TEST REPORT

Reference No.	:	WTX24X09216746W002
FCC ID	:	2AHZ5-KKSER
Applicant	:	Shenzhen Huafurui Technology Co., Ltd.
Address	:	Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Shenzhen
Manufacturer		The same as Applicant
Address		The same as Applicant
Product Name	:	Smartphone
Model No.	:	KINGKONG X
Standards	:	FCC Part 2.1093 IEEE Std C95.1: 2019 IEEE Std C95.3: 2002 + Rev. 2008 IEC/IEEE 62209-1528 Ed. 1.0 (2020-10)
Date of Receipt sample	:	2024-09-14
Date of Test	:	2024-09-14 to 2024-09-25
Date of Issue	:	2024-09-25
Test Report Form No.	:	WTX_IEEE_1528W
Test Result	:	**Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

Tel.: +86-755-33663308 Fax.: +86-755-33663309 Email: sem@waltek.com.cn

Tested by:

Jack Sun

Approved by:

Jason Su

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Report version

Version No.	Date of issue	Description
Rev.00	2024-09-25	Original
/	/	/

1. General Information

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT:	
Product Name:	Smartphone
Brand Name:	CUBOT
Model No.:	KINGKONG X
Adding Model(s):	KINGKONG ACE 2, KINGKONG ACE 3, KINGKONG AX, KINGKONG ES, KINGKONG POWER 3, KINGKONG STAR 2, KINGKONG X PRO
Rated Voltage:	DC3.87V
Battery:	10200mAh
Adapter Model	Model:HJ-PD33W-US Input:100-240v~50/60Hz 0.8A Output:DC5V3.0A 15.0W OR DC9.0V3.0A 27.0W OR DC12.0V2.75A 33.0W MAX
Hardware Version:	G2365-MUB-V2-BOM3
Software Version:	CUBOT_KINGKONG X_E021C_V21
Note: The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model KINGKONG X, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT:	
5G NR	
Support Networks:	5G NR
Support Band:	n5; n41
EN-DC Mode	/
Frequency Range:	n5: Tx: 824-849MHz, Rx: 869-894MHz
	n41: Tx: 2496-2690MHz, Rx: 2496-2690MHz
Modulation Type:	DFT-s-OFDM: PI/2 BPSK QPSK / 16QAM / 64QAM / 256QAM CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM
Max. RF Output Power:	5G NR n5: 24.04dBm, 5G NR n41: 25.99dBm,
Antenna Type:	FPC Antenna
Antenna Gain:	5G N5: -2.9dBi 5G N41: 0.0dBi
Note: The Antenna Gain is provided by the customer and can affect the validity of results. *2.This report only evaluates 5G NR SAR.*	

1.2 Test Standards

The following report is accordance with FCC 47 CFR Part 2.1093, IEEE Std C95.1: 2019, IEEE Std C95.3: 2002 + Rev. 2008, IEC/IEEE 62209-1528 Ed. 1.0 (2020-10), KDB 447498 D01 v06, KDB 648474 D04 v01r03, KDB 248227 D01 v02r02, KDB 941225 D01 v03r01, KDB 941225 D05 v02r05 , and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02.

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

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

1.3 Test Methodology

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

1.4 Test Facility

Address of the test laboratory
Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.
Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road,Block 70 Bao'an District, Shenzhen, Guangdong, China

FCC – Registration No.: 125990
Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010.Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A
The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certifi cation and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A and the CAB identifier is CN0057.

2. Summary of Test Results

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

Frequency Band	Head SAR	Body-worn (10mm Gap)	Hotspot (10mm Gap)	SAR_{1g} Limit (W/kg)
	Maximum SAR_{1g} (W/kg)	Maximum SAR_{1g} (W/kg)	Maximum SAR_{1g} (W/kg)	
5G NR	0.235	0.121	0.155	1.6

The device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR Part 2.1093 and IEEE Std C95.1: 2019, and had been tested in accordance with the measurement methods and procedure specified in IEC/IEEE 62209-1528 Ed. 1.0 (2020-10) and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02.

3. Specific Absorption Rate (SAR)

3.1 Introduction

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

3.2 SAR Definition

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

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

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

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\mathbf{\delta T}}{\mathbf{\delta t}}\right)$$

Where: C is the specific heat capacity, δ T is the temperature rise and δ t is the exposure duration, or related to the
electrical field in the tissue by

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

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

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

4. SAR Measurement System

4.1 The Measurement System

Comosar is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The Comosar system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.

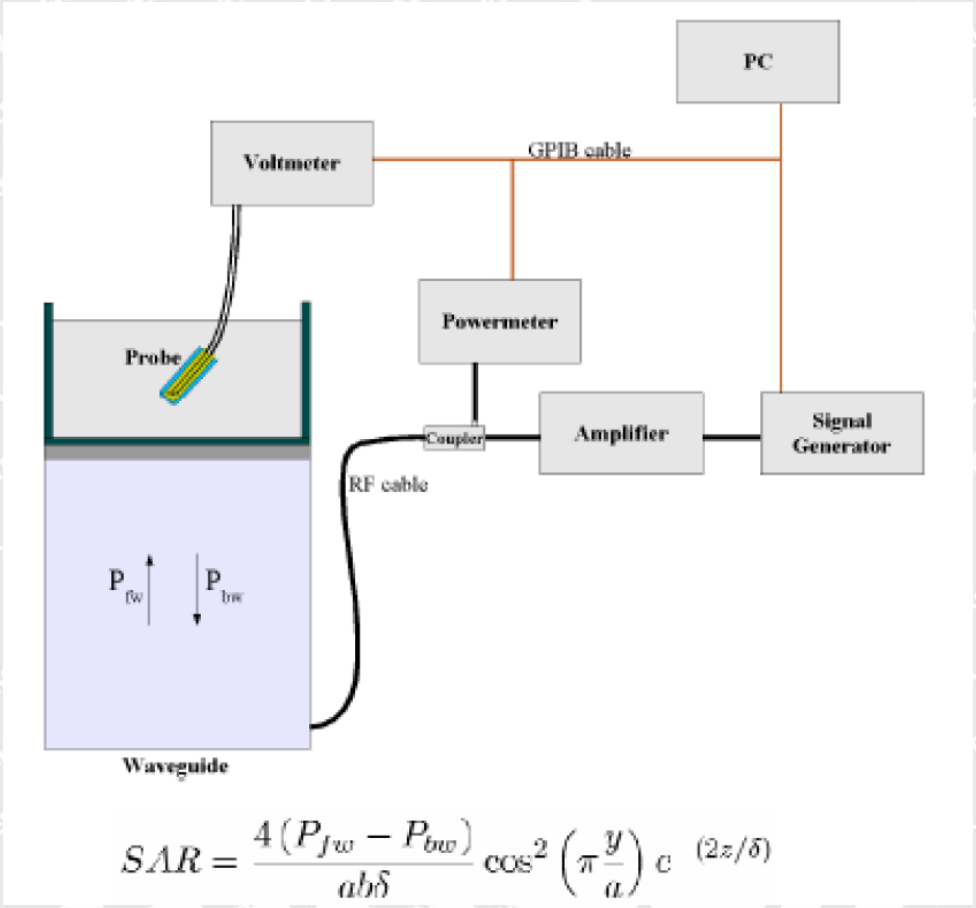


The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The OpenSAR software computes the results to give a SAR value in a 1g or 10g mass.

4.2 Probe

For the measurements the Specific Dosimetric E-Field Probe SSE2 3823-EPGO-435, and refer to the calibration report for probe parameters.

Probe calibration is realized, in compliance with EN 62209-1 and IEC/IEEE 62209-1528 Ed. 1.0 (2020-10) STD, with CALISAR, Antenna proprietary calibration system. The calibration is performed with the EN 62209-1 annexes technique using reference guide at the five frequencies.



$$SAR = \frac{4\left(P_{fw} - P_{bw}\right)}{ab\delta} \cos^2\left(\pi \frac{y}{a}\right) e^{-(2z/\delta)}$$

Where :

Pfw = Forward Power

Pbw = Backward Power

a and b =Waveguide dimensions

I = Skin depth

Keithley configuration:

Rate = Medium; Filter = ON; RDGS = 10; Filter type = Moving Average; Range auto after each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it. The calibration factors, CF(N), for the 3 sensors corresponding to dipole 1, dipole 2 and dipole 3 are:

CF(N)=SAR(N)/Vlin(N) (N=1,2,3)

The linearised output voltage Vlin(N) is obtained from the displayed output voltage V(N) using

Vlin(N)=V(N)*(1+V(N)/DCP(N)) (N=1,2,3)

where DCP is the diode compression point in mV.

4.3 Probe Calibration Process

Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. SATIMO Probe calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm2) using an with CALISAR, Antenna proprietary calibration system.

Free Space Assessment Procedure

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1mW/cm2.

Temperature Assessment Procedure

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated head tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where:

Δt = exposure time (30 seconds),

C = heat capacity of tissue (brain or muscle),

ΔT = temperature increase due to RF exposure.

SAR is proportional to $\Delta T/\Delta t$, the initial rate of tissue heating, before thermal diffusion takes place. The electric field in the simulated tissue can be used to estimate SAR by equating the thermally derived SAR to that with the E- field component.

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

Where:

σ = simulated tissue conductivity,

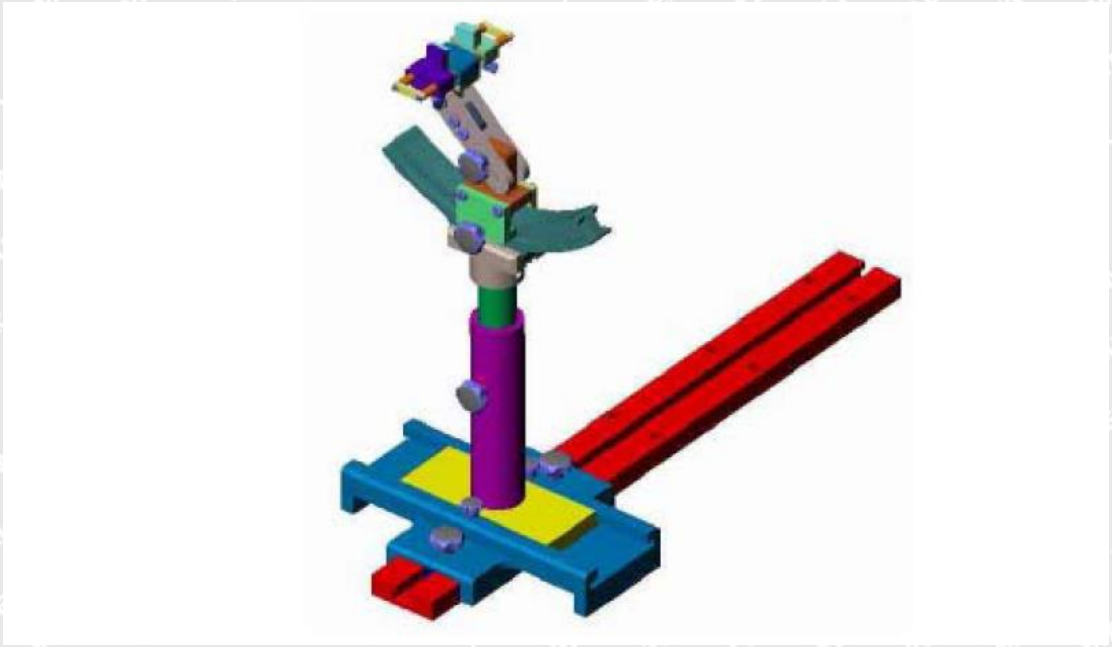
ρ = Tissue density (1.25 g/cm3 for brain tissue)

4.4 Phantom

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

4.5 Device Holder

The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than 1°.



System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

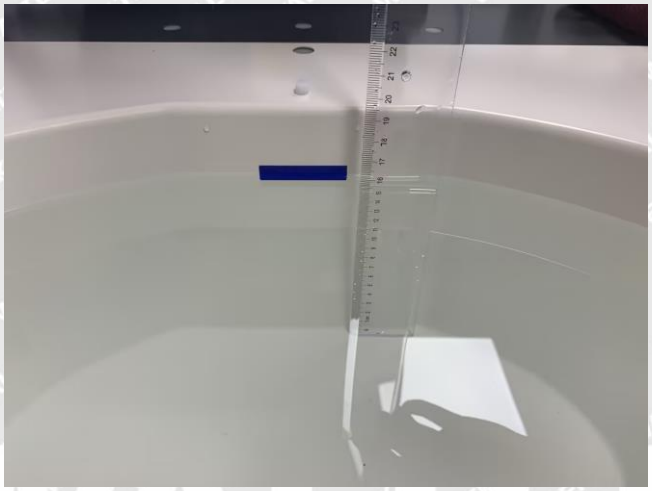
4.6 Test Equipment List

Fixed asset Number	Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
WTXE1105A1002	E-Field Probe	MVG	SSE2	3823-EPGO-435	2024-07-11	2025-07-10
WTXE1053A1001-002	835MHz Dipole	MVG	SID835	SN 47/12 DIP 0G835-204	2023-08-20	2026-08-19
WTXE1053A1006-002	2600MHz Dipole	MVG	SID2600	SN 28/21 DIP 2G600-590	2024-07-11	2027-07-10
WTXE1053A1001-010	Dielectric Probe	SATIMO	SCLMP	SN 47/12 OCPG49	2024-02-24	2025-02-23
WTXE1075A1003	Power meter	Keithley	3500	1232959	2024-02-24	2025-02-23
WTXE1075A1002	Power meter	Keithley	3500	1162591	2024-02-24	2025-02-23
WTXE1104A1003	EXG Analog Signal Generator	KEYSIGHT	N5173B	MY61252892	2024-02-24	2025-02-23
WTXE1022A1002	GSM Tester	Rohde & Schwarz	CMU200	114403	2024-02-27	2025-02-26
WTXE1041A1002	Communications Tester	Rohde & Schwarz	CMW500	148650	2024-03-19	2025-03-18
WTXE1036A1001	Network Analyzer	Rohde & Schwarz	ZVB 8	101353	2023-10-17	2024-10-16

5. Tissue Simulating Liquids

5.1 Composition of Tissue Simulating Liquid

For the measurement of the field distribution inside the SAM phantom with SMTIMO, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. Please see the following photos for the liquid height.



Liquid Height for Body SAR

The Composition of Tissue Simulating Liquid

Frequency (MHz)	Water (%)	Salt (%)	Sugar (%)	HEC (%)	Preventol (%)	DGBE (%)
Head						
750	41.1	1.4	57.0	0.2	0.3	0
835	40.3	1.4	57.9	0.2	0.2	0
1700-1900	55.2	0.3	0	0	0	44.5
2450	55.0	0.1	0	0	0	44.9
2600	54.9	0.1	0	0	0	45.0
Body						
750	50.0	0.8	48.8	0.2	0.2	0
835	50.8	0.9	48.1	0.1	0.1	0
1700-1900	70.2	0.4	0	0	0	29.4
2450	68.6	0.1	0	0	0	31.3
2600	68.2	0.1	0	0	0	31.7

5.2 Tissue Dielectric Parameters for Head and Body Phantoms

According to FCC KDBs, IEC/IEEE 62209-1528 Ed. 1.0 (2020-10) and CEI/IEC 62209 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

Target Frequency (MHz)	Head	
	Conductivity (σ)	Permittivity (ε_r)
150	0.76	52.3
300	0.87	45.3
450	0.87	43.5
750	0.89	41.9
835	**0.90**	**41.5**
900	0.97	41.5
915	0.98	41.5
1450	1.20	40.5
1800-2000	1.40	40.0
2100	1.49	39.8
2300	1.67	39.5
2450	1.80	39.2
2600	**1.96**	**39.0**
3000	2.40	38.5
3500	2.91	37.9
4000	3.43	37.4
4500	3.94	36.8
5000	4.45	36.2
5200	4.66	36.0
5400	4.86	35.8
5600	5.07	35.5
5800	5.27	35.3
6000	5.48	35.1

5.3 Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using COMOSAR Dielectric Probe Kit and an Agilent Network Analyzer.

Calibration Result for Dielectric Parameters of Tissue Simulating Liquid

Head Tissue Simulating Liquid									
Freq. MHz	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
835	23.0	0.88	0.90	-2.22	41.03	41.50	-1.13	±5	2024-09-25
2600	23.0	1.93	1.96	-1.53	38.43	39.0	-1.46	±5	2024-09-24

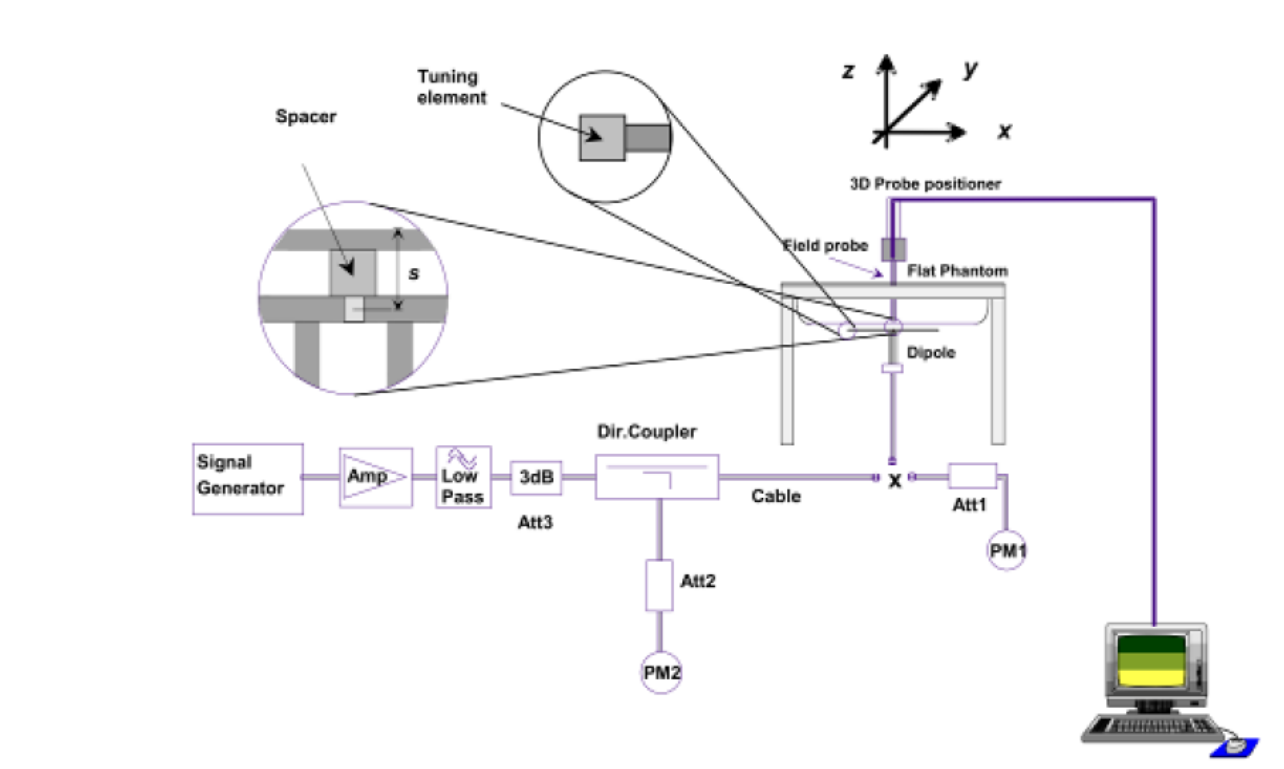
6. SAR Measurement Evaluation

6.1 Purpose of System Performance Check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

6.2 System Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave which comes from a signal generator at frequency 835MHz ,1800MHz, 1900MHz 2450MHz,2600MHz,and 5GHz. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom.



System Verification Setup Block Diagram



Setup Photo of Dipole Antenna

The output power on dipole port must be calibrated to 24 dBm(250 mW) before dipole is connected.

6.3 Validation Results

Comparing to the original SAR value provided by SATIMO, the validation data should be within its specification of 10 %. Table 6.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion.

Frequency	Power	Targeted SAR_{1g}	Measured SAR_{1g}	Normalized SAR_{1g}	Tolerance	Date
MHz	(mw)	(W/kg)	(W/kg)	(W/kg)	(%)	
Head						
835	250	9.65	2.210	8.84	-8.39	2024-09-25
2600	250	56.81	14.815	59.26	4.31	2024-09-24

Remark: Referring to IEC/IEEE 62209-1528 Ed. 1.0 (2020-10), the system check shall be performed at a test frequency that is within ±10% or ±100 MHz of the compliance test mid-band frequency, so the 1750 MHz system verification is made of 1800MHz Dipole.

Targeted and Measurement SAR

Please refer to Annex A for the plots of system performance check.

7. EUT Testing Position

7.1 Define Two Imaginary Lines on The Handset

(a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

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

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

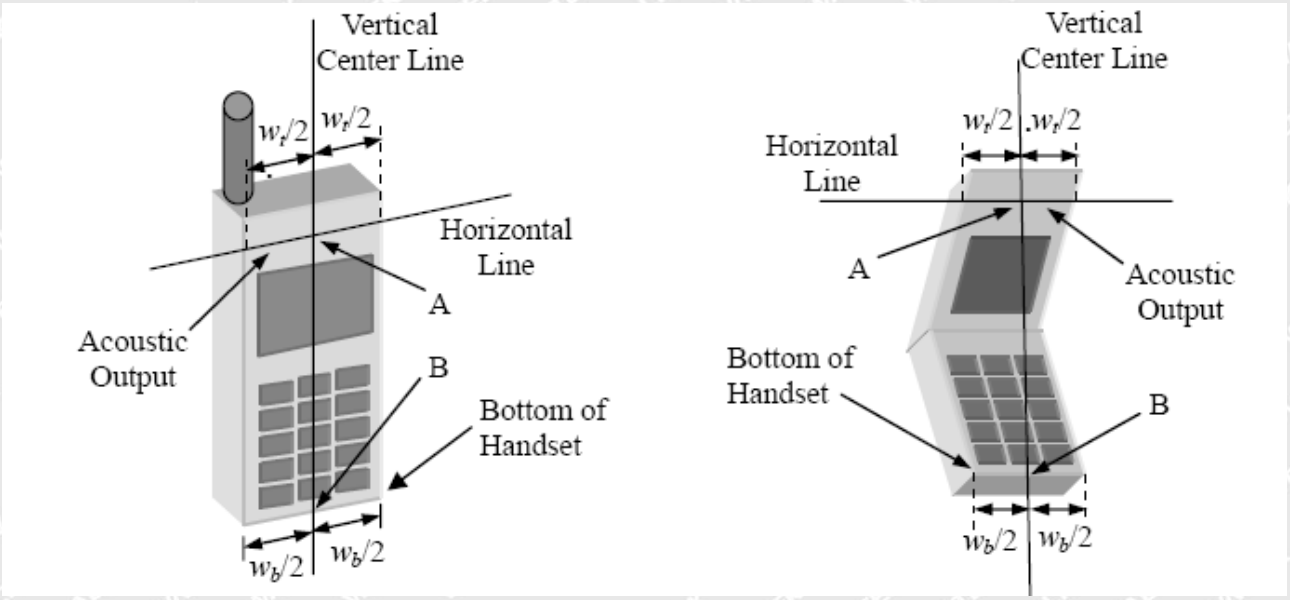


Illustration for Handset Vertical and Horizontal Reference Lines

7.2 Cheek Position

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig. 7.2).

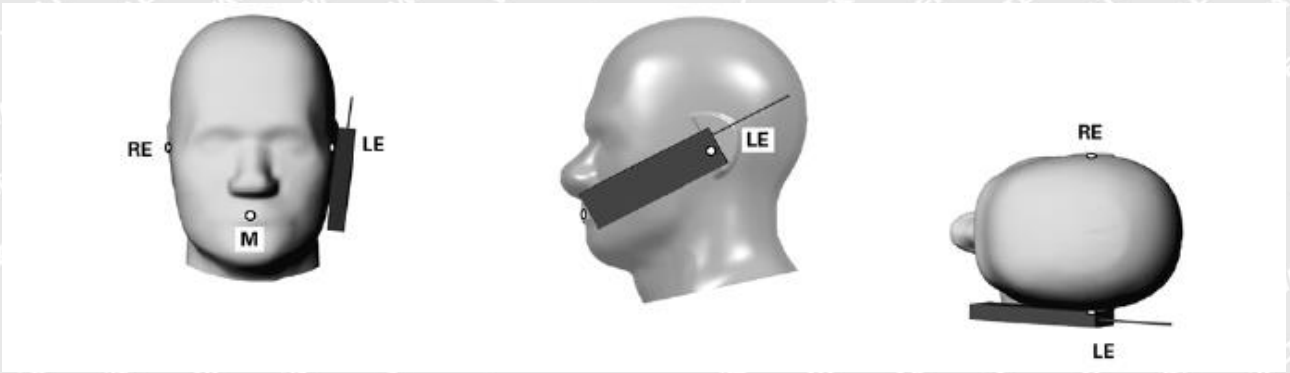


Illustration for Cheek Position

7.3 Tilted Position

(a) To position the device in the “cheek” position described above.
(b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig. 7.3).

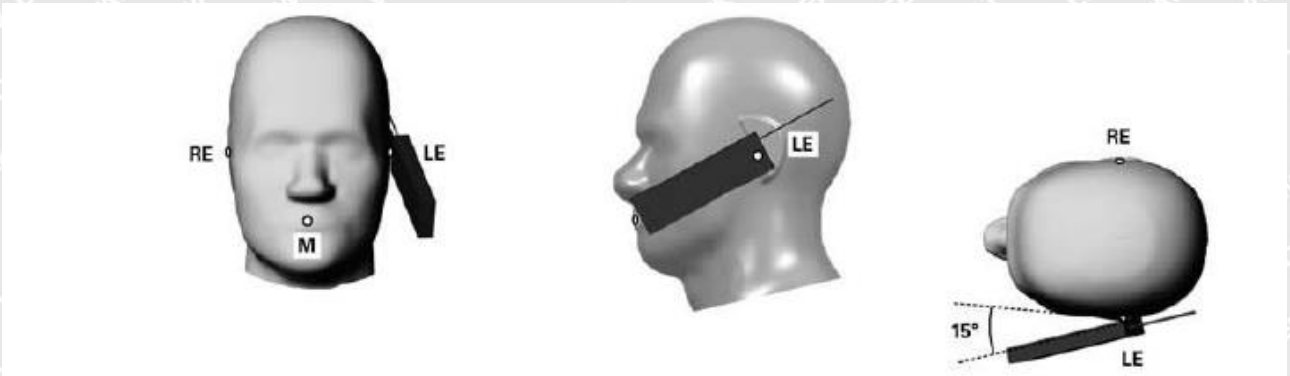


Illustration for Tilted Position

7.4 Body Position

(a) To position the device parallel to the phantom surface with each side.
(b) To adjust the device parallel to the flat phantom.
(c) To adjust the distance between the device surface and the flat phantom to 10mm.

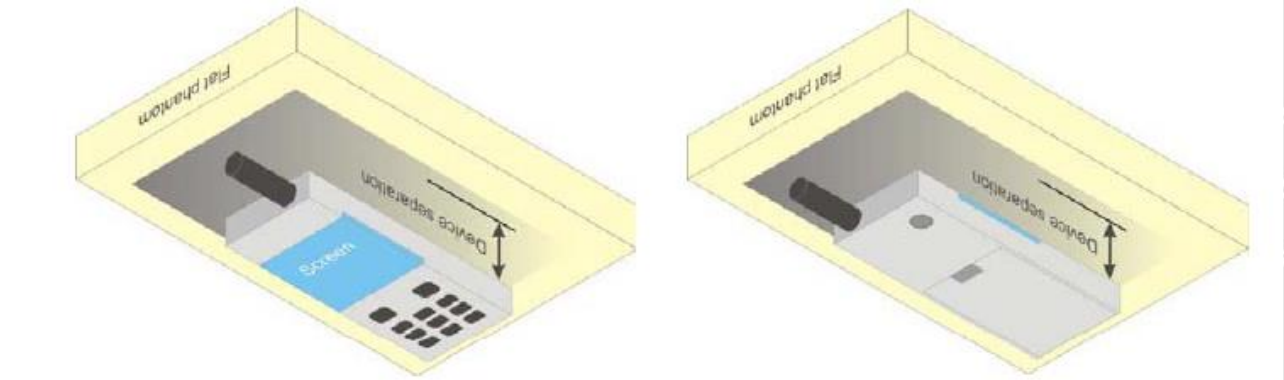


Illustration for Body Position

7.5 EUT Antenna Position



Block Diagram for EUT Antenna Position

EUT Sizes: Long 174mm; width:84mm; height:20mm

Distance of EUT antenna-to-edge/surface(mm),						
Antennas	Back side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
5G NR_N5(ANT0)	<25	<25	<25	<25	150	<25
5G NR_N41(ANT5)	<25	<25	<25	72	46	112

7.6 EUT Testing Position

Head/Body mode SAR assessments are required for this device. This EUT was tested in different positions for different SAR test modes, more information as below:

Head SAR tests				
Antennas	**Right Cheek**	**Left Cheek**	**Right Tilted**	**Left Tilted**
5G NR_N5(ANT0)	Yes	Yes	Yes	Yes
5G NR_N41(ANT5)	Yes	Yes	Yes	Yes

Body SAR tests, Test distance: 10mm						
Antennas	**Front**	**Back**	**Left Side**	**Right Side**	**Top Side**	**Bottom Side**
5G NR_N5(ANT0)	Yes	Yes	Yes	Yes	No	Yes
5G NR_N41(ANT5)	Yes	Yes	Yes	No	No	No

Body-worn SAR tests, Test distance: 10mm		
Antennas	**Front**	**Back**
5G NR_N5(ANT0)	Yes	Yes
5G NR_N41(ANT5)	Yes	Yes

Remark:

1. Referring to KDB 941225 D06, when the overall device length and width are >= 9cm*5cm, the test separation distances is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
2. Referring to KDB 648474 D04 Handset SAR v01r03, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
3. This report only evaluates 5G NR SAR.

Please refer to Annex D for the EUT test setup photos.

8. SAR Measurement Procedures

8.1 Measurement Procedures

The measurement procedures are as follows:
(a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the highest power channel.
(b) Keep EUT to radiate maximum output power or 100% factor (if applicable)
(c) Measure output power through RF cable and power meter.
(d) Place the EUT in the positions as Annex D demonstrates.
(e) Set scan area, grid size and other setting on the SATIMO software.
(f) Measure SAR results for the highest power channel on each testing position.
(g) Find out the largest SAR result on these testing positions of each band
(h) Measure SAR results for other channels in worst SAR testing position if the SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:
(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

8.2 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The SATIMO software includes all numerical procedures necessary to evaluate the spatial peak SAR value.
The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.
The entire evaluation of the spatial peak values is performed within the post-processing engine. The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:
(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

8.3 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures 5x5x7 points with step size 8, 8 and 5 mm for 300 MHz to 3 GHz, and 8x8x8 points with step size 4, 4 and 2.5 mm for 3 GHz to 6 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

8.4 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing (step-size is 4, 4 and 2.5 mm). When all volume scan were completed, the software can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.5 SAR Averaged Methods

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10g and 1 g requires a very fine resolution in the three dimensional scanned data array.

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In SATIMO measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

9. SAR Test Result

9.1 Conducted RF Output Power

5G NR:

Band	SCS	Bandwidth	Modulation	Channel	RB Config	Power（dBm）	Power Class	Verdict
N5	15	5	DFT-QPSK	L	Outer_Full	22.65	PC3	PASS
N5	15	5	DFT-QPSK	L	Inner_Full	23.76	PC3	PASS
N5	15	5	DFT-QPSK	L	Edge_1RB_Left	22.29	PC3	PASS
N5	15	5	DFT-QPSK	L	Edge_1RB_Right	22.87	PC3	PASS
N5	15	5	DFT-16QAM	L	Outer_Full	21.63	PC3	PASS
N5	15	5	DFT-16QAM	L	Inner_Full	22.58	PC3	PASS
N5	15	5	DFT-16QAM	L	Edge_1RB_Left	21.40	PC3	PASS
N5	15	5	DFT-16QAM	L	Edge_1RB_Right	21.46	PC3	PASS
N5	15	5	DFT-QPSK	M	Outer_Full	22.90	PC3	PASS
N5	15	5	DFT-QPSK	M	Inner_Full	23.94	PC3	PASS
N5	15	5	DFT-QPSK	M	Edge_1RB_Left	22.85	PC3	PASS
N5	15	5	DFT-QPSK	M	Edge_1RB_Right	23.01	PC3	PASS
N5	15	5	DFT-16QAM	M	Outer_Full	21.97	PC3	PASS
N5	15	5	DFT-16QAM	M	Inner_Full	23.01	PC3	PASS
N5	15	5	DFT-16QAM	M	Edge_1RB_Left	21.74	PC3	PASS
N5	15	5	DFT-16QAM	M	Edge_1RB_Right	21.91	PC3	PASS
N5	15	5	DFT-QPSK	H	Outer_Full	22.89	PC3	PASS
N5	15	5	DFT-QPSK	H	Inner_Full	23.80	PC3	PASS
N5	15	5	DFT-QPSK	H	Edge_1RB_Left	23.03	PC3	PASS
N5	15	5	DFT-QPSK	H	Edge_1RB_Right	22.95	PC3	PASS
N5	15	5	DFT-16QAM	H	Outer_Full	22.03	PC3	PASS
N5	15	5	DFT-16QAM	H	Inner_Full	22.87	PC3	PASS
N5	15	5	DFT-16QAM	H	Edge_1RB_Left	21.64	PC3	PASS
N5	15	5	DFT-16QAM	H	Edge_1RB_Right	21.45	PC3	PASS
N5	15	10	DFT-QPSK	L	Outer_Full	22.61	PC3	PASS
N5	15	10	DFT-QPSK	L	Inner_Full	23.46	PC3	PASS
N5	15	10	DFT-QPSK	L	Edge_1RB_Left	22.30	PC3	PASS
N5	15	10	DFT-QPSK	L	Edge_1RB_Right	22.64	PC3	PASS
N5	15	10	DFT-16QAM	L	Outer_Full	21.61	PC3	PASS
N5	15	10	DFT-16QAM	L	Inner_Full	22.48	PC3	PASS
N5	15	10	DFT-16QAM	L	Edge_1RB_Left	21.40	PC3	PASS
N5	15	10	DFT-16QAM	L	Edge_1RB_Right	21.73	PC3	PASS
N5	15	10	DFT-QPSK	M	Outer_Full	22.73	PC3	PASS
N5	15	10	DFT-QPSK	M	Inner_Full	23.72	PC3	PASS
N5	15	10	DFT-QPSK	M	Edge_1RB_Left	22.57	PC3	PASS

N5	15	10	DFT-QPSK	M	Edge_1RB_Right	22.70	PC3	PASS
N5	15	10	DFT-16QAM	M	Outer_Full	21.59	PC3	PASS
N5	15	10	DFT-16QAM	M	Inner_Full	22.79	PC3	PASS
N5	15	10	DFT-16QAM	M	Edge_1RB_Left	21.35	PC3	PASS
N5	15	10	DFT-16QAM	M	Edge_1RB_Right	21.53	PC3	PASS
N5	15	10	DFT-QPSK	H	Outer_Full	22.99	PC3	PASS
N5	15	10	DFT-QPSK	H	Inner_Full	23.90	PC3	PASS
N5	15	10	DFT-QPSK	H	Edge_1RB_Left	22.47	PC3	PASS
N5	15	10	DFT-QPSK	H	Edge_1RB_Right	22.26	PC3	PASS
N5	15	10	DFT-16QAM	H	Outer_Full	21.86	PC3	PASS
N5	15	10	DFT-16QAM	H	Inner_Full	22.91	PC3	PASS
N5	15	10	DFT-16QAM	H	Edge_1RB_Left	21.86	PC3	PASS
N5	15	10	DFT-16QAM	H	Edge_1RB_Right	21.54	PC3	PASS
N5	15	15	DFT-QPSK	L	Outer_Full	22.91	PC3	PASS
N5	15	15	DFT-QPSK	L	Inner_Full	23.81	PC3	PASS
N5	15	15	DFT-QPSK	L	Edge_1RB_Left	22.13	PC3	PASS
N5	15	15	DFT-QPSK	L	Edge_1RB_Right	22.76	PC3	PASS
N5	15	15	DFT-16QAM	L	Outer_Full	21.94	PC3	PASS
N5	15	15	DFT-16QAM	L	Inner_Full	22.78	PC3	PASS
N5	15	15	DFT-16QAM	L	Edge_1RB_Left	21.50	PC3	PASS
N5	15	15	DFT-16QAM	L	Edge_1RB_Right	21.48	PC3	PASS
N5	15	15	DFT-QPSK	M	Outer_Full	22.87	PC3	PASS
N5	15	15	DFT-QPSK	M	Inner_Full	23.94	PC3	PASS
N5	15	15	DFT-QPSK	M	Edge_1RB_Left	21.92	PC3	PASS
N5	15	15	DFT-QPSK	M	Edge_1RB_Right	22.84	PC3	PASS
N5	15	15	DFT-16QAM	M	Outer_Full	21.86	PC3	PASS
N5	15	15	DFT-16QAM	M	Inner_Full	22.97	PC3	PASS
N5	15	15	DFT-16QAM	M	Edge_1RB_Left	20.70	PC3	PASS
N5	15	15	DFT-16QAM	M	Edge_1RB_Right	21.42	PC3	PASS
N5	15	15	DFT-QPSK	H	Outer_Full	22.99	PC3	PASS
N5	15	15	DFT-QPSK	H	Inner_Full	24.01	PC3	PASS
N5	15	15	DFT-QPSK	H	Edge_1RB_Left	22.62	PC3	PASS
N5	15	15	DFT-QPSK	H	Edge_1RB_Right	22.87	PC3	PASS
N5	15	15	DFT-16QAM	H	Outer_Full	21.86	PC3	PASS
N5	15	15	DFT-16QAM	H	Inner_Full	23.11	PC3	PASS
N5	15	15	DFT-16QAM	H	Edge_1RB_Left	21.38	PC3	PASS
N5	15	15	DFT-16QAM	H	Edge_1RB_Right	21.16	PC3	PASS
N5	15	20	DFT-QPSK	L	Outer_Full	22.82	PC3	PASS
N5	15	20	DFT-QPSK	L	Inner_Full	23.84	PC3	PASS
N5	15	20	DFT-QPSK	L	Edge_1RB_Left	21.93	PC3	PASS
N5	15	20	DFT-QPSK	L	Edge_1RB_Right	22.35	PC3	PASS
N5	15	20	DFT-16QAM	L	Outer_Full	21.87	PC3	PASS

N5	15	20	DFT-16QAM	L	Inner_Full	22.80	PC3	PASS
N5	15	20	DFT-16QAM	L	Edge_1RB_Left	21.09	PC3	PASS
N5	15	20	DFT-16QAM	L	Edge_1RB_Right	21.53	PC3	PASS
N5	15	20	DFT-QPSK	M	Outer_Full	22.75	PC3	PASS
N5	15	20	DFT-QPSK	M	Inner_Full	**24.04**	PC3	PASS
N5	15	20	DFT-QPSK	M	Edge_1RB_Left	22.07	PC3	PASS
N5	15	20	DFT-QPSK	M	Edge_1RB_Right	22.28	PC3	PASS
N5	15	20	DFT-16QAM	M	Outer_Full	21.61	PC3	PASS
N5	15	20	DFT-16QAM	M	Inner_Full	23.00	PC3	PASS
N5	15	20	DFT-16QAM	M	Edge_1RB_Left	21.07	PC3	PASS
N5	15	20	DFT-16QAM	M	Edge_1RB_Right	21.27	PC3	PASS
N5	15	20	DFT-QPSK	H	Outer_Full	22.69	PC3	PASS
N5	15	20	DFT-QPSK	H	Inner_Full	23.96	PC3	PASS
N5	15	20	DFT-QPSK	H	Edge_1RB_Left	22.25	PC3	PASS
N5	15	20	DFT-QPSK	H	Edge_1RB_Right	22.21	PC3	PASS
N5	15	20	DFT-16QAM	H	Outer_Full	21.67	PC3	PASS
N5	15	20	DFT-16QAM	H	Inner_Full	23.03	PC3	PASS
N5	15	20	DFT-16QAM	H	Edge_1RB_Left	21.02	PC3	PASS
N5	15	20	DFT-16QAM	H	Edge_1RB_Right	21.04	PC3	PASS

Band	SCS	Bandwidth	Modulation	Channel	RB Config	Power（dBm）	Power Class	Verdict
N41	30	10	DFT-QPSK	L	Outer_Full	24.52	PC2	PASS
N41	30	10	DFT-QPSK	L	Inner_Full	25.51	PC2	PASS
N41	30	10	DFT-QPSK	L	Edge_1RB_Left	22.29	PC2	PASS
N41	30	10	DFT-QPSK	L	Edge_1RB_Right	22.13	PC2	PASS
N41	30	10	DFT-16QAM	L	Outer_Full	23.50	PC2	PASS
N41	30	10	DFT-16QAM	L	Inner_Full	24.57	PC2	PASS
N41	30	10	DFT-16QAM	L	Edge_1RB_Left	22.10	PC2	PASS
N41	30	10	DFT-16QAM	L	Edge_1RB_Right	22.22	PC2	PASS
N41	30	10	DFT-QPSK	M	Outer_Full	24.93	PC2	PASS
N41	30	10	DFT-QPSK	M	Inner_Full	25.98	PC2	PASS
N41	30	10	DFT-QPSK	M	Edge_1RB_Left	22.57	PC2	PASS
N41	30	10	DFT-QPSK	M	Edge_1RB_Right	22.44	PC2	PASS
N41	30	10	DFT-16QAM	M	Outer_Full	24.02	PC2	PASS
N41	30	10	DFT-16QAM	M	Inner_Full	24.85	PC2	PASS
N41	30	10	DFT-16QAM	M	Edge_1RB_Left	22.17	PC2	PASS
N41	30	10	DFT-16QAM	M	Edge_1RB_Right	22.22	PC2	PASS
N41	30	10	DFT-QPSK	H	Outer_Full	24.63	PC2	PASS
N41	30	10	DFT-QPSK	H	Inner_Full	25.61	PC2	PASS
N41	30	10	DFT-QPSK	H	Edge_1RB_Left	22.00	PC2	PASS

N41	30	10	DFT-QPSK	H	Edge_1RB_Right	21.80	PC2	PASS
N41	30	10	DFT-16QAM	H	Outer_Full	23.55	PC2	PASS
N41	30	10	DFT-16QAM	H	Inner_Full	24.49	PC2	PASS
N41	30	10	DFT-16QAM	H	Edge_1RB_Left	22.57	PC2	PASS
N41	30	10	DFT-16QAM	H	Edge_1RB_Right	22.12	PC2	PASS
N41	30	15	DFT-QPSK	L	Outer_Full	24.55	PC2	PASS
N41	30	15	DFT-QPSK	L	Inner_Full	25.52	PC2	PASS
N41	30	15	DFT-QPSK	L	Edge_1RB_Left	21.93	PC2	PASS
N41	30	15	DFT-QPSK	L	Edge_1RB_Right	22.15	PC2	PASS
N41	30	15	DFT-16QAM	L	Outer_Full	23.58	PC2	PASS
N41	30	15	DFT-16QAM	L	Inner_Full	24.51	PC2	PASS
N41	30	15	DFT-16QAM	L	Edge_1RB_Left	21.78	PC2	PASS
N41	30	15	DFT-16QAM	L	Edge_1RB_Right	21.94	PC2	PASS
N41	30	15	DFT-QPSK	M	Outer_Full	24.93	PC2	PASS
N41	30	15	DFT-QPSK	M	Inner_Full	25.87	PC2	PASS
N41	30	15	DFT-QPSK	M	Edge_1RB_Left	22.23	PC2	PASS
N41	30	15	DFT-QPSK	M	Edge_1RB_Right	22.09	PC2	PASS
N41	30	15	DFT-16QAM	M	Outer_Full	23.91	PC2	PASS
N41	30	15	DFT-16QAM	M	Inner_Full	24.86	PC2	PASS
N41	30	15	DFT-16QAM	M	Edge_1RB_Left	21.93	PC2	PASS
N41	30	15	DFT-16QAM	M	Edge_1RB_Right	21.93	PC2	PASS
N41	30	15	DFT-QPSK	H	Outer_Full	24.65	PC2	PASS
N41	30	15	DFT-QPSK	H	Inner_Full	25.70	PC2	PASS
N41	30	15	DFT-QPSK	H	Edge_1RB_Left	21.89	PC2	PASS
N41	30	15	DFT-QPSK	H	Edge_1RB_Right	21.33	PC2	PASS
N41	30	15	DFT-16QAM	H	Outer_Full	23.67	PC2	PASS
N41	30	15	DFT-16QAM	H	Inner_Full	24.72	PC2	PASS
N41	30	15	DFT-16QAM	H	Edge_1RB_Left	22.09	PC2	PASS
N41	30	15	DFT-16QAM	H	Edge_1RB_Right	21.34	PC2	PASS
N41	30	20	DFT-QPSK	L	Outer_Full	24.54	PC2	PASS
N41	30	20	DFT-QPSK	L	Inner_Full	25.58	PC2	PASS
N41	30	20	DFT-QPSK	L	Edge_1RB_Left	21.92	PC2	PASS
N41	30	20	DFT-QPSK	L	Edge_1RB_Right	22.18	PC2	PASS
N41	30	20	DFT-16QAM	L	Outer_Full	23.50	PC2	PASS
N41	30	20	DFT-16QAM	L	Inner_Full	24.59	PC2	PASS
N41	30	20	DFT-16QAM	L	Edge_1RB_Left	21.84	PC2	PASS
N41	30	20	DFT-16QAM	L	Edge_1RB_Right	21.93	PC2	PASS
N41	30	20	DFT-QPSK	M	Outer_Full	24.96	PC2	PASS
N41	30	20	DFT-QPSK	M	Inner_Full	25.87	PC2	PASS
N41	30	20	DFT-QPSK	M	Edge_1RB_Left	22.50	PC2	PASS
N41	30	20	DFT-QPSK	M	Edge_1RB_Right	22.25	PC2	PASS
N41	30	20	DFT-16QAM	M	Outer_Full	23.95	PC2	PASS

N41	30	20	DFT-16QAM	M	Inner_Full	24.85	PC2	PASS
N41	30	20	DFT-16QAM	M	Edge_1RB_Left	22.15	PC2	PASS
N41	30	20	DFT-16QAM	M	Edge_1RB_Right	22.11	PC2	PASS
N41	30	20	DFT-QPSK	H	Outer_Full	24.60	PC2	PASS
N41	30	20	DFT-QPSK	H	Inner_Full	25.67	PC2	PASS
N41	30	20	DFT-QPSK	H	Edge_1RB_Left	21.92	PC2	PASS
N41	30	20	DFT-QPSK	H	Edge_1RB_Right	21.87	PC2	PASS
N41	30	20	DFT-16QAM	H	Outer_Full	23.63	PC2	PASS
N41	30	20	DFT-16QAM	H	Inner_Full	24.65	PC2	PASS
N41	30	20	DFT-16QAM	H	Edge_1RB_Left	21.99	PC2	PASS
N41	30	20	DFT-16QAM	H	Edge_1RB_Right	22.06	PC2	PASS
N41	30	40	DFT-QPSK	L	Outer_Full	24.44	PC2	PASS
N41	30	40	DFT-QPSK	L	Inner_Full	25.60	PC2	PASS
N41	30	40	DFT-QPSK	L	Edge_1RB_Left	21.51	PC2	PASS
N41	30	40	DFT-QPSK	L	Edge_1RB_Right	21.71	PC2	PASS
N41	30	40	DFT-16QAM	L	Outer_Full	23.34	PC2	PASS
N41	30	40	DFT-16QAM	L	Inner_Full	24.54	PC2	PASS
N41	30	40	DFT-16QAM	L	Edge_1RB_Left	21.37	PC2	PASS
N41	30	40	DFT-16QAM	L	Edge_1RB_Right	21.58	PC2	PASS
N41	30	40	DFT-QPSK	M	Outer_Full	24.86	PC2	PASS
N41	30	40	DFT-QPSK	M	Inner_Full	25.92	PC2	PASS
N41	30	40	DFT-QPSK	M	Edge_1RB_Left	22.17	PC2	PASS
N41	30	40	DFT-QPSK	M	Edge_1RB_Right	22.18	PC2	PASS
N41	30	40	DFT-16QAM	M	Outer_Full	23.84	PC2	PASS
N41	30	40	DFT-16QAM	M	Inner_Full	24.90	PC2	PASS
N41	30	40	DFT-16QAM	M	Edge_1RB_Left	22.05	PC2	PASS
N41	30	40	DFT-16QAM	M	Edge_1RB_Right	22.06	PC2	PASS
N41	30	40	DFT-QPSK	H	Outer_Full	24.55	PC2	PASS
N41	30	40	DFT-QPSK	H	Inner_Full	25.50	PC2	PASS
N41	30	40	DFT-QPSK	H	Edge_1RB_Left	21.95	PC2	PASS
N41	30	40	DFT-QPSK	H	Edge_1RB_Right	21.78	PC2	PASS
N41	30	40	DFT-16QAM	H	Outer_Full	23.43	PC2	PASS
N41	30	40	DFT-16QAM	H	Inner_Full	24.48	PC2	PASS
N41	30	40	DFT-16QAM	H	Edge_1RB_Left	21.66	PC2	PASS
N41	30	40	DFT-16QAM	H	Edge_1RB_Right	21.51	PC2	PASS
N41	30	50	DFT-QPSK	L	Outer_Full	24.56	PC2	PASS
N41	30	50	DFT-QPSK	L	Inner_Full	25.56	PC2	PASS
N41	30	50	DFT-QPSK	L	Edge_1RB_Left	21.71	PC2	PASS
N41	30	50	DFT-QPSK	L	Edge_1RB_Right	22.19	PC2	PASS
N41	30	50	DFT-16QAM	L	Outer_Full	23.50	PC2	PASS
N41	30	50	DFT-16QAM	L	Inner_Full	24.54	PC2	PASS
N41	30	50	DFT-16QAM	L	Edge_1RB_Left	21.65	PC2	PASS

N41	30	50	DFT-16QAM	L	Edge_1RB_Right	22.02	PC2	PASS
N41	30	50	DFT-QPSK	M	Outer_Full	24.91	PC2	PASS
N41	30	50	DFT-QPSK	M	Inner_Full	25.91	PC2	PASS
N41	30	50	DFT-QPSK	M	Edge_1RB_Left	22.26	PC2	PASS
N41	30	50	DFT-QPSK	M	Edge_1RB_Right	22.17	PC2	PASS
N41	30	50	DFT-16QAM	M	Outer_Full	23.88	PC2	PASS
N41	30	50	DFT-16QAM	M	Inner_Full	25.00	PC2	PASS
N41	30	50	DFT-16QAM	M	Edge_1RB_Left	22.20	PC2	PASS
N41	30	50	DFT-16QAM	M	Edge_1RB_Right	22.10	PC2	PASS
N41	30	50	DFT-QPSK	H	Outer_Full	24.61	PC2	PASS
N41	30	50	DFT-QPSK	H	Inner_Full	25.50	PC2	PASS
N41	30	50	DFT-QPSK	H	Edge_1RB_Left	21.99	PC2	PASS
N41	30	50	DFT-QPSK	H	Edge_1RB_Right	21.65	PC2	PASS
N41	30	50	DFT-16QAM	H	Outer_Full	23.56	PC2	PASS
N41	30	50	DFT-16QAM	H	Inner_Full	24.59	PC2	PASS
N41	30	50	DFT-16QAM	H	Edge_1RB_Left	22.02	PC2	PASS
N41	30	50	DFT-16QAM	H	Edge_1RB_Right	21.68	PC2	PASS
N41	30	60	DFT-QPSK	L	Outer_Full	24.57	PC2	PASS
N41	30	60	DFT-QPSK	L	Inner_Full	25.52	PC2	PASS
N41	30	60	DFT-QPSK	L	Edge_1RB_Left	21.70	PC2	PASS
N41	30	60	DFT-QPSK	L	Edge_1RB_Right	22.04	PC2	PASS
N41	30	60	DFT-16QAM	L	Outer_Full	23.59	PC2	PASS
N41	30	60	DFT-16QAM	L	Inner_Full	24.57	PC2	PASS
N41	30	60	DFT-16QAM	L	Edge_1RB_Left	21.57	PC2	PASS
N41	30	60	DFT-16QAM	L	Edge_1RB_Right	21.92	PC2	PASS
N41	30	60	DFT-QPSK	M	Outer_Full	24.89	PC2	PASS
N41	30	60	DFT-QPSK	M	Inner_Full	25.90	PC2	PASS
N41	30	60	DFT-QPSK	M	Edge_1RB_Left	22.07	PC2	PASS
N41	30	60	DFT-QPSK	M	Edge_1RB_Right	21.92	PC2	PASS
N41	30	60	DFT-16QAM	M	Outer_Full	23.89	PC2	PASS
N41	30	60	DFT-16QAM	M	Inner_Full	24.97	PC2	PASS
N41	30	60	DFT-16QAM	M	Edge_1RB_Left	22.08	PC2	PASS
N41	30	60	DFT-16QAM	M	Edge_1RB_Right	21.94	PC2	PASS
N41	30	60	DFT-QPSK	H	Outer_Full	24.47	PC2	PASS
N41	30	60	DFT-QPSK	H	Inner_Full	25.60	PC2	PASS
N41	30	60	DFT-QPSK	H	Edge_1RB_Left	21.65	PC2	PASS
N41	30	60	DFT-QPSK	H	Edge_1RB_Right	21.48	PC2	PASS
N41	30	60	DFT-16QAM	H	Outer_Full	23.50	PC2	PASS
N41	30	60	DFT-16QAM	H	Inner_Full	24.53	PC2	PASS
N41	30	60	DFT-16QAM	H	Edge_1RB_Left	21.69	PC2	PASS
N41	30	60	DFT-16QAM	H	Edge_1RB_Right	21.49	PC2	PASS
N41	30	80	DFT-QPSK	L	Outer_Full	24.50	PC2	PASS

N41	30	80	DFT-QPSK	L	Inner_Full	25.65	PC2	PASS
N41	30	80	DFT-QPSK	L	Edge_1RB_Left	21.54	PC2	PASS
N41	30	80	DFT-QPSK	L	Edge_1RB_Right	21.97	PC2	PASS
N41	30	80	DFT-16QAM	L	Outer_Full	23.47	PC2	PASS
N41	30	80	DFT-16QAM	L	Inner_Full	24.63	PC2	PASS
N41	30	80	DFT-16QAM	L	Edge_1RB_Left	21.53	PC2	PASS
N41	30	80	DFT-16QAM	L	Edge_1RB_Right	22.15	PC2	PASS
N41	30	80	DFT-QPSK	M	Outer_Full	24.79	PC2	PASS
N41	30	80	DFT-QPSK	M	Inner_Full	25.95	PC2	PASS
N41	30	80	DFT-QPSK	M	Edge_1RB_Left	21.72	PC2	PASS
N41	30	80	DFT-QPSK	M	Edge_1RB_Right	21.56	PC2	PASS
N41	30	80	DFT-16QAM	M	Outer_Full	23.66	PC2	PASS
N41	30	80	DFT-16QAM	M	Inner_Full	24.93	PC2	PASS
N41	30	80	DFT-16QAM	M	Edge_1RB_Left	21.61	PC2	PASS
N41	30	80	DFT-16QAM	M	Edge_1RB_Right	21.36	PC2	PASS
N41	30	80	DFT-QPSK	H	Outer_Full	24.57	PC2	PASS
N41	30	80	DFT-QPSK	H	Inner_Full	25.67	PC2	PASS
N41	30	80	DFT-QPSK	H	Edge_1RB_Left	21.71	PC2	PASS
N41	30	80	DFT-QPSK	H	Edge_1RB_Right	21.27	PC2	PASS
N41	30	80	DFT-16QAM	H	Outer_Full	23.57	PC2	PASS
N41	30	80	DFT-16QAM	H	Inner_Full	24.72	PC2	PASS
N41	30	80	DFT-16QAM	H	Edge_1RB_Left	21.74	PC2	PASS
N41	30	80	DFT-16QAM	H	Edge_1RB_Right	21.31	PC2	PASS
N41	30	90	DFT-QPSK	L	Outer_Full	24.53	PC2	PASS
N41	30	90	DFT-QPSK	L	Inner_Full	25.64	PC2	PASS
N41	30	90	DFT-QPSK	L	Edge_1RB_Left	21.36	PC2	PASS
N41	30	90	DFT-QPSK	L	Edge_1RB_Right	21.99	PC2	PASS
N41	30	90	DFT-16QAM	L	Outer_Full	23.53	PC2	PASS
N41	30	90	DFT-16QAM	L	Inner_Full	24.64	PC2	PASS
N41	30	90	DFT-16QAM	L	Edge_1RB_Left	21.32	PC2	PASS
N41	30	90	DFT-16QAM	L	Edge_1RB_Right	21.84	PC2	PASS
N41	30	90	DFT-QPSK	M	Outer_Full	24.75	PC2	PASS
N41	30	90	DFT-QPSK	M	Inner_Full	25.92	PC2	PASS
N41	30	90	DFT-QPSK	M	Edge_1RB_Left	21.61	PC2	PASS
N41	30	90	DFT-QPSK	M	Edge_1RB_Right	21.40	PC2	PASS
N41	30	90	DFT-16QAM	M	Outer_Full	23.70	PC2	PASS
N41	30	90	DFT-16QAM	M	Inner_Full	25.00	PC2	PASS
N41	30	90	DFT-16QAM	M	Edge_1RB_Left	21.47	PC2	PASS
N41	30	90	DFT-16QAM	M	Edge_1RB_Right	21.37	PC2	PASS
N41	30	90	DFT-QPSK	H	Outer_Full	24.56	PC2	PASS
N41	30	90	DFT-QPSK	H	Inner_Full	25.71	PC2	PASS
N41	30	90	DFT-QPSK	H	Edge_1RB_Left	21.61	PC2	PASS

N41	30	90	DFT-QPSK	H	Edge_1RB_Right	21.25	PC2	PASS
N41	30	90	DFT-16QAM	H	Outer_Full	23.57	PC2	PASS
N41	30	90	DFT-16QAM	H	Inner_Full	24.69	PC2	PASS
N41	30	90	DFT-16QAM	H	Edge_1RB_Left	21.16	PC2	PASS
N41	30	90	DFT-16QAM	H	Edge_1RB_Right	20.92	PC2	PASS
N41	30	100	DFT-QPSK	L	Outer_Full	24.52	PC2	PASS
N41	30	100	DFT-QPSK	L	Inner_Full	25.64	PC2	PASS
N41	30	100	DFT-QPSK	L	Edge_1RB_Left	21.21	PC2	PASS
N41	30	100	DFT-QPSK	L	Edge_1RB_Right	21.35	PC2	PASS
N41	30	100	DFT-16QAM	L	Outer_Full	23.49	PC2	PASS
N41	30	100	DFT-16QAM	L	Inner_Full	24.64	PC2	PASS
N41	30	100	DFT-16QAM	L	Edge_1RB_Left	21.07	PC2	PASS
N41	30	100	DFT-16QAM	L	Edge_1RB_Right	21.39	PC2	PASS
N41	30	100	DFT-QPSK	M	Outer_Full	24.63	PC2	PASS
N41	30	100	DFT-QPSK	M	Inner_Full	**25.99**	PC2	PASS
N41	30	100	DFT-QPSK	M	Edge_1RB_Left	21.44	PC2	PASS
N41	30	100	DFT-QPSK	M	Edge_1RB_Right	21.20	PC2	PASS
N41	30	100	DFT-16QAM	M	Outer_Full	23.66	PC2	PASS
N41	30	100	DFT-16QAM	M	Inner_Full	24.91	PC2	PASS
N41	30	100	DFT-16QAM	M	Edge_1RB_Left	21.38	PC2	PASS
N41	30	100	DFT-16QAM	M	Edge_1RB_Right	21.13	PC2	PASS
N41	30	100	DFT-QPSK	H	Outer_Full	24.49	PC2	PASS
N41	30	100	DFT-QPSK	H	Inner_Full	25.77	PC2	PASS
N41	30	100	DFT-QPSK	H	Edge_1RB_Left	21.41	PC2	PASS
N41	30	100	DFT-QPSK	H	Edge_1RB_Right	21.13	PC2	PASS
N41	30	100	DFT-16QAM	H	Outer_Full	23.46	PC2	PASS
N41	30	100	DFT-16QAM	H	Inner_Full	24.68	PC2	PASS
N41	30	100	DFT-16QAM	H	Edge_1RB_Left	21.21	PC2	PASS
N41	30	100	DFT-16QAM	H	Edge_1RB_Right	20.88	PC2	PASS

Remark:

1. Per KDB941225 D05 v02r05, Start with the largest channel bandwidth then measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle, and lower edge of each required test channel. When the reported SAR is≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. 6 When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
2. Per KDB941225 D05 v02r05, The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.
3. Per KDB941225 D05 v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest

maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations, and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4. Per KDB941225 D05 v02r05, For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in 5.2.1, 5.2.2, and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration

identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

9.2 Test Results for Standalone SAR Test

Head SAR

NR n5– Head SAR Test								
Plot No.	Mode	Test Position	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth		MHz					
1.	DFT-s-OFDM QPSK 20MHz 1RB	Right Cheek	836.5	24.04	24.5	1.112	0.049	**0.054**
	DFT-s-OFDM QPSK 20MHz 1RB	Right Tilted	836.5	24.04	24.5	1.112	0.041	0.046
	DFT-s-OFDM QPSK 20MHz 1RB	Left Cheek	836.5	24.04	24.5	1.112	0.025	0.028
	DFT-s-OFDM QPSK 20MHz 1RB	Left Tilted	836.5	24.04	24.5	1.112	0.020	0.022
	DFT-s-OFDM QPSK 20MHz 50%RB	Right Cheek	836.5	24.04	24.5	1.112	0.038	0.042
	DFT-s-OFDM QPSK 20MHz 50%RB	Right Tilted	836.5	24.04	24.5	1.112	0.031	0.034
	DFT-s-OFDM QPSK 20MHz 50%RB	Left Cheek	836.5	24.04	24.5	1.112	0.020	0.022
	DFT-s-OFDM QPSK 20MHz 50%RB	Left Tilted	836.5	24.04	24.5	1.112	0.015	0.017

NR n41– Head SAR Test								
Plot No.	Mode Modulation, Bandwidth	Test Position	Frequency MHz	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
2.	DFT-s-OFDM QPSK 100MHz 1RB	Right Cheek	2593	25.99	26.0	1.002	0.234	**0.235**
	DFT-s-OFDM QPSK 100MHz 1RB	Right Tilted	2593	25.99	26.0	1.002	0.222	0.223
	DFT-s-OFDM QPSK 100MHz 1RB	Left Cheek	2593	25.99	26.0	1.002	0.096	0.096
	DFT-s-OFDM QPSK 100MHz 1RB	Left Tilted	2593	25.99	26.0	1.002	0.089	0.089
	DFT-s-OFDM PI/2 BPSK 100MHz 50%RB	Right Cheek	2593	25.99	26.0	1.002	0.202	0.202
	DFT-s-OFDM PI/2 BPSK 100MHz 50%RB	Right Tilted	2593	25.99	26.0	1.002	0.195	0.195
	DFT-s-OFDM PI/2 BPSK 100MHz 50%RB	Left Cheek	2593	25.99	26.0	1.002	0.083	0.083
	DFT-s-OFDM PI/2 BPSK 100MHz 50%RB	Left Tilted	2593	25.99	26.0	1.002	0.076	0.076

Remark: Per KDB 447498 D01 v06, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

Body-worn SAR

NR n5–Body SAR Test (Gap: 10mm)								
Plot No.	Mode Modulation, Bandwidth, RB	Test Position	Frequency MHz	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
3.	DFT-s-OFDM QPSK 20MHz 1RB	Back Side	836.5	24.04	24.5	1.112	0.038	**0.042**
	DFT-s-OFDM QPSK 20MHz 1RB	Front Side	836.5	24.04	24.5	1.112	0.022	0.024
	DFT-s-OFDM QPSK 20MHz 50%RB	Back Side	836.5	24.04	24.5	1.112	0.033	0.037
	DFT-s-OFDM QPSK 20MHz 50%RB	Front Side	836.5	24.04	24.5	1.112	0.016	0.018

NR n41–Body SAR Test (Gap: 10mm)								
Plot No.	Mode Modulation, Bandwidth, RB	Test Position	Frequency MHz	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
4.	DFT-s-OFDM QPSK 100MHz 1RB	Back Side	2593	25.99	26.0	1.002	0.121	**0.121**
	DFT-s-OFDM QPSK 100MHz 1RB	Front Side	2593	25.99	26.0	1.002	0.075	0.075
	DFT-s-OFDM QPSK 100MHz 50%RB	Back Side	2593	25.99	26.0	1.002	0.111	0.111
	DFT-s-OFDM QPSK 100MHz 50%RB	Front Side	2593	25.99	26.0	1.002	0.064	0.064

Hotspot SAR

NR n5–Body SAR Test (Gap: 10mm)								
Plot No.	Mode Modulation, Bandwidth, RB	Test Position	Frequency MHz	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	DFT-s-OFDM QPSK 20MHz 1RB	Back Side	836.5	24.04	24.5	1.112	0.038	0.042
	DFT-s-OFDM QPSK 20MHz 1RB	Front Side	836.5	24.04	24.5	1.112	0.022	0.024
	DFT-s-OFDM QPSK 20MHz 1RB	Right side	836.5	24.04	24.5	1.112	0.013	0.014
	DFT-s-OFDM QPSK 20MHz 1RB	Left side	836.5	24.04	24.5	1.112	0.016	0.018
5.	DFT-s-OFDM QPSK 20MHz 1RB	Bottom side	836.5	24.04	24.5	1.112	0.067	**0.074**
	DFT-s-OFDM QPSK 20MHz 50%RB	Back Side	836.5	24.04	24.5	1.112	0.033	0.037
	DFT-s-OFDM QPSK 20MHz 50%RB	Front Side	836.5	24.04	24.5	1.112	0.016	0.018
	DFT-s-OFDM QPSK 20MHz 50%RB	Right side	836.5	24.04	24.5	1.112	0.010	0.011
	DFT-s-OFDM QPSK 20MHz 50%RB	Left side	836.5	24.04	24.5	1.112	0.013	0.014
	DFT-s-OFDM QPSK 20MHz 50%RB	Bottom side	836.5	24.04	24.5	1.112	0.053	0.059

NR n41–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB		MHz					
	DFT-s-OFDM QPSK 100MHz 1RB	Back Side	2593	25.99	26.0	1.002	0.121	0.121
	DFT-s-OFDM QPSK 100MHz 1RB	Front Side	2593	25.99	26.0	1.002	0.075	0.075
6.	DFT-s-OFDM QPSK 100MHz 1RB	Left side	2593	25.99	26.0	1.002	0.155	**0.155**
	DFT-s-OFDM QPSK 100MHz 50%RB	Back Side	2593	25.99	26.0	1.002	0.111	0.111
	DFT-s-OFDM QPSK 100MHz 50%RB	Front Side	2593	25.99	26.0	1.002	0.064	0.064
	DFT-s-OFDM QPSK 100MHz 50%RB	Left side	2593	25.99	26.0	1.002	0.146	0.146

Remark:1. Per KDB 447498 D01 v06, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

2. Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 3) through 5) do not apply.

3. When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

4. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

5. Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

10. Measurement Uncertainty

10.1 Uncertainty for SAR Test

Input quantity X_i (source of uncertainty)	Ref.	Prob. Dist PDF_i	Unc. $a(x_i)$	Div. q_i	$u(x_i) = a(x_i)/q_i$	c_i (1 g; 10 g)	$u(y) = c_i \cdot u(x_i)$	v_i or v_{eff}
Measurement System errors								
Probe calibration	8.4.1.1	N	7.00	2	3.5	1	3.5	∝
Probe calibration drift	8.4.1.2	R	0	√3	0	1	0	∝
Probe linearity and detection limit	8.4.1.3	R	5.00	√3	2.89	1	2.89	∝
Broadband signal	8.4.1.4	R	0	√3	0	1	0	∝
Probe isotropy	8.4.1.5	R	2.50	√3	1.44	1	1.44	∝
Other probe and data acquisition errors	8.4.1.6	N	0.02	1	0.02	1	0.02	∝
RF ambient and noise	8.4.1.7	N	0	1	0	1	0	∝
Probe positioning errors	8.4.1.8	N	1.40	1	1.40	2/™	0.70	
Data processing errors	8.4.1.9	N	0.05	1	0.05	1	0.05	∝
Phantom and device (DUT or validation antenna) errors								
Measurement of phantom conductivity(σ)	8.4.2.1	N	4.00	1	4.00	c_ε, c_σ	4.00	∝
Temperature effects (medium)	8.4.2.2	R	2.50	√3	1.44	c_ε, c_σ	1.44	∝
Shell permittivity	8.4.2.3	R	5.00	√3	2.88	See 8.4.2.3	2.88	∝
Distance between the radiating element of the DUT and the phantom medium	8.4.2.4	N	0.03	1	0.03	2	0.02	∝
Repeatability of positioning the DUT or source against the phantom	8.4.2.5	N	0.05	1	0.05	1	0.05	5
Device holder effects	8.4.2.6	N	5.00	1	5.00	1	5.00	
Effect of operating mode on probe sensitivity	8.4.2.7	R	0	√3	0	1	0	∝
Time-average SAR	8.4.2.8	R	0	√3	0	1	0	∝
Variation in SAR due to drift in output of DUT	8.4.2.9	N	5.00	1	5.00	1	5.00	
Validation antenna uncertainty (validation measurement only)	8.4.2.10	N	0	1	0	1	0	
Uncertainty in accepted power	8.4.2.11	N	0	1	0	1	0	

(validation measurement only)								
Corrections to the SAR result								
Phantom deviation from target (ε′,σ)	8.4.3.1	N	0.05	1	0.05	1	0.05	
SAR scaling	8.4.3.2	R	2.00	√3	1.15	1	1.15	
Combined Standard Uncertainty		RSS			10.11		10.11	ν_{eff}=
Expanded uncertainty, U		K=2			20.23		20.23	

Annex A. Plots of System Performance Check

MEASUREMENT 1

Type: Validation measurement (Fast, 75.00 %)
Date of measurement: 2024-09-25
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE2 - 3823-EPGO-435; ConvF: 1.28; Calibrated: 2024-07-11

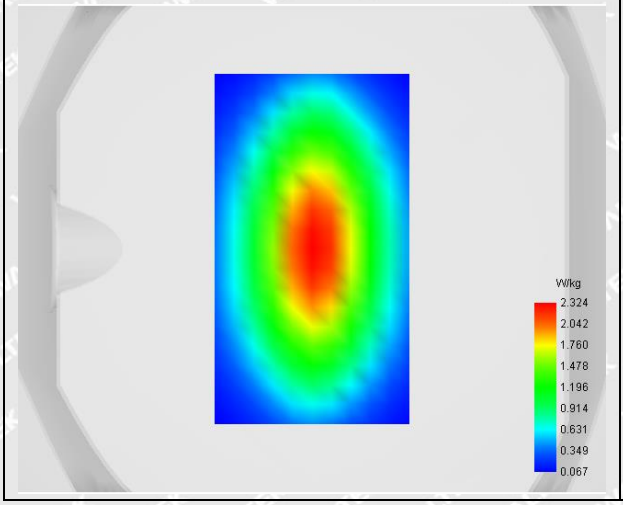
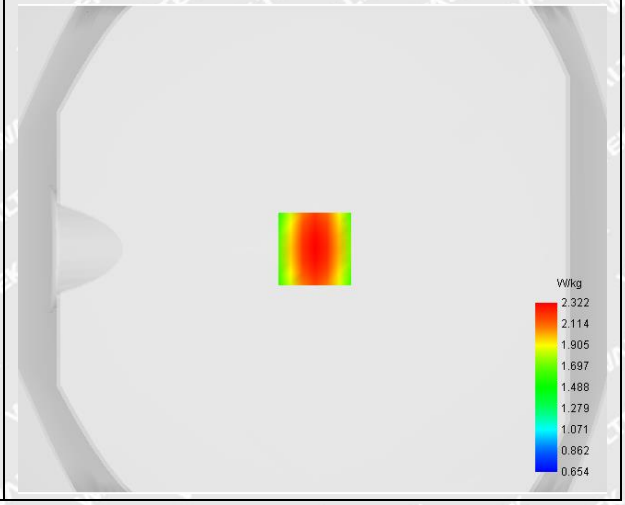
A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=5mm dy=5mm dz=4mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative Permittivity (real part)	41.031524
Conductivity (S/m)	0.884175
Power Variation (%)	-1.884700
Ambient Temperature	23.0
Liquid Temperature	23.0

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

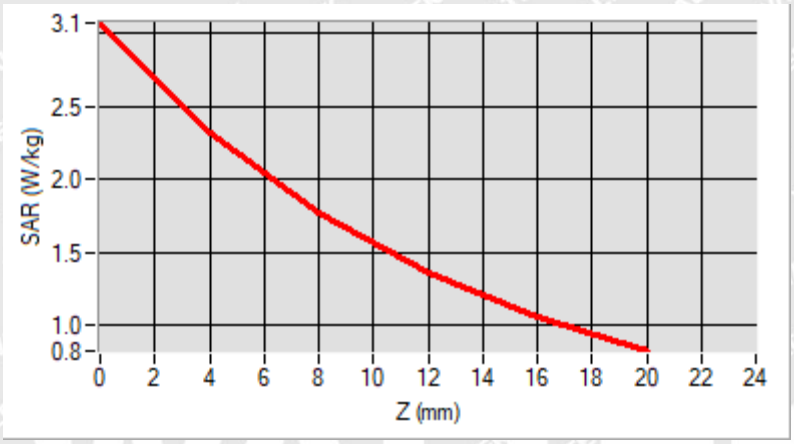
Maximum location: X=1.00, Y=0.00

D. SAR 1g & 10g

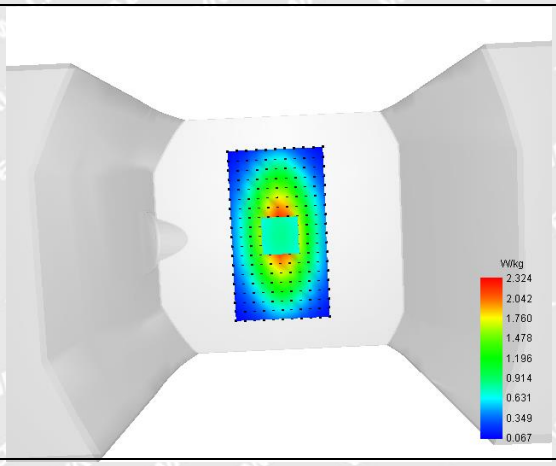
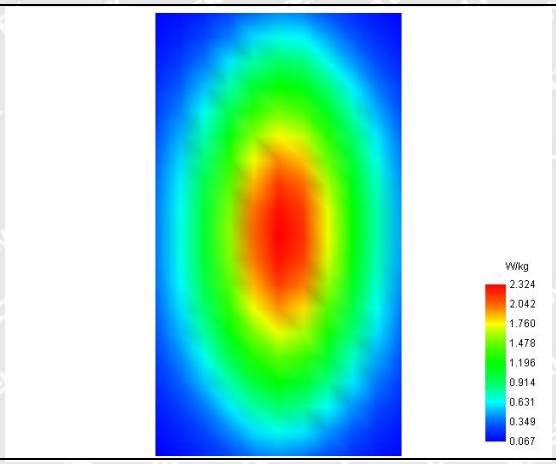
SAR 10g (W/Kg)	1.527360
SAR 1g (W/Kg)	2.210386

E. Z Axis Scan

Z (mm)	0.00	4.00	8.00	12.00	16.00
SAR (W/Kg)	3.0677	2.3224	1.7644	1.3585	1.0631



F. 3D Image

3D screen shot	Hot spot position
	

MEASUREMENT 2

Type: Validation measurement (Fast, 75.00 %)
Date of measurement: 2024-09-24
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE2 - 3823-EPGO-435; ConvF: 1.50; Calibrated: 2024-07-11

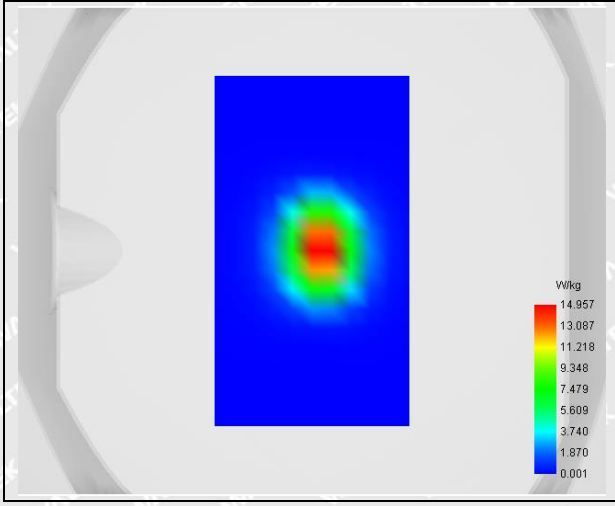
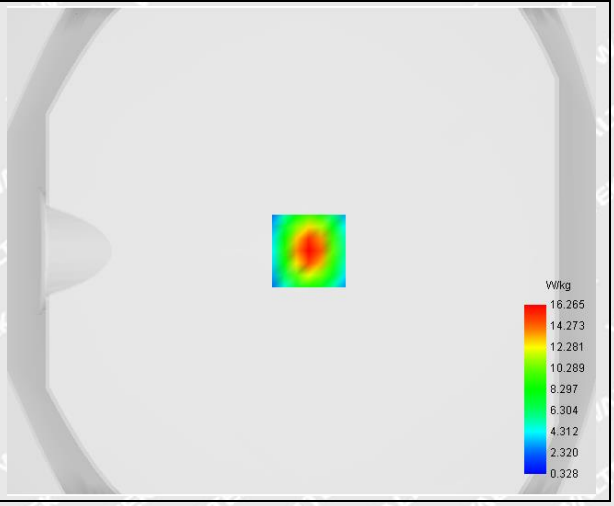
A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=5mm dy=5mm dz=4mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	2600.000000
Relative Permittivity (real part)	38.431864
Conductivity (S/m)	1.934789
Power Variation (%)	1.347100
Ambient Temperature	23.0
Liquid Temperature	23.0

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

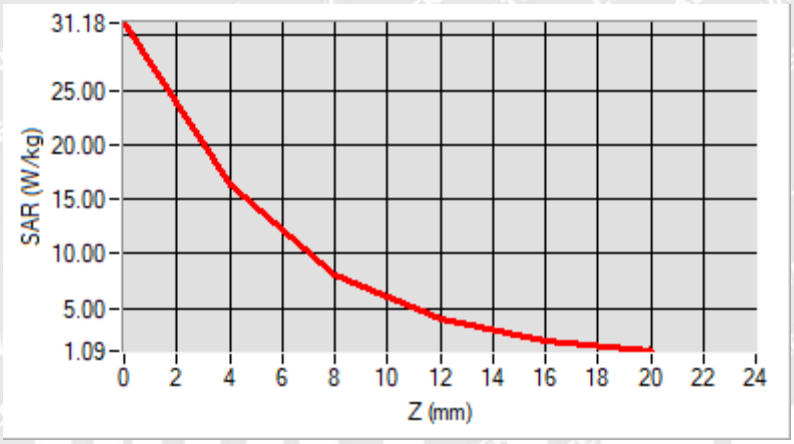
Maximum location: X=3.00, Y=0.00

D. SAR 1g & 10g

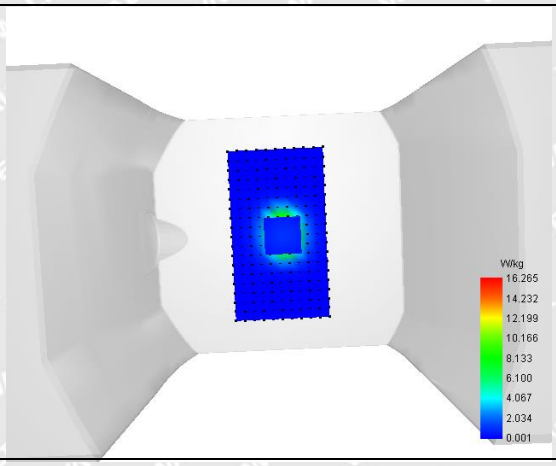
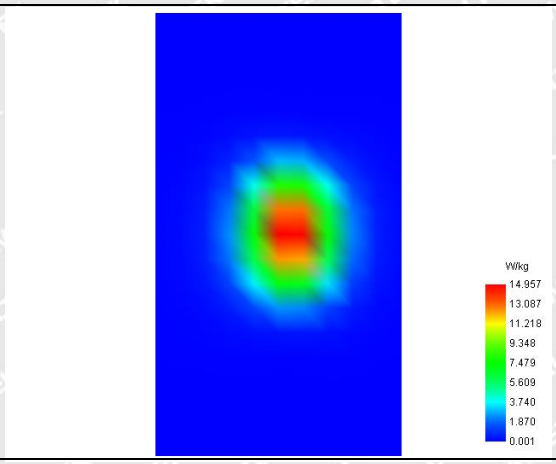
SAR 10g (W/Kg)	**6.553727**
SAR 1g (W/Kg)	**14.814545**

E. Z Axis Scan

Z (mm)	**0.00**	**4.00**	**8.00**	**12.00**	**16.00**
SAR (W/Kg)	**31.1802**	**16.2650**	**8.0339**	**3.9472**	**2.0732**



F. 3D Image

3D screen shot	**Hot spot position**
	

Annex B. Plots of SAR Measurement

MEASUREMENT 1

Type: Measurement (Complete)
Date of measurement: 2024-09-25
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - 3823-EPGO-435; ConvF: 1.28; Calibrated: 2024-07-11

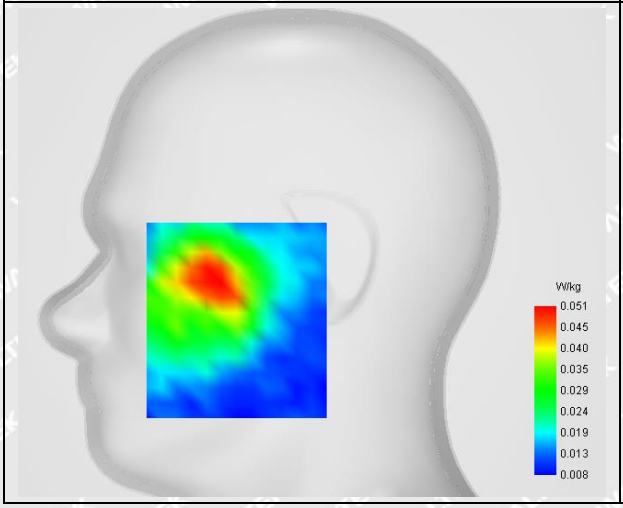
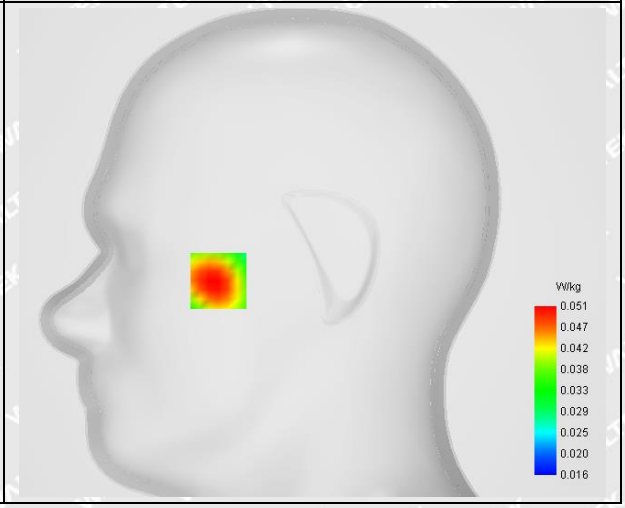
A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=5mm dy=5mm dz=4mm
Phantom	Right head
Device Position	Cheek
Band	NR n5
Channels	DFT-s-OFDM QPSK, 20MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	836.500000
Relative Permittivity (real part)	41.034591
Conductivity (S/m)	0.884782
Power Variation (%)	1.524200
Ambient Temperature	23.0
Liquid Temperature	23.0

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

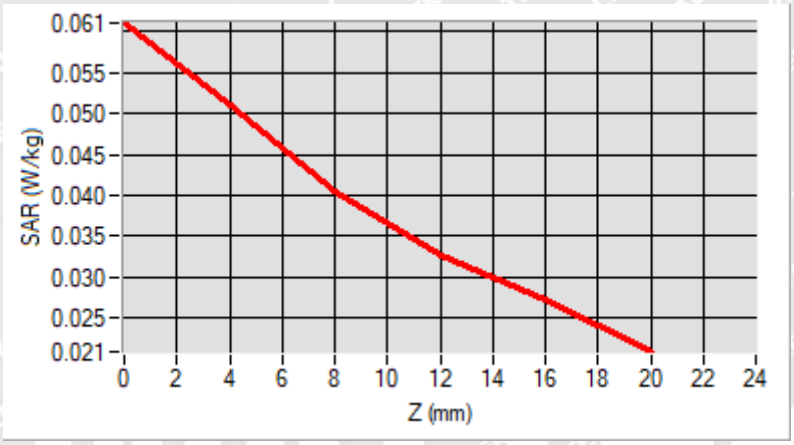
Maximum location: X=-50.00, Y=-15.00

D. SAR 1g & 10g

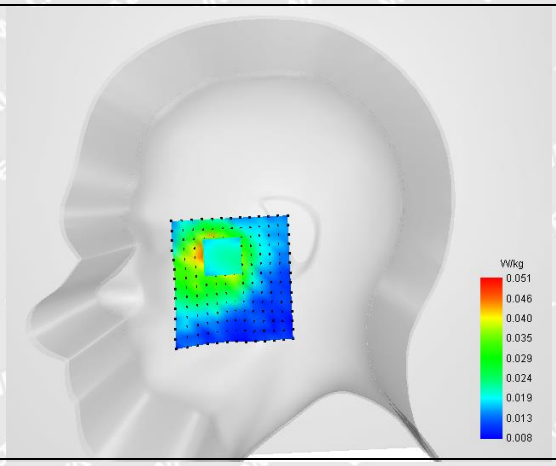
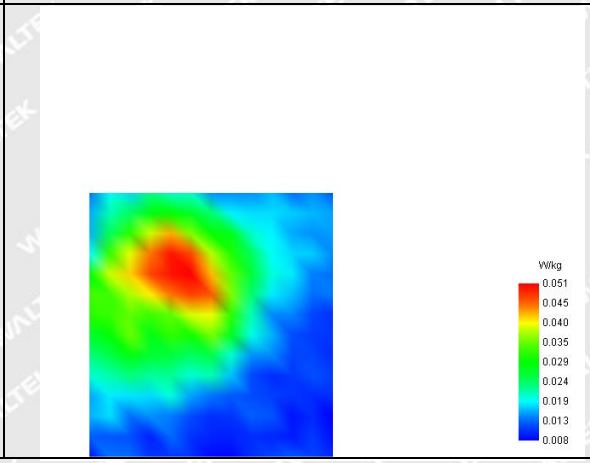
SAR 10g (W/Kg)	**0.035585**
SAR 1g (W/Kg)	**0.048935**

E. Z Axis Scan

Z (mm)	**0.00**	**4.00**	**8.00**	**12.00**	**16.00**
SAR (W/Kg)	**0.0611**	**0.0509**	**0.0404**	**0.0326**	**0.0273**



F. 3D Image

3D screen shot	**Hot spot position**
	

MEASUREMENT 2

Type: Measurement (Complete)
Date of measurement: 2024-09-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - 3823-EPGO-435; ConvF: 1.50; Calibrated: 2024-07-11

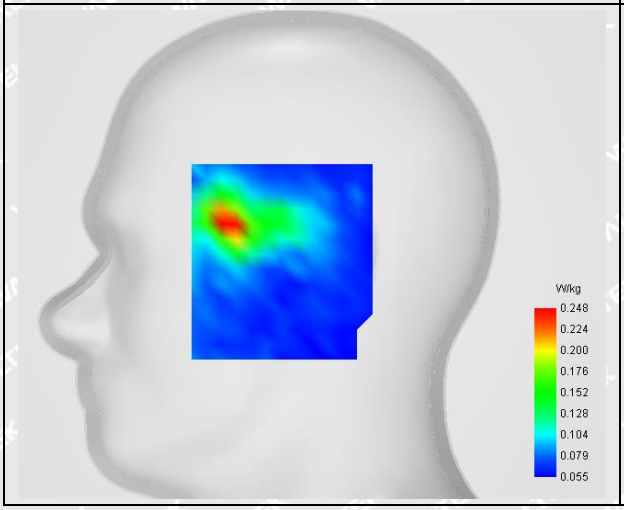
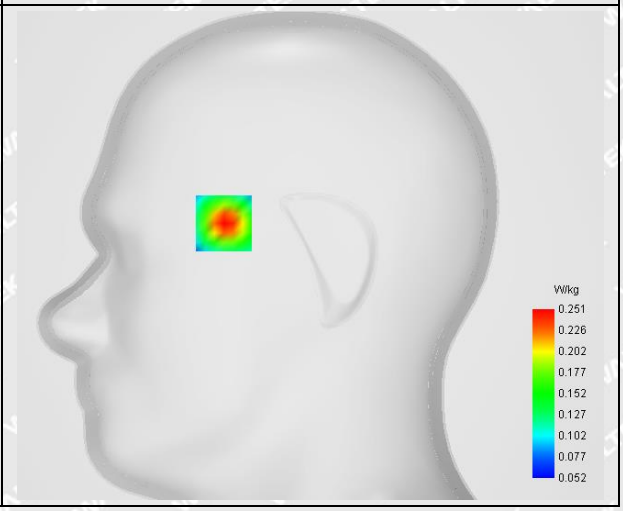
A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=5mm dy=5mm dz=4mm
Phantom	Right head
Device Position	Cheek
Band	NR n41
Channels	DFT-s-OFDM PI/2 QPSK, 100MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2593.000000
Relative Permittivity (real part)	38.434295
Conductivity (S/m)	1.937356
Power Variation (%)	-0.456100
Ambient Temperature	23.0
Liquid Temperature	23.0

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

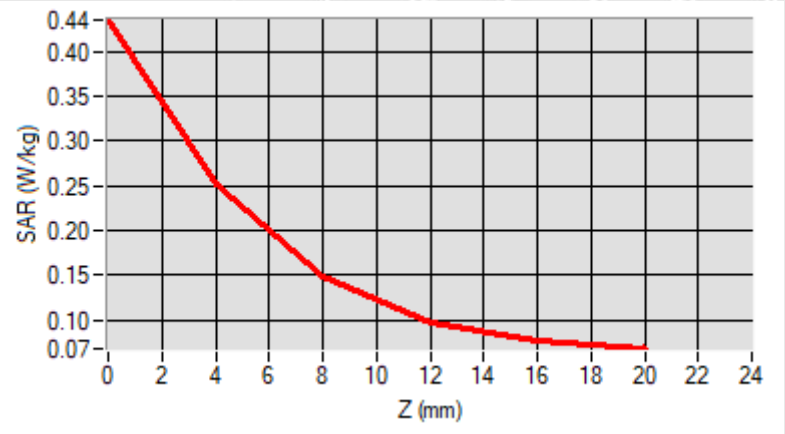
Maximum location: X=-46.00, Y=17.00

D. SAR 1g & 10g

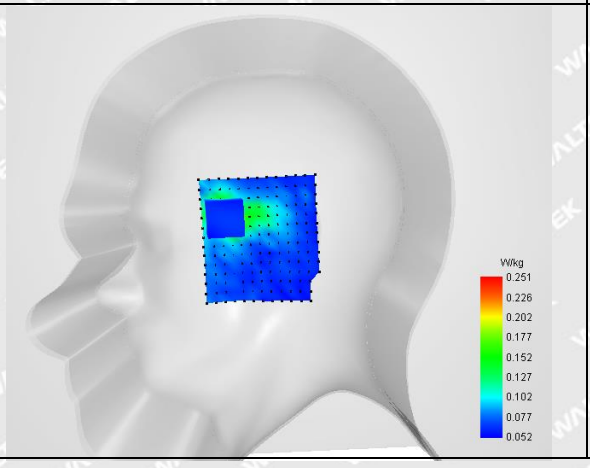
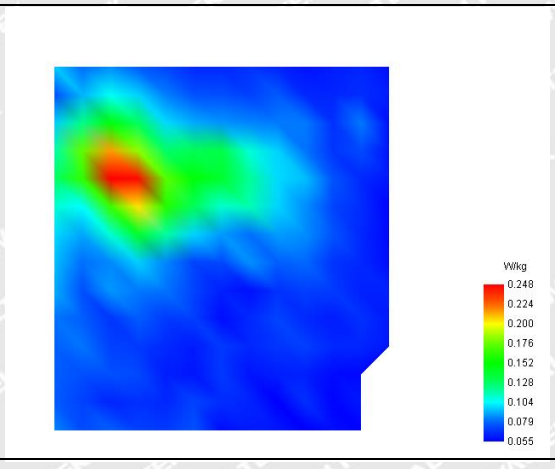
SAR 10g (W/Kg)	0.133648
SAR 1g (W/Kg)	0.233670

E. Z Axis Scan

Z (mm)	0.00	4.00	8.00	12.00	16.00
SAR (W/Kg)	0.4354	0.2513	0.1476	0.0970	0.0764



F. 3D Image

3D screen shot	Hot spot position
	

MEASUREMENT 3

Type: Measurement (Complete)
Date of measurement: 2024-09-25
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - 3823-EPGO-435; ConvF: 1.28; Calibrated: 2024-07-11

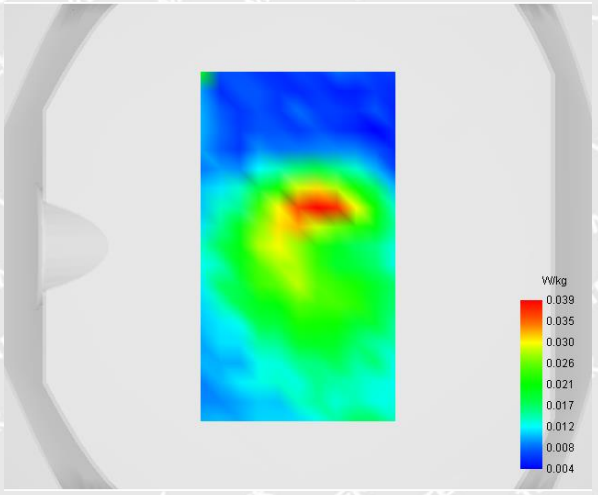
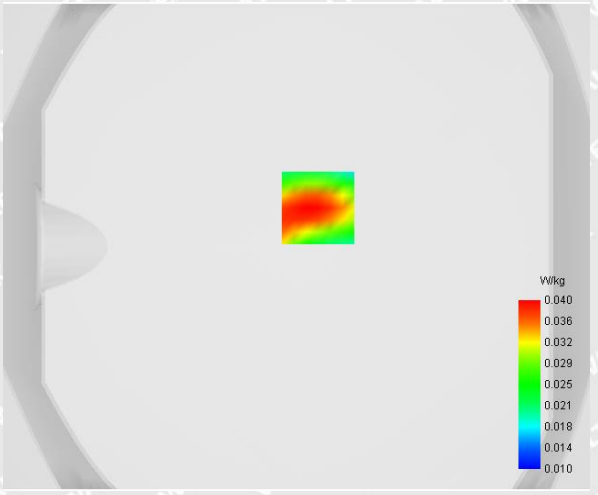
A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=5mm dy=5mm dz=4mm
Phantom	Flat Plane
Device Position	Back
Band	NR n5
Channels	DFT-s-OFDM QPSK, 20MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	836.500000
Relative Permittivity (real part)	41.034591
Conductivity (S/m)	0.884782
Power Variation (%)	-2.512900
Ambient Temperature	23.0
Liquid Temperature	23.0

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

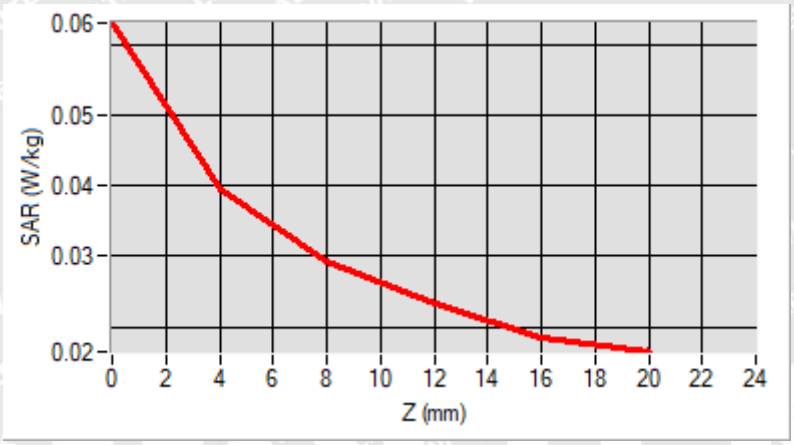
Maximum location: X=9.00, Y=16.00

D. SAR 1g & 10g

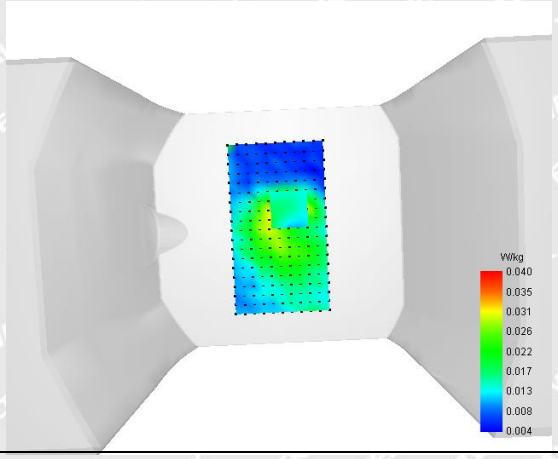
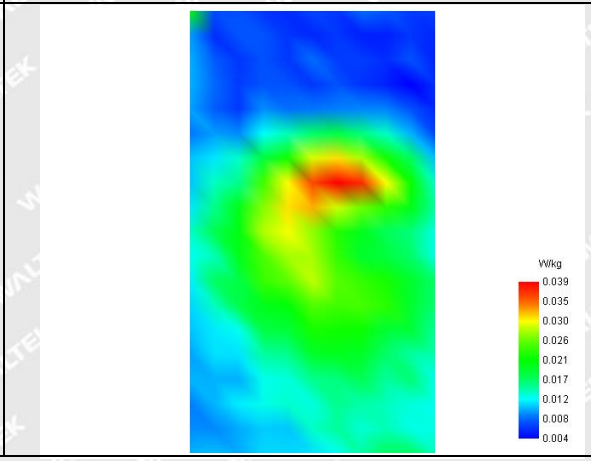
SAR 10g (W/Kg)	**0.025942**
SAR 1g (W/Kg)	**0.037821**

E. Z Axis Scan

Z (mm)	**0.00**	**4.00**	**8.00**	**12.00**	**16.00**
SAR (W/Kg)	**0.0632**	**0.0397**	**0.0292**	**0.0233**	**0.0185**



F. 3D Image

3D screen shot	**Hot spot position**
	

MEASUREMENT 4

Type: Measurement (Complete)
Date of measurement: 2024-09-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - 3823-EPGO-435; ConvF: 1.50; Calibrated: 2024-07-11

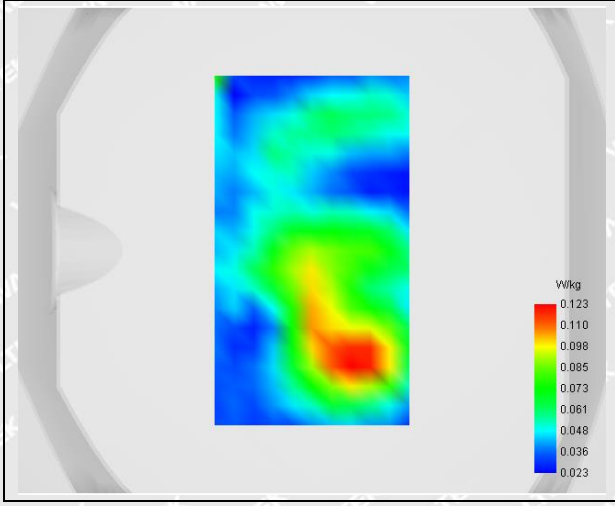
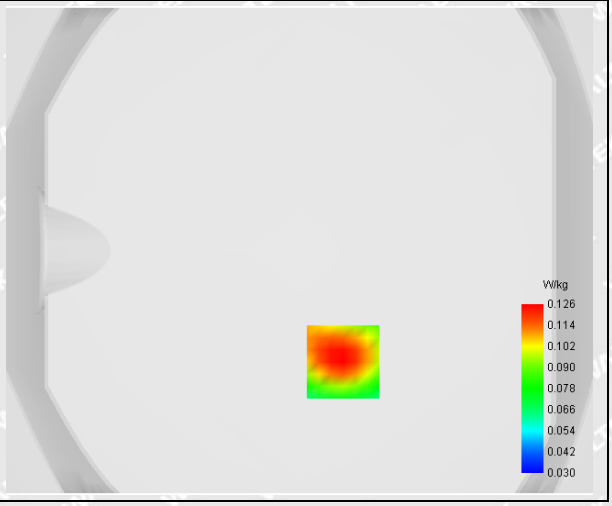
A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=5mm dy=5mm dz=4mm
Phantom	Flat Plane
Device Position	Back
Band	NR n41
Channels	DFT-s-OFDM QPSK, 100MHz, 1RB,Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2593.000000
Relative Permittivity (real part)	38.434295
Conductivity (S/m)	1.937356
Power Variation (%)	1.941200
Ambient Temperature	23.0
Liquid Temperature	23.0

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

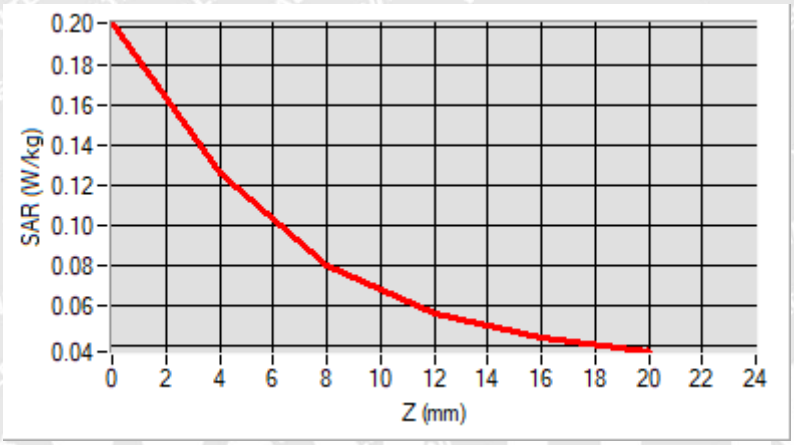
Maximum location: X=18.00, Y=-46.00

D. SAR 1g & 10g

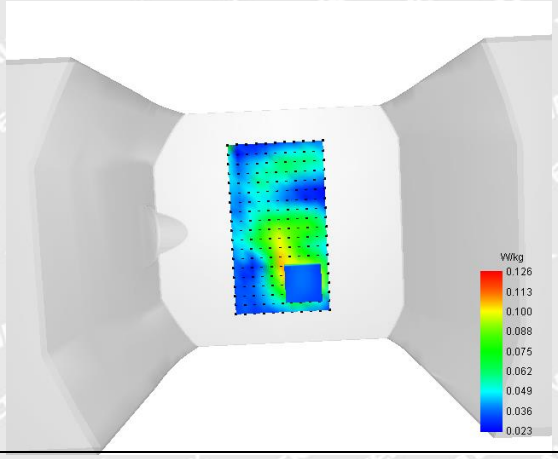
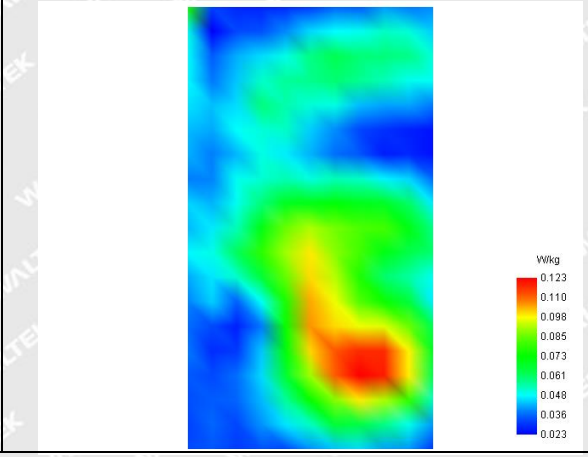
SAR 10g (W/Kg)	**0.075075**
SAR 1g (W/Kg)	**0.120827**

E. Z Axis Scan

Z (mm)	**0.00**	**4.00**	**8.00**	**12.00**	**16.00**
SAR (W/Kg)	**0.2015**	**0.1261**	**0.0806**	**0.0560**	**0.0439**



F. 3D Image

3D screen shot	**Hot spot position**
	

MEASUREMENT 5

Type: Measurement (Complete)
Date of measurement: 2024-09-25
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - 3823-EPGO-435; ConvF: 1.28; Calibrated: 2024-07-11

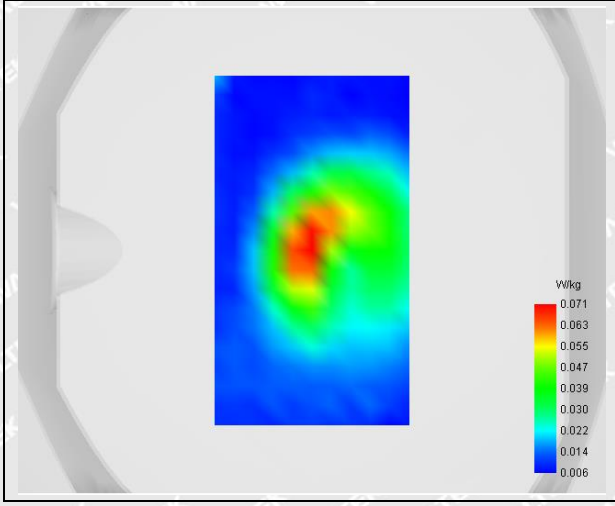
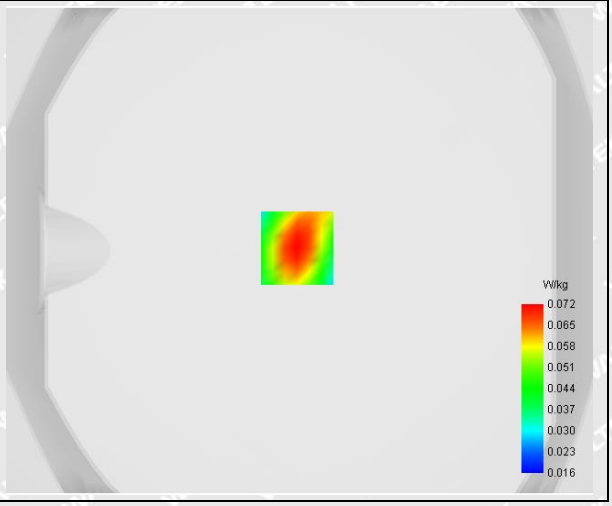
A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=5mm dy=5mm dz=4mm
Phantom	Flat Plane
Device Position	Bottom
Band	NR n5
Channels	DFT-s-OFDM PI/2 BPSK, 20MHz, 1RB,Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	836.500000
Relative Permittivity (real part)	41.034591
Conductivity (S/m)	0.884782
Power Variation (%)	2.941200
Ambient Temperature	23.0
Liquid Temperature	23.0

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

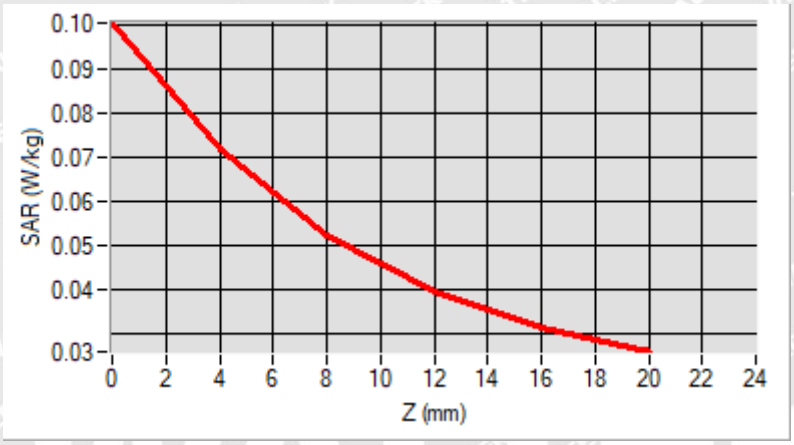
Maximum location: X=-1.00, Y=1.00

D. SAR 1g & 10g

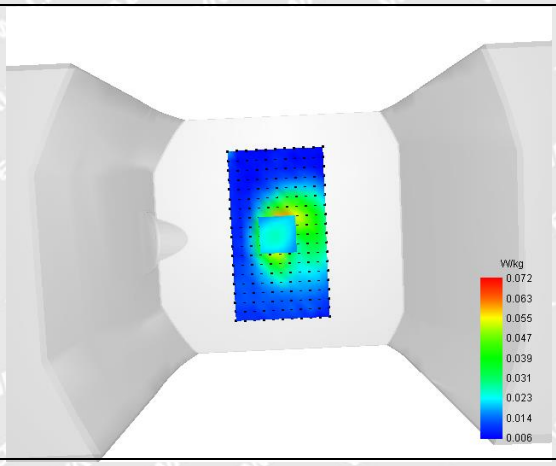
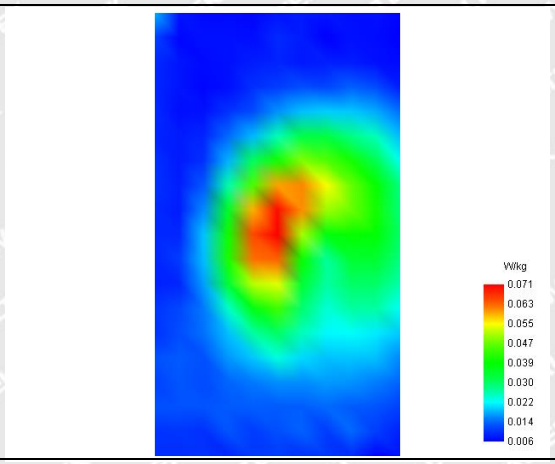
SAR 10g (W/Kg)	0.044173
SAR 1g (W/Kg)	0.067187

E. Z Axis Scan

Z (mm)	0.00	4.00	8.00	12.00	16.00
SAR (W/Kg)	0.1003	0.0716	0.0521	0.0395	0.0316



F. 3D Image

3D screen shot	Hot spot position
	

MEASUREMENT 6

Type: Measurement (Complete)
Date of measurement: 2024-09-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - 3823-EPGO-435; ConvF: 1.50; Calibrated: 2024-07-11

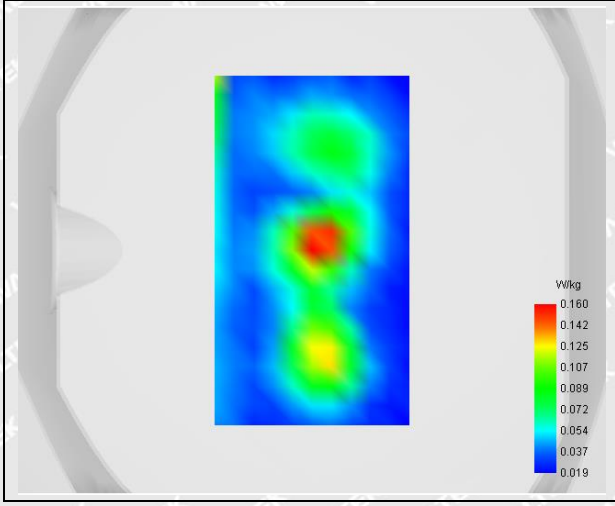
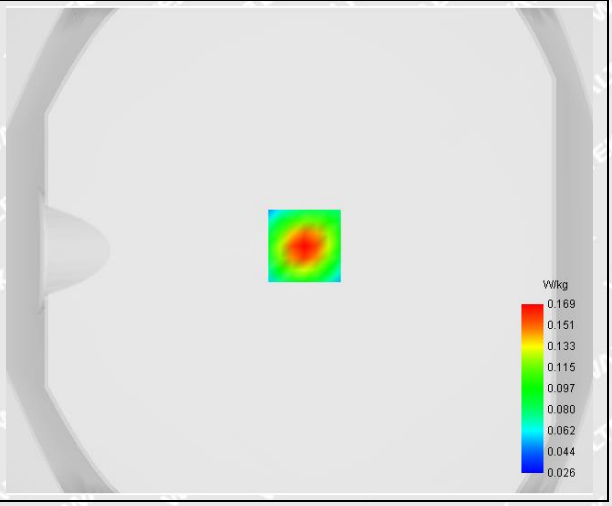
A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=5mm dy=5mm dz=4mm
Phantom	Flat Plane
Device Position	Left
Band	NR n41
Channels	DFT-s-OFDM QPSK, 100MHz, 1RB,Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2593.000000
Relative Permittivity (real part)	38.434295
Conductivity (S/m)	1.937356
Power Variation (%)	1.541200
Ambient Temperature	23.0
Liquid Temperature	23.0

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

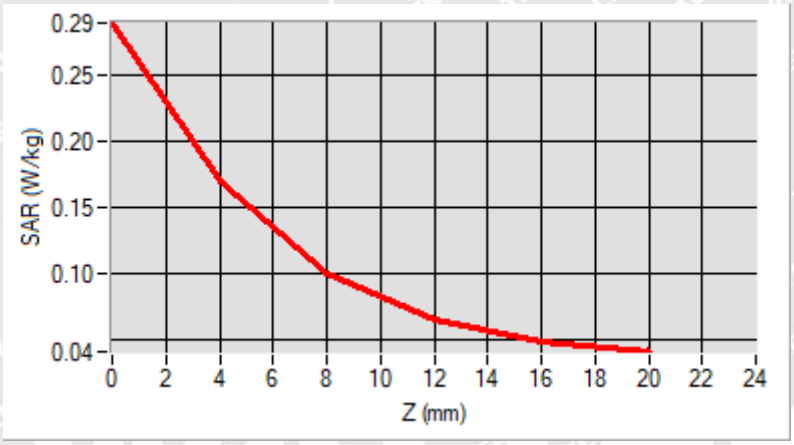
Maximum location: X=2.00, Y=2.00

D. SAR 1g & 10g

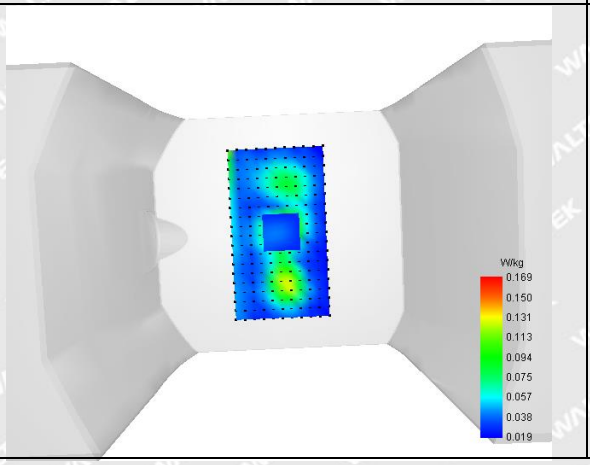
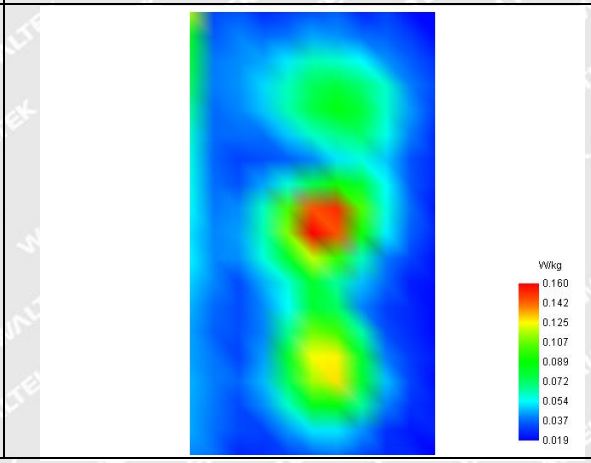
SAR 10g (W/Kg)	0.085963
SAR 1g (W/Kg)	0.155412

E. Z Axis Scan

Z (mm)	0.00	4.00	8.00	12.00	16.00
SAR (W/Kg)	0.2893	0.1686	0.0994	0.0641	0.0483



F. 3D Image

3D screen shot	Hot spot position
	

Annex C. EUT Photos

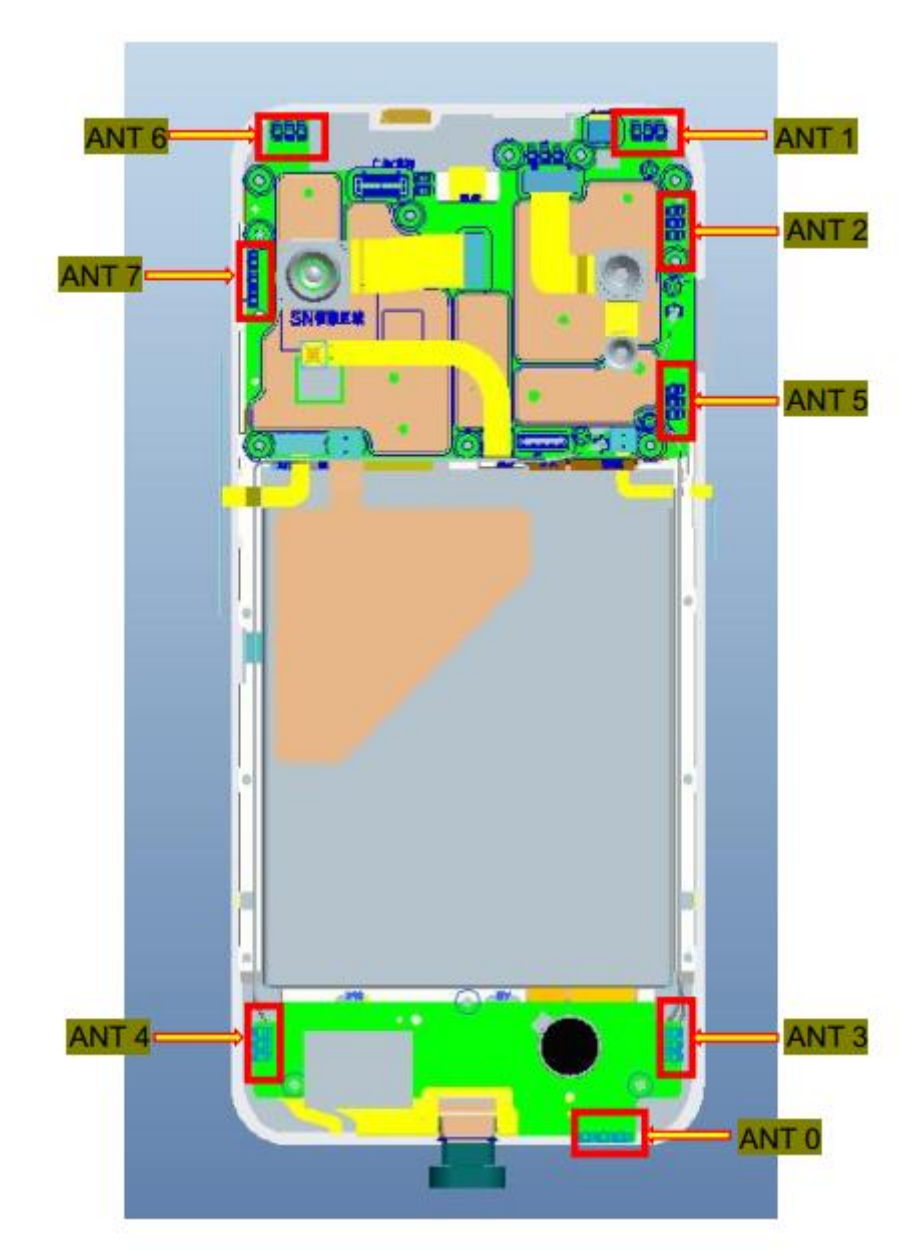
EUT View 1



EUT View 2



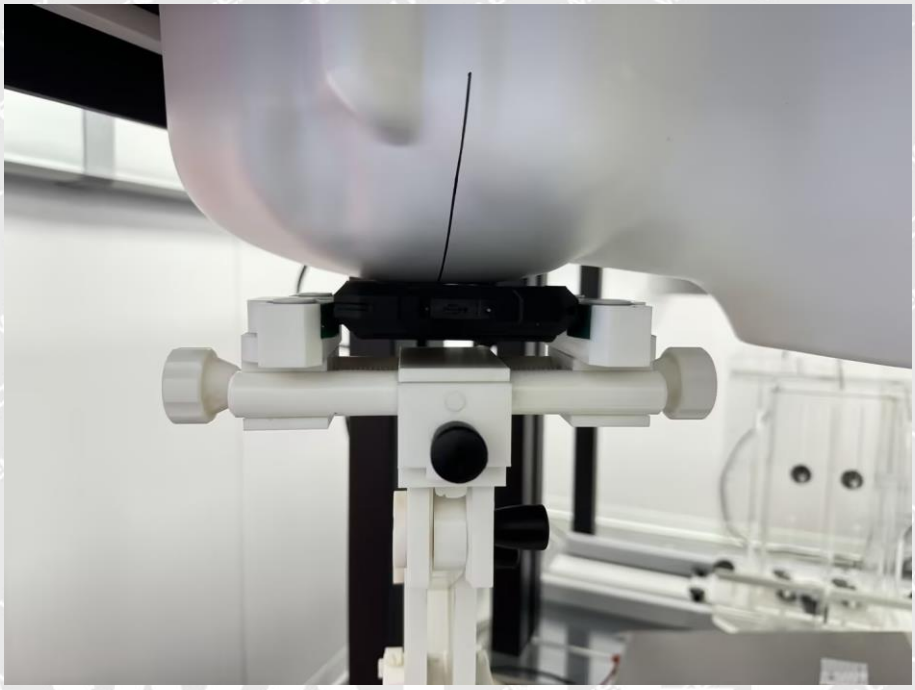
Antenna View



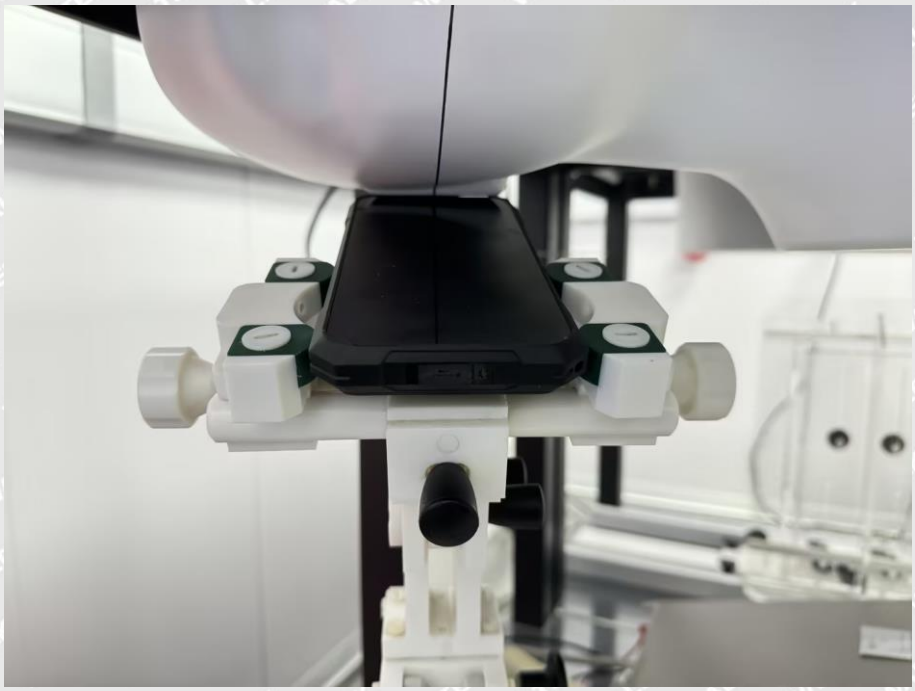
Annex D. Test Setup Photos

Head Exposure Conditions

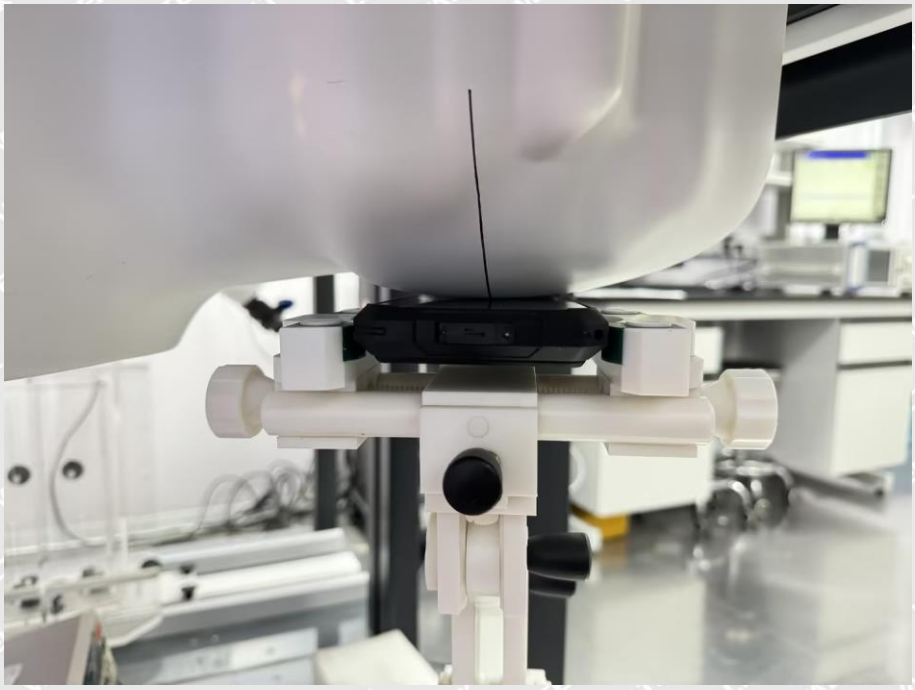
Right Cheek



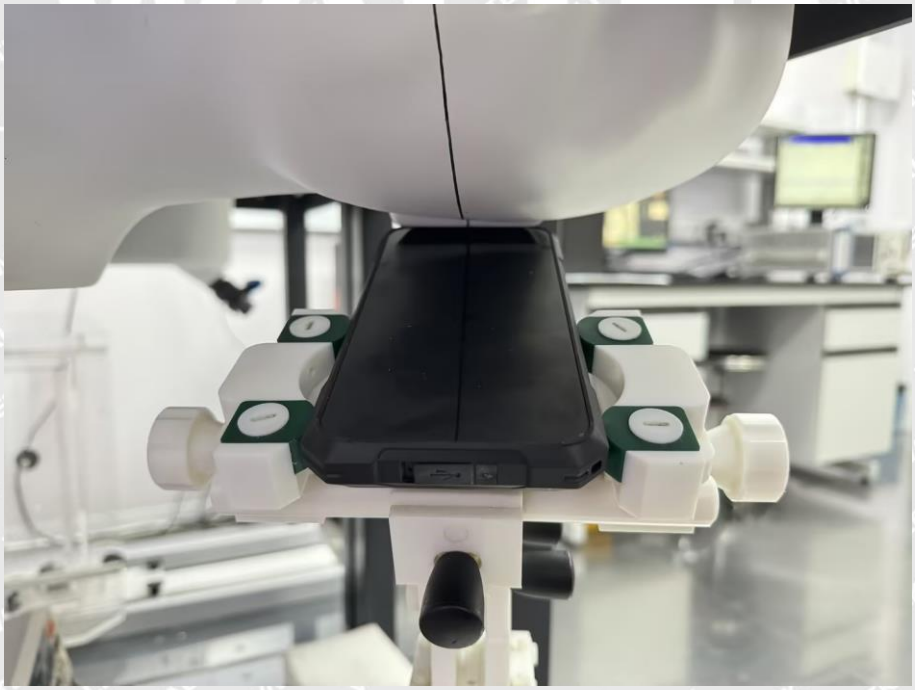
Right Tilt



Left Cheek

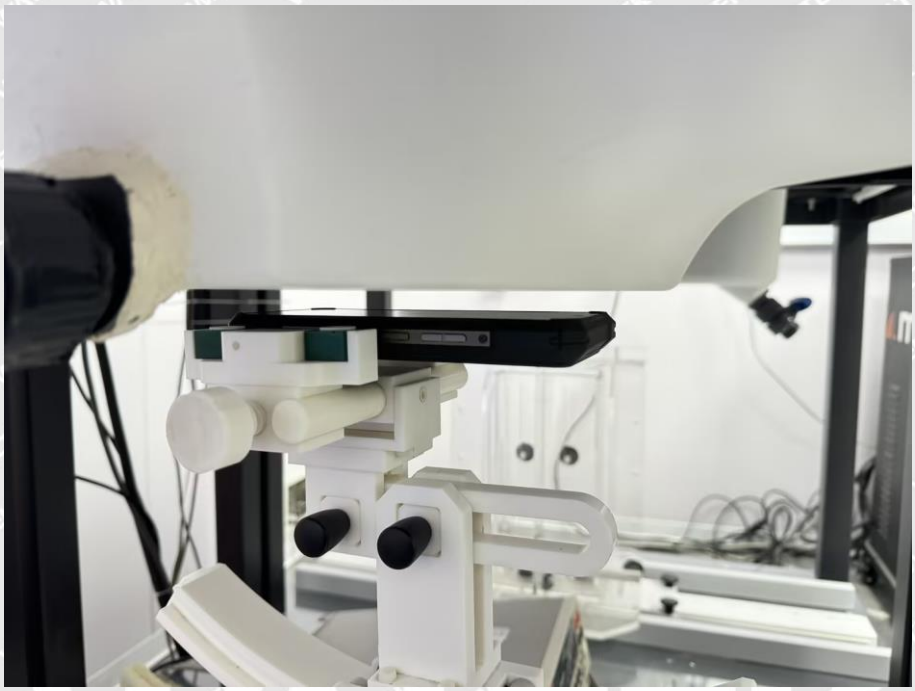


Left Tilt

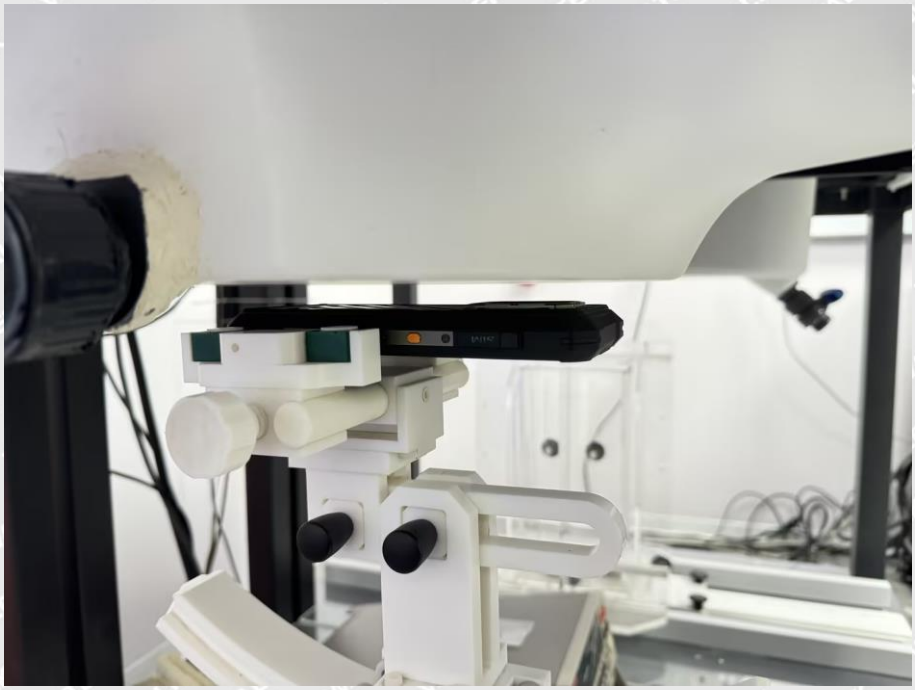


Body mode Exposure Conditions
Test distance: 10mm

Body Front



Body Back



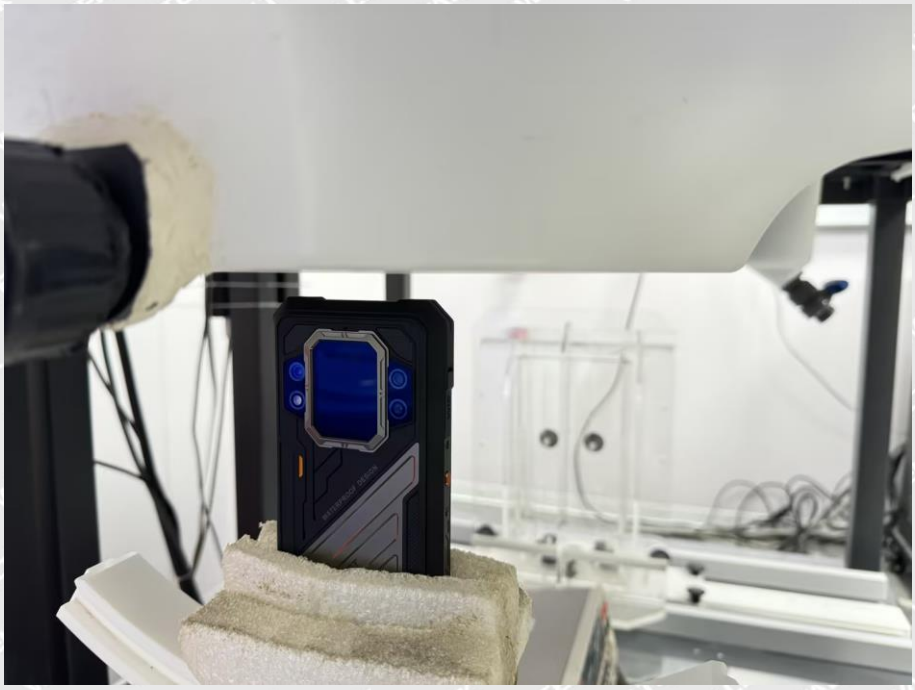
Body Right



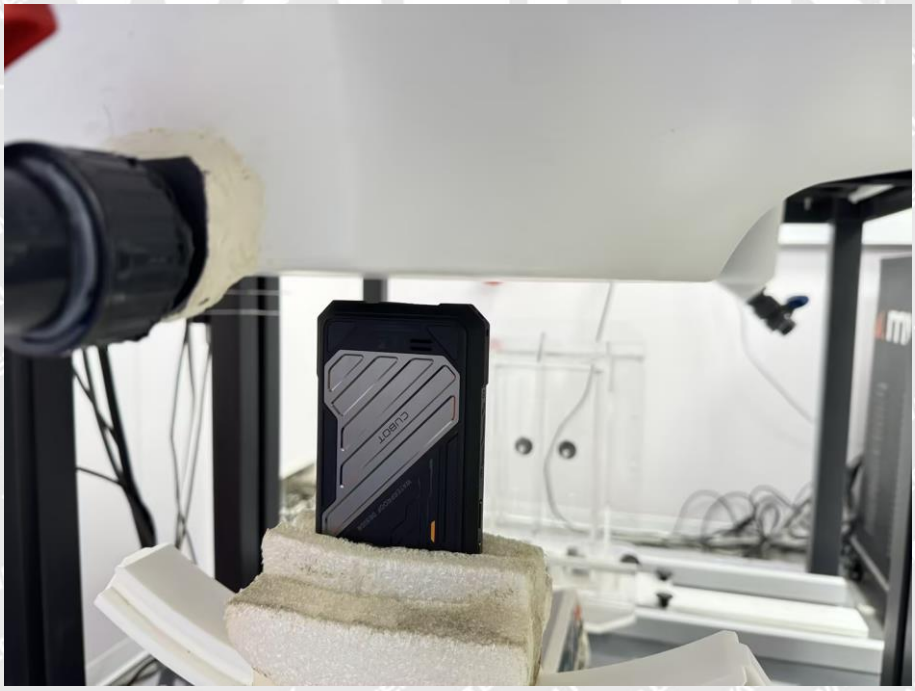
Body Left



Body Top



Body Bottom



Annex E. Calibration Certificate

Please refer to the exhibit for the calibration certificate

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