FCC SAR EVALUATION REPORT

In accordance with the requirements of
FCC 47 CFR Part 2(2.1093) and
IEEE Std 1528-2013

Product Name :	POS Terminal
Trademark :	N/A
Model Name :	PT7010
Family Model :	PT7010S, PT7010M, PT7010MS, PT7010T, PT7010ST, PT7010MT, PT7010MST, PT7003, PT7006, PT7009, PT8001, Q5, Q6, Q7, Q8, Q9
FCC ID :	2ASHJPT7010
Report No. :	S24032201803001

Prepared for

Tousei Anlinx Co.,Ltd.

Room901,Zhenhua Times Square,21 Heping RoadLongHua district,ShenzhenCity, China 518109

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.
1/F, Building E, Fenda Science Park, Sanwei Community,
Xixiang Street Bao'an District, Shenzhen 518126 P.R. China
Tel.: 400-800-6106, 0755-2320 0050, 0755-2320 0090
Website: http://www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's name	Tousei Anlinx Co.,Ltd.
Address	Room901,Zhenhua Times Square,21 Heping RoadLongHua district,ShenzhenCity,China 518109
Manufacturer's Name	Tousei Anlinx Co.,Ltd.
Address	Room901,Zhenhua Times Square,21 Heping RoadLongHua district,ShenzhenCity,China 518109

Product description

Product name	POS Terminal
Trademark	N/A
Model Name	PT7010
Family Model	PT7010S, PT7010M, PT7010MS, PT7010T, PT7010ST, PT7010MT, PT7010MST, PT7003, PT7006, PT7009, PT8001, Q5, Q6, Q7, Q8, Q9
Standards	FCC 47 CFR Part 2(2.1093); IEEE Std 1528-2013; Published RF exposure KDB procedures

This device described above has been tested by Shenzhen NTEK. In accordance with the measurement methods and procedures specified in IEEE Std 1528-2013 and KDB 865664 D01. Testing has shown that this device is capable of compliance with localized specific absorption rate (SAR) specified in FCC 47 CFR Part 2(2.1093). The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

This report shall not be reproduced except in full, without the written approval of Shenzhen NTEK, this document may be altered or revised by Shenzhen NTEK, personal only, and shall be noted in the revision of the document.

Test Sample Number S240322018004

Date of Test

Date (s) of performance of tests ..... Mar. 25, 2024 ~ Apr. 12, 2024

Date of Issue ..... Aug. 06, 2024

Test Result ..... **Pass**

Prepared By	Reviewed By	Approved By
Jack Li	Aaron Cheng	Alex Li
(Project Engineer)	(Supervisor)	(Manager)

※ ※ Revision History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Aug. 06, 2024	Jack Li

TABLE OF CONTENTS

1. General Information

1.1. RF exposure limits

(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	1.6	4.0

NOTE: ***Whole-Body SAR*** is averaged over the entire body, ***partial-body SAR*** is averaged over any 1 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.

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).

General Population/Uncontrolled Environments:

Are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

NOTE

TRUNK LIMIT for 1.6 W/kg AND EXTREMITY LIMIT for 4.0 W/kg

APPLIED TO THIS EUT

1.2. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for PT7010 are as follows.

RF Exposure Conditions		Equipment Class -Highest Reported SAR (W/kg)				Max. Reported SAR (W/kg)
		TNT	DTS	NII	DSS	
1-g Body (Separation distance of 0mm)		1.241	0.136	0.201	N/A	1.241
10-g Extremity (Separation distance of 0mm)		0.669	0.076	0.140	N/A	0.669
Max Simultaneous Tx	Body	1.346	1.241	1.241	1.346	1.346
	Extremity	0.711	0.669	0.669	0.711	0.711

Note: The Max Simultaneous Tx is calculated based on the same configuration and test position.
This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (trunk limit for 1.6 W/kg and extremity limit for 4.0 W/kg) specified in FCC 47 CFR Part 2(2.1093), and had been tested in accordance with the measurement methods and procedures specified in IEEE Std 1528-2013 & KDB 865664 D01.

1.3. EUT Description

Device Information	
Product Name	POS Terminal
Trade Name	N/A
Model Name	PT7010
Family Model	PT7010S, PT7010M, PT7010MS, PT7010T, PT7010ST, PT7010MT, PT7010MST, PT7003, PT7006, PT7009, PT8001, Q5, Q6, Q7, Q8, Q9
Model Difference	All the model are the same circuit and RF module, except the model names
FCC ID	2ASHJPT7010
Device Phase	Identical Prototype
Exposure Category	General population / Uncontrolled environment
Antenna	FPC Antenna
Battery	DC 3.7V, 7750mAh, 28.67Wh
Hardware version	V 1.00
Software version	v1.07
Device Operating Configurations	
Supporting Mode(s)	GSM 850, WCDMA Band 5, LTE Band 5/40/41,WLAN 2.4G/5G, Bluetooth, NFC
Test Modulation	GSM(GMSK), WCDMA(QPSK), LTE(QPSK/16QAM), WLAN(DSSS/OFDM), Bluetooth(GFSK, π/4-DQPSK, 8DPSK),

	NFC(ASK)		
Device Class	B		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824-849	869-894
	WCDMA Band 5	824-849	869-894
	LTE Band 5	824-849	869-894
	LTE Band 40A	2305-2315	
	LTE Band 40B	2350-2360	
	LTE Band 41	2555-2655	
	WLAN 2.4G	2412-2462	
	WLAN 5.2G	5180-5240	
	WLAN 5.3G	5260-5320	
	WLAN 5.6G	5500-5700	
	WLAN 5.8G	5745-5825	
	Bluetooth	2402-2480	
	NFC	13.56-13.56	
Power Class	4, tested with power level 5(GSM 850)		
	3, tested with power control “all 1”(WCDMA Band 5)		
	3, tested with power control all Max.(LTE Band 5)		
	3, tested with power control all Max.(LTE Band 40)		
	3, tested with power control all Max.(LTE Band 41)		

1.4. Test specification(s)

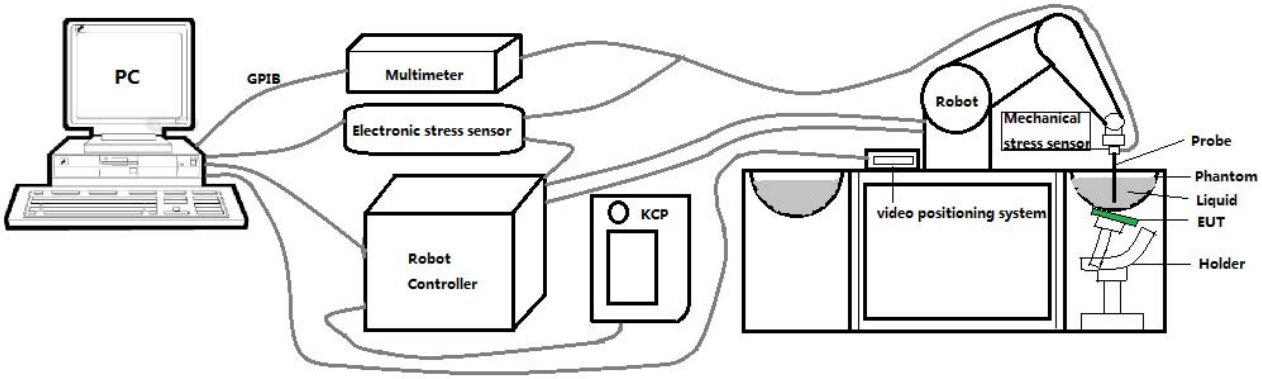
FCC 47 CFR Part 2(2.1093)
IEEE Std 1528-2013
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting
KDB 447498 D01 General RF Exposure Guidance
KDB 248227 D01 802.11 Wi-Fi SAR
KDB 941225 D01 3G SAR Procedures
KDB 941225 D05 SAR for LTE Devices

1.5. Ambient Condition

Ambient temperature	20°C – 24°C
Relative Humidity	30% – 70%

2. SAR Measurement System

2.1. SATIMO SAR Measurement Set-up Diagram



These measurements were performed with the automated near-field scanning system OPENSAR from SATIMO. The system is based on a high precision robot (working range: 901 mm), which positions the probes with a positional repeatability of better than ±0.03 mm. The SAR measurements were conducted with dosimetric probe (manufactured by SATIMO), designed in the classical triangular configuration and optimized for dosimetric evaluation.

The first step of the field measurement is the evaluation of the voltages induced on the probe by the device under test. Probe diode detectors are nonlinear. Below the diode compression point, the output voltage is proportional to the square of the applied E-field; above the diode compression point, it is linear to the applied E-field. The compression point depends on the diode, and a calibration procedure is necessary for each sensor of the probe.

The Keithley multimeter reads the voltage of each sensor and send these three values to the PC. The corresponding E field value is calculated using the probe calibration factors, which are stored in the working directory. This evaluation includes linearization of the diode characteristics. The field calculation is done separately for each sensor. Each component of the E field is displayed on the "Dipole Area Scan Interface" and the total E field is displayed on the "3D Interface"

2.2. Robot

The SATIMO SAR system uses the high precision robots from KUKA. For the 6-axis controller system, the robot controller version (KUKA) from KUKA is used. The KUKA robot series have many features that are important for our application:

- High precision (repeatability ±0.03 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

2.3. E-Field Probe

This E-field detection probe is composed of three orthogonal dipoles linked to special Schottky diodes with low detection thresholds. The probe allows the measurement of electric fields in liquids such as the one defined in the IEEE and CENELEC standards.

For the measurements the Specific Dosimetric E-Field Probe 3423-EPGO-426 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Tip Diameter : 2.5 mm
- Distance between probe tip and sensor center: 1 mm
- Distance between sensor center and the inner phantom surface: 2 mm (repeatability better than ±1 mm).
- Probe linearity: ±0.06 dB
- Axial isotropy: ±0.01 dB
- Hemispherical Isotropy: ±0.01 dB
- Calibration range: 650MHz to 5900MHz for head & body simulating liquid.
- Lower detection limit: 8mW/kg

Angle between probe axis (evaluation axis) and surface normal line: less than 30°.

2.3.1. E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ±10%. The spherical isotropy shall be evaluated and within ±0.25dB. The sensitivity parameters (Norm X, Norm Y, and Norm Z), the diode compression parameter (DCP) and the conversion factor (Conv F) of the probe are tested. The calibration data can be referred to appendix D of this report.

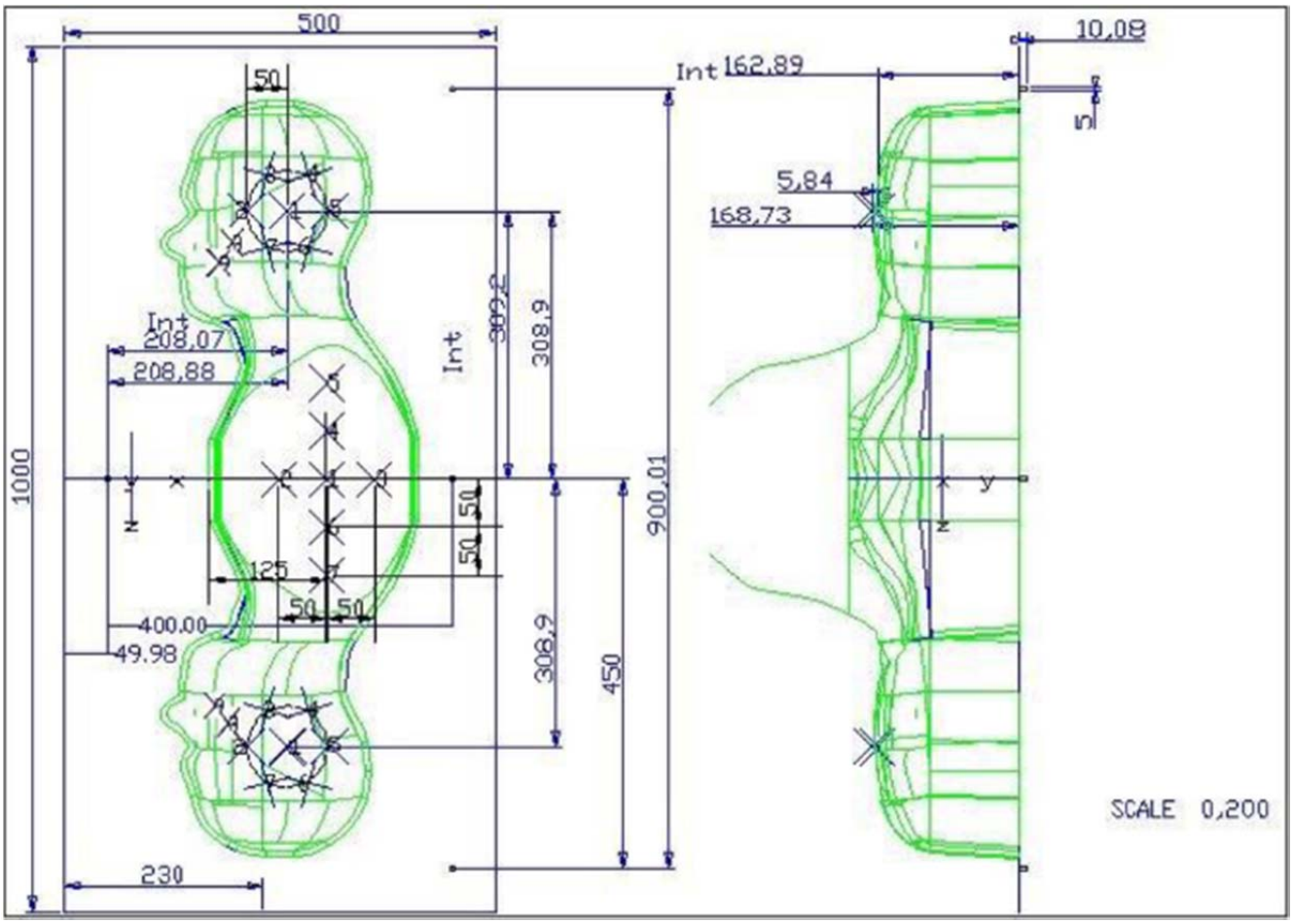
2.4. SAM phantoms

Photo of SAM phantom SN 16/15 SAM119

The SAM phantom is used to measure the SAR relative to people exposed to electro-magnetic field radiated by mobile phones.

2.4.1. Technical Data

Serial Number	Shell thickness	Filling volume	Dimensions	Positionner Material	Permittivity	Loss Tangent
SN 16/15 SAM119	2 mm ±0.2 mm	27 liters	Length:1000 mm Width:500 mm Height:200 mm	Gelcoat with fiberglass	3.4	0.02

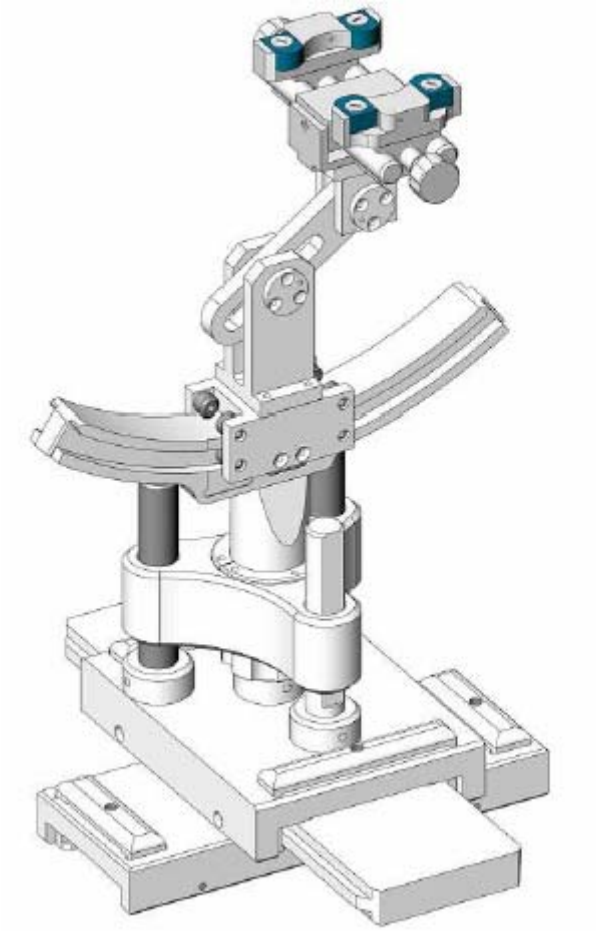


Serial Number	Left Head(mm)		Right Head(mm)		Flat Part(mm)	
SN 16/15 SAM119	2	2.02	2	2.08	1	2.09
	3	2.05	3	2.06	2	2.06
	4	2.07	4	2.07	3	2.08
	5	2.08	5	2.08	4	2.10
	6	2.05	6	2.07	5	2.10
	7	2.05	7	2.05	6	2.07
	8	2.07	8	2.06	7	2.07
	9	2.08	9	2.06	-	-

The test, based on ultrasonic system, allows measuring the thickness with an accuracy of 10 µm.

2.5. 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 degree.



Serial Number	Holder Material	Permittivity	Loss Tangent
SN 16/15 MSH100	Delrin	3.7	0.005

2.6. Test Equipment List

This table gives a complete overview of the SAR measurement equipment.

Devices used during the test described are marked ☒

	Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
					Last Cal.	Due Date
☒	MVG	E FIELD PROBE	SSE2	3423-EPGO-426	Sep. 18, 2023	Sep. 17, 2024
☐	MVG	750 MHz Dipole	SID750	SN 03/15 DIP 0G750-355	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	835 MHz Dipole	SID835	SN 03/15 DIP 0G835-347	Feb. 21, 2024	Feb. 20, 2027
☐	MVG	900 MHz Dipole	SID900	SN 03/15 DIP 0G900-348	Feb. 21, 2024	Feb. 20, 2027
☐	MVG	1800 MHz Dipole	SID1800	SN 03/15 DIP 1G800-349	Feb. 21, 2024	Feb. 20, 2027
☐	MVG	1900 MHz Dipole	SID1900	SN 03/15 DIP 1G900-350	Feb. 21, 2024	Feb. 20, 2027
☐	MVG	2000 MHz Dipole	SID2000	SN 03/15 DIP 2G000-351	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	2300 MHz Dipole	SID2300	SN 03/16 DIP 2G300-358	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	2450 MHz Dipole	SID2450	SN 03/15 DIP 2G450-352	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	2600 MHz Dipole	SID2600	SN 03/15 DIP 2G600-356	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	5000 MHz Dipole	SWG5500	SN 13/14 WGA 33	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	Liquid measurement Kit	SCLMP	SN 21/15 OCPG 72	NCR	NCR
☒	MVG	Power Amplifier	N.A	AMPLISAR_28/14_003	NCR	NCR
☒	KEITHLEY	Millivoltmeter	2000	4072790	NCR	NCR
☒	R&S	Universal radio communication tester	CMU200	117858	May. 29, 2023	May. 28, 2024
☒	R&S	Wideband radio communication tester	CMW500	103917	May. 29, 2023	May. 28, 2024
☒	HP	Network Analyzer	8753D	3410J01136	May. 29, 2023	May. 28, 2024

☒	Agilent	MXG Vector Signal Generator	N5182A	MY47070317	May. 29, 2023	May. 28, 2024
☒	Agilent	Power meter	E4419B	MY45102538	May. 29, 2023	May. 28, 2024
☒	Agilent	Power sensor	E9301A	MY41495644	May. 29, 2023	May. 28, 2024
☒	Agilent	Power sensor	E9301A	US39212148	May. 29, 2023	May. 28, 2024
☒	MCLI/USA	Directional Coupler	CB11-20	0D2L51502	Jul. 04, 2023	Jul. 03, 2024
☒	N/A	Thermometer	N/A	LES-085	Mar. 27, 2023	Mar. 26, 2026
☒	MVG	SAM Phantom	SSM2	SN 16/15 SAM119	NCR	NCR
☒	MVG	Device Holder	SMPPD	SN 16/15 MSH100	NCR	NCR
☒	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 835	Head 835	NCR	NCR
☒	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 2300	Head 1900	NCR	NCR
☒	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 2450	Head 2450	NCR	NCR
☒	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 2600	Head 2600	NCR	NCR
☒	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 5200	Head 5200	NCR	NCR
☒	Shenzhen Tianxu	Human Simulating Liquid	Head 5400	Head 5400	NCR	NCR

	Communication Technology Co., Ltd.					
☒	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 5600	Head 5600	NCR	NCR
☒	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 5800	Head 5800	NCR	NCR

3. SAR Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.

(b) Read the WWAN RF power level from the base station simulator.

(c) For WLAN/Bluetooth power measurement, use engineering software to configure EUT WLAN/Bluetooth continuously transmission, at maximum RF power in each supported wireless interface and frequency band.

(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/Bluetooth output power.

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/Bluetooth continuously transmission, at maximum RF power, in the highest power channel.

(b) Place the EUT in the positions as Appendix A demonstrates.

(c) Set scan area, grid size and other setting on the OPENSAR software.

(d) Measure SAR results for the highest power channel on each testing position.

(e) Find out the largest SAR result on these testing positions of each band.

(f) Measure SAR results for other channels in worst SAR testing position if the reported 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

3.1. Power Reference

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

3.2. Area scan & Zoom scan

The area scan is a 2D scan to find the hot spot location on the DUT. The zoom scan is a 3D scan above the hot spot to calculate the 1g and 10g SAR value.

Measurement of the SAR distribution with a grid of 8 to 16 mm * 8 to 16 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.

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

Area scan & Zoom scan scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 ± 1 mm</td><td>½·δ·ln(2) ± 0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

3.3. Description of interpolation/extrapolation scheme

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 minimise 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 1 mm 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 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

3.4. Volumetric Scan

The volumetric scan consists to a full 3D scan over a specific area. This 3D scan is useful form multi Tx SAR measurement. Indeed, it is possible with OpenSAR to add, point by point, several volumetric scan to calculate the SAR value of the combined measurement as it is define in the standard IEEE1528 and IEC62209.

3.5. Power Drift

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In OpenSAR 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 V/m. If the power drifts more than ±5%, the SAR will be retested.

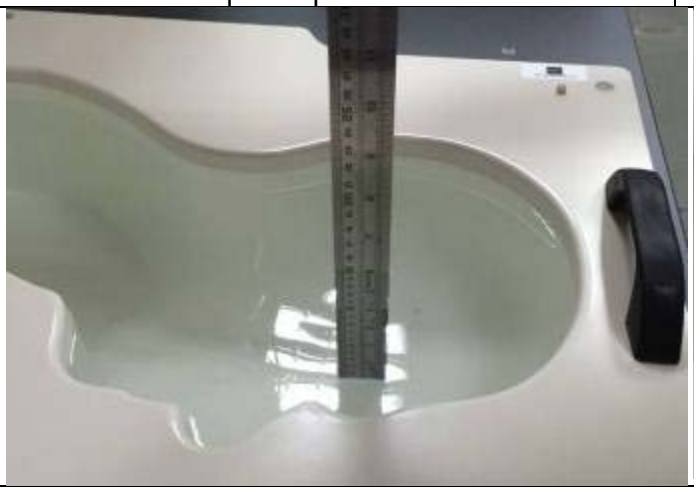
4. System Verification Procedure

4.1. Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% of weight)	Head Tissue								
Frequency Band (MHz)	750	835	900	1800	1900	2000	2450	2600	5000
Water	34.40	34.40	34.40	55.36	55.36	71.88	71.88	71.88	65.53
NaCl	0.79	0.79	0.79	0.35	0.35	0.16	0.16	0.16	0.00
1,2-Propanediol	64.81	64.81	64.81	0.00	0.00	0.00	0.00	0.00	0.00
Triton X-100	0.00	0.00	0.00	30.45	30.45	19.97	19.97	19.97	17.24
DGBE	0.00	0.00	0.00	13.84	13.84	7.99	7.99	7.99	0.00

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid depth from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm.

Photo of Liquid depth for Head Position	Photo of Liquid depth for Body Position
	

4.1.1. Tissue Dielectric Parameter Check Results

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectric parameter are within the tolerances of the specified target values. The measured conductivity and relative permittivity should be within ±5% of the target values.

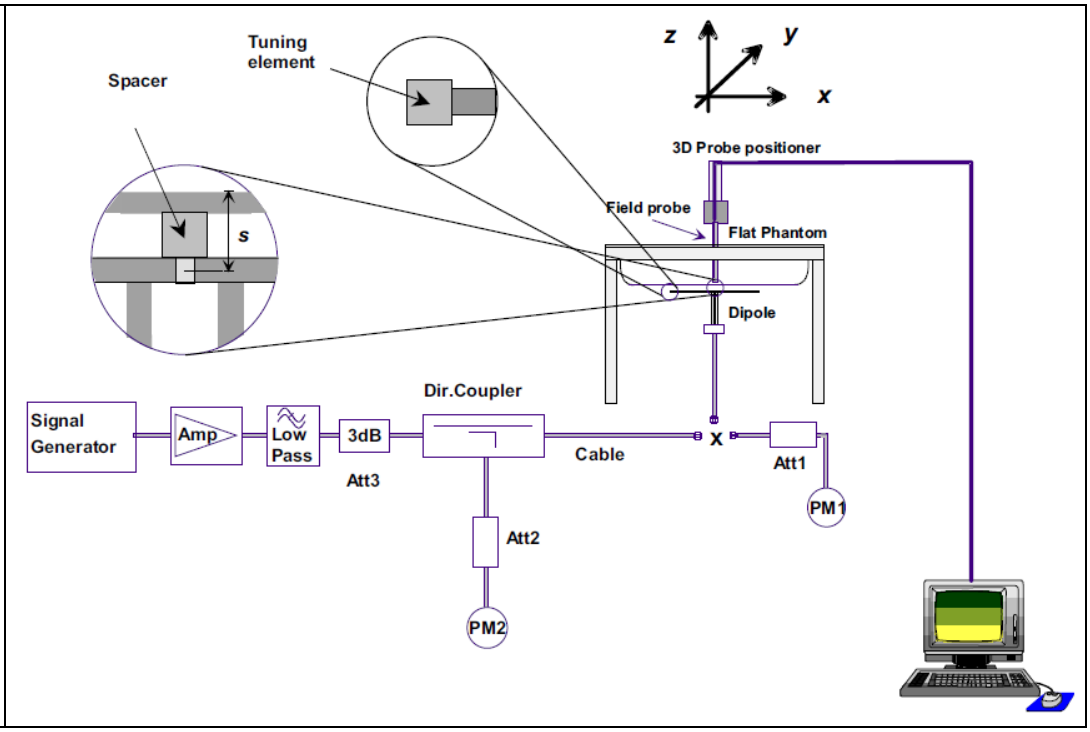
Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		εr (±5%)	σ (S/m) (±5%)	εr	σ (S/m)		
Head 850	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	41.00	0.88	21.6 °C	Apr. 08, 2024
Head 2300	2300	39.47 (37.50~41.44)	1.66 (1.58~1.74)	39.46	1.60	21.2 °C	Mar. 29, 2024
Head 2450	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	37.67	1.76	21.8 °C	Apr. 12, 2024
Head 2600	2600	39.01 (37.06~40.96)	1.96 (1.86~2.06)	38.63	1.94	21.9 °C	Mar. 25, 2024
Head 5200	5200	36.00 (34.20~37.80)	4.66 (4.43~4.89)	34.63	4.51	21.4 °C	Mar. 26, 2024
Head 5400	5400	35.80 (34.01~37.59)	4.86 (4.62~5.10)	34.47	4.84	21.9 °C	Apr. 06, 2024
Head 5600	5600	35.50 (33.73~37.28)	5.07 (4.82~5.32)	34.54	4.96	21.6 °C	Apr. 05, 2024
Head 5800	5800	35.30 (33.54~37.07)	5.27 (5.01~5.53)	34.06	5.20	21.5 °C	Mar. 27, 2024

NOTE: The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 °C of the conditions expected during the SAR evaluation to satisfy protocol requirements.

4.2. System Verification Procedure

The system verification is performed for verifying the accuracy of the complete measurement system and performance of the software. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SMA. It is fed with a power of 100mW (below 5GHz) or 100mW (above 5GHz). To adjust this power a power meter is used. The power sensor is connected to the cable before the system verification to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the system verification to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test (result on plot).

The system verification is shown as below picture:



4.2.1. System Verification Results

Comparing to the original SAR value provided by SATIMO, the verification data should be within its specification of ±10%. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance verification can meet the variation criterion and the plots can be referred to Appendix B of this report.

System Verification	Target SAR (1W) (±10%)		Measured SAR (Normalized to 1W)		Liquid Temp.	Test Date
	1-g (W/Kg)	10-g (W/Kg)	1-g (W/Kg)	10-g (W/Kg)		
835MHz	9.40 (8.46~10.34)	6.28 (5.65~6.91)	9.97	6.00	21.6 °C	Apr. 08, 2024
2300MHz	50.63 (45.57~55.69)	23.51 (21.16~25.86)	46.09	23.65	21.2 °C	Mar. 29, 2024
2450MHz	50.05 (45.05~55.06)	23.80 (21.42~26.18)	50.42	23.89	21.8 °C	Apr. 12, 2024
2600MHz	54.16 (48.74~59.58)	24.85 (22.37~27.34)	49.84	24.84	21.9 °C	Mar. 25, 2024
5200MHz	162.59 (146.33~178.85)	56.21 (50.59~61.83)	146.53	59.38	21.4 °C	Mar. 26, 2024
5400MHz	159.81 (143.83~175.79)	55.00 (49.50~60.50)	146.67	59.17	21.9 °C	Apr. 06, 2024
5600MHz	179.15 (161.24~197.07)	61.01 (54.91~67.11)	178.04	55.25	21.6 °C	Apr. 05, 2024
5800MHz	182.20 (163.98~200.42)	61.32 (55.19~67.45)	172.10	56.53	21.5 °C	Mar. 27, 2024

5. SAR Measurement variability and uncertainty

5.1. SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) 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).
4) 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.

5.2. SAR measurement uncertainty

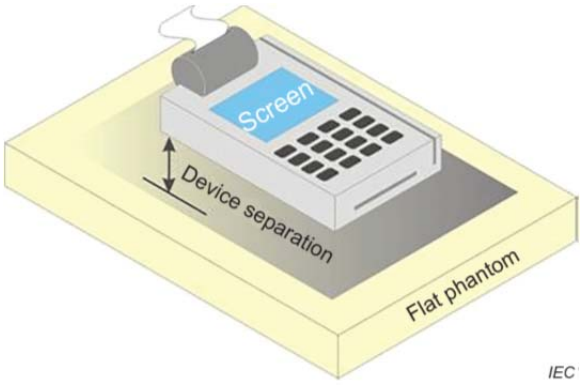
Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

6. RF Exposure Positions

6.1. Devices used next to or against the body without an accessory

A typical example of a device used next to the body is a wireless enabled laptop or a tablet device containing a peripheral plug-in radio transmitter that can be supported on the user's body. Other devices that fall into this category include tablets of equivalent sizes or larger than a netbook computer (> 20 cm diagonal display), credit card transaction authorization terminals, and point-of-sale and/or inventory terminals.

The DUT shall be positioned with its base (bottom surface) and applicable edges against the flat phantom. The orientations and other use positions can be host device specific. Therefore, these should be determined according to the transmitter and antenna locations on the host device.



Test positions for body supported devices (Wireless credit card transaction authorization terminal)

6.2. Extremity exposure considerations

1. Based on the actual use, we always hold it by our left hand, so we only take the Extremity SAR of left side, front side and back side at device into consideration. We will test the front side, left side and right side of this device. (We test the right side aiming to stimulate left hand for finger exposes to LTE, WCDMA, GSM when using.)

2. WIFI antenna is the nearest away from left side at the device. LTE, WCDMA, GSM antenna are far away from left side at the device.

3. The nearest distance between the left hand's fingers and the LTE, WCDMA, GSM antenna is 6cm, when we always hold it by our left hand. And we use 0cm from the phantom to the right side at the device to test SAR, which is substitution method we mentioned, to evaluate the SAR of the left hand's fingers.

4. The Extremity SAR of the backside of this device for WIFI antenna, we will calculate it by following SAR exemption.

7. RF Output Power

7.1. GSM Conducted Power

Band GSM850	Burst-Averaged output Power (dBm)				Frame-Averaged output Power (dBm)			
Tx Channel	Tune - up	128	189	251	Tune - up	128	189	251
Frequency (MHz)	(dBm)	824.2	836.4	848.8	(dBm)	824.2	836.4	848.8
GSM (GMSK)	33.50	33.12	32.91	32.91	24.47	24.09	23.88	23.88
Note: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots. The calculated method are shown as below: Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9.03 dB								

7.2. WCDMA Conducted Power

WCDMA Band 5	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	4132	4182	4233
Frequency (MHz)	(dBm)	826.4	836.4	846.6
RMC12.2K	22.50	22.35	22.26	22.34
HSDPA Sub 1	21.50	21.41	21.33	21.41
HSDPA Sub 2	21.00	20.77	21.00	20.93
HSDPA Sub 3	20.50	19.95	20.06	20.19
HSDPA Sub 4	20.00	19.84	19.53	19.88
HSUPA Sub 1	21.50	20.38	21.15	21.17
HSUPA Sub 2	21.50	21.33	21.18	21.23
HSUPA Sub 3	20.50	19.76	20.07	19.99
HSUPA Sub 4	21.50	21.36	21.31	21.37
HSUPA Sub 5	21.00	19.82	20.67	20.61

7.3. LTE Conducted Power

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20407/824.7	20525/836.5	20643/848.3
LTE Band 5	1.4MHz	QPSK	1	0	22.50	21.93	21.94	21.94
			1	2	22.50	22.05	22.06	22.05
			1	5	22.50	21.91	21.95	21.93
			3	0	22.50	22.03	22.02	22.06
			3	1	22.50	22.09	22.05	22.09

			3	2	22.50	22.04	22.02	22.06
			6	0	21.50	21.10	21.09	21.13
		16QAM	1	0	21.50	20.96	21.21	21.07
			1	2	21.50	21.04	21.38	21.16
			1	5	21.50	20.97	21.28	21.07
			3	0	21.50	20.90	21.02	20.99
			3	1	21.50	20.90	21.00	20.94
			3	2	21.50	20.88	21.01	20.94
			6	0	20.50	20.05	20.14	20.14

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20415/825.5	20525/836.5	20635/847.5
LTE Band 5	3MHz	QPSK	1	0	22.50	21.95	22.04	22.00
			1	7	22.50	21.94	21.99	21.97
			1	14	22.50	21.94	21.97	21.99
			8	0	22.50	21.02	21.06	21.07
			8	4	22.50	21.04	21.08	21.12
			8	7	22.50	21.00	21.05	21.08
			15	0	21.50	21.07	21.08	21.14
		16QAM	1	0	21.50	21.05	21.27	21.10
			1	7	21.50	21.02	21.34	21.02
			1	14	21.50	21.11	21.33	21.09
			8	0	21.50	20.00	20.15	20.06
			8	4	21.50	20.00	20.17	20.07
			8	7	21.50	19.99	20.14	20.07
			15	0	20.50	19.99	20.09	20.05

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20425/826.5	20525/836.5	20625/846.5
LTE Band 5	5MHz	QPSK	1	0	22.50	21.86	21.92	21.93
			1	12	22.50	21.96	21.97	22.00
			1	24	22.50	21.86	21.87	21.88
			12	0	22.50	20.98	21.05	21.11
			12	6	22.50	21.07	21.11	21.14
			12	11	22.50	21.06	21.04	21.07
			25	0	21.50	21.05	21.05	21.11
		16QAM	1	0	21.50	20.97	21.17	21.13
			1	12	21.50	20.98	21.33	21.10

			1	24	21.50	20.99	21.08	21.06
			12	0	21.50	19.88	20.05	20.01
			12	6	21.50	19.96	20.14	20.04
			12	11	21.50	19.97	20.05	19.97
			25	0	20.50	19.96	20.07	20.06

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20450/829	20525/836.5	20600/844
LTE Band 5	10MHz	QPSK	1	0	22.50	21.95	22.02	22.02
			1	24	22.50	22.04	22.10	22.07
			1	49	22.50	21.98	21.97	21.94
			25	0	22.50	21.09	21.16	21.18
			25	12	22.50	21.13	21.11	21.17
			25	24	22.50	21.14	21.14	21.12
			50	0	21.50	21.12	21.13	21.16
		16QAM	1	0	21.50	20.97	21.22	21.22
			1	24	21.50	21.24	21.42	21.27
			1	49	21.50	21.26	21.32	21.04
			25	0	21.50	20.02	20.14	20.15
			25	12	21.50	20.06	20.12	20.10
			25	24	21.50	20.10	20.12	20.00
			50	0	20.50	20.06	20.12	20.09

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		38725/2307.5	38750/2310	38775/2312.5
LTE Band 40A	5MHz	QPSK	1	0	24.50	24.41	24.25	24.20
			1	12	24.50	24.38	24.28	24.22
			1	24	24.50	24.24	24.14	24.19
			12	0	23.50	23.39	23.35	23.33
			12	6	23.50	23.44	23.37	23.32
			12	11	23.50	23.36	23.29	23.23
			25	0	23.50	23.31	23.27	23.22
		16QAM	1	0	23.50	23.39	23.35	23.27
			1	12	23.50	23.41	23.37	23.31
			1	24	23.50	23.28	23.23	23.18
			12	0	22.50	22.33	22.29	22.25
			12	6	22.50	22.36	22.30	22.25

			12	11	22.50	22.29	22.23	22.17
			25	0	22.50	22.31	22.25	22.20
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		/	38750/2310	/
LTE Band 40A	10MHz	QPSK	1	0	24.50	/	24.45	/
			1	24	24.50	/	24.38	/
			1	49	24.50	/	24.20	/
			25	0	24.00	/	23.38	/
			25	12	24.00	/	23.39	/
			25	24	24.00	/	23.27	/
			50	0	23.50	/	23.42	/
		16QAM	1	0	24.00	/	23.60	/
			1	24	24.00	/	23.48	/
			1	49	24.00	/	23.20	/
			25	0	22.50	/	22.35	/
			25	12	22.50	/	22.35	/
			25	24	22.50	/	22.25	/
			50	0	22.50	/	22.38	/

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39175/2352.5	39200/2355	39225/2537.5
LTE Band 40B	5MHz	QPSK	1	0	23.50	23.01	23.03	23.07
			1	12	23.50	23.11	23.14	23.18
			1	24	23.50	23.04	23.07	23.11
			12	0	22.50	22.06	22.09	22.11
			12	6	22.50	22.13	22.10	22.18
			12	11	22.50	22.14	22.12	22.16
			25	0	22.50	22.08	22.15	22.10
		16QAM	1	0	22.50	22.14	22.18	22.23
			1	12	22.50	22.26	22.30	22.34
			1	24	22.50	22.19	22.23	22.27
			12	0	21.50	21.03	21.02	21.07
			12	6	21.50	21.09	21.13	21.17
			12	11	21.50	21.02	21.11	21.14
			25	0	21.50	21.09	21.09	21.13
Band	Band	Modulation	RB		Tune-up	Channel/Frequency(MHz)		

	Width		Configuration		(dBm)			
			RB Size	RB Offset		/	39200/2355	/
LTE Band 40B	10MHz	QPSK	1	0	23.50	/	23.15	/
			1	24	23.50	/	23.26	/
			1	49	23.50	/	23.20	/
			25	0	22.50	/	22.14	/
			25	12	22.50	/	22.19	/
			25	24	22.50	/	22.36	/
			50	0	22.50	/	22.25	/
		16QAM	1	0	22.50	/	22.30	/
			1	24	22.50	/	22.42	/
			1	49	22.50	/	22.34	/
			25	0	21.50	/	21.13	/
			25	12	21.50	/	21.20	/
			25	24	21.50	/	21.23	/
			50	0	21.50	/	21.13	/

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40265/2593.5	40740/2605	41215/2652.5
LTE Band 41	5MHz	QPSK	1	0	26.00	25.43	25.24	24.99
			1	12	26.00	25.50	25.34	24.91
			1	24	26.00	25.37	25.23	24.85
			12	0	25.00	24.55	24.46	24.00
			12	6	25.00	24.60	24.47	24.98
			12	11	25.00	24.56	24.42	24.91
			25	0	24.50	24.48	24.38	22.89
		16QAM	1	0	24.50	24.37	24.25	22.92
			1	12	24.50	24.40	24.37	22.83
			1	24	24.50	24.27	24.28	22.77
			12	0	23.50	23.38	23.36	22.82
			12	6	23.50	23.43	23.38	22.80
			12	11	23.50	23.38	23.31	22.73
			25	0	23.50	23.36	23.35	22.73
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40290/2560	40740/2605	41190/2650

LTE Band 41	10MHz	QPSK	1	0	26.00	25.47	25.30	25.29
			1	24	26.00	25.51	25.48	25.98
			1	49	26.00	25.31	25.30	25.85
			25	0	25.00	24.50	24.50	24.19
			25	12	25.00	24.52	24.49	24.08
			25	24	25.00	24.49	24.41	24.97
			50	0	25.00	24.58	24.54	23.05
		16QAM	1	0	26.00	24.47	24.34	25.19
			1	24	26.00	24.49	24.50	25.92
			1	49	26.00	24.30	24.35	25.79
			25	0	23.50	23.39	23.45	23.04
			25	12	23.50	23.40	23.41	22.93
			25	24	23.50	23.37	23.38	22.81
			50	0	23.50	23.45	23.49	22.88

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40315/2562.5	40740/2605	41165/2647.5
LTE Band 41	15MHz	QPSK	1	0	26.00	25.42	25.23	25.68
			1	37	26.00	25.36	25.36	25.11
			1	74	26.00	25.26	25.19	25.90
			36	0	25.00	24.48	24.48	23.50
			36	18	25.00	24.49	24.49	23.26
			36	37	25.00	24.46	24.39	23.09
			75	0	24.50	24.47	24.41	23.20
		16QAM	1	0	24.50	24.38	24.25	23.54
			1	37	24.50	24.33	24.38	23.04
			1	74	24.50	24.21	24.18	22.83
			36	0	23.50	23.32	23.36	23.30
			36	18	23.50	23.32	23.37	23.05
			36	37	23.50	23.30	23.27	22.91
			75	0	23.50	23.33	23.34	23.02

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40340/2565	40740/2605	41140/2645
LTE Band 41	20MHz	QPSK	1	0	26.00	25.26	25.05	24.11
			1	49	26.00	25.47	25.45	25.25
			1	99	26.00	25.17	24.98	24.85
			50	0	25.00	24.51	24.57	23.79

			50	24	25.00	24.58	24.51	23.41
			50	49	25.00	24.57	24.36	23.13
			100	0	25.00	24.54	24.49	23.41
		16QAM	1	0	24.50	24.25	24.10	23.96
			1	49	24.50	24.43	24.47	23.17
			1	99	24.50	24.14	24.01	22.79
			50	0	24.00	23.35	23.47	23.60
			50	24	24.00	23.43	23.45	23.22
			50	49	24.00	23.38	23.29	22.96
			100	0	23.50	23.40	23.40	23.23

7.4. WLAN & Bluetooth Output Power

7.4.1. Output Power Results Of WLAN

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11b	1	2412	17.00	16.03
	6	2437	17.00	16.60
	11	2462	17.00	15.97
802.11g	1	2412	14.00	13.53
	6	2437	14.00	13.93
	11	2462	14.00	13.30
802.11n HT20	1	2412	13.00	12.42
	6	2437	13.00	12.93
	11	2462	13.00	12.21
802.11n HT40	3	2422	13.00	12.65
	6	2437	13.00	12.73
	9	2452	13.00	12.48

NOTE: Power measurement results of WLAN 2.4G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	36	5180	11.50	11.16
	40	5200	11.50	11.07
	48	5240	11.50	10.85
802.11n HT20	36	5180	11.00	10.50
	40	5200	11.00	10.48
	48	5240	11.00	10.56
802.11n HT40	38	5190	10.50	10.37

	46	5230	10.50	10.47
802.11ac VHT20	36	5180	11.00	10.47
	40	5200	11.00	10.52
	48	5240	11.00	10.49
802.11ac VHT40	38	5190	10.50	10.47
	46	5230	10.50	10.40
802.11ac VHT80	42	5210	10.50	10.48

NOTE: Power measurement results of WLAN 5.2G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	52	5260	11.00	10.88
	56	5280	11.00	10.61
	64	5320	11.00	10.16
802.11n HT20	52	5260	11.00	10.70
	56	5280	11.00	10.44
	64	5320	11.00	10.05
802.11n HT40	54	5270	11.00	10.51
	62	5310	11.00	9.99
802.11ac VHT20	52	5260	11.00	10.70
	56	5280	11.00	10.47
	64	5320	11.00	9.99
802.11ac VHT40	54	5270	10.50	10.45
	62	5310	10.50	10.09
802.11ac VHT80	58	5290	10.50	10.28

NOTE: Power measurement results of WLAN 5.3G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	100	5500	12.00	11.14
	120	5600	12.00	11.62
	140	5700	12.00	10.99
802.11n	100	5500	12.00	11.10
	120	5600	12.00	11.55
	140	5700	12.00	10.77
802.11n	102	5510	11.00	10.21
	118	5590	11.00	10.49
	134	5670	11.00	10.88
802.11ac (VHT20)	100	5500	11.50	11.25

	120	5600	11.50	11.46
	140	5700	11.50	9.95
802.11ac (VHT40)	102	5510	11.00	10.33
	118	5590	11.00	10.55
	134	5670	11.00	10.24
802.11ac (VHT80)	106	5530	10.50	10.25
	122	5610	10.50	10.48

NOTE: Power measurement results of WLAN 5.6G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	149	5745	11.50	10.98
	157	5785	11.50	11.00
	165	5825	11.50	10.30
802.11n HT20	149	5745	11.00	10.74
	157	5785	11.00	10.84
	165	5825	11.00	10.09
802.11n HT40	151	5755	11.00	10.76
	159	5795	11.00	10.79
802.11ac VHT20	149	5745	11.00	10.84
	157	5785	11.00	10.85
	165	5825	11.00	10.18
802.11ac VHT40	151	5755	11.00	10.88
	159	5795	11.00	10.83
802.11ac VHT80	155	5775	10.50	10.37

NOTE: Power measurement results of WLAN 5.8G.

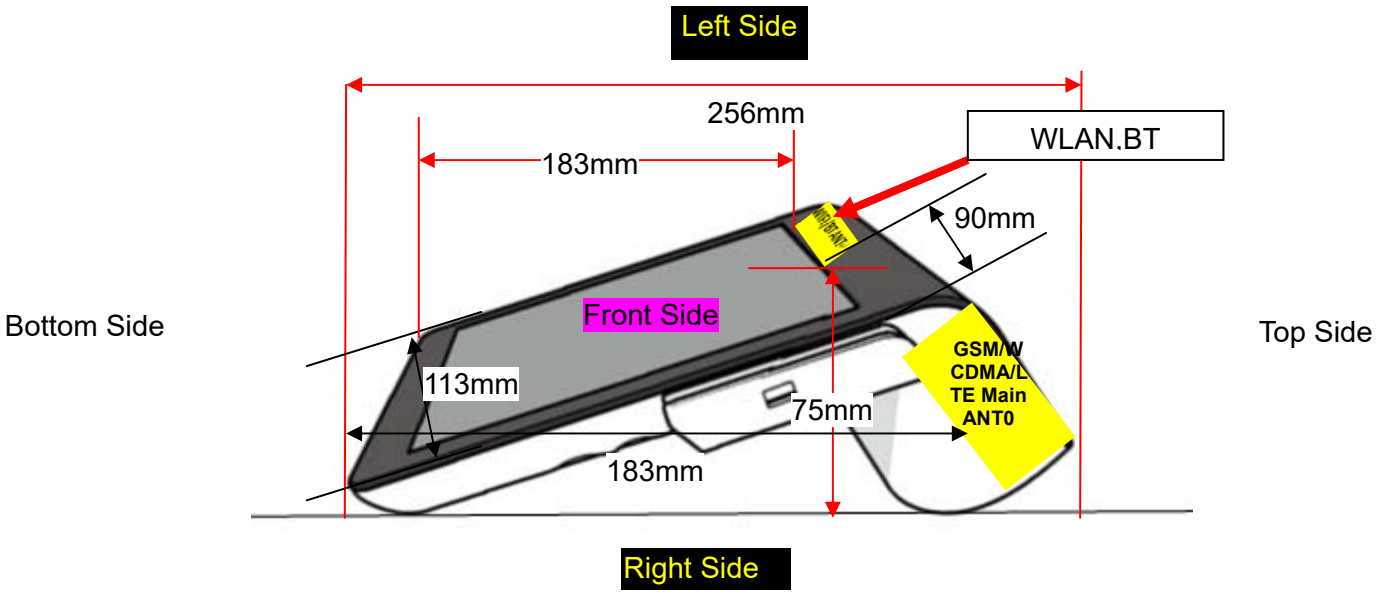
7.4.2. Output Power Results Of Bluetooth

	Output Power (dBm)				
BR+EDR	Data Rates	Tune-up (dBm)	Channel		
			0CH	39CH	78CH
	1M	4.00	3.34	3.92	2.86
	2M	4.00	2.58	3.12	2.70
	3M	4.00	2.61	3.12	2.76

BLE	Channel	Tune-up (dBm)	Output Power (dBm)

			1M	2M
	0CH	-5.00	-5.38	-5.38
	19CH	-5.00	-5.29	-5.30
	39CH	-5.00	-6.66	-6.62

8. Antenna Location



Right View

Note: Since the confidentiality request of EUT，the antenna location example diagram see as above.

Distance of the Antenna to the EUT surface/edge						
Antennas	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
WLAN / BT	5	75	5	90	5	183
GSM / WCDMA / LTE Main	15	5	113	5	5	183

Note: When the minimum separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Positions for SAR tests		
Test separation distances ≤ 50 mm		
Exposure Positions	Tune-up Maximum power of WLAN 2.4G	
	17.00 dBm	50.12 mW
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	10
	SAR testing required?	YES
Left Side	Antenna to user(mm)	5
	SAR exclusion threshold	10
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	10
	SAR testing required?	YES

Exposure Positions	Tune-up Maximum power of WLAN 5.2G	
	11.50 dBm	14.13 mW
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	7
	SAR testing required?	YES
Left Side	Antenna to user(mm)	5
	SAR exclusion threshold	7
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	7
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WLAN 5.3G	
	11.00 dBm	12.59 mW
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	6
	SAR testing required?	YES
Left Side	Antenna to user(mm)	5
	SAR exclusion threshold	6
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	6
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WLAN 5.6G	
	12.00 dBm	15.85 mW
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	6
	SAR testing required?	YES
Left Side	Antenna to user(mm)	5
	SAR exclusion threshold	6
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	6
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WLAN 5.8G	
	11.50 dBm	14.13 mW
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	6
	SAR testing required?	YES
Left Side	Antenna to user(mm)	5
	SAR exclusion threshold	6
	SAR testing required?	YES

Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	6
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of GSM 850	
	24.47dBm	279.90 mW
Front Side	Antenna to user(mm)	15
	SAR exclusion threshold	49
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	16
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	16
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	16
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WCDMA Band 5	
	22.50 dBm	177.83 mW
Front Side	Antenna to user(mm)	15
	SAR exclusion threshold	49
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	16
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	16
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	16
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band 5	
	22.50 dBm	177.83 mW
Front Side	Antenna to user(mm)	15
	SAR exclusion threshold	49
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	16
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	16

	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	16
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band 40A	
	24.50 dBm	281.84 mW
Front Side	Antenna to user(mm)	15
	SAR exclusion threshold	29
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	10
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	10
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	10
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band 40B	
	23.50 dBm	223.87 mW
Front Side	Antenna to user(mm)	15
	SAR exclusion threshold	29
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	10
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	10
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	10
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band 41	
	26.00 dBm	398.11 mW
Front Side	Antenna to user(mm)	15
	SAR exclusion threshold	24
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	8
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5

	SAR exclusion threshold	8
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	8
	SAR testing required?	YES

NOTE: Refer to section 4.3.1 of KDB 447498 D01.

Positions for SAR tests		
Test separation distances > 50 mm		
Exposure Positions	Tune-up Maximum power of WLAN 2.4G	
	17.00 dBm	50.12 mW
Back Side	Antenna to user(mm)	75
	SAR exclusion threshold(mW)	296
	SAR testing required?	NO
Right Side	Antenna to user(mm)	90
	SAR exclusion threshold(mW)	496
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	1396
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.2G	
	11.50 dBm	14.13 mW
Back Side	Antenna to user(mm)	75
	SAR exclusion threshold(mW)	266
	SAR testing required?	NO
Right Side	Antenna to user(mm)	90
	SAR exclusion threshold(mW)	466
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	1366
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.3G	
	11.00 dBm	12.59 mW
Back Side	Antenna to user(mm)	75
	SAR exclusion threshold(mW)	265
	SAR testing required?	NO
Right Side	Antenna to user(mm)	90
	SAR exclusion threshold(mW)	465
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	1365

	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.6G	
	12.00 dBm	15.85 mW
Back Side	Antenna to user(mm)	75
	SAR exclusion threshold(mW)	265
	SAR testing required?	NO
Right Side	Antenna to user(mm)	90
	SAR exclusion threshold(mW)	465
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	1365
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.8G	
	11.50 dBm	14.13 mW
Back Side	Antenna to user(mm)	75
	SAR exclusion threshold(mW)	262
	SAR testing required?	NO
Right Side	Antenna to user(mm)	90
	SAR exclusion threshold(mW)	462
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	1362
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of GSM 850	
	24.47dBm	279.90 mW
Left Side	Antenna to user(mm)	113
	SAR exclusion threshold(mW)	498
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	888
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WCDMA Band 5	
	22.50 dBm	177.83 mW
Left Side	Antenna to user(mm)	113
	SAR exclusion threshold(mW)	498
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	888
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 5	
	22.50 dBm	177.83 mW

Left Side	Antenna to user(mm)	113
	SAR exclusion threshold(mW)	498
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	888
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 40A	
	24.50 dBm	281.84 mW
Left Side	Antenna to user(mm)	113
	SAR exclusion threshold(mW)	696
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	1396
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 40B	
	23.50 dBm	223.87 mW
Left Side	Antenna to user(mm)	113
	SAR exclusion threshold(mW)	696
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	1396
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 41	
	26.00 dBm	398.11 mW
Left Side	Antenna to user(mm)	113
	SAR exclusion threshold(mW)	679
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	183
	SAR exclusion threshold(mW)	1379
	SAR testing required?	NO

NOTE: Refer to section 4.3.1 of KDB 447498 D01.

Extremity exposure considerations

Positions for SAR tests		
Test separation distances ≤ 50 mm		
Exposure Positions	Tune-up Maximum power of WLAN 2.4G	
	17.00 dBm	50.12 mW
Back Side	Antenna to user(mm)	30
	SAR exclusion threshold	142.5
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.2G	
	11.50 dBm	14.13 mW

Back Side	Antenna to user(mm)	30
	SAR exclusion threshold	97.5
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.3G	
	11.00 dBm	12.59 mW
Back Side	Antenna to user(mm)	30
	SAR exclusion threshold	97.5
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.6G	
	12.00 dBm	15.85 mW
Back Side	Antenna to user(mm)	30
	SAR exclusion threshold	92.5
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.8G	
	11.50 dBm	14.13 mW
Back Side	Antenna to user(mm)	30
	SAR exclusion threshold	92.5
	SAR testing required?	NO

9. Stand-alone SAR test exclusion

Refer to FCC KDB 447498D01, the 1-g SAR and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[$\sqrt{f_{(GHZ)}}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where:

- $f_{(GHZ)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Mode	P_{max} (dBm)	P_{max} (mW)	Distance (mm)	f (GHz)	Calculation Result	SAR Exclusion threshold	SAR test exclusion
Bluetooth	4.00	2.51	5	2.480	0.79	3	Yes

NOTE: Standalone SAR test exclusion for Bluetooth.

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] * [$\sqrt{f_{(GHZ)}}$/x] W/kg for test separation distances ≤ 50mm, where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Mode	Position	P_{max} (dBm)	P_{max} (mW)	Distance (mm)	f (GHz)	x	Estimated SAR (W/Kg)
Bluetooth	Body	4.00	2.51	5	2.48	7.5	0.105
Bluetooth	Extremity	4.00	2.51	5	2.48	18.75	0.042

NOTE: Estimated SAR calculation for Bluetooth

10. SAR Results

10.1. SAR measurement results

10.1.1. SAR measurement Result of GSM850

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Scaled SAR 10g (W/Kg)	Date	Plot
			1g	10g							
Body & Extremity with 0mm											
Front Side	189/836.4	GSM Voice	0.171	0.101	1.61	32.91	33.50	0.196	0.116	2024/4/08	
Right Side	189/836.4	GSM Voice	0.524	0.316	3.28	32.91	33.50	0.600	0.362	2024/4/08	1#
Back Side	189/836.4	GSM Voice	0.248	0.145	3.89	32.91	33.50	0.284	0.166	2024/4/08	
Top Side	189/836.4	GSM Voice	0.171	0.101	-3.32	32.91	33.50	0.196	0.116	2024/4/08	

10.1.2. SAR measurement Result of WCDMA Band 5

Test Position	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											
Front Side	4182/836.4	RMC12.2K	0.135	0.082	1.43	22.26	22.50	0.143	0.087	2024/4/08	
Right Side	4182/836.4	RMC12.2K	0.448	0.273	-1.41	22.26	22.50	0.473	0.289	2024/4/08	2#
Back Side	4182/836.4	RMC12.2K	0.216	0.128	-0.49	22.26	22.50	0.228	0.135	2024/4/08	

Top Side	4182/836.4	RMC12.2K	0.141	0.086	-1.03	22.26	22.50	0.149	0.091	2024/4/08	

10.1.3. SAR measurement Result of LTE Band 5

Test Position	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											
1RB											
Front Side	20525/836.5	10M QPSK(1,24)	0.135	0.082	-3.72	22.10	22.50	0.148	0.090	2024/4/08	
Right Side	20525/836.5	10M QPSK(1,24)	0.443	0.270	0.20	22.10	22.50	0.486	0.296	2024/4/08	8#
Back Side	20525/836.5	10M QPSK(1,24)	0.092	0.054	-3.38	22.10	22.50	0.101	0.059	2024/4/08	
Top Side	20525/836.5	10M QPSK(1,24)	0.216	0.129	0.59	22.10	22.50	0.237	0.141	2024/4/08	
50%RB											
Front Side	20525/836.5	10M QPSK(25,0)	0.078	0.045	-4.30	21.16	21.50	0.106	0.061	2024/4/08	
Right Side	20525/836.5	10M QPSK(25,0)	0.232	0.137	0.32	21.16	21.50	0.316	0.187	2024/4/08	
Back Side	20525/836.5	10M QPSK(25,0)	0.051	0.028	-4.62	21.16	21.50	0.069	0.038	2024/4/08	
Top Side	20525/836.5	10M QPSK(25,0)	0.125	0.070	-3.84	21.16	21.50	0.170	0.095	2024/4/08	

10.1.4. SAR measurement Result of LTE Band 40A

Test Position	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											
1RB											
Front Side	38750/2310	10M QPSK(1,0)	0.369	0.200	0.23	24.45	24.50	0.373	0.202	2024/3/29	
Right Side	38750/2310	10M QPSK(1,0)	1.185	0.661	4.20	24.45	24.50	1.199	0.669	2024/3/29	9#
Right Side Repeated	38750/2310	10M QPSK(1,0)	1.171	0.658	0.13	24.45	24.50	1.185	0.666	2024/3/29	

Back Side	38750/2310	10M QPSK(1,0)	0.240	0.131	0.30	24.45	24.50	0.243	0.133	2024/3/29	
Top Side	38750/2310	10M QPSK(1,0)	0.554	0.303	-2.52	24.45	24.50	0.560	0.307	2024/3/29	
50%RB											
Front Side	38750/2310	10M QPSK(25,12)	0.200	0.115	3.89	23.39	24.00	0.230	0.132	2024/3/29	
Right Side	38750/2310	10M QPSK(25,12)	0.594	0.346	-4.00	23.39	24.00	0.684	0.398	2024/3/29	
Back Side	38750/2310	10M QPSK(25,12)	0.132	0.072	3.59	23.39	24.00	0.152	0.083	2024/3/29	
Top Side	38750/2310	10M QPSK(25,12)	0.305	0.162	-3.56	23.39	24.00	0.351	0.186	2024/3/29	
100%RB											
Right Side	38750/2310	10M QPSK(50,0)	0.513	0.267	2.73	23.42	23.50	0.523	0.272	2024/3/29	

10.1.5. SAR measurement Result of LTE Band 40B

Test Position	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											
1RB											
Front Side	39200/2355	10M QPSK(1,24)	0.360	0.179	-0.32	23.26	23.50	0.380	0.189	2024/3/29	
Right Side	39200/2355	10M QPSK(1,24)	1.174	0.616	1.31	23.26	23.50	1.241	0.651	2024/3/29	10#
Right Side Repeated	39200/2355	10M QPSK(1,24)	1.166	0.591	0.17	23.26	23.50	1.232	0.625	2024/3/29	
Back Side	39200/2355	10M QPSK(1,24)	0.242	0.126	0.85	23.26	23.50	0.256	0.133	2024/3/29	
Top Side	39200/2355	10M QPSK(1,24)	0.540	0.275	1.58	23.26	23.50	0.571	0.291	2024/3/29	
50%RB											
Front Side	39200/2355	10M QPSK(25,24)	0.190	0.119	3.48	22.36	22.50	0.196	0.123	2024/3/29	
Right Side	39200/2355	10M QPSK(25,24)	0.638	0.371	3.74	22.36	22.50	0.659	0.383	2024/3/29	
Back Side	39200/2355	10M QPSK(25,24)	0.129	0.072	-1.62	22.36	22.50	0.133	0.074	2024/3/29	
Top Side	39200/2355	10M QPSK(25,24)	0.298	0.184	-4.49	22.36	22.50	0.308	0.190	2024/3/29	
100%RB											
Right Side	39200/2355	10M QPSK(50,0)	0.607	0.407	-0.51	22.25	22.50	0.643	0.431	2024/3/29	

10.1.6. SAR measurement Result of LTE Band 41

Test Position	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											
1RB											
Front Side	40740/2605	20M QPSK(1,49)	0.612	0.300	-1.49	25.45	26.00	0.695	0.341	2024/3/25	
Right Side	40740/2605	20M QPSK(1,49)	1.019	0.526	1.72	25.45	26.00	1.157	0.597	2024/3/25	11#
Right Side Repeated	40740/2605	20M QPSK(1,49)	0.987	0.517	0.03	25.45	26.00	1.120	0.587	2024/3/25	
Back Side	40740/2605	20M QPSK(1,49)	0.416	0.210	-1.25	25.45	26.00	0.472	0.238	2024/3/25	
Top Side	40740/2605	20M QPSK(1,49)	0.520	0.260	-2.56	25.45	26.00	0.590	0.295	2024/3/25	
Right Side	40340/2565	20M QPSK(1,49)	0.495	0.245	0.72	25.47	26.00	0.559	0.277	2024/3/25	
Right Side	41140/2645	20M QPSK(1,49)	0.494	0.235	-1.37	25.25	26.00	0.587	0.279	2024/3/25	
50%RB											
Front Side	40740/2605	20M QPSK(50,24)	0.317	0.153	-4.01	24.51	25.00	0.355	0.171	2024/3/25	
Right Side	40740/2605	20M QPSK(50,24)	0.606	0.289	2.48	24.51	25.00	0.678	0.324	2024/3/25	
Back Side	40740/2605	20M QPSK(50,24)	0.243	0.115	-3.17	24.51	25.00	0.272	0.129	2024/3/25	
Top Side	40740/2605	20M QPSK(50,24)	0.310	0.142	-0.07	24.51	25.00	0.347	0.159	2024/3/25	
100%RB											
Right Side	40740/2605	20M QPSK(100,0)	0.510	0.310	0.19	24.49	25.00	0.574	0.349	2024/3/25	

10.1.7. SAR measurement Result of WLAN 2.4G

Test Position	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											
Front Side	6/2437	802.11b	0.068	0.037	-1.10	16.60	17.00	0.075	0.041	2024/4/12	
Left Side	6/2437	802.11b	0.124	0.069	-0.95	16.60	17.00	0.136	0.076	2024/4/12	7#
Top Side	6/2437	802.11b	0.026	0.014	2.47	16.60	17.00	0.029	0.015	2024/4/12	

10.1.8. SAR measurement Result of WLAN 5.2G

Test Position	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											
Front Side	36/5180	802.11a	0.076	0.060	0.67	11.16	11.50	0.082	0.065	2024/3/26	
Left Side	36/5180	802.11a	0.149	0.121	-2.94	11.16	11.50	0.161	0.131	2024/3/26	3#
Top Side	36/5180	802.11a	0.030	0.024	2.48	11.16	11.50	0.032	0.026	2024/3/26	

10.1.9. SAR measurement Result of WLAN 5.3G

Test Position	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											
Front Side	52/5260	802.11a	0.080	0.055	-1.52	10.88	11.00	0.082	0.057	2024/3/26	
Left Side	52/5260	802.11a	0.194	0.136	3.12	10.88	11.00	0.199	0.140	2024/3/26	4#
Top Side	52/5260	802.11a	0.044	0.031	-2.53	10.88	11.00	0.045	0.032	2024/3/26	

10.1.10. SAR measurement Result of WLAN 5.6G

Test Position	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											
Front Side	120/5600	802.11a	0.084	0.063	-1.77	11.62	12.00	0.092	0.069	2024/4/05	
Left Side	120/5600	802.11a	0.162	0.124	-1.69	11.62	12.00	0.177	0.135	2024/4/05	5#
Top Side	120/5600	802.11a	0.038	0.028	3.17	11.62	12.00	0.041	0.031	2024/4/05	

10.1.11. SAR measurement Result of WLAN 5.8G

Test Position	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Scaled SAR 10-g (W/Kg)	Date	Plot
			1-g	10-g							
Body & Extremity with 0mm											

Front Side	157/5785	802.11a	0.080	0.053	1.29	11.00	11.50	0.090	0.059	2024/3/27	
Left Side	157/5785	802.11a	0.179	0.122	2.88	11.00	11.50	0.201	0.137	2024/3/27	6#
Top Side	157/5785	802.11a	0.044	0.030	-2.20	11.00	11.50	0.049	0.034	2024/3/27	

10.2. SAR Summation Scenario

Per KDB 447498 D01, simultaneous transmission SAR is compliant if,

1) Scalar SAR summation < 1.6W/kg.

2) SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (min. separation distance, mm), and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan. If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

Test Position		Scaled SARMAX		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DTS			
Body	Front Side	0.695	0.075	0.770	N/A	N/A
	Back Side	0.472	N/A	0.472	N/A	N/A
	Left Side	N/A	0.136	0.136	N/A	N/A
	Right Side	1.241	N/A	1.241	N/A	N/A
	Top Side	0.590	0.029	0.619	N/A	N/A
	Bottom Side	N/A	N/A	N/A	N/A	N/A

Test Position		Scaled SARMAX		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	NII			
Body	Front Side	0.695	0.092	0.787	N/A	N/A
	Back Side	0.472	N/A	0.472	N/A	N/A
	Left Side	N/A	0.201	0.201	N/A	N/A
	Right Side	1.241	N/A	1.241	N/A	N/A
	Top Side	0.590	0.049	0.639	N/A	N/A
	Bottom Side	N/A	N/A	N/A	N/A	N/A

Test Position		Scaled SARMAX		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DSS			
Body	Front Side	0.695	0.105	0.800	N/A	N/A
	Back Side	0.472	0.105	0.577	N/A	N/A

	Left Side	N/A	0.105	0.105	N/A	N/A
	Right Side	1.241	0.105	1.346	N/A	N/A
	Top Side	0.590	0.105	0.695	N/A	N/A
	Bottom Side	N/A	0.105	0.105	N/A	N/A

Test Position		Scaled SARMAX		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DTS			
Extremity	Front Side	0.341	0.041	0.382	N/A	N/A
	Back Side	0.238	N/A	0.238	N/A	N/A
	Left Side	N/A	0.076	0.076	N/A	N/A
	Right Side	0.669	N/A	0.669	N/A	N/A
	Top Side	0.307	0.015	0.322	N/A	N/A
	Bottom Side	N/A	N/A	N/A	N/A	N/A

Test Position		Scaled SARMAX		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	NII			
Extremity	Front Side	0.341	0.069	0.410	N/A	N/A
	Back Side	0.238	N/A	0.238	N/A	N/A
	Left Side	N/A	0.140	0.140	N/A	N/A
	Right Side	0.669	N/A	0.669	N/A	N/A
	Top Side	0.307	0.034	0.341	N/A	N/A
	Bottom Side	N/A	N/A	N/A	N/A	N/A

Test Position		Scaled SARMAX		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DSS			
Extremity	Front Side	0.341	0.042	0.383	N/A	N/A
	Back Side	0.238	0.042	0.280	N/A	N/A
	Left Side	N/A	0.042	0.042	N/A	N/A
	Right Side	0.669	0.042	0.711	N/A	N/A
	Top Side	0.307	0.042	0.349	N/A	N/A
	Bottom Side	N/A	N/A	N/A	N/A	N/A

11. Appendix A. Photo documentation

Refer to appendix Test Setup photo---SAR

12. Appendix B. System Check Plots

Table of contents
MEASUREMENT 1 System Performance Check - 835MHz
MEASUREMENT 2 System Performance Check - 2300MHz
MEASUREMENT 3 System Performance Check - 2450MHz
MEASUREMENT 4 System Performance Check - 2600MHz
MEASUREMENT 5 System Performance Check - 5200MHz
MEASUREMENT 6 System Performance Check - 5400MHz
MEASUREMENT 7 System Performance Check - 5600MHz
MEASUREMENT 8 System Performance Check - 5800MHz

MEASUREMENT 1

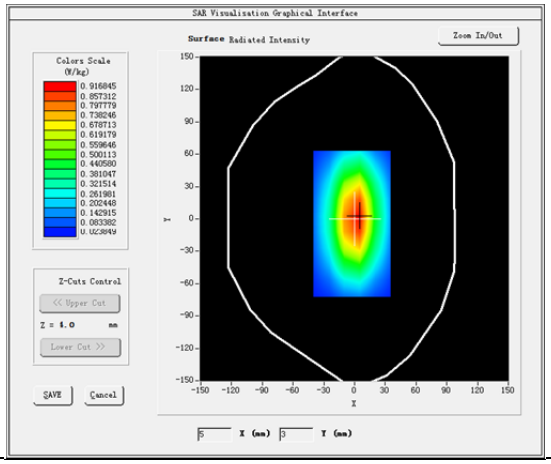
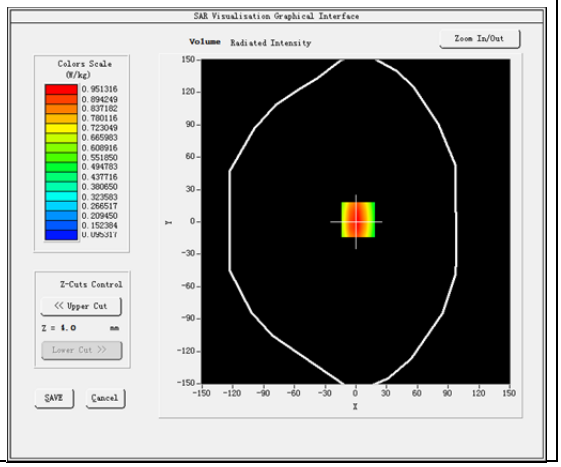
Date of measurement: 8/4/2024

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.32

B. SAR Measurement Results

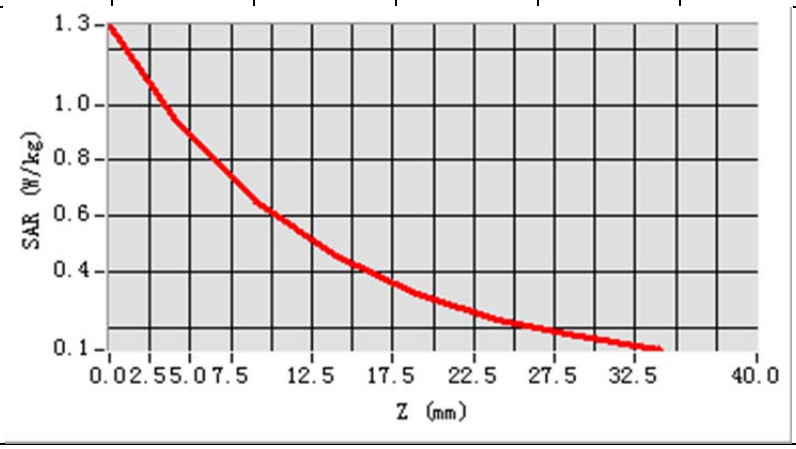
Frequency (MHz)	835.000000
Relative permittivity (real part)	40.997718
Relative permittivity (imaginary part)	19.075080
Conductivity (S/m)	0.884872
Variation (%)	-3.710000

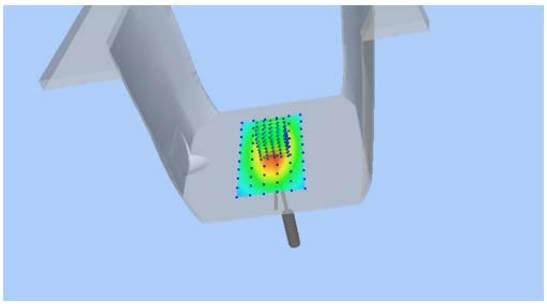
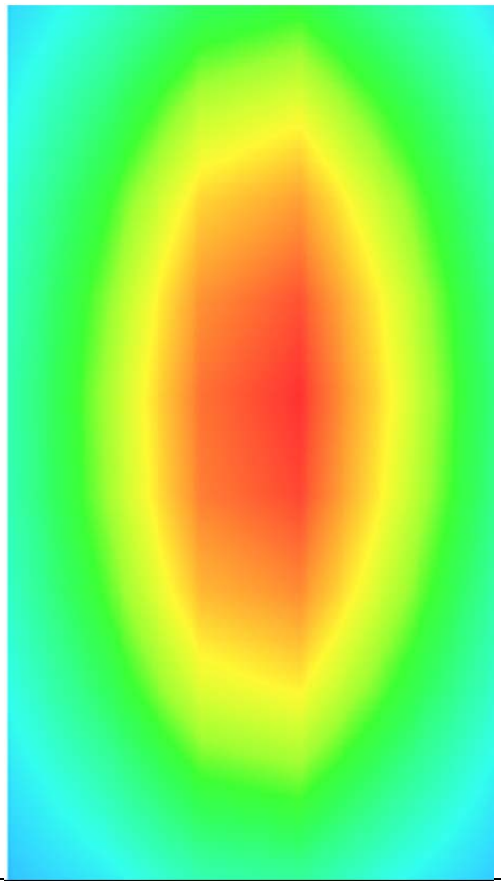
SURFACE SAR	VOLUME SAR
	

Maximum location: X=2.00, Y=2.00
SAR Peak: 1.29 W/kg

SAR 10g (W/Kg)	0.600124
SAR 1g (W/Kg)	0.997164

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.2837	0.9502	0.6508	0.4527	0.3297	0.2346	0.1720



3D screen shot	Hot spot position
	

MEASUREMENT 2

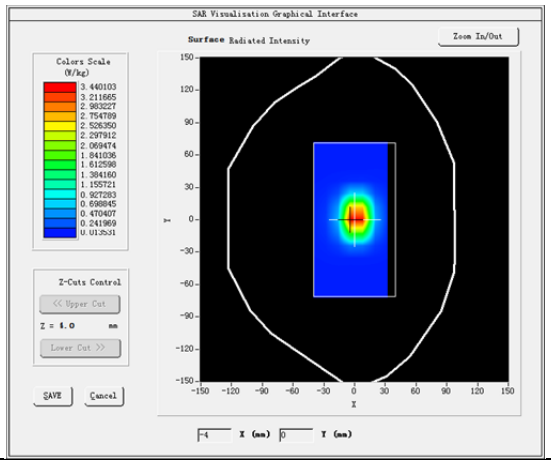
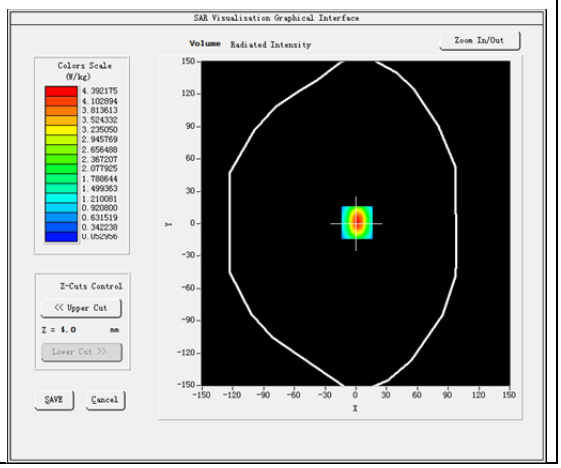
Date of measurement: 29/3/2024

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2300
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.81

B. SAR Measurement Results

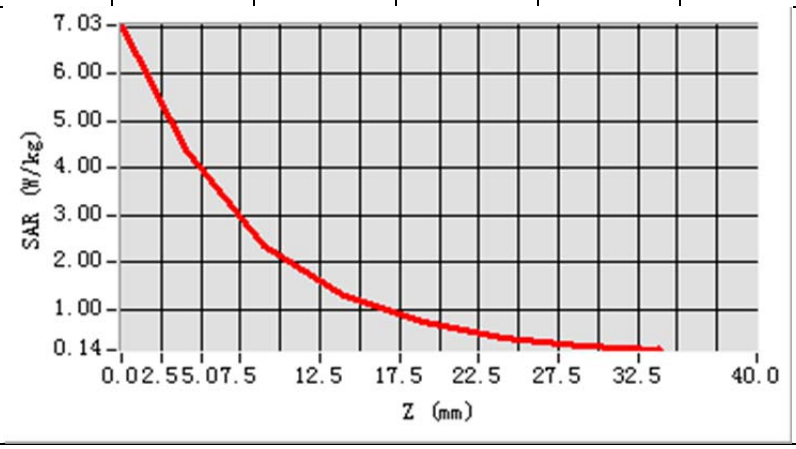
Frequency (MHz)	2300.000000
Relative permittivity (real part)	39.463052
Relative permittivity (imaginary part)	12.542961
Conductivity (S/m)	1.602712
Variation (%)	2.730000

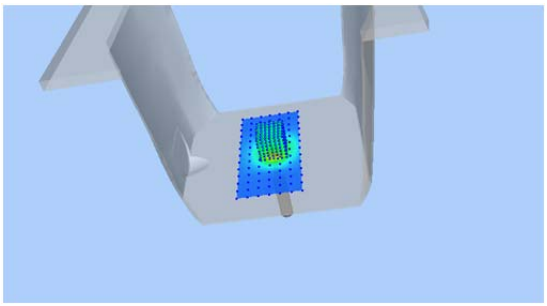
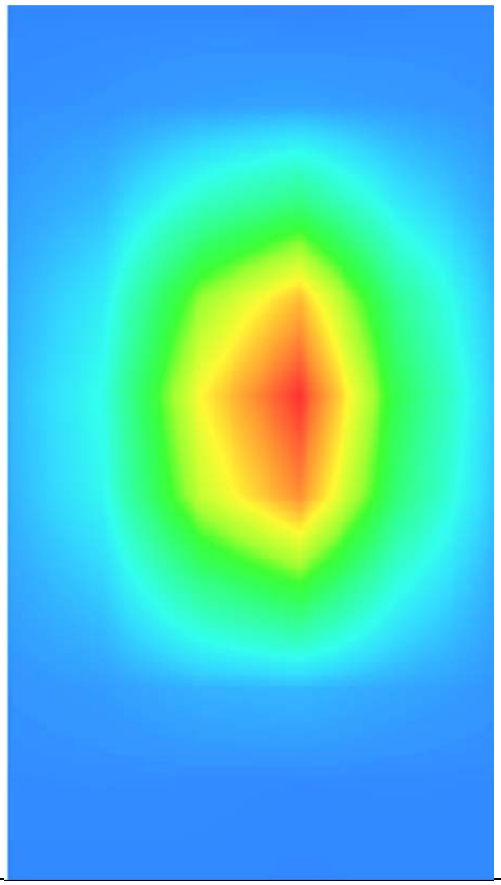
SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=1.00
SAR Peak: 7.04 W/kg

SAR 10g (W/Kg)	2.365328
SAR 1g (W/Kg)	4.609338

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	7.0344	4.3966	2.3690	1.2750	0.7161	0.4044	0.2395



3D screen shot	Hot spot position
	

MEASUREMENT 3

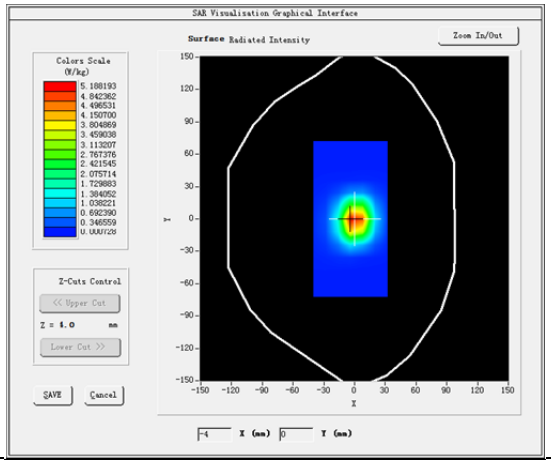
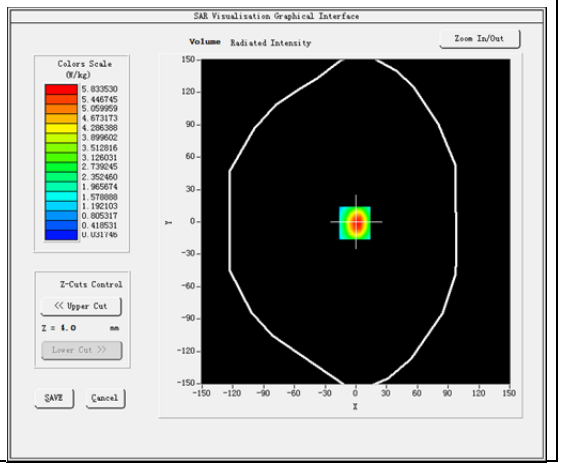
Date of measurement: 12/4/2024

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.85

B. SAR Measurement Results

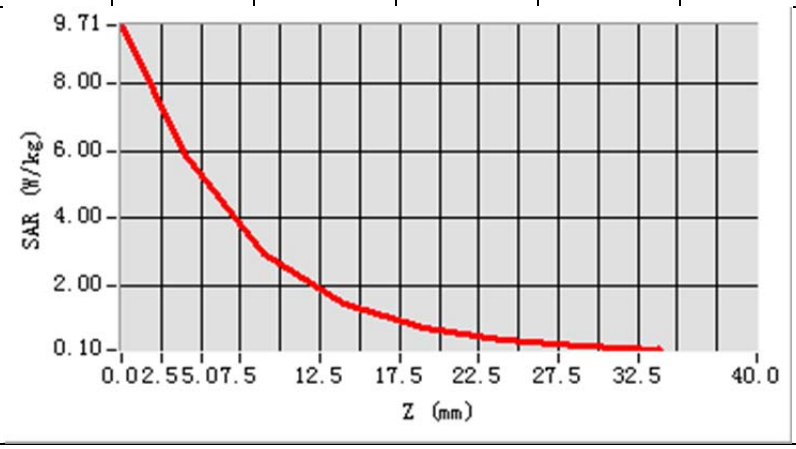
Frequency (MHz)	2450.000000
Relative permittivity (real part)	37.674635
Relative permittivity (imaginary part)	12.895778
Conductivity (S/m)	1.755259
Variation (%)	0.100000

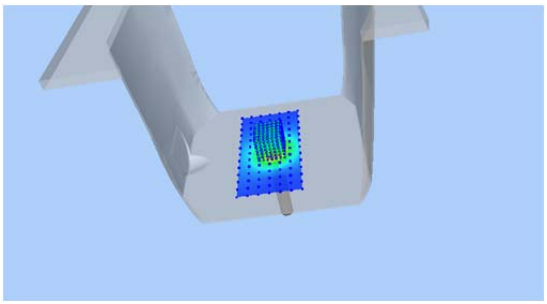
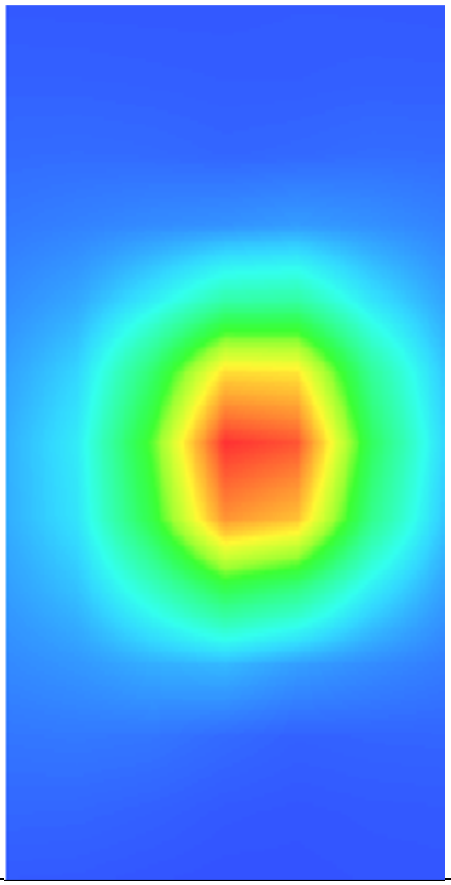
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-1.00, Y=-1.00
SAR Peak: 9.83 W/kg

SAR 10g (W/Kg)	2.389208
SAR 1g (W/Kg)	5.042044

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	9.7128	5.8349	2.9209	1.4682	0.7424	0.3762	0.1991



3D screen shot	Hot spot position
	

MEASUREMENT 4

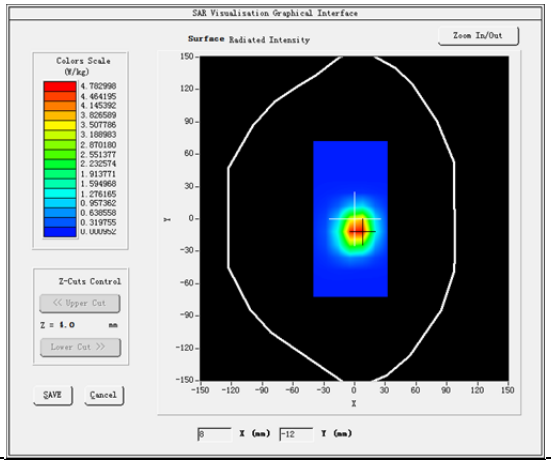
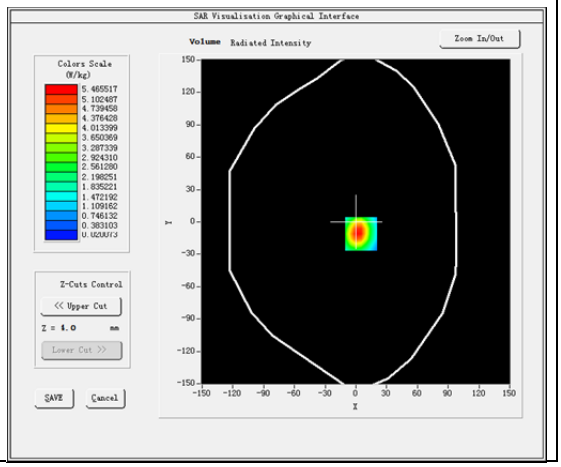
Date of measurement: 25/3/2024

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.65

B. SAR Measurement Results

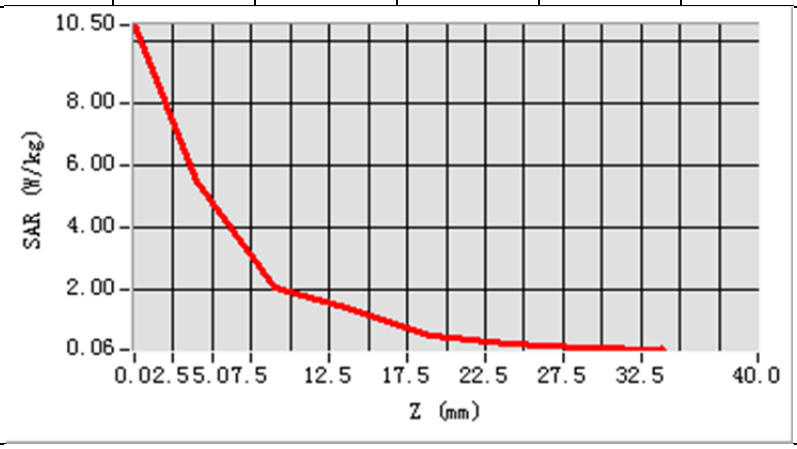
Frequency (MHz)	2600.000000
Relative permittivity (real part)	38.633721
Relative permittivity (imaginary part)	13.441874
Conductivity (S/m)	1.941604
Variation (%)	-3.120000

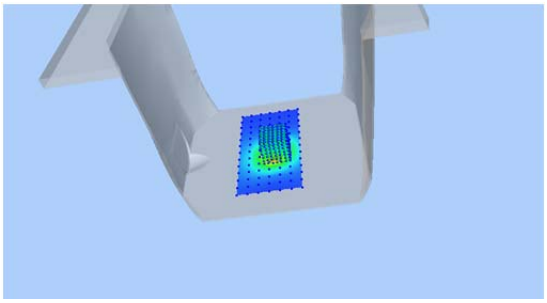
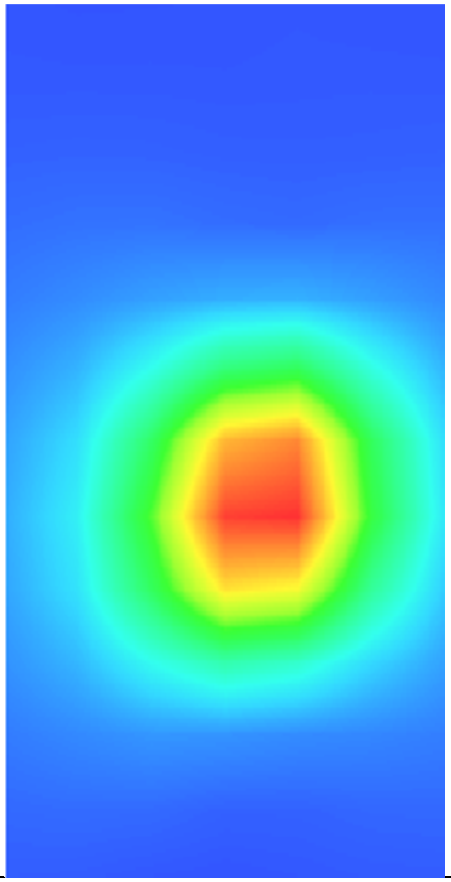
SURFACE SAR	VOLUME SAR
	

Maximum location: X=5.00, Y=-11.00
SAR Peak: 9.43 W/kg

SAR 10g (W/Kg)	2.484285
SAR 1g (W/Kg)	4.984336

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	10.503	5.4609	2.0895	1.3306	0.5073	0.2851	0.1262



3D screen shot	Hot spot position
	

MEASUREMENT 5

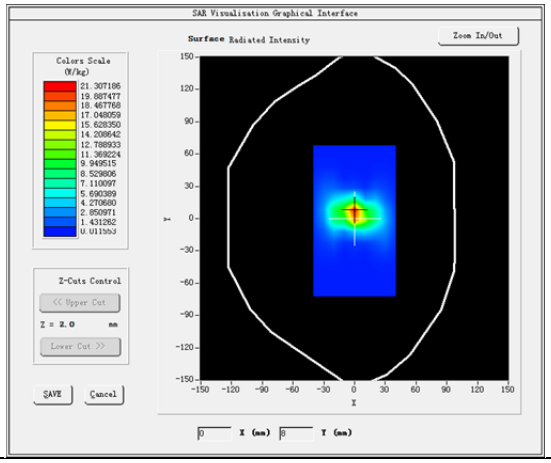
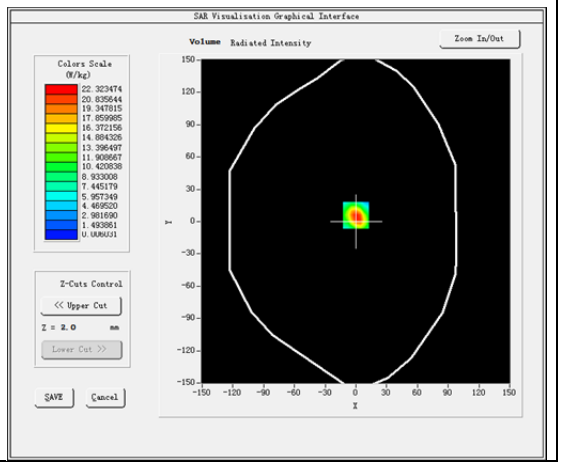
Date of measurement: 26/3/2024

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Dipole
Band	CW5200
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.07

B. SAR Measurement Results

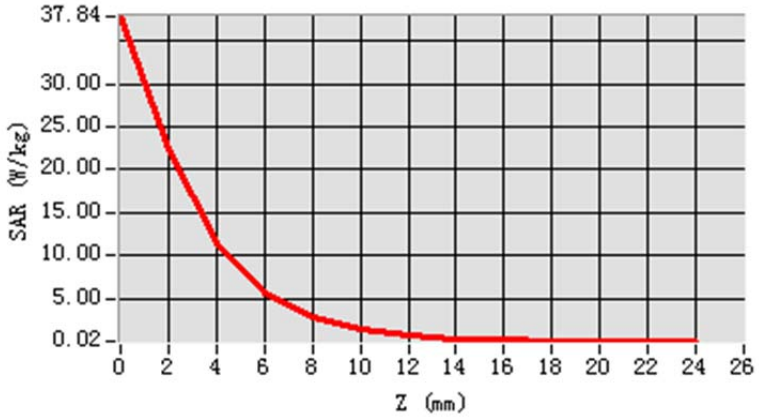
Frequency (MHz)	5200.000000
Relative permittivity (real part)	34.625906
Relative permittivity (imaginary part)	15.608512
Conductivity (S/m)	4.509126
Variation (%)	-2.900000

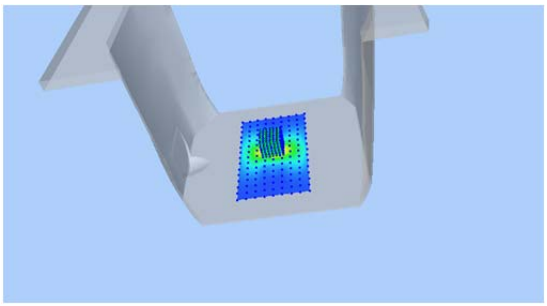
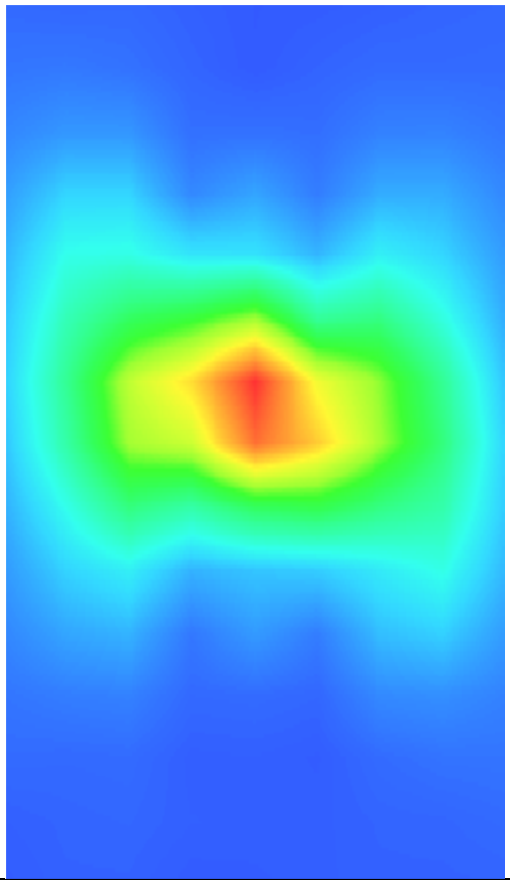
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 40.06 W/kg

SAR 10g (W/Kg)	5.938203
SAR 1g (W/Kg)	14.653152

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	37.877	22.3888	11.3662	5.66645	2.82001	1.40992	0.71185	0.36618	0.18223	0.10004	0.05536	0.03039



3D screen shot	Hot spot position
	

MEASUREMENT 6

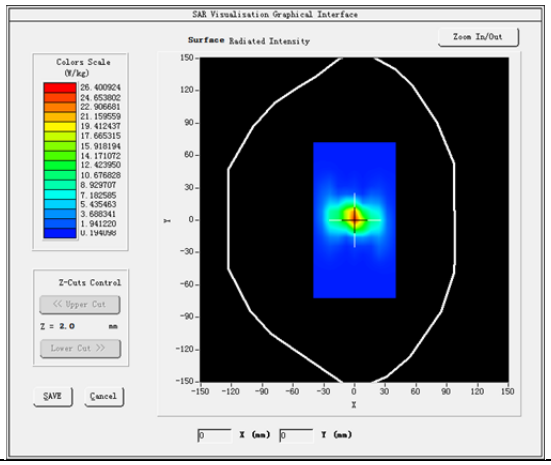
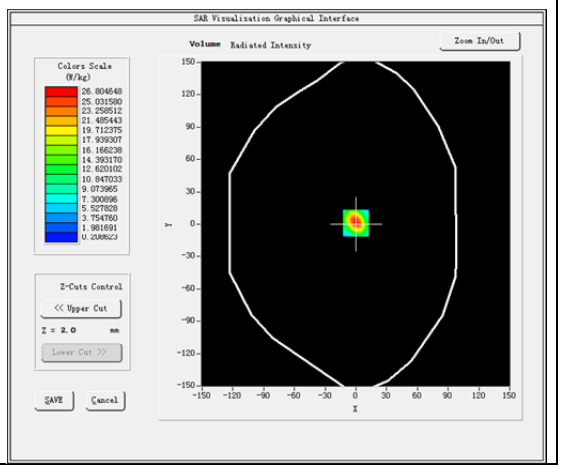
Date of measurement: 6/4/2024

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Dipole
Band	CW5400
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.11

B. SAR Measurement Results

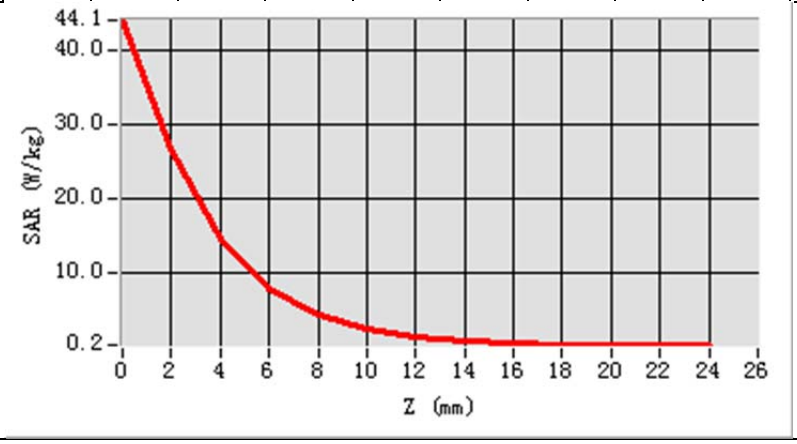
Frequency (MHz)	5400.000000
Relative permittivity (real part)	34.469037
Relative permittivity (imaginary part)	16.130329
Conductivity (S/m)	4.839099
Variation (%)	3.470000

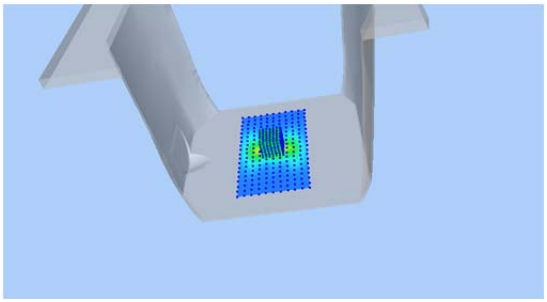
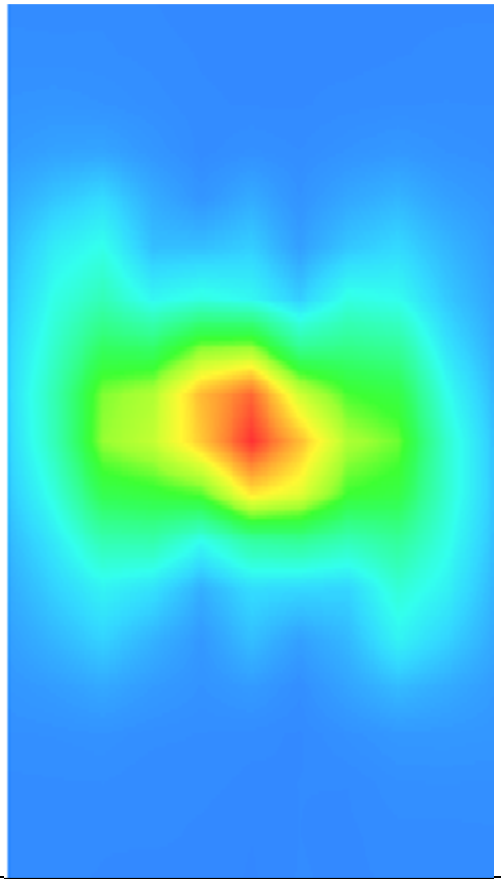
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=1.00
SAR Peak: 46.18 W/kg

SAR 10g (W/Kg)	5.917235
SAR 1g (W/Kg)	14.667084

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	44.042	26.897	14.694	7.8138	4.2200	2.3272	1.3237	0.7823	0.5024	0.3796	0.2884	0.2638



3D screen shot	Hot spot position
	

MEASUREMENT 7

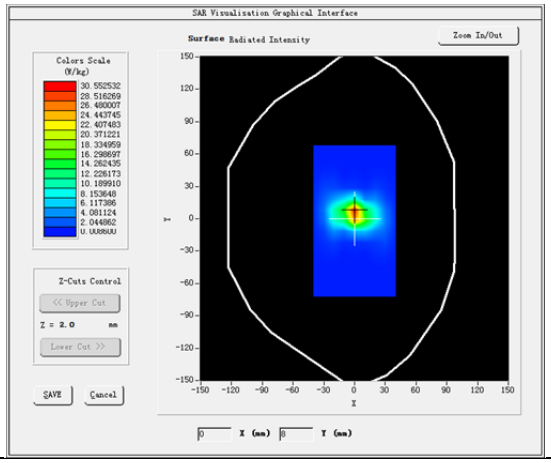
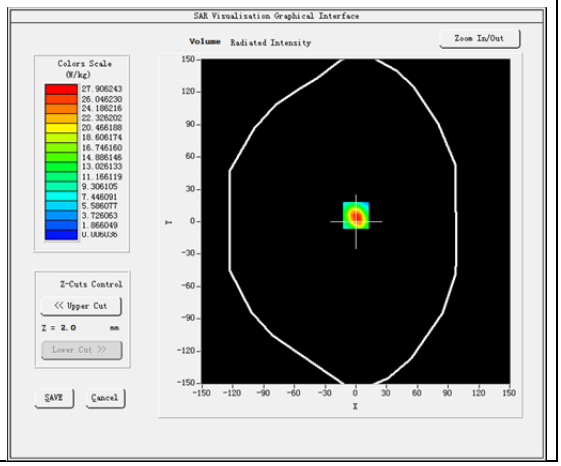
Date of measurement: 5/4/2024

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Dipole
Band	CW5600
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.20

B. SAR Measurement Results

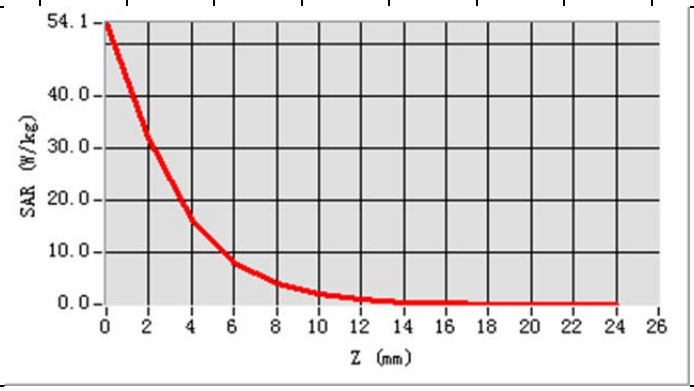
Frequency (MHz)	5600.000000
Relative permittivity (real part)	34.540334
Relative permittivity (imaginary part)	15.947429
Conductivity (S/m)	4.961422
Variation (%)	0.530000

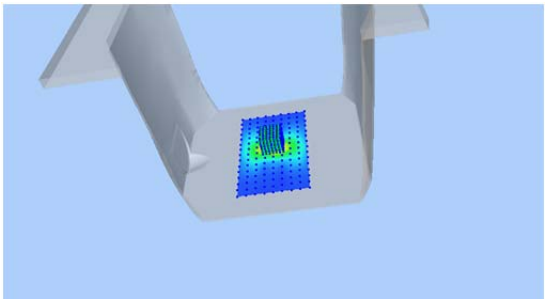
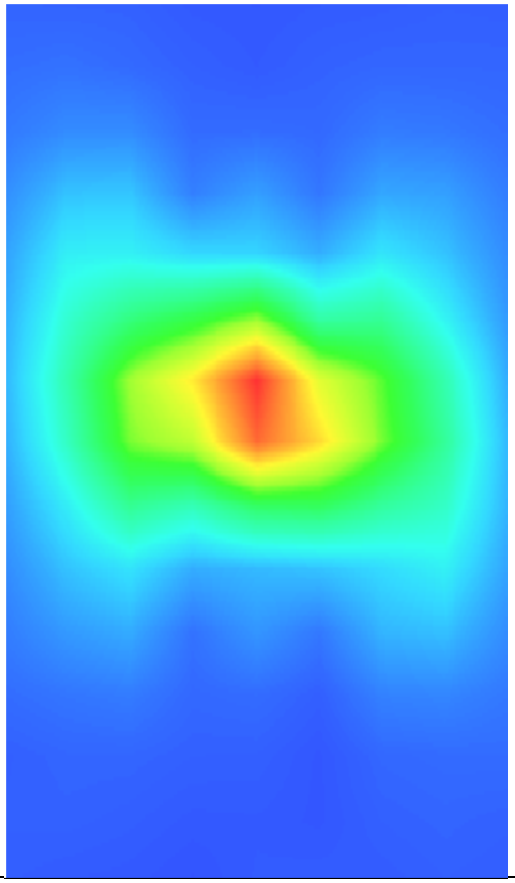
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 51.23 W/kg

SAR 10g (W/Kg)	5.525252
SAR 1g (W/Kg)	17.804044

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	54.111	31.960	16.399	8.1788	4.0893	3.8183	1.0348	0.4686	0.2741	0.1361	0.0703	0.0553



3D screen shot	Hot spot position
	

MEASUREMENT 8

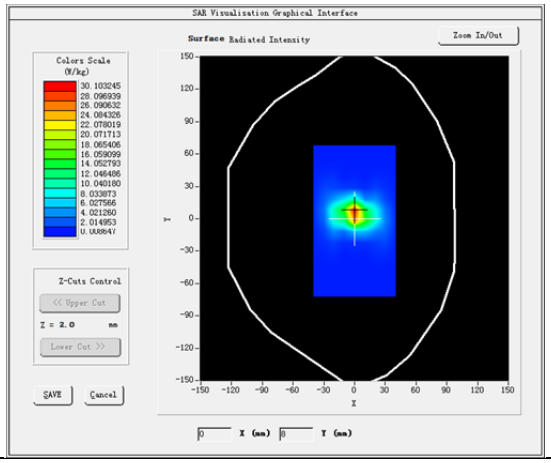
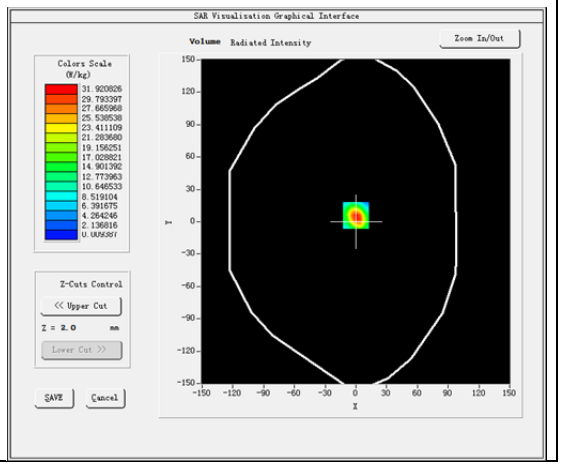
Date of measurement: 27/3/2024

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Dipole
Band	CW5800
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.04

B. SAR Measurement Results

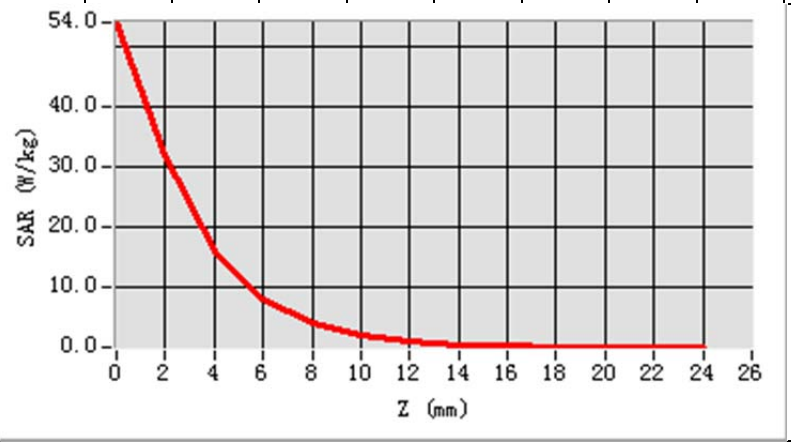
Frequency (MHz)	5800.000000
Relative permittivity (real part)	34.057056
Relative permittivity (imaginary part)	16.132741
Conductivity (S/m)	5.198328
Variation (%)	-1.050000

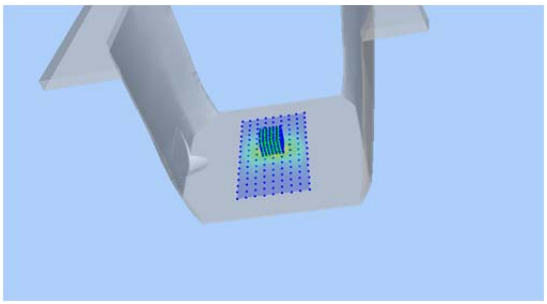
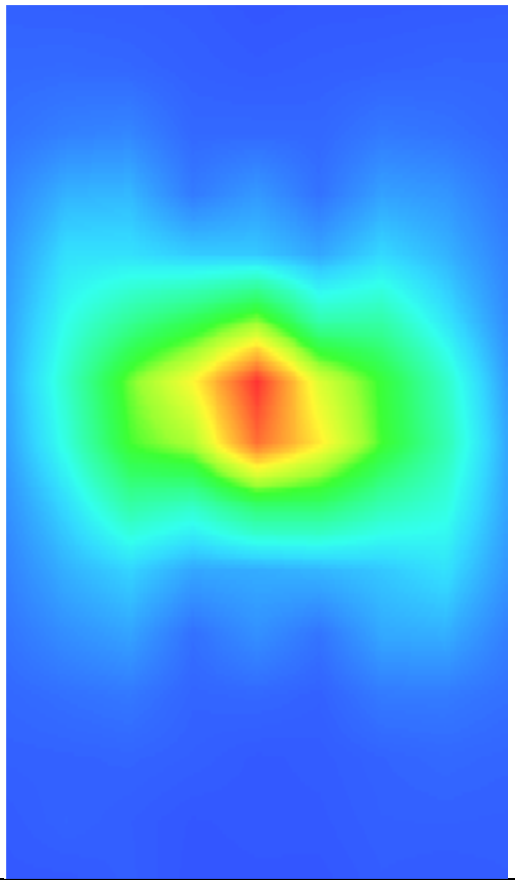
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 57.37 W/kg

SAR 10g (W/Kg)	5.653187
SAR 1g (W/Kg)	17.210321

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	54.093	31.939	16.122	8.1726	4.0859	2.0545	1.0331	0.5108	0.2744	0.1530	0.0795	0.0424



3D screen shot	Hot spot position
	

13. Appendix C. Plots of High SAR Measurement

Table of contents
MEASUREMENT 1 GSM 850 Body
MEASUREMENT 2 WCDMA Band 5 Body
MEASUREMENT 3 WLAN 5.2G Body
MEASUREMENT 4 WLAN 5.3G Body
MEASUREMENT 5 WLAN 5.6G Body
MEASUREMENT 6 WLAN 5.8G Body
MEASUREMENT 7 WLAN 2.4G Body
MEASUREMENT 8 LTE Band 5 Body
MEASUREMENT 9 LTE Band 40A Body
MEASUREMENT 10 LTE Band 40B Body
MEASUREMENT 11 LTE Band 41 Body

MEASUREMENT 1

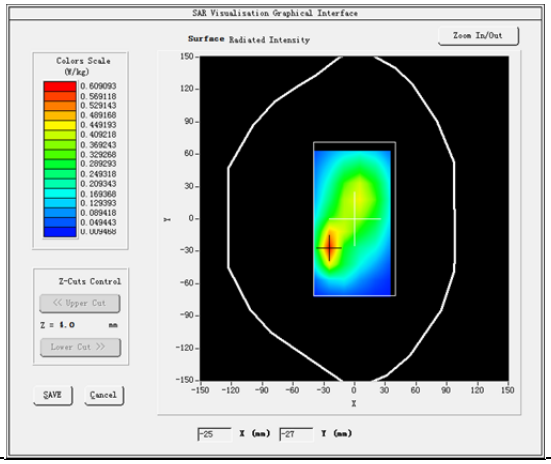
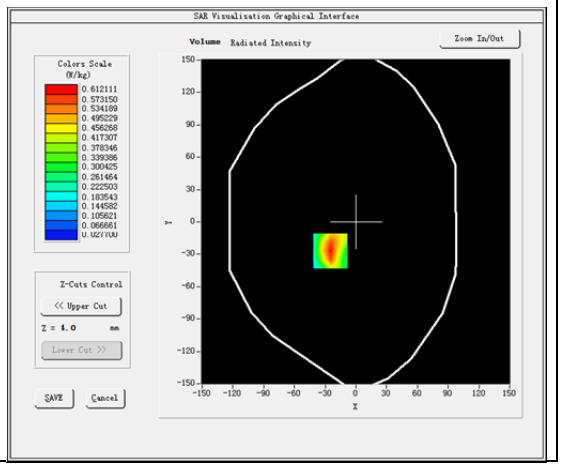
Date of measurement: 8/4/2024

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	TDMA (Crest factor: 4.0)
ConvF	2.32

B. SAR Measurement Results

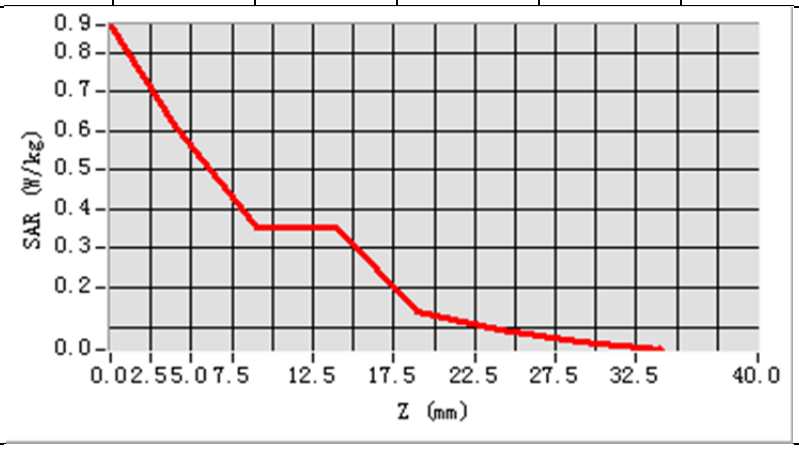
Frequency (MHz)	836.400000
Relative permittivity (real part)	41.006798
Relative permittivity (imaginary part)	19.082279
Conductivity (S/m)	0.886690
Variation (%)	3.280000

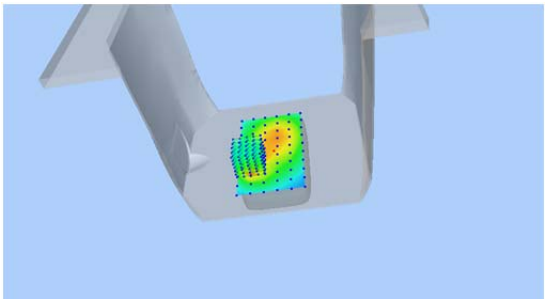
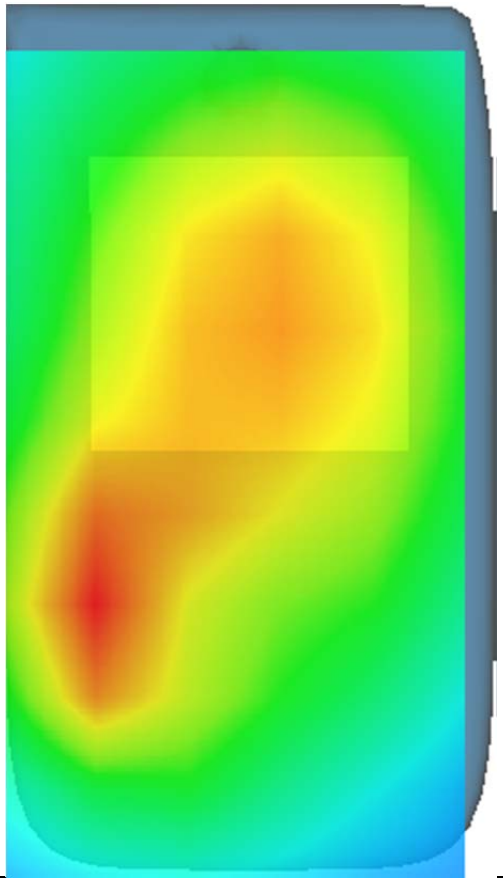
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-25.00, Y=-27.00
SAR Peak: 0.90 W/kg

SAR 10g (W/Kg)	0.315648
SAR 1g (W/Kg)	0.524352

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.8705	0.6121	0.3527	0.3552	0.1370	0.0915	0.0595



3D screen shot	Hot spot position
	

MEASUREMENT 2

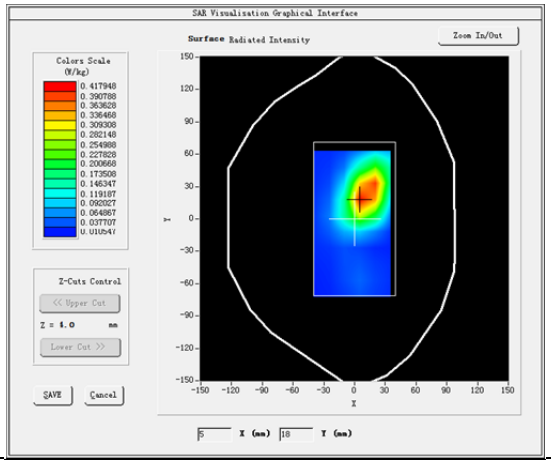
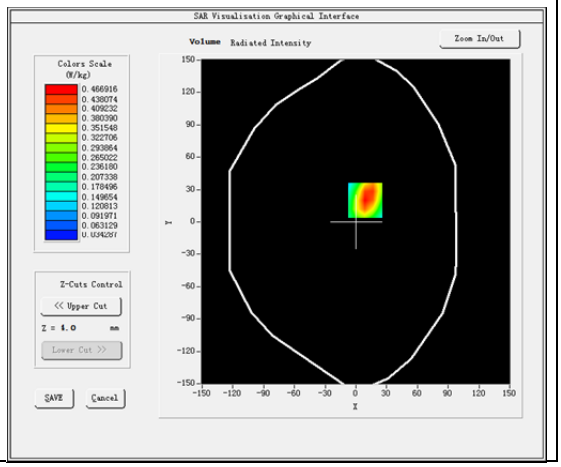
Date of measurement: 8/4/2024

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	Band5_WCDMA850
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)
ConvF	2.32

B. SAR Measurement Results

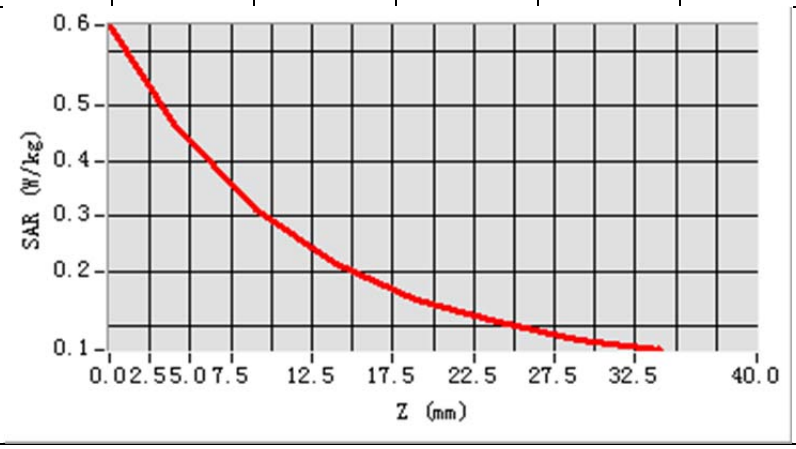
Frequency (MHz)	836.400000
Relative permittivity (real part)	41.006798
Relative permittivity (imaginary part)	19.082279
Conductivity (S/m)	0.886690
Variation (%)	-1.410000

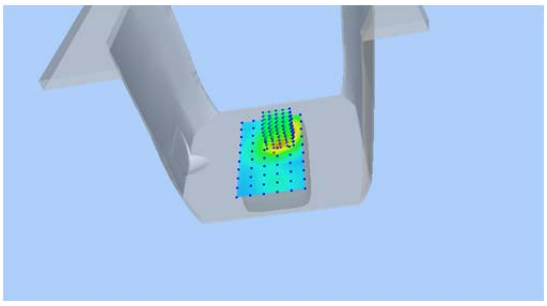
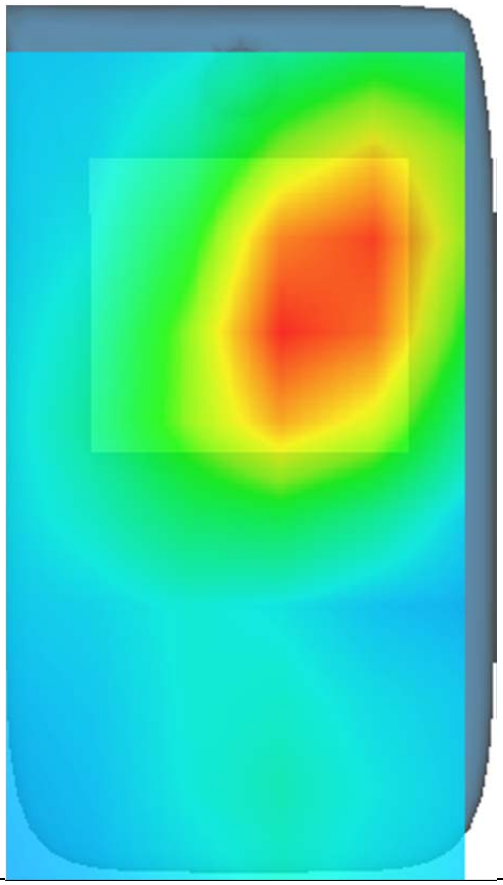
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=9.00, Y=20.00
SAR Peak: 0.67 W/kg

SAR 10g (W/Kg)	0.272845
SAR 1g (W/Kg)	0.447960

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.6470	0.4669	0.3120	0.2152	0.1483	0.1077	0.0765



3D screen shot	Hot spot position
	

MEASUREMENT 3

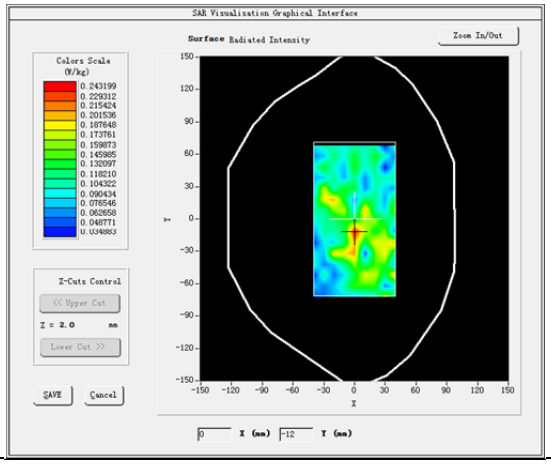
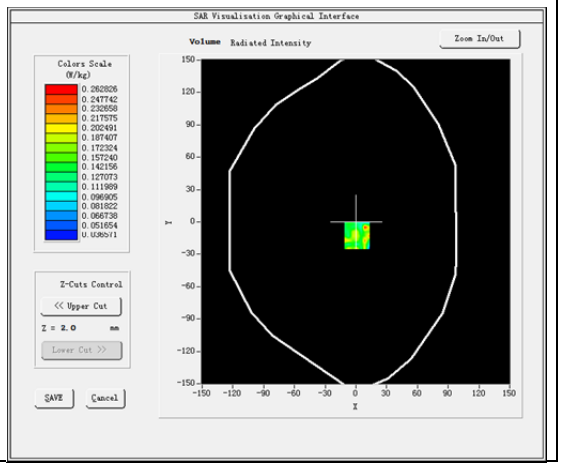
Date of measurement: 26/3/2024

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11a U-NII
Channels	Low
Signal	IEEE802.11a (Crest factor: 1.0)
ConvF	2.07

B. SAR Measurement Results

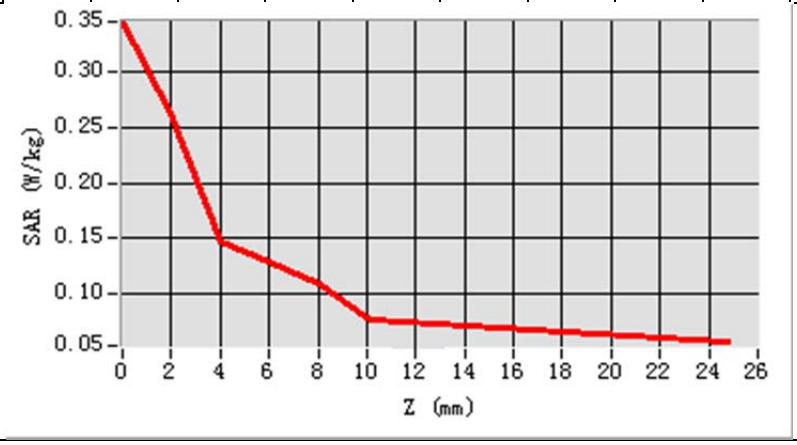
Frequency (MHz)	5180.000000
Relative permittivity (real part)	34.692059
Relative permittivity (imaginary part)	15.620562
Conductivity (S/m)	4.495250
Variation (%)	-2.940000

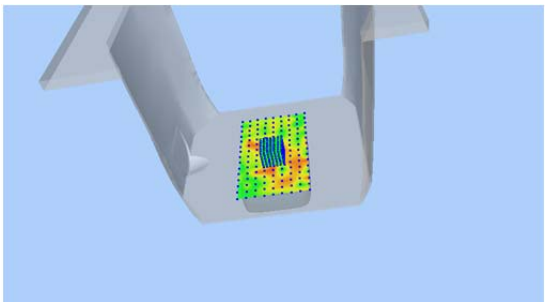
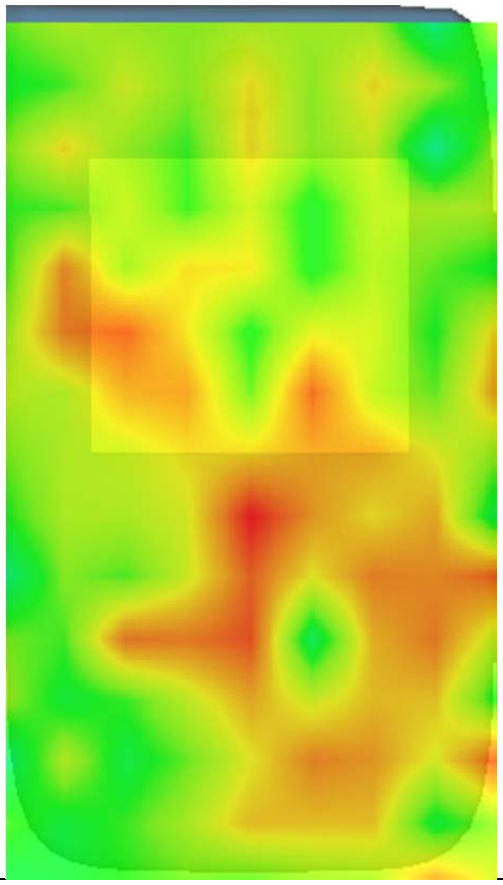
SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=-13.00
SAR Peak: 0.43 W/kg

SAR 10g (W/Kg)	0.121344
SAR 1g (W/Kg)	0.148710

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.3457	0.2628	0.1465	0.1285	0.1085	0.0794	0.0634	0.0549	0.0531	0.0528	0.0525	0.0520



3D screen shot	Hot spot position
	

MEASUREMENT 4

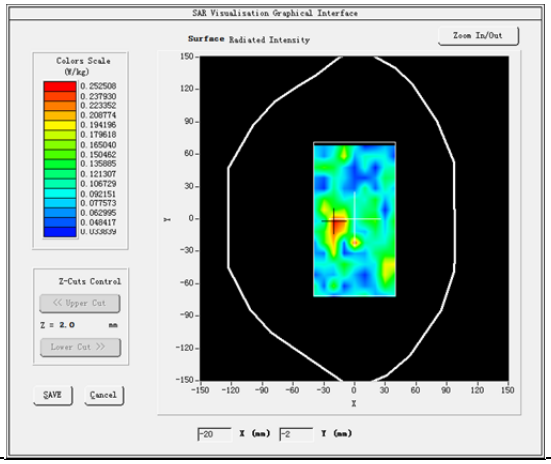
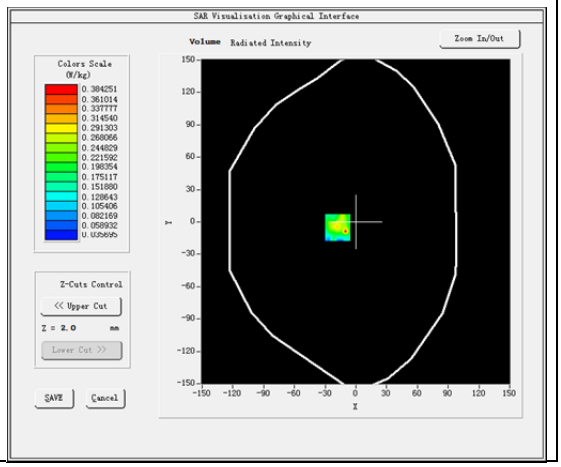
Date of measurement: 26/3/2024

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11a U-NII
Channels	Low
Signal	IEEE802.11a (Crest factor: 1.0)
ConvF	2.07

B. SAR Measurement Results

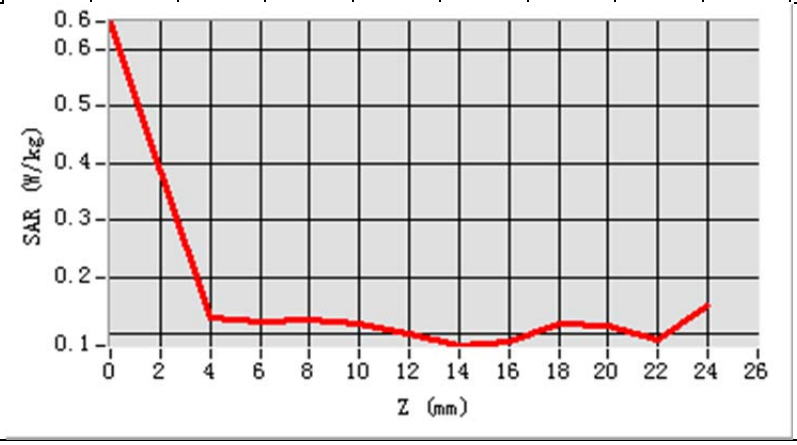
Frequency (MHz)	5260.000000
Relative permittivity (real part)	34.536606
Relative permittivity (imaginary part)	15.754033
Conductivity (S/m)	4.603679
Variation (%)	3.120000

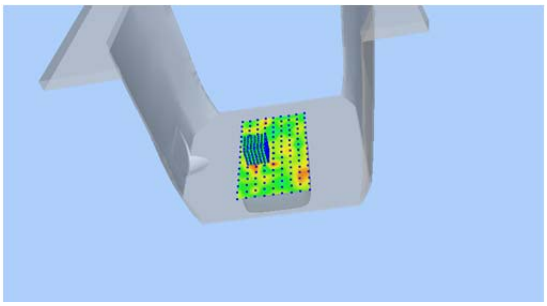
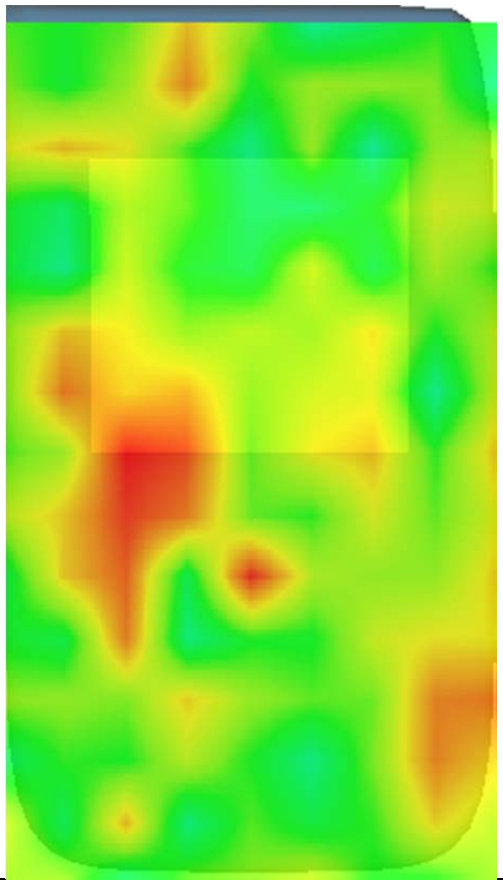
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-18.00, Y=-5.00
SAR Peak: 0.70 W/kg

SAR 10g (W/Kg)	0.135900
SAR 1g (W/Kg)	0.193946

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.6492	0.3843	0.1281	0.1238	0.1260	0.1199	0.1022	0.0801	0.0878	0.1194	0.1160	0.0912



3D screen shot	Hot spot position
	

MEASUREMENT 5

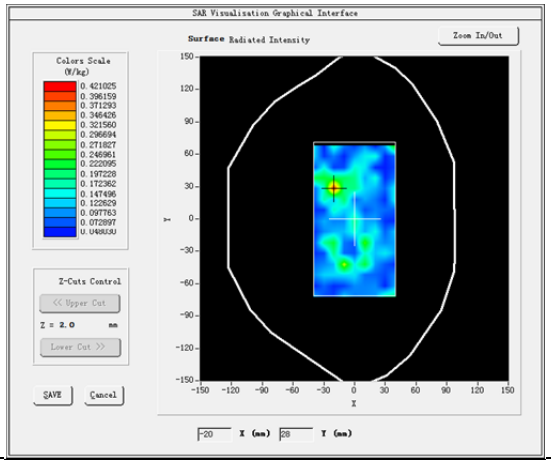
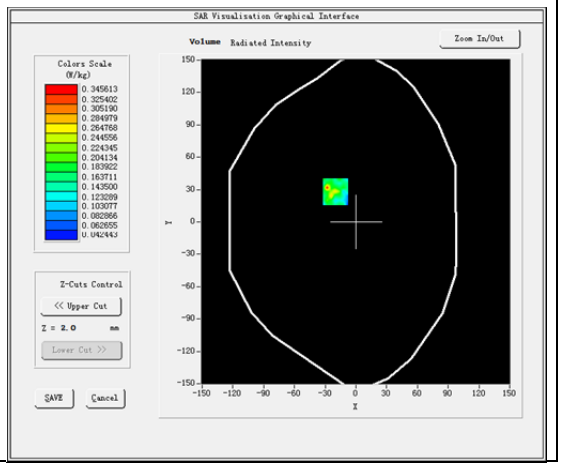
Date of measurement: 5/4/2024

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11a U-NII
Channels	Middle
Signal	IEEE802.11a (Crest factor: 1.0)
ConvF	2.20

B. SAR Measurement Results

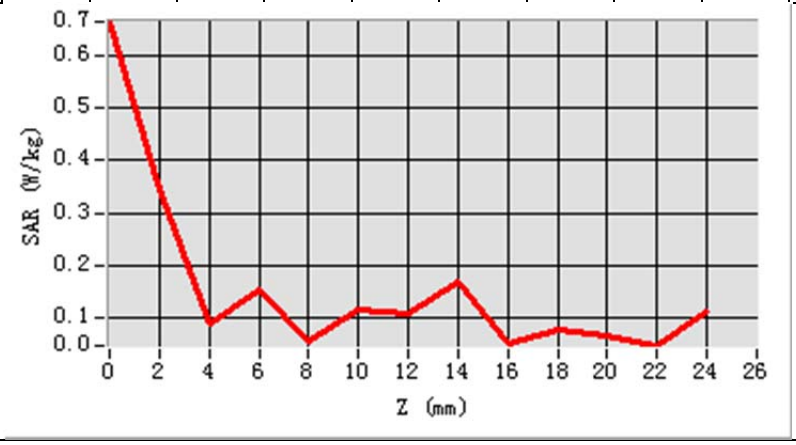
Frequency (MHz)	5600.000000
Relative permittivity (real part)	34.540333
Relative permittivity (imaginary part)	15.947429
Conductivity (S/m)	4.961422
Variation (%)	-1.690000

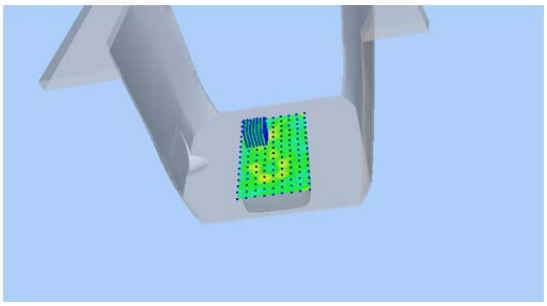
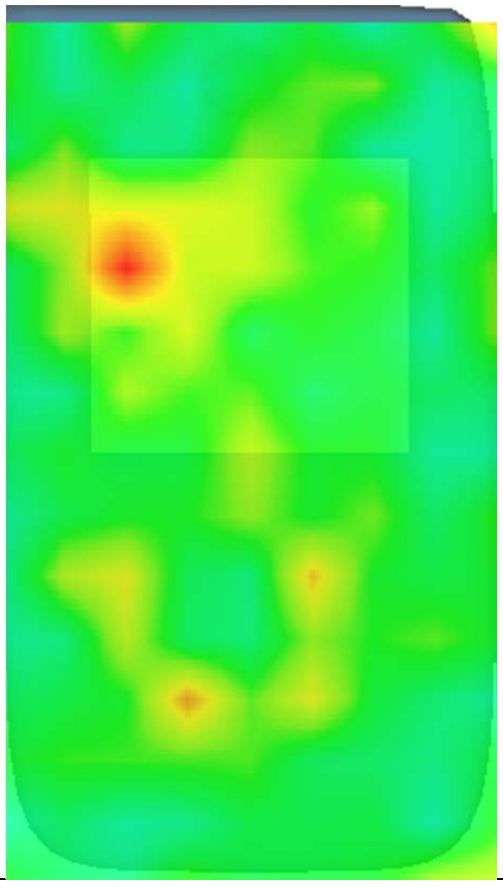
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-20.00, Y=28.00
SAR Peak: 0.61 W/kg

SAR 10g (W/Kg)	0.124475
SAR 1g (W/Kg)	0.162195

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.6635	0.3456	0.0882	0.1557	0.0545	0.1175	0.1096	0.1706	0.0533	0.0774	0.0658	0.0480



3D screen shot	Hot spot position
	

MEASUREMENT 6

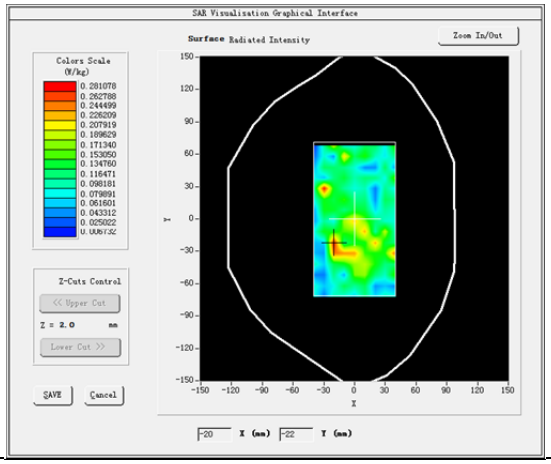
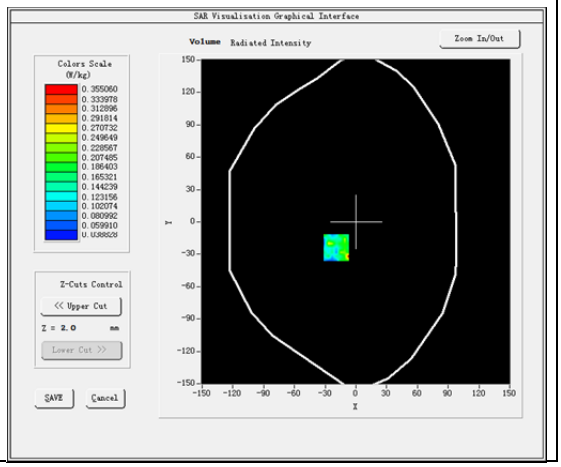
Date of measurement: 27/3/2024

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11a U-NII
Channels	Middle
Signal	IEEE802.11a (Crest factor: 1.0)
ConvF	2.04

B. SAR Measurement Results

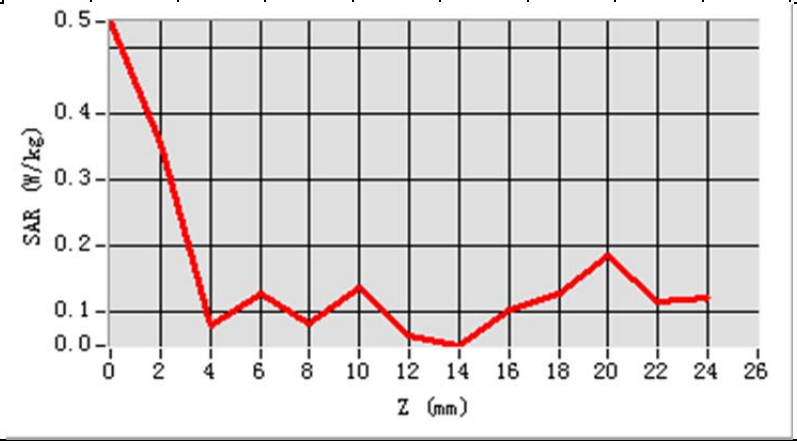
Frequency (MHz)	5785.000000
Relative permittivity (real part)	34.133007
Relative permittivity (imaginary part)	16.008299
Conductivity (S/m)	5.144889
Variation (%)	2.880000

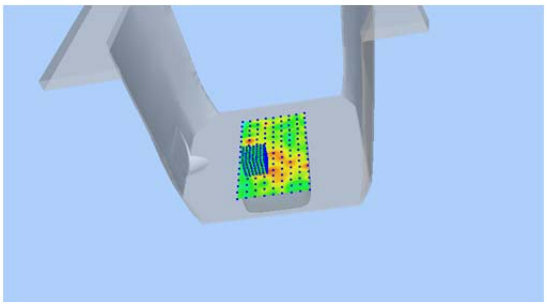
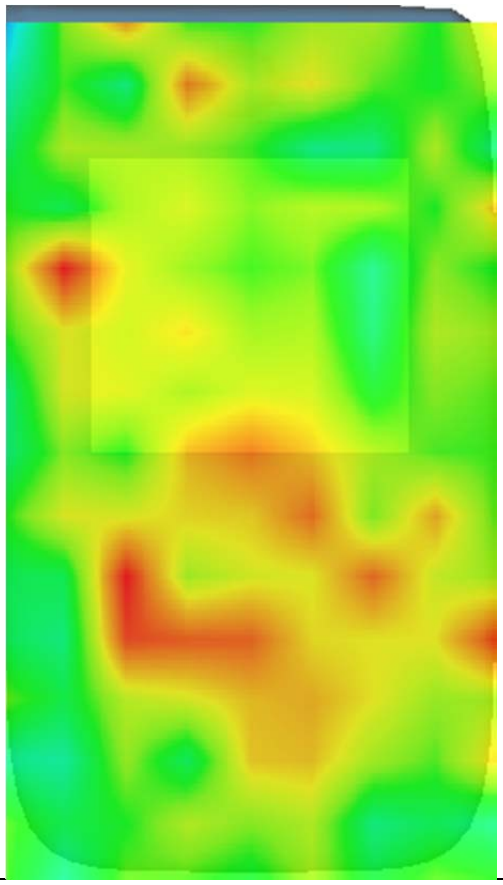
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-19.00, Y=-24.00
SAR Peak: 0.60 W/kg

SAR 10g (W/Kg)	0.122266
SAR 1g (W/Kg)	0.178912

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.5393	0.3551	0.0801	0.1285	0.0822	0.1368	0.0639	0.0487	0.1026	0.1262	0.1859	0.1156



3D screen shot	Hot spot position
	

MEASUREMENT 7

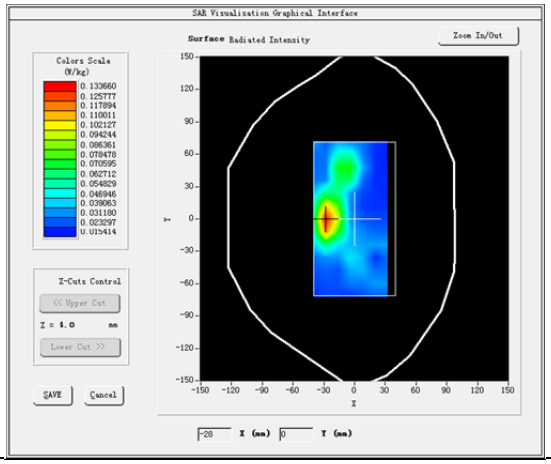
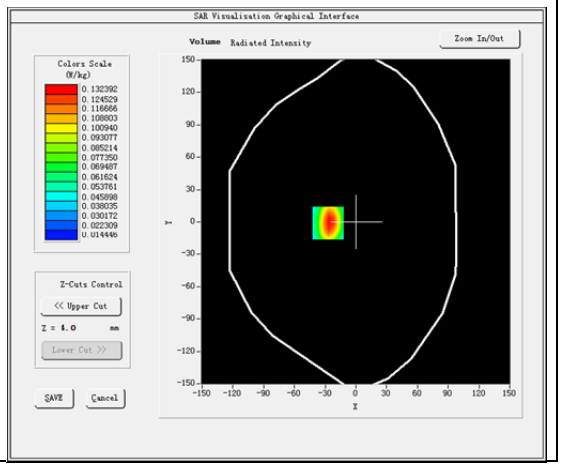
Date of measurement: 12/4/2024

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11b ISM
Channels	Middle
Signal	IEEE802.11b (Crest factor: 1.0)
ConvF	2.85

B. SAR Measurement Results

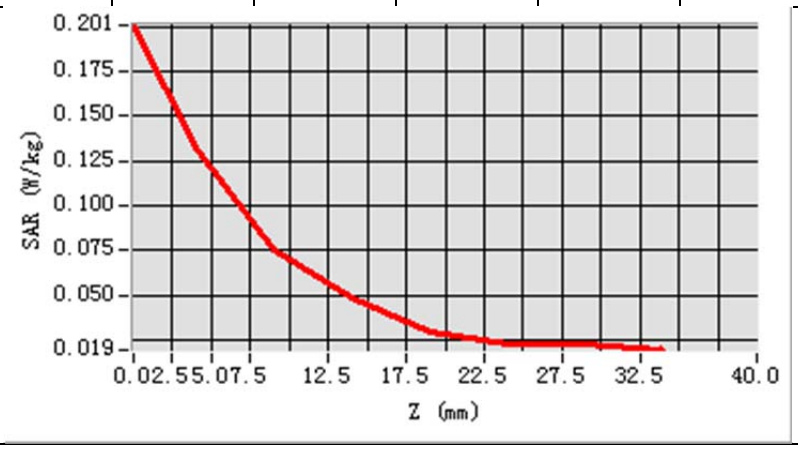
Frequency (MHz)	2437.000000
Relative permittivity (real part)	37.726734
Relative permittivity (imaginary part)	12.814278
Conductivity (S/m)	1.734911
Variation (%)	-0.950000

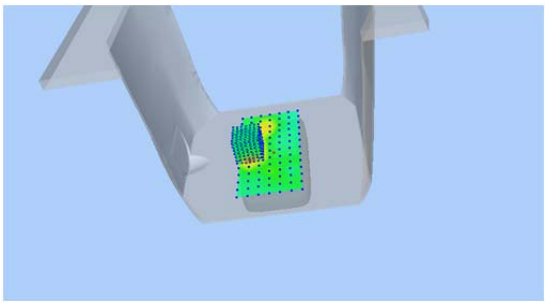
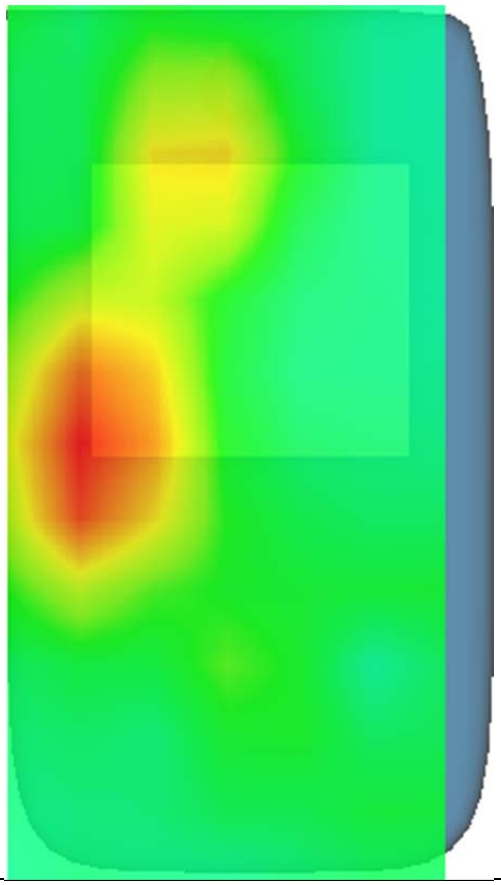
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-27.00, Y=-1.00
SAR Peak: 0.20 W/kg

SAR 10g (W/Kg)	0.068999
SAR 1g (W/Kg)	0.123583

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.2007	0.1324	0.0749	0.0479	0.0293	0.0223	0.0223



3D screen shot	Hot spot position
	

MEASUREMENT 8

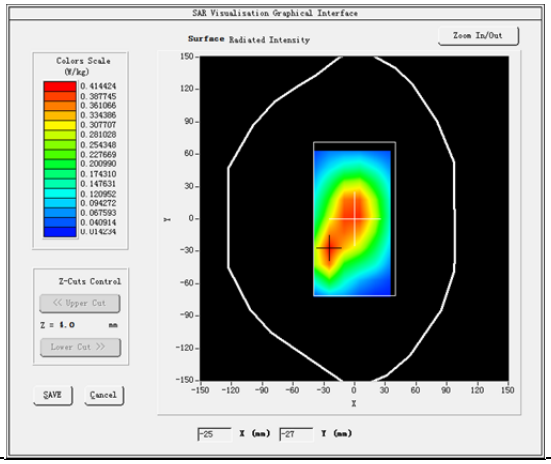
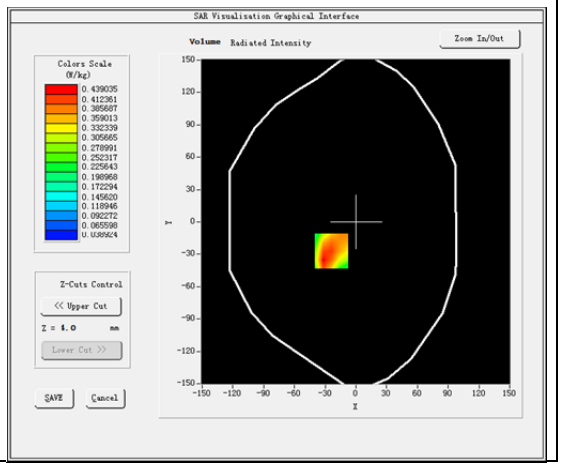
Date of measurement: 8/4/2024

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 5
Channels	Middle
Signal	LTE (Crest factor: 1.0)
ConvF	2.32

B. SAR Measurement Results

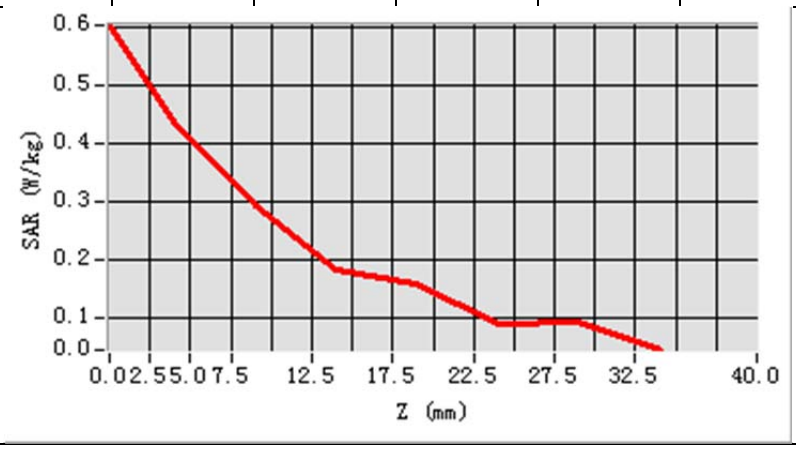
Frequency (MHz)	836.500000
Relative permittivity (real part)	41.009068
Relative permittivity (imaginary part)	19.084080
Conductivity (S/m)	0.886880
Variation (%)	0.200000

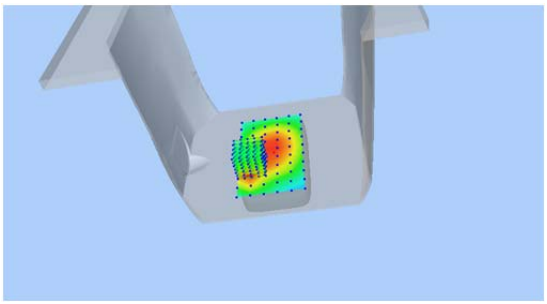
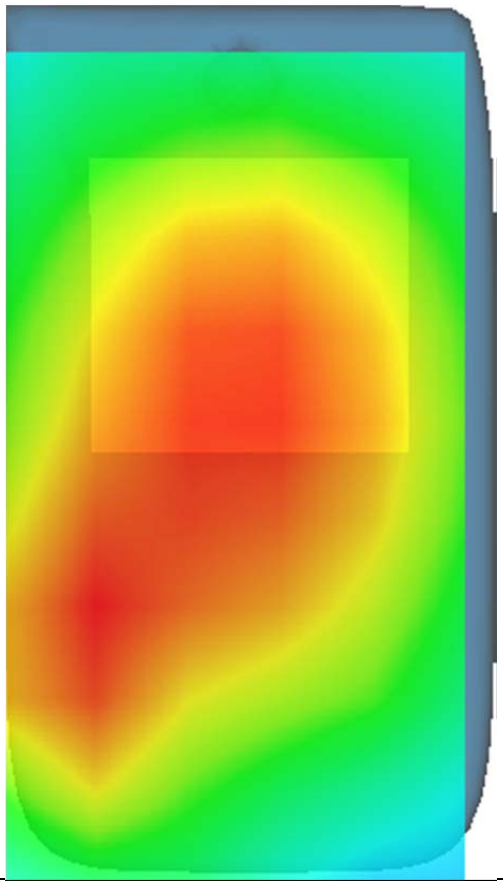
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-24.00, Y=-27.00
SAR Peak: 0.72 W/kg

SAR 10g (W/Kg)	0.270115
SAR 1g (W/Kg)	0.443322

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.6030	0.4390	0.2932	0.1837	0.1595	0.0894	0.0943



3D screen shot	Hot spot position
	

MEASUREMENT 9

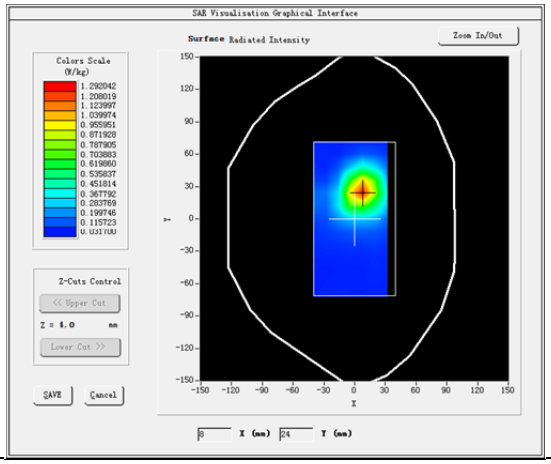
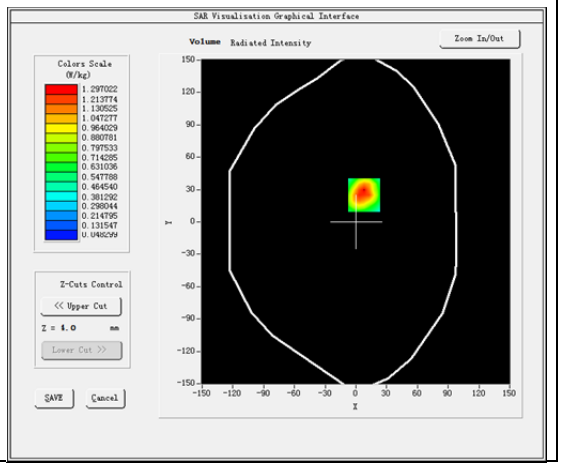
Date of measurement: 29/3/2024

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 40A
Channels	Middle
Signal	LTE (Crest factor: 1.6)
ConvF	2.81

B. SAR Measurement Results

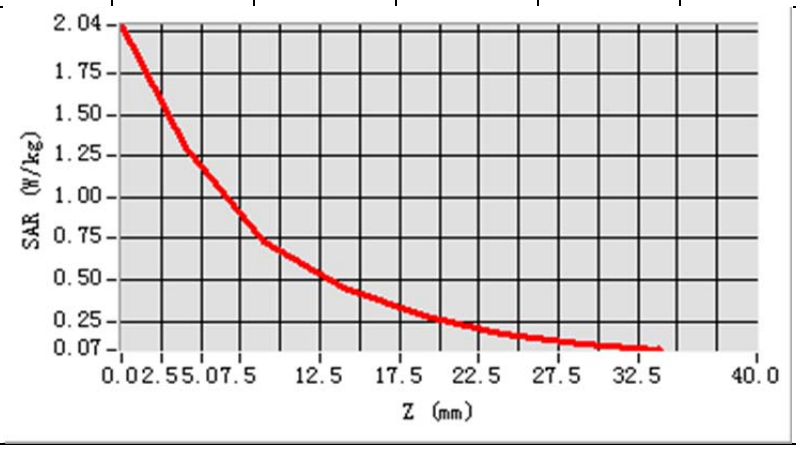
Frequency (MHz)	2310.000000
Relative permittivity (real part)	39.405151
Relative permittivity (imaginary part)	12.717261
Conductivity (S/m)	1.632048
Variation (%)	4.200000

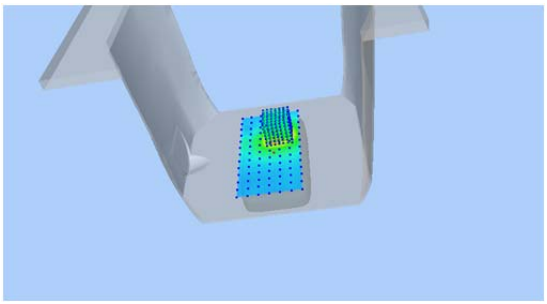
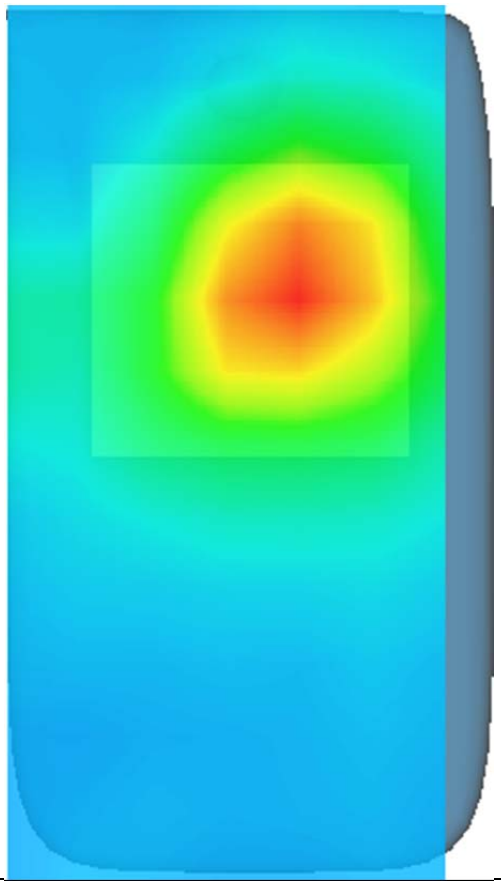
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=25.00
SAR Peak: 1.95 W/kg

SAR 10g (W/Kg)	0.661358
SAR 1g (W/Kg)	1.185361

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.0412	1.2970	0.7281	0.4493	0.2772	0.1693	0.1142



3D screen shot	Hot spot position
	

MEASUREMENT 10

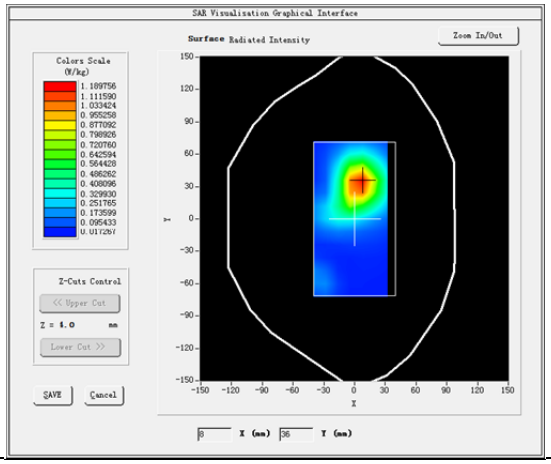
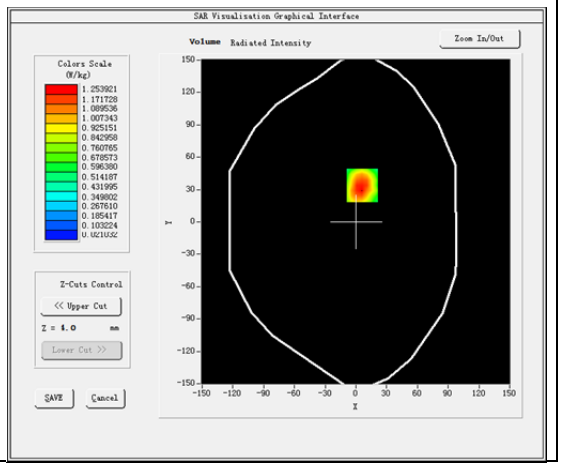
Date of measurement: 29/3/2024

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 40B
Channels	Middle
Signal	LTE (Crest factor: 1.6)
ConvF	2.81

B. SAR Measurement Results

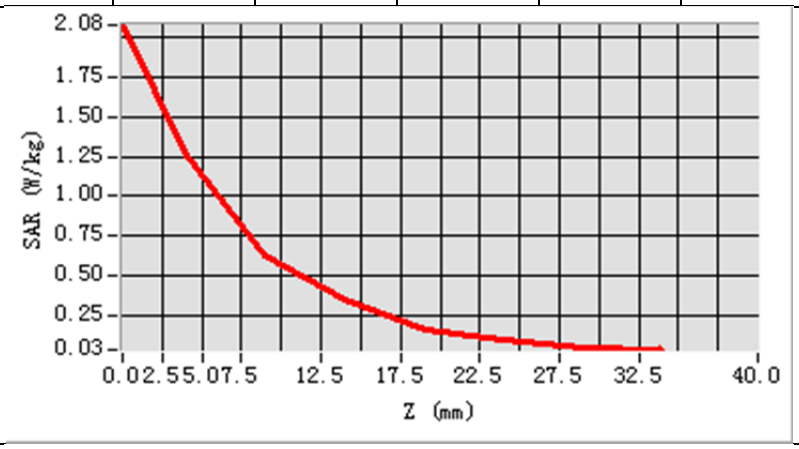
Frequency (MHz)	2355.000000
Relative permittivity (real part)	39.287952
Relative permittivity (imaginary part)	12.856461
Conductivity (S/m)	1.682054
Variation (%)	1.310000

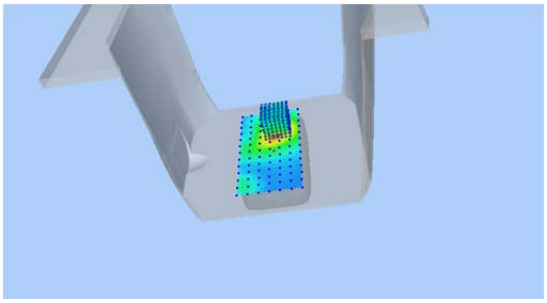
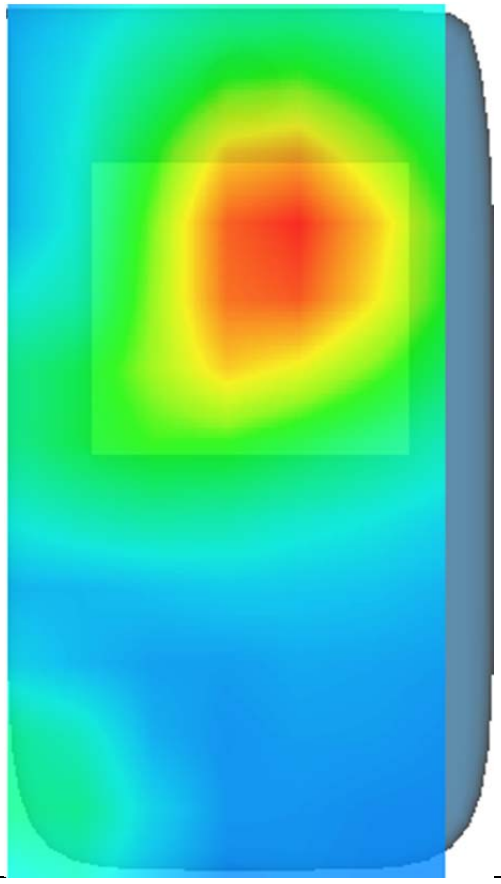
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=6.00, Y=34.00
SAR Peak: 2.05 W/kg

SAR 10g (W/Kg)	0.615586
SAR 1g (W/Kg)	1.173736

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.0791	1.2539	0.6257	0.3479	0.1591	0.0973	0.0510



3D screen shot	Hot spot position
	

MEASUREMENT 11

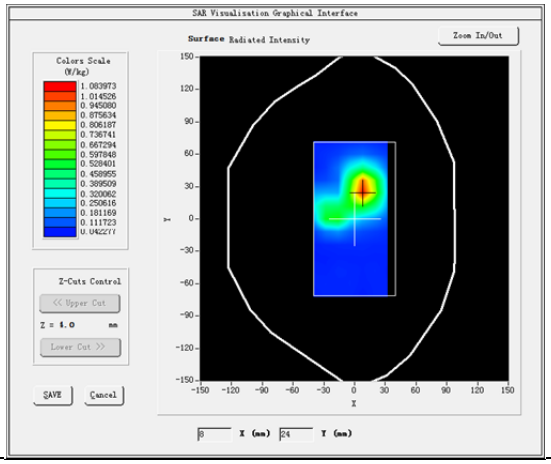
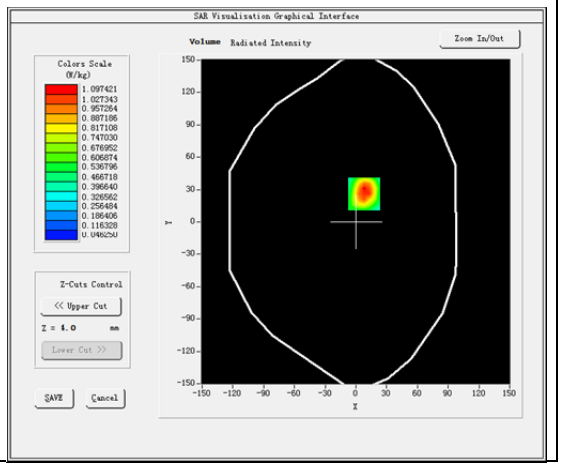
Date of measurement: 25/3/2024

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 41
Channels	Middle
Signal	LTE (Crest factor: 1.6)
ConvF	2.65

B. SAR Measurement Results

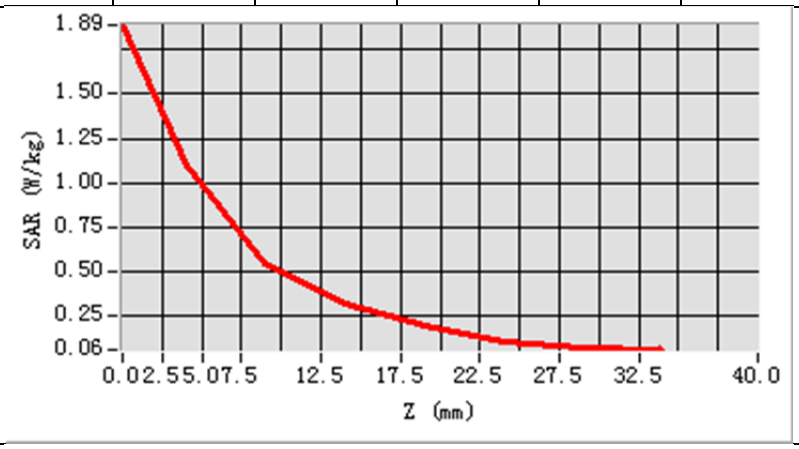
Frequency (MHz)	2593.000000
Relative permittivity (real part)	38.687523
Relative permittivity (imaginary part)	13.473374
Conductivity (S/m)	1.940914
Variation (%)	1.720000

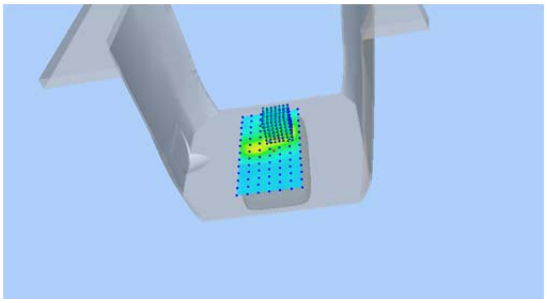
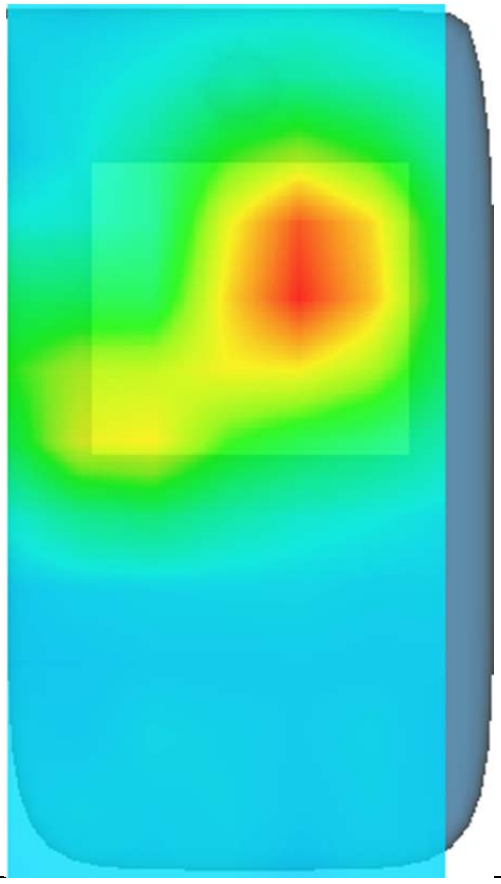
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=26.00
SAR Peak: 1.82 W/kg

SAR 10g (W/Kg)	0.525682
SAR 1g (W/Kg)	1.018597

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.8889	1.0974	0.5431	0.3202	0.1962	0.1063	0.0778



3D screen shot	Hot spot position
	

14. Appendix D. Calibration Certificate

Table of contents
E Field Probe - 3423-EPGO-426
835 MHz Dipole - SN 03/15 DIP 0G835-347
2300 MHz Dipole - SN 03/16 DIP 2G300-358
2450 MHz Dipole - SN 03/15 DIP 2G450-352
2600 MHz Dipole - SN 03/15 DIP 2G600-356
5000-6000 MHz Dipole - SN 13/14 WGA 33

COMOSAR E-Field Probe Calibration Report

Ref : ACR.261.11.23.BES.A

SHENZHEN NTEK TESTING TECHNOLOGY CO., LTD.

BUILDING E, FENDA SCIENCE PARK, SANWEI COMMUNITY, XIXIANG STREET,

BAO'AN DISTRICT, SHENZHEN GUANGDONG, CHINA

MVG COMOSAR DOSIMETRIC E-FIELD PROBE

SERIAL NO.: 3423-EPGO-426

Calibrated at MVG

Z.I. de la pointe du diable

Technopôle Brest Iroise – 295 avenue Alexis de Rochon

29280 PLOUZANE - FRANCE

Calibration date: 09/18/2023

Accreditations #2-6789
Scope available on www.cofrac.fr

Summary:

This document presents the method and results from an accredited COMOSAR Dosimetric E-Field Probe calibration performed at MVG, using the CALIPROBE test bench, for use with a MVG COMOSAR system only. The test results covered by accreditation are traceable to the International System of Units (SI).

COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR.261.11.23.BES.A

	Name	*Function*	*Date*	*Signature*
Prepared by :	Cyrille ONNEE	Measurement Responsible	9/18/2023	
Checked & approved by:	Jérôme Luc	Technical Manager	9/18/2023	
Authorized by:	Yann Toutain	Laboratory Director	9/19/2023	

Yann Toutain ID Signature numérique de Yann Toutain ID Date : 2023.09.19 09:08:14 +02'00'

	Customer Name
Distribution :	SHENZHEN NTEK TESTING TECHNOLOGY CO., LTD.

Issue	*Name*	*Date*	*Modifications*
A	Cyrille ONNEE	9/18/2023	Initial release

TABLE OF CONTENTS

1 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR DOSIMETRIC E FIELD PROBE
Manufacturer	MVG
Model	SSE2
Serial Number	3423-EPGO-426
Product Condition (new / used)	New
Frequency Range of Probe	0.15 GHz-7.5GHz
Resistance of Three Dipoles at Connector	Dipole 1: R1=0.261 MΩ Dipole 2: R2=0.213 MΩ Dipole 3: R3=0.233 MΩ

2 PRODUCT DESCRIPTION

2.1 GENERAL INFORMATION

MVG's COMOSAR E field Probes are built in accordance to the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards.

Figure 1 – *MVG COMOSAR Dosimetric E field Probe*

Probe Length	330 mm
Length of Individual Dipoles	2 mm
Maximum external diameter	8 mm
Probe Tip External Diameter	2.5 mm
Distance between dipoles / probe extremity	1 mm

3 MEASUREMENT METHOD

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards provide recommended practices for the probe calibrations, including the performance characteristics of interest and methods by which to assess their effect. All calibrations / measurements performed meet the fore-mentioned standards.

3.1 SENSITIVITY

The sensitivity factors of the three dipoles were determined using a two step calibration method (air and tissue simulating liquid) using waveguides as outlined in the standards for frequency range 600-7500MHz and using the calorimeter cell method (transfer method) as outlined in the standards for frequency 150-450 MHz.