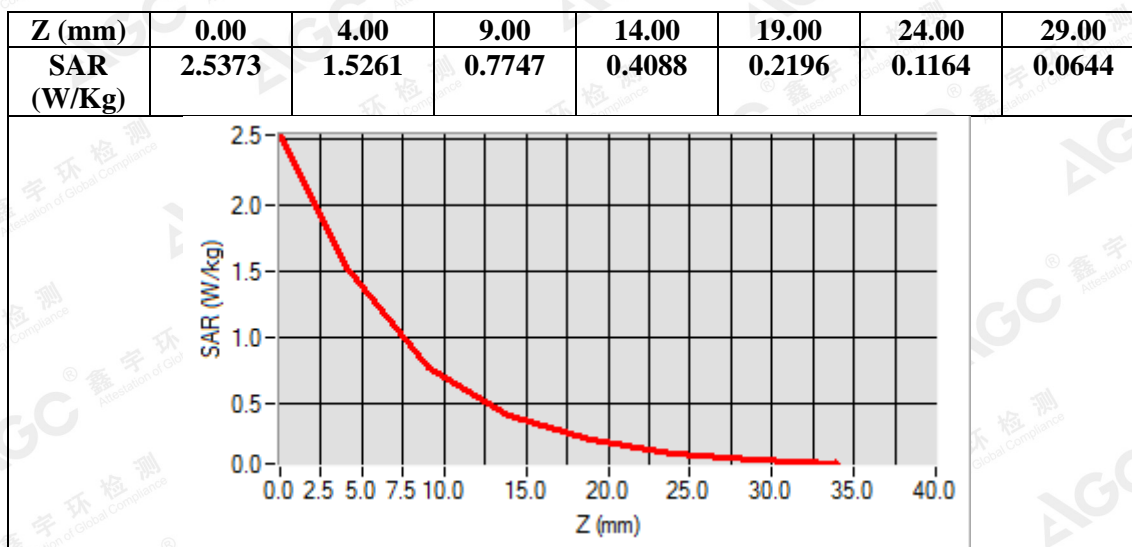


Maximum location: X=5.00, Y=-49.00

SAR Peak: 2.51 W/kg

SAR 10g (W/Kg)	0.626913
SAR 1g (W/Kg)	1.379242

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
WCDMA Band VIII Mid- Touch-Right (RMC)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 14, 2018

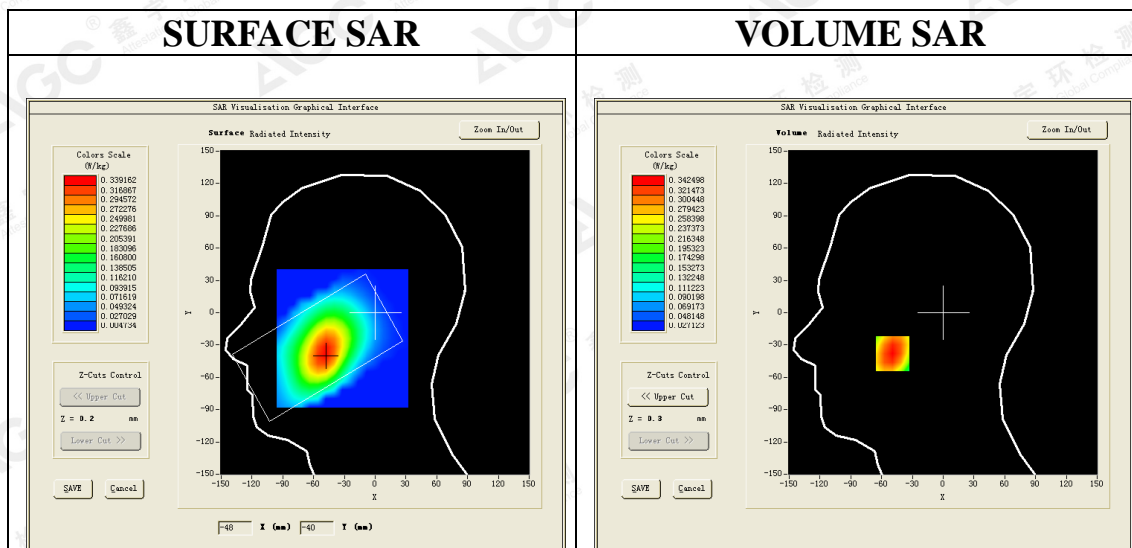
Communication System: UMTS; Communication System Band: BAND VIII UTRA/FDD; Duty Cycle:1:1; Conv.F=1.77
Frequency: 897.6MHz; Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 41.81$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Right Section
Ambient temperature ($^{\circ}\text{C}$): 22.1, Liquid temperature ($^{\circ}\text{C}$): 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/ WCDMA BAND VIII Mid -Touch-Right/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ WCDMA BAND VIII Mid -Touch-Right/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

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

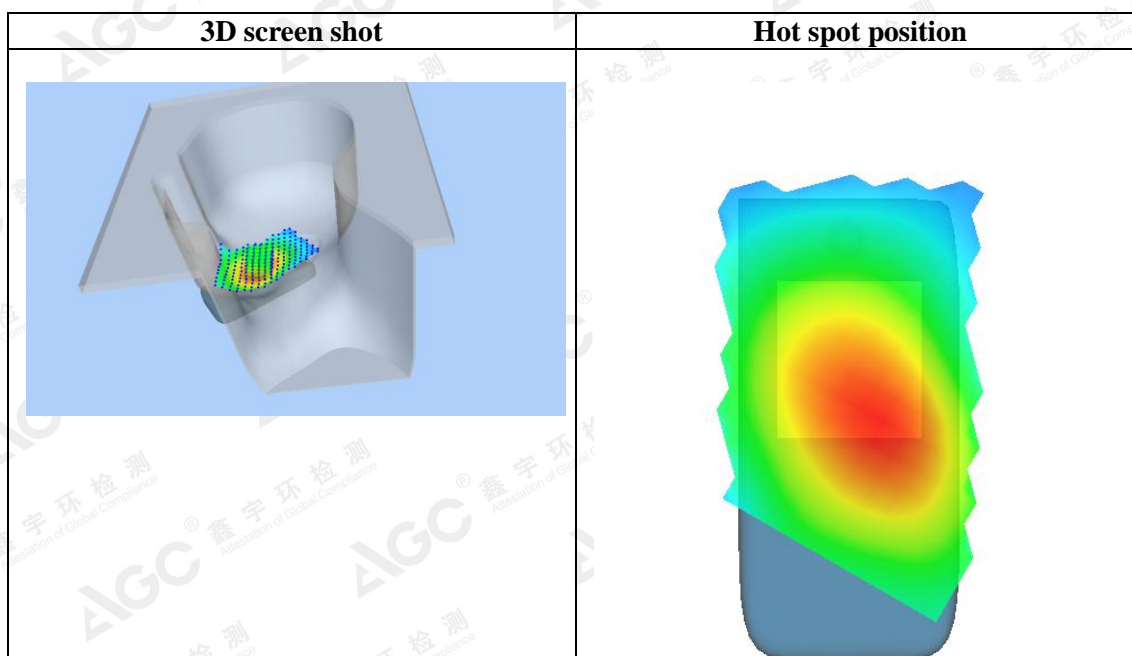
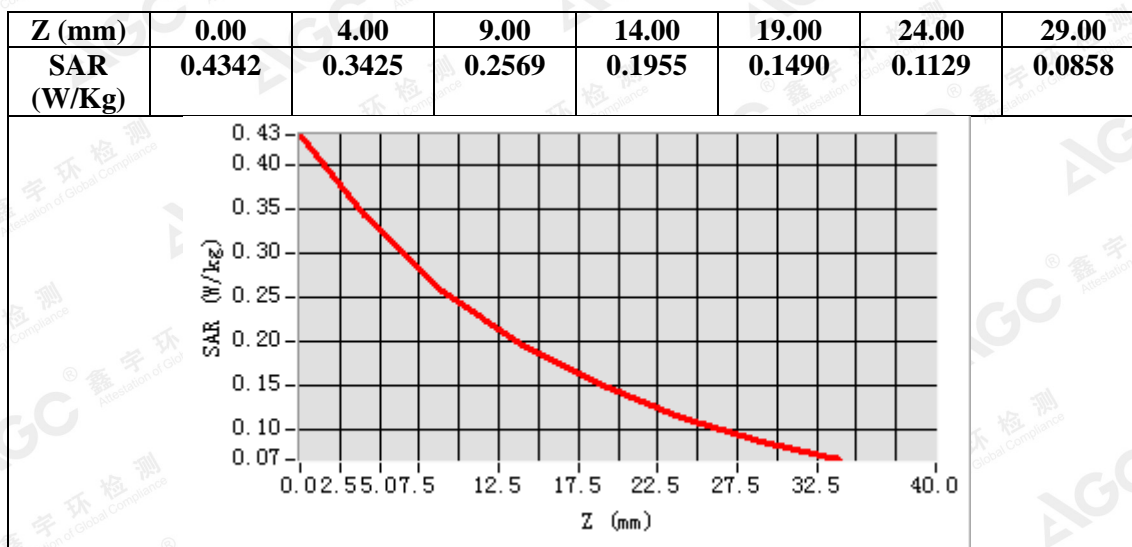


Maximum location: X=-49.00, Y=-38.00

SAR Peak: 0.44 W/kg

SAR 10g (W/Kg)	0.234688
SAR 1g (W/Kg)	0.330602

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

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

Date: Apr. 14, 2018

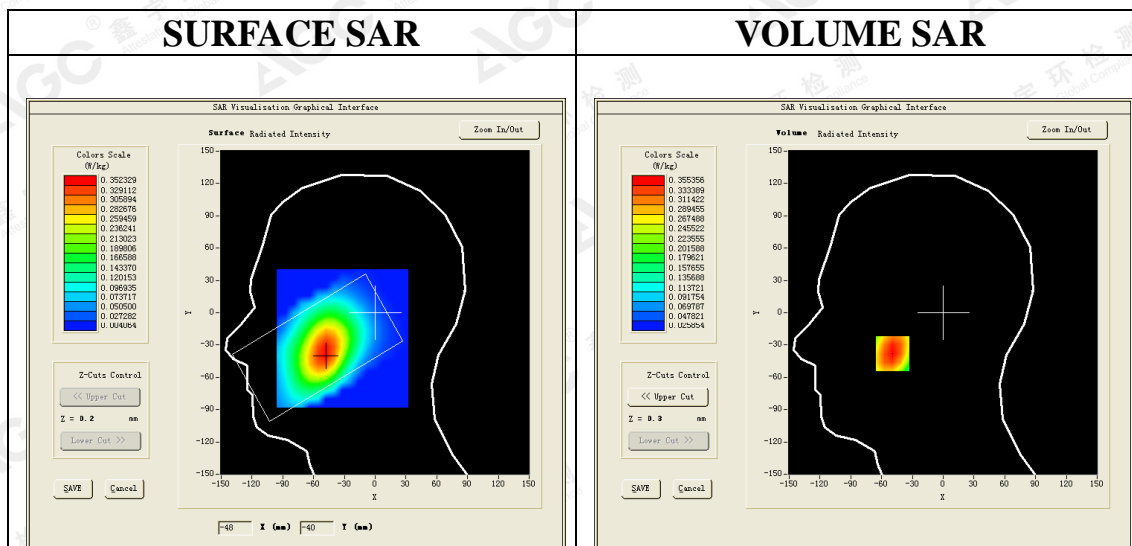
Communication System: UMTS; Communication System Band: BAND VIII UTRA/FDD; Duty Cycle:1:1; Conv.F=1.77
Frequency: 912.6MHz; Medium parameters used: $f = 900$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 41.81$; $\rho = 1000$ kg/m³ ;
Phantom section: Right Section
Ambient temperature (°C): 22.1, Liquid temperature (°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/ WCDMA BAND VIII High -Touch-Right/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ WCDMA BAND VIII High -Touch-Right/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

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

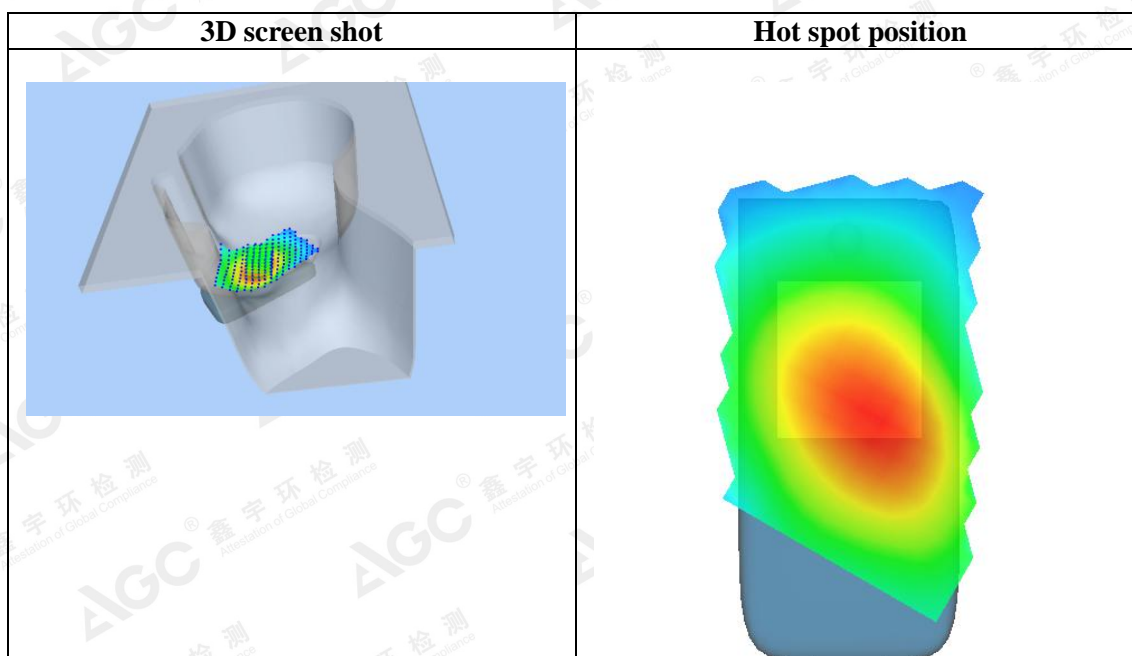
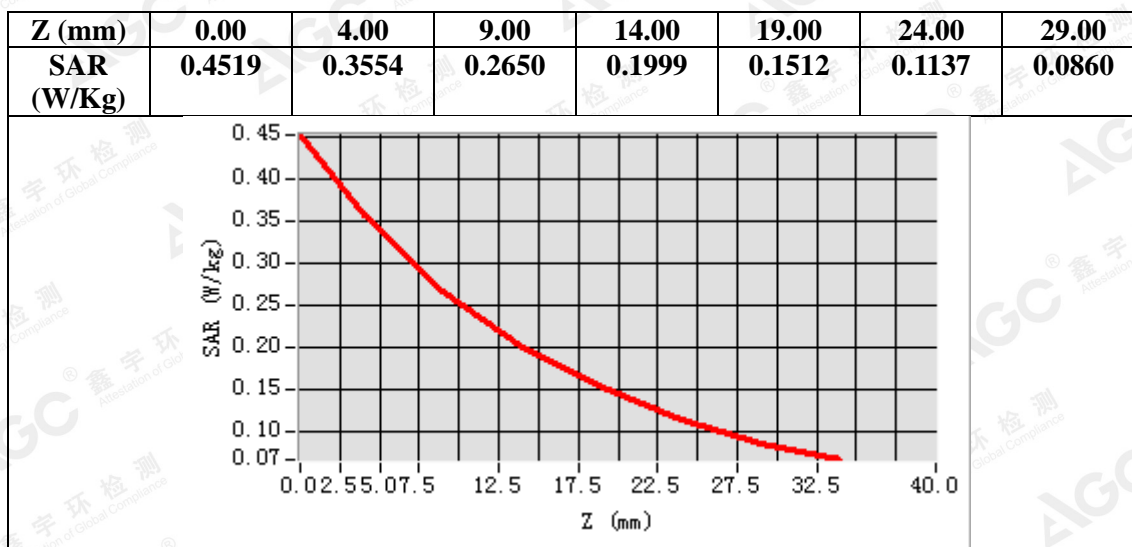


Maximum location: X=-49.00, Y=-38.00

SAR Peak: 0.45 W/kg

SAR 10g (W/Kg)	0.242410
SAR 1g (W/Kg)	0.343552

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
WCDMA Band VIII Mid-Body-Towards Grounds (RMC)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 14, 2018

Communication System: UMTS; Communication System Band: BAND VIII UTRA/FDD; Duty Cycle:1:1; Conv.F=1.77
Frequency: 897.6 MHz; Medium parameters used: $f = 900$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 41.81$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°C): 21.5

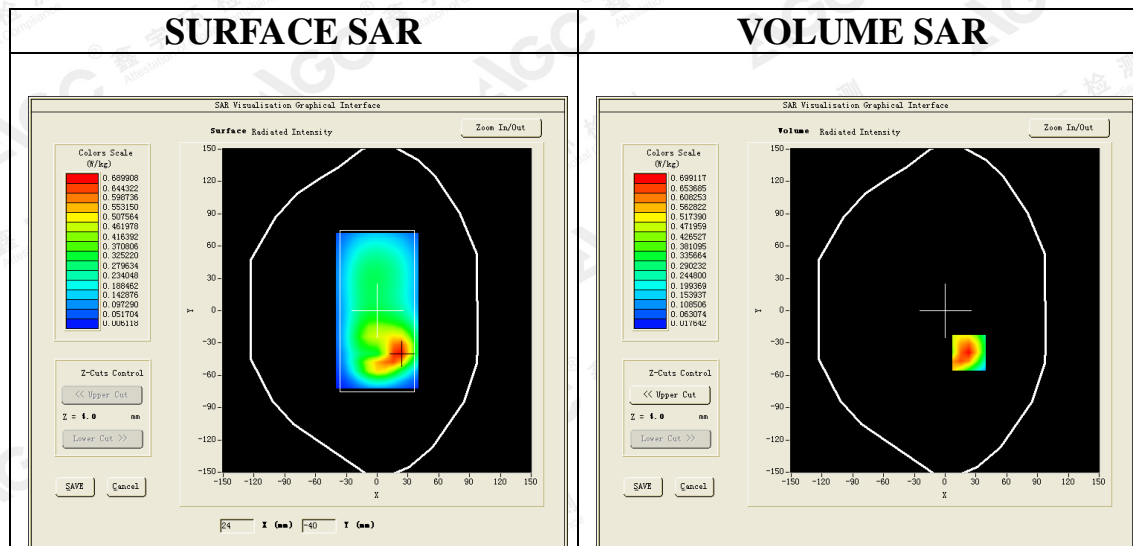
SATIMO Configuration:

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/ WCDMA BAND VIII Mid -Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm

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

Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	WCDMA BAND VIII
Channels	Middle
Signal	CDMA (Crest factor: 1.0)

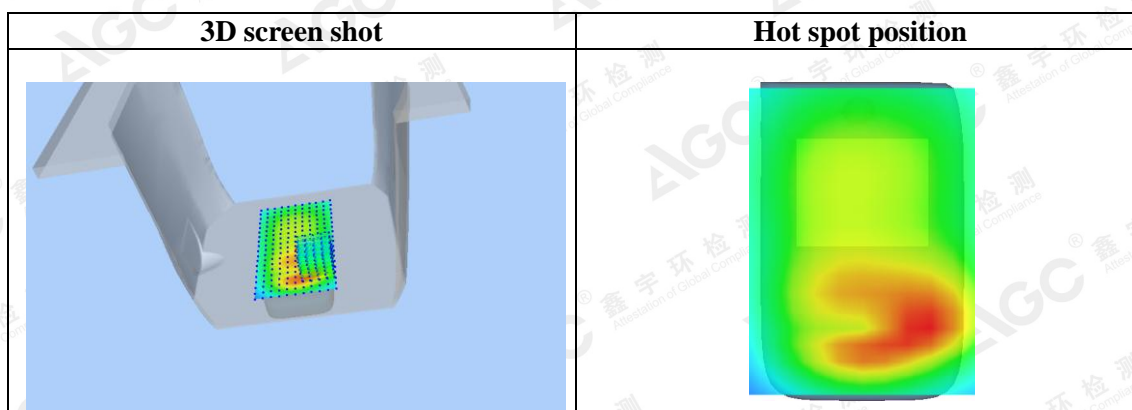
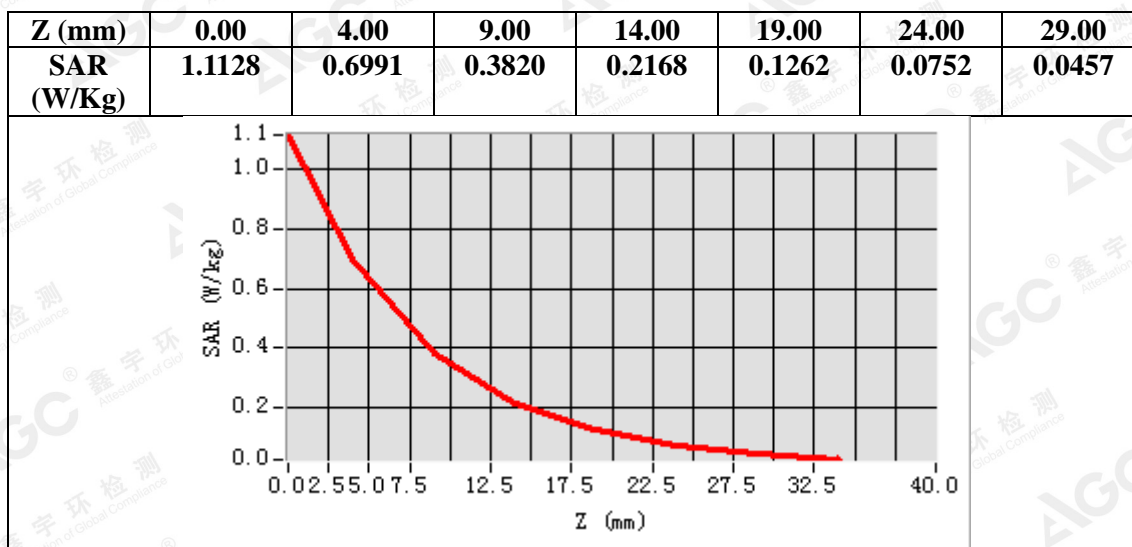


Maximum location: X=23.00, Y=-39.00

SAR Peak: 1.13 W/kg

SAR 10g (W/Kg)	0.362499
SAR 1g (W/Kg)	0.670978

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
WCDMA Band VIII High-Body-Towards Grounds (RMC)
DUT: Smart Phone; Type: NOVA

Date: Apr. 14, 2018

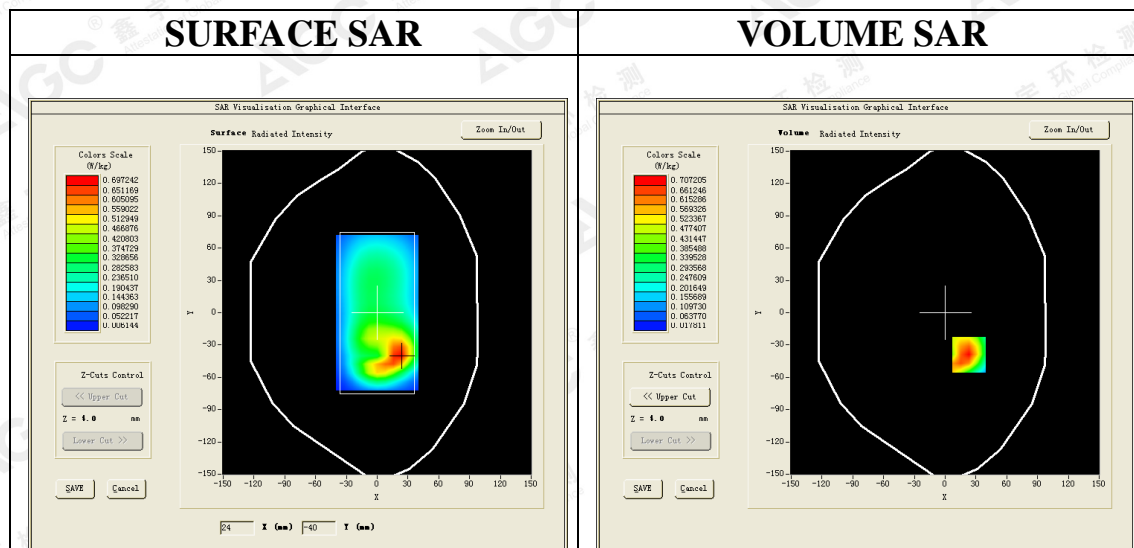
Communication System: UMTS; Communication System Band: BAND VIII UTRA/FDD; Duty Cycle:1:1; Conv.F=1.77
Frequency: 912.6 MHz; Medium parameters used: $f = 900$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 41.81$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 22.1, Liquid temperature (°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/ WCDMA BAND VIII High -Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ WCDMA BAND VIII High -Body-Back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	WCDMA BAND VIII
Channels	High
Signal	CDMA (Crest factor: 1.0)

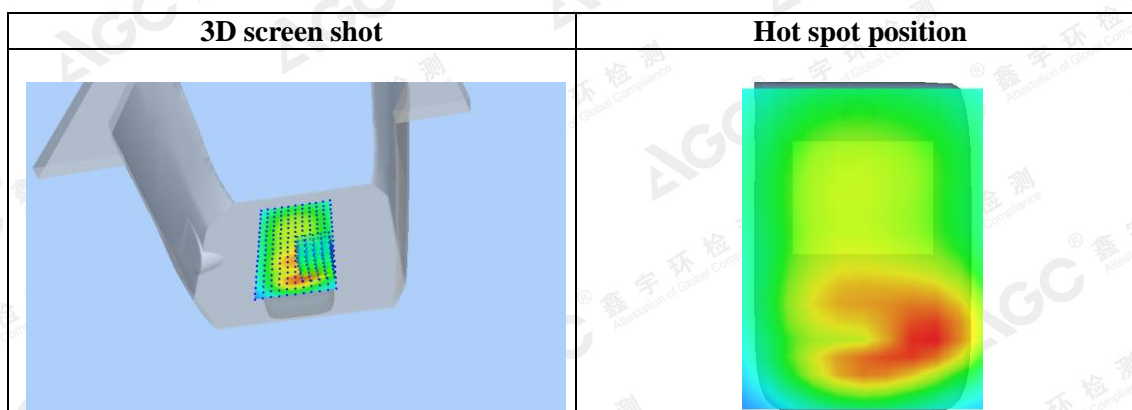
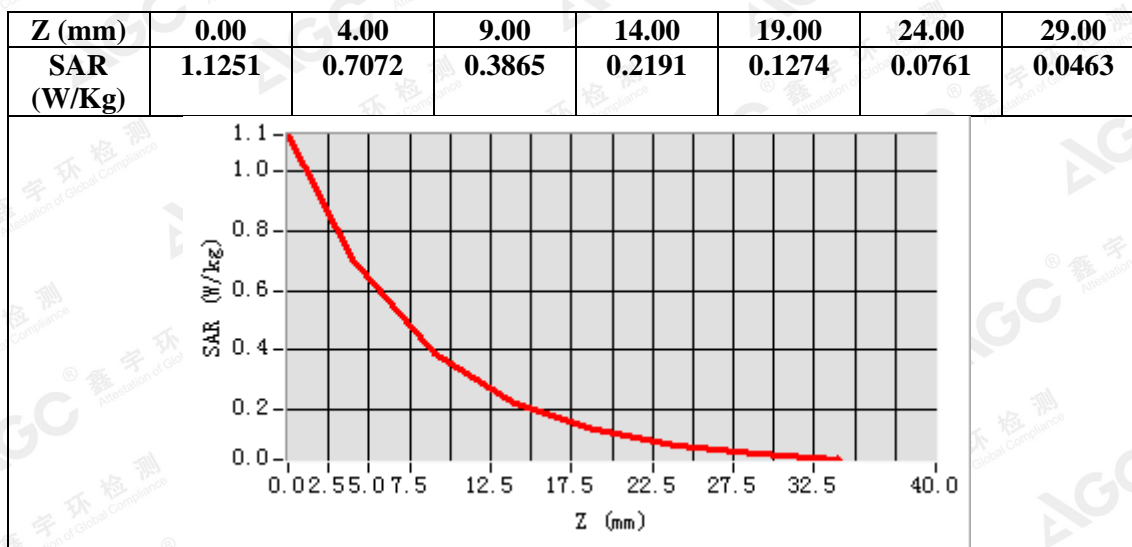


Maximum location: X=23.00, Y=-39.00

SAR Peak: 1.14 W/kg

SAR 10g (W/Kg)	0.367214
SAR 1g (W/Kg)	0.680149

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 1 High-Touch-Left(1RB#0)
DUT: Smart Phone; Type: NOVA

Date: Apr. 11, 2018

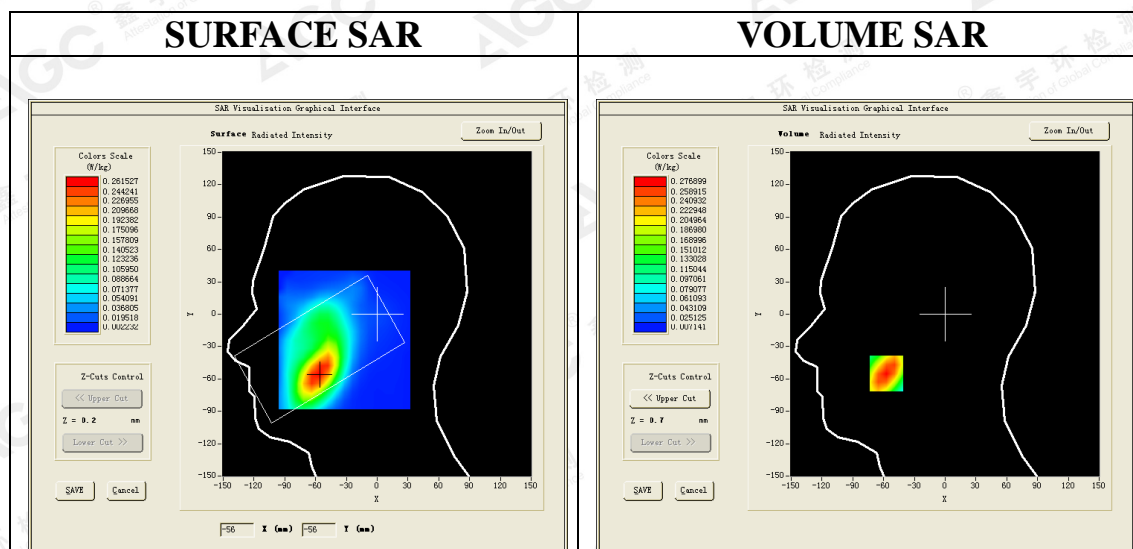
Communication System: LTE; Communication System Band: LTE Band 1 ;Duty Cycle:1:1; Conv.F=2.28;
Frequency: 1970MHz; Medium parameters used: $f = 2000 \text{ MHz}$; $\sigma = 1.41 \text{ mho/m}$; $\epsilon_r = 40.85$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Left Section
Ambient temperature ($^{\circ}\text{C}$):22.0, Liquid temperature ($^{\circ}\text{C}$):21.3

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_32

Configuration/LTE BAND 1 High- Touch-Left /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/LTE BAND 1 High- Touch-Left /Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE Band 1
Channels	High
Signal	OFDM (Crest factor: 1.0)

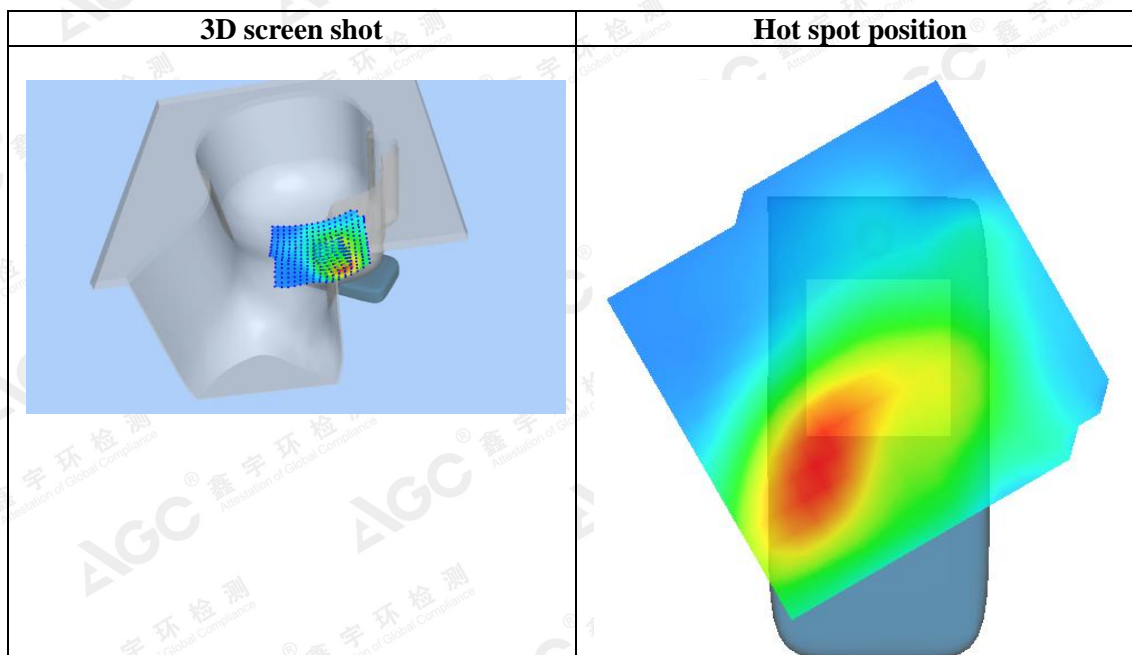
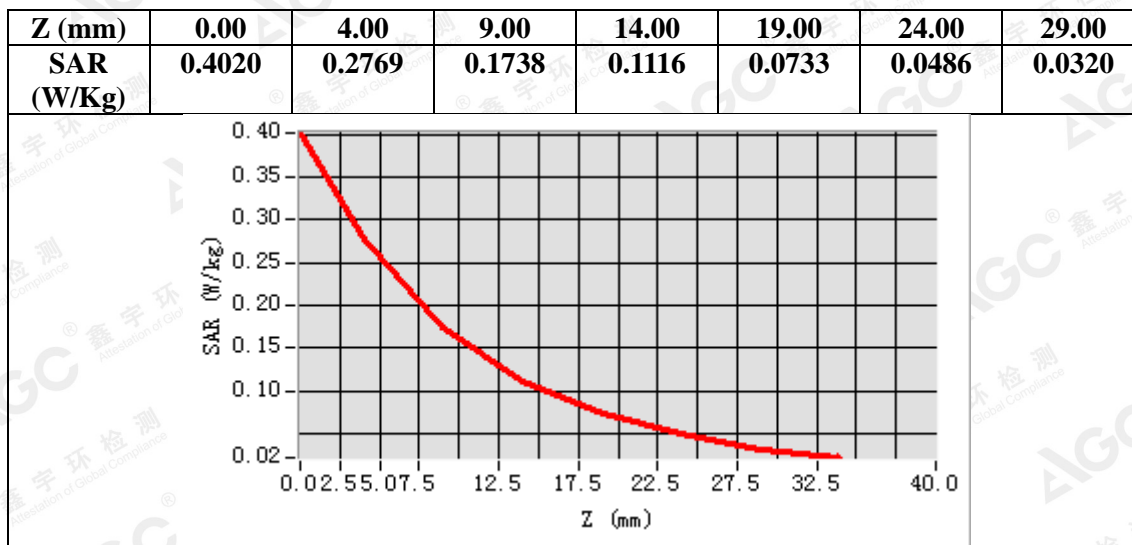


Maximum location: X=-57.00, Y=-55.00

SAR Peak: 0.40 W/kg

SAR 10g (W/Kg)	0.157351
SAR 1g (W/Kg)	0.264275

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 1 Low-Body-Front(1RB#0)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 11, 2018

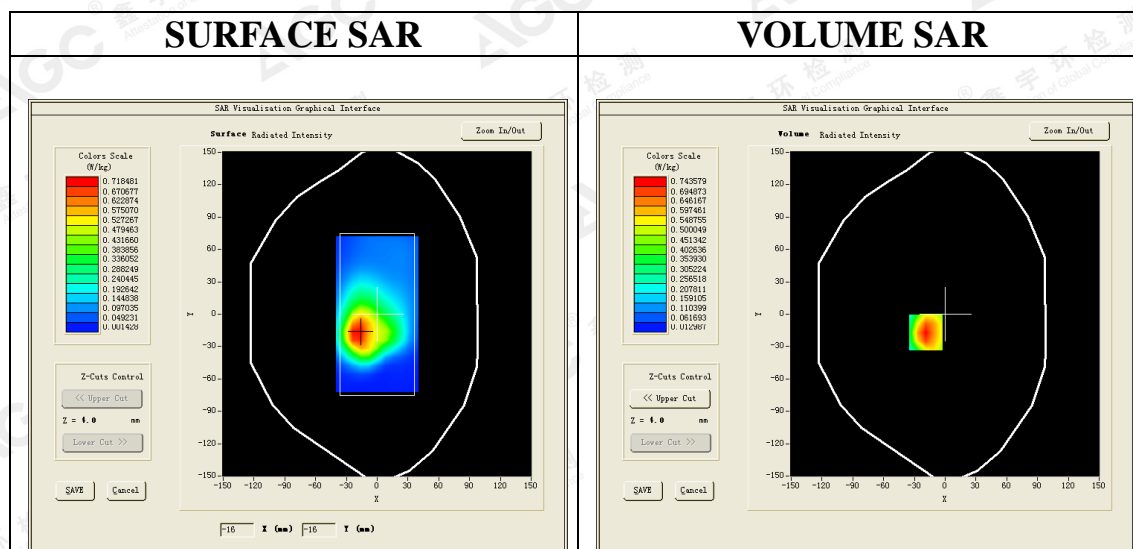
Communication System: LTE; Communication System Band: LTE Band 1 ;Duty Cycle:1:1; Conv.F=2.28;
Frequency: 1930MHz; Medium parameters used: $f = 2000$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40.85$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.0, Liquid temperature (°C):21.3

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_32

Configuration/LTE BAND 1 Low-Body-front /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/LTE BAND 1 Low- Body-front /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	Validation plane
Device Position	Body Front
Band	LTE Band 1
Channels	Low
Signal	OFDM (Crest factor: 1.0)

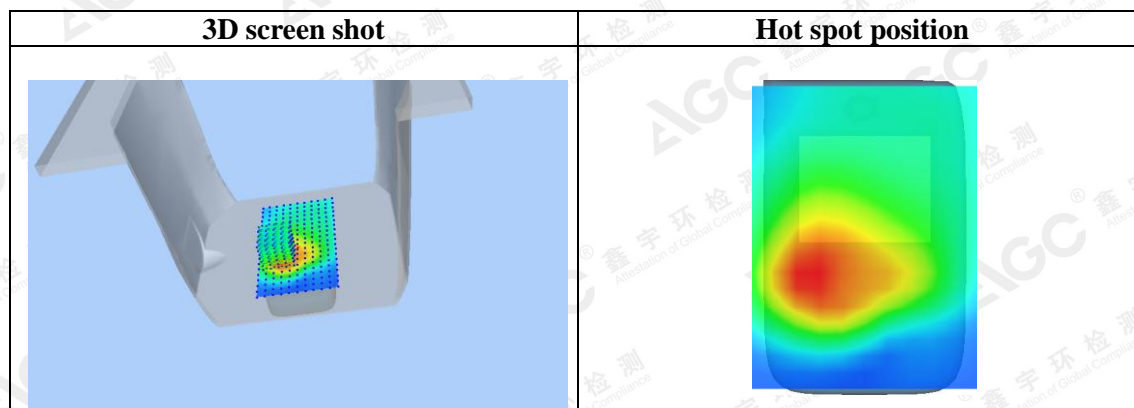
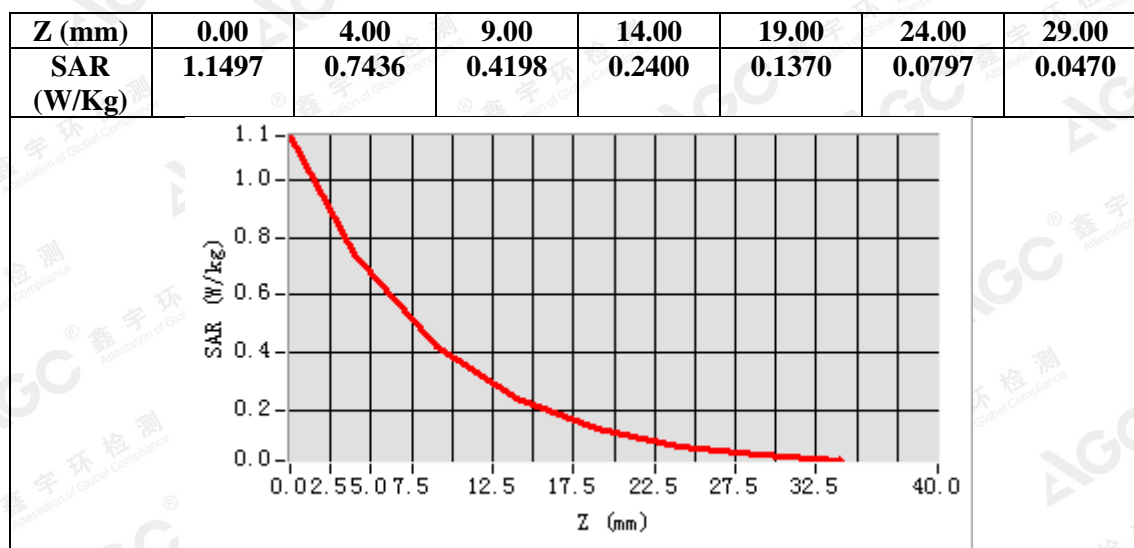


Maximum location: X=-19.00, Y=-17.00

SAR Peak: 1.17 W/kg

SAR 10g (W/Kg)	0.390932
SAR 1g (W/Kg)	0.707874

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 1High-Body-Front(1RB#0)
DUT: Smart Phone; Type: NOVA

Date: Apr. 11, 2018

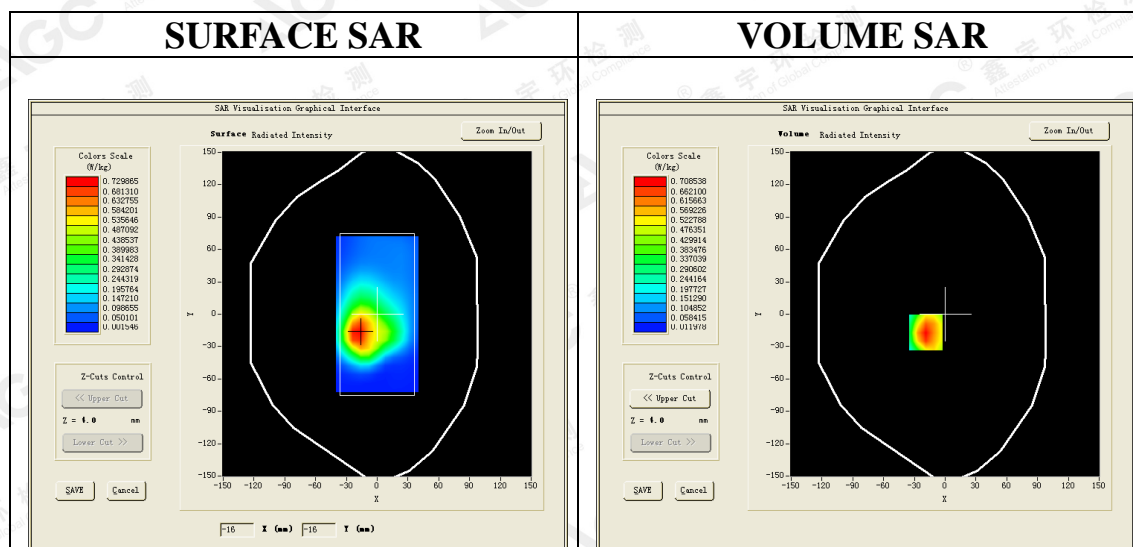
Communication System: LTE; Communication System Band: LTE Band 1 ;Duty Cycle:1:1; Conv.F=2.28;
Frequency: 1970MHz; Medium parameters used: $f = 2000$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40.85$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):22.0, Liquid temperature (°C):21.3

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_32

Configuration/LTE BAND 1 High -Body-front /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/LTE BAND 1 High - Body-front /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	Validation plane
Device Position	Body Front
Band	LTE Band 1
Channels	High
Signal	OFDM (Crest factor: 1.0)

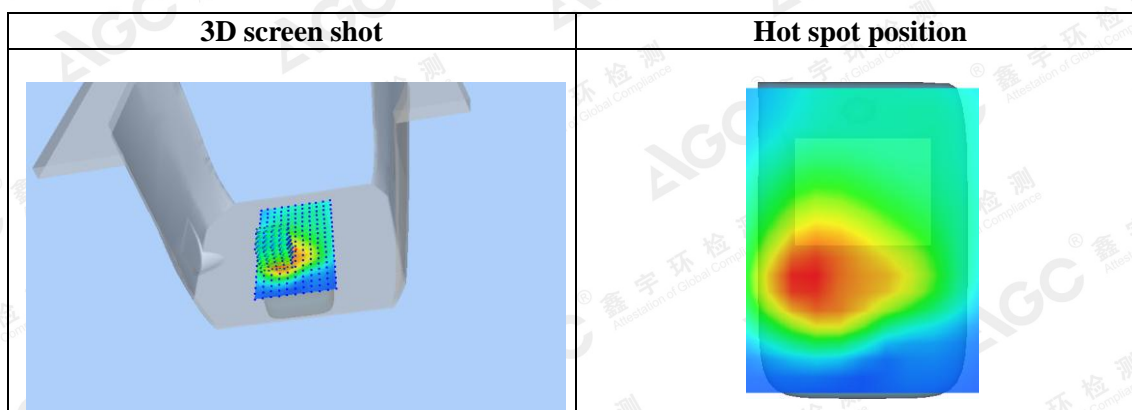
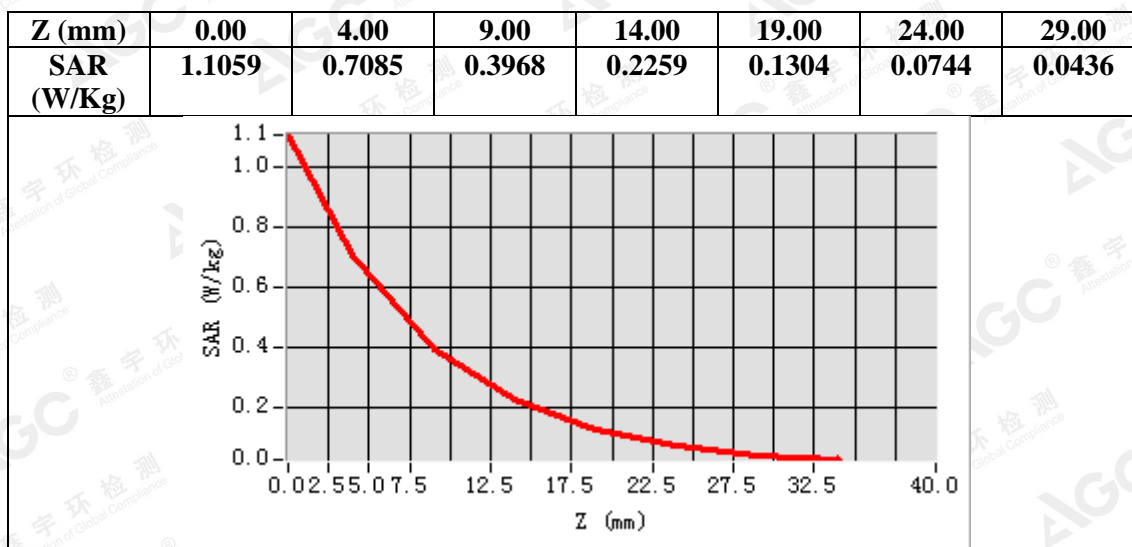


Maximum location: X=-19.00, Y=-17.00

SAR Peak: 1.14 W/kg

SAR 10g (W/Kg)	0.372441
SAR 1g (W/Kg)	0.678884

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 3 High-Touch-Left (1RB#0)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 18, 2018

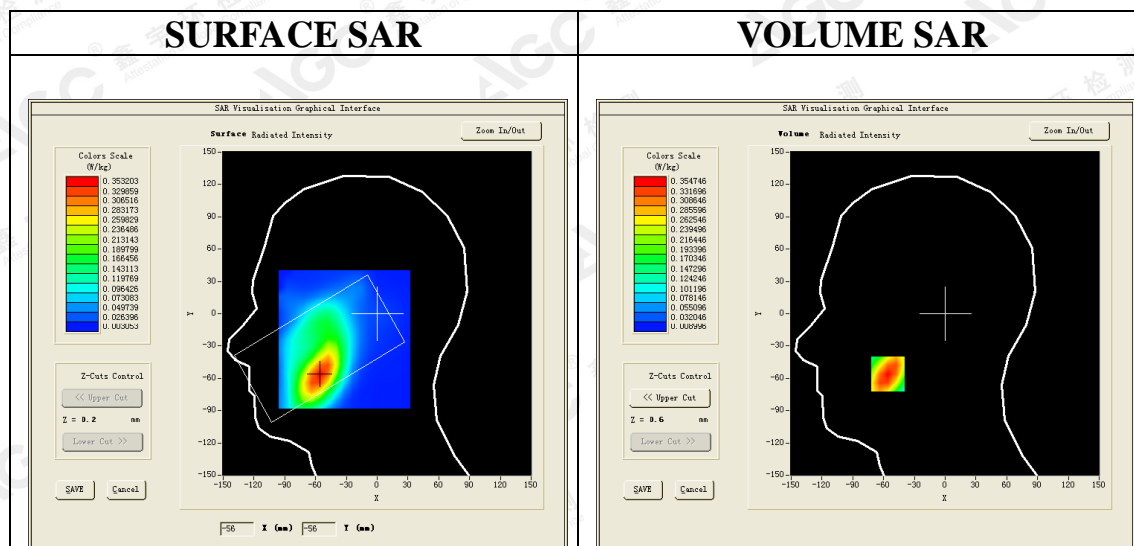
Communication System: LTE; Communication System Band: LTE Band 3; Duty Cycle: 1:1; Conv.F=2.03
Frequency: 1775MHz; Medium parameters used: $f = 1800 \text{ MHz}$; $\sigma = 1.43 \text{ mho/m}$; $\epsilon_r = 40.85$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Left Section
Ambient temperature ($^{\circ}\text{C}$):21.4, Liquid temperature ($^{\circ}\text{C}$):21.0

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/LTE Band 3 High - Touch-Left/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/LTE Band 3 High - Touch-Left/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE Band 3
Channels	High
Signal	OFDM (Crest factor: 1.0)

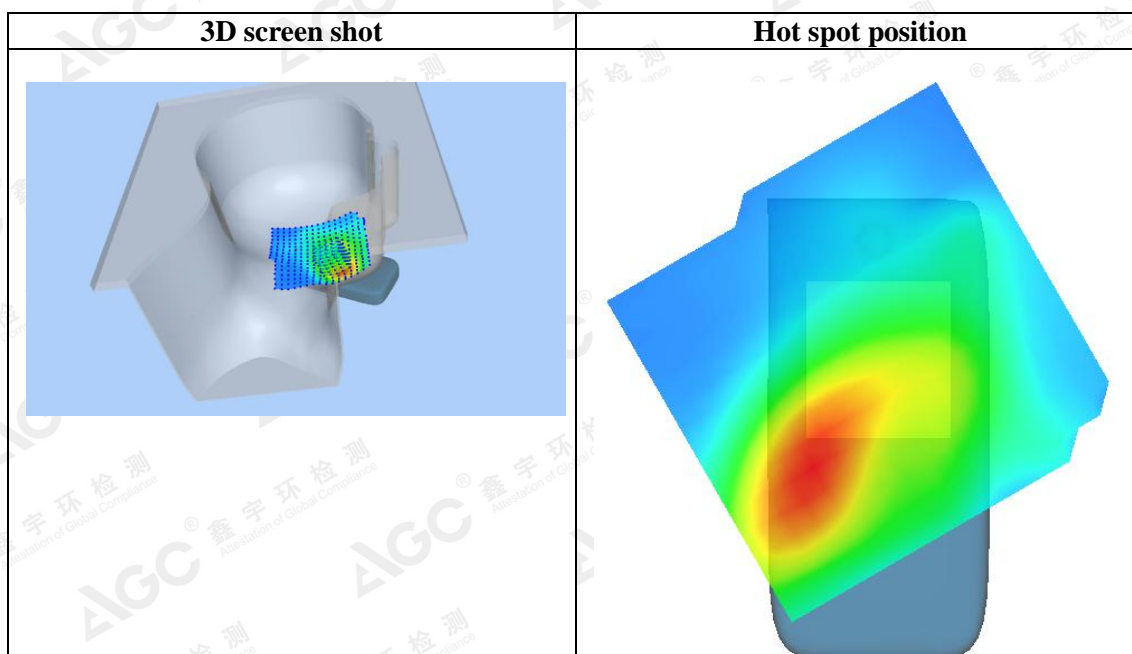
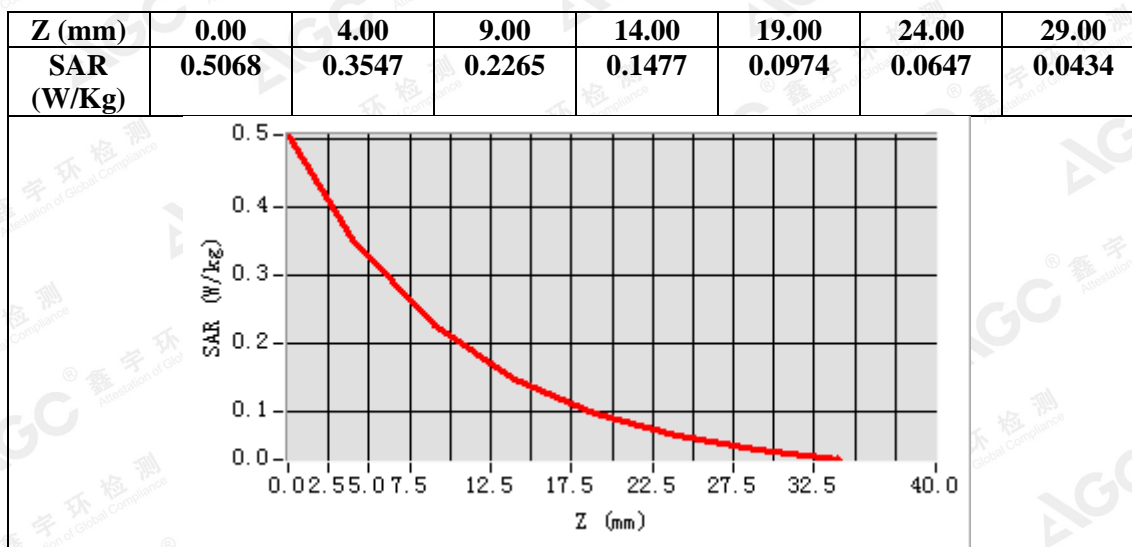


Maximum location: X=-56.00, Y=-56.00

SAR Peak: 0.51 W/kg

SAR 10g (W/Kg)	0.204255
SAR 1g (W/Kg)	0.339553

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 3 Mid-Body-Front(1RB#0)
DUT: Smart Phone; Type: NOVA

Date: Apr. 18, 2018

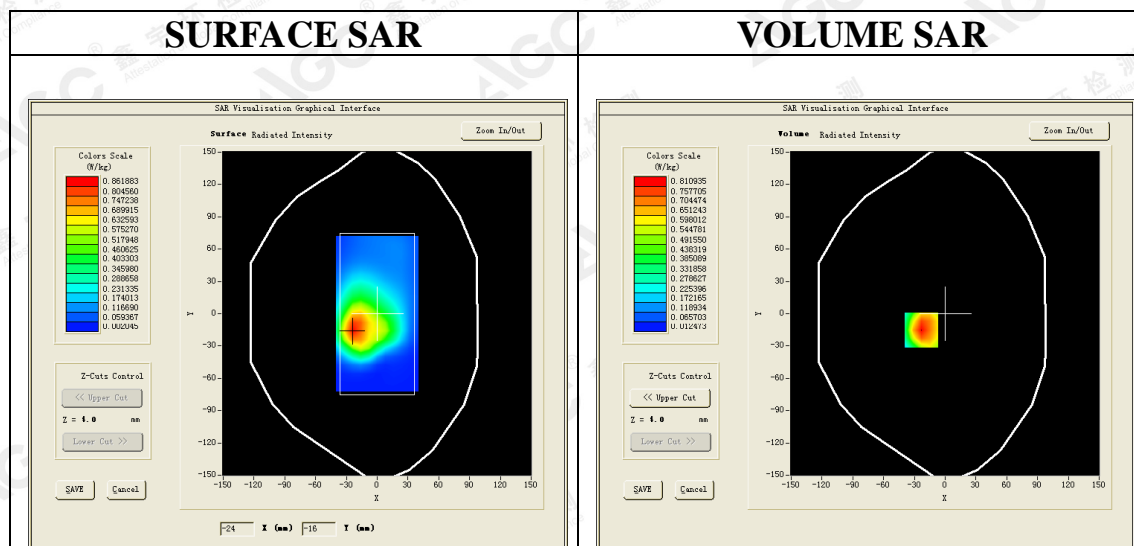
Communication System: LTE; Communication System Band: LTE Band 3; Duty Cycle: 1:1; Conv.F=2.03
Frequency: 1747.5MHz; Medium parameters used: $f = 1800$ MHz; $\sigma = 1.43$ mho/m; $\epsilon_r = 40.85$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):21.4, Liquid temperature (°C):21.0

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/LTE Band 3 Mid-Body-front /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/LTE Band 3 Mid-Body-front /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	Validation plane
Device Position	Body Front
Band	LTE Band 3
Channels	Middle
Signal	OFDM (Crest factor: 1.0)

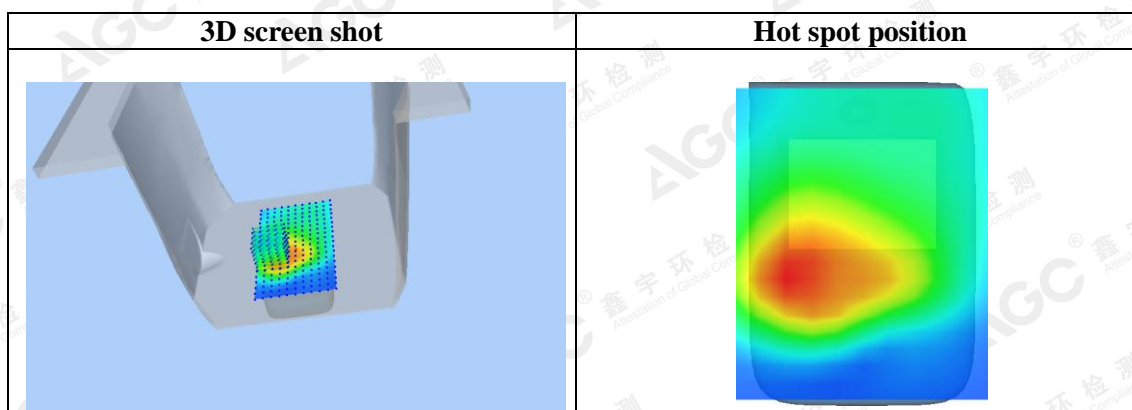
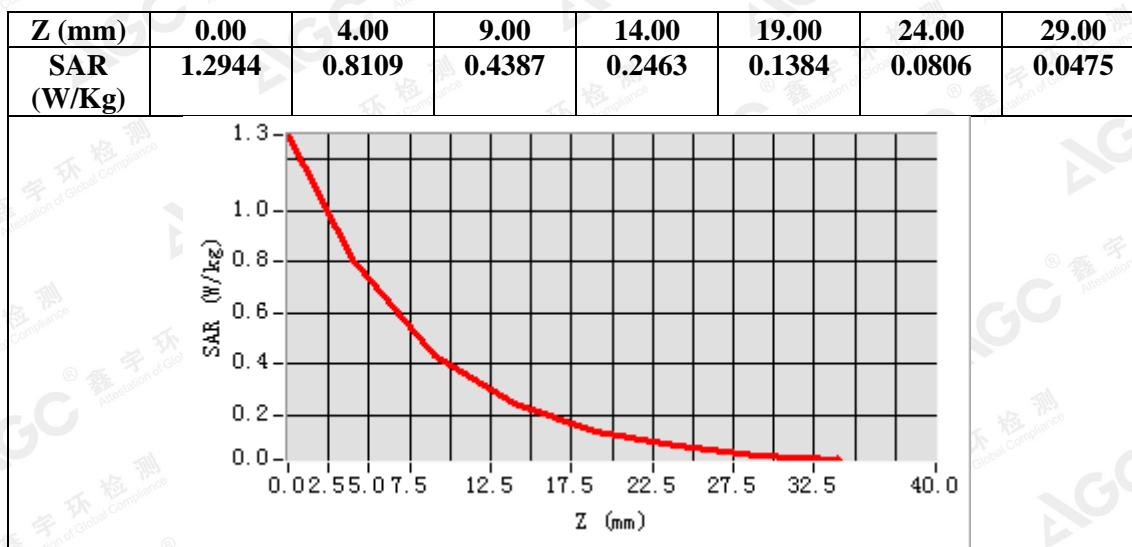


Maximum location: X=-23.00, Y=-15.00

SAR Peak: 1.29 W/kg

SAR 10g (W/Kg)	0.425882
SAR 1g (W/Kg)	0.774229

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 3 High-Body-Front(1RB#0)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 18, 2018

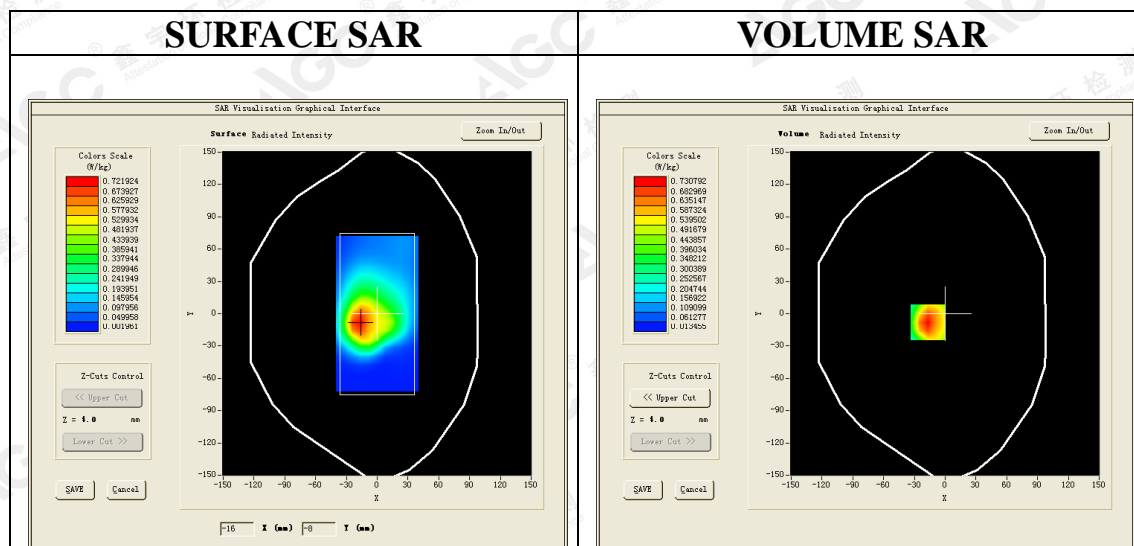
Communication System: LTE; Communication System Band: LTE Band 3; Duty Cycle: 1:1; Conv.F=2.03
Frequency: 1775MHz; Medium parameters used: $f = 1800 \text{ MHz}$; $\sigma = 1.43 \text{ mho/m}$; $\epsilon_r = 40.85$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Flat Section
Ambient temperature ($^{\circ}\text{C}$):21.4, Liquid temperature ($^{\circ}\text{C}$):21.0

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/LTE Band 3 High -Body-front /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/LTE Band 3 High -Body-front /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	Validation plane
Device Position	Body Front
Band	LTE Band 3
Channels	High
Signal	OFDM (Crest factor: 1.0)

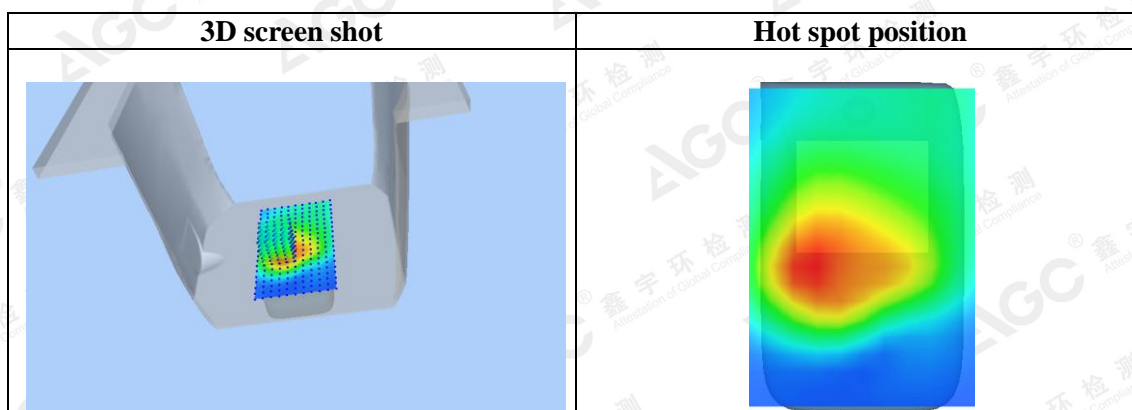
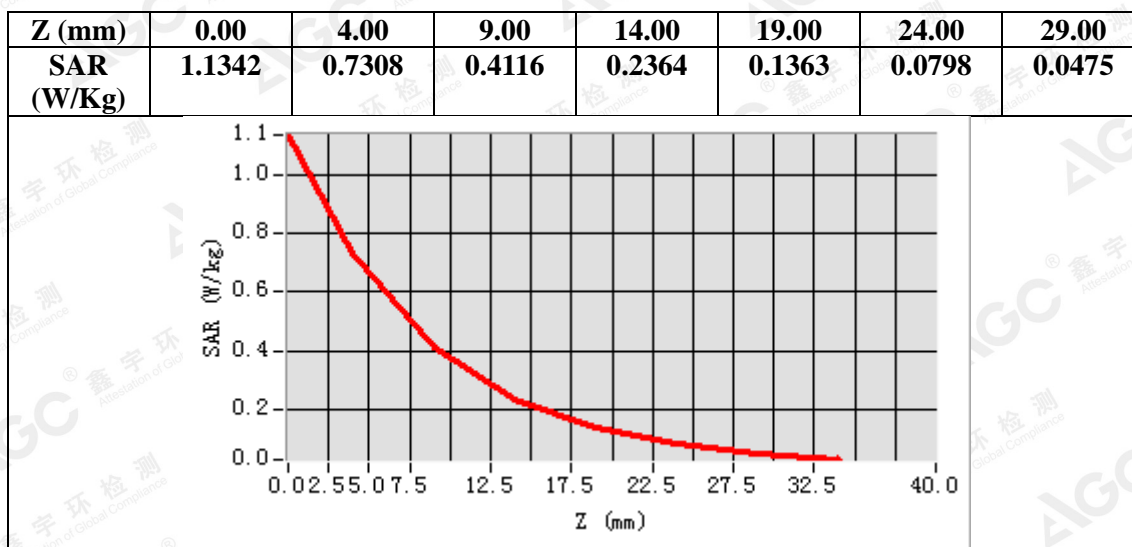


Maximum location: X=-17.00, Y=-8.00

SAR Peak: 1.16 W/kg

SAR 10g (W/Kg)	0.385035
SAR 1g (W/Kg)	0.701021

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 7 High-Touch-Left (1RB#0)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 19, 2018

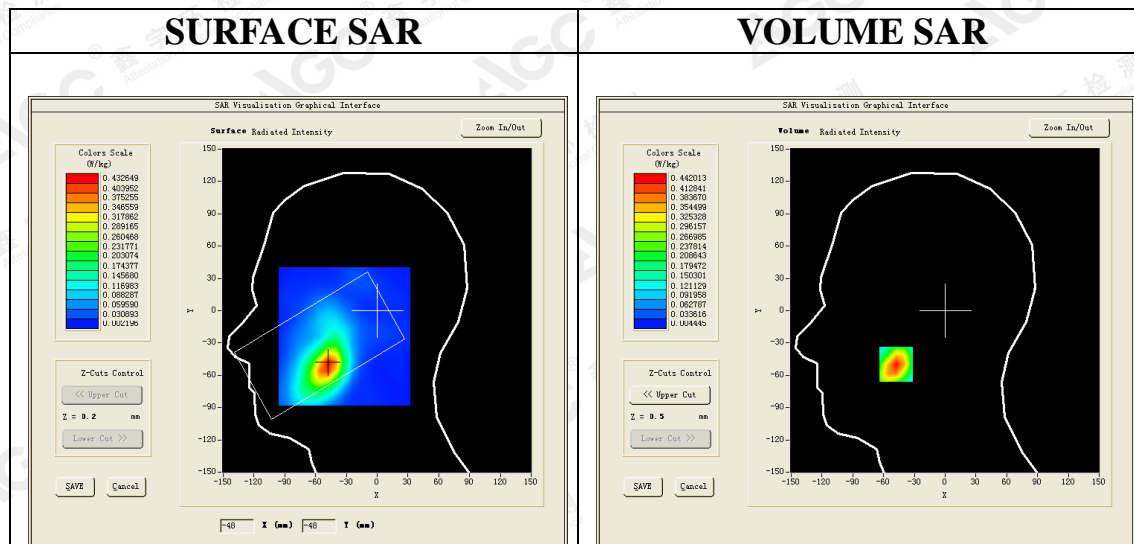
Communication System: LTE; Communication System Band: LTE Band 7; Duty Cycle:1:1; Conv.F=2.40
Frequency: 2560MHz; Medium parameters used: $f = 2600$ MHz; $\sigma = 21.2$ mho/m; $\epsilon_r = 38.77$; $\rho = 1000$ kg/m³ ;
Phantom section: Left Section
Ambient temperature (°C): 21.7, Liquid temperature (°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_32

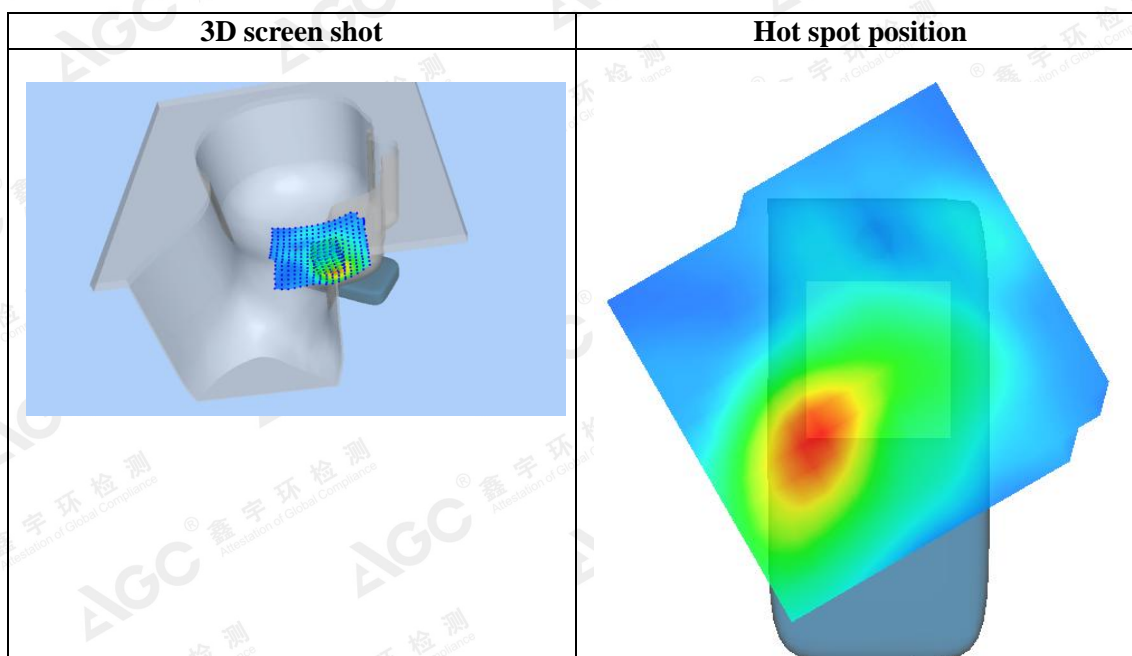
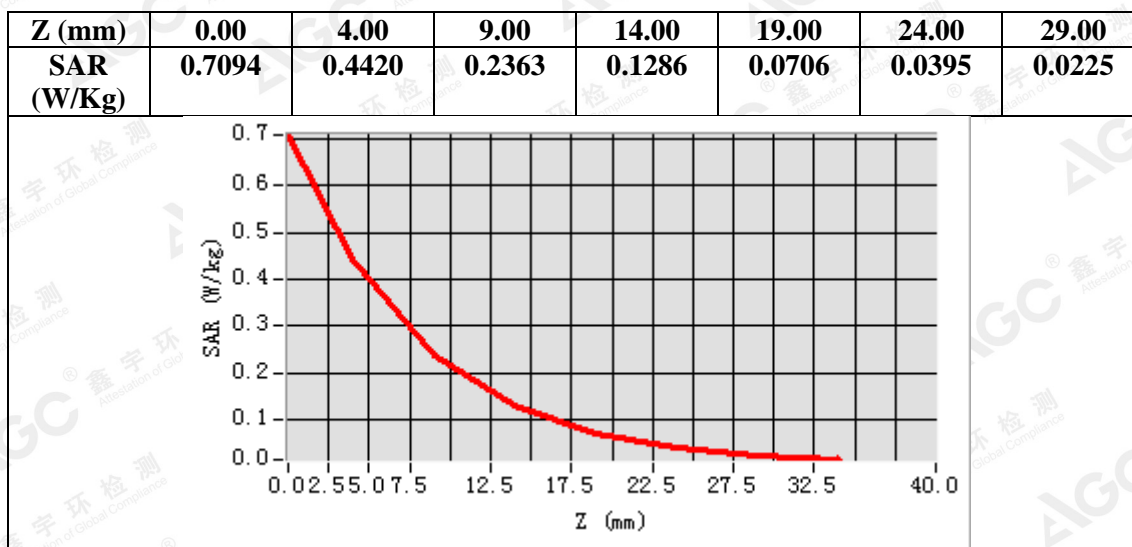
Configuration/ LTE BAND 7 High -Touch-Left/Area Scan: Measurement grid: dx=8mm, y=8mm
Configuration/ LTE BAND 7 High -Touch-Left/Zoom Scan: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE BAND 7
Channels	High
Signal	OFDM (Crest factor: 1.0)



SAR 10g (W/Kg)	0.209622
SAR 1g (W/Kg)	0.415710

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 7 Mid-Body-Back (1RB#0)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 19, 2018

Communication System: LTE; Communication System Band: LTE Band 7; Duty Cycle:1:1; Conv.F=2.40
Frequency: 2535MHz; Medium parameters used: $f = 2600$ MHz; $\sigma = 21.2$ mho/m; $\epsilon_r = 38.77$; $\rho = 1000$ 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)

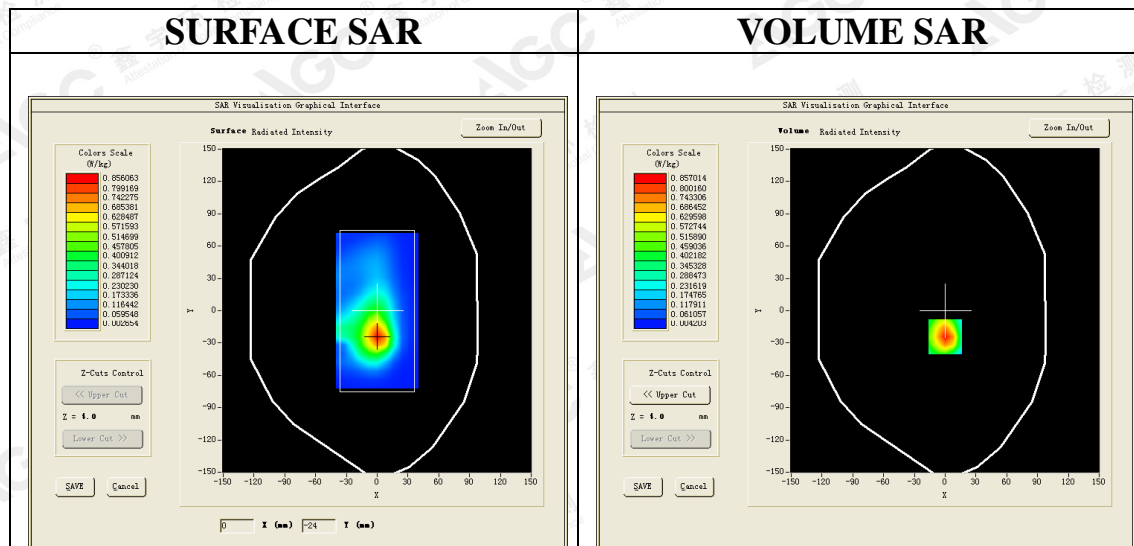
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_32

Configuration/ LTE BAND 7 Mid-Body-Back /Area Scan: Measurement grid: dx=8mm, y=8mm

Configuration/ LTE BAND 7 Mid-Body-Back /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	Validation plane
Device Position	Body Back
Band	LTE BAND 7
Channels	Middle
Signal	OFDM (Crest factor: 1.0)

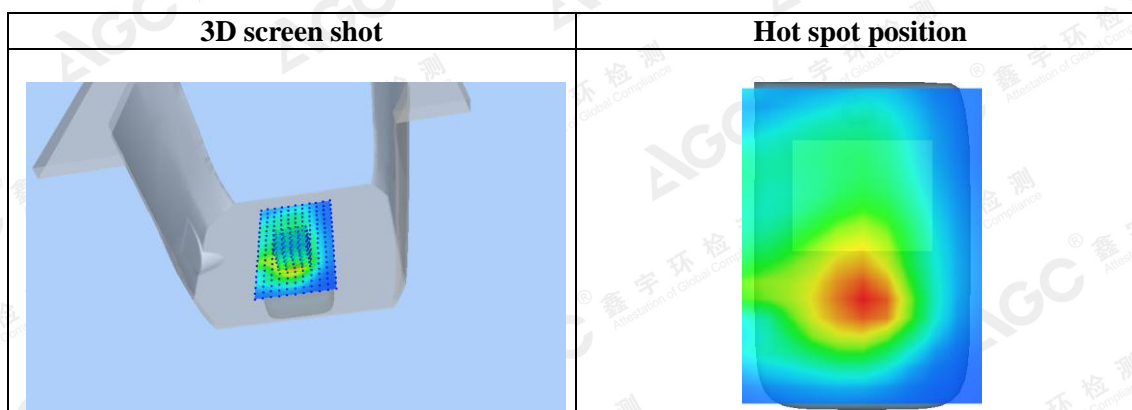
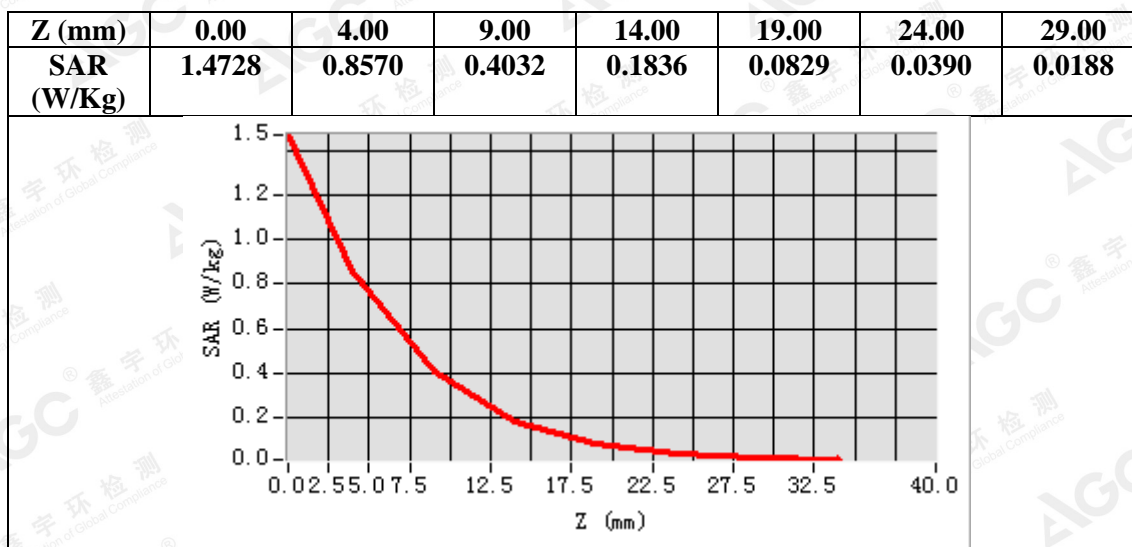


Maximum location: X=0.00, Y=-24.00

SAR Peak: 1.50 W/kg

SAR 10g (W/Kg)	0.384907
SAR 1g (W/Kg)	0.813223

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 7 High-Body-Back (1RB#0)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 19, 2018

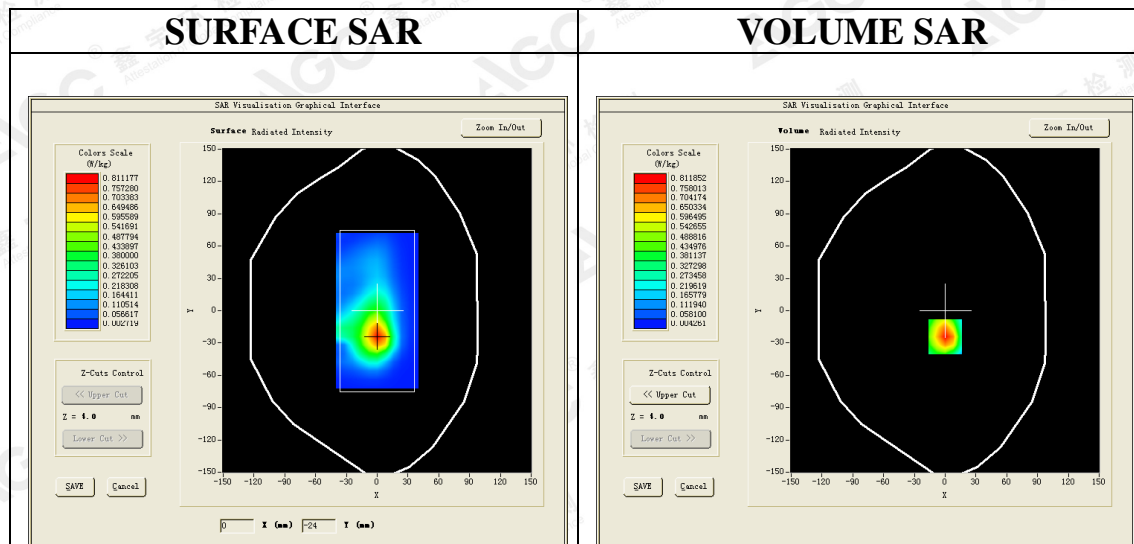
Communication System: LTE; Communication System Band: LTE Band 7; Duty Cycle:1:1; Conv.F=2.40
Frequency: 2560MHz; Medium parameters used: $f = 2600$ MHz; $\sigma = 21.2$ mho/m; $\epsilon_r = 38.77$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C): 21.7, Liquid temperature (°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_32

Configuration/ LTE BAND 7 High -Body-Back /Area Scan: Measurement grid: dx=8mm, y=8mm
Configuration/ LTE BAND 7 High -Body-Back /Zoom Scan: Measurement grid: dx=8mm, dy=8mm, dz=5mm

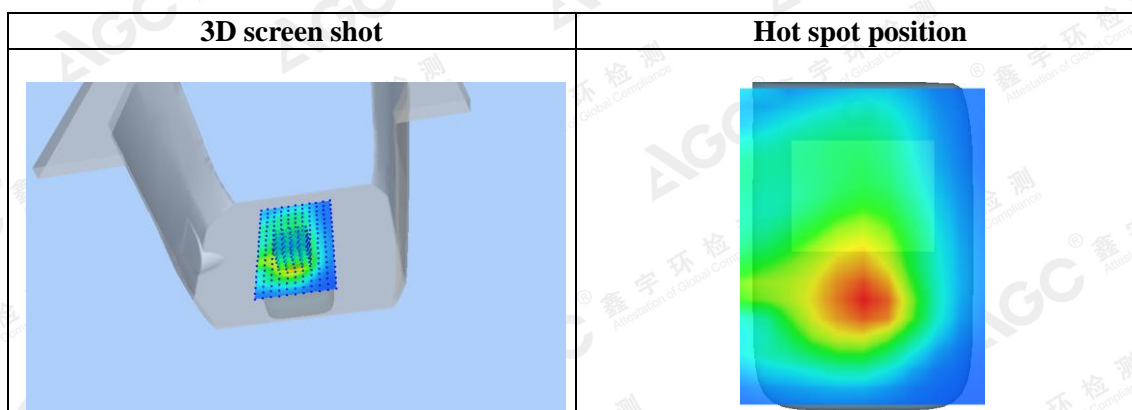
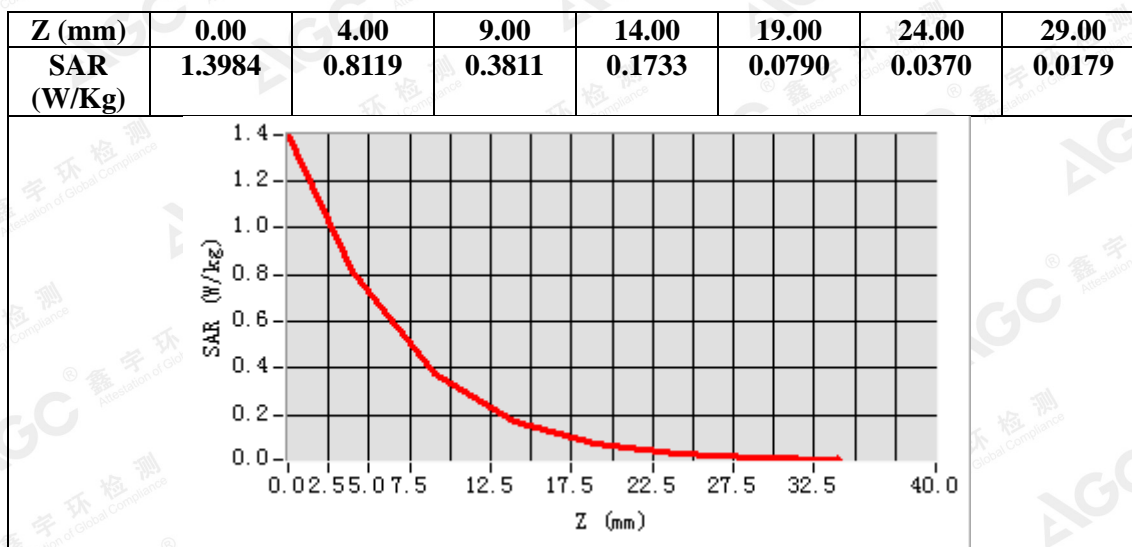
Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE BAND 7
Channels	High
Signal	OFDM (Crest factor: 1.0)



Maximum location: X=0.00, Y=-24.00
SAR Peak: 1.42 W/kg

SAR 10g (W/Kg)	0.368197
SAR 1g (W/Kg)	0.771198

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 8 Mid-Touch-Right (1RB#0)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 17, 2018

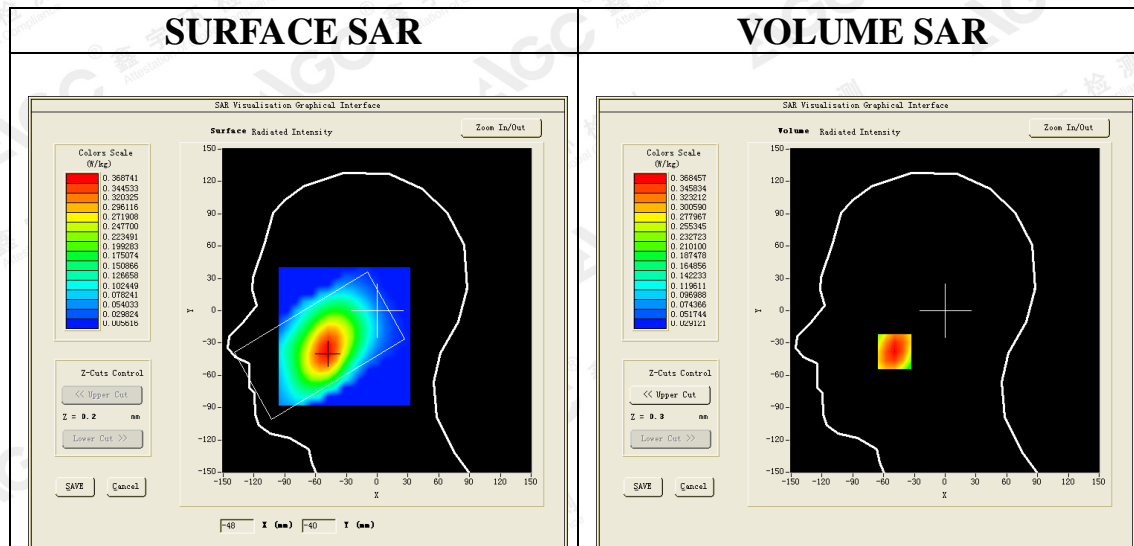
Communication System: LTE; Communication System Band: LTE Band 8; Duty Cycle:1:1; Conv.F=1.77
Frequency: 897.5MHz; Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.96 \text{ mho/m}$; $\epsilon_r = 42.11$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Right Section
Ambient temperature (°C): 22.10, Liquid temperature (°C): 20.3

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_32

Configuration/ LTE BAND 8 Mid-Touch-Right/Area Scan: Measurement grid: dx=8mm, y=8mm
Configuration/ LTE BAND 8 Mid-Touch-Right/Zoom Scan: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE BAND 8
Channels	Middle
Signal	OFDM (Crest factor: 1.0)

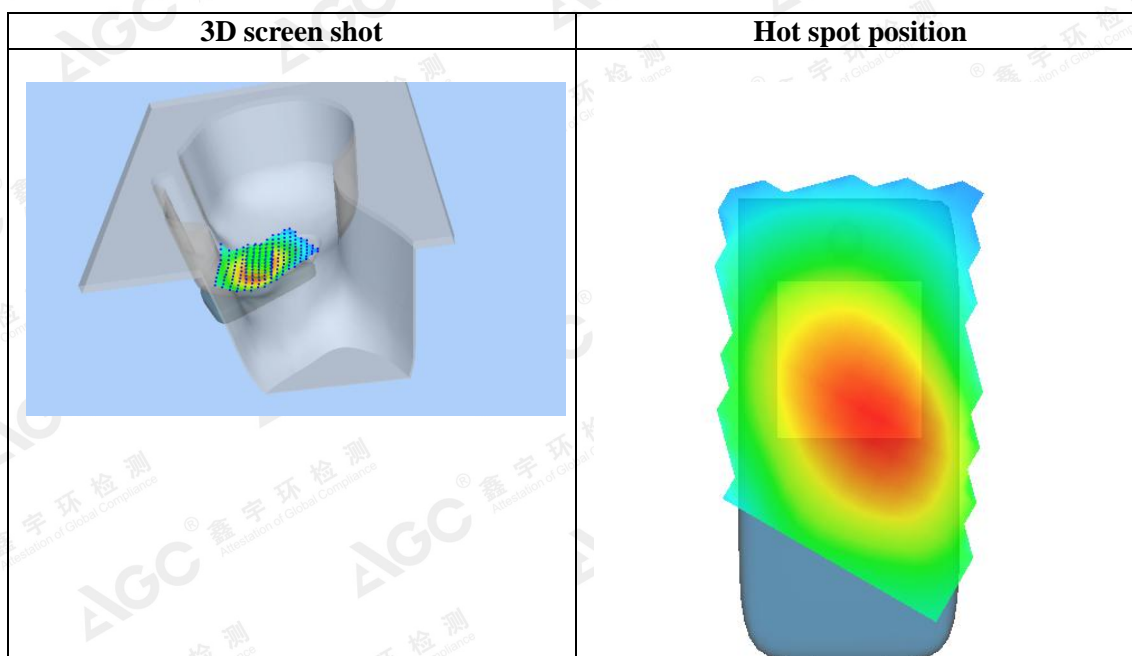
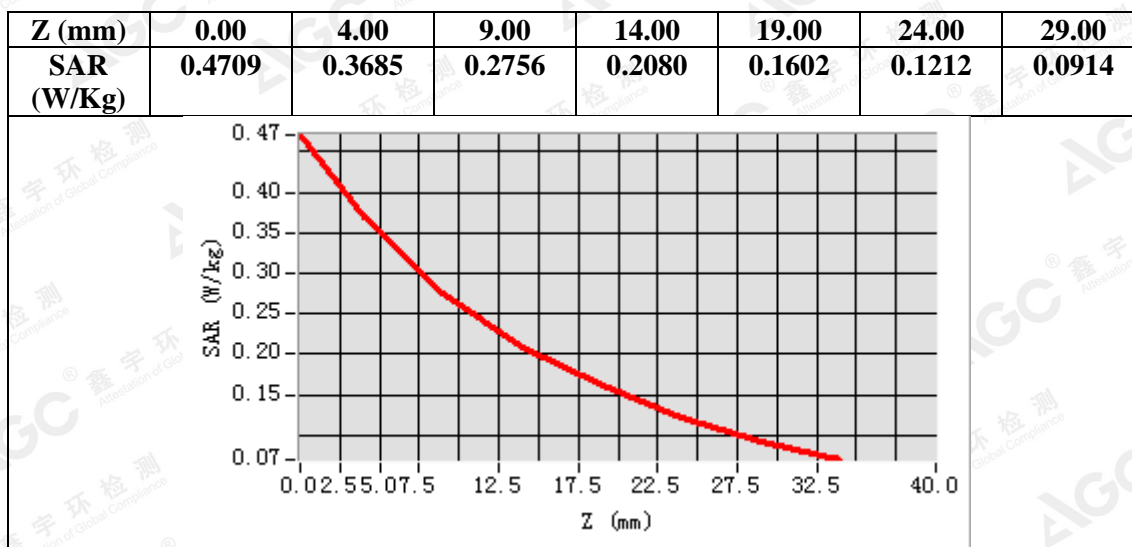


Maximum location: X=-49.00, Y=-38.00

SAR Peak: 0.47 W/kg

SAR 10g (W/Kg)	0.252166
SAR 1g (W/Kg)	0.355645

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 8 Low-Body-Back (1RB#0) - with earphone
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 17, 2018

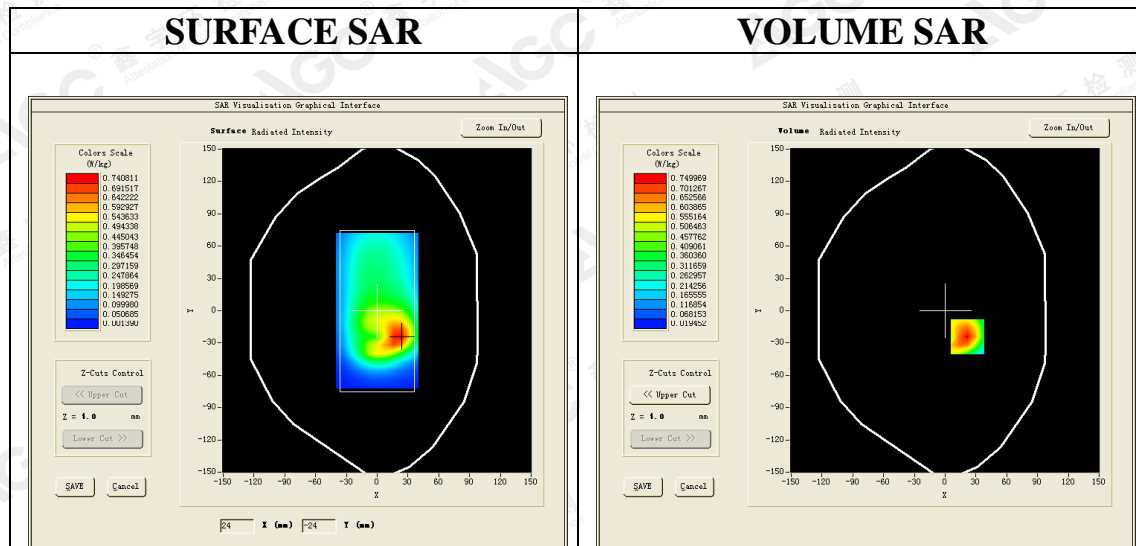
Communication System: LTE; Communication System Band: LTE Band 8; Duty Cycle:1:1; Conv.F=1.77
Frequency:885MHz; Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.96 \text{ mho/m}$; $\epsilon_r = 42.11$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Flat Section
Ambient temperature (°C): 22.10, Liquid temperature (°C): 20.3

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_32

Configuration/ LTE BAND 8 Low -Body-Back/Area Scan: Measurement grid: dx=8mm, y=8mm
Configuration/ LTE BAND 8 Low -Body-Back /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	Validation plane
Device Position	Body Back
Band	LTE BAND 8
Channels	Low
Signal	OFDM (Crest factor: 1.0)

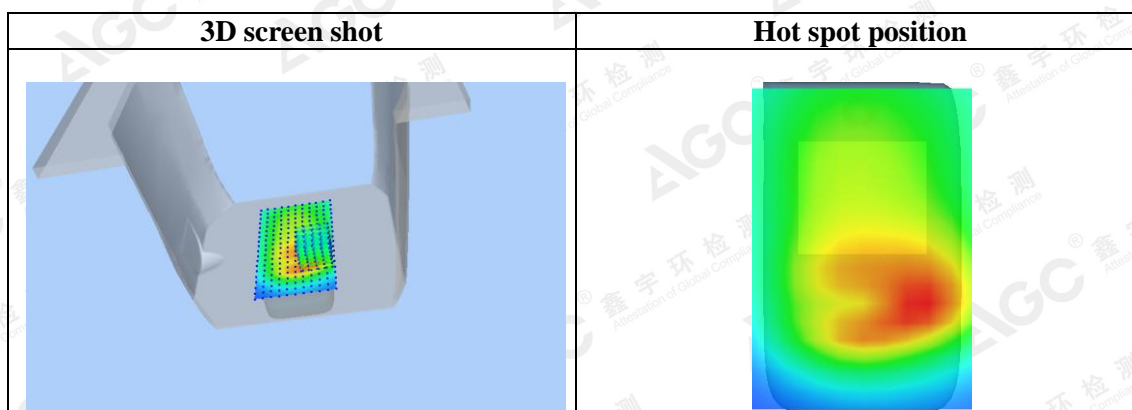
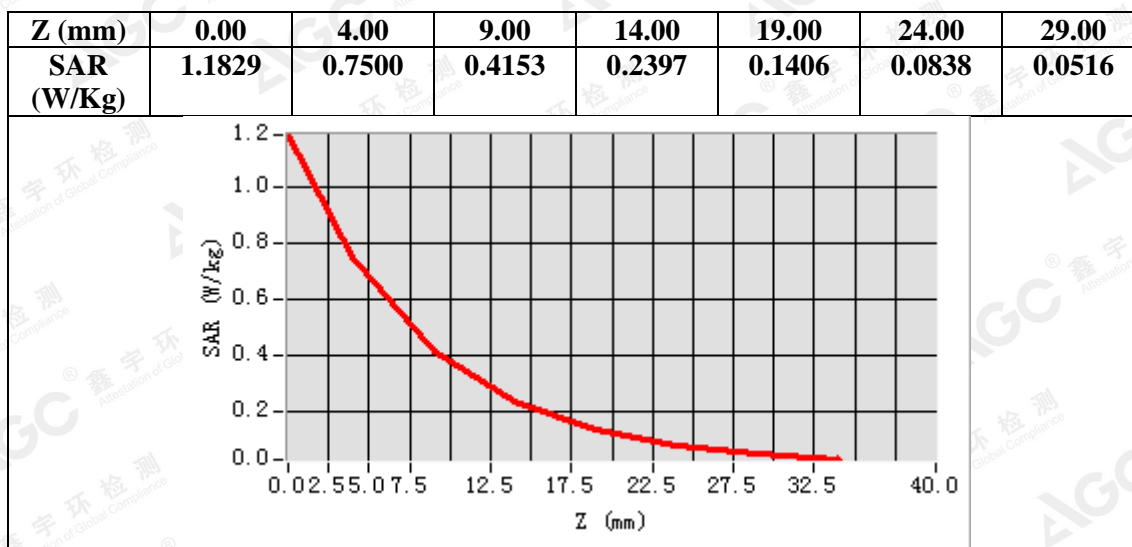


Maximum location: X=22.00, Y=-24.00

SAR Peak: 1.20 W/kg

SAR 10g (W/Kg)	0.394414
SAR 1g (W/Kg)	0.718072

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 20 Mid-Touch-Right (1RB#0)
DUT: Smart Phone; Type: NOVA

Date: Apr. 03, 2018

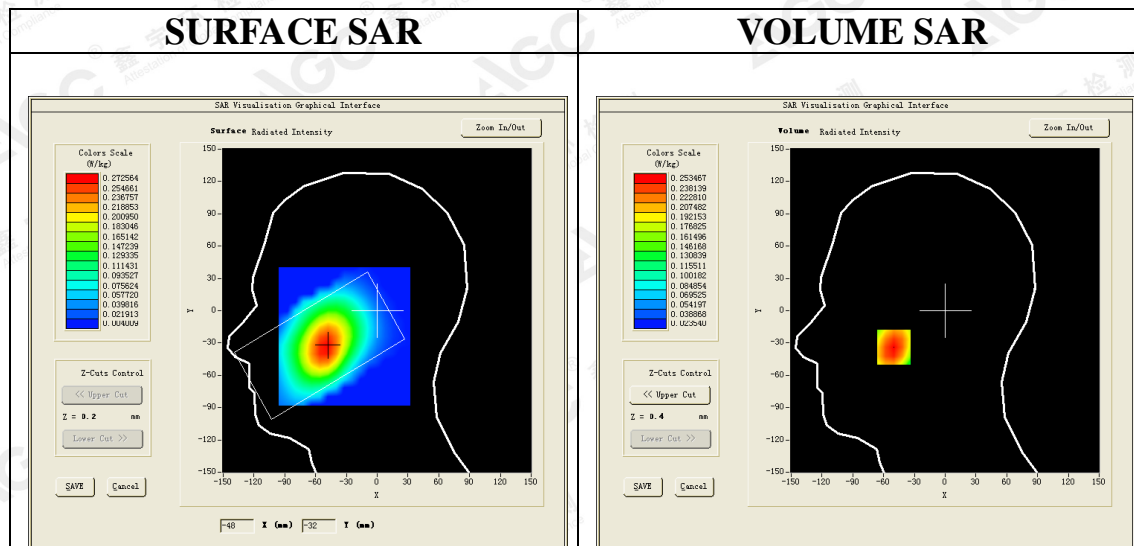
Communication System: LTE; Communication System Band: LTE Band 20; Duty Cycle:1:1; Conv.F=1.74
Frequency: 847MHz; Medium parameters used: $f = 835\text{MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 40.59$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Right Section
Ambient temperature ($^{\circ}\text{C}$): 21.2, Liquid temperature ($^{\circ}\text{C}$): 21.0

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/ LTE BAND 20 Mid-Touch-Right /Area Scan: Measurement grid: dx=8mm, y=8mm
Configuration/ LTE BAND 20 Mid-Touch-Right /Zoom Scan: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE BAND 20
Channels	Middle
Signal	OFDM (Crest factor: 1.0)

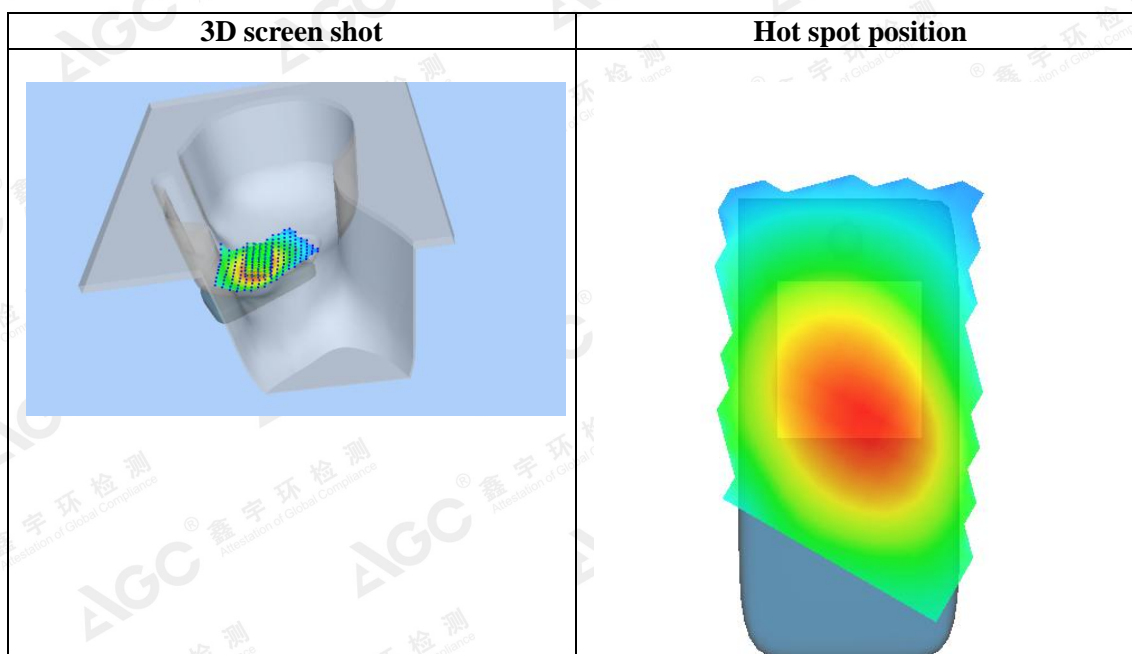
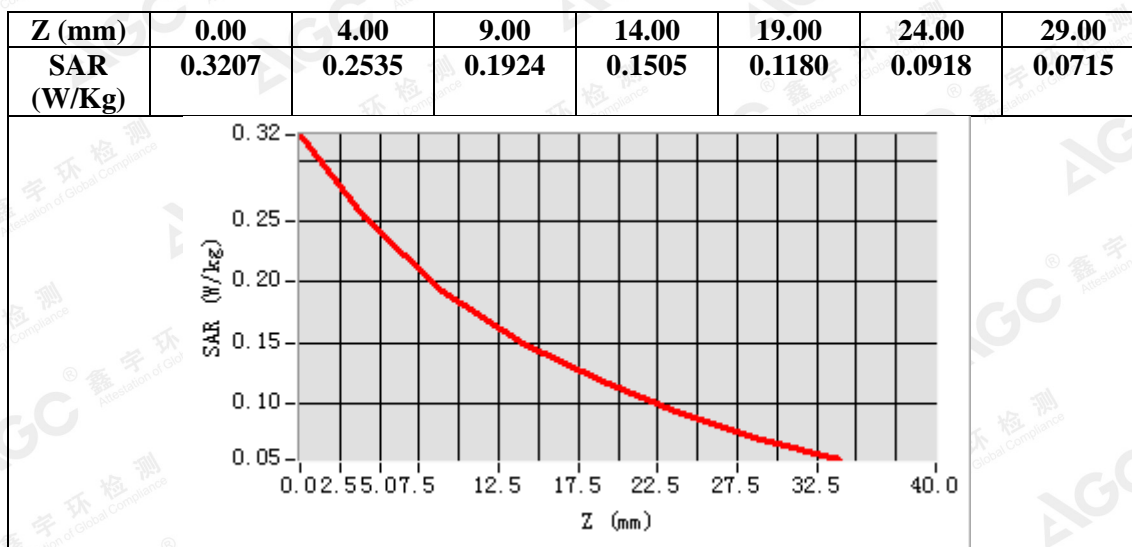


Maximum location: X=-50.00, Y=-34.00

SAR Peak: 0.33 W/kg

SAR 10g (W/Kg)	0.178107
SAR 1g (W/Kg)	0.246368

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
LTE Band 20 High-Body-Back (1RB#0)
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 03, 2018

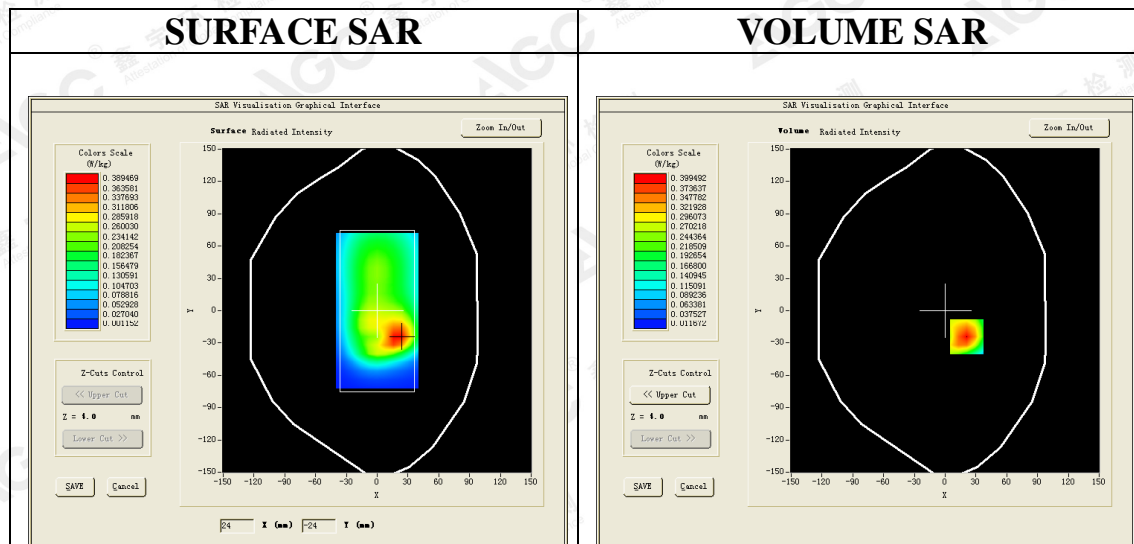
Communication System: LTE; Communication System Band: LTE Band 20; Duty Cycle: 1:1; Conv.F=1.74
Frequency: 852MHz; Medium parameters used: $f = 835\text{MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 40.59$; $\rho = 1000 \text{ kg/m}^3$;
Phantom section: Flat Section
Ambient temperature ($^{\circ}\text{C}$): 21.2, Liquid temperature ($^{\circ}\text{C}$): 21.0

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/ LTE BAND 20 High -Body-Back /Area Scan: Measurement grid: $dx=8\text{mm}$, $y=8\text{mm}$
Configuration/ LTE BAND 20 High -Body-Back /Zoom Scan: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7, $dx=8\text{mm}$ $dy=8\text{mm}$ $dz=5\text{mm}$
Phantom	Validation plane
Device Position	Body Back
Band	LTE BAND 20
Channels	High
Signal	OFDM (Crest factor: 1.0)

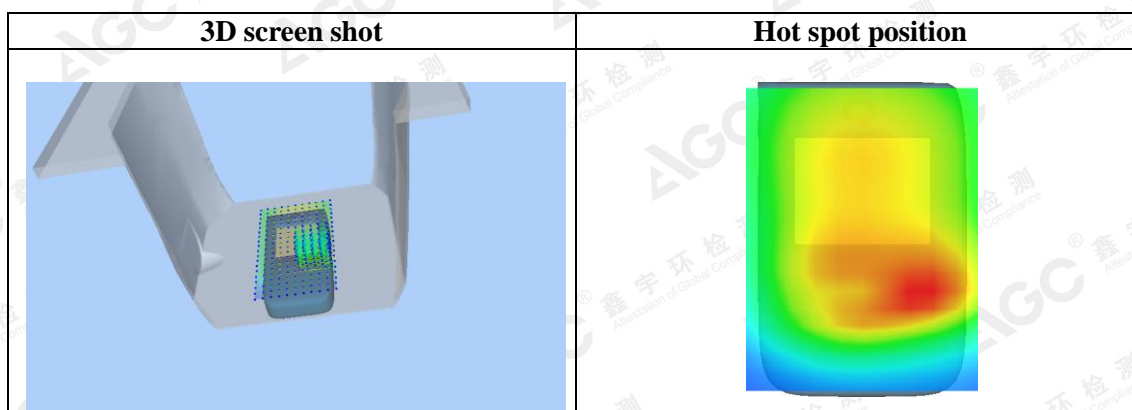
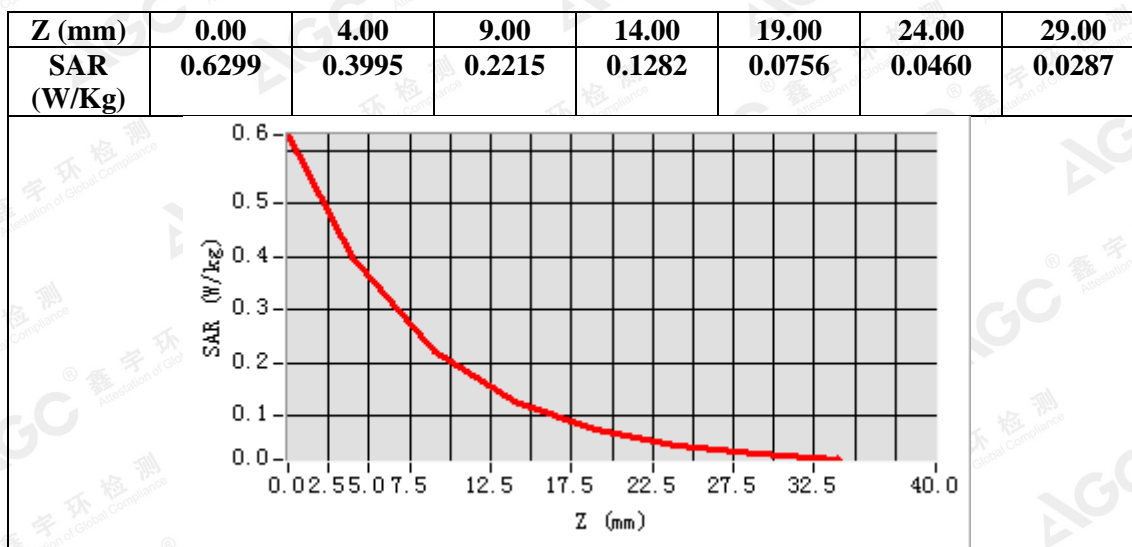


Maximum location: X=21.00, Y=-24.00

SAR Peak: 0.64 W/kg

SAR 10g (W/Kg)	0.212115
SAR 1g (W/Kg)	0.383266

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

WIFI MODE

Test Laboratory: AGC Lab

802.11b Mid-Tilt-Left

DUT: Smart Phone; Type: NOVA

Date: Apr. 16, 2018

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.52;
Frequency: 2442 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.76$ mho/m; $\epsilon_r = 38.95$; $\rho = 1000$ kg/m³ ;
Phantom section: Left Section
Ambient temperature (°C):21.2, Liquid temperature (°C): 21.0

SATIMO Configuration:

Probe: SSE2; Calibrated: Aug. 08,2017; Serial No.: SN 08/16 EPG0282

Sensor-Surface: 4mm (Mechanical Surface Detection)

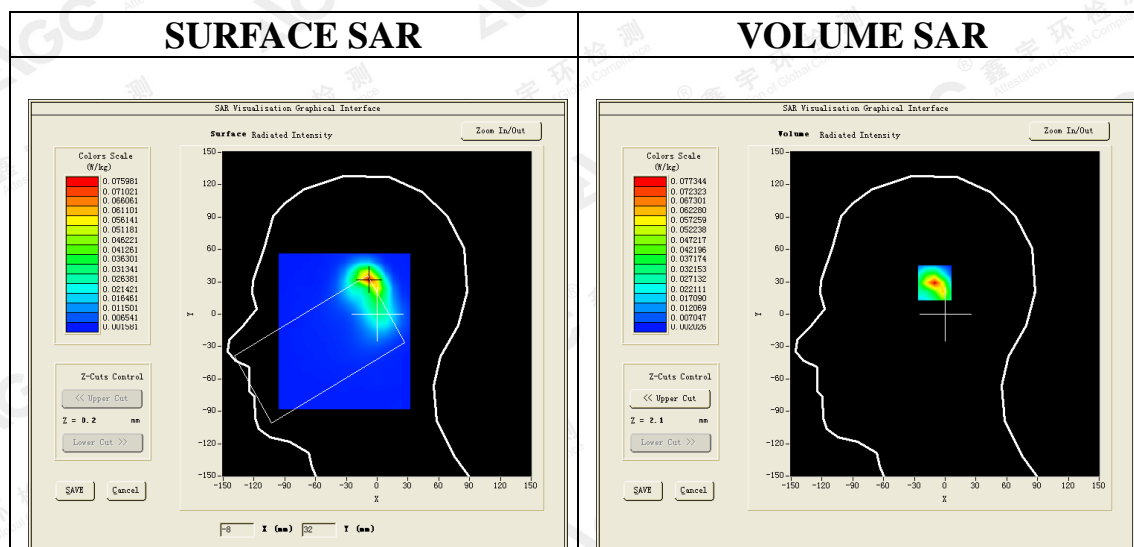
Phantom: SAM twin phantom

Measurement SW: OpenSAR V4_02_32

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

Configuration/802.11b Mid- Tilt-Left/Zoom Scan: Measurement grid: dx=8mm, dy=8mm,dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Tilt
Band	2450MHz
Channels	Middle
Signal	Crest factor: 1.0

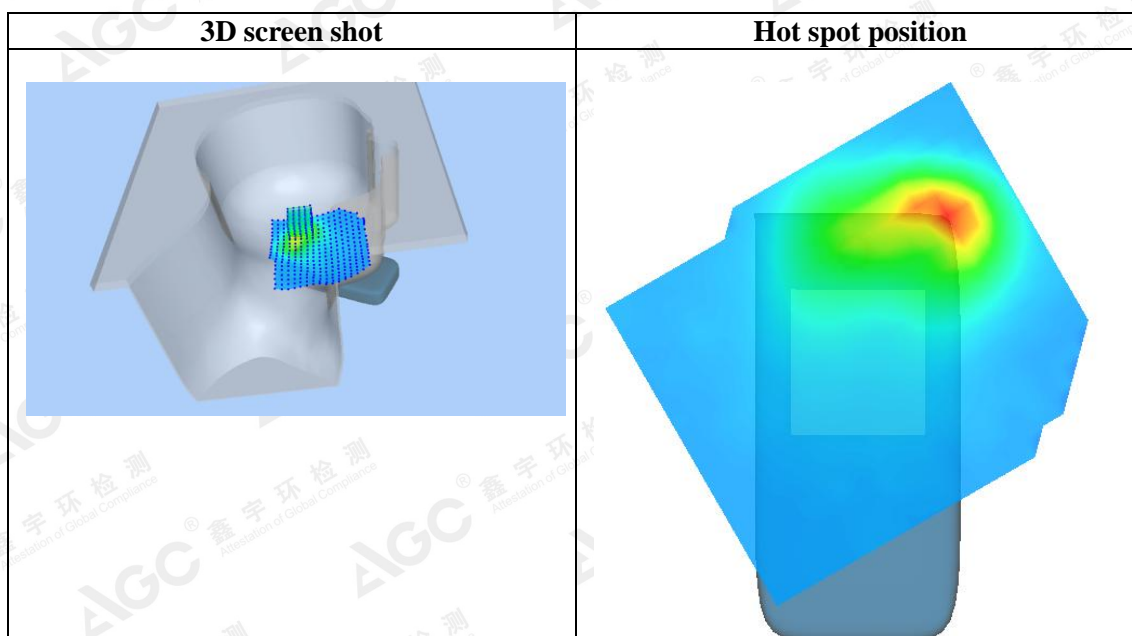
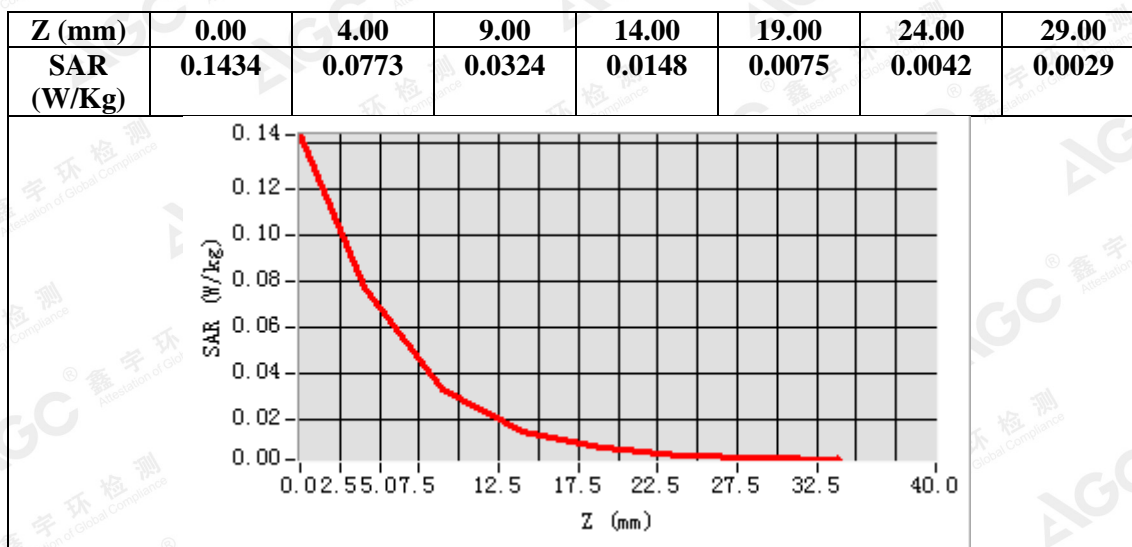


Maximum location: X=-8.00, Y=33.00

SAR Peak: 0.14 W/kg

SAR 10g (W/Kg)	0.028452
SAR 1g (W/Kg)	0.068662

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
802.11b High -Tilt-Left
DUT: Smart Phone; **Type:** NOVA

Date: Apr. 16, 2018

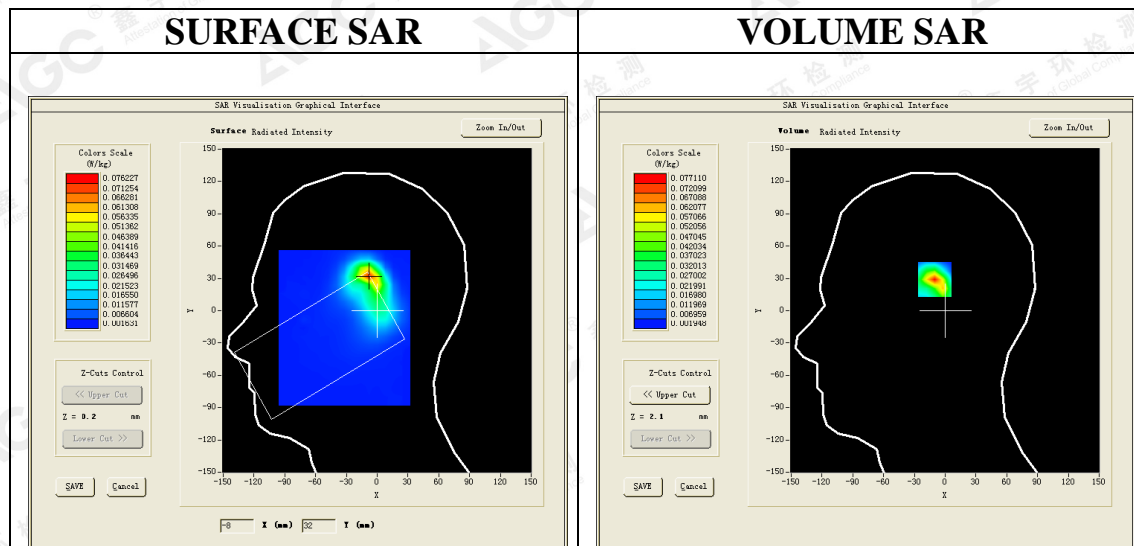
Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.52;
Frequency: 2472 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.76$ mho/m; $\epsilon_r = 38.95$; $\rho = 1000$ kg/m³ ;
Phantom section: Left Section
Ambient temperature (°C):21.2, Liquid temperature (°C): 21.0

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 - Tilt-Left/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/802.11b High - Tilt-Left/Zoom Scan: Measurement grid: dx=8mm, dy=8mm,dz=5mm;

Area Scan	sam_direct_droit2_surf8mm.txt
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Tilt
Band	2450MHz
Channels	High
Signal	Crest factor: 1.0

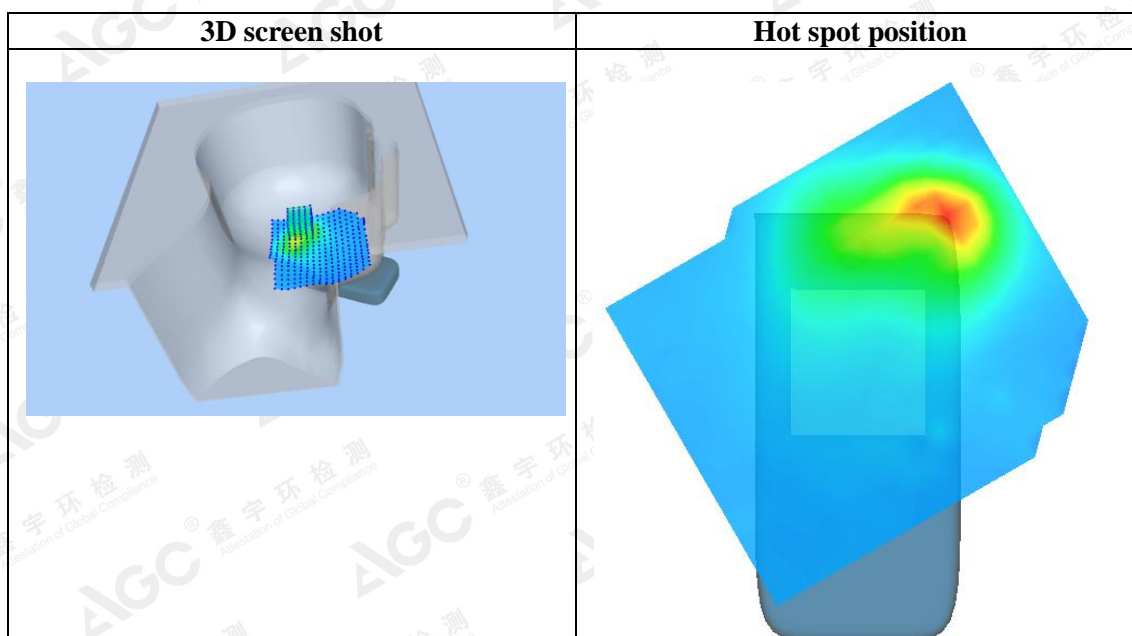
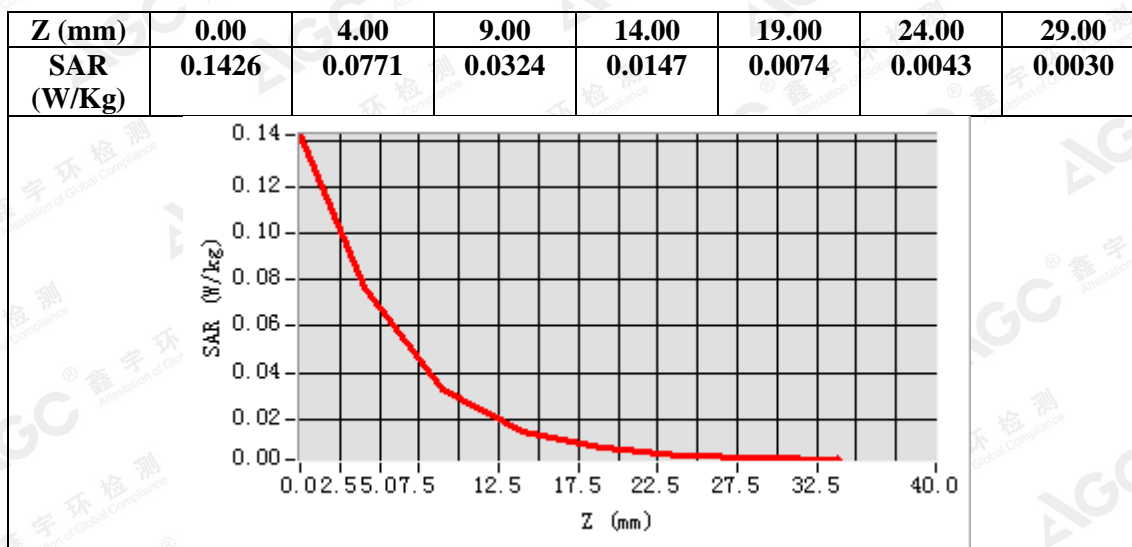


Maximum location: X=-8.00, Y=33.00

SAR Peak: 0.14 W/kg

SAR 10g (W/Kg)	0.028389
SAR 1g (W/Kg)	0.068349

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Test Laboratory: AGC Lab
802.11b High-Body-Worn- Back
DUT: Smart Phone; Type: NOVA

Date: Apr. 16, 2018

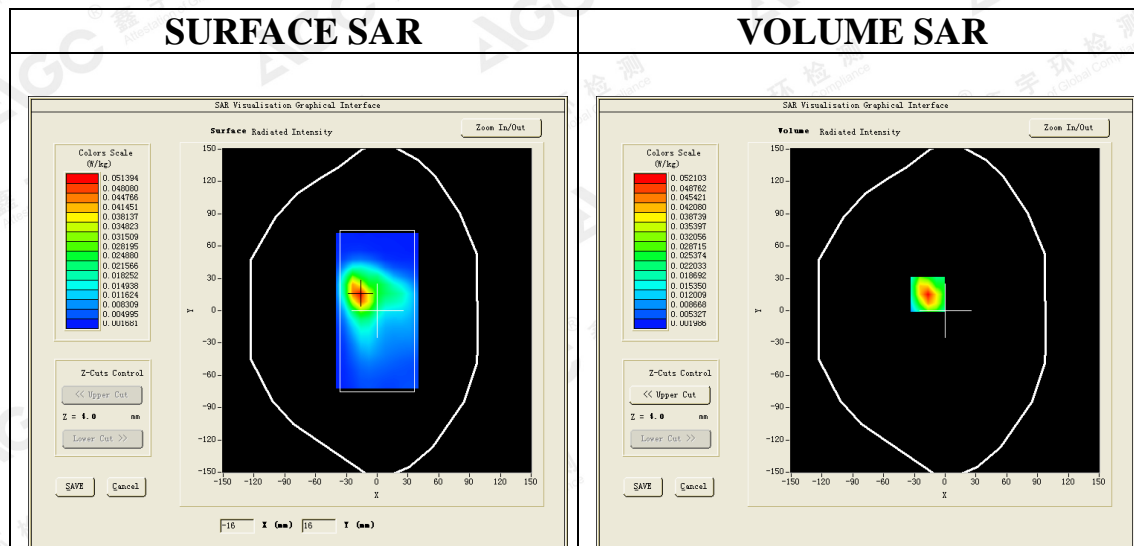
Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=2.52;
Frequency: 2472 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.76$ mho/m; $\epsilon_r = 38.95$; $\rho = 1000$ kg/m³ ;
Phantom section: Flat Section
Ambient temperature (°C):21.2, Liquid temperature (°C): 21.0

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 - Body- Back /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/802.11b High - Body- Back /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	Validation plane
Device Position	Body Back
Band	2450MHz
Channels	High
Signal	Crest factor: 1.0

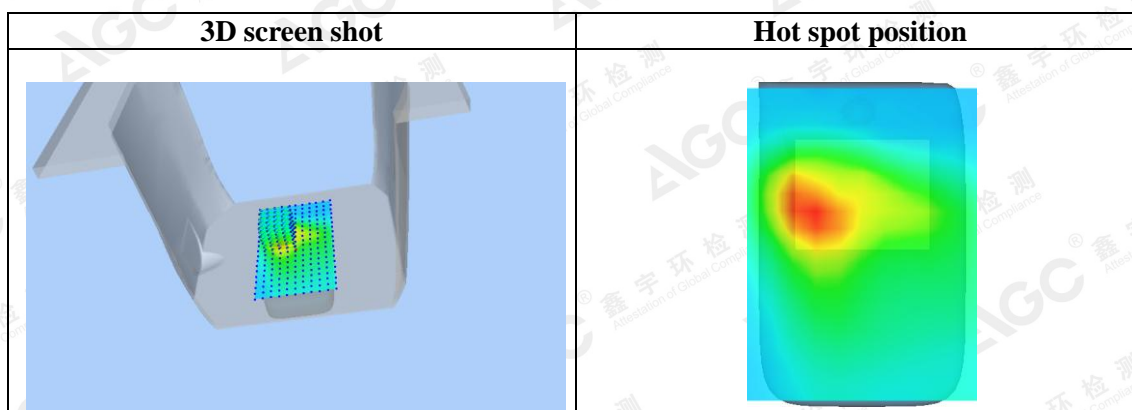
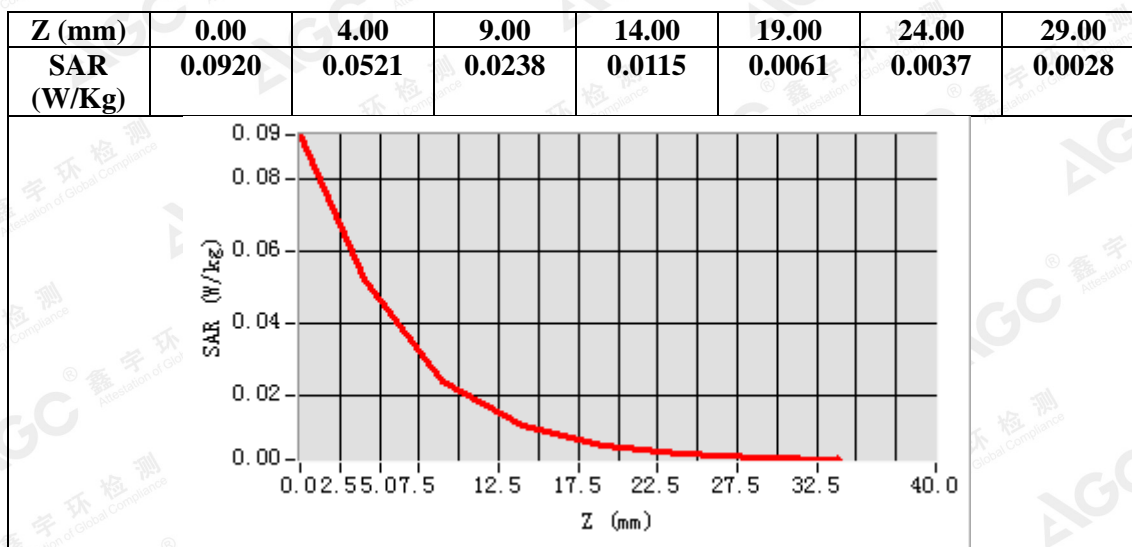


Maximum location: X=-17.00, Y=15.00

SAR Peak: 0.09 W/kg

SAR 10g (W/Kg)	0.023211
SAR 1g (W/Kg)	0.048885

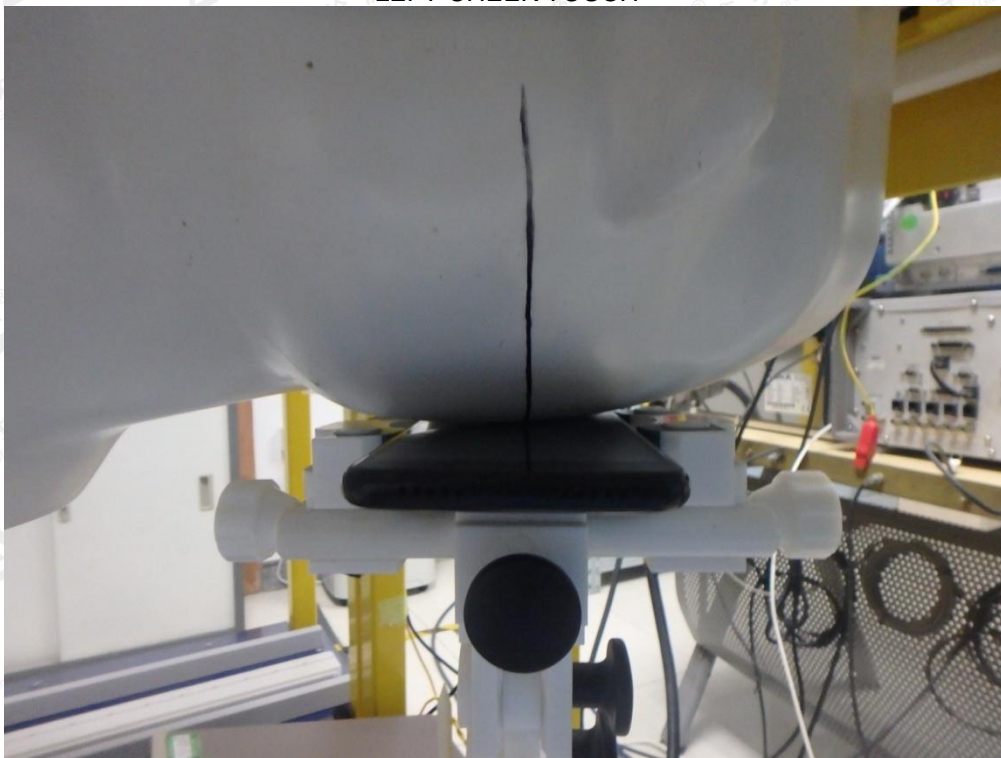
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



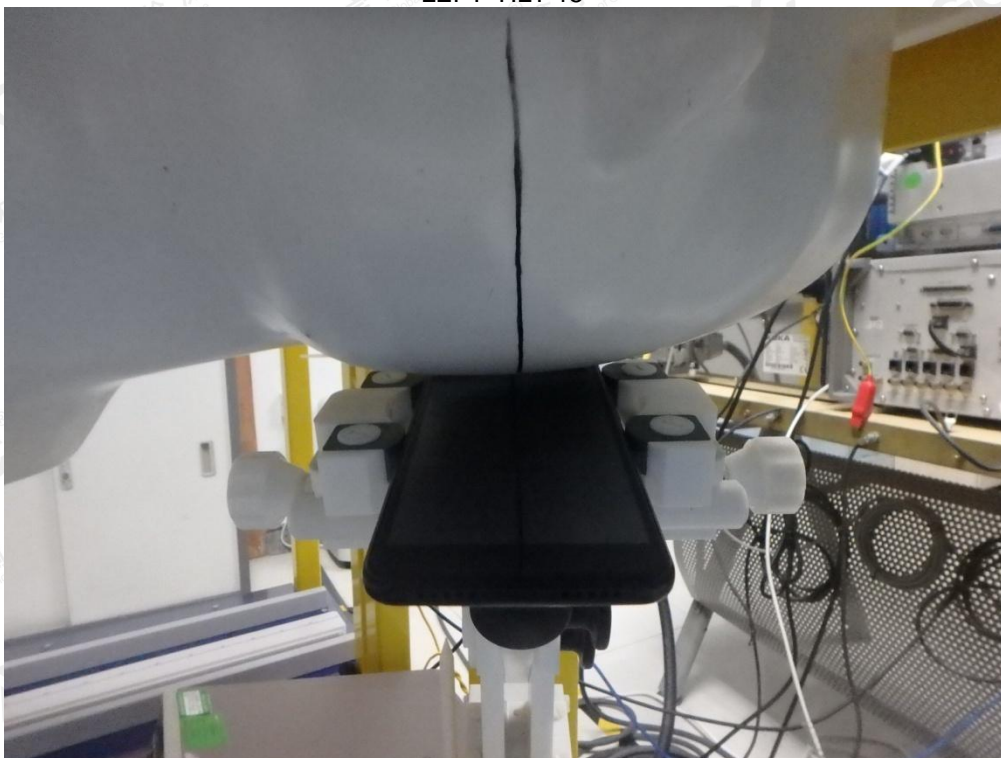
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

APPENDIX C. TEST SETUP PHOTOGRAPHS

LEFT-CHEEK TOUCH

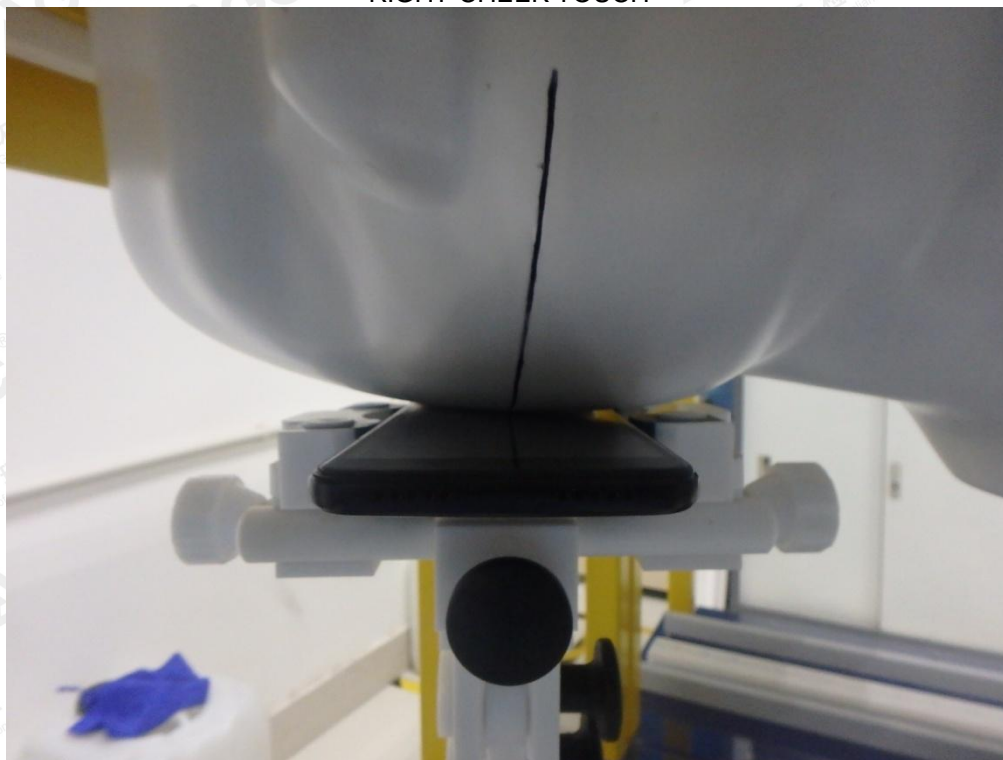


LEFT-TILT 15°

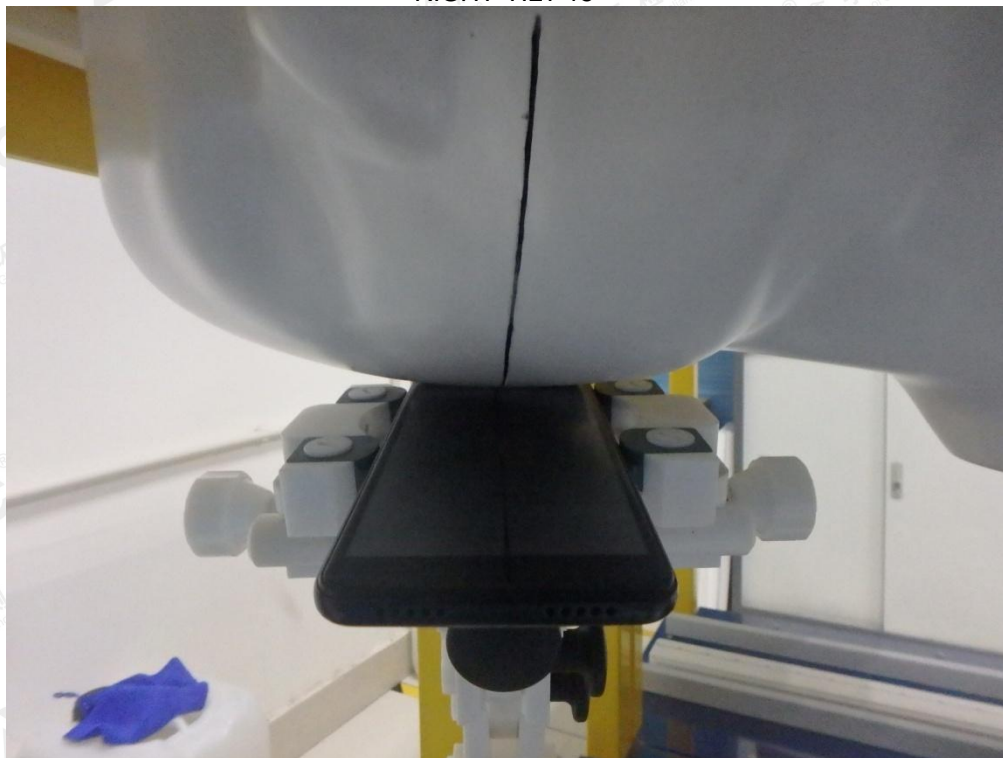


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

RIGHT-CHEEK TOUCH

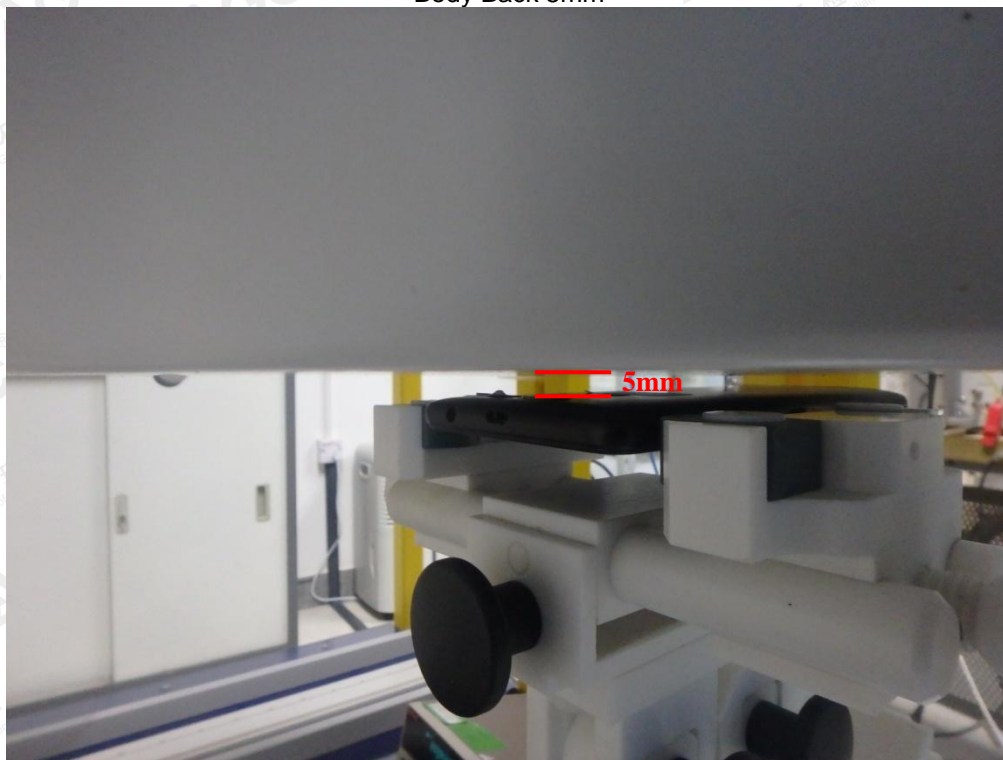


RIGHT-TILT 15°

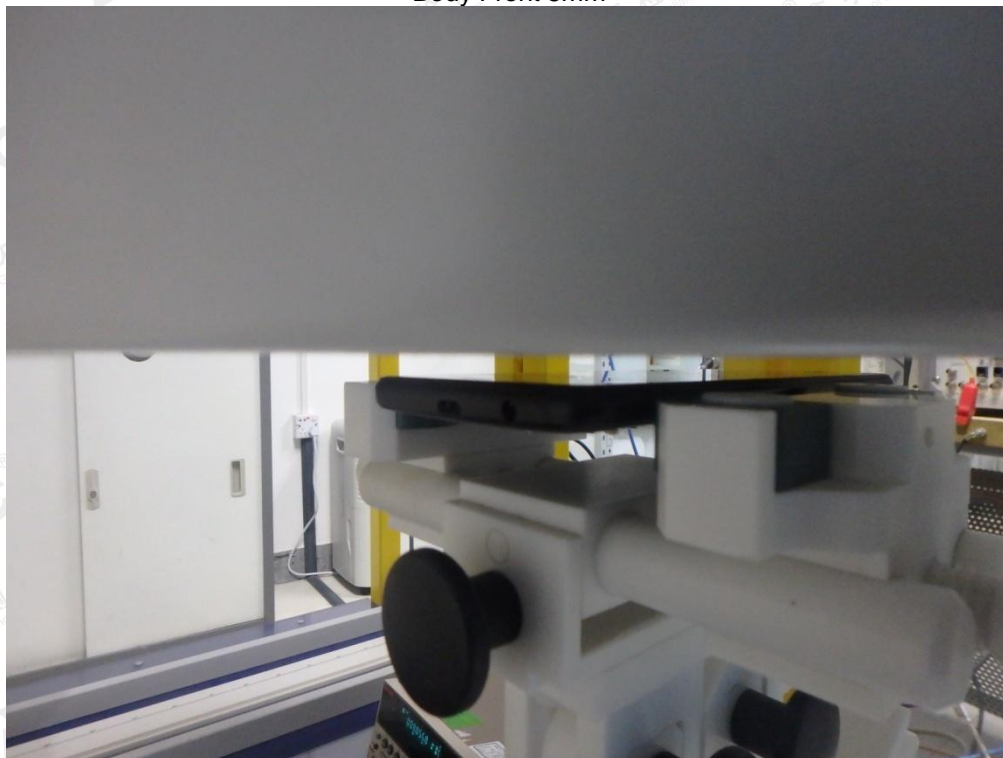


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Body Back 5mm

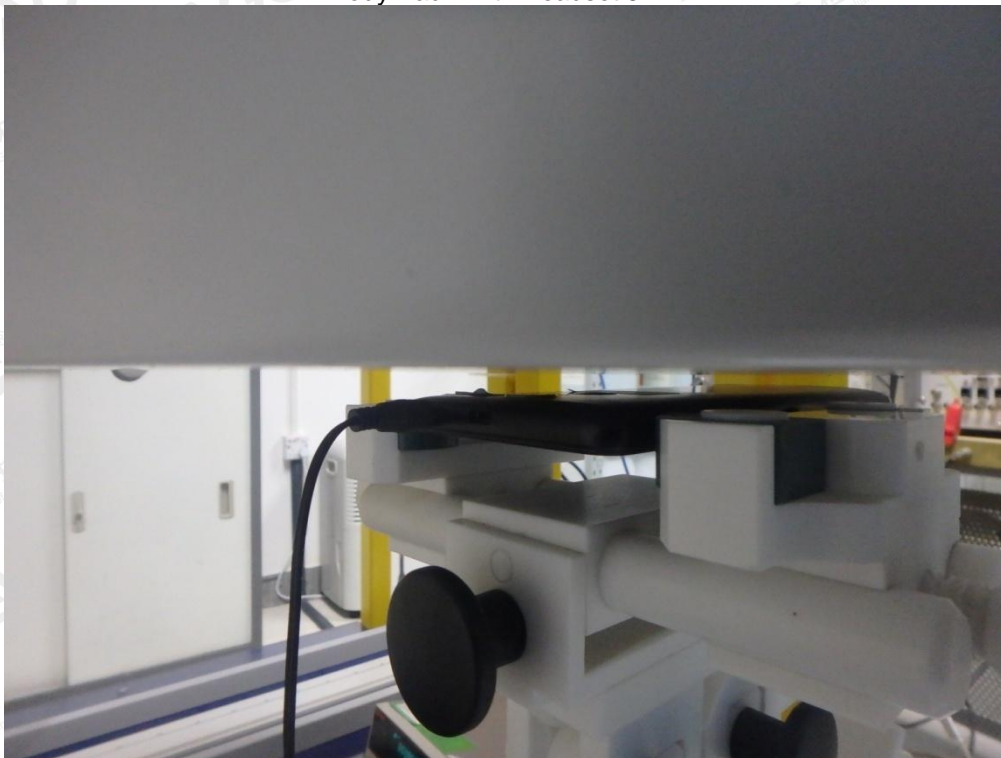


Body Front 5mm

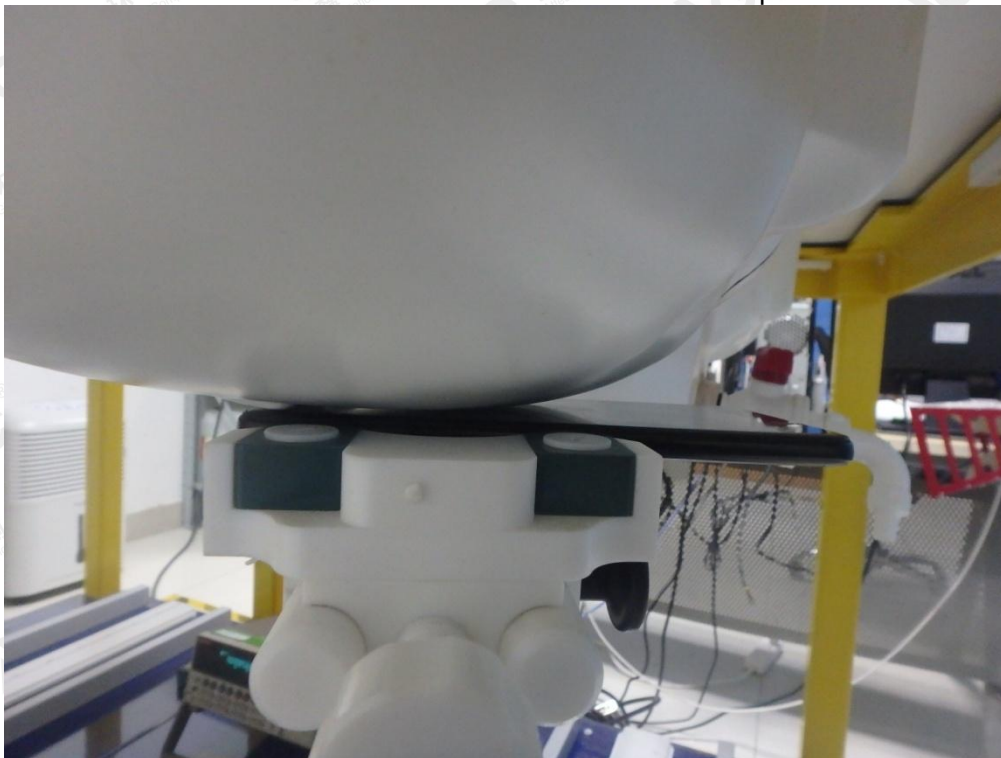


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

Body Back With Headset 5mm



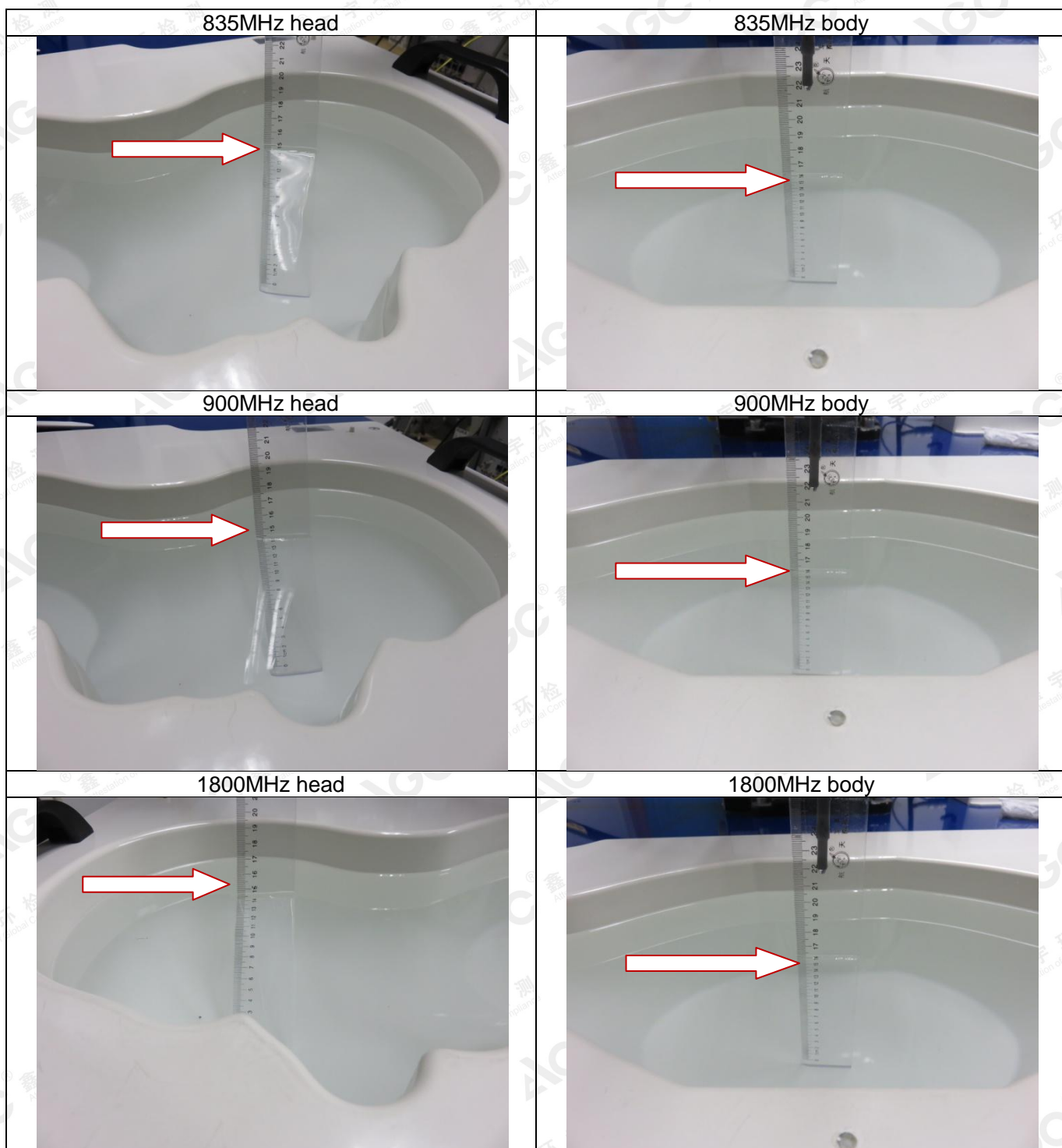
Position of the device under test in relation to the phantom



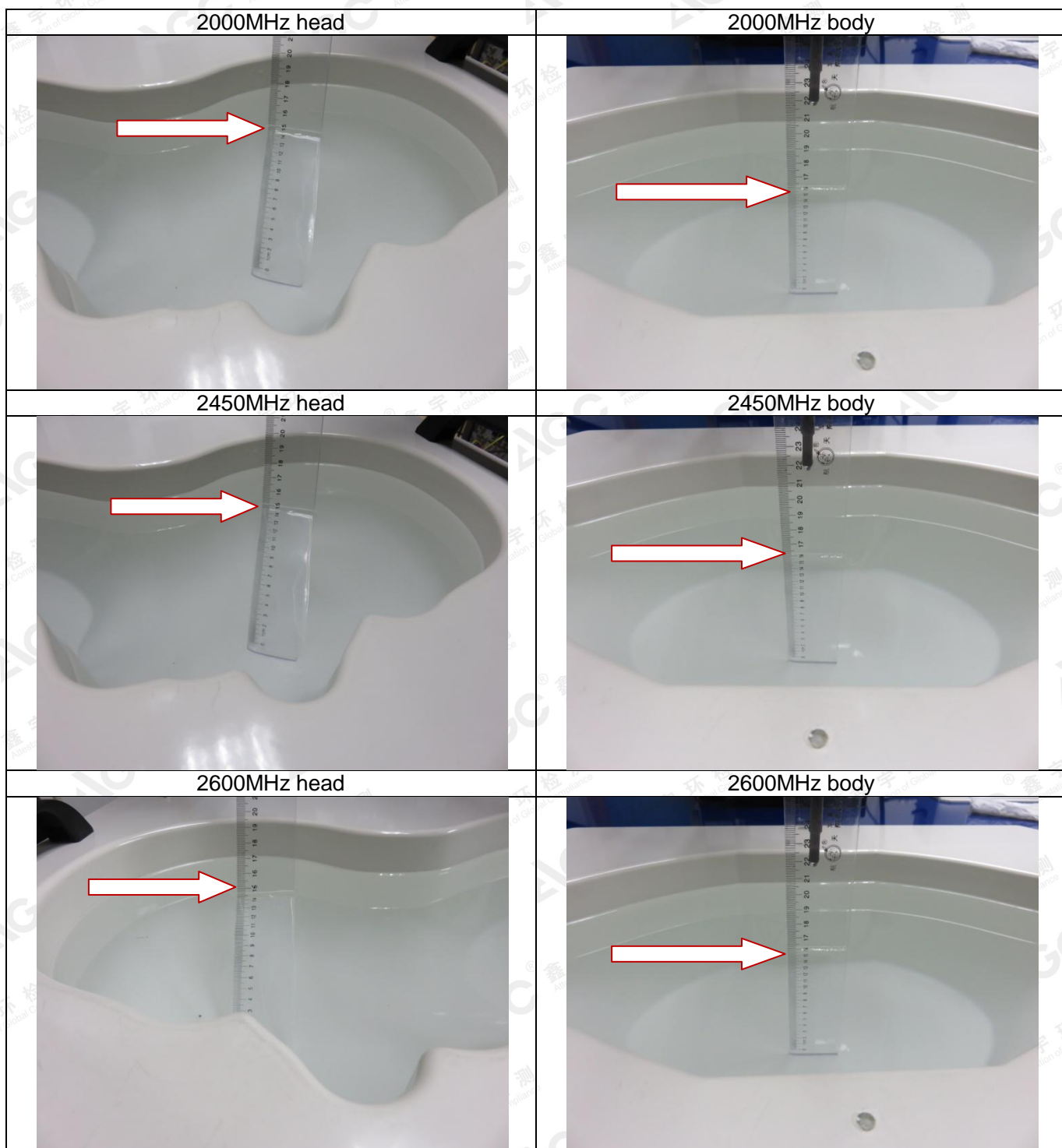
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

DEPTH OF THE LIQUID IN THE PHANTOM—ZOOM IN

Note : The position used in the measurement were according to EN62209-1/2



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

APPENDIX D. CALIBRATION DATA

Refer to Attached files.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.