

FCC SAR EVALUATION REPORT

In accordance with the requirements of
FCC 47 CFR Part 2(2.1093), ANSI/IEEE C95.1-1992 and
IEEE Std 1528-2013

Product Name : smartphone

Brand Name : Blackview

Model Name : BV5200 Pro

Family Model : N/A

Report No. : STR221217003009E

FCC ID : 2A7DX-BV5200PRO

Prepared for

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TEST RESULT CERTIFICATION

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Product description

Product name smartphone
Brand Name Blackview
Model and/or type reference BV5200 Pro
Family Model N/A
FCC 47 CFR Part 2(2.1093)
ANSI/IEEE C95.1-1992

Standards 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) and ANSI/IEEE C95.1-1992. 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.

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Test Sample Number T221217003R002

Date of Test

Date (s) of performance of tests... Dec. 21, 2022 ~ Jan. 05, 2023

Date of Issue Feb. 06, 2023

Test Result..... Pass

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※ ※ **Revision History** ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Feb. 06, 2023	Jacob Chen

TABLE OF CONTENTS

1. General Information	6
1.1. RF exposure limits.....	6
1.2. Statement of Compliance	7
1.3. EUT Description	7
1.4. Test specification(s)	9
1.5. Ambient Condition.....	9
2. SAR Measurement System	10
2.1. SATIMO SAR Measurement Set-up Diagram	10
2.2. Robot	11
2.3. E-Field Probe.....	12
2.3.1. E-Field Probe Calibration	12
2.4. SAM phantoms	13
2.4.1. Technical Data	14
2.5. Device Holder	15
2.6. Test Equipment List	16
3. SAR Measurement Procedures	18
3.1. Power Reference	18
3.2. Area scan & Zoom scan.....	18
3.3. Description of interpolation/extrapolation scheme	20
3.4. Volumetric Scan	20
3.5. Power Drift	20
4. System Verification Procedure	21
4.1. Tissue Verification	21
4.1.1. Tissue Dielectric Parameter Check Results	22
4.2. System Verification Procedure	23
4.2.1. System Verification Results.....	24
5. SAR Measurement variability and uncertainty	25
5.1. SAR measurement variability.....	25
5.2. SAR measurement uncertainty	25
6. RF Exposure Positions.....	26
6.1. Ear and handset reference point	26
6.2. Definition of the cheek position	26
6.3. Definition of the tilt position	28
6.4. Body Worn Accessory	28
6.5. Wireless Router Devices	29
7. RF Output Power	30
7.1. GSM Conducted Power	30
7.2. WCDMA Conducted Power	30
7.3. LTE Conducted Power	32

7.4. WLAN & Bluetooth Output Power	45
8. Antenna Location.....	47
9. Stand-alone SAR test exclusion.....	47
10. SAR Results	48
10.1. SAR measurement Result.....	48
10.1.1. SAR measurement Result of GSM850.....	48
10.1.2. SAR measurement Result of GSM1900.....	49
10.1.3. SAR measurement Result of WCDMA Band 2.....	51
10.1.4. SAR measurement Result of WCDMA Band 4.....	52
10.1.5. SAR measurement Result of WCDMA Band 5.....	53
10.1.6. SAR measurement Result of LTE Band 2	54
10.1.7. SAR measurement Result of LTE Band 4	55
10.1.8. SAR measurement Result of LTE Band 5	58
10.1.9. SAR measurement Result of LTE Band 7	60
10.1.10. SAR measurement Result of LTE Band 12	61
10.1.11. SAR measurement Result of LTE Band 13	63
10.1.12. SAR measurement Result of LTE Band 17	65
10.1.13. SAR measurement Result of WLAN2.4G	66
10.1.14. SAR measurement Result of WLAN 5.2G	67
10.1.15. SAR measurement Result of WLAN 5.8G	68
10.2. Simultaneous Transmission Analysis.....	69
11. Appendix A. Photo documentation	71
12. Appendix B. System Check Plots.....	72
13. Appendix C. Plots of High SAR Measurement.....	89
14. Appendix D. Calibration Certificate	150

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
HEAD AND TRUNK LIMIT
1.6 W/kg
APPLIED TO THIS EUT

1.2. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for BV5200 Pro are as follows.

RF Exposure Conditions		Equipment Class -Highest Reported SAR (W/kg)			
		PCE	DTS	NII	DSS
1-g Head		0.623	0.411	0.620	N/A
1-g Body-Worn (Separation distance of 10mm)		1.362	0.124	0.231	N/A
1-g Hotspot (Separation distance of 10mm)		1.362	0.124	0.231	N/A
Max Simultaneous Tx	Head	1.243	1.034	1.243	0.690
	Body-Worn	1.593	1.486	1.593	1.395
	Hotspot	1.593	1.486	1.593	1.395

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 (1.6 W/kg) specified in FCC 47 CFR Part 2(2.1093) and ANSI/IEEE C95.1-1992, 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	smartphone
Brand Name	Blackview
Model Name	BV5200 Pro
Family Model	N/A
Model Difference	N/A
FCC ID	2A7DX-BV5200PRO
Device Phase	Identical Prototype
Exposure Category	General population / Uncontrolled environment
Antenna Type	PIFA Antenna
Battery Information	DC 3.85V, 5180mAh, 19.9Wh
HW Version	TE105_MAIN_PCB_V1.1
SW Version	BV5200_Pro_NEU_TE105_V1.0_20221117V01
Device Operating Configurations	
Supporting Mode(s)	GSM 850/1900, WCDMA Band 2/4/5, LTE Band 2/4/5/7/12/13 /17, WLAN 2.4G/5.2G/5.8G, Bluetooth, NFC

Test Modulation	GSM(GMSK/8PSK), 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
	GSM 1900	1850-1910	1930-1990
	WCDMA Band 2	1850-1910	1930-1990
	WCDMA Band 4	1710-1755	2110-2155
	WCDMA Band 5	824-849	869-894
	LTE Band 2	1850-1910	1930-1990
	LTE Band 4	1710-1755	2110-2155
	LTE Band 5	824-849	869-894
	LTE Band 7	2500-2570	2620-2690
	LTE Band 12	699-716	729-746
	LTE Band 13	777-787	746-756
	LTE Band 17	704-716	734-746
	WLAN 2.4G	2412-2462	
	WLAN 5.2G	5180-5240	
	WLAN 5.8G	5745-5825	
	Bluetooth	2402-2480	
NFC	13.56		
GPRS Multislot Class(12)	Max Number of Timeslots in Uplink	4	
	Max Number of Timeslots in Downlink	4	
	Max Total Timeslot	5	
EGPRS Multislot Class(12)	Max Number of Timeslots in Uplink	4	
	Max Number of Timeslots in Downlink	4	
	Max Total Timeslot	5	
Power Class	4, tested with power level 5(GSM 850)		
	1, tested with power level 0(GSM 1900)		
	3, tested with power control "all 1"(WCDMA Band 2)		
	3, tested with power control "all 1"(WCDMA Band 4)		
	3, tested with power control "all 1"(WCDMA Band 5)		
	3, tested with power control all Max.(LTE Band 2)		
	3, tested with power control all Max.(LTE Band 4)		
	3, tested with power control all Max.(LTE Band 5)		
	3, tested with power control all Max.(LTE Band 7)		
	3, tested with power control all Max.(LTE Band 12)		
	3, tested with power control all Max.(LTE Band 13)		
	3, tested with power control all Max.(LTE Band 17)		

1.4. Test specification(s)

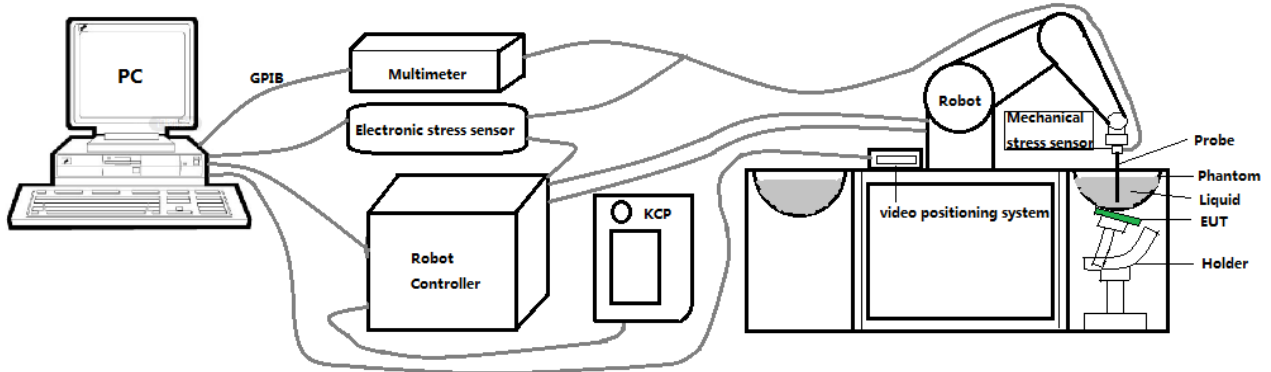
FCC 47 CFR Part 2(2.1093)
ANSI/IEEE C95.1-1992
IEEE Std 1528-2013
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting
KDB 447498 D01 General RF Exposure Guidance
KDB 248227 D01 802.11 Wi-Fi SAR
KDB 941225 D01 3G SAR Procedures
KDB 941225 D05 SAR for LTE Devices
KDB 941225 D06 Hotspot SAR
KDB 648474 D04 Handset SAR

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 SN 08/16 EPGO287 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: ± 0.08 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 $\pm 10\%$. The spherical isotropy shall be evaluated and within ± 0.25 dB. 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

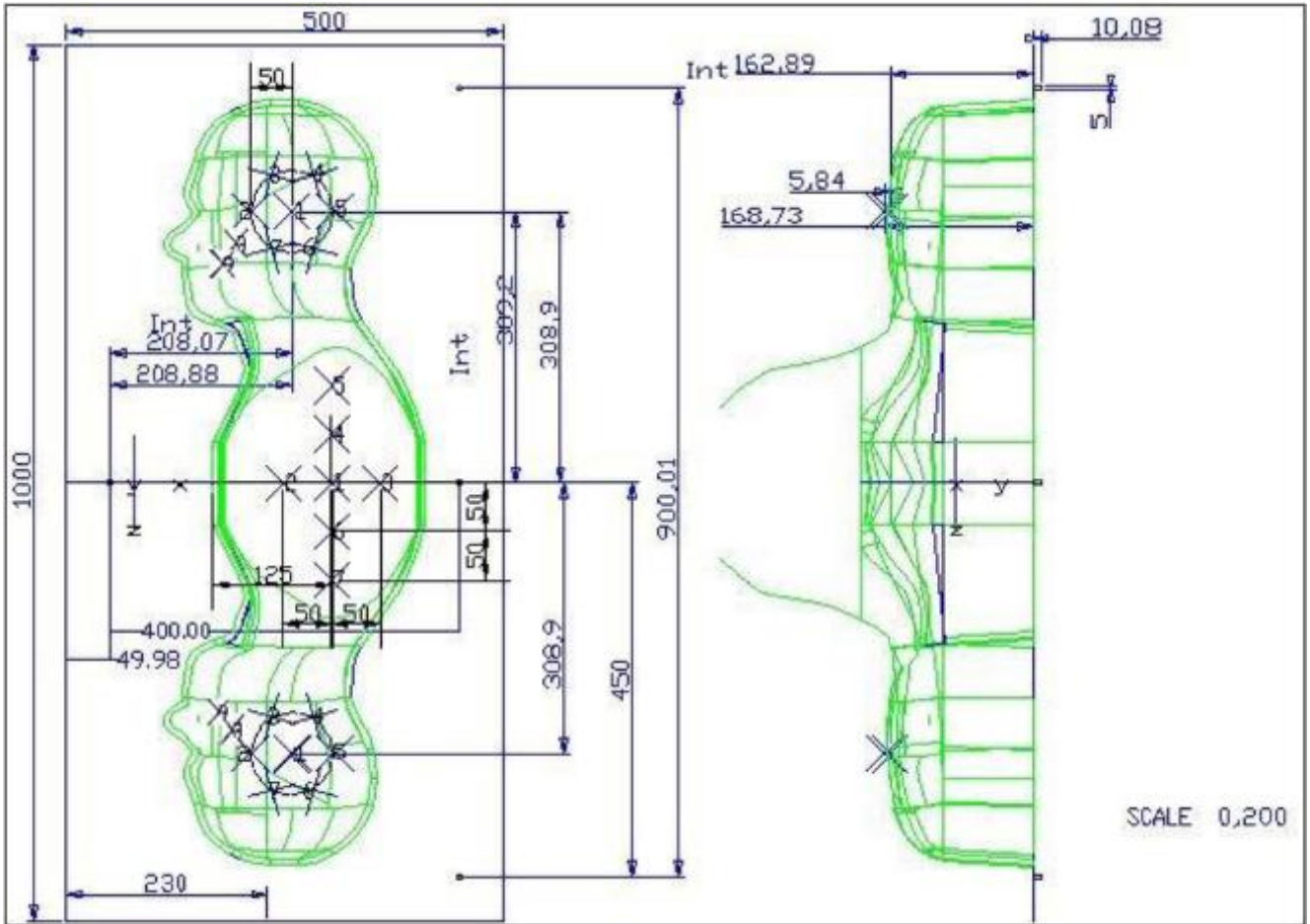
Photo of SAM phantom SN 16/15 SAM119



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

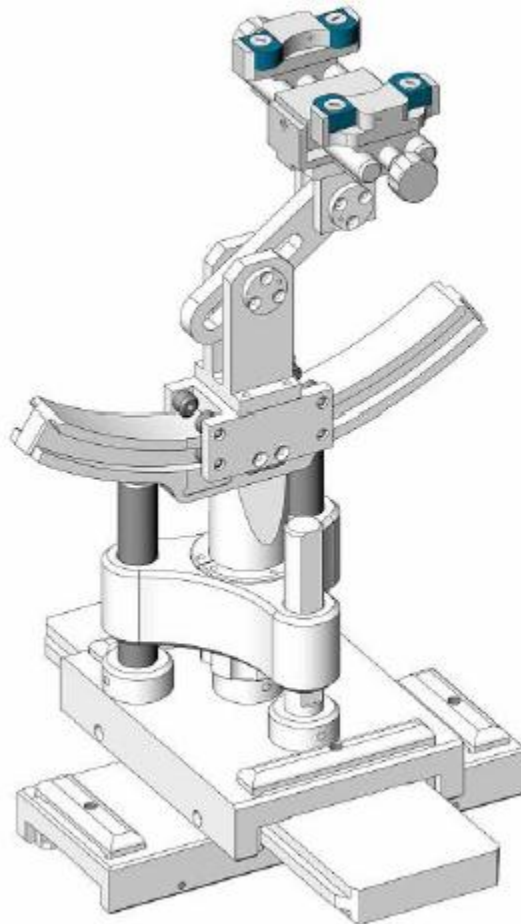


Serial Number	Left Head(mm)		Right Head(mm)		Flat Part(mm)	
	1	2	1	2	1	2
SN 16/15 SAM119	2	2.02	2	2.08	1	2.09
	3	2.05	3	2.06	2	2.06
	4	2.07	4	2.07	3	2.08
	5	2.08	5	2.08	4	2.10
	6	2.05	6	2.07	5	2.10
	7	2.05	7	2.05	6	2.07
	8	2.07	8	2.06	7	2.07
	9	2.08	9	2.06	-	-

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
<input checked="" type="checkbox"/>	MVG	E FIELD PROBE	SSE2	SN 08/16 EPGO287	Feb. 01, 2022	Jan. 31, 2023
<input checked="" type="checkbox"/>	MVG	750 MHz Dipole	SID750	SN 03/15 DIP 0G750-355	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	835 MHz Dipole	SID835	SN 03/15 DIP 0G835-347	Mar. 01, 2021	Feb. 28, 2024
<input type="checkbox"/>	MVG	900 MHz Dipole	SID900	SN 03/15 DIP 0G900-348	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	1800 MHz Dipole	SID1800	SN 03/15 DIP 1G800-349	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	1900 MHz Dipole	SID1900	SN 03/15 DIP 1G900-350	Mar. 01, 2021	Feb. 28, 2024
<input type="checkbox"/>	MVG	2000 MHz Dipole	SID2000	SN 03/15 DIP 2G000-351	Mar. 01, 2021	Feb. 28, 2024
<input type="checkbox"/>	MVG	2300 MHz Dipole	SID2300	SN 03/16 DIP 2G300-358	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	2450 MHz Dipole	SID2450	SN 03/15 DIP 2G450-352	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	2600 MHz Dipole	SID2600	SN 03/15 DIP 2G600-356	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	5000 MHz Dipole	SWG5500	SN 13/14 WGA 33	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	Liquid measurement Kit	SCLMP	SN 21/15 OCPG 72	NCR	NCR
<input checked="" type="checkbox"/>	MVG	Power Amplifier	N.A	AMPLISAR_28/14_003	NCR	NCR
<input checked="" type="checkbox"/>	KEITHLEY	Millivoltmeter	2000	4072790	NCR	NCR
<input checked="" type="checkbox"/>	R&S	Universal radio communication tester	CMU200	117858	Jun. 17, 2022	Jun. 16, 2023
<input checked="" type="checkbox"/>	R&S	Wideband radio communication tester	CMW500	103917	Jun. 17, 2022	Jun. 16, 2023
<input checked="" type="checkbox"/>	HP	Network Analyzer	8753D	3410J01136	Jun. 17, 2022	Jun. 16, 2023

<input checked="" type="checkbox"/>	Agilent	MXG Vector Signal Generator	N5182A	MY47070317	Jun. 16, 2022	Jun. 15, 2023
<input checked="" type="checkbox"/>	Agilent	Power meter	E4419B	MY45102538	Jun. 17, 2022	Jun. 16, 2023
<input checked="" type="checkbox"/>	Agilent	Power sensor	E9301A	MY41495644	Jun. 17, 2022	Jun. 16, 2023
<input checked="" type="checkbox"/>	Agilent	Power sensor	E9301A	US39212148	Jun. 17, 2022	Jun. 16, 2023
<input checked="" type="checkbox"/>	MCLI/USA	Directional Coupler	CB11-20	0D2L51502	Jul. 17, 2020	Jul. 16, 2023

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 Wi-Fi/BT power measurement, use engineering software to configure EUT Wi-Fi/BT 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 Wi-Fi/BT output power.

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT Wi-Fi/BT 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.

		≤ 3 GHz	> 3 GHz	
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		5 ± 1 mm	½·δ·ln(2) ± 0.5 mm	
Maximum probe angle from probe axis to phantom surface normal at the measurement location		30° ± 1°	20° ± 1°	
Maximum area scan spatial resolution: Δx _{Area} , Δy _{Area}		≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm	
		When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.		
Maximum zoom scan spatial resolution: Δx _{Zoom} , Δy _{Zoom}		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: Δz _{Zoom} (n)	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	Δz _{Zoom} (1): between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		Δz _{Zoom} (n>1): between subsequent points	≤ 1.5·Δz _{Zoom} (n-1)	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *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.

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 used to determine these 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 of a full 3D scan over a specific area. This 3D scan is useful for multi Tx SAR measurement. Indeed, it is possible with OpenSAR to add, point by point, several volumetric scans to calculate the SAR value of the combined measurement as it is defined in the standard IEEE1528 and IEC62209.

3.5. Power Drift

All SAR testing is under the EUT installed with a 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 $\pm 5\%$, the SAR will be retested.

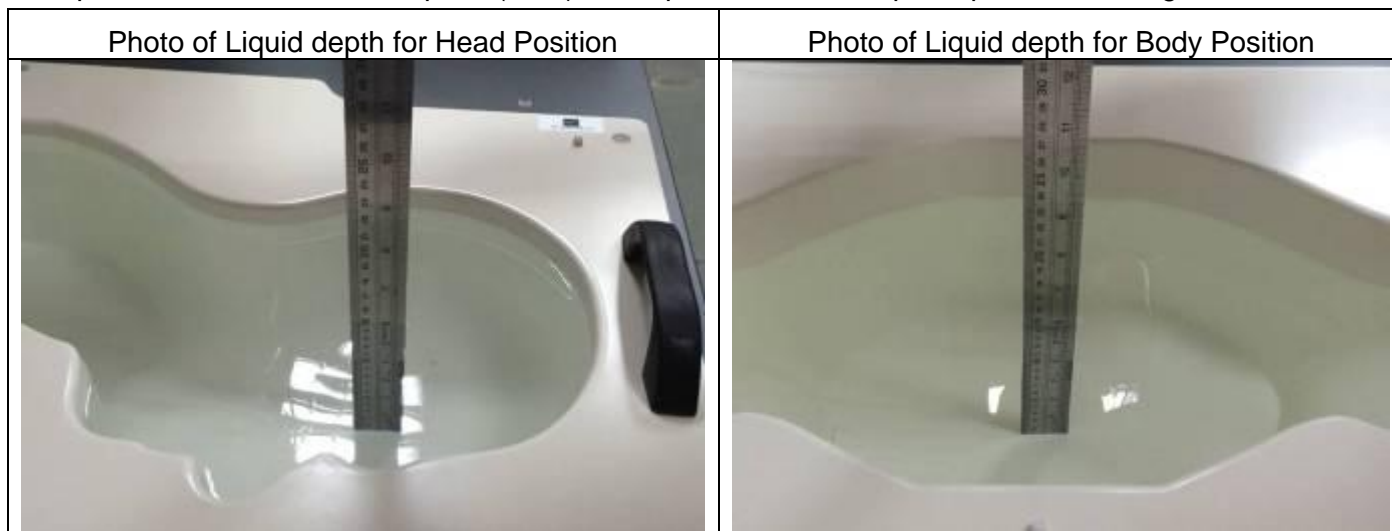
4. System Verification Procedure

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									
	750	835	900	1800	1900	2000	2450	2600	5200	5800
Frequency Band (MHz)										
Water	34.40	34.40	34.40	55.36	55.36	57.87	57.87	57.87	65.53	65.53
NaCl	0.79	0.79	0.79	0.35	0.35	0.16	0.16	0.16	0.00	0.00
1,2-Propanediol	64.81	64.81	64.81	0.00	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	24.24	24.24
DGBE	0.00	0.00	0.00	13.84	13.84	22.00	22.00	22.00	10.23	10.23

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.



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 if the dielectric parameters are within the tolerances of the specified target values. The measured conductivity and relative permittivity should be within $\pm 5\%$ of the target values.

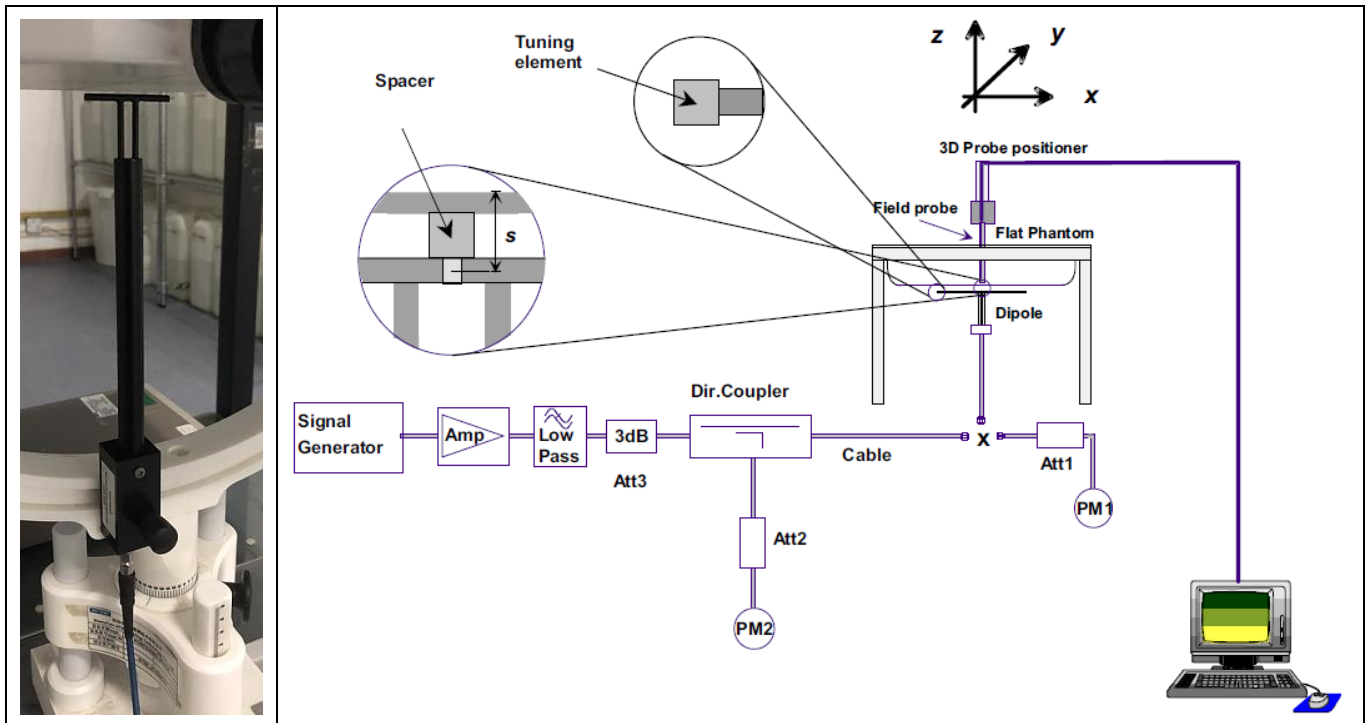
Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		ϵ_r ($\pm 5\%$)	σ (S/m) ($\pm 5\%$)	ϵ_r	σ (S/m)		
Head 750	750	41.96 (39.86~44.06)	0.89 (0.85~0.93)	40.74	0.89	21.7 °C	Jan. 05, 2023
Head 850	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	41.48	0.93	21.3 °C	Dec. 29, 2022
Head 1800	1800	40.00 (38.00~42.00)	1.40 (1.33~1.47)	39.15	1.39	21.2 °C	Jan. 04, 2023
Head 1900	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.88	1.46	21.6 °C	Dec. 28, 2022
Head 2450	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	38.22	1.86	21.2 °C	Dec. 30, 2022
Head 2600	2600	39.01 (37.06~40.96)	1.96 (1.86~2.06)	38.23	2.00	21.1 °C	Dec. 27, 2022
Head 5200	5200	36.00 (34.20~37.80)	4.66 (4.43~4.89)	36.03	4.74	21.7 °C	Dec. 22, 2022
Head 5800	5800	35.30 (33.54~37.07)	5.27 (5.01~5.53)	34.61	5.26	21.5 °C	Dec. 21, 2022

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 $\pm 10\%$. 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) ($\pm 10\%$)		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)		
750MHz	8.53 (7.68~9.38)	5.56 (5.01~6.11)	8.00	5.49	21.7 °C	Jan. 05, 2023
835MHz	9.84 (8.86~10.82)	6.22 (5.60~6.84)	9.49	5.87	21.3 °C	Dec. 29, 2022
1800MHz	37.96 (34.17~41.75)	19.81 (17.83~21.79)	38.91	21.14	21.2 °C	Jan. 04, 2023
1900MHz	40.37 (36.34~44.40)	20.48 (18.44~22.52)	43.83	20.14	21.6 °C	Dec. 28, 2022
2450MHz	53.69 (48.33~59.05)	23.94 (21.55~26.33)	50.61	22.15	21.2 °C	Dec. 30, 2022
2600MHz	55.83 (50.25~61.41)	24.19 (21.78~26.60)	53.20	23.43	21.1 °C	Dec. 27, 2022
5200MHz	162.34 (146.11~178.57)	55.42 (49.88~60.96)	153.98	52.81	21.7 °C	Dec. 22, 2022
5800MHz	178.89 (161.01~196.77)	59.32 (53.39~65.25)	183.46	61.08	21.5 °C	Dec. 21, 2022

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. Ear and handset reference point

Figure 6.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M”, the left ear reference point (ERP) is marked “LE”, and the right ERP is marked “RE”.



Fig 6.1.1 Front, back, and side views of SAM phantom

6.2. Definition of the cheek position

1. Define two imaginary lines on the handset, the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset: the midpoint of the width w_t of the handset at the level of the acoustic output (point A in Figure 6.2.1 and Figure 6.2.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 6.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 6.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
2. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
3. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP
4. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
5. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.

6. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 6.2.3. The actual rotation angles should be documented in the test report.

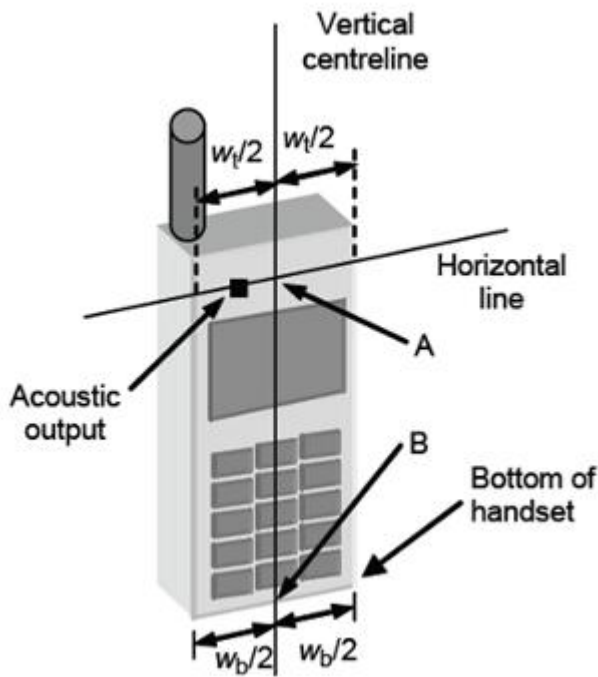


Fig 6.2.1 Handset vertical and horizontal reference lines—“fixed case”

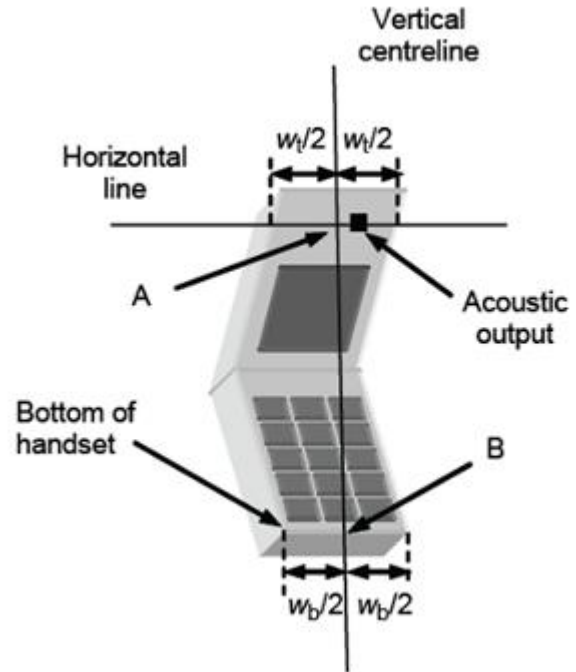


Fig 6.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

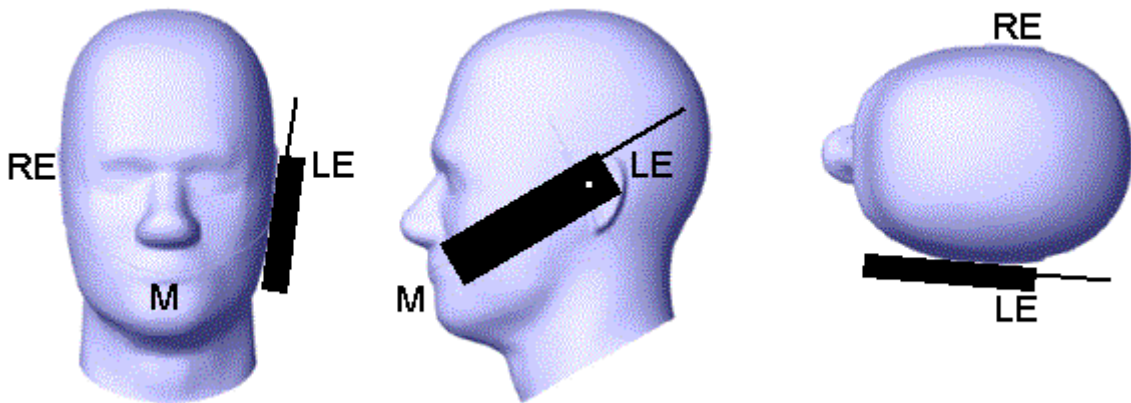


Fig 6.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

6.3. Definition of the tilt position

1. While maintaining the orientation of the handset, retract the handset parallel to the reference plane far enough away from the phantom to enable a rotation of the device by 15 degree.
2. Rotate the Handset around the horizontal line by 15 degree (see Figure 6.3.1).
3. While maintaining the orientation of the handset, move the handset towards the phantom on a line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna, e.g., the antenna with the back of the phantom head, the angle of the handset shall be reduced. In this case, the tilt position is obtained if any part of the handset is in contact with the pinna as well as a second part of the handset is in contact with the phantom, e.g., the antenna with the back of the head.



Figure 6.3.1 – Tilt position of the wireless device on the left side of SAM

6.4. Body Worn Accessory

1. Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6.4.1). Per KDB 648474 D04, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is < 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.
2. Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest

spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

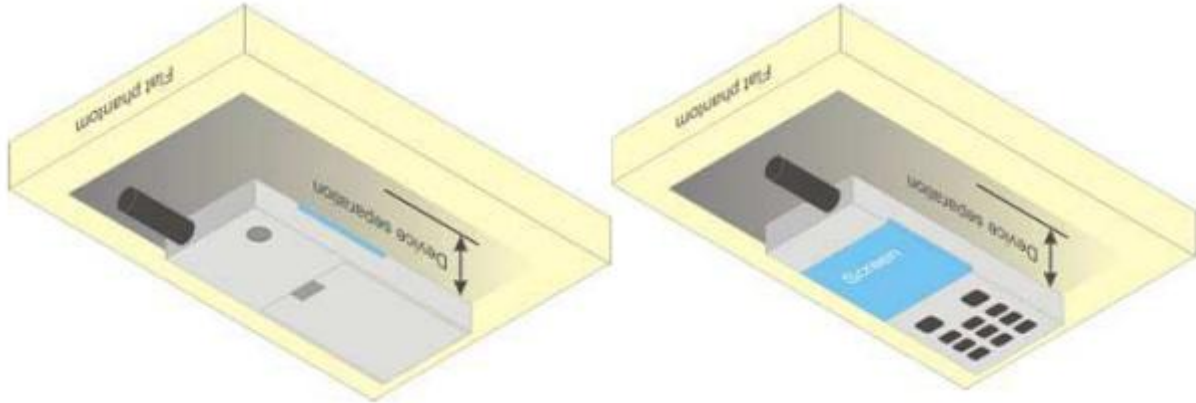


Figure 6.4.1 – Test positions for body-worn devices

6.5. Wireless Router Devices

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WLAN simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 where SAR test considerations for handsets ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WLAN transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WLAN transmitter according to FCC KDB Publication 447498 D01 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

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	33.17	33.07	33.01	24.47	24.14	24.04	23.98
GPRS(GMSK,1 Tx slot)	33.50	33.21	33.10	33.01	24.47	24.18	24.07	23.98
GPRS(GMSK,2 Tx slot)	32.50	32.30	32.25	32.13	26.48	26.28	26.23	26.11
GPRS(GMSK,3 Tx slot)	30.50	30.38	30.37	30.26	26.24	26.12	26.11	26.00
GPRS(GMSK,4 Tx slot)	29.50	29.32	29.31	29.18	26.49	26.31	26.30	26.17
EGPRS(8PSK,1 Tx slot)	26.00	25.99	25.82	25.70	16.97	16.96	16.79	16.67
EGPRS(8PSK,2 Tx slot)	25.00	24.56	24.70	24.49	18.98	18.54	18.68	18.47
EGPRS(8PSK,3 Tx slot)	23.00	22.66	22.78	22.77	18.74	18.40	18.52	18.51
EGPRS(8PSK,4 Tx slot)	22.00	21.77	21.56	21.65	18.99	18.76	18.55	18.64
Band GSM1900	Burst-Averaged output Power (dBm)				Frame-Averaged output Power (dBm)			
Tx Channel	Tune-up	512	661	810	Tune-up	512	661	810
Frequency (MHz)	(dBm)	1850.2	1880	1909.8	(dBm)	1850.2	1880	1909.8
GSM (GMSK)	30.50	30.42	30.03	30.06	21.47	21.39	21.00	21.03
GPRS(GMSK,1 Tx slot)	30.50	30.39	30.00	30.03	21.47	21.36	20.97	21.00
GPRS(GMSK,2 Tx slot)	29.50	29.48	29.07	29.14	23.48	23.46	23.05	23.12
GPRS(GMSK,3 Tx slot)	28.00	27.51	27.08	27.20	23.74	23.25	22.82	22.94
GPRS(GMSK,4 Tx slot)	26.50	26.41	26.01	26.12	23.49	23.40	23.00	23.11
EGPRS(8PSK,1 Tx slot)	26.50	26.17	25.18	25.48	17.47	17.14	16.15	16.45
EGPRS(8PSK,2 Tx slot)	25.00	24.88	24.30	23.84	18.98	18.86	18.28	17.82
EGPRS(8PSK,3 Tx slot)	23.50	23.29	21.89	21.56	19.24	19.03	17.63	17.30
EGPRS(8PSK,4 Tx slot)	22.00	21.82	20.57	20.26	18.99	18.81	17.56	17.25

7.2. WCDMA Conducted Power

WCDMA Band 2	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	9262	9400	9538
Frequency (MHz)	(dBm)	1852.4	1880	1907.6
RMC12.2K	24.00	23.47	23.58	23.74
HSDPA Sub 1	23.00	22.51	22.60	22.80
HSDPA Sub 2	22.50	22.04	22.07	22.28

HSDPA Sub 3	21.50	21.27	21.23	21.37
HSDPA Sub 4	21.50	21.38	21.45	21.46
HSUPA Sub 1	23.00	21.46	22.43	22.68
HSUPA Sub 2	23.00	22.48	22.49	22.67
HSUPA Sub 3	22.00	20.69	21.45	21.71
HSUPA Sub 4	23.00	22.51	22.58	22.79
HSUPA Sub 5	22.50	21.01	21.94	22.24
WCDMA Band 4	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	1312	1413	1513
Frequency (MHz)		1712.4	1732.6	1752.6
RMC12.2K	24.50	23.96	24.01	23.07
HSDPA Sub 1	23.50	23.02	23.03	22.54
HSDPA Sub 2	23.00	22.68	22.56	22.48
HSDPA Sub 3	23.00	21.56	21.30	22.58
HSDPA Sub 4	21.50	21.04	21.33	21.23
HSUPA Sub 1	23.00	22.08	22.86	22.61
HSUPA Sub 2	23.00	22.88	22.97	22.57
HSUPA Sub 3	23.00	21.08	21.83	22.56
HSUPA Sub 4	23.50	23.04	23.03	22.57
HSUPA Sub 5	23.00	21.75	22.34	22.52
WCDMA Band 5	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	4132	4182	4233
Frequency (MHz)		826.4	836.4	846.6
RMC12.2K	23.00	22.61	22.57	22.76
HSDPA Sub 1	22.00	21.66	21.65	21.82
HSDPA Sub 2	21.50	21.21	21.13	21.47
HSDPA Sub 3	20.50	20.28	19.64	19.93
HSDPA Sub 4	20.50	20.22	20.06	20.26
HSUPA Sub 1	22.00	20.83	21.35	21.64
HSUPA Sub 2	22.00	21.55	21.64	21.63
HSUPA Sub 3	21.00	19.83	20.53	20.73
HSUPA Sub 4	22.00	21.69	21.65	21.81
HSUPA Sub 5	21.00	20.36	21.00	20.68

7.3. LTE Conducted Power

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18607/1850.7	18900/1880	19193/1909.3
LTE Band 2	1.4MHz	QPSK	1	0	20.50	19.22	20.17	19.65
			1	2	20.50	20.36	20.31	19.80
			1	5	20.50	20.23	20.17	19.67
			3	0	20.50	20.29	20.26	19.68
			3	1	20.50	20.28	20.24	19.67
			3	2	20.50	20.30	20.29	19.68
			6	0	19.50	19.25	19.22	18.59
		16QAM	1	0	20.00	19.39	19.31	18.50
			1	2	20.00	19.52	19.52	18.64
			1	5	20.00	19.38	19.25	18.48
			3	0	19.50	19.43	19.32	18.80
			3	1	19.50	19.46	19.29	18.87
			3	2	19.50	19.42	19.14	18.81
			6	0	18.50	18.46	18.07	17.82
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18615/1851.5	18900/1880	19185/1908.5
LTE Band 2	3MHz	QPSK	1	0	20.50	20.01	19.82	19.78
			1	7	20.50	20.22	20.08	20.05
			1	14	20.50	19.81	19.79	19.75
			8	0	19.00	18.78	18.76	18.71
			8	4	19.00	18.82	18.82	18.71
			8	7	19.00	18.82	18.78	18.66
			15	0	19.00	18.76	18.75	18.65
		16QAM	1	0	19.50	19.28	19.01	18.66
			1	7	19.50	19.44	19.31	18.97
			1	14	19.50	19.21	18.94	18.63
			8	0	18.00	17.88	17.85	17.78
			8	4	18.00	17.91	17.87	17.77
			8	7	18.00	17.93	17.85	17.75
			15	0	18.00	17.88	17.80	17.81
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		

2			1	74	20.50	19.50	19.54	19.38			
			36	0	19.00	18.68	18.77	18.81			
			36	18	19.00	18.76	18.75	18.69			
			36	37	19.00	18.77	18.71	18.65			
			75	0	19.00	18.74	18.76	18.71			
		16QAM	1	0	19.50	19.02	18.81	18.70			
			1	37	19.50	19.45	19.21	19.02			
			1	74	19.50	19.00	18.68	18.55			
			36	0	18.00	17.74	17.86	17.82			
			36	18	18.00	17.86	17.86	17.73			
			36	37	18.00	17.87	17.77	17.67			
			75	0	18.00	17.79	17.76	17.80			
			Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
						RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	20.50	19.55	19.46	19.47			
			1	49	20.50	19.88	19.82	19.78			
			1	99	20.50	19.50	19.42	19.34			
			50	0	19.00	18.64	18.86	18.92			
			50	24	19.00	18.72	18.71	18.70			
			50	49	19.00	18.76	18.76	18.73			
			100	0	19.00	18.74	18.80	18.82			
		16QAM	1	0	19.50	18.73	18.82	18.77			
			1	49	19.50	19.13	19.12	19.06			
			1	99	19.50	18.71	18.74	18.62			
			50	0	18.50	17.76	18.00	18.02			
			50	24	18.50	17.85	17.85	17.78			
			50	49	18.50	17.88	17.89	17.79			
			100	0	18.00	17.81	17.90	17.91			

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19957/1710.7	20175/1732.5	20393/1754.3
LTE Band 4	1.4MHz	QPSK	1	0	25.00	24.00	24.66	24.57
			1	2	25.00	24.79	24.72	24.72
			1	5	25.50	24.65	24.62	24.54
			3	0	25.00	24.60	24.64	24.55
			3	1	25.00	24.61	24.66	24.59

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19965/1711.5	20175/1732.5	20385/1753.5
		16QAM	3	2	25.00	24.58	24.65	24.54
			6	0	24.00	23.65	23.74	23.56
			1	0	24.00	23.70	23.39	23.55
			1	2	24.00	23.80	23.52	23.72
			1	5	24.00	23.70	23.38	23.55
			3	0	24.00	23.77	23.66	23.61
			3	1	24.00	23.77	23.70	23.67
			3	2	24.00	23.77	23.73	23.60
			6	0	23.00	22.77	22.78	22.66
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19965/1711.5	20175/1732.5	20385/1753.5
LTE Band 4	3MHz	QPSK	1	0	25.00	24.78	24.72	24.66
			1	7	25.00	25.00	24.83	24.93
			1	14	25.00	24.78	24.75	24.65
			8	0	24.00	23.71	23.71	23.66
			8	4	24.00	23.74	23.76	23.69
			8	7	24.00	23.73	23.75	23.61
			15	0	24.00	23.67	23.68	23.59
		16QAM	1	0	24.50	23.99	23.79	23.48
			1	7	24.50	24.24	24.13	23.60
			1	14	24.50	24.03	23.80	23.42
			8	0	23.00	22.71	22.66	22.57
			8	4	23.00	22.73	22.70	22.59
			8	7	23.00	22.67	22.66	22.55
			15	0	23.00	22.66	22.59	22.58
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19975/1712.5	20175/1732.5	20375/1752.5
LTE Band 4	5MHz	QPSK	1	0	25.00	24.52	24.56	24.52
			1	12	25.00	24.88	24.88	24.90
			1	24	25.00	24.51	24.57	24.45
			12	0	24.00	23.59	23.59	23.56
			12	6	24.00	23.66	23.62	23.59
			12	11	24.00	23.66	23.59	23.50
			25	0	24.00	23.60	23.58	23.50
		16QAM	1	0	24.50	23.72	23.92	23.71
			1	12	24.50	24.17	24.29	24.06

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
			1	24	24.50	23.75	23.91	23.68
			12	0	23.00	22.54	22.52	22.44
			12	6	23.00	22.65	22.60	22.47
			12	11	23.00	22.61	22.49	22.37
			25	0	23.00	22.52	22.51	22.47
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
LTE Band 4	10MHz	QPSK	1	0	25.00	24.61	24.60	24.64
			1	24	25.00	24.82	24.82	24.74
			1	49	25.00	24.65	24.65	24.55
			25	0	24.00	23.62	23.68	23.65
			25	12	24.00	23.68	23.67	23.61
			25	24	24.00	23.73	23.63	23.58
			50	0	24.00	23.67	23.65	23.61
		16QAM	1	0	24.50	23.87	23.67	23.40
			1	24	24.50	24.09	23.85	23.52
			1	49	24.50	23.90	23.68	23.32
			25	0	23.00	22.59	22.64	22.61
			25	12	23.00	22.65	22.63	22.58
			25	24	23.00	22.70	22.58	22.51
			50	0	23.00	22.60	22.63	22.55
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20025/1717.5	20175/1732.5	20325/1747.5
LTE Band 4	15MHz	QPSK	1	0	25.00	24.40	24.47	24.44
			1	37	25.00	24.78	24.87	24.76
			1	74	25.00	24.39	24.48	24.29
			36	0	24.00	23.68	23.70	23.76
			36	18	24.00	23.71	23.73	23.68
			36	37	24.00	23.70	23.68	23.62
			75	0	24.00	23.68	23.69	23.68
		16QAM	1	0	24.50	23.76	23.53	23.52
			1	37	24.50	24.14	23.93	23.96
			1	74	24.50	23.73	23.54	23.38
			36	0	23.00	22.59	22.63	22.59
			36	18	23.00	22.63	22.69	22.55
			36	37	23.00	22.59	22.58	22.48

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745
			75	0	23.00	22.58	22.59	22.61
LTE Band 4	20MHz	QPSK	1	0	25.00	24.35	24.37	24.40
			1	49	25.00	24.70	24.76	24.74
			1	99	25.00	24.36	24.42	24.24
			50	0	24.00	23.51	23.61	23.71
			50	24	24.00	23.56	23.61	23.63
			50	49	24.00	23.57	23.49	23.52
			100	0	24.00	23.54	23.57	23.61
		16QAM	1	0	24.00	23.49	23.57	23.51
			1	49	24.00	23.90	23.91	23.84
			1	99	24.00	23.50	23.58	23.42
			50	0	23.00	22.52	22.61	22.68
			50	24	23.00	22.56	22.61	22.57
			50	49	23.00	22.59	22.53	22.47
			100	0	23.00	22.57	22.52	22.54

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
			1	0	24.00	23.66	23.45	23.60
LTE Band 5	1.4MHz	QPSK	1	2	24.00	23.76	23.60	23.69
			1	5	24.00	23.65	23.48	23.51
			3	0	24.00	23.64	23.54	23.63
			3	1	24.00	23.65	23.55	23.62
			3	2	24.00	23.64	23.53	23.56
			6	0	23.00	22.57	22.49	22.62
			16QAM	1	0	23.00	22.87	22.67
		1		2	23.00	22.98	22.74	22.56
		1		5	23.00	22.87	22.65	22.41
		3		0	23.00	22.83	22.72	22.74
		3		1	23.00	22.85	22.74	22.72
		3		2	23.00	22.80	22.74	22.74
		6		0	22.00	21.79	21.63	21.78
		Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)

5			1	49	24.00	23.52	23.01	23.05	
			25	0	23.00	22.58	22.03	22.09	
			25	12	23.00	22.56	21.97	22.05	
			25	24	23.00	22.56	21.97	21.94	
			50	0	23.00	22.58	21.99	22.03	
	16QAM			1	0	23.50	23.00	22.08	21.83
				1	24	23.50	23.03	22.28	22.06
				1	49	23.50	22.67	22.15	21.91
				25	0	22.00	21.49	21.06	21.14
				25	12	22.00	21.54	21.00	21.13
				25	24	22.00	21.33	21.00	20.99
				50	0	21.50	21.44	21.08	21.07

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20775/2502.5	21100/2535	21425/2567.5
LTE Band 7	5MHz	QPSK	1	0	25.00	24.27	24.00	24.32
			1	12	25.00	24.78	24.40	24.65
			1	24	25.00	24.29	23.98	24.39
			12	0	23.50	23.29	23.04	23.43
			12	6	23.50	23.26	23.13	23.48
			12	11	23.50	22.95	23.01	23.34
		16QAM	25	0	23.50	22.84	23.05	23.40
			1	0	24.50	23.06	23.20	23.68
			1	12	24.50	23.56	23.55	24.05
			1	24	24.50	23.03	23.22	23.74
			12	0	23.00	21.77	22.09	22.42
			12	6	23.00	21.82	22.17	22.51
			12	11	23.00	21.73	22.01	22.33
25	0	22.50	21.82	22.07	22.40			

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20800/2505	21100/2535	21400/2565
LTE Band 7	10MHz	QPSK	1	0	25.00	23.85	24.06	24.34
			1	24	25.00	24.03	24.26	24.63
			1	49	25.00	23.84	24.10	24.51
			25	0	23.50	23.02	23.16	23.44
			25	12	23.50	22.95	23.11	23.43

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20825/2507.5	21100/2535	21375/2562.5
		16QAM	25	24	23.50	22.90	23.09	23.34
			50	0	23.50	22.96	23.15	23.39
			1	0	23.50	23.15	23.13	23.10
			1	24	23.50	23.36	23.37	23.32
			1	49	23.50	23.23	23.20	23.21
			25	0	22.50	21.97	22.20	22.44
			25	12	22.50	21.89	22.14	22.45
			25	24	22.50	21.88	22.11	22.35
			50	0	22.50	21.93	22.19	22.38
LTE Band 7	15MHz	QPSK	1	0	25.00	23.70	23.91	24.19
			1	37	25.00	24.15	24.33	24.60
			1	74	25.00	23.71	23.96	24.36
			36	0	24.00	23.03	23.21	23.41
			36	18	24.00	22.95	23.25	23.51
			36	37	24.00	22.99	23.10	23.44
			75	0	23.50	23.00	23.16	23.47
		16QAM	1	0	24.00	22.82	23.21	23.29
			1	37	24.00	23.06	23.63	23.70
			1	74	24.00	22.86	23.32	23.41
			36	0	23.00	21.87	22.19	22.42
			36	18	23.00	21.87	22.21	22.54
			36	37	23.00	21.85	22.12	22.43
			75	0	22.50	21.95	22.16	22.40
						RB Configuration		Tune-up (dBm)
RB Size	RB Offset	20850/2510				21100/2535	21350/2560	
LTE Band 7	20MHz	QPSK	1	0	25.00	23.52	23.86	24.04
			1	49	25.00	23.96	24.31	24.51
			1	99	25.00	23.63	23.90	24.31
			50	0	23.50	22.98	23.11	23.22
			50	24	23.50	22.87	23.11	23.36
			50	49	23.50	23.01	22.94	23.19
			100	0	23.50	22.97	23.12	23.24
		16QAM	1	0	24.00	22.76	22.95	23.23
			1	49	24.00	23.17	23.38	23.67

			1	99	24.00	22.83	23.06	23.38
			50	0	22.50	21.92	22.21	22.25
			50	24	22.50	21.83	22.18	22.41
			50	49	22.50	21.95	22.03	22.24
			100	0	22.50	21.96	22.13	22.23

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23017/699.7	23095/707.5	23173/715.3
LTE Band 12	1.4MHz	QPSK	1	0	23.50	21.98	22.83	22.83
			1	2	23.50	23.20	22.99	22.97
			1	5	23.50	22.99	22.83	22.79
			3	0	23.50	23.05	22.89	22.89
			3	1	23.50	23.04	22.92	22.88
			3	2	23.50	23.00	22.88	22.86
		16QAM	6	0	22.00	21.96	21.82	21.86
			1	0	22.50	21.90	22.05	22.05
			1	2	22.50	22.02	22.15	22.16
			1	5	22.50	21.85	21.94	21.99
			3	0	22.50	22.15	22.08	22.08
			3	1	22.50	22.16	22.06	22.10
			3	2	22.50	22.18	22.04	22.13
			6	0	21.50	21.16	21.01	21.00

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23025/700.5	23095/707.5	23165/714.5
LTE Band 12	3MHz	QPSK	1	0	23.50	23.07	23.04	22.98
			1	7	23.50	23.33	23.27	23.28
			1	14	23.50	23.14	22.90	22.95
			8	0	22.50	22.03	21.89	21.94
			8	4	22.50	22.03	21.91	21.96
			8	7	22.50	22.00	21.90	21.95
			15	0	22.50	22.02	21.89	21.97
		16QAM	1	0	23.00	22.23	21.92	22.38
			1	7	23.00	22.47	22.06	22.72
			1	14	23.00	22.26	21.77	22.32
			8	0	21.50	21.03	20.85	20.99
			8	4	21.50	21.03	20.91	20.99

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23035/701.5	23095/707.5	23155/713.5
			8	7	21.50	20.98	20.87	20.99
			15	0	21.00	21.00	20.93	20.96
LTE Band 12	5MHz	QPSK	1	0	23.50	22.87	22.85	22.66
			1	12	23.50	23.26	23.17	22.94
			1	24	23.50	22.85	22.71	22.79
			12	0	22.50	22.03	21.65	21.92
			12	6	22.50	22.00	21.83	21.87
			12	11	22.50	21.95	21.75	21.94
			25	0	22.00	22.00	21.78	21.91
		16QAM	1	0	23.00	22.19	22.44	22.00
			1	12	23.00	22.76	22.65	22.59
			1	24	23.00	22.26	22.22	22.05
			12	0	21.50	21.04	20.63	20.88
			12	6	21.50	21.00	20.79	20.78
			12	11	21.50	20.95	20.73	20.86
			25	0	21.00	20.95	20.69	20.95
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23060/704	23095/707.5	23130/711
LTE Band 12	10MHz	QPSK	1	0	23.50	22.96	22.93	22.93
			1	24	23.50	23.07	22.98	22.98
			1	49	23.50	22.88	22.81	22.87
			25	0	22.50	22.11	21.70	21.85
			25	12	22.50	21.99	21.84	21.84
			25	24	22.50	22.20	21.67	21.82
			50	0	22.50	22.18	21.68	21.85
		16QAM	1	0	23.00	22.36	22.15	21.73
			1	24	23.00	22.61	22.16	21.82
			1	49	23.00	22.23	21.95	21.78
			25	0	21.50	21.13	20.71	20.82
			25	12	21.50	20.97	20.83	20.87
			25	24	21.50	21.26	20.65	20.80
			50	0	21.50	21.16	20.67	20.79
Band	Band	Modulation	RB		Tune-up	Channel/Frequency(MHz)		

	Width		Configuration		(dBm)			
			RB Size	RB Offset		23205/779.5	23230/782	23255/784.5
LTE Band 13	5MHz	QPSK	1	0	24.00	23.33	23.32	23.21
			1	12	24.00	23.69	23.63	23.57
			1	24	24.00	23.25	23.16	23.06
			12	0	22.50	22.42	22.22	22.21
			12	6	22.50	22.46	22.37	22.28
			12	11	22.50	22.44	22.29	22.13
			25	0	22.50	22.45	22.28	22.18
		16QAM	1	0	23.50	22.85	22.61	22.54
			1	12	23.50	23.29	23.08	22.79
			1	24	23.50	22.82	22.50	22.43
			12	0	22.00	21.36	21.28	21.28
			12	6	22.00	21.50	21.38	21.32
			12	11	22.00	21.49	21.28	21.19
			25	0	21.50	21.38	21.37	21.23
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		N/A	23230/782	N/A
LTE Band 13	10MHz	QPSK	1	0	24.00	N/A	22.71	N/A
			1	24	24.00	N/A	23.59	N/A
			1	49	24.00	N/A	23.37	N/A
			25	0	22.50	N/A	22.39	N/A
			25	12	22.50	N/A	22.38	N/A
			25	24	22.50	N/A	22.30	N/A
			50	0	22.50	N/A	22.34	N/A
		16QAM	1	0	22.50	N/A	22.28	N/A
			1	24	22.50	N/A	22.41	N/A
			1	49	22.50	N/A	22.12	N/A
			25	0	21.50	N/A	21.42	N/A
			25	12	21.50	N/A	21.46	N/A
			25	24	21.50	N/A	21.36	N/A
			50	0	21.50	N/A	21.38	N/A
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23755/706.5	23790/710	23825/713.5

LTE Band 17	5MHz	QPSK	1	0	23.50	22.89	22.81	22.80
			1	12	23.50	23.15	23.14	23.22
			1	24	23.50	22.78	22.78	22.87
			12	0	22.00	21.81	21.82	21.98
			12	6	22.00	21.97	21.86	21.91
			12	11	22.00	21.99	21.63	21.92
			25	0	22.00	21.95	21.75	21.97
		16QAM	1	0	23.00	22.22	22.10	22.28
			1	12	23.00	22.59	22.44	22.74
			1	24	23.00	22.10	22.06	22.38
			12	0	21.00	20.78	20.77	20.98
			12	6	21.00	20.89	20.86	20.93
			12	11	21.00	20.90	20.61	20.88
			25	0	21.00	20.92	20.72	20.94
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23780/709	23790/710	23800/711
LTE Band 17	10MHz	QPSK	1	0	23.50	23.04	23.04	22.91
			1	24	23.50	23.08	23.06	22.98
			1	49	23.50	22.99	22.90	22.95
			25	0	22.00	21.66	21.72	21.83
			25	12	22.00	21.87	21.84	21.88
			25	24	22.00	21.61	21.61	21.78
			50	0	22.00	21.63	21.68	21.81
		16QAM	1	0	22.50	21.88	22.36	22.07
			1	24	22.50	21.87	22.41	22.15
			1	49	22.50	21.77	22.35	22.07
			25	0	21.00	20.67	20.71	20.81
			25	12	21.00	20.83	20.85	20.88
			25	24	21.00	20.62	20.62	20.76
			50	0	21.00	20.59	20.68	20.85

7.4. WLAN & Bluetooth Output Power

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11b	1	2412	15.00	14.90
	6	2437	15.00	14.49
	11	2462	15.00	14.46
802.11g	1	2412	14.00	13.78
	6	2437	14.00	13.33
	11	2462	14.00	13.10
802.11n HT20	1	2412	12.00	11.65
	6	2437	12.00	11.50
	11	2462	12.00	11.24
802.11n HT40	3	2422	11.50	11.08
	6	2437	11.50	10.97
	9	2452	11.50	10.44

NOTE: Power measurement results of WLAN 2.4G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	36	5180	11.00	9.65
	40	5200	11.00	10.67
	48	5240	11.00	10.18
802.11n HT20	36	5180	10.50	9.35
	40	5200	10.50	10.43
	48	5240	10.50	9.99
802.11n HT40	38	5190	10.50	9.98
	46	5230	10.50	10.01
802.11ac VHT20	36	5180	10.50	9.55
	40	5200	10.50	10.48
	48	5240	10.50	10.04
802.11ac VHT40	38	5190	9.50	9.26
	46	5230	9.50	9.29
802.11ac VHT80	42	5210	9.00	8.97

NOTE: Power measurement results of WLAN 5.2G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	149	5745	10.00	9.95
	157	5785	10.00	9.53
	165	5825	10.00	9.50
802.11n HT20	149	5745	10.00	9.79
	157	5785	10.00	9.44
	165	5825	10.00	9.38
802.11n HT40	151	5755	10.50	10.28
	159	5795	10.50	9.90
802.11ac VHT20	149	5745	10.00	9.76
	157	5785	10.00	9.40
	165	5825	10.00	9.34
802.11ac VHT40	151	5755	10.50	10.23
	159	5795	10.50	9.91
802.11ac VHT80	155	5775	10.00	9.73

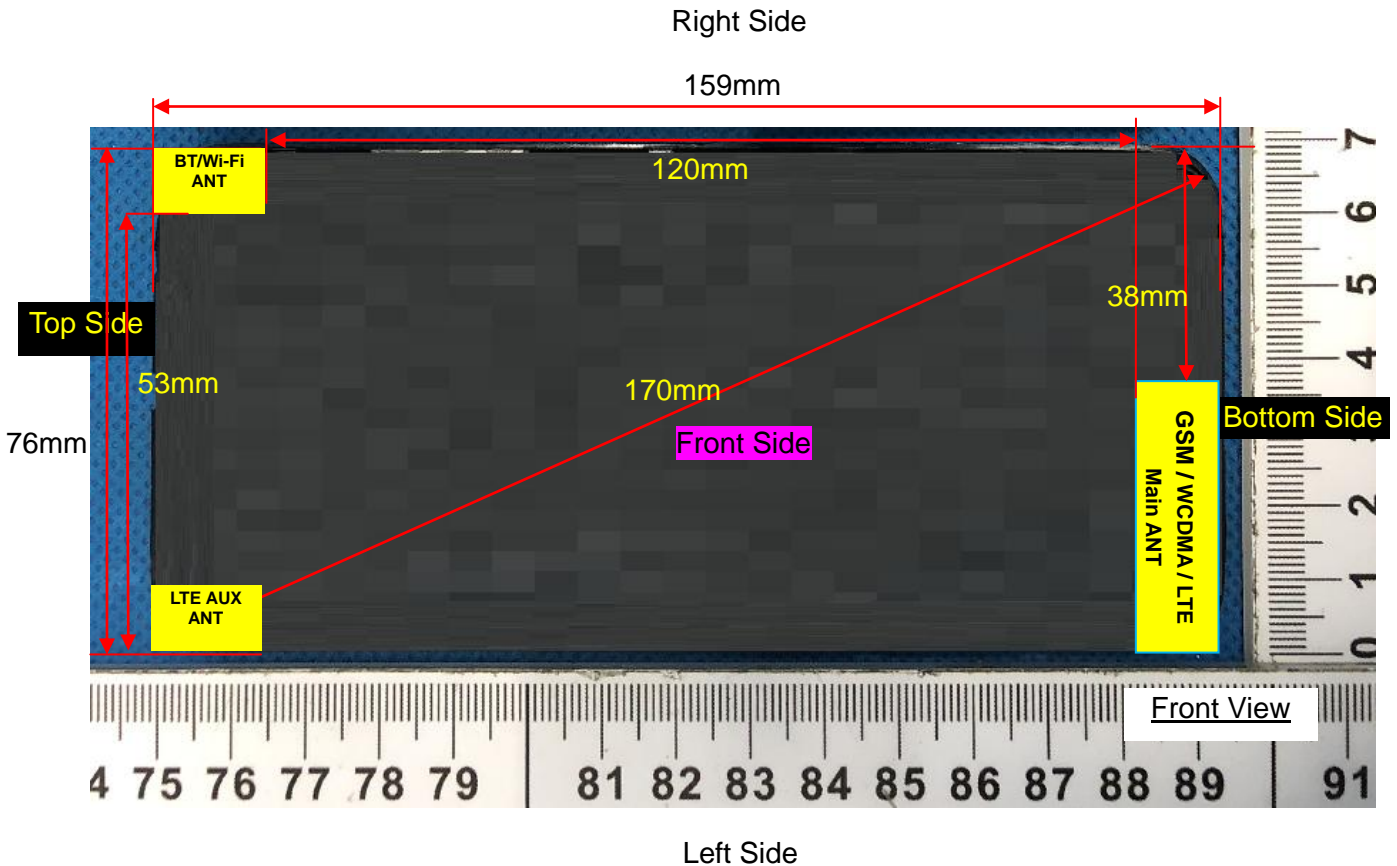
NOTE: Power measurement results of WLAN 5.8G.

BR+EDR	Output Power (dBm)				
	Channel	Tune-up (dBm)	Data Rates		
			1M	2M	3M
	0CH	2.00	1.43	0.78	0.19
	39CH	1.00	0.27	-0.01	-0.04
	78CH	1.00	0.85	0.93	0.92

BLE	Channel	Tune-up (dBm)	Output Power (dBm)	
			Data Rates 1M	Data Rates 2M
		0CH	-7.00	-7.94
	19CH	-8.00	-8.09	-8.06
	39CH	-7.00	-7.82	-7.76

NOTE: Power measurement results of Bluetooth.

8. Antenna Location



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
WWAN Main ANT	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	> 25mm	≤ 25mm
WLAN & Bluetooth	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	≤ 25mm	>25mm
Positions for SAR tests						
Antennas	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
WWAN Main ANT	Yes	Yes	Yes	NO	NO	Yes
WLAN & Bluetooth	Yes	Yes	NO	Yes	Yes	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:

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

- $f_{\text{(GHZ)}}$ 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	2.00	1.58	5	2.480	0.5	3.0	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:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f_{\text{GHz}}/x}] \text{ W/kg}$ for test separation distances $\leq 50\text{mm}$, 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	Head	2.00	1.58	5	2.48	7.5	0.067
Bluetooth	Body-worn	2.00	1.58	10	2.48	7.5	0.033
Bluetooth	Hotspot	2.00	1.58	10	2.48	7.5	0.033

NOTE: Estimated SAR calculation for Bluetooth

10. SAR Results

10.1. SAR measurement Result

10.1.1. SAR measurement Result of GSM850

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Left Cheek	189/836.4	GPRS(GMSK 4TS)	0.596	0.427	-0.91	29.31	29.50	0.623	2022/12/29	1#
Left Tilt 15 Degree	189/836.4	GPRS(GMSK 4TS)	0.336	0.229	2.54	29.31	29.50	0.351	2022/12/29	
Right Cheek	189/836.4	GPRS(GMSK 4TS)	0.553	0.392	1.28	29.31	29.50	0.578	2022/12/29	
Right Tilt 15 Degree	189/836.4	GPRS(GMSK 4TS)	0.255	0.177	3.76	29.31	29.50	0.266	2022/12/29	

NOTE: Head SAR test results of GSM850.

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	189/836.4	GPRS(GMSK 4TS)	0.366	0.266	-1.00	29.31	29.50	0.382	2022/12/29	
Back Side	189/836.4	GPRS(GMSK 4TS)	0.572	0.428	-0.26	29.31	29.50	0.598	2022/12/29	2#

NOTE: Body-Worn SAR test results of GSM850

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	189/836.4	GPRS(GMSK 4TS)	0.366	0.266	-1.00	29.31	29.50	0.382	2022/12/29	
Back Side	189/836.4	GPRS(GMSK 4TS)	0.572	0.428	-0.26	29.31	29.50	0.598	2022/12/29	2#
Left Side	189/836.4	GPRS(GMSK 4TS)	0.183	0.134	-2.28	29.31	29.50	0.191	2022/12/29	
Bottom Side	189/836.4	GPRS(GMSK 4TS)	0.300	0.215	-3.24	29.31	29.50	0.313	2022/12/29	

NOTE: Hotspot SAR test results of GSM850

10.1.2. SAR measurement Result of GSM1900

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Left Cheek	661/1880	GPRS(GMSK 3TS)	0.082	0.046	-0.26	27.08	28.00	0.101	2022/12/28	3#
Left Tilt 15 Degree	661/1880	GPRS(GMSK 3TS)	0.046	0.025	0.90	27.08	28.00	0.057	2022/12/28	
Right Cheek	661/1880	GPRS(GMSK 3TS)	0.072	0.038	-2.41	27.08	28.00	0.089	2022/12/28	
Right Tilt 15 Degree	661/1880	GPRS(GMSK 3TS)	0.037	0.020	-3.48	27.08	28.00	0.046	2022/12/28	

NOTE: Head SAR test results of GSM1900

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	661/1880	GPRS(GMSK 3TS)	0.504	0.230	1.78	27.08	28.00	0.623	2022/12/28	
Back Side	661/1880	GPRS(GMSK 3TS)	0.818	0.385	-1.30	27.08	28.00	1.011	2022/12/28	
Back Side	512/1850.2	GPRS(GMSK 3TS)	1.217	0.588	-2.16	27.51	28.00	1.362	2022/12/28	4#
Back Side Repeated	512/1850.2	GPRS(GMSK 3TS)	1.210	0.582	1.23	27.51	28.00	1.355	2022/12/28	
Back Side with earphone	512/1850.2	GPRS(GMSK 3TS)	1.208	0.580	0.35	27.51	28.00	1.352	2022/12/28	
Back Side	810/1909.8	GPRS(GMSK 3TS)	0.589	0.281	0.24	27.20	28.00	0.708	2022/12/28	

NOTE: Body-Worn SAR test results of GSM1900

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	661/1880	GPRS(GMSK 3TS)	0.504	0.230	1.78	27.08	28.00	0.623	2022/12/28	
Back Side	661/1880	GPRS(GMSK 3TS)	0.818	0.385	-1.30	27.08	28.00	1.011	2022/12/28	
Left Side	661/1880	GPRS(GMSK 3TS)	0.255	0.116	-3.71	27.08	28.00	0.315	2022/12/28	
Bottom Side	661/1880	GPRS(GMSK 3TS)	0.415	0.186	1.35	27.08	28.00	0.513	2022/12/28	
Back Side	512/1850.2	GPRS(GMSK 3TS)	1.217	0.588	-2.16	27.51	28.00	1.362	2022/12/28	4#
Back Side Repeated	512/1850.2	GPRS(GMSK 3TS)	1.210	0.582	1.23	27.51	28.00	1.355	2022/12/28	
Back Side with earphone	512/1850.2	GPRS(GMSK 3TS)	1.208	0.580	0.35	27.51	28.00	1.352	2022/12/28	
Back Side	810/1909.8	GPRS(GMSK 3TS)	0.589	0.281	0.24	27.20	28.00	0.708	2022/12/28	

NOTE: Hotspot SAR test results of GSM1900

10.1.3. SAR measurement Result of WCDMA Band 2

Test Position of Head	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Left Cheek	9400/1880	RMC12.2K	0.081	0.045	-2.40	23.58	24.00	0.089	2022/12/28	5#
Left Tilt 15 Degree	9400/1880	RMC12.2K	0.041	0.022	-2.88	23.58	24.00	0.045	2022/12/28	
Right Cheek	9400/1880	RMC12.2K	0.071	0.038	2.24	23.58	24.00	0.078	2022/12/28	
Right Tilt 15 Degree	9400/1880	RMC12.2K	0.035	0.018	3.66	23.58	24.00	0.039	2022/12/28	

NOTE: Head SAR test results of WCDMA Band 2

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	9400/1880	RMC12.2K	0.330	0.164	2.97	23.58	24.00	0.364	2022/12/28	
Back Side	9400/1880	RMC12.2K	0.531	0.277	-0.39	23.58	24.00	0.585	2022/12/28	6#

NOTE: Body-Worn SAR test results of WCDMA Band 2

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	9400/1880	RMC12.2K	0.330	0.164	2.97	23.58	24.00	0.364	2022/12/28	
Back Side	9400/1880	RMC12.2K	0.531	0.277	-0.39	23.58	24.00	0.585	2022/12/28	6#
Left Side	9400/1880	RMC12.2K	0.171	0.087	-3.69	23.58	24.00	0.188	2022/12/28	
Bottom Side	9400/1880	RMC12.2K	0.290	0.151	3.54	23.58	24.00	0.319	2022/12/28	

NOTE: Hotspot SAR test results of WCDMA Band 2

10.1.4. SAR measurement Result of WCDMA Band 4

Test Position of Head	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Left Cheek	1413/1732.6	RMC12.2K	0.141	0.084	-2.65	24.01	24.50	0.158	2023/1/04	7#
Left Tilt 15 Degree	1413/1732.6	RMC12.2K	0.083	0.048	2.96	24.01	24.50	0.093	2023/1/04	
Right Cheek	1413/1732.6	RMC12.2K	0.132	0.079	-1.93	24.01	24.50	0.148	2023/1/04	
Right Tilt 15 Degree	1413/1732.6	RMC12.2K	0.060	0.036	-1.24	24.01	24.50	0.067	2023/1/04	

NOTE: Head SAR test results of WCDMA Band 4

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	1413/1732.6	RMC12.2K	0.564	0.306	-3.48	24.01	24.50	0.631	2023/1/04	
Back Side	1413/1732.6	RMC12.2K	0.894	0.500	-0.46	24.01	24.50	1.001	2023/1/04	
Back Side	1312/1712.4	RMC12.2K	0.910	0.513	-3.90	23.96	24.50	1.030	2023/1/04	8#
Back Side Repeated	1312/1712.4	RMC12.2K	0.906	0.510	2.31	23.96	24.50	1.026	2023/1/04	
Back Side	1513/1752.6	RMC12.2K	0.561	0.309	-0.58	23.07	24.50	0.780	2023/1/04	

NOTE: Body-Worn SAR test results of WCDMA Band 4

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	1413/1732.6	RMC12.2K	0.564	0.306	-3.48	24.01	24.50	0.631	2023/1/04	
Back Side	1413/1732.6	RMC12.2K	0.894	0.500	-0.46	24.01	24.50	1.001	2023/1/04	
Left Side	1413/1732.6	RMC12.2K	0.282	0.156	-3.93	24.01	24.50	0.316	2023/1/04	
Bottom Side	1413/1732.6	RMC12.2K	0.455	0.254	-3.91	24.01	24.50	0.509	2023/1/04	
Back	1312/1712.4	RMC12.2K	0.910	0.513	-3.90	23.96	24.50	1.030	2023/1/04	8#

Side										
Back Side Repeated	1312/1712.4	RMC12.2K	0.906	0.510	2.31	23.96	24.50	1.026	2023/1/04	
Back Side	1513/1752.6	RMC12.2K	0.561	0.309	-0.58	23.07	24.50	0.780	2023/1/04	

NOTE: Hotspot SAR test results of WCDMA Band 4

10.1.5. SAR measurement Result of WCDMA Band 5

Test Position of Head	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Left Cheek	4182/836.4	RMC12.2K	0.251	0.183	-0.61	22.57	23.00	0.277	2022/12/29	9#
Left Tilt 15 Degree	4182/836.4	RMC12.2K	0.129	0.089	2.90	22.57	23.00	0.142	2022/12/29	
Right Cheek	4182/836.4	RMC12.2K	0.222	0.157	2.79	22.57	23.00	0.245	2022/12/29	
Right Tilt 15 Degree	4182/836.4	RMC12.2K	0.108	0.077	0.42	22.57	23.00	0.119	2022/12/29	

NOTE: Head SAR test results of WCDMA Band 5

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	4182/836.4	RMC12.2K	0.174	0.120	-2.91	22.57	23.00	0.192	2022/12/29	
Back Side	4182/836.4	RMC12.2K	0.276	0.200	-2.12	22.57	23.00	0.305	2022/12/29	10#

NOTE: Body-Worn SAR test results of WCDMA Band 5

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	4182/836.4	RMC12.2K	0.174	0.120	-2.91	22.57	23.00	0.192	2022/12/29	
Back Side	4182/836.4	RMC12.2K	0.276	0.200	-2.12	22.57	23.00	0.305	2022/12/29	10#
Left Side	4182/836.4	RMC12.2K	0.096	0.069	-1.65	22.57	23.00	0.106	2022/12/29	
Bottom Side	4182/836.4	RMC12.2K	0.145	0.103	2.69	22.57	23.00	0.160	2022/12/29	

NOTE: Hotspot SAR test results of WCDMA Band 5

10.1.6. SAR measurement Result of LTE Band 2

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Left Cheek	18900/1880	20M QPSK(1,49)	0.037	0.021	0.64	19.82	20.50	0.043	2022/12/28	17#
Left Tilt 15 Degree	18900/1880	20M QPSK(1,49)	0.022	0.012	0.10	19.82	20.50	0.026	2022/12/28	
Right Cheek	18900/1880	20M QPSK(1,49)	0.034	0.019	3.52	19.82	20.50	0.040	2022/12/28	
Right Tilt 15 Degree	18900/1880	20M QPSK(1,49)	0.017	0.015	3.96	19.82	20.50	0.020	2022/12/28	
50%RB										
Left Cheek	18900/1880	20M QPSK(50,0)	0.020	0.012	-1.60	18.86	19.00	0.021	2022/12/28	
Left Tilt 15 Degree	18900/1880	20M QPSK(50,0)	0.013	0.007	0.00	18.86	19.00	0.013	2022/12/28	
Right Cheek	18900/1880	20M QPSK(50,0)	0.019	0.011	0.84	18.86	19.00	0.020	2022/12/28	
Right Tilt 15 Degree	18900/1880	20M QPSK(50,0)	0.010	0.008	-0.17	18.86	19.00	0.010	2022/12/28	

NOTE: Head SAR test results of LTE Band 2

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	18900/1880	20M QPSK(1,49)	0.168	0.086	-0.49	19.82	20.50	0.196	2022/12/28	
Back Side	18900/1880	20M QPSK(1,49)	0.231	0.123	4.99	19.82	20.50	0.270	2022/12/28	18#

50%RB										
Front Side	18900/1880	20M QPSK(50,0)	0.096	0.048	-2.39	18.86	19.00	0.099	2022/12/28	
Back Side	18900/1880	20M QPSK(50,0)	0.131	0.072	0.10	18.86	19.00	0.135	2022/12/28	

NOTE: Body-Worn SAR test results of LTE Band 2

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	18900/1880	20M QPSK(1,49)	0.168	0.086	-0.49	19.82	20.50	0.196	2022/12/28	
Back Side	18900/1880	20M QPSK(1,49)	0.231	0.123	4.99	19.82	20.50	0.270	2022/12/28	18#
Left Side	18900/1880	20M QPSK(1,49)	0.072	0.038	-0.75	19.82	20.50	0.084	2022/12/28	
Bottom Side	18900/1880	20M QPSK(1,49)	0.125	0.064	-3.72	19.82	20.50	0.146	2022/12/28	
50%RB										
Front Side	18900/1880	20M QPSK(50,0)	0.096	0.048	-2.39	18.86	19.00	0.099	2022/12/28	
Back Side	18900/1880	20M QPSK(50,0)	0.131	0.072	0.10	18.86	19.00	0.135	2022/12/28	
Left Side	18900/1880	20M QPSK(50,0)	0.036	0.022	-1.25	18.86	19.00	0.037	2022/12/28	
Bottom Side	18900/1880	20M QPSK(50,0)	0.072	0.035	-1.00	18.86	19.00	0.074	2022/12/28	

NOTE: Hotspot SAR test results of LTE Band 2

10.1.7. SAR measurement Result of LTE Band 4

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						

1RB										
Left Cheek	20175/1732.5	20M QPSK(1,49)	0.343	0.204	1.84	24.76	25.00	0.362	2023/1/04	19#
Left Tilt 15 Degree	20175/1732.5	20M QPSK(1,49)	0.178	0.103	0.25	24.76	25.00	0.188	2023/1/04	
Right Cheek	20175/1732.5	20M QPSK(1,49)	0.319	0.190	0.70	24.76	25.00	0.337	2023/1/04	
Right Tilt 15 Degree	20175/1732.5	20M QPSK(1,49)	0.161	0.095	2.09	24.76	25.00	0.170	2023/1/04	
50%RB										
Left Cheek	20175/1732.5	20M QPSK(50,0)	0.173	0.104	-0.20	23.61	24.00	0.189	2023/1/04	
Left Tilt 15 Degree	20175/1732.5	20M QPSK(50,0)	0.101	0.054	1.96	23.61	24.00	0.110	2023/1/04	
Right Cheek	20175/1732.5	20M QPSK(50,0)	0.188	0.112	-3.67	23.61	24.00	0.206	2023/1/04	
Right Tilt 15 Degree	20175/1732.5	20M QPSK(50,0)	0.083	0.056	0.28	23.61	24.00	0.091	2023/1/04	

NOTE: Head SAR test results of LTE Band 4

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	20175/1732.5	20M QPSK(1,49)	0.618	0.337	-1.62	24.76	25.00	0.653	2023/1/04	
Back Side	20175/1732.5	20M QPSK(1,49)	1.012	0.569	-0.42	24.76	25.00	1.069	2023/1/04	
Back Side	20050/1720	20M QPSK(1,49)	1.114	0.631	-3.68	24.70	25.00	1.194	2023/1/04	20#
Back Side Repeated	20050/1720	20M QPSK(1,49)	1.110	0.628	0.23	24.70	25.00	1.189	2023/1/04	

Back Side	20300/1745	20M QPSK(1,49)	1.044	0.590	1.36	24.74	25.00	1.108	2023/1/04	
50%RB										
Front Side	20175/1732.5	20M QPSK(50,0)	0.344	0.175	-1.15	23.61	24.00	0.376	2023/1/04	
Back Side	20175/1732.5	20M QPSK(50,0)	0.560	0.293	-0.84	23.61	24.00	0.613	2023/1/04	
100%RB										
Back Side	20175/1732.5	20M QPSK(100,0)	0.272	0.152	2.57	23.57	24.00	0.300	2023/1/04	

NOTE: Body-Worn SAR test results of LTE Band 4

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	20175/1732.5	20M QPSK(1,49)	0.618	0.337	-1.62	24.76	25.00	0.653	2023/1/04	
Back Side	20175/1732.5	20M QPSK(1,49)	1.012	0.569	-0.42	24.76	25.00	1.069	2023/1/04	
Left Side	20175/1732.5	20M QPSK(1,49)	0.315	0.170	3.14	24.76	25.00	0.333	2023/1/04	
Bottom Side	20175/1732.5	20M QPSK(1,49)	0.520	0.289	1.13	24.76	25.00	0.550	2023/1/04	
Back Side	20050/1720	20M QPSK(1,49)	1.114	0.631	-3.68	24.70	25.00	1.194	2023/1/04	20#
Back Side Repeated	20050/1720	20M QPSK(1,49)	1.110	0.628	0.23	24.70	25.00	1.189	2023/1/04	
Back Side	20300/1745	20M QPSK(1,49)	1.044	0.590	1.36	24.74	25.00	1.108	2023/1/04	
50%RB										
Front Side	20175/1732.5	20M QPSK(50,0)	0.344	0.175	-1.15	23.61	24.00	0.376	2023/1/04	
Back Side	20175/1732.5	20M QPSK(50,0)	0.560	0.293	-0.84	23.61	24.00	0.613	2023/1/04	
Left Side	20175/1732.5	20M	0.188	0.098	-4.13	23.61	24.00	0.206	2023/1/04	

		QPSK(50,0)								
Bottom Side	20175/1732.5	20M QPSK(50,0)	0.295	0.163	3.62	23.61	24.00	0.323	2023/1/04	
100%RB										
Back Side	20175/1732.5	20M QPSK(100,0)	0.272	0.152	2.57	23.57	24.00	0.300	2023/1/04	

NOTE: Hotspot SAR test results of LTE Band 4

10.1.8. SAR measurement Result of LTE Band 5

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Left Cheek	20525/836.5	10M QPSK(1,24)	0.325	0.229	2.75	23.22	24.00	0.389	2022/12/29	21#
Left Tilt 15 Degree	20525/836.5	10M QPSK(1,24)	0.186	0.126	-3.08	23.22	24.00	0.223	2022/12/29	
Right Cheek	20525/836.5	10M QPSK(1,24)	0.277	0.187	0.51	23.22	24.00	0.331	2022/12/29	
Right Tilt 15 Degree	20525/836.5	10M QPSK(1,24)	0.144	0.097	-3.29	23.22	24.00	0.172	2022/12/29	
50%RB										
Left Cheek	20525/836.5	10M QPSK(25,0)	0.193	0.120	-3.12	22.03	23.00	0.241	2022/12/29	
Left Tilt 15 Degree	20525/836.5	10M QPSK(25,0)	0.098	0.075	-3.68	22.03	23.00	0.123	2022/12/29	
Right Cheek	20525/836.5	10M QPSK(25,0)	0.166	0.108	-1.81	22.03	23.00	0.208	2022/12/29	
Right Tilt 15 Degree	20525/836.5	10M QPSK(25,0)	0.085	0.058	-3.99	22.03	23.00	0.106	2022/12/29	

NOTE: Head SAR test results of LTE Band 5

Test Position of Body-Worn	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						

with 10mm											
1RB											
Front Side	20525/836.5	10M QPSK(1,24)	0.234	0.165	-2.57	23.22	24.00	0.280	2022/12/29		
Back Side	20525/836.5	10M QPSK(1,24)	0.342	0.249	2.31	23.22	24.00	0.409	2022/12/29	22#	
50%RB											
Front Side	20525/836.5	10M QPSK(25,0)	0.125	0.085	3.82	22.03	23.00	0.156	2022/12/29		
Back Side	20525/836.5	10M QPSK(25,0)	0.183	0.125	2.02	22.03	23.00	0.229	2022/12/29		

NOTE: Body-Worn SAR test results of LTE Band 5

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	20525/836.5	10M QPSK(1,24)	0.234	0.165	-2.57	23.22	24.00	0.280	2022/12/29	
Back Side	20525/836.5	10M QPSK(1,24)	0.342	0.249	2.31	23.22	24.00	0.409	2022/12/29	22#
Left Side	20525/836.5	10M QPSK(1,24)	0.117	0.085	-0.40	23.22	24.00	0.140	2022/12/29	
Bottom Side	20525/836.5	10M QPSK(1,24)	0.175	0.121	1.75	23.22	24.00	0.209	2022/12/29	
50%RB										
Front Side	20525/836.5	10M QPSK(25,0)	0.125	0.085	3.82	22.03	23.00	0.156	2022/12/29	
Back Side	20525/836.5	10M QPSK(25,0)	0.183	0.125	2.02	22.03	23.00	0.229	2022/12/29	
Left Side	20525/836.5	10M QPSK(25,0)	0.069	0.050	3.93	22.03	23.00	0.086	2022/12/29	
Bottom Side	20525/836.5	10M QPSK(25,0)	0.104	0.064	0.35	22.03	23.00	0.130	2022/12/29	

NOTE: Hotspot SAR test results of LTE Band 5

10.1.9. SAR measurement Result of LTE Band 7

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Left Cheek	21100/2535	20M QPSK(1,49)	0.470	0.242	-3.91	24.31	25.00	0.551	2022/12/27	23#
Left Tilt 15 Degree	21100/2535	20M QPSK(1,49)	0.238	0.116	3.30	24.31	25.00	0.279	2022/12/27	
Right Cheek	21100/2535	20M QPSK(1,49)	0.406	0.209	1.59	24.31	25.00	0.476	2022/12/27	
Right Tilt 15 Degree	21100/2535	20M QPSK(1,49)	0.216	0.108	0.83	24.31	25.00	0.253	2022/12/27	
50%RB										
Left Cheek	21100/2535	20M QPSK(50,24)	0.258	0.126	-3.84	23.11	23.50	0.282	2022/12/27	
Left Tilt 15 Degree	21100/2535	20M QPSK(50,24)	0.125	0.069	-4.22	23.11	23.50	0.137	2022/12/27	
Right Cheek	21100/2535	20M QPSK(50,24)	0.234	0.105	3.53	23.11	23.50	0.256	2022/12/27	
Right Tilt 15 Degree	21100/2535	20M QPSK(50,24)	0.121	0.062	0.04	23.11	23.50	0.132	2022/12/27	

NOTE: Head SAR test results of LTE Band 7

Test Position of Body-Worn with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	21100/2535	20M QPSK(1,49)	0.264	0.108	1.63	24.31	25.00	0.309	2022/12/27	
Back Side	21100/2535	20M QPSK(1,49)	0.427	0.184	-1.40	24.31	25.00	0.501	2022/12/27	24#
50%RB										
Front Side	21100/2535	20M QPSK(50,24)	0.134	0.059	4.72	23.11	23.50	0.147	2022/12/27	
Back Side	21100/2535	20M QPSK(50,24)	0.237	0.095	-4.64	23.11	23.50	0.259	2022/12/27	

NOTE: Body-Worn SAR test results of LTE Band 7

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	21100/2535	20M QPSK(1,49)	0.264	0.108	1.63	24.31	25.00	0.309	2022/12/27	
Back Side	21100/2535	20M QPSK(1,49)	0.427	0.184	-1.40	24.31	25.00	0.501	2022/12/27	24#
Left Side	21100/2535	20M QPSK(1,49)	0.141	0.059	-0.27	24.31	25.00	0.165	2022/12/27	
Bottom Side	21100/2535	20M QPSK(1,49)	0.230	0.096	-1.59	24.31	25.00	0.270	2022/12/27	
50%RB										
Front Side	21100/2535	20M QPSK(50,24)	0.134	0.059	4.72	23.11	23.50	0.147	2022/12/27	
Back Side	21100/2535	20M QPSK(50,24)	0.237	0.095	-4.64	23.11	23.50	0.259	2022/12/27	
Left Side	21100/2535	20M QPSK(50,24)	0.084	0.033	-2.29	23.11	23.50	0.092	2022/12/27	
Bottom Side	21100/2535	20M QPSK(50,24)	0.128	0.049	4.65	23.11	23.50	0.140	2022/12/27	

NOTE: Hotspot SAR test results of LTE Band 7

10.1.10. SAR measurement Result of LTE Band 12

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Left Cheek	23095/707.5	10M QPSK(1,24)	0.279	0.207	1.50	22.98	23.50	0.314	2023/1/05	25#
Left Tilt 15 Degree	23095/707.5	10M QPSK(1,24)	0.145	0.108	0.92	22.98	23.50	0.163	2023/1/05	
Right Cheek	23095/707.5	10M QPSK(1,24)	0.248	0.182	-1.58	22.98	23.50	0.280	2023/1/05	
Right Tilt 15 Degree	23095/707.5	10M QPSK(1,24)	0.136	0.101	-1.72	22.98	23.50	0.153	2023/1/05	

50%RB										
Left Cheek	23095/707.5	10M QPSK(25,24)	0.165	0.116	-4.05	21.67	22.50	0.200	2023/1/05	
Left Tilt 15 Degree	23095/707.5	10M QPSK(25,24)	0.087	0.059	-4.21	21.67	22.50	0.105	2023/1/05	
Right Cheek	23095/707.5	10M QPSK(25,24)	0.149	0.108	-0.13	21.67	22.50	0.180	2023/1/05	
Right Tilt 15 Degree	23095/707.5	10M QPSK(25,24)	0.079	0.057	-1.31	21.67	22.50	0.096	2023/1/05	

NOTE: Head SAR test results of LTE Band 12

Test Position of Body-Worn with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	23095/707.5	10M QPSK(1,24)	0.252	0.191	-1.45	22.98	23.50	0.284	2023/1/05	
Back Side	23095/707.5	10M QPSK(1,24)	0.394	0.302	-1.99	22.98	23.50	0.444	2023/1/05	26#
50%RB										
Front Side	23095/707.5	10M QPSK(25,24)	0.146	0.108	-0.69	21.67	22.50	0.177	2023/1/05	
Back Side	23095/707.5	10M QPSK(25,24)	0.209	0.168	-0.15	21.67	22.50	0.253	2023/1/05	

NOTE: Body-Worn SAR test results of LTE Band 12

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	23095/707.5	10M QPSK(1,24)	0.252	0.191	-1.45	22.98	23.50	0.284	2023/1/05	
Back Side	23095/707.5	10M QPSK(1,24)	0.394	0.302	-1.99	22.98	23.50	0.444	2023/1/05	26#
Left Side	23095/707.5	10M QPSK(1,24)	0.126	0.094	1.65	22.98	23.50	0.142	2023/1/05	
Bottom	23095/707.5	10M	0.220	0.164	0.35	22.98	23.50	0.248	2023/1/05	

Side		QPSK(1,24)								
50%RB										
Front Side	23095/707.5	10M QPSK(25,24)	0.146	0.108	-0.69	21.67	22.50	0.177	2023/1/05	
Back Side	23095/707.5	10M QPSK(25,24)	0.209	0.168	-0.15	21.67	22.50	0.253	2023/1/05	
Left Side	23095/707.5	10M QPSK(25,24)	0.070	0.053	-1.40	21.67	22.50	0.085	2023/1/05	
Bottom Side	23095/707.5	10M QPSK(25,24)	0.114	0.092	4.57	21.67	22.50	0.138	2023/1/05	

NOTE: Hotspot SAR test results of LTE Band 12

10.1.11. SAR measurement Result of LTE Band 13

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Left Cheek	23230/782	10M QPSK(1,24)	0.276	0.205	0.30	23.59	24.00	0.303	2023/1/05	27#
Left Tilt 15 Degree	23230/782	10M QPSK(1,24)	0.161	0.116	-0.40	23.59	24.00	0.177	2023/1/05	
Right Cheek	23230/782	10M QPSK(1,24)	0.259	0.187	-2.25	23.59	24.00	0.285	2023/1/05	
Right Tilt 15 Degree	23230/782	10M QPSK(1,24)	0.139	0.103	-0.43	23.59	24.00	0.153	2023/1/05	
50%RB										
Left Cheek	23230/782	10M QPSK(25,0)	0.161	0.108	3.91	22.39	22.50	0.165	2023/1/05	
Left Tilt 15 Degree	23230/782	10M QPSK(25,0)	0.094	0.063	-0.73	22.39	22.50	0.096	2023/1/05	
Right Cheek	23230/782	10M QPSK(25,0)	0.155	0.105	4.49	22.39	22.50	0.159	2023/1/05	
Right Tilt 15 Degree	23230/782	10M QPSK(25,0)	0.078	0.053	-1.22	22.39	22.50	0.080	2023/1/05	

NOTE: Head SAR test results of LTE Band 13

Test	Test	Mode	SAR Value	Power	Conducted	Tune-up	Scaled	Date	Plot
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Position of Body-Worn with 10mm	channel /Freq.		(W/kg)		Drift(%)	Power (dBm)	Power (dBm)	SAR 1-g (W/Kg)		
			1-g	10-g						
1RB										
Front Side	23230/782	10M QPSK(1,24)	0.228	0.171	-1.15	23.59	24.00	0.251	2023/1/05	
Back Side	23230/782	10M QPSK(1,24)	0.345	0.261	1.15	23.59	24.00	0.379	2023/1/05	28#
50%RB										
Front Side	23230/782	10M QPSK(25,0)	0.129	0.099	4.64	22.39	22.50	0.132	2023/1/05	
Back Side	23230/782	10M QPSK(25,0)	0.181	0.149	-2.03	22.39	22.50	0.186	2023/1/05	

NOTE: Body-Worn SAR test results of LTE Band 13

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	23230/782	10M QPSK(1,24)	0.228	0.171	-1.15	23.59	24.00	0.251	2023/1/05	
Back Side	23230/782	10M QPSK(1,24)	0.345	0.261	1.15	23.59	24.00	0.379	2023/1/05	28#
Left Side	23230/782	10M QPSK(1,24)	0.114	0.084	1.71	23.59	24.00	0.125	2023/1/05	
Bottom Side	23230/782	10M QPSK(1,24)	0.195	0.148	-1.80	23.59	24.00	0.214	2023/1/05	
50%RB										
Front Side	23230/782	10M QPSK(25,0)	0.129	0.099	4.64	22.39	22.50	0.132	2023/1/05	
Back Side	23230/782	10M QPSK(25,0)	0.181	0.149	-2.03	22.39	22.50	0.186	2023/1/05	
Left Side	23230/782	10M QPSK(25,0)	0.065	0.043	2.33	22.39	22.50	0.067	2023/1/05	
Bottom Side	23230/782	10M QPSK(25,0)	0.108	0.080	0.66	22.39	22.50	0.111	2023/1/05	

NOTE: Hotspot SAR test results of LTE Band 13

10.1.12. SAR measurement Result of LTE Band 17

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Left Cheek	23790/710	10M QPSK(1,24)	0.265	0.204	-2.64	23.06	23.50	0.293	2023/1/05	29#
Left Tilt 15 Degree	23790/710	10M QPSK(1,24)	0.138	0.106	2.52	23.06	23.50	0.153	2023/1/05	
Right Cheek	23790/710	10M QPSK(1,24)	0.242	0.181	-1.90	23.06	23.50	0.268	2023/1/05	
Right Tilt 15 Degree	23790/710	10M QPSK(1,24)	0.128	0.095	-3.25	23.06	23.50	0.142	2023/1/05	
50%RB										
Left Cheek	23790/710	10M QPSK(25,12)	0.141	0.118	-1.25	21.84	22.00	0.146	2023/1/05	
Left Tilt 15 Degree	23790/710	10M QPSK(25,12)	0.077	0.063	-0.17	21.84	22.00	0.080	2023/1/05	
Right Cheek	23790/710	10M QPSK(25,12)	0.124	0.100	1.27	21.84	22.00	0.129	2023/1/05	
Right Tilt 15 Degree	23790/710	10M QPSK(25,12)	0.073	0.048	0.18	21.84	22.00	0.076	2023/1/05	

NOTE: Head SAR test results of LTE Band17

Test Position of Body-Worn with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	23790/710	10M QPSK(1,24)	0.240	0.177	1.04	23.06	23.50	0.266	2023/1/05	
Back Side	23790/710	10M QPSK(1,24)	0.400	0.308	0.16	23.06	23.50	0.443	2023/1/05	30#
50%RB										
Front Side	23790/710	10M QPSK(25,12)	0.123	0.096	2.09	21.84	22.00	0.128	2023/1/05	
Back Side	23790/710	10M QPSK(25,12)	0.234	0.184	-1.28	21.84	22.00	0.243	2023/1/05	

NOTE: Body-Worn SAR test results of LTE Band 17

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	23790/710	10M QPSK(1,24)	0.240	0.177	1.04	23.06	23.50	0.266	2023/1/05	
Back Side	23790/710	10M QPSK(1,24)	0.400	0.308	0.16	23.06	23.50	0.443	2023/1/05	30#
Left Side	23790/710	10M QPSK(1,24)	0.132	0.101	3.73	23.06	23.50	0.146	2023/1/05	
Bottom Side	23790/710	10M QPSK(1,24)	0.210	0.158	0.28	23.06	23.50	0.232	2023/1/05	
50%RB										
Front Side	23790/710	10M QPSK(25,12)	0.123	0.096	2.09	21.84	22.00	0.128	2023/1/05	
Back Side	23790/710	10M QPSK(25,12)	0.234	0.184	-1.28	21.84	22.00	0.243	2023/1/05	
Left Side	23790/710	10M QPSK(25,12)	0.066	0.055	-2.05	21.84	22.00	0.068	2023/1/05	
Bottom Side	23790/710	10M QPSK(25,12)	0.117	0.084	2.74	21.84	22.00	0.121	2023/1/05	

NOTE: Hotspot SAR test results of LTE Band 17

10.1.13. SAR measurement Result of WLAN2.4G

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Left Cheek	1/2412	802.11b	0.402	0.193	-1.57	14.90	15.00	0.411	2022/12/30	15#
Left Tilt 15 Degree	1/2412	802.11b	0.214	0.100	-2.71	14.90	15.00	0.219	2022/12/30	
Right Cheek	1/2412	802.11b	0.370	0.169	1.96	14.90	15.00	0.379	2022/12/30	
Right Tilt	1/2412	802.11b	0.202	0.092	0.78	14.90	15.00	0.207	2022/12/30	

15										
Degree										

NOTE: Head SAR test results of WLAN2.4G

Test Position of Body-Worn with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	1/2412	802.11b	0.090	0.053	2.47	14.90	15.00	0.092	2022/12/30	
Back Side	1/2412	802.11b	0.121	0.071	-2.94	14.90	15.00	0.124	2022/12/30	16#

NOTE: Body-worn SAR test results of WLAN2.4G

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	1/2412	802.11b	0.090	0.053	2.47	14.90	15.00	0.092	2022/12/30	
Back Side	1/2412	802.11b	0.121	0.071	-2.94	14.90	15.00	0.124	2022/12/30	16#
Right Side	1/2412	802.11b	0.048	0.027	-2.12	14.90	15.00	0.049	2022/12/30	
Top Side	1/2412	802.11b	0.051	0.030	1.73	14.90	15.00	0.052	2022/12/30	

NOTE: Hotspot SAR test results of WLAN2.4G

10.1.14. SAR measurement Result of WLAN 5.2G

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Left Cheek	40/5200	802.11a	0.575	0.205	-2.53	10.67	11.00	0.620	2022/12/22	11#
Left Tilt 15 Degree	40/5200	802.11a	0.322	0.114	1.70	10.67	11.00	0.347	2022/12/22	
Right Cheek	40/5200	802.11a	0.518	0.175	2.27	10.67	11.00	0.559	2022/12/22	
Right Tilt	40/5200	802.11a	0.252	0.089	3.20	10.67	11.00	0.272	2022/12/22	

15										
Degree										

NOTE: Head SAR test results of WLAN5.2G

Test Position of Body-Worn with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	40/5200	802.11a	0.102	0.057	-3.93	10.67	11.00	0.110	2022/12/22	
Back Side	40/5200	802.11a	0.164	0.093	-0.85	10.67	11.00	0.177	2022/12/22	13#

NOTE: Body-worn SAR test results of WLAN5.2G

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	40/5200	802.11a	0.102	0.057	-3.93	10.67	11.00	0.110	2022/12/22	
Back Side	40/5200	802.11a	0.164	0.093	-0.85	10.67	11.00	0.177	2022/12/22	13#
Right Side	40/5200	802.11a	0.054	0.029	-2.75	10.67	11.00	0.058	2022/12/22	
Top Side	40/5200	802.11a	0.060	0.034	0.94	10.67	11.00	0.065	2022/12/22	

NOTE: Hotspot SAR test results of WLAN5.2G

10.1.15. SAR measurement Result of WLAN 5.8G

Test Position of Head	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Left Cheek	151/5755	802.11n40	0.399	0.155	3.00	10.28	10.50	0.420	2022/12/21	12#
Left Tilt 15 Degree	151/5755	802.11n40	0.236	0.091	0.05	10.28	10.50	0.248	2022/12/21	
Right Cheek	151/5755	802.11n40	0.353	0.136	-1.33	10.28	10.50	0.371	2022/12/21	
Right Tilt	151/5755	802.11n40	0.176	0.068	0.19	10.28	10.50	0.185	2022/12/21	

15										
Degree										

NOTE: Head SAR test results of WLAN5.8G

Test Position of Body-Worn with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	151/5755	802.11n40	0.156	0.076	0.15	10.28	10.50	0.164	2022/12/21	
Back Side	151/5755	802.11n40	0.220	0.114	-4.47	10.28	10.50	0.231	2022/12/21	14#

NOTE: Body-worn SAR test results of WLAN5.8G

Test Position of Hotspot with 10mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	151/5755	802.11n40	0.156	0.076	0.15	10.28	10.50	0.164	2022/12/21	
Back Side	151/5755	802.11n40	0.220	0.114	-4.47	10.28	10.50	0.231	2022/12/21	14#
Right Side	151/5755	802.11n40	0.072	0.036	-3.47	10.28	10.50	0.076	2022/12/21	
Top Side	151/5755	802.11n40	0.069	0.033	3.62	10.28	10.50	0.073	2022/12/21	

NOTE: Hotspot SAR test results of WLAN5.8G

10.2. Simultaneous Transmission Analysis

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

- Scalar SAR summation < 1.6W/kg.
- $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$, 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 $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.

Test Position		Scaled SAR _{MAX}		Σ 1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DTS			
Head	Left Cheek	0.623	0.411	1.034	N/A	N/A
	Left Tilt 15 Degree	0.351	0.219	0.570	N/A	N/A

	Right Cheek	0.578	0.379	0.957	N/A	N/A
	Right Tilt 15 Degree	0.266	0.207	0.473	N/A	N/A
Body-Worn	Front Side	0.653	0.092	0.745	N/A	N/A
	Back Side	1.362	0.124	1.486	N/A	N/A
Hotspot	Front Side	0.653	0.092	0.745	N/A	N/A
	Back Side	1.362	0.124	1.486	N/A	N/A
	Left Side	0.333	N/A	0.333	N/A	N/A
	Right Side	N/A	0.049	0.049	N/A	N/A
	Top Side	N/A	0.052	0.052	N/A	N/A
	Bottom Side	0.550	N/A	0.550	N/A	N/A

Test Position		Scaled SAR _{MAX}		Σ 1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	NII			
Head	Left Cheek	0.623	0.620	1.243	N/A	N/A
	Left Tilt 15 Degree	0.351	0.347	0.698	N/A	N/A
	Right Cheek	0.578	0.559	1.137	N/A	N/A
	Right Tilt 15 Degree	0.266	0.272	0.538	N/A	N/A
Body-Worn	Front Side	0.653	0.164	0.817	N/A	N/A
	Back Side	1.362	0.231	1.593	N/A	N/A
Hotspot	Front Side	0.653	0.164	0.817	N/A	N/A
	Back Side	1.362	0.231	1.593	N/A	N/A
	Left Side	0.333	N/A	0.333	N/A	N/A
	Right Side	N/A	0.076	0.076	N/A	N/A
	Top Side	N/A	0.073	0.073	N/A	N/A
	Bottom Side	0.550	N/A	0.550	N/A	N/A

Test Position		Scaled SAR _{MAX}		Σ 1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DSS			
Head	Left Cheek	0.623	0.067	0.690	N/A	N/A
	Left Tilt 15 Degree	0.351	0.067	0.418	N/A	N/A

	Right Cheek	0.578	0.067	0.645	N/A	N/A
	Right Tilt 15 Degree	0.266	0.067	0.333	N/A	N/A
Body-Worn	Front Side	0.653	0.033	0.686	N/A	N/A
	Back Side	1.362	0.033	1.395	N/A	N/A
Hotspot	Front Side	0.653	0.033	0.686	N/A	N/A
	Back Side	1.362	0.033	1.395	N/A	N/A
	Left Side	0.333	N/A	0.333	N/A	N/A
	Right Side	N/A	0.033	0.033	N/A	N/A
	Top Side	N/A	0.033	0.033	N/A	N/A
	Bottom Side	0.550	N/A	0.550	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 - 750MHz
MEASUREMENT 2 System Performance Check - 835MHz
MEASUREMENT 3 System Performance Check - 1800MHz
MEASUREMENT 4 System Performance Check - 1900MHz
MEASUREMENT 5 System Performance Check - 2450MHz
MEASUREMENT 6 System Performance Check - 2600MHz
MEASUREMENT 7 System Performance Check - 5200MHz
MEASUREMENT 8 System Performance Check - 5800MHz

MEASUREMENT 1

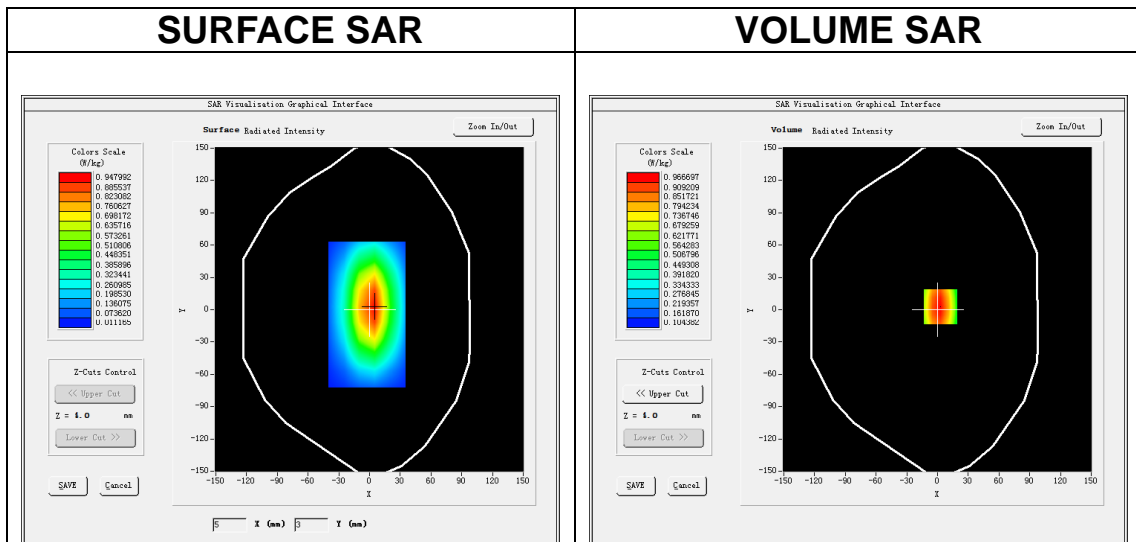
Date of measurement: 5/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW750</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>1.49</u>

B. SAR Measurement Results

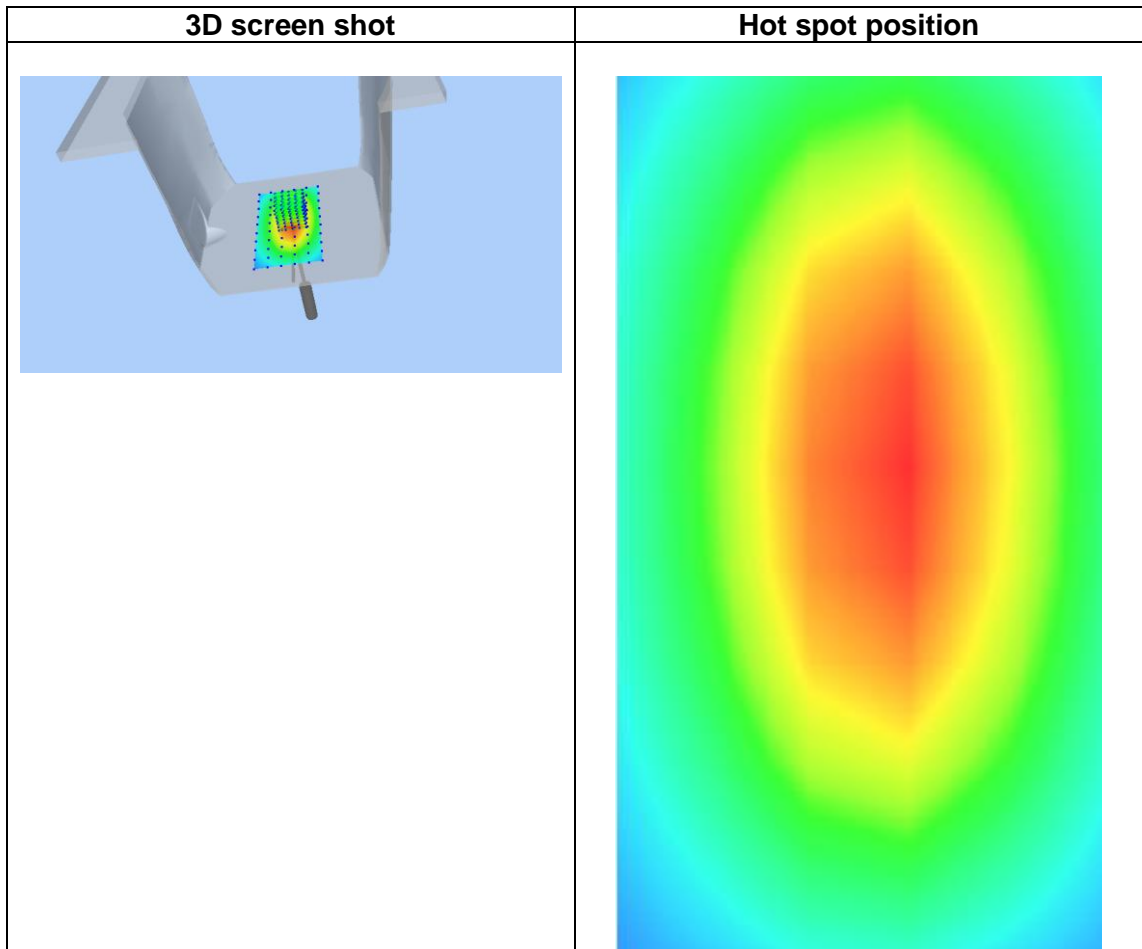
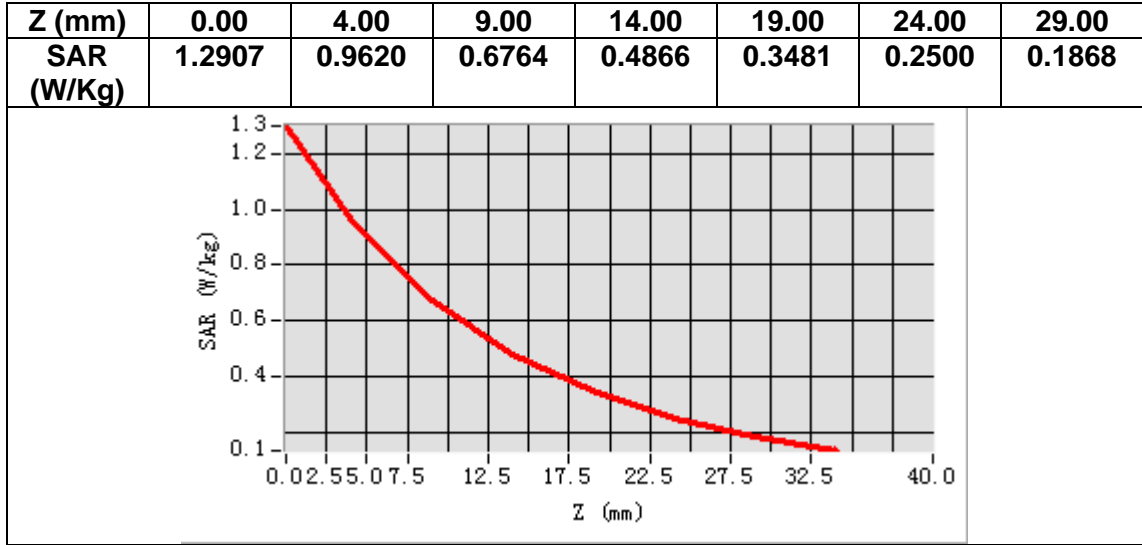
Frequency (MHz)	750.000000
Relative permittivity (real part)	40.740840
Relative permittivity (imaginary part)	21.403375
Conductivity (S/m)	0.891807
Variation (%)	-2.570000



Maximum location: X=3.00, Y=3.00

SAR Peak: 1.30 W/kg

SAR 10g (W/Kg)	0.549262
SAR 1g (W/Kg)	0.800008



MEASUREMENT 2

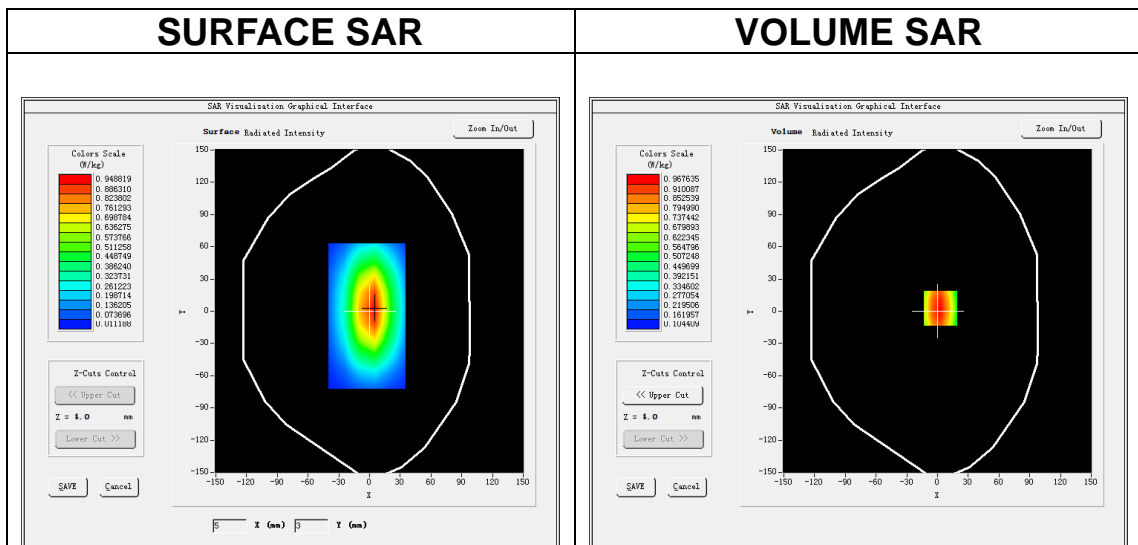
Date of measurement: 29/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW835</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>1.50</u>

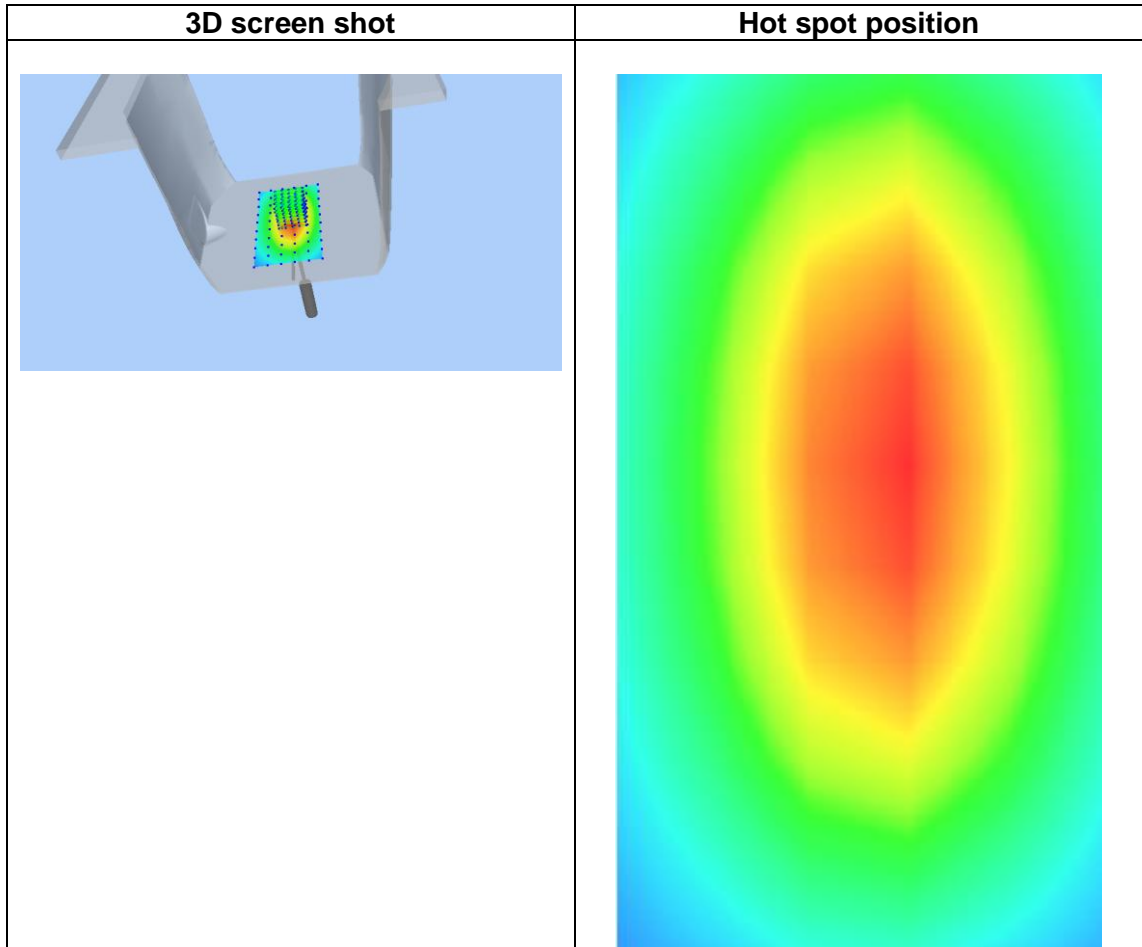
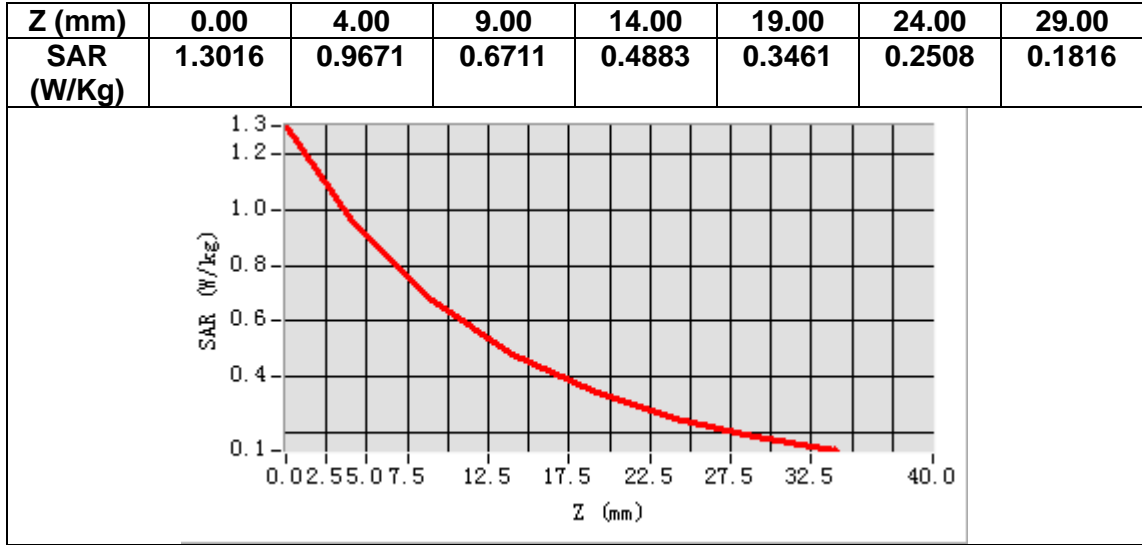
B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative permittivity (real part)	41.476597
Relative permittivity (imaginary part)	20.116940
Conductivity (S/m)	0.933202
Variation (%)	2.870000



Maximum location: X=3.00, Y=3.00
SAR Peak: 1.30 W/kg

SAR 10g (W/Kg)	0.587236
SAR 1g (W/Kg)	0.949179



MEASUREMENT 3

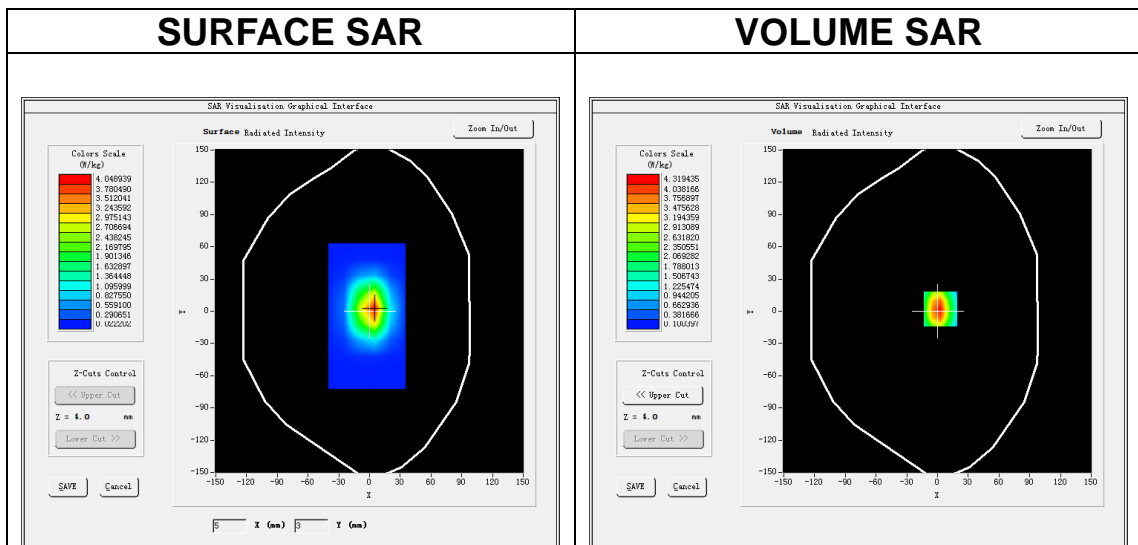
Date of measurement: 4/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW1800</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>1.73</u>

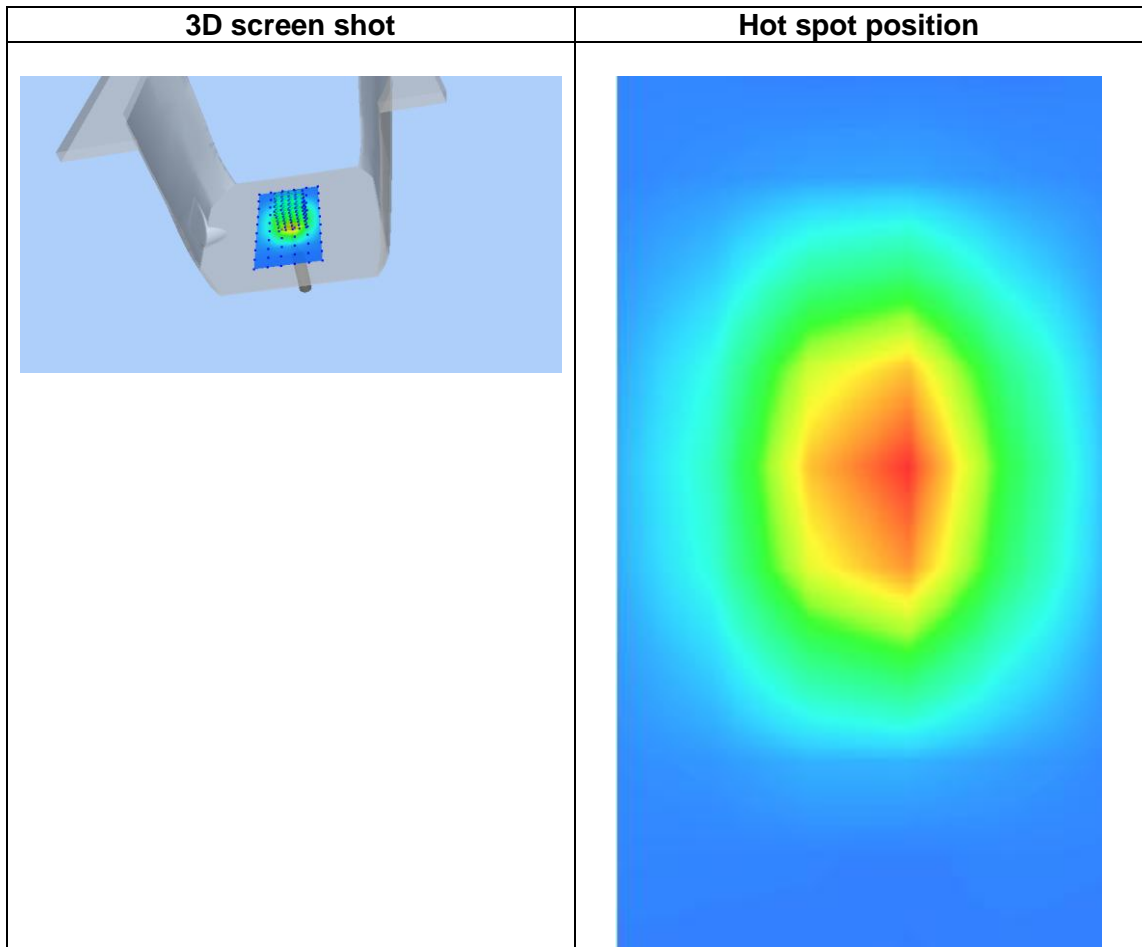
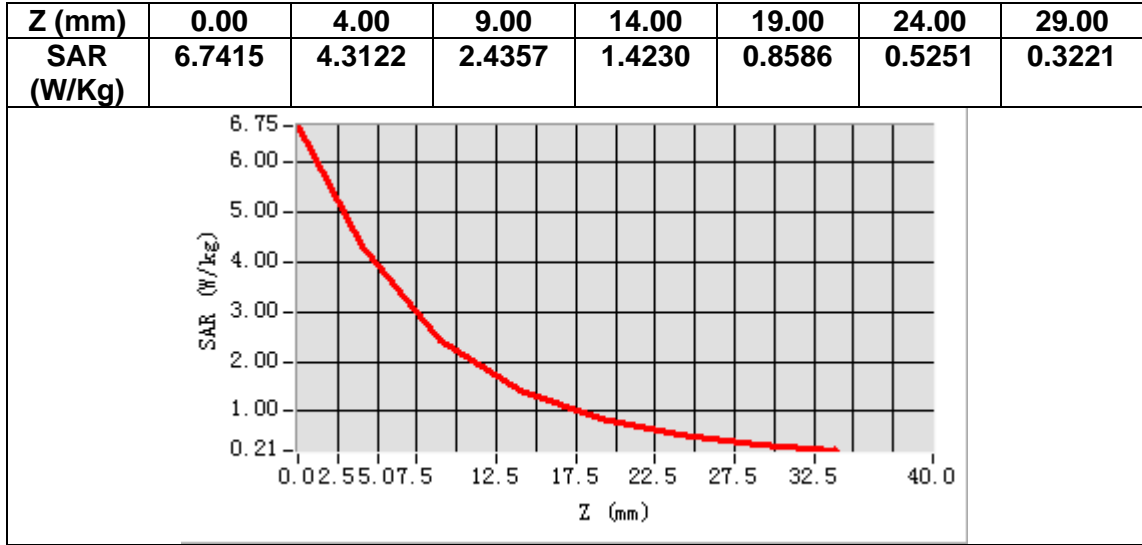
B. SAR Measurement Results

Frequency (MHz)	1800.000000
Relative permittivity (real part)	39.145147
Relative permittivity (imaginary part)	13.927737
Conductivity (S/m)	1.392774
Variation (%)	-0.780000



Maximum location: X=3.00, Y=2.00
SAR Peak: 6.82 W/kg

SAR 10g (W/Kg)	2.114143
SAR 1g (W/Kg)	3.891357



MEASUREMENT 4

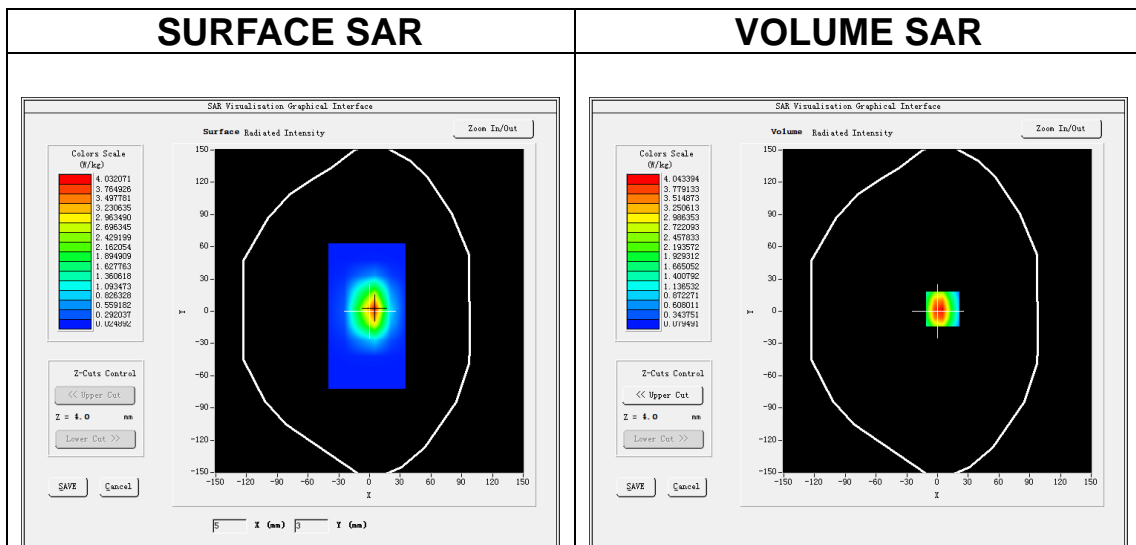
Date of measurement: 28/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW1900</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>1.91</u>

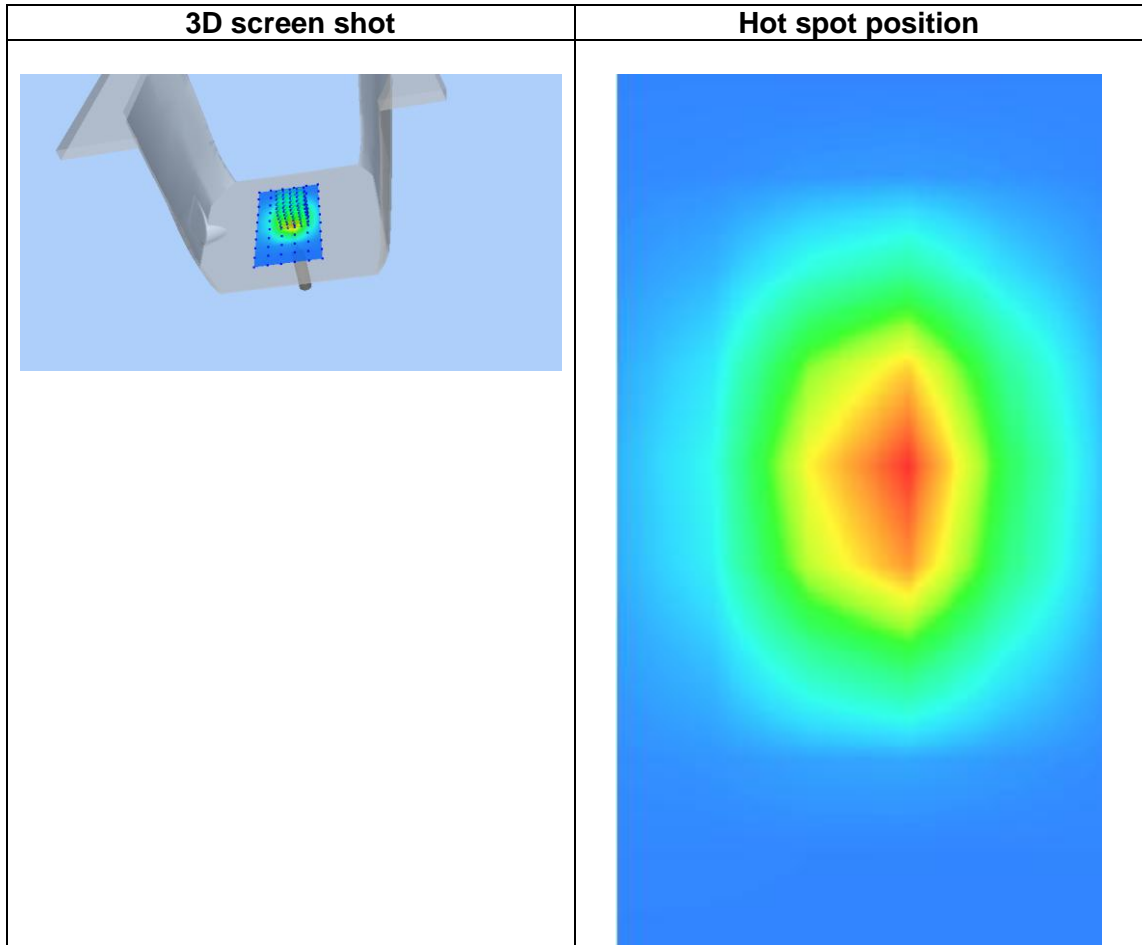
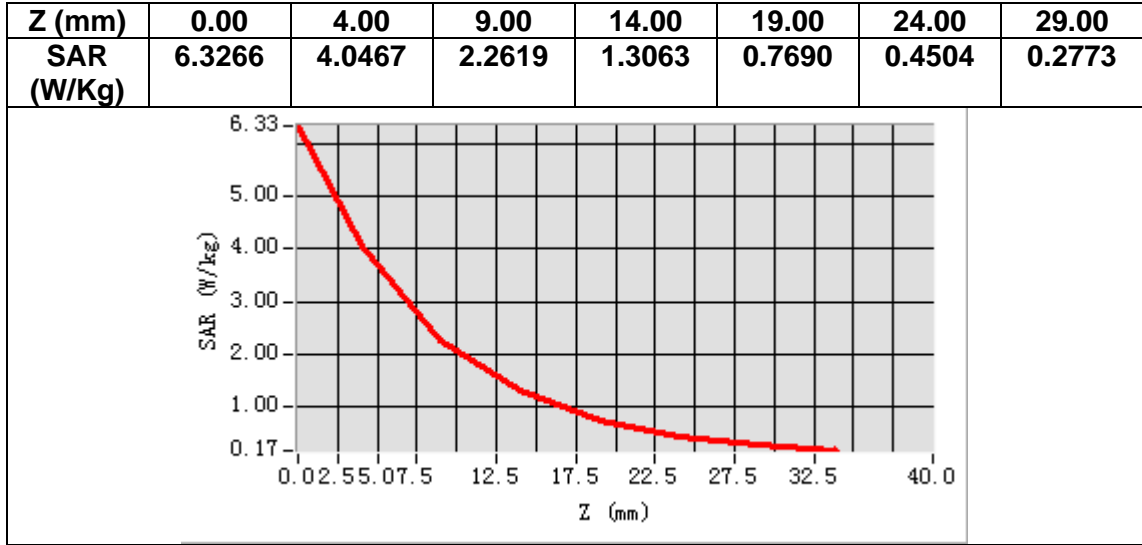
B. SAR Measurement Results

Frequency (MHz)	1900.000000
Relative permittivity (real part)	38.881211
Relative permittivity (imaginary part)	13.862256
Conductivity (S/m)	1.463238
Variation (%)	2.010000



Maximum location: X=5.00, Y=2.00
SAR Peak: 6.70 W/kg

SAR 10g (W/Kg)	2.014265
SAR 1g (W/Kg)	4.383276



MEASUREMENT 5

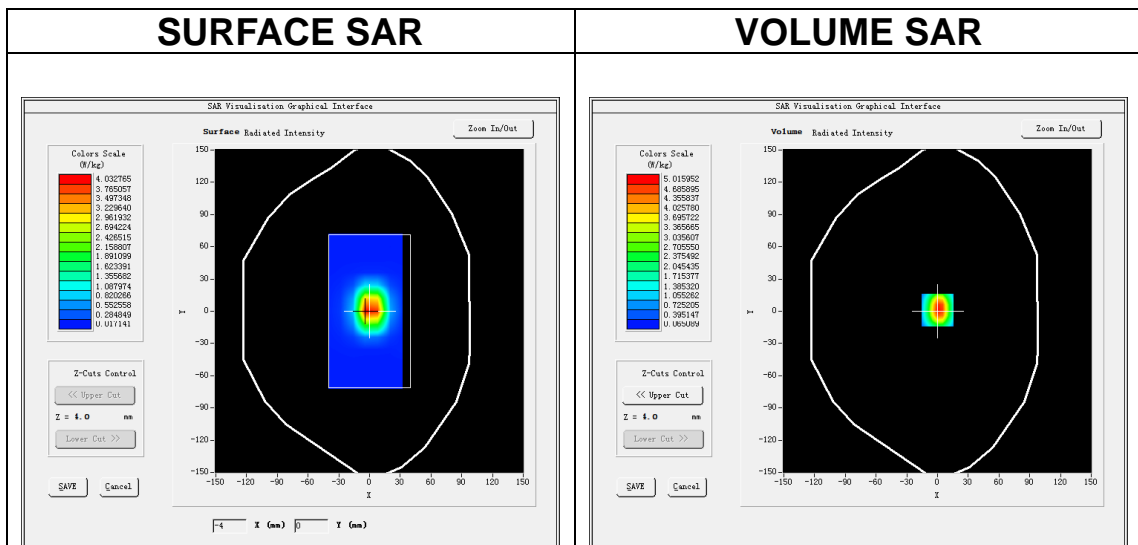
Date of measurement: 30/12/2022

A. Experimental conditions.

Area Scan	<u>dx=12mm dy=12mm, h= 5.00 mm</u>
ZoomScan	<u>7x7x7, dx=5mm dy=5mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW2450</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>1.98</u>

B. SAR Measurement Results

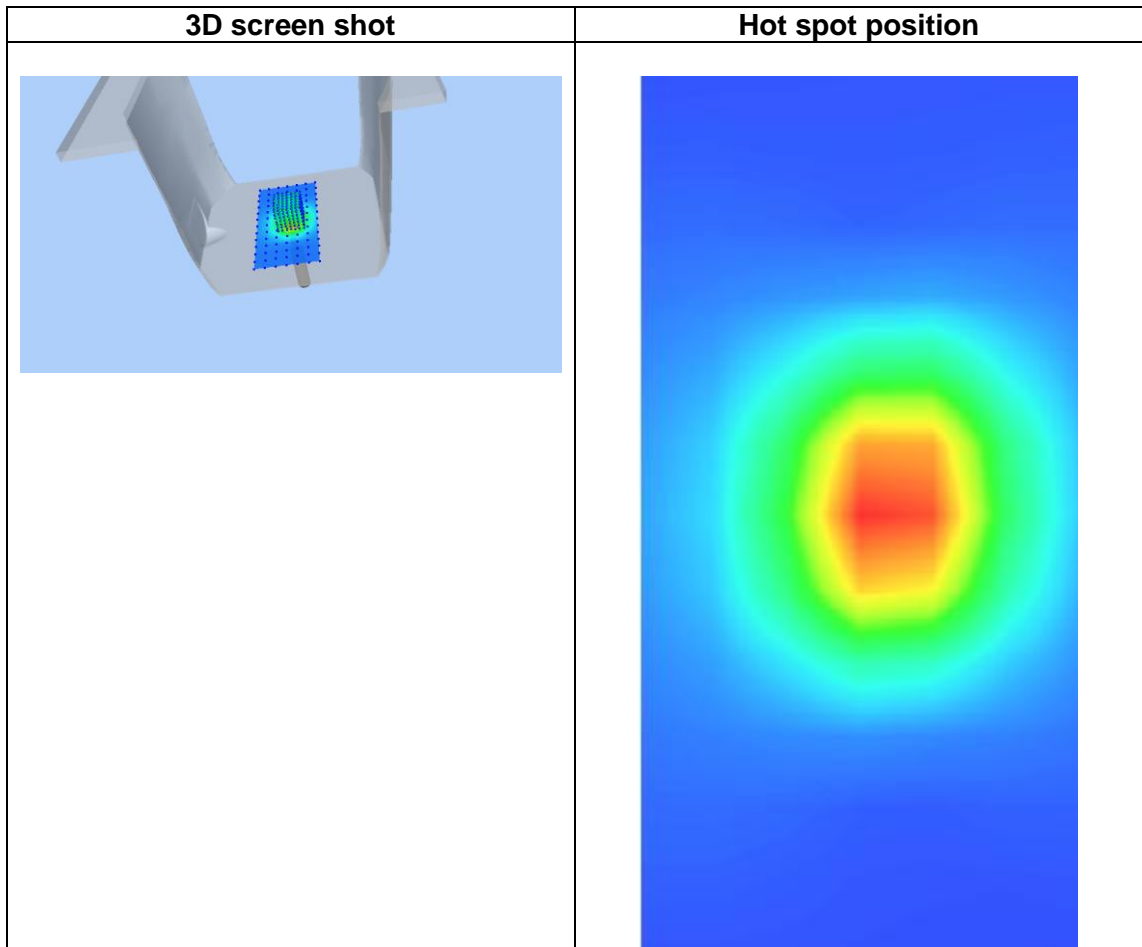
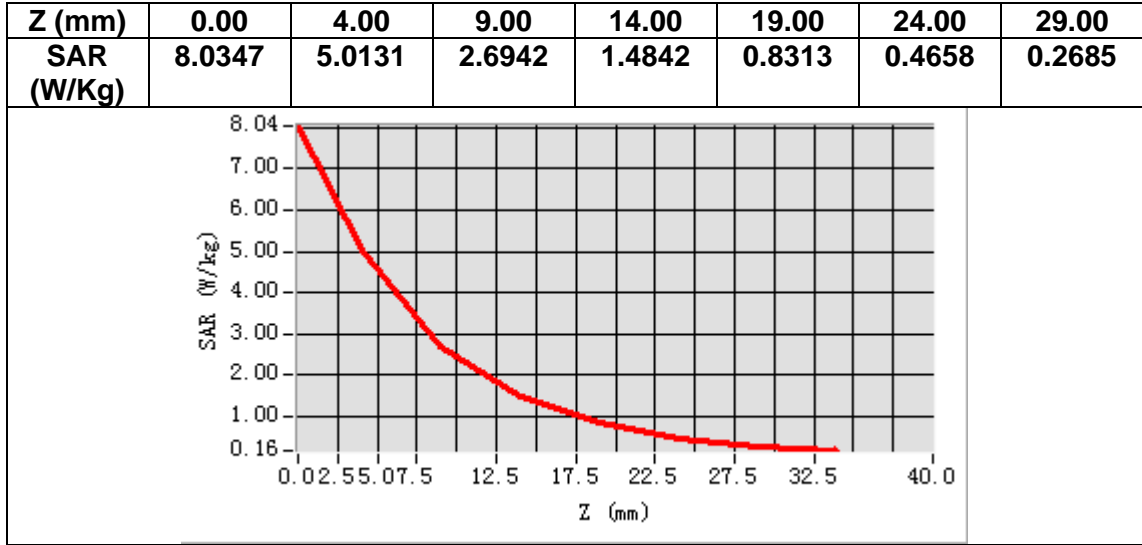
Frequency (MHz)	2450.000000
Relative permittivity (real part)	38.223518
Relative permittivity (imaginary part)	13.652738
Conductivity (S/m)	1.858289
Variation (%)	3.060000



Maximum location: X=0.00, Y=1.00

SAR Peak: 8.14 W/kg

SAR 10g (W/Kg)	2.215022
SAR 1g (W/Kg)	5.061321



MEASUREMENT 6

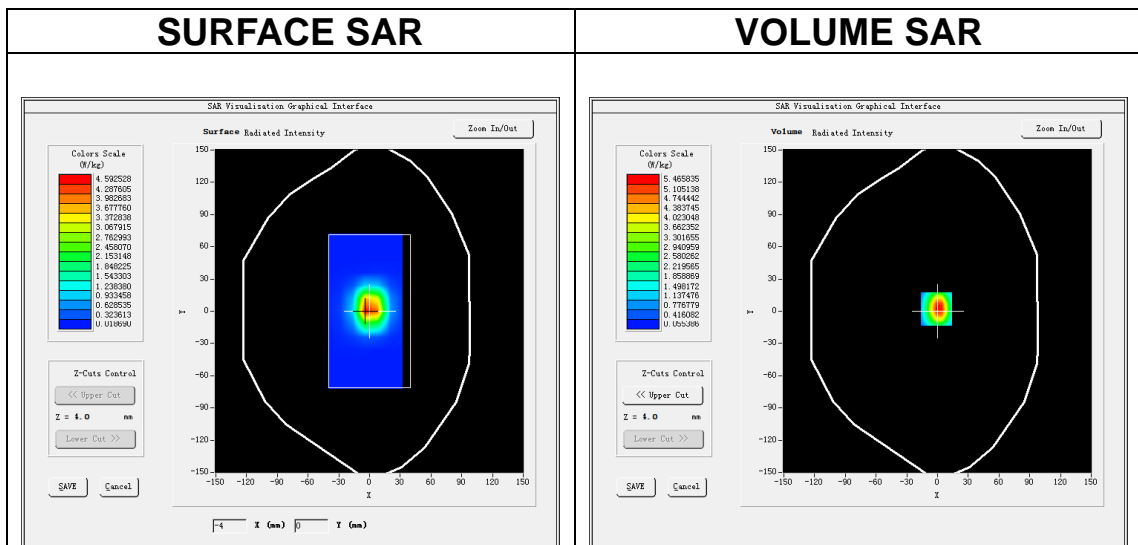
Date of measurement: 27/12/2022

A. Experimental conditions.

Area Scan	<u>dx=12mm dy=12mm, h= 5.00 mm</u>
ZoomScan	<u>7x7x7, dx=5mm dy=5mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW2600</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>1.87</u>

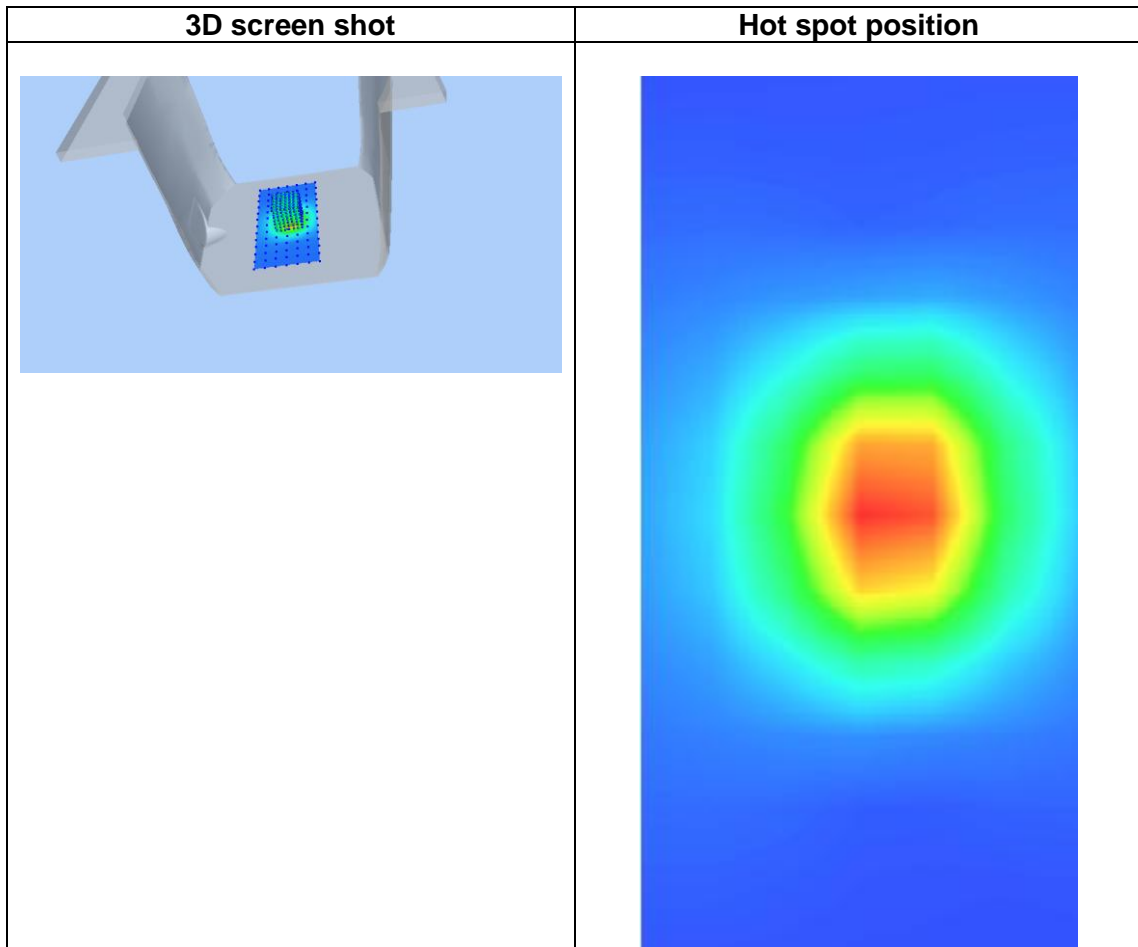
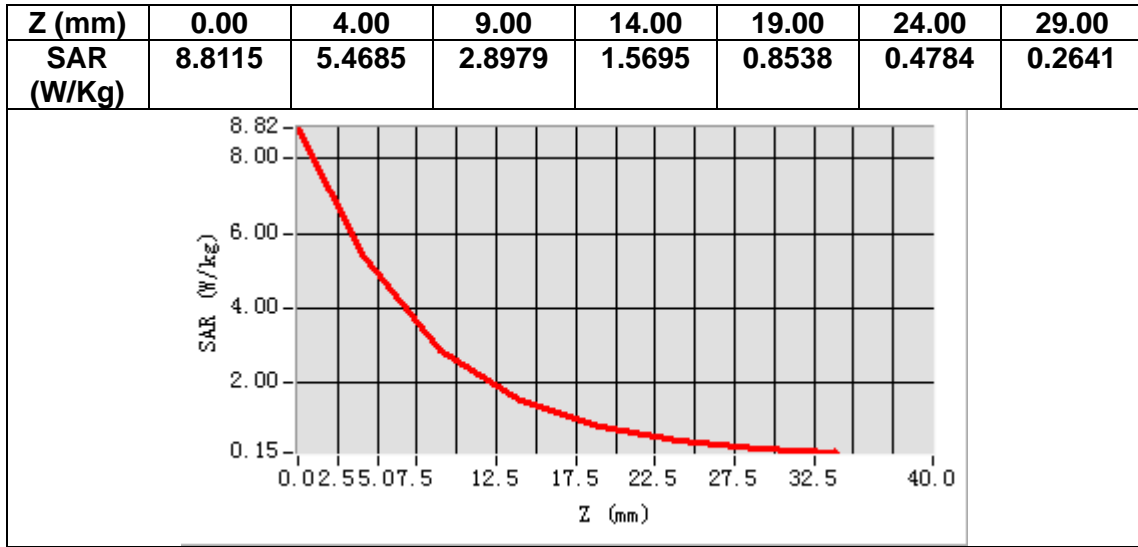
B. SAR Measurement Results

Frequency (MHz)	2600.000000
Relative permittivity (real part)	38.229326
Relative permittivity (imaginary part)	13.829380
Conductivity (S/m)	1.997577
Variation (%)	-0.800000



Maximum location: X=-1.00, Y=2.00
SAR Peak: 9.07 W/kg

SAR 10g (W/Kg)	2.343225
SAR 1g (W/Kg)	5.320037



MEASUREMENT 7

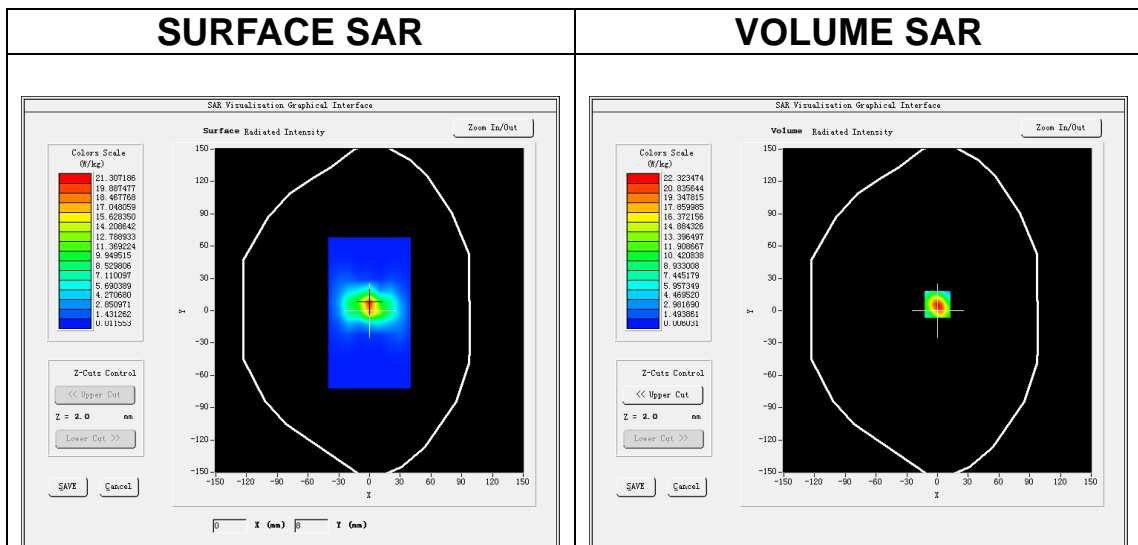
Date of measurement: 22/12/2022

A. Experimental conditions.

Area Scan	<u>dx=10mm dy=10mm, h= 2.00 mm</u>
ZoomScan	<u>7x7x12,dx=4mm dy=4mm dz=2mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW5200</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>1.80</u>

B. SAR Measurement Results

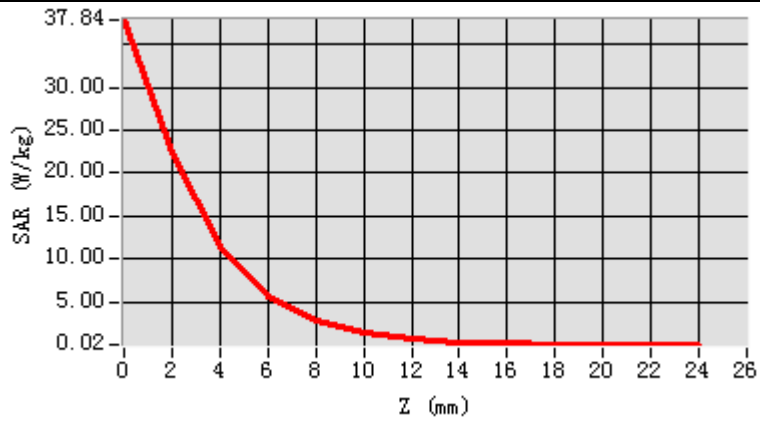
Frequency (MHz)	5200.000000
Relative permittivity (real part)	36.032204
Relative permittivity (imaginary part)	16.390739
Conductivity (S/m)	4.735102
Variation (%)	2.970000



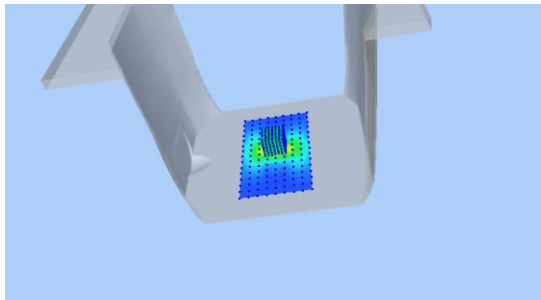
Maximum location: X=0.00, Y=6.00
SAR Peak: 40.06 W/kg

SAR 10g (W/Kg)	5.281132
SAR 1g (W/Kg)	15.398285

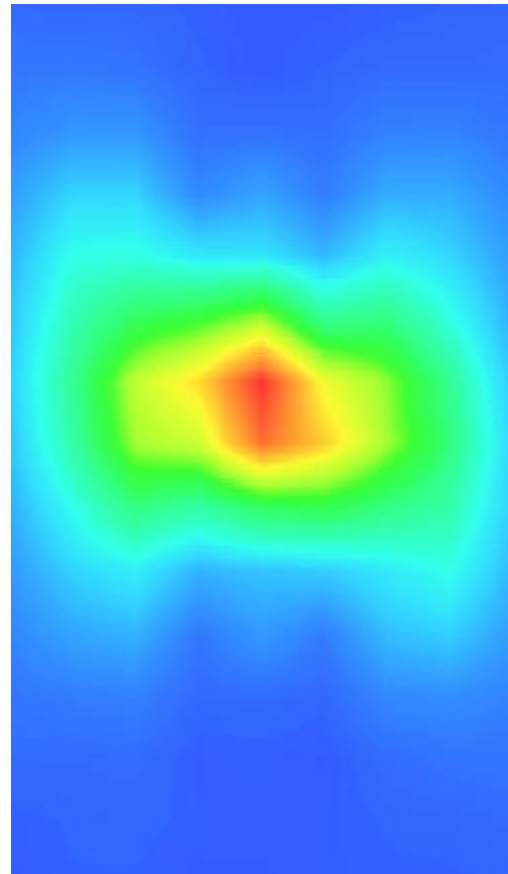
Z (m m)	0.00	2.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0
SAR (W/ Kg)	37.8 66	22.3 59	11.3 13	5.66 83	2.82 32	1.40 29	0.71 94	0.36 81	0.18 59	0.10 00	0.05 19	0.03 11



3D screen shot



Hot spot position



MEASUREMENT 8

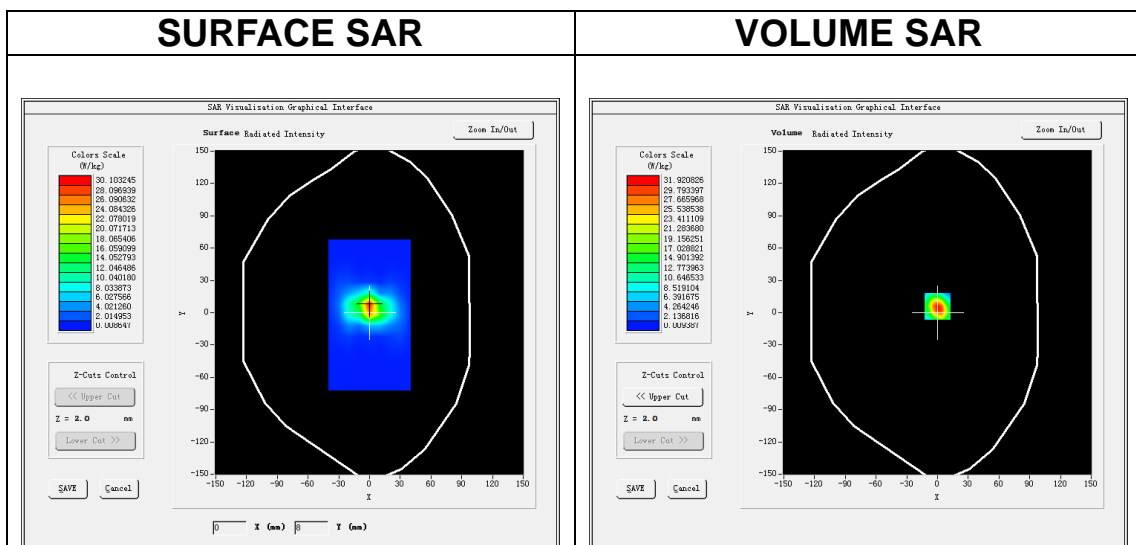
Date of measurement: 21/12/2022

A. Experimental conditions.

Area Scan	<u>dx=10mm dy=10mm, h= 2.00 mm</u>
ZoomScan	<u>7x7x12,dx=4mm dy=4mm dz=2mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW5800</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>2.07</u>

B. SAR Measurement Results

Frequency (MHz)	5800.000000
Relative permittivity (real part)	34.608421
Relative permittivity (imaginary part)	16.312200
Conductivity (S/m)	5.256153
Variation (%)	-2.080000

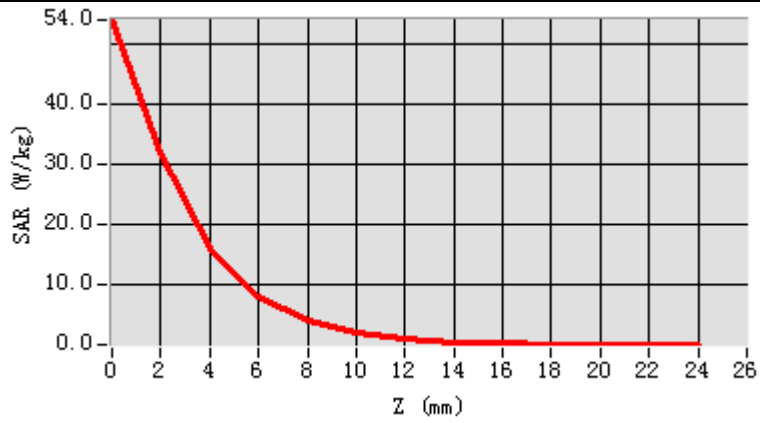


Maximum location: X=0.00, Y=6.00

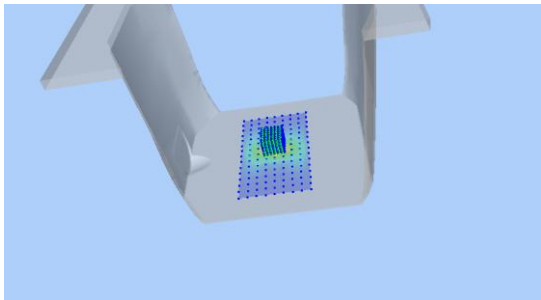
SAR Peak: 57.37 W/kg

SAR 10g (W/Kg)	6.108153
SAR 1g (W/Kg)	18.346251

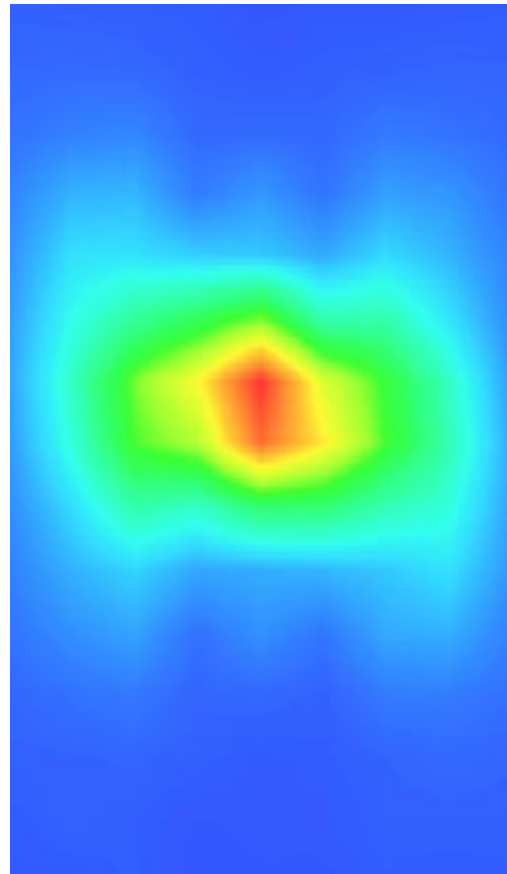
Z (m m)	0.00	2.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0
SAR (W/ Kg)	54.0 09	31.9 91	16.1 95	8.17 86	4.08 45	2.05 19	1.03 60	0.51 87	0.27 53	0.15 25	0.07 90	0.04 54



3D screen shot



Hot spot position



13. Appendix C. Plots of High SAR Measurement

Table of contents
MEASUREMENT 1 GSM 850 Head
MEASUREMENT 2 GSM 850 Body
MEASUREMENT 3 GSM 1900 Head
MEASUREMENT 4 GSM 1900 Body
MEASUREMENT 5 WCDMA Band 2 Head
MEASUREMENT 6 WCDMA Band 2 Body
MEASUREMENT 7 WCDMA Band 4 Head
MEASUREMENT 8 WCDMA Band 4 Body
MEASUREMENT 9 WCDMA Band 5 Head
MEASUREMENT 10 WCDMA Band 5 Body
MEASUREMENT 11 WLAN 5.2G Head
MEASUREMENT 12 WLAN 5.8G Head
MEASUREMENT 13 WLAN 5.2G Body
MEASUREMENT 14 WLAN 5.8G Body
MEASUREMENT 15 WLAN 2.4G Head
MEASUREMENT 16 WLAN 2.4G Body
MEASUREMENT 17 LTE Band 2 Head
MEASUREMENT 18 LTE Band 2 Body
MEASUREMENT 19 LTE Band 4 Head
MEASUREMENT 20 LTE Band 4 Body
MEASUREMENT 21 LTE Band 5 Head
MEASUREMENT 22 LTE Band 5 Body
MEASUREMENT 23 LTE Band 7 Head
MEASUREMENT 24 LTE Band 7 Body
MEASUREMENT 25 LTE Band 12 Head
MEASUREMENT 26 LTE Band 12 Body
MEASUREMENT 27 LTE Band 13 Head
MEASUREMENT 28 LTE Band 13 Body
MEASUREMENT 29 LTE Band 17 Head
MEASUREMENT30 LTE Band 17 Body

MEASUREMENT 1

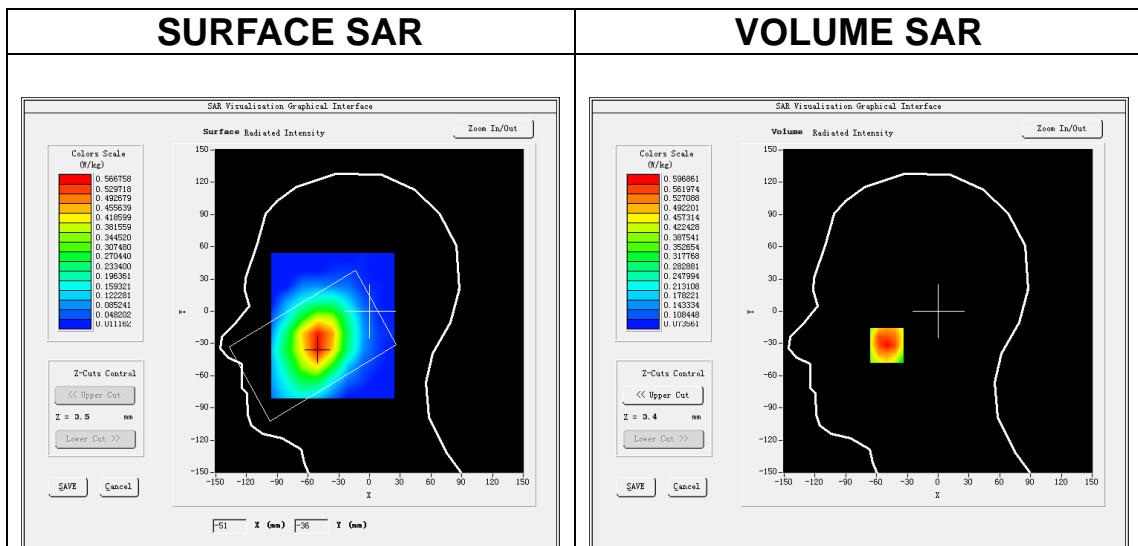
Date of measurement: 29/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>GSM850</u>
Channels	<u>Middle</u>
Signal	<u>TDMA (Crest factor: 2.0)</u>
ConvF	<u>1.50</u>

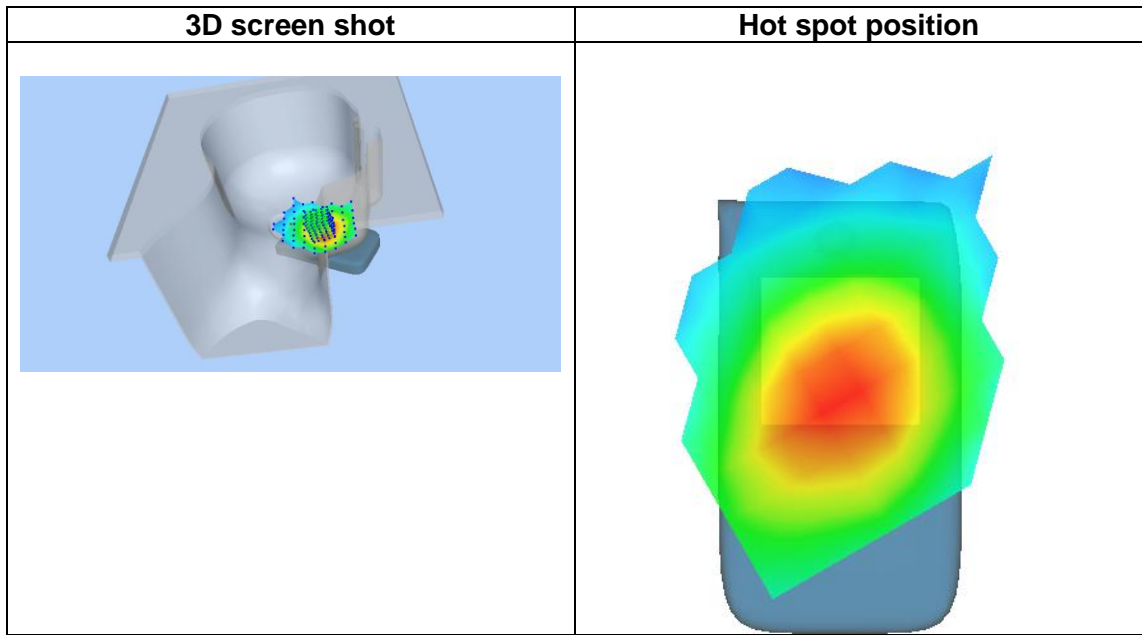
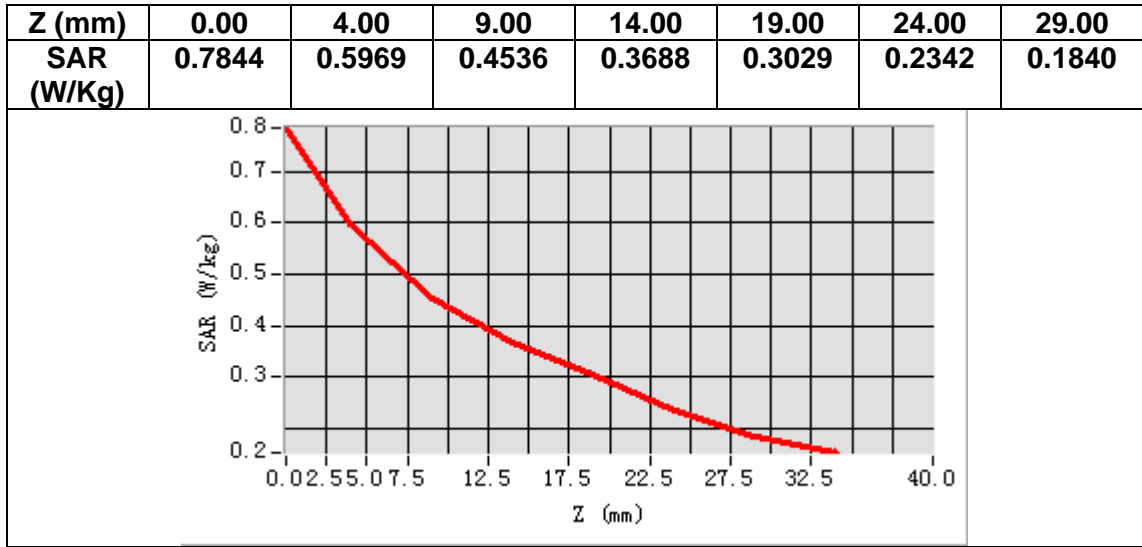
B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative permittivity (real part)	41.392258
Relative permittivity (imaginary part)	20.142780
Conductivity (S/m)	0.935968
Variation (%)	-0.910000



Maximum location: X=-50.00, Y=-32.00
SAR Peak: 0.79 W/kg

SAR 10g (W/Kg)	0.426856
SAR 1g (W/Kg)	0.596273



MEASUREMENT 2

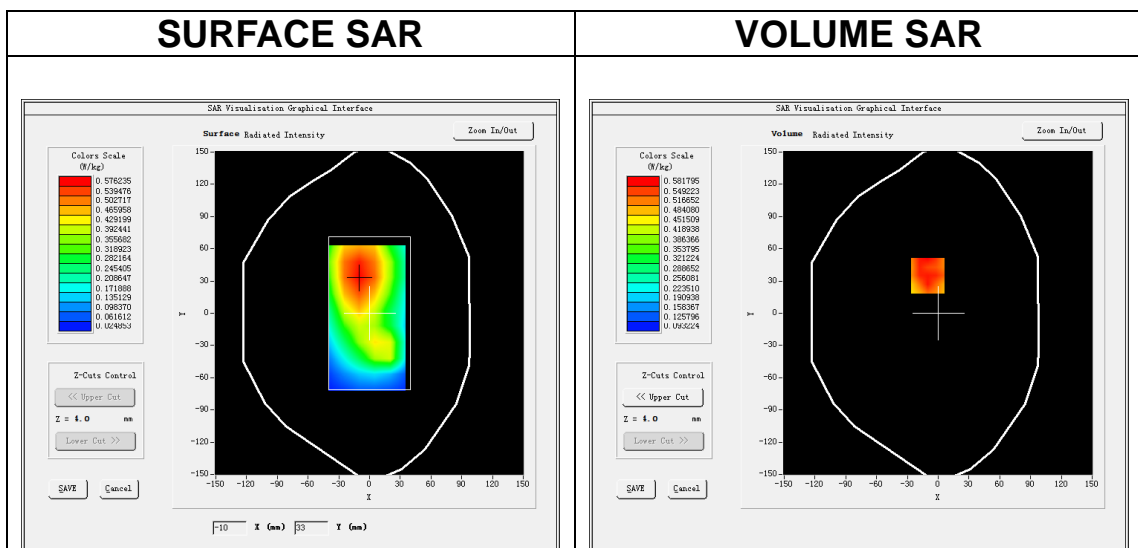
Date of measurement: 29/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>GSM850</u>
Channels	<u>Middle</u>
Signal	<u>TDMA (Crest factor: 2.0)</u>
ConvF	<u>1.50</u>

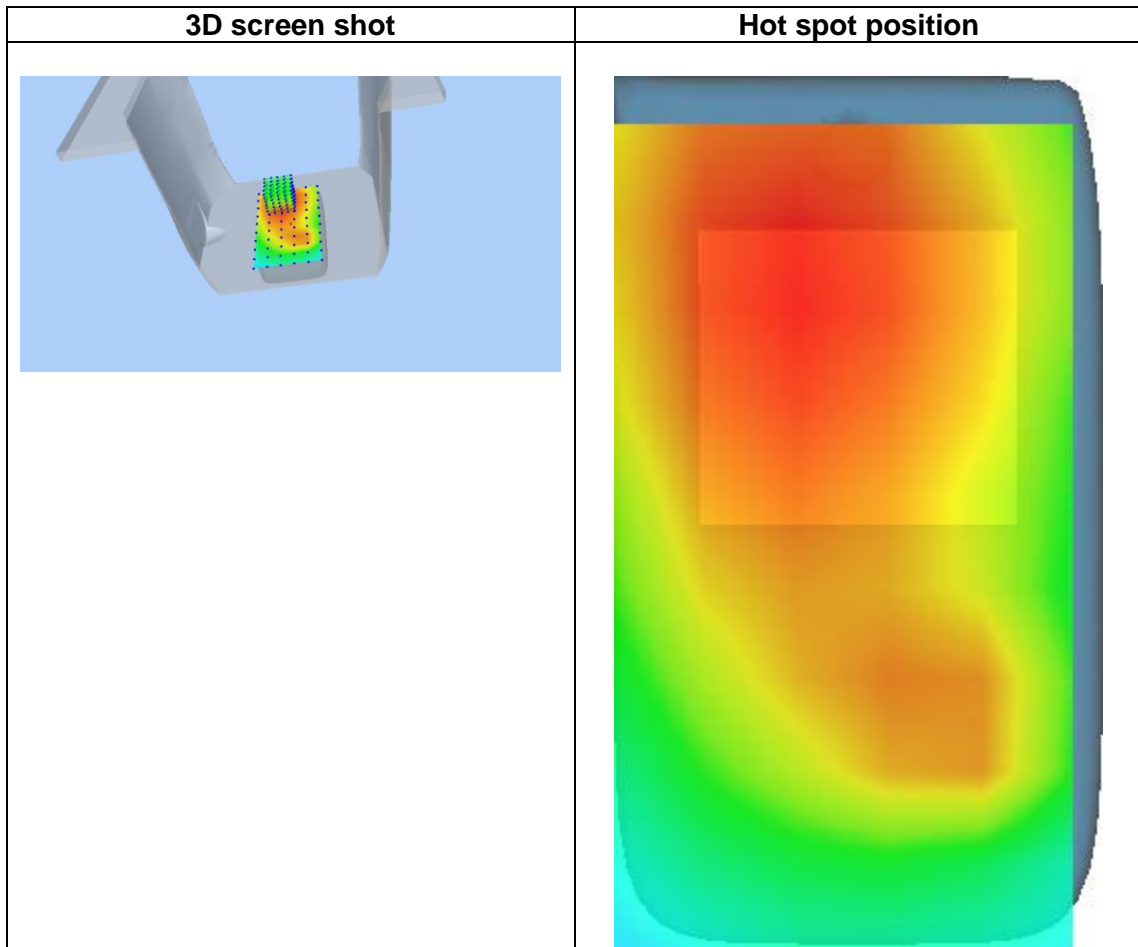
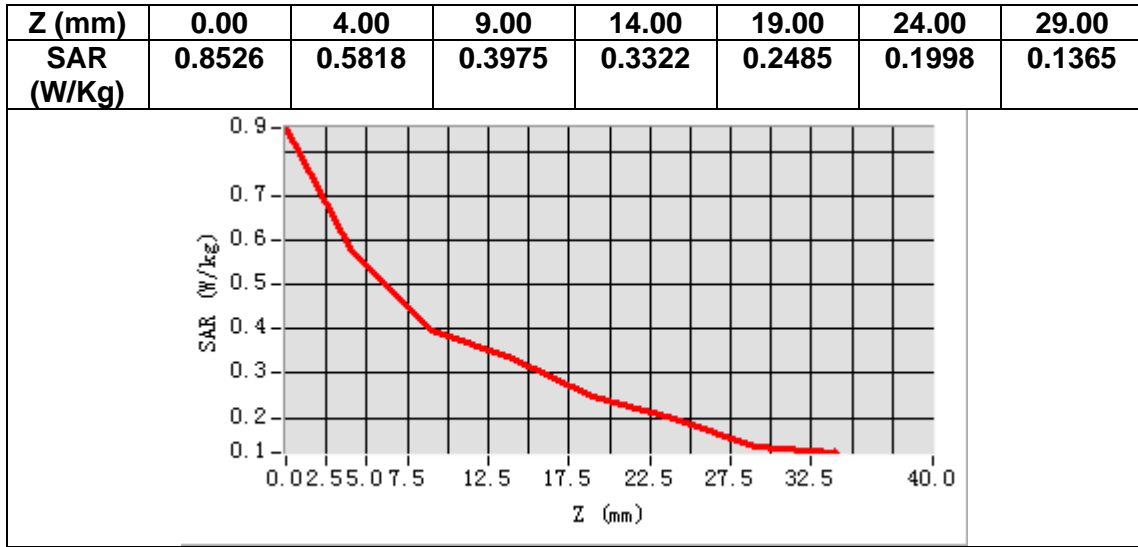
B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative permittivity (real part)	41.392258
Relative permittivity (imaginary part)	20.142780
Conductivity (S/m)	0.935968
Variation (%)	-0.260000



Maximum location: X=-10.00, Y=35.00
SAR Peak: 0.80 W/kg

SAR 10g (W/Kg)	0.428484
SAR 1g (W/Kg)	0.572217



MEASUREMENT 3

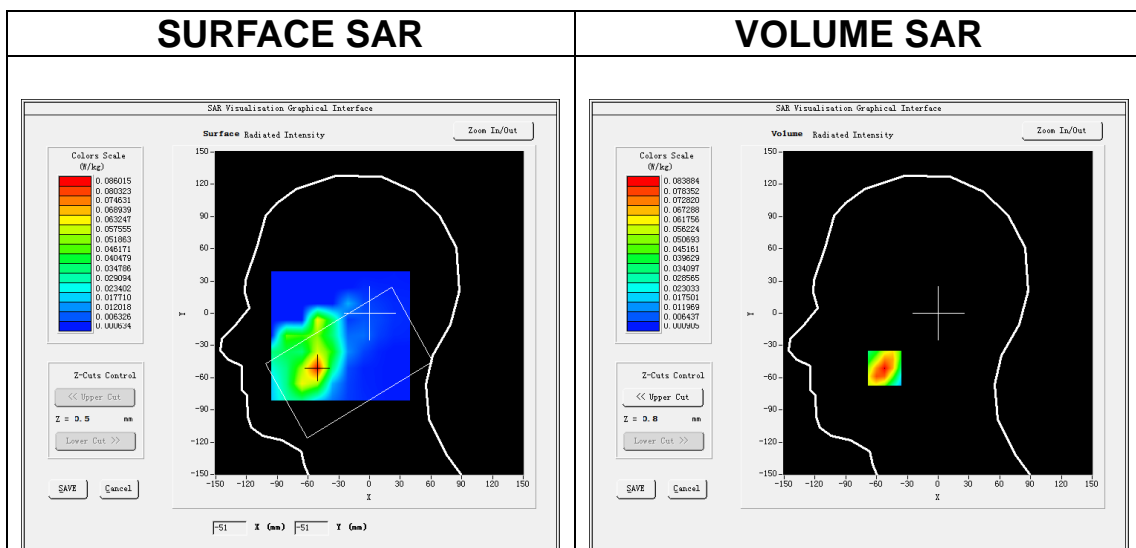
Date of measurement: 28/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>GSM1900</u>
Channels	<u>Middle</u>
Signal	<u>TDMA (Crest factor: 2.7)</u>
ConvF	<u>1.91</u>

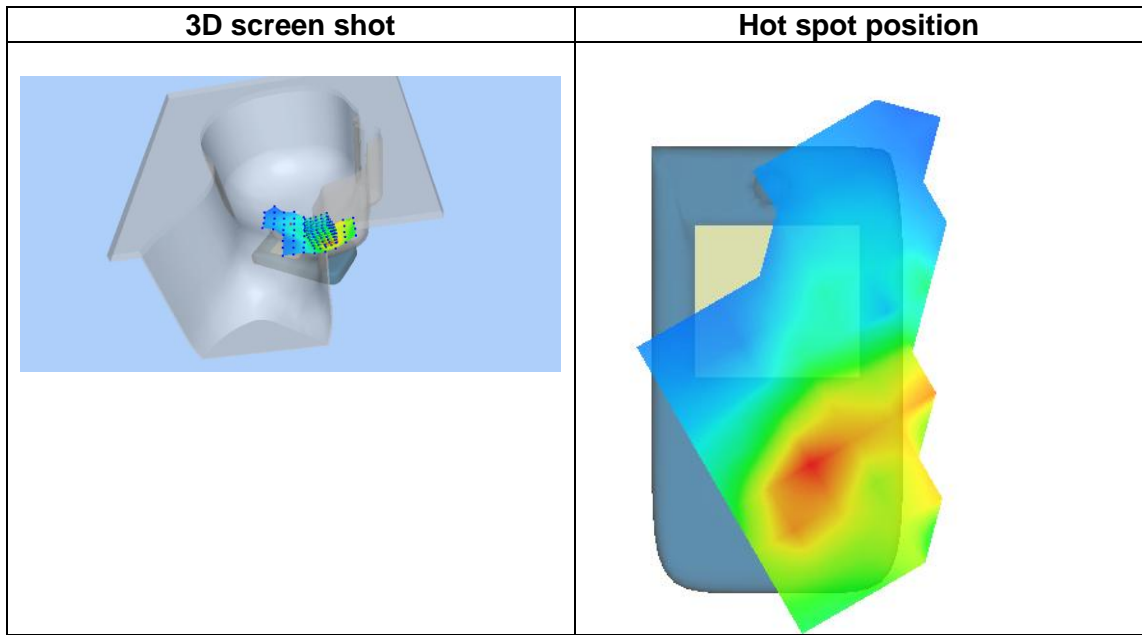
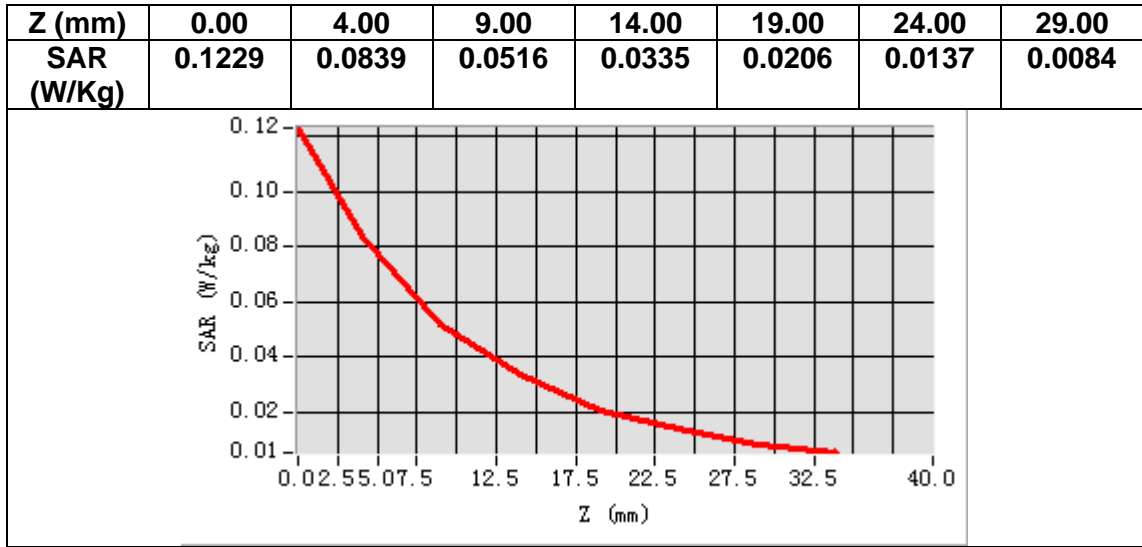
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.967609
Relative permittivity (imaginary part)	13.880056
Conductivity (S/m)	1.449695
Variation (%)	-0.260000



Maximum location: X=-52.00, Y=-51.00
SAR Peak: 0.12 W/kg

SAR 10g (W/Kg)	0.045693
SAR 1g (W/Kg)	0.081580



MEASUREMENT 4

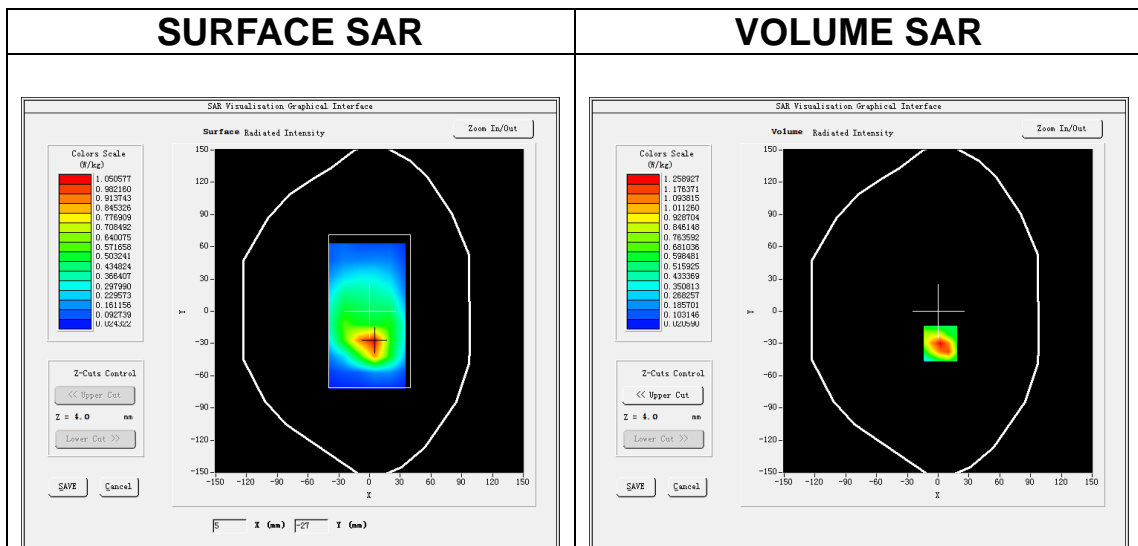
Date of measurement: 28/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>GSM1900</u>
Channels	<u>Low</u>
Signal	<u>TDMA (Crest factor: 2.7)</u>
ConvF	<u>1.91</u>

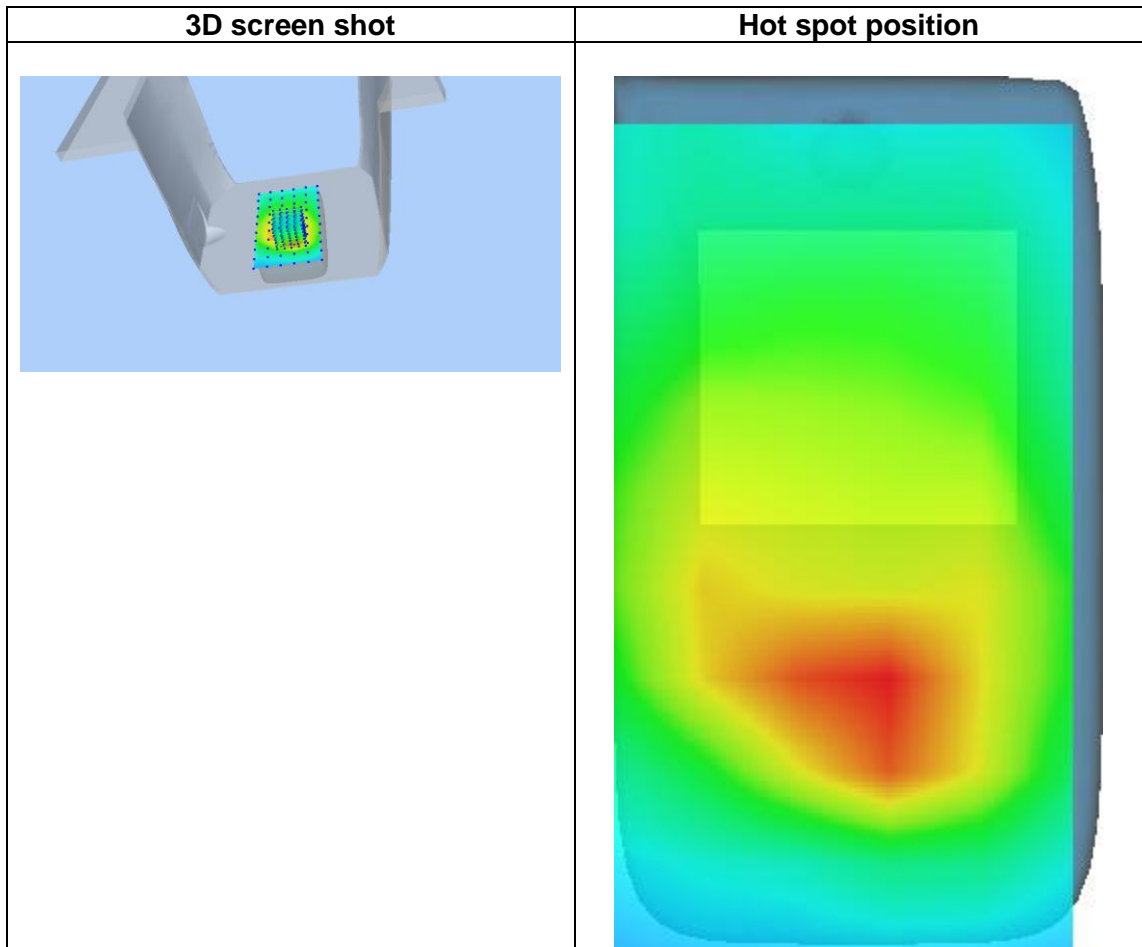
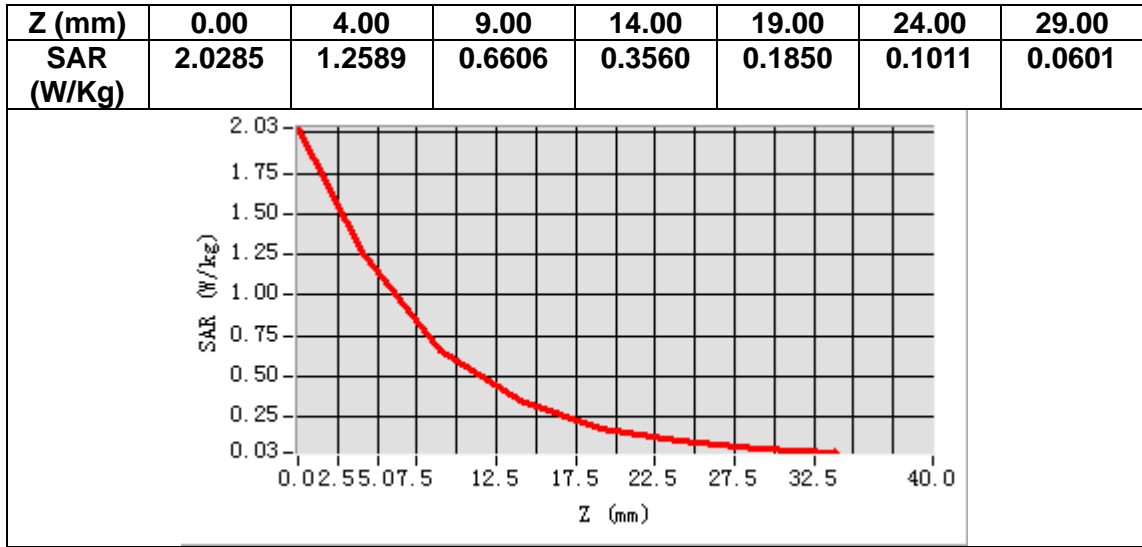
B. SAR Measurement Results

Frequency (MHz)	1850.200000
Relative permittivity (real part)	39.161610
Relative permittivity (imaginary part)	13.900636
Conductivity (S/m)	1.428831
Variation (%)	-2.160000



Maximum location: X=2.00, Y=-30.00
SAR Peak: 2.12 W/kg

SAR 10g (W/Kg)	0.587732
SAR 1g (W/Kg)	1.217038



MEASUREMENT 5

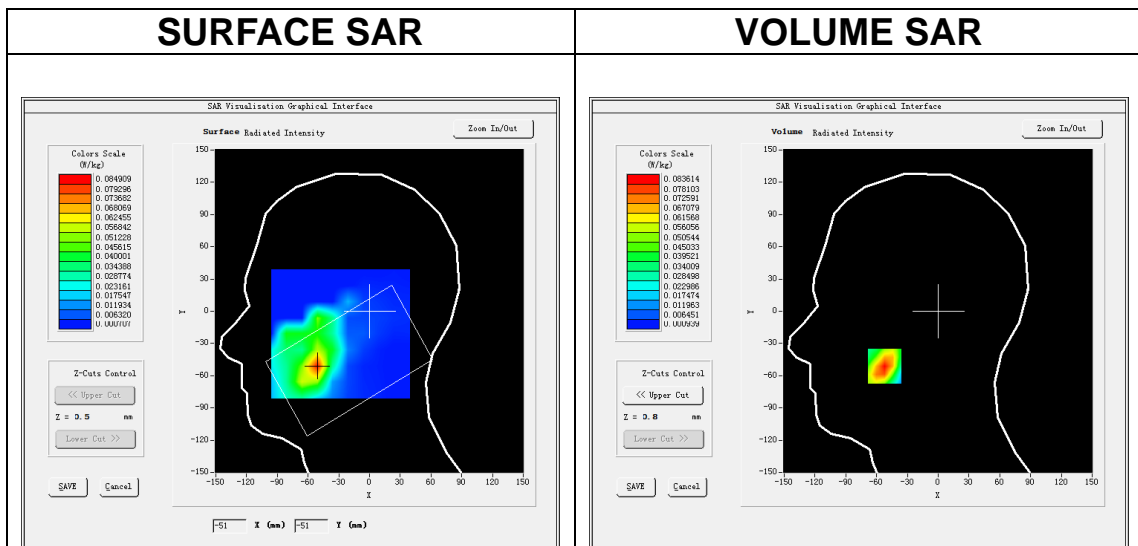
Date of measurement: 28/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>Band2 WCDMA1900</u>
Channels	<u>Middle</u>
Signal	<u>WCDMA (Crest factor: 1.0)</u>
ConvF	<u>1.91</u>

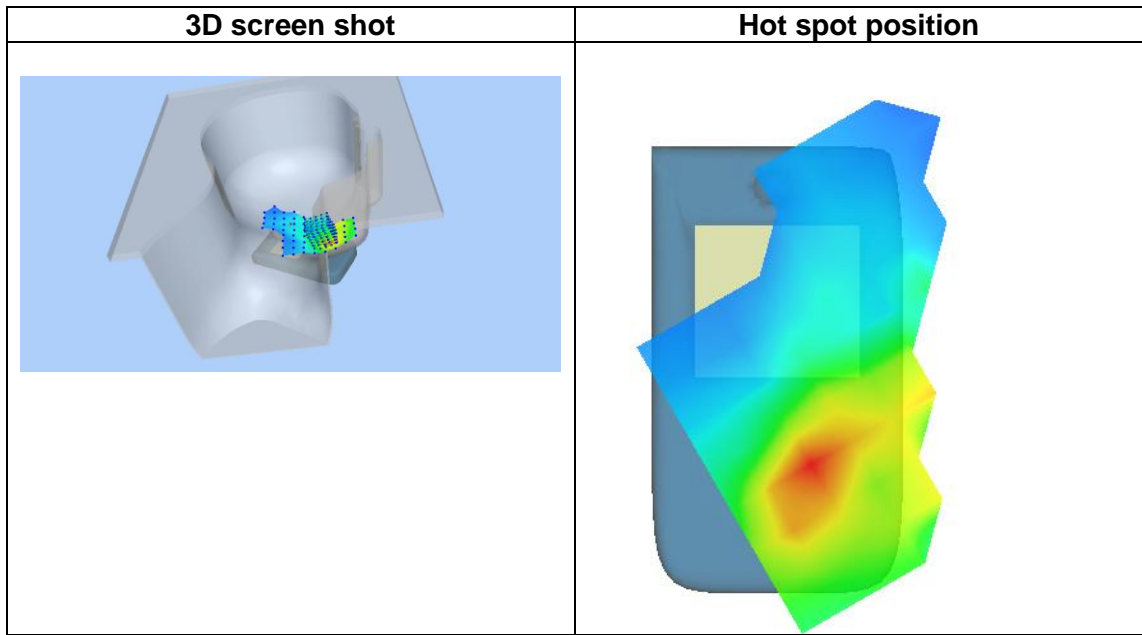
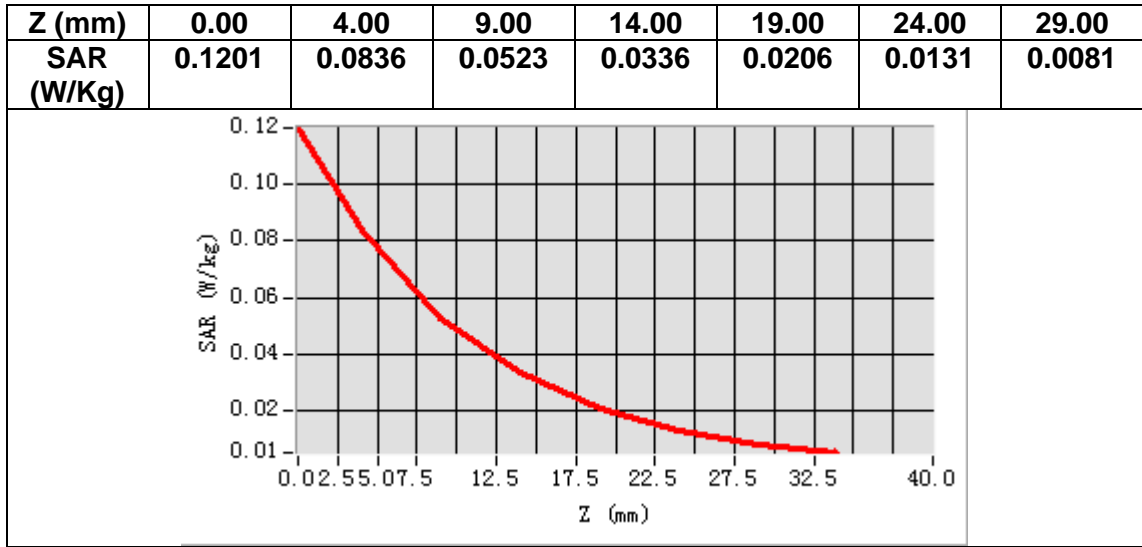
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.967609
Relative permittivity (imaginary part)	13.880056
Conductivity (S/m)	1.449695
Variation (%)	-2.400000



Maximum location: X=-52.00, Y=-51.00
SAR Peak: 0.12 W/kg

SAR 10g (W/Kg)	0.044712
SAR 1g (W/Kg)	0.080953



MEASUREMENT 6

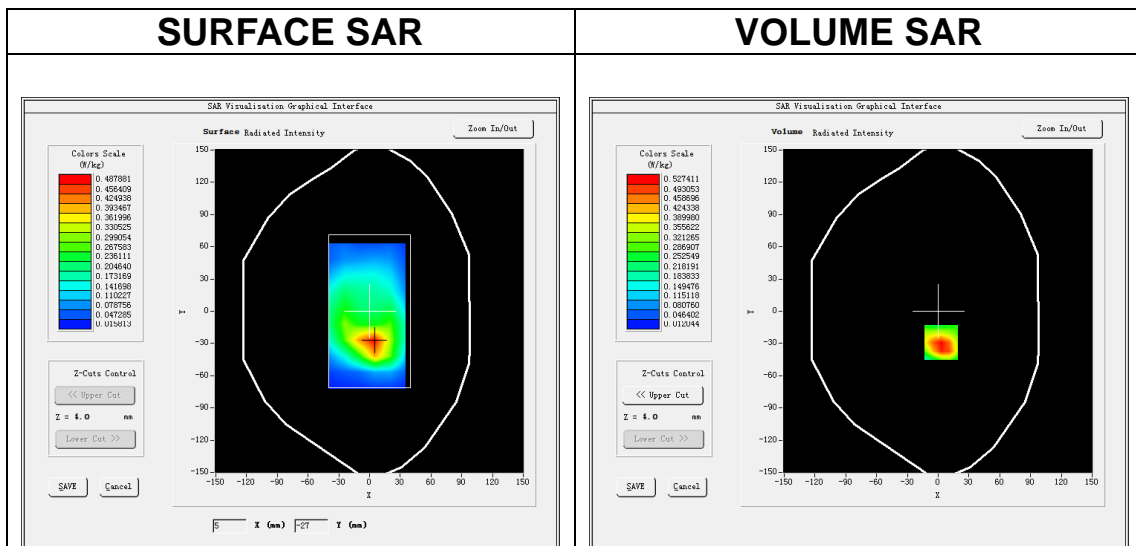
Date of measurement: 28/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>Band2 WCDMA1900</u>
Channels	<u>Middle</u>
Signal	<u>WCDMA (Crest factor: 1.0)</u>
ConvF	<u>1.91</u>

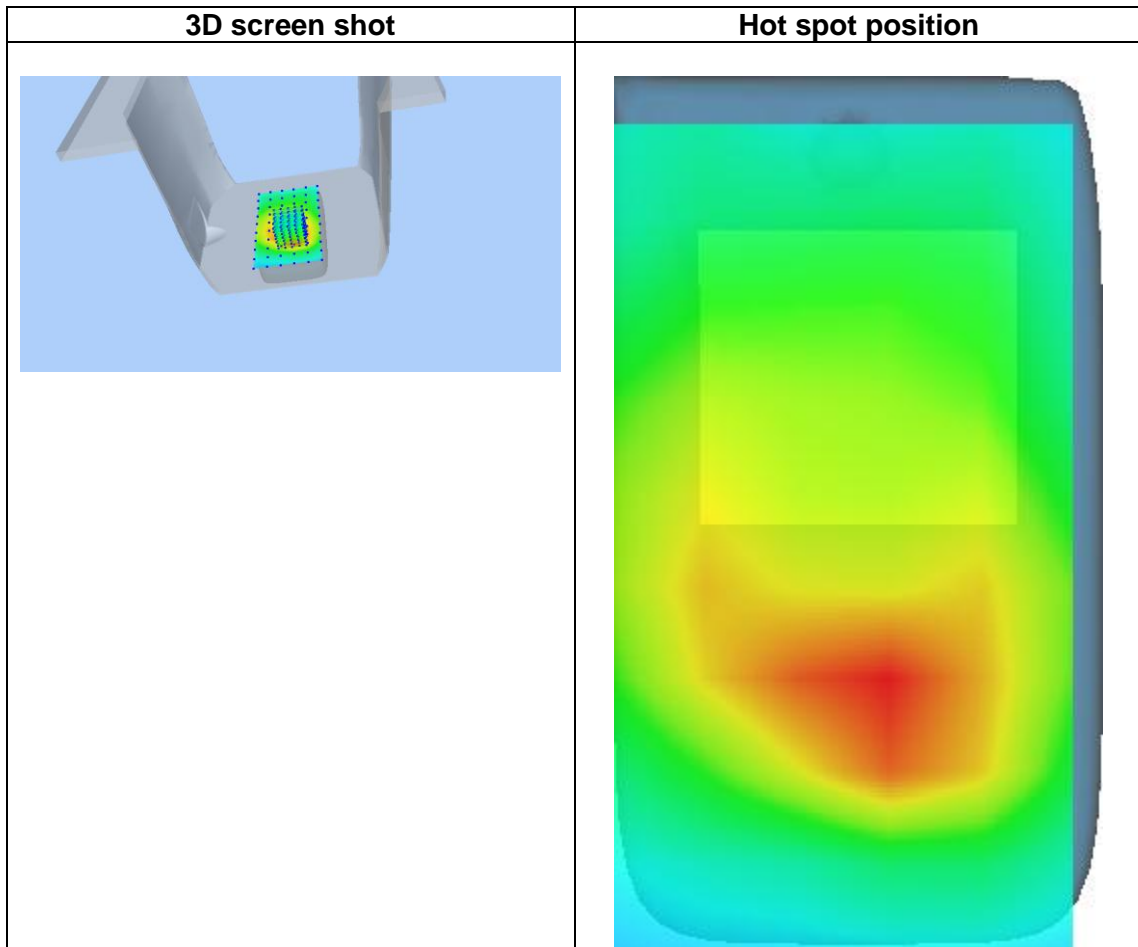
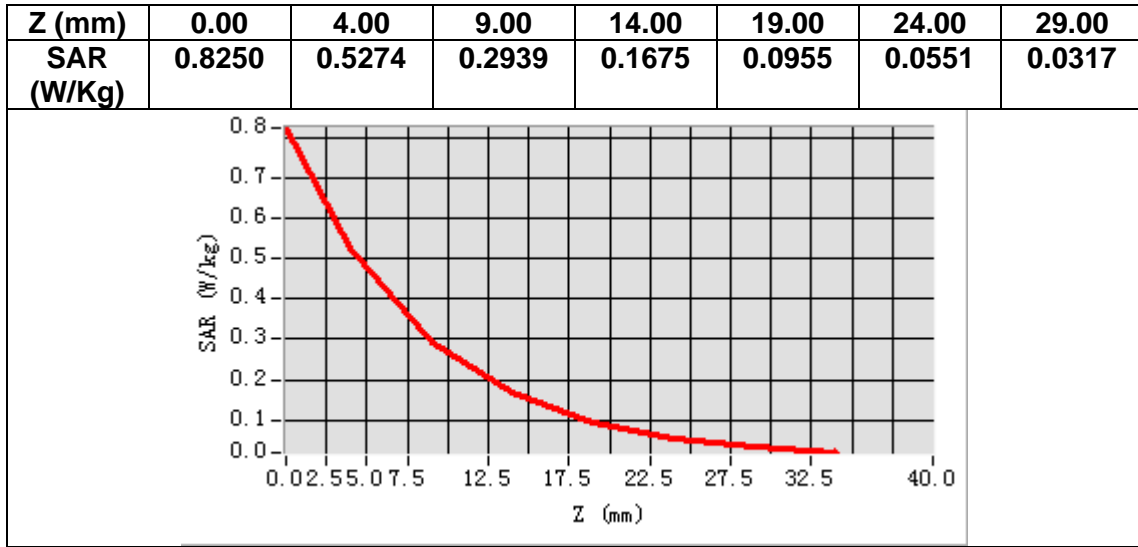
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.967609
Relative permittivity (imaginary part)	13.880056
Conductivity (S/m)	1.449695
Variation (%)	-0.390000



Maximum location: X=3.00, Y=-29.00
SAR Peak: 0.85 W/kg

SAR 10g (W/Kg)	0.276814
SAR 1g (W/Kg)	0.530645



MEASUREMENT 7

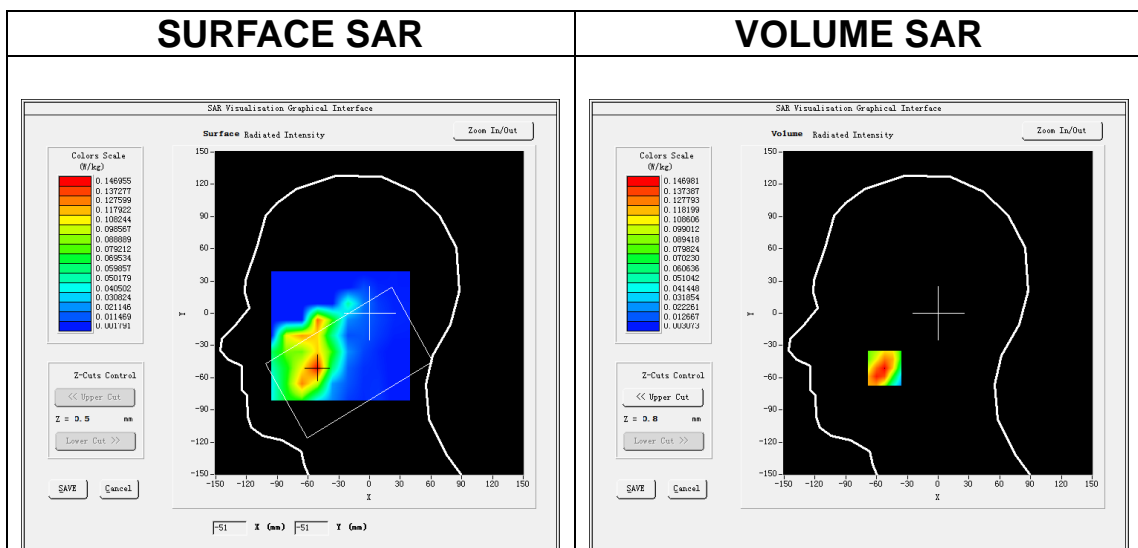
Date of measurement: 4/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>Band4 WCDMA1700</u>
Channels	<u>Middle</u>
Signal	<u>WCDMA (Crest factor: 1.0)</u>
ConvF	<u>1.73</u>

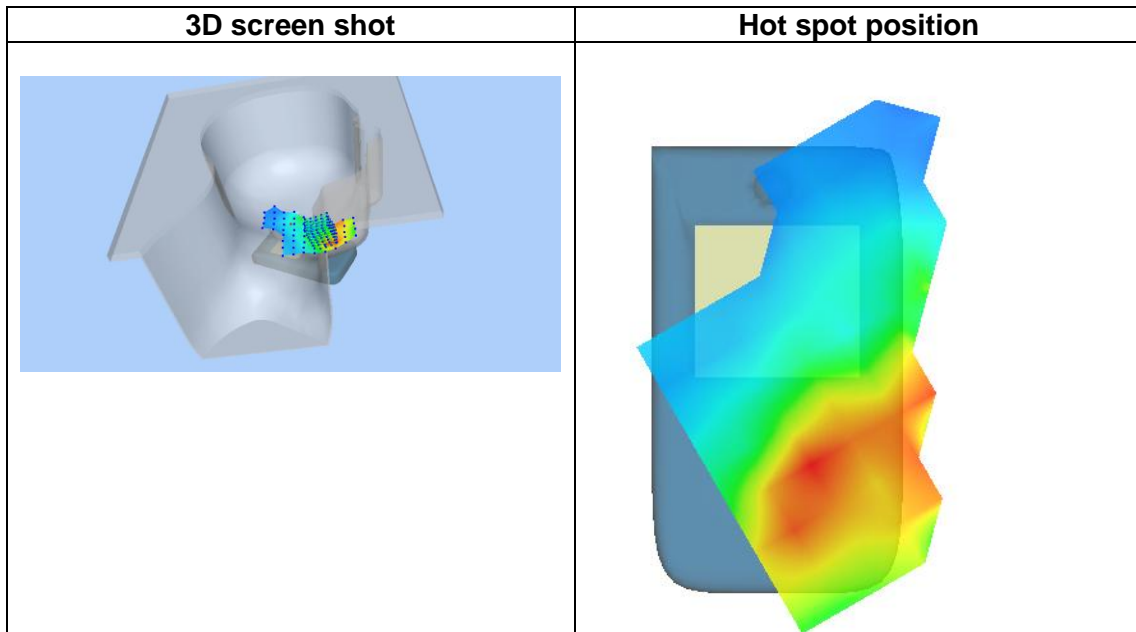
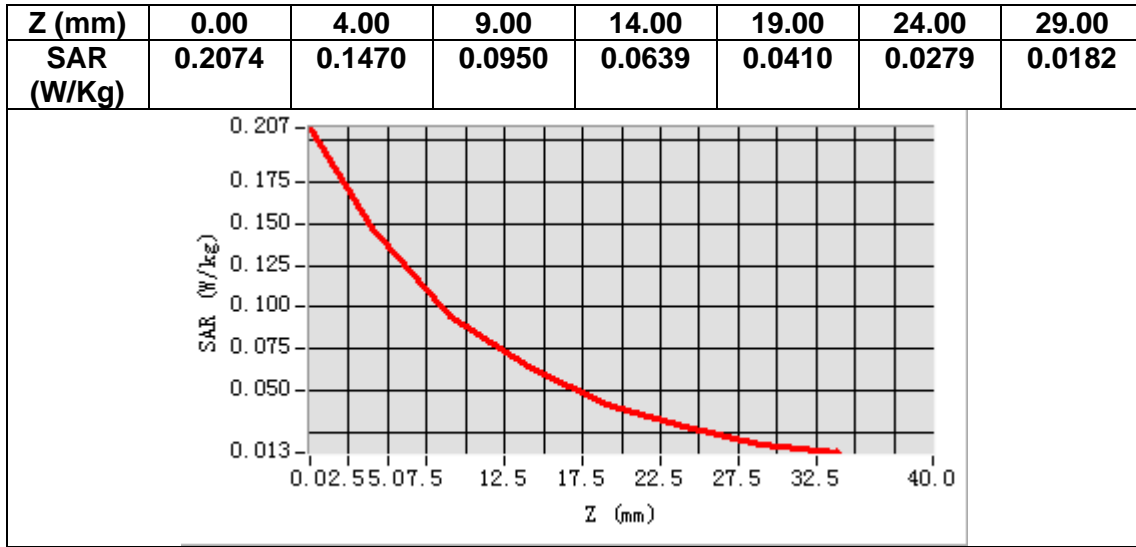
B. SAR Measurement Results

Frequency (MHz)	1732.600000
Relative permittivity (real part)	39.604847
Relative permittivity (imaginary part)	13.880037
Conductivity (S/m)	1.335568
Variation (%)	-2.650000



Maximum location: X=-52.00, Y=-51.00
SAR Peak: 0.21 W/kg

SAR 10g (W/Kg)	0.084143
SAR 1g (W/Kg)	0.141464



MEASUREMENT 8

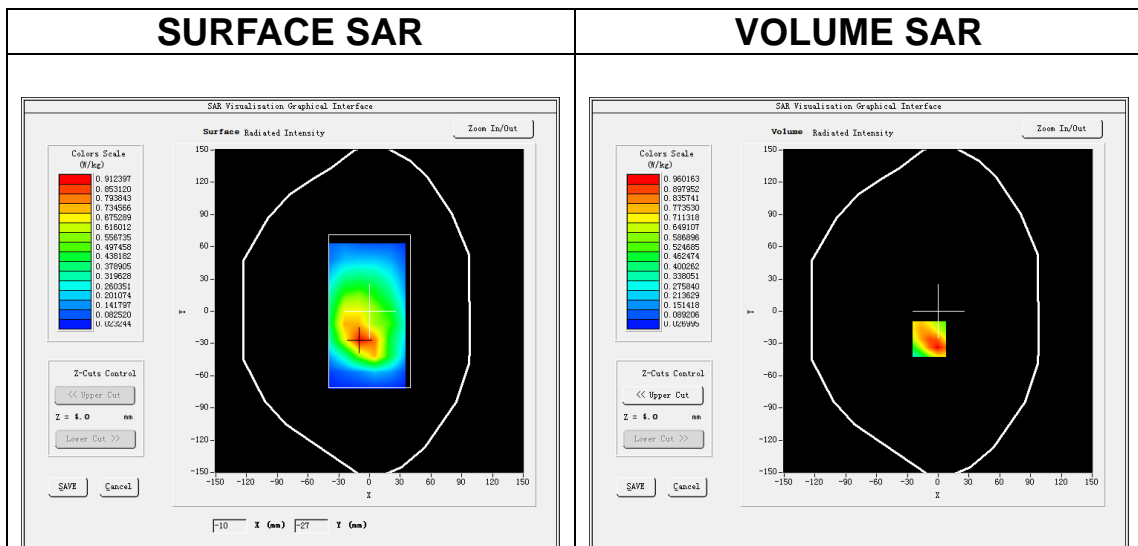
Date of measurement: 4/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>Band4 WCDMA1700</u>
Channels	<u>Low</u>
Signal	<u>WCDMA (Crest factor: 1.0)</u>
ConvF	<u>1.73</u>

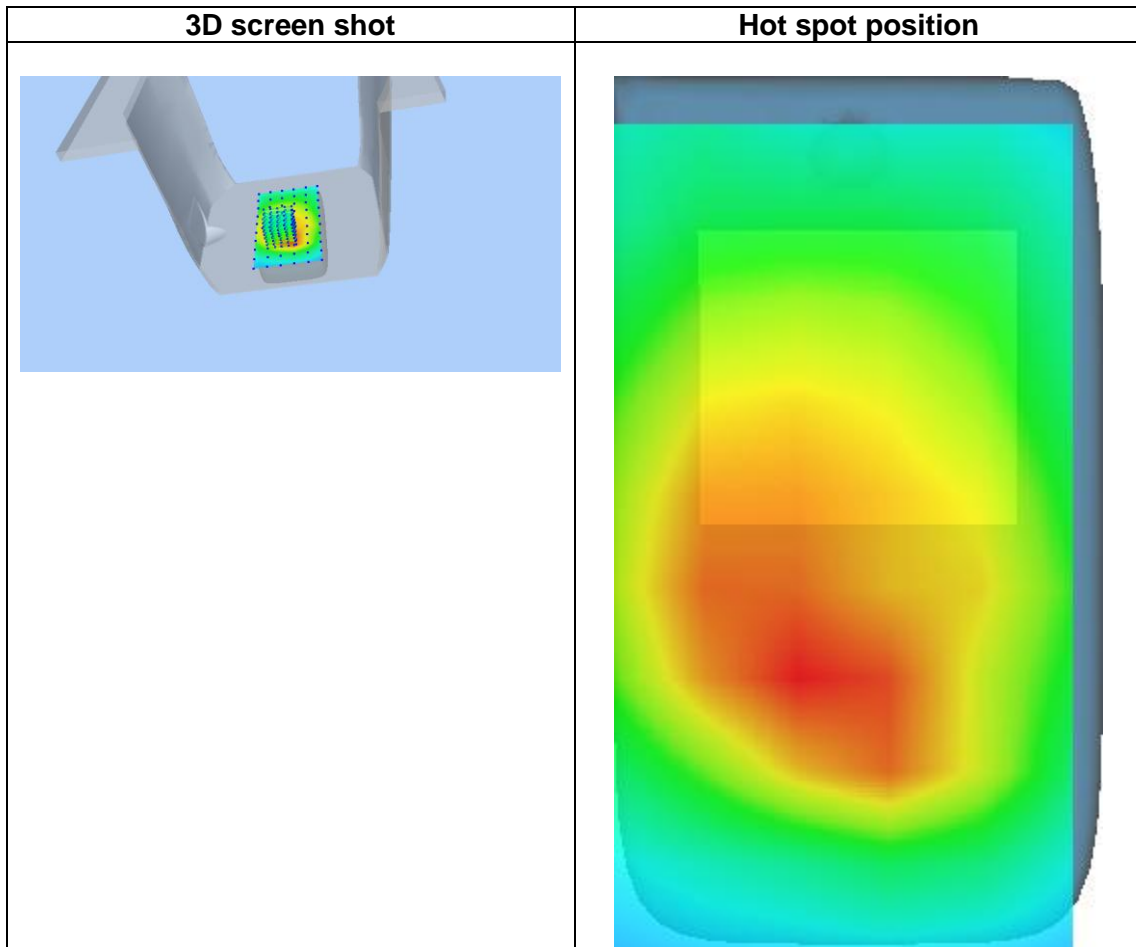
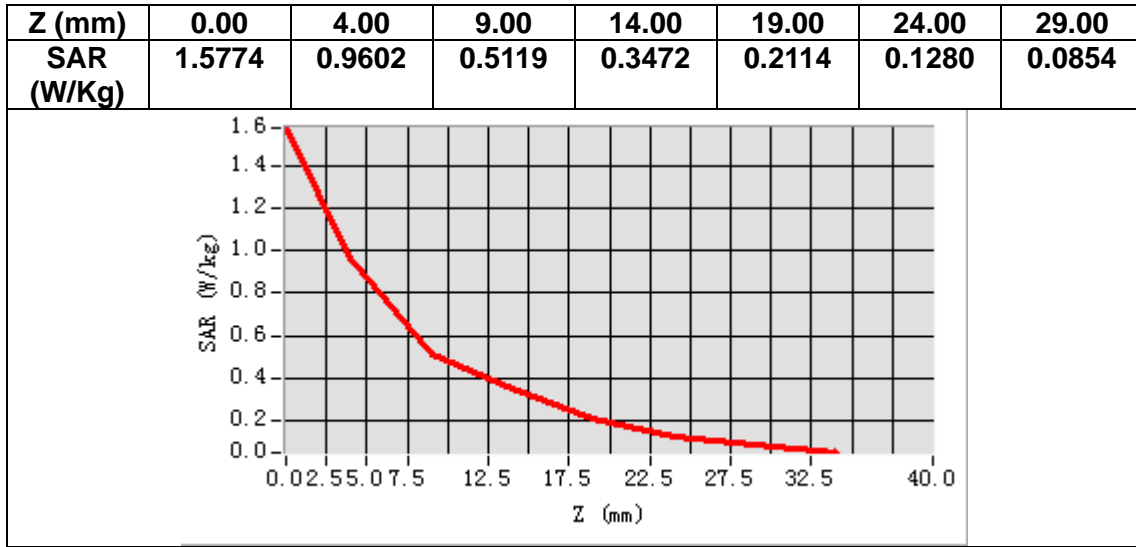
B. SAR Measurement Results

Frequency (MHz)	1712.400000
Relative permittivity (real part)	39.770546
Relative permittivity (imaginary part)	13.826637
Conductivity (S/m)	1.315067
Variation (%)	-3.900000



Maximum location: X=-9.00, Y=-26.00
SAR Peak: 1.48 W/kg

SAR 10g (W/Kg)	0.512673
SAR 1g (W/Kg)	0.910283



MEASUREMENT 9

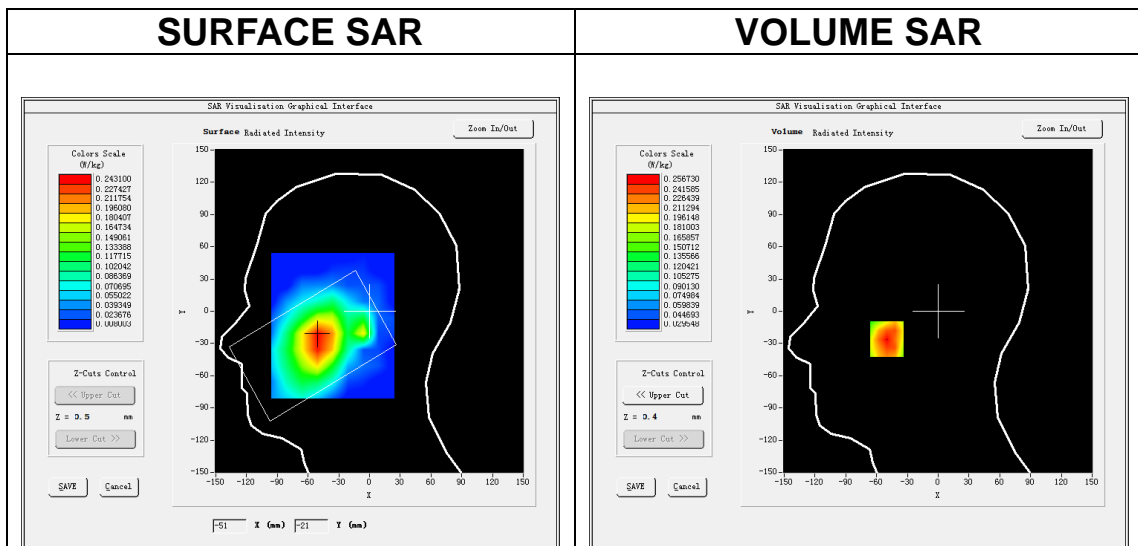
Date of measurement: 29/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>Band5_WCDMA850</u>
Channels	<u>Middle</u>
Signal	<u>WCDMA (Crest factor: 1.0)</u>
ConvF	<u>1.50</u>

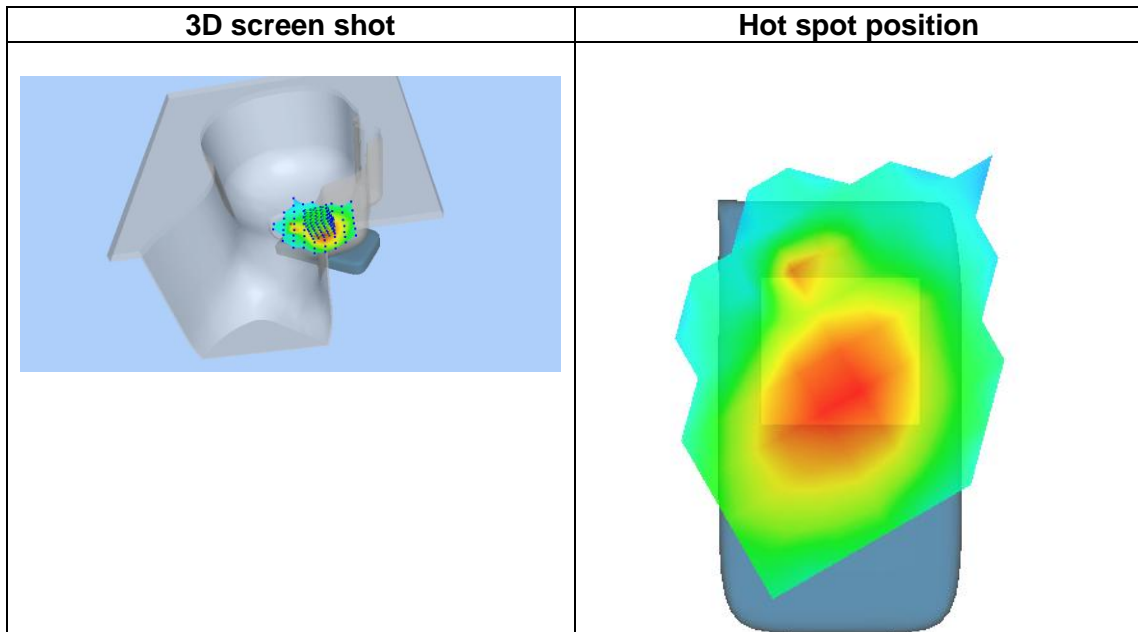
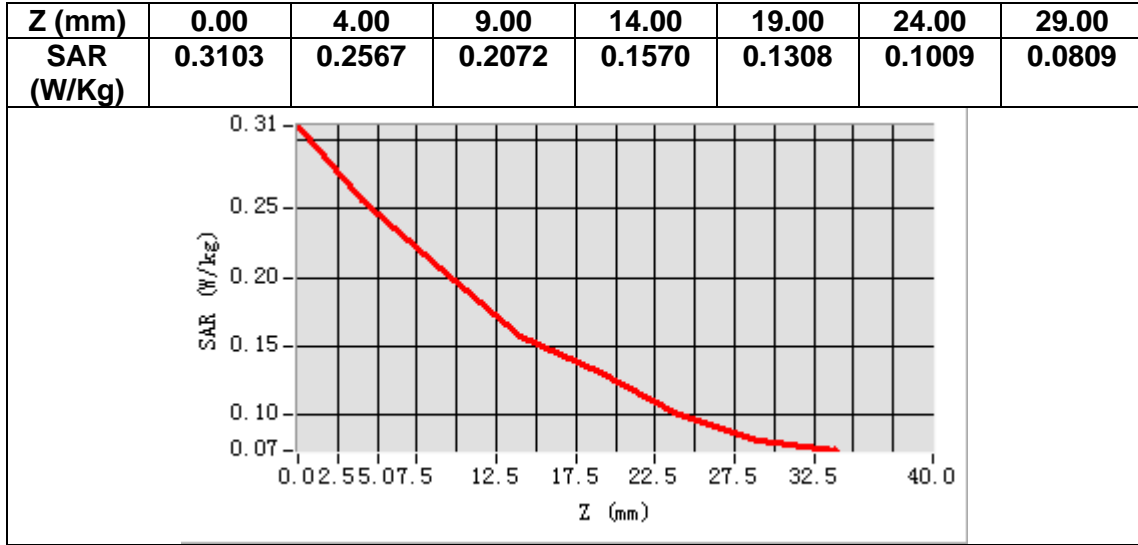
B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative permittivity (real part)	41.392258
Relative permittivity (imaginary part)	20.142780
Conductivity (S/m)	0.935968
Variation (%)	-0.610000



Maximum location: X=-50.00, Y=-26.00
SAR Peak: 0.33 W/kg

SAR 10g (W/Kg)	0.182675
SAR 1g (W/Kg)	0.251035



MEASUREMENT 10

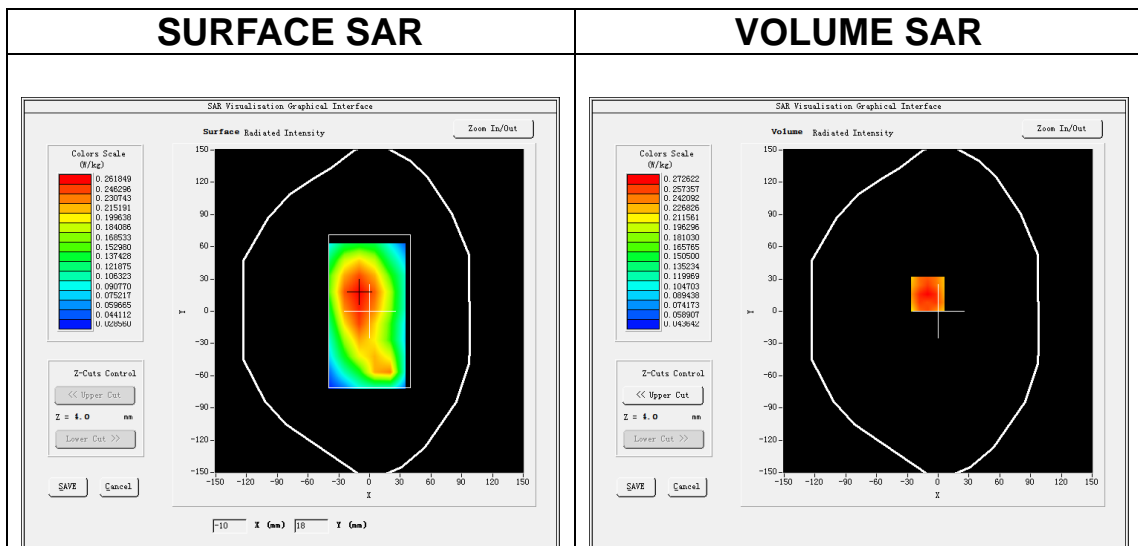
Date of measurement: 29/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>Band5_WCDMA850</u>
Channels	<u>Middle</u>
Signal	<u>WCDMA (Crest factor: 1.0)</u>
ConvF	<u>1.50</u>

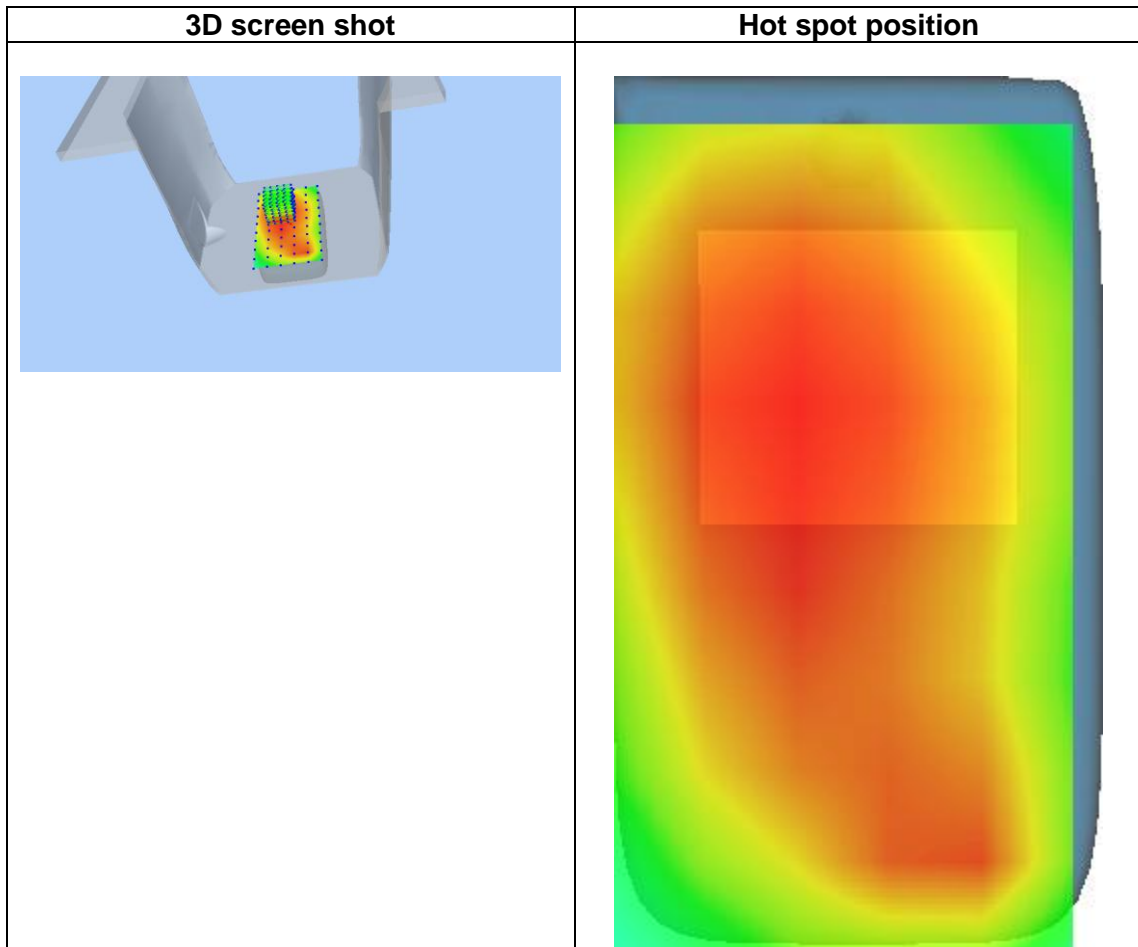
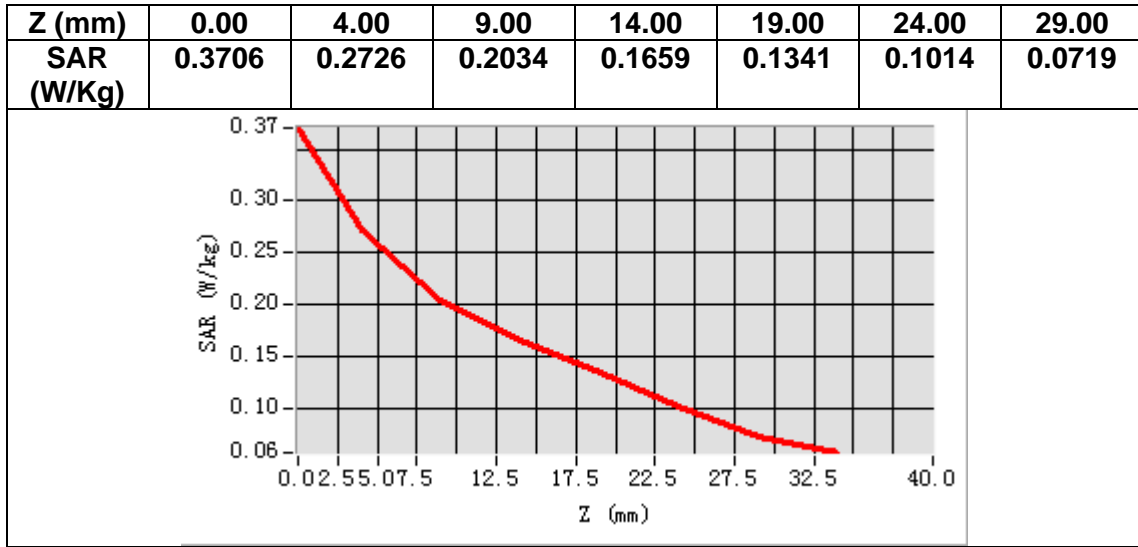
B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative permittivity (real part)	41.392258
Relative permittivity (imaginary part)	20.142780
Conductivity (S/m)	0.935968
Variation (%)	-2.120000



Maximum location: X=-10.00, Y=16.00
SAR Peak: 0.36 W/kg

SAR 10g (W/Kg)	0.199900
SAR 1g (W/Kg)	0.275785



MEASUREMENT 11

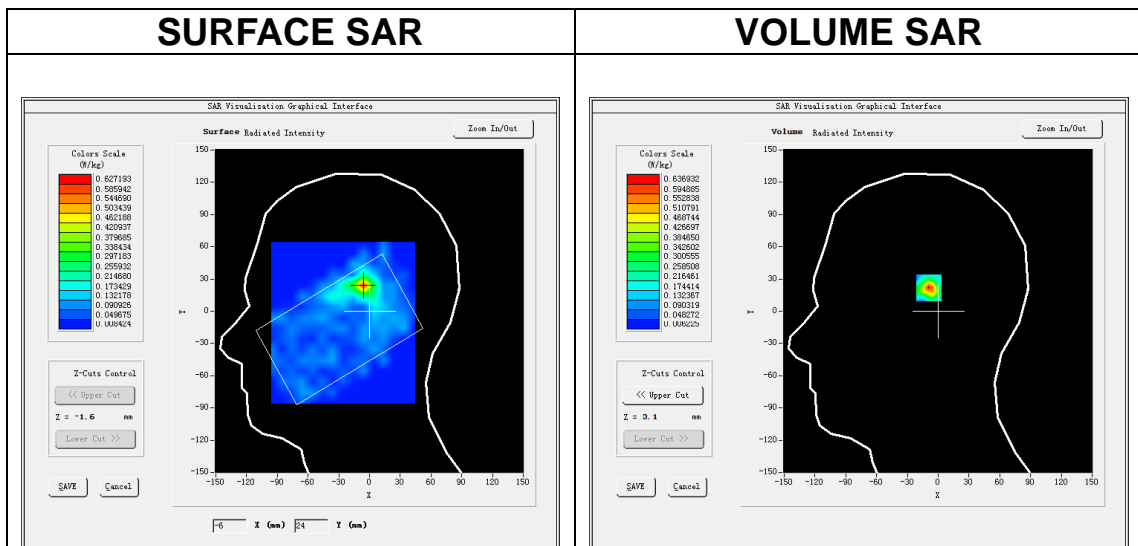
Date of measurement: 22/12/2022

A. Experimental conditions.

Area Scan	<u>dx=10mm dy=10mm, h= 2.00 mm</u>
ZoomScan	<u>7x7x12,dx=4mm dy=4mm dz=2mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>IEEE 802.11a U-NII</u>
Channels	<u>Middle</u>
Signal	<u>IEEE802.11a (Crest factor: 1.0)</u>
ConvF	<u>1.80</u>

B. SAR Measurement Results

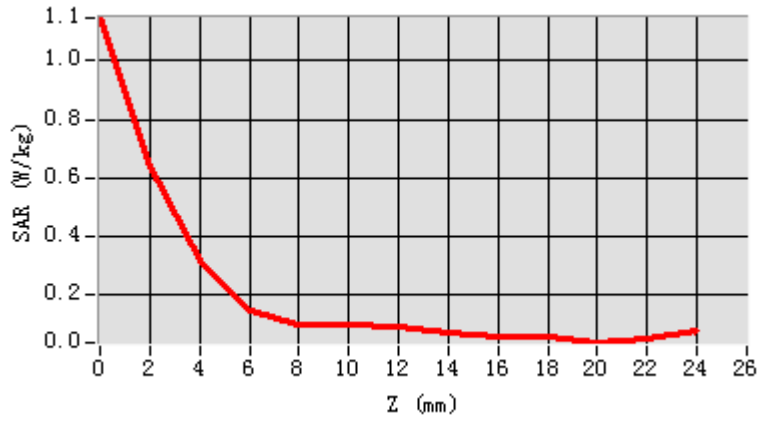
Frequency (MHz)	5200.000000
Relative permittivity (real part)	36.032204
Relative permittivity (imaginary part)	16.390739
Conductivity (S/m)	4.735102
Variation (%)	-2.530001



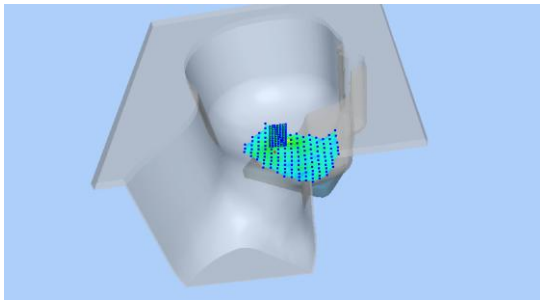
Maximum location: X=-6.00, Y=24.00
SAR Peak: 1.89 W/kg

SAR 10g (W/Kg)	0.204619
SAR 1g (W/Kg)	0.574713

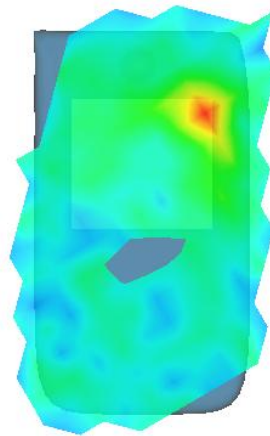
Z (m m)	0.00	2.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0
						0	0	0	0	0	0	0
SAR (W/ Kg)	1.14	0.63	0.32	0.14	0.10	0.09	0.09	0.07	0.05	0.06	0.03	0.05
	52	69	09	63	34	75	48	52	85	32	93	10



3D screen shot



Hot spot position



MEASUREMENT 12

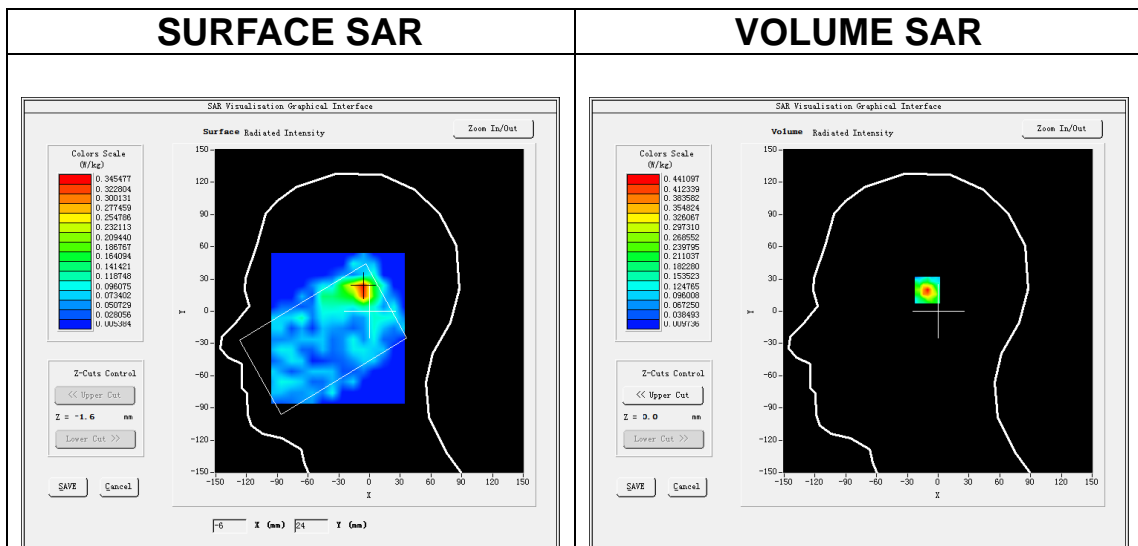
Date of measurement: 21/12/2022

A. Experimental conditions.

Area Scan	<u>dx=10mm dy=10mm, h= 2.00 mm</u>
ZoomScan	<u>7x7x12,dx=4mm dy=4mm dz=2mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>IEEE 802.11n U-NII</u>
Channels	<u>Middle</u>
Signal	<u>IEEE802.11n (Crest factor: 1.0)</u>
ConvF	<u>2.07</u>

B. SAR Measurement Results

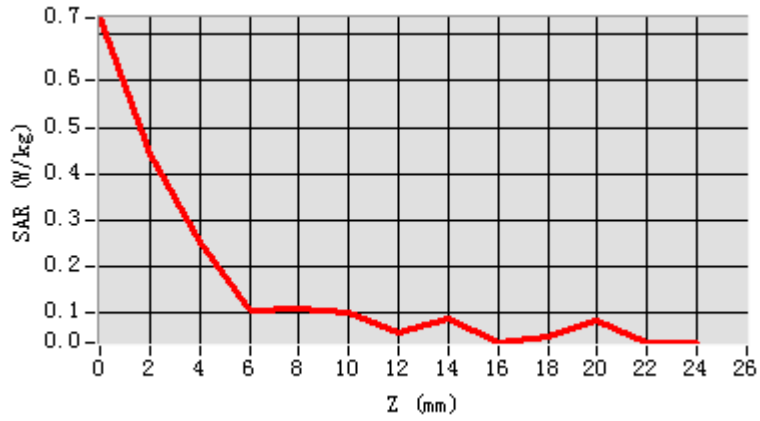
Frequency (MHz)	5755.000000
Relative permittivity (real part)	34.785199
Relative permittivity (imaginary part)	16.293973
Conductivity (S/m)	5.209545
Variation (%)	3.000000



Maximum location: X=-7.00, Y=21.00
SAR Peak: 1.21 W/kg

SAR 10g (W/Kg)	0.155136
SAR 1g (W/Kg)	0.398840

Z (m)	0.00	2.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0
SAR (W/Kg)	0.7353	0.4411	0.2504	0.1043	0.1111	0.1026	0.0570	0.0871	0.0361	0.0510	0.0828	0.0375



3D screen shot	Hot spot position

MEASUREMENT 13

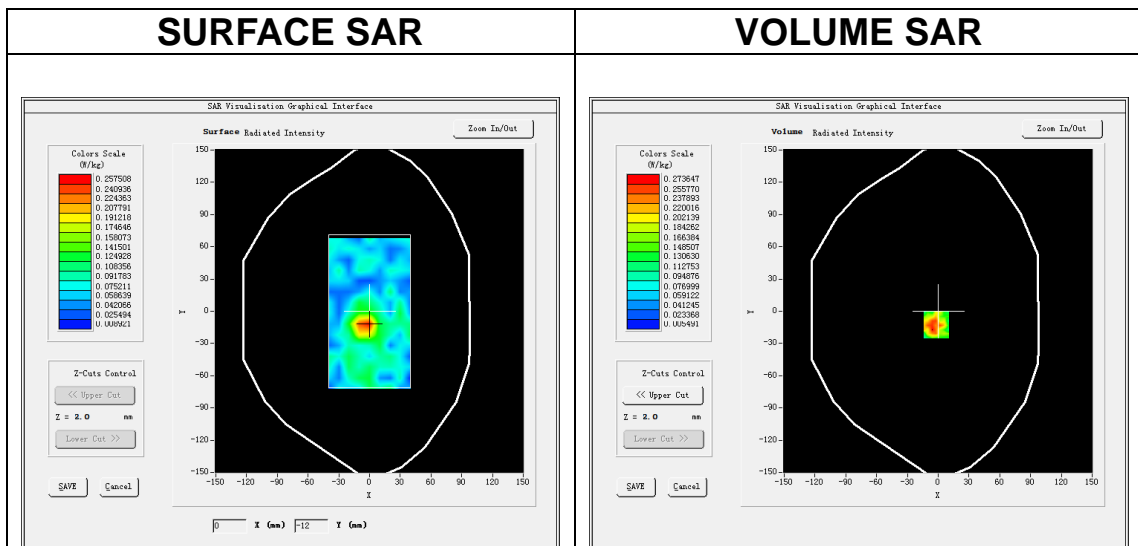
Date of measurement: 22/12/2022

A. Experimental conditions.

Area Scan	<u>dx=10mm dy=10mm, h= 2.00 mm</u>
ZoomScan	<u>7x7x12,dx=4mm dy=4mm dz=2mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>IEEE 802.11a U-NII</u>
Channels	<u>Middle</u>
Signal	<u>IEEE802.11a (Crest factor: 1.0)</u>
ConvF	<u>1.80</u>

B. SAR Measurement Results

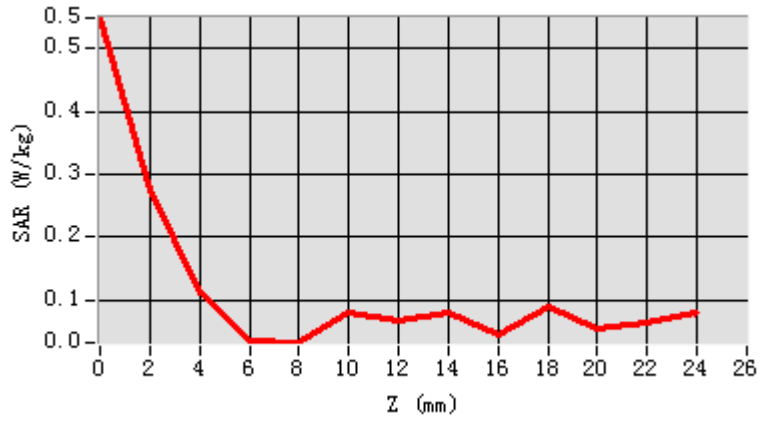
Frequency (MHz)	5200.000000
Relative permittivity (real part)	36.032204
Relative permittivity (imaginary part)	16.390739
Conductivity (S/m)	4.735102
Variation (%)	-0.850000



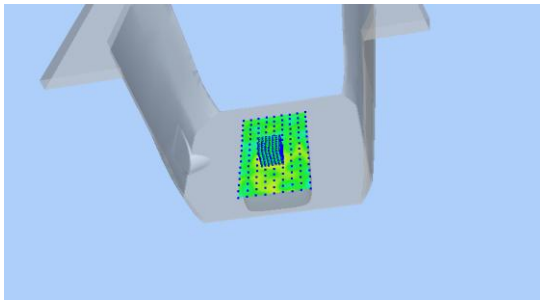
Maximum location: X=-2.00, Y=-13.00
SAR Peak: 0.60 W/kg

SAR 10g (W/Kg)	0.093331
SAR 1g (W/Kg)	0.163629

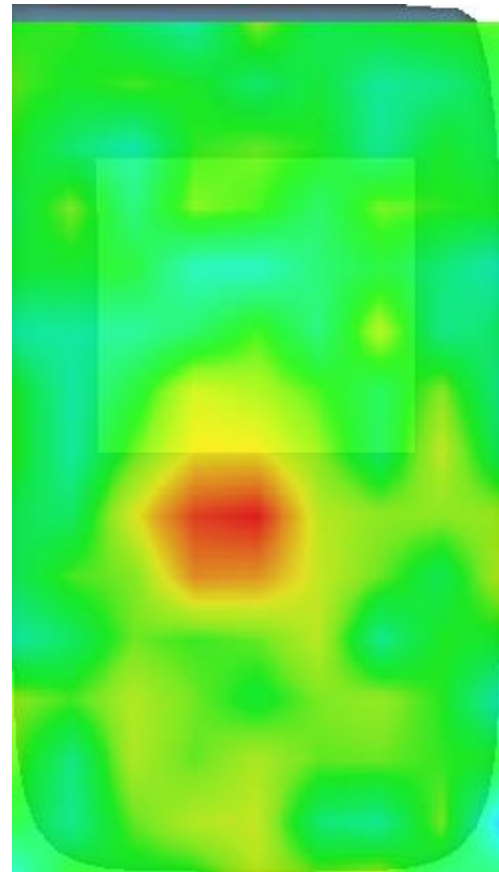
Z (m m)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.5485	0.2736	0.1124	0.0351	0.0325	0.0791	0.0687	0.0791	0.0440	0.0889	0.0549	0.0644



3D screen shot



Hot spot position



MEASUREMENT 14

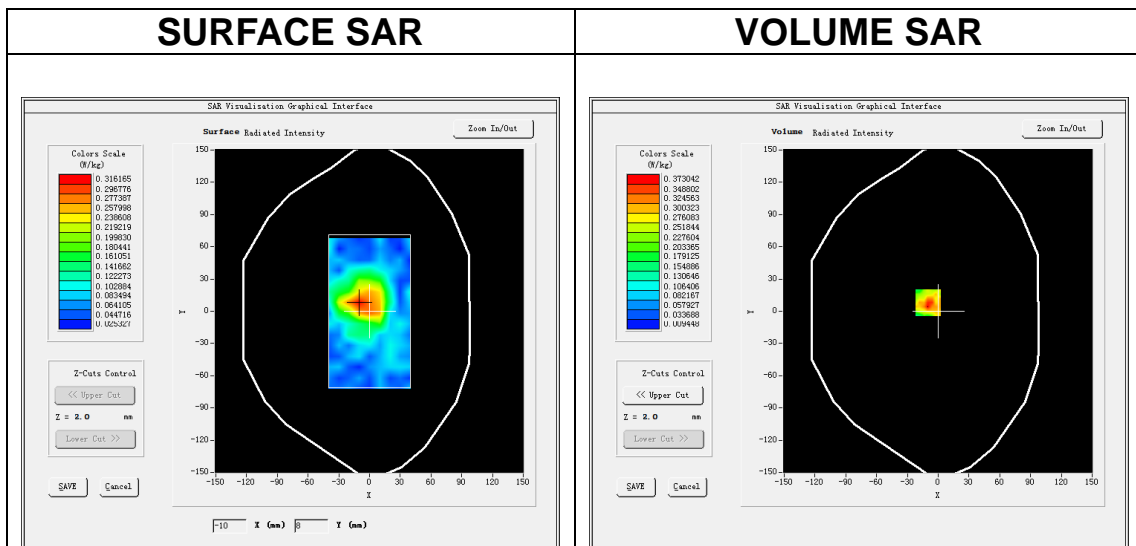
Date of measurement: 21/12/2022

A. Experimental conditions.

Area Scan	<u>dx=10mm dy=10mm, h= 2.00 mm</u>
ZoomScan	<u>7x7x12,dx=4mm dy=4mm dz=2mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>IEEE 802.11n U-NII</u>
Channels	<u>Middle</u>
Signal	<u>IEEE802.11n (Crest factor: 1.0)</u>
ConvF	<u>1.80</u>

B. SAR Measurement Results

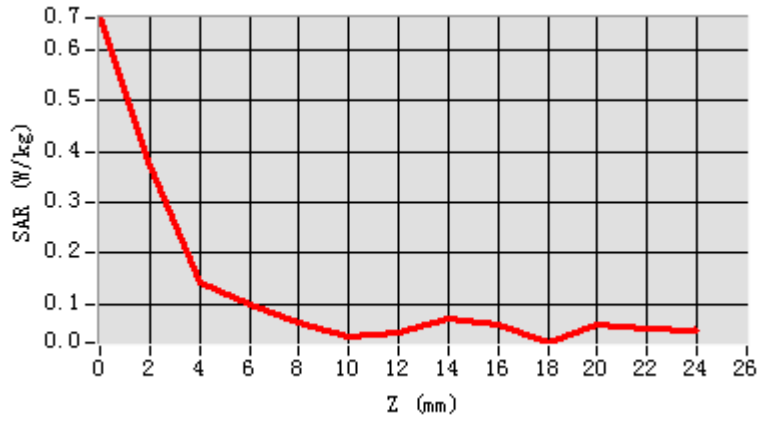
Frequency (MHz)	5755.000000
Relative permittivity (real part)	34.785199
Relative permittivity (imaginary part)	16.293973
Conductivity (S/m)	5.209545
Variation (%)	-4.470000



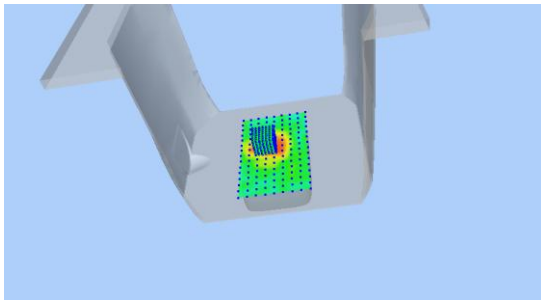
Maximum location: X=-10.00, Y=8.00
SAR Peak: 0.69 W/kg

SAR 10g (W/Kg)	0.113671
SAR 1g (W/Kg)	0.220435

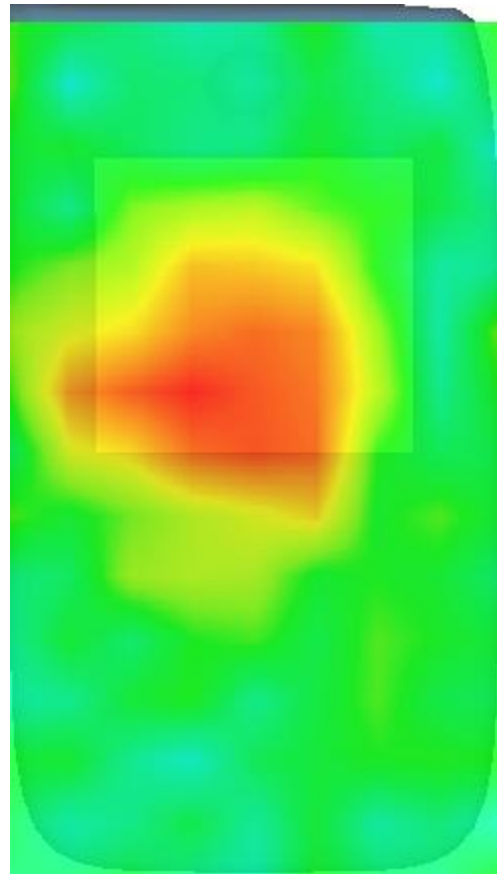
Z (m m)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.6632	0.3730	0.1447	0.1008	0.0622	0.0380	0.0430	0.0732	0.0607	0.0245	0.0599	0.0520



3D screen shot



Hot spot position



MEASUREMENT 15

Date of measurement: 30/12/2022

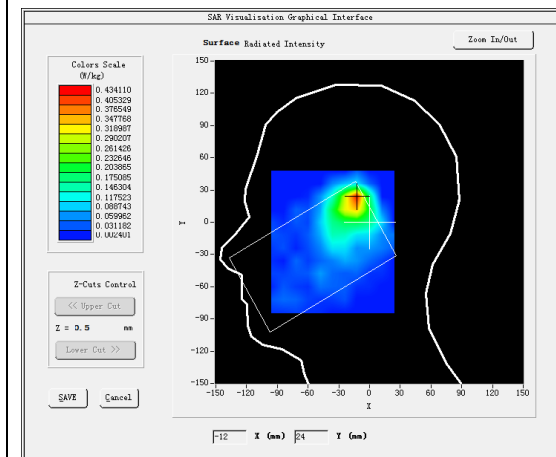
A. Experimental conditions.

Area Scan	<u>dx=12mm dy=12mm, h= 5.00 mm</u>
ZoomScan	<u>7x7x7,dx=5mm dy=5mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>IEEE 802.11b ISM</u>
Channels	<u>Low</u>
Signal	<u>IEEE802.11b (Crest factor: 1.0)</u>
ConvF	<u>1.98</u>

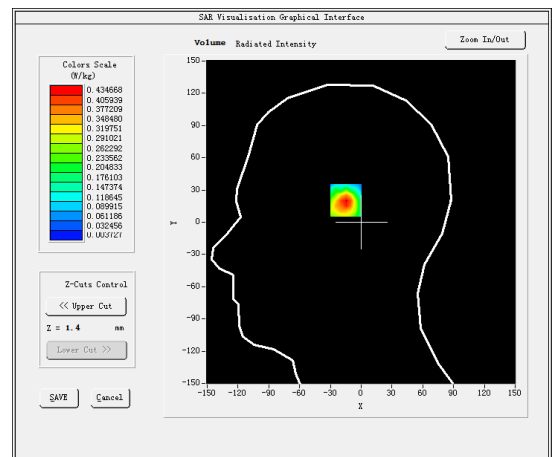
B. SAR Measurement Results

Frequency (MHz)	2412.000000
Relative permittivity (real part)	38.320218
Relative permittivity (imaginary part)	13.601938
Conductivity (S/m)	1.822659
Variation (%)	-1.570000

SURFACE SAR



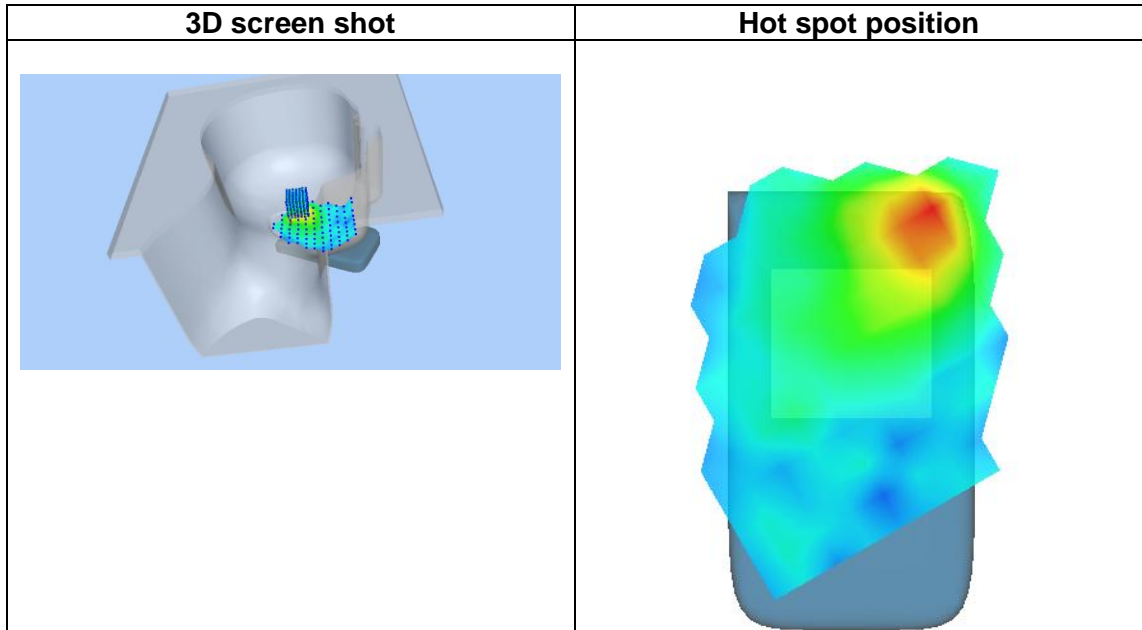
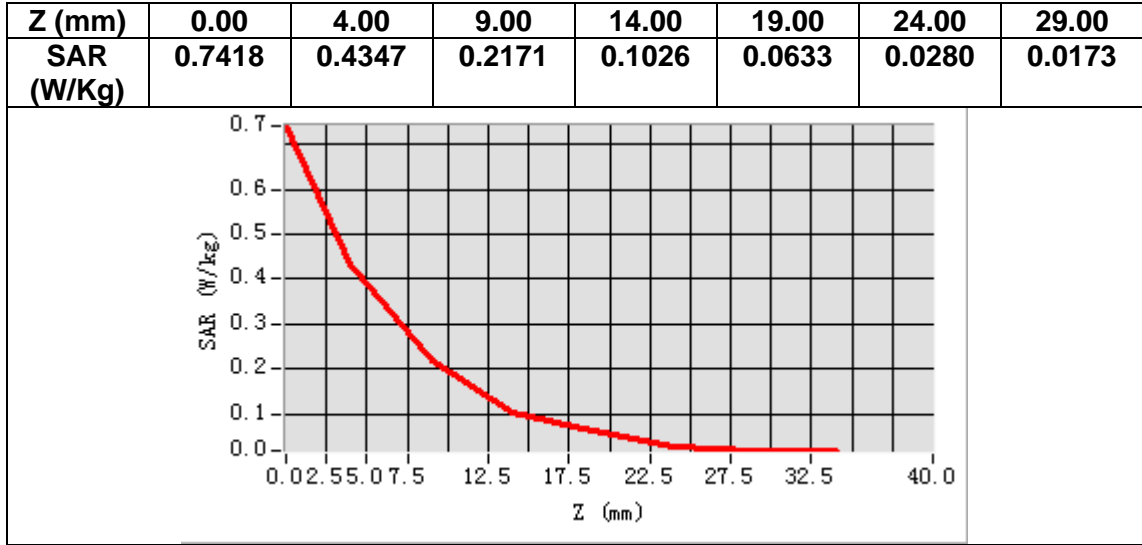
VOLUME SAR



Maximum location: X=-13.00, Y=22.00

SAR Peak: 0.77 W/kg

SAR 10g (W/Kg)	0.193323
SAR 1g (W/Kg)	0.402395



MEASUREMENT 16

Date of measurement: 30/12/2022

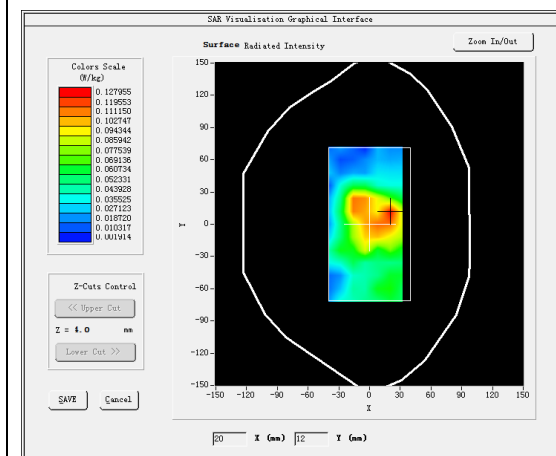
A. Experimental conditions.

<u>Area Scan</u>	<u>dx=12mm dy=12mm, h= 5.00 mm</u>
<u>ZoomScan</u>	<u>7x7x7, dx=5mm dy=5mm dz=5mm</u>
<u>Phantom</u>	<u>Validation plane</u>
<u>Device Position</u>	<u>Body</u>
<u>Band</u>	<u>IEEE 802.11b ISM</u>
<u>Channels</u>	<u>Low</u>
<u>Signal</u>	<u>IEEE802.11b (Crest factor: 1.0)</u>
<u>ConvF</u>	<u>1.98</u>

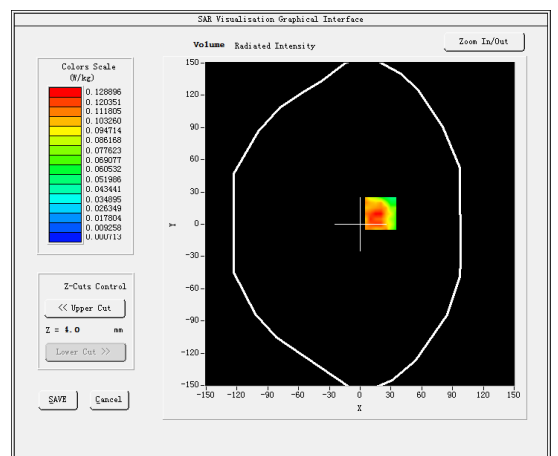
B. SAR Measurement Results

Frequency (MHz)	2412.000000
Relative permittivity (real part)	38.320218
Relative permittivity (imaginary part)	13.601938
Conductivity (S/m)	1.822659
Variation (%)	-2.940000

SURFACE SAR



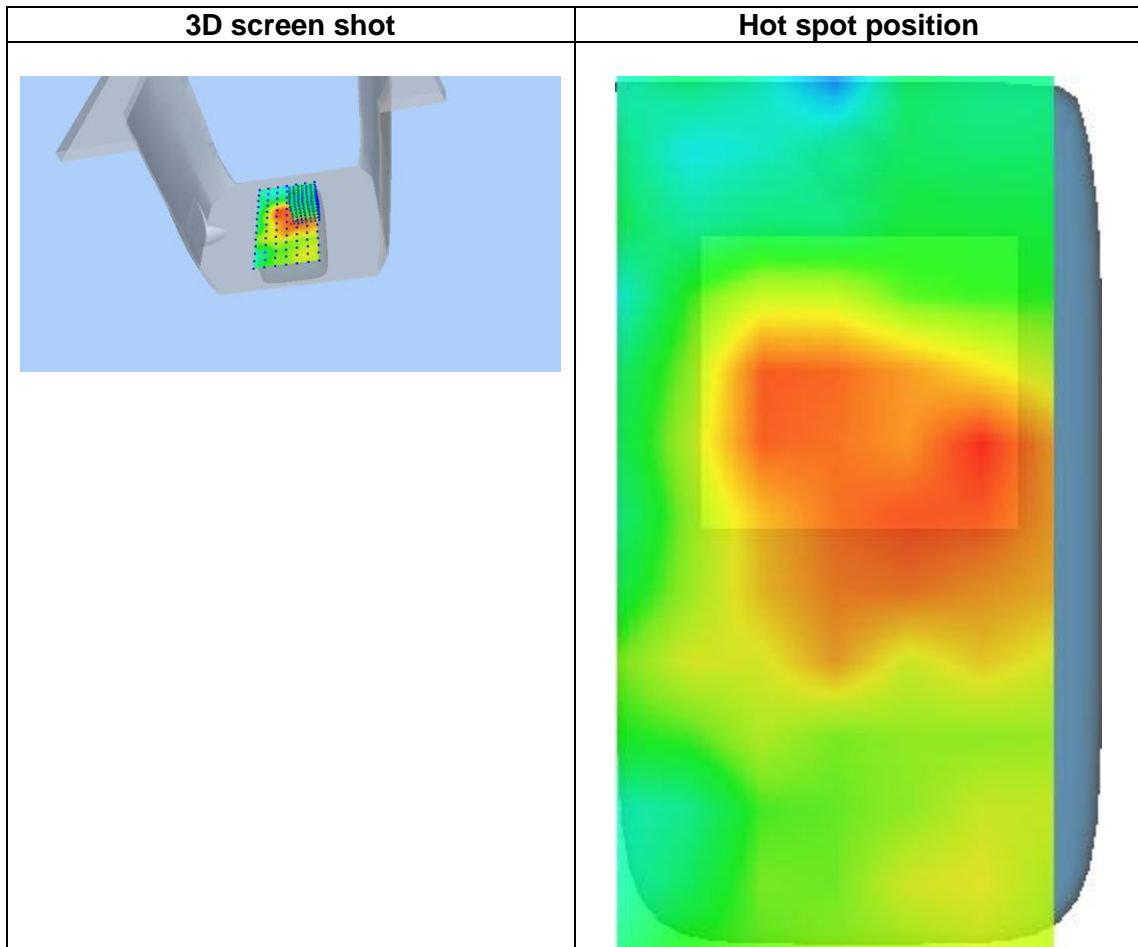
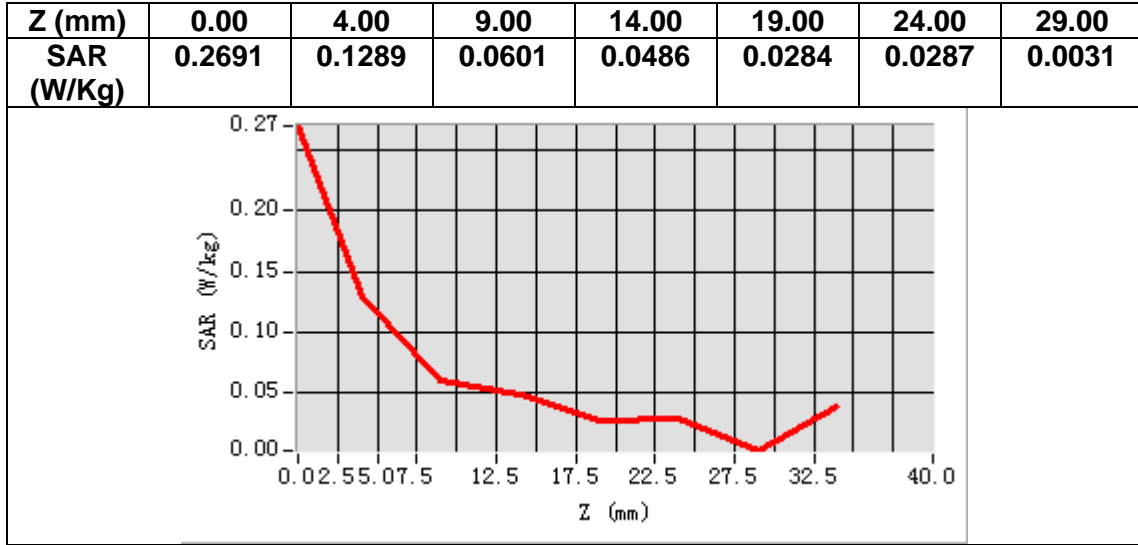
VOLUME SAR



Maximum location: X=20.00, Y=10.00

SAR Peak: 0.26 W/kg

SAR 10g (W/Kg)	0.070872
SAR 1g (W/Kg)	0.121055



MEASUREMENT 17

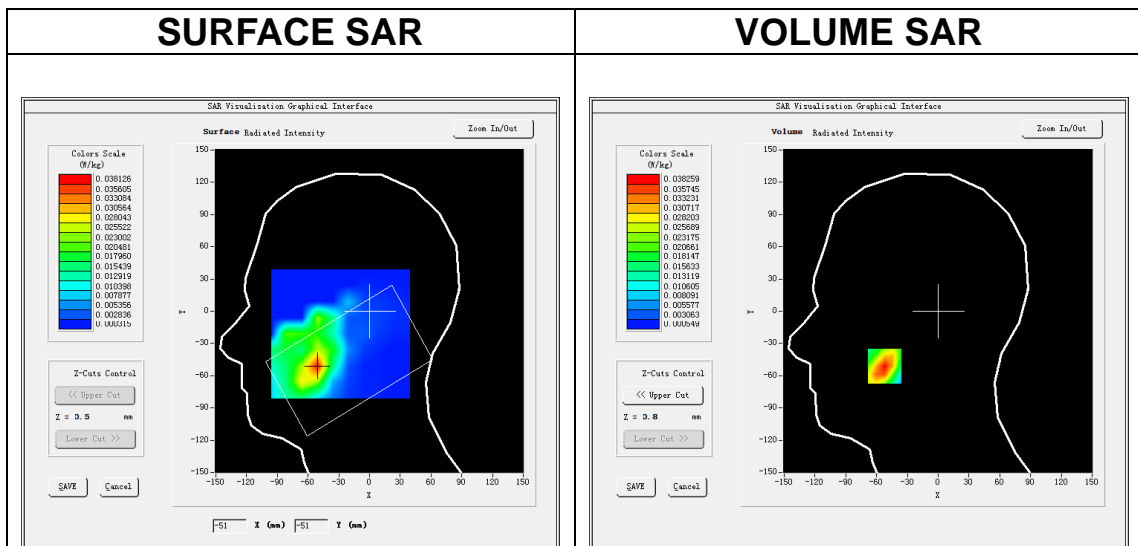
Date of measurement: 28/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 2</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.91</u>

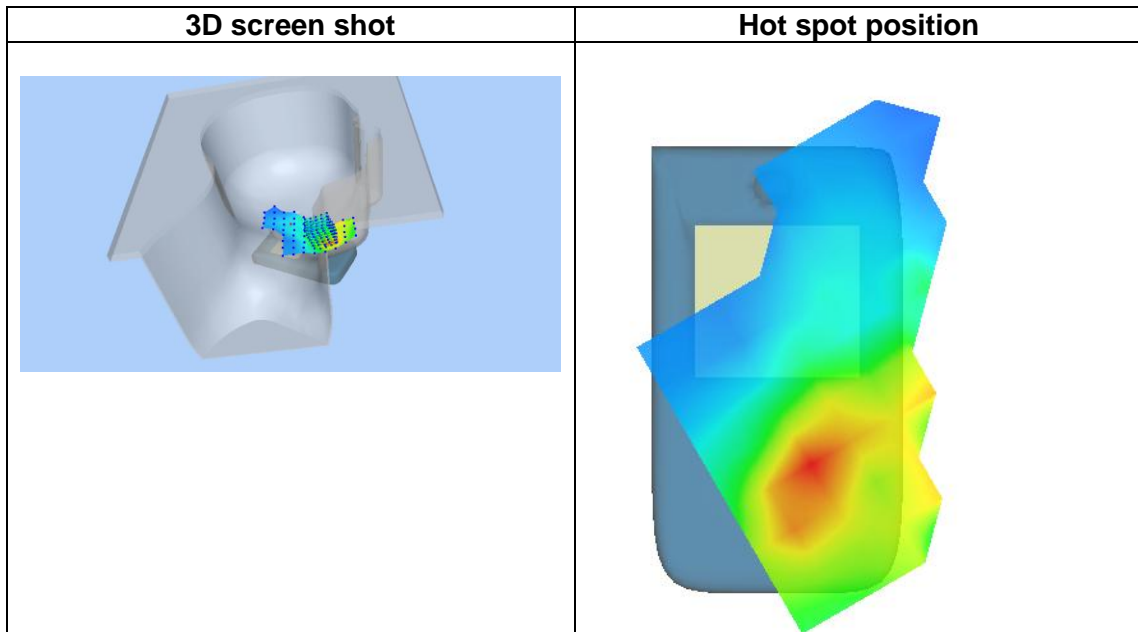
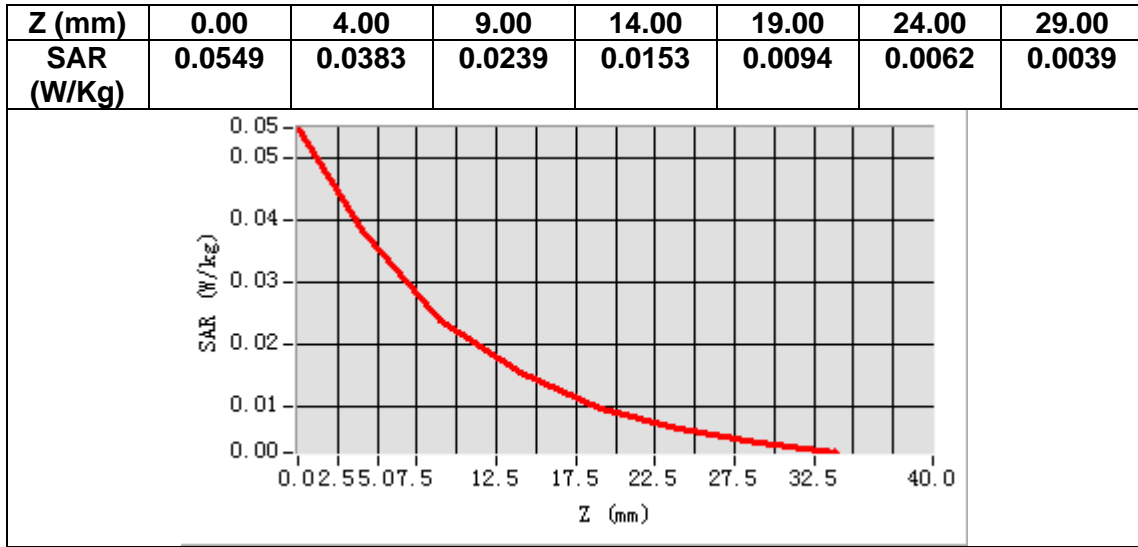
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.976112
Relative permittivity (imaginary part)	13.883806
Conductivity (S/m)	1.449701
Variation (%)	0.640000



Maximum location: X=-52.00, Y=-51.00
SAR Peak: 0.06 W/kg

SAR 10g (W/Kg)	0.020732
SAR 1g (W/Kg)	0.037118



MEASUREMENT 18

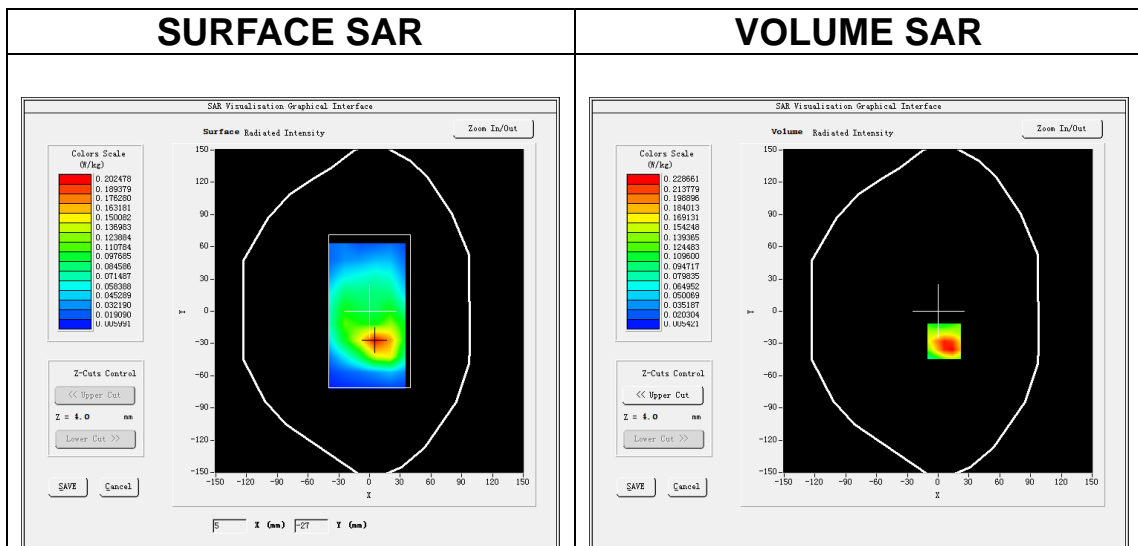
Date of measurement: 28/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>LTE band 2</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.91</u>

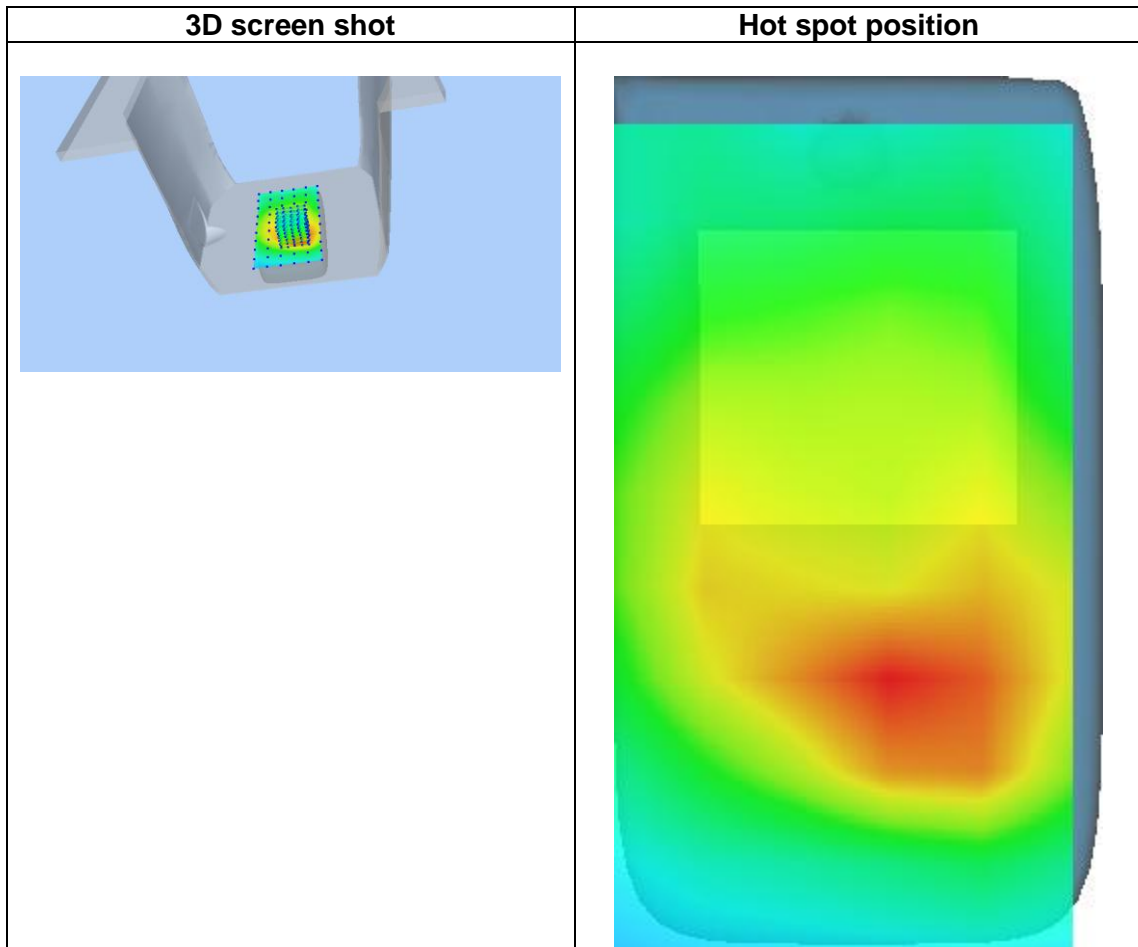
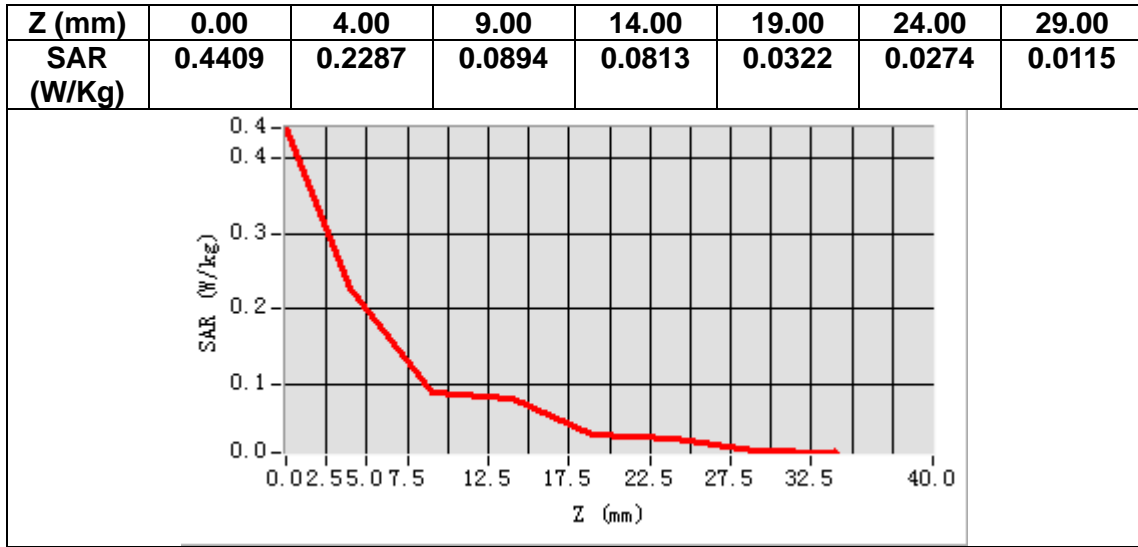
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.976112
Relative permittivity (imaginary part)	13.883806
Conductivity (S/m)	1.449701
Variation (%)	4.990000



Maximum location: X=6.00, Y=-28.00
SAR Peak: 0.37 W/kg

SAR 10g (W/Kg)	0.122768
SAR 1g (W/Kg)	0.231080



MEASUREMENT 19

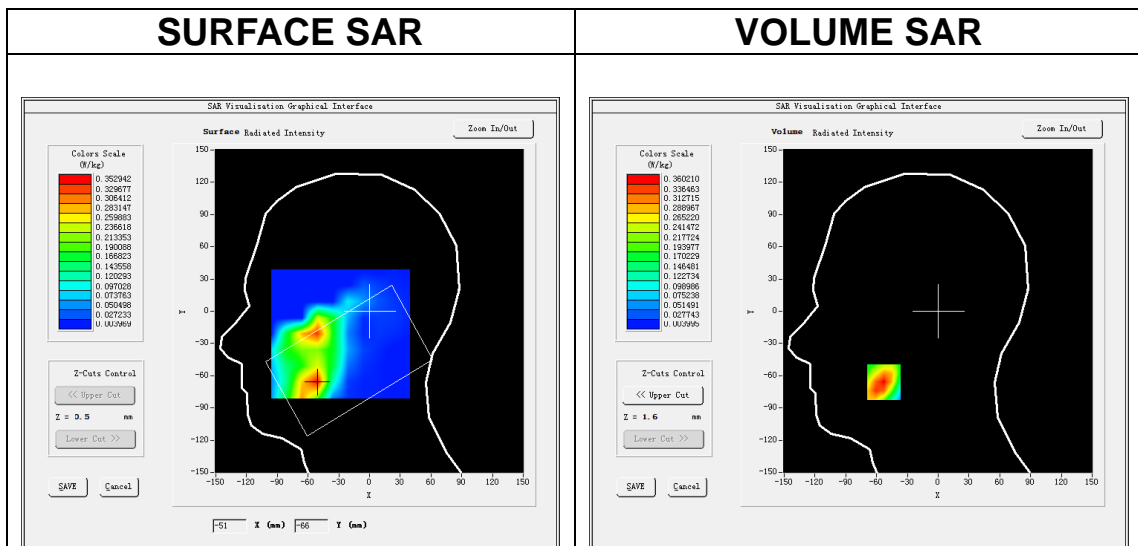
Date of measurement: 4/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 4</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.73</u>

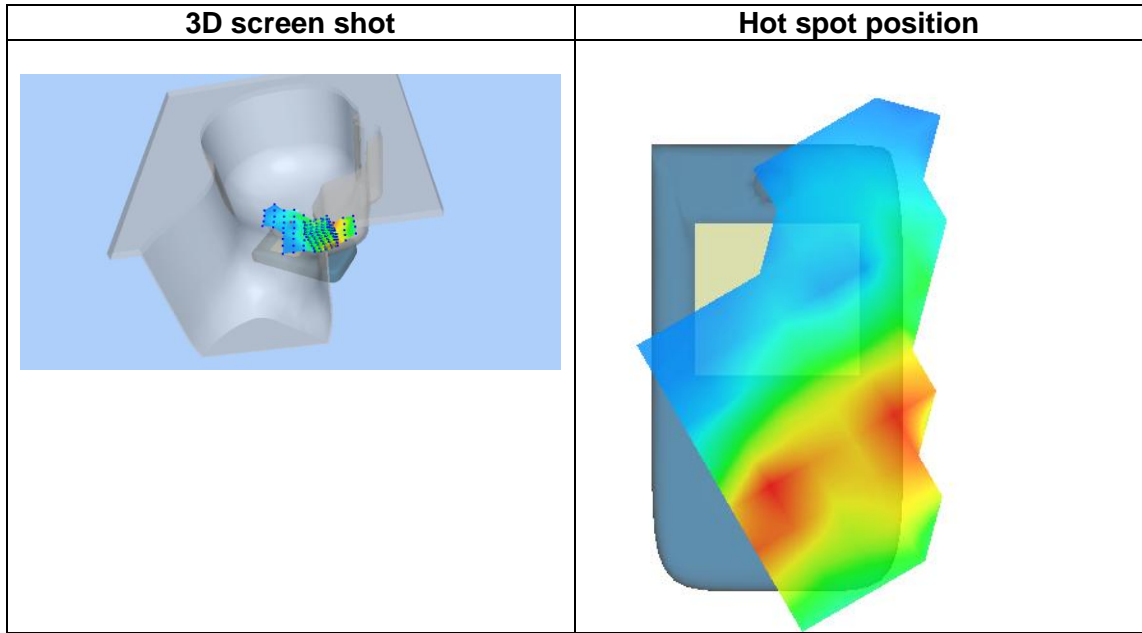
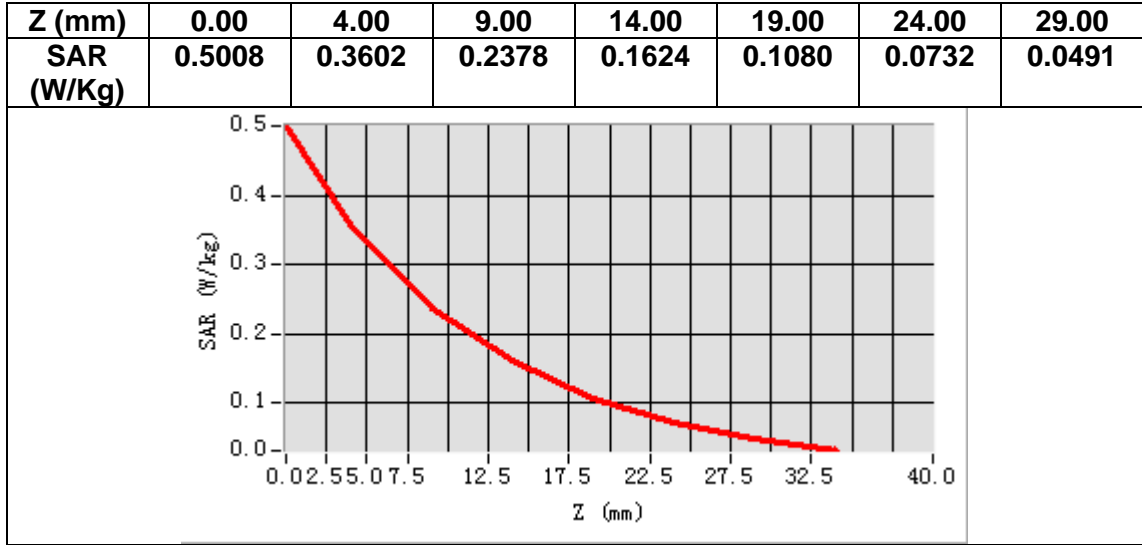
B. SAR Measurement Results

Frequency (MHz)	1732.500000
Relative permittivity (real part)	39.612747
Relative permittivity (imaginary part)	13.864887
Conductivity (S/m)	1.334495
Variation (%)	1.840000



Maximum location: X=-53.00, Y=-66.00
SAR Peak: 0.51 W/kg

SAR 10g (W/Kg)	0.204064
SAR 1g (W/Kg)	0.342991



MEASUREMENT 20

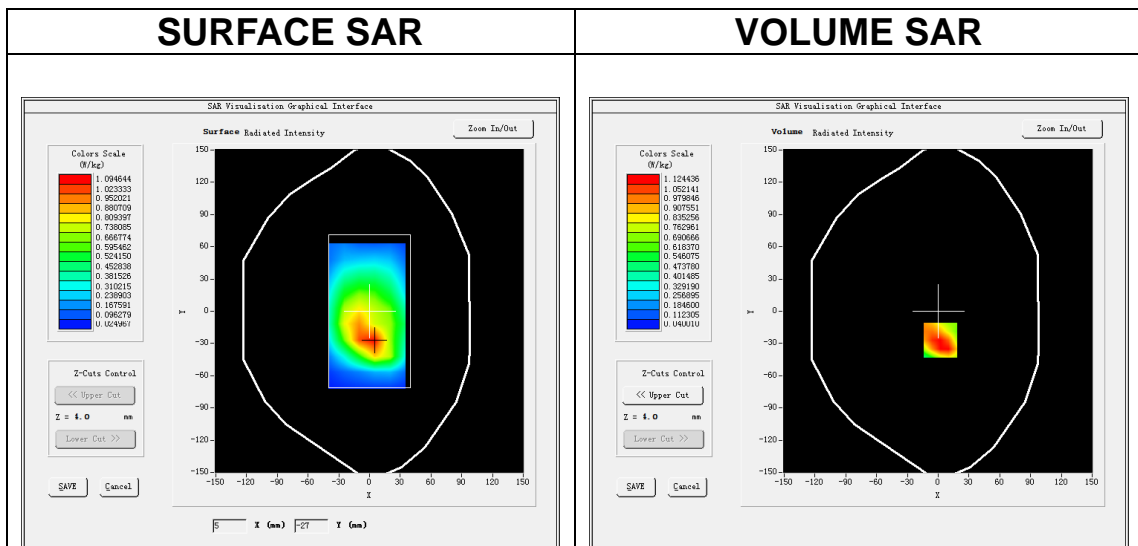
Date of measurement: 4/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>LTE band 4</u>
Channels	<u>Low</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.73</u>

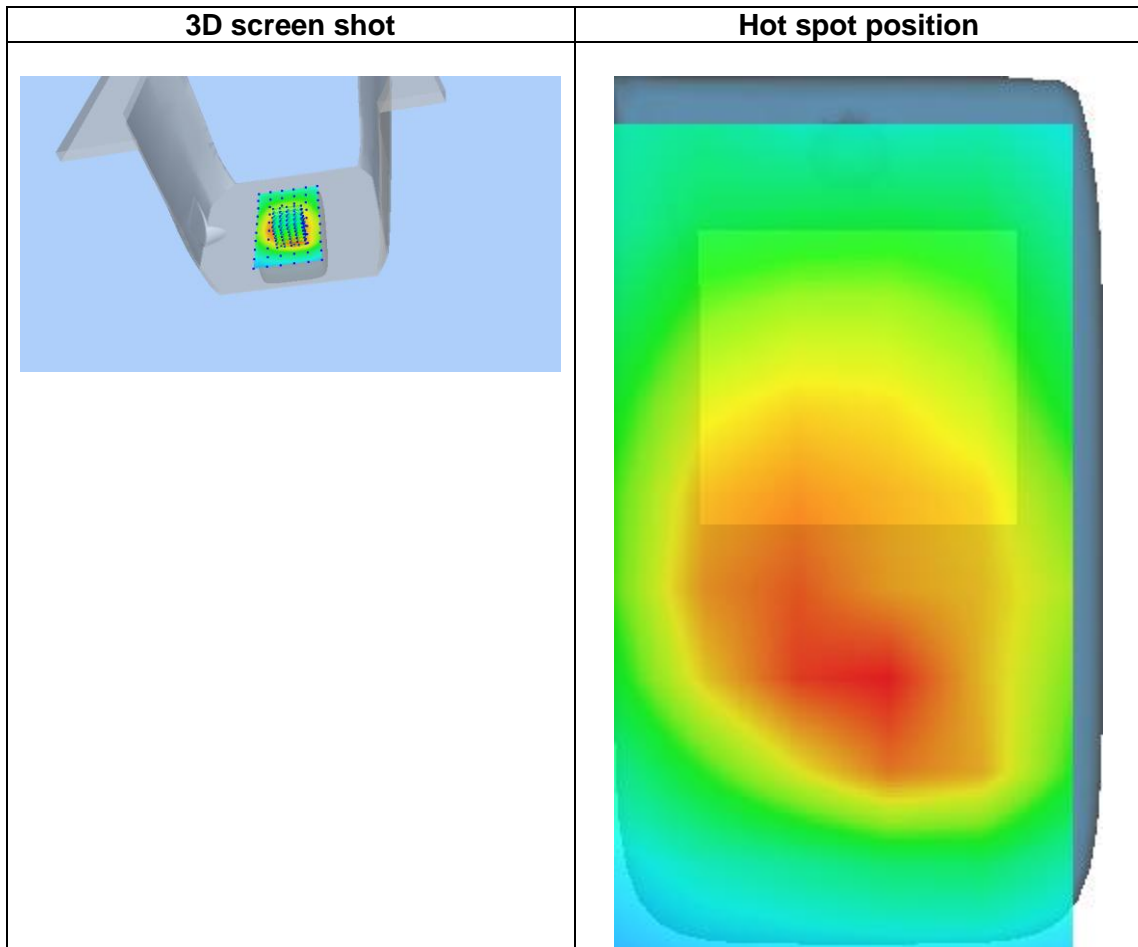
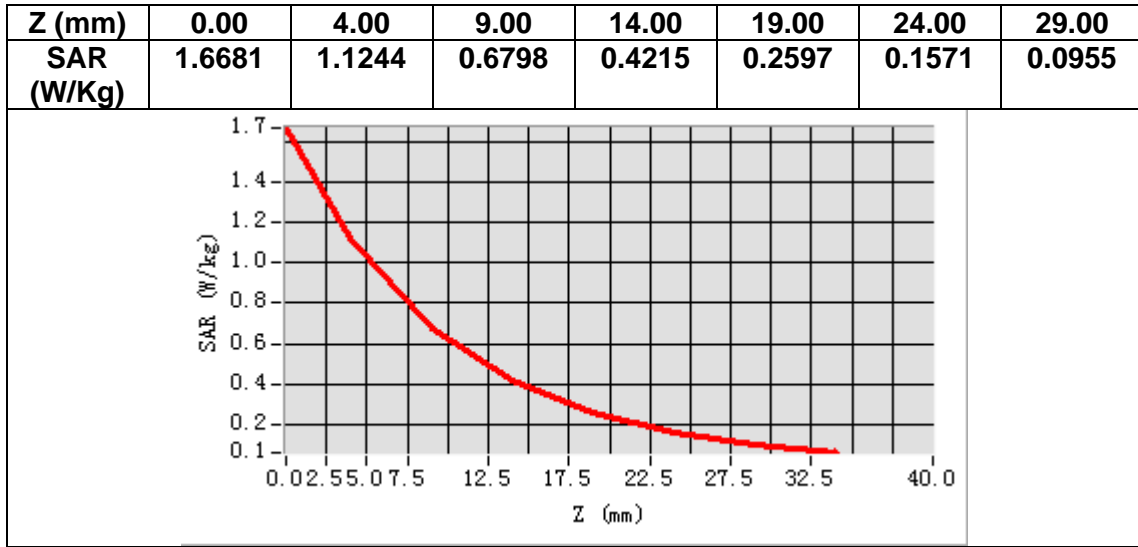
B. SAR Measurement Results

Frequency (MHz)	1720.000000
Relative permittivity (real part)	39.745445
Relative permittivity (imaginary part)	13.823237
Conductivity (S/m)	1.320503
Variation (%)	-3.680000



Maximum location: X=2.00, Y=-27.00
SAR Peak: 1.77 W/kg

SAR 10g (W/Kg)	0.631084
SAR 1g (W/Kg)	1.114086



MEASUREMENT 21

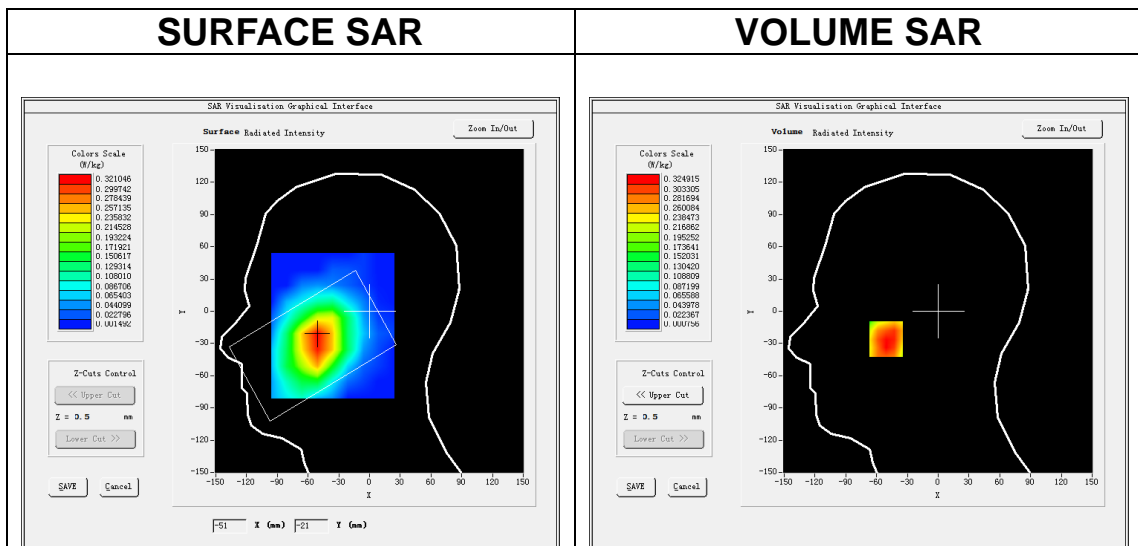
Date of measurement: 29/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 5</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.50</u>

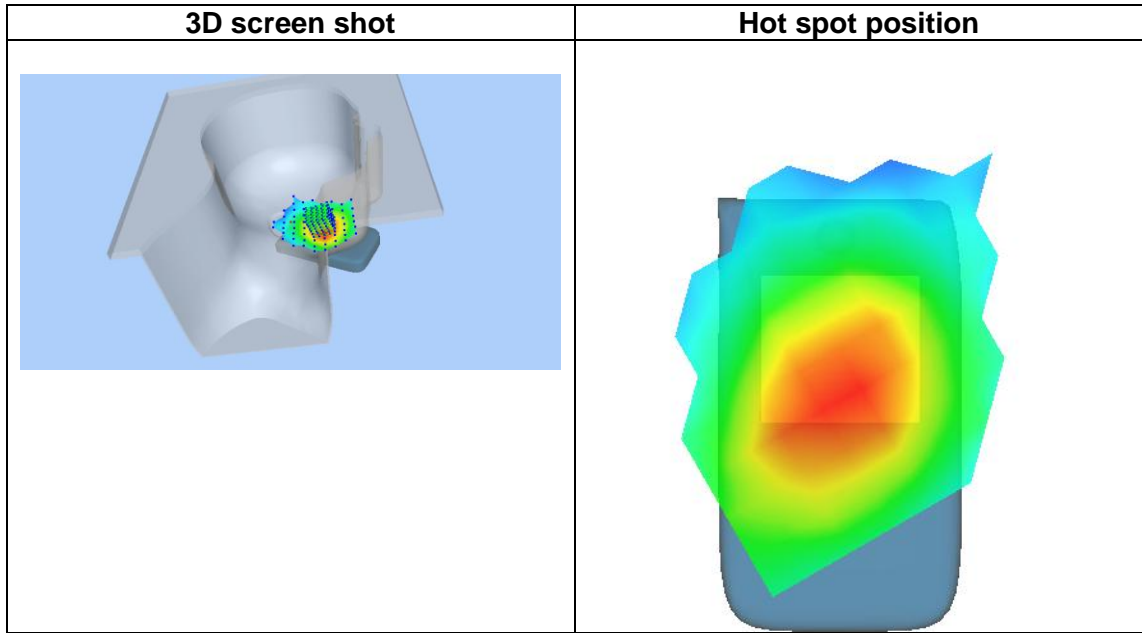
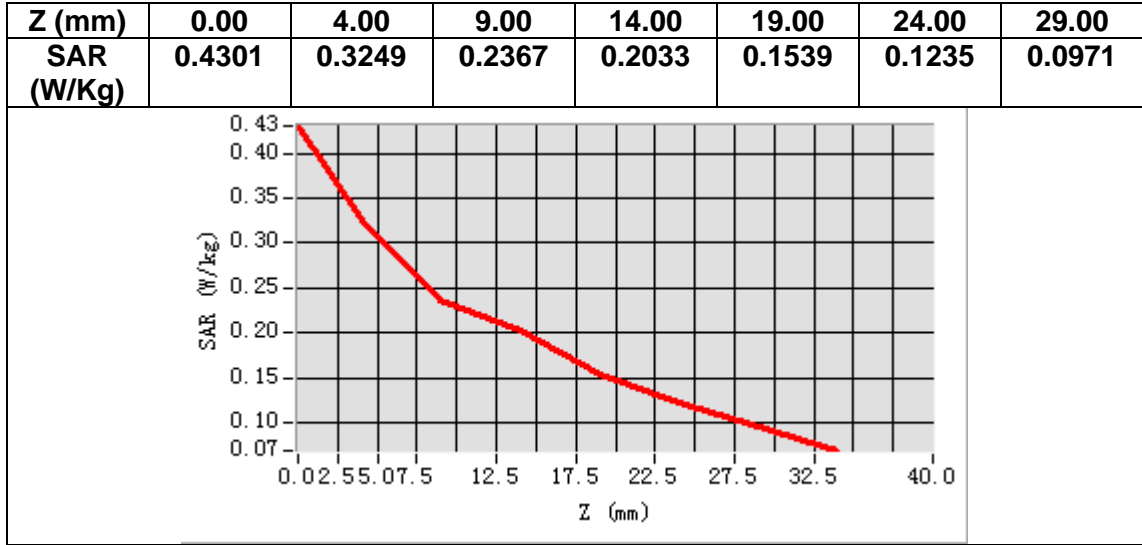
B. SAR Measurement Results

Frequency (MHz)	836.500000
Relative permittivity (real part)	41.394848
Relative permittivity (imaginary part)	20.141439
Conductivity (S/m)	0.936017
Variation (%)	2.750000



Maximum location: X=-51.00, Y=-26.00
SAR Peak: 0.50 W/kg

SAR 10g (W/Kg)	0.229201
SAR 1g (W/Kg)	0.324888



MEASUREMENT 22

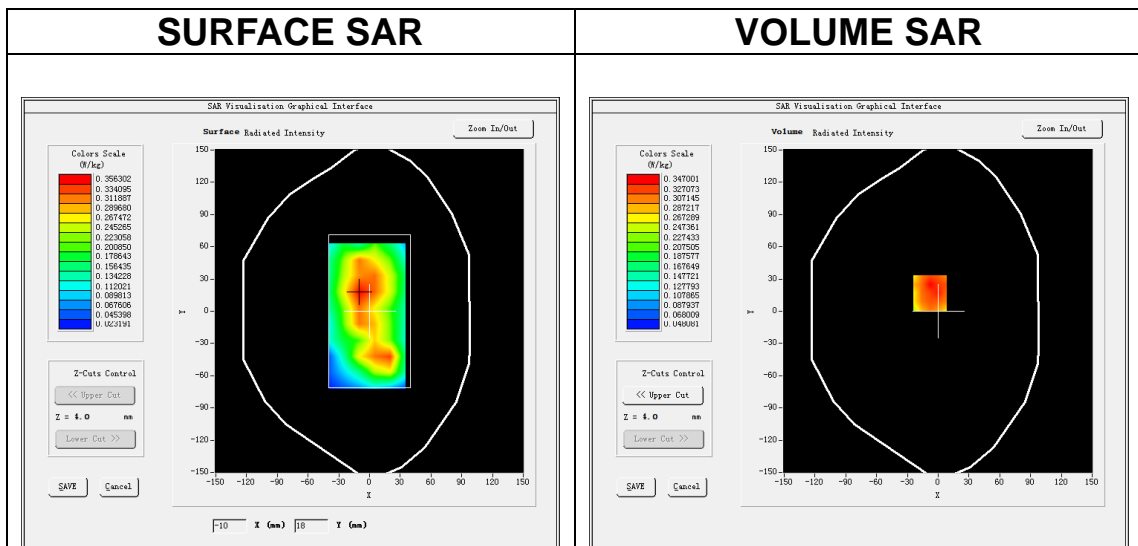
Date of measurement: 29/12/2022

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>LTE band 5</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.50</u>

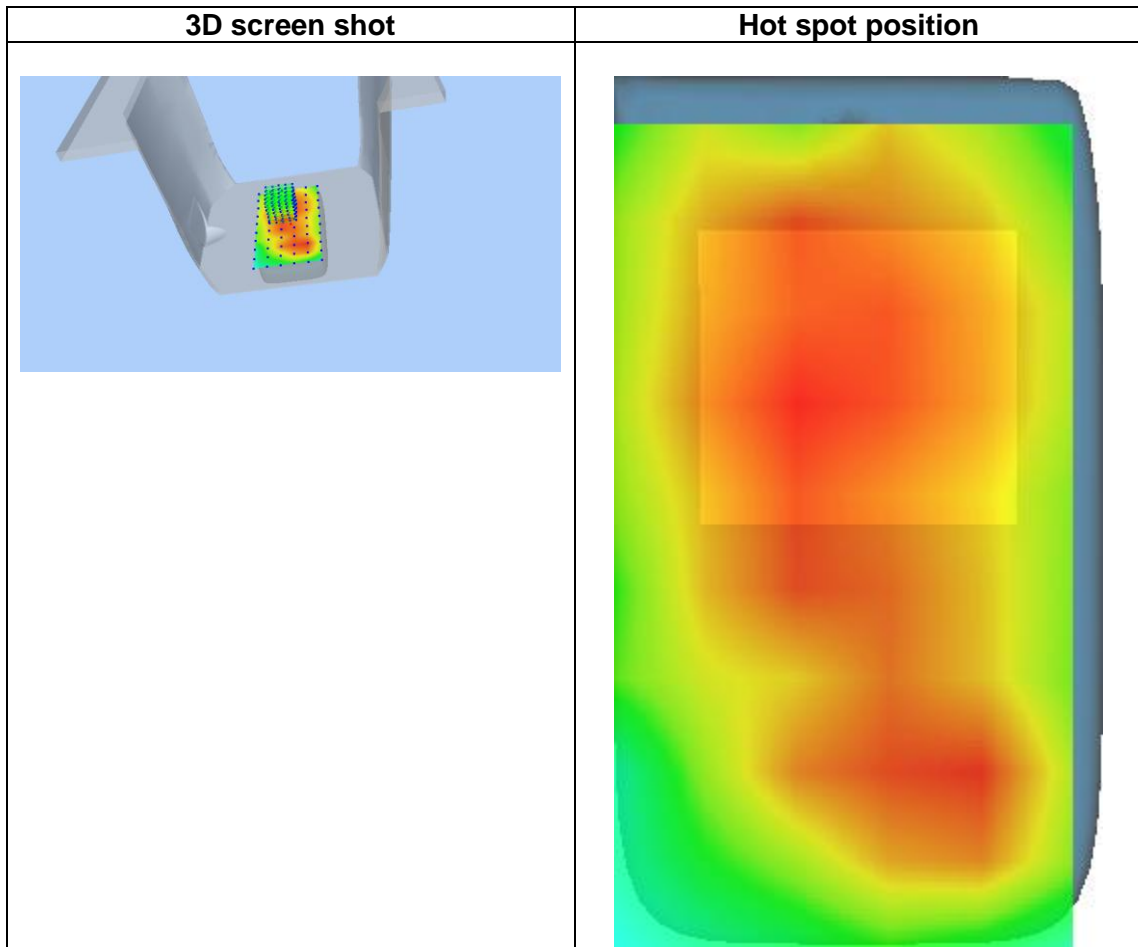
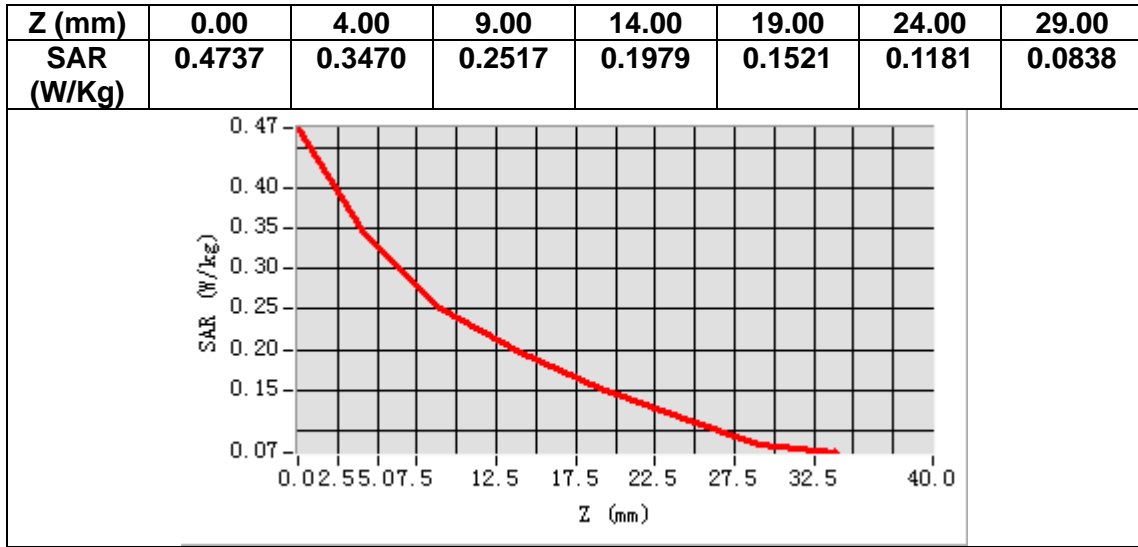
B. SAR Measurement Results

Frequency (MHz)	836.500000
Relative permittivity (real part)	41.394848
Relative permittivity (imaginary part)	20.141439
Conductivity (S/m)	0.936017
Variation (%)	2.310000



Maximum location: X=-8.00, Y=17.00
SAR Peak: 0.46 W/kg

SAR 10g (W/Kg)	0.249052
SAR 1g (W/Kg)	0.341804



MEASUREMENT 23

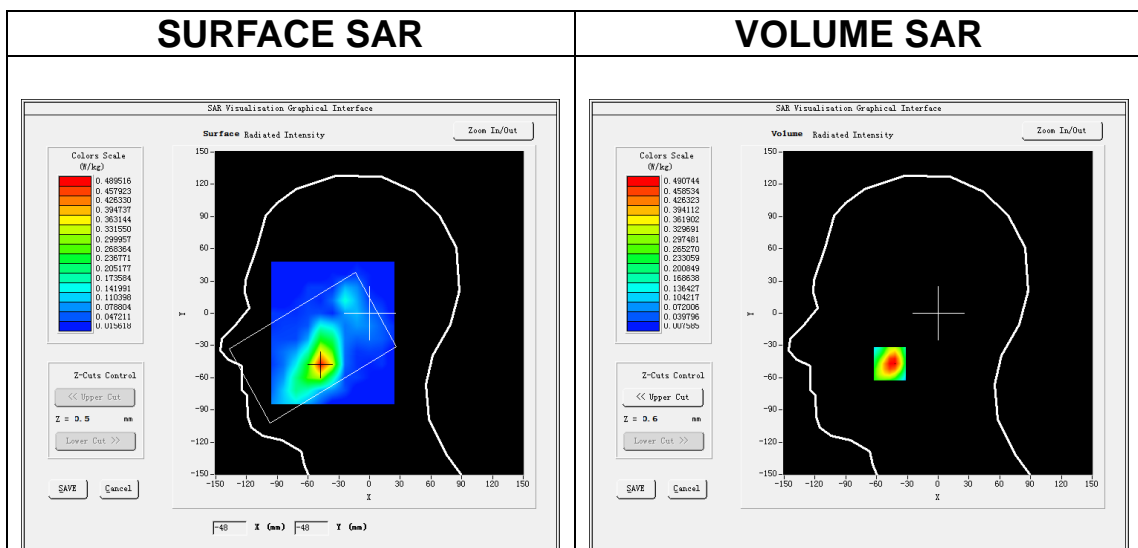
Date of measurement: 27/12/2022

A. Experimental conditions.

Area Scan	<u>dx=12mm dy=12mm, h= 5.00 mm</u>
ZoomScan	<u>7x7x7,dx=5mm dy=5mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 7</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.87</u>

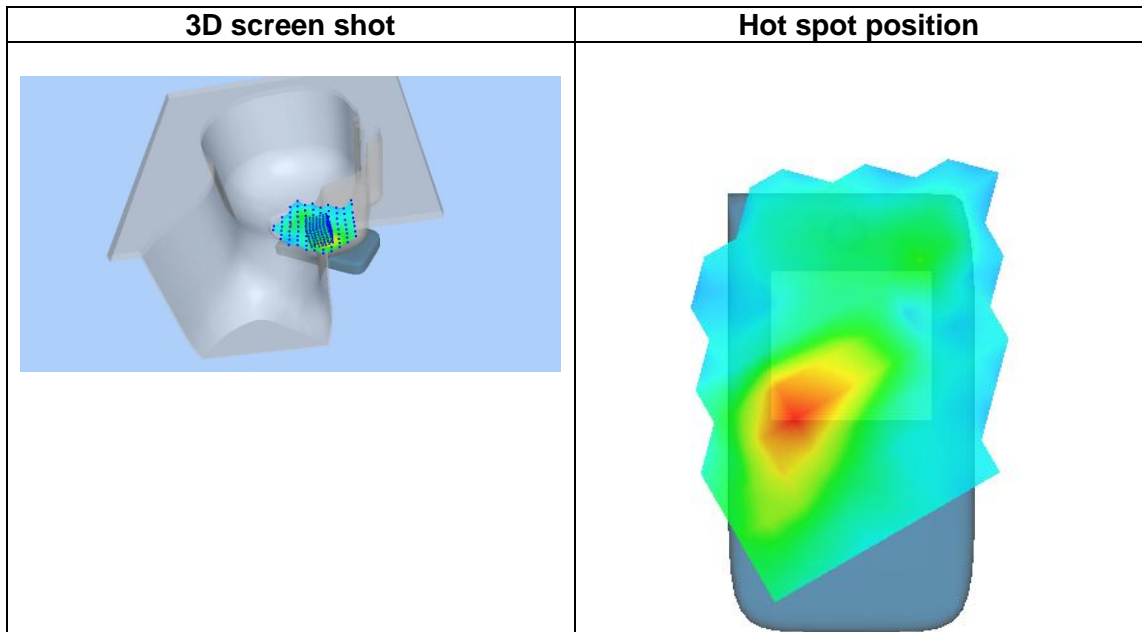
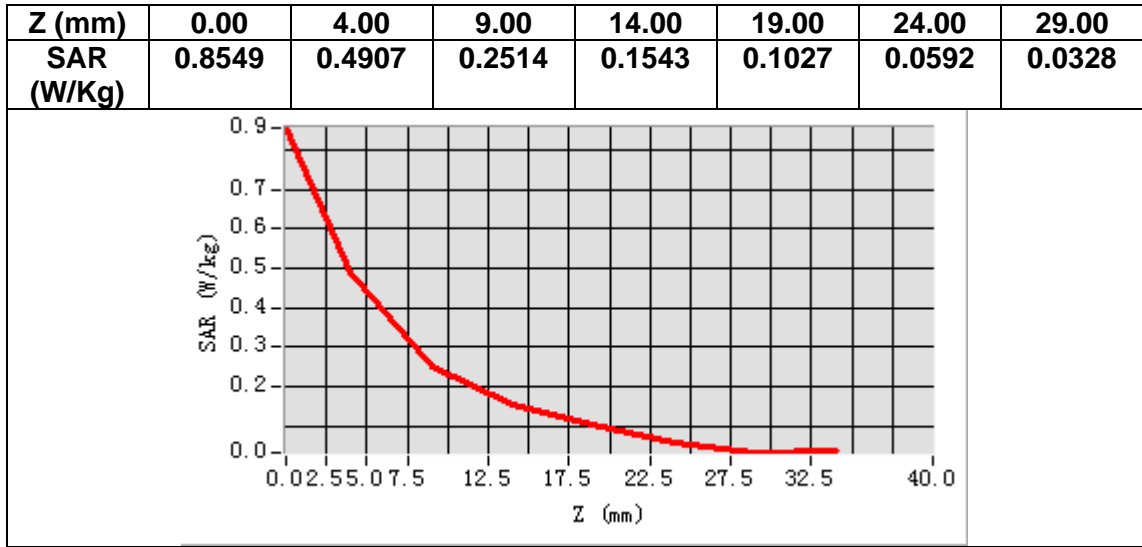
B. SAR Measurement Results

Frequency (MHz)	2535.000000
Relative permittivity (real part)	38.564625
Relative permittivity (imaginary part)	13.697280
Conductivity (S/m)	1.929034
Variation (%)	-3.910000



Maximum location: X=-47.00, Y=-47.00
SAR Peak: 0.76 W/kg

SAR 10g (W/Kg)	0.242142
SAR 1g (W/Kg)	0.469989



MEASUREMENT 24

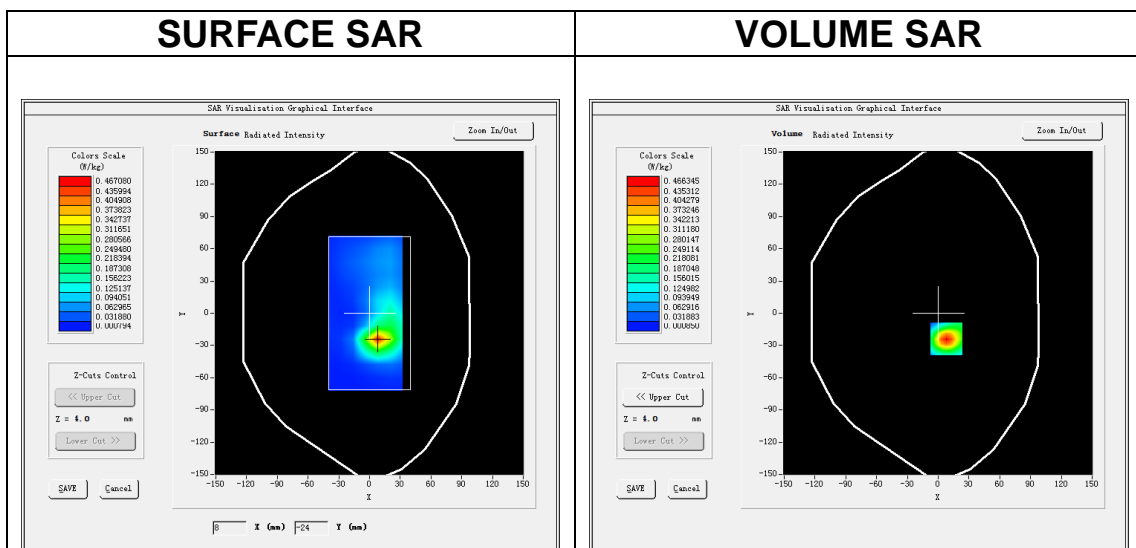
Date of measurement: 27/12/2022

A. Experimental conditions.

Area Scan	<u>dx=12mm dy=12mm, h= 5.00 mm</u>
ZoomScan	<u>7x7x7, dx=5mm dy=5mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>LTE band 7</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.87</u>

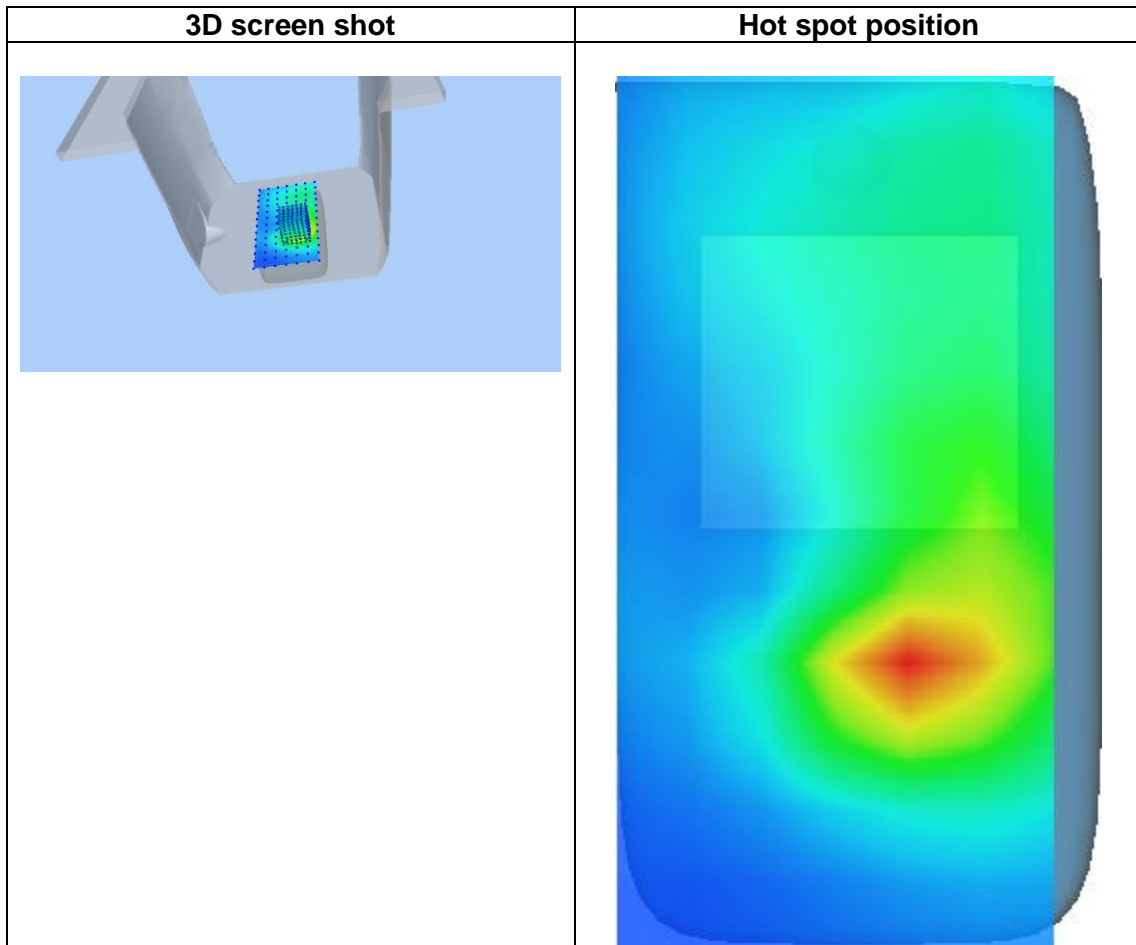
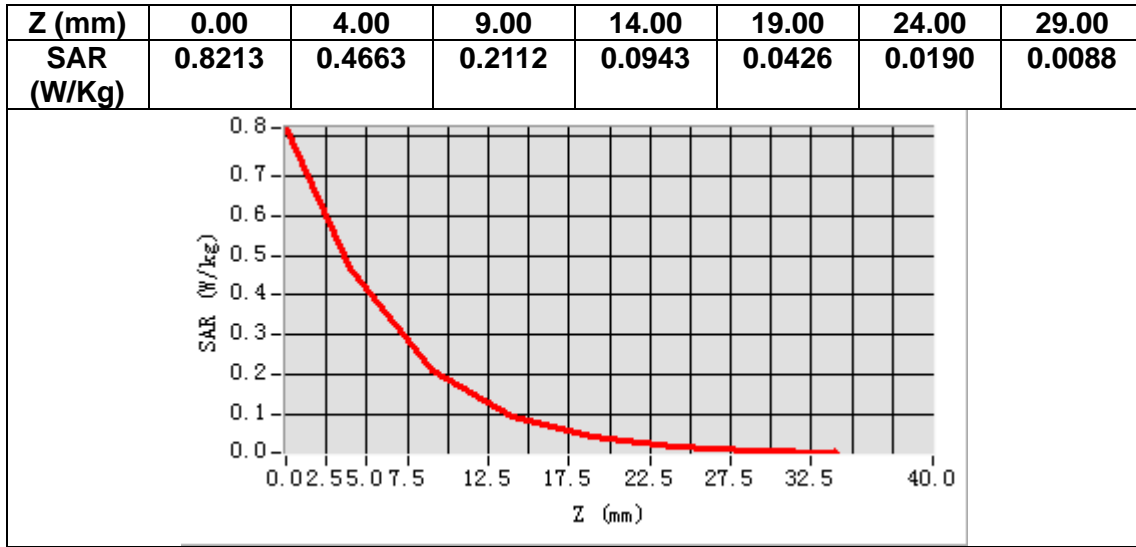
B. SAR Measurement Results

Frequency (MHz)	2535.000000
Relative permittivity (real part)	38.564625
Relative permittivity (imaginary part)	13.697280
Conductivity (S/m)	1.929034
Variation (%)	-1.400000



Maximum location: X=8.00, Y=-24.00
SAR Peak: 0.81 W/kg

SAR 10g (W/Kg)	0.184186
SAR 1g (W/Kg)	0.427118



MEASUREMENT 25

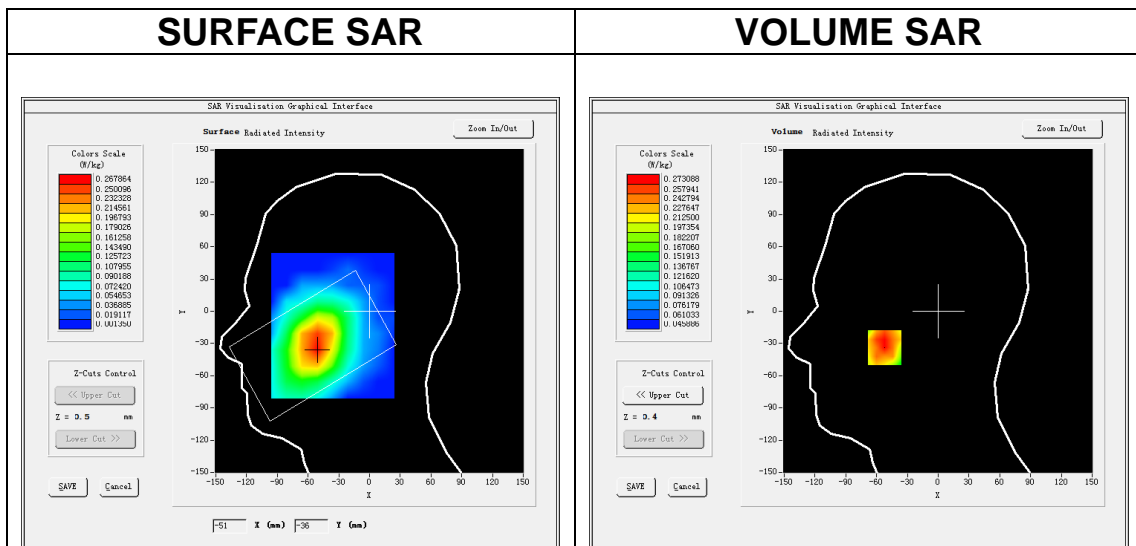
Date of measurement: 5/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 12</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.49</u>

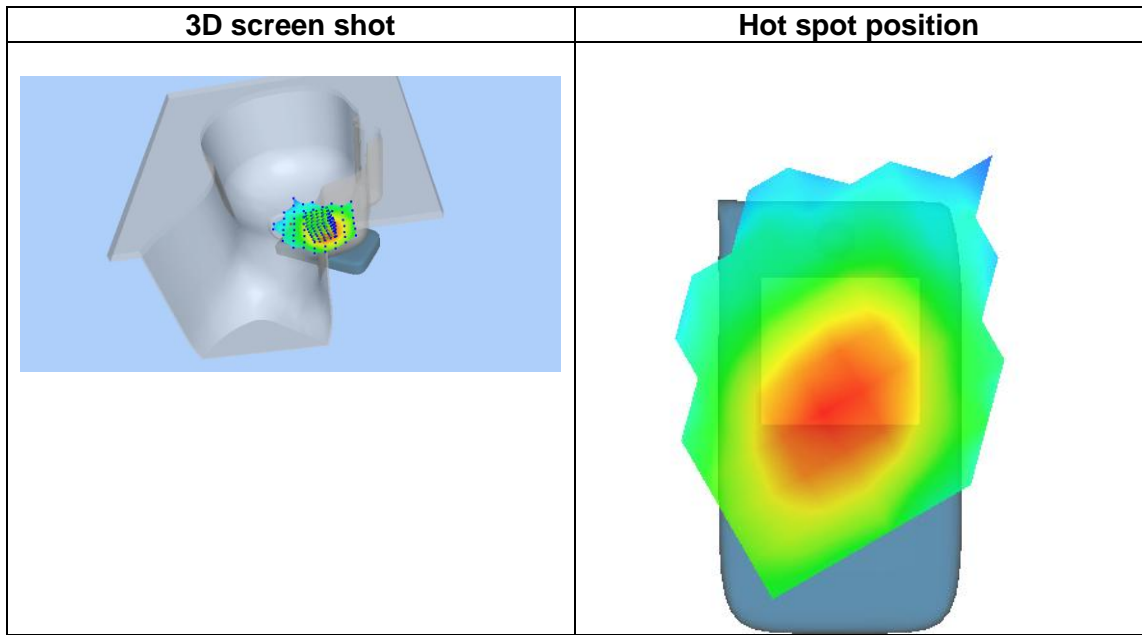
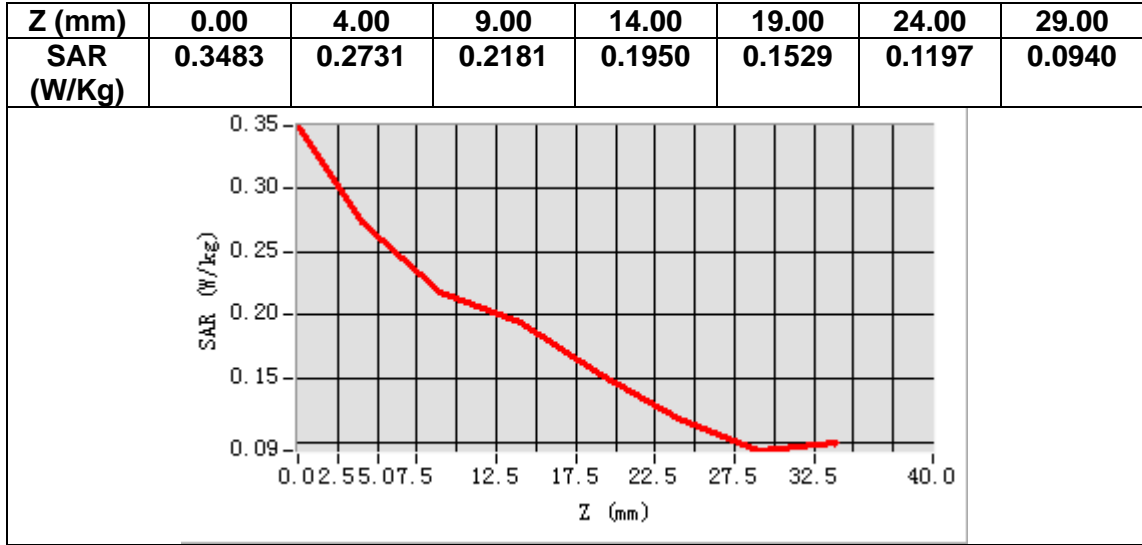
B. SAR Measurement Results

Frequency (MHz)	707.500000
Relative permittivity (real part)	41.283489
Relative permittivity (imaginary part)	21.715124
Conductivity (S/m)	0.853525
Variation (%)	1.500000



Maximum location: X=-52.00, Y=-34.00
SAR Peak: 0.37 W/kg

SAR 10g (W/Kg)	0.206904
SAR 1g (W/Kg)	0.278547



MEASUREMENT 26

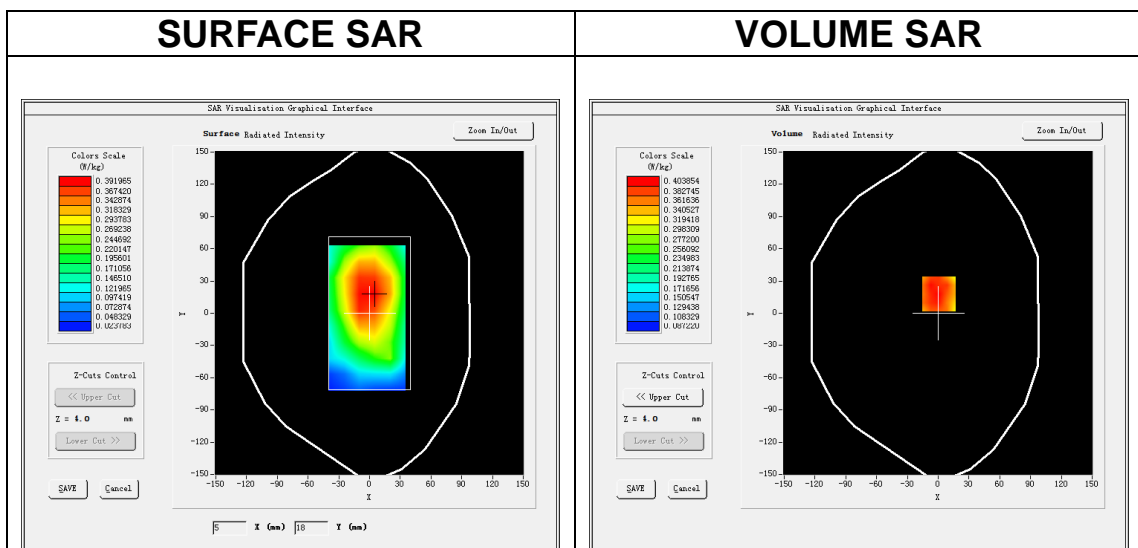
Date of measurement: 5/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>LTE band 12</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.49</u>

B. SAR Measurement Results

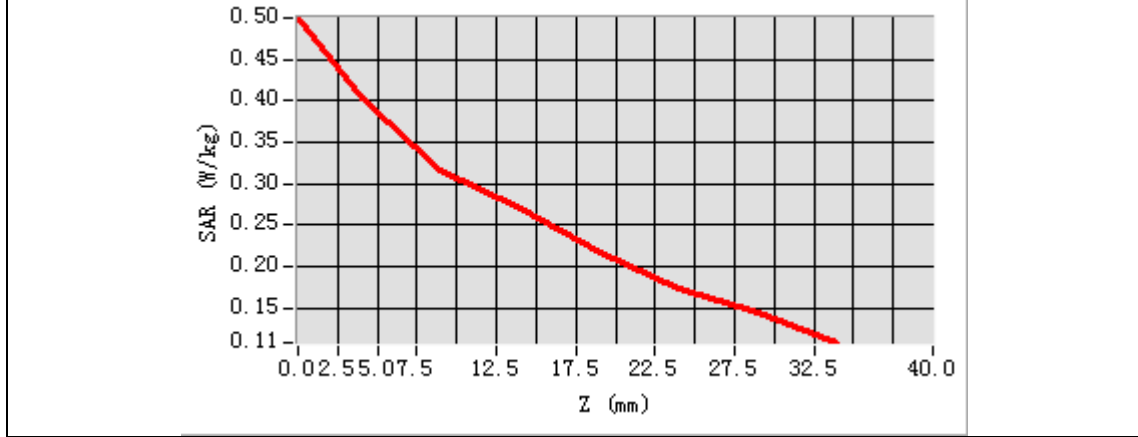
Frequency (MHz)	707.500000
Relative permittivity (real part)	41.283489
Relative permittivity (imaginary part)	21.715124
Conductivity (S/m)	0.853525
Variation (%)	-1.990000



Maximum location: X=1.00, Y=18.00
SAR Peak: 0.51 W/kg

SAR 10g (W/Kg)	0.302154
SAR 1g (W/Kg)	0.393694

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.4994	0.4039	0.3155	0.2704	0.2183	0.1741	0.1459



3D screen shot	Hot spot position

MEASUREMENT 27

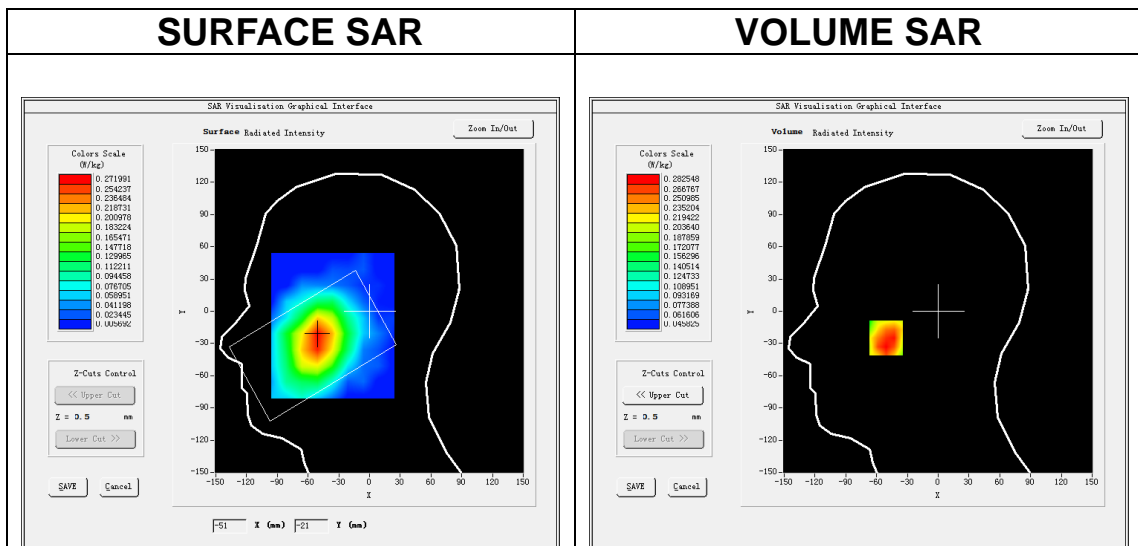
Date of measurement: 5/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 13</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.49</u>

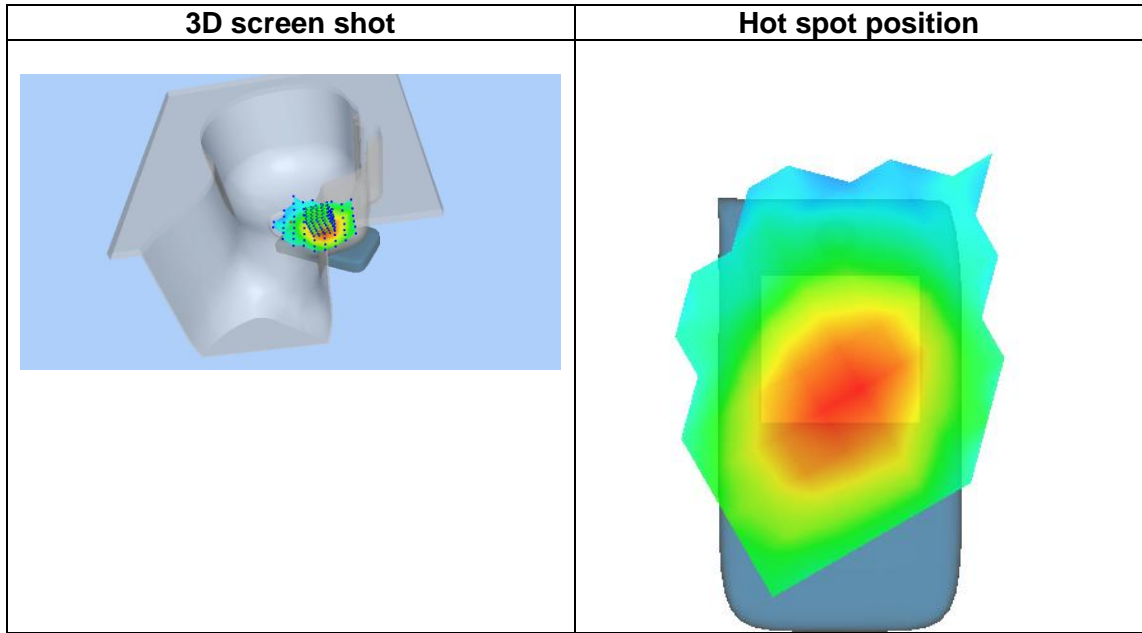
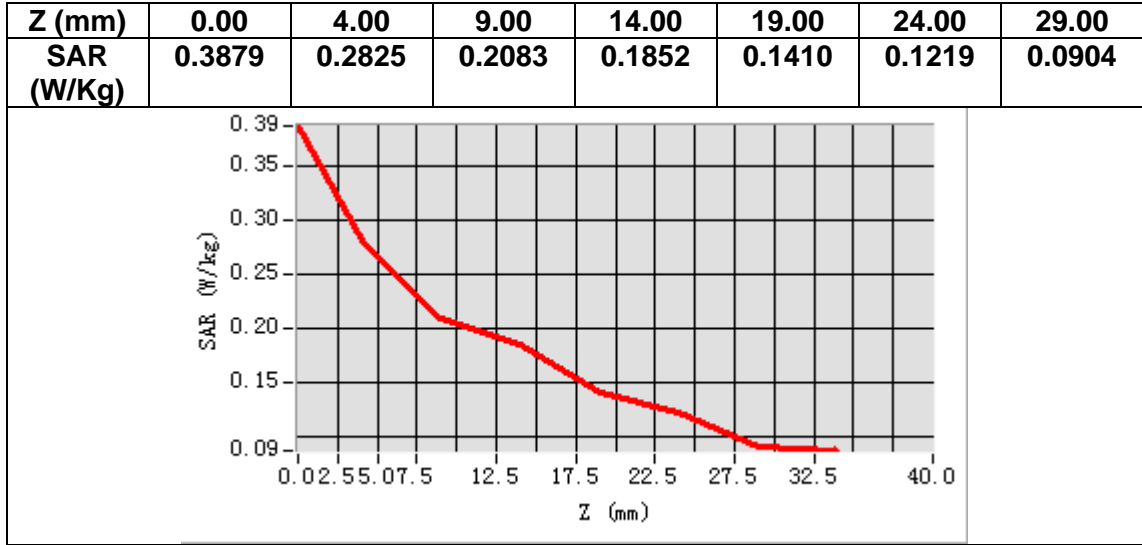
B. SAR Measurement Results

Frequency (MHz)	782.000000
Relative permittivity (real part)	40.395840
Relative permittivity (imaginary part)	20.972675
Conductivity (S/m)	0.911146
Variation (%)	0.300000



Maximum location: X=-51.00, Y=-25.00
SAR Peak: 0.35 W/kg

SAR 10g (W/Kg)	0.204758
SAR 1g (W/Kg)	0.276101



MEASUREMENT 28

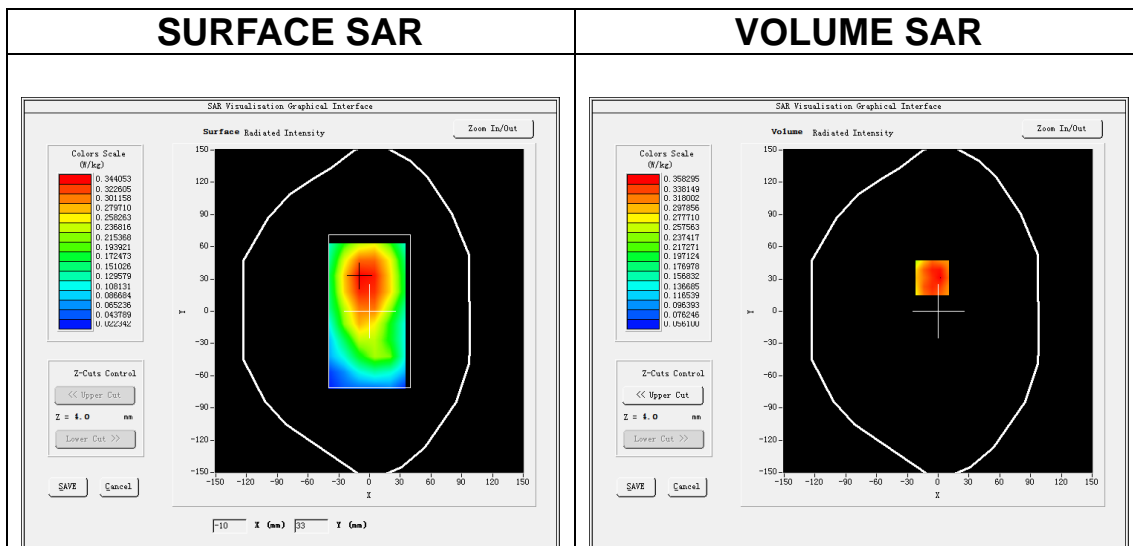
Date of measurement: 5/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>LTE band 13</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.49</u>

B. SAR Measurement Results

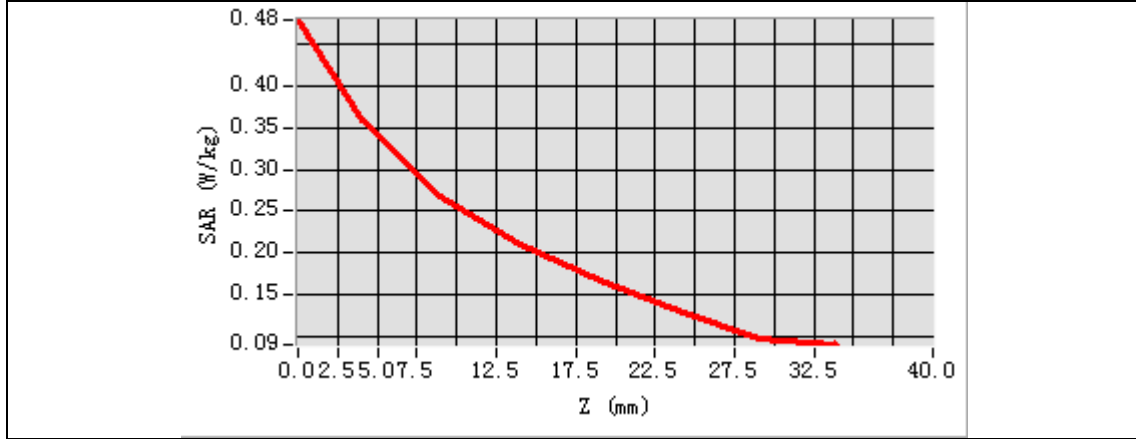
Frequency (MHz)	782.000000
Relative permittivity (real part)	40.395840
Relative permittivity (imaginary part)	20.972675
Conductivity (S/m)	0.911146
Variation (%)	1.150000



Maximum location: X=-6.00, Y=31.00
SAR Peak: 0.46 W/kg

SAR 10g (W/Kg)	0.261456
SAR 1g (W/Kg)	0.345498

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.4795	0.3583	0.2670	0.2106	0.1658	0.1313	0.0966



3D screen shot	Hot spot position
<p>A 3D perspective view of a mobile device with a color-coded SAR hot spot visualization on its back surface. The hot spot is concentrated in the upper-middle section, indicated by red and orange colors, with a green-to-blue gradient representing lower SAR values.</p>	<p>A 2D heatmap showing the SAR distribution on the device's back. A prominent rectangular area in the upper-middle section is colored red and orange, indicating the highest SAR values (hot spot). The rest of the device shows lower SAR values, represented by yellow, green, and blue colors.</p>

MEASUREMENT 29

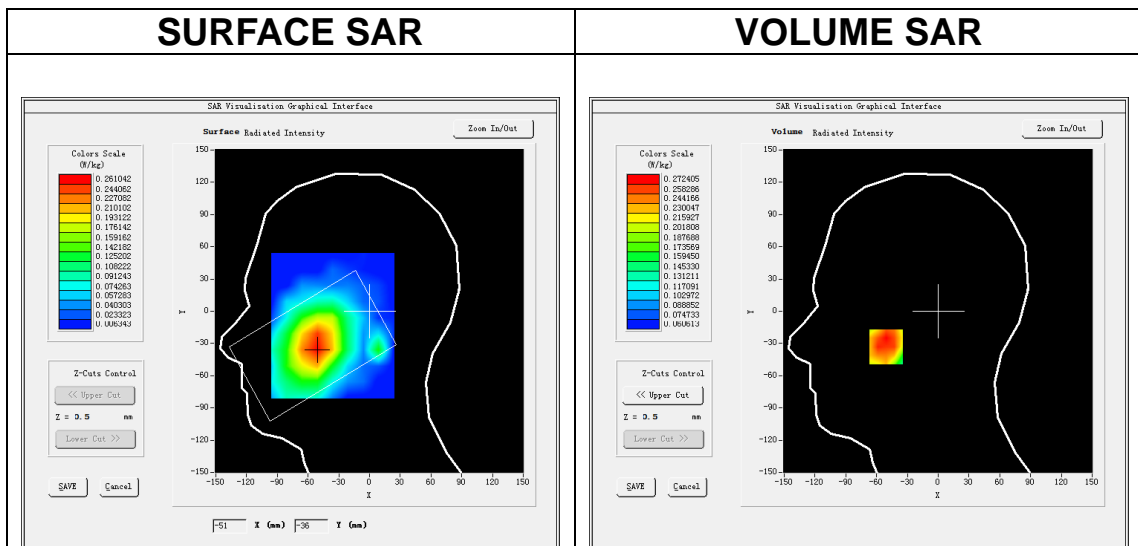
Date of measurement: 5/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 17</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.49</u>

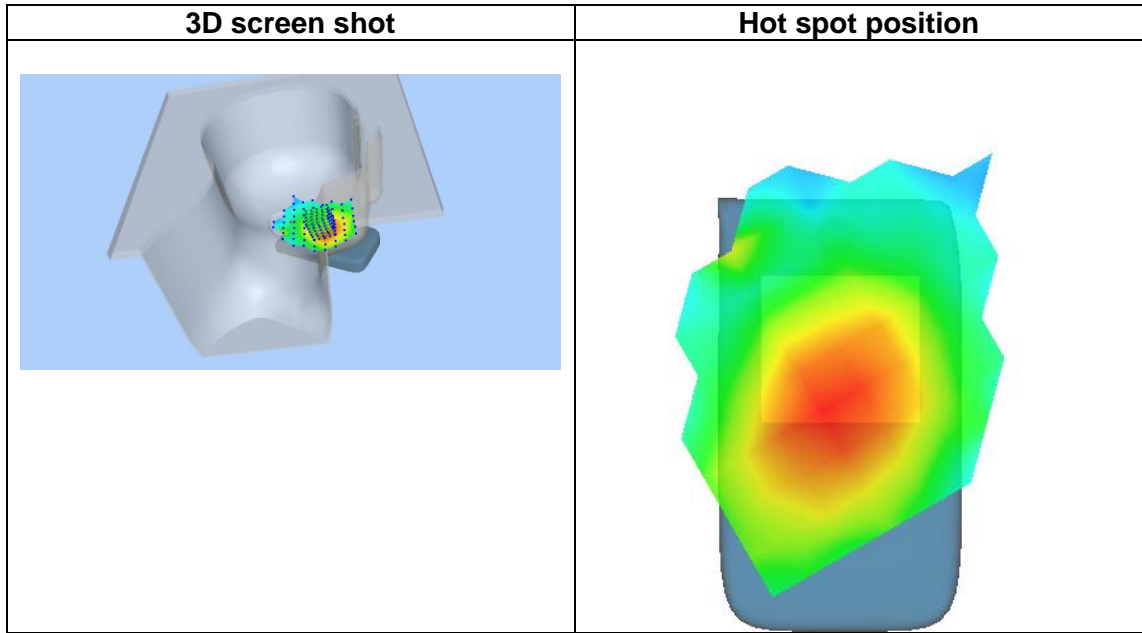
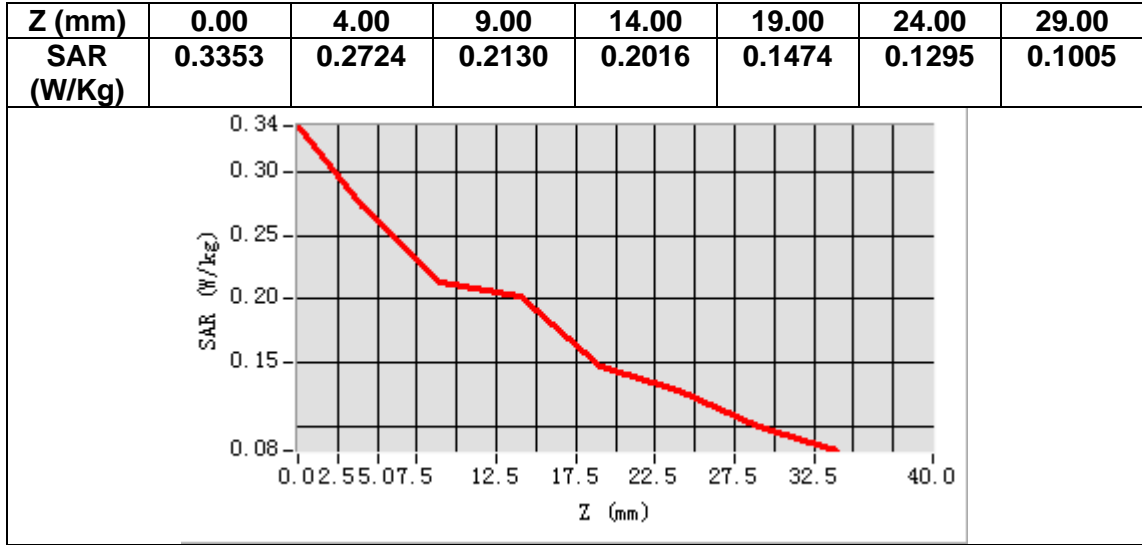
B. SAR Measurement Results

Frequency (MHz)	710.000000
Relative permittivity (real part)	41.268139
Relative permittivity (imaginary part)	21.655575
Conductivity (S/m)	0.854192
Variation (%)	-2.640000



Maximum location: X=-51.00, Y=-33.00
SAR Peak: 0.34 W/kg

SAR 10g (W/Kg)	0.203901
SAR 1g (W/Kg)	0.264927



MEASUREMENT 30

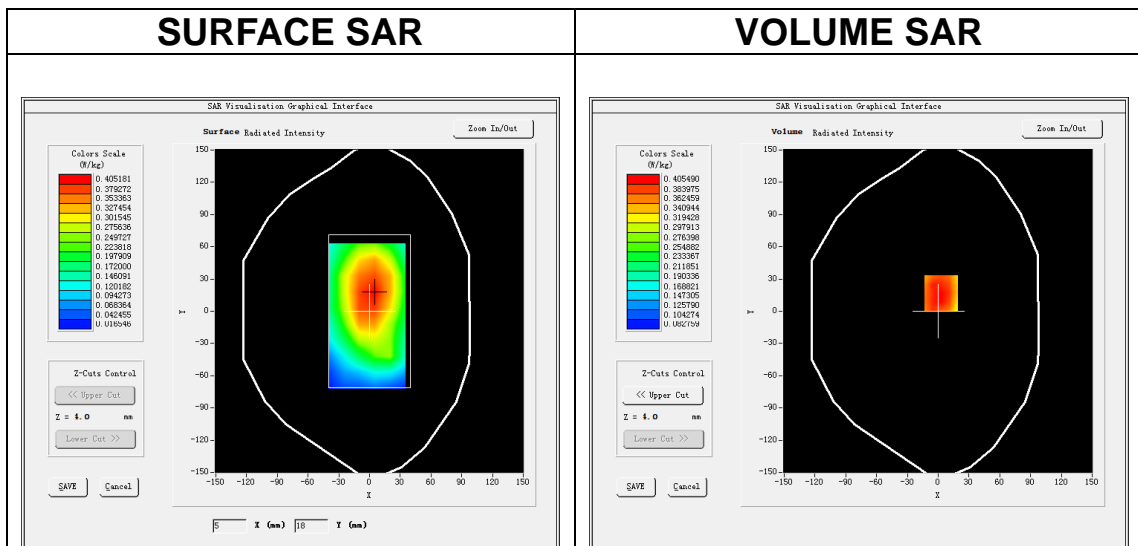
Date of measurement: 5/1/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body</u>
Band	<u>LTE band 17</u>
Channels	<u>Middle</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.49</u>

B. SAR Measurement Results

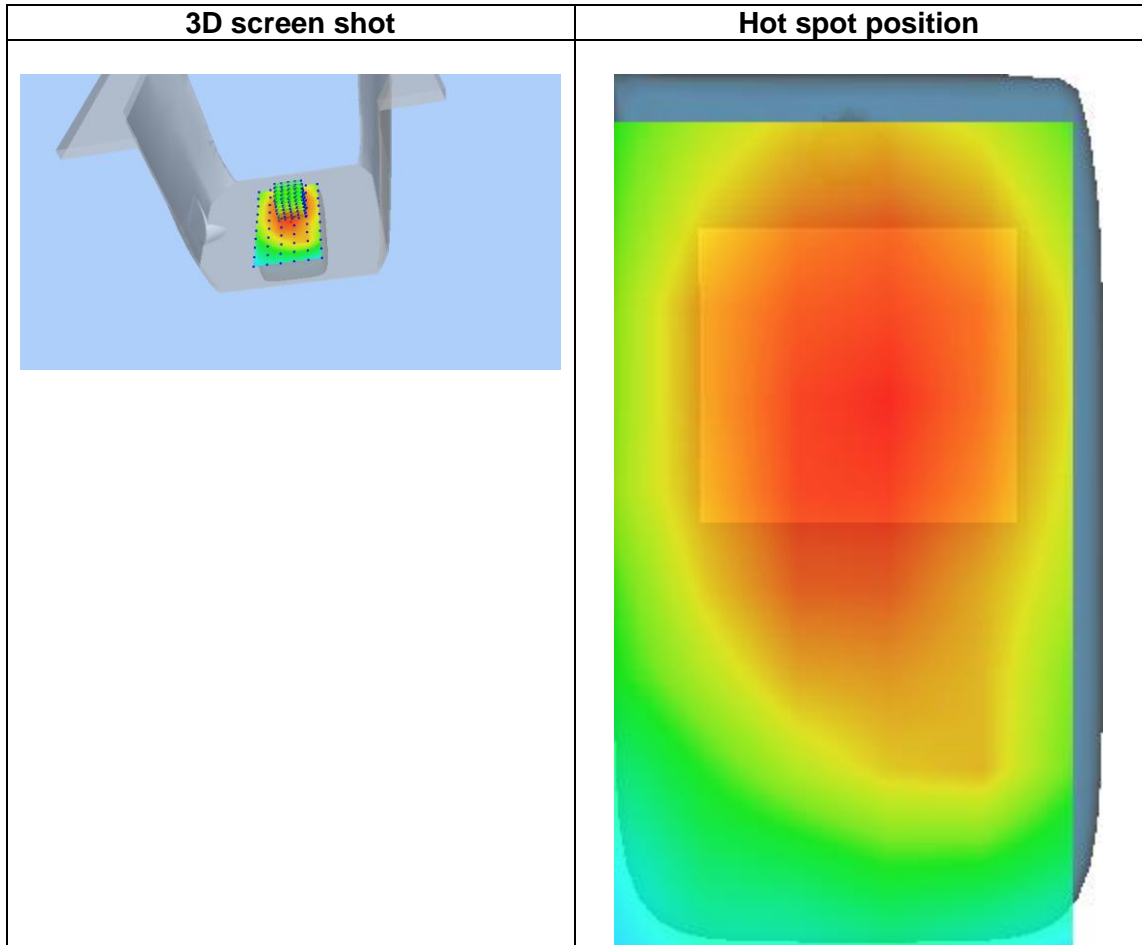
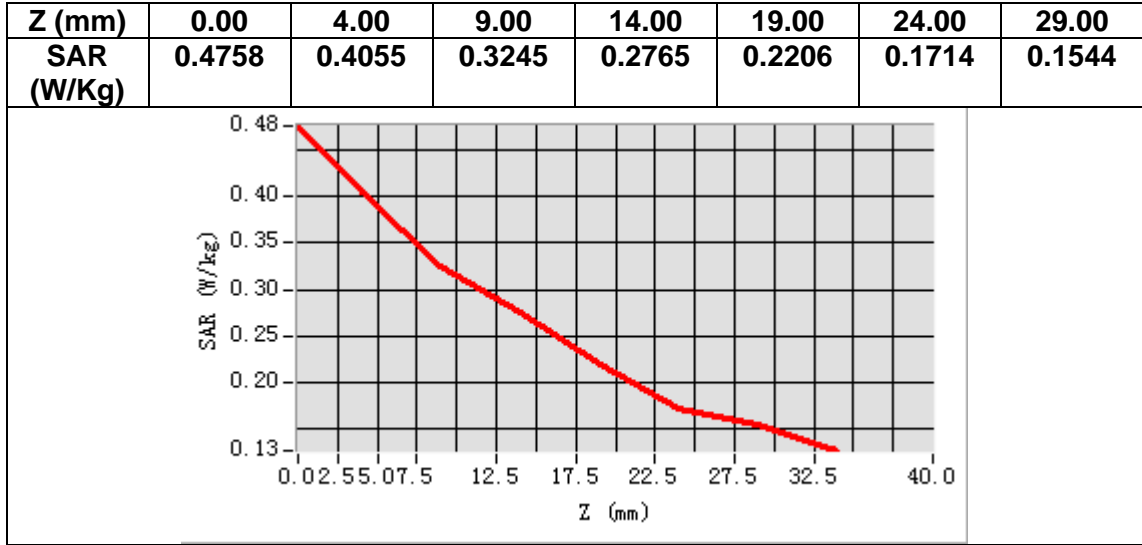
Frequency (MHz)	710.000000
Relative permittivity (real part)	41.268139
Relative permittivity (imaginary part)	21.655575
Conductivity (S/m)	0.854192
Variation (%)	0.160000



Maximum location: X=3.00, Y=17.00

SAR Peak: 0.51 W/kg

SAR 10g (W/Kg)	0.307963
SAR 1g (W/Kg)	0.399876



14. Appendix D. Calibration Certificate

Table of contents
E Field Probe - SN 08/16 EPGO287
750 MHz Dipole - SN 03/15 DIP 0G750-355
835 MHz Dipole - SN 03/15 DIP 0G835-347
1800 MHz Dipole - SN 03/15 DIP 1G800-349
1900 MHz Dipole - SN 03/15 DIP 1G900-350
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
Extended Calibration Certificate