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 :	10" Rugged Android Tablet Device
Trademark :	ARBOR
Model Name :	HT10
Family Model :	G1019, H79P, HT10A, HT10B, HT10C, HT10D, HT10E , HT10F , HT10G, HT10H, HT10J
Report No. :	S22030700908001
FCC ID :	2AZNT-HT10

Prepared for

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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name :	ARBOR Technology Corp.
Address :	10F., No.700, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan
Manufacturer's Name :	ARBOR Technology Corp.
Address :	10F., No.700, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan

Product description

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Model Name :	HT10
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Standards :	FCC 47 CFR Part 2(2.1093) ANSI/IEEE C95.1-1992 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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Date of Test

Date (s) of performance of tests :	Mar. 21, 2022 ~ Jun. 06, 2022
Date of Issue :	Jun. 14, 2022
Test Result :	**Pass**

Prepared By (Test Engineer) : Jacob . chen

(Jacob Chen)

Approved By (Lab Manager) : Alex

(Alex Li)

※ ※ Revision History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Jun. 14, 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

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 HT10 are as follows.

RF Exposure Conditions		Equipment Class -Highest Reported SAR (W/kg)			
		PCB	DTS	NII	DSS
1-g Body (Separation distance of 0mm)		1.575	0.584	0.488	N/A
Max Simultaneous Tx	Body	1.595	1.595	1.570	1.531

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	10" Rugged Android Tablet Device		
Trade Name	ARBOR		
Model Name	HT10		
Family Model	G1019, H79P, HT10A, HT10B, HT10C, HT10D, HT10E , HT10F , HT10G, HT10H, HT10J		
FCC ID	2AZNT-HT10		
Device Phase	Identical Prototype		
Exposure Category	General population / Uncontrolled environment		
Antenna	FPC Antenna		
Battery Information	DC 3.8V, 10000mAh, 38Wh		
HW Version	HT10_MB_R0.3		
SW Version	HT10_V6.0		
Device Operating Configurations			
Supporting Mode(s)	GSM 850/1900, WCDMA Band 2/5, LTE Band 2/4/5/7/12/17/19/41, WLAN 2.4G/5G, Bluetooth, NFC		
Test Modulation	GSM(GMSK/8PSK), WCDMA(QPSK), LTE(QPSK/16QAM), WLAN(DSSS/OFDM), Bluetooth(GFSK, π/4-DQPSK, 8DPSK) NFC(ASK)		
Device Class	B		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824-849	869-894

	GSM 1900	1850-1910	1930-1990
	WCDMA Band 2	1850-1910	1930-1990
	WCDMA Band 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 19	830-845	875-890
	LTE Band 41	2555-2655	
	WLAN 2.4G	2412-2462	
	WLAN 5.2G	5180-5240	
	WLAN 5.3G	5260-5320	
	WLAN 5.6G	5500-5700	
	WLAN 5.8G	5745-5825	
	Bluetooth	2402-2480	
	NFC	13.56	
GPRS Multislot Class(12)	Max Number of Timeslots in Uplink	4	
	Max Number of Timeslots in Downlink	4	
	Max Total Timeslot	5	
EDGE Multislot Class(12)	Max Number of Timeslots in Uplink	4	
	Max Number of Timeslots in Downlink	4	
	Max Total Timeslot	5	
Power Class	4, tested with power level 5(GSM 850)		
	1, tested with power level 0(GSM 1900)		
	3, tested with power control “all 1”(WCDMA Band 2)		
	3, tested with power control “all 1”(WCDMA Band 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 19)		
	3, tested with power control all Max.(LTE Band 41)		

1.4. Test specification(s)

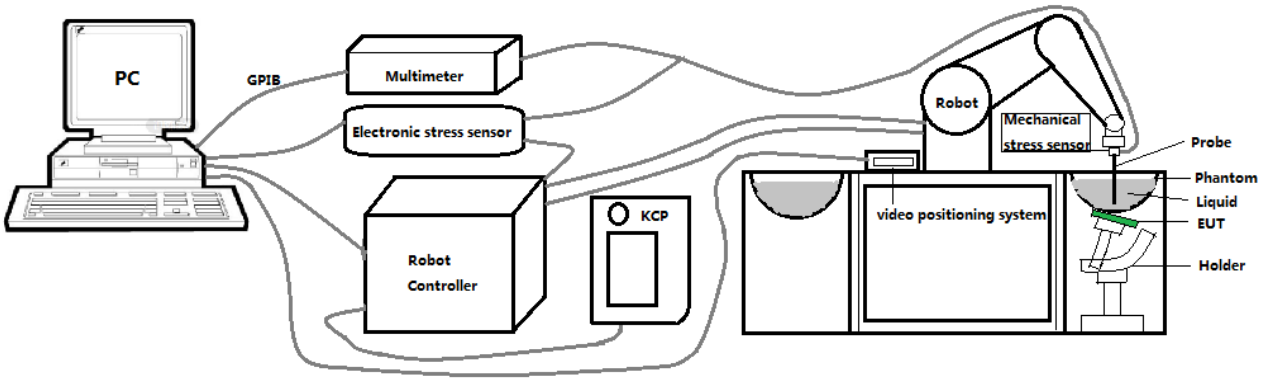
FCC 47 CFR Part 2(2.1093)
ANSI/IEEE C95.1-1992
IEEE Std 1528-2013
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting
KDB 447498 D01 General RF Exposure Guidance
KDB 248227 D01 802.11 Wi-Fi SAR
KDB 941225 D01 3G SAR Procedures
KDB 941225 D05 SAR for LTE Devices
KDB 616217 D04 SAR for laptop and tablets

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 ±10%. The spherical isotropy shall be evaluated and within ±0.25dB. The sensitivity parameters (Norm X, Norm Y, and Norm Z), the diode compression parameter (DCP) and the conversion factor (Conv F) of the probe are tested. The calibration data can be referred to appendix D of this report.

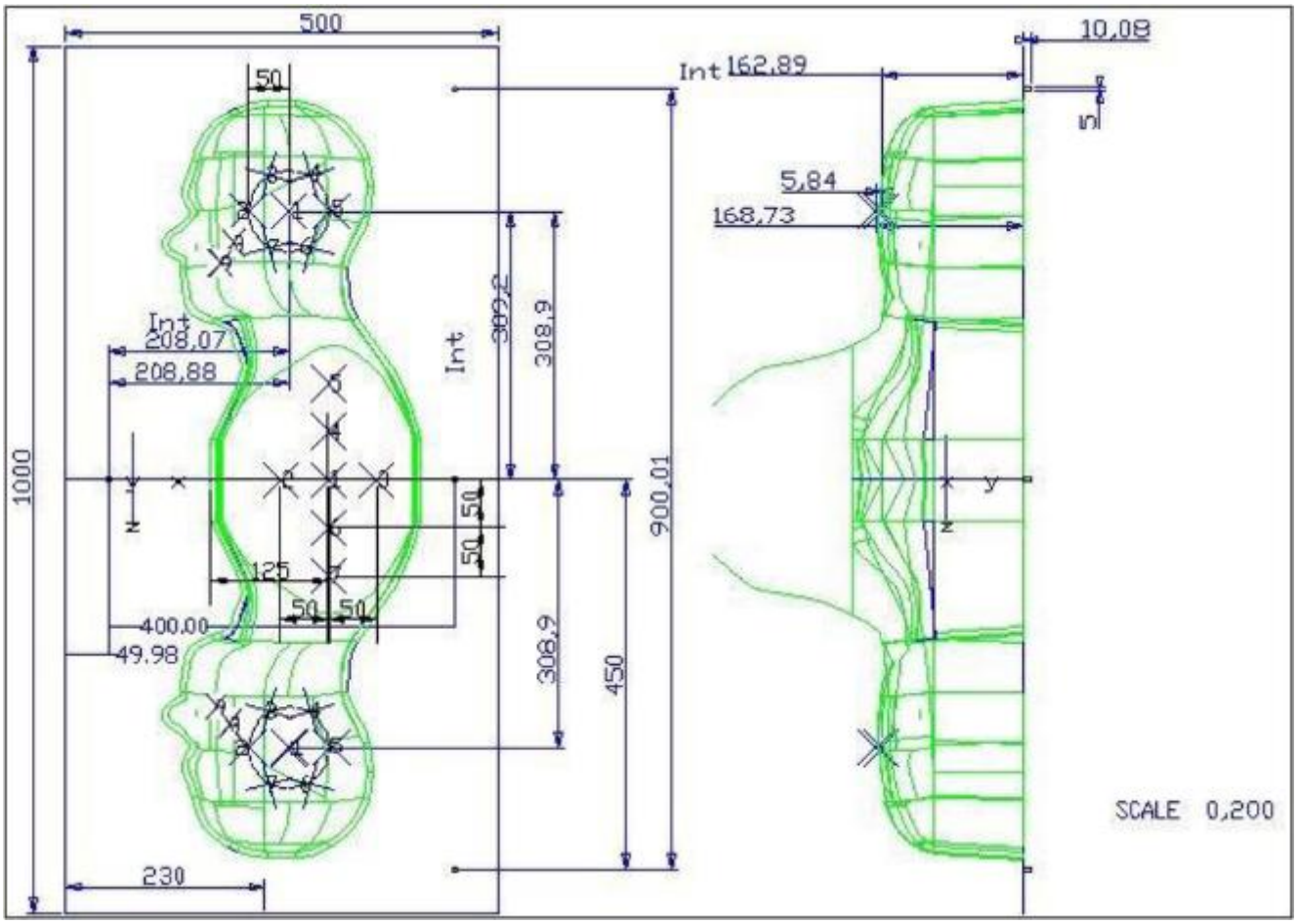
2.4. SAM phantoms

Photo of SAM phantom SN 16/15 SAM119

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

2.4.1. Technical Data

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

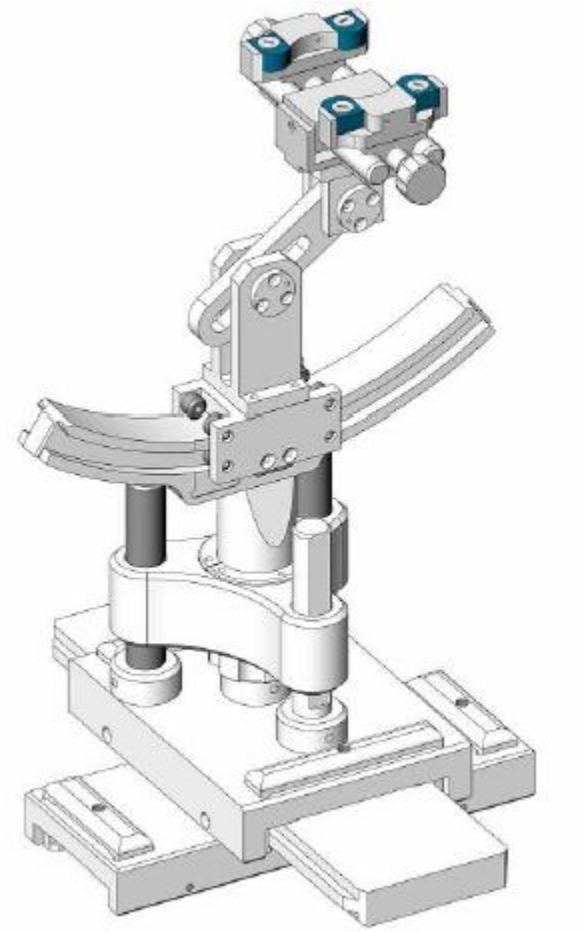


Serial Number	Left Head(mm)		Right Head(mm)		Flat Part(mm)	
SN 16/15 SAM119	2	2.02	2	2.08	1	2.09
	3	2.05	3	2.06	2	2.06
	4	2.07	4	2.07	3	2.08
	5	2.08	5	2.08	4	2.10
	6	2.05	6	2.07	5	2.10
	7	2.05	7	2.05	6	2.07
	8	2.07	8	2.06	7	2.07
	9	2.08	9	2.06	-	-

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

2.5. Device Holder

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



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

2.6. Test Equipment List

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

Devices used during the test described are marked ☒

	Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
					Last Cal.	Due Date
☒	MVG	E FIELD PROBE	SSE2	SN 08/16 EPGO287	Feb. 01, 2022	Jan. 31, 2023
☒	MVG	750 MHz Dipole	SID750	SN 03/15 DIP 0G750-355	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	835 MHz Dipole	SID835	SN 03/15 DIP 0G835-347	Mar. 01, 2021	Feb. 28, 2024
☐	MVG	900 MHz Dipole	SID900	SN 03/15 DIP 0G900-348	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	1800 MHz Dipole	SID1800	SN 03/15 DIP 1G800-349	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	1900 MHz Dipole	SID1900	SN 03/15 DIP 1G900-350	Mar. 01, 2021	Feb. 28, 2024
☐	MVG	2000 MHz Dipole	SID2000	SN 03/15 DIP 2G000-351	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	2450 MHz Dipole	SID2450	SN 03/15 DIP 2G450-352	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	2600 MHz Dipole	SID2600	SN 03/15 DIP 2G600-356	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	5000 MHz Dipole	SWG5500	SN 13/14 WGA 33	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	Liquid measurement Kit	SCLMP	SN 21/15 OCPG 72	NCR	NCR
☒	MVG	Power Amplifier	N.A	AMPLISAR_28/14_003	NCR	NCR
☒	KEITHLEY	Millivoltmeter	2000	4072790	NCR	NCR
☒	R&S	Universal radio communication tester	CMU200	117858	Jul. 01, 2021	Jun. 30, 2022
☒	R&S	Wideband radio communication tester	CMW500	103917	Jul. 01, 2021	Jun. 30, 2022
☒	HP	Network Analyzer	8753D	3410J01136	Jul. 01, 2021	Jun. 30, 2022
☒	Agilent	PSG Analog Signal Generator	E8257D	MY51110112	Jul. 01, 2021	Jun. 30, 2022

☒	Agilent	Power meter	E4419B	MY45102538	Jul. 01, 2021	Jun. 30, 2022
☒	Agilent	Power sensor	E9301A	MY41495644	Jul. 01, 2021	Jun. 30, 2022
☒	Agilent	Power sensor	E9301A	US39212148	Jul. 01, 2021	Jun. 30, 2022
☒	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 WLAN/Bluetooth power measurement, use engineering software to configure EUT WLAN/Bluetooth continuously transmission, at maximum RF power in each supported wireless interface and frequency band.

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

<SAR measurement>

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

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

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

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

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

(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg.

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement

(b) Area scan

(c) Zoom scan

(d) Power drift measurement

3.1. Power Reference

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

3.2. Area scan & Zoom scan

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

Measurement of the SAR distribution with a grid of 8 to 16 mm * 8 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme. Around this point, a cube of 30 * 30 *30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8 * 4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

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

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

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

3.3. Description of interpolation/extrapolation scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimise measurements errors, but the highest local SAR will occur at the surface of the phantom.
An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1 mm step.
The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

3.4. Volumetric Scan

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

3.5. Power Drift

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

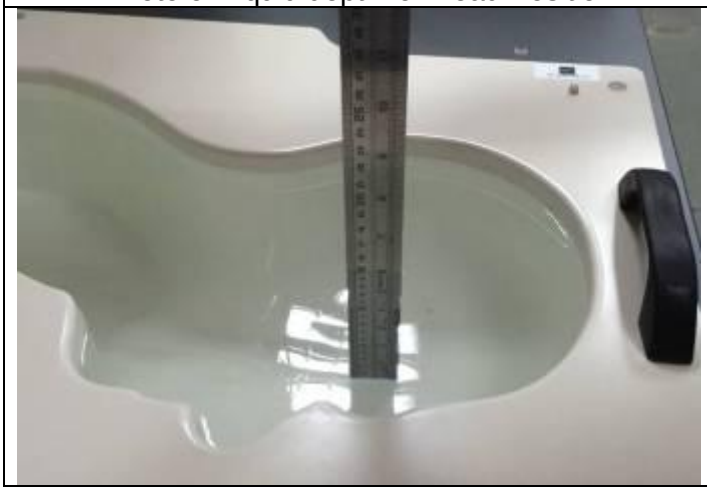
4. System Verification Procedure

4.1. Tissue Verification

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

Ingredients (% of weight)	Head Tissue									
Frequency Band (MHz)	750	835	900	1800	1900	2000	2450	2600	5200	5800
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.

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

4.1.1. Tissue Dielectric Parameter Check Results

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

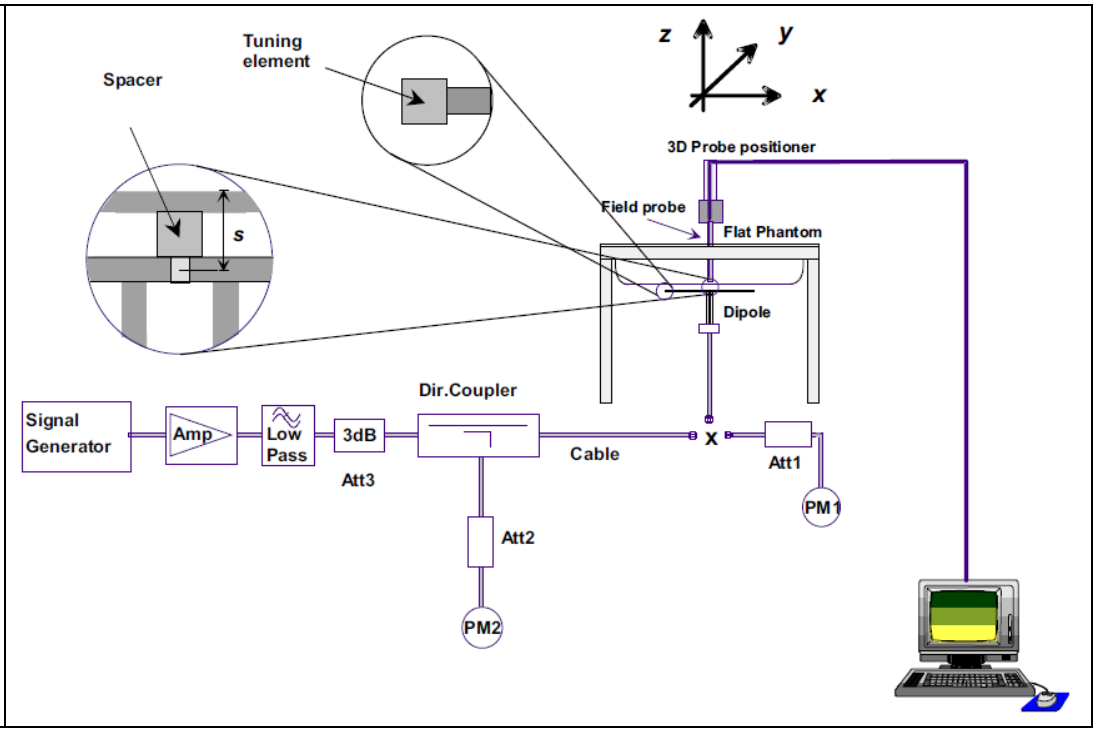
Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		εr (±5%)	σ (S/m) (±5%)	εr	σ (S/m)		
Head 750	750	41.96 (39.86~44.06)	0.89 (0.85~0.93）	40.71	0.90	21.5 °C	May 19, 2022
Head 850	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	42.33	0.93	21.7 °C	Mar. 21, 2022
Head 1800	1800	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.72	1.39	21.7 °C	Jun. 06, 2022
Head 1900	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.34	1.46	21.2 °C	Mar. 23, 2022
Head 2450	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	38.61	1.81	21.4 °C	Mar. 31, 2022
Head 2600	2600	39.01 (37.06~40.96)	1.96 (1.86~2.06)	38.50	2.02	21.8 °C	Mar. 28, 2022
Head 5200	5200	36.00 (34.20~37.80)	4.66 (4.43~4.89)	36.56	4.81	21.3 °C	Mar. 25, 2022
Head 5600	5600	35.50 (33.73~37.28)	5.07 (4.82~5.32)	36.08	5.02	21.4 °C	Mar. 30, 2022
Head 5800	5800	35.30 (33.54~37.07)	5.27 (5.01~5.53)	35.52	5.42	21.2 °C	Mar. 24, 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 ±10%. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance verification can meet the variation criterion and the plots can be referred to Appendix B of this report.

System Verification	Target SAR (1W) (±10%)		Measured SAR (Normalized to 1W)		Liquid Temp.	Test Date
	1-g (W/Kg)	10-g (W/Kg)	1-g (W/Kg)	10-g (W/Kg)		
750MHz	8.53 (7.68~9.38)	5.56 (5.01~6.11)	7.83	5.42	21.5 °C	May 19, 2022
835MHz	9.84 (8.86~10.82)	6.22 (5.60~6.84)	9.31	6.51	21.7 °C	Mar. 21, 2022
1800MHz	37.96 (34.17~41.75)	19.81 (17.83~21.79)	38.80	19.91	21.7 °C	Jun. 06, 2022
1900MHz	40.37 (36.34~44.40)	20.48 (18.44~22.52)	40.30	19.04	21.2 °C	Mar. 23, 2022
2450MHz	53.69 (48.33~59.05)	23.94 (21.55~26.33)	58.31	25.38	21.4 °C	Mar. 31, 2022
2600MHz	55.83 (50.25~61.41)	24.19 (21.78~26.60)	51.82	23.20	21.8 °C	Mar. 28, 2022
5200MHz	162.34 (146.11~178.57)	55.42 (49.88~60.96)	148.10	57.75	21.3 °C	Mar. 25, 2022
5600MHz	174.92 (157.43~192.41)	58.63 (52.77~64.49)	166.06	62.56	21.4 °C	Mar. 30, 2022
5800MHz	178.89 (161.01~196.77)	59.32 (53.39~65.25)	172.15	60.06	21.2 °C	Mar. 24, 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. Tablet host platform exposure conditions

Refer to KDB616217 D04, when the modular approach is used, transmitters and modules must be initially tested for standalone operations in generic host conditions according to the following minimum test separation distance and antenna installation requirements for incorporation in the tablet platform. The separation distance required for incorporation in qualified hosts is described in KDB 447498; item 5) of section 4.1 and item 1) of section 5.2.2 etc.

- ≤ 5 mm between the antenna and user for both back surface and edge exposure conditions
- the antennas used by the host must have been tested for equipment approval or qualify for SAR test exclusion
- the antenna polarization, physical orientation, rotation and installation configurations used by the host must have been tested for compliance or qualify for test exclusion
- when the *SAR Test Exclusion Threshold* in KDB 447498 applies, a *test separation distance* of 5 mm is required to determine test exclusion for the tablet platform

The antennas embedded in tablets are typically ≤ 5mm from the outer housing. The required antenna to user test separation distance is a “not to exceed test” distance required to apply the modular approach. Instead of the typical zero gap tablet edge test requirement between the edge of a tablet and the user, when an antenna has been tested at ≤ 5 mm according to the modular approach it can be incorporated into tablets with at least twice the tested distance from the outer housing of the tablet edge; otherwise, the tablet edge zero gap test requirement applies. When the dedicated host approach is applied, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom.

7. RF Output Power

7.1. GSM Conducted Power

Band GSM850	Burst-Averaged output Power (dBm)				Frame-Averaged output Power (dBm)			
Tx Channel	Tune-up	128	189	251	Tune-up	128	189	251
Frequency (MHz)	(dBm)	824.2	836.4	848.8	(dBm)	824.2	836.4	848.8
GSM (GMSK)	33.00	32.74	32.80	32.73	23.97	23.71	23.77	23.70
GPRS(GMSK, 1 TS)	33.00	32.66	32.78	32.72	23.97	23.63	23.75	23.69
GPRS(GMSK, 2 TS)	32.50	32.02	32.13	32.05	26.48	26.00	26.11	26.03
GPRS(GMSK, 3 TS)	30.50	30.36	30.47	30.41	26.24	26.10	26.21	26.15
GPRS(GMSK, 4 TS)	29.50	29.25	29.37	29.32	26.49	26.24	26.36	26.31
EDGE(GMSK, 1 TS)	27.00	26.53	26.80	26.76	17.97	17.50	17.77	17.73
EDGE(GMSK, 2 TS)	26.00	25.61	25.80	25.86	19.98	19.59	19.78	19.84
EDGE(GMSK, 3 TS)	24.00	23.60	23.83	24.00	19.74	19.34	19.57	19.74
EDGE(GMSK, 4 TS)	23.50	22.44	23.16	22.88	20.49	19.43	20.15	19.87
Band GSM1900	Burst-Averaged output Power (dBm)				Frame-Averaged output Power (dBm)			
Tx Channel	Tune-up	512	661	810	Tune-up	512	661	810
Frequency (MHz)	(dBm)	1850.2	1880.0	1909.8	(dBm)	1850.2	1880.0	1909.8
GSM (GMSK)	30.00	29.67	29.67	29.74	20.97	20.64	20.64	20.71
GPRS(GMSK, 1 TS)	30.00	29.80	29.78	29.76	20.97	20.77	20.75	20.73
GPRS(GMSK, 2 TS)	29.50	29.04	29.06	29.08	23.48	23.02	23.04	23.06
GPRS(GMSK, 3 TS)	27.50	27.26	27.32	27.43	23.24	23.00	23.06	23.17
GPRS(GMSK, 4 TS)	26.50	26.13	26.21	26.32	23.49	23.12	23.20	23.31
EDGE(GMSK, 1 TS)	26.00	25.75	25.69	25.83	16.97	16.72	16.66	16.80
EDGE(GMSK, 2 TS)	25.00	24.37	24.80	24.44	18.98	18.35	18.78	18.42
EDGE(GMSK, 3 TS)	23.50	23.05	22.59	22.73	19.24	18.79	18.33	18.47
EDGE(GMSK, 4 TS)	21.50	21.34	21.44	21.48	18.49	18.33	18.43	18.47

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 TS) - 9.03 dB
Frame-averaged power = Maximum burst averaged power (2 TS) - 6.02 dB
Frame-averaged power = Maximum burst averaged power (3 TS) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 TS) - 3.01 dB

7.2. WCDMA Conducted Power

WCDMA Band 2	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
RMC12.2K	23.50	23.27	23.31	23.32
HSDPA Sub 1	22.50	22.29	22.32	22.35
HSDPA Sub 2	22.00	21.95	21.87	21.82
HSDPA Sub 3	21.00	20.83	20.65	20.89
HSDPA Sub 4	21.00	20.81	20.68	20.97
HSUPA Sub 1	22.50	20.81	22.15	22.14
HSUPA Sub 2	22.50	22.23	22.22	22.27
HSUPA Sub 3	21.50	20.56	21.08	20.88
HSUPA Sub 4	22.50	22.30	22.35	22.36
HSUPA Sub 5	22.00	20.93	21.62	21.61
WCDMA Band 5	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	4132	4182	4233
Frequency (MHz)		826.4	836.4	846.6
RMC12.2K	23.00	22.46	22.48	22.65
HSDPA Sub 1	22.00	21.48	21.48	21.75
HSDPA Sub 2	21.50	21.00	21.08	21.22
HSDPA Sub 3	20.50	19.78	20.16	20.39
HSDPA Sub 4	20.50	20.07	20.05	20.41
HSUPA Sub 1	22.00	20.28	21.30	21.54
HSUPA Sub 2	22.00	21.38	21.39	21.69
HSUPA Sub 3	20.50	19.76	20.22	20.49
HSUPA Sub 4	22.00	21.50	21.48	21.76
HSUPA Sub 5	21.50	20.01	20.54	21.12

7.3. LTE Conducted Power

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18607/1850.7	18900/1880	19193/1909.3
LTE Band	1.4MHz	QPSK	1	0	23.00	22.35	22.38	22.48
			1	2	23.00	22.21	22.54	22.61

2			1	5	23.00	22.34	22.37	22.46
			3	0	23.00	22.45	22.52	22.57
			3	1	23.00	22.42	22.53	22.56
			3	2	23.00	22.46	22.52	22.55
			6	0	22.00	21.35	21.39	21.50
		16QAM	1	0	22.00	21.49	21.61	21.40
			1	2	22.00	21.66	21.73	21.48
			1	5	22.00	21.53	21.59	21.29
			3	0	22.00	21.62	21.72	21.71
			3	1	22.00	21.62	21.78	21.69
			3	2	22.00	21.62	21.77	21.75
			6	0	21.00	20.53	20.59	20.71
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18615/1851.5	18900/1880	19185/1908.5
LTE Band 2	3MHz	QPSK	1	0	23.00	22.48	22.50	22.57
			1	7	23.00	22.76	22.96	22.95
			1	14	23.00	22.46	22.51	22.61
			8	0	22.00	21.45	21.53	21.59
			8	4	22.00	21.50	21.56	21.62
			8	7	22.00	21.45	21.50	21.58
			15	0	22.00	21.43	21.49	21.58
		16QAM	1	0	22.50	21.90	21.80	21.55
			1	7	22.50	22.07	22.12	21.62
			1	14	22.50	21.89	21.70	21.50
			8	0	21.00	20.47	20.58	20.62
			8	4	21.00	20.52	20.58	20.62
			8	7	21.00	20.49	20.53	20.59
			15	0	21.00	20.51	20.46	20.66
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	23.00	22.30	22.35	22.39
			1	12	23.00	22.73	22.77	22.86
			1	24	23.00	22.26	22.36	22.40
			12	0	22.00	21.38	21.44	21.49
			12	6	22.00	21.49	21.49	21.55
			12	11	22.00	21.35	21.45	21.45

			25	0	22.00	21.36	21.44	21.50
		16QAM	1	0	22.50	21.83	21.74	21.73
			1	12	22.50	22.22	22.14	22.25
			1	24	22.50	21.85	21.69	21.74
			12	0	21.00	20.42	20.45	20.55
			12	6	21.00	20.46	20.49	20.63
			12	11	21.00	20.37	20.41	20.49
			25	0	20.50	20.36	20.49	20.49

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18650/1855	18900/1880	19150/1905
LTE Band 2	10MHz	QPSK	1	0	23.00	22.38	22.39	22.45
			1	24	23.00	22.54	22.60	22.67
			1	49	23.00	22.39	22.36	22.51
			25	0	22.00	21.45	21.53	21.61
			25	12	22.00	21.44	21.52	21.57
			25	24	22.00	21.41	21.46	21.49
			50	0	22.00	21.44	21.50	21.52
		16QAM	1	0	22.00	21.76	21.62	21.35
			1	24	22.00	21.96	21.79	21.54
			1	49	22.00	21.81	21.57	21.34
			25	0	21.00	20.49	20.56	20.62
			25	12	21.00	20.51	20.58	20.60
			25	24	21.00	20.50	20.51	20.53
			50	0	21.00	20.48	20.60	20.54

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	23.00	22.26	22.35	22.30
			1	37	23.00	22.65	22.71	22.68
			1	74	23.00	22.21	22.31	22.31
			36	0	22.00	21.45	21.50	21.60
			36	18	22.00	21.49	21.53	21.56
			36	37	22.00	21.38	21.42	21.45
			75	0	22.00	21.46	21.47	21.51
		16QAM	1	0	22.50	21.40	21.77	21.54
			1	37	22.50	21.81	22.18	21.91
			1	74	22.50	21.40	21.71	21.49

			36	0	21.00	20.44	20.51	20.60
			36	18	21.00	20.45	20.56	20.58
			36	37	21.00	20.33	20.44	20.53
			75	0	21.00	20.43	20.46	20.54
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	23.00	22.15	22.22	22.19
			1	49	23.00	22.52	22.57	22.62
			1	99	23.00	22.12	22.18	22.29
			50	0	22.00	21.39	21.41	21.51
			50	24	22.00	21.43	21.52	21.52
			50	49	22.00	21.26	21.34	21.34
			100	0	21.50	21.36	21.43	21.44
		16QAM	1	0	22.00	21.49	21.51	21.50
			1	49	22.00	21.89	21.85	21.88
			1	99	22.00	21.52	21.51	21.50
			50	0	21.00	20.51	20.49	20.59
			50	24	21.00	20.51	20.49	20.58
			50	49	21.00	20.34	20.35	20.41
			100	0	20.50	20.39	20.45	20.47

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	24.00	22.83	23.67	23.61
			1	2	24.00	23.91	23.84	23.74
			1	5	24.00	23.72	23.67	23.62
			3	0	24.00	23.71	23.63	23.69
			3	1	24.00	23.69	23.65	23.70
			3	2	24.00	23.68	23.64	23.68
			6	0	23.00	22.80	22.67	22.67
		16QAM	1	0	23.00	22.43	22.55	22.77
			1	2	23.00	22.54	22.67	22.86
			1	5	23.00	22.42	22.62	22.77
			3	0	23.00	22.73	22.68	22.86
			3	1	23.00	22.75	22.71	22.83
			3	2	23.00	22.77	22.69	22.89

			6	0	22.00	21.88	21.71	21.77
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	24.00	23.94	23.73	23.76
			1	7	24.00	24.00	24.00	24.00
			1	14	24.00	23.97	23.70	23.71
			8	0	23.00	22.88	22.76	22.76
			8	4	23.00	22.87	22.80	22.79
			8	7	23.00	22.88	22.73	22.79
			15	0	23.00	22.80	22.67	22.70
		16QAM	1	0	23.50	22.85	22.45	23.12
			1	7	23.50	23.09	22.68	23.23
			1	14	23.50	22.86	22.42	23.04
			8	0	22.00	21.78	21.65	21.76
			8	4	22.00	21.82	21.69	21.80
			8	7	22.00	21.77	21.63	21.76
			15	0	22.00	21.69	21.67	21.73
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	22.50	21.64	21.49	21.63
			1	12	22.50	22.12	21.98	22.04
			1	24	22.50	21.60	21.49	21.56
			12	0	21.00	20.68	20.65	20.66
			12	6	21.00	20.76	20.68	20.77
			12	11	21.00	20.69	20.54	20.67
			25	0	21.00	20.68	20.58	20.66
		16QAM	1	0	22.00	20.94	20.84	21.18
			1	12	22.00	21.32	21.21	21.56
			1	24	22.00	20.97	20.86	21.15
			12	0	20.00	19.73	19.73	19.77
			12	6	20.00	19.79	19.80	19.85
			12	11	20.00	19.66	19.67	19.81
			25	0	20.00	19.80	19.68	19.78
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB	RB		20000/1715	20175/1732.5	20350/1750

			Size	Offset				
LTE Band 4	10MHz	QPSK	1	0	24.00	23.79	23.56	23.60
			1	24	24.00	23.92	23.74	23.86
			1	49	24.00	23.68	23.58	23.63
			25	0	23.00	22.74	22.72	22.72
			25	12	23.00	22.74	22.64	22.72
			25	24	23.00	22.76	22.58	22.69
			50	0	23.00	22.74	22.62	22.73
		16QAM	1	0	23.50	22.92	22.67	22.48
			1	24	23.50	23.15	22.85	22.68
			1	49	23.50	23.00	22.66	22.40
			25	0	22.00	21.72	21.64	21.72
			25	12	22.00	21.76	21.63	21.74
			25	24	22.00	21.78	21.51	21.71
			50	0	22.00	21.69	21.61	21.66

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	24.00	23.60	23.45	23.43
			1	37	24.00	23.91	23.77	23.95
			1	74	24.00	23.50	23.41	23.47
			36	0	23.00	22.81	22.75	22.76
			36	18	23.00	22.84	22.79	22.82
			36	37	23.00	22.76	22.69	22.82
			75	0	23.00	22.81	22.73	22.76
		16QAM	1	0	23.50	22.60	22.81	22.63
			1	37	23.50	23.06	23.10	23.08
			1	74	23.50	22.52	22.78	22.59
			36	0	22.00	21.67	21.66	21.68
			36	18	22.00	21.73	21.69	21.81
			36	37	22.00	21.65	21.58	21.80
			75	0	22.00	21.77	21.63	21.67

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	24.00	23.47	23.37	23.33
			1	49	24.00	23.76	23.75	23.77
			1	99	24.00	23.37	23.37	23.39

			50	0	23.00	22.59	22.59	22.64
			50	24	23.00	22.64	22.61	22.68
			50	49	23.00	22.59	22.44	22.70
			100	0	23.00	22.58	22.51	22.66
		16QAM	1	0	23.00	22.59	22.65	22.50
			1	49	23.00	22.97	22.91	22.98
			1	99	23.00	22.53	22.72	22.62
			50	0	22.00	21.58	21.59	21.61
			50	24	22.00	21.71	21.60	21.66
			50	49	22.00	21.64	21.47	21.65
			100	0	22.00	21.57	21.50	21.64

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	23.00	22.44	22.39	22.68
			1	2	23.00	22.70	22.55	22.78
			1	5	23.00	22.51	22.40	22.64
			3	0	23.00	22.60	22.53	22.81
			3	1	23.00	22.59	22.58	22.83
			3	2	23.00	22.57	22.54	22.85
			6	0	22.00	21.51	21.45	21.71
		16QAM	1	0	22.50	21.49	21.71	21.94
			1	2	22.50	21.66	21.84	22.03
			1	5	22.50	21.46	21.73	21.95
			3	0	22.50	21.85	21.82	22.06
			3	1	22.50	21.84	21.83	22.12
			3	2	22.50	21.88	21.80	22.09
			6	0	21.00	20.77	20.73	21.00
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	23.00	22.65	22.53	22.81
			1	7	23.00	23.00	22.89	23.00
			1	14	23.00	22.86	22.52	22.79
			8	0	22.00	21.69	21.55	21.79
			8	4	22.00	21.66	21.57	21.88
			8	7	22.00	21.67	21.62	21.83

			15	0	22.00	21.63	21.59	21.85
		16QAM	1	0	23.00	21.65	22.08	22.02
			1	7	23.00	21.98	22.35	22.62
			1	14	23.00	21.58	22.09	22.06
			8	0	21.00	20.65	20.62	20.93
			8	4	21.00	20.70	20.68	20.99
			8	7	21.00	20.69	20.70	20.96
			15	0	21.00	20.76	20.67	20.88

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20425/826.5	20525/836.5	20625/846.5
LTE Band 5	5MHz	QPSK	1	0	22.00	21.24	21.15	21.50
			1	12	22.00	21.71	21.62	21.94
			1	24	22.00	21.22	21.27	21.51
			12	0	21.00	20.36	20.29	20.56
			12	6	21.00	20.42	20.35	20.64
			12	11	21.00	20.33	20.26	20.62
			25	0	21.00	20.41	20.33	20.55
		16QAM	1	0	22.00	20.68	20.54	21.10
			1	12	22.00	20.92	21.13	21.52
			1	24	22.00	20.66	20.69	21.15
			12	0	20.00	19.32	19.32	19.60
			12	6	20.00	19.37	19.45	19.66
			12	11	20.00	19.35	19.34	19.62
			25	0	20.00	19.40	19.32	19.55

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	23.00	22.47	22.33	22.57
			1	24	23.00	22.65	22.62	22.84
			1	49	23.00	22.38	22.62	22.73
			25	0	22.00	21.56	21.55	21.74
			25	12	22.00	21.63	21.64	21.75
			25	24	22.00	21.53	21.61	21.75
			50	0	22.00	21.57	21.57	21.75
		16QAM	1	0	22.50	21.76	21.32	21.99
			1	24	22.50	21.93	21.58	22.34
			1	49	22.50	21.62	21.47	22.19

			25	0	21.00	20.58	20.56	20.86
			25	12	21.00	20.67	20.66	20.90
			25	24	21.00	20.59	20.64	20.93
			50	0	21.00	20.63	20.57	20.87

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20775/2502.5	21100/2535	21425/2567.5
LTE Band 7	5MHz	QPSK	1	0	25.00	24.23	24.26	24.22
			1	12	25.00	24.51	24.63	24.74
			1	24	25.00	24.17	24.23	24.30
			12	0	23.50	23.22	23.30	23.29
			12	6	23.50	23.31	23.33	23.33
			12	11	23.50	23.22	23.23	23.23
			25	0	23.50	23.21	23.25	23.22
		16QAM	1	0	24.00	23.55	23.36	23.30
			1	12	24.00	23.87	23.75	23.67
			1	24	24.00	23.54	23.40	23.34
			12	0	22.50	22.15	22.17	22.21
			12	6	22.50	22.21	22.22	22.26
			12	11	22.50	22.15	22.09	22.16
			25	0	22.50	22.14	22.20	22.16

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20800/2505	21100/2535	21400/2565
LTE Band 7	10MHz	QPSK	1	0	25.00	24.38	24.36	24.32
			1	24	25.00	24.54	24.54	24.48
			1	49	25.00	24.38	24.38	24.33
			25	0	23.50	23.31	23.36	23.32
			25	12	23.50	23.34	23.31	23.30
			25	24	23.50	23.34	23.28	23.26
			50	0	23.50	23.33	23.32	23.26
		16QAM	1	0	24.00	23.29	23.00	23.50
			1	24	24.00	23.50	23.21	23.62
			1	49	24.00	23.34	23.04	23.50
			25	0	22.50	22.29	22.28	22.30
			25	12	22.50	22.29	22.26	22.27
			25	24	22.50	22.25	22.29	22.20

			50	0	22.50	22.31	22.25	22.26

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	25.00	24.20	24.16	24.16
			1	37	25.00	24.55	24.59	24.63
			1	74	25.00	24.12	24.17	24.25
			36	0	24.00	23.37	23.46	23.44
			36	18	24.00	23.42	23.52	23.52
			36	37	24.00	23.31	23.41	23.42
			75	0	23.50	23.36	23.41	23.42
		16QAM	1	0	24.00	23.18	23.37	23.19
			1	37	24.00	23.54	23.72	23.58
			1	74	24.00	23.14	23.43	23.16
			36	0	22.50	22.26	22.32	22.36
			36	18	22.50	22.27	22.37	22.42
			36	37	22.50	22.24	22.28	22.33
			75	0	22.50	22.28	22.31	22.31

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	25.00	24.05	24.08	24.09
			1	49	25.00	24.43	24.50	24.60
			1	99	25.00	24.03	24.08	24.20
			50	0	23.50	23.23	23.27	23.25
			50	24	23.50	23.28	23.31	23.29
			50	49	23.50	23.21	23.16	23.15
			100	0	23.50	23.22	23.24	23.19
		16QAM	1	0	24.00	23.23	23.11	23.16
			1	49	24.00	23.68	23.50	23.54
			1	99	24.00	23.20	23.19	23.16
			50	0	22.50	22.24	22.19	22.29
			50	24	22.50	22.28	22.27	22.27
			50	49	22.50	22.23	22.14	22.20
			100	0	22.50	22.18	22.23	22.23

Band	Band Width	Modulation	RB Configuration	Tune-up (dBm)	Channel/Frequency(MHz)

			RB Size	RB Offset		23017/699.7	23095/707.5	23173/715.3
LTE Band 12	1.4MHz	QPSK	1	0	24.00	22.63	23.23	23.05
			1	2	24.00	23.70	23.38	23.16
			1	5	24.00	23.61	23.19	23.05
			3	0	24.00	23.67	23.38	23.19
			3	1	24.00	23.61	23.41	23.18
			3	2	24.00	23.69	23.38	23.12
			6	0	23.00	22.68	22.32	22.16
		16QAM	1	0	23.00	22.75	22.57	22.03
			1	2	23.00	22.78	22.67	22.13
			1	5	23.00	22.80	22.53	21.96
			3	0	23.00	22.95	22.70	22.36
			3	1	23.00	22.88	22.71	22.36
			3	2	23.00	22.90	22.66	22.35
			6	0	22.00	21.81	21.51	21.31
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	23.68	23.42	23.24
			1	7	24.00	24.00	23.54	23.54
			1	14	24.00	23.61	23.36	23.20
			8	0	23.00	22.71	22.45	22.26
			8	4	23.00	22.81	22.48	22.27
			8	7	23.00	22.73	22.42	22.30
			15	0	23.00	22.72	22.44	22.25
		16QAM	1	0	23.50	23.15	22.75	22.22
			1	7	23.50	23.49	22.99	22.44
			1	14	23.50	23.07	22.56	22.10
			8	0	22.00	21.79	21.51	21.28
			8	4	22.00	21.84	21.51	21.27
			8	7	22.00	21.77	21.43	21.28
			15	0	22.00	21.81	21.42	21.34
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	5MHz	QPSK	1	0	24.00	23.50	23.31	23.10
			1	12	24.00	23.79	23.67	23.34

12			1	24	24.00	23.41	23.10	23.00
			12	0	23.00	22.70	22.35	22.25
			12	6	23.00	22.72	22.44	22.28
			12	11	23.00	22.64	22.27	22.23
			25	0	23.00	22.69	22.30	22.28
		16QAM	1	0	23.50	23.08	22.74	22.50
			1	12	23.50	23.45	23.16	22.77
			1	24	23.50	23.07	22.58	22.34
			12	0	22.00	21.69	21.30	21.29
			12	6	22.00	21.66	21.38	21.30
			12	11	22.00	21.66	21.24	21.24
			25	0	22.00	21.64	21.31	21.25

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23060/704	23095/707.5	23130/711
LTE Band 12	10MHz	QPSK	1	0	24.00	23.56	23.49	23.29
			1	24	24.00	23.69	23.50	23.35
			1	49	24.00	23.31	23.19	23.08
			25	0	23.00	22.68	22.39	22.46
			25	12	23.00	22.63	22.43	22.37
			25	24	23.00	22.59	22.23	22.29
			50	0	23.00	22.66	22.31	22.40
		16QAM	1	0	23.00	22.76	22.46	22.82
			1	24	23.00	22.94	22.43	22.88
			1	49	23.00	22.45	22.15	22.52
			25	0	22.00	21.71	21.39	21.50
			25	12	22.00	21.66	21.43	21.40
			25	24	22.00	21.66	21.26	21.36
			50	0	22.00	21.70	21.32	21.42

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23755/706.5	23790/710	23825/713.5
LTE Band 17	5MHz	QPSK	1	0	23.50	23.11	22.96	22.78
			1	12	23.50	23.38	23.29	23.45
			1	24	23.50	22.89	22.75	22.65
			12	0	22.50	22.16	22.08	21.94
			12	6	22.50	22.20	22.09	21.98

			12	11	22.50	22.07	21.92	21.87
			25	0	22.50	22.10	21.98	21.98
		16QAM	1	0	23.50	22.71	22.35	22.20
			1	12	23.50	23.06	22.59	22.55
			1	24	23.50	22.55	22.18	22.06
			12	0	21.50	21.11	21.05	20.97
			12	6	21.50	21.20	21.04	21.03
			12	11	21.50	21.10	20.83	20.92
			25	0	21.50	21.11	21.07	20.92

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23780/709	23790/710	23800/711
LTE Band 17	10MHz	QPSK	1	0	23.50	23.18	23.16	23.14
			1	24	23.50	23.24	23.20	23.20
			1	49	23.50	22.91	22.88	22.86
			25	0	22.50	22.21	22.26	22.31
			25	12	22.50	22.24	22.20	22.12
			25	24	22.50	22.06	22.02	22.09
			50	0	22.50	22.14	22.16	22.15
		16QAM	1	0	23.00	22.72	22.42	22.12
			1	24	23.00	22.68	22.46	22.15
			1	49	23.00	22.41	22.11	21.75
			25	0	21.50	21.21	21.26	21.29
			25	12	21.50	21.24	21.22	21.18
			25	24	21.50	21.02	21.03	21.09
			50	0	21.50	21.11	21.17	21.16

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		24025/832.5	24075/837.5	24125/842.5
LTE Band 19	5MHz	QPSK	1	0	21.50	20.49	20.62	20.62
			1	12	21.50	20.99	21.22	21.22
			1	24	21.50	20.63	20.74	20.74
			12	0	20.00	19.62	19.80	19.80
			12	6	20.00	19.77	19.87	19.87
			12	11	20.00	19.68	19.76	19.76
			25	0	20.00	19.67	19.80	19.80
		16QAM	1	0	21.00	19.92	20.00	20.00

			1	12	21.00	20.40	20.58	20.58
			1	24	21.00	20.06	20.16	20.16
			12	0	19.00	18.64	18.78	18.78
			12	6	19.00	18.76	18.90	18.90
			12	11	19.00	18.67	18.80	18.80
			25	0	19.00	18.72	18.78	18.78
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		24050/835	24075/837.5	24100/840
LTE Band 19	10MHz	QPSK	1	0	21.50	20.69	20.62	20.66
			1	24	21.50	20.94	20.89	21.02
			1	49	21.50	20.90	20.85	20.93
			25	0	20.00	19.71	19.82	19.94
			25	12	20.00	19.79	19.83	19.92
			25	24	20.00	19.72	19.85	19.84
			50	0	20.00	19.74	19.84	19.89
		16QAM	1	0	20.50	19.52	20.13	19.91
			1	24	20.50	19.82	20.42	20.26
			1	49	20.50	19.74	20.34	20.13
			25	0	19.00	18.78	18.85	18.93
			25	12	19.00	18.83	18.91	18.97
			25	24	19.00	18.75	18.91	18.94
			50	0	19.00	18.74	18.82	18.93
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		/	24075/837.5	/
LTE Band 19	15MHz	QPSK	1	0	21.50	/	20.44	/
			1	37	21.50	/	21.06	/
			1	74	21.50	/	20.74	/
			36	0	20.00	/	19.71	/
			36	18	20.00	/	19.83	/
			36	37	20.00	/	19.81	/
			75	0	20.00	/	19.77	/
		16QAM	1	0	21.00	/	20.02	/
			1	37	21.00	/	20.60	/
			1	74	21.00	/	20.28	/
			36	0	19.00	/	18.74	/
			36	18	19.00	/	18.91	/

			36	37	19.00	/	18.84	/
			75	0	19.00	/	18.72	/

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		40265/2557.5	40620/2593	41215/2652.5
LTE Band 41	5MHz	QPSK	1	0	24.00	23.73	23.58	23.52
			1	12	24.00	23.96	23.83	23.80
			1	24	24.00	23.71	23.58	23.51
			12	0	23.00	22.80	22.70	22.53
			12	6	23.00	22.85	22.78	22.60
			12	11	23.00	22.78	22.66	22.49
			25	0	23.00	22.79	22.68	22.54
		16QAM	1	0	23.50	22.98	22.92	23.01
			1	12	23.50	23.25	23.25	23.29
			1	24	23.50	23.02	22.91	22.98
			12	0	22.00	21.76	21.77	21.56
			12	6	22.00	21.84	21.83	21.64
			12	11	22.00	21.75	21.71	21.52
			25	0	22.00	21.86	21.72	21.52
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		40290/2560	40620/2593	41190/2650
LTE Band 41	10MHz	QPSK	1	0	24.00	23.77	23.65	23.58
			1	24	24.00	24.00	23.89	23.79
			1	49	24.00	23.80	23.63	23.53
			25	0	23.00	22.89	22.78	22.65
			25	12	23.00	22.87	22.79	22.61
			25	24	23.00	22.85	22.73	22.55
			50	0	23.00	22.86	22.74	22.57
		16QAM	1	0	23.50	22.92	22.66	23.00
			1	24	23.50	23.18	22.87	23.18
			1	49	23.50	22.92	22.66	22.92
			25	0	22.00	21.95	21.85	21.73
			25	12	22.00	21.94	21.83	21.67
			25	24	22.00	21.88	21.78	21.61
			50	0	22.00	21.92	21.77	21.63
Band	Band	Modulation	RB		Tune-up	Channel/Frequency(MHz)		

	Width		Configuration					
			RB Size	RB Offset		40315/2562.5	40620/2593	41165/2647.5
LTE Band 41	15MHz	QPSK	1	0	24.00	23.54	23.57	23.35
			1	37	24.00	23.99	23.96	23.79
			1	74	24.00	23.53	23.52	23.27
			36	0	23.00	22.82	22.70	22.59
			36	18	23.00	22.85	22.75	22.67
			36	37	23.00	22.77	22.66	22.60
			75	0	23.00	22.80	22.69	22.56
		16QAM	1	0	24.00	23.13	22.73	22.64
			1	37	24.00	23.51	23.15	22.99
			1	74	24.00	23.09	22.68	22.51
			36	0	22.00	21.85	21.76	21.53
			36	18	22.00	21.85	21.79	21.52
			36	37	22.00	21.78	21.69	21.40
			75	0	22.00	21.77	21.69	21.59
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		40340/2565	40620/2593	41140/2645
LTE Band 41	20MHz	QPSK	1	0	24.00	23.50	23.41	23.27
			1	49	24.00	23.94	23.77	23.72
			1	99	24.00	23.50	23.38	23.24
			50	0	23.00	22.79	22.71	22.57
			50	24	23.00	22.82	22.71	22.52
			50	49	23.00	22.69	22.62	22.34
			100	0	23.00	22.75	22.67	22.52
		16QAM	1	0	23.50	22.82	22.70	22.52
			1	49	23.50	23.23	23.11	22.88
			1	99	23.50	22.81	22.69	22.40
			50	0	22.00	21.87	21.72	21.64
			50	24	22.00	21.87	21.74	21.64
			50	49	22.00	21.77	21.63	21.49
			100	0	22.00	21.79	21.71	21.54

7.4. WLAN & Bluetooth Output Power

7.4.1. Output Power Results Of WLAN

Mode	Channel	Frequency (MHz)	Tune-up(dBm)	Output Power (dBm)
802.11b	1	2412	17.50	15.64
	6	2437	17.50	17.19
	11	2462	17.50	15.75
802.11g	1	2412	14.50	12.98
	6	2437	14.50	14.49
	11	2462	14.50	13.30
802.11n HT20	1	2412	15.00	13.15
	6	2437	15.00	14.55
	11	2462	15.00	13.50
802.11n HT40	3	2422	14.50	13.64
	6	2437	14.50	14.12
	9	2452	14.50	14.09

NOTE: Power measurement results of WLAN 2.4G.

Mode	Channel	Frequency (MHz)	Tune-up(dBm)	Output Power (dBm)
802.11a	36	5180	12.50	12.07
	40	5200	12.50	12.27
	48	5240	12.50	12.49
802.11n HT20	36	5180	12.00	11.26
	40	5200	12.00	11.35
	48	5240	12.00	11.57
802.11n HT40	38	5190	11.00	9.87
	46	5230	11.00	10.68
802.11ac VHT20	36	5180	12.00	11.14
	40	5200	12.00	11.35
	48	5240	12.00	11.58
802.11ac VHT40	38	5190	12.50	11.92
	46	5230	12.50	12.27
802.11ac VHT80	42	5210	12.00	11.70

NOTE: Power measurement results of WLAN 5.2G.

Mode	Channel	Frequency (MHz)	Tune-up(dBm)	Output Power (dBm)
802.11a	52	5260	12.00	11.96
	56	5280	12.00	11.69
	64	5320	12.00	11.76
802.11n HT20	52	5260	12.00	11.88
	56	5280	12.00	11.87

	64	5320	12.00	11.91
802.11n HT40	54	5270	12.00	11.56
	62	5310	12.00	10.53
802.11ac VHT20	52	5260	12.00	11.84
	56	5280	12.00	11.80
	64	5320	12.00	11.86
802.11ac VHT40	54	5270	12.00	11.57
	62	5310	12.00	11.59
802.11ac VHT80	58	5290	11.00	10.79

NOTE: Power measurement results of WLAN 5.3G.

Mode	Channel	Frequency (MHz)	Tune-up(dBm)	Output Power (dBm)
802.11a	100	5500	12.00	11.94
	120	5600	12.00	11.16
	140	5700	12.00	11.29
802.11n	100	5500	11.00	10.98
	120	5600	11.00	10.23
	140	5700	11.00	10.38
802.11n	102	5510	11.00	10.50
	118	5590	11.00	9.88
	134	5670	11.00	9.66
802.11ac (VHT20)	100	5500	11.00	10.98
	120	5600	11.00	10.21
	140	5700	11.00	10.41
802.11ac (VHT40)	102	5510	11.00	10.51
	118	5590	11.00	9.87
	134	5670	11.00	9.67
802.11ac (VHT80)	106	5530	10.50	10.24
	122	5610	10.50	9.98

NOTE: Power measurement results of WLAN 5.6G.

Mode	Channel	Frequency (MHz)	Tune-up(dBm)	Output Power (dBm)
802.11a	149	5745	12.00	10.71
	157	5785	12.00	11.78
	165	5825	12.00	11.13
802.11n HT20	149	5745	12.00	10.81
	157	5785	12.00	11.88

	165	5825	12.00	11.18
802.11n HT40	151	5755	10.50	9.99
	159	5795	10.50	10.36
802.11ac VHT20	149	5745	11.50	11.01
	157	5785	11.50	11.31
	165	5825	11.50	11.19
802.11ac VHT40	151	5755	11.00	9.86
	159	5795	11.00	10.60
802.11ac VHT80	155	5775	10.50	10.34

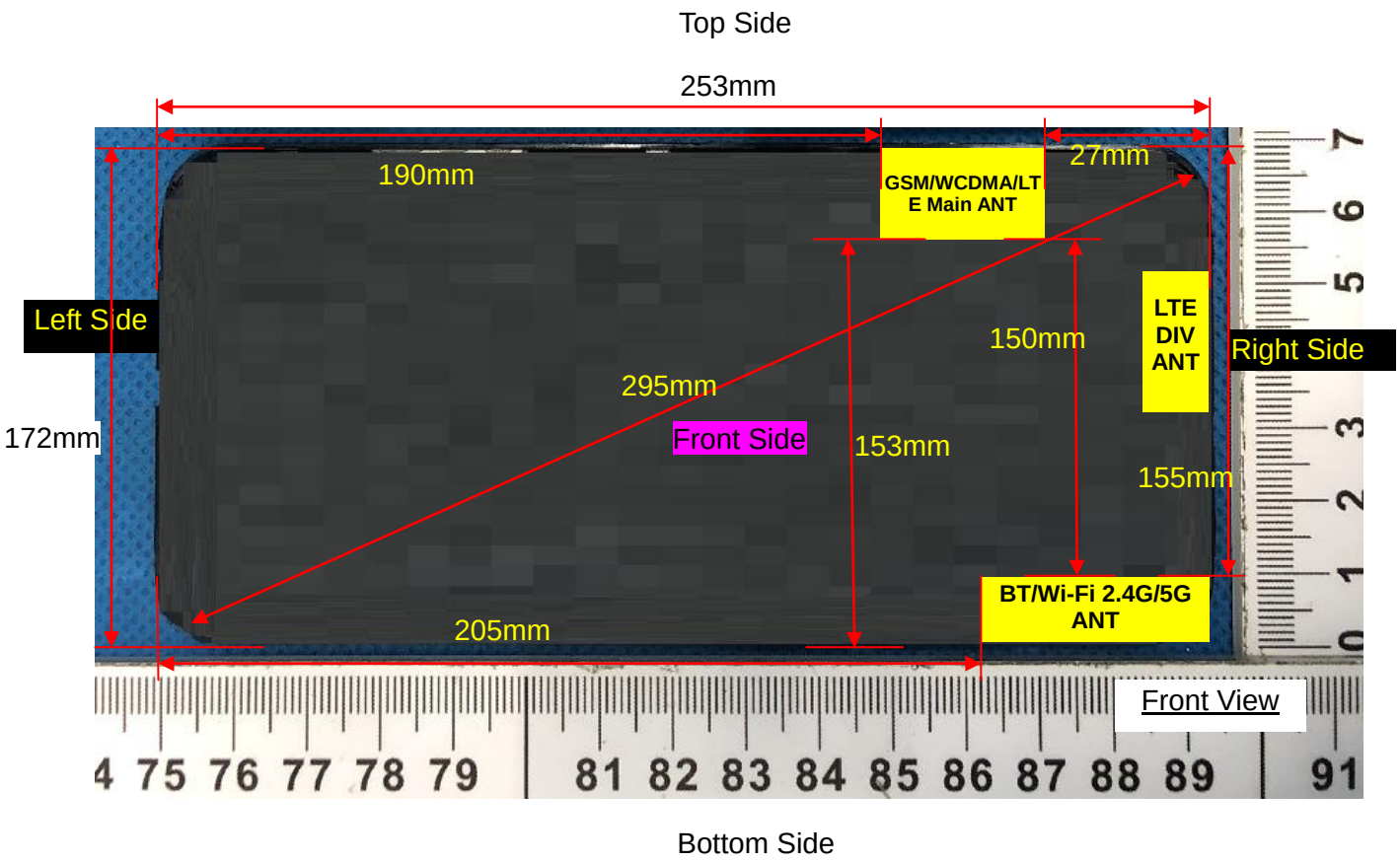
NOTE: Power measurement results of WLAN 5.8G.

7.4.2. Output Power Results Of Bluetooth

	Output Power (dBm)				
BR+EDR	Channel	Tune-up(dBm)	Data Rates		
			1M	2M	3M
	0CH	8.000	7.915	7.138	7.190
	39CH	9.500	9.218	8.504	8.675
	78CH	8.500	8.357	7.480	8.223

	Channel	Tune-up(dBm)	Output Power (dBm)
BLE	0CH	5.000	4.912
	19CH	7.000	6.845
	39CH	6.000	5.844

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	5	5	190	27	5	153
WLAN & Bluetooth	5	5	205	5	155	5

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

Positions for SAR tests		
Test separation distances ≤ 50 mm		
Exposure Positions	Tune-up Maximum power of WLAN 2.4G	
	17.5dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	17.6
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	17.6
	SAR testing required?	YES

Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	17.6
	SAR testing required?	YES
Bottom Side	Antenna to user(mm)	5
	SAR exclusion threshold	17.6
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WLAN 5.2G	
	12.5dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	8.1
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	8.1
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	8.1
	SAR testing required?	YES
Bottom Side	Antenna to user(mm)	5
	SAR exclusion threshold	8.1
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WLAN 5.3G	
	12dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.3
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.3
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.3
	SAR testing required?	YES
Bottom Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.3
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WLAN 5.6G	
	12dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.6
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5

	SAR exclusion threshold	7.6
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.6
	SAR testing required?	YES
Bottom Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.6
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WLAN 5.8G	
	12dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.7
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.7
	SAR testing required?	YES
Right Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.7
	SAR testing required?	YES
Bottom Side	Antenna to user(mm)	5
	SAR exclusion threshold	7.7
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of GSM850	
	33dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	367.9
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	367.9
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	68.1
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	367.9
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of GSM1900	
	30dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	276.4

	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	276.4
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	51.2
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	276.4
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WCDMA Band2	
	23.5dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	61.9
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	61.9
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	11.5
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	61.9
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of WCDMA Band5	
	23dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	36.8
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	36.8
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	6.8
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	36.8
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band2	
	23dBm	

Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	55.2
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	55.2
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	10.2
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	55.2
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band4	
	24dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	66.5
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	66.5
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	12.3
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	66.5
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band5	
	23dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	36.8
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	36.8
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	6.8
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	36.8
	SAR testing required?	YES

Exposure Positions	Tune-up Maximum power of LTE Band7	
	25dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	101.4
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	101.4
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	18.8
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	101.4
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band12	
	24dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	43.5
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	43.5
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	8.1
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	43.5
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band17	
	23.50dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	38.8
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	38.8
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	7.2
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5

	SAR exclusion threshold	38.8
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band19	
	21.50dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	26.0
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	26.0
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	4.8
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	26.0
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of LTE Band41	
	24dBm	
Front Side	Antenna to user(mm)	5
	SAR exclusion threshold	82.5
	SAR testing required?	YES
Back Side	Antenna to user(mm)	5
	SAR exclusion threshold	82.5
	SAR testing required?	YES
Right Side	Antenna to user(mm)	27
	SAR exclusion threshold	15.3
	SAR testing required?	YES
Top Side	Antenna to user(mm)	5
	SAR exclusion threshold	82.5
	SAR testing required?	YES

NOTE: Refer to section 4.3.1 of KDB 447498 D01.

Positions for SAR tests		
Test separation distances > 50 mm		
Exposure Positions	Tune-up Maximum power of WLAN 2.4G	
	17.50dBm	56.23mW
Left Side	Antenna to user(mm)	205
	SAR exclusion threshold(mW)	1646
	SAR testing required?	NO
Top Side	Antenna to user(mm)	155

	SAR exclusion threshold(mW)	1146
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.2G	
	12.50dBm	17.78mW
Left Side	Antenna to user(mm)	205
	SAR exclusion threshold(mW)	1616
	SAR testing required?	NO
Top Side	Antenna to user(mm)	155
	SAR exclusion threshold(mW)	1116
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.3G	
	12.00dBm	15.85mW
Left Side	Antenna to user(mm)	205
	SAR exclusion threshold(mW)	1615
	SAR testing required?	NO
Top Side	Antenna to user(mm)	155
	SAR exclusion threshold(mW)	1115
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.6G	
	12.00dBm	15.85mW
Left Side	Antenna to user(mm)	205
	SAR exclusion threshold(mW)	1612
	SAR testing required?	NO
Top Side	Antenna to user(mm)	155
	SAR exclusion threshold(mW)	1112
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.8G	
	12.00dBm	15.85mW
Left Side	Antenna to user(mm)	205
	SAR exclusion threshold(mW)	1612
	SAR testing required?	NO
Top Side	Antenna to user(mm)	155
	SAR exclusion threshold(mW)	1112
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of GSM850	
	33dBm	1995.26mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	943
	SAR testing required?	YES
Bottom Side	Antenna to user(mm)	153

	SAR exclusion threshold(mW)	737
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of GSM1900	
	30dBm	1000mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	1509
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153
	SAR exclusion threshold(mW)	1139
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WCDMA Band 2	
	23.50dBm	223.87mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	1509
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153
	SAR exclusion threshold(mW)	1139
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WCDMA Band 5	
	23dBm	199.53mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	943
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153
	SAR exclusion threshold(mW)	737
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 2	
	23dBm	199.53mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	1509
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153
	SAR exclusion threshold(mW)	1139
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 4	
	24dBm	251.19mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	1509
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153

	SAR exclusion threshold(mW)	1139
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 5	
	23dBm	199.53mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	943
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153
	SAR exclusion threshold(mW)	737
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 7	
	25dBm	316.23mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	1479
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153
	SAR exclusion threshold(mW)	1109
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 12	
	24dBm	251.19mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	943
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153
	SAR exclusion threshold(mW)	737
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 17	
	23.50dBm	223.87mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	943
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153
	SAR exclusion threshold(mW)	737
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 19	
	21.50dBm	141.25mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	943
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153

	SAR exclusion threshold(mW)	737
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 41	
	24dBm	251.19mW
Left Side	Antenna to user(mm)	190
	SAR exclusion threshold(mW)	1479
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	153
	SAR exclusion threshold(mW)	1109
	SAR testing required?	NO

NOTE: Refer to section 4.3.1 of KDB 447498 D01.

9. Stand-alone SAR test exclusion

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

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

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

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

Mode	P_{max} (dBm)	P_{max} (mW)	Distance (mm)	f (GHz)	Calculation Result	SAR Exclusion threshold	SAR test exclusion
Bluetooth	9.50	8.91	5	2.480	2.81	3.0	Yes

NOTE: Standalone SAR test exclusion for Bluetooth

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

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

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

Mode	Position	P_{max} (dBm)	P_{max} (mW)	Distance (mm)	f (GHz)	x	Estimated SAR (W/Kg)
Bluetooth	Body	9.50	8.91	10	2.48	7.5	0.374

NOTE: Estimated SAR calculation for Bluetooth.

10. SAR Results

10.1. SAR measurement results

10.1.1. SAR measurement Result of GSM850

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	189/836.4	GPRS(GMSK 4TS)	0.666	0.366	-3.69	29.37	29.50	0.686	2022/3/21
Back Side	189/836.4	GPRS(GMSK 4TS)	1.169	0.677	-1.59	29.37	29.50	1.205	2022/3/21
Left Side	189/836.4	GPRS(GMSK 4TS)	0.012	0.010	-2.54	29.37	29.50	0.012	2022/3/21
Right Side	189/836.4	GPRS(GMSK 4TS)	0.357	0.207	-2.52	29.37	29.50	0.368	2022/3/21
Top Side	189/836.4	GPRS(GMSK 4TS)	0.708	0.390	-0.76	29.37	29.50	0.730	2022/3/21
Bottom Side	189/836.4	GPRS(GMSK 4TS)	0.023	0.013	-3.41	29.37	29.50	0.024	2022/3/21
Back Side	128/824.2	GPRS(GMSK 4TS)	0.927	0.550	-0.74	29.25	29.50	0.982	2022/3/21
Back Side	251/848.8	GPRS(GMSK 4TS)	1.403	0.808	2.11	29.32	29.50	1.462	2022/3/21
Back Side Repeated	251/848.8	GPRS(GMSK 4TS)	1.396	0.797	0.55	29.32	29.50	1.455	2022/3/21

NOTE: Body SAR test results of GSM850

10.1.2. SAR measurement Result of GSM1900

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	661/1880	GPRS(GMSK 4TS)	0.498	0.229	1.63	26.21	26.50	0.532	2022/3/23
Back Side	661/1880	GPRS(GMSK 4TS)	0.822	0.398	-3.08	26.21	26.50	0.879	2022/3/23
Right Side	661/1880	GPRS(GMSK 4TS)	0.258	0.124	0.76	26.21	26.50	0.276	2022/3/23
Top Side	661/1880	GPRS(GMSK 4TS)	0.435	0.209	-0.79	26.21	26.50	0.465	2022/3/23
Back Side	512/1850.2	GPRS(GMSK 4TS)	0.923	0.448	3.26	26.13	26.50	1.005	2022/3/23
Back Side Repeated	512/1850.2	GPRS(GMSK 4TS)	0.915	0.439	0.37	26.13	26.50	0.996	2022/3/23
Back Side	810/1909.8	GPRS(GMSK 4TS)	0.799	0.384	0.14	26.32	26.50	0.833	2022/3/23

NOTE: Body SAR test results of GSM1900

10.1.3. SAR measurement Result of WCDMA Band 2

Test	Test	Test Mode	SAR Value	Power	Conducted	Tune-up	Scaled	Date

Position of Body with 0mm	channel /Freq.		(W/kg)		Drift (±5%)	power (dBm)	power (dBm)	SAR 1g (W/Kg)	
			1g	10g					
Front Side	9400/1880	RMC12.2K	0.750	0.351	1.98	23.31	23.50	0.784	2022/3/23
Back Side	9400/1880	RMC12.2K	1.458	0.719	-0.84	23.31	23.50	1.523	2022/3/23
Back Side Repeated	9400/1880	RMC12.2K	1.447	0.710	1.35	23.31	23.50	1.512	2022/3/23
Right Side	9400/1880	RMC12.2K	0.447	0.212	-2.37	23.31	23.50	0.467	2022/3/23
Top Side	9400/1880	RMC12.2K	0.730	0.349	-3.94	23.31	23.50	0.763	2022/3/23
Back Side	9262/1852.4	RMC12.2K	1.431	0.711	-1.11	23.27	23.50	1.509	2022/3/23
Back Side	9538/1907.6	RMC12.2K	1.449	0.711	-0.90	23.32	23.50	1.510	2022/3/23

NOTE: Body SAR test results of WCDMA Band 2

10.1.4. SAR measurement Result of WCDMA Band 5

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	4182/836.4	RMC12.2K	0.540	0.329	-2.06	22.48	23.00	0.609	2022/3/21
Back Side	4182/836.4	RMC12.2K	0.897	0.546	0.12	22.48	23.00	1.011	2022/3/21
Right Side	4182/836.4	RMC12.2K	0.273	0.165	1.10	22.48	23.00	0.308	2022/3/21
Top Side	4182/836.4	RMC12.2K	0.585	0.349	-1.69	22.48	23.00	0.659	2022/3/21
Back Side	4132/826.4	RMC12.2K	0.891	0.548	-0.19	22.46	23.00	1.009	2022/3/21
Back Side	4233/846.6	RMC12.2K	0.931	0.577	0.57	22.65	23.00	1.009	2022/3/21
Back Side Repeated	4233/846.6	RMC12.2K	0.925	0.568	1.35	22.65	23.00	1.003	2022/3/21

NOTE: Body SAR test results of WCDMA Band 5

10.1.5. SAR measurement Result of LTE Band 2

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	18900/1880	20M QPSK(1,49)	0.630	0.304	0.03	22.57	23.00	0.696	2022/3/23
Back Side	18900/1880	20M QPSK(1,49)	1.019	0.501	-0.25	22.57	23.00	1.125	2022/3/23
Right Side	18900/1880	20M QPSK(1,49)	0.318	0.155	-2.38	22.57	23.00	0.351	2022/3/23
Top Side	18900/1880	20M QPSK(1,49)	0.683	0.322	-1.54	22.57	23.00	0.754	2022/3/23

Back Side	18700/1860	20M QPSK(1,49)	1.036	0.512	-0.69	22.52	23.00	1.157	2022/3/23
Back Side Repeated	18700/1860	20M QPSK(1,49)	1.015	0.506	1.25	22.52	23.00	1.134	2022/3/23
Back Side	19100/1900	20M QPSK(1,49)	0.984	0.479	-0.34	22.62	23.00	1.074	2022/3/23
50%RB									
Front Side	18900/1880	20M QPSK(50,24)	0.328	0.174	-3.74	21.52	22.00	0.366	2022/3/23
Back Side	18900/1880	20M QPSK(50,24)	0.587	0.273	-3.13	21.52	22.00	0.656	2022/3/23
Right Side	18900/1880	20M QPSK(50,24)	0.174	0.083	2.68	21.52	22.00	0.194	2022/3/23
Top Side	18900/1880	20M QPSK(50,24)	0.382	0.185	4.60	21.52	22.00	0.427	2022/3/23
100%RB									
Back Side	18900/1880	20M QPSK(100,0)	0.513	0.293	-4.00	21.43	21.50	0.521	2022/3/23

NOTE: Body SAR test results of LTE Band 2

10.1.6. SAR measurement Result of LTE Band 4

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	20175/1732.5	20M QPSK(1,49)	0.735	0.359	3.83	23.75	24.00	0.779	2022/6/6
Back Side	20175/1732.5	20M QPSK(1,49)	1.439	0.725	-0.75	23.75	24.00	1.524	2022/6/6
Right Side	20175/1732.5	20M QPSK(1,49)	0.441	0.220	3.16	23.75	24.00	0.467	2022/6/6
Top Side	20175/1732.5	20M QPSK(1,49)	0.693	0.338	-2.28	23.75	24.00	0.734	2022/6/6
Back Side	20050/1720	20M QPSK(1,49)	1.395	0.702	-1.12	23.76	24.00	1.474	2022/6/6
Back Side	20300/1745	20M QPSK(1,49)	1.494	0.750	-0.78	23.77	24.00	1.575	2022/6/6
Back Side Repeated	20300/1745	20M QPSK(1,49)	1.486	0.743	-0.78	23.77	24.00	1.567	2022/6/6
50%RB									
Front Side	20175/1732.5	20M QPSK(50,49)	0.388	0.200	-0.78	22.44	23.00	0.441	2022/6/6
Back Side	20175/1732.5	20M QPSK(50,49)	0.700	0.385	0.71	22.44	23.00	0.796	2022/6/6
Right Side	20175/1732.5	20M QPSK(50,49)	0.231	0.129	-3.01	22.44	23.00	0.263	2022/6/6
Top Side	20175/1732.5	20M QPSK(50,49)	0.370	0.197	2.81	22.44	23.00	0.421	2022/6/6
100%RB									
Back Side	20175/1732.5	20M QPSK(100,0)	0.666	0.366	-1.70	22.51	23.00	0.746	2022/6/6

NOTE: Body SAR test results of LTE Band 4

10.1.7. SAR measurement Result of LTE Band 5

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	20525/836.5	10M QPSK(1,24)	0.725	0.492	1.23	22.62	23.00	0.791	2022/3/21
Back Side	20525/836.5	10M QPSK(1,24)	1.240	0.821	-2.25	22.62	23.00	1.353	2022/3/21
Right Side	20525/836.5	10M QPSK(1,24)	0.372	0.246	0.83	22.62	23.00	0.406	2022/3/21
Top Side	20525/836.5	10M QPSK(1,24)	0.625	0.393	-1.82	22.62	23.00	0.682	2022/3/21
Back Side	20450/829	10M QPSK(1,24)	1.254	0.812	-1.92	22.65	23.00	1.359	2022/3/21
Back Side Repeated	20450/829	10M QPSK(1,24)	1.247	0.803	0.35	22.65	23.00	1.352	2022/3/21
50%RB									
Front Side	20525/836.5	10M QPSK(25,12)	0.424	0.259	2.74	21.64	22.00	0.461	2022/3/21
Back Side	20525/836.5	10M QPSK(25,12)	0.634	0.449	-4.21	21.64	22.00	0.689	2022/3/21
Right Side	20525/836.5	10M QPSK(25,12)	0.200	0.142	1.23	21.64	22.00	0.217	2022/3/21
Top Side	20525/836.5	10M QPSK(25,12)	0.324	0.231	-4.81	21.64	22.00	0.352	2022/3/21
100%RB									
Back Side	20525/836.5	10M QPSK(50,0)	0.615	0.390	3.60	21.57	22.00	0.679	2022/3/21

NOTE: Body SAR test results of LTE Band 5

10.1.8. SAR measurement Result of LTE Band 7

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	21100/2535	20M QPSK(1,49)	0.710	0.338	1.40	24.50	25.00	0.797	2022/3/28
Back Side	21100/2535	20M QPSK(1,49)	1.327	0.550	-1.00	24.50	25.00	1.489	2022/3/28
Right Side	21100/2535	20M QPSK(1,49)	0.405	0.166	1.27	24.50	25.00	0.454	2022/3/28
Top Side	21100/2535	20M QPSK(1,49)	0.680	0.282	-2.65	24.50	25.00	0.763	2022/3/28
Back Side	20850/2510	20M QPSK(1,49)	1.338	0.555	-0.77	24.43	25.00	1.526	2022/3/28
Back Side Repeated	20850/2510	20M QPSK(1,49)	1.326	0.548	1.24	24.43	25.00	1.512	2022/3/28
Back	21350/2560	20M	1.328	0.545	-0.98	24.60	25.00	1.456	2022/3/28

Side		QPSK(1,49)							
50%RB									
Front Side	21100/2535	20M QPSK(50,24)	0.367	0.171	2.49	23.31	23.50	0.383	2022/3/28
Back Side	21100/2535	20M QPSK(50,24)	0.760	0.323	1.17	23.31	23.50	0.794	2022/3/28
Right Side	21100/2535	20M QPSK(50,24)	0.206	0.090	2.97	23.31	23.50	0.215	2022/3/28
Top Side	21100/2535	20M QPSK(50,24)	0.361	0.152	-2.76	23.31	23.50	0.377	2022/3/28
100%RB									
Back Side	21100/2535	20M QPSK(100,0)	0.702	0.295	2.64	23.24	23.50	0.745	2022/3/28

NOTE: Body SAR test results of LTE Band 7

10.1.9. SAR measurement Result of LTE Band 12

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	23095/707.5	10M QPSK(1,24)	0.419	0.252	2.60	23.50	24.00	0.470	2022/5/19
Back Side	23095/707.5	10M QPSK(1,24)	0.644	0.399	-0.88	23.50	24.00	0.723	2022/5/19
Right Side	23095/707.5	10M QPSK(1,24)	0.193	0.118	-2.42	23.50	24.00	0.217	2022/5/19
Top Side	23095/707.5	10M QPSK(1,24)	0.386	0.237	2.74	23.50	24.00	0.433	2022/5/19
50%RB									
Front Side	23095/707.5	10M QPSK(25,0)	0.235	0.129	-1.31	22.39	23.00	0.270	2022/5/19
Back Side	23095/707.5	10M QPSK(25,0)	0.365	0.227	-1.52	22.39	23.00	0.420	2022/5/19
Right Side	23095/707.5	10M QPSK(25,0)	0.110	0.066	-1.87	22.39	23.00	0.127	2022/5/19
Top Side	23095/707.5	10M QPSK(25,0)	0.203	0.122	2.01	22.39	23.00	0.234	2022/5/19

NOTE: Body SAR test results of LTE Band 12

10.1.10. SAR measurement Result of LTE Band 17

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	23790/710	10M QPSK(1,24)	0.384	0.228	2.56	23.20	23.50	0.411	2022/5/19
Back Side	23790/710	10M QPSK(1,24)	0.607	0.376	-0.55	23.20	23.50	0.650	2022/5/19

Right Side	23790/710	10M QPSK(1,24)	0.189	0.115	3.99	23.20	23.50	0.203	2022/5/19
Top Side	23790/710	10M QPSK(1,24)	0.341	0.211	-2.87	23.20	23.50	0.365	2022/5/19
50%RB									
Front Side	23790/710	10M QPSK(25,0)	0.213	0.124	-0.91	22.26	22.50	0.225	2022/5/19
Back Side	23790/710	10M QPSK(25,0)	0.318	0.197	-4.25	22.26	22.50	0.336	2022/5/19
Right Side	23790/710	10M QPSK(25,0)	0.111	0.065	0.43	22.26	22.50	0.117	2022/5/19
Top Side	23790/710	10M QPSK(25,0)	0.177	0.117	2.59	22.26	22.50	0.187	2022/5/19

NOTE: Body SAR test results of LTE Band 17

10.1.11. SAR measurement Result of LTE Band 19

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	24075/837.5	15M QPSK(1,37)	0.600	0.413	-0.43	21.06	21.50	0.664	2022/3/21
Back Side	24075/837.5	15M QPSK(1,37)	0.955	0.684	-0.56	21.06	21.50	1.057	2022/3/21
Right Side	24075/837.5	15M QPSK(1,37)	0.294	0.200	-2.87	21.06	21.50	0.325	2022/3/21
Top Side	24075/837.5	15M QPSK(1,37)	0.539	0.367	3.05	21.06	21.50	0.596	2022/3/21
50%RB									
Front Side	24075/837.5	15M QPSK(36,18)	0.304	0.228	-2.67	19.83	20.00	0.316	2022/3/21
Back Side	24075/837.5	15M QPSK(36,18)	0.479	0.382	-4.04	19.83	20.00	0.498	2022/3/21
Right Side	24075/837.5	15M QPSK(36,18)	0.160	0.117	0.24	19.83	20.00	0.166	2022/3/21
Top Side	24075/837.5	15M QPSK(36,18)	0.303	0.218	-4.26	19.83	20.00	0.315	2022/3/21
100%RB									
Back Side	24075/837.5	15M QPSK(75,0)	0.468	0.369	1.38	19.77	20.00	0.493	2022/3/21

NOTE: Body SAR test results of LTE Band 19

10.1.12. SAR measurement Result of LTE Band 41

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front	40620/2593	20M	0.600	0.223	2.60	23.77	24.00	0.633	2022/3/28

Side		QPSK(1,49)							
Back Side	40620/2593	20M QPSK(1,49)	0.979	0.364	-4.37	23.77	24.00	1.032	2022/3/28
Back Side Repeated	40620/2593	20M QPSK(1,49)	0.968	0.356	1.25	23.77	24.00	1.021	2022/3/28
Right Side	40620/2593	20M QPSK(1,49)	0.306	0.114	1.08	23.77	24.00	0.323	2022/3/28
Top Side	40620/2593	20M QPSK(1,49)	0.556	0.207	0.95	23.77	24.00	0.586	2022/3/28
Back Side	40340/2565	20M QPSK(1,49)	0.784	0.277	-3.01	23.94	24.00	0.795	2022/3/28
Back Side	41140/2645	20M QPSK(1,49)	0.850	0.316	1.30	23.72	24.00	0.907	2022/3/28
50%RB									
Front Side	40620/2593	20M QPSK(50,24)	0.359	0.127	-0.20	22.71	23.00	0.384	2022/3/28
Back Side	40620/2593	20M QPSK(50,24)	0.524	0.184	3.53	22.71	23.00	0.560	2022/3/28
Right Side	40620/2593	20M QPSK(50,24)	0.169	0.068	-2.92	22.71	23.00	0.181	2022/3/28
Top Side	40620/2593	20M QPSK(50,24)	0.300	0.104	-0.43	22.71	23.00	0.321	2022/3/28
100%RB									
Back Side	40620/2593	20M QPSK(100,0)	0.516	0.189	-4.62	22.67	23.00	0.557	2022/3/28

NOTE: Body SAR test results of LTE Band 41

10.1.13. SAR measurement Result of WLAN 2.4G

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	6/2437	802.11b	0.348	0.188	2.01	17.19	17.50	0.374	2022/3/31
Back Side	6/2437	802.11b	0.544	0.303	-0.20	17.19	17.50	0.584	2022/3/31
Right Side	6/2437	802.11b	0.168	0.093	-0.48	17.19	17.50	0.180	2022/3/31
Bottom Side	6/2437	802.11b	0.165	0.091	0.41	17.19	17.50	0.177	2022/3/31

NOTE: Body SAR test results of WLAN 2.4G

10.1.14. SAR measurement Result of WLAN 5.2G

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	40/5200	802.11a	0.306	0.109	-2.42	12.27	12.50	0.323	2022/3/25
Back Side	40/5200	802.11a	0.463	0.173	-0.88	12.27	12.50	0.488	2022/3/25
Right Side	40/5200	802.11a	0.144	0.052	1.60	12.27	12.50	0.152	2022/3/25

Bottom Side	40/5200	802.11a	0.188	0.069	0.29	12.27	12.50	0.198	2022/3/25

NOTE: Body SAR test results of WLAN 5.2G

10.1.15. SAR measurement Result of WLAN 5.3G

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	56/5280	802.11a	0.258	0.096	-3.41	11.69	12.00	0.277	2022/3/25
Back Side	56/5280	802.11a	0.385	0.147	-4.07	11.69	12.00	0.413	2022/3/25
Right Side	56/5280	802.11a	0.126	0.048	0.77	11.69	12.00	0.135	2022/3/25
Bottom Side	56/5280	802.11a	0.172	0.064	1.33	11.69	12.00	0.185	2022/3/25

NOTE: Body SAR test results of WLAN 5.3G

10.1.16. SAR measurement Result of WLAN 5.6G

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	120/5600	802.11a	0.168	0.065	3.95	11.16	12.00	0.204	2022/3/30
Back Side	120/5600	802.11a	0.275	0.110	0.04	11.16	12.00	0.334	2022/3/30
Right Side	120/5600	802.11a	0.087	0.034	3.74	11.16	12.00	0.106	2022/3/30
Bottom Side	120/5600	802.11a	0.116	0.045	-1.02	11.16	12.00	0.141	2022/3/30

NOTE: Body SAR test results of WLAN 5.6G

10.1.17. SAR measurement Result of WLAN 5.8G

Test Position of Body with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	157/5785	802.11a	0.264	0.093	-3.46	11.78	12.00	0.278	2022/3/24
Back Side	157/5785	802.11a	0.421	0.150	1.03	11.78	12.00	0.443	2022/3/24
Right Side	157/5785	802.11a	0.132	0.047	3.02	11.78	12.00	0.139	2022/3/24
Bottom Side	157/5785	802.11a	0.172	0.061	-1.23	11.78	12.00	0.181	2022/3/24

NOTE: Body SAR test results of WLAN 5.8G

10.2. SAR Summation Scenario

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

1) Scalar SAR summation < 1.6W/kg.

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

WWAN & WIFI 2.4G

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 850	WiFi 2.4G			
Body	Front Side	0.686	0.374	1.060	N/A	N/A
	Back Side	1.462	0.584	2.046	0.02	pass
	Left Side	0.012	N/A	0.012	N/A	N/A
	Right Side	0.368	0.180	0.548	N/A	N/A
	Top Side	0.730	N/A	0.730	N/A	N/A
	Bottom Side	0.024	0.177	0.201	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 1900	WiFi 2.4G			
Body	Front Side	0.532	0.374	0.906	N/A	N/A
	Back Side	1.005	0.584	1.589	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.276	0.180	0.456	N/A	N/A
	Top Side	0.465	N/A	0.465	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band2	WiFi 2.4G			
Body	Front Side	0.784	0.374	1.158	N/A	N/A
	Back Side	1.523	0.584	2.107	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.180	0.647	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA	WiFi 2.4G			

		Band5				
Body	Front Side	0.609	0.374	0.983	N/A	N/A
	Back Side	1.011	0.584	1.595	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.308	0.180	0.488	N/A	N/A
	Top Side	0.659	N/A	0.659	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band2	WiFi 2.4G			
Body	Front Side	0.696	0.374	1.070	N/A	N/A
	Back Side	1.157	0.584	1.741	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.351	0.180	0.531	N/A	N/A
	Top Side	0.754	N/A	0.754	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band4	WiFi 2.4G			
Body	Front Side	0.779	0.374	1.153	N/A	N/A
	Back Side	1.575	0.584	2.159	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.180	0.647	N/A	N/A
	Top Side	0.734	N/A	0.734	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band5	WiFi 2.4G			
Body	Front Side	0.791	0.374	1.165	N/A	N/A
	Back Side	1.359	0.584	1.943	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.406	0.180	0.586	N/A	N/A
	Top Side	0.682	N/A	0.682	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band7	WiFi 2.4G			
Body	Front Side	0.797	0.374	1.171	N/A	N/A
	Back Side	1.526	0.584	2.110	0.02	pass

	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.454	0.180	0.634	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band12	WiFi 2.4G			
Body	Front Side	0.470	0.374	0.844	N/A	N/A
	Back Side	0.723	0.584	1.307	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.217	0.180	0.397	N/A	N/A
	Top Side	0.433	N/A	0.433	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band17	WiFi 2.4G			
Body	Front Side	0.411	0.374	0.785	N/A	N/A
	Back Side	0.650	0.584	1.234	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.203	0.180	0.383	N/A	N/A
	Top Side	0.365	N/A	0.365	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band19	WiFi 2.4G			
Body	Front Side	0.664	0.374	1.038	N/A	N/A
	Back Side	1.057	0.584	1.641	0.01	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.325	0.180	0.505	N/A	N/A
	Top Side	0.596	N/A	0.596	N/A	N/A
	Bottom Side	N/A	0.177	0.177	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band41	WiFi 2.4G			
Body	Front Side	0.633	0.374	1.007	N/A	N/A
	Back Side	1.032	0.584	1.616	0.01	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.323	0.180	0.503	N/A	N/A
	Top Side	0.586	N/A	0.586	N/A	N/A

	Bottom Side	N/A	0.177	0.177	N/A	N/A

WWAN & WIFI 5.2G

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 850	WiFi 5.2G			
Body	Front Side	0.686	0.323	1.009	N/A	N/A
	Back Side	1.462	0.488	1.950	0.02	pass
	Left Side	0.012	N/A	0.012	N/A	N/A
	Right Side	0.368	0.152	0.520	N/A	N/A
	Top Side	0.730	N/A	0.730	N/A	N/A
	Bottom Side	0.024	0.198	0.222	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 1900	WiFi 5.2G			
Body	Front Side	0.532	0.323	0.855	N/A	N/A
	Back Side	1.005	0.488	1.493	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.276	0.152	0.428	N/A	N/A
	Top Side	0.465	N/A	0.465	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band2	WiFi 5.2G			
Body	Front Side	0.784	0.323	1.107	N/A	N/A
	Back Side	1.523	0.488	2.011	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.152	0.619	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band5	WiFi 5.2G			
Body	Front Side	0.609	0.323	0.932	N/A	N/A
	Back Side	1.011	0.488	1.499	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.308	0.152	0.460	N/A	N/A

	Top Side	0.659	N/A	0.659	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band2	WiFi 5.2G			
Body	Front Side	0.696	0.323	1.019	N/A	N/A
	Back Side	1.157	0.488	1.645	0.01	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.351	0.152	0.503	N/A	N/A
	Top Side	0.754	N/A	0.754	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band4	WiFi 5.2G			
Body	Front Side	0.779	0.323	1.102	N/A	N/A
	Back Side	1.575	0.488	2.063	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.152	0.619	N/A	N/A
	Top Side	0.734	N/A	0.734	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band5	WiFi 5.2G			
Body	Front Side	0.791	0.323	1.114	N/A	N/A
	Back Side	1.359	0.488	1.847	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.406	0.152	0.558	N/A	N/A
	Top Side	0.682	N/A	0.682	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band7	WiFi 5.2G			
Body	Front Side	0.797	0.323	1.120	N/A	N/A
	Back Side	1.526	0.488	2.014	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.454	0.152	0.606	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band12	WiFi 5.2G			
Body	Front Side	0.470	0.323	0.793	N/A	N/A
	Back Side	0.723	0.488	1.211	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.217	0.152	0.369	N/A	N/A
	Top Side	0.433	N/A	0.433	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band17	WiFi 5.2G			
Body	Front Side	0.411	0.323	0.734	N/A	N/A
	Back Side	0.650	0.488	1.138	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.203	0.152	0.355	N/A	N/A
	Top Side	0.365	N/A	0.365	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band19	WiFi 5.2G			
Body	Front Side	0.664	0.323	0.987	N/A	N/A
	Back Side	1.057	0.488	1.545	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.325	0.152	0.477	N/A	N/A
	Top Side	0.596	N/A	0.596	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band41	WiFi 5.2G			
Body	Front Side	0.633	0.323	0.956	N/A	N/A
	Back Side	1.032	0.488	1.520	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.323	0.152	0.475	N/A	N/A
	Top Side	0.586	N/A	0.586	N/A	N/A
	Bottom Side	N/A	0.198	0.198	N/A	N/A

WWAN & WIFI 5.3G

Test Position	Scaled SAR_{MAX}	∑1-g SAR	SPLSR	Remark

		GSM 850	WiFi 5.3G	(W/Kg)		
Body	Front Side	0.686	0.277	0.963	N/A	N/A
	Back Side	1.462	0.413	1.875	0.02	pass
	Left Side	0.012	N/A	0.012	N/A	N/A
	Right Side	0.368	0.135	0.503	N/A	N/A
	Top Side	0.730	N/A	0.730	N/A	N/A
	Bottom Side	0.024	0.185	0.209	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 1900	WiFi 5.3G			
Body	Front Side	0.532	0.277	0.809	N/A	N/A
	Back Side	1.005	0.413	1.418	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.276	0.135	0.411	N/A	N/A
	Top Side	0.465	N/A	0.465	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band2	WiFi 5.3G			
Body	Front Side	0.784	0.277	1.061	N/A	N/A
	Back Side	1.523	0.413	1.936	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.135	0.602	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band5	WiFi 5.3G			
Body	Front Side	0.609	0.277	0.886	N/A	N/A
	Back Side	1.011	0.413	1.424	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.308	0.135	0.443	N/A	N/A
	Top Side	0.659	N/A	0.659	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band2	WiFi 5.3G			

Body	Front Side	0.696	0.277	0.973	N/A	N/A
	Back Side	1.157	0.413	1.570	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.351	0.135	0.486	N/A	N/A
	Top Side	0.754	N/A	0.754	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band4	WiFi 5.3G			
Body	Front Side	0.779	0.277	1.056	N/A	N/A
	Back Side	1.575	0.413	1.988	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.135	0.602	N/A	N/A
	Top Side	0.734	N/A	0.734	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band5	WiFi 5.3G			
Body	Front Side	0.791	0.277	1.068	N/A	N/A
	Back Side	1.359	0.413	1.772	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.406	0.135	0.541	N/A	N/A
	Top Side	0.682	N/A	0.682	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band7	WiFi 5.3G			
Body	Front Side	0.797	0.277	1.074	N/A	N/A
	Back Side	1.526	0.413	1.939	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.454	0.135	0.589	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band12	WiFi 5.3G			
Body	Front Side	0.470	0.277	0.747	N/A	N/A
	Back Side	0.723	0.413	1.136	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A

	Right Side	0.217	0.135	0.352	N/A	N/A
	Top Side	0.433	N/A	0.433	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band17	WiFi 5.3G			
Body	Front Side	0.411	0.277	0.688	N/A	N/A
	Back Side	0.650	0.413	1.063	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.203	0.135	0.338	N/A	N/A
	Top Side	0.365	N/A	0.365	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band19	WiFi 5.3G			
Body	Front Side	0.664	0.277	0.941	N/A	N/A
	Back Side	1.057	0.413	1.470	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.325	0.135	0.460	N/A	N/A
	Top Side	0.596	N/A	0.596	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band41	WiFi 5.3G			
Body	Front Side	0.633	0.277	0.910	N/A	N/A
	Back Side	1.032	0.413	1.445	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.323	0.135	0.458	N/A	N/A
	Top Side	0.586	N/A	0.586	N/A	N/A
	Bottom Side	N/A	0.185	0.185	N/A	N/A

WWAN & WIFI 5.6G

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 850	WiFi 5.6G			
Body	Front Side	0.686	0.204	0.890	N/A	N/A
	Back Side	1.462	0.334	1.796	0.02	pass
	Left Side	0.012	N/A	0.012	N/A	N/A
	Right Side	0.368	0.106	0.474	N/A	N/A

	Top Side	0.730	N/A	0.730	N/A	N/A
	Bottom Side	0.024	0.141	0.165	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 1900	WiFi 5.6G			
Body	Front Side	0.532	0.204	0.736	N/A	N/A
	Back Side	1.005	0.334	1.339	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.276	0.106	0.382	N/A	N/A
	Top Side	0.465	N/A	0.465	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band2	WiFi 5.6G			
Body	Front Side	0.784	0.204	0.988	N/A	N/A
	Back Side	1.523	0.334	1.857	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.106	0.573	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band5	WiFi 5.6G			
Body	Front Side	0.609	0.204	0.813	N/A	N/A
	Back Side	1.011	0.334	1.345	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.308	0.106	0.414	N/A	N/A
	Top Side	0.659	N/A	0.659	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band2	WiFi 5.6G			
Body	Front Side	0.696	0.204	0.900	N/A	N/A
	Back Side	1.157	0.334	1.491	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.351	0.106	0.457	N/A	N/A
	Top Side	0.754	N/A	0.754	N/A	N/A

	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band4	WiFi 5.6G			
Body	Front Side	0.779	0.204	0.983	N/A	N/A
	Back Side	1.575	0.334	1.909	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.106	0.573	N/A	N/A
	Top Side	0.734	N/A	0.734	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band5	WiFi 5.6G			
Body	Front Side	0.791	0.204	0.995	N/A	N/A
	Back Side	1.359	0.334	1.693	0.01	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.406	0.106	0.512	N/A	N/A
	Top Side	0.682	N/A	0.682	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band7	WiFi 5.6G			
Body	Front Side	0.797	0.204	1.001	N/A	N/A
	Back Side	1.526	0.334	1.860	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.454	0.106	0.560	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band12	WiFi 5.6G			
Body	Front Side	0.470	0.204	0.674	N/A	N/A
	Back Side	0.723	0.334	1.057	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.217	0.106	0.323	N/A	N/A
	Top Side	0.433	N/A	0.433	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band17	WiFi 5.6G			
Body	Front Side	0.411	0.204	0.615	N/A	N/A
	Back Side	0.650	0.334	0.984	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.203	0.106	0.309	N/A	N/A
	Top Side	0.365	N/A	0.365	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band19	WiFi 5.6G			
Body	Front Side	0.664	0.204	0.868	N/A	N/A
	Back Side	1.057	0.334	1.391	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.325	0.106	0.431	N/A	N/A
	Top Side	0.596	N/A	0.596	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band41	WiFi 5.6G			
Body	Front Side	0.633	0.204	0.837	N/A	N/A
	Back Side	1.032	0.334	1.366	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.323	0.106	0.429	N/A	N/A
	Top Side	0.586	N/A	0.586	N/A	N/A
	Bottom Side	N/A	0.141	0.141	N/A	N/A

WWAN & WIFI 5.8G

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 850	WiFi 5.8G			
Body	Front Side	0.686	0.278	0.964	N/A	N/A
	Back Side	1.462	0.443	1.905	0.02	pass
	Left Side	0.012	N/A	0.012	N/A	N/A
	Right Side	0.368	0.139	0.507	N/A	N/A
	Top Side	0.730	N/A	0.730	N/A	N/A
	Bottom Side	0.024	0.181	0.205	N/A	N/A

Test Position	Scaled SAR_{MAX}	∑1-g SAR	SPLSR	Remark

		GSM 1900	WiFi 5.8G	(W/Kg)		
Body	Front Side	0.532	0.278	0.810	N/A	N/A
	Back Side	1.005	0.443	1.448	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.276	0.139	0.415	N/A	N/A
	Top Side	0.465	N/A	0.465	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band2	WiFi 5.8G			
Body	Front Side	0.784	0.278	1.062	N/A	N/A
	Back Side	1.523	0.443	1.966	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.139	0.606	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band5	WiFi 5.8G			
Body	Front Side	0.609	0.278	0.887	N/A	N/A
	Back Side	1.011	0.443	1.454	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.308	0.139	0.447	N/A	N/A
	Top Side	0.659	N/A	0.659	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band2	WiFi 5.8G			
Body	Front Side	0.696	0.278	0.974	N/A	N/A
	Back Side	1.157	0.443	1.600	0.01	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.351	0.139	0.490	N/A	N/A
	Top Side	0.754	N/A	0.754	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position	Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
	LTE Band4	WiFi 5.8G			

Body	Front Side	0.779	0.278	1.057	N/A	N/A
	Back Side	1.575	0.443	2.018	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.467	0.139	0.606	N/A	N/A
	Top Side	0.734	N/A	0.734	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band5	WiFi 5.8G			
Body	Front Side	0.791	0.278	1.069	N/A	N/A
	Back Side	1.359	0.443	1.802	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.406	0.139	0.545	N/A	N/A
	Top Side	0.682	N/A	0.682	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band7	WiFi 5.8G			
Body	Front Side	0.797	0.278	1.075	N/A	N/A
	Back Side	1.526	0.443	1.969	0.02	pass
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.454	0.139	0.593	N/A	N/A
	Top Side	0.763	N/A	0.763	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band12	WiFi 5.8G			
Body	Front Side	0.470	0.278	0.748	N/A	N/A
	Back Side	0.723	0.443	1.166	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.217	0.139	0.356	N/A	N/A
	Top Side	0.433	N/A	0.433	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band17	WiFi 5.8G			
Body	Front Side	0.411	0.278	0.689	N/A	N/A
	Back Side	0.650	0.443	1.093	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A

	Right Side	0.203	0.139	0.342	N/A	N/A
	Top Side	0.365	N/A	0.365	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band19	WiFi 5.8G			
Body	Front Side	0.664	0.278	0.942	N/A	N/A
	Back Side	1.057	0.443	1.500	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.325	0.139	0.464	N/A	N/A
	Top Side	0.596	N/A	0.596	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band41	WiFi 5.8G			
Body	Front Side	0.633	0.278	0.911	N/A	N/A
	Back Side	1.032	0.443	1.475	N/A	N/A
	Left Side	N/A	N/A	N/A	N/A	N/A
	Right Side	0.323	0.139	0.462	N/A	N/A
	Top Side	0.586	N/A	0.586	N/A	N/A
	Bottom Side	N/A	0.181	0.181	N/A	N/A

WWAN & Bluetooth

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 850	Bluetooth			
Body	Front Side	0.686	0.374	1.060	N/A	N/A
	Back Side	1.462	0.374	1.836	0.02	pass
	Left Side	0.012	0.374	0.386	N/A	N/A
	Right Side	0.368	0.374	0.742	N/A	N/A
	Top Side	0.730	0.374	1.104	N/A	N/A
	Bottom Side	0.024	0.374	0.398	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 1900	Bluetooth			
Body	Front Side	0.532	0.374	0.906	N/A	N/A
	Back Side	1.005	0.374	1.379	N/A	N/A
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.276	0.374	0.650	N/A	N/A

	Top Side	0.465	0.374	0.839	N/A	N/A
	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band2	Bluetooth			
Body	Front Side	0.784	0.374	1.158	N/A	N/A
	Back Side	1.523	0.374	1.897	0.02	pass
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.467	0.374	0.841	N/A	N/A
	Top Side	0.763	0.374	1.137	N/A	N/A
	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WDMA Band5	Bluetooth			
Body	Front Side	0.609	0.374	0.983	N/A	N/A
	Back Side	1.011	0.374	1.385	N/A	N/A
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.308	0.374	0.682	N/A	N/A
	Top Side	0.659	0.374	1.033	N/A	N/A
	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band2	Bluetooth			
Body	Front Side	0.696	0.374	1.070	N/A	N/A
	Back Side	1.157	0.374	1.531	N/A	N/A
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.351	0.374	0.725	N/A	N/A
	Top Side	0.754	0.374	1.128	N/A	N/A
	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band4	Bluetooth			
Body	Front Side	0.779	0.374	1.153	N/A	N/A
	Back Side	1.575	0.374	1.949	0.02	pass
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.467	0.374	0.841	N/A	N/A
	Top Side	0.734	0.374	1.108	N/A	N/A

	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band5	Bluetooth			
Body	Front Side	0.791	0.374	1.165	N/A	N/A
	Back Side	1.359	0.374	1.733	0.02	pass
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.406	0.374	0.780	N/A	N/A
	Top Side	0.682	0.374	1.056	N/A	N/A
	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band7	Bluetooth			
Body	Front Side	0.797	0.374	1.171	N/A	N/A
	Back Side	1.526	0.374	1.900	0.02	pass
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.454	0.374	0.828	N/A	N/A
	Top Side	0.763	0.374	1.137	N/A	N/A
	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band12	Bluetooth			
Body	Front Side	0.470	0.374	0.844	N/A	N/A
	Back Side	0.723	0.374	1.097	N/A	N/A
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.217	0.374	0.591	N/A	N/A
	Top Side	0.433	0.374	0.807	N/A	N/A
	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band17	Bluetooth			
Body	Front Side	0.411	0.374	0.785	N/A	N/A
	Back Side	0.650	0.374	1.024	N/A	N/A
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.203	0.374	0.577	N/A	N/A
	Top Side	0.365	0.374	0.739	N/A	N/A
	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band19	Bluetooth			
Body	Front Side	0.664	0.374	1.038	N/A	N/A
	Back Side	1.057	0.374	1.431	N/A	N/A
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.325	0.374	0.699	N/A	N/A
	Top Side	0.596	0.374	0.970	N/A	N/A
	Bottom Side	N/A	0.374	0.374	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band41	Bluetooth			
Body	Front Side	0.633	0.374	1.007	N/A	N/A
	Back Side	1.032	0.374	1.406	N/A	N/A
	Left Side	N/A	0.374	0.374	N/A	N/A
	Right Side	0.323	0.374	0.697	N/A	N/A
	Top Side	0.586	0.374	0.960	N/A	N/A
	Bottom Side	N/A	0.374	0.374	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 1 System Performance Check - 750MHz
MEASUREMENT 2 System Performance Check - 835MHz
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MEASUREMENT 6 System Performance Check - 2600MHz
MEASUREMENT 7 System Performance Check - 5200MHz
MEASUREMENT 8 System Performance Check - 5600MHz
MEASUREMENT 9 System Performance Check - 5800MHz

MEASUREMENT 1

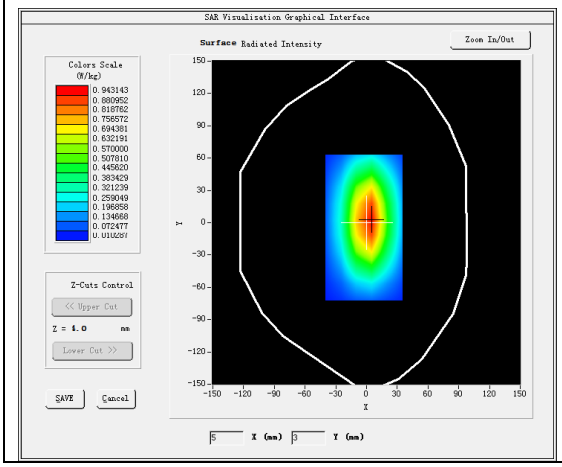
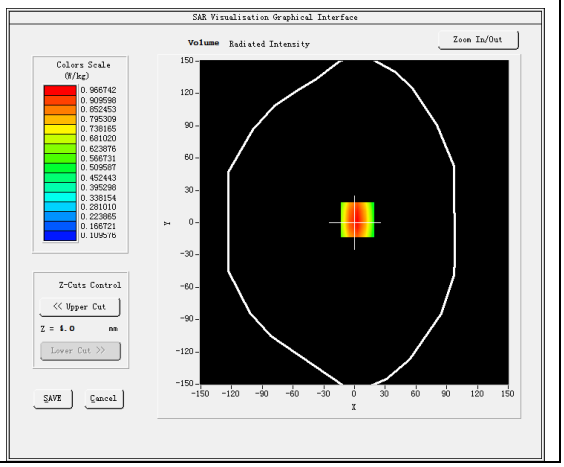
Date of measurement: 19/5/2022

A. Experimental conditions.

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

B. SAR Measurement Results

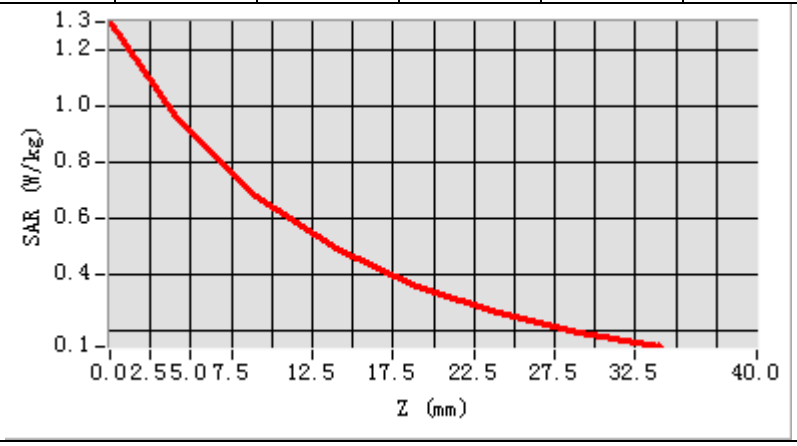
Frequency (MHz)	750.000000
Relative permittivity (real part)	40.707545
Relative permittivity (imaginary part)	21.487866
Conductivity (S/m)	0.895328
Variation (%)	-2.190000

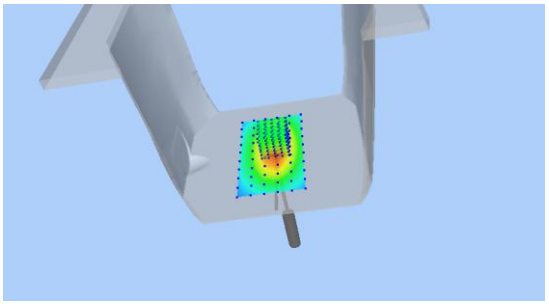
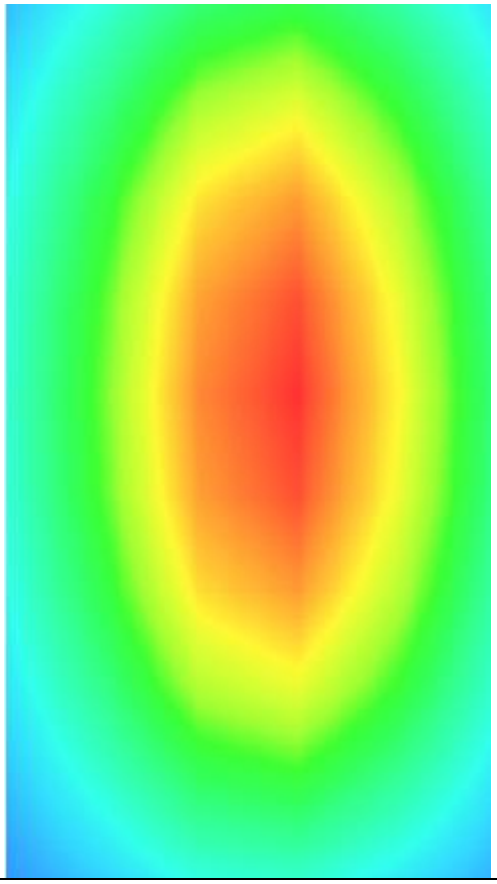
SURFACE SAR	VOLUME SAR
	

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

SAR 10g (W/Kg)	0.542341
SAR 1g (W/Kg)	0.783283

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.2946	0.9674	0.6737	0.4894	0.3517	0.2611	0.1962



3D screen shot	Hot spot position
	

MEASUREMENT 2

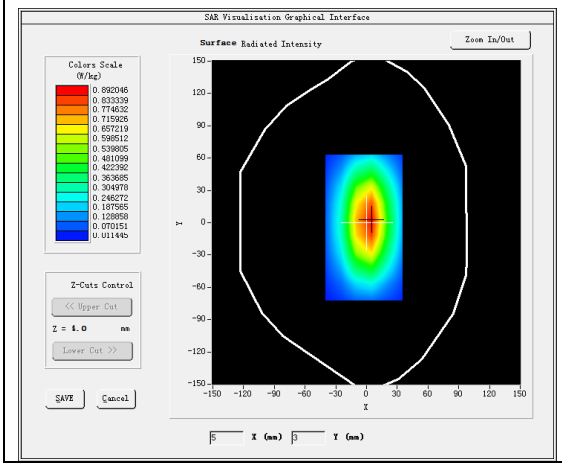
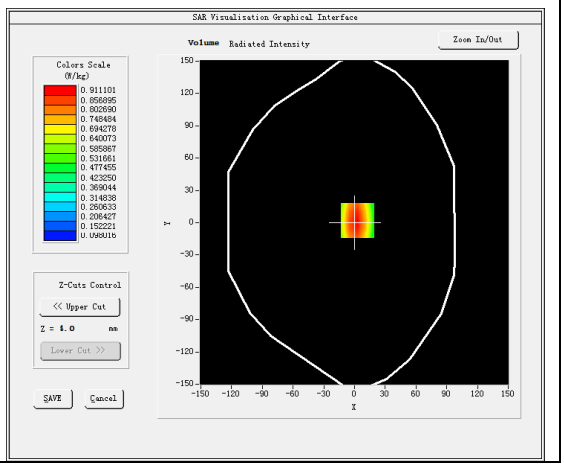
Date of measurement: 21/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

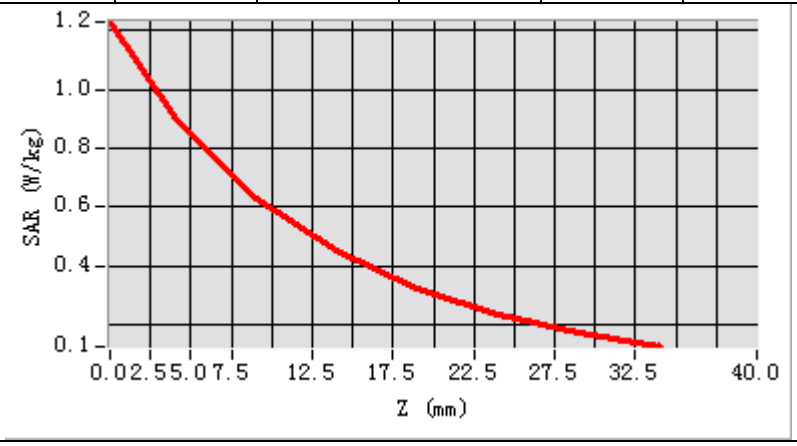
Frequency (MHz)	835.000000
Relative permittivity (real part)	42.334476
Relative permittivity (imaginary part)	20.037130
Conductivity (S/m)	0.929500
Variation (%)	-2.670000

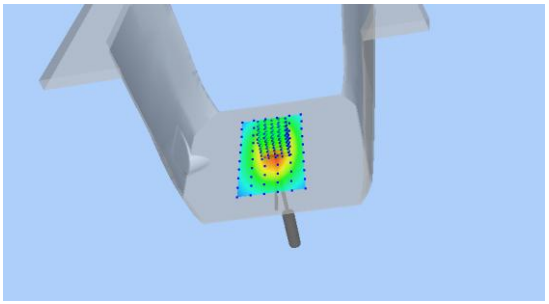
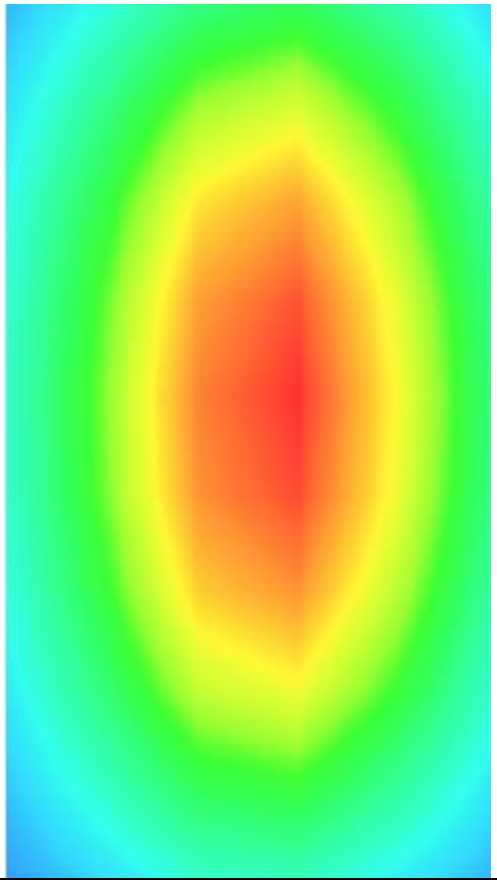
SURFACE SAR	VOLUME SAR
	

Maximum location: X=3.00, Y=2.00
SAR Peak: 1.23 W/kg

SAR 10g (W/Kg)	0.651126
SAR 1g (W/Kg)	0.931040

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.2266	0.9188	0.6328	0.4581	0.3200	0.2322	0.1705



3D screen shot	Hot spot position
	

MEASUREMENT 3

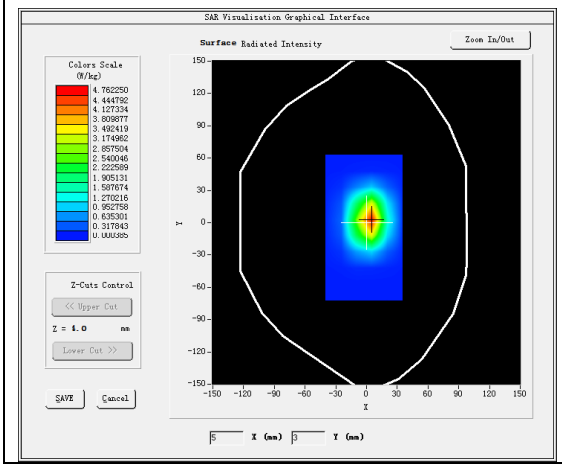
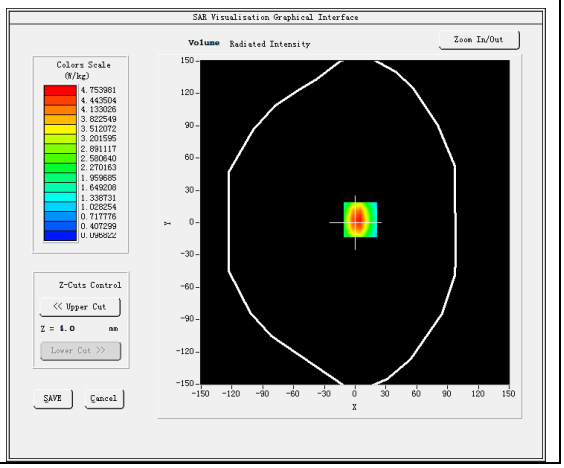
Date of measurement: 6/6/2022

A. Experimental conditions.

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

B. SAR Measurement Results

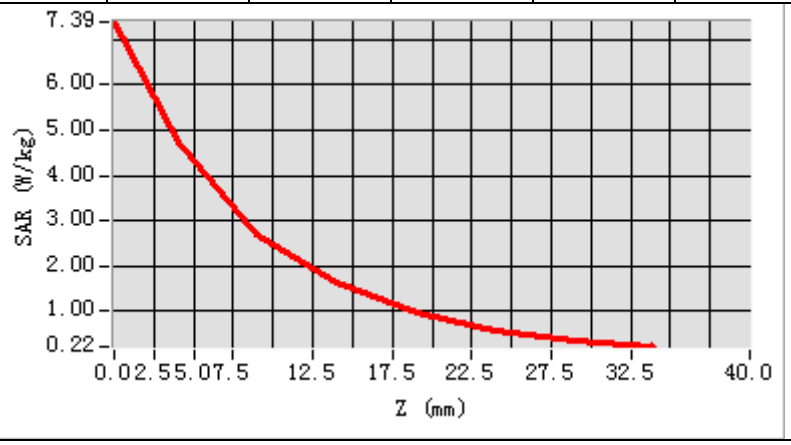
Frequency (MHz)	1800.000000
Relative permittivity (real part)	38.717361
Relative permittivity (imaginary part)	13.878383
Conductivity (S/m)	1.387838
Variation (%)	0.320000

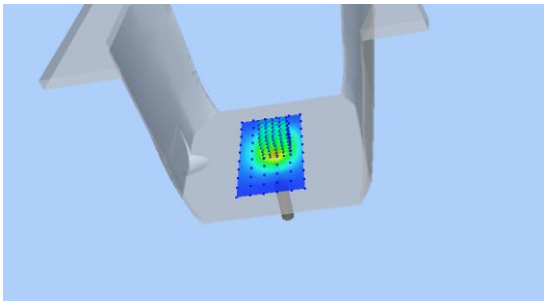
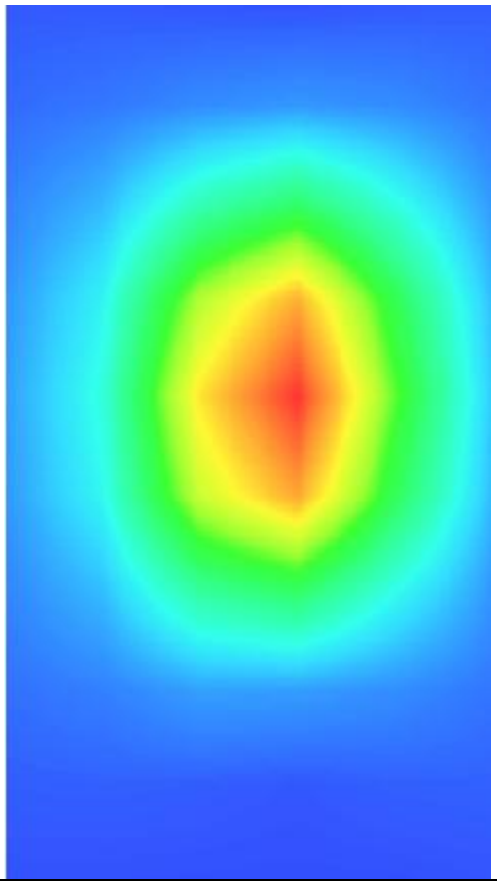
SURFACE SAR	VOLUME SAR
	

Maximum location: X=5.00, Y=3.00
SAR Peak: 7.59 W/kg

SAR 10g (W/Kg)	1.991002
SAR 1g (W/Kg)	3.880175

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	7.3859	4.7542	2.7093	1.6149	0.9647	0.5812	0.3580



3D screen shot	Hot spot position
	

MEASUREMENT 4

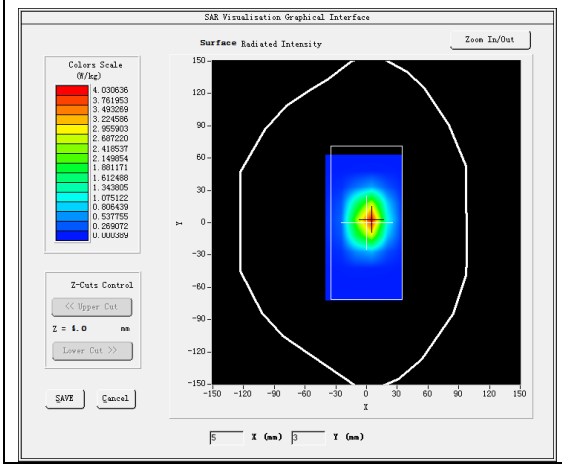
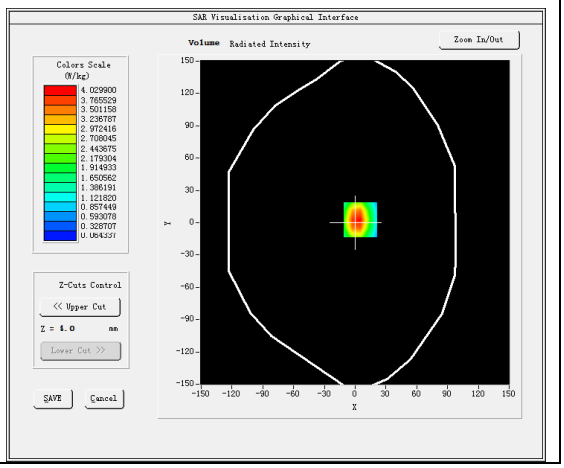
Date of measurement: 23/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

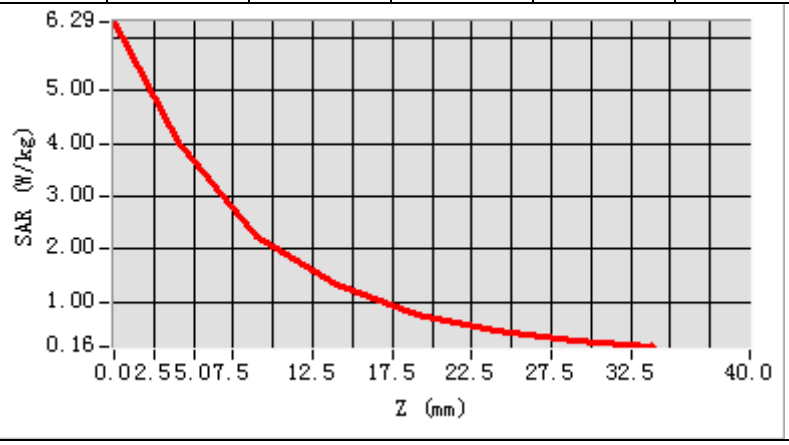
Frequency (MHz)	1900.000000
Relative permittivity (real part)	38.335769
Relative permittivity (imaginary part)	13.829148
Conductivity (S/m)	1.459743
Variation (%)	3.170000

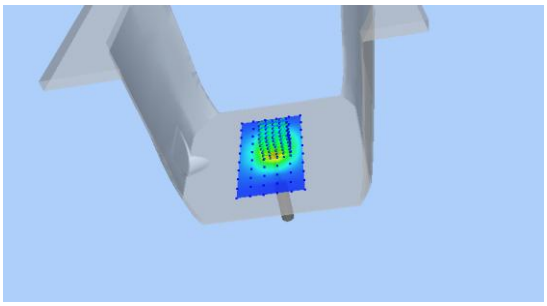
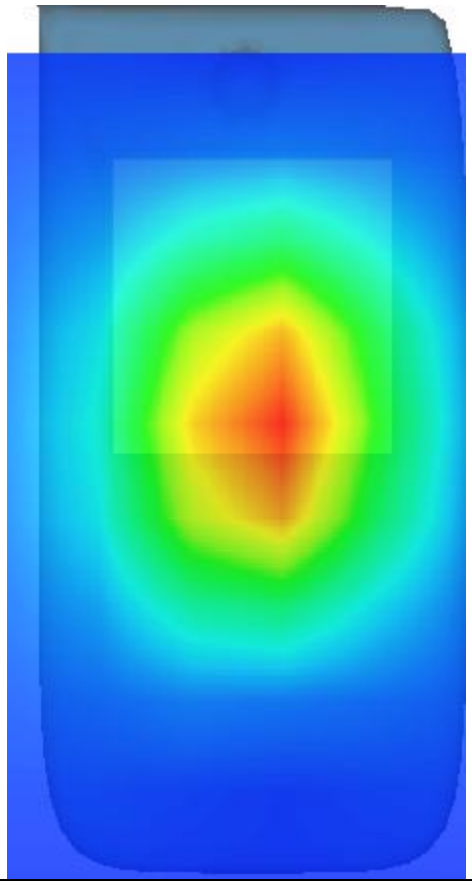
SURFACE SAR	VOLUME SAR
	

Maximum location: X=5.00, Y=3.00
SAR Peak: 6.57 W/kg

SAR 10g (W/Kg)	1.904139
SAR 1g (W/Kg)	4.030320

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.2976	4.0279	2.2523	1.3159	0.7697	0.4531	0.2650



3D screen shot	Hot spot position
	

MEASUREMENT 5

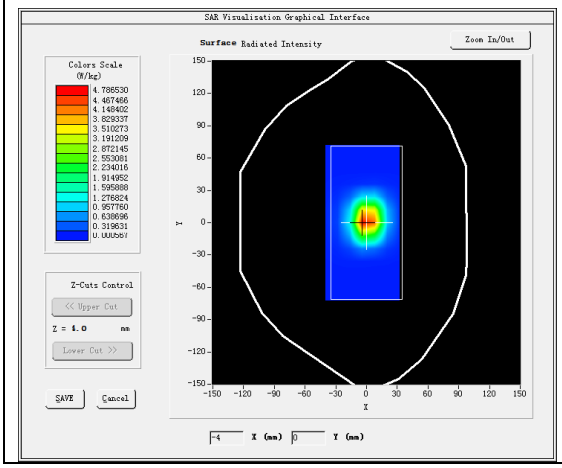
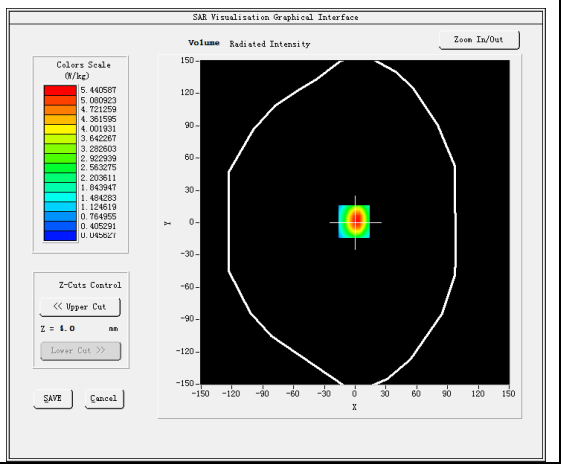
Date of measurement: 31/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

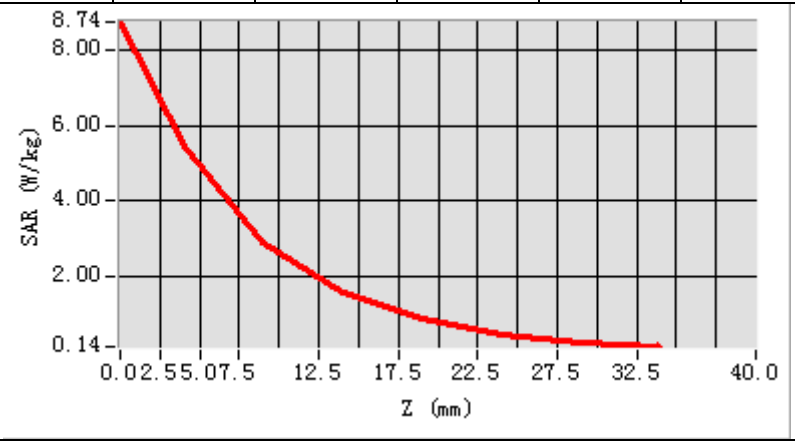
Frequency (MHz)	2450.000000
Relative permittivity (real part)	38.612082
Relative permittivity (imaginary part)	13.282752
Conductivity (S/m)	1.807930
Variation (%)	-1.050000

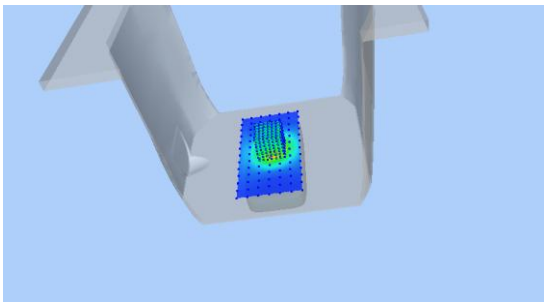
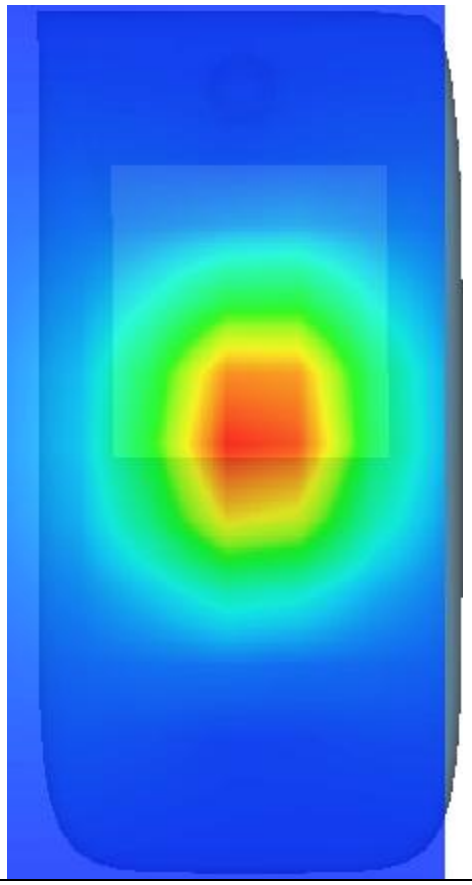
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-1.00, Y=1.00
SAR Peak: 8.94 W/kg

SAR 10g (W/Kg)	2.538366
SAR 1g (W/Kg)	5.831333

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	8.7379	5.4464	2.9022	1.5677	0.8517	0.4612	0.2543



3D screen shot	Hot spot position
	

MEASUREMENT 6

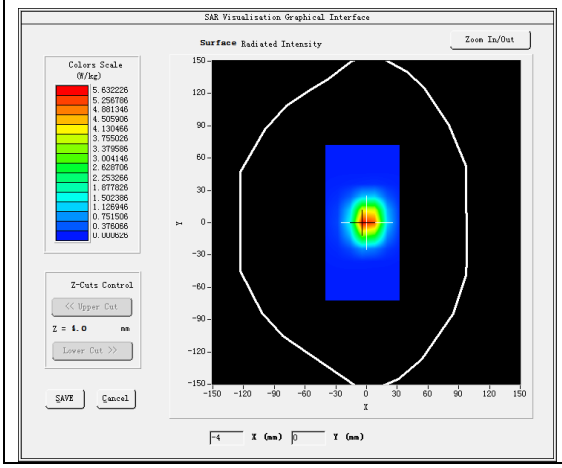
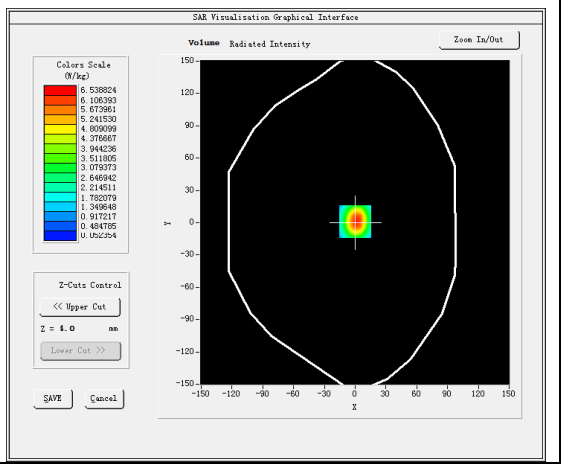
Date of measurement: 28/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

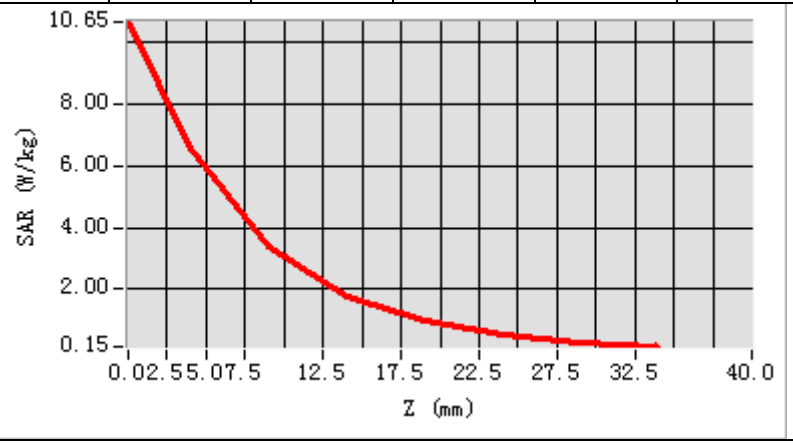
Frequency (MHz)	2600.000000
Relative permittivity (real part)	38.499670
Relative permittivity (imaginary part)	13.971761
Conductivity (S/m)	2.018143
Variation (%)	2.900000

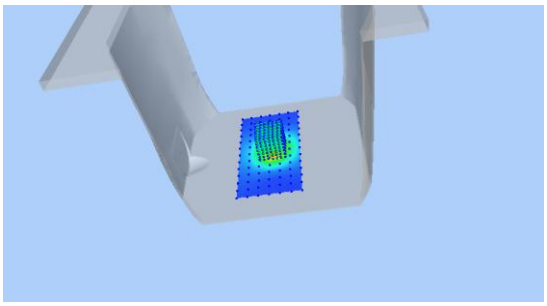
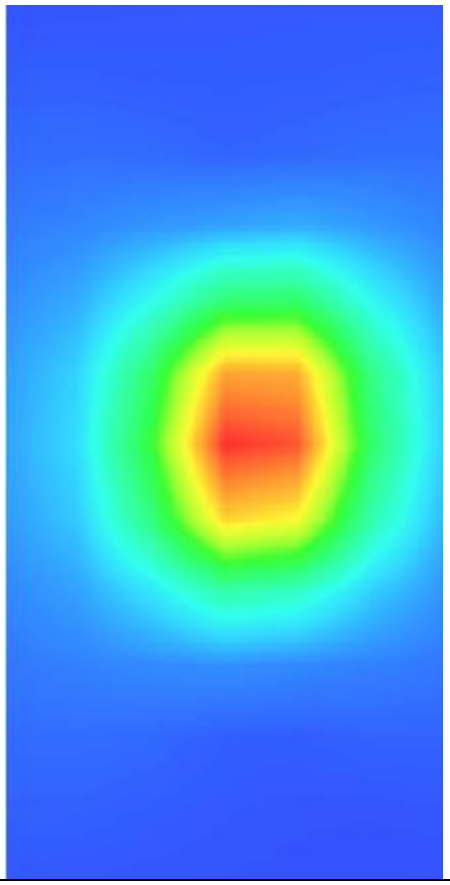
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=1.00
SAR Peak: 10.67 W/kg

SAR 10g (W/Kg)	2.320174
SAR 1g (W/Kg)	5.182177

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	10.688	6.5387	3.4153	1.7961	0.9627	0.5103	0.2707



3D screen shot	Hot spot position
	

MEASUREMENT 7

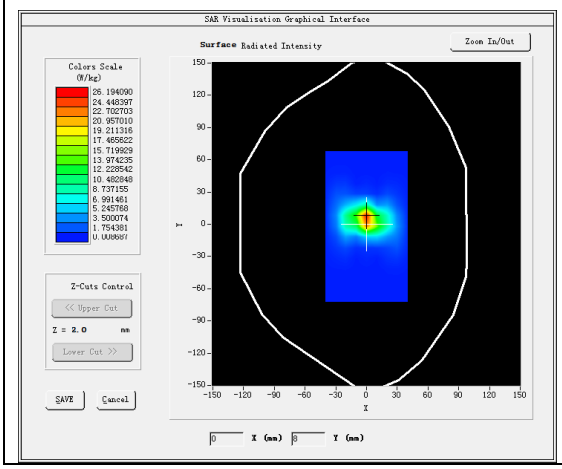
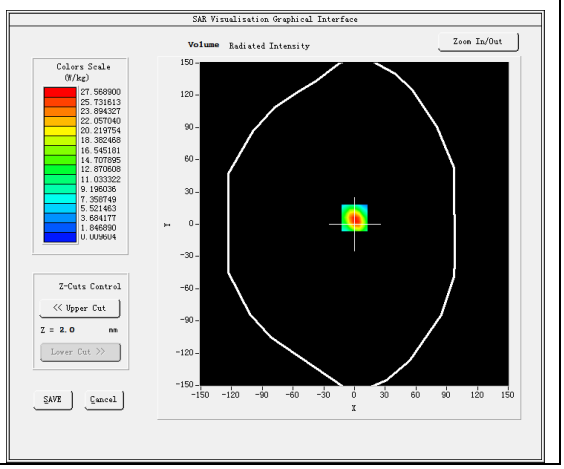
Date of measurement: 25/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

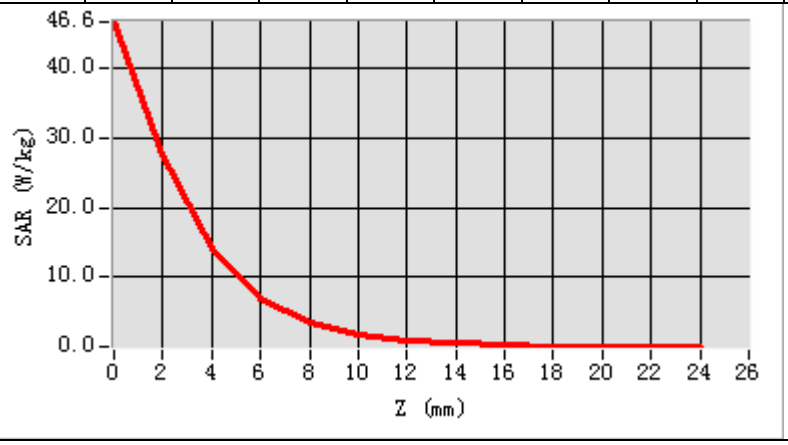
Frequency (MHz)	5200.000000
Relative permittivity (real part)	36.557546
Relative permittivity (imaginary part)	16.634934
Conductivity (S/m)	4.805648
Variation (%)	0.610000

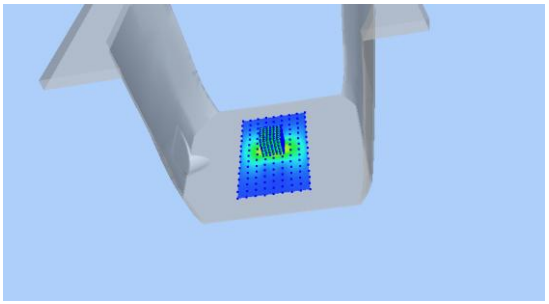
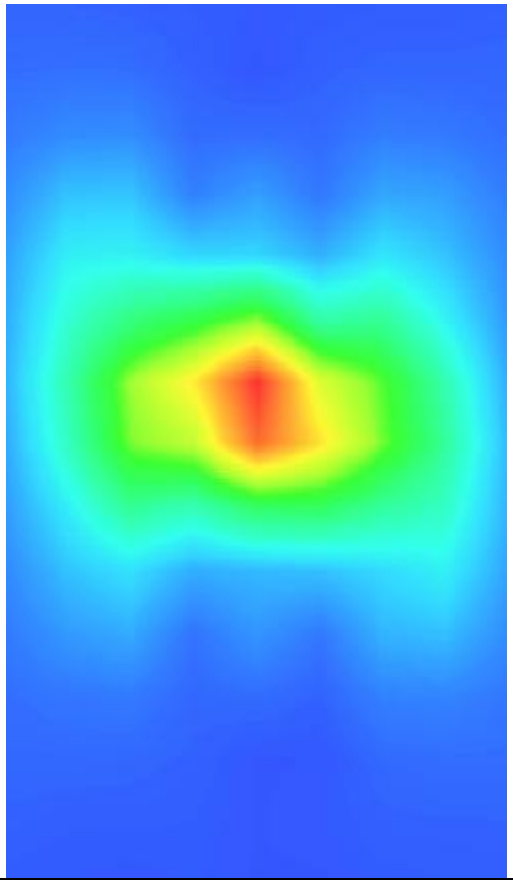
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 49.61 W/kg

SAR 10g (W/Kg)	5.775153
SAR 1g (W/Kg)	14.810124

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	46.630	27.554	14.036	7.0565	3.5960	1.7836	0.8978	0.4660	0.2469	0.1396	0.0657	0.0426



3D screen shot	Hot spot position
	

MEASUREMENT 8

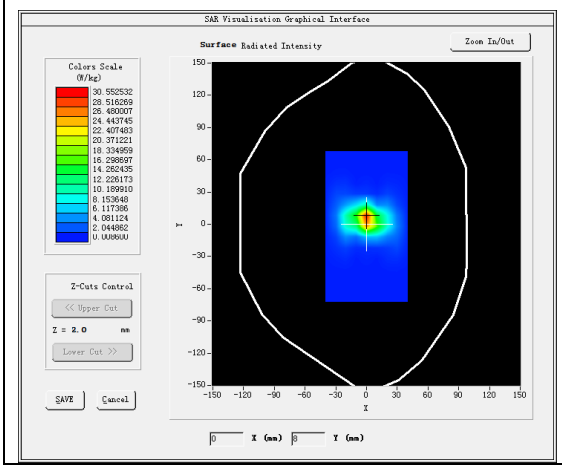
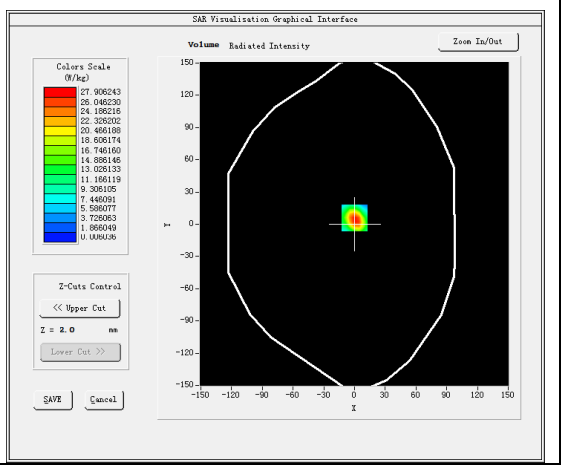
Date of measurement: 30/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

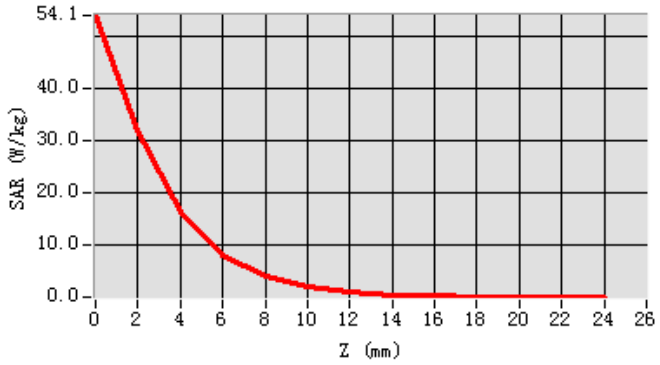
Frequency (MHz)	5600.000000
Relative permittivity (real part)	36.082672
Relative permittivity (imaginary part)	16.144519
Conductivity (S/m)	5.022739
Variation (%)	2.700000

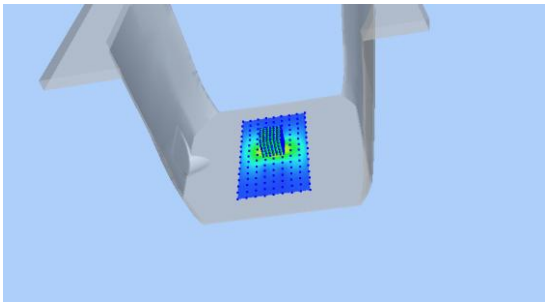
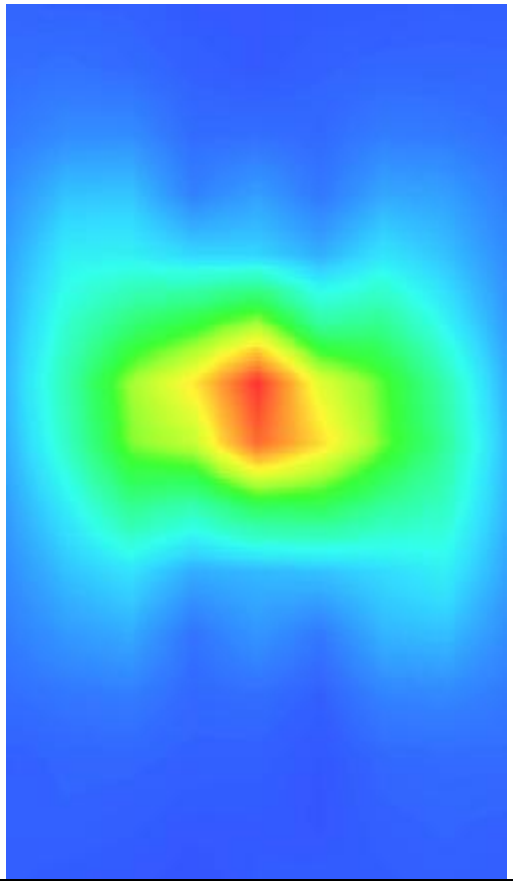
SURFACE SAR	VOLUME SAR
	

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

SAR 10g (W/Kg)	6.256359
SAR 1g (W/Kg)	16.606354

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	54.130	31.966	16.374	8.1704	4.0875	3.8158	1.0358	0.4631	0.2717	0.1312	0.0704	0.0536



3D screen shot	Hot spot position
	

MEASUREMENT 9

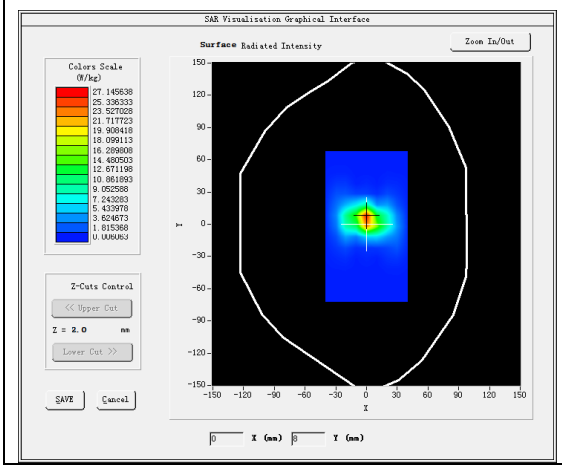
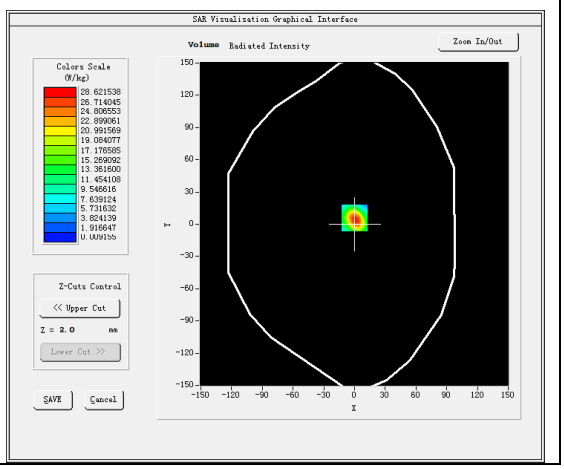
Date of measurement: 24/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

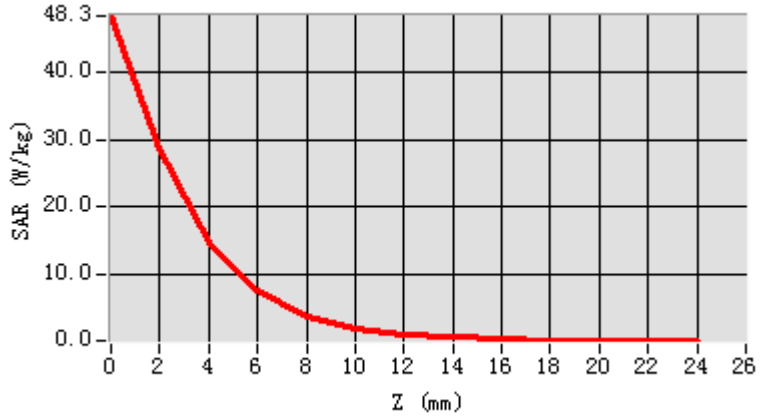
Frequency (MHz)	5800.000000
Relative permittivity (real part)	35.517083
Relative permittivity (imaginary part)	16.822688
Conductivity (S/m)	5.420644
Variation (%)	0.810000

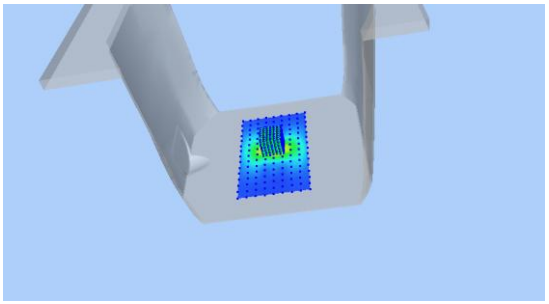
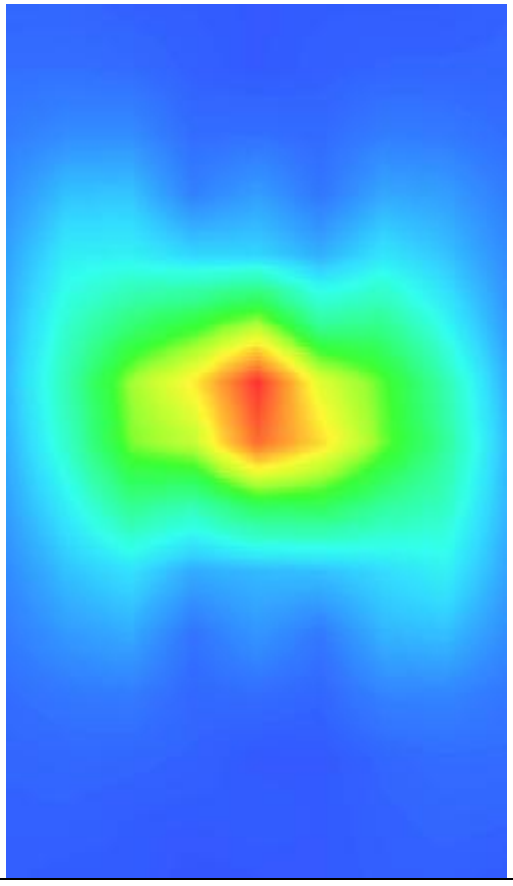
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 51.30 W/kg

SAR 10g (W/Kg)	6.006384
SAR 1g (W/Kg)	17.215137

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	48.362	28.683	14.650	7.4018	3.6847	1.8340	0.9320	0.4723	0.2558	0.1306	0.0762	0.0547



3D screen shot	Hot spot position
	

13. Appendix C. Plots of High SAR Measurement

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MEASUREMENT 15 LTE Band 17 Body
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MEASUREMENT 17 LTE Band 41 Body

MEASUREMENT 1

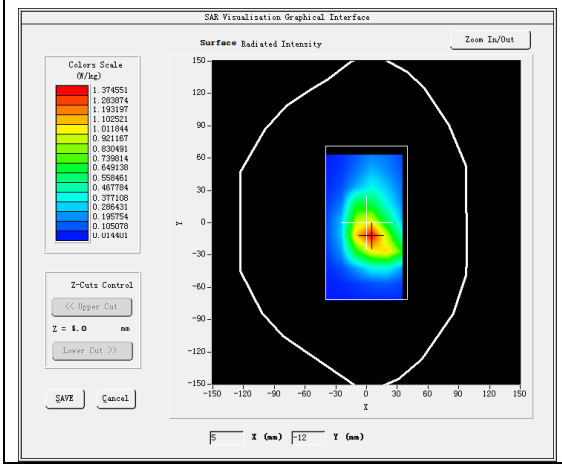
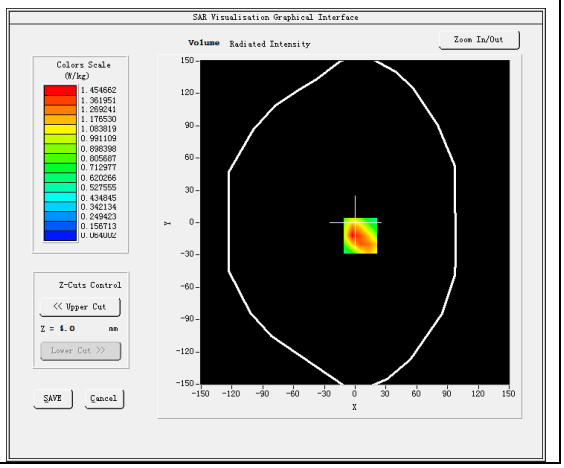
Date of measurement: 31/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

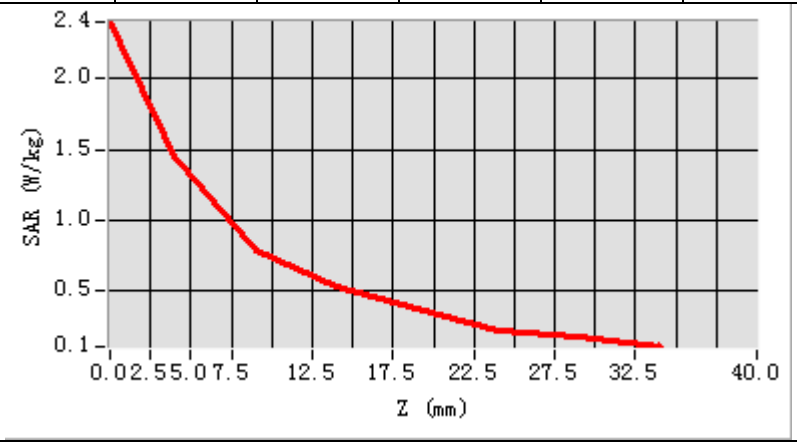
Frequency (MHz)	848.800000
Relative permittivity (real part)	42.094097
Relative permittivity (imaginary part)	20.109390
Conductivity (S/m)	0.948269
Variation (%)	2.110000

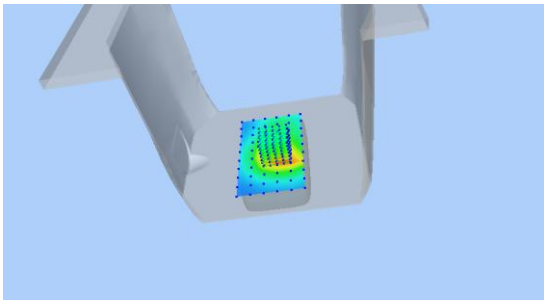
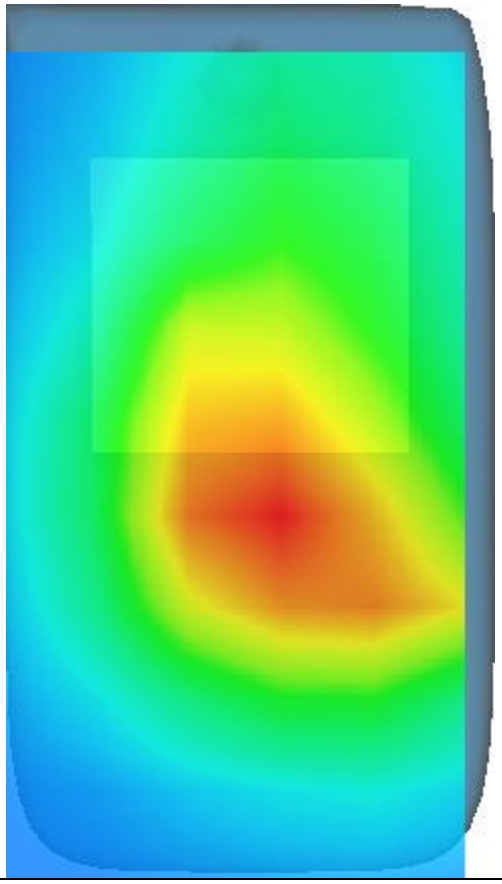
SURFACE SAR	VOLUME SAR
	

Maximum location: X=5.00, Y=-12.00
SAR Peak: 2.27 W/kg

SAR 10g (W/Kg)	0.808260
SAR 1g (W/Kg)	1.402686

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.4043	1.4547	0.7820	0.5240	0.3632	0.2157	0.1715



3D screen shot	Hot spot position
	

MEASUREMENT 2

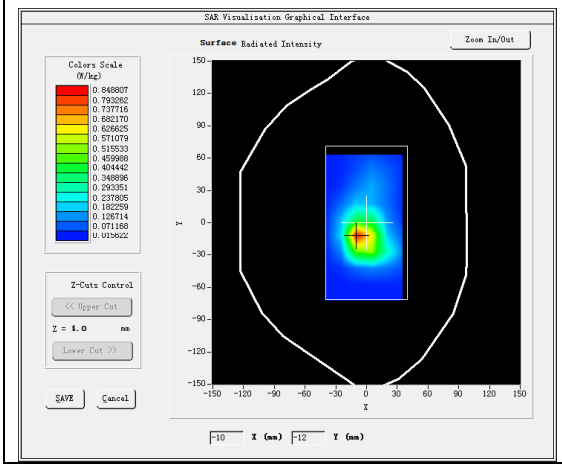
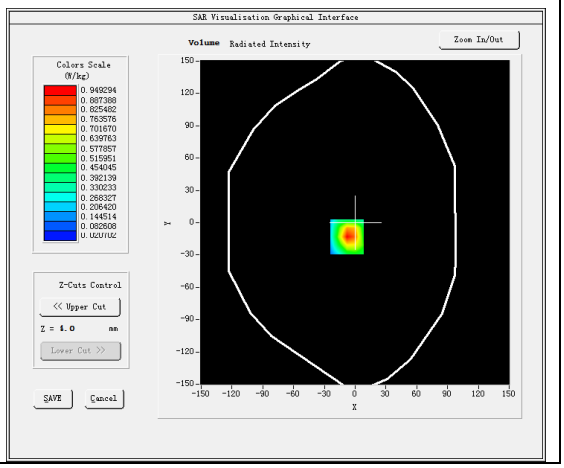
Date of measurement: 23/3/2022

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Low
Signal	TDMA (Crest factor: 2.0)

B. SAR Measurement Results

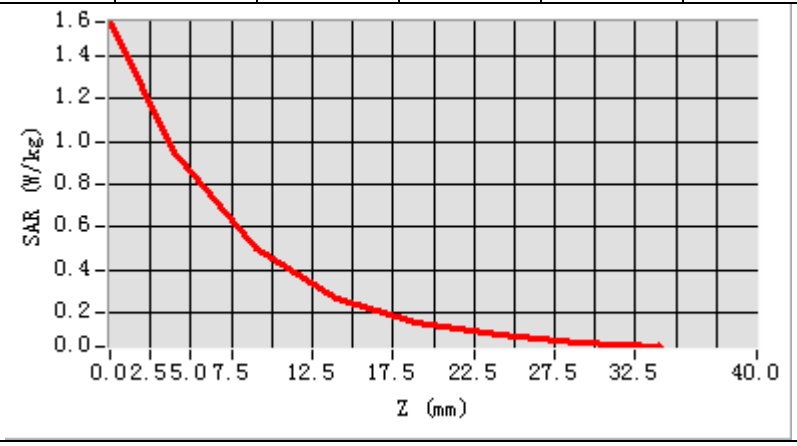
Frequency (MHz)	1850.200000
Relative permittivity (real part)	38.616169
Relative permittivity (imaginary part)	13.867528
Conductivity (S/m)	1.425428
Variation (%)	3.260000

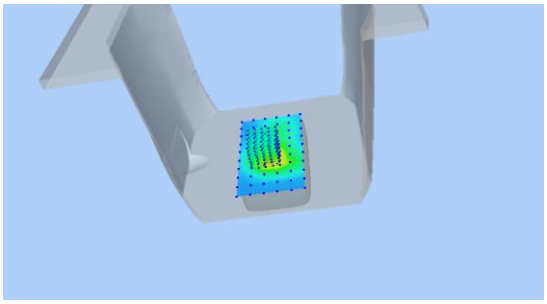
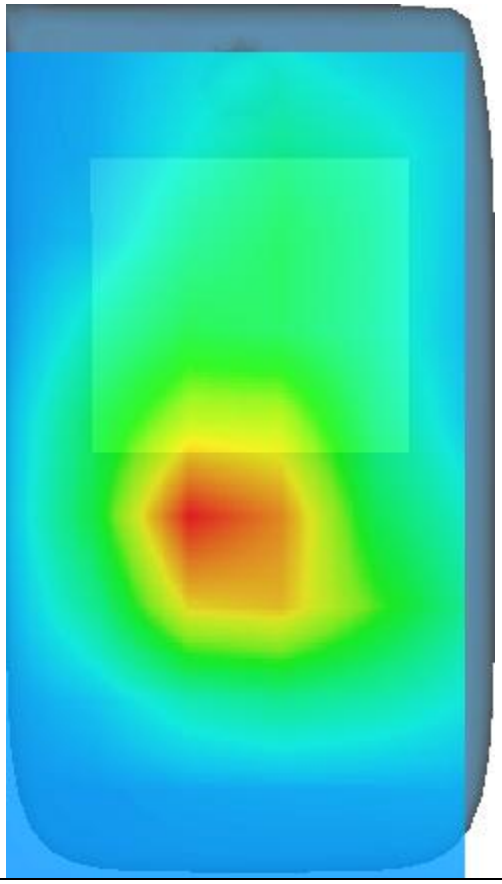
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-8.00, Y=-13.00
SAR Peak: 1.65 W/kg

SAR 10g (W/Kg)	0.447694
SAR 1g (W/Kg)	0.923411

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.5593	0.9493	0.4953	0.2677	0.1548	0.0967	0.0610



3D screen shot	Hot spot position
	

MEASUREMENT 3

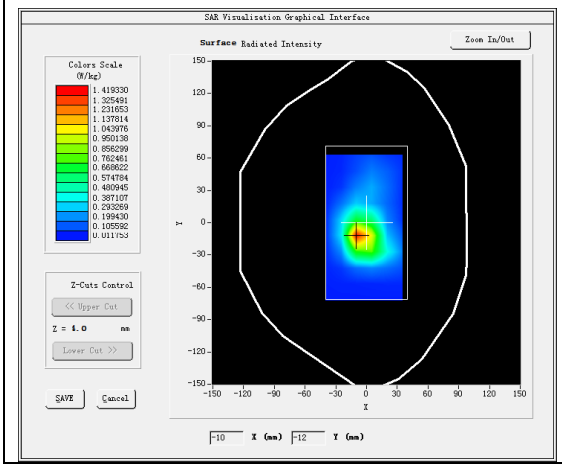
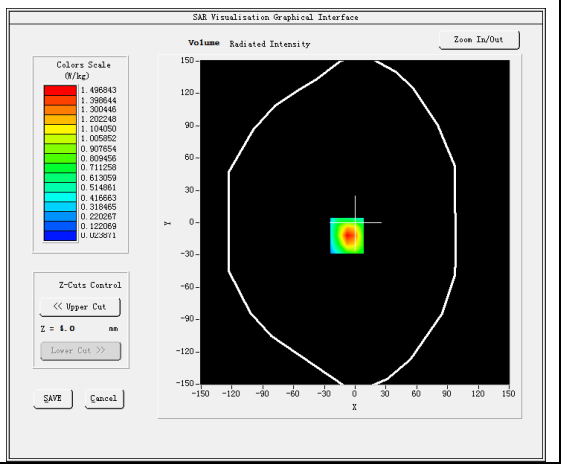
Date of measurement: 23/3/2022

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	Band2_WCDMA1900
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

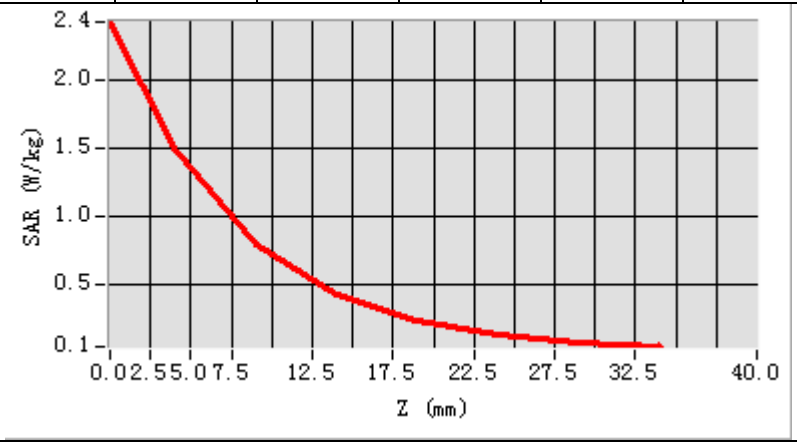
Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.422169
Relative permittivity (imaginary part)	13.846948
Conductivity (S/m)	1.446237
Variation (%)	-0.840000

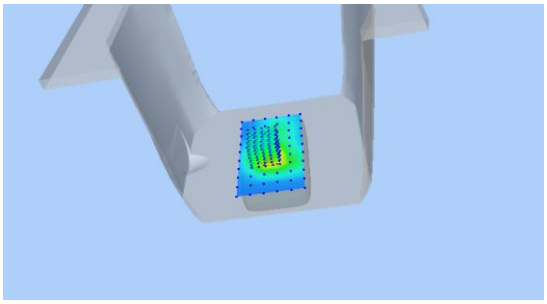
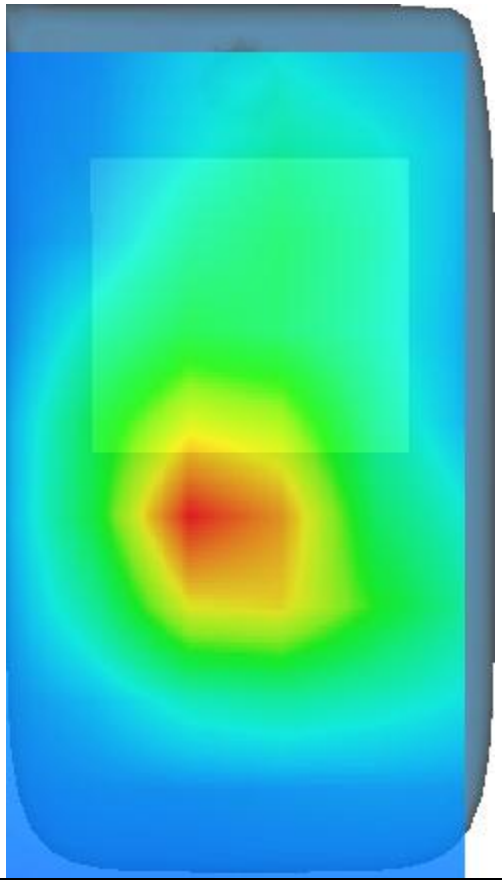
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-8.00, Y=-12.00
SAR Peak: 2.46 W/kg

SAR 10g (W/Kg)	0.719108
SAR 1g (W/Kg)	1.457642

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.4184	1.4968	0.7966	0.4398	0.2510	0.1431	0.0892



3D screen shot	Hot spot position
	

MEASUREMENT 4

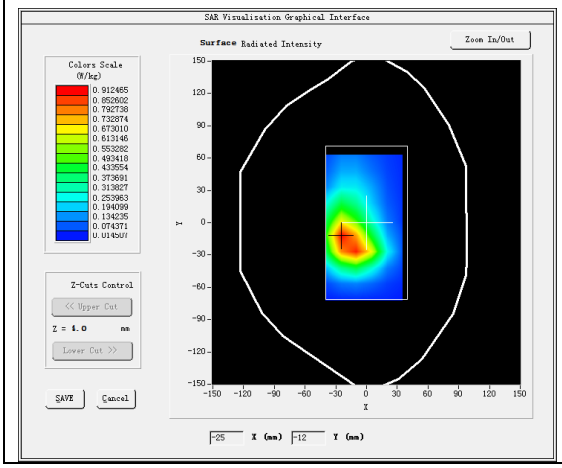
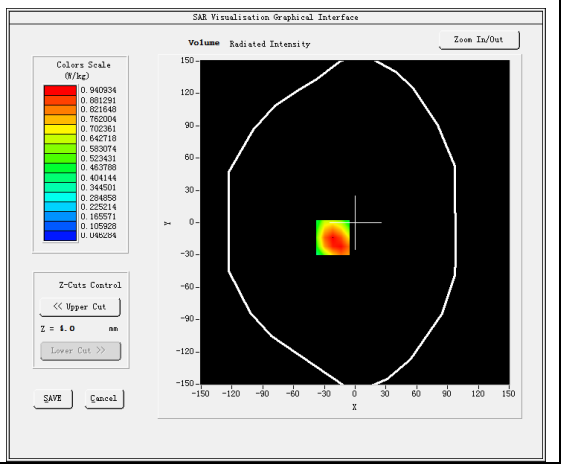
Date of measurement: 21/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

Frequency (MHz)	846.600000
Relative permittivity (real part)	42.127575
Relative permittivity (imaginary part)	20.121750
Conductivity (S/m)	0.946393
Variation (%)	0.570000

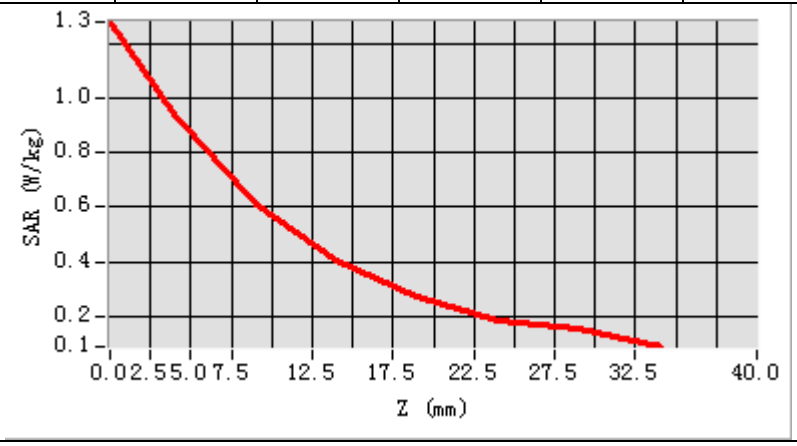
SURFACE SAR	VOLUME SAR
	

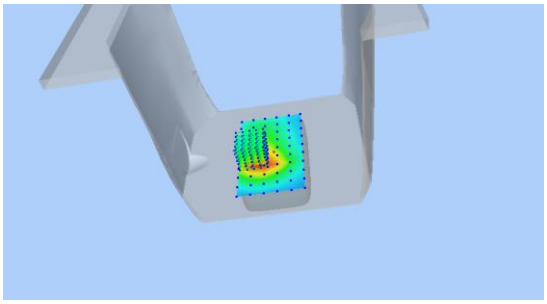
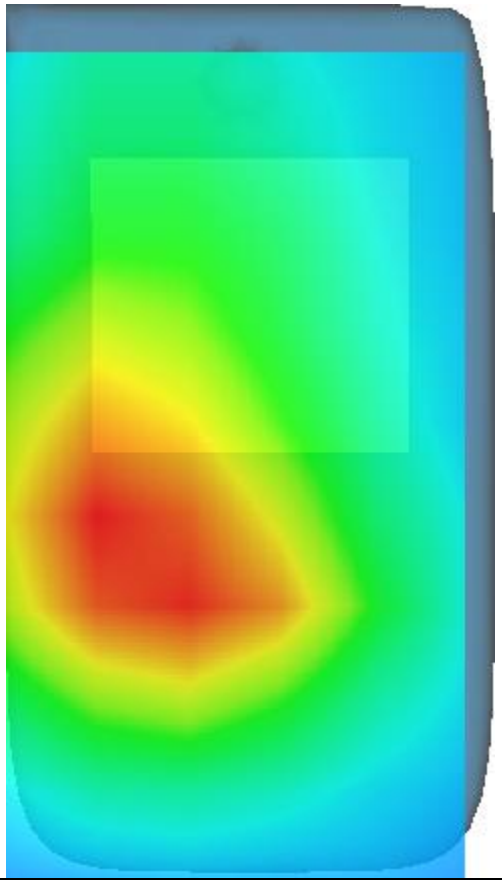
Maximum location: X=-22.00, Y=-14.00

SAR Peak: 1.37 W/kg

SAR 10g (W/Kg)	0.576578
SAR 1g (W/Kg)	0.931415

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.2780	0.9409	0.6130	0.4052	0.2687	0.1847	0.1543



3D screen shot	Hot spot position
	

MEASUREMENT 5

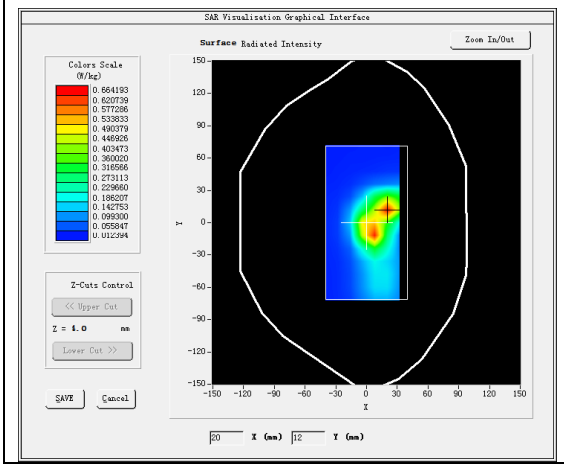
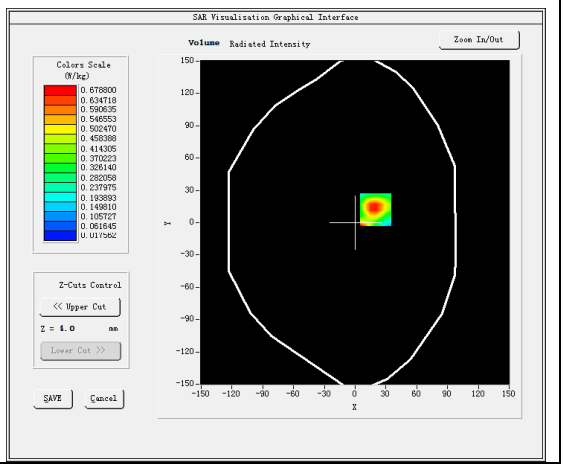
Date of measurement: 31/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

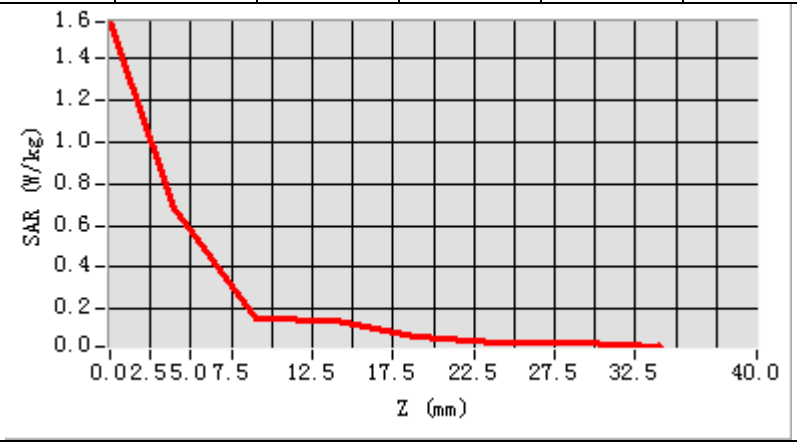
Frequency (MHz)	2437.000000
Relative permittivity (real part)	38.664181
Relative permittivity (imaginary part)	13.201252
Conductivity (S/m)	1.787303
Variation (%)	-0.200000

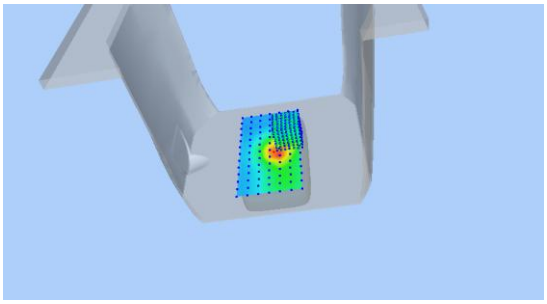
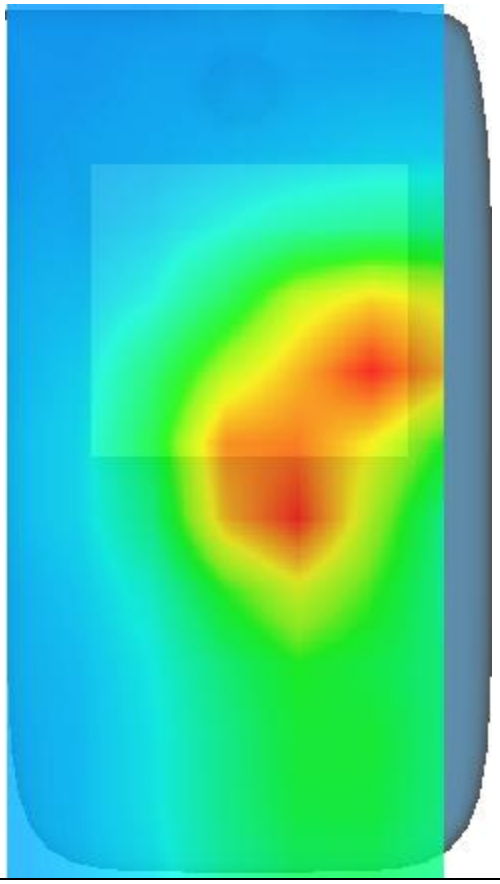
SURFACE SAR	VOLUME SAR
	

Maximum location: X=20.00, Y=12.00
SAR Peak: 1.19 W/kg

SAR 10g (W/Kg)	0.303263
SAR 1g (W/Kg)	0.543846

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.5752	0.6788	0.1494	0.1455	0.0637	0.0408	0.0333



3D screen shot	Hot spot position
	

MEASUREMENT 6

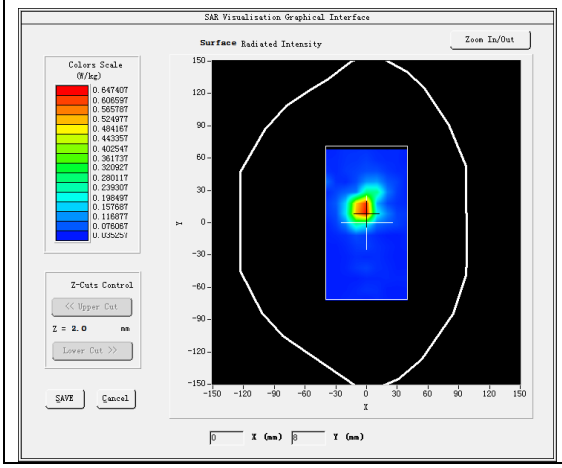
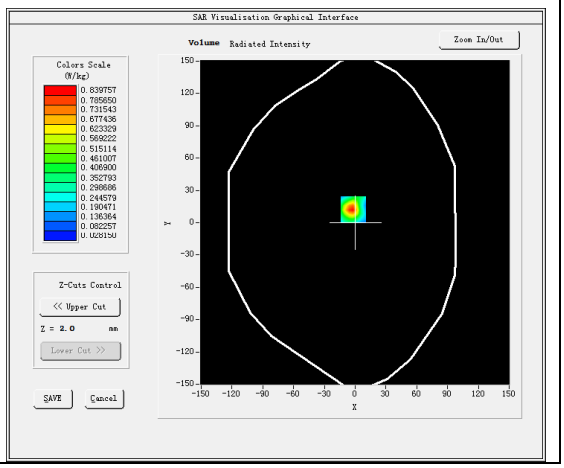
Date of measurement: 25/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

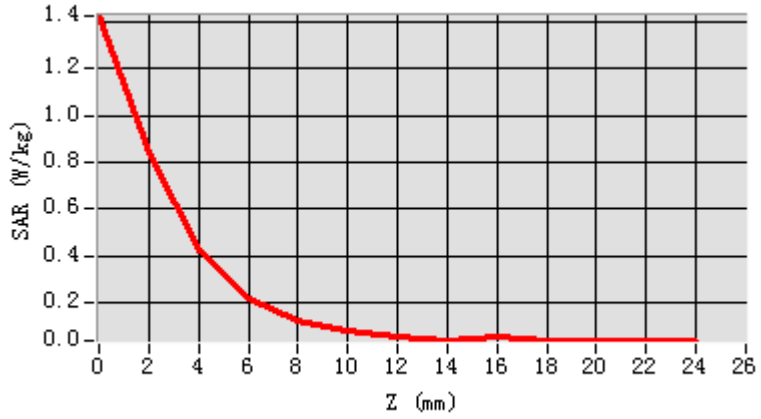
Frequency (MHz)	5200.000000
Relative permittivity (real part)	36.557545
Relative permittivity (imaginary part)	16.634933
Conductivity (S/m)	4.805648
Variation (%)	-0.880000

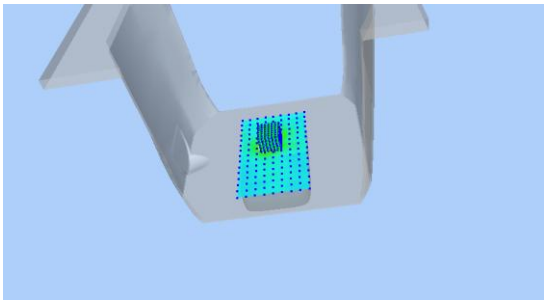
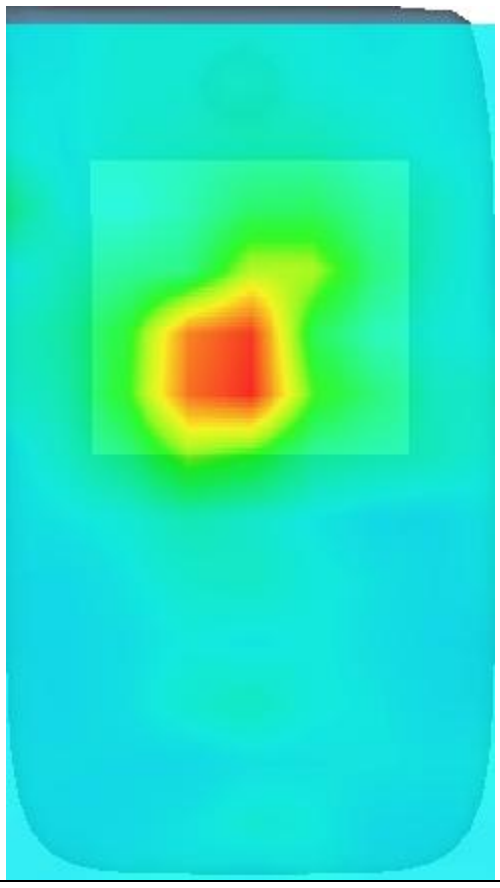
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-2.00, Y=12.00
SAR Peak: 1.51 W/kg

SAR 10g (W/Kg)	0.172998
SAR 1g (W/Kg)	0.462965

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	1.4245	0.8398	0.4254	0.2186	0.1264	0.0805	0.0564	0.0379	0.0496	0.0365	0.0367	0.0368



3D screen shot	Hot spot position
	

MEASUREMENT 7

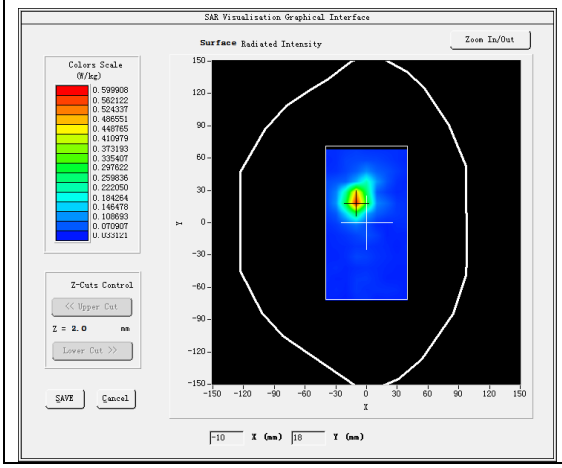
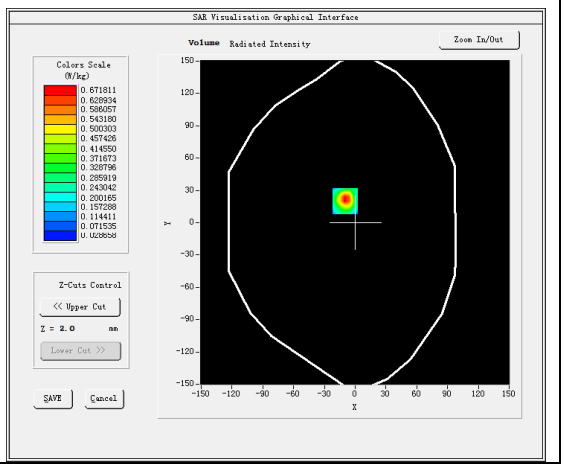
Date of measurement: 25/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

Frequency (MHz)	5280.000000
Relative permittivity (real part)	36.448353
Relative permittivity (imaginary part)	16.720093
Conductivity (S/m)	4.904561
Variation (%)	-4.070000

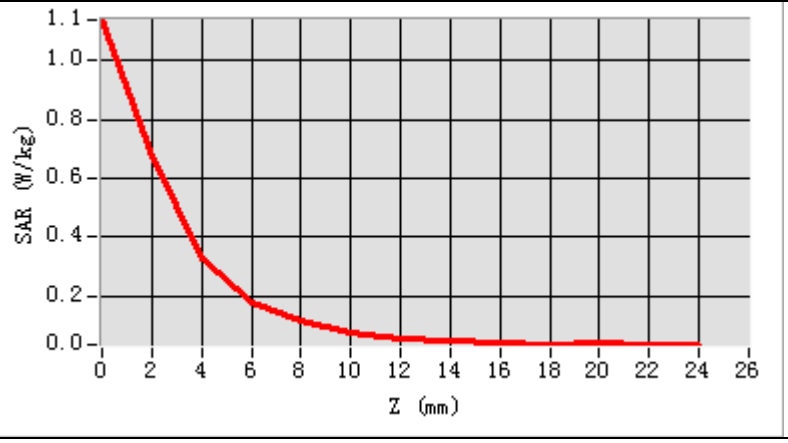
SURFACE SAR	VOLUME SAR
	

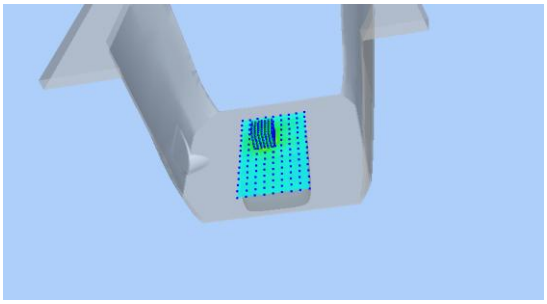
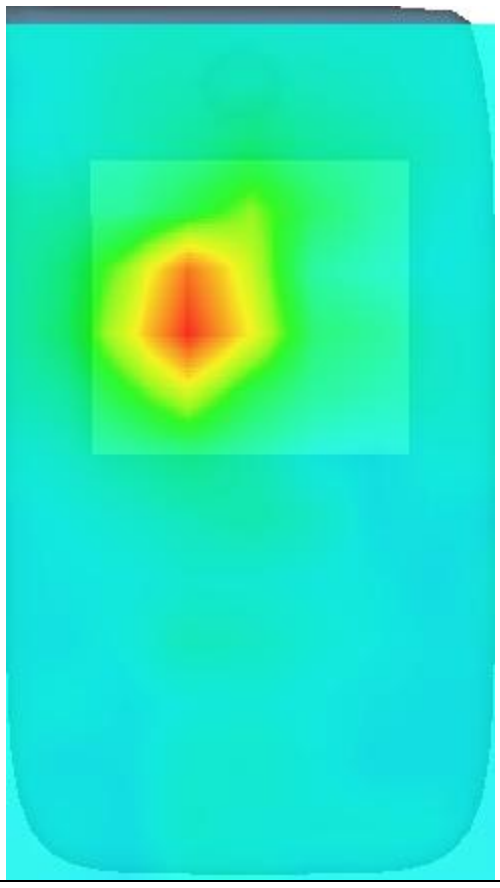
Maximum location: X=-10.00, Y=20.00

SAR Peak: 1.24 W/kg

SAR 10g (W/Kg)	0.147373
SAR 1g (W/Kg)	0.385025

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	1.1375	0.6718	0.3287	0.1753	0.1173	0.0767	0.0564	0.0493	0.0435	0.0371	0.0447	0.0358



3D screen shot	Hot spot position
	

MEASUREMENT 8

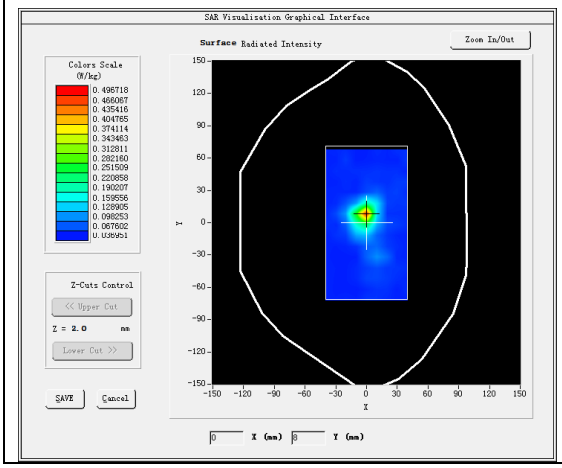
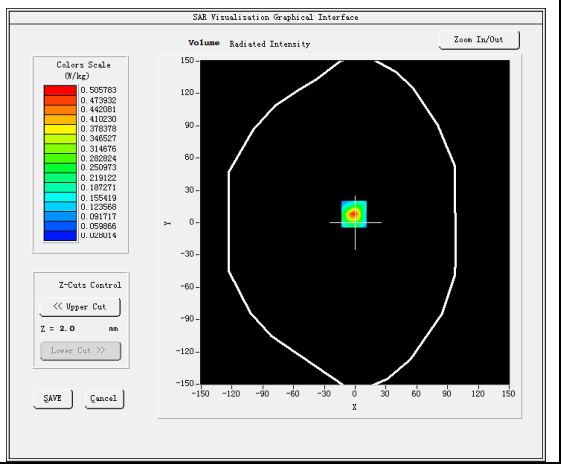
Date of measurement: 30/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

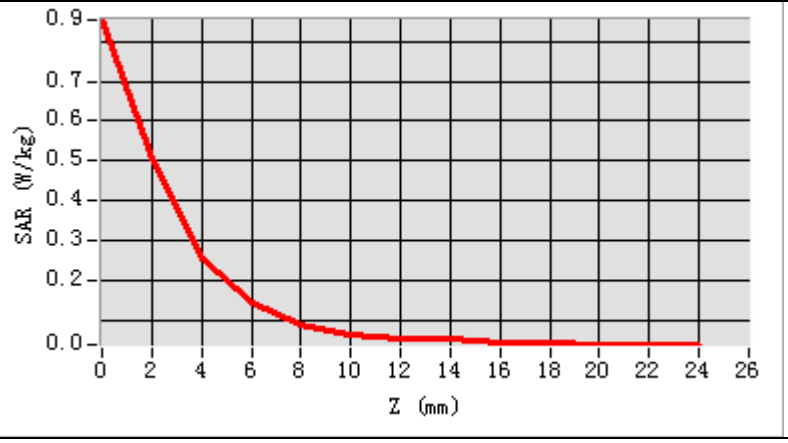
Frequency (MHz)	5600.000000
Relative permittivity (real part)	36.082672
Relative permittivity (imaginary part)	16.144520
Conductivity (S/m)	5.022739
Variation (%)	0.040000

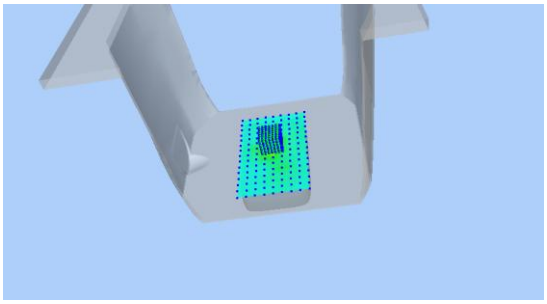
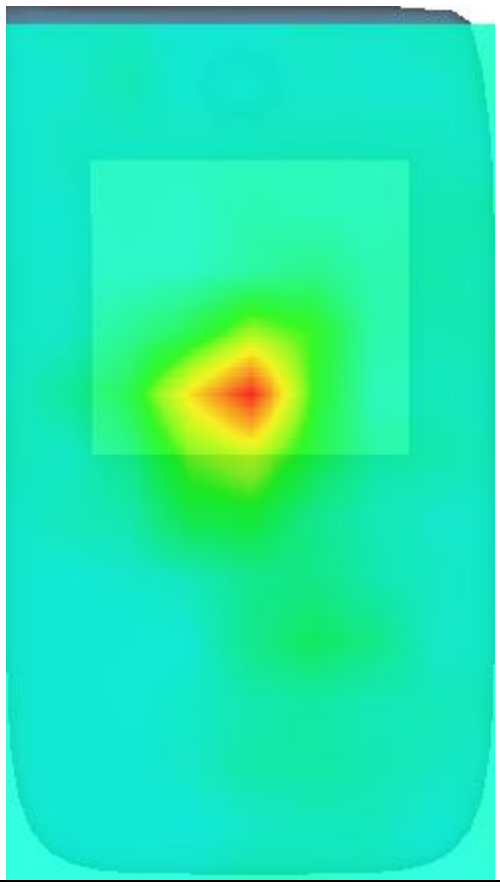
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-1.00, Y=8.00
SAR Peak: 0.90 W/kg

SAR 10g (W/Kg)	0.109686
SAR 1g (W/Kg)	0.275032

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.8532	0.5058	0.2569	0.1462	0.0907	0.0663	0.0529	0.0529	0.0449	0.0432	0.0400	0.0398



3D screen shot	Hot spot position
	

MEASUREMENT 9

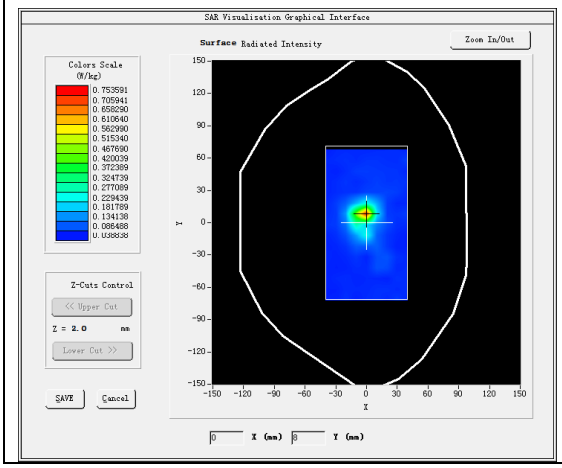
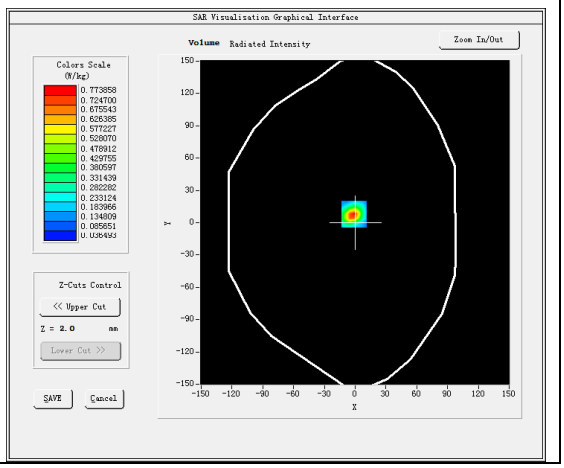
Date of measurement: 24/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

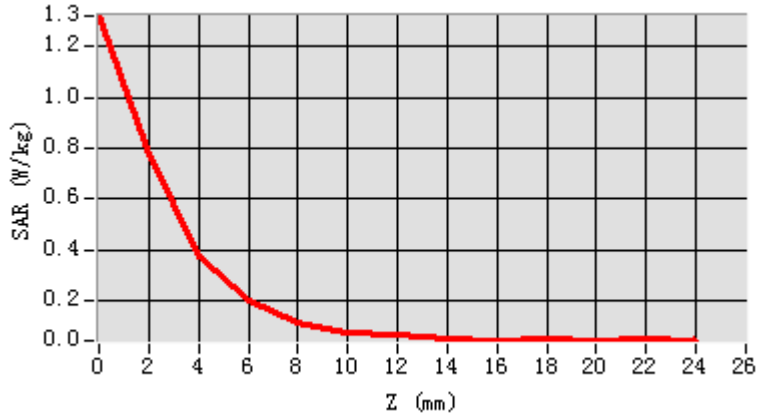
Frequency (MHz)	5785.000000
Relative permittivity (real part)	35.593033
Relative permittivity (imaginary part)	16.698244
Conductivity (S/m)	5.366630
Variation (%)	1.030000

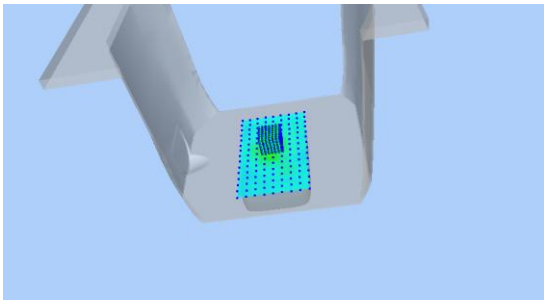
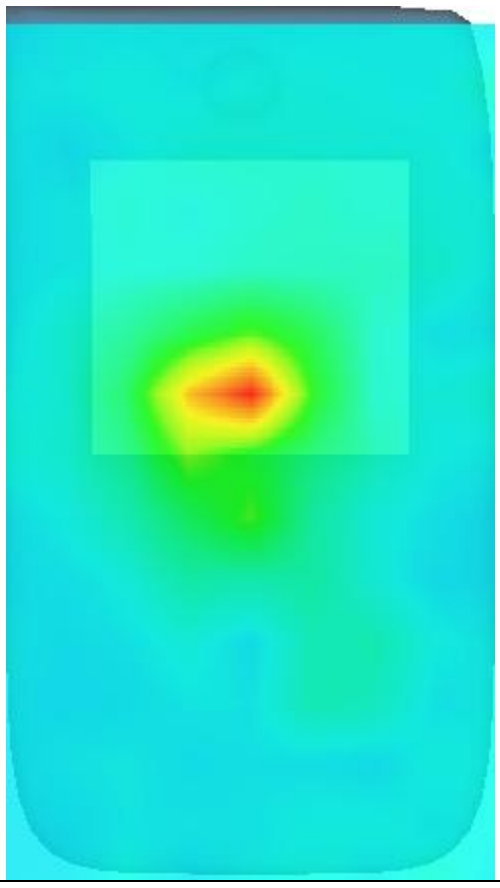
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-1.00, Y=8.00
SAR Peak: 1.43 W/kg

SAR 10g (W/Kg)	0.150235
SAR 1g (W/Kg)	0.420703

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	1.3224	0.7739	0.3763	0.1988	0.1167	0.0783	0.0640	0.0497	0.0434	0.0486	0.0428	0.0470



3D screen shot	Hot spot position
	

MEASUREMENT 10

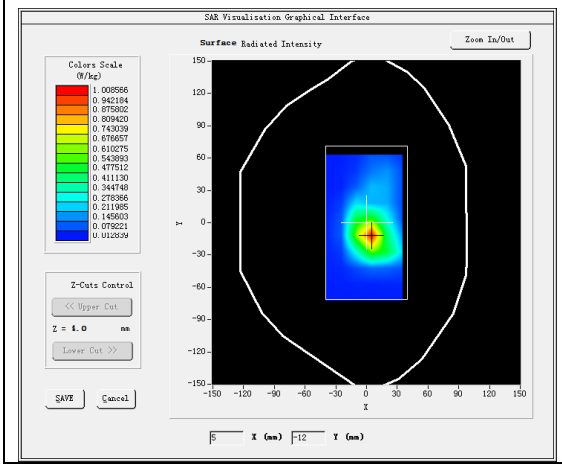
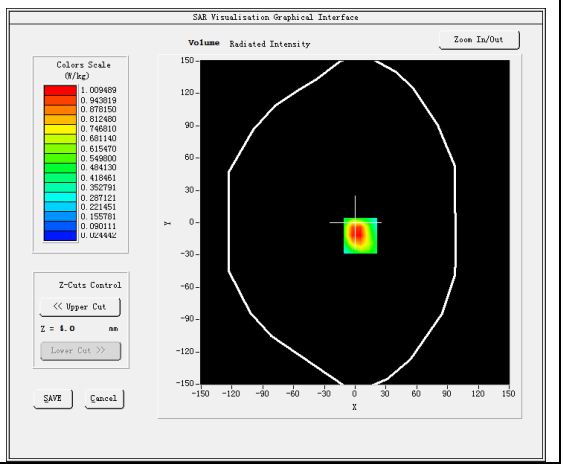
Date of measurement: 23/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

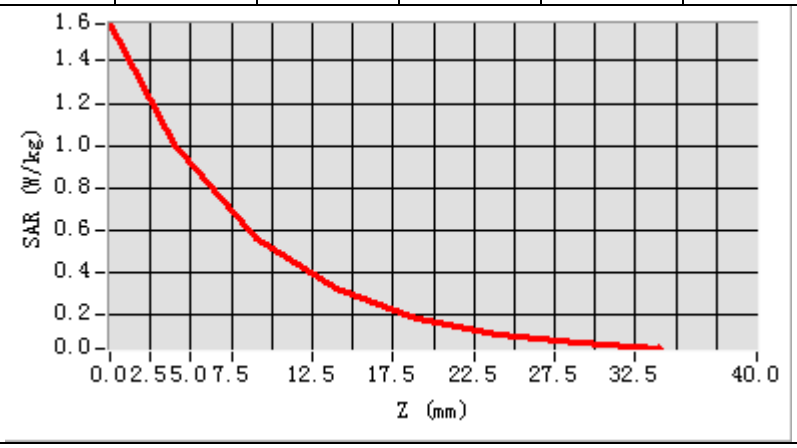
Frequency (MHz)	1860.000000
Relative permittivity (real part)	38.511169
Relative permittivity (imaginary part)	13.893448
Conductivity (S/m)	1.435656
Variation (%)	-0.690000

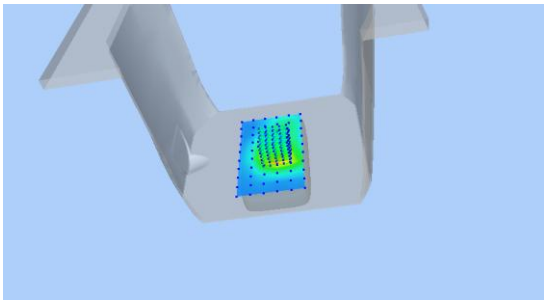
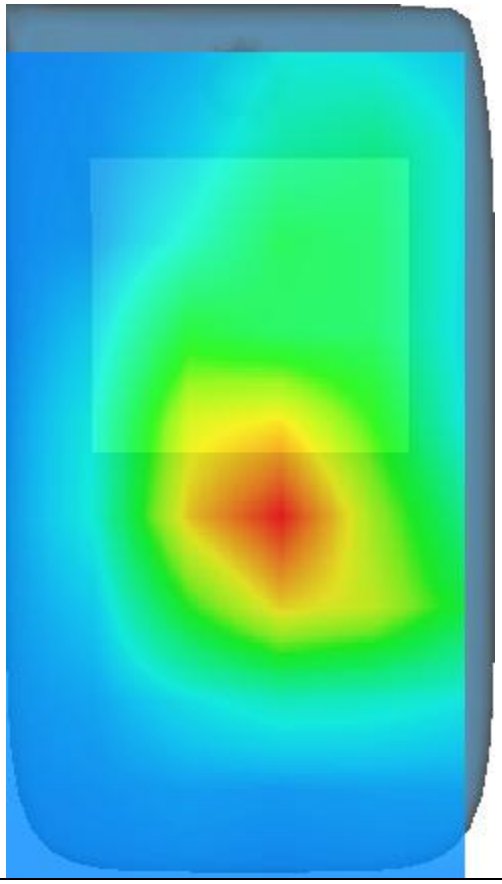
SURFACE SAR	VOLUME SAR
	

Maximum location: X=5.00, Y=-12.00
SAR Peak: 1.79 W/kg

SAR 10g (W/Kg)	0.511934
SAR 1g (W/Kg)	1.036312

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.5748	1.0095	0.5627	0.3263	0.1885	0.1111	0.0722



3D screen shot	Hot spot position
	

MEASUREMENT 11

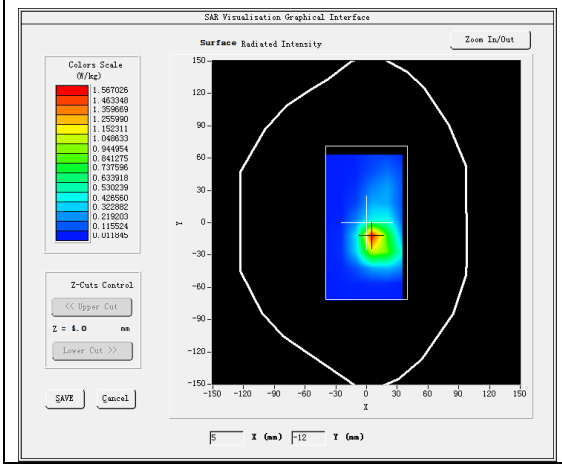
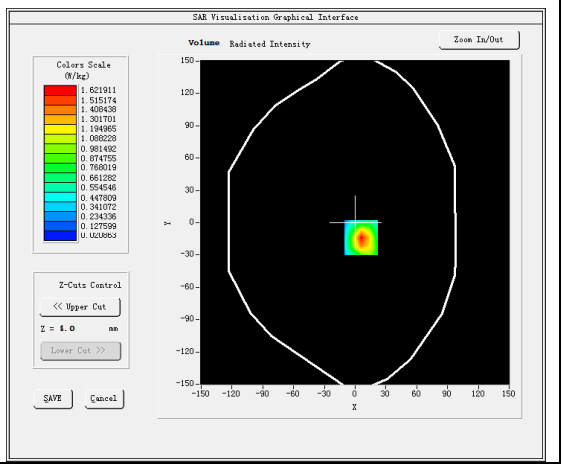
Date of measurement: 6/6/2022

A. Experimental conditions.

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

B. SAR Measurement Results

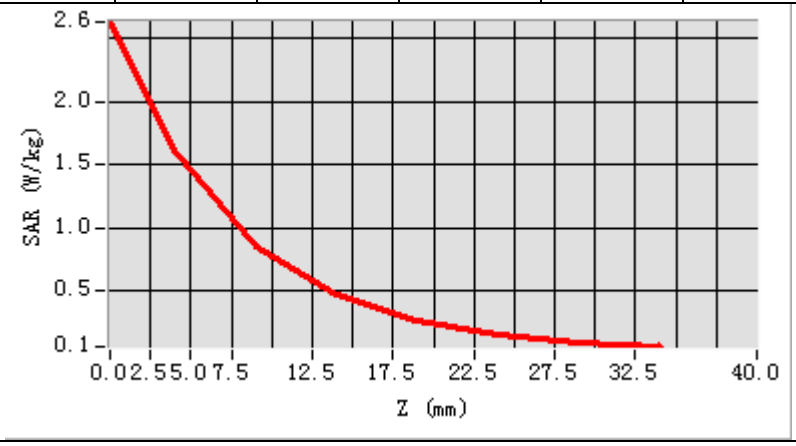
Frequency (MHz)	1745.000000
Relative permittivity (real part)	39.112713
Relative permittivity (imaginary part)	13.823933
Conductivity (S/m)	1.339770
Variation (%)	-0.780000

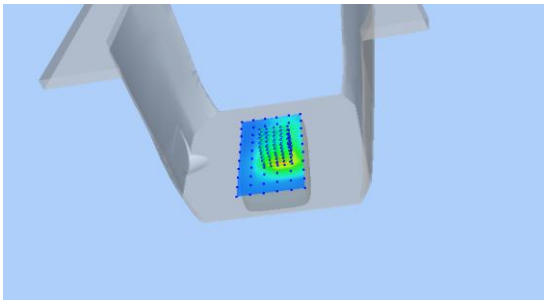
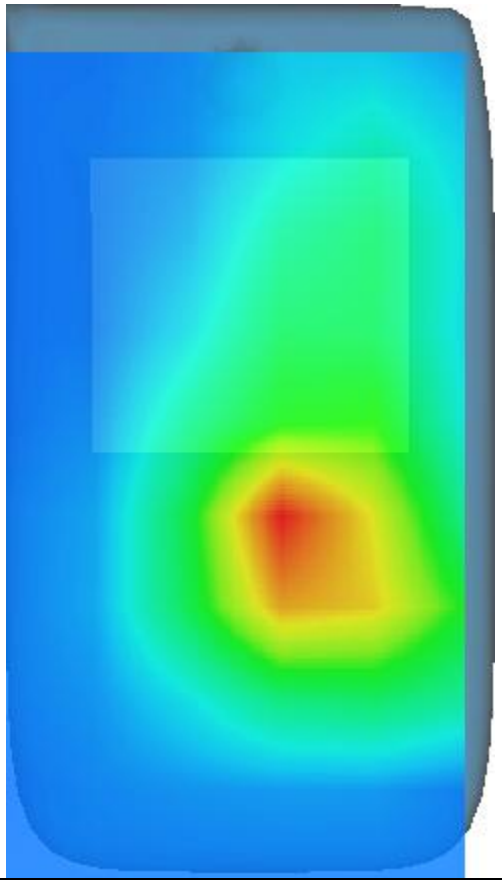
SURFACE SAR	VOLUME SAR
	

Maximum location: X=6.00, Y=-14.00
SAR Peak: 2.60 W/kg

SAR 10g (W/Kg)	0.749899
SAR 1g (W/Kg)	1.493964

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.6296	1.6219	0.8609	0.4763	0.2713	0.1588	0.0975



3D screen shot	Hot spot position
	

MEASUREMENT 12

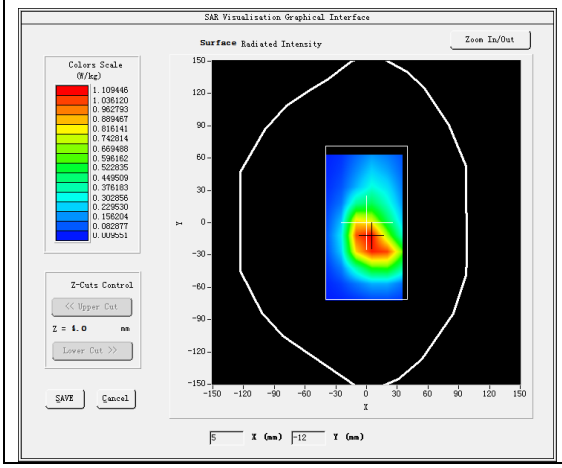
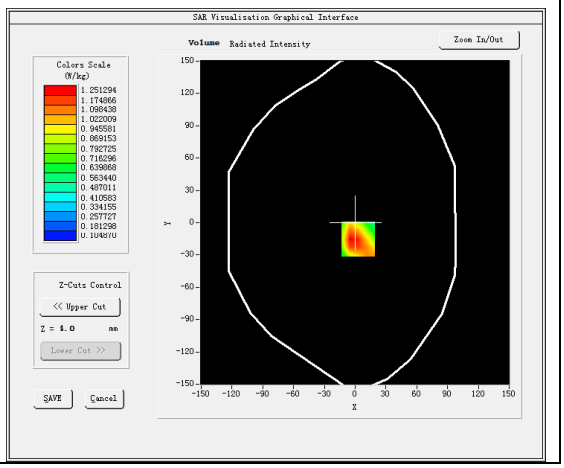
Date of measurement: 21/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

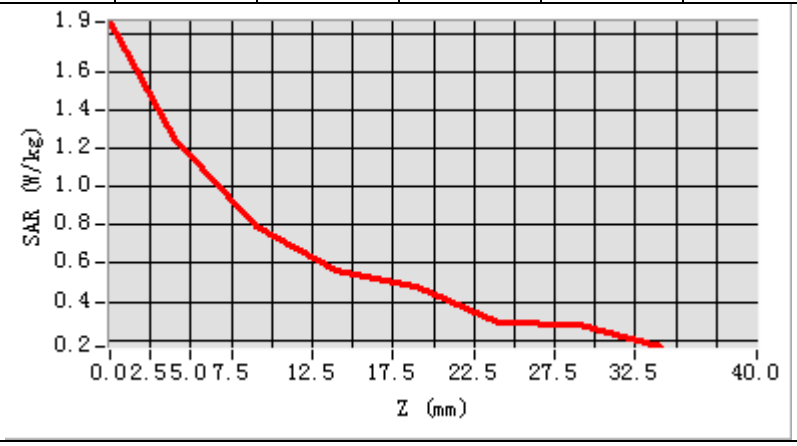
Frequency (MHz)	829.000000
Relative permittivity (real part)	42.351475
Relative permittivity (imaginary part)	20.013029
Conductivity (S/m)	0.921155
Variation (%)	-1.920000

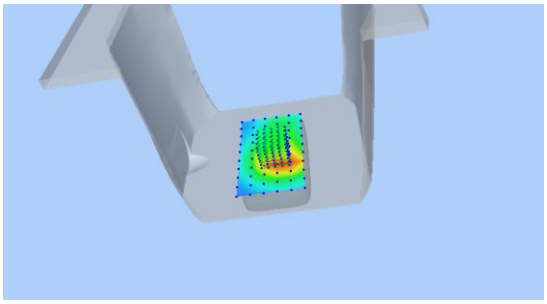
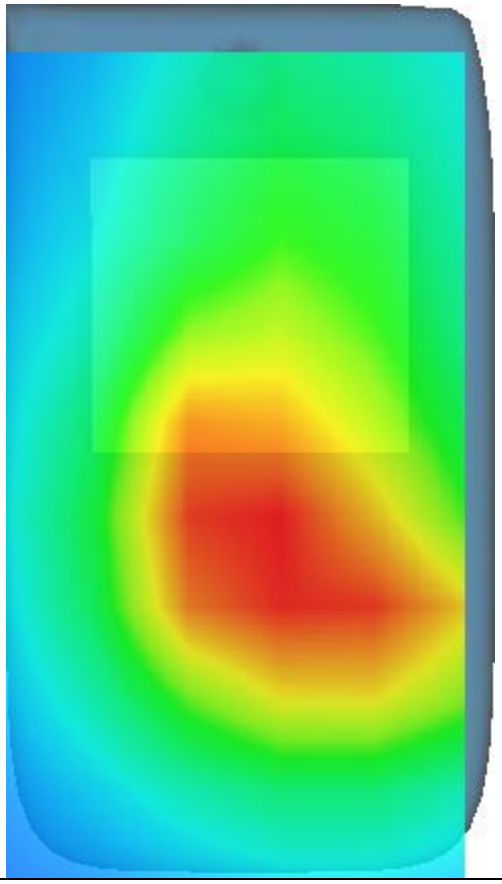
SURFACE SAR	VOLUME SAR
	

Maximum location: X=3.00, Y=-15.00
SAR Peak: 1.85 W/kg

SAR 10g (W/Kg)	0.812144
SAR 1g (W/Kg)	1.253977

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.8582	1.2513	0.7967	0.5604	0.4835	0.2867	0.2830



3D screen shot	Hot spot position
	

MEASUREMENT 13

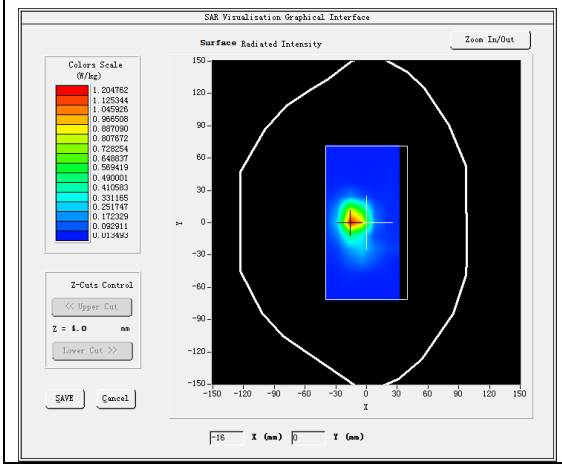
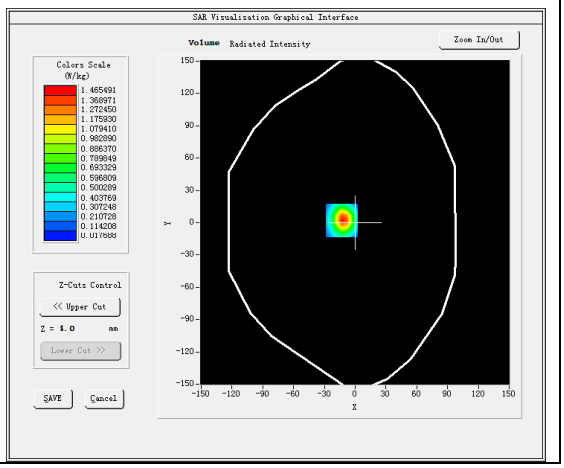
Date of measurement: 28/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

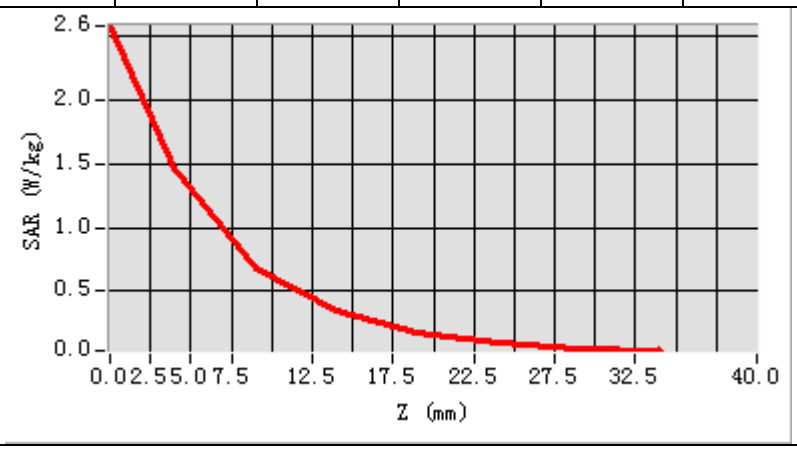
Frequency (MHz)	2510.000000
Relative permittivity (real part)	38.950069
Relative permittivity (imaginary part)	13.782361
Conductivity (S/m)	1.921874
Variation (%)	-0.770000

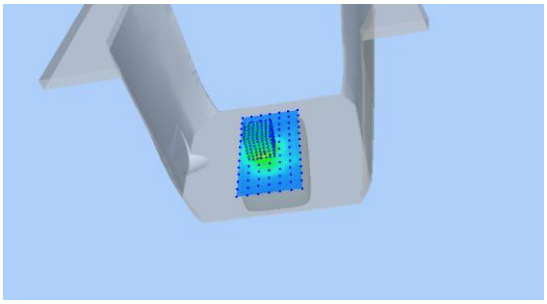
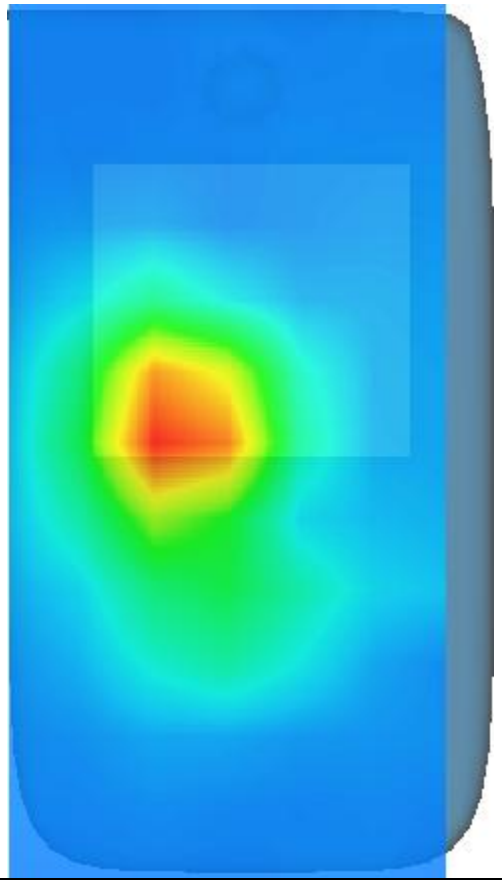
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-13.00, Y=2.00
SAR Peak: 2.58 W/kg

SAR 10g (W/Kg)	0.554516
SAR 1g (W/Kg)	1.338413

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.5857	1.4655	0.6740	0.3461	0.1778	0.0888	0.0528



3D screen shot	Hot spot position
	

MEASUREMENT 14

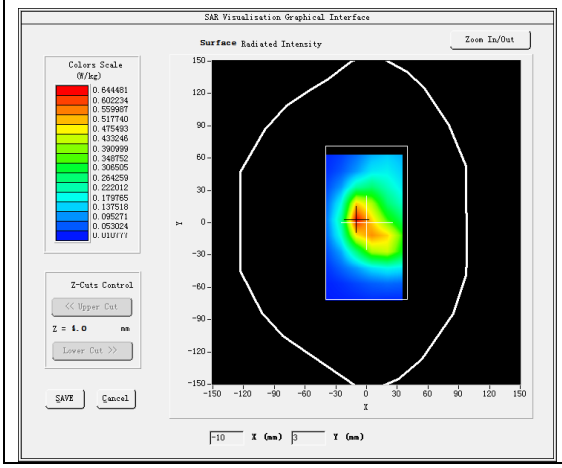
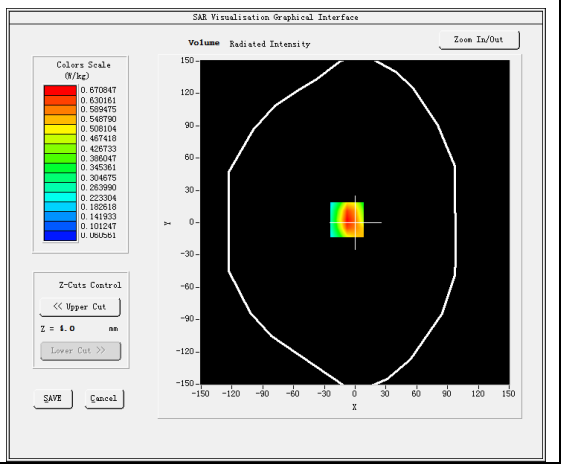
Date of measurement: 19/5/2022

A. Experimental conditions.

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

B. SAR Measurement Results

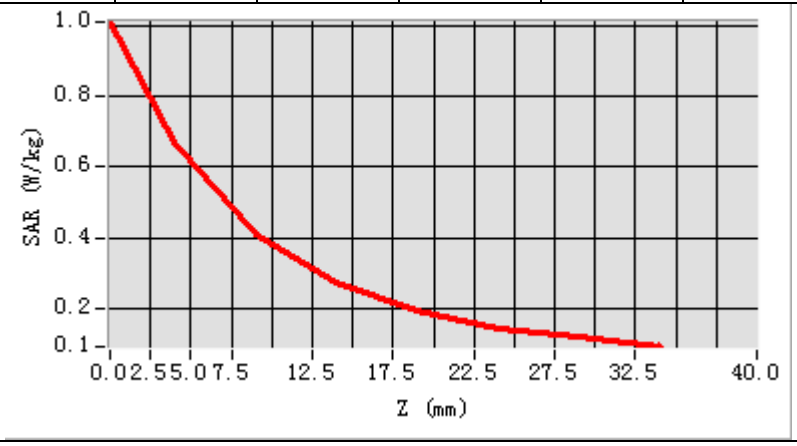
Frequency (MHz)	707.500000
Relative permittivity (real part)	41.250195
Relative permittivity (imaginary part)	21.799616
Conductivity (S/m)	0.856846
Variation (%)	-0.880000

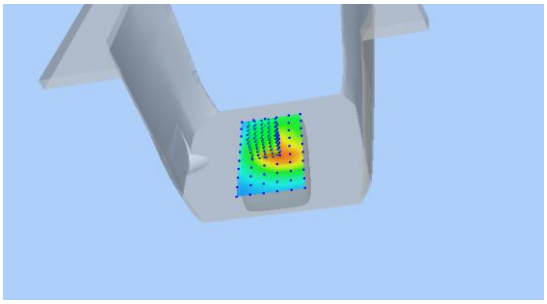
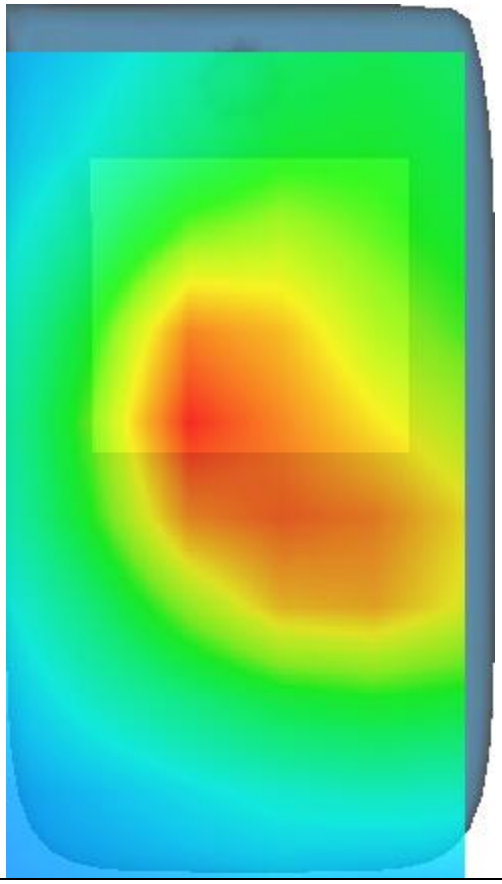
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-8.00, Y=3.00
SAR Peak: 1.01 W/kg

SAR 10g (W/Kg)	0.398952
SAR 1g (W/Kg)	0.643746

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.0085	0.6708	0.4068	0.2737	0.1941	0.1459	0.1208



3D screen shot	Hot spot position
	

MEASUREMENT 15

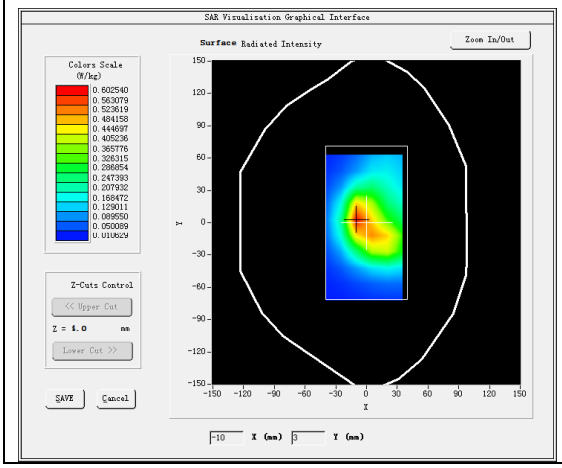
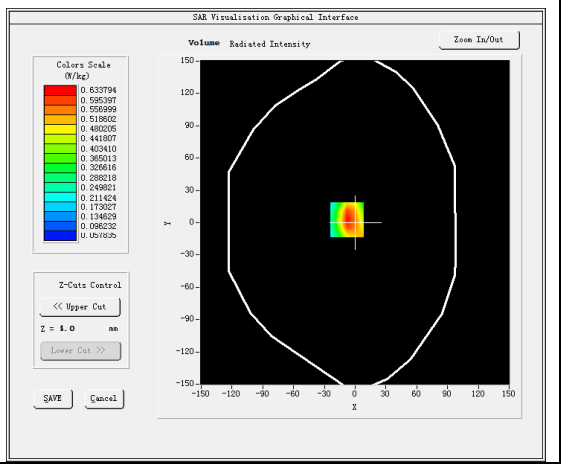
Date of measurement: 19/5/2022

A. Experimental conditions.

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

B. SAR Measurement Results

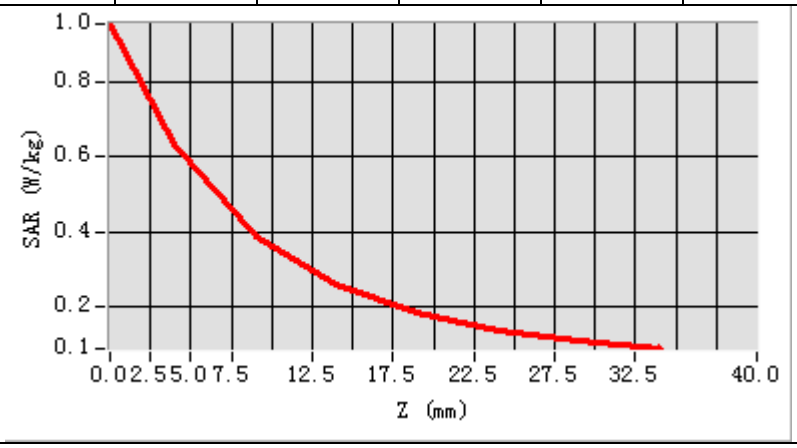
Frequency (MHz)	710.000000
Relative permittivity (real part)	41.234844
Relative permittivity (imaginary part)	21.740067
Conductivity (S/m)	0.857525
Variation (%)	-0.550000

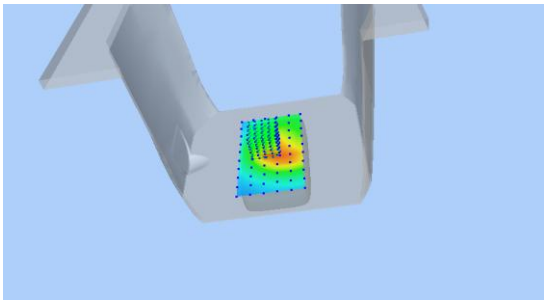
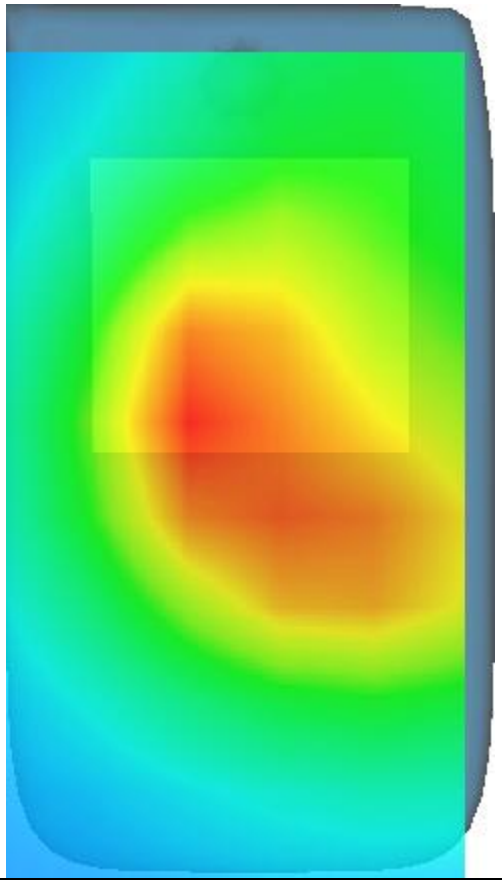
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-8.00, Y=3.00
SAR Peak: 0.96 W/kg

SAR 10g (W/Kg)	0.376406
SAR 1g (W/Kg)	0.607329

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.9564	0.6338	0.3871	0.2600	0.1859	0.1385	0.1095



3D screen shot	Hot spot position
	

MEASUREMENT 16

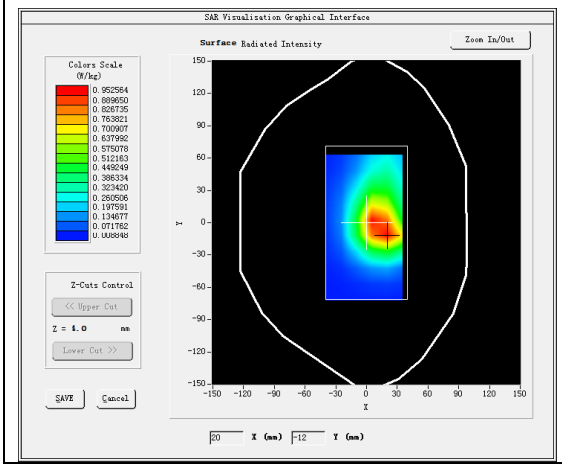
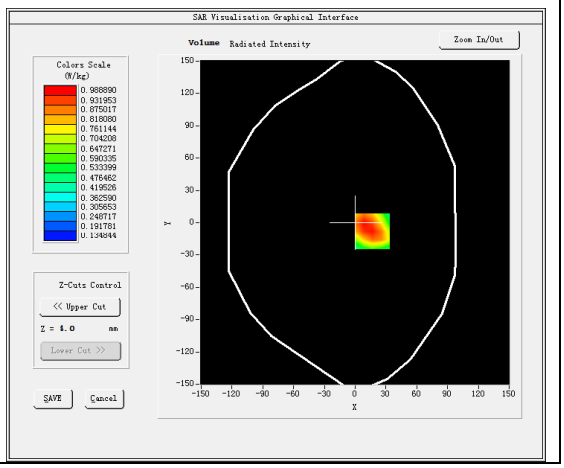
Date of measurement: 21/3/2022

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 19
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

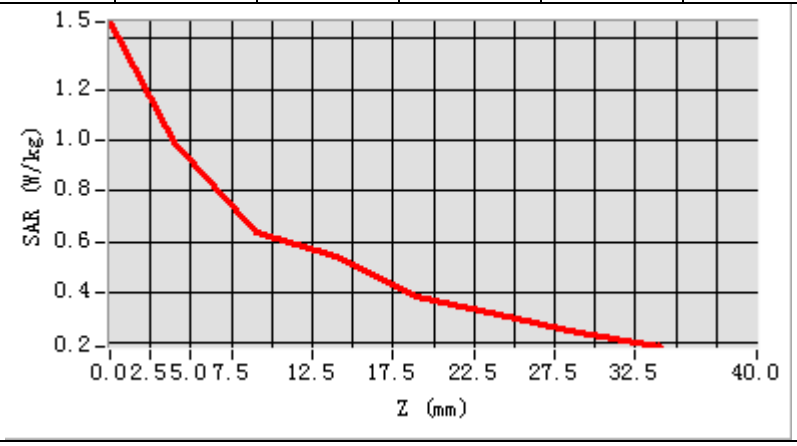
Frequency (MHz)	837.500000
Relative permittivity (real part)	42.347588
Relative permittivity (imaginary part)	19.598097
Conductivity (S/m)	0.911856
Variation (%)	-0.560000

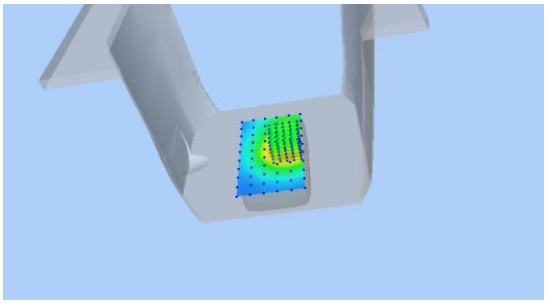
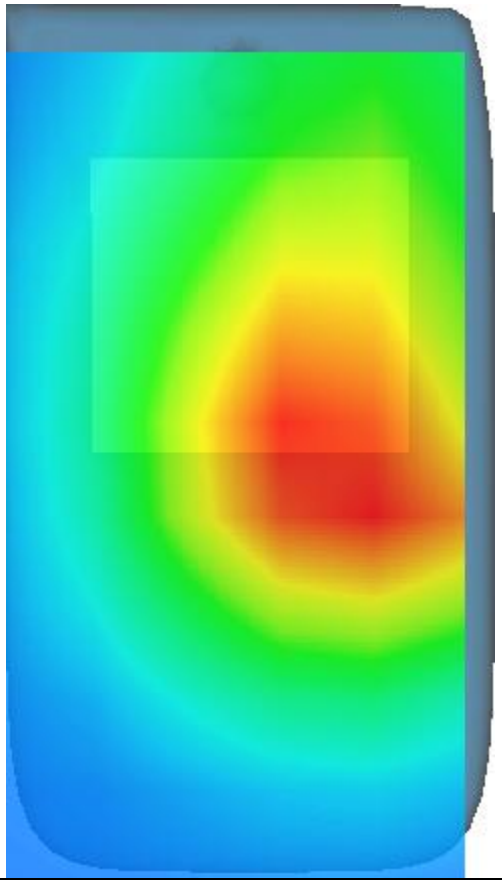
SURFACE SAR	VOLUME SAR
	

Maximum location: X=17.00, Y=-8.00
SAR Peak: 1.27 W/kg

SAR 10g (W/Kg)	0.683611
SAR 1g (W/Kg)	0.954977

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.4670	0.9889	0.6368	0.5445	0.3850	0.3149	0.2374



3D screen shot	Hot spot position
	

MEASUREMENT 17

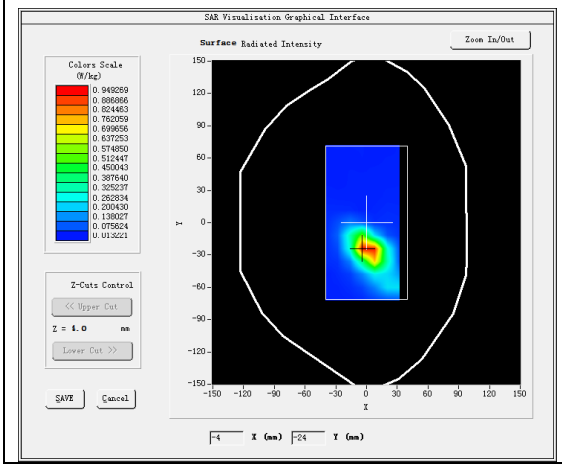
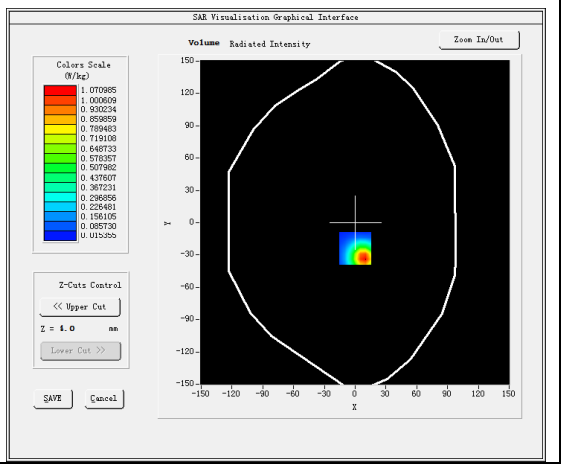
Date of measurement: 28/3/2022

A. Experimental conditions.

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

B. SAR Measurement Results

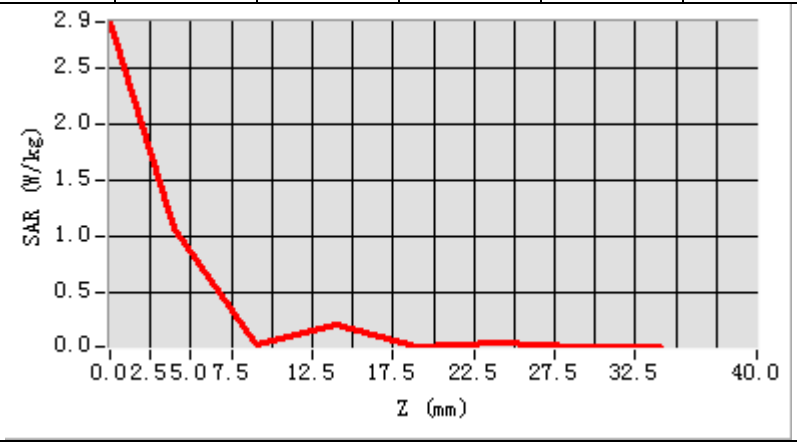
Frequency (MHz)	2593.000000
Relative permittivity (real part)	38.553471
Relative permittivity (imaginary part)	14.003261
Conductivity (S/m)	2.017248
Variation (%)	-4.370000

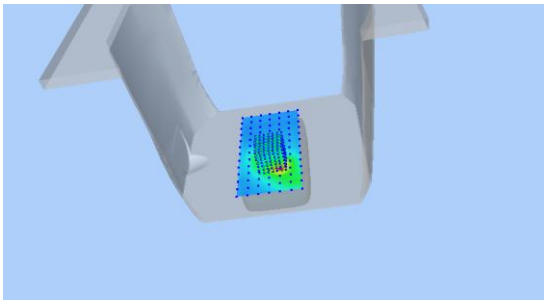
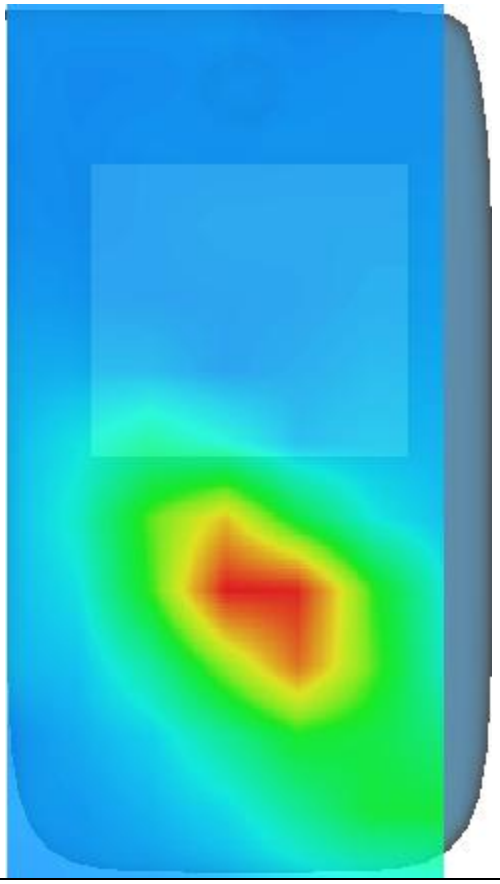
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=-24.00
SAR Peak: 1.96 W/kg

SAR 10g (W/Kg)	0.363925
SAR 1g (W/Kg)	0.979158

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.9104	1.0710	0.0390	0.2200	0.0225	0.0541	0.0181



3D screen shot	Hot spot position
	

14. Appendix D. Calibration Certificate

Table of contents
E Field Probe - SN 08/16 EPGO287
750 MHz Dipole - SN 03/15 DIP 0G750-355
835 MHz Dipole - SN 03/15 DIP 0G835-347
1800 MHz Dipole - SN 03/15 DIP 1G800-349
1900 MHz Dipole - SN 03/15 DIP 1G900-350
2450 MHz Dipole - SN 03/15 DIP 2G450-352
2600 MHz Dipole - SN 03/15 DIP 2G600-356
5000-6000 MHz Dipole - SN 13/14 WGA 33

COMOSAR E-Field Probe Calibration Report

Ref : ACR.60.1.21.MVGB.A

SHENZHEN NTEK TESTING TECHNOLOGY CO., LTD.

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

BAO'AN DISTRICT, SHENZHEN GUANGDONG, CHINA

MVG COMOSAR DOSIMETRIC E-FIELD PROBE

SERIAL NO.: SN 08/16 EPGO287

Calibrated at MVG

Z.I. de la pointe du diable

Technopôle Brest Iroise – 295 avenue Alexis de Rochon

29280 PLOUZANE - FRANCE

Calibration date: 02/01/2022

Accreditations #2-6789 and #2-6814
Scope available on www.cofrac.fr

Summary:

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

COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR.60.1.21.MVGB.A

	Name	Function	Date	Signature
Prepared by :	Jérôme Luc	Technical Manager	2/1/2022	
Checked by :	Jérôme Luc	Technical Manager	2/1/2022	
Approved by :	Yann Toutain	Laboratory Director	2/1/2022	Yann Toutain Mode d'emploi 2022.02.01 10:07:13 +01'00' PHILIPS

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

Issue	Name	Date	Modifications
A	Jérôme Luc	2/1/2022	Initial release

TABLE OF CONTENTS

1 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR DOSIMETRIC E FIELD PROBE
Manufacturer	MVG
Model	SSE2
Serial Number	SN 08/16 EPGO287
Product Condition (new / used)	Used
Frequency Range of Probe	0.15 GHz-6GHz
Resistance of Three Dipoles at Connector	Dipole 1: R1=0.211 MΩ Dipole 2: R2=0.199 MΩ Dipole 3: R3=0.199 MΩ

2 PRODUCT DESCRIPTION

2.1 GENERAL INFORMATION

MVG's COMOSAR E field Probes are built in accordance to the IEEE 1528, FCC KDB865664 D01, CENELEC EN62209 and CEI/IEC 62209 standards.

Figure 1 – *MVG COMOSAR Dosimetric E field Dipole*

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

3 MEASUREMENT METHOD

The IEEE 1528, FCC KDB865664 D01, CENELEC EN62209 and CEI/IEC 62209 standards provide recommended practices for the probe calibrations, including the performance characteristics of interest and methods by which to assess their affect. All calibrations / measurements performed meet the fore mentioned standards.

3.1 LINEARITY

The evaluation of the linearity was done in free space using the waveguide, performing a power sweep to cover the SAR range 0.01W/kg to 100W/kg.

3.2 SENSITIVITY

The sensitivity factors of the three dipoles were determined using a two step calibration method (air and tissue simulating liquid) using waveguides as outlined in the standards.

3.3 LOWER DETECTION LIMIT

The lower detection limit was assessed using the same measurement set up as used for the linearity measurement. The required lower detection limit is 10 mW/kg.

3.4 ISOTROPY

The axial isotropy was evaluated by exposing the probe to a reference wave from a standard dipole with the dipole mounted under the flat phantom in the test configuration suggested for system validations and checks. The probe was rotated along its main axis from 0 to 360 degrees in 15-degree steps. The hemispherical isotropy is determined by inserting the probe in a thin plastic box filled with tissue-equivalent liquid, with the plastic box illuminated with the fields from a half wave dipole. The dipole is rotated about its axis (0°–180°) in 15° increments. At each step the probe is rotated about its axis (0°–360°).

3.1 BOUNDARY EFFECT

The boundary effect is defined as the deviation between the SAR measured data and the expected exponential decay in the liquid when the probe is oriented normal to the interface. To evaluate this effect, the liquid filled flat phantom is exposed to fields from either a reference dipole or waveguide. With the probe normal to the phantom surface, the peak spatial average SAR is measured and compared to the analytical value at the surface.

The boundary effect uncertainty can be estimated according to the following uncertainty approximation formula based on linear and exponential extrapolations between the surface and $d_{be} + d_{step}$ along lines that are approximately normal to the surface:

$$\mathrm{SAR}_{\mathrm{uncertainty}}[\%] = \delta \mathrm{SAR}_{be} \frac{\left(d_{be} + d_{step}\right)^2}{2d_{step}} \frac{\left(e^{-d_{be}/(\delta/2)}\right)}{\delta/2} \quad \text{for } \left(d_{be} + d_{step}\right) < 10 \text{ mm}$$

where

$\mathrm{SAR}_{\mathrm{uncertainty}}$	is the uncertainty in percent of the probe boundary effect
d_{be}	is the distance between the surface and the closest *zoom-scan* measurement point, in millimetre
Δ_{step}	is the separation distance between the first and second measurement points that are closest to the phantom surface, in millimetre, assuming the boundary effect at the second location is negligible
δ	is the minimum penetration depth in millimetres of the head tissue-equivalent liquids defined in this standard, i.e., $\delta \approx 14$ mm at 3 GHz;
$\Delta\mathrm{SAR}_{be}$	in percent of SAR is the deviation between the measured SAR value, at the distance d_{be} from the boundary, and the analytical SAR value.

The measured worst case boundary effect SARuncertainty[%] for scanning distances larger than 4mm is 1.0% Limit ,2%).

4 MEASUREMENT UNCERTAINTY

The guidelines outlined in the IEEE 1528, OET 65 Bulletin C, CENELEC EN50361 and CEI/IEC 62209 standards were followed to generate the measurement uncertainty associated with an E-field probe calibration using the waveguide technique. All uncertainties listed below represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2, traceable to the Internationally Accepted Guides to Measurement Uncertainty.

Uncertainty analysis of the probe calibration in waveguide					
ERROR SOURCES	**Uncertainty value (%)**	**Probability Distribution**	**Divisor**	**ci**	**Standard Uncertainty (%)**
Expanded uncertainty 95 % confidence level k = 2					14 %

5 CALIBRATION MEASUREMENT RESULTS

Calibration Parameters	
Liquid Temperature	20 +/- 1 °C
Lab Temperature	20 +/- 1 °C
Lab Humidity	30-70 %

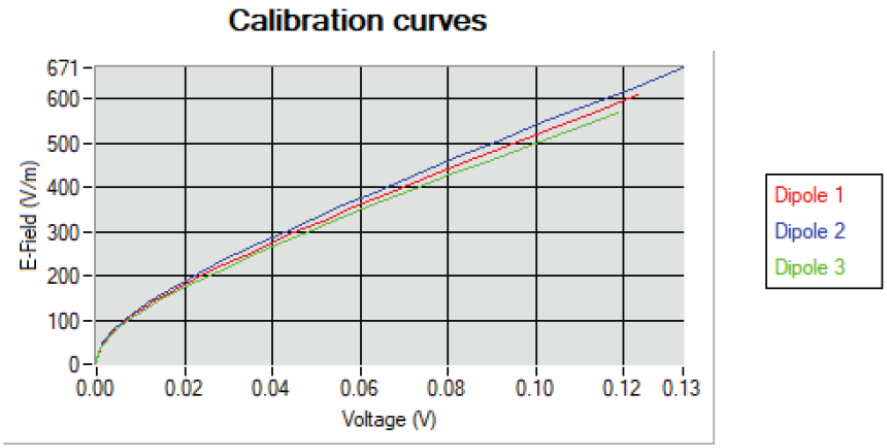
5.1 SENSITIVITY IN AIR

Normx dipole 1 (μV/(V/m)^2)	Normy dipole 2 (μV/(V/m)^2)	Normz dipole 3 (μV/(V/m)^2)
0.72	0.66	0.77

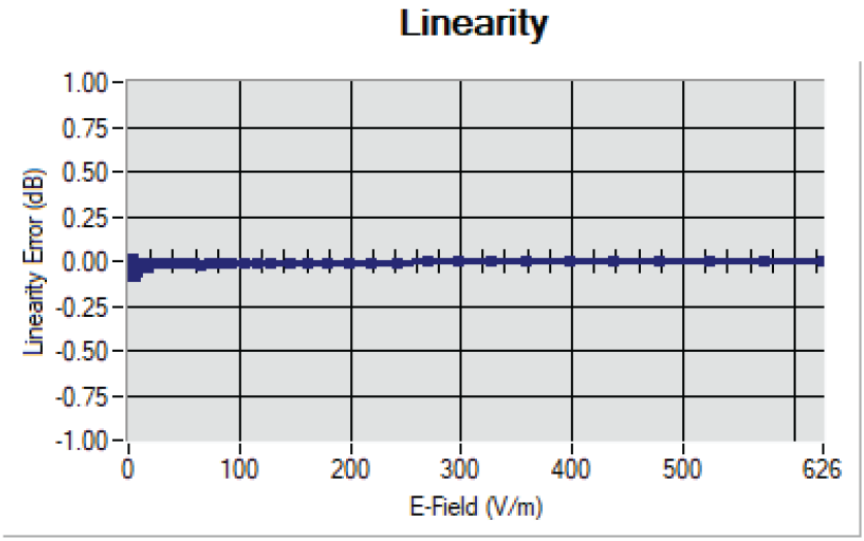
DCP dipole 1 (mV)	DCP dipole 2 (mV)	DCP dipole 3 (mV)
107	110	110

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^{\,2} + E_2^{\,2} + E_3^{\,2}}$$



5.2 LINEARITY



Linearity:+/-1.90% (+/-0.08dB)

5.3 SENSITIVITY IN LIQUID

Liquid	Frequency (MHz +/- 100MHz)	ConvF
HL750	750	1.49
HL850	835	1.50
HL900	900	1.61
HL1800	1800	1.73
HL1900	1900	1.91
HL2000	2000	1.97
HL2300	2300	1.92
HL2450	2450	1.98
HL2600	2600	1.87
HL3300	3300	1.79
HL3500	3500	1.85
HL3700	3700	1.79
HL3900	3900	2.07
HL4200	4200	2.21
HL4600	4600	2.25
HL4900	4900	2.05
HL5200	5200	1.80
HL5400	5400	2.05
HL5600	5600	2.16
HL5800	5800	2.07

LOWER DETECTION LIMIT: 8mW/kg

5.4 ISOTROPY

HL1800 MHz