

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 : Mobile Phone

Brand Name : ulefone

Model Name : GQ3100

Family Model : Armor 17 Pro, Armor 17, Armor 17T,
Armor 17E, Armor 17S, Armor 17 Plus

Report No. : STR220818002008E

FCC ID : 2AOWK-3100

Prepared for

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TEST RESULT CERTIFICATION

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Product description

Product name : Mobile Phone
Brand Name : ulefone
Model and/or type reference : GQ3100
Family Model : Armor 17 Pro, Armor 17, Armor 17T,
Armor 17E, Armor 17S, Armor 17 Plus
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 : T220818001R003

Date of Test

Date (s) of performance of tests : Aug. 26, 2022 ~ Sep. 12, 2022

Date of Issue : Oct. 24, 2022

Test Result : **Pass**

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※ ※ Revision History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Oct. 24, 2022	Jacob Chen

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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 GQ3100 are as follows.

RF Exposure Conditions		Equipment Class -Highest Reported SAR (W/kg)			
		PCE	DTS	NII	DSS
1-g Head		1.020	0.411	0.560	N/A
1-g Body-Worn (Separation distance of 10mm)		0.728	0.137	0.374	N/A
1-g Hotspot (Separation distance of 10mm)		0.728	0.137	0.374	N/A
Max Simultaneous Tx	Head	1.580	1.431	1.580	1.187
	Body-Worn	1.102	0.865	1.102	0.812
	Hotspot	1.102	0.865	1.102	0.812

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	Mobile Phone
Brand Name	ulefone
Model Name	GQ3100
Family Model	Armor 17 Pro, Armor 17, Armor 17T, Armor 17E, Armor 17S, Armor 17 Plus
Model Difference	All the model are the same circuit and RF module, only color and model name are different
FCC ID	2AOWK-3100
Device Phase	Identical Prototype
Exposure Category	General population / Uncontrolled environment
Antenna Type	PIFA Antenna
Battery Information	DC 3.87V, 5380mAh, 20.82Wh
HW Version	S1_02
SW Version	Armor 17 Pro_TH1_EEA_V01
Device Operating Configurations	
Supporting Mode(s)	GSM 850/1900, CDMA Band BC0/BC1,WCDMA Band 2/4/5, LTE Band 2/4/5/7/12/17/41, WLAN 2.4G/5G, Bluetooth, NFC

Test Modulation	GSM(GMSK/8PSK), CDMA(QPSK), WCDMA(QPSK), LTE(QPSK/16QAM), WLAN(DSSS/OFDM), Bluetooth(GFSK, $\pi/4$ -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
	CDMA Band BC0	824-849	869-894
	CDMA Band BC1	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 17	704-716	734-746
	LTE Band 41	2535-2655	
	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 up"(CDMA BC0)		
	3, tested with power control "all up"(CDMA BC1)		
	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 17)
	3, tested with power control all Max.(LTE Band 41)

1.4. Test specification(s)

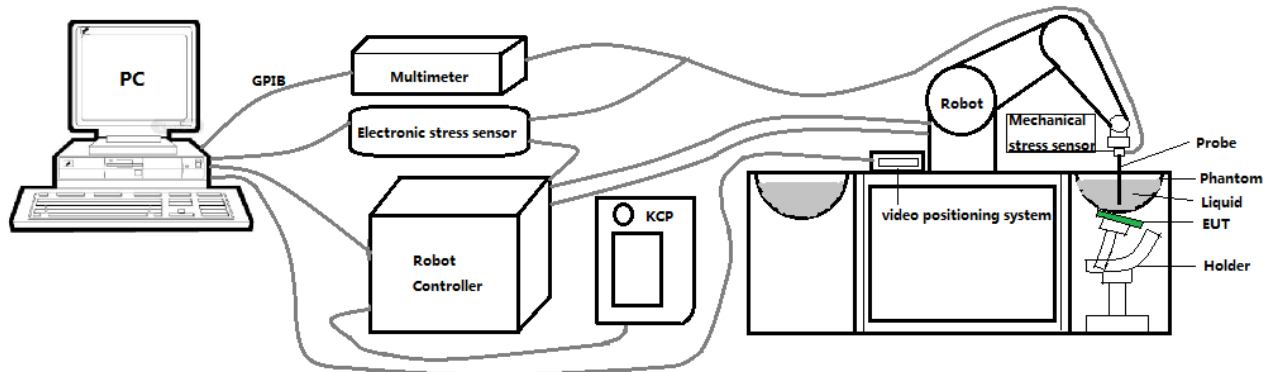
FCC 47 CFR Part 2(2.1093)
ANSI/IEEE C95.1-1992
IEEE Std 1528-2013
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting
KDB 447498 D01 General RF Exposure Guidance
KDB 248227 D01 802.11 Wi-Fi SAR
KDB 941225 D01 3G SAR Procedures
KDB 941225 D05 SAR for LTE Devices
KDB 941225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

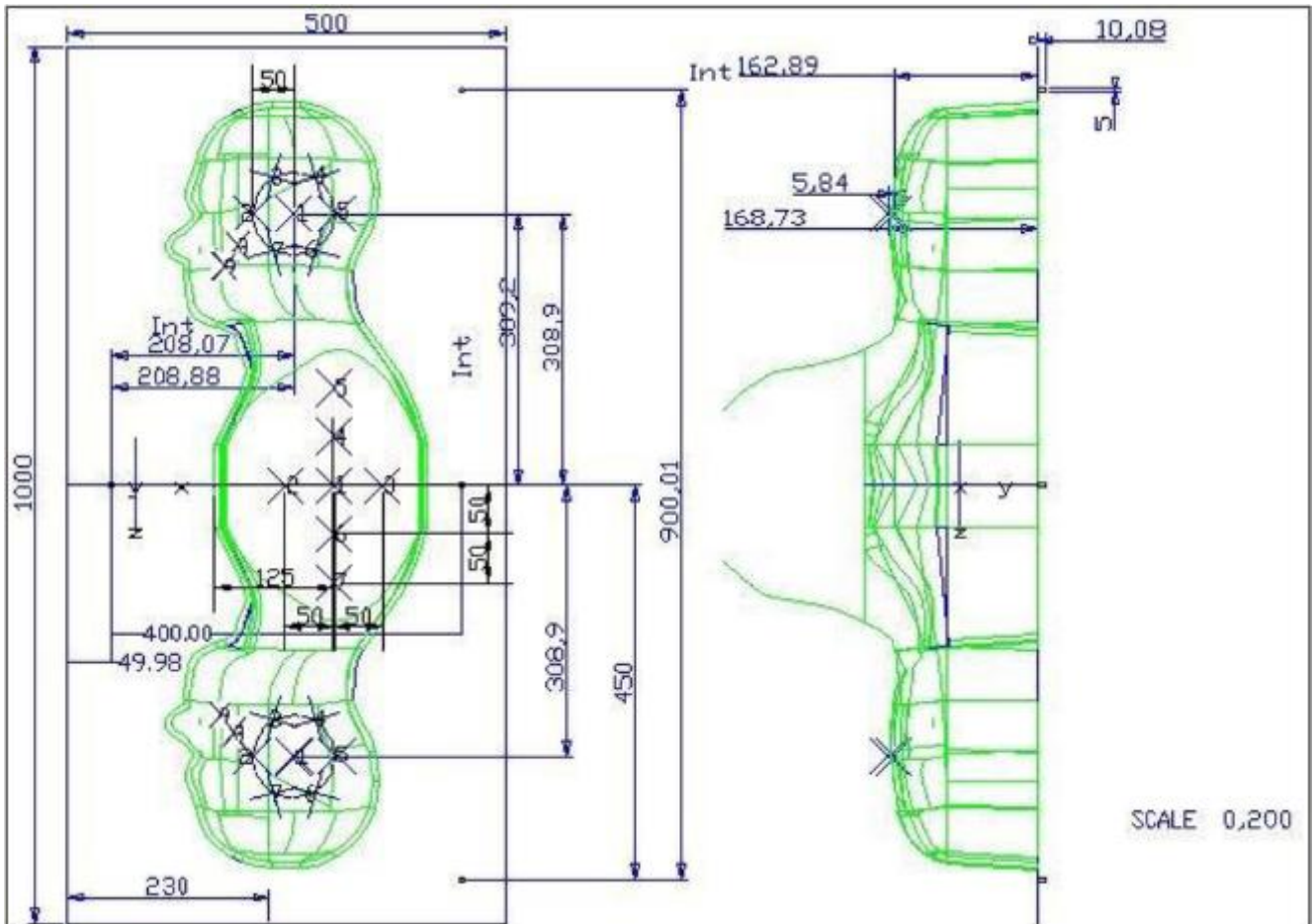
Photo of SAM phantom SN 16/15 SAM119



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

2.4.1. Technical Data

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

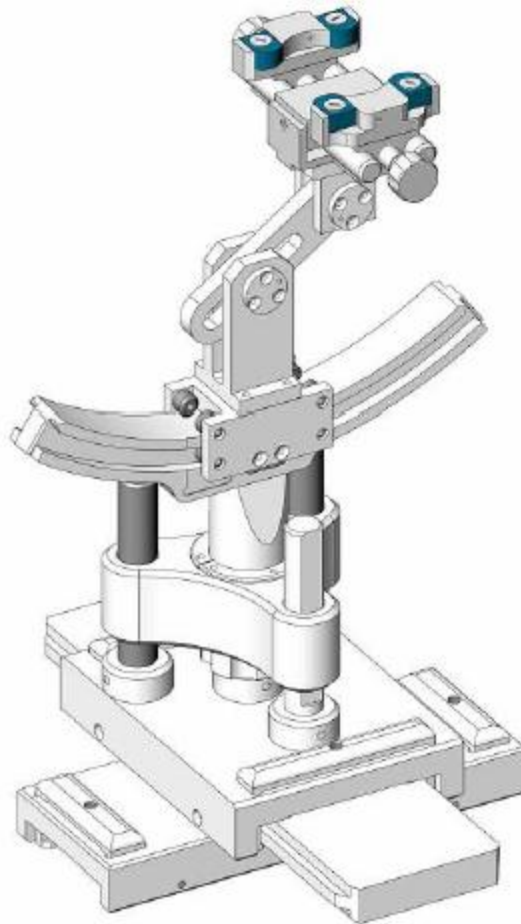


Serial Number	Left Head(mm)		Right Head(mm)		Flat Part(mm)	
	1	2	1	2	1	2
SN 16/15 SAM119	2	2.02	2	2.08	1	2.09
	3	2.05	3	2.06	2	2.06
	4	2.07	4	2.07	3	2.08
	5	2.08	5	2.08	4	2.10
	6	2.05	6	2.07	5	2.10
	7	2.05	7	2.05	6	2.07
	8	2.07	8	2.06	7	2.07
	9	2.08	9	2.06	-	-

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 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.

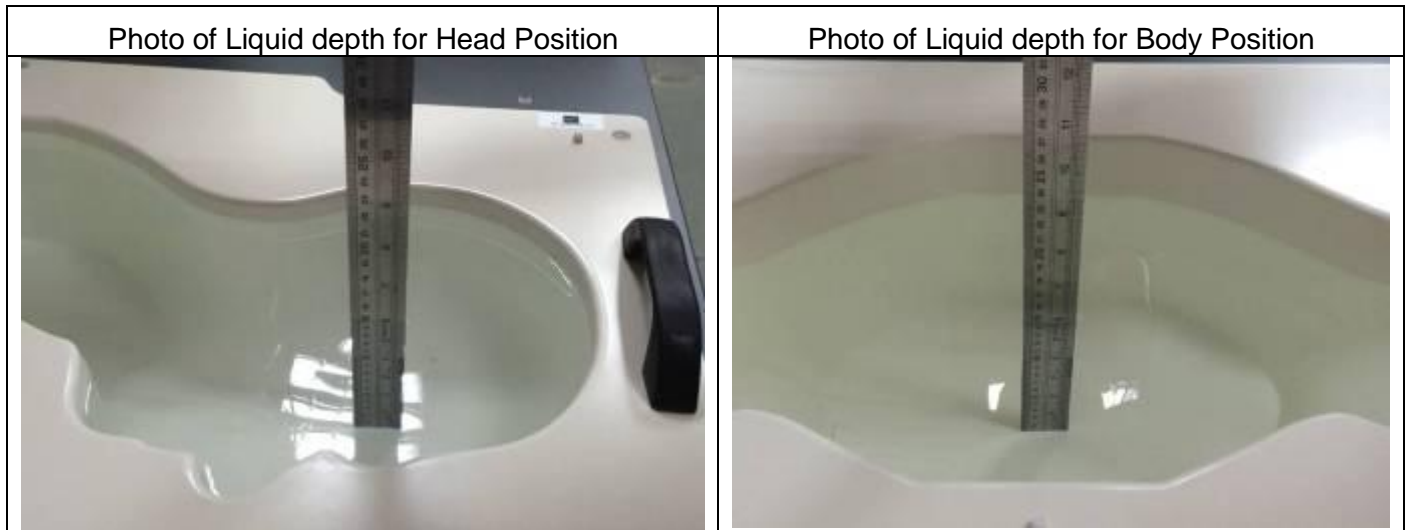
4. System Verification Procedure

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

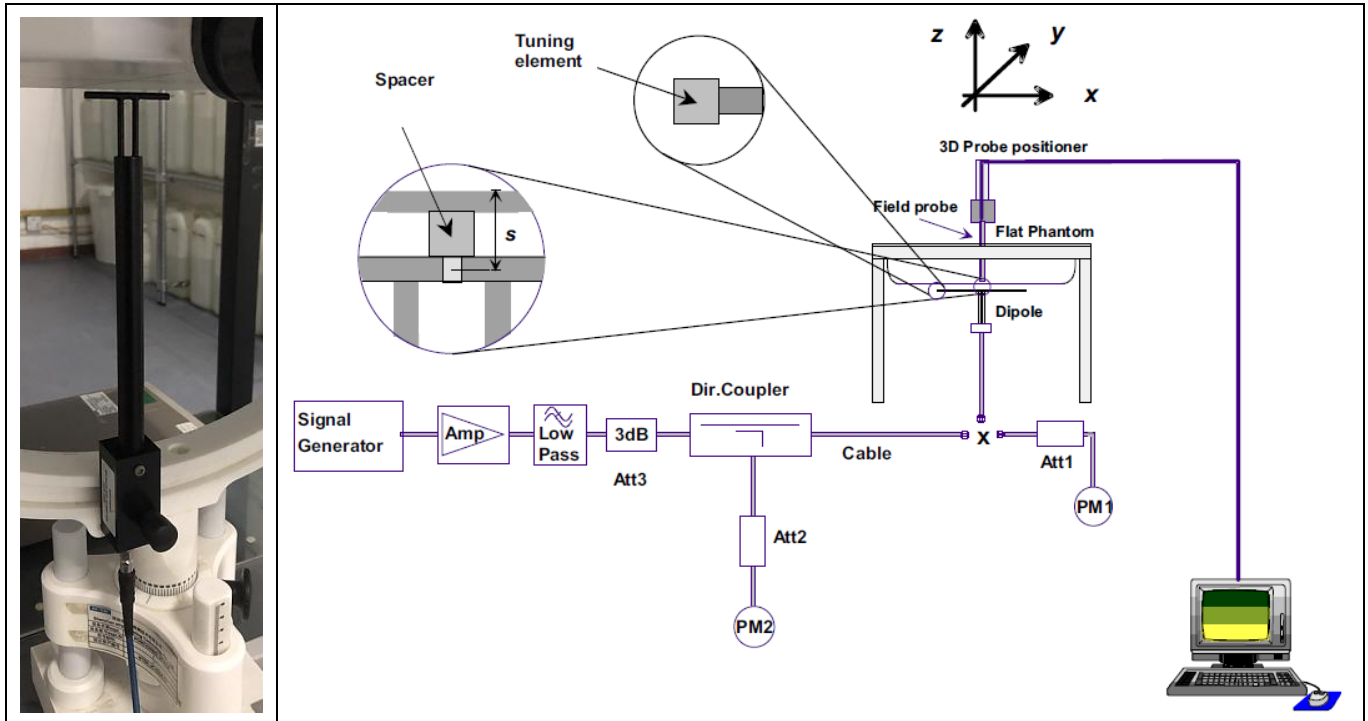
Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		$\epsilon_r (\pm 5\%)$	σ (S/m) ($\pm 5\%$)	ϵ_r	σ (S/m)		
Head 750	750	41.96 (39.86~44.06)	0.89 (0.85~0.93)	40.13	0.89	21.3 °C	Sep. 01, 2022
Head 850	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	41.50	0.93	21.7 °C	Sep. 12, 2022
Head 1800	1800	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.61	1.40	21.7 °C	Sep. 02, 2022
Head 1900	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.31	1.46	21.9 °C	Aug. 26, 2022
Head 2450	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	37.92	1.79	21.6 °C	Sep. 07, 2022
Head 2600	2600	39.01 (37.06~40.96)	1.96 (1.86~2.06)	37.82	1.93	21.5 °C	Sep. 06, 2022
Head 5200	5200	36.00 (34.20~37.80)	4.66 (4.43~4.89)	35.36	4.52	21.3 °C	Aug. 31, 2022
Head 5800	5800	35.30 (33.54~37.07)	5.27 (5.01~5.53)	34.26	5.13	21.5 °C	Aug. 29, 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)	7.94	5.70	21.3 °C	Sep. 01, 2022
835MHz	9.84 (8.86~10.82)	6.22 (5.60~6.84)	10.20	5.97	21.7 °C	Sep. 12, 2022
1800MHz	37.96 (34.17~41.75)	19.81 (17.83~21.79)	41.17	21.10	21.7 °C	Sep. 02, 2022
1900MHz	40.37 (36.34~44.40)	20.48 (18.44~22.52)	37.30	21.26	21.9 °C	Aug. 26, 2022
2450MHz	53.69 (48.33~59.05)	23.94 (21.55~26.33)	54.36	24.71	21.6 °C	Sep. 07, 2022
2600MHz	55.83 (50.25~61.41)	24.19 (21.78~26.60)	60.26	25.33	21.5 °C	Sep. 06, 2022
5200MHz	162.34 (146.11~178.57)	55.42 (49.88~60.96)	160.71	56.45	21.3 °C	Aug. 31, 2022
5800MHz	178.89 (161.01~196.77)	59.32 (53.39~65.25)	176.39	53.50	21.5 °C	Aug. 29, 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.

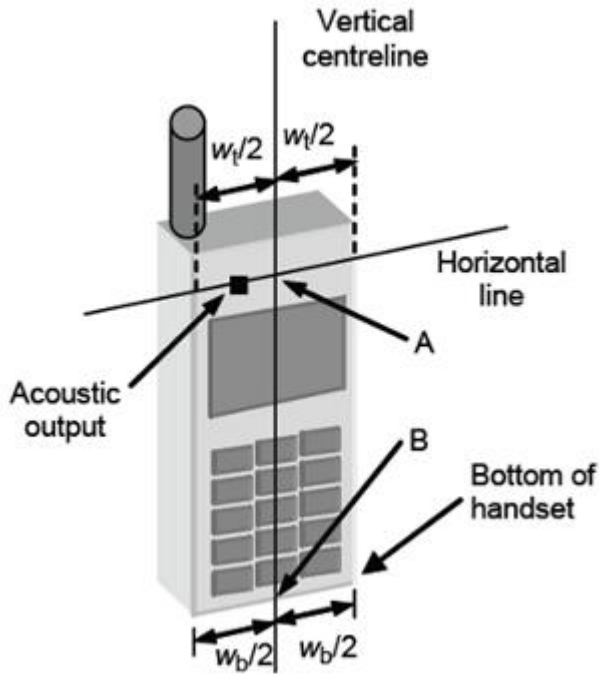


Fig 6.2.1 Handset vertical and horizontal reference lines—“fixed case”

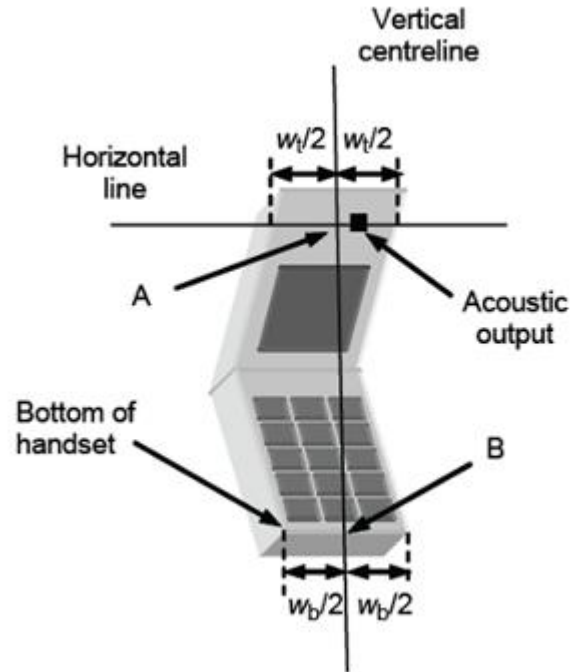


Fig 6.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

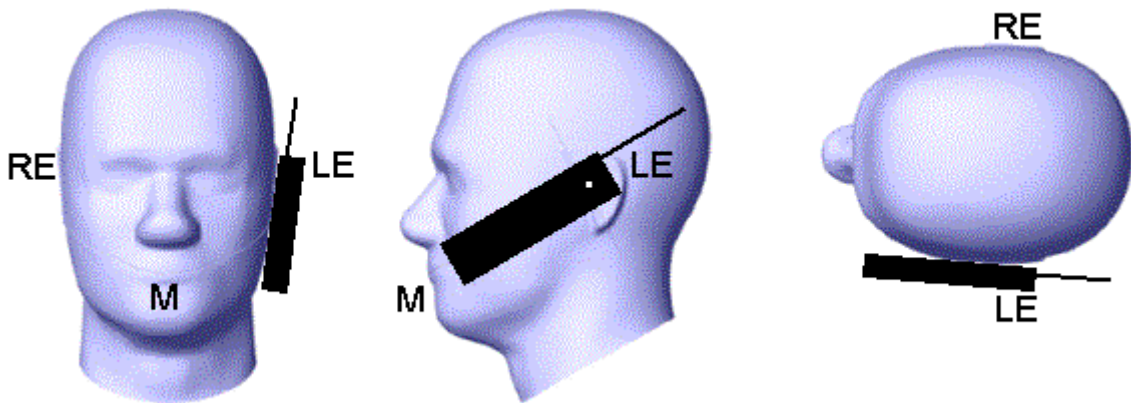


Fig 6.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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.

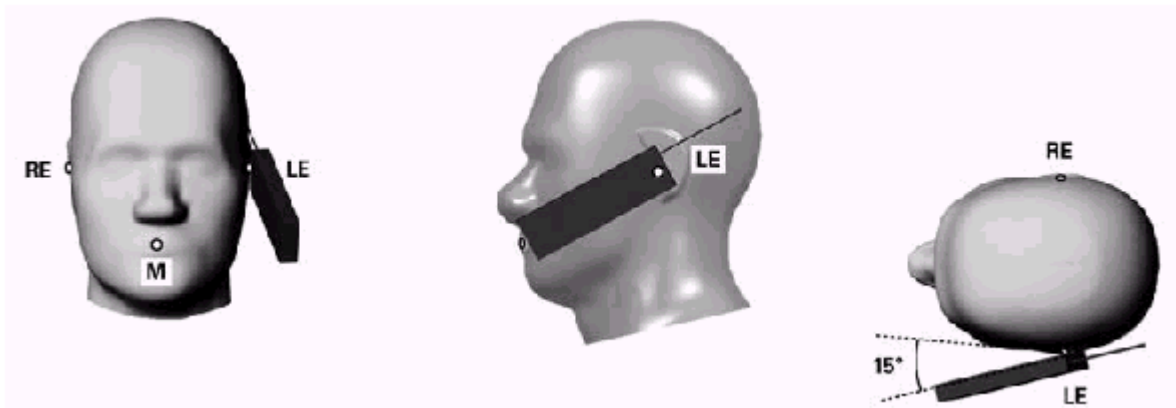


Figure 6.3.1 – Tilt position of the wireless device on the left side of SAM

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.

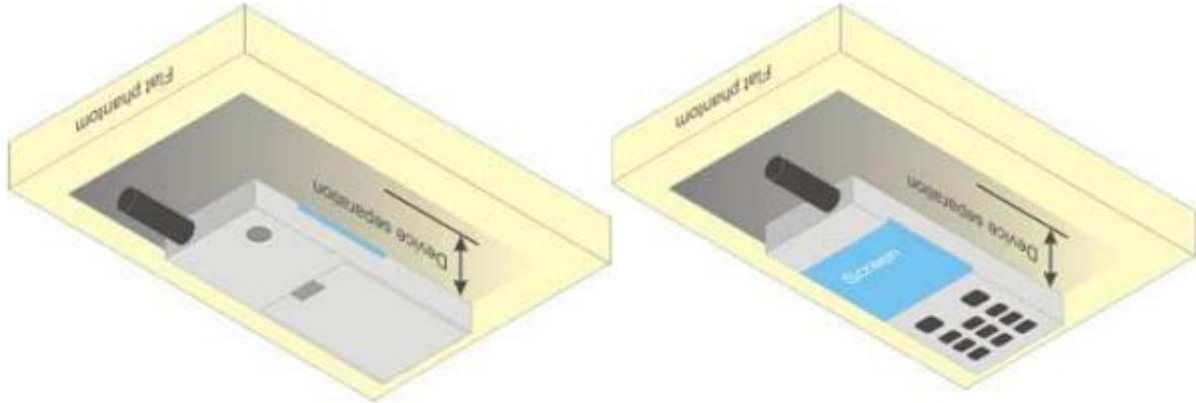


Figure 6.4.1 – Test positions for body-worn devices

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 -	128	189	251	Tune -	128	189	251
Frequency (MHz)	up (dBm)	824.2	836.4	848.8	up (dBm)	824.2	836.4	848.8
GSM Voice(GMSK)	33.00	32.85	32.77	32.67	23.97	23.82	23.74	23.64
GPRS(GMSK, 1 TS)	33.00	32.67	32.59	32.50	23.97	23.64	23.56	23.47
GPRS(GMSK, 2 TS)	32.00	31.89	31.78	31.68	25.98	25.87	25.76	25.66
GPRS(GMSK, 3 TS)	30.50	30.10	30.00	29.88	26.24	25.84	25.74	25.62
GPRS(GMSK, 4 TS)	29.00	28.95	28.85	28.75	25.99	25.94	25.84	25.74
EGPRS(8PSK, 1 TS)	26.50	26.30	25.94	26.38	17.47	17.27	16.91	17.35
EGPRS(8PSK, 2 TS)	25.50	24.67	25.27	25.02	19.48	18.65	19.25	19.00
EGPRS(8PSK, 3 TS)	23.00	22.27	22.79	22.62	18.74	18.01	18.53	18.36
EGPRS(8PSK, 4 TS)	21.50	21.35	21.11	20.97	18.49	18.34	18.10	17.96
Band GSM1900		Burst-Averaged output Power (dBm)			Frame-Averaged output Power (dBm)			
Tx Channel	Tune -	512	661	810	Tune -	512	661	810
Frequency (MHz)	up (dBm)	1850.2	1880	1909.8	up (dBm)	1850.2	1880	1909.8
GSM Voice(GMSK)	29.50	29.23	29.19	29.04	20.47	20.20	20.16	20.01
GPRS(GMSK, 1 TS)	29.50	29.19	29.17	28.99	20.47	20.16	20.14	19.96
GPRS(GMSK, 2 TS)	28.50	28.40	28.38	28.23	22.48	22.38	22.36	22.21
GPRS(GMSK, 3 TS)	27.00	26.60	26.60	26.50	22.74	22.34	22.34	22.24
GPRS(GMSK, 4 TS)	25.50	25.48	25.48	25.41	22.49	22.47	22.47	22.40
EGPRS(8PSK, 1 TS)	26.50	25.68	26.08	25.94	17.47	16.65	17.05	16.91
EGPRS(8PSK, 2 TS)	25.00	24.71	24.84	24.76	18.98	18.69	18.82	18.74
EGPRS(8PSK, 3 TS)	23.00	22.75	22.69	22.30	18.74	18.49	18.43	18.04
EGPRS(8PSK, 4 TS)	22.00	21.37	21.63	21.12	18.99	18.36	18.62	18.11

Note: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots. The calculated method are shown as below:

Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9.03 dB

Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6.02 dB

Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB

Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3.01 dB

7.2. CDMA Conducted Power

Band		CDMA Band BC0		
Tx Channel	Tune-up (dBm)	1013	384	777
Frequency (MHz)		824.7	836.52	848.31
1xRTT(RC1,SO55)	24.00	23.42	23.53	23.63
1xRTT(RC3,SO55)	24.00	23.25	23.23	23.24
1xRTT(RC3,SO32(+F-SCH))	24.00	23.26	23.34	23.23
Band		CDMA Band BC1		
Tx Channel	Tune-up (dBm)	25	600	1175
Frequency (MHz)		1851.25	1880	1908.75
1xRTT(RC1,SO55)	24.50	23.35	23.25	23.37
1xRTT(RC3,SO55)	24.50	23.41	23.34	23.42
1xRTT(RC3,SO32(+F-SCH))	24.50	23.43	23.41	24.42

7.3. WCDMA Conducted Power

WCDMA Band 2	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
RMC12.2K	22.50	22.02	22.06	22.09
HSDPA Sub 1	21.50	21.06	21.09	21.13
HSDPA Sub 2	21.00	20.80	20.77	20.88
HSDPA Sub 3	20.00	19.75	19.29	19.85
HSDPA Sub 4	20.00	19.73	19.34	19.82
HSUPA Sub 1	21.50	20.81	20.92	21.04
HSUPA Sub 2	21.00	19.49	20.93	20.98
HSUPA Sub 3	20.00	19.21	19.90	19.89
HSUPA Sub 4	21.50	21.07	21.08	21.12
HSUPA Sub 5	20.50	19.67	20.31	20.48
WCDMA Band 4	Burst-Averaged output Power (dBm)			

Tx Channel	Tune-up	1312	1413	1513
Frequency (MHz)	(dBm)	1712.4	1732.6	1752.6
RMC12.2K	22.50	22.26	22.27	22.23
HSDPA Sub 1	21.50	21.29	21.30	21.29
HSDPA Sub 2	21.00	20.90	20.91	20.97
HSDPA Sub 3	20.00	19.68	19.89	19.91
HSDPA Sub 4	20.00	19.84	19.94	19.81
HSUPA Sub 1	21.50	19.84	21.17	21.09
HSUPA Sub 2	21.50	21.22	21.18	21.16
HSUPA Sub 3	20.50	19.41	20.17	19.88
HSUPA Sub 4	21.50	21.31	21.31	21.27
HSUPA Sub 5	21.00	19.86	20.58	20.46
WCDMA Band 5		Burst-Averaged output Power (dBm)		
Tx Channel	Tune-up	4132	4182	4233
Frequency (MHz)	(dBm)	826.4	836.4	846.6
RMC12.2K	22.50	22.48	22.31	22.24
HSDPA Sub 1	22.00	21.54	21.33	21.28
HSDPA Sub 2	21.50	21.11	21.05	20.63
HSDPA Sub 3	20.00	20.00	19.88	19.76
HSDPA Sub 4	20.50	20.21	19.90	19.90
HSUPA Sub 1	21.50	20.22	21.10	21.05
HSUPA Sub 2	21.50	21.38	21.24	21.08
HSUPA Sub 3	20.00	19.74	19.99	19.88
HSUPA Sub 4	22.00	21.53	21.34	21.25
HSUPA Sub 5	21.00	20.23	20.69	20.40

7.4. 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	24.50	23.64	23.71	23.73
			1	2	24.50	23.71	23.78	23.77
			1	5	24.50	23.61	23.71	23.73
			3	0	24.50	23.77	23.82	23.83
			3	1	24.50	23.77	23.85	23.83
			3	2	24.50	23.74	23.85	23.81
			6	0	23.00	22.88	22.96	22.92

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18615/1851.5	18900/1880	19185/1908.5
		16QAM	1	0	23.50	22.97	23.00	23.05
			1	2	23.50	23.02	23.16	23.00
			1	5	23.50	22.80	22.98	23.02
			3	0	23.00	22.75	22.75	22.76
			3	1	23.00	22.81	22.87	22.79
			3	2	23.00	22.80	22.88	22.86
			6	0	22.50	21.97	22.05	22.05
LTE Band 2	3MHz	QPSK	1	0	24.50	23.53	23.68	23.57
			1	7	24.50	23.66	23.73	23.72
			1	14	24.50	23.59	23.62	23.63
			8	0	23.00	22.76	22.86	22.85
			8	4	23.00	22.86	22.94	22.92
			8	7	23.00	22.79	22.88	22.85
		16QAM	15	0	23.00	22.78	22.89	22.88
			1	0	23.50	22.72	22.79	22.90
			1	7	23.50	22.81	23.04	22.94
			1	14	23.50	22.77	22.84	22.76
			8	0	22.00	21.80	21.92	21.92
			8	4	22.00	21.91	21.96	21.99
			8	7	22.00	21.85	21.93	21.88
			15	0	22.00	21.79	21.90	21.86
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18625/1852.5	18900/1880	19175/1907.5
LTE Band 2	5MHz	QPSK	1	0	24.50	23.77	23.89	23.89
			1	12	24.50	23.93	24.03	23.99
			1	24	24.50	23.82	23.90	23.88
			12	0	23.50	22.82	22.97	23.01
			12	6	23.50	22.94	23.02	22.99
			12	11	23.50	22.89	22.94	22.84
		16QAM	25	0	23.00	22.87	23.00	22.96
			1	0	23.50	23.07	23.23	23.07
			1	12	23.50	23.19	23.31	23.29
			1	24	23.50	23.01	23.20	23.20
			12	0	22.50	21.82	21.95	22.02

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18650/1855	18900/1880	19150/1905
			12	6	22.50	21.93	21.99	22.01
			12	11	22.50	21.90	21.92	21.85
			25	0	22.00	21.90	22.00	21.99
LTE Band 2	10MHz	QPSK	1	0	24.50	23.92	24.00	23.99
			1	24	24.50	23.95	24.04	24.00
			1	49	24.50	23.99	23.98	23.98
			25	0	23.50	22.85	22.97	22.96
			25	12	23.50	22.98	23.04	22.99
			25	24	23.50	22.89	22.92	22.81
		16QAM	50	0	23.00	22.90	22.97	22.89
			1	0	23.50	23.18	23.23	23.26
			1	24	23.50	23.19	23.32	23.25
			1	49	23.50	23.28	23.11	23.26
			25	0	22.50	21.86	21.97	22.00
			25	12	22.50	21.99	22.04	22.04
			25	24	22.50	21.89	21.94	21.84
			50	0	22.00	21.88	21.93	21.89
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18675/1857.5	18900/1880	19125/1902.5
LTE Band 2	15MHz	QPSK	1	0	24.50	23.84	23.97	24.05
			1	37	24.50	24.02	24.04	24.03
			1	74	24.50	23.96	23.96	23.97
			36	0	23.50	22.92	22.98	22.94
			36	18	23.50	22.97	23.02	23.04
			36	37	23.50	22.94	22.94	22.87
			75	0	23.50	22.96	23.01	22.91
		16QAM	1	0	23.50	23.03	23.13	23.30
			1	37	23.50	23.29	23.31	23.27
			1	74	23.50	23.28	23.13	23.23
			36	0	22.50	21.88	21.99	21.95
			36	18	22.50	21.96	22.00	22.04
			36	37	22.50	21.99	21.91	21.89
			75	0	22.00	21.93	21.98	21.92
Band	Band	Modulation	RB		Tune-up	Channel/Frequency(MHz)		

	Width		Configuration		(dBm)			
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	24.50	23.76	23.86	23.97
			1	49	24.50	24.06	24.02	24.07
			1	99	24.50	23.88	23.89	23.85
			50	0	23.50	22.99	23.01	22.99
			50	24	23.50	23.05	23.06	23.09
			50	49	23.50	23.07	22.93	22.85
			100	0	23.50	23.01	22.94	22.93
		16QAM	1	0	23.50	22.95	23.21	23.27
			1	49	23.50	23.33	23.26	23.43
			1	99	23.50	23.13	23.07	23.06
			50	0	22.50	21.99	21.96	21.99
			50	24	22.50	22.04	22.04	22.09
			50	49	22.50	22.04	21.91	21.85
			100	0	22.50	22.02	21.92	21.91

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	24.50	23.52	23.78	23.74
			1	2	24.50	23.61	23.88	23.79
			1	5	24.50	23.52	23.78	23.73
			3	0	24.50	23.64	23.87	23.81
			3	1	24.50	23.66	23.90	23.85
			3	2	24.50	23.66	23.89	23.85
			6	0	23.00	22.74	22.98	22.92
		16QAM	1	0	23.50	22.84	23.06	23.08
			1	2	23.50	22.97	23.09	23.17
			1	5	23.50	22.73	23.03	23.11
			3	0	23.00	22.61	22.90	22.89
			3	1	23.00	22.70	22.89	22.81
			3	2	23.00	22.61	22.82	22.90
			6	0	22.50	21.83	22.08	22.03
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	24.50	23.41	23.67	23.56
			1	7	24.50	23.57	23.76	23.72
			1	14	24.50	23.44	23.66	23.57
			8	0	23.00	22.60	22.88	22.78
			8	4	23.00	22.69	22.93	22.86
			8	7	23.00	22.65	22.89	22.80
			15	0	23.00	22.63	22.86	22.77
		16QAM	1	0	23.50	22.67	23.01	22.78
			1	7	23.50	22.90	23.12	23.05
			1	14	23.50	22.78	23.02	22.80
			8	0	22.50	21.67	21.96	21.87
			8	4	22.50	21.75	22.01	21.91
			8	7	22.50	21.65	21.94	21.84
			15	0	22.00	21.62	21.90	21.79
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	24.50	23.66	23.86	23.68
			1	12	24.50	23.82	24.03	23.84
			1	24	24.50	23.70	23.92	23.73
			12	0	23.00	22.69	22.90	22.74
			12	6	23.00	22.76	23.00	22.83
			12	11	23.00	22.74	22.95	22.76
			25	0	23.00	22.71	22.91	22.79
		16QAM	1	0	23.50	23.00	23.17	23.08
			1	12	23.50	23.11	23.38	23.17
			1	24	23.50	22.94	23.20	22.97
			12	0	22.50	21.68	21.90	21.75
			12	6	22.50	21.80	22.01	21.84
			12	11	22.50	21.74	21.97	21.79
			25	0	22.00	21.75	21.94	21.81
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	24.50	23.75	23.95	23.83
			1	24	24.50	23.84	24.04	23.86
			1	49	24.50	23.87	23.99	23.84
			25	0	23.00	22.70	22.90	22.75

			25	12	23.00	22.80	22.98	22.86	
			25	24	23.00	22.83	22.97	22.79	
			50	0	23.00	22.82	22.96	22.80	
		16QAM	1	0	23.50	22.94	23.18	23.07	
			1	24	23.50	23.11	23.30	23.25	
			1	49	23.50	23.15	23.35	23.16	
			25	0	22.00	21.73	21.92	21.77	
			25	12	22.00	21.85	22.00	21.90	
			25	24	22.00	21.88	21.97	21.77	
			50	0	22.00	21.79	21.94	21.78	
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	24.50	23.69	23.92	23.77	
			1	37	24.50	23.89	24.06	23.89	
			1	74	24.50	23.90	23.95	23.84	
			36	0	23.00	22.72	22.91	22.74	
			36	18	23.00	22.81	22.95	22.85	
			36	37	23.00	22.88	22.97	22.82	
		16QAM	75	0	23.00	22.83	22.97	22.82	
			1	0	23.50	23.02	23.14	23.06	
			1	37	23.50	23.16	23.39	23.22	
			1	74	23.50	23.23	23.31	23.09	
			36	0	22.00	21.73	21.89	21.73	
			36	18	22.00	21.82	21.97	21.82	
			36	37	22.00	21.91	21.98	21.81	
			75	0	22.00	21.82	21.96	21.80	
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)			
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745	
LTE Band 4	20MHz	QPSK	1	0	24.50	23.57	23.84	23.66	
			1	49	24.50	23.92	24.06	23.88	
			1	99	24.50	23.77	23.87	23.75	
			50	0	23.50	22.70	22.94	22.75	
			50	24	23.50	22.91	23.00	22.90	
			50	49	23.50	22.91	23.01	22.88	
			100	0	23.00	22.77	22.98	22.80	
		16QAM	1	0	23.50	22.88	23.09	22.92	

			1	49	23.50	23.26	23.28	23.21
			1	99	23.50	22.97	23.24	23.07
			50	0	22.00	21.69	21.93	21.71
			50	24	22.00	21.87	22.00	21.86
			50	49	22.00	21.90	22.00	21.88
			100	0	22.00	21.78	21.95	21.77

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20407/824.7	20525/836.5	20643/848.3
LTE Band 5	1.4MHz	QPSK	1	0	24.00	23.18	23.37	23.21
			1	2	24.00	23.26	23.45	23.27
			1	5	24.00	23.18	23.37	23.20
			3	0	24.00	23.29	23.47	23.32
			3	1	24.00	23.32	23.48	23.32
			3	2	24.00	23.31	23.45	23.31
		16QAM	6	0	23.00	22.40	22.60	22.45
			1	0	23.00	22.37	22.69	22.41
			1	2	23.00	22.50	22.55	22.45
			1	5	23.00	22.52	22.49	22.34
			3	0	23.00	22.31	22.49	22.33
			3	1	23.00	22.34	22.49	22.26
			3	2	23.00	22.29	22.50	22.21
			6	0	22.00	21.51	21.69	21.53

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20415/825.5	20525/836.5	20635/847.5
LTE Band 5	3MHz	QPSK	1	0	24.00	23.04	23.22	23.17
			1	7	24.00	23.16	23.37	23.21
			1	14	24.00	23.12	23.24	23.07
			8	0	23.00	22.29	22.43	22.36
			8	4	23.00	22.36	22.56	22.42
			8	7	23.00	22.31	22.48	22.31
			15	0	23.00	22.31	22.50	22.37
		16QAM	1	0	23.00	22.38	22.53	22.36
			1	7	23.00	22.29	22.56	22.40
			1	14	23.00	22.42	22.49	22.29
			8	0	22.00	21.35	21.48	21.43

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20425/826.5	20525/836.5	20625/846.5
			8	4	22.00	21.41	21.60	21.47
			8	7	22.00	21.32	21.54	21.35
			15	0	21.50	21.31	21.49	21.35
LTE Band 5	5MHz	QPSK	1	0	24.00	23.32	23.44	23.36
			1	12	24.00	23.43	23.60	23.49
			1	24	24.00	23.33	23.44	23.29
			12	0	23.00	22.34	22.53	22.46
			12	6	23.00	22.42	22.63	22.51
			12	11	23.00	22.43	22.56	22.38
			25	0	23.00	22.40	22.58	22.46
		16QAM	1	0	23.00	22.50	22.78	22.65
			1	12	23.00	22.70	22.91	22.67
			1	24	23.00	22.67	22.73	22.54
			12	0	22.00	21.33	21.53	21.45
			12	6	22.00	21.42	21.62	21.53
			12	11	22.00	21.43	21.56	21.40
			25	0	22.00	21.43	21.57	21.48
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20450/829	20525/836.5	20600/844
LTE Band 5	10MHz	QPSK	1	0	24.00	23.40	23.57	23.55
			1	24	24.00	23.48	23.67	23.50
			1	49	24.00	23.56	23.51	23.39
			25	0	23.00	22.38	22.51	22.52
			25	12	23.00	22.51	22.63	22.54
			25	24	23.00	22.49	22.54	22.45
			50	0	23.00	22.47	22.56	22.52
		16QAM	1	0	23.00	22.61	22.87	22.69
			1	24	23.00	22.81	22.81	22.73
			1	49	23.00	22.80	22.71	22.59
			25	0	22.00	21.40	21.52	21.52
			25	12	22.00	21.54	21.65	21.55
			25	24	22.00	21.51	21.54	21.45
			50	0	22.00	21.44	21.55	21.48

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	24.50	24.31	24.30	24.08
			1	12	24.50	24.39	24.40	24.24
			1	24	24.50	24.23	24.27	24.13
			12	0	23.50	23.34	23.36	23.18
			12	6	23.50	23.40	23.40	23.19
			12	11	23.50	23.36	23.34	23.17
			25	0	23.50	23.37	23.37	23.17
		16QAM	1	0	24.00	23.57	23.54	23.31
			1	12	24.00	23.73	23.64	23.58
			1	24	24.00	23.56	23.49	23.40
			12	0	22.50	22.36	22.34	22.23
			12	6	22.50	22.40	22.38	22.23
			12	11	22.50	22.37	22.35	22.18
			25	0	22.50	22.41	22.40	22.20
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	24.50	24.41	24.40	24.22
			1	24	24.50	24.40	24.44	24.21
			1	49	24.50	24.32	24.37	24.20
			25	0	23.50	23.30	23.42	23.28
			25	12	23.50	23.39	23.41	23.21
			25	24	23.50	23.40	23.39	23.12
			50	0	23.50	23.44	23.42	23.23
		16QAM	1	0	24.00	23.77	23.67	23.56
			1	24	24.00	23.71	23.76	23.54
			1	49	24.00	23.54	23.65	23.49
			25	0	22.50	22.35	22.43	22.32
			25	12	22.50	22.43	22.44	22.24
			25	24	22.50	22.43	22.43	22.15
			50	0	22.50	22.42	22.44	22.23
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20825/2507.5	21100/2535	21375/2562.5

LTE Band 7	15MHz	QPSK	1	0	24.50	24.34	24.37	24.24
			1	37	24.50	24.39	24.41	24.22
			1	74	24.50	24.26	24.33	24.12
			36	0	23.50	23.32	23.39	23.28
			36	18	23.50	23.36	23.39	23.21
			36	37	23.50	23.33	23.37	23.08
			75	0	23.50	23.33	23.41	23.20
		16QAM	1	0	24.00	23.63	23.69	23.57
			1	37	24.00	23.68	23.71	23.44
			1	74	24.00	23.58	23.69	23.32
			36	0	22.50	22.34	22.38	22.29
			36	18	22.50	22.39	22.42	22.20
			36	37	22.50	22.35	22.39	22.11
			75	0	22.50	22.34	22.40	22.19
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20850/2510	21100/2535	21350/2560
LTE Band 7	20MHz	QPSK	1	0	24.50	24.27	24.27	24.30
			1	49	24.50	24.34	24.42	24.26
			1	99	24.50	24.18	24.27	24.05
			50	0	23.50	23.28	23.42	23.30
			50	24	23.50	23.35	23.45	23.28
			50	49	23.50	23.34	23.40	23.04
			100	0	23.50	23.29	23.39	23.17
		16QAM	1	0	24.00	23.53	23.58	23.57
			1	49	24.00	23.62	23.73	23.48
			1	99	24.00	23.39	23.47	23.36
			50	0	22.50	22.27	22.43	22.31
			50	24	22.50	22.36	22.45	22.29
			50	49	22.50	22.35	22.42	22.03
			100	0	22.50	22.29	22.39	22.16

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	24.00	23.50	23.32	23.33
			1	2	24.00	23.50	23.36	23.38
			1	5	24.00	23.37	23.30	23.33

			3	0	24.00	23.57	23.41	23.42
			3	1	24.00	23.57	23.41	23.46
			3	2	24.00	23.54	23.41	23.44
			6	0	23.00	22.69	22.56	22.57
		16QAM	1	0	23.00	22.79	22.51	22.63
			1	2	23.00	22.63	22.68	22.65
			1	5	23.00	22.63	22.63	22.54
			3	0	23.00	22.57	22.45	22.46
			3	1	23.00	22.56	22.42	22.44
			3	2	23.00	22.49	22.48	22.36
		6	0	22.00	21.75	21.69	21.67	
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	24.00	23.36	23.21	23.19
			1	7	24.00	23.33	23.28	23.29
			1	14	24.00	23.22	23.17	23.18
			8	0	23.00	22.54	22.44	22.47
			8	4	23.00	22.54	22.50	22.51
			8	7	23.00	22.49	22.45	22.47
			15	0	23.00	22.55	22.46	22.49
		16QAM	1	0	23.00	22.64	22.56	22.53
			1	7	23.00	22.62	22.61	22.45
			1	14	23.00	22.45	22.45	22.54
			8	0	22.00	21.65	21.52	21.52
			8	4	22.00	21.64	21.60	21.61
			8	7	22.00	21.55	21.53	21.52
			15	0	22.00	21.53	21.49	21.51
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
LTE Band 12	5MHz	QPSK	1	0	24.00	23.55	23.46	23.43
			1	12	24.00	23.56	23.53	23.56
			1	24	24.00	23.40	23.40	23.40
			12	0	23.00	22.57	22.54	22.48
			12	6	23.00	22.62	22.57	22.58
			12	11	23.00	22.56	22.53	22.53
			25	0	23.00	22.60	22.57	22.54

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23060/704	23095/707.5	23130/711
16QAM			1	0	23.00	22.85	22.74	22.72
			1	12	23.00	22.86	22.74	22.91
			1	24	23.00	22.71	22.62	22.60
			12	0	22.00	21.60	21.55	21.52
			12	6	22.00	21.64	21.61	21.58
			12	11	22.00	21.60	21.55	21.57
			25	0	22.00	21.62	21.62	21.57
LTE Band 12	10MHz	QPSK	1	0	24.00	23.67	23.56	23.52
			1	24	24.00	23.53	23.53	23.54
			1	49	24.00	23.48	23.48	23.49
			25	0	23.00	22.54	22.52	22.45
			25	12	23.00	22.61	22.60	22.58
			25	24	23.00	22.51	22.50	22.54
			50	0	23.00	22.58	22.54	22.53
		16QAM	1	0	23.00	22.98	22.89	22.76
			1	24	23.00	22.89	22.81	22.83
			1	49	23.00	22.85	22.83	22.75
			25	0	22.00	21.57	21.57	21.50
			25	12	22.00	21.65	21.64	21.61
			25	24	22.00	21.54	21.55	21.59
			50	0	22.00	21.58	21.56	21.56

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	24.00	23.52	23.49	23.47
			1	12	24.00	23.64	23.57	23.59
			1	24	24.00	23.45	23.48	23.43
			12	0	23.00	22.57	22.55	22.55
			12	6	23.00	22.64	22.64	22.61
			12	11	23.00	22.61	22.57	22.60
			25	0	23.00	22.61	22.58	22.57
		16QAM	1	0	23.00	22.79	22.72	22.73
			1	12	23.00	22.95	22.81	22.91
			1	24	23.00	22.72	22.82	22.72

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23780/709	23790/710	23800/711
			12	0	22.00	21.62	21.57	21.54
			12	6	22.00	21.68	21.68	21.65
			12	11	22.00	21.63	21.61	21.62
			25	0	22.00	21.66	21.64	21.61
LTE Band 17	10MHz	QPSK	1	0	24.00	23.63	23.59	23.59
			1	24	24.00	23.61	23.61	23.62
			1	49	24.00	23.51	23.52	23.52
			25	0	23.00	22.58	22.52	22.53
			25	12	23.00	22.62	22.65	22.64
			25	24	23.00	22.55	22.59	22.58
			50	0	23.00	22.61	22.61	22.62
		16QAM	1	0	23.00	22.84	22.80	22.86
			1	24	23.00	22.84	22.82	22.94
			1	49	23.00	22.85	22.84	22.77
			25	0	22.00	21.60	21.58	21.58
			25	12	22.00	21.67	21.69	21.69
			25	24	22.00	21.60	21.61	21.62
			50	0	22.00	21.61	21.59	21.62

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40065/2537.5	40640/2595	41215/2652.5
LTE Band 41	5MHz	QPSK	1	0	24.50	24.15	24.14	24.17
			1	12	24.50	24.29	24.21	24.25
			1	24	24.50	24.14	24.11	24.16
			12	0	23.50	23.21	23.15	23.34
			12	6	23.50	23.34	23.18	23.36
			12	11	23.50	23.35	23.14	23.28
			25	0	23.50	23.21	23.16	23.30
		16QAM	1	0	23.50	23.29	23.33	23.33
			1	12	23.50	23.42	23.43	23.44
			1	24	23.50	23.32	23.31	23.34
			12	0	22.50	22.28	22.20	22.35
			12	6	22.50	22.36	22.23	22.36
			12	11	22.50	22.39	22.17	22.29

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40090/2540	40640/2595	41190/2650
LTE Band 41	10MHz	QPSK	25	0	22.50	22.33	22.25	22.35
			1	0	24.50	24.24	24.26	24.31
			1	24	24.50	24.25	24.23	24.26
			1	49	24.50	24.27	24.20	24.21
			25	0	23.50	23.17	23.18	23.38
			25	12	23.50	23.31	23.21	23.36
			25	24	23.50	23.36	23.19	23.25
		16QAM	50	0	23.50	23.38	23.21	23.39
			1	0	23.50	23.41	23.46	23.43
			1	24	23.50	23.43	23.44	23.46
			1	49	23.50	23.44	23.43	23.42
			25	0	22.50	22.27	22.25	22.41
			25	12	22.50	22.40	22.27	22.41
			25	24	22.50	22.44	22.26	22.30
50	0	22.50	22.41	22.28	22.41			
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40115/2542.5	40640/2595	41165/2647.5
LTE Band 41	15MHz	QPSK	1	0	24.50	24.18	24.24	24.31
			1	37	24.50	24.30	24.25	24.31
			1	74	24.50	24.25	24.19	24.18
			36	0	23.50	23.23	23.17	23.41
			36	18	23.50	23.35	23.22	23.41
			36	37	23.50	23.39	23.20	23.29
			75	0	23.50	23.31	23.21	23.38
		16QAM	1	0	23.50	23.36	23.45	23.41
			1	37	23.50	23.47	23.45	23.46
			1	74	23.50	23.43	23.38	23.37
			36	0	22.50	22.20	22.19	22.36
			36	18	22.50	22.34	22.22	22.38
			36	37	22.50	22.37	22.21	22.27
			75	0	22.50	22.33	22.25	22.35
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		

			RB Size	RB Offset		40140/2545	40640/2595	41140/2645
LTE Band 41	20MHz	QPSK	1	0	24.50	24.10	24.23	24.22
			1	49	24.50	24.32	24.24	24.33
			1	99	24.50	24.15	24.13	24.08
			50	0	24.00	23.19	23.22	23.47
			50	24	24.00	23.44	23.29	23.51
			50	49	24.00	23.41	23.20	23.27
			100	0	23.50	23.30	23.21	23.44
	16QAM	1	0	23.50	23.27	23.42	23.31	
		1	49	23.50	23.48	23.46	23.46	
		1	99	23.50	23.35	23.34	23.28	
		50	0	22.50	22.20	22.26	22.44	
		50	24	22.50	22.48	22.31	22.48	
		50	49	22.50	22.47	22.27	22.29	
		100	0	22.50	22.32	22.26	22.41	

7.5. WLAN & Bluetooth Output Power

Mode	Channel	Frequency (MHz)	Tune-up(dBm)	Output Power (dBm)
802.11b	1	2412	16.50	16.34
	6	2437	16.50	16.33
	11	2462	16.50	16.30
802.11g	1	2412	14.50	14.06
	6	2437	14.50	13.95
	11	2462	14.50	14.05
802.11n HT20	1	2412	13.00	12.90
	6	2437	13.00	12.90
	11	2462	13.00	12.76
802.11n HT40	3	2422	13.00	12.69
	6	2437	13.00	12.15
	9	2452	13.00	12.09

NOTE: Power measurement results of WLAN 2.4G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	36	5180	10.000	9.512
	40	5200	10.000	9.565
	48	5240	10.000	9.369
802.11n HT20	36	5180	10.000	9.502

	40	5200	10.000	9.528
	48	5240	10.000	9.327
802.11n HT40	38	5190	9.500	8.452
	46	5230	9.500	9.031
802.11ac VHT20	36	5180	10.000	9.077
	40	5200	10.000	9.578
	48	5240	10.000	9.364
802.11ac VHT40	38	5190	9.000	8.271
	46	5230	9.000	8.959
802.11ac VHT80	42	5210	10.000	9.875

NOTE: Power measurement results of WLAN 5.2G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	149	5745	10.000	9.345
	157	5785	10.000	9.219
	165	5825	10.000	9.778
802.11n HT20	149	5745	10.500	9.290
	157	5785	10.500	9.599
	165	5825	10.500	10.075
802.11n HT40	151	5755	9.500	9.437
	159	5795	9.500	9.087
802.11ac VHT20	149	5745	10.000	9.203
	157	5785	10.000	9.606
	165	5825	10.000	9.077
802.11ac VHT40	151	5755	9.500	9.344
	159	5795	9.500	9.424
802.11ac VHT80	155	5775	10.500	10.127

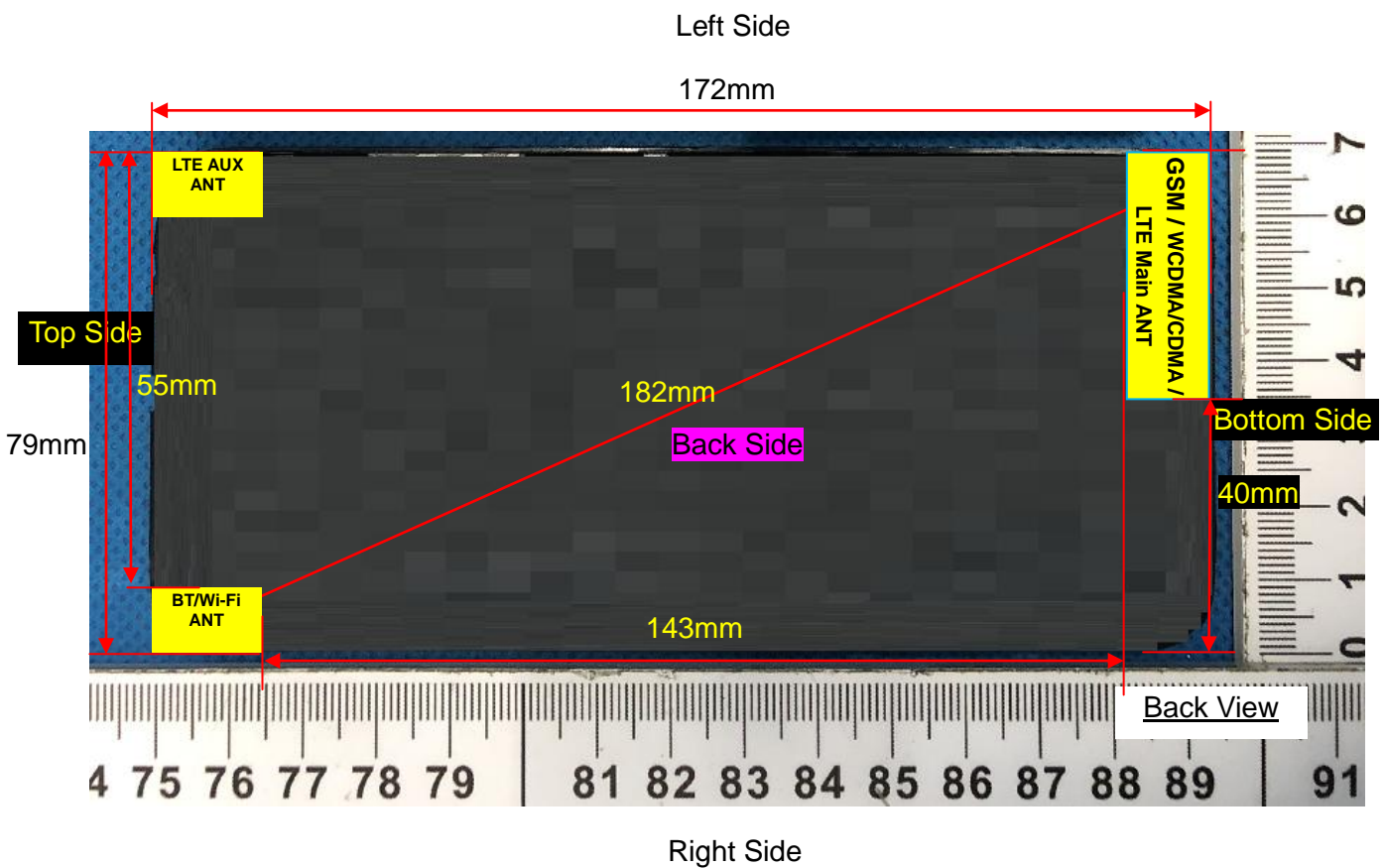
NOTE: Power measurement results of WLAN 5.8G.

BR+EDR	Output Power (dBm)				
	Channel	Tune-up (dBm)	Data Rates		
			1M	2M	3M
	0CH	6.00	5.84	4.43	4.20
	39CH	6.00	5.51	5.46	5.53
	78CH	6.00	5.97	5.47	5.43

BLE	Channel	Tune-up	Output Power (dBm)	
			1M	2M
	0CH	-4.00	-4.51	-4.46
	19CH	-4.00	-4.62	-4.62
	39CH	-4.00	-4.65	-4.63

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:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0$ 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	6.00	3.98	5	2.480	1.25	3	Yes

NOTE: Standalone SAR test exclusion for Bluetooth.

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

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}} / x] \text{ W/kg}$ for test separation distances ≤ 50 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	6.00	3.98	5	2.48	7.5	0.167
Bluetooth	Body	6.00	3.98	10	2.48	7.5	0.084
Bluetooth	Hotspot	6.00	3.98	10	2.48	7.5	0.084

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)	0.031	0.025	-0.81	30.00	30.50	0.035	2022/9/12	1#

		3TS)								
Left Tilt 15 Degree	189/836.4	GPRS(GMSK 3TS)	0.018	0.016	3.86	30.00	30.50	0.020	2022/9/12	
Right Cheek	189/836.4	GPRS(GMSK 3TS)	0.027	0.021	-3.76	30.00	30.50	0.030	2022/9/12	
Right Tilt 15 Degree	189/836.4	GPRS(GMSK 3TS)	0.014	0.012	2.79	30.00	30.50	0.016	2022/9/12	

NOTE: Head SAR test results of GSM850.

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	189/836.4	GPRS(GMSK 3TS)	0.048	0.029	3.65	30.00	30.50	0.054	2022/9/12	
Back Side	189/836.4	GPRS(GMSK 3TS)	0.058	0.035	-2.89	30.00	30.50	0.065	2022/9/12	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 3TS)	0.048	0.029	3.65	30.00	30.50	0.054	2022/9/12	
Back Side	189/836.4	GPRS(GMSK 3TS)	0.058	0.035	-2.89	30.00	30.50	0.065	2022/9/12	2#
Left Side	189/836.4	GPRS(GMSK 3TS)	0.021	0.012	0.25	30.00	30.50	0.024	2022/9/12	
Bottom Side	189/836.4	GPRS(GMSK 3TS)	0.030	0.017	-3.59	30.00	30.50	0.034	2022/9/12	

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)	0.075	0.049	-3.32	26.60	27.00	0.082	2022/8/26	3#
Left Tilt 15	661/1880	GPRS(GMSK 3TS)	0.039	0.025	2.91	26.60	27.00	0.043	2022/8/26	

Degree		3TS)								
Right Cheek	661/1880	GPRS(GMSK 3TS)	0.070	0.043	3.94	26.60	27.00	0.077	2022/8/26	
Right Tilt 15 Degree	661/1880	GPRS(GMSK 3TS)	0.037	0.024	2.63	26.60	27.00	0.041	2022/8/26	

NOTE: Head SAR test results of GSM1900

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	661/1880	GPRS(GMSK 3TS)	0.426	0.192	-3.37	26.60	27.00	0.467	2022/8/26	
Back Side	661/1880	GPRS(GMSK 3TS)	0.664	0.315	-2.91	26.60	27.00	0.728	2022/8/26	4#

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)	0.426	0.192	-3.37	26.60	27.00	0.467	2022/8/26	
Back Side	661/1880	GPRS(GMSK 3TS)	0.664	0.315	-2.91	26.60	27.00	0.728	2022/8/26	4#
Left Side	661/1880	GPRS(GMSK 3TS)	0.201	0.094	-1.37	26.60	27.00	0.220	2022/8/26	
Bottom Side	661/1880	GPRS(GMSK 3TS)	0.335	0.159	2.17	26.60	27.00	0.367	2022/8/26	

NOTE: Hotspot SAR test results of GSM1900

10.1.3. SAR measurement Result of CDMA BC0

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	384/836.52	1xRTT(RC3, SO55)	0.017	0.013	-3.19	23.23	24.00	0.020	2022/9/12	5#
Left Tilt 15 Degree	384/836.52	1xRTT(RC3, SO55)	0.009	0.007	0.13	23.23	24.00	0.011	2022/9/12	

Right Cheek	384/836.52	1xRTT(RC3, SO55)	0.016	0.014	0.59	23.23	24.00	0.019	2022/9/12	
Right Tilt 15 Degree	384/836.52	1xRTT(RC3, SO55)	0.008	0.006	-3.35	23.23	24.00	0.010	2022/9/12	

NOTE: Head SAR test results of CDMA BC0

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	384/836.52	1xRTT(RC3, SO32(+F-SCH))	0.014	0.012	-1.78	23.34	24.00	0.016	2022/9/12	
Back Side	384/836.52	1xRTT(RC3, SO32(+F-SCH))	0.023	0.017	-1.80	23.34	24.00	0.027	2022/9/12	6#

NOTE: Body-Worn SAR test results of CDMA BC0

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	384/836.52	1xRTT(RC3, SO32(+F-SCH))	0.014	0.012	-1.78	23.34	24.00	0.016	2022/9/12	
Back Side	384/836.52	1xRTT(RC3, SO32(+F-SCH))	0.023	0.017	-1.80	23.34	24.00	0.027	2022/9/12	6#
Left Side	384/836.52	1xRTT(RC3, SO32(+F-SCH))	0.013	0.010	-1.88	23.34	24.00	0.015	2022/9/12	
Bottom Side	384/836.52	1xRTT(RC3, SO32(+F-SCH))	0.018	0.012	-0.95	23.34	24.00	0.021	2022/9/12	

NOTE: Hotspot SAR test results of CDMA BC0

10.1.4. SAR measurement Result of CDMA BC1

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	600/1880	1xRTT(RC3, SO55)	0.067	0.042	-4.52	23.34	24.50	0.088	2022/8/26	7#
Left Tilt 15 Degree	600/1880	1xRTT(RC3, SO55)	0.034	0.021	2.00	23.34	24.50	0.044	2022/8/26	

Right Cheek	600/1880	1xRTT(RC3, SO55)	0.059	0.035	0.09	23.34	24.50	0.077	2022/8/26	
Right Tilt 15 Degree	600/1880	1xRTT(RC3, SO55)	0.027	0.017	4.73	23.34	24.50	0.035	2022/8/26	

NOTE: Head SAR test results of GSM1900

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	600/1880	1xRTT(RC3, SO32(+F-SCH))	0.298	0.144	3.53	23.41	24.50	0.383	2022/8/26	
Back Side	600/1880	1xRTT(RC3, SO32(+F-SCH))	0.473	0.236	-1.37	23.41	24.50	0.608	2022/8/26	8#

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	600/1880	1xRTT(RC3, SO32(+F-SCH))	0.298	0.144	3.53	23.41	24.50	0.383	2022/8/26	
Back Side	600/1880	1xRTT(RC3, SO32(+F-SCH))	0.473	0.236	-1.37	23.41	24.50	0.608	2022/8/26	8#
Left Side	600/1880	1xRTT(RC3, SO32(+F-SCH))	0.169	0.094	1.82	23.41	24.50	0.217	2022/8/26	
Bottom Side	600/1880	1xRTT(RC3, SO32(+F-SCH))	0.237	0.114	2.08	23.41	24.50	0.305	2022/8/26	

NOTE: Hotspot SAR test results of GSM1900

10.1.5. 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	0.067	0.042	0.56	22.06	22.50	0.074	2022/8/26	9#
Left Tilt 15 Degree	9400/1880	RMC12.2K	0.038	0.024	-2.86	22.06	22.50	0.042	2022/8/26	
Right Cheek	9400/1880	RMC12.2K	0.063	0.039	-1.79	22.06	22.50	0.070	2022/8/26	

Right Tilt 15 Degree	9400/1880	RMC12.2K	0.029	0.018	-0.45	22.06	22.50	0.032	2022/8/26	
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NOTE: Head SAR test results of WCDMA Band 2

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	9400/1880	RMC12.2K	0.330	0.156	-0.31	22.06	22.50	0.365	2022/8/26	
Back Side	9400/1880	RMC12.2K	0.513	0.247	-1.78	22.06	22.50	0.568	2022/8/26	10#

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	0.156	-0.31	22.06	22.50	0.365	2022/8/26	
Back Side	9400/1880	RMC12.2K	0.513	0.247	-1.78	22.06	22.50	0.568	2022/8/26	10#
Left Side	9400/1880	RMC12.2K	0.165	0.079	-0.88	22.06	22.50	0.183	2022/8/26	
Bottom Side	9400/1880	RMC12.2K	0.265	0.125	3.00	22.06	22.50	0.293	2022/8/26	

NOTE: Hotspot SAR test results of WCDMA Band 2

10.1.6. 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	0.041	0.030	-2.05	22.27	22.50	0.043	2022/9/02	11#
Left Tilt 15 Degree	1413/1732.6	RMC12.2K	0.022	0.015	-0.81	22.27	22.50	0.023	2022/9/02	
Right Cheek	1413/1732.6	RMC12.2K	0.036	0.025	2.08	22.27	22.50	0.038	2022/9/02	
Right Tilt 15 Degree	1413/1732.6	RMC12.2K	0.019	0.017	-3.61	22.27	22.50	0.020	2022/9/02	

NOTE: Head SAR test results of WCDMA Band 4

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	1413/1732.6	RMC12.2K	0.246	0.117	2.81	22.27	22.50	0.259	2022/9/02	

Back Side	1413/1732.6	RMC12.2K	0.384	0.192	-0.27	22.27	22.50	0.405	2022/9/02	12#
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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	0.246	0.117	2.81	22.27	22.50	0.259	2022/9/02	
Back Side	1413/1732.6	RMC12.2K	0.384	0.192	-0.27	22.27	22.50	0.405	2022/9/02	12#
Left Side	1413/1732.6	RMC12.2K	0.126	0.062	-0.77	22.27	22.50	0.133	2022/9/02	
Bottom Side	1413/1732.6	RMC12.2K	0.195	0.095	-3.29	22.27	22.50	0.206	2022/9/02	

NOTE: Hotspot SAR test results of WCDMA Band 4

10.1.7. 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	0.015	0.013	-0.58	22.31	22.50	0.016	2022/9/12	13#
Left Tilt 15 Degree	4182/836.4	RMC12.2K	0.009	0.007	0.19	22.31	22.50	0.009	2022/9/12	
Right Cheek	4182/836.4	RMC12.2K	0.013	0.011	2.84	22.31	22.50	0.014	2022/9/12	
Right Tilt 15 Degree	4182/836.4	RMC12.2K	0.007	0.005	-3.50	22.31	22.50	0.007	2022/9/12	

NOTE: Head SAR test results of WCDMA Band 5

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	4182/836.4	RMC12.2K	0.018	0.016	-3.37	22.31	22.50	0.019	2022/9/12	
Back Side	4182/836.4	RMC12.2K	0.024	0.016	-0.23	22.31	22.50	0.025	2022/9/12	14#

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	0.018	0.016	-3.37	22.31	22.50	0.019	2022/9/12	
Back Side	4182/836.4	RMC12.2K	0.024	0.016	-0.23	22.31	22.50	0.025	2022/9/12	14#

Left Side	4182/836.4	RMC12.2K	0.015	0.013	-1.01	22.31	22.50	0.016	2022/9/12	
Bottom Side	4182/836.4	RMC12.2K	0.015	0.013	0.16	22.31	22.50	0.016	2022/9/12	

NOTE: Hotspot SAR test results of WCDMA Band 5

10.1.8. 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)	0.868	0.478	-0.89	24.02	24.50	0.969	2022/8/26	
Left Tilt 15 Degree	18900/1880	20M QPSK(1,49)	0.504	0.264	3.98	24.02	24.50	0.563	2022/8/26	
Right Cheek	18900/1880	20M QPSK(1,49)	0.741	0.392	-0.39	24.02	24.50	0.828	2022/8/26	
Right Tilt 15 Degree	18900/1880	20M QPSK(1,49)	0.388	0.209	0.74	24.02	24.50	0.433	2022/8/26	
Left Cheek	18700/1860	20M QPSK(1,49)	0.868	0.483	-1.23	24.06	24.50	0.961	2022/8/26	
Left Cheek	19100/1900	20M QPSK(1,49)	0.881	0.480	-0.37	24.07	24.50	0.973	2022/8/26	21#
Left Cheek Repeated	19100/1900	20M QPSK(1,49)	0.874	0.472	1.26	24.07	24.50	0.965	2022/8/26	
50%RB										
Left Cheek	18900/1880	20M QPSK(50,24)	0.454	0.287	2.83	23.06	23.50	0.502	2022/8/26	
Left Tilt 15 Degree	18900/1880	20M QPSK(50,24)	0.262	0.149	3.44	23.06	23.50	0.290	2022/8/26	
Right Cheek	18900/1880	20M QPSK(50,24)	0.420	0.220	2.29	23.06	23.50	0.465	2022/8/26	
Right Tilt 15 Degree	18900/1880	20M QPSK(50,24)	0.213	0.124	2.42	23.06	23.50	0.236	2022/8/26	
100%RB										
Left Cheek	18900/1880	20M QPSK(100,0)	0.402	0.0208	1.25	22.94	23.50	0.457	2022/8/26	

NOTE: Head SAR test results of LTE Band 2

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	18900/1880	20M QPSK(1,49)	0.258	0.151	0.62	24.02	24.50	0.288	2022/8/26	
Back Side	18900/1880	20M QPSK(1,49)	0.428	0.250	-0.13	24.02	24.50	0.478	2022/8/26	22#
50%RB										
Front Side	18900/1880	20M QPSK(50,24)	0.145	0.084	2.51	23.06	23.50	0.160	2022/8/26	
Back Side	18900/1880	20M QPSK(50,24)	0.240	0.147	1.01	23.06	23.50	0.266	2022/8/26	

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)	0.258	0.151	0.62	24.02	24.50	0.288	2022/8/26	
Back Side	18900/1880	20M QPSK(1,49)	0.428	0.250	-0.13	24.02	24.50	0.478	2022/8/26	22#
Left Side	18900/1880	20M QPSK(1,49)	0.138	0.079	-3.99	24.02	24.50	0.154	2022/8/26	
Bottom Side	18900/1880	20M QPSK(1,49)	0.230	0.129	-0.20	24.02	24.50	0.257	2022/8/26	
50%RB										
Front Side	18900/1880	20M QPSK(50,24)	0.145	0.084	2.51	23.06	23.50	0.160	2022/8/26	
Back Side	18900/1880	20M QPSK(50,24)	0.240	0.147	1.01	23.06	23.50	0.266	2022/8/26	
Left Side	18900/1880	20M QPSK(50,24)	0.075	0.047	-0.85	23.06	23.50	0.083	2022/8/26	
Bottom Side	18900/1880	20M QPSK(50,24)	0.132	0.069	4.26	23.06	23.50	0.146	2022/8/26	

NOTE: Hotspot SAR test results of LTE Band 2

10.1.9. 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)	0.758	0.445	-1.59	24.06	24.50	0.839	2022/9/02	23#
Left Tilt 15 Degree	20175/1732.5	20M QPSK(1,49)	0.400	0.230	-3.69	24.06	24.50	0.443	2022/9/02	
Right Cheek	20175/1732.5	20M QPSK(1,49)	0.681	0.400	-1.73	24.06	24.50	0.754	2022/9/02	
Right Tilt 15 Degree	20175/1732.5	20M QPSK(1,49)	0.374	0.209	2.95	24.06	24.50	0.414	2022/9/02	
Left Cheek	20050/1720	20M QPSK(1,49)	0.644	0.374	-1.31	23.92	24.50	0.736	2022/9/02	
Left Cheek	20300/1745	20M QPSK(1,49)	0.667	0.380	3.38	23.88	24.50	0.769	2022/9/02	
50%RB										
Left Cheek	20175/1732.5	20M QPSK(50,49)	0.411	0.230	-0.89	23.01	23.50	0.460	2022/9/02	
Left Tilt 15 Degree	20175/1732.5	20M QPSK(50,49)	0.217	0.134	-1.65	23.01	23.50	0.243	2022/9/02	
Right Cheek	20175/1732.5	20M QPSK(50,49)	0.393	0.231	3.42	23.01	23.50	0.440	2022/9/02	
Right Tilt 15 Degree	20175/1732.5	20M QPSK(50,49)	0.205	0.120	-0.75	23.01	23.50	0.229	2022/9/02	
100%RB										
Left Cheek	20175/1732.5	20M QPSK(100,0)	0.388	0.203	1.20	22.98	23.00	0.390	2022/9/02	

NOTE: Head SAR test results of LTE Band 4

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	20175/1732.5	20M QPSK(1,49)	0.138	0.085	-2.35	24.06	24.50	0.153	2022/9/02	
Back Side	20175/1732.5	20M QPSK(1,49)	0.224	0.139	-0.52	24.06	24.50	0.248	2022/9/02	24#
50%RB										
Front Side	20175/1732.5	20M QPSK(50,49)	0.081	0.045	-3.97	23.01	23.50	0.091	2022/9/02	
Back Side	20175/1732.5	20M QPSK(50,49)	0.127	0.073	1.13	23.01	23.50	0.142	2022/9/02	

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)	0.138	0.085	-2.35	24.06	24.50	0.153	2022/9/02	
Back Side	20175/1732.5	20M QPSK(1,49)	0.224	0.139	-0.52	24.06	24.50	0.248	2022/9/02	24#
Left Side	20175/1732.5	20M QPSK(1,49)	0.069	0.043	-2.56	24.06	24.50	0.076	2022/9/02	
Bottom Side	20175/1732.5	20M QPSK(1,49)	0.125	0.076	3.92	24.06	24.50	0.138	2022/9/02	
50%RB										
Front Side	20175/1732.5	20M QPSK(50,49)	0.081	0.045	-3.97	23.01	23.50	0.091	2022/9/02	
Back Side	20175/1732.5	20M QPSK(50,49)	0.127	0.073	1.13	23.01	23.50	0.142	2022/9/02	
Left Side	20175/1732.5	20M QPSK(50,49)	0.039	0.025	0.89	23.01	23.50	0.044	2022/9/02	
Bottom Side	20175/1732.5	20M QPSK(50,49)	0.072	0.040	-1.37	23.01	23.50	0.081	2022/9/02	

NOTE: Hotspot SAR test results of LTE Band 4

10.1.10. 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)	0.890	0.524	0.20	23.67	24.00	0.960	2022/9/12	
Left Tilt 15	20525/836.5	10M	0.535	0.293	-2.51	23.67	24.00	0.577	2022/9/12	

Degree		QPSK(1,24)								
Right Cheek	20525/836.5	10M QPSK(1,24)	0.822	0.436	-2.33	23.67	24.00	0.887	2022/9/12	
Right Tilt 15 Degree	20525/836.5	10M QPSK(1,24)	0.378	0.203	2.22	23.67	24.00	0.408	2022/9/12	
Left Cheek	20450/829	10M QPSK(1,24)	0.905	0.540	-0.07	23.48	24.00	1.020	2022/9/12	25#
Left Cheek Repeated	20450/829	10M QPSK(1,24)	0.897	0.535	1.20	23.48	24.00	1.011	2022/9/12	
Left Cheek	20600/844	10M QPSK(1,24)	0.886	0.521	0.29	23.50	24.00	0.994	2022/9/12	
50%RB										
Left Cheek	20525/836.5	10M QPSK(25,12)	0.483	0.290	-2.18	22.63	23.00	0.526	2022/9/12	
Left Tilt 15 Degree	20525/836.5	10M QPSK(25,12)	0.316	0.170	4.49	22.63	23.00	0.344	2022/9/12	
Right Cheek	20525/836.5	10M QPSK(25,12)	0.422	0.251	-4.96	22.63	23.00	0.460	2022/9/12	
Right Tilt 15 Degree	20525/836.5	10M QPSK(25,12)	0.218	0.116	-0.04	22.63	23.00	0.237	2022/9/12	
50%RB										
Left Cheek	20525/836.5	10M QPSK(50,0)	0.452	0.274	1.30	22.56	23.00	0.500	2022/9/12	

NOTE: Head SAR test results of LTE Band 5

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	20525/836.5	10M QPSK(1,24)	0.090	0.065	2.52	23.67	24.00	0.097	2022/9/12	
Back Side	20525/836.5	10M QPSK(1,24)	0.130	0.098	4.27	23.67	24.00	0.140	2022/9/12	26#
50%RB										
Front Side	20525/836.5	10M QPSK(25,12)	0.052	0.034	2.47	22.63	23.00	0.057	2022/9/12	
Back Side	20525/836.5	10M QPSK(25,12)	0.076	0.058	-0.20	22.63	23.00	0.083	2022/9/12	

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)	0.090	0.065	2.52	23.67	24.00	0.097	2022/9/12	
Back Side	20525/836.5	10M QPSK(1,24)	0.130	0.098	4.27	23.67	24.00	0.140	2022/9/12	26#
Left Side	20525/836.5	10M QPSK(1,24)	0.045	0.033	-0.12	23.67	24.00	0.049	2022/9/12	
Bottom Side	20525/836.5	10M QPSK(1,24)	0.090	0.066	-0.20	23.67	24.00	0.097	2022/9/12	
50%RB										
Front Side	20525/836.5	10M QPSK(25,12)	0.052	0.034	2.47	22.63	23.00	0.057	2022/9/12	

Back Side	20525/836.5	10M QPSK(25,12)	0.076	0.058	-0.20	22.63	23.00	0.083	2022/9/12	
Left Side	20525/836.5	10M QPSK(25,12)	0.027	0.020	1.60	22.63	23.00	0.029	2022/9/12	
Bottom Side	20525/836.5	10M QPSK(25,12)	0.053	0.036	-3.31	22.63	23.00	0.058	2022/9/12	

NOTE: Hotspot SAR test results of LTE Band 5

10.1.11. 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)	0.719	0.322	-1.25	24.42	24.50	0.732	2022/9/06	27#
Left Tilt 15 Degree	21100/2535	20M QPSK(1,49)	0.369	0.159	1.23	24.42	24.50	0.376	2022/9/06	
Right Cheek	21100/2535	20M QPSK(1,49)	0.638	0.286	2.70	24.42	24.50	0.650	2022/9/06	
Right Tilt 15 Degree	21100/2535	20M QPSK(1,49)	0.331	0.144	1.62	24.42	24.50	0.337	2022/9/06	
50%RB										
Left Cheek	21100/2535	20M QPSK(50,24)	0.415	0.177	3.82	23.45	23.50	0.420	2022/9/06	
Left Tilt 15 Degree	21100/2535	20M QPSK(50,24)	0.219	0.093	4.64	23.45	23.50	0.222	2022/9/06	
Right Cheek	21100/2535	20M QPSK(50,24)	0.339	0.158	2.82	23.45	23.50	0.343	2022/9/06	
Right Tilt 15 Degree	21100/2535	20M QPSK(50,24)	0.194	0.081	1.74	23.45	23.50	0.196	2022/9/06	

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)	0.360	0.184	-0.12	24.42	24.50	0.367	2022/9/06	
Back Side	21100/2535	20M QPSK(1,49)	0.571	0.294	-3.21	24.42	24.50	0.582	2022/9/06	28#
50%RB										
Front Side	21100/2535	20M QPSK(50,24)	0.182	0.099	-3.30	23.45	23.50	0.184	2022/9/06	
Back Side	21100/2535	20M QPSK(50,24)	0.337	0.165	-3.45	23.45	23.50	0.341	2022/9/06	

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

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

10mm								(W/Kg)		
1RB										
Front Side	21100/2535	20M QPSK(1,49)	0.360	0.184	-0.12	24.42	24.50	0.367	2022/9/06	
Back Side	21100/2535	20M QPSK(1,49)	0.571	0.294	-3.21	24.42	24.50	0.582	2022/9/06	28#
Left Side	21100/2535	20M QPSK(1,49)	0.177	0.087	1.97	24.42	24.50	0.180	2022/9/06	
Bottom Side	21100/2535	20M QPSK(1,49)	0.300	0.153	-1.75	24.42	24.50	0.306	2022/9/06	
50%RB										
Front Side	21100/2535	20M QPSK(50,24)	0.182	0.099	-3.30	23.45	23.50	0.184	2022/9/06	
Back Side	21100/2535	20M QPSK(50,24)	0.337	0.165	-3.45	23.45	23.50	0.341	2022/9/06	
Left Side	21100/2535	20M QPSK(50,24)	0.101	0.048	3.73	23.45	23.50	0.102	2022/9/06	
Bottom Side	21100/2535	20M QPSK(50,24)	0.173	0.092	-2.82	23.45	23.50	0.175	2022/9/06	

NOTE: Hotspot SAR test results of LTE Band 7

10.1.12. 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(1,0)	0.673	0.384	0.25	23.56	24.00	0.745	2022/9/01	29#
Left Tilt 15 Degree	23095/707.5	10M QPSK(1,0)	0.383	0.216	-0.62	23.56	24.00	0.424	2022/9/01	
Right Cheek	23095/707.5	10M QPSK(1,0)	0.578	0.330	1.41	23.56	24.00	0.640	2022/9/01	
Right Tilt 15 Degree	23095/707.5	10M QPSK(1,0)	0.291	0.163	-1.10	23.56	24.00	0.322	2022/9/01	
50%RB										
Left Cheek	23095/707.5	10M QPSK(25,12)	0.398	0.216	-2.64	22.60	23.00	0.436	2022/9/01	
Left Tilt 15 Degree	23095/707.5	10M QPSK(25,12)	0.213	0.126	2.85	22.60	23.00	0.234	2022/9/01	
Right Cheek	23095/707.5	10M QPSK(25,12)	0.320	0.197	4.97	22.60	23.00	0.351	2022/9/01	
Right Tilt 15 Degree	23095/707.5	10M QPSK(25,12)	0.147	0.083	-2.20	22.60	23.00	0.161	2022/9/01	

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(1,0)	0.096	0.072	3.00	23.56	24.00	0.106	2022/9/01	

Back Side	23095/707.5	10M QPSK(1,0)	0.160	0.127	0.18	23.56	24.00	0.177	2022/9/01	30#
50%RB										
Front Side	23095/707.5	10M QPSK(25,12)	0.056	0.039	4.92	22.60	23.00	0.061	2022/9/01	
Back Side	23095/707.5	10M QPSK(25,12)	0.084	0.067	0.02	22.60	23.00	0.092	2022/9/01	

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(1,0)	0.096	0.072	3.00	23.56	24.00	0.106	2022/9/01	
Back Side	23095/707.5	10M QPSK(1,0)	0.160	0.127	0.18	23.56	24.00	0.177	2022/9/01	30#
Left Side	23095/707.5	10M QPSK(1,0)	0.054	0.041	-0.65	23.56	24.00	0.060	2022/9/01	
Bottom Side	23095/707.5	10M QPSK(1,0)	0.080	0.060	3.06	23.56	24.00	0.089	2022/9/01	
50%RB										
Front Side	23095/707.5	10M QPSK(25,12)	0.056	0.039	4.92	22.60	23.00	0.061	2022/9/01	
Back Side	23095/707.5	10M QPSK(25,12)	0.084	0.067	0.02	22.60	23.00	0.092	2022/9/01	
Left Side	23095/707.5	10M QPSK(25,12)	0.030	0.024	-0.36	22.60	23.00	0.033	2022/9/01	
Bottom Side	23095/707.5	10M QPSK(25,12)	0.044	0.034	4.85	22.60	23.00	0.048	2022/9/01	

NOTE: Hotspot SAR test results of LTE Band 12

10.1.13. 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(1,0)	0.543	0.321	-1.11	23.59	24.00	0.597	2022/9/01	31#
Left Tilt 15 Degree	23790/710	10M QPSK(1,0)	0.274	0.155	-3.71	23.59	24.00	0.301	2022/9/01	
Right Cheek	23790/710	10M QPSK(1,0)	0.474	0.272	-1.20	23.59	24.00	0.521	2022/9/01	
Right Tilt 15 Degree	23790/710	10M QPSK(1,0)	0.217	0.122	-1.95	23.59	24.00	0.238	2022/9/01	
50%RB										
Left Cheek	23790/710	10M QPSK(25,12)	0.296	0.191	-1.66	22.65	23.00	0.321	2022/9/01	
Left Tilt 15 Degree	23790/710	10M QPSK(25,12)	0.162	0.078	-4.16	22.65	23.00	0.176	2022/9/01	
Right Cheek	23790/710	10M QPSK(25,12)	0.247	0.146	-1.10	22.65	23.00	0.268	2022/9/01	
Right Tilt 15 Degree	23790/710	10M QPSK(25,12)	0.109	0.061	1.62	22.65	23.00	0.118	2022/9/01	

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(1,0)	0.120	0.097	-3.94	23.59	24.00	0.132	2022/9/01	
Back Side	23790/710	10M QPSK(1,0)	0.159	0.128	-0.10	23.59	24.00	0.175	2022/9/01	32#
50%RB										
Front Side	23790/710	10M QPSK(25,12)	0.067	0.053	-4.26	22.65	23.00	0.073	2022/9/01	
Back Side	23790/710	10M QPSK(25,12)	0.085	0.076	1.92	22.65	23.00	0.092	2022/9/01	

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(1,0)	0.120	0.097	-3.94	23.59	24.00	0.132	2022/9/01	
Back Side	23790/710	10M QPSK(1,0)	0.159	0.128	-0.10	23.59	24.00	0.175	2022/9/01	32#
Left Side	23790/710	10M QPSK(1,0)	0.057	0.045	3.46	23.59	24.00	0.063	2022/9/01	
Bottom Side	23790/710	10M QPSK(1,0)	0.080	0.064	1.27	23.59	24.00	0.088	2022/9/01	
50%RB										
Front Side	23790/710	10M QPSK(25,12)	0.067	0.053	-4.26	22.65	23.00	0.073	2022/9/01	
Back Side	23790/710	10M QPSK(25,12)	0.085	0.076	1.92	22.65	23.00	0.092	2022/9/01	
Left Side	23790/710	10M QPSK(25,12)	0.034	0.024	2.55	22.65	23.00	0.037	2022/9/01	
Bottom Side	23790/710	10M QPSK(25,12)	0.042	0.036	-0.57	22.65	23.00	0.046	2022/9/01	

NOTE: Hotspot SAR test results of LTE Band 17

10.1.14. SAR measurement Result of LTE Band 41

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	40640/2595	20M QPSK(1,49)	0.232	0.121	-2.43	24.24	24.50	0.246	2022/9/6	33#
Left Tilt 15	40640/2595	20M	0.123	0.061	2.38	24.24	24.50	0.131	2022/9/6	

Degree		QPSK(1,49)								
Right Cheek	40640/2595	20M QPSK(1,49)	0.214	0.112	3.36	24.24	24.50	0.227	2022/9/6	
Right Tilt 15 Degree	40640/2595	20M QPSK(1,49)	0.110	0.055	1.99	24.24	24.50	0.117	2022/9/6	
50%RB										
Left Cheek	40640/2595	20M QPSK(50,24)	0.121	0.062	-2.71	23.29	24.00	0.142	2022/9/6	
Left Tilt 15 Degree	40640/2595	20M QPSK(50,24)	0.065	0.031	2.49	23.29	24.00	0.077	2022/9/6	
Right Cheek	40640/2595	20M QPSK(50,24)	0.110	0.064	-4.86	23.29	24.00	0.130	2022/9/6	
Right Tilt 15 Degree	40640/2595	20M QPSK(50,24)	0.065	0.032	-4.32	23.29	24.00	0.077	2022/9/6	

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	40640/2595	20M QPSK(1,49)	0.312	0.142	-2.22	24.24	24.50	0.331	2022/9/6	
Back Side	40640/2595	20M QPSK(1,49)	0.490	0.234	0.82	24.24	24.50	0.520	2022/9/6	34#
50%RB										
Front Side	40640/2595	20M QPSK(50,24)	0.167	0.077	3.84	23.29	24.00	0.197	2022/9/6	
Back Side	40640/2595	20M QPSK(50,24)	0.292	0.139	-1.42	23.29	24.00	0.344	2022/9/6	

NOTE: Body-Worn SAR test results of LTE Band 41

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	40640/2595	20M QPSK(1,49)	0.312	0.142	-2.22	24.24	24.50	0.331	2022/9/6	
Back Side	40640/2595	20M QPSK(1,49)	0.490	0.234	0.82	24.24	24.50	0.520	2022/9/6	34#
Left Side	40640/2595	20M QPSK(1,49)	0.162	0.077	3.62	24.24	24.50	0.172	2022/9/6	
Bottom Side	40640/2595	20M QPSK(1,49)	0.270	0.128	-2.80	24.24	24.50	0.287	2022/9/6	
50%RB										
Front Side	40640/2595	20M QPSK(50,24)	0.167	0.077	3.84	23.29	24.00	0.197	2022/9/6	
Back Side	40640/2595	20M QPSK(50,24)	0.292	0.139	-1.42	23.29	24.00	0.344	2022/9/6	
Left Side	40640/2595	20M QPSK(50,24)	0.081	0.044	0.10	23.29	24.00	0.095	2022/9/6	
Bottom Side	40640/2595	20M QPSK(50,24)	0.155	0.064	-4.76	23.29	24.00	0.183	2022/9/6	

NOTE: Hotspot SAR test results of LTE Band 41

10.1.15. SAR measurement Result of WLAN 2.4G

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	0.396	0.203	0.40	16.34	16.50	0.411	2022/9/07	19#
Left Tilt 15 Degree	1/2412	802.11b	0.220	0.108	-2.88	16.34	16.50	0.228	2022/9/07	
Right Cheek	1/2412	802.11b	0.370	0.188	1.50	16.34	16.50	0.384	2022/9/07	
Right Tilt 15 Degree	1/2412	802.11b	0.202	0.104	2.56	16.34	16.50	0.210	2022/9/07	

NOTE: Head SAR test results of WLAN 2.4G

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	0.096	0.048	-1.99	16.34	16.50	0.100	2022/9/07	
Back Side	1/2412	802.11b	0.132	0.069	-1.09	16.34	16.50	0.137	2022/9/07	20#

NOTE: Body-Worn SAR test results of WLAN 2.4G

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	0.096	0.048	-1.99	16.34	16.50	0.100	2022/9/07	
Back Side	1/2412	802.11b	0.132	0.069	-1.09	16.34	16.50	0.137	2022/9/07	20#
Right Side	1/2412	802.11b	0.042	0.022	-0.16	16.34	16.50	0.044	2022/9/07	
Top Side	1/2412	802.11b	0.045	0.023	3.44	16.34	16.50	0.047	2022/9/07	

NOTE: Hotspot SAR test results of WLAN 2.4G

10.1.16. 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	42/5210	802.11ac VHT80	0.505	0.168	0.53	9.875	10.000	0.520	2022/8/31	15#
Left Tilt 15 Degree	42/5210	802.11ac VHT80	0.285	0.095	1.71	9.875	10.000	0.293	2022/8/31	
Right Cheek	42/5210	802.11ac VHT80	0.430	0.136	2.34	9.875	10.000	0.443	2022/8/31	
Right Tilt 15 Degree	42/5210	802.11ac VHT80	0.236	0.075	0.26	9.875	10.000	0.243	2022/8/31	

NOTE: Head SAR test results of WLAN 5.2G

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	42/5210	802.11ac VHT80	0.240	0.101	0.06	9.875	10.000	0.247	2022/8/31	
Back Side	42/5210	802.11ac VHT80	0.363	0.161	1.57	9.875	10.000	0.374	2022/8/31	17#

NOTE: Body-Worn SAR test results of WLAN 5.2G

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	42/5210	802.11ac VHT80	0.240	0.101	0.06	9.875	10.000	0.247	2022/8/31	
Back Side	42/5210	802.11ac VHT80	0.363	0.161	1.57	9.875	10.000	0.374	2022/8/31	17#
Right Side	42/5210	802.11ac VHT80	0.117	0.052	-0.16	9.875	10.000	0.120	2022/8/31	
Top Side	42/5210	802.11ac VHT80	0.111	0.047	0.72	9.875	10.000	0.114	2022/8/31	

NOTE: Hotspot SAR test results of WLAN 5.2G

10.1.17. 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	155/5775	802.11ac VHT80	0.514	0.184	-0.93	10.127	10.500	0.560	2022/8/29	16#
Left Tilt 15 Degree	155/5775	802.11ac VHT80	0.304	0.104	-1.03	10.127	10.500	0.331	2022/8/29	
Right Cheek	155/5775	802.11ac VHT80	0.444	0.159	-2.55	10.127	10.500	0.484	2022/8/29	
Right Tilt 15 Degree	155/5775	802.11ac VHT80	0.223	0.078	1.81	10.127	10.500	0.243	2022/8/29	

NOTE: Head SAR test results of WLAN 5.8G

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	155/5775	802.11ac VHT80	0.078	0.052	2.56	10.127	10.500	0.085	2022/8/29	
Back Side	155/5775	802.11ac VHT80	0.099	0.067	0.26	10.127	10.500	0.108	2022/8/29	18#

NOTE: Body-Worn SAR test results of WLAN 5.8G

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	155/5775	802.11ac VHT80	0.078	0.052	2.56	10.127	10.500	0.085	2022/8/29	
Back Side	155/5775	802.11ac VHT80	0.099	0.067	0.26	10.127	10.500	0.108	2022/8/29	18#
Right Side	155/5775	802.11ac VHT80	0.033	0.022	3.15	10.127	10.500	0.036	2022/8/29	
Top Side	155/5775	802.11ac VHT80	0.039	0.026	2.41	10.127	10.500	0.042	2022/8/29	

NOTE: Hotspot SAR test results of WLAN 5.8G

10.2. Simultaneous Transmission Analysis

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

- 1) Scalar SAR summation < 1.6W/kg.
- 2) $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$, 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	1.020	0.411	1.431	N/A	N/A
	Left Tilt 15 Degree	0.577	0.228	0.805	N/A	N/A
	Right Cheek	0.887	0.384	1.271	N/A	N/A
	Right Tilt 15 Degree	0.433	0.210	0.643	N/A	N/A
Body-Worn	Front Side	0.467	0.100	0.567	N/A	N/A
	Back Side	0.728	0.137	0.865	N/A	N/A
Hotspot	Front Side	0.467	0.100	0.567	N/A	N/A
	Back Side	0.728	0.137	0.865	N/A	N/A
	Left Side	0.220	N/A	0.220	N/A	N/A
	Right Side	N/A	0.044	0.044	N/A	N/A
	Top Side	N/A	0.047	0.047	N/A	N/A
	Bottom Side	0.367	N/A	0.367	N/A	N/A

Test Position	Scaled SAR _{MAX}		Σ 1-g SAR (W/Kg)	SPLSR	Remark
	WWAN	NII			

Head	Left Cheek	1.020	0.560	1.580	N/A	N/A
	Left Tilt 15 Degree	0.577	0.331	0.908	N/A	N/A
	Right Cheek	0.887	0.484	1.371	N/A	N/A
	Right Tilt 15 Degree	0.433	0.243	0.676	N/A	N/A
Body-Worn	Front Side	0.467	0.247	0.714	N/A	N/A
	Back Side	0.728	0.374	1.102	N/A	N/A
Hotspot	Front Side	0.467	0.247	0.714	N/A	N/A
	Back Side	0.728	0.374	1.102	N/A	N/A
	Left Side	0.220	N/A	0.220	N/A	N/A
	Right Side	N/A	0.120	0.120	N/A	N/A
	Top Side	N/A	0.114	0.114	N/A	N/A
	Bottom Side	0.367	N/A	0.367	N/A	N/A

Test Position		Scaled SAR _{MAX}		Σ 1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DSS			
Head	Left Cheek	1.020	0.167	1.187	N/A	N/A
	Left Tilt 15 Degree	0.577	0.167	0.744	N/A	N/A
	Right Cheek	0.887	0.167	1.054	N/A	N/A
	Right Tilt 15 Degree	0.433	0.167	0.600	N/A	N/A
Body-Worn	Front Side	0.467	0.084	0.551	N/A	N/A
	Back Side	0.728	0.084	0.812	N/A	N/A
Hotspot	Front Side	0.467	0.084	0.551	N/A	N/A
	Back Side	0.728	0.084	0.812	N/A	N/A
	Left Side	0.220	N/A	0.220	N/A	N/A
	Right Side	N/A	0.084	0.084	N/A	N/A
	Top Side	N/A	0.084	0.084	N/A	N/A
	Bottom Side	0.367	N/A	0.367	N/A	N/A

11. Appendix A. Photo documentation

Refer to appendix Test Setup photo---SAR

12. Appendix B. System Check Plots

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MEASUREMENT 6 System Performance Check - 2600MHz
MEASUREMENT 7 System Performance Check - 5200MHz
MEASUREMENT 8 System Performance Check - 5800MHz

MEASUREMENT 1

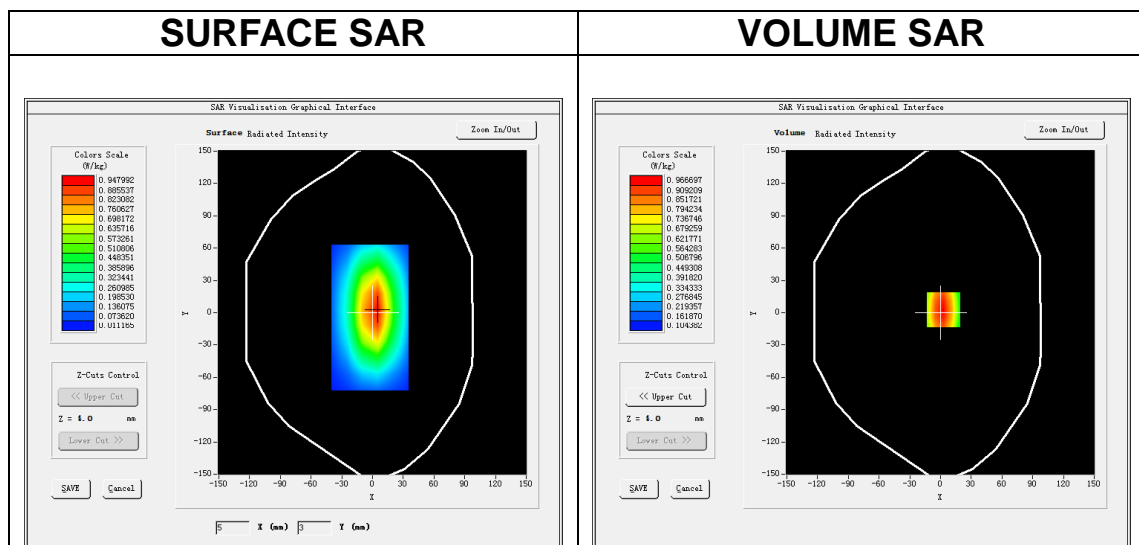
Date of measurement: 1/9/2022

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>CW750</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>1.49</u>

B. SAR Measurement Results

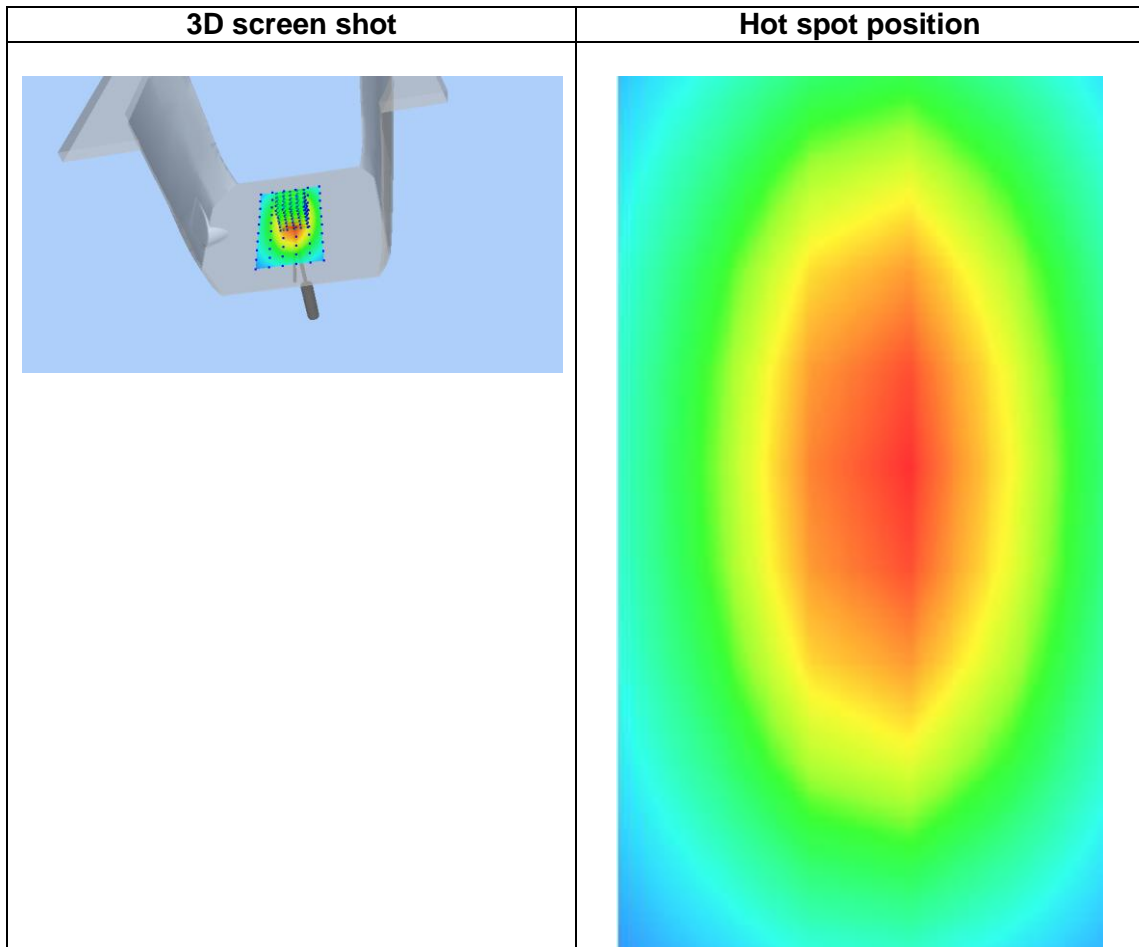
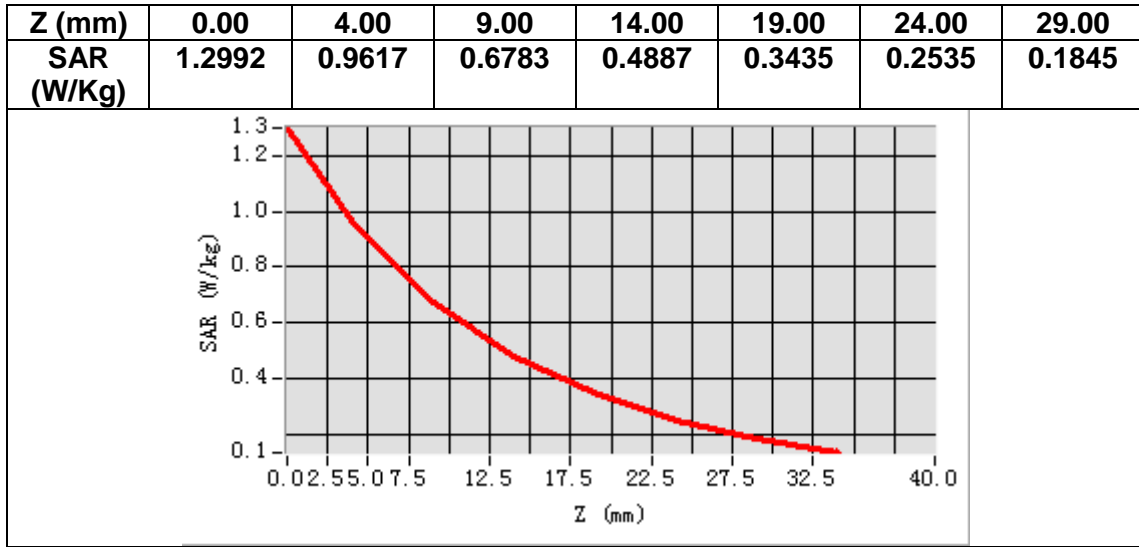
Frequency (MHz)	750.000000
Relative permittivity (real part)	40.129713
Relative permittivity (imaginary part)	21.396098
Conductivity (S/m)	0.891504
Variation (%)	2.730000



Maximum location: X=3.00, Y=3.00

SAR Peak: 1.30 W/kg

SAR 10g (W/Kg)	0.570332
SAR 1g (W/Kg)	0.794321



MEASUREMENT 2

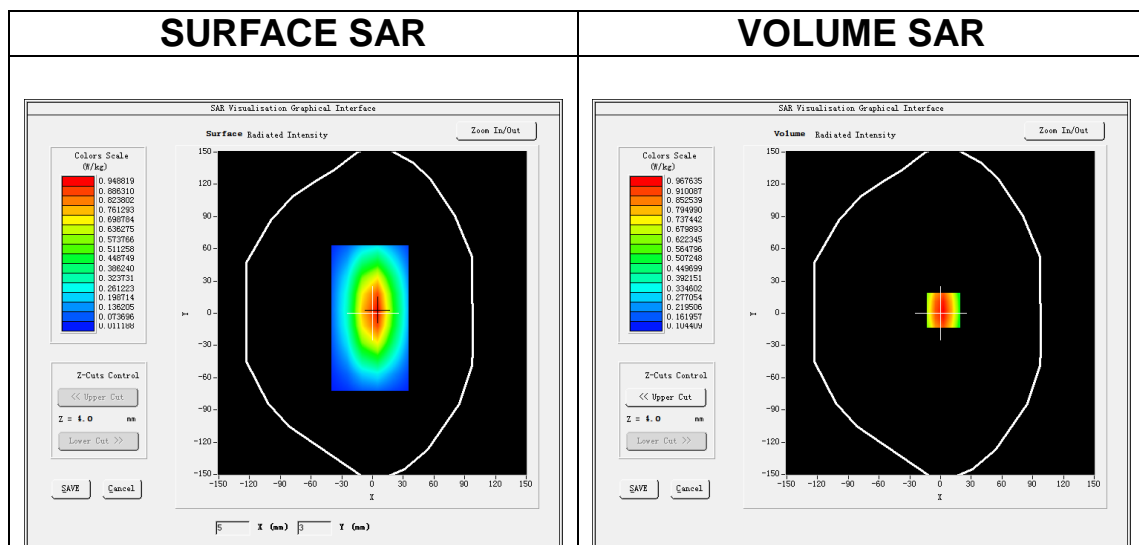
Date of measurement: 12/9/2022

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

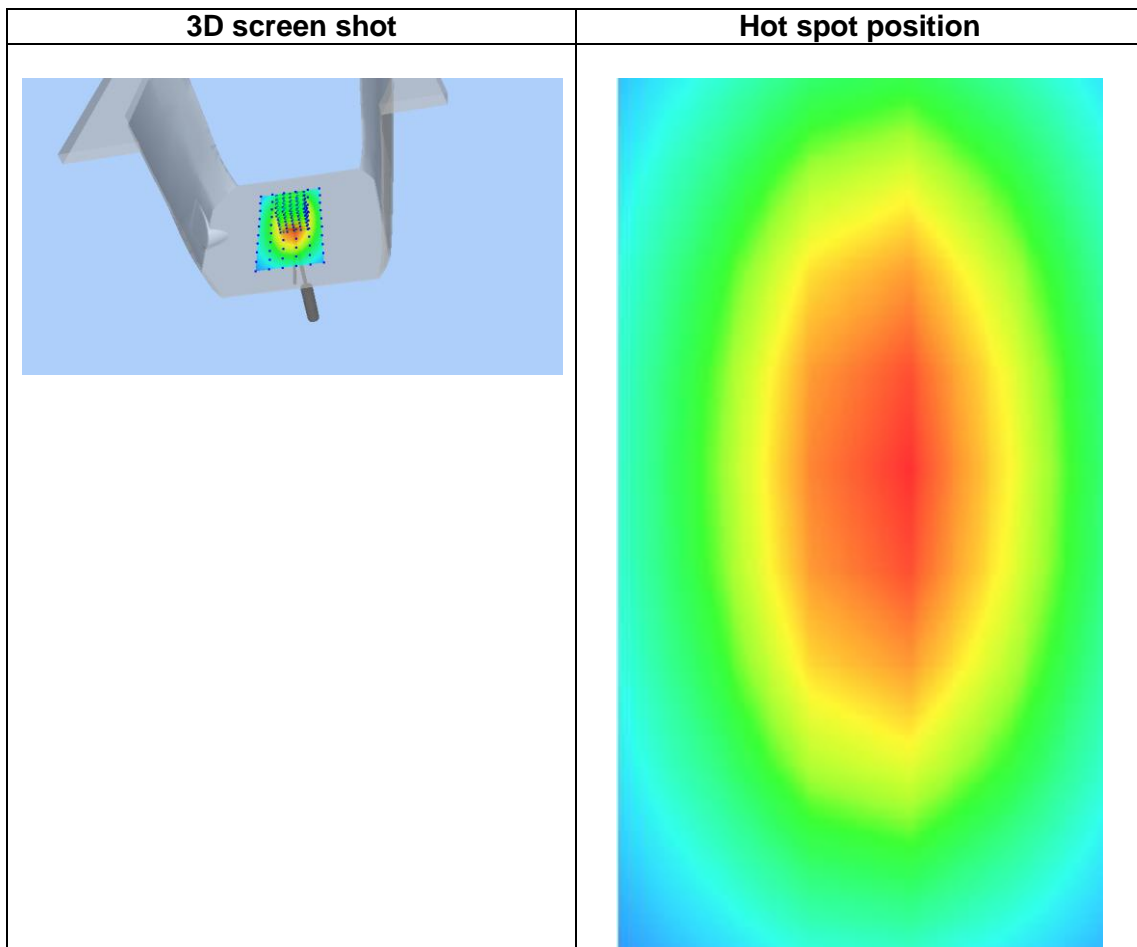
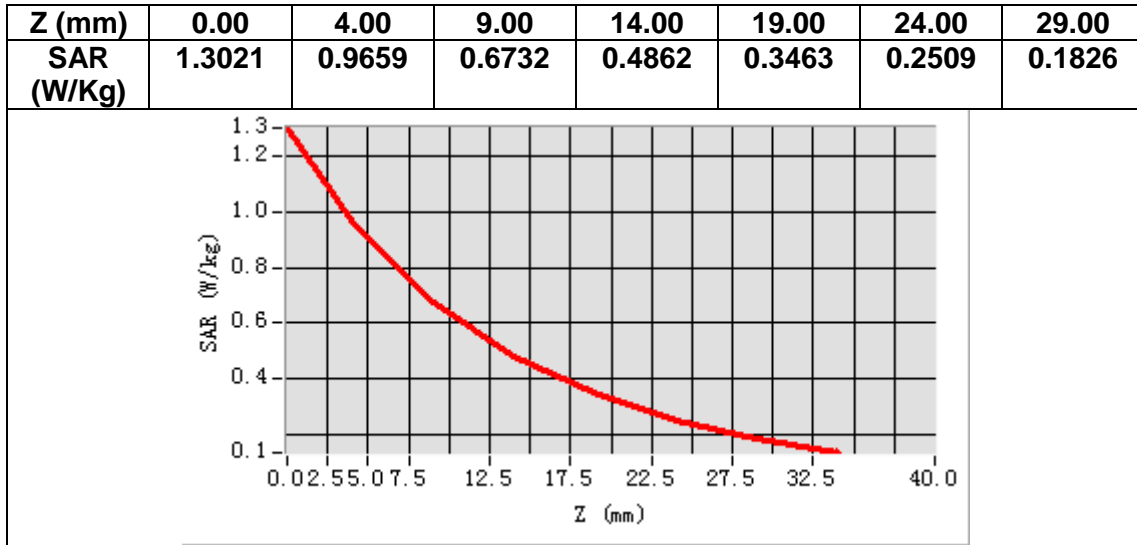
Frequency (MHz)	835.000000
Relative permittivity (real part)	41.503672
Relative permittivity (imaginary part)	20.044007
Conductivity (S/m)	0.929819
Variation (%)	-2.720000



Maximum location: X=3.00, Y=3.00

SAR Peak: 1.30 W/kg

SAR 10g (W/Kg)	0.597333
SAR 1g (W/Kg)	1.020172



MEASUREMENT 3

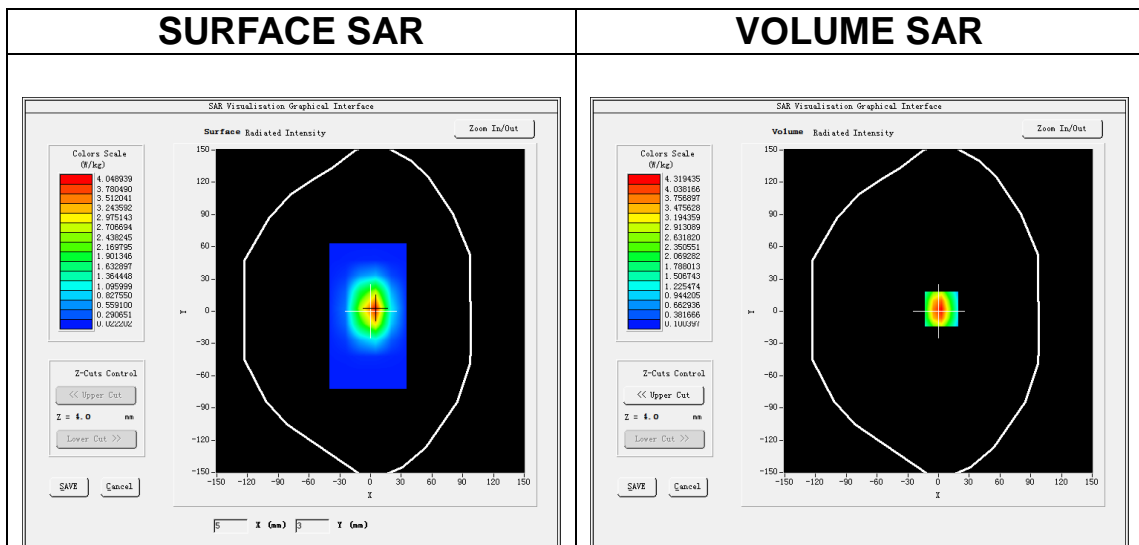
Date of measurement: 2/9/2022

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>CW1800</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>1.73</u>

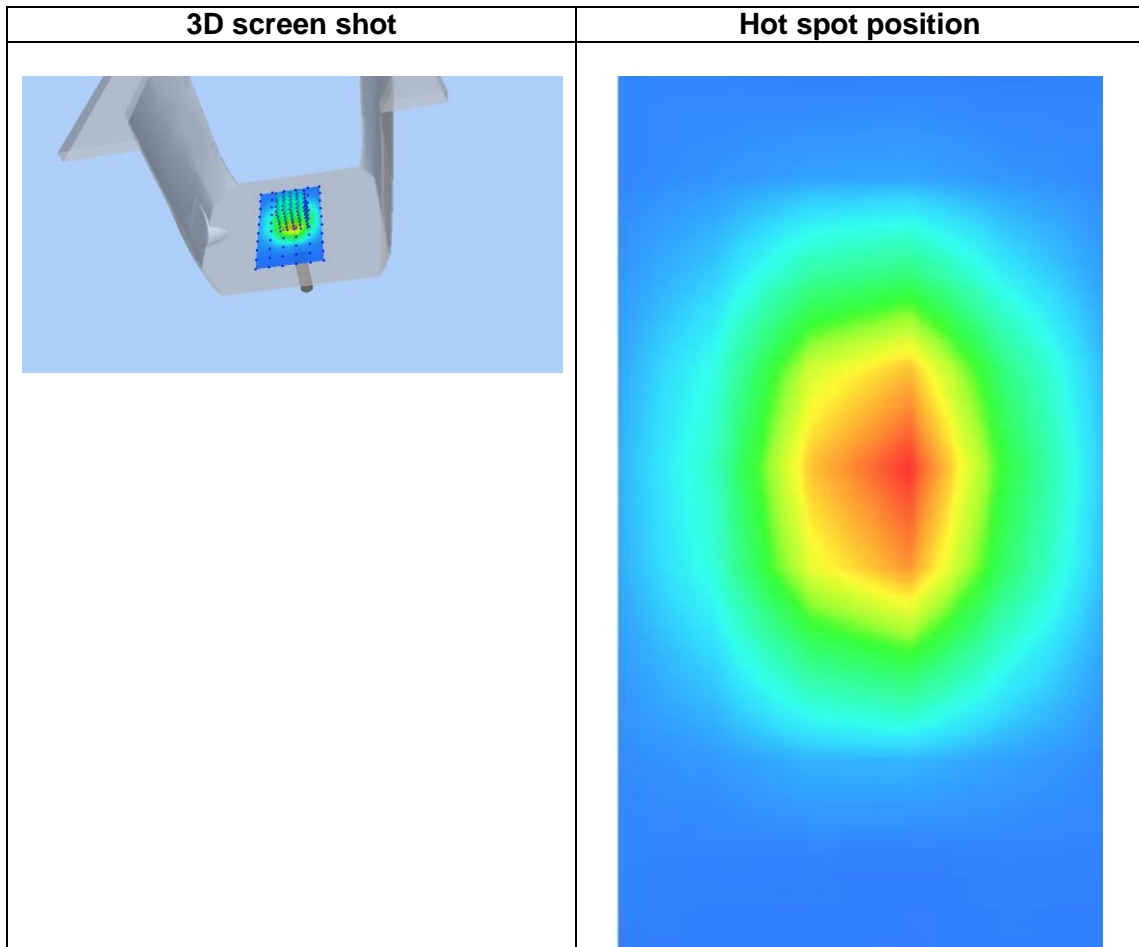
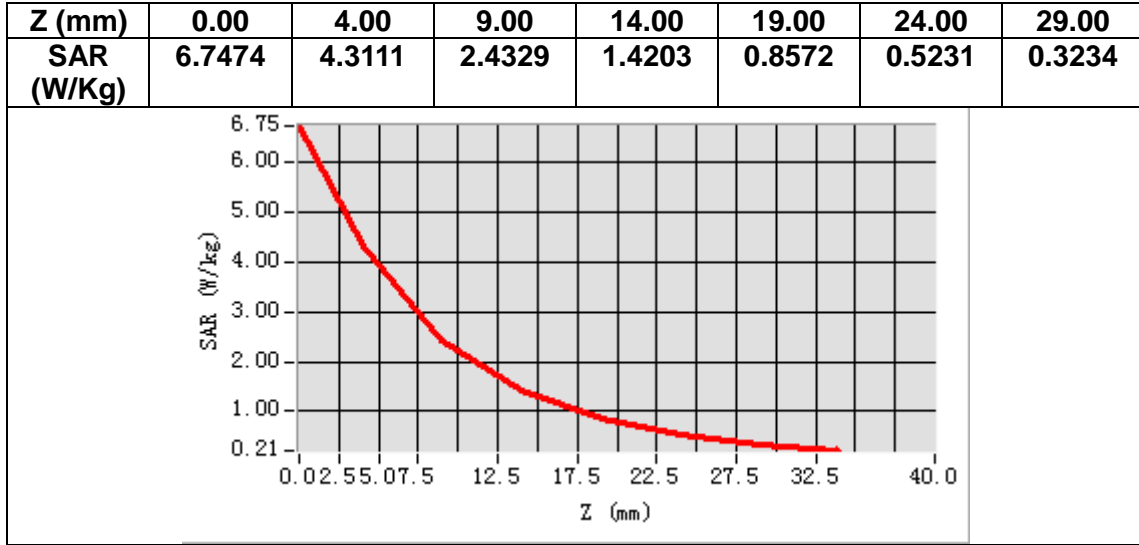
B. SAR Measurement Results

Frequency (MHz)	1800.000000
Relative permittivity (real part)	38.607277
Relative permittivity (imaginary part)	13.969599
Conductivity (S/m)	1.396960
Variation (%)	2.980000



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

SAR 10g (W/Kg)	2.110307
SAR 1g (W/Kg)	4.117066



MEASUREMENT 4

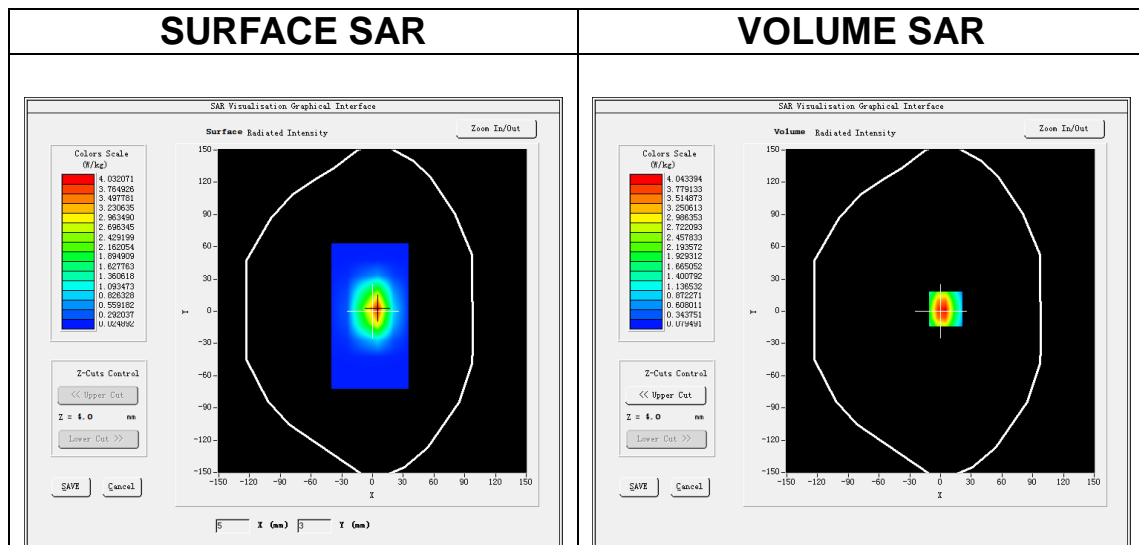
Date of measurement: 26/8/2022

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

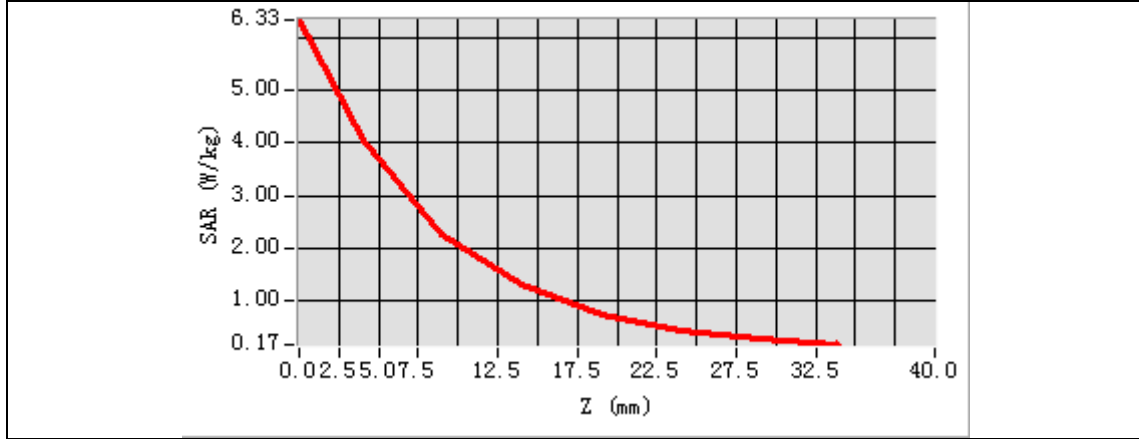
Frequency (MHz)	1900.000000
Relative permittivity (real part)	38.311252
Relative permittivity (imaginary part)	13.788911
Conductivity (S/m)	1.455496
Variation (%)	2.220000

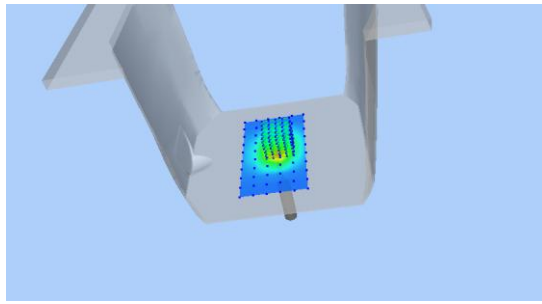
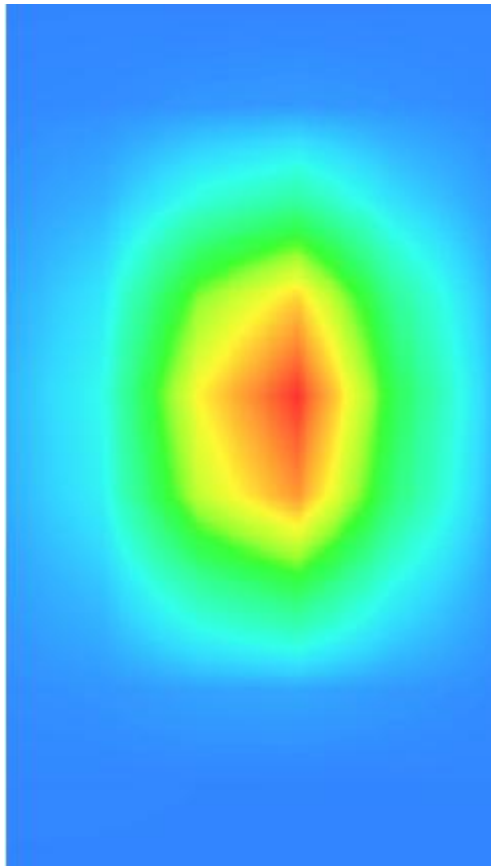


Maximum location: X=5.00, Y=2.00
SAR Peak: 6.70 W/kg

SAR 10g (W/Kg)	2.126347
SAR 1g (W/Kg)	3.730221

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.3247	4.0419	2.2630	1.3026	0.7618	0.4514	0.2794



3D screen shot	Hot spot position
	

MEASUREMENT 5

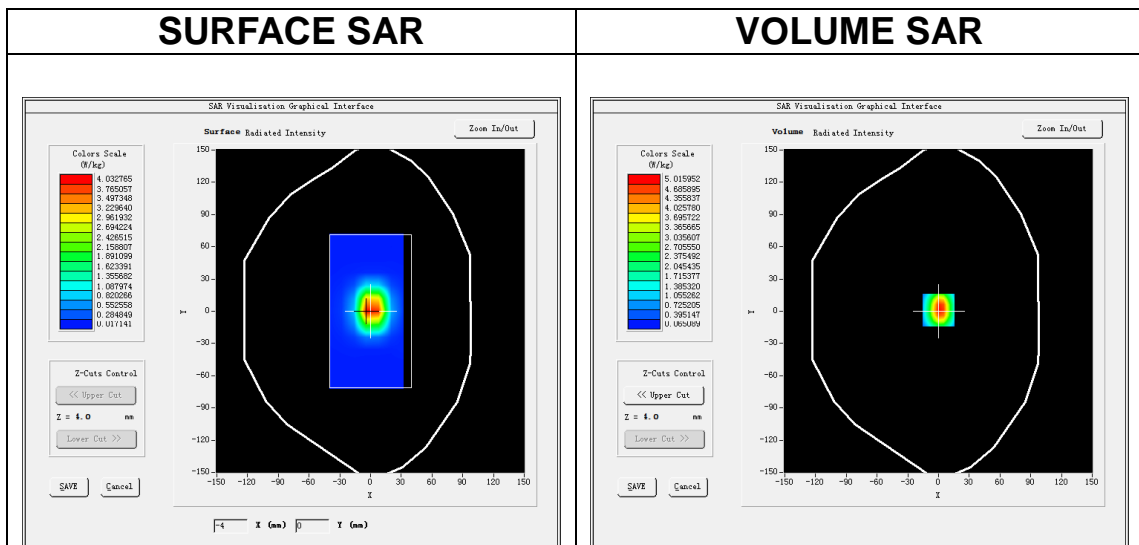
Date of measurement: 7/9/2022

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>

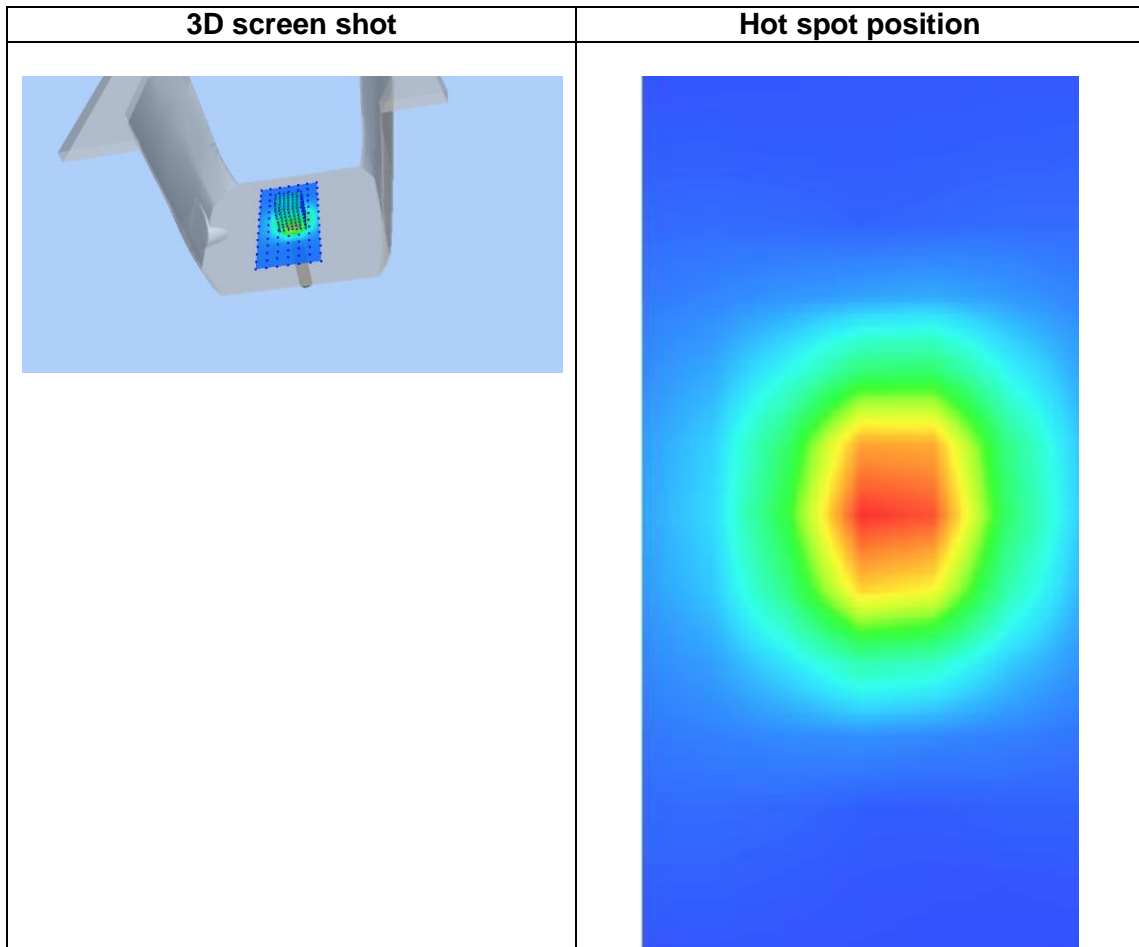
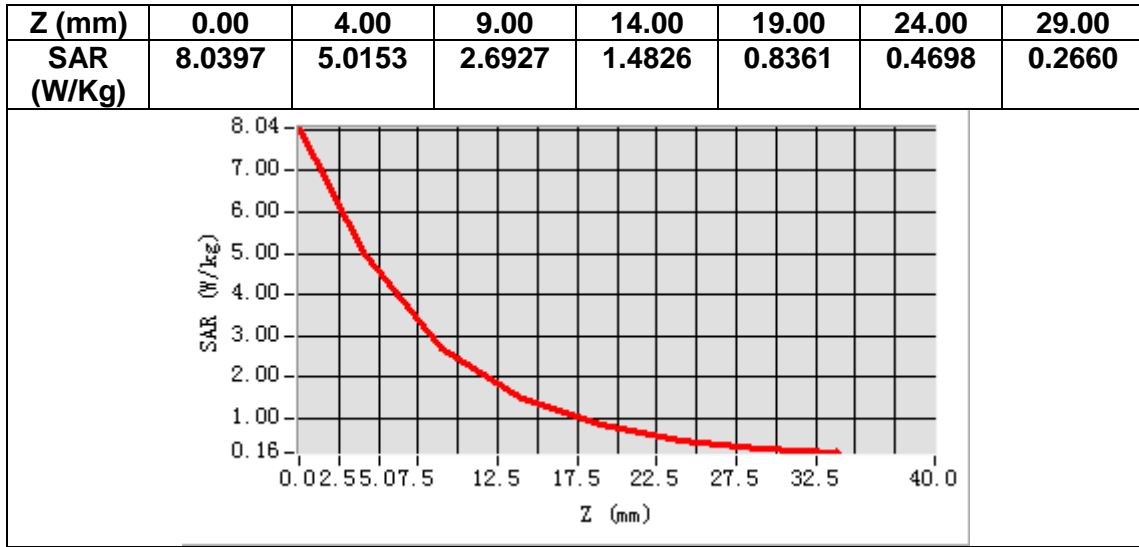
B. SAR Measurement Results

Frequency (MHz)	2450.000000
Relative permittivity (real part)	37.924835
Relative permittivity (imaginary part)	13.152103
Conductivity (S/m)	1.790147
Variation (%)	1.290000



Maximum location: X=0.00, Y=1.00
SAR Peak: 8.14 W/kg

SAR 10g (W/Kg)	2.471106
SAR 1g (W/Kg)	5.436340



MEASUREMENT 6

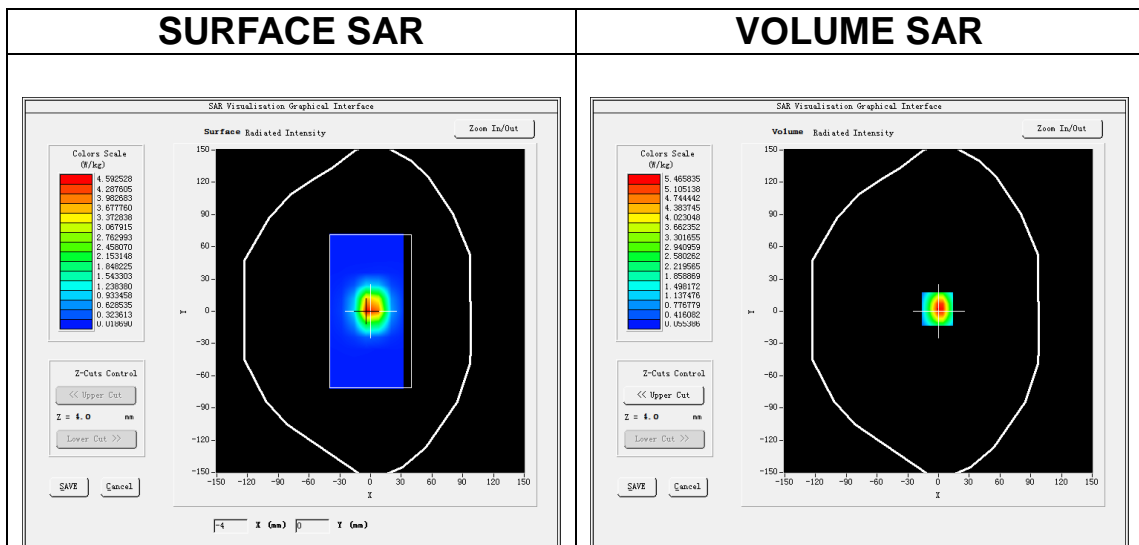
Date of measurement: 6/9/2022

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>

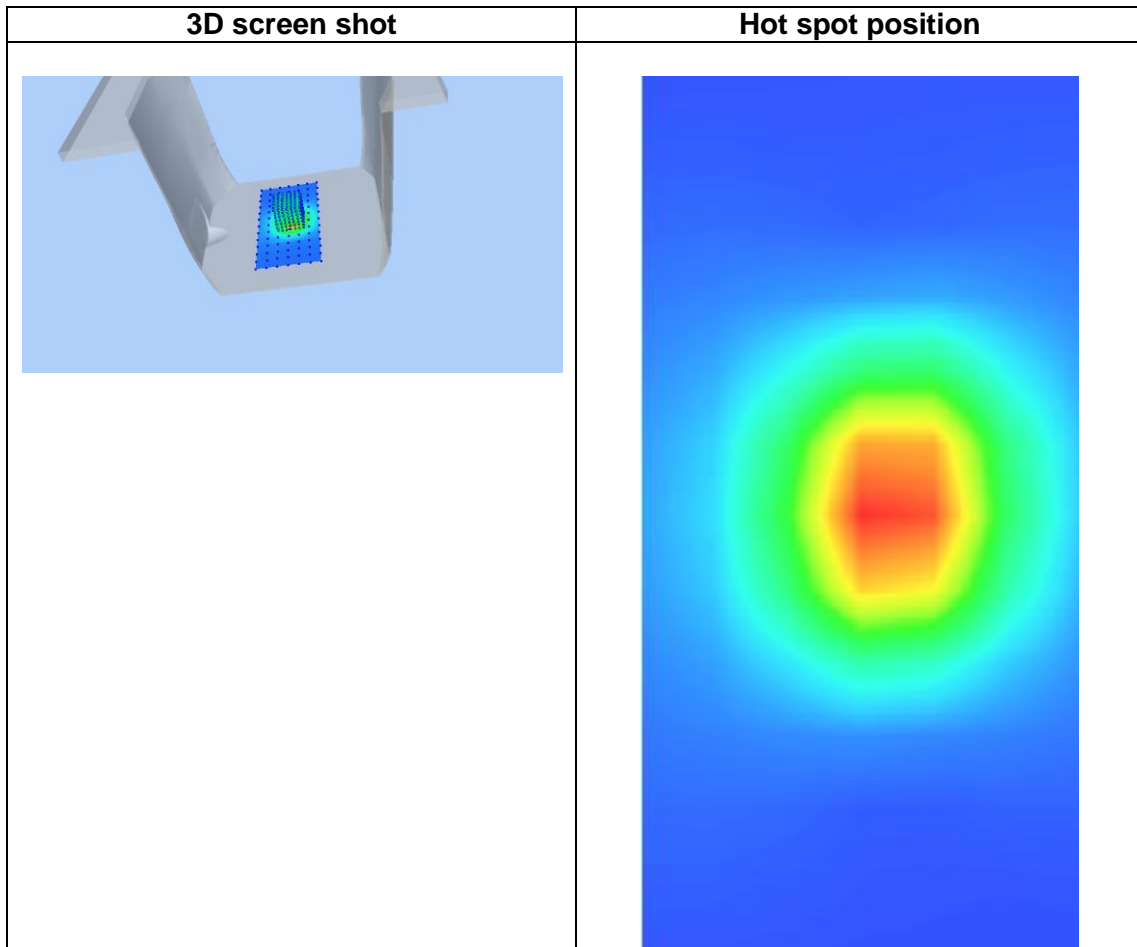
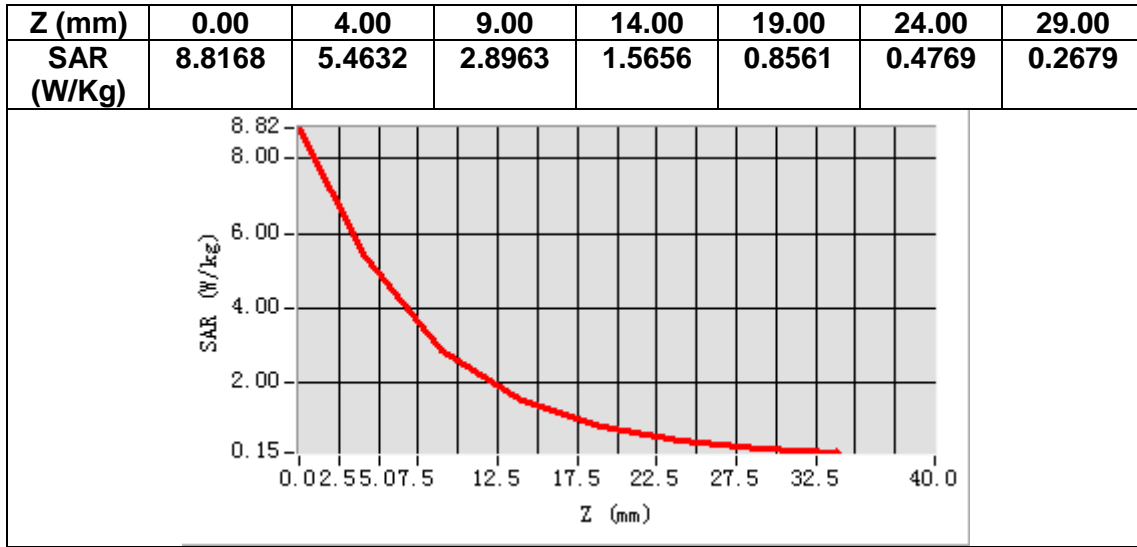
B. SAR Measurement Results

Frequency (MHz)	2600.000000
Relative permittivity (real part)	37.816374
Relative permittivity (imaginary part)	13.365353
Conductivity (S/m)	1.930551
Variation (%)	0.250000



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

SAR 10g (W/Kg)	2.533037
SAR 1g (W/Kg)	6.026199



MEASUREMENT 7

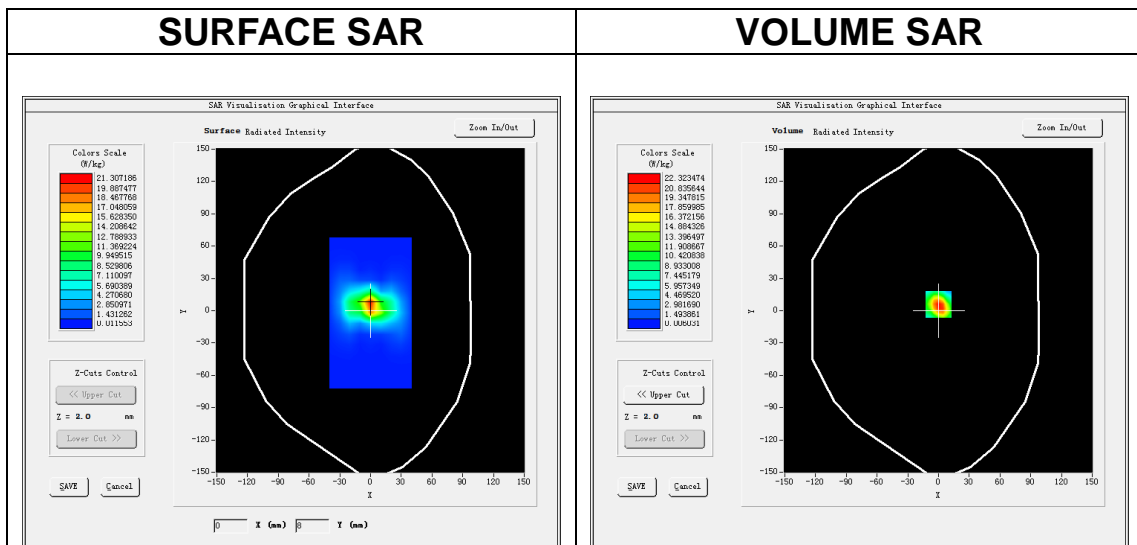
Date of measurement: 31/8/2022

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

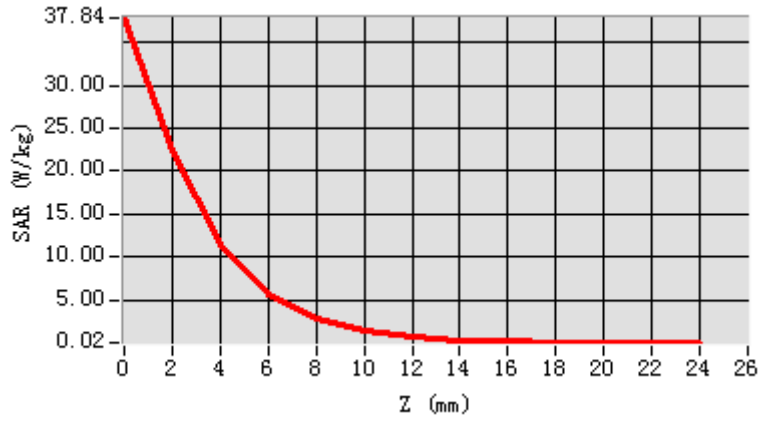
Frequency (MHz)	5200.000000
Relative permittivity (real part)	35.362279
Relative permittivity (imaginary part)	15.654967
Conductivity (S/m)	4.522546
Variation (%)	2.800000



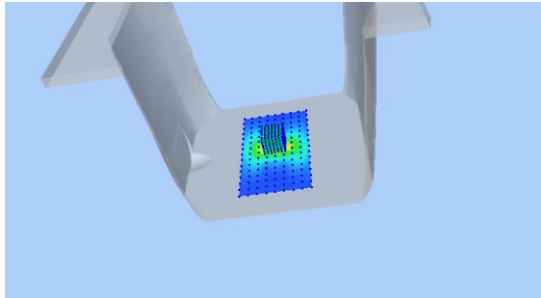
Maximum location: X=0.00, Y=6.00
SAR Peak: 40.06 W/kg

SAR 10g (W/Kg)	5.645162
SAR 1g (W/Kg)	16.071032

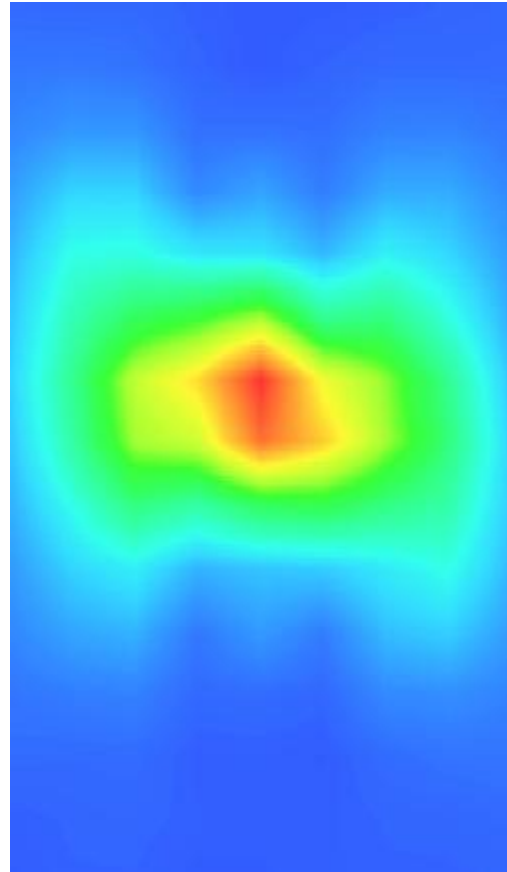
Z (m)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	37.891	22.391	11.377	5.6694	2.8291	1.4043	0.7150	0.3637	0.1802	0.1008	0.0527	0.0397



3D screen shot



Hot spot position



MEASUREMENT 8

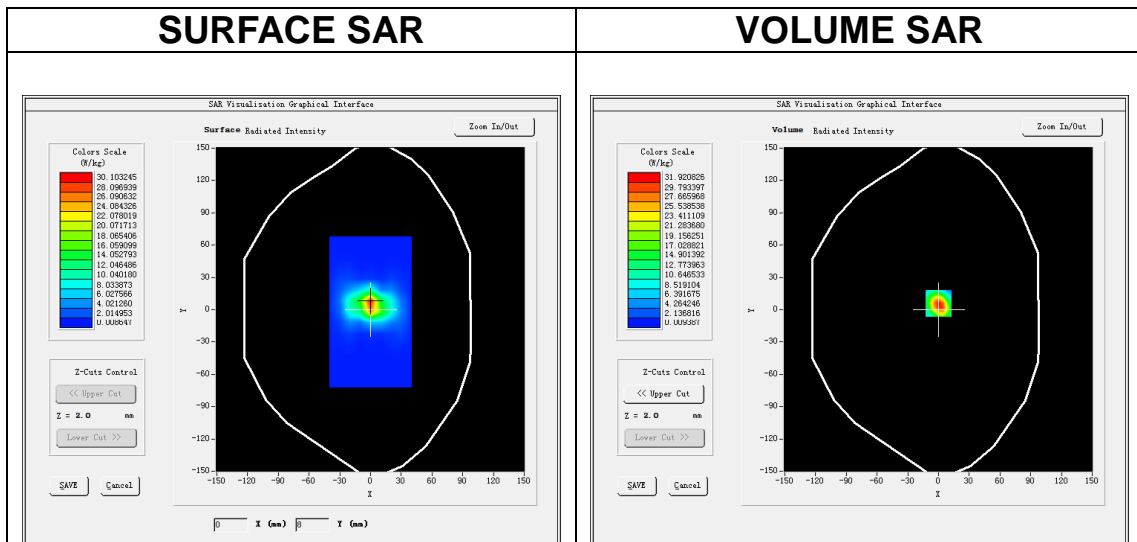
Date of measurement: 29/8/2022

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)	34.258418
Relative permittivity (imaginary part)	15.936026
Conductivity (S/m)	5.134942
Variation (%)	-0.500000

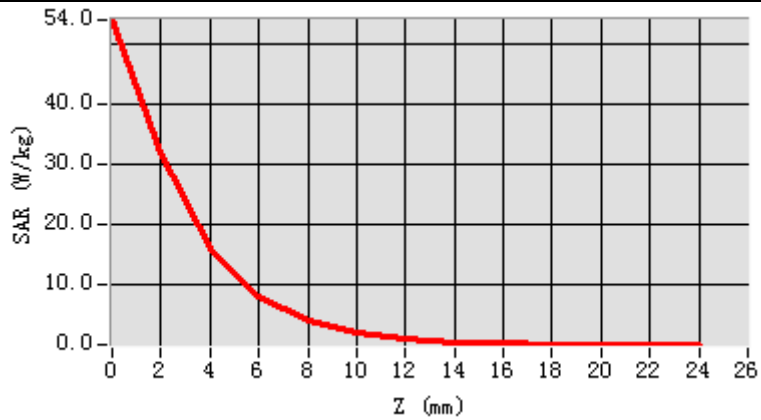


Maximum location: X=0.00, Y=6.00

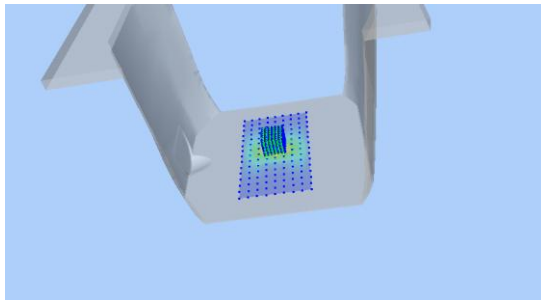
SAR Peak: 57.37 W/kg

SAR 10g (W/Kg)	5.350228
SAR 1g (W/Kg)	17.639190

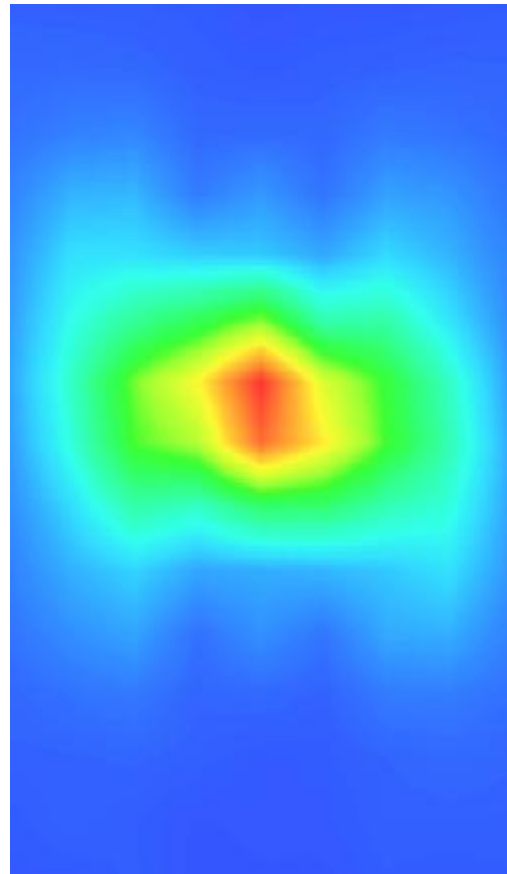
Z (m m)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	54.036	31.948	16.144	8.1766	4.0890	2.0550	1.0361	0.5144	0.2795	0.1572	0.0788	0.0438



3D screen shot



Hot spot position



13. Appendix C. Plots of High SAR Measurement

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MEASUREMENT 8 CDMA BC1 Body
MEASUREMENT 9 WCDMA Band 2 Head
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MEASUREMENT 11 WCDMA Band 4 Head
MEASUREMENT 12 WCDMA Band 4 Body
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MEASUREMENT 25 LTE Band 5 Head
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MEASUREMENT 27 LTE Band 7 Head
MEASUREMENT 28 LTE Band 7 Body
MEASUREMENT 29 LTE Band 12 Head
MEASUREMENT 30 LTE Band 12 Body
MEASUREMENT 31 LTE Band 17 Head
MEASUREMENT 32 LTE Band 17 Body
MEASUREMENT 33 LTE Band 41 Head
MEASUREMENT 34 LTE Band 41 Body

MEASUREMENT 1

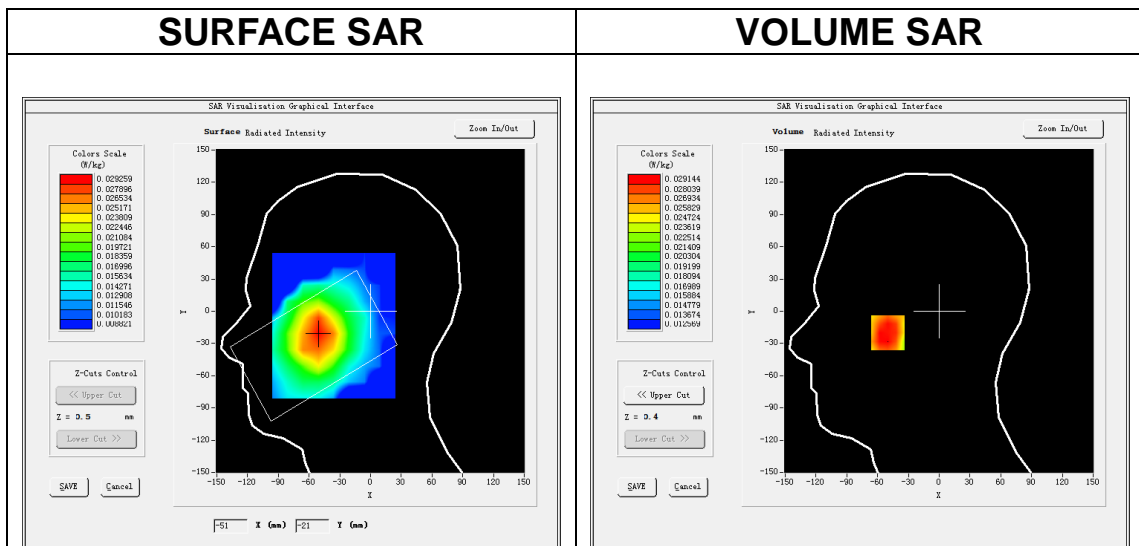
Date of measurement: 12/9/2022

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: 2.7)</u>
ConvF	<u>1.50</u>

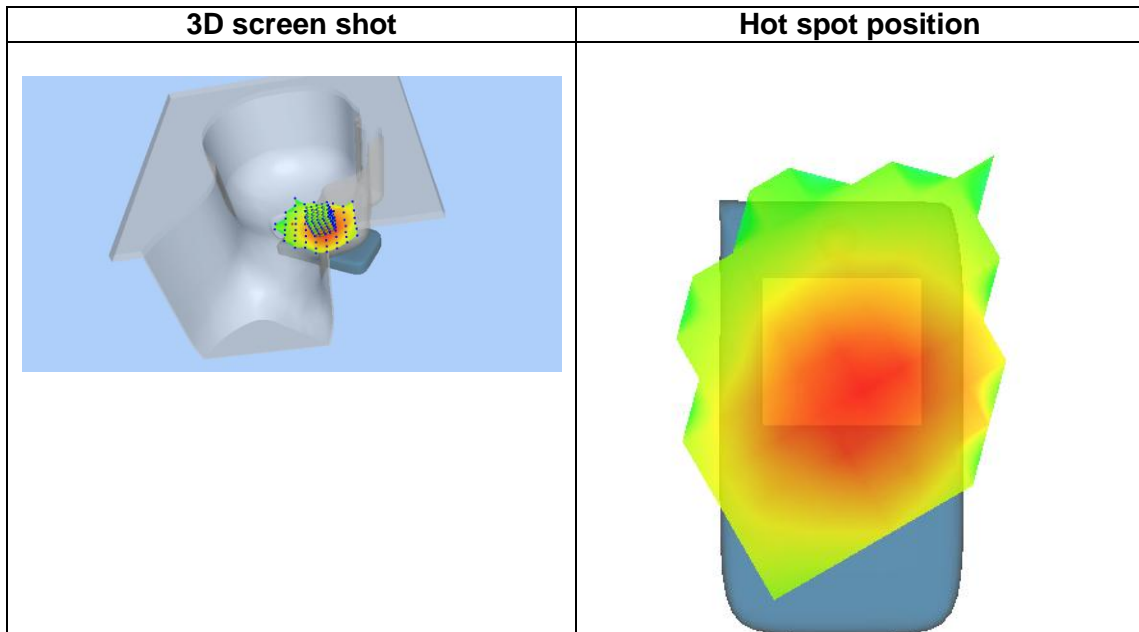
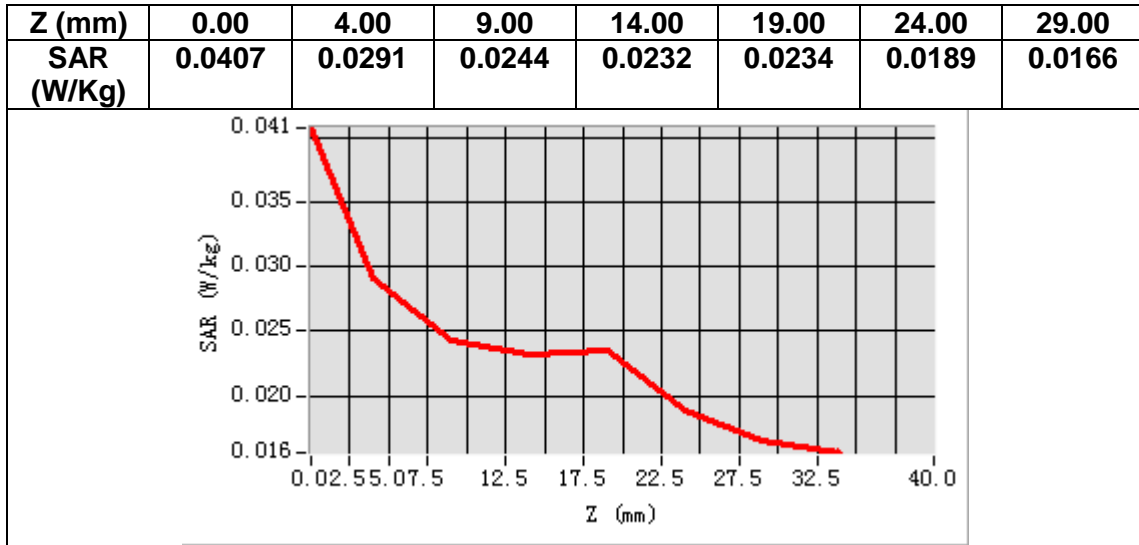
B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative permittivity (real part)	41.419331
Relative permittivity (imaginary part)	20.069847
Conductivity (S/m)	0.932579
Variation (%)	-0.810000



Maximum location: X=-50.00, Y=-20.00
SAR Peak: 0.04 W/kg

SAR 10g (W/Kg)	0.024954
SAR 1g (W/Kg)	0.030614



MEASUREMENT 2

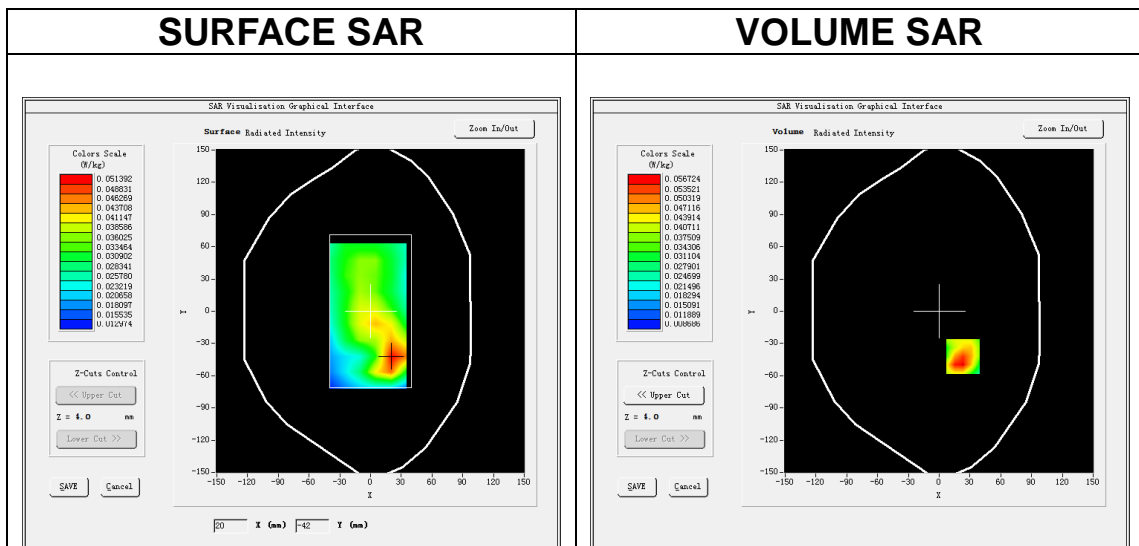
Date of measurement: 12/9/2022

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: 2.7)</u>
ConvF	<u>1.50</u>

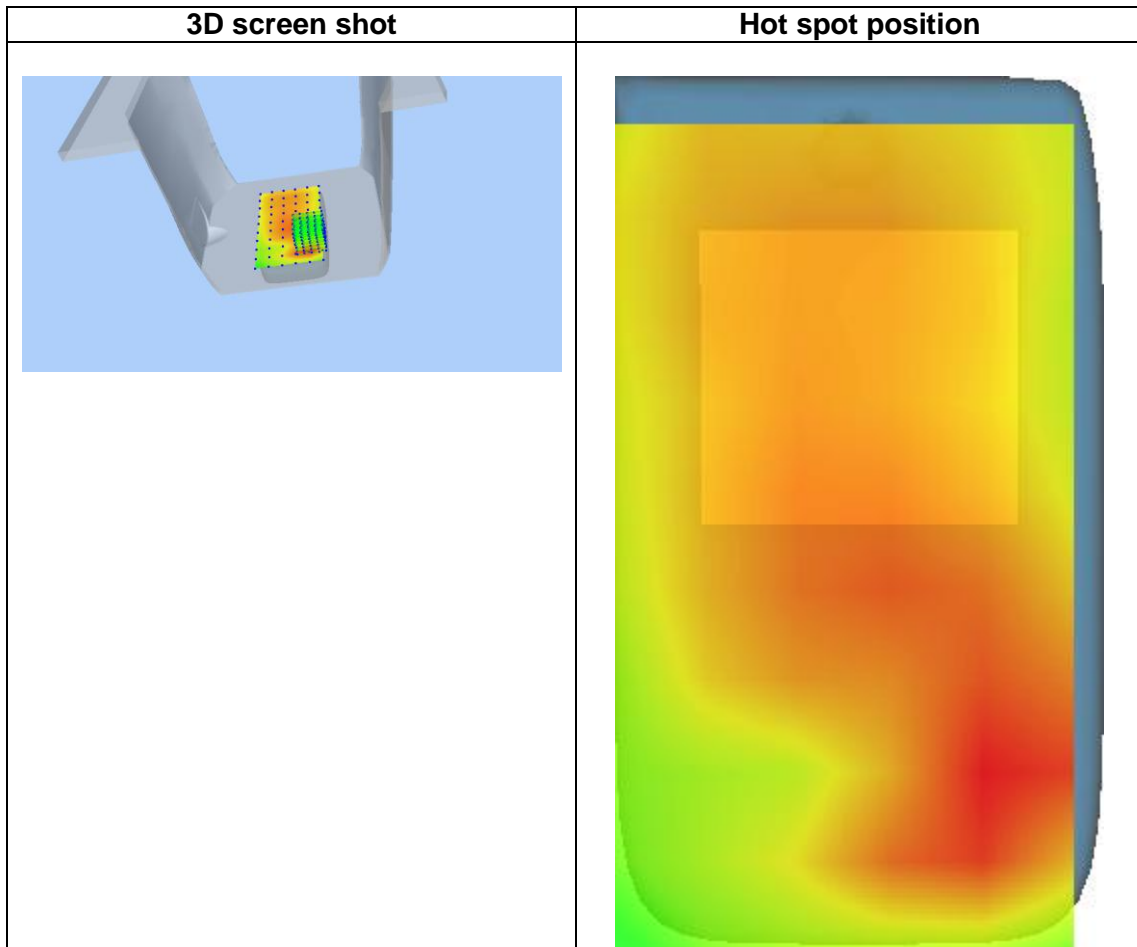
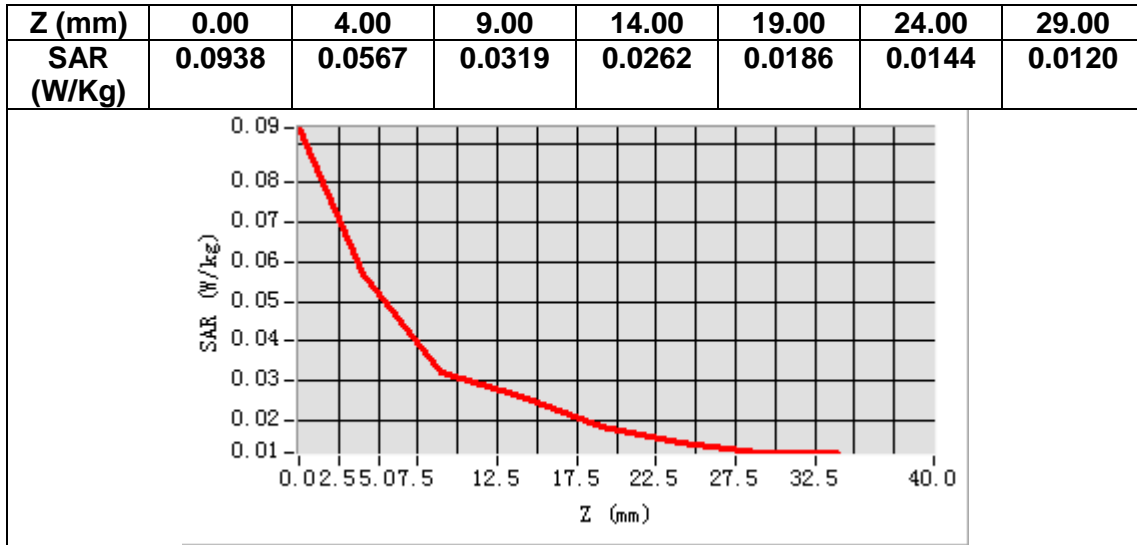
B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative permittivity (real part)	41.419331
Relative permittivity (imaginary part)	20.069847
Conductivity (S/m)	0.932579
Variation (%)	-2.890000



Maximum location: X=23.00, Y=-42.00
SAR Peak: 0.09 W/kg

SAR 10g (W/Kg)	0.035180
SAR 1g (W/Kg)	0.057618



MEASUREMENT 3

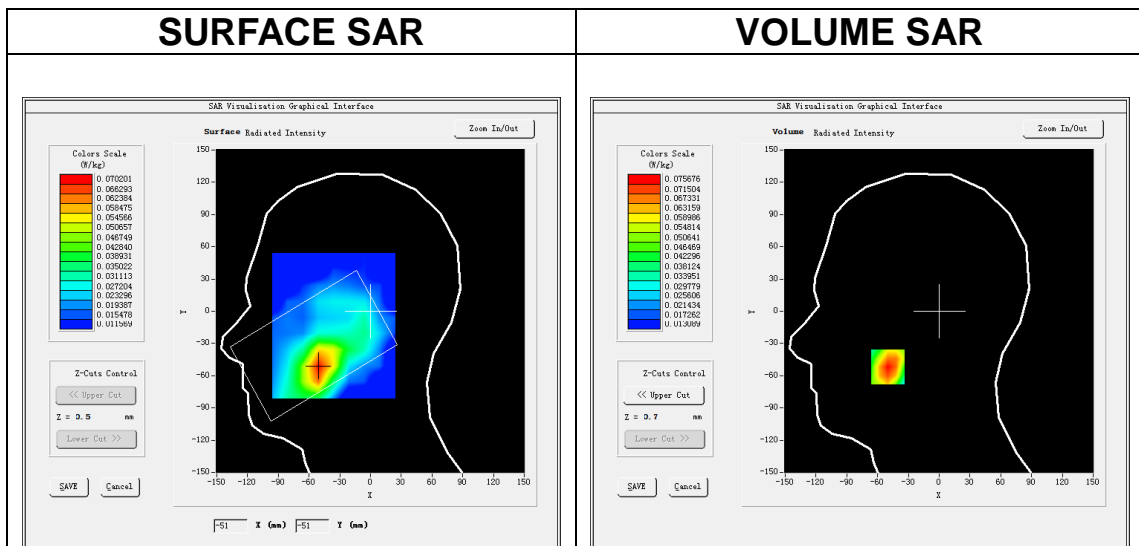
Date of measurement: 26/8/2022

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>

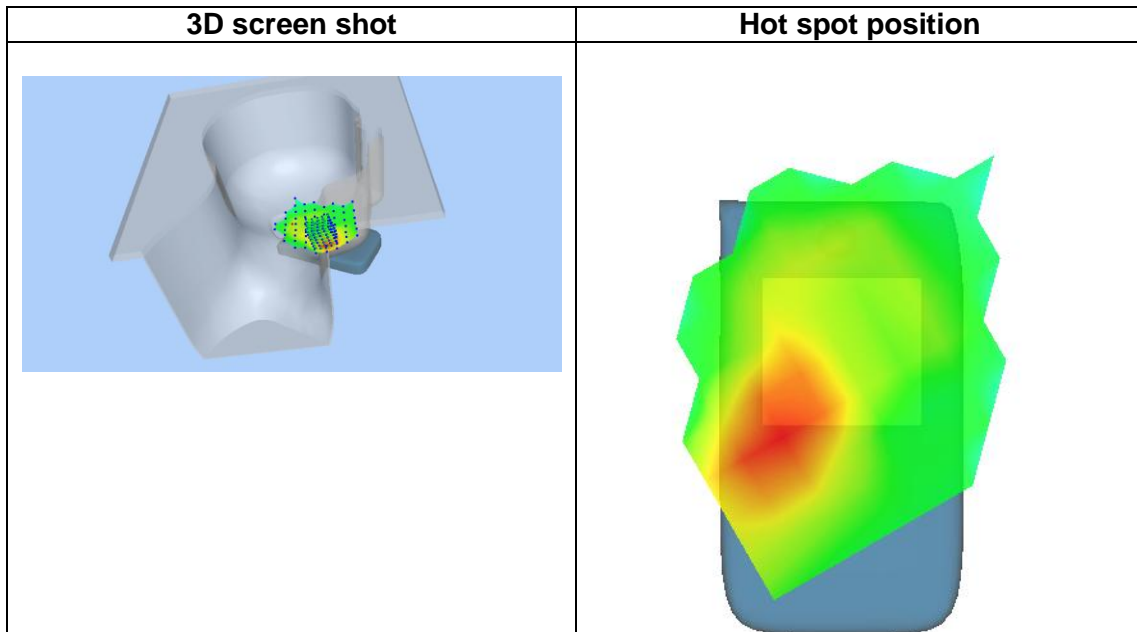
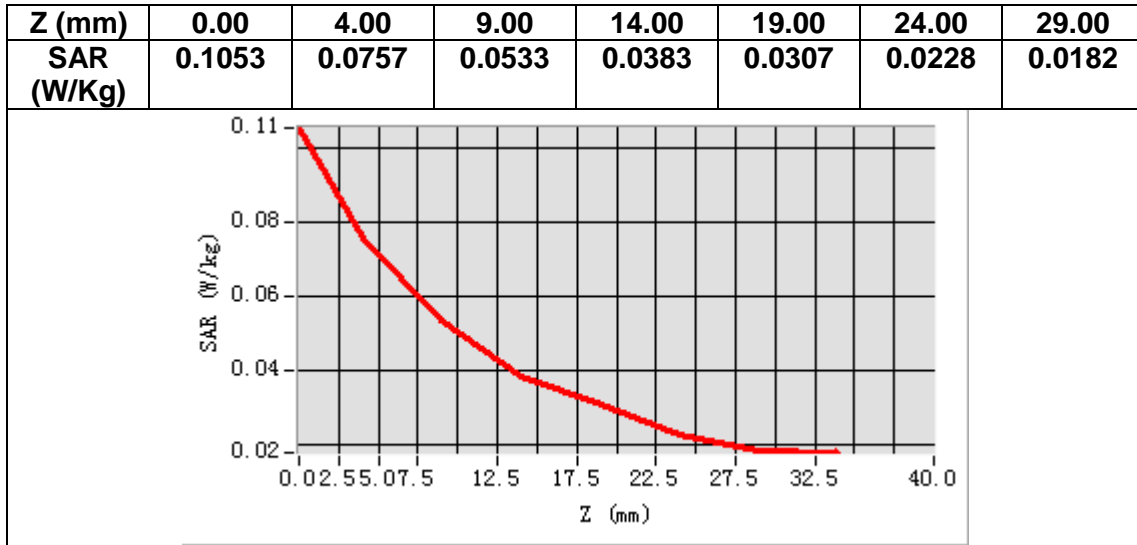
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.397652
Relative permittivity (imaginary part)	13.806711
Conductivity (S/m)	1.442034
Variation (%)	-3.320000



Maximum location: X=-50.00, Y=-52.00
SAR Peak: 0.11 W/kg

SAR 10g (W/Kg)	0.049133
SAR 1g (W/Kg)	0.075319



MEASUREMENT 4

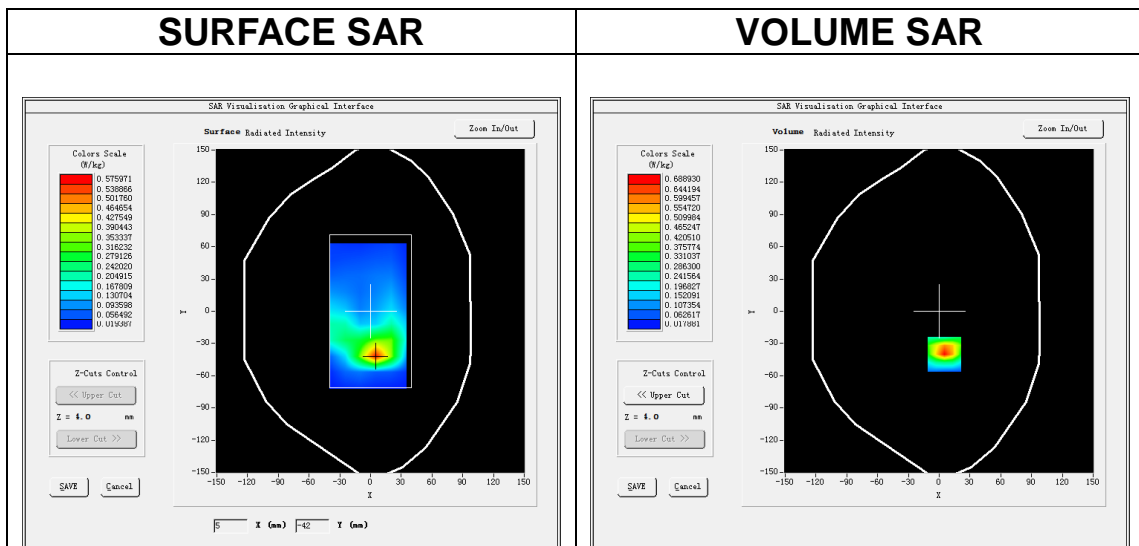
Date of measurement: 26/8/2022

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>Middle</u>
Signal	<u>TDMA (Crest factor: 2.7)</u>
ConvF	<u>1.91</u>

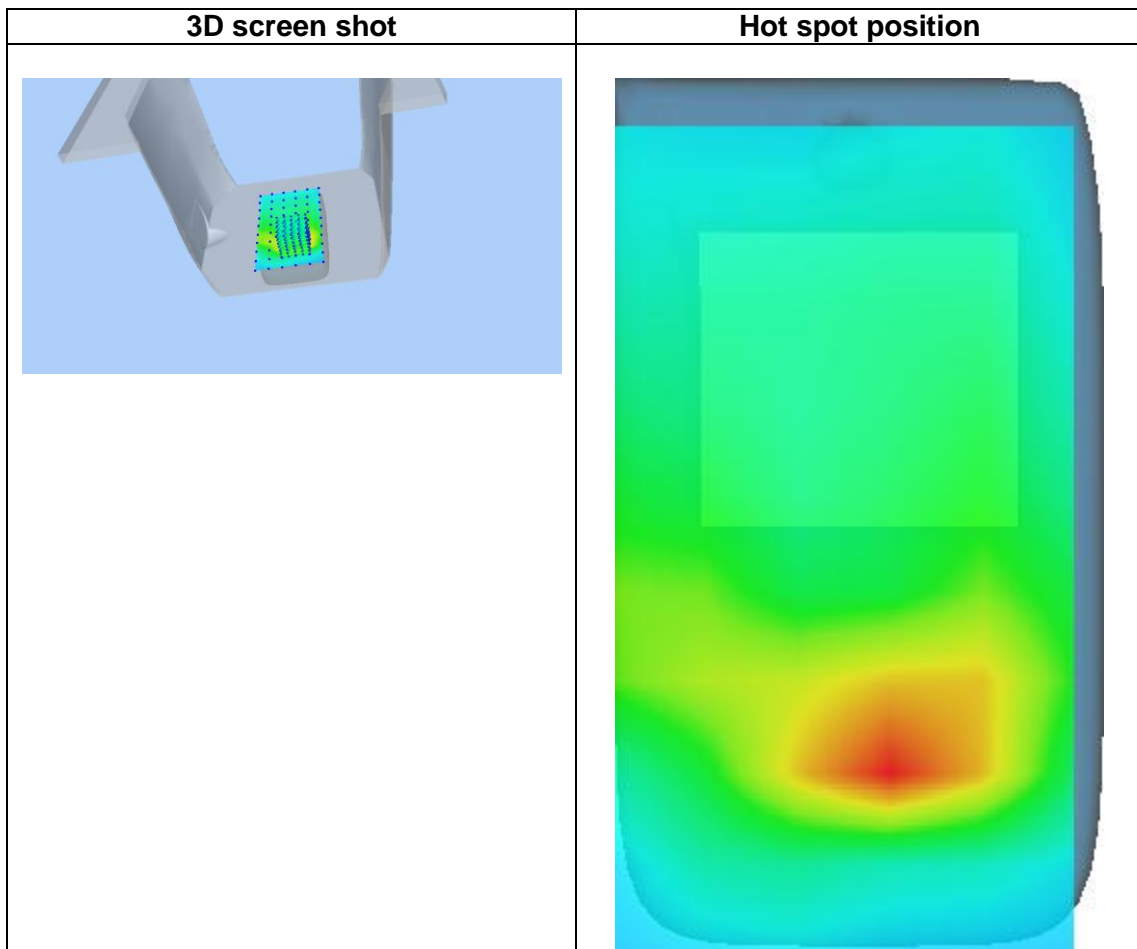
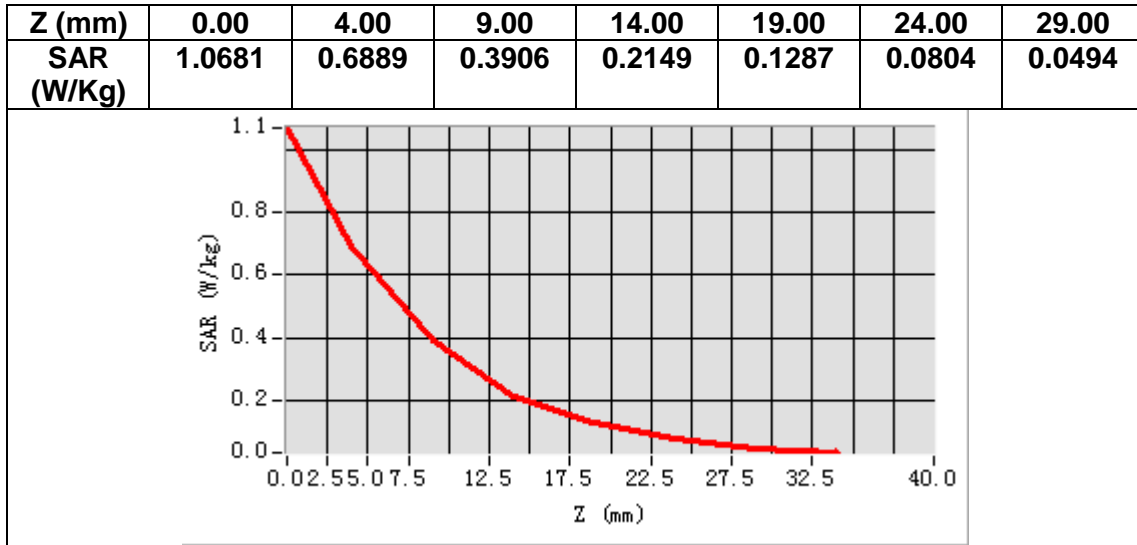
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.397652
Relative permittivity (imaginary part)	13.806711
Conductivity (S/m)	1.442034
Variation (%)	-2.910000



Maximum location: X=5.00, Y=-40.00
SAR Peak: 1.13 W/kg

SAR 10g (W/Kg)	0.315420
SAR 1g (W/Kg)	0.663537



MEASUREMENT 5

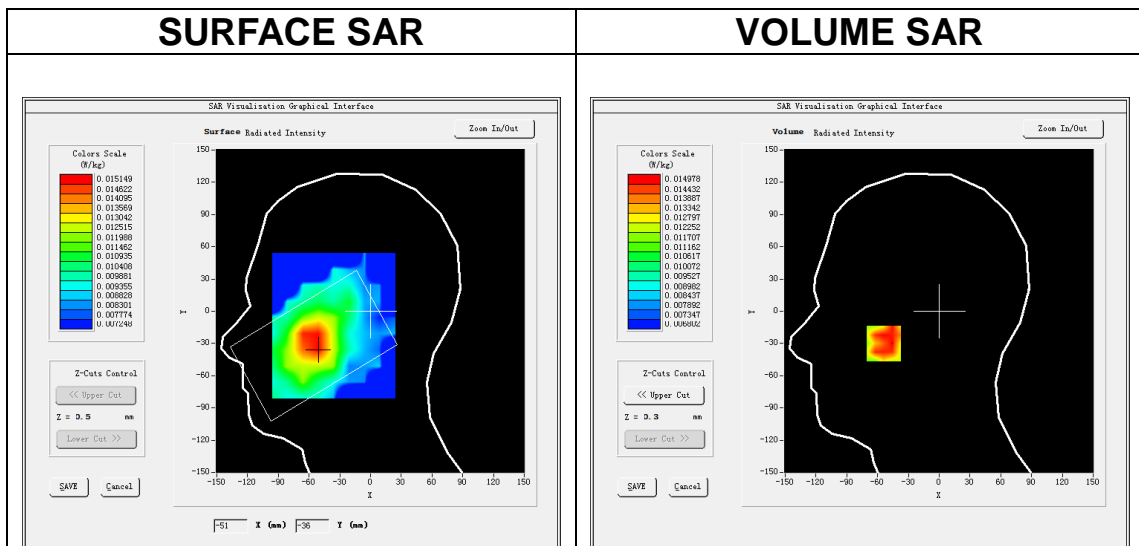
Date of measurement: 12/9/2022

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>BC0</u>
Channels	<u>Middle</u>
Signal	<u>CDMA (Crest factor: 1.0)</u>
ConvF	<u>1.50</u>

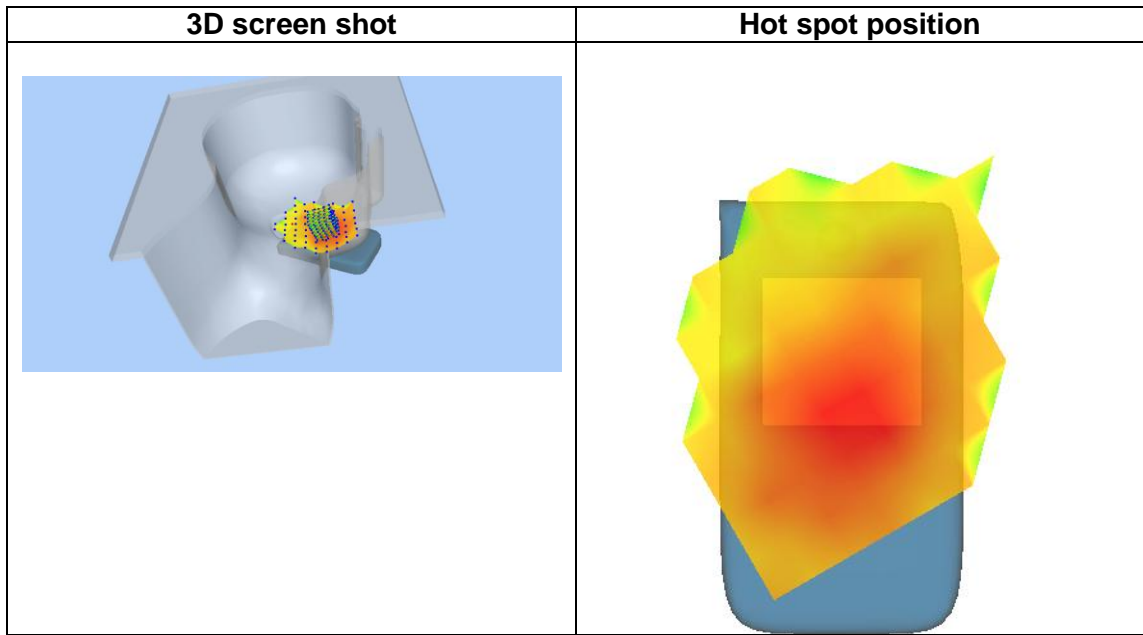
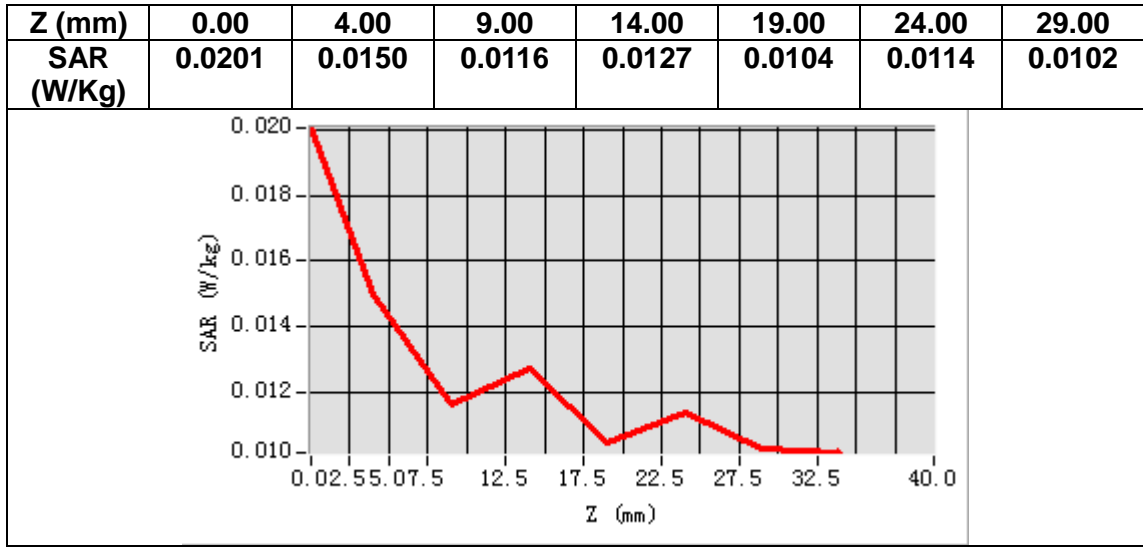
B. SAR Measurement Results

Frequency (MHz)	836.520020
Relative permittivity (real part)	41.422440
Relative permittivity (imaginary part)	20.068239
Conductivity (S/m)	0.932638
Variation (%)	-3.190000



Maximum location: X=-54.00, Y=-30.00
SAR Peak: 0.02 W/kg

SAR 10g (W/Kg)	0.013248
SAR 1g (W/Kg)	0.016603



MEASUREMENT 6

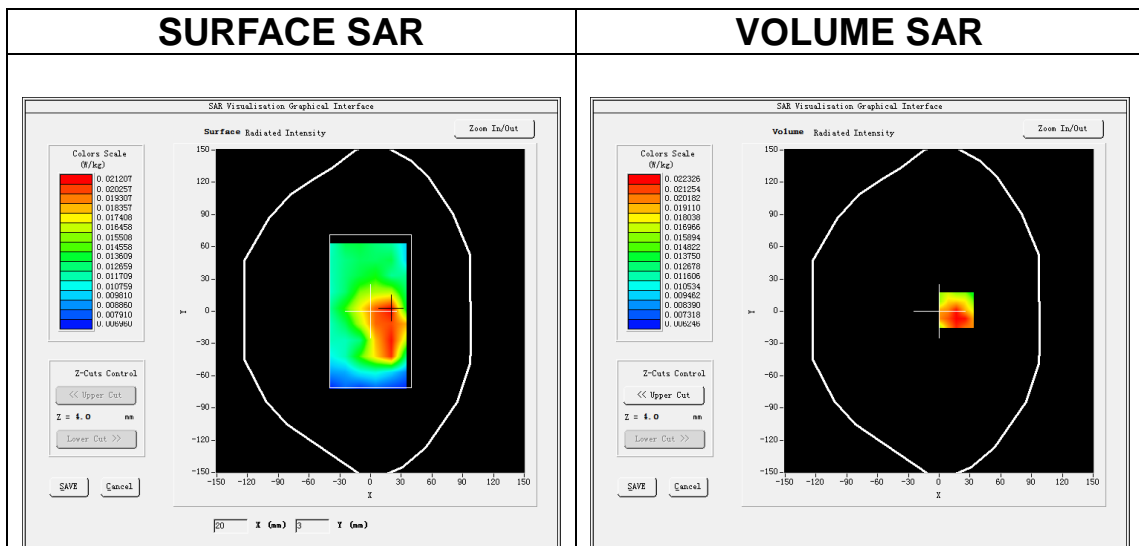
Date of measurement: 12/9/2022

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>BC0</u>
Channels	<u>Middle</u>
Signal	<u>CDMA (Crest factor: 1.0)</u>
ConvF	<u>1.50</u>

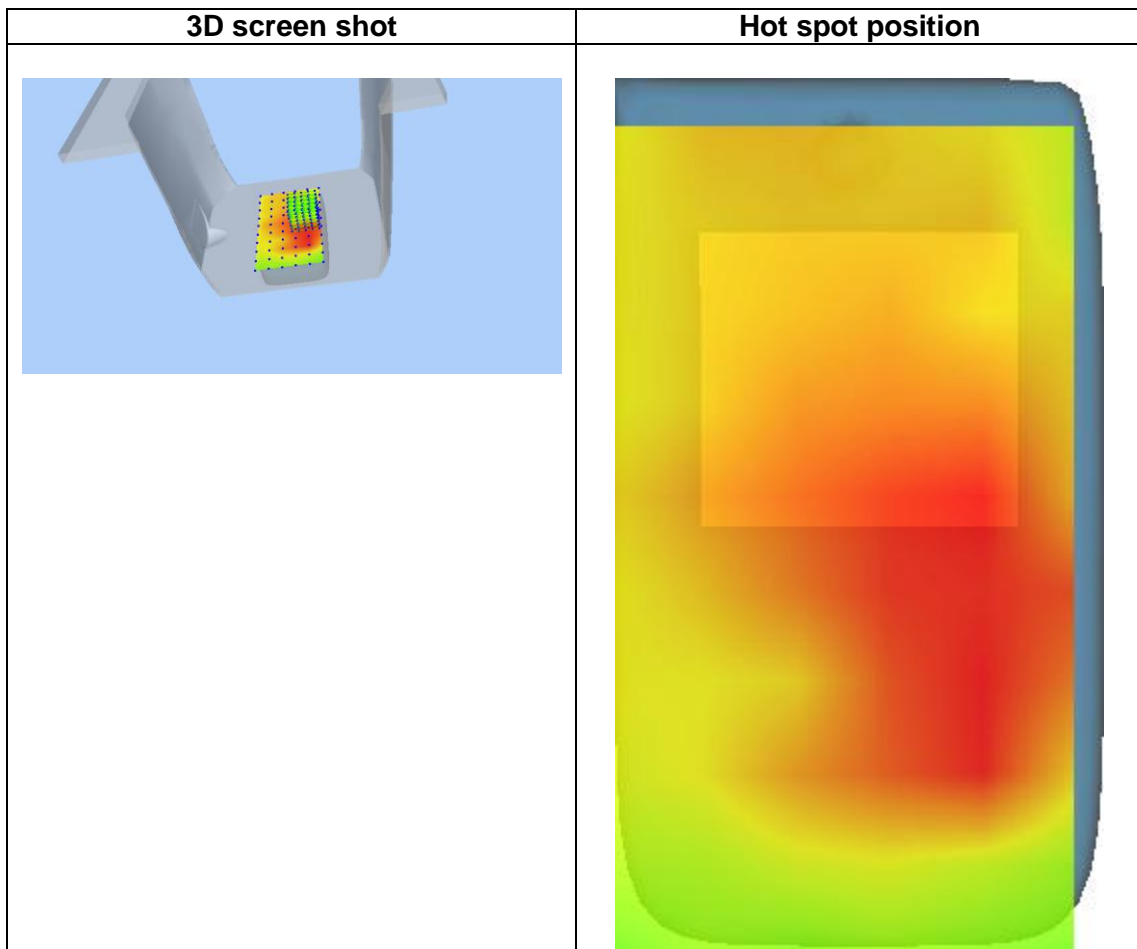
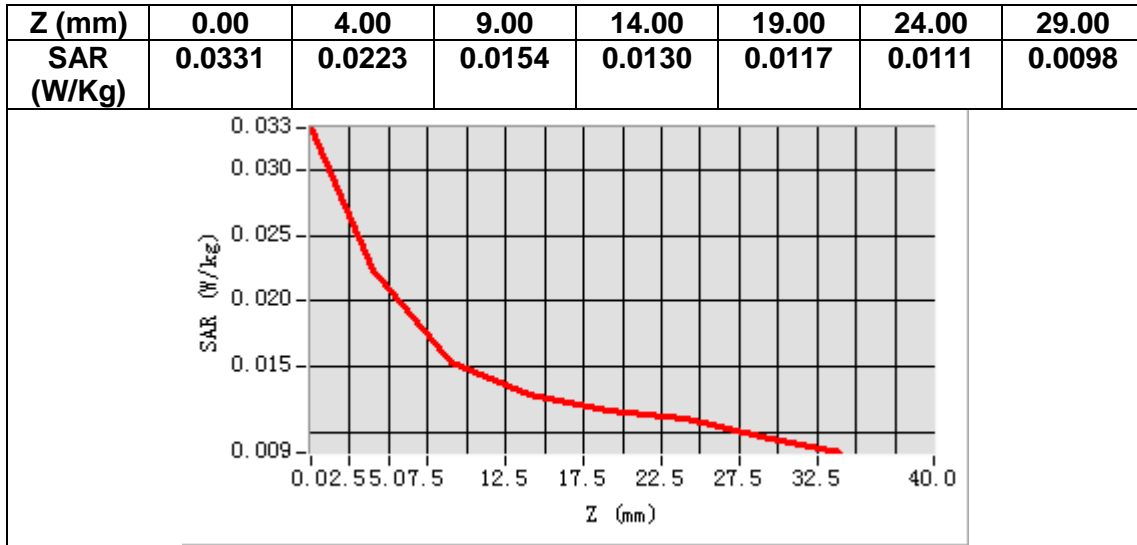
B. SAR Measurement Results

Frequency (MHz)	836.520020
Relative permittivity (real part)	41.422440
Relative permittivity (imaginary part)	20.068239
Conductivity (S/m)	0.932638
Variation (%)	-1.800000



Maximum location: X=17.00, Y=1.00
SAR Peak: 0.03 W/kg

SAR 10g (W/Kg)	0.016809
SAR 1g (W/Kg)	0.022811



MEASUREMENT 7

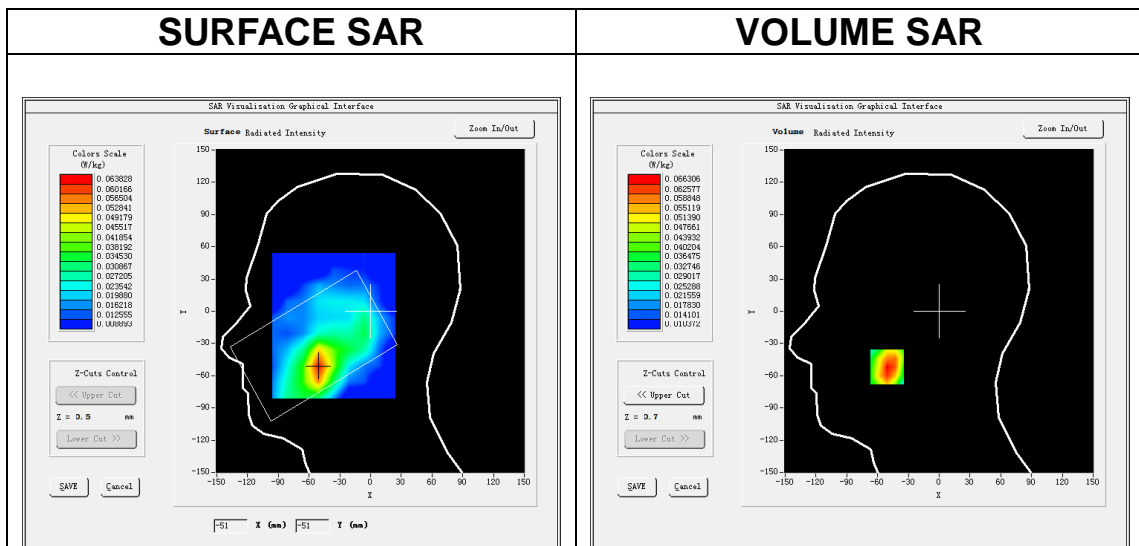
Date of measurement: 26/8/2022

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>BC1</u>
Channels	<u>Middle</u>
Signal	<u>CDMA (Crest factor: 1.0)</u>
ConvF	<u>1.91</u>

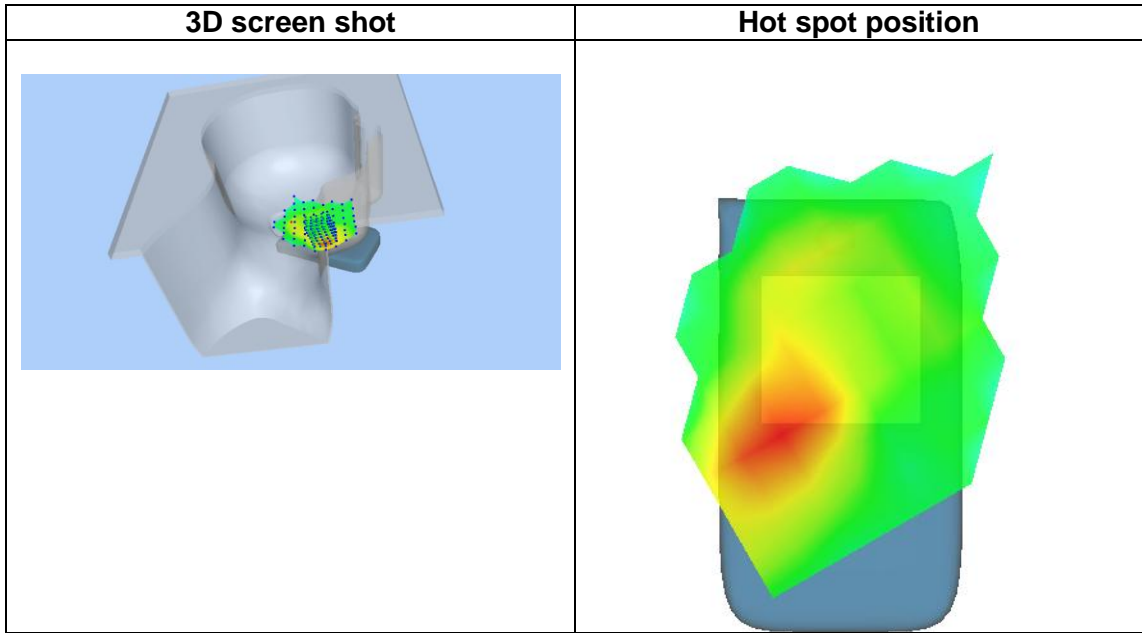
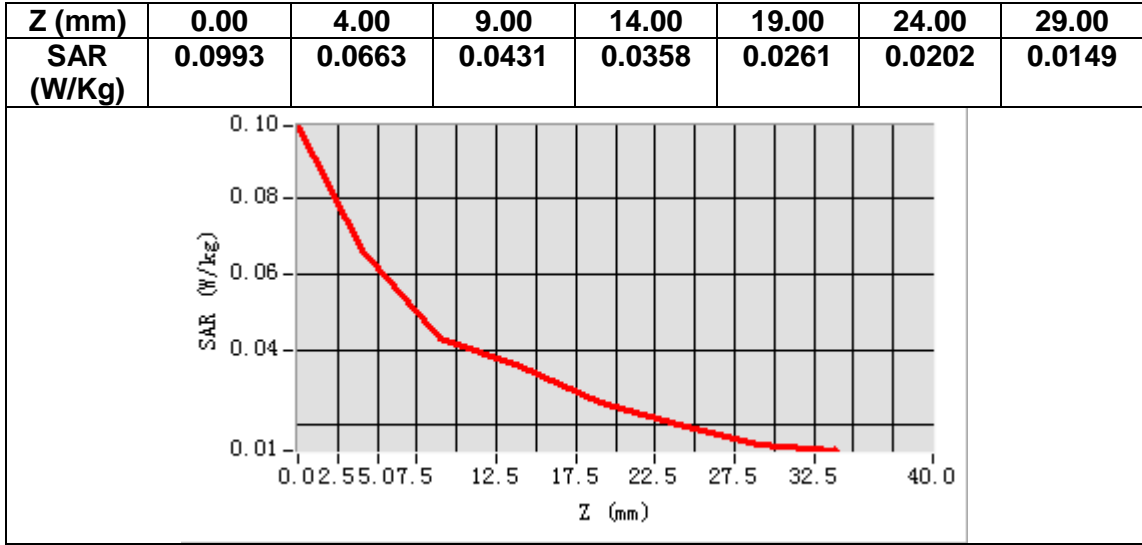
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.397652
Relative permittivity (imaginary part)	13.806711
Conductivity (S/m)	1.442034
Variation (%)	-4.520000



Maximum location: X=-51.00, Y=-52.00
SAR Peak: 0.10 W/kg

SAR 10g (W/Kg)	0.042245
SAR 1g (W/Kg)	0.066972



MEASUREMENT 8

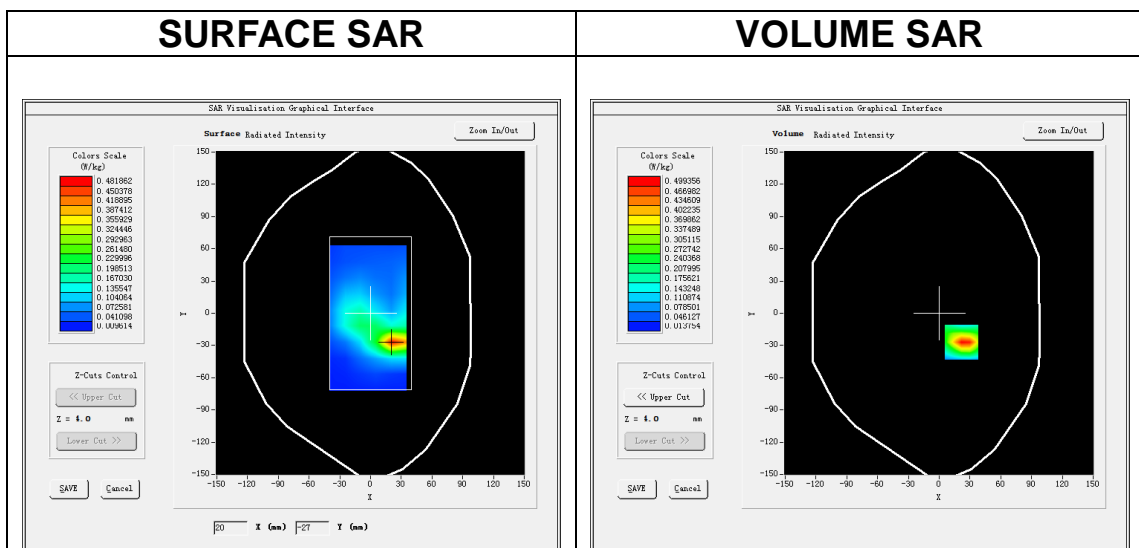
Date of measurement: 26/8/2022

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>BC1</u>
Channels	<u>Middle</u>
Signal	<u>CDMA (Crest factor: 1.0)</u>
ConvF	<u>1.91</u>

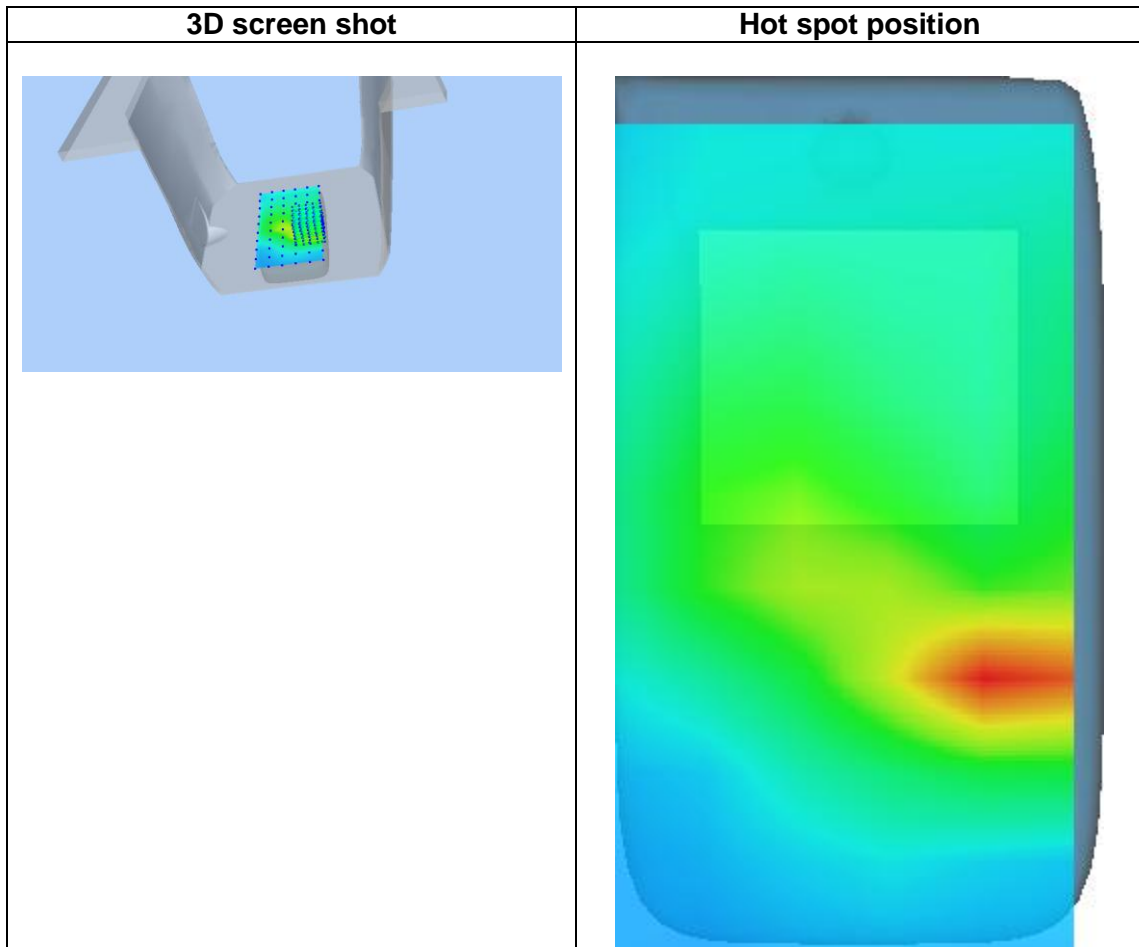
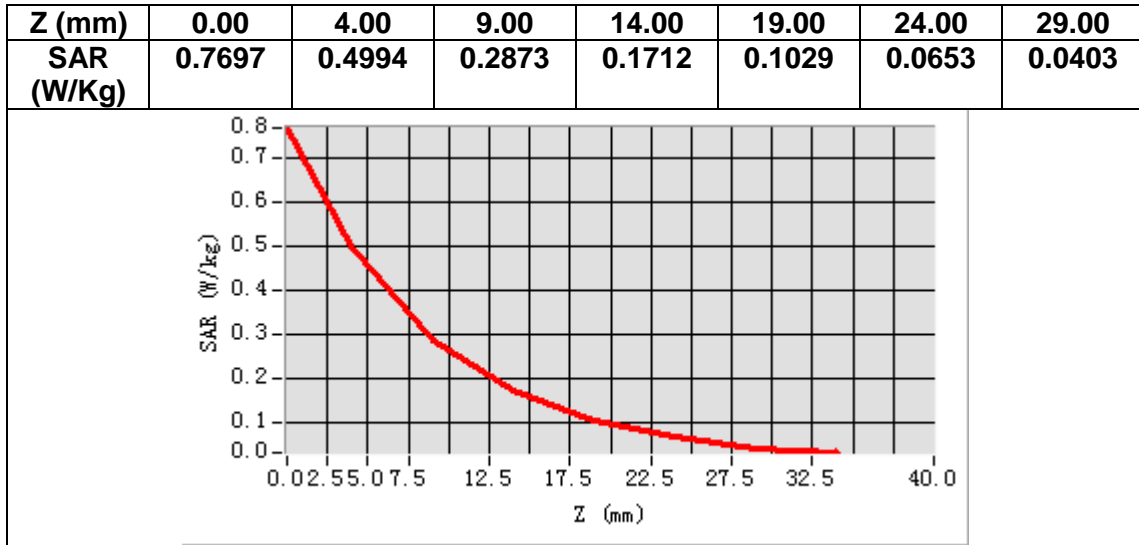
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.397652
Relative permittivity (imaginary part)	13.806711
Conductivity (S/m)	1.442034
Variation (%)	-1.370000



Maximum location: X=22.00, Y=-27.00
SAR Peak: 0.79 W/kg

SAR 10g (W/Kg)	0.235626
SAR 1g (W/Kg)	0.473149



MEASUREMENT 9

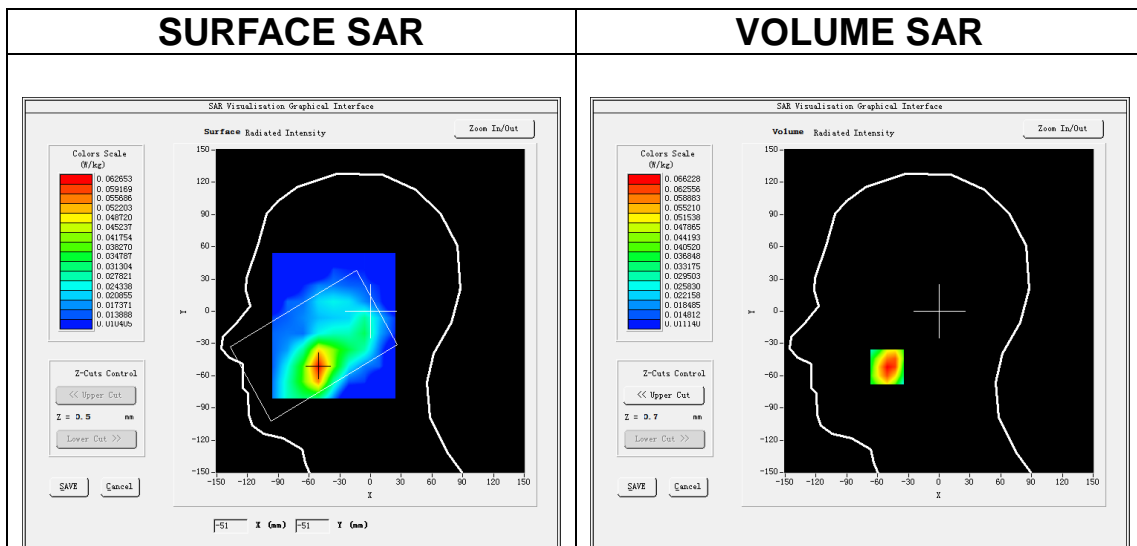
Date of measurement: 26/8/2022

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>

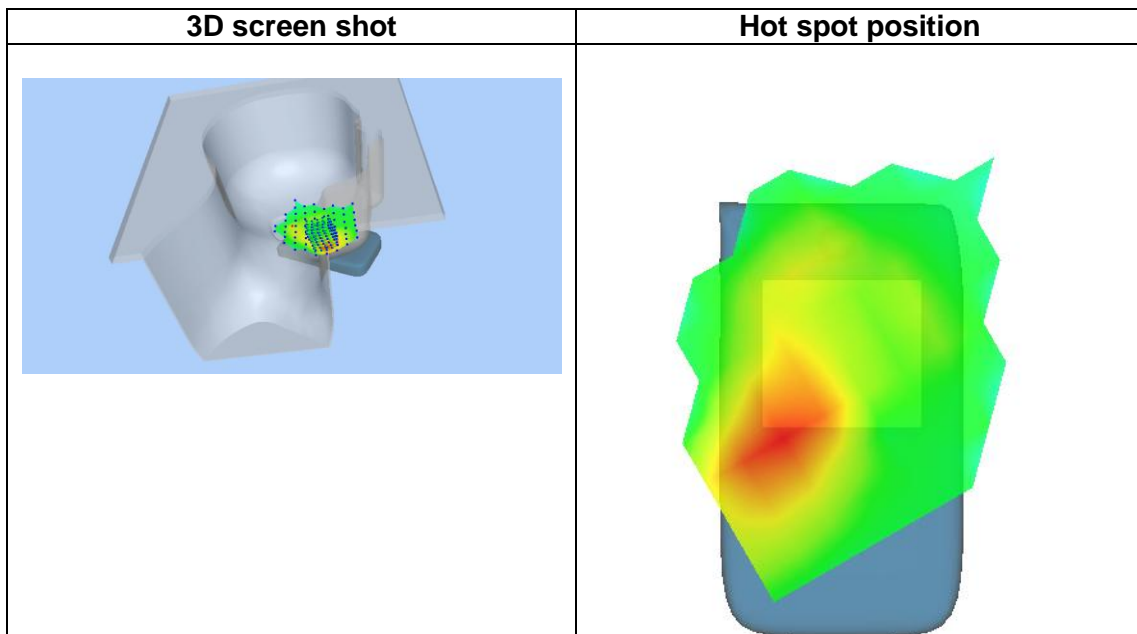
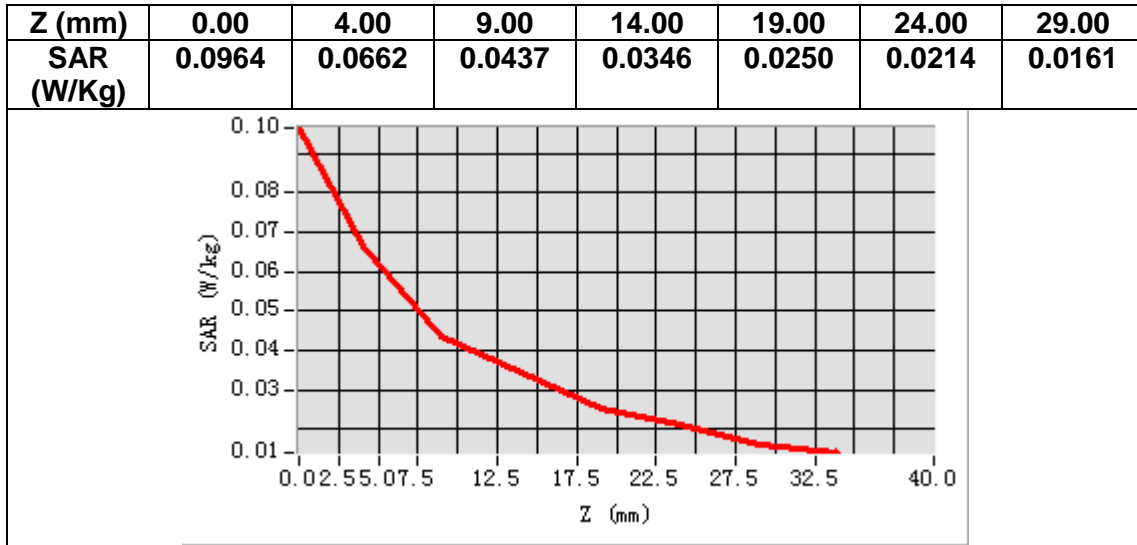
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.397652
Relative permittivity (imaginary part)	13.806711
Conductivity (S/m)	1.442034
Variation (%)	0.560000



Maximum location: X=-51.00, Y=-52.00
SAR Peak: 0.10 W/kg

SAR 10g (W/Kg)	0.042219
SAR 1g (W/Kg)	0.067265



MEASUREMENT 10

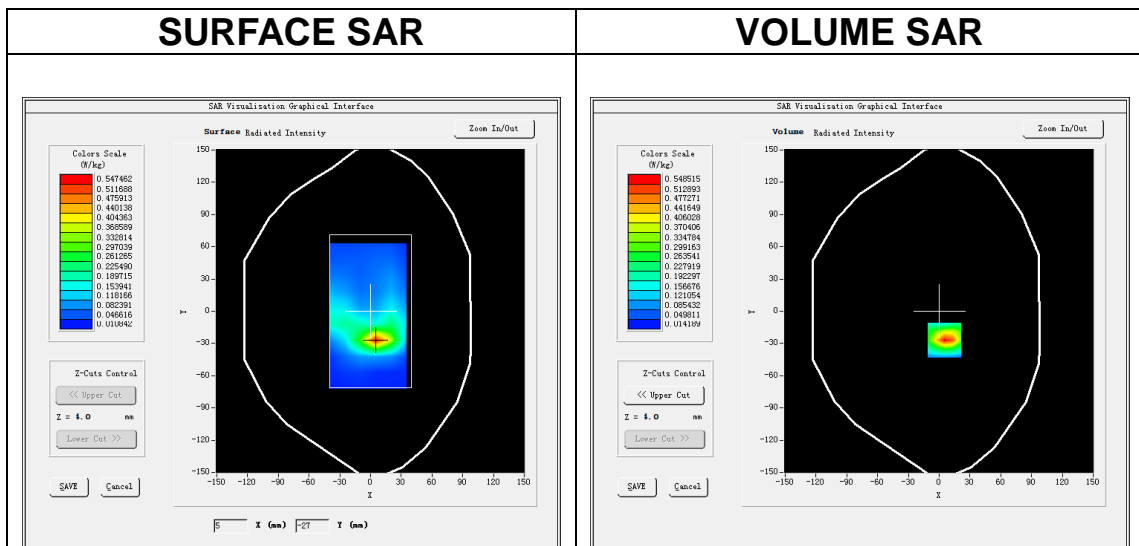
Date of measurement: 26/8/2022

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>

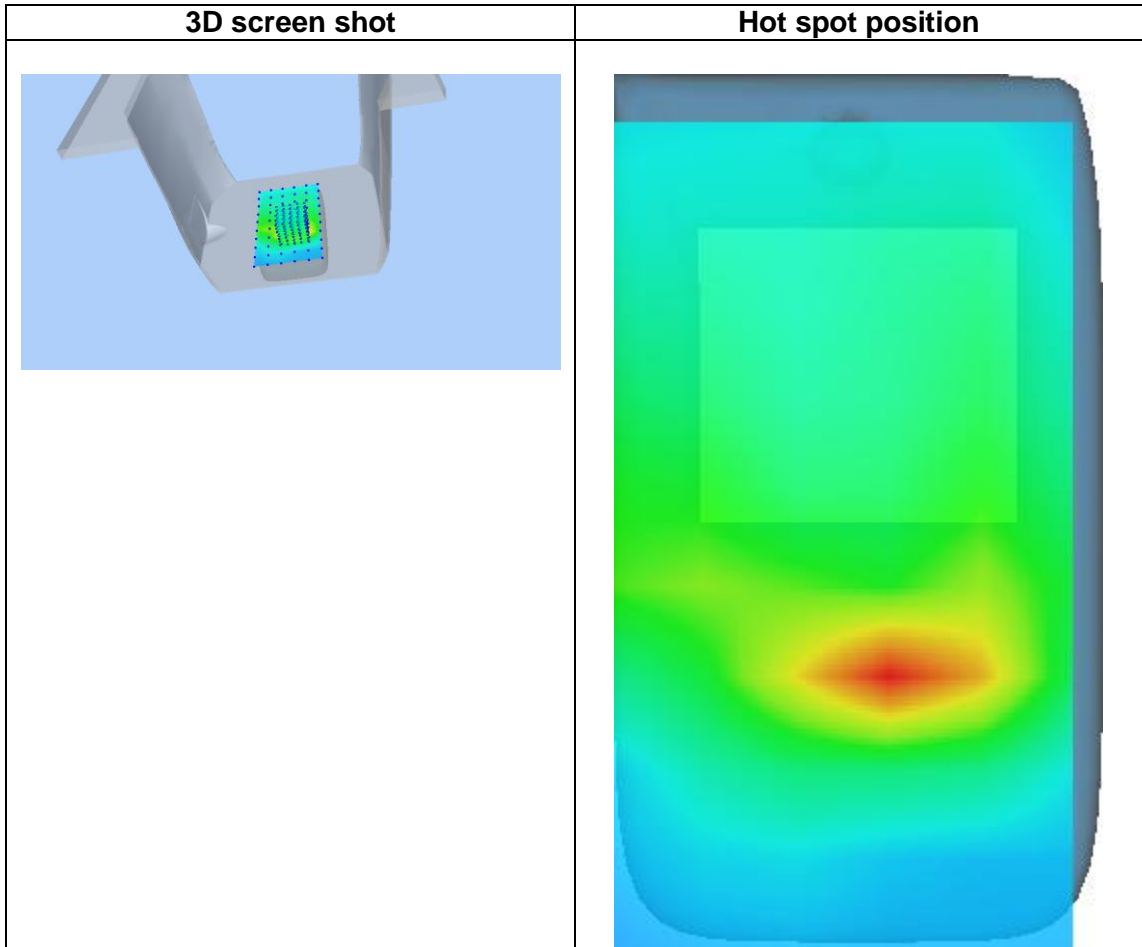
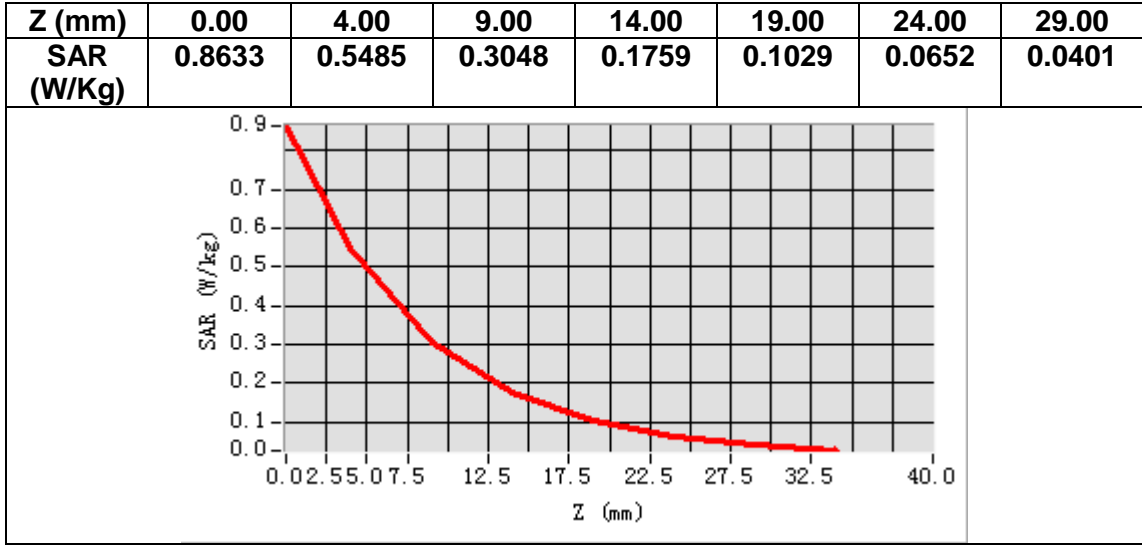
B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.397652
Relative permittivity (imaginary part)	13.806711
Conductivity (S/m)	1.442034
Variation (%)	-1.780000



Maximum location: X=5.00, Y=-27.00
SAR Peak: 0.88 W/kg

SAR 10g (W/Kg)	0.247242
SAR 1g (W/Kg)	0.513013



MEASUREMENT 11

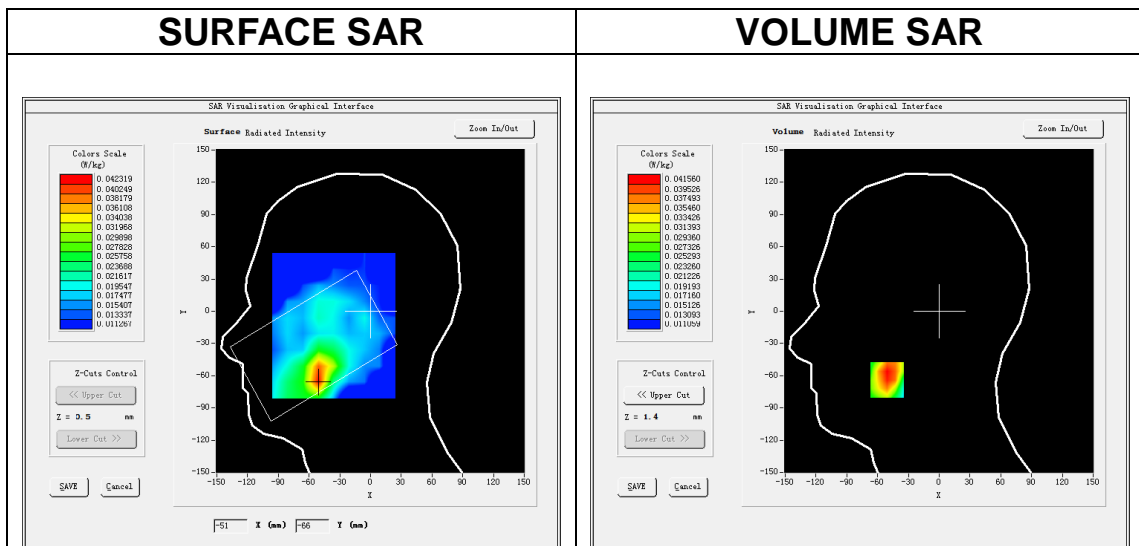
Date of measurement: 2/9/2022

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>Band4 WCDMA1700</u>
Channels	<u>Middle</u>
Signal	<u>WCDMA (Crest factor: 1.0)</u>
ConvF	<u>1.73</u>

B. SAR Measurement Results

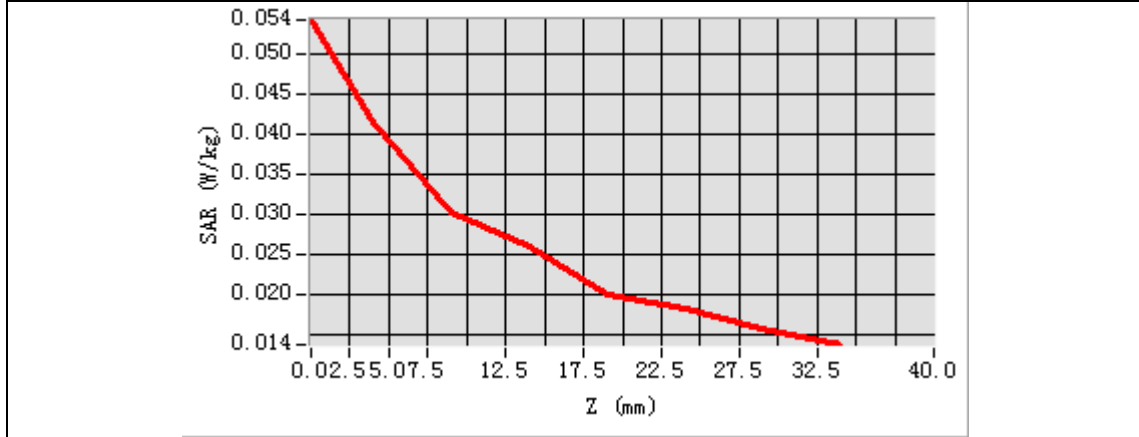
Frequency (MHz)	1732.600000
Relative permittivity (real part)	39.066978
Relative permittivity (imaginary part)	13.921899
Conductivity (S/m)	1.339596
Variation (%)	-2.050000



Maximum location: X=-51.00, Y=-64.00
SAR Peak: 0.05 W/kg

SAR 10g (W/Kg)	0.029696
SAR 1g (W/Kg)	0.040752

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0544	0.0416	0.0305	0.0262	0.0202	0.0183	0.0158



3D screen shot	Hot spot position

MEASUREMENT 12

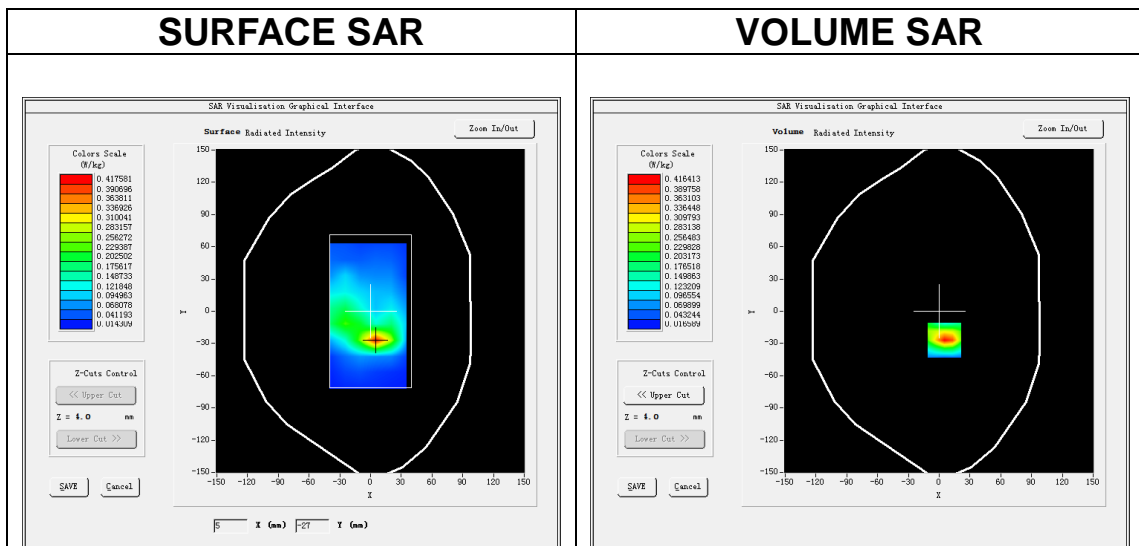
Date of measurement: 2/9/2022

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>Band4 WCDMA1700</u>
Channels	<u>Middle</u>
Signal	<u>WCDMA (Crest factor: 1.0)</u>
ConvF	<u>1.73</u>

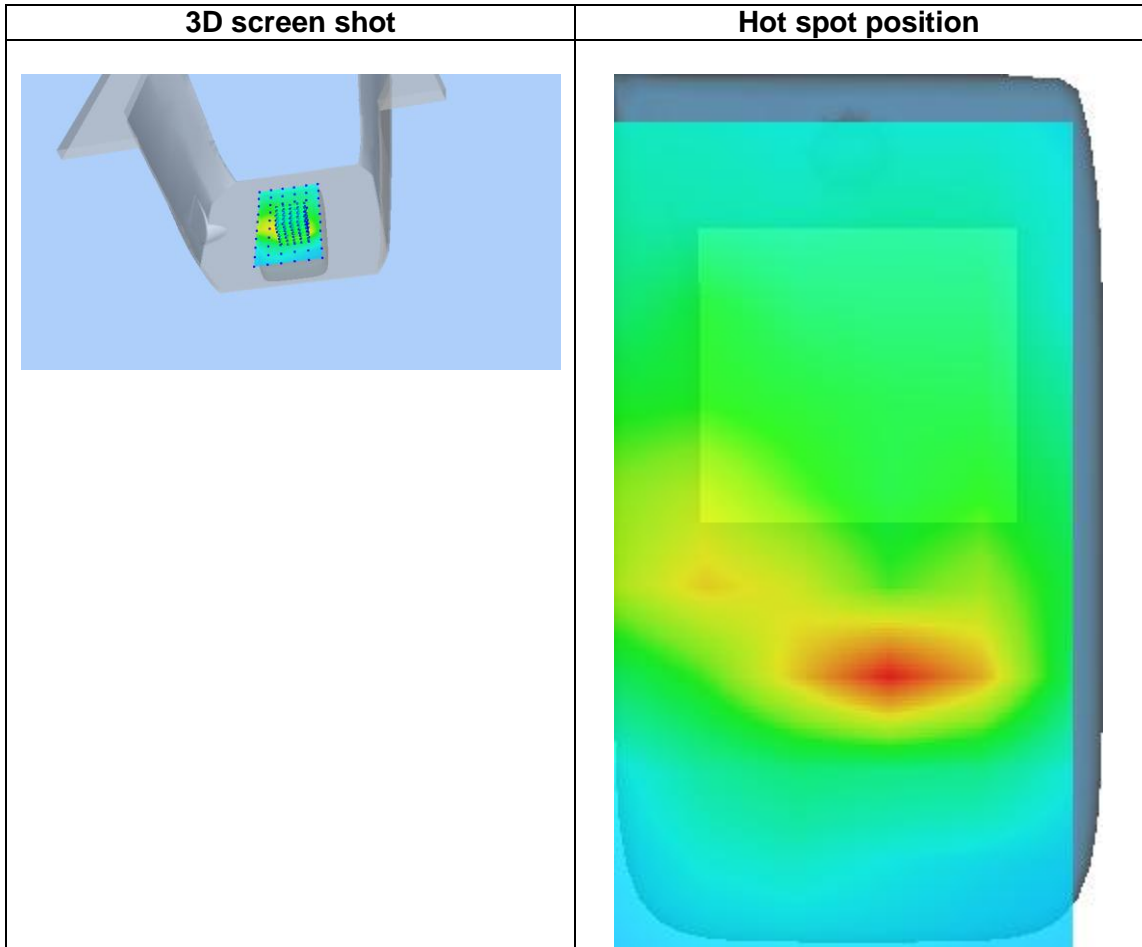
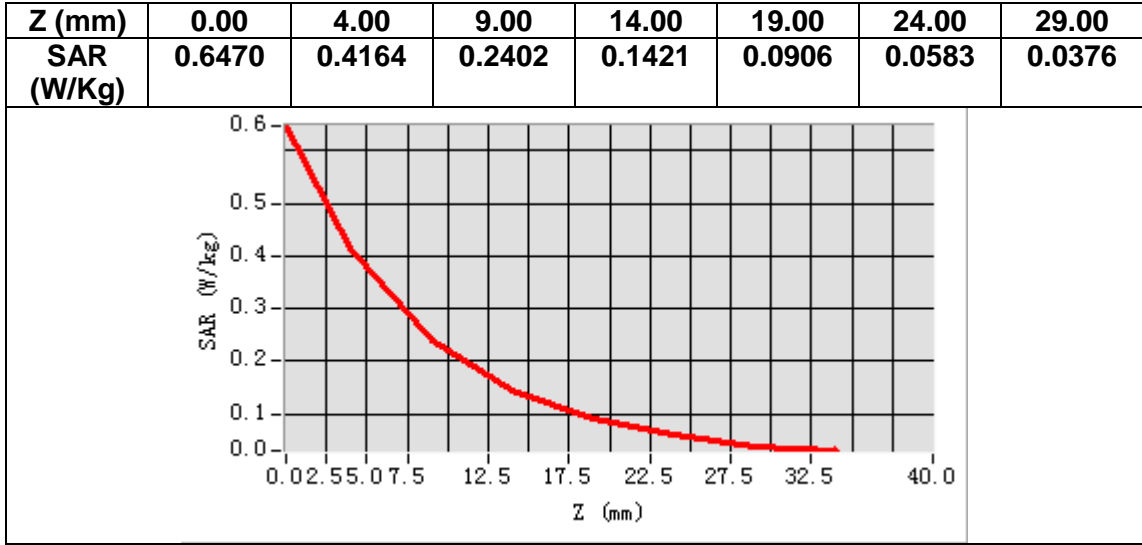
B. SAR Measurement Results

Frequency (MHz)	1732.600000
Relative permittivity (real part)	39.066978
Relative permittivity (imaginary part)	13.921899
Conductivity (S/m)	1.339596
Variation (%)	-0.270000



Maximum location: X=5.00, Y=-27.00
SAR Peak: 0.66 W/kg

SAR 10g (W/Kg)	0.191812
SAR 1g (W/Kg)	0.384128



MEASUREMENT 13

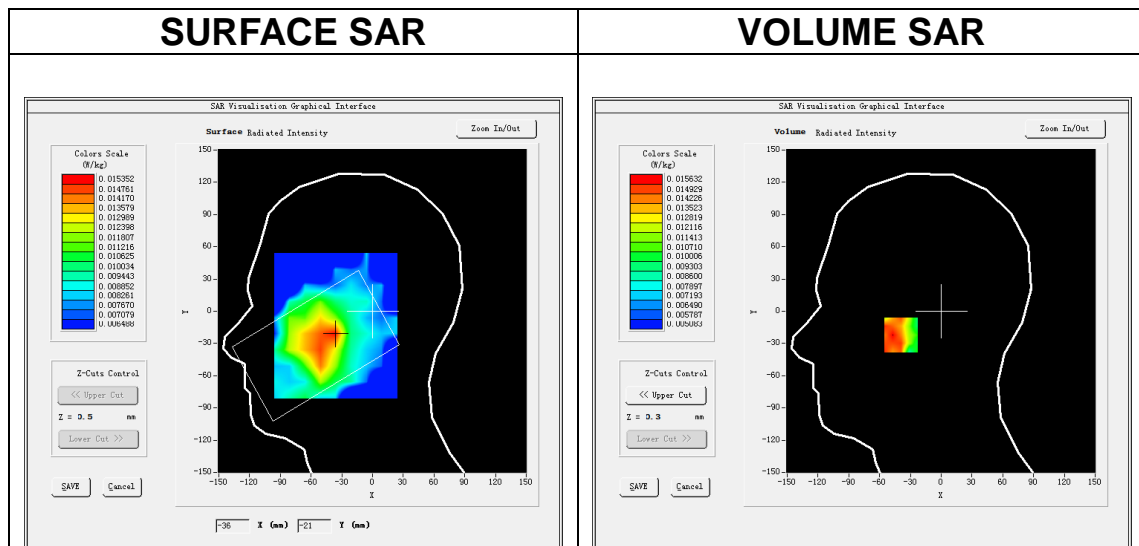
Date of measurement: 12/9/2022

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>

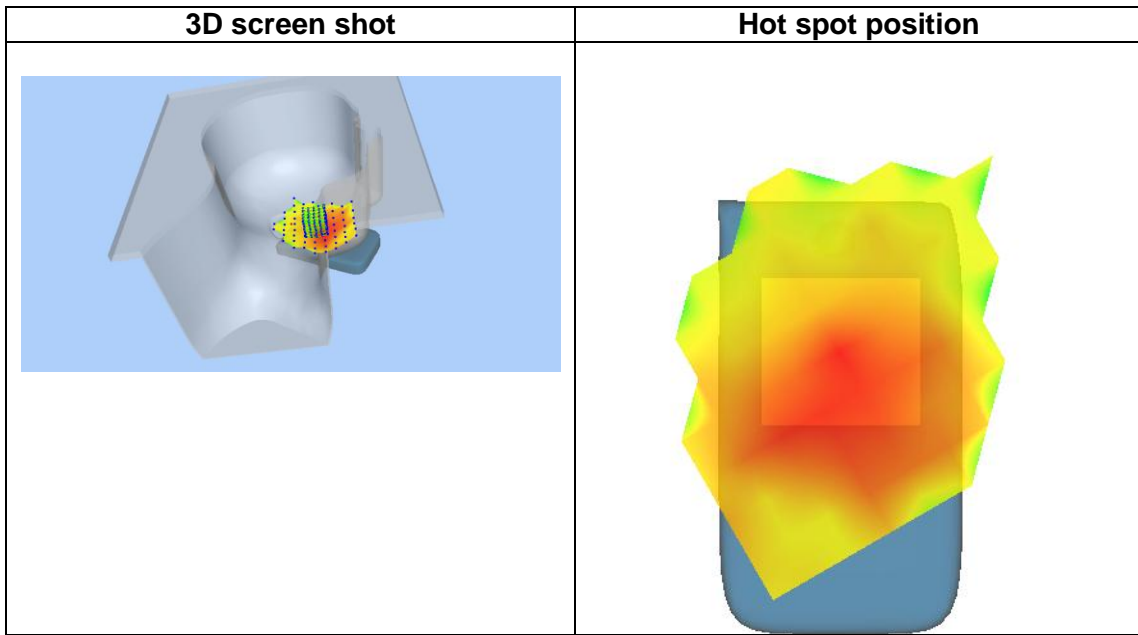
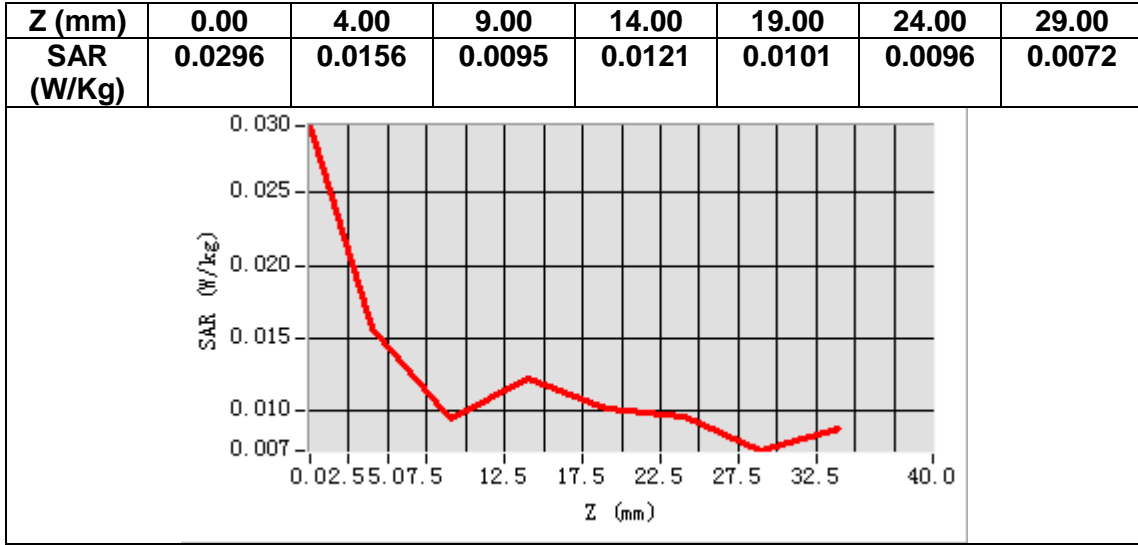
B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative permittivity (real part)	41.419331
Relative permittivity (imaginary part)	20.069847
Conductivity (S/m)	0.932579
Variation (%)	-0.580000



Maximum location: X=-39.00, Y=-22.00
SAR Peak: 0.02 W/kg

SAR 10g (W/Kg)	0.013225
SAR 1g (W/Kg)	0.015126



MEASUREMENT 14

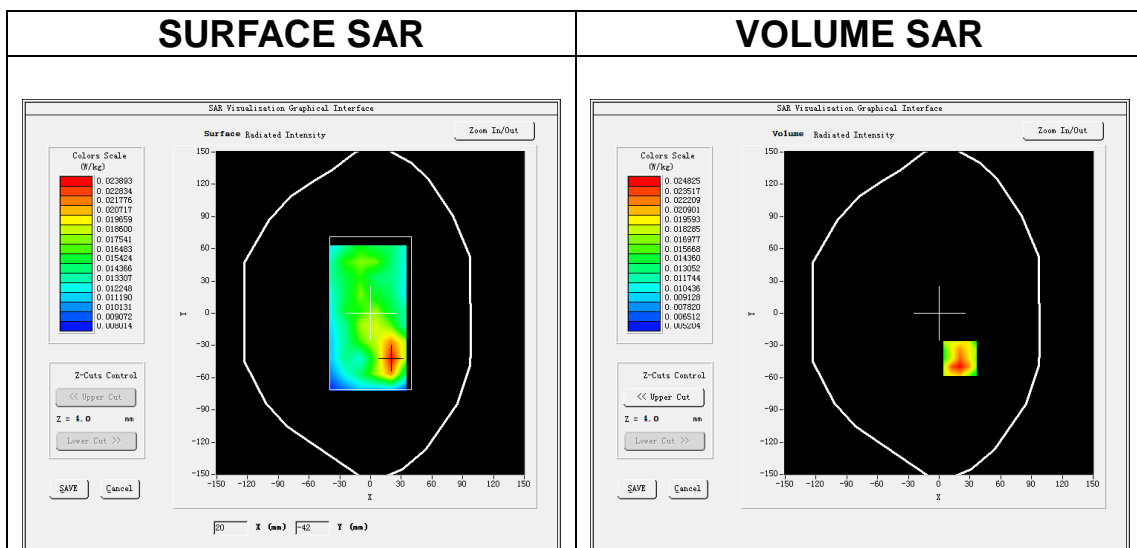
Date of measurement: 12/9/2022

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>

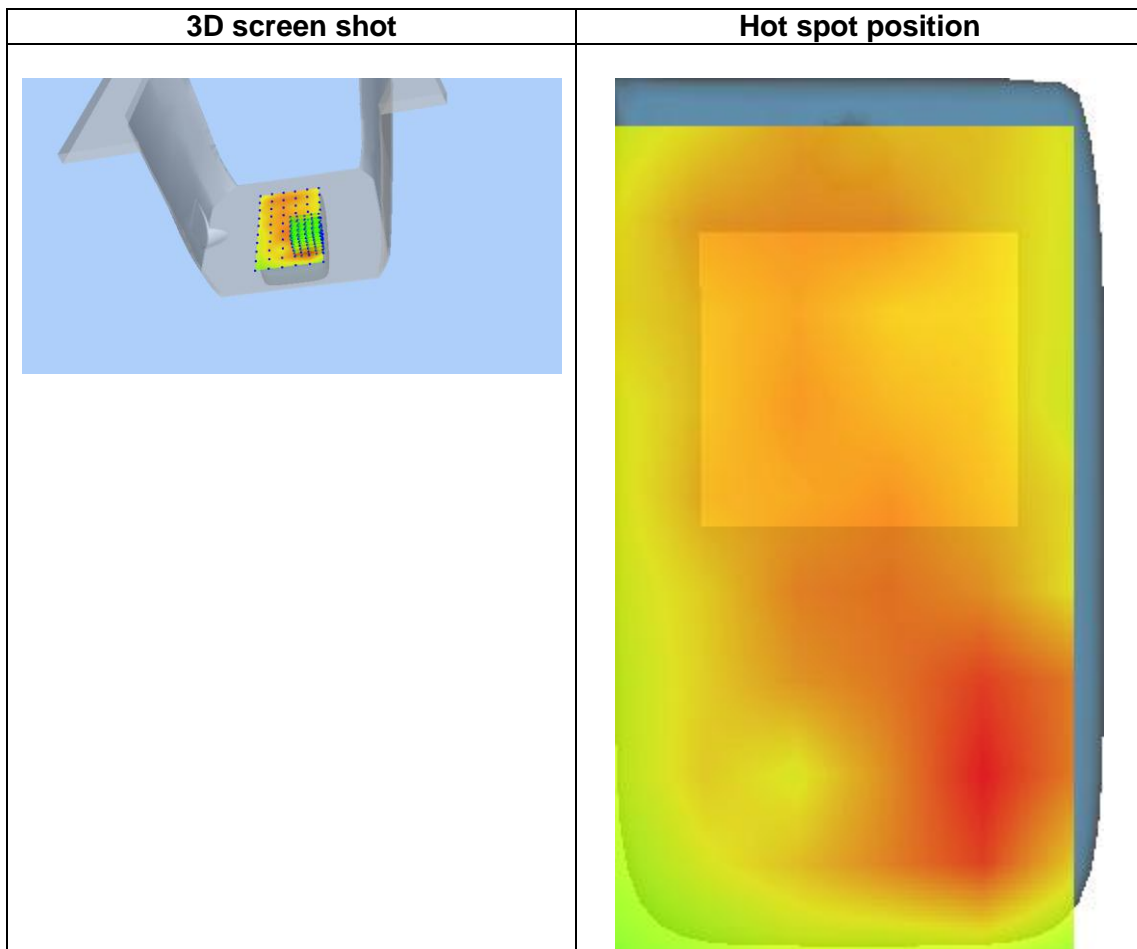
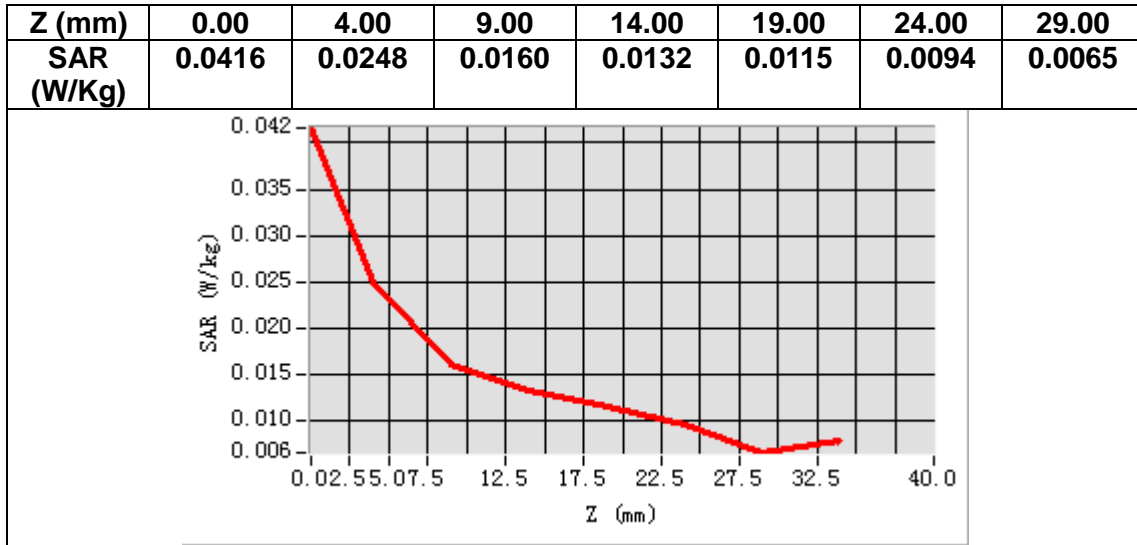
B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative permittivity (real part)	41.419331
Relative permittivity (imaginary part)	20.069847
Conductivity (S/m)	0.932579
Variation (%)	-0.230000



Maximum location: X=20.00, Y=-42.00
SAR Peak: 0.04 W/kg

SAR 10g (W/Kg)	0.016492
SAR 1g (W/Kg)	0.024129



MEASUREMENT 15

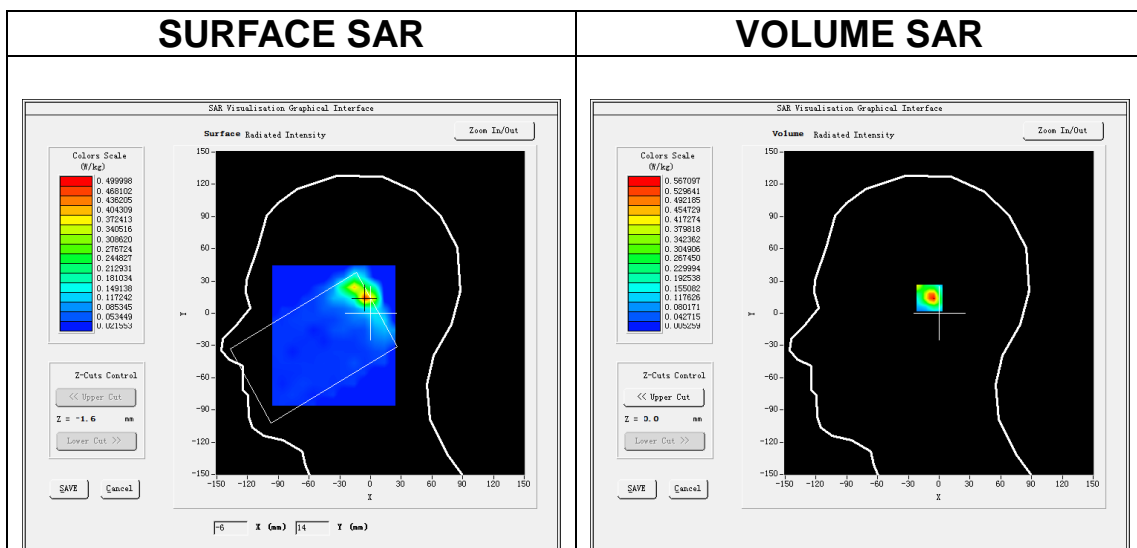
Date of measurement: 31/8/2022

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 802.11ac U-NII</u>
Channels	<u>Middle</u>
Signal	<u>IEEE802.11ac (Crest factor: 1.0)</u>
ConvF	<u>1.80</u>

B. SAR Measurement Results

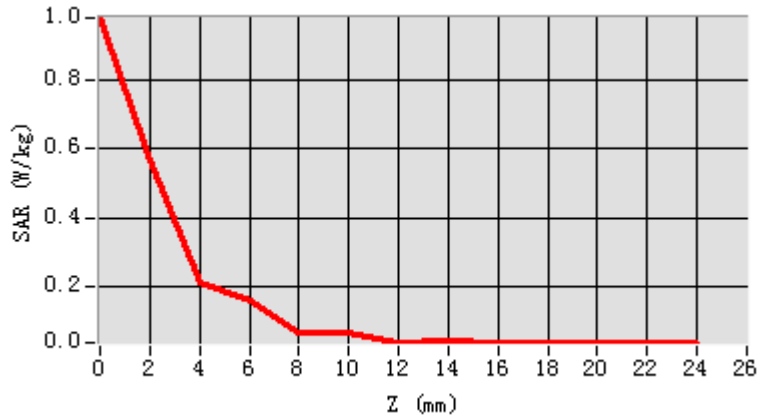
Frequency (MHz)	5210.000000
Relative permittivity (real part)	35.290184
Relative permittivity (imaginary part)	15.635325
Conductivity (S/m)	4.525558
Variation (%)	0.530000

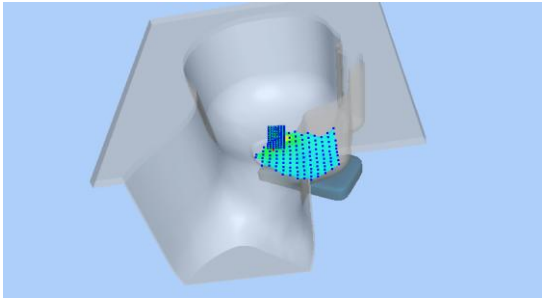
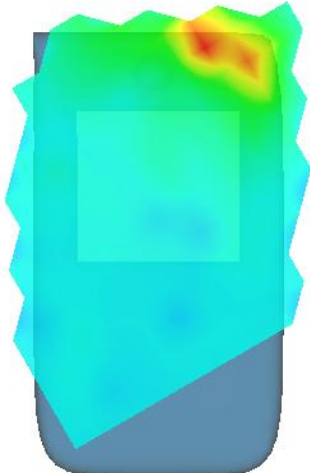


Maximum location: X=-5.00, Y=14.00
SAR Peak: 1.53 W/kg

SAR 10g (W/Kg)	0.168479
SAR 1g (W/Kg)	0.505285

Z (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)	0.9840	0.5671	0.2099	0.1562	0.0630	0.0618	0.0362	0.0377	0.0334	0.0336	0.0355	0.0336



3D screen shot	Hot spot position
	

MEASUREMENT 16

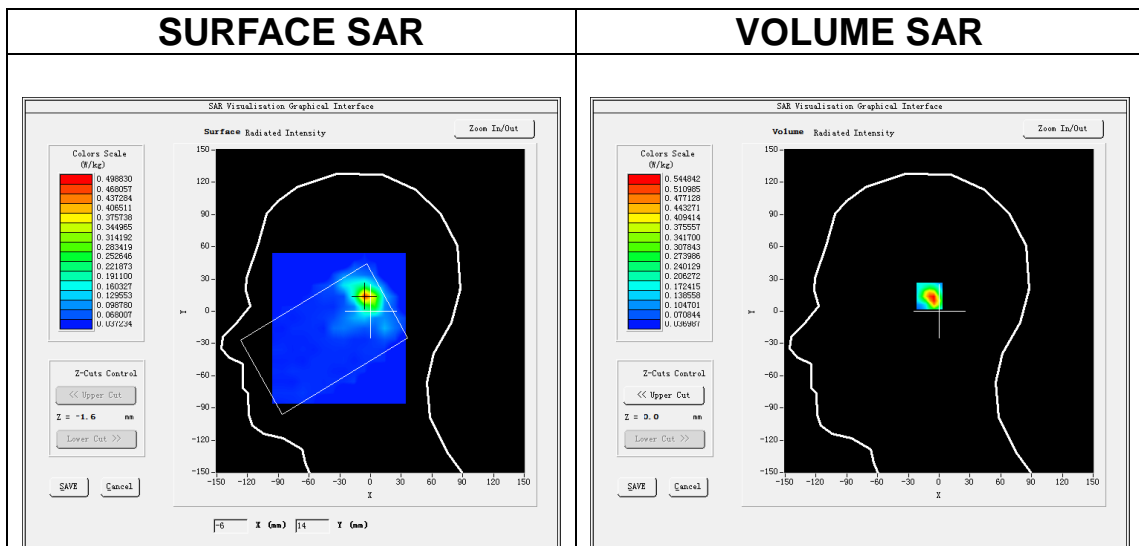
Date of measurement: 29/8/2022

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>2.07</u>

B. SAR Measurement Results

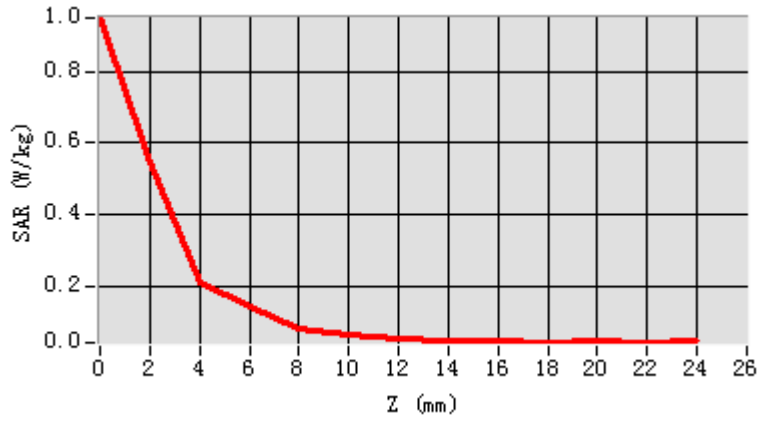
Frequency (MHz)	5775.000000
Relative permittivity (real part)	34.353439
Relative permittivity (imaginary part)	15.955462
Conductivity (S/m)	5.119044
Variation (%)	-0.930000

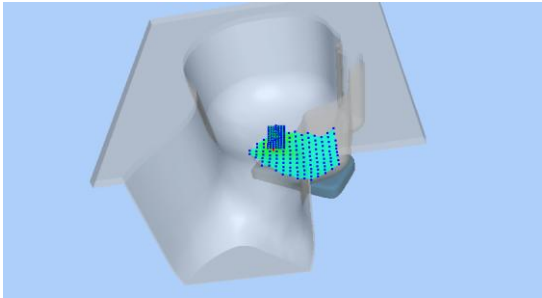
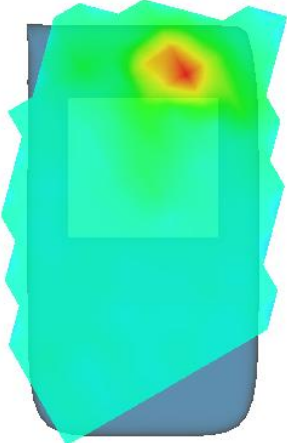


Maximum location: X=-5.00, Y=14.00
SAR Peak: 1.50 W/kg

SAR 10g (W/Kg)	0.184383
SAR 1g (W/Kg)	0.513620

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)	0.9512	0.5448	0.2071	0.1433	0.0807	0.0607	0.0537	0.0465	0.0459	0.0403	0.0450	0.0402



3D screen shot	Hot spot position
	

MEASUREMENT 17

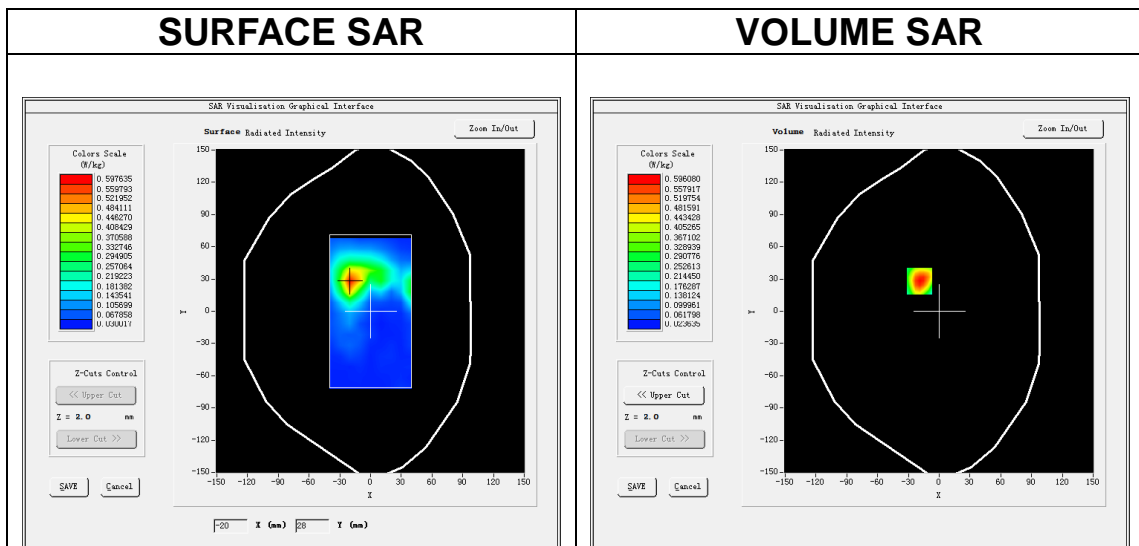
Date of measurement: 31/8/2022

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 802.11ac U-NII</u>
Channels	<u>Middle</u>
Signal	<u>IEEE802.11ac (Crest factor: 1.0)</u>
ConvF	<u>1.80</u>

B. SAR Measurement Results

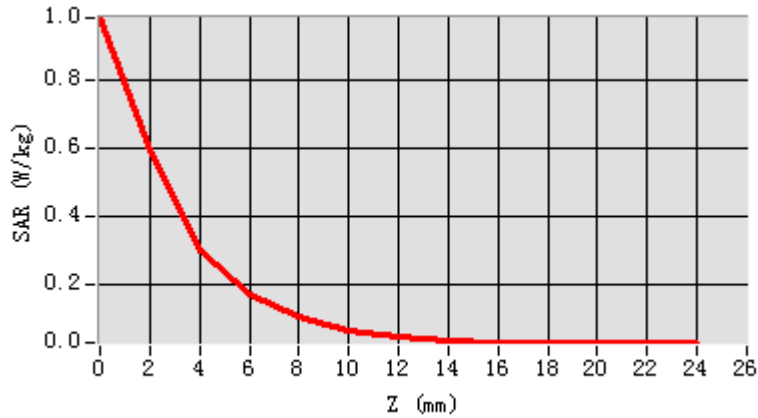
Frequency (MHz)	5210.000000
Relative permittivity (real part)	35.290184
Relative permittivity (imaginary part)	15.635325
Conductivity (S/m)	4.525558
Variation (%)	1.570000



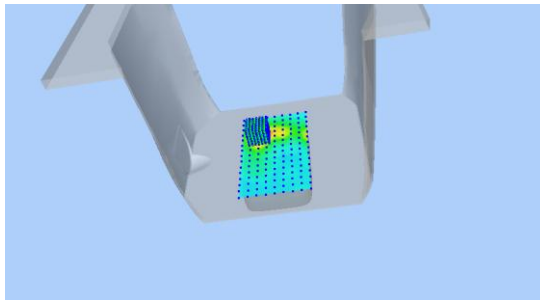
Maximum location: X=-19.00, Y=28.00
SAR Peak: 1.03 W/kg

SAR 10g (W/Kg)	0.161370
SAR 1g (W/Kg)	0.363429

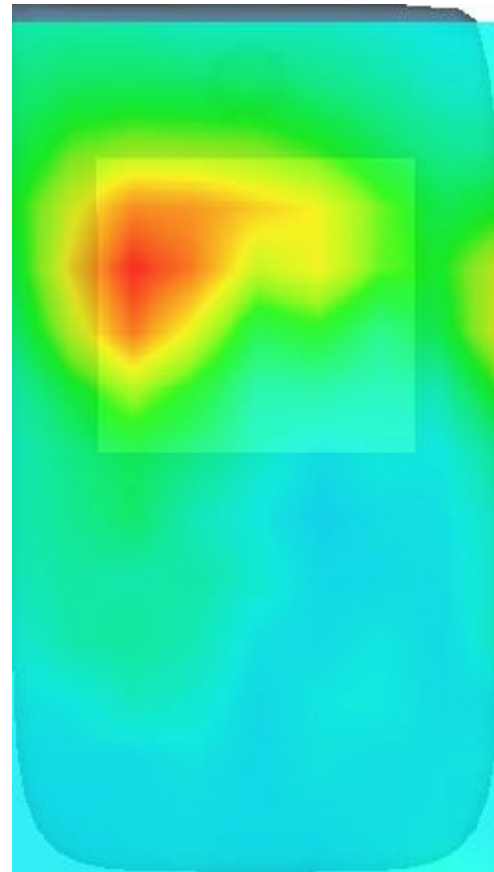
Z (m m)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.9850	0.5961	0.3013	0.1730	0.1109	0.0696	0.0525	0.0383	0.0331	0.0351	0.0343	0.0337



3D screen shot



Hot spot position



MEASUREMENT 18

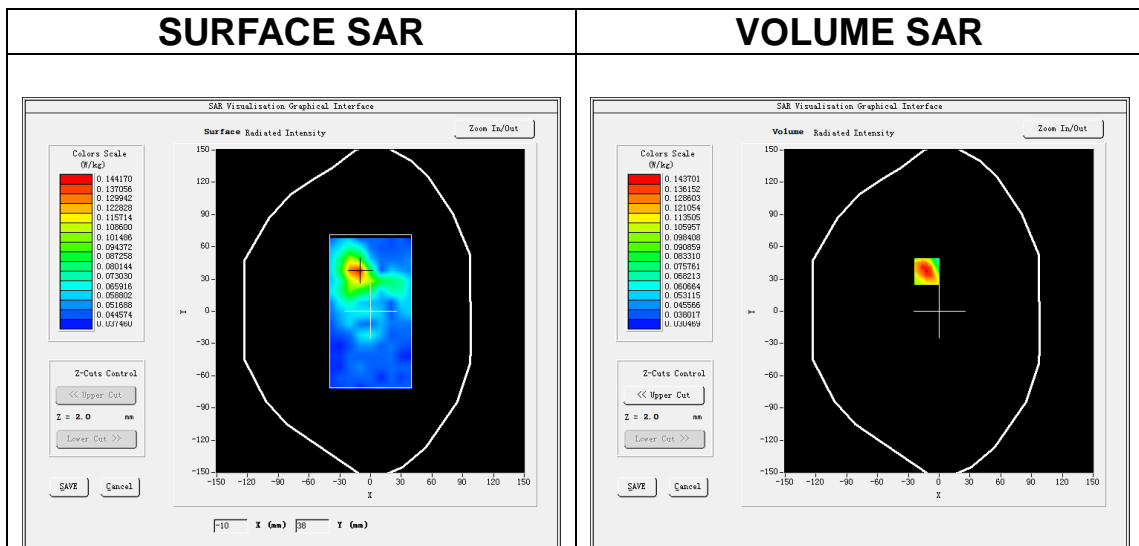
Date of measurement: 29/8/2022

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 802.11ac U-NII</u>
Channels	<u>Middle</u>
Signal	<u>IEEE802.11ac (Crest factor: 1.0)</u>
ConvF	<u>2.07</u>

B. SAR Measurement Results

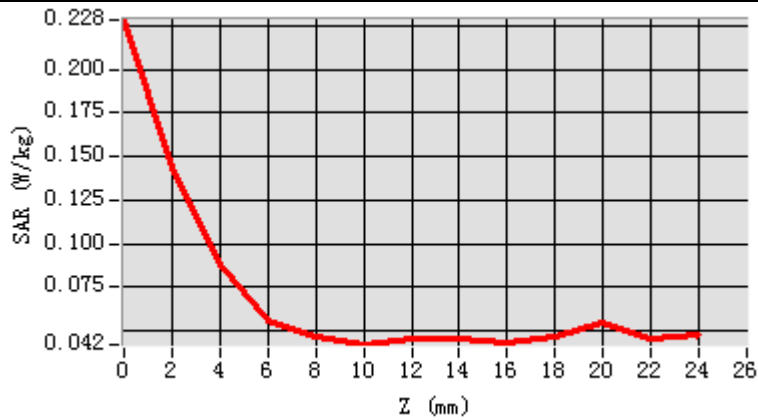
Frequency (MHz)	5775.000000
Relative permittivity (real part)	34.353439
Relative permittivity (imaginary part)	15.955462
Conductivity (S/m)	5.119044
Variation (%)	0.260000



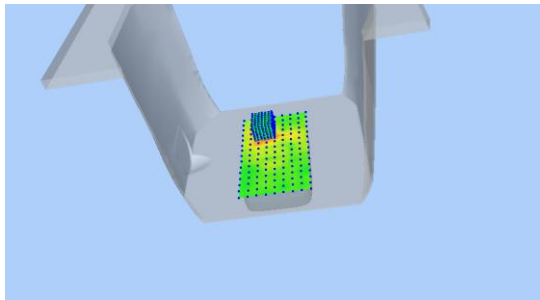
Maximum location: X=-12.00, Y=37.00
SAR Peak: 0.24 W/kg

SAR 10g (W/Kg)	0.067095
SAR 1g (W/Kg)	0.099462

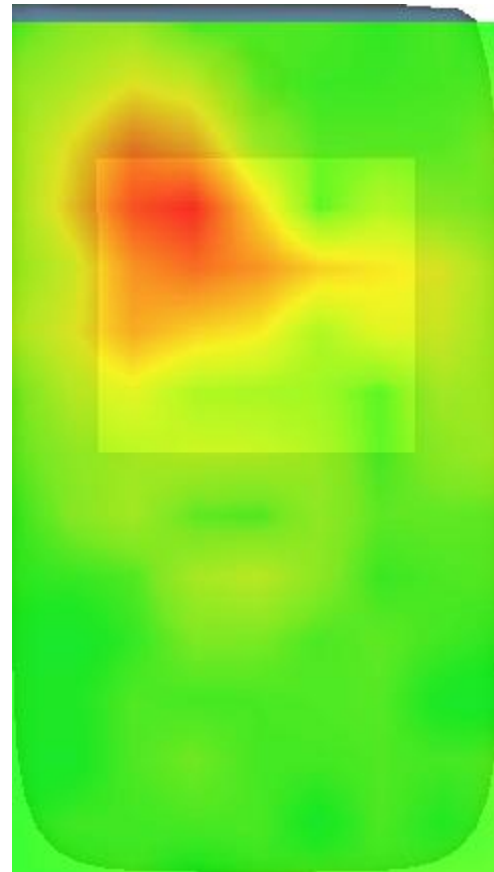
Z (m)	0.00	2.00	4.00	6.00	8.00	10.0	12.0	14.0	16.0	18.0	20.0	22.0
SAR (W/Kg)	0.2283	0.1437	0.0886	0.0560	0.0474	0.0423	0.0457	0.0458	0.0434	0.0466	0.0546	0.0452



3D screen shot



Hot spot position



MEASUREMENT 19

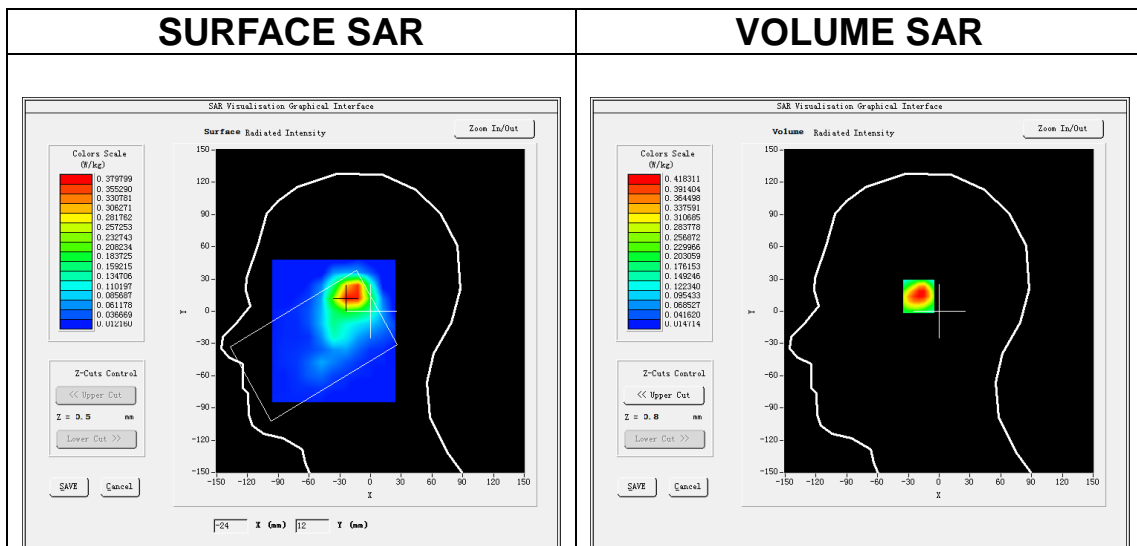
Date of measurement: 7/9/2022

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>

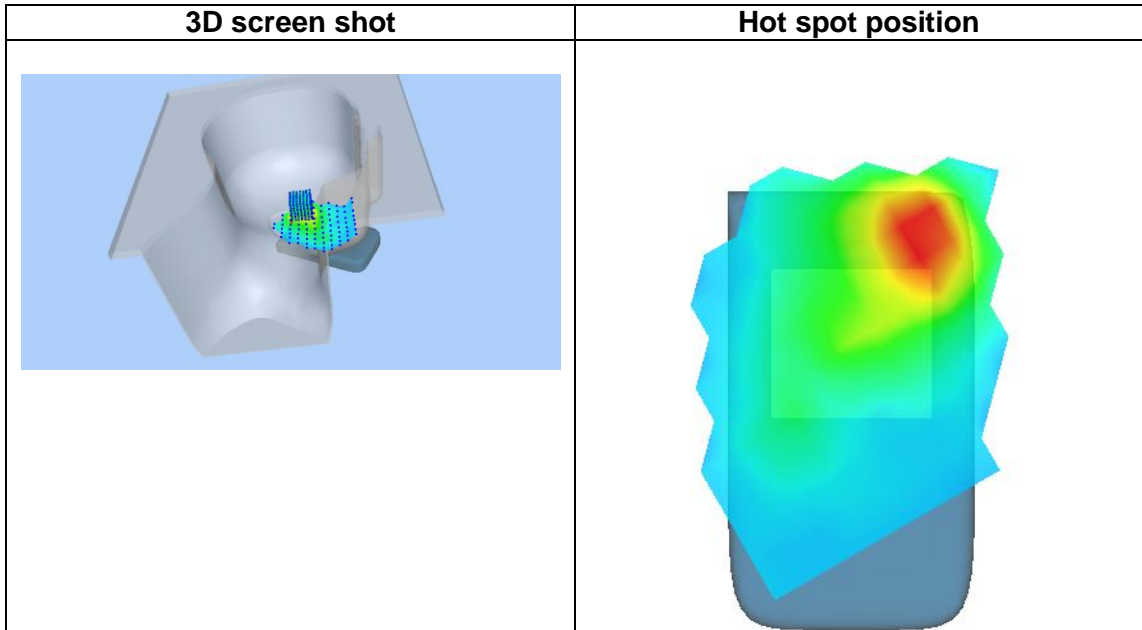
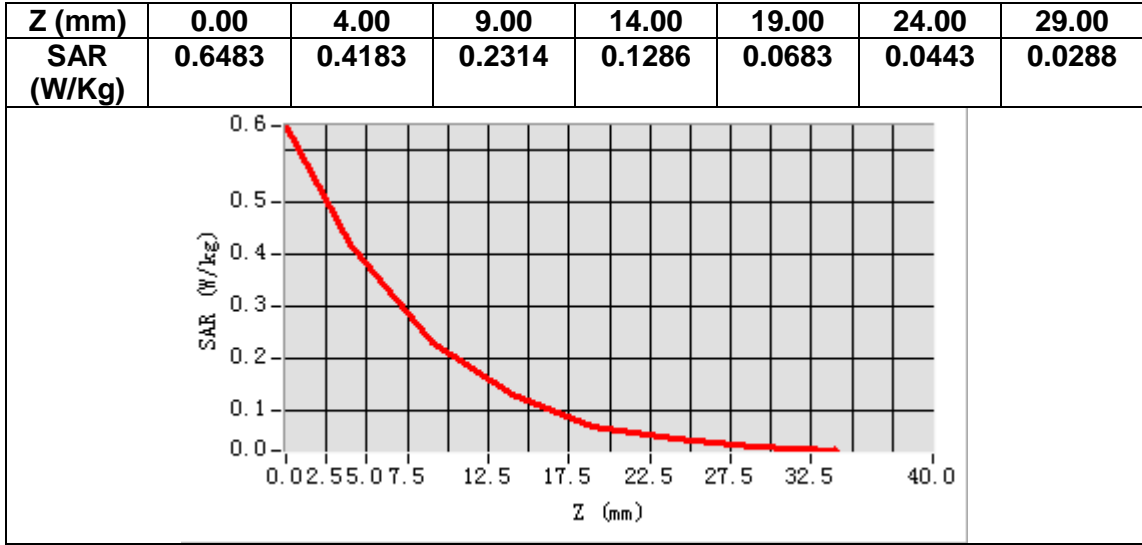
B. SAR Measurement Results

Frequency (MHz)	2412.000000
Relative permittivity (real part)	38.021535
Relative permittivity (imaginary part)	13.101303
Conductivity (S/m)	1.755575
Variation (%)	0.400000



Maximum location: X=-18.00, Y=15.00
SAR Peak: 0.69 W/kg

SAR 10g (W/Kg)	0.203157
SAR 1g (W/Kg)	0.396176



MEASUREMENT 20

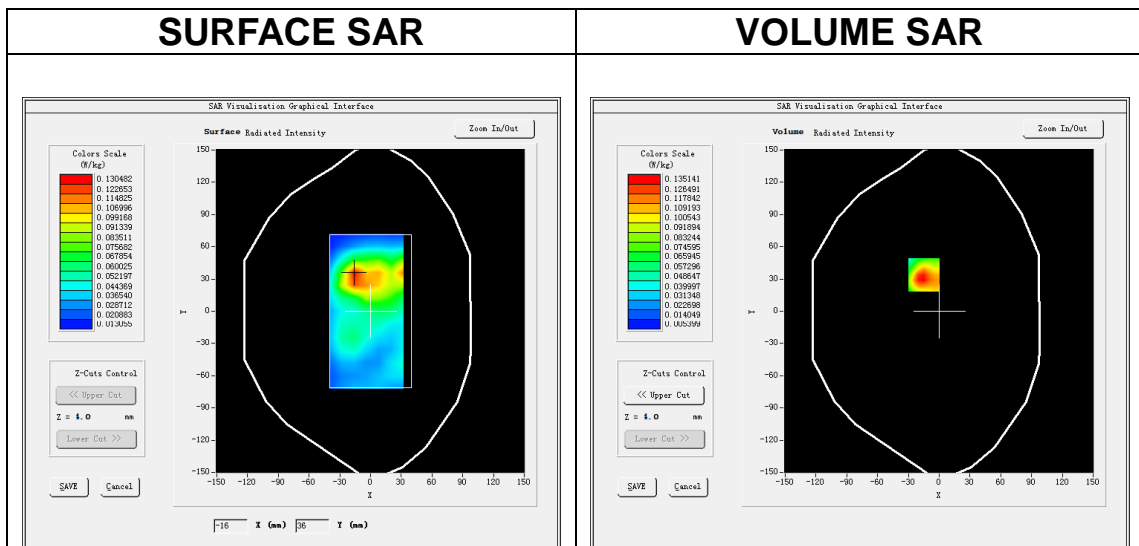
Date of measurement: 7/9/2022

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>IEEE 802.11b ISM</u>
Channels	<u>Low</u>
Signal	<u>IEEE802.11b (Crest factor: 1.0)</u>
ConvF	<u>1.98</u>

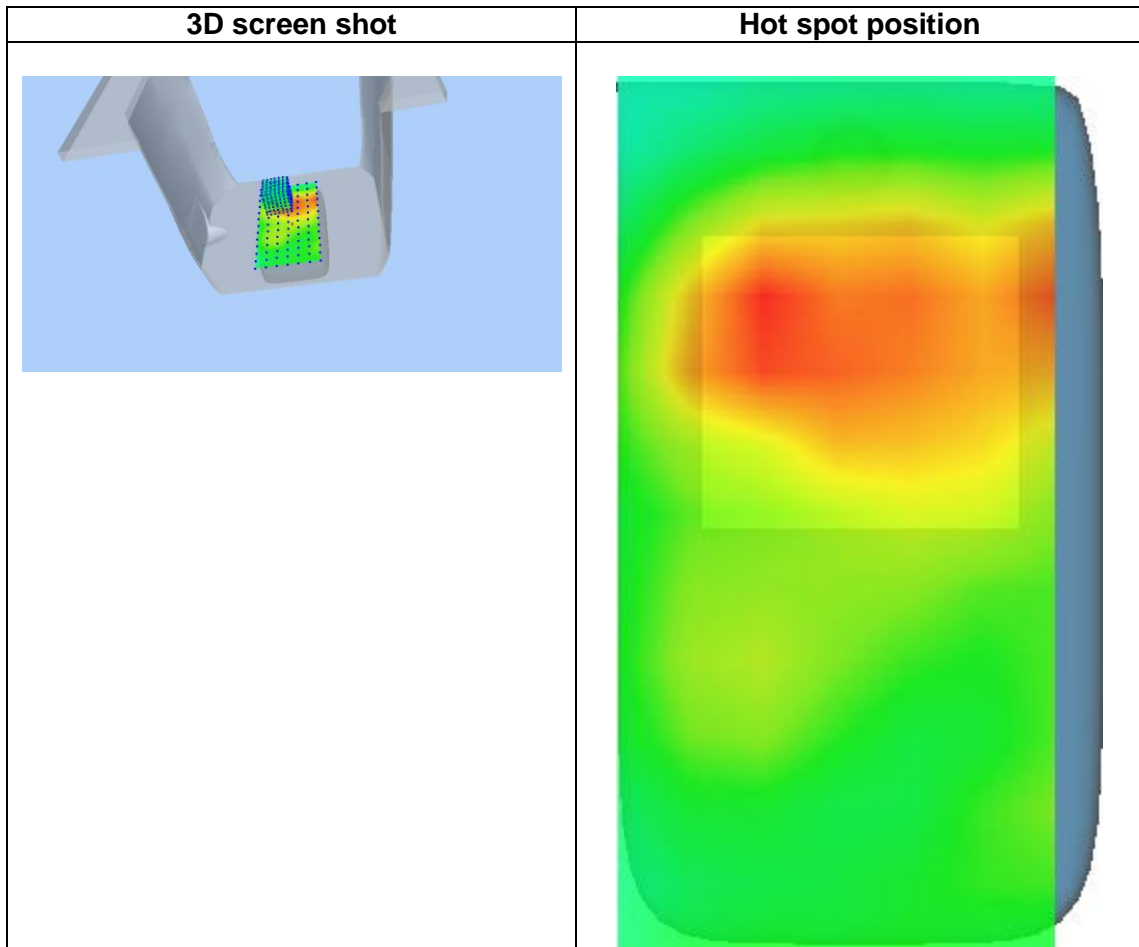
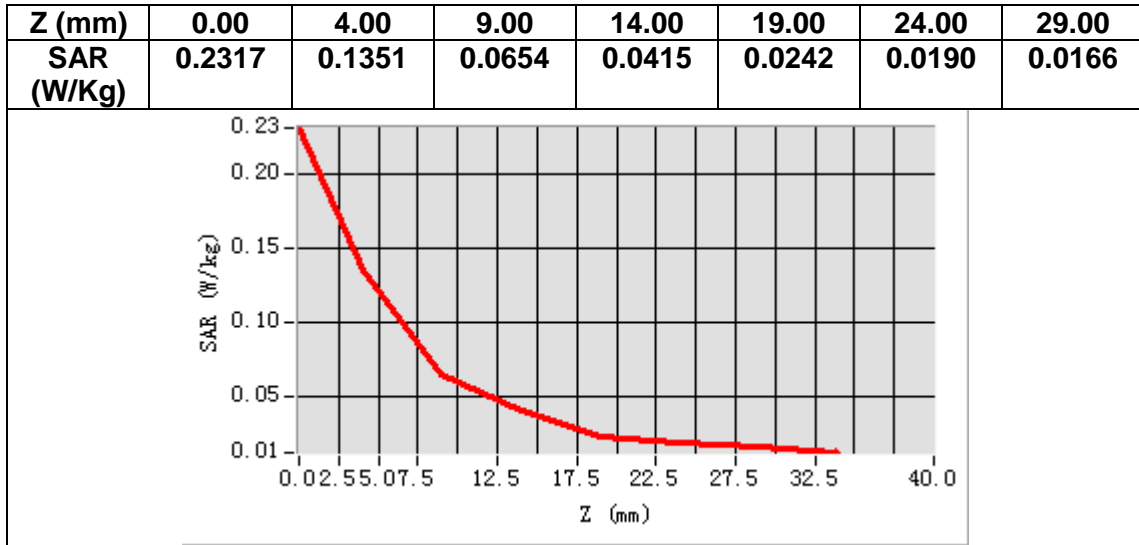
B. SAR Measurement Results

Frequency (MHz)	2412.000000
Relative permittivity (real part)	38.021535
Relative permittivity (imaginary part)	13.101303
Conductivity (S/m)	1.755575
Variation (%)	-1.090000



Maximum location: X=-15.00, Y=34.00
SAR Peak: 0.24 W/kg

SAR 10g (W/Kg)	0.069052
SAR 1g (W/Kg)	0.131532



MEASUREMENT 21

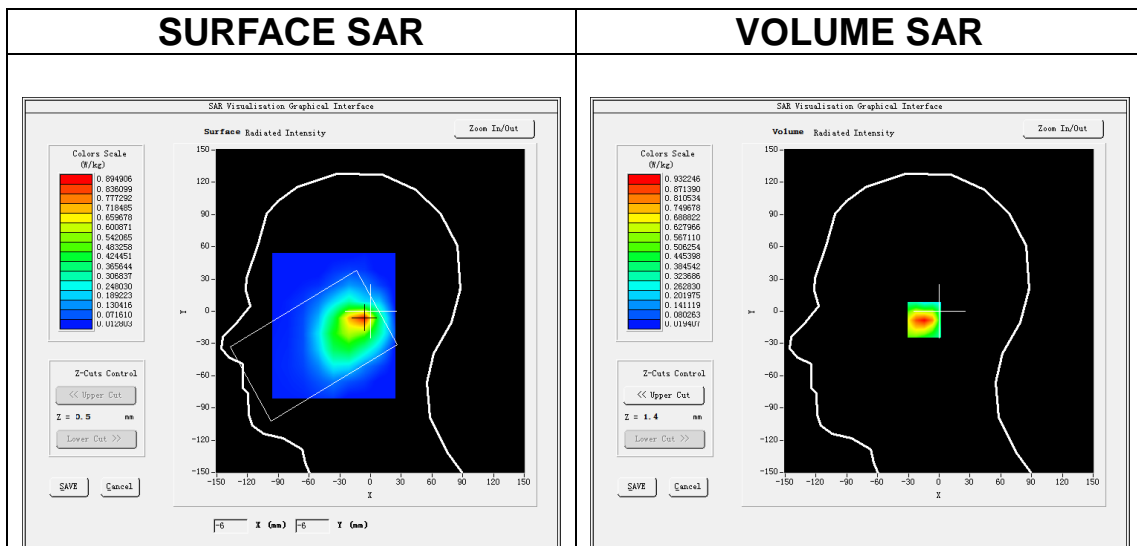
Date of measurement: 26/8/2022

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>High</u>
Signal	<u>LTE (Crest factor: 1.0)</u>
ConvF	<u>1.91</u>

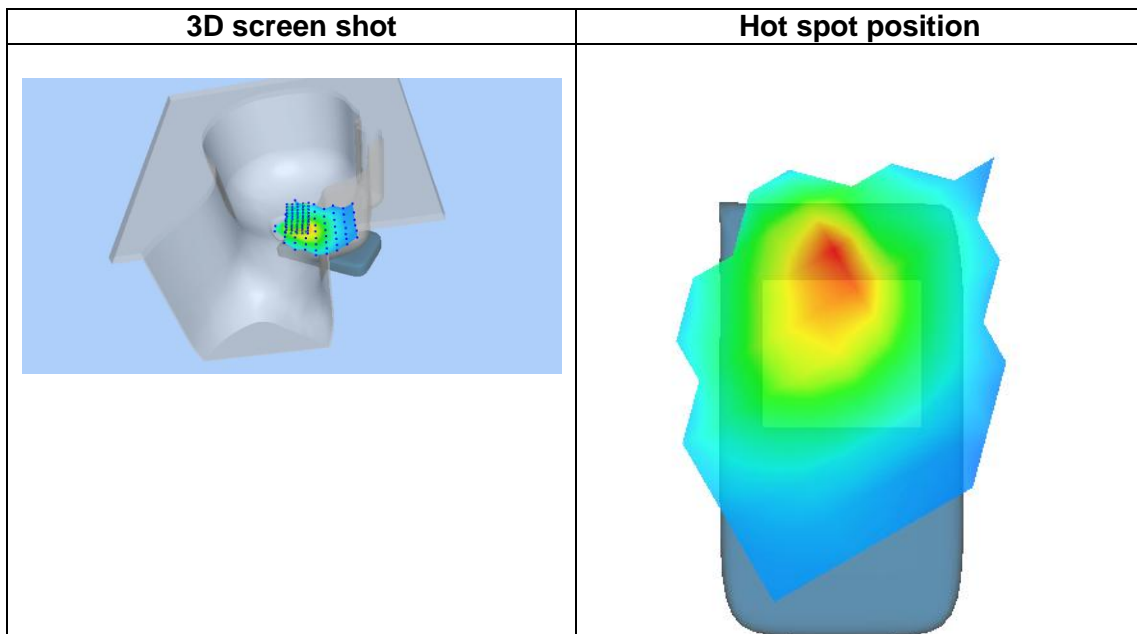
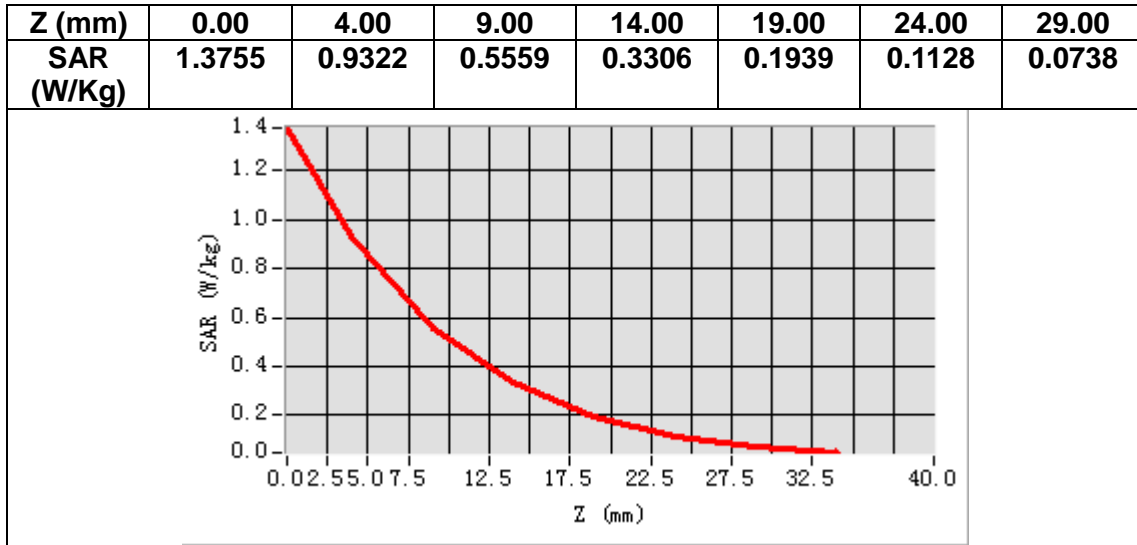
B. SAR Measurement Results

Frequency (MHz)	1900.000000
Relative permittivity (real part)	38.311252
Relative permittivity (imaginary part)	13.788911
Conductivity (S/m)	1.455496
Variation (%)	-0.370000



Maximum location: X=-8.00, Y=-8.00
SAR Peak: 1.39 W/kg

SAR 10g (W/Kg)	0.480160
SAR 1g (W/Kg)	0.881466



MEASUREMENT 22

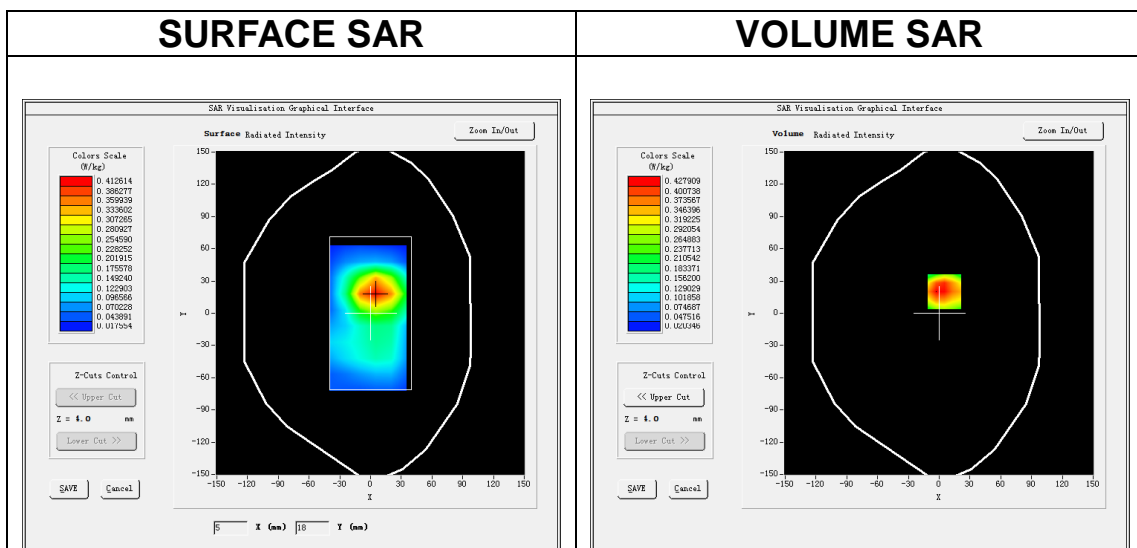
Date of measurement: 26/8/2022

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)	38.406151
Relative permittivity (imaginary part)	13.810461
Conductivity (S/m)	1.442042
Variation (%)	-0.130000



Maximum location: X=5.00, Y=20.00
SAR Peak: 0.63 W/kg

SAR 10g (W/Kg)	0.250268
SAR 1g (W/Kg)	0.428234