SAR Test Report

Report No.:STS2308301H01

Issued for

SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD

202, Building A2, Silicon Valley Power Intelligent Terminal Industrial Park, No. 20, Dafu Industrial Zone, Kukeng Community, Guanlan Street, Longhua District, Shenzhen China

Product Name:	Smart Phone
Brand Name:	OUKITEL
Model Name:	WP30 Pro
Series Model(s):	WP30, WP30 S, WP30 Ultra, WP30 TITAN
Test Standards:	EN 50360: 2017; EN 50566:2017 EN IEC/IEEE 62209-1528:2021 EN 50663: 2017; EN 62479: 2010
Max. SAR (10g)	Head: 1.194 W/kg Body: 0.961 W/kg Limbs: 2.284 W/kg

TEST REPORT

Applicant's Name ..... :	SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
Address ..... :	202, Building A2, Silicon Valley Power Intelligent Terminal Industrial Park, No. 20, Dafu Industrial Zone, Kukeng Community, Guanlan Street, Longhua District, Shenzhen China
Manufacturer's Name ..... :	SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
Address ..... :	202, Building A2, Silicon Valley Power Intelligent Terminal Industrial Park, No. 20, Dafu Industrial Zone, Kukeng Community, Guanlan Street, Longhua District, Shenzhen China

Product Description

Product Name ..... :	Smart Phone
Brand Name ..... :	OUKITEL
Model Name ..... :	WP30 Pro
Series Model(s) :	WP30, WP30 S, WP30 Ultra, WP30 TITAN
Test Standards :	EN 50360: 2017; EN 50566: 2017 EN IEC/IEEE 62209-1528:2021 EN 50663: 2017; EN 62479: 2010

Date of Test

Date (s) of performance of tests..... :	29 Aug. 2023
Date of Issue..... :	20 Sep. 2023
Test Result ..... :	**Pass**

Testing Engineer **:** Shi fan. long

(Shifan. Long)

Technical Manager **:** Sean She

(Sean she)

Authorized Signatory **:** Bovey Yang

(Bovey Yang)

SHENZHEN STS TEST SERVICES CO.,LTD. TESTING APPROVAL

Table of Contents

Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	20 Sep. 2023	STS2308301H01	ALL	Initial Issue

1. General Information

1.1 EUT Description

Product Name	Smart Phone			
Brand Name	OUKITEL			
Model Name	WP30 Pro			
Series Model	WP30, WP30 S, WP30 Ultra, WP30 TITAN			
Model Difference	All the model are the same circuit and RF module, except model names and appearance of the color.			
Hardware Version	M159-MUB-V2			
Software Version	OUKITEL_WP30_Pro_V09_20230804			
Frequency Range	5G N78: 3300 MHz to 3800 MHz LTE B1: 1920 MHz to 1980 MHz FM: 87.5 MHz to 108 MHz			
Max. Reported SAR(10g)	Mode	Head(W/Kg)	Body and Hotspot (W/ kg)	Limbs and Hotspot(W/Kg
	NR SA N78	0.533	0.551	1.374
	NR NSA B1+N78	1.194	0.961	2.284
	Limit	2.0 W/kg		4.0 W/kg
Battery	Rated Voltage: 7.74V Charge Limit Voltage:8.9V Capacity: 5500mAh			
Modulation Mode	5G NR	DFT-s-OFDM, CP-OFDM (π/2 shift BPSK, QPSK, 16QAM, 64QAM, 256QAM)		
	FM	FM		
Antenna Specification:	5G NR: PIFA Antenna LTE: PIFA Antenna FM: Earphone Antenna			
Operating Mode:	Maximum continuous output			

1.2 Test Environment

Ambient conditions in the SAR laboratory:

Items	Required
Temperature (℃)	18-25
Humidity (%RH)	30-70

1.3 Test Factory

ShenZhen STS Test Services Co.,Ltd.

101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC Registration No.: 625569

A2LA Certificate No.: 4338.01

IC Registration No.: 12108A

2. Test Standards and Limits

No.	Identity	Document Title
1	EN 50360: 2017	Product standard to demonstrate the compliance of wireless communication devices, with the basic restrictions and exposure limit values related to human exposure to electromagnetic fields in the frequency range from 300 MHz to 6 GHz: devices used next to the ear
2	EN 50566: 2017	Product standard to demonstrate the compliance of wireless communication devices with the basic restrictions and exposure limit values related to human exposure to electromagnetic fields in the frequency range from 30 MHz to 6 GHz: hand-held and body mounted devices in close proximity to the human body
3	EN IEC/IEEE 62209-1528: 2021	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)
4	EN 50663: 2017	Generic standard for assessment of low power electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (10MHz to 300GHz)
5	EN 62479: 2010	Assessment of the compliance of low-power electronic and electrical equipment with the restrictions related to human exposure to electromagnetic fields(10 MHz to 300 GHz)

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. According to EN 50360 and 1999/519/EC the limit for General Population/Uncontrolled exposure should be applied for this device, it is 2.0 W/kg as averaged over any 10 gram of tissue.

(A). Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

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

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	2.0	4.0

NOTE: **Whole-Body SAR** is averaged over the entire body, **partial-body SAR** is averaged over any 10 gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

Population/Uncontrolled Environments:
Are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Occupational/Controlled Environments:
Are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

NOTE
GENERAL POPULATION/UNCONTROLLED EXPOSURE
PARTIAL BODY LIMIT
2.0 W/kg
PARTIAL LIMBS LIMIT
4.0 W/kg

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

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

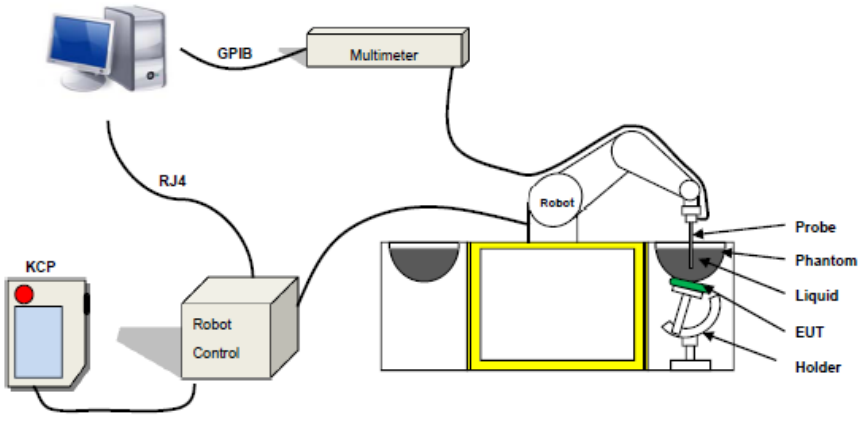
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue;
ρ is the mass density of the tissue and E is the RMS electrical field strength.

3.2 SAR System

MVG SAR System Diagram:



COMOSAR is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The COMOSAR system consists of the following items:
- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.

The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The Open AR software computes the results to give a SAR value in a 1g or 10g mass.

3.2.1 Probe

For the measurements the Specific Dosimetric E-Field Probe SN 07/21 EPGO352 with following specifications is used
- Probe Length: 330 mm
- Length of Individual Dipoles: 2 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter: 2.5 mm
- Distance between dipole/probe extremity: 1 mm
- Dynamic range: 0.01-100 W/kg
- Probe linearity: 3%
- Axial Isotropy: < 0.10 dB
- Spherical Isotropy: < 0.10 dB
- Calibration range: 150 MHz to 6 GHz for head & body simulating liquid.
- Angle between probe axis (evaluation axis) and surface normal line: less than 30°

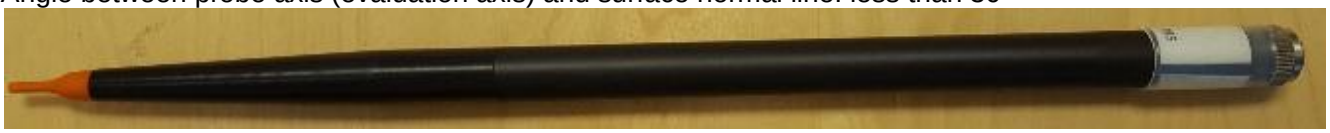


Figure 1-MVG COMOSAR Dosimetric E field Dipole

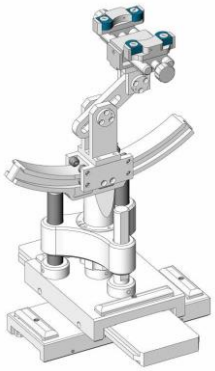
3.2.2 Phantom

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.

SN 32/14 SAM115

Figure-SN 21/21 ELLI48

3.2.3 Device Holder



The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 20 %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

4. Tissue Simulating Liquids

4.1 Simulating Liquids Parameter Check

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectric parameters are within the tolerances of the specified target values

The uncertainty due to the liquid conductivity and permittivity arises from two different sources. The first source of error is the deviation of the liquid conductivity from its target value (max _ 5 %) and the second source of error arises from the measurement procedures used to assess conductivity. The uncertainty shall be assessed using a rectangular probability For 10 g averaging, the maximum weighting coefficient for SAR is 0,5.

EN 62209 RECOMMENDED TISSUE DIELECTRIC PARAMETERS
The head and body tissue dielectric parameters recommended by the EN 62209 have been incorporated in the following table.

Frequency	ε_r		σ 10g (S/m)	
	Head	Body	Head	Body
300	45.3	45.3	0.87	0.87
450	43.5	43.5	0.87	0.87
900	41.5	41.5	0.97	0.97
1450	40.5	40.5	1.20	1.20
1800	40.0	40.0	1.40	1.40
2450	39.2	39.2	1.80	1.80
3000	38.5	38.5	2.40	2.40
5200	36.0	36.0	4.70	4.70

LIQUID MEASUREMENT RESULTS

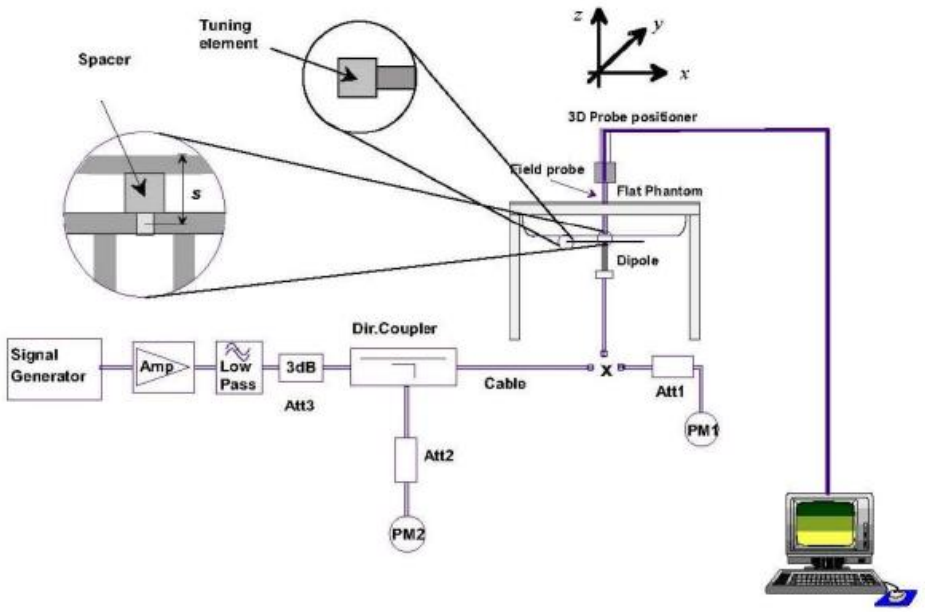
Date	Ambient		Simulating Liquid		Parameters	Target	Measured	Deviation %	Limited %
	Temp. [°C]	Humidity %	Frequency (MHz)	Temp. [°C]					
2023-08-29	22.9	50	3450	22.5	Permittivity	37.96	38.36	1.05	±10
					Conductivity	2.86	2.95	3.18	±10
2023-08-29	22.9	50	3500	22.7	Permittivity	37.90	38.69	2.08	±10
					Conductivity	2.91	2.96	1.72	±10
2023-08-29	22.9	50	3600	22.6	Permittivity	37.78	37.94	0.42	±10
					Conductivity	3.01	2.95	-2.06	±10
2023-08-29	23.0	50	3750	22.7	Permittivity	37.60	37.92	0.85	±10
					Conductivity	3.17	3.12	-1.42	±10

5. SAR System Validation

5.1 Validation System

Each MVG system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the MVG software, enable the user to conduct the system performance 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 validation setup is shown as below.



5.2 Validation Result

Comparing to the original SAR value provided by MVG, the validation data should be within its specification of ±10 %.

Date	Freq.	Power	Power drift	Tested Value	Normalized SAR	Target SAR	Tolerance
	(MHz)	(mW)	(%)	(W/Kg)	(W/kg)	10g(W/kg)	(%)
2023-08-29	3500	100	-3.34	2.606	26.06	25.50	2.20

6. SAR Evaluation Procedures

The procedure for assessing the average SAR value consists of the following steps:

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface.

- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.

- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.

- Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

Area Scan& Zoom Scan:

For handsets operating above 300 MHz evaluated with the homogeneous head model, the SAR distribution is measured on a two-dimensional coarse grid at a fixed separation distance of less than 8 mm from the surface of the phantom shell. The scan region should cover all areas that are exposed and encompassed by the projection of the handset. In order to maintain a fixed distance of less than 8 mm from the surface to within ±1 mm, as required by the measurement protocol, the exact shape and dimensions of the phantom inner surface shall be known, pre-calibrated, or preferably detected during the SAR measurement with a mechanical or optical surface-detection mechanism that meets the probe positioning requirements. This evaluation technique determines the maximum spacing between the grid points, i.e., it has been found that a 20 mm × 20 mm grid is usually sufficient to achieve the required precision if two staggered one-dimensional cubic splines [55] are used to locate the maximum SAR location;.

The maximum local SAR is evaluated on an interpolated grid at 1 mm to 2 mm resolution during the zoom scan. A zoom-scan volume of 32 mm x 32 mm x 30 mm, consisting of 5 x 5 x 7 points with the center at the peak SAR location determined during the area scan, can be chosen. Although a scan resolution of 8 mm is sufficient for directions parallel to the surface, 5 mm is needed in the direction normal to the surface of the phantom to achieve the required extrapolation accuracy.

7. EUT Test Position

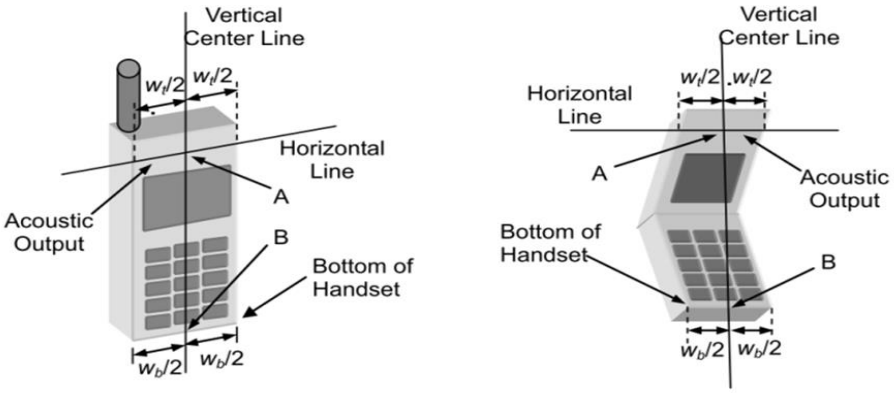
This EUT was tested in Right Cheek, Right Titled, Left Cheek, Left Titled, Front Face and Rear Face.

Define Two Imaginary Lines On The Handset:

1) The vertical centerline passes through two points on the front side of the handset the midpoint of the width wt of the handset at the level of the acoustic output, and the midpoint of the width wb of the handset.

2) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.

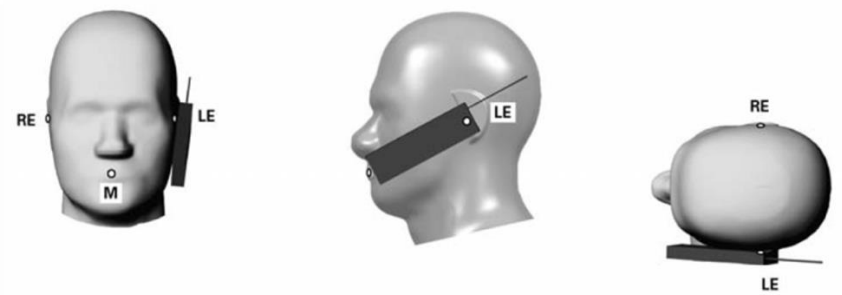
3) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



7.1 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.

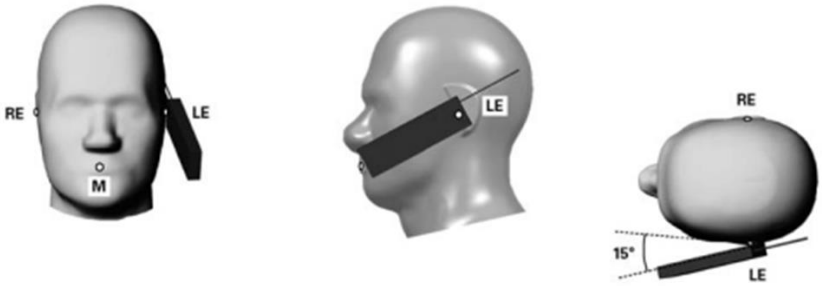
2) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost



7.2 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.

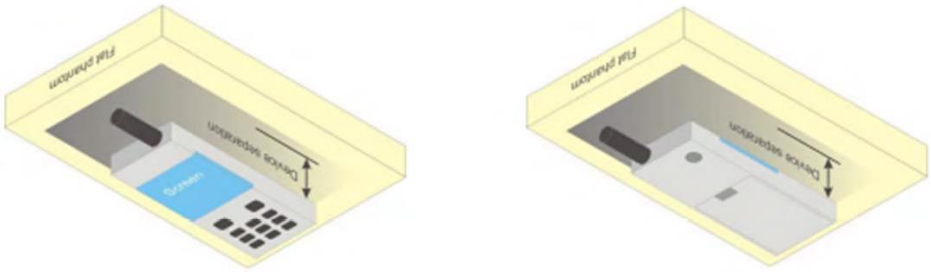


7.3 Body-worn Position Conditions

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.



8. Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Symbol	Uncertainty Component	Prob. Dist.	Unc. $a(x_i)$	Div. q_i	$u(x_i) = a(x_i)/q_i$	C_i	$u(y) = C_i * u(x_i)$	v_i
Measurement system errors								
CF	Probe calibration	N (k = 2)	5.72	2	2.86	1	2.86	∞
CF_{drift}	Probe calibration drift	R	0.15	√3	0.09	1	0.09	∞
LIN	Probe linearity and detection limit	R	1.27	√3	0.73	1	0.73	∞
BBS	Broadband signal	R	0.12	√3	0.07	1	0.07	∞
ISO	Probe isotropy	R	0.16	√3	0.09	1	0.09	∞
DAE	Other probe and data acquisition errors	N	2.4	1	2.40	1	2.40	∞
AMB	RF ambient and noise	N	3.51	1	3.51	1	3.51	∞
Δ_{xyz}	Probe positioning errors	N	1.2	1	1.20	2/δ	1.20	
DAT	Data processing errors	N	2.1	1	2.10	1	2.10	∞
Phantom and device (DUT or validation antenna) errors								
LIQ(σ)	Measurement of phantom conductivity(σ)	N	4.1	1	4.1	c_ε, c_σ	4.10	∞
$LIQ(T_c)$	Temperature effects (medium)	R	2.7	√3	1.56	c_ε, c_σ	1.56	∞
EPS	Shell permittivity	R	2.1	√3	1.21	See 8.4.2.3	0.30	∞
DIS	Distance between the radiating element of the DUT and the phantom medium	N	0.7	1	0.7	2	1.40	∞
D_{xyz}	Repeatability of positioning the DUT or source against the phantom	N	1.2	1	1.2	1	1.20	5
H	Device holder effects	N	3.8	1	3.8	1	3.80	
MOD	Effect of operating mode on probe sensitivity	R	3.42	√3	1.97	1	1.97	∞
TAS	Time-average SAR	R	1.8	√3	1.04	1	1.04	∞
RF_{drift}	Variation in SAR due to drift in output of DUT	N	4.5	1	4.5	1	4.50	
VAL	Validation antenna uncertainty (validation measurement only)	N	1.4	1	1.4	1	1.40	
P_{in}	Uncertainty in accepted power (validation measurement only)	N	2.4	1	2.4	1	2.40	
Corrections to the SAR result (if applied)								
$C(\varepsilon',\sigma)$	Phantom deviation from target $(\varepsilon',\sigma))$	N	3.7	1	3.7	1	3.70	
C(R)	SAR scaling	R	1.8	√3	1.04	1	1.04	
u(ΔSAR)	Combined uncertainty						10.84	
U	Expanded uncertainty and effective degrees of freedom					U =	21.68	

9. Conducted Power Measurement

5G SA output Power

Band	SCS (kHz)	Bandwidth (MHz)	UL Channel	RB Allocation	Modulation	Power (dBm)	Low Limit (dBm)	high Limit (dBm)	Verdict
n78	30	20	620668	25@12	DFT_BPSK	24.08	19	26	PASS
n78	30	20	620668	1@1	DFT_BPSK	23.99	19	26	PASS
n78	30	20	620668	1@49	DFT_BPSK	23.93	19	26	PASS
n78	30	20	620668	25@12	DFT_QPSK	23.97	19	26	PASS
n78	30	20	620668	1@1	DFT_QPSK	23.94	19	26	PASS
n78	30	20	620668	1@49	DFT_QPSK	23.86	19	26	PASS
n78	30	20	636666	25@12	DFT_BPSK	24.53	19	26	PASS
n78	30	20	636666	1@1	DFT_BPSK	24.33	19	26	PASS
n78	30	20	636666	1@49	DFT_BPSK	24.43	19	26	PASS
n78	30	20	636666	25@12	DFT_QPSK	24.45	19	26	PASS
n78	30	20	636666	1@1	DFT_QPSK	24.32	19	26	PASS
n78	30	20	636666	1@49	DFT_QPSK	24.35	19	26	PASS
n78	30	20	652666	25@12	DFT_BPSK	25.02	19	26	PASS
n78	30	20	652666	1@1	DFT_BPSK	24.77	19	26	PASS
n78	30	20	652666	1@49	DFT_BPSK	24.93	19	26	PASS
n78	30	20	652666	25@12	DFT_QPSK	24.96	19	26	PASS
n78	30	20	652666	1@1	DFT_QPSK	24.76	19	26	PASS
n78	30	20	652666	1@49	DFT_QPSK	24.99	19	26	PASS
n78	30	50	621668	64@32	DFT_BPSK	24.10	19	26	PASS
n78	30	50	621668	1@1	DFT_BPSK	23.92	19	26	PASS
n78	30	50	621668	1@131	DFT_BPSK	23.84	19	26	PASS
n78	30	50	621668	64@32	DFT_QPSK	24.10	19	26	PASS
n78	30	50	621668	1@1	DFT_QPSK	23.86	19	26	PASS
n78	30	50	621668	1@131	DFT_QPSK	23.84	19	26	PASS
n78	30	50	636666	64@32	DFT_BPSK	24.45	19	26	PASS
n78	30	50	636666	1@1	DFT_BPSK	24.07	19	26	PASS
n78	30	50	636666	1@131	DFT_BPSK	24.28	19	26	PASS
n78	30	50	636666	64@32	DFT_QPSK	24.51	19	26	PASS
n78	30	50	636666	1@1	DFT_QPSK	24.13	19	26	PASS
n78	30	50	636666	1@131	DFT_QPSK	24.29	19	26	PASS
n78	30	50	651666	64@32	DFT_BPSK	24.55	19	26	PASS
n78	30	50	651666	1@1	DFT_BPSK	23.99	19	26	PASS
n78	30	50	651666	1@131	DFT_BPSK	24.77	19	26	PASS

n78	30	50	651666	64@32	DFT_QPSK	24.46	19	26	PASS
n78	30	50	651666	1@1	DFT_QPSK	24.04	19	26	PASS
n78	30	50	651666	1@131	DFT_QPSK	24.76	19	26	PASS
n78	30	100	623334	135@67	DFT_BPSK	23.95	19	26	PASS
n78	30	100	623334	1@1	DFT_BPSK	23.07	19	26	PASS
n78	30	100	623334	1@271	DFT_BPSK	23.34	19	26	PASS
n78	30	100	623334	135@67	DFT_QPSK	23.98	19	26	PASS
n78	30	100	623334	1@1	DFT_QPSK	23.08	19	26	PASS
n78	30	100	623334	1@271	DFT_QPSK	23.36	19	26	PASS
n78	30	100	636666	135@67	DFT_BPSK	24.39	19	26	PASS
n78	30	100	636666	1@1	DFT_BPSK	23.39	19	26	PASS
n78	30	100	636666	1@271	DFT_BPSK	23.50	19	26	PASS
n78	30	100	636666	135@67	DFT_QPSK	24.40	19	26	PASS
n78	30	100	636666	1@1	DFT_QPSK	23.40	19	26	PASS
n78	30	100	636666	1@271	DFT_QPSK	23.46	19	26	PASS
n78	30	100	650000	135@67	DFT_BPSK	24.28	19	26	PASS
n78	30	100	650000	1@1	DFT_BPSK	23.66	19	26	PASS
n78	30	100	650000	1@271	DFT_BPSK	24.22	19	26	PASS
n78	30	100	650000	135@67	DFT_QPSK	24.28	19	26	PASS
n78	30	100	650000	1@1	DFT_QPSK	23.61	19	26	PASS
n78	30	100	650000	1@271	DFT_QPSK	24.22	19	26	PASS

5G NSA output Power
Band 1+N78

Band	SCS (kHz)	Bandwidth (MHz)	UL Channel	RB Allocation	Modulation	Power (dBm)	Low Limit (dBm)	high Limit (dBm)	Verdict
Band1	30	5	18025	1@LOW	QPSK	19.52			
n78	30	10	620334	1@0	DFT BPSK	21.12			
Sum	30					23.4	19	26	PASS
Band1	30	5	18025	8@LOW	QPSK	19.49			
n78	30	10	620334	12@6	DFT BPSK	23.34			
Sum	30					24.83	19	26	PASS
Band1	30	5	18025	1@LOW	QPSK	19.5			
n78	30	10	620334	1@0	DFT QPSK	21.04			
Sum	30					23.34	19	26	PASS
Band1	30	5	18025	8@LOW	QPSK	19.45			
n78	30	10	620334	12@6	DFT QPSK	23.32			
Sum	30					24.81	19	26	PASS
Band1	30	5	18300	8@LOW	QPSK	19.44			
n78	30	10	636666	12@6	DFT BPSK	23.77			
Sum	30					25.13	19	26	PASS
Band1	30	5	18300	8@LOW	QPSK	19.42			
n78	30	10	636666	12@6	DFT QPSK	23.78			
Sum	30					25.13	19	26	PASS
Band1	30	5	18575	1@HIGH	QPSK	19.45			
n78	30	10	653000	1@23	DFT BPSK	22			
Sum	30					23.91	19	26	PASS
Band1	30	5	18575	8@HIGH	QPSK	19.42			
n78	30	10	653000	12@6	DFT BPSK	24.25			
Sum	30					25.48	19	26	PASS
Band1	30	5	18575	1@HIGH	QPSK	19.49			
n78	30	10	653000	1@23	DFT QPSK	21.99			
Sum	30					23.92	19	26	PASS
Band1	30	5	18575	8@HIGH	QPSK	19.43			
n78	30	10	653000	12@6	DFT QPSK	24.24			
Sum	30					25.47	19	26	PASS
Band1	30	20	18100	1@LOW	QPSK	19.47			
n78	30	100	623334	1@0	DFT BPSK	19.95			
Sum	30					22.72	19	26	PASS
Band1	30	20	18100	18@LOW	QPSK	19.37			

n78	30	100	623334	135@67	DFT BPSK	23.14			
Sum	30					24.66	19	26	PASS
Band1	30	20	18100	1@LOW	QPSK	19.43			
n78	30	100	623334	1@0	DFT QPSK	19.85			
Sum	30					22.65	19	26	PASS
Band1	30	20	18100	18@LOW	QPSK	19.36			
n78	30	100	623334	135@67	DFT QPSK	23.16			
Sum	30					24.67	19	26	PASS
Band1	30	20	18300	18@LOW	QPSK	19.33			
n78	30	100	636666	135@67	DFT BPSK	23.71			
Sum	30					25.06	19	26	PASS
Band1	30	20	18300	18@LOW	QPSK	19.32			
n78	30	100	636666	135@67	DFT QPSK	23.74			
Sum	30					25.07	19	26	PASS
Band1	30	20	18500	1@HIGH	QPSK	18.89			
n78	30	100	650000	1@272	DFT BPSK	20.6			
Sum	30					22.83	19	26	PASS
Band1	30	20	18500	18@HIGH	QPSK	19.29			
n78	30	100	650000	135@67	DFT BPSK	23.58			
Sum	30					24.95	19	26	PASS
Band1	30	20	18500	1@HIGH	QPSK	18.86			
n78	30	100	650000	1@272	DFT QPSK	20.47			
Sum	30					22.74	19	26	PASS
Band1	30	20	18500	18@HIGH	QPSK	19.32			
n78	30	100	650000	135@67	DFT QPSK	23.57			
Sum	30					24.95	19	26	PASS

9.1 Tune up power

BW[MHz]	Mode	N78
10	DFT_BPSK	N/A
10	DFT_QPSK	N/A
15	DFT_BPSK	N/A
15	DFT_QPSK	N/A
20	DFT_BPSK	24.5±1dBm
20	DFT_QPSK	24.5±1dBm
30	DFT_BPSK	N/A
30	DFT_QPSK	N/A
50	DFT_BPSK	24±1dBm
50	DFT_QPSK	24±1dBm
80	DFT_BPSK	N/A
80	DFT_QPSK	N/A
100	DFT_BPSK	23.5±1dBm
100	DFT_QPSK	23.5±1dBm

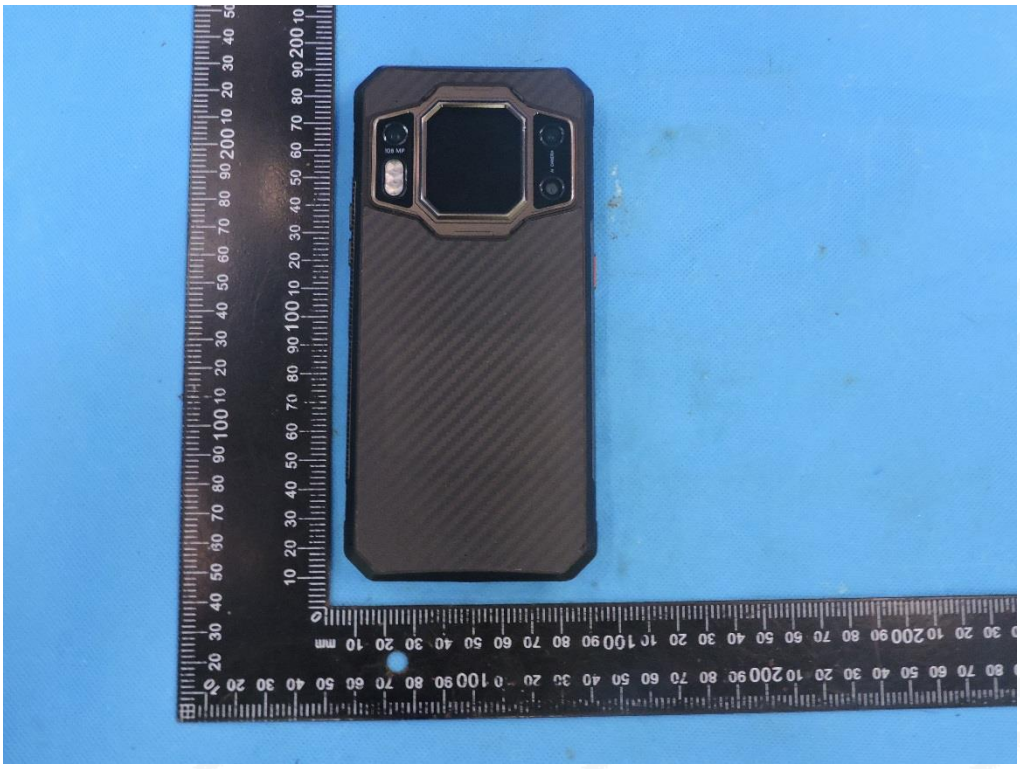
BW[MHz]	Mode	NSA N78+B1
20	DFT_BPSK	24.5±1dBm
20	DFT_QPSK	24.5±1dBm
100	DFT_BPSK	24.1±1dBm
100	DFT_QPSK	24.1±1dBm

10. Test Photos and Results

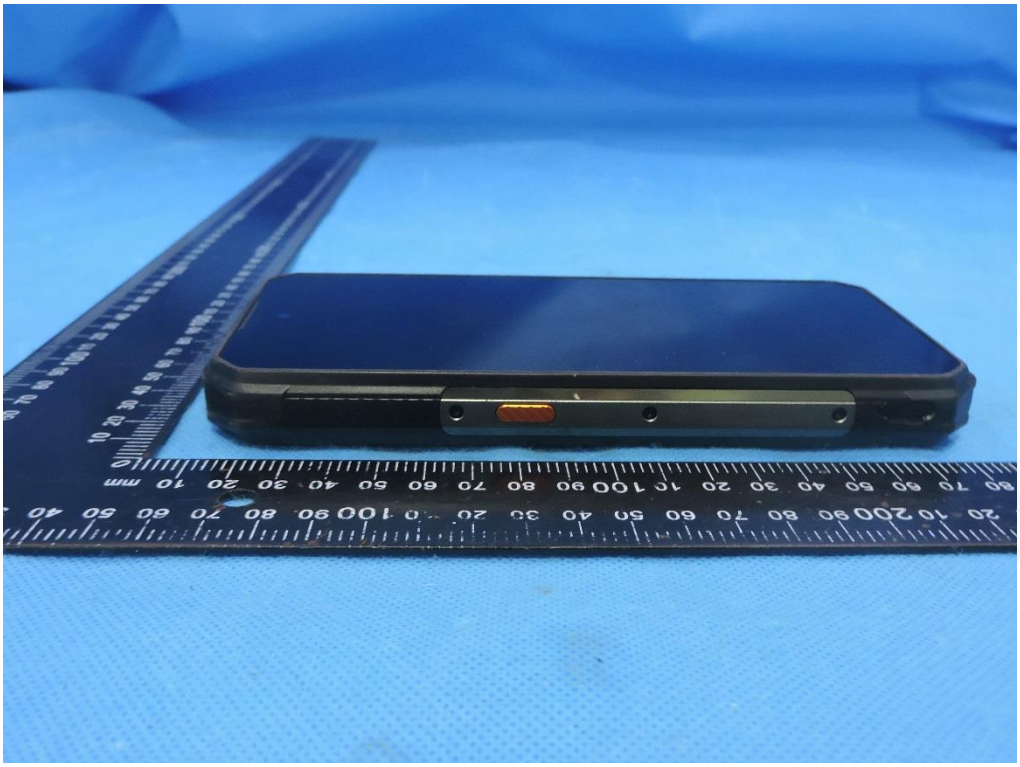
10.1 EUT Photos

Front side

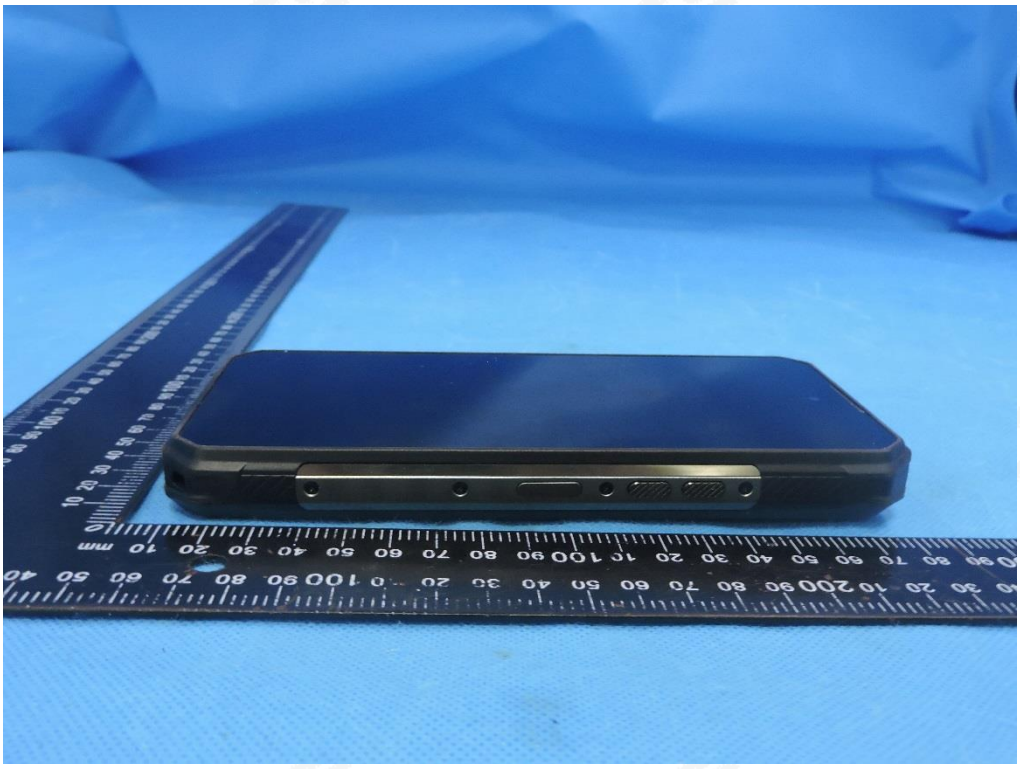
Back side



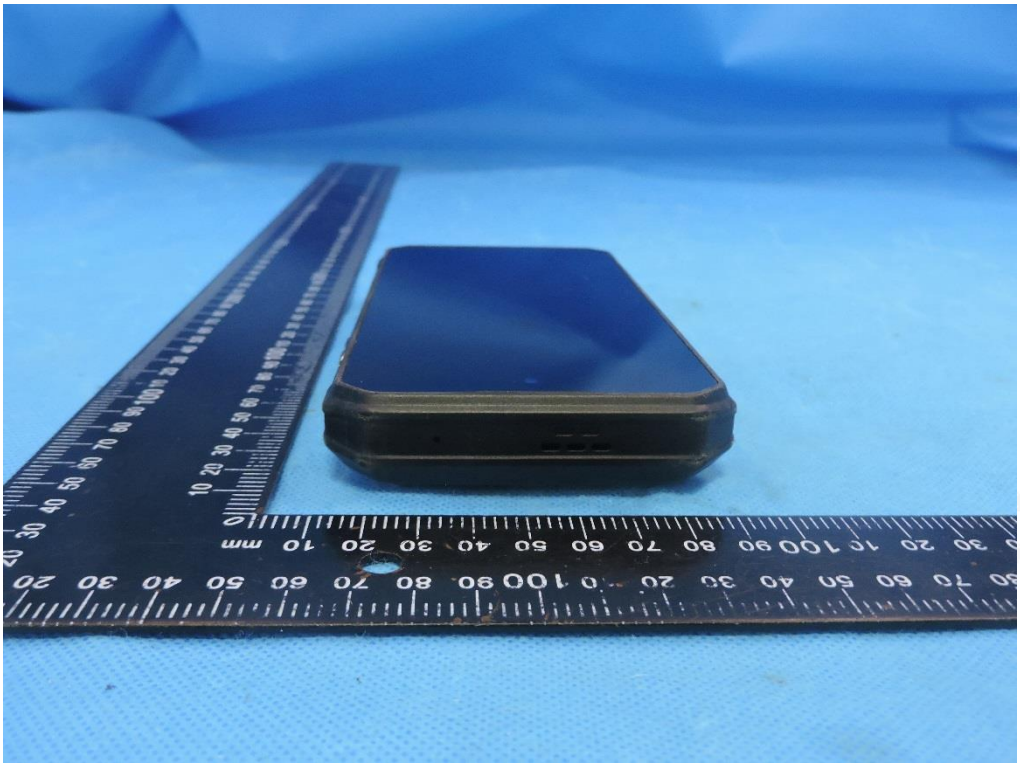
Left Edge



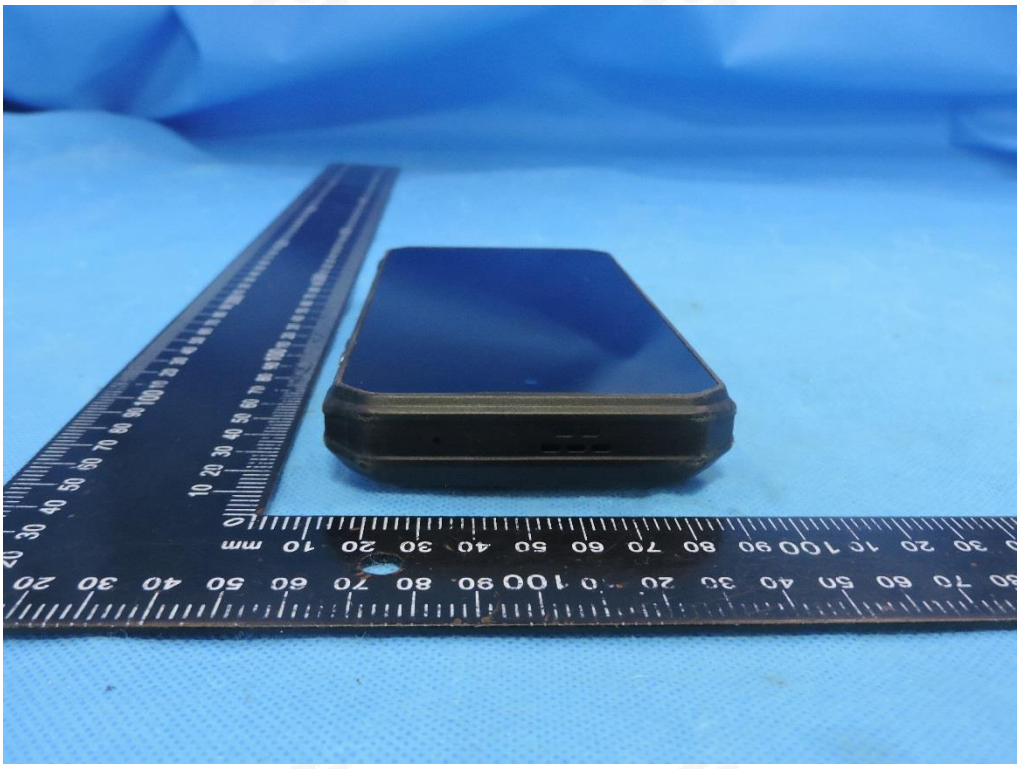
Right Edge



Top Edge



Bottom Edge



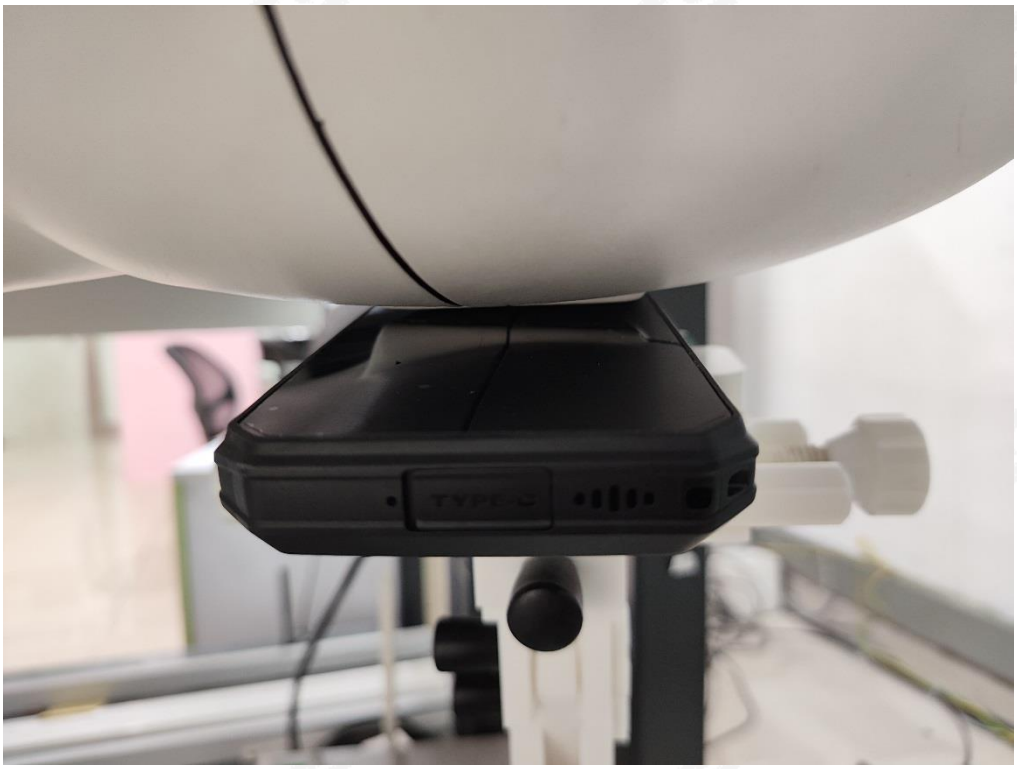
10.2 Setup Photos

Right Cheek

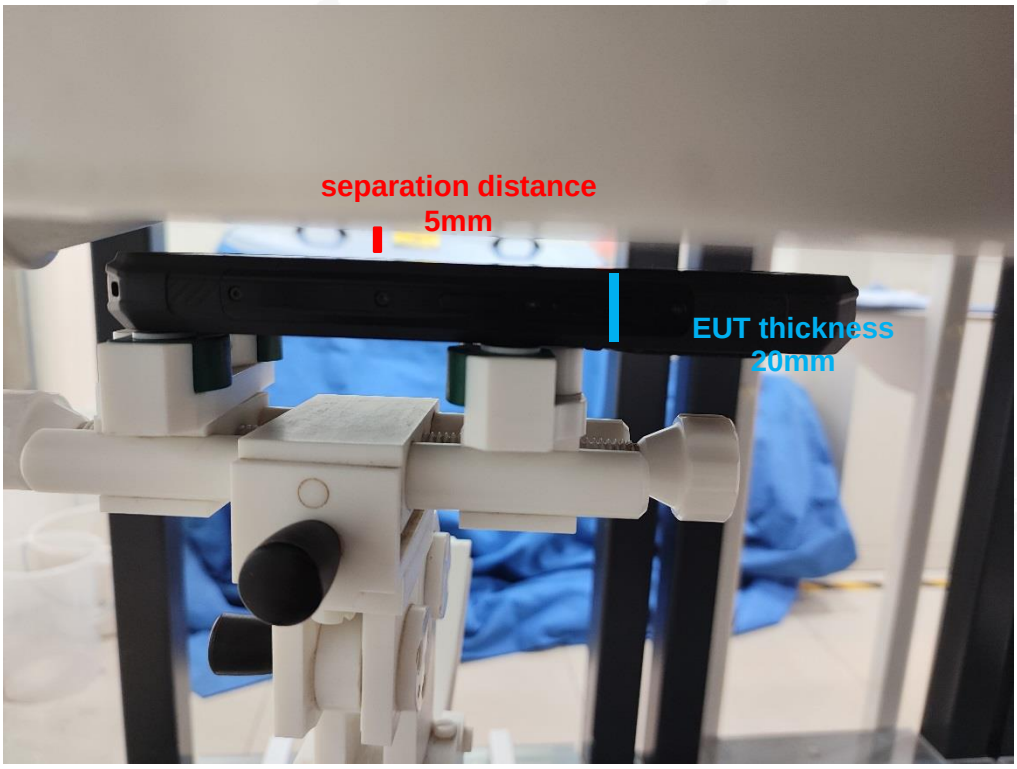
Right Tilt

Left Cheek

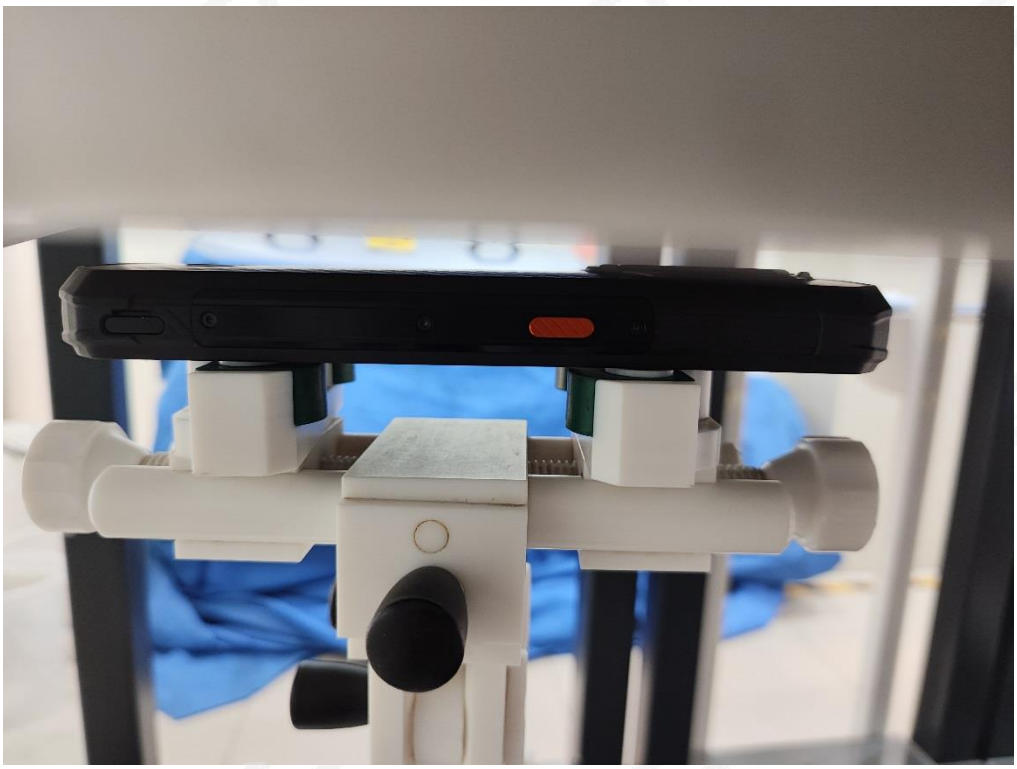
Left Tilt



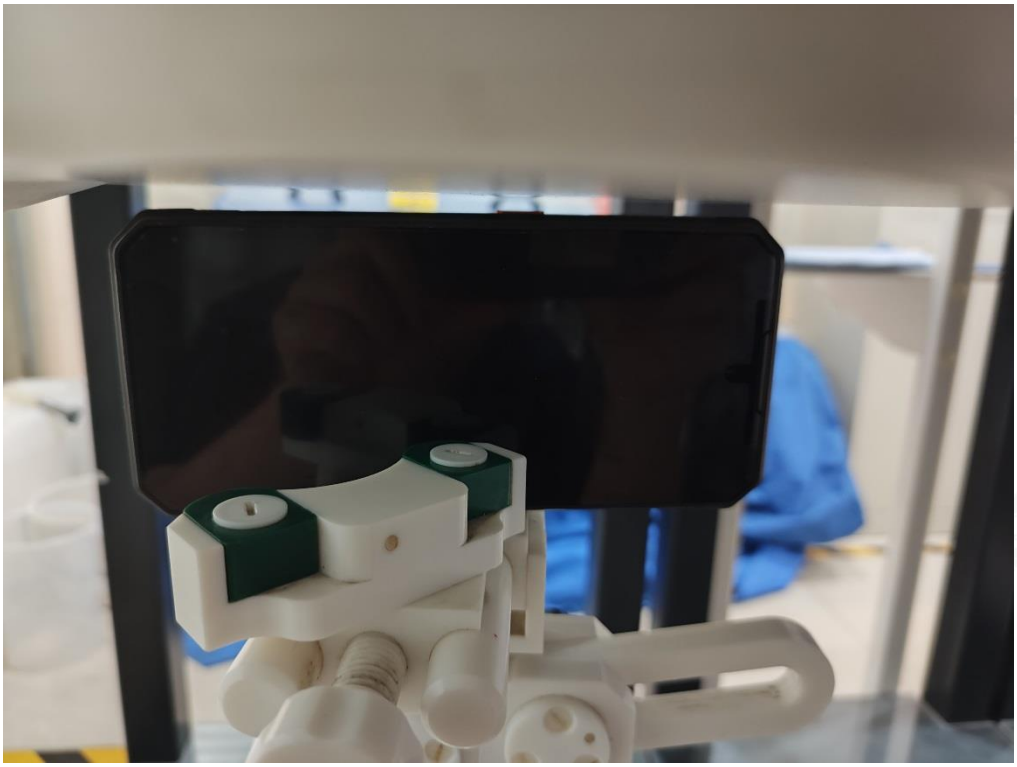
Front Side



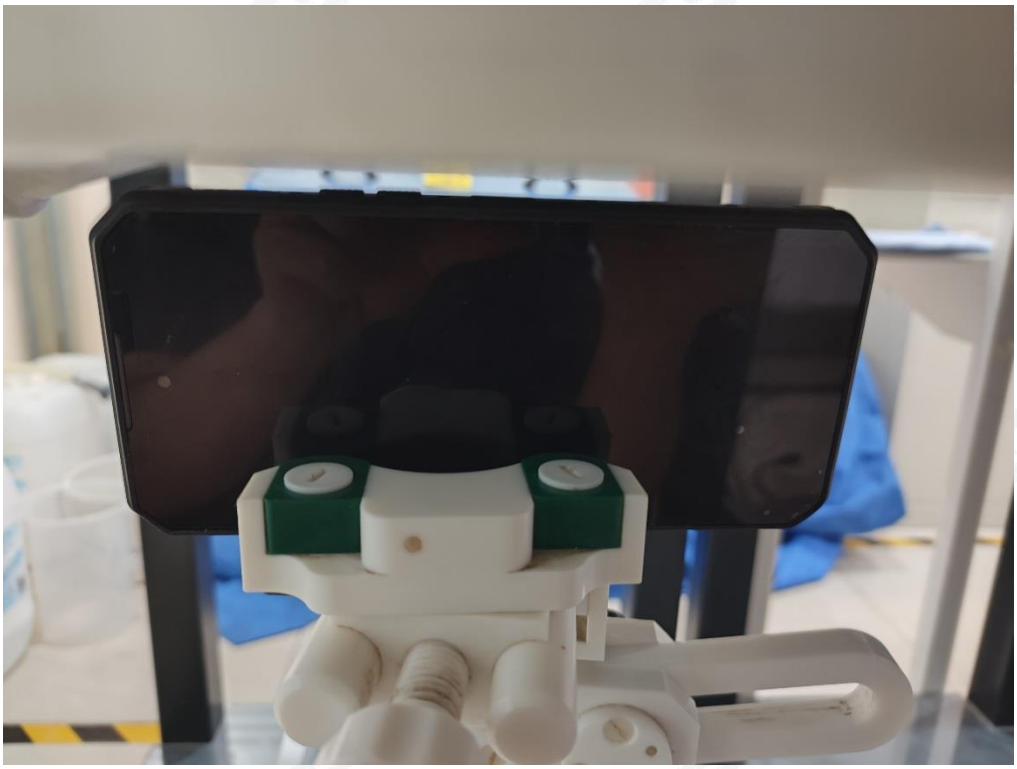
Back Side



Left Edge

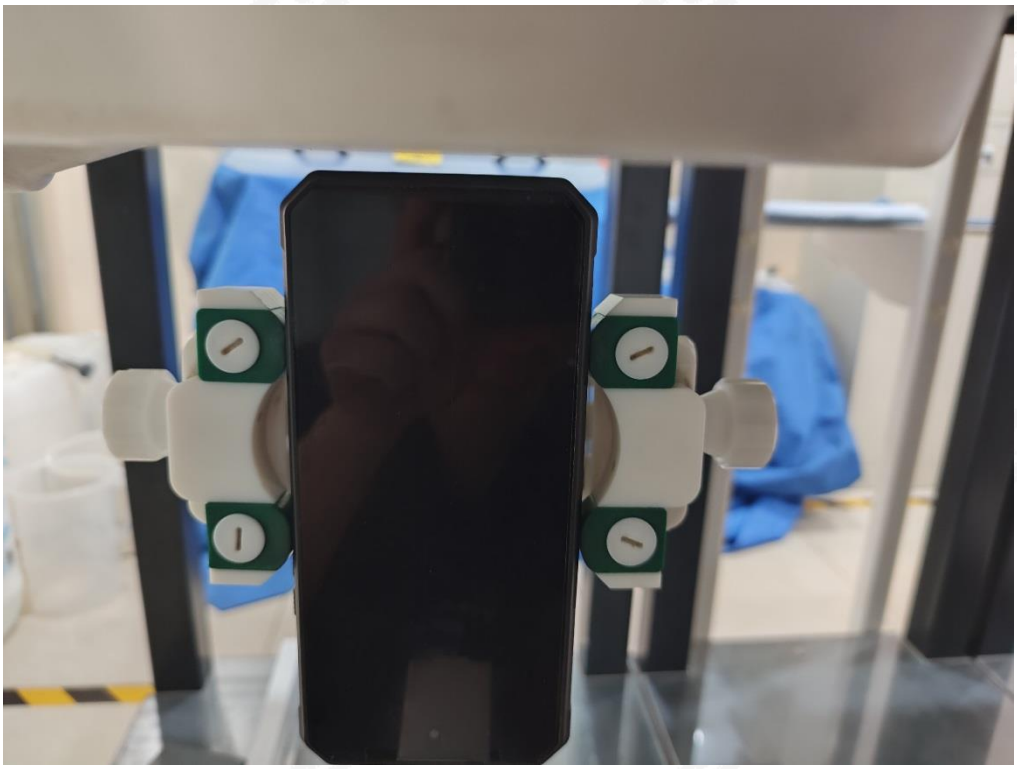


Right Edge

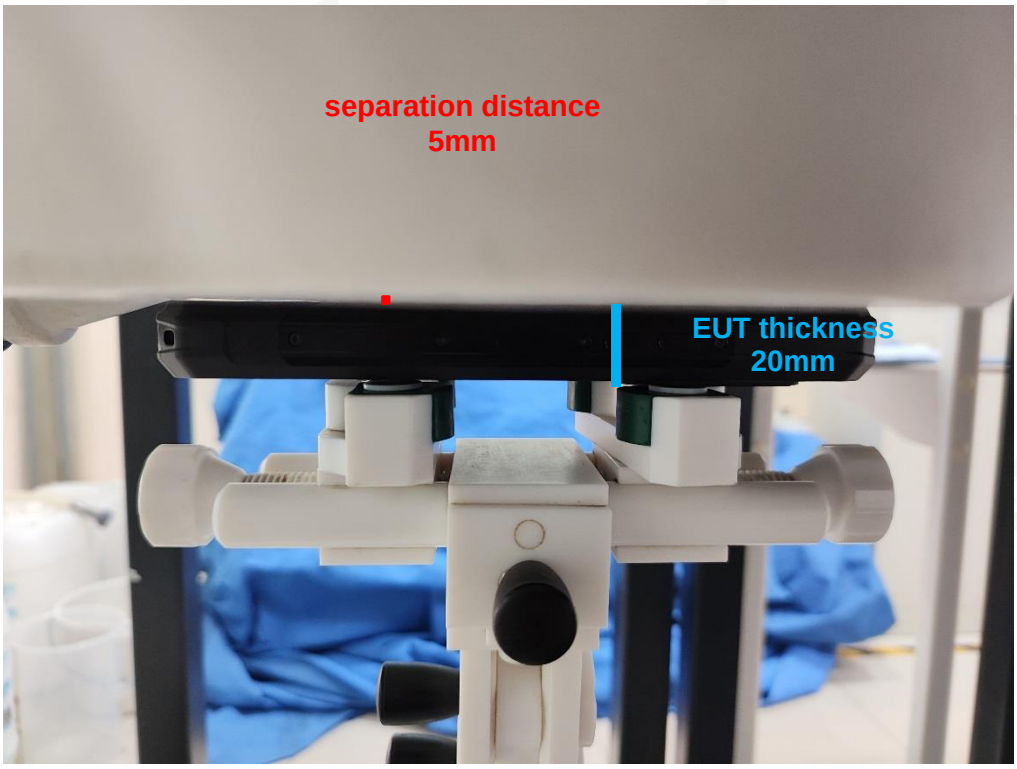


Top Edge

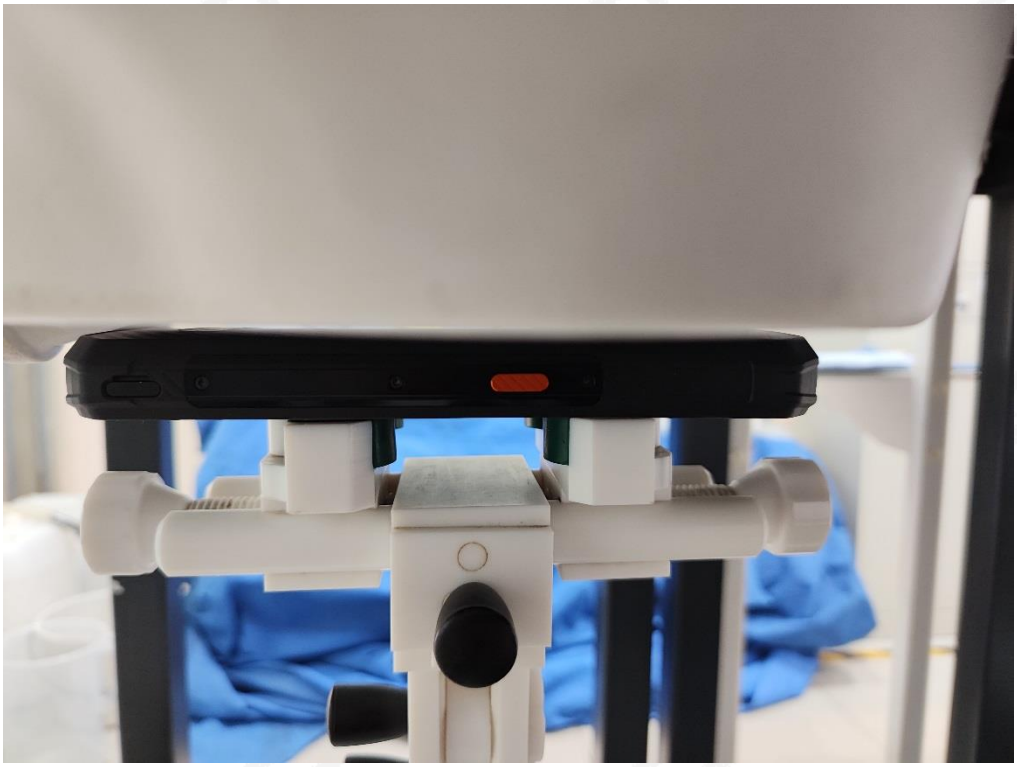
Bottom Edge



Limbs Front Side

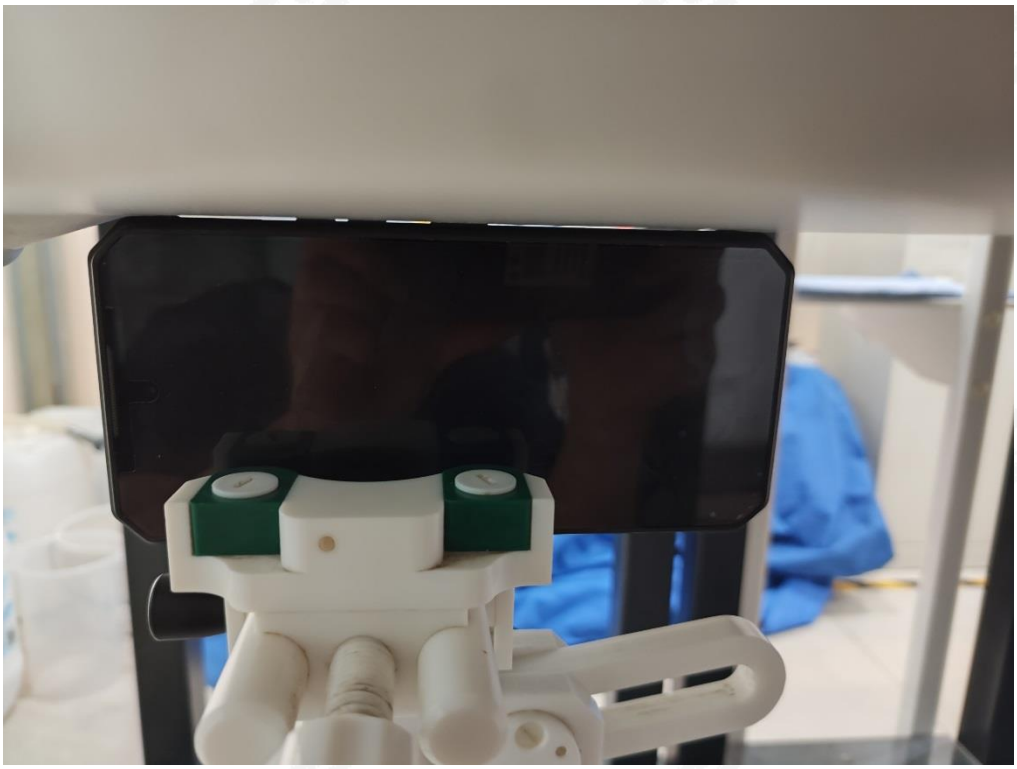


Limbs Back Side



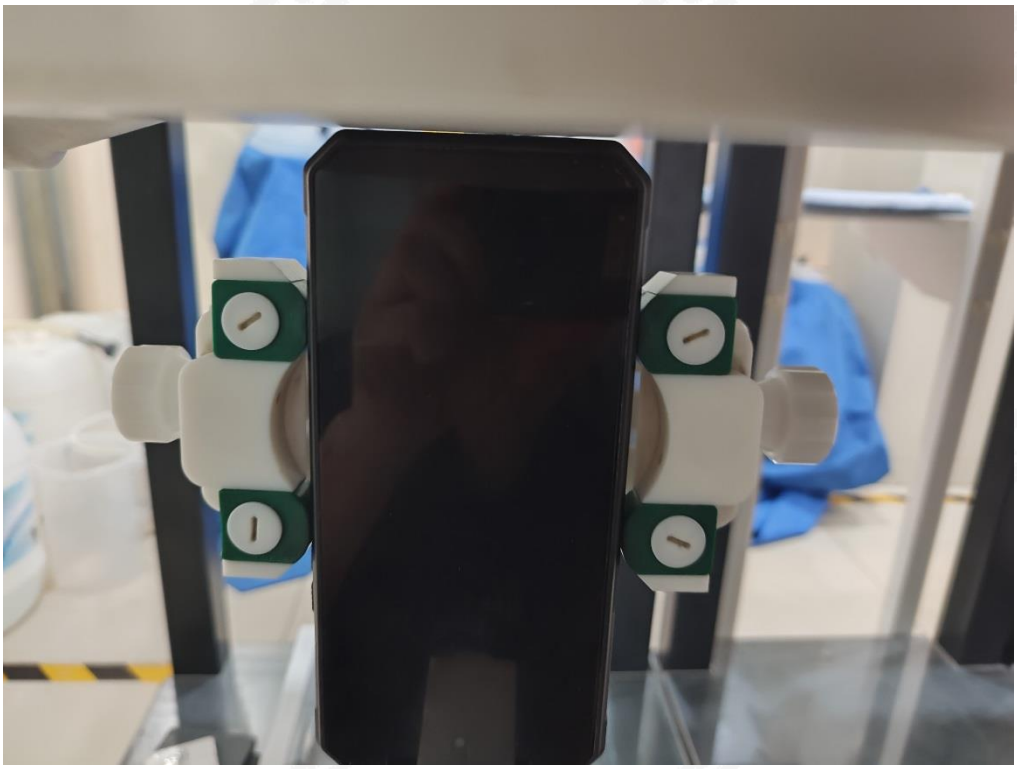
Limbs Left Edge

Limbs Right Edge

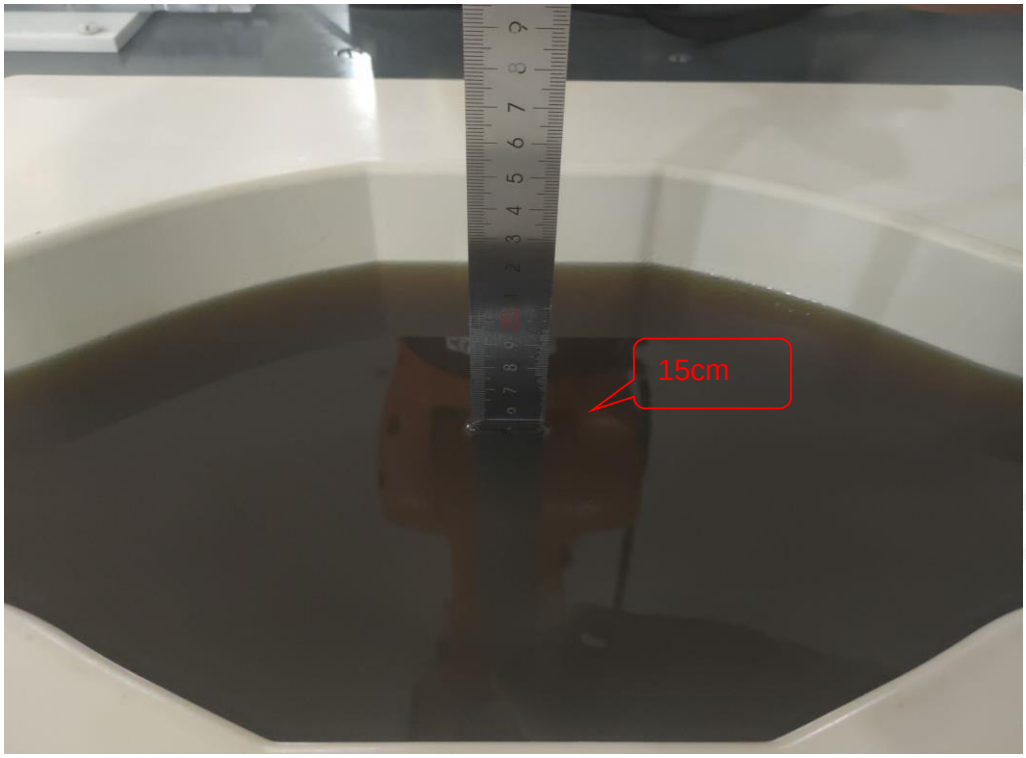


Limbs Top Edge

Limbs Bottom Edge



Liquid depth (15 cm)



11. SAR Result Summary

11.1 Head SAR

SA:

Band	Model	Test Position	Freq.	SAR (10g) (W/kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
SA N78	100MHz 135RB offset 0	Right Cheek	3600	0.351	-0.84	24.50	24.40	0.359	/
		Right Tilt	3600	0.125	3.61	24.50	24.40	0.128	/
		Left Cheek	3450	0.432	-1.91	24.50	23.98	0.487	/
		Left Cheek	3600	0.521	0.06	24.50	24.40	**0.533**	**1**
		Left Cheek	3750	0.488	-3.41	24.50	24.28	0.513	/
		Left Tilt	3600	0.244	3.57	24.50	24.40	0.250	/

NSA:

Band	Model	Test Position	Freq.	SAR (10g) (W/kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
LTE Band 1	20MHz BW, 1RB Offset 0	Right Cheek	1930	0.620	-1.23	22.50	22.22	0.661	/
		Right Cheek	1950	0.556	2.05	22.50	22.26	0.588	/
		Right Cheek	1970	0.385	-0.08	22.50	22.31	0.402	/
		Right Tilt	1970	0.275	1.71	22.50	22.31	0.287	/
		Left Cheek	1970	0.290	-2.97	22.50	22.31	**0.303**	**/**
		Left Tilt	1970	0.257	2.58	22.50	22.31	0.268	/
SA N78	100MHz 135RB offset 0	Right Cheek	3600	0.351	-0.84	24.50	24.40	0.359	/
		Right Tilt	3600	0.125	3.61	24.50	24.40	0.128	/
		Left Cheek	3450	0.432	-1.91	24.50	23.98	0.487	/
		Left Cheek	3600	0.521	0.06	24.50	24.40	0.533	1
		Left Cheek	3750	0.488	-3.41	24.50	24.28	0.513	/
		Left Tilt	3600	0.244	3.57	24.50	24.40	0.250	/

Band	Mode	Max SAR (W/Kg)	NSA N78+B1
NSA N78+B1	SA N78	0.533	1.194
	LTE B1	0.661	

11.2 Body SAR

SA:

Band	Model	Test Position	Freq.	SAR (10g) (W/kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
SA N78	100MHz 135RB offset 0	Front Side	3450	0.459	-3.67	24.50	23.98	0.517	/
		Front Side	3600	0.538	-0.12	24.50	24.40	0.551	2
		Front Side	3750	0.485	2.46	24.50	24.28	0.510	/
		Back Side	3600	0.189	-2.62	24.50	24.40	0.193	/
		Left Edge	3600	0.519	-2.89	24.50	24.40	0.531	/
		Right Edge	3600	0.102	3.91	24.50	24.40	0.104	/
		Top Edge	3600	0.239	0.69	24.50	24.40	0.245	/
		Bottom Edge	3600	0.133	-1.56	24.50	24.40	0.136	/

NSA:

Band	Model	Test Position	Freq.	SAR (10g) (W/kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
LTE Band 1	20MHz BW, 1RB Offset 0	Front Side	1950	0.336	1.97	22.50	22.26	0.355	/
		Back Side	1950	0.226	0.41	22.50	22.26	0.239	/
		Left Edge	1950	0.189	1.46	22.50	22.26	0.200	/
		Top Edge	1930	0.403	-0.48	22.50	22.22	0.430	/
		Top Edge	1950	0.375	3.81	22.50	22.26	0.396	/
		Top Edge	1970	0.374	2.69	22.50	22.31	0.391	/
SA N78	100MHz 135RB offset 0	Front Side	3450	0.459	-3.67	24.50	23.98	0.517	/
		Front Side	3600	0.538	-0.12	24.50	24.40	**0.551**	**2**
		Front Side	3750	0.485	2.46	24.50	24.28	0.510	/
		Back Side	3600	0.189	-2.62	24.50	24.40	0.193	/
		Left Edge	3600	0.519	-2.89	24.50	24.40	0.531	/
		Right Edge	3600	0.102	3.91	24.50	24.40	0.104	/
		Top Edge	3600	0.239	0.69	24.50	24.40	0.245	/
		Bottom Edge	3600	0.133	-1.56	24.50	24.40	0.136	/

Band	Mode	Max SAR (W/Kg)	NSA N78+B1
NSA N78+B1	SA N78	0.531	0.961
	LTE B1	0.430	

Note:

1. The test separation of all above table is 5mm.
2. When the 10g SAR is ≤1.0W/kg，testing for low and high channel is optional.

11.3 Limbs SAR

Band	Model	Test Position	Freq.	SAR (10g) (W/kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
SA N78	100MHz 135RB offset 0	Front Side	3450	1.195	-2.44	24.50	23.98	1.347	/
		Front Side	3600	1.345	2.91	24.50	24.40	**1.376**	**3**
		Front Side	3750	1.202	2.00	24.50	24.28	1.264	/
		Back Side	3600	0.264	-3.32	24.50	24.40	0.270	/
		Left Edge	3600	0.824	-0.39	24.50	24.40	0.843	/
		Right Edge	3600	0.064	3.40	24.50	24.40	0.065	/
		Top Edge	3600	0.354	-1.31	24.50	24.40	0.362	/
		Bottom Edge	3600	0.369	-2.27	24.50	24.40	0.378	/

NSA:

Band	Model	Test Position	Freq.	SAR (10g) (W/kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
LTE Band 1	20MHz BW, 1RB Offset 0	Front Side	1950	0.752	0.12	22.50	22.26	0.795	/
		Back Side	1950	0.307	3.18	22.50	22.26	0.324	/
		Left Edge	1950	0.272	1.65	22.50	22.26	0.287	/
		Top Edge	1930	0.805	-3.27	22.50	22.22	0.859	/
		Top Edge	1950	0.859	-3.19	22.50	22.26	0.908	/
		Top Edge	1970	0.668	-1.38	22.50	22.31	0.698	/
SA N78	100MHz 135RB offset 0	Front Side	3450	1.195	-2.44	24.50	23.98	1.347	/
		Front Side	3600	1.345	2.91	24.50	24.40	1.376	3
		Front Side	3750	1.202	2.00	24.50	24.28	1.264	/
		Back Side	3600	0.264	-3.32	24.50	24.40	0.270	/
		Left Edge	3600	0.824	-0.39	24.50	24.40	0.843	/
		Right Edge	3600	0.064	3.40	24.50	24.40	0.065	/
		Top Edge	3600	0.354	-1.31	24.50	24.40	0.362	/
		Bottom Edge	3600	0.369	-2.27	24.50	24.40	0.378	/

Band	Mode	Max SAR (W/Kg)	NSA N78+B1
NSA N78+B1	SA N78	1.376	2.284
	LTE B1	0.908	

Note:

1. The test separation of all above table is 0mm.
2. When the 10g SAR is ≤2.0W/kg，testing for low and high channel is optional.

12. Equipment List

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
3500MHz Dipole	MVG	SID3500	SN 08/21 DIP3G500-553	2021.03.01	2024.02.29
E-Field Probe	MVG	SSE2	SN 07/21 EPGO352	2023.02.24	2024.02.23
Dielectric Probe Kit	MVG	SCLMP	SN 32/14 OCPG67	2022.11.15	2023.11.14
Antenna	MVG	ANTA3	SN 07/13 ZNTA52	N/A	N/A
Phantom1	MVG	SAM	SN 32/14 SAM115	N/A	N/A
Phantom3	MVG	SAM	SN 21/21 ELLI48	N/A	N/A
Phone holder	MVG	N/A	SN 32/14 MSH97	N/A	N/A
Laptop holder	MVG	N/A	SN 3/14 LSH29	N/A	N/A
Attenuator	Agilent	99899	DC-18GHz	N/A	N/A
Directional coupler	Narda	4226-20	3305	N/A	N/A
Network Analyzer	Agilent	8753ES	US38432810	2022.09.28	2023.09.27
Multi Meter	Keithley	Multi Meter 2000	4050073	2022.09.29	2023.09.28
Signal Generator	Agilent	N5182A	MY50140530	2022.09.28	2023.09.27
Wireless Communication Test Set	Agilent	8960-E5515C	MY48360751	2022.09.28	2023.09.27
Wireless Communication Test Set	R&S	CMW500	156324	2022.09.29	2023.09.28
Power Amplifier	DESAY	ZHL-42W	9638	2022.10.08	2023.10.07
Power Meter	R&S	NRP	100510	2022.09.28	2023.09.27
Power Sensor	R&S	NRP-Z11	101919	2022.09.28	2023.09.27
Power Sensor	Keysight	U2021XA	MY56280002	2022.09.29	2023.09.28
Temperature hygrometer	SuWei	SW-108	N/A	2022.09.30	2023.09.29
Thermograph	Elitech	RC-4	S/N EF7176501537	2022.09.30	2023.09.29

Appendix A. System Validation Plots

System Performance Check Data (3500MHz)

Type: Phone measurement (Complete)

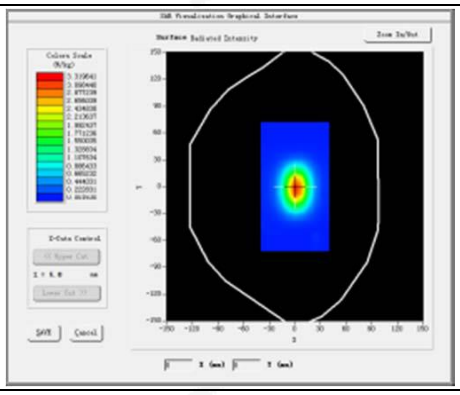
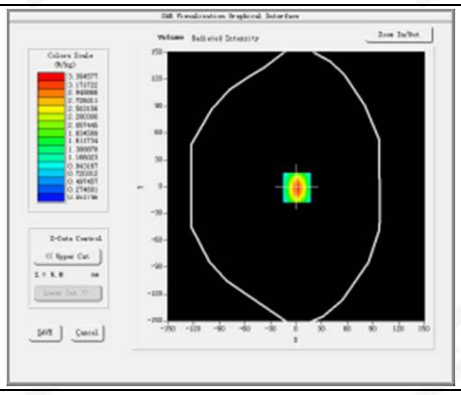
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2023-08-29

Experimental conditions.

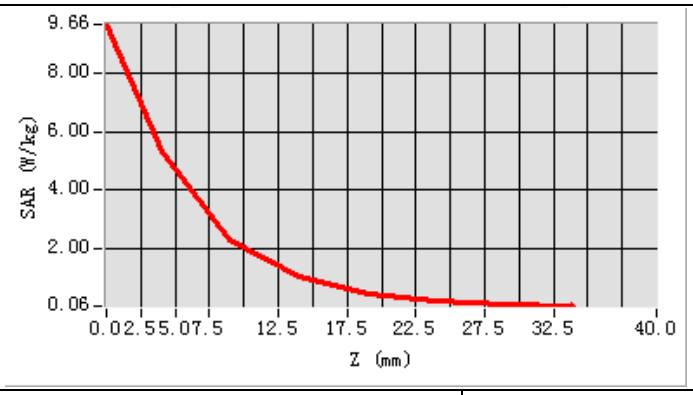
Device Position	Validation plane
Band	3500 MHz
Channels	-
Signal	CW
Frequency (MHz)	3500
Relative permittivity	38.69
Conductivity (S/m)	2.96
Probe	SN 07/21 EPGO352
ConvF	1.75
Crest factor:	1:1

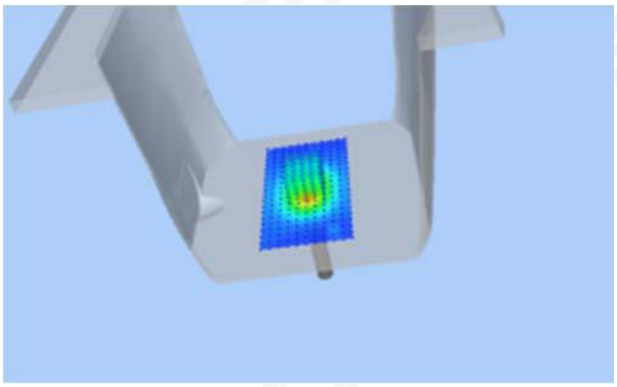
SURFACE SAR	VOLUME SAR
	

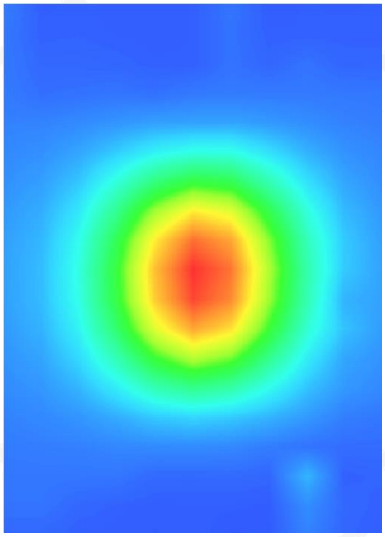
Maximum location: X=3.00, Y=1.00

SAR 10g (W/Kg)	2.606394
SAR 1g (W/Kg)	6.915718

Z Axis Scan


9.66
8.00
6.00
4.00
2.00
0.06
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)



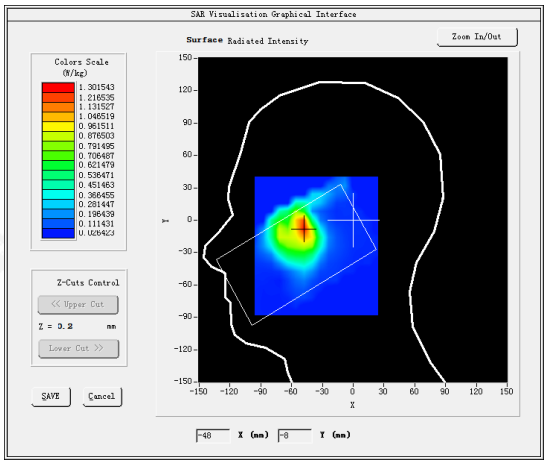
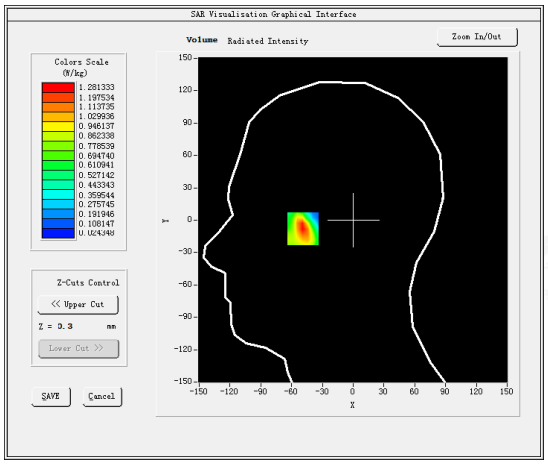
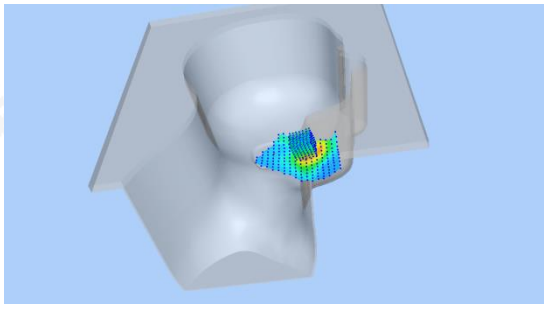
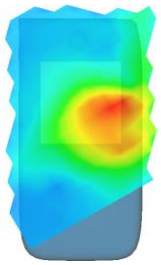
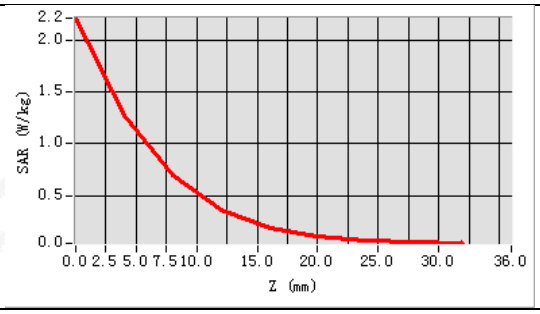


Appendix B. SAR Test Plots

Plot 1: DUT: Smart Phone; EUT Model: WP30 Pro

Test Date	2023-08-29
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=5mm dy=5mm dz=4mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Head
Device Position	Left Cheek
Band	SA N78
Signal	Duty Cycle: 1.00 (Crest factor: 1.0)
Frequency	3600
SAR 10g (W/Kg)	0.521071
SAR 1g (W/Kg)	1.153392

Maximum location: X=-49.00, Y=-6.00 SAR Peak: 2.29 W/kg

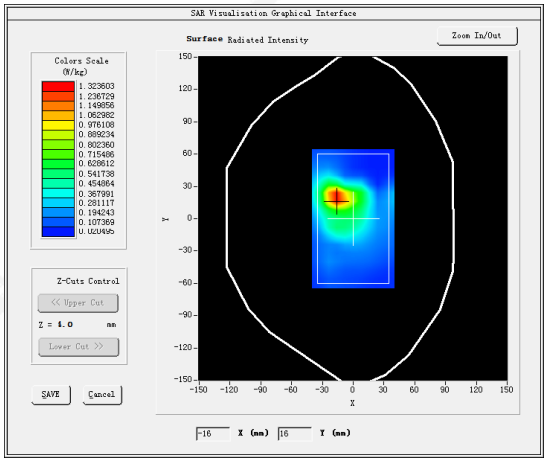
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	
Z Axis Scan	
	

Plot 2: DUT: Smart Phone; EUT Model: WP30 Pro

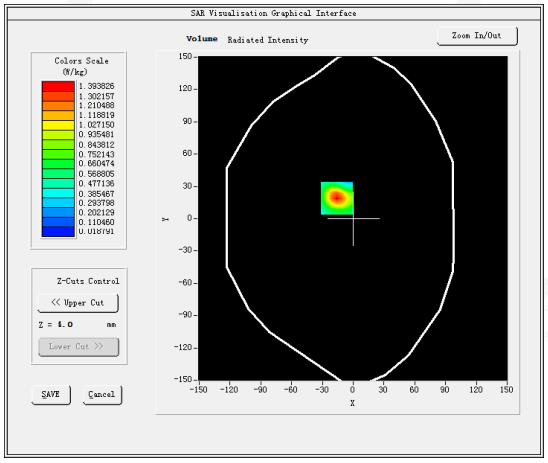
Test Date	2023-08-29
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=5mm dy=5mm dz=4mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Body
Device Position	Front Side
Band	SA N78
Signal	Duty Cycle: 1.00 (Crest factor: 1.0)
Frequency	3600
SAR 10g (W/Kg)	0.538204
SAR 1g (W/Kg)	1.272945

Maximum location: X=-16.00, Y=19.00 SAR Peak: 2.61 W/kg

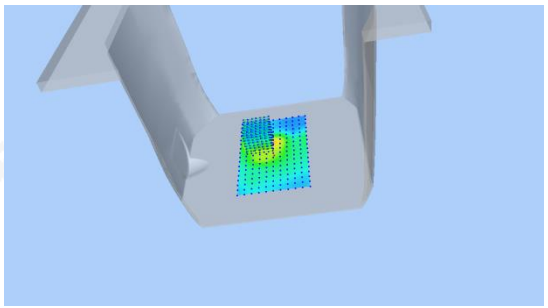
SURFACE SAR



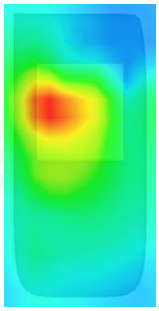
VOLUME SAR



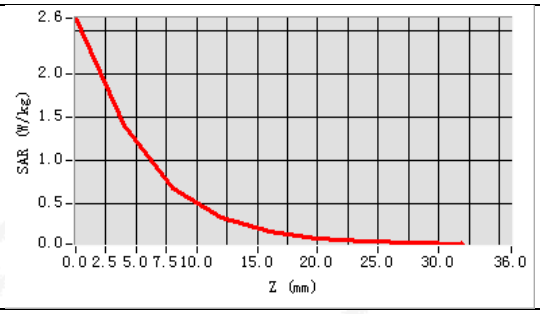
3D screen shot



Hot spot position



Z Axis Scan

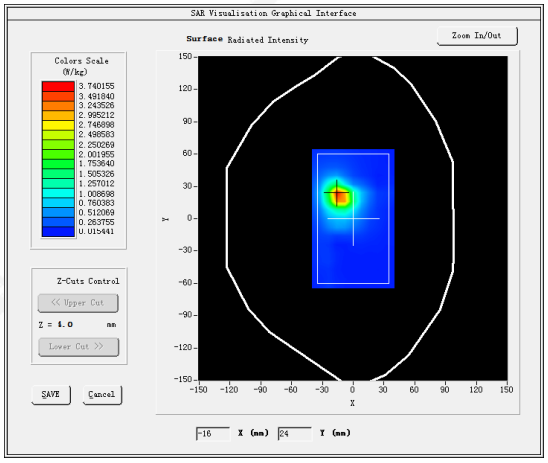


Plot 3: DUT: Smart Phone; EUT Model: WP30 Pro

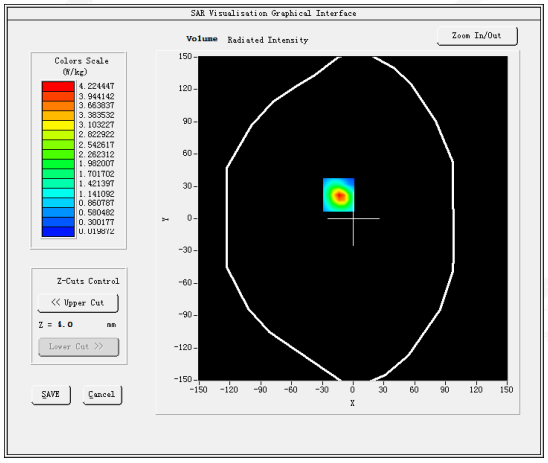
Test Date	2023-08-29
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=5mm dy=5mm dz=4mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Limbs
Device Position	Front Side
Band	SA N78
Signal	Duty Cycle: 1.00 (Crest factor: 1.0)
Frequency	3600
SAR 10g (W/Kg)	1.345058
SAR 1g (W/Kg)	3.715724

Maximum location: X=-14.00, Y=22.00 SAR Peak: 8.37 W/kg

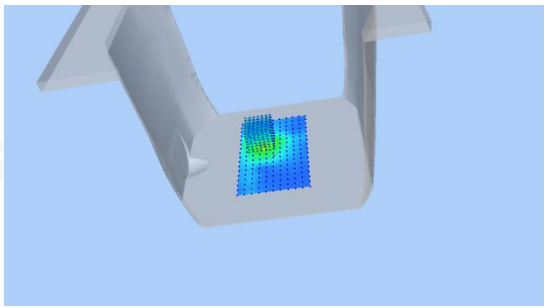
SURFACE SAR



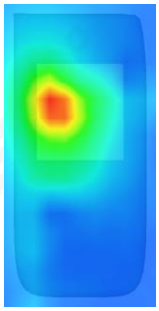
VOLUME SAR



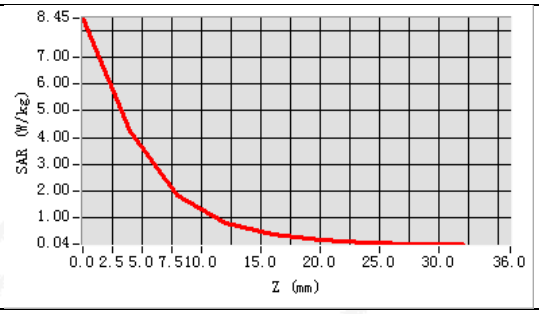
3D screen shot



Hot spot position



Z Axis Scan



Appendix C. Probe Calibration and Dipole Calibration Report

Refer the appendix Calibration Report.

※※※※※END OF THE REPORT※※※※※