SAR TEST REPORT

Product Name: Smart Phone

Model Name: K11

FCC ID: R38YLCPK11

Issued For	:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd Floor 21, Block A, Coolpad Building, Nanshan District, Shenzhen, China
Issued By	:	Shenzhen LGT Test Service Co., Ltd. Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

Report Number:	LGT24I034HA01
Sample Received Date:	Sept. 06, 2024
Date of Test:	Sept. 07, 2024 ~ Sept. 15, 2024
Date of Issue:	Oct. 15, 2024
Max. SAR (1g):	Head:0.924 W/kg Body:1.205 W/kg

The test report is effective only with both signature and specialized stamp. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report only apply to the tested sample.

Table of Contents

1. General Information **5**

1.1 EUT Description 5

1.2 Test Environment 7

1.3 Test Factory 7

2. Test Standards and Limits **8**

3. SAR Measurement System **9**

3.1 Definition of Specific Absorption Rate (SAR) 9

3.2 SAR System 9

4. Tissue Simulating Liquids **12**

4.1 Simulating Liquids Parameter Check 12

5. SAR System Validation **14**

5.1 Validation System 14

5.2 Validation Result 15

6. SAR Evaluation Procedures **16**

7. EUT Antenna Location Sketch **17**

7.1 SAR test exclusion consider table 18

8. EUT Test Position **24**

8.1 Define Two Imaginary Lines on the Handset 24

8.2 Hotspot mode exposure position condition 25

9. Uncertainty **26**

9.1 Measurement Uncertainty 26

9.2 System validation Uncertainty 27

10. Conducted Power Measurement **28**

10.1 Test Result 28

11. EUT and Test Setup Photo **55**

11.1 EUT Photos 55

11.2 Setup Photos 58

12. SAR Result Summary **64**

12.1 Head SAR 64

12.2 Body-worn and Hotspot SAR 67

12.3 Repeated SAR 73

12.4 Repeated SAR measurement 75

12.5 Simultaneous Multi-band Transmission Evaluation 76

13. Equipment List **78**

Appendix A. System Validation Plots **79**

Appendix B. SAR Test Plots **103**

Appendix C. Probe Calibration and Dipole Calibration Report **143**

Revision History

Rev.	Issue Date	Contents
00	Oct. 15, 2024	Initial Issue

TEST REPORT CERTIFICATION

Applicant	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address	Floor 21, Block A, Coolpad Building, Nanshan District, Shenzhen, China
Manufacture	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address	Floor 21, Block A, Coolpad Building, Nanshan District, Shenzhen, China
Product Name	Smart Phone
Trademark	coolpad
Model Name	K11
Sample number	LGT2109033-6

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
ANSI/IEEE Std. C95.1-1992 FCC 47 CFR Part 2 (2.1093) IEEE 1528: 2013	PASS

Prepared by:

Della He

Della He
Engineer

Approved by:

Vita Li
Manager

SHENZHEN LGT TEST SERVICE CO., LTD.
LGT
领冠检测

1. General Information

Environmental evaluation measurements of specific absorption rate (SAR) distributions in emulated human head and body tissues exposed to radio frequency (RF) radiation from wireless portable devices for compliance with the rules and regulations of the U.S. Federal Communications Commission (FCC).

1.1 EUT Description

Product Name	Smart Phone
Trademark	coolpad
Model Name	K11
Series Model	N/A
Model Difference	N/A
Device Category	Portable
Product stage	Production unit
RF Exposure Environment	General Population / Uncontrolled
Hardware Version	H929_MB_V2
Software Version	N/A
Frequency Range	GSM 850: 824 ~ 849 MHz PCS 1900: 1850 ~ 1910 MHz WCDMA Band II: 1850 ~ 1910 MHz WCDMA Band IV:1710 ~ 1755 MHz WCDMA Band V: 824 ~ 849 MHz LTE Band 2:1850 ~1910MHz LTE Band 4:1710 ~1755MHz LTE Band 5:824 ~ 849MHz LTE Band 7:2500 ~ 2570MHz LTE Band 12:699~716MHz LTE Band 13:777~787MHz LTE Band 17:704 ~ 716MHz LTE Band 38:2570~2620MHz LTE Band 40:2305~2315MHz/2350-2360MHz LTE Band 66:1710~1780MHz WLAN 802.11b/g/n20: 2412 MHz ~ 2462 MHz WLAN 802.11n40: 2422 MHz ~ 2452 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5150 ~ 5250 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5250 ~ 5350 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5470 ~ 5725 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5725 ~ 5850 MHz Bluetooth: 2402 ~ 2480 MHz

	Mode	Head (W/ kg)	Body Worn and Hotspot (W/ kg)
Max. Reported SAR(1g): (Limit:1.6W/kg) Test distance: Head:0mm Body:10mm	GSM 850	0.222	0.410
	PCS 1900	0.217	0.506
	WCDMA Band II	0.103	0.727
	WCDMA Band IV	0.138	0.935
	WCDMA Band V	0.162	0.208
	LTE Band 2	0.351	0.956
	LTE Band 4	0.206	1.117
	LTE Band 5	0.225	0.254
	LTE Band 7	0.091	1.159
	LTE Band 12	0.266	0.312
	LTE Band 13	0.203	0.189
	LTE Band 17	0.406	0.354
	LTE Band 38	0.128	0.638
	LTE Band 40	0.082	0.317
	LTE Band 66	0.190	1.205
	2.4G WLAN	0.147	0.144
	5.2G WLAN	0.700	0.230
	5.3G WLAN	0.721	0.136
	5.6G WLAN	0.882	0.192
	5.8G WLAN	0.924	0.256
	Bluetooth[Note]	0.093	0.093
1-g Sum SAR		1.330	1.461
Battery	Rated Voltage: 3.85V Capacity: 4880mAh		
Description test modes	SIM 1 and SIM 2 is a chipset unit and tested as single chipset, SIM 1 is used to tested		
Operating Mode:	GSM: GSM Voice; GPRS Class 12 WCDMA: RMC, HSDPA, HSUPA Release 6 LTE: QPSK, 16QAM 2.4G WLAN: 802.11b(DSSS): CCK, DQPSK, DBPSK 802.11g(OFDM): BPSK, QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK, QPSK,16-QAM,64-QAM 5G WLAN: 802.11a(OFDM): BPSK, QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK, QPSK,16-QAM,64-QAM 802.11ac (OFDM): BPSK, QPSK,16-QAM,64-QAM,256-QAM Bluetooth: GFSK +π/4DQPSK+8DPSK BLE: GFSK		
Antenna Specification	GSM/WCDMA/LTE: FPC Antenna Bluetooth: FPC Antenna WLAN: FPC Antenna		
Operating Mode	Maximum continuous output		
SIM Card	Support dual-SIM, dual standby, the multiple SIM card with two lines cannot trans mitting at the same time		
Hotspot Mode	Support		
DTM Mode	Not Support		
Note 1: The BT value was Estimated.			

1.2 Test Environment

Ambient conditions in the SAR laboratory:

Items	Required
Temperature (℃)	18-25
Humidity (%RH)	30-70

1.3 Test Factory

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	FCC Registration No.: 746540
	A2LA Certificate No.: 6727.01
	IC Registration No.: CN0136

2. Test Standards and Limits

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	ANSI/IEEE Std. C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	FCC KDB 447498 D01 v06	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
5	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
6	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
7	FCC KDB 941225 D01 v03r01	SAR Measurement Procedures for 3G Devices
8	FCC KDB 941225 D05 v02r05	SAR for LTE Devices
9	FCC KDB 941225 D06 v02r01	Hotspot Mode SAR
10	FCC KDB 648474 D04 v01r03	SAR Evaluation Considerations for Wireless Handsets
11	FCC KDB 248227 D01 Wi-Fi SAR v02r02	SAR Considerations for 802.11 Devices

(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.

Population/Uncontrolled Environments:

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

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).

NOTE GENERAL POPULATION/UNCONTROLLED EXPOSURE PARTIAL BODY LIMIT 1.6 W/kg

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

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

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

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

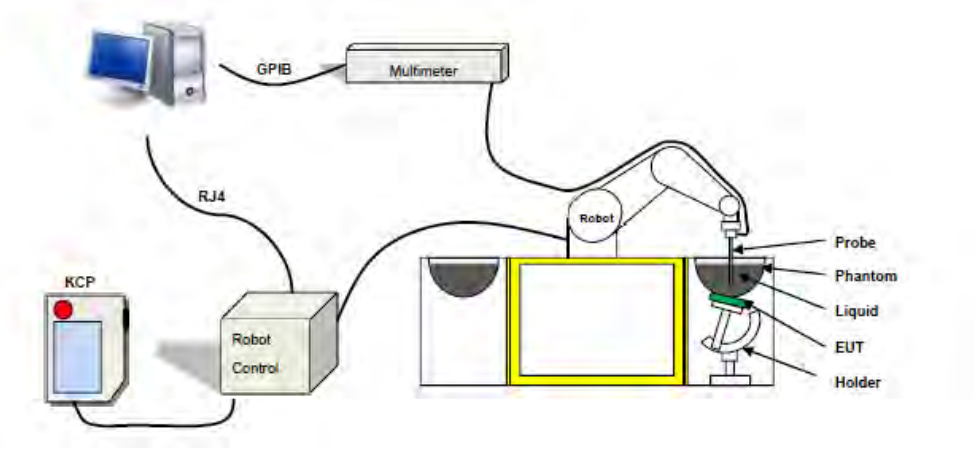
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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

3.2 SAR System

MVG SAR System Diagram:



COMOSAR is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The COMOSAR system consists of the following items:
- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.

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

3.2.1 Probe

For the measurements the Specific Dosimetric E-Field Probe SN 04/22 EPGO364 with following specifications is used
- Probe Length: 330 mm
- Length of Individual Dipoles: 2mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter: 2.5 mm
- Distance between dipole/probe extremity: 1 mm
- Dynamic range: 0.01-100 W/kg
- Probe linearity: 3%
- Axial Isotropy: < 0.10 dB
- Spherical Isotropy: < 0.10 dB
- Calibration range: 600 MHz to 6 GHz for head & body simulating liquid.
-Angle between probe axis (evaluation axis) and surface normal line: less than 30°

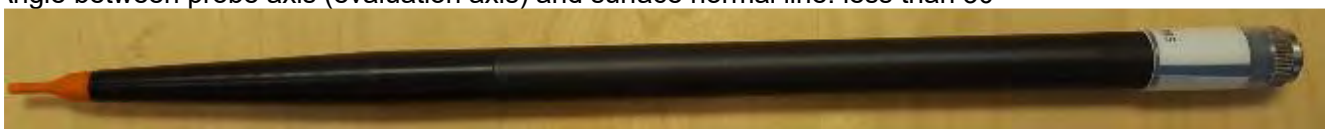


Figure 1-MVG COMOSAR Dosimetric E field Probe

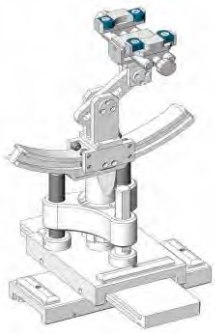
3.2.2 Phantom

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

Figure-SN 06/22 SAM 148

Figure-SN 06/22 ELLI 51

3.2.3 Device Holder



The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 20 %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

4. Tissue Simulating Liquids

4.1 Simulating Liquids Parameter Check

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectric parameters are within the tolerances of the specified target values

The uncertainty due to the liquid conductivity and permittivity arises from two different sources. The first source of error is the deviation of the liquid conductivity from its target value (max _ 5 %) and the second source of error arises from the measurement procedures used to assess conductivity. The uncertainty shall be assessed using a rectangular probability For 1 g averaging, the maximum weighting coefficient for SAR is 0,5.

IEEE SCC-34/SC-2 RECOMMENDED TISSUE DIELECTRIC PARAMETERS

The head and body tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 have been incorporated in the following table.

Frequency	εr	σ 10g S/m
300	45.3	0.87
450	43.5	0.87
750	41.9	0.89
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1800 to 2000	40.0	1.40
2100	39.8	1.49
2450	39.2	1.80
2600	39.0	1.96
3000	38.5	2.40
3500	37.9	2.91
4000	37.4	3.43
4500	36.8	3.94
5000	36.2	4.45
5200	36.0	4.66
5400	35.8	4.86
5600	35.5	5.07
5800	35.3	5.27

LIQUID MEASUREMENT RESULTS

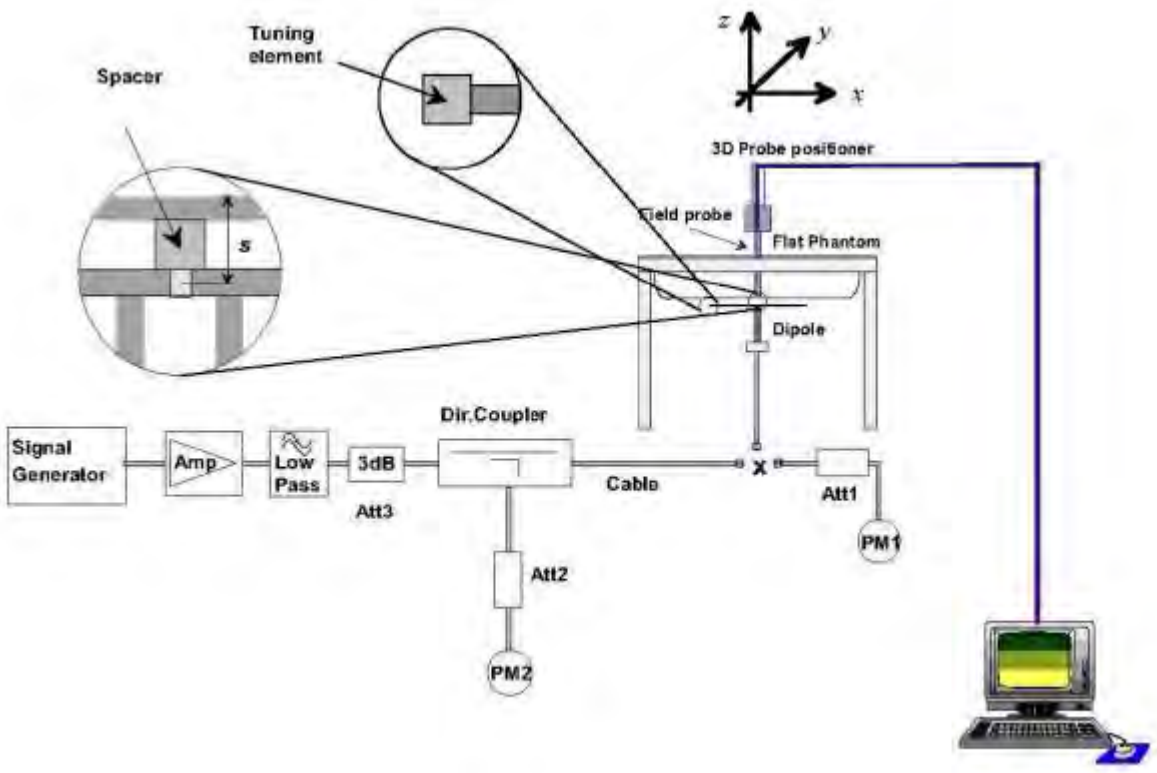
Date	Ambient		Simulating Liquid		Parameters	Target	Measured	Deviation %	Limited %
	Temp. [°C]	Humidity %	Frequency (MHz)	Temp. [°C]					
2024-09-07	22	51	750	21.7	Permittivity	41.90	41.78	-0.29	±5
					Conductivity	0.89	0.86	-3.37	±5
2024-09-12	23.6	49	835	23.4	Permittivity	41.50	41.38	-0.29	±5
					Conductivity	0.90	0.92	2.22	±5
2024-09-09	22.5	58	1800	22.2	Permittivity	40.00	41.32	3.30	±5
					Conductivity	1.40	1.44	2.86	±5
2024-09-10	20.1	50	1800	19.8	Permittivity	40.00	40.96	2.40	±5
					Conductivity	1.40	1.35	-3.57	±5
2024-09-11	21.5	55	1900	21.3	Permittivity	40.00	40.91	2.27	±5
					Conductivity	1.40	1.34	-4.29	±5
2024-09-13	20.6	44	2300	20.3	Permittivity	39.47	40.31	2.14	±5
					Conductivity	1.67	1.64	-1.60	±5
2024-09-13	20.6	44	2450	20.3	Permittivity	39.20	39.66	1.17	±5
					Conductivity	1.80	1.86	3.33	±5
2024-09-08	22.7	59	2600	22.4	Permittivity	39.00	39.79	2.03	±5
					Conductivity	1.96	1.98	1.02	±5
2024-09-14	20.5	58	5200	20.2	Permittivity	36.00	36.63	1.75	±5
					Conductivity	4.66	4.62	-0.86	±5
2024-09-14	20.6	58	5400	20.3	Permittivity	35.80	36.50	1.96	±5
					Conductivity	4.86	4.87	0.21	±5
2024-09-15	23.6	44	5600	23.4	Permittivity	35.55	35.98	1.21	±5
					Conductivity	5.07	5.08	0.30	±5
2024-09-15	23.6	44	5800	23.3	Permittivity	35.30	35.80	1.42	±5
					Conductivity	5.27	5.19	-1.52	±5

5. SAR System Validation

5.1 Validation System

Each MVG system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the MVG software, enable the user to conduct the system performance check and system validation. System kit includes a dipole, and dipole device holder.

The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system validation setup is shown as below.



5.2 Validation Result

Comparing to the original SAR value provided by MVG, the validation data should be within its specification of ±10 %.

Date	Freq.	Power	Power drift	Tested Value	Normalized SAR	Target SAR	Tolerance
	(MHz)	(mW)	(%)	(W/Kg)	(W/kg)	1g(W/kg)	(%)
2024-09-07	750	100	0.795	7.95	8.27	-3.87	10
2024-09-12	835	100	0.952	9.52	9.75	-2.36	10
2024-09-09	1800	100	3.899	38.99	39.06	-0.18	10
2024-09-10	1800	100	3.906	39.06	39.06	0.00	10
2024-09-11	1900	100	4.122	41.22	40.85	0.91	10
2024-09-13	2300	100	5.109	51.09	50.94	0.29	10
2024-09-13	2450	100	5.384	53.84	54.28	-0.81	10
2024-09-08	2600	100	5.677	56.77	56.58	0.34	10
2024-09-14	5200	100	8.088	80.88	80.97	-0.11	10
2024-09-14	5400	100	8.483	84.83	84.61	0.26	10
2024-09-15	5600	100	8.137	81.37	80.96	0.51	10
2024-09-15	5800	100	8.174	81.74	81.67	0.09	10

Note:

1. The tolerance limit of System validation ±10%.
2. The dipole input power (forward power) was 100 mW.
3. The results are normalized to 1 W input power.

6. SAR Evaluation Procedures

The procedure for assessing the average SAR value consists of the following steps:

The following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface

- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.

- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 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.

➢ Area Scan& Zoom Scan

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01 quoted below.

When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

7. EUT Antenna Location Sketch

It is a Smart phone, support GSM/WCDMA/LTE/WLAN/BT mode.

Bottom side
(Back view)

Antenna Separation Distance(mm)						
ANT	Back Side	Front Side	Left Side	Right Side	Top Side	Bottom Side
WLAN/BT	5	5	59	5	5	155
WWAN	5	5	5	5	152	5

Note 1: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.

7.1 SAR test exclusion consider table

The WWAN/WLAN/BT SAR evaluation of Maximum power (dBm) summing tolerance.

	Wireless Interface	GSM850	PCS1900	WCDMA II	WCDMA IV	WCDMA V
Exposure Position	Calculated Frequency (MHz)	836.6	1909.8	1907.6	1740	846.6
	Maximum Turn-up power (dBm)	34.5	30	24	23.8	24
	Maximum rated power(mW)	2818.38	1000.00	251.19	239.88	251.19
Back Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.40	10.85	10.86	11.37	16.30
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.40	10.85	10.86	11.37	16.30
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.40	10.85	10.86	11.37	16.30
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.40	10.85	10.86	11.37	16.30
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (mm)	152	152	152	152	152
	exclusion threshold(mW)	732.88	1128.54	1128.60	1133.71	738.71
	Testing required?	YES	NO	NO	NO	NO
Bottom Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.40	10.85	10.86	11.37	16.30
	Testing required?	YES	YES	YES	YES	YES

Exposure Position	Wireless Interface	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12
	Calculated Frequency (MHz)	1900	1745	844	2560	711
	Maximum Turn-up power (dBm)	25.8	25	25	25.2	25.5
	Maximum rated power(mW)	380.19	316.23	316.23	331.13	354.81
Back Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	10.88	11.36	16.33	9.38	17.79
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	10.88	11.36	16.33	9.38	17.79
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	10.88	11.36	16.33	9.38	17.79
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	10.88	11.36	16.33	9.38	17.79
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (mm)	152	152	152	152	152
	exclusion threshold(mW)	1128.82	1133.55	737.20	1113.75	661.37
	Testing required?	NO	NO	NO	NO	NO
Bottom Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	10.88	11.36	16.33	9.38	17.79
	Testing required?	YES	YES	YES	YES	YES

Exposure Position	Wireless Interface	LTE Band 13	LTE Band 17	LTE Band 38	LTE Band 40	LTE Band 66
	Calculated Frequency (MHz)	782	710	2595	2310	1745
	Maximum Turn-up power (dBm)	24.5	25.5	25.5	13.5	25.3
	Maximum rated power(mW)	281.84	354.81	354.81	22.39	338.84
Back Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.96	17.80	9.31	9.87	11.36
	Testing required?	YES	YES	YES	YES	YES
Front Side	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.96	17.80	9.31	9.87	11.36
	Testing required?	YES	YES	YES	YES	YES
Left Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.96	17.80	9.31	9.87	11.36
	Testing required?	YES	YES	YES	YES	YES
Right Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.96	17.80	9.31	9.87	11.36
	Testing required?	YES	YES	YES	YES	YES
Top Edge	Separation distance (mm)	152	152	152	152	152
	exclusion threshold(mW)	701.38	660.82	1113.12	300.03	1133.55
	Testing required?	NO	NO	NO	NO	NO
Bottom Edge	Separation distance (mm)	5	5	5	5	5
	exclusion threshold(mW)	16.96	17.80	9.31	9.87	11.36
	Testing required?	YES	YES	YES	YES	YES

Exposure Position	Wireless Interface	BT	2.4G WLAN	5.2G WLAN
	Calculated Frequency (MHz)	2441	2437	5180
	Maximum Turn-up power (dBm)	3.5	16	16
	Maximum rated power(mW)	2.24	39.81	39.81
Back Side	Separation distance (mm)	5	5	5
	exclusion threshold(mW)	9.60	9.61	6.59
	Testing required?	NO	YES	YES
Front Side	Separation distance (mm)	5	5	5
	exclusion threshold(mW)	9.60	9.61	6.59
	Testing required?	NO	YES	YES
Left Edge	Separation distance (mm)	59	59	59
	exclusion threshold(mW)	186.01	186.09	155.91
	Testing required?	NO	NO	NO
Right Edge	Separation distance (mm)	5	5	5
	exclusion threshold(mW)	9.60	9.61	6.59
	Testing required?	NO	YES	YES
Top Edge	Separation distance (mm)	5	5	5
	exclusion threshold(mW)	9.60	9.61	6.59
	Testing required?	NO	YES	YES
Bottom Edge	Separation distance (mm)	155	155	155
	exclusion threshold(mW)	1146.01	1146.09	1115.91
	Testing required?	NO	NO	NO

Exposure Position	Wireless Interface	5.3G WLAN	5.6G WLAN	5.8G WLAN
	Calculated Frequency (MHz)	5270	5500	5755
	Maximum Turn-up power (dBm)	15.5	16	16
	Maximum rated power(mW)	35.48	39.81	39.81
Back Side	Separation distance (mm)	5	5	5
	exclusion threshold(mW)	6.53	6.40	6.25
	Testing required?	YES	YES	YES
Front Side	Separation distance (mm)	5	5	5
	exclusion threshold(mW)	6.53	6.40	6.25
	Testing required?	YES	YES	YES
Left Edge	Separation distance (mm)	59	59	59
	exclusion threshold(mW)	155.34	153.96	152.53
	Testing required?	NO	NO	NO
Right Edge	Separation distance (mm)	5	5	5
	exclusion threshold(mW)	6.53	6.40	6.25
	Testing required?	YES	YES	YES
Top Edge	Separation distance (mm)	5	5	5
	exclusion threshold(mW)	6.53	6.40	6.25
	Testing required?	YES	YES	YES
Bottom Edge	Separation distance (mm)	155	155	155
	exclusion threshold(mW)	1115.34	1113.96	1112.53
	Testing required?	NO	NO	NO

Note：

1. maximum power is the source-based time-average power and represents the maximum RF output power among production units.
2. per KDB 447498 D01, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. per KDB 447498 D01, standalone SAR test exclusion threshold is applied; if the distance of the antenna to the user is <25mm,25mm is user to determine SAR exclusion threshold
4. per KDB 447498 D01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distance ≤50mm are determined by:

   [(max.power of channel, including tune-up tolerance, mW)/(min. test separation distance,

mm)]*[√f(GHz）)≤3.0 for 1-g SAR and≤7.5 for10-g extremity SAR ,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

For <50mm distance, we just calculate mW of the exclusion threshold value(3.0)to do compare

5. per KDB 447498 D01, at 100 MHz to 6GHz and for test separation distances >50mm, the SAR test exclusion threshold is determined according to the following

   a)[threshold at 50mm in step 1]+(test separation distance -50mm)*(f (MHz)/150)]mW, at 100 MHz to 1500 MHz

   b) [threshold at 50mm in step1]+(test separation distance -50mm) *10]mW at＞1500MHz and≤ 6GHz

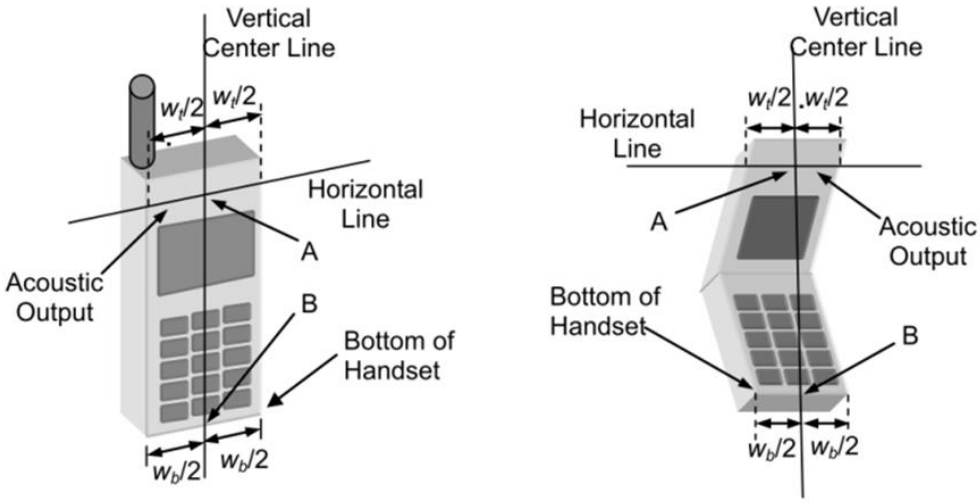
6. Per KDB 248227 D01, choose the highest output power channel to test SAR and determine further SAR exclusion 8.for each frequency band ,testing at higher data rates and higher order modulations is not required when the maximum average output power for each of each of these configurations is less than 1/4db higher than those measured at the lower data rate than 11b mode ,thus the SAR can be excluded.

8. EUT Test Position

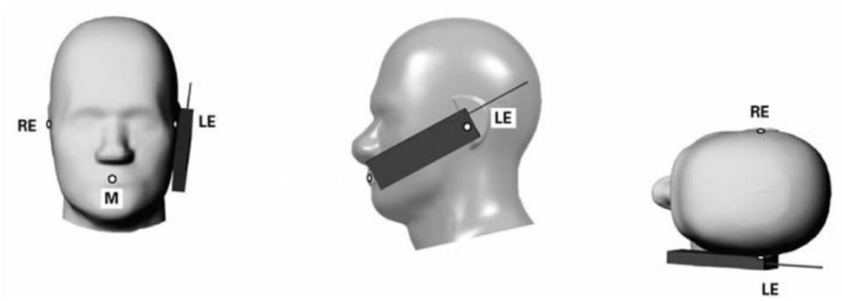
This EUT was tested in Right Cheek, Right Titled, Left Cheek, Left Titled, Front Face and Rear Face.

8.1 Define Two Imaginary Lines on the Handset

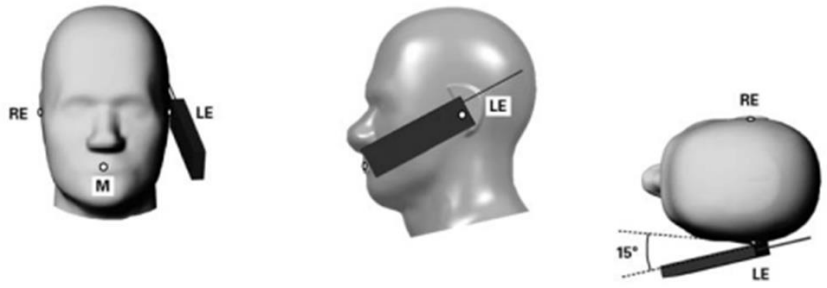
(1) The vertical centerline passes through two points on the front side of the handset the midpoint of the width wt of the handset at the level of the acoustic output, and the midpoint of the width wb of the handset.
(2) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
(3) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



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



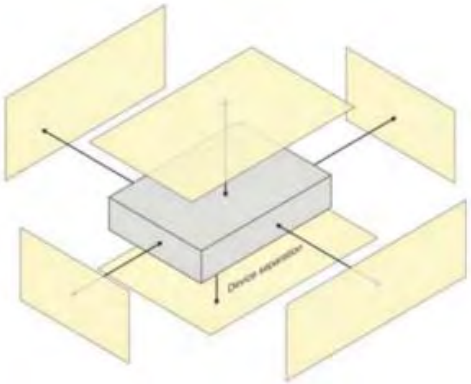
Title Position
(1) To position the device in the “cheek” position described above.
(2) While maintaining the device in the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until with the ear is lost.



Body-worn Position Conditions:
Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. When the same wireless transmission configuration is used for testing body-worn accessory and hotspot mode SAR, respectively, in voice and data mode, SAR results for the most conservative *test separation distance* configuration may be used to support both SAR conditions. When the *reported* SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest *reported* SAR configuration for that wireless mode and frequency band should be repeated for the body-worn accessory with a headset attached to the handset.

8.2 Hotspot mode exposure position condition

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing function, the relevant hand and body exposure condition are tested according to the hotspot SAR procedures in KDB 941225. A test separation distance of 10 mm is required between the phantom and all surface and edges with a transmitting antenna located within 25 mm form that surface or edge. When form factor of a handset is smaller than 9cm x 5cm, a test separation distance of 5mm (instead of 10mm) is required for testing hotspot mode. When the separate distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).



9. Uncertainty

9.1 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in IEEE 1528: 2013.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Uncertainty Component	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
Measurement System								
Probe calibration	5.8	N	1	1	1	5.8	5.8	∞
Axial Isotropy	3.5	R	$\sqrt{3}$	√0.5	√0.5	1.43	1.43	∞
Hemispherical Isotropy	5.9	R	$\sqrt{3}$	√0.5	√0.5	2.41	2.41	∞
Boundary effect	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Readout Electronics	0.5	N	1	1	1	0.50	0.50	∞
Response Time	0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	1.4	R	$\sqrt{3}$	1	1	1.81	1.81	∞
RF ambient conditions-Noise	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation, Interpolation and Integration Algoritms for Max, SAR	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
Test sample Related								
Test sample positioning	2.6	N	1	1	1	2.60	2.60	11
Device holder uncertainty	3	N	1	1	1	3.00	3.00	7
Output Power Variation - SAR Drift Measurement	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	2	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and tissue parameters								
Phantom uncertainty (shape and thickness uncertainty)	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	2	N	1	1	0.84	2.00	1.68	∞
Liquid Conductivity - Measurement Uncertainty)	4	N	1	0.78	0.71	3.12	2.84	5
Liquid Permittivity - Measurement Uncertainty	5	N	1	0.23	0.26	1.15	1.30	5
Liquid Conductivity (Temperature Uncertainty)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid Permittivity (Temperature Uncertainty)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty		RSS				10.47	10.34	
Expanded Uncertainty (95% Confidence interval)		K				20.95	20.69	

9.2 System validation Uncertainty

Uncertainty Component	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
Measurement System								
Probe calibration	5.8	N	1	1	1	5.8	5.8	∞
Axial Isotropy	3.5	R	$\sqrt{3}$	1	1	2.02	2.02	∞
Hemispherical Isotropy	5.9	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	0.71	0.71	∞
System detection limits	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	0	N	$\sqrt{3}$	0	0	0.00	0.00	∞
Readout Electronics	0.5	N	1	1	1	0.50	0.50	∞
Response Time	0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Integration Time	1.4	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-Noise	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation, Interpolation and Integration Algoritms for Max, SAR	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
Dipole								
Deviation of Experimental Source from Numerical Source	5	N	1	1	1	5.00	5.00	∞
Input Power and SAR Drift Measurement	0.5	R	$\sqrt{3}$	1	1	0.29	0.29	∞
Dipole Axis to Liquid Distance	2	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and Tissue Parameters								
Phantom uncertainty (shape and thickness uncertainty)	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	2	N	1	1	0.84	2.00	1.68	∞
Liquid Conductivity - Measurement Uncertainty)	4	N	1	0.78	0.71	3.12	2.84	5
Liquid Permittivity - Measurement Uncertainty	5	N	1	0.23	0.26	1.15	1.30	5
Liquid Conductivity (Temperature Uncertainty)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid Permittivity (Temperature Uncertainty)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty		RSS				10.16	10.03	
Expanded Uncertainty (95% Confidence interval)		K				20.32	20.06	

10. Conducted Power Measurement

10.1 Test Result

Burst Average Power (dBm)						
Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM (GMSK, 1-Slot)	33.91	34.05	33.81	30.40	30.47	30.60
GPRS (GMSK, 1-Slot)	33.83	33.96	33.74	30.31	30.55	30.49
GPRS (GMSK, 2-Slot)	31.29	31.44	31.20	27.89	28.06	28.02
GPRS (GMSK, 3-Slot)	29.49	29.67	29.46	26.28	26.52	26.50
GPRS (GMSK, 4-Slot)	27.56	27.74	27.54	24.26	24.54	24.61
Remark: GPRS, CS4 coding scheme. Multi-Slot Class 8, Support Max 4 downlink, 1 uplink, 5 working link Multi-Slot Class 10, Support Max 4 downlink, 2 uplink, 5 working link Multi-Slot Class 12, Support Max 4 downlink, 4 uplink, 5 working link						

Frame- Average Power(dBm)						
Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM (GMSK, 1-Slot)	24.88	25.02	24.78	21.37	21.44	21.57
GPRS (GMSK, 1-Slot)	24.80	24.93	24.71	21.28	21.52	21.46
GPRS (GMSK, 2-Slot)	25.27	25.42	25.18	21.87	22.04	22.00
GPRS (GMSK, 3-Slot)	25.23	25.41	25.20	22.02	22.26	22.24
GPRS (GMSK, 4-Slot)	24.55	24.73	24.53	21.25	21.53	21.60
Remark: 1. SAR testing was performed on the maximum frame-averaged power mode. 2. The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum Burst - averaged power based on time slots. The calculated method is shown as below: Frame-averaged power = Burst averaged power (1 TX Slot) – 9.03 dB Frame-averaged power = Burst averaged power (2 TX Slots) – 6.02 dB Frame-averaged power = Burst averaged power (3 TX Slots) - 4.26 dB Frame-averaged power = Burst averaged power (4 TX Slots) – 3.01 dB						

WCDMA

Band	WCDMA Band 2			WCDMA Band 4			WCDMA Band 5		
Channel	9262	9400	9538	1312	1450	1513	4132	4182	4233
Frequency (MHz)	1852.4	1880	1907.6	1712.6	1740	1752.4	826.4	836.4	846.6
RMC 12.2Kbps	21.84	23.65	23.66	23.45	23.55	23.52	23.6	23.75	23.92
HSDPA Subtest-1	22.52	22.65	22.22	22.71	22.22	22.24	23	22.81	22.73
HSDPA Subtest-2	22.02	22.31	22.02	22.21	22	21.86	22.53	22.62	22.46
HSDPA Subtest-3	21.74	22.12	21.65	22.04	21.61	21.78	22.36	22.35	22.26
HSDPA Subtest-4	21.41	21.85	21.62	21.78	21.58	21.37	21.9	22.13	22.25
HSUPA Subtest-1	22.26	22.39	21.99	22.46	22.06	21.94	22.99	22.75	22.66
HSUPA Subtest-2	22.22	22.63	22.17	22.54	22.24	22.13	22.87	22.82	22.7
HSUPA Subtest-3	21.89	22.41	21.9	21.91	22.04	21.71	22.69	22.69	22.42
HSUPA Subtest-4	22.25	22.57	22.11	22.5	22.04	22.25	22.74	22.76	22.73
HSUPA Subtest-5	21.86	22.49	21.91	22.1	21.89	21.97	22.58	22.69	22.39

According to 3GPP 25.101 sub-clause 6.2.2, the maximum output power is allowed to be reduced by following the table.

Table 6.1A: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM (db)	MPR (db)
For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH	0≤ CM≤3.5	MAX(CM-1,0)
Note: CM=1 for βc/βd=12/15, βhs/ βc=24/15.For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.		

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensation for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.

2.4G WLAN

2.4GWIFI				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11b	1	2412	12.28	16.90
	6	2437	15.63	36.56
	11	2462	14.36	27.29
802.11g	1	2412	11.70	14.79
	6	2437	15.52	35.65
	11	2462	14.12	25.82
802.11 n-HT20	1	2412	10.39	10.94
	6	2437	14.45	27.86
	11	2462	12.91	19.54
802.11 n-HT40	3	2422	11.45	13.96
	6	2437	13.79	23.93
	9	2452	12.41	17.42

Bluetooth

BT				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	2.57	1.81
	39	2441	2.33	1.71
	78	2480	1.71	1.48
π/4-QPSK(2Mbps)	0	2402	3.09	2.04
	39	2441	3.12	2.05
	78	2480	2.15	1.64
8DPSK(3Mbps)	0	2402	3.30	2.14
	39	2441	3.36	2.17
	78	2480	2.41	1.74

BLE

BLE				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	2.26	1.68
	19	2440	2.44	1.75
	39	2480	1.84	1.53
GFSK(2Mbps)	0	2402	2.25	1.68
	19	2440	2.15	1.64
	39	2480	1.6	1.45

WLAN (5.2Gband)

5.2G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	36	5180	15.91	38.99
	40	5200	15.61	36.39
	48	5240	15.23	33.34
802.11 n-HT20	36	5180	14.31	26.98
	40	5200	14.19	26.24
	48	5240	13.84	24.21
802.11 n-HT40	38	5190	14.55	28.51
	46	5230	14.56	28.58
802.11ac-VHT20	36	5180	13.82	24.10
	40	5200	13.68	23.33
	48	5240	13.3	21.38
802.11ac-VHT40	38	5190	14.23	26.49
	46	5230	13.91	24.60
802.11ac-VHT80	42	5210	13.98	25.00

WLAN (5.3G band)

5.3G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	52	5260	14.67	29.31
	60	5300	14.66	29.24
	64	5320	14.45	27.86
802.11 n-HT20	52	5260	14.86	30.62
	60	5300	14.7	29.51
	64	5320	14.47	27.99
802.11 n-HT40	54	5270	15	31.62
	62	5310	14.93	31.12
802.11ac-VHT20	52	5260	14.21	26.36
	60	5300	14.23	26.49
	64	5320	13.9	24.55
802.11ac-VHT40	54	5270	14.64	29.11
	62	5310	14.45	27.86
802.11ac-VHT80	58	5290	14.54	28.44

WLAN (5.6G band)

5.6G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	100	5500	12.81	19.10
	116	5580	13.16	20.70
	140	5700	12.6	18.20
802.11 n-HT20	100	5500	12.86	19.32
	116	5580	13.13	20.56
	140	5700	12.63	18.32
802.11 n-HT40	102	5510	13.01	20.00
	110	5550	13.34	21.58
	134	5670	15.03	31.84
802.11ac-VHT20	100	5500	15.08	32.21
	116	5580	15.23	33.34
	140	5700	14.82	30.34
802.11ac-VHT40	102	5510	15.15	32.73
	110	5550	15.65	36.73
	134	5670	15.46	35.16
802.11ac-VHT80	106	5530	15.01	31.70
	122	5610	15.37	34.43
	138	5690	12.81	19.10

WLAN (5.8G band)

5.8G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	149	5745	15.49	35.40
	157	5785	15.3	33.88
	165	5825	14.83	30.41
802.11 n-HT20	149	5745	14.29	26.85
	157	5785	14.62	28.97
	165	5825	14.26	26.67
802.11 n-HT40	151	5755	14.76	29.92
	159	5795	14.5	28.18
802.11ac-VHT20	149	5745	14.98	31.48
	157	5785	14.79	30.13
	165	5825	14.45	27.86
802.11ac-VHT40	151	5755	15.54	35.81
	159	5795	15.05	31.99
802.11ac-VHT80	155	5775	15.2	33.11

LTE Conducted Power

General Note:

1. Anritsu CMW500 base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ⩽ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ⩽ 1.45 W/kg; Per KDB 941225 D05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ⩽ 1.45 W/kg; Per KDB 941225 D05, smaller bandwidth SAR testing is not required.

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	24.87	24.88	25.51
1.4	1	2		24.97	24.96	25.55
1.4	1	5		24.93	24.9	25.52
1.4	3	0		24.76	25	25.41
1.4	3	1		24.81	25.04	25.46
1.4	3	2		24.85	24.98	25.51
1.4	6	0		23.95	23.96	24.44
1.4	1	0	16-QAM	24.93	23.55	24.48
1.4	1	2		24.93	23.49	24.53
1.4	1	5		24.93	23.47	24.56
1.4	3	0		24.15	23.93	24.49
1.4	3	1		24.2	23.97	24.55
1.4	3	2		24.24	23.93	24.56
1.4	6	0		23.2	23.1	23.69
3	1	0	QPSK	24.89	24.83	25.35
3	1	7		24.88	24.83	25.57
3	1	14		24.9	24.83	25.47
3	8	0		23.94	23.98	24.32
3	8	4		23.97	24.01	24.5
3	8	7		23.91	23.99	24.52
3	15	0		23.92	24	24.54
3	1	0	16-QAM	25.11	24.12	24.37
3	1	7		25.1	24.08	24.51
3	1	14		25.09	24.11	24.53
3	8	0		22.99	23.15	23.44
3	8	4		22.99	23.17	23.6
3	8	7		22.99	23.13	23.63
3	15	0		23.12	23.02	23.66

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.86	25.05	25.03
5	1	12		24.83	25.06	25.08
5	1	24		24.86	25	25.36
5	12	0		23.97	23.96	24.38
5	12	6		23.86	23.89	24.28
5	12	11		24.04	23.98	24.39
5	25	0		23.92	23.99	24.4
5	1	0	16-QAM	23.97	24.2	24.85
5	1	12		24.06	24.04	24.95
5	1	24		24.11	24.04	25.04
5	12	0		22.93	22.86	23.39
5	12	6		22.93	22.83	23.44
5	12	11		22.95	22.89	23.53
5	25	0		23.22	23.06	23.59
10	1	0	QPSK	24.97	25.28	24.88
10	1	24		25.06	25.26	24.98
10	1	49		25.14	25.25	25.55
10	25	0		23.98	24	23.93
10	25	12		24.08	24.04	23.89
10	25	24		24.09	23.9	24.21
10	50	0		23.95	24.01	24.08
10	1	0	16-QAM	24.09	23.76	24.28
10	1	24		24.2	23.71	24.32
10	1	49		24.37	23.72	24.86
10	25	0		23.23	23.15	23.05
10	25	12		23.2	23.11	23.08
10	25	24		23.31	23.04	23.48
10	50	0		23.18	23.13	23.02

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	24.75	24.93	24.8
15	1	37		24.85	24.84	25.07
15	1	74		24.98	24.81	25.4
15	36	0		23.91	23.94	23.99
15	36	18		23.95	23.97	24.13
15	36	39		23.94	23.97	24.3
15	75	0		24.1	23.95	24.09
15	1	0	16-QAM	25.02	24.82	24.77
15	1	38		25.14	24.73	25.03
15	1	75		25.23	24.68	25.36
15	36	0		23.1	23.26	22.98
15	36	18		23.12	23.2	23.21
15	36	39		23.13	23.11	23.45
15	75	0		23.04	23.05	23.34
20	1	0	QPSK	24.77	24.9	25.05
20	1	49		24.8	24.85	25.34
20	1	99		24.95	24.83	25.58
20	50	0		23.95	23.99	24.15
20	50	24		23.89	23.99	24.34
20	50	49		23.96	23.9	24.46
20	100	0		23.95	24.01	24.23
20	1	0	16-QAM	24.05	23.79	23.01
20	1	49		24.13	23.76	23.29
20	1	99		24.14	23.67	23.52
20	50	0		22.1	22.16	22.24
20	50	24		22.09	22.16	22.39
20	50	49		22.17	22.03	22.46
20	100	0		22.08	22.11	22.4

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.65	23.44	23.7
1.4	1	2		23.69	23.45	23.67
1.4	1	5		23.59	23.48	23.68
1.4	3	0		23.53	23.36	23.47
1.4	3	1		23.58	23.4	23.52
1.4	3	2		23.51	23.41	23.46
1.4	6	0		22.55	22.33	22.52
1.4	1	0	16-QAM	24.13	23.04	23.47
1.4	1	2		24.1	22.98	23.5
1.4	1	5		24.21	23.05	23.56
1.4	3	0		22.88	22.46	22.91
1.4	3	1		22.91	22.44	22.88
1.4	3	2		22.88	22.51	22.92
1.4	6	0		21.88	21.37	21.66
3	1	0	QPSK	23.65	23.62	23.53
3	1	7		23.46	23.69	23.61
3	1	14		23.47	23.77	23.51
3	8	0		22.44	22.39	22.56
3	8	4		22.42	22.37	22.55
3	8	7		22.44	22.46	22.44
3	15	0		22.46	22.4	22.59
3	1	0	16-QAM	23.28	23.08	23.56
3	1	7		23.1	23.08	23.62
3	1	14		23.14	23.17	23.61
3	8	0		21.76	21.57	21.7
3	8	4		21.76	21.52	21.79
3	8	7		21.68	21.55	21.74
3	15	0		21.67	21.51	21.6

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.43	23.39	23.22
5	1	12		23.33	23.39	23.27
5	1	24		23.33	23.43	23.21
5	12	0		22.57	22.4	22.42
5	12	6		22.48	22.38	22.45
5	12	11		22.41	22.39	22.45
5	25	0		22.41	22.41	22.45
5	1	0	16-QAM	23.22	23.08	23.51
5	1	12		23.11	23.03	23.59
5	1	24		23.12	23.06	23.58
5	12	0		21.61	21.37	21.6
5	12	6		21.51	21.28	21.58
5	12	11		21.47	21.35	21.48
5	25	0		21.71	21.55	21.7
10	1	0	QPSK	23.72	23.32	23.44
10	1	24		23.54	23.36	23.41
10	1	49		23.57	23.43	23.46
10	25	0		22.41	22.47	22.49
10	25	12		22.42	22.37	22.55
10	25	24		22.52	22.55	22.4
10	50	0		22.4	22.41	22.49
10	1	0	16-QAM	23.16	23.31	24.27
10	1	24		23.1	22.98	24.26
10	1	49		23.07	23.02	24.22
10	25	0		21.69	21.54	21.51
10	25	12		21.56	21.51	21.56
10	25	24		21.54	21.6	21.43
10	50	0		21.67	21.56	21.61

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.5	23.29	23.42
15	1	37		23.35	23.31	23.48
15	1	74		23.29	23.45	23.43
15	36	0		22.47	22.38	22.61
15	36	18		22.41	22.42	22.52
15	36	39		22.51	22.55	22.41
15	75	0		22.51	22.5	22.57
15	1	0	16-QAM	24.27	23.7	23.85
15	1	38		24.13	23.65	23.81
15	1	75		24.12	23.74	23.81
15	36	0		21.7	21.59	21.64
15	36	18		21.58	21.63	21.59
15	36	39		21.6	21.66	21.53
15	75	0		21.58	21.54	21.68
20	1	0	QPSK	24.58	24.46	24.62
20	1	49		24.47	24.5	24.53
20	1	99		24.45	24.5	24.52
20	50	0		23.51	23.28	23.46
20	50	24		23.53	23.31	23.5
20	50	49		23.47	23.42	23.47
20	100	0		23.55	23.42	23.48
20	1	0	16-QAM	24.27	23.08	22.68
20	1	49		24.28	22.97	22.64
20	1	99		24.21	23.01	22.62
20	50	0		21.64	21.55	21.73
20	50	24		21.58	21.59	21.66
20	50	49		21.53	21.54	21.64
20	100	0		21.82	21.44	21.55

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.09	23.42	23.5
1.4	1	2		23.19	23.47	23.49
1.4	1	5		23.39	23.46	23.49
1.4	3	0		23.19	23.38	23.47
1.4	3	1		23.22	23.38	23.45
1.4	3	2		23.28	23.34	23.43
1.4	6	0		22.3	22.41	22.48
1.4	1	0	16-QAM	23.25	23.8	22.93
1.4	1	2		23.33	23.81	22.93
1.4	1	5		23.34	23.85	23.12
1.4	3	0		22.78	22.54	22.42
1.4	3	1		22.67	22.6	22.44
1.4	3	2		22.75	22.6	22.44
1.4	6	0		21.51	21.51	21.71
3	1	0	QPSK	23.22	23.18	23.37
3	1	7		23.2	23.29	23.4
3	1	14		23.23	23.38	23.54
3	8	0		22.26	22.37	22.43
3	8	4		22.33	22.45	22.35
3	8	7		22.29	22.48	22.38
3	15	0		22.3	22.48	22.46
3	1	0	16-QAM	23.78	23.53	23.18
3	1	7		23.9	23.49	22.95
3	1	14		23.95	23.63	23.04
3	8	0		21.34	21.44	21.41
3	8	4		21.38	21.5	21.46
3	8	7		21.42	21.5	21.49
3	15	0		21.4	21.5	21.48

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.19	23.31	23.33
5	1	12		23.25	23.34	23.37
5	1	24		23.2	23.39	23.33
5	12	0		22.33	22.36	22.48
5	12	6		22.26	22.42	22.42
5	12	11		22.24	22.43	22.55
5	25	0		22.21	22.43	22.55
5	1	0	16-QAM	22.87	22.89	23.59
5	1	12		22.87	22.89	23.49
5	1	24		22.98	23	23.59
5	12	0		21.3	21.25	21.48
5	12	6		21.3	21.23	21.39
5	12	11		21.24	21.25	21.4
5	25	0		21.42	21.41	21.61
10	1	0	QPSK	24.19	24.39	24.44
10	1	24		24.17	24.36	24.51
10	1	49		24.21	24.35	24.49
10	25	0		23.22	23.42	23.5
10	25	12		23.24	23.3	23.48
10	25	24		23.22	23.28	23.6
10	50	0		23.31	23.45	23.54
10	1	0	16-QAM	23.53	22.8	24.06
10	1	24		23.58	22.8	24
10	1	49		23.58	22.88	24.05
10	25	0		21.53	21.49	21.28
10	25	12		21.48	21.52	21.29
10	25	24		21.5	21.53	21.35
10	50	0		21.34	21.5	21.48

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.69	23.84	23.95
5	1	12		23.72	23.89	23.91
5	1	24		23.74	23.77	23.95
5	12	0		22.64	22.92	22.97
5	12	6		22.78	22.97	23.02
5	12	11		22.72	22.94	22.96
5	25	0		22.67	22.85	23.05
5	1	0	16-QAM	23.05	23.47	23.46
5	1	12		23.05	23.46	23.53
5	1	24		23.03	23.48	23.52
5	12	0		21.67	22.01	21.92
5	12	6		21.74	22.07	21.98
5	12	11		21.76	22	21.99
5	25	0		21.93	22.05	22.26
10	1	0	QPSK	23.7	24.03	24.03
10	1	24		23.7	23.95	24.07
10	1	49		23.81	23.94	24.1
10	25	0		22.81	22.84	23.08
10	25	12		22.82	22.9	23.03
10	25	24		22.89	22.91	23.05
10	50	0		22.8	22.95	23.05
10	1	0	16-QAM	24.37	23.57	23.57
10	1	24		24.43	23.56	23.63
10	1	49		24.51	23.52	23.64
10	25	0		21.88	22.05	22.13
10	25	12		21.99	22.06	22.2
10	25	24		22	22.06	22.15
10	50	0		22.02	22.08	22.15

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.73	24.24	24.01
15	1	37		23.82	24.32	24.03
15	1	74		23.89	24.39	24.12
15	36	0		22.78	22.85	23.02
15	36	18		22.9	22.93	22.96
15	36	39		22.88	22.91	23.05
15	75	0		22.76	22.89	22.93
15	1	0	16-QAM	23.52	23.58	23.48
15	1	38		23.55	23.54	23.42
15	1	75		23.71	23.56	23.48
15	36	0		21.99	22.1	22.13
15	36	18		22.09	22.12	22.14
15	36	39		22.16	22.11	22.17
15	75	0		21.97	22.11	22.19
20	1	0	QPSK	24.67	24.79	24.97
20	1	49		24.7	24.73	25.02
20	1	99		24.72	24.82	25.06
20	50	0		23.74	23.89	23.98
20	50	24		23.84	23.8	23.89
20	50	49		23.91	23.89	23.95
20	100	0		22.71	23.87	24.03
20	1	0	16-QAM	24.32	24.07	24.44
20	1	49		24.45	24.05	24.44
20	1	99		24.57	24.13	24.32
20	50	0		21.9	22.16	22.08
20	50	24		21.95	22.15	22.07
20	50	49		21.96	22.19	22.09
20	100	0		21.97	22.06	22.15

LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	24.86	24.96	25.06
1.4	1	2		24.9	24.97	25.08
1.4	1	5		24.88	24.91	25.08
1.4	3	0		24.87	24.88	25.06
1.4	3	1		24.86	24.86	25
1.4	3	2		24.87	24.84	24.98
1.4	6	0		23.86	23.87	24
1.4	1	0	16-QAM	25.16	23.94	24.13
1.4	1	2		25.02	23.87	24.1
1.4	1	5		25.03	23.89	24.12
1.4	3	0		24.08	23.91	23.97
1.4	3	1		24.15	23.92	23.95
1.4	3	2		24.15	23.87	23.94
1.4	6	0		22.91	23.09	23.07
3	1	0	QPSK	24.81	24.88	24.76
3	1	7		24.89	24.94	24.97
3	1	14		24.89	24.97	25.04
3	8	0		23.83	23.92	23.85
3	8	4		23.9	23.91	23.87
3	8	7		23.88	23.97	24.02
3	15	0		23.86	23.89	23.91
3	1	0	16-QAM	24.68	24.57	24.35
3	1	7		24.87	24.63	24.36
3	1	14		24.9	24.77	24.57
3	8	0		22.83	22.96	23
3	8	4		22.94	23.04	23.06
3	8	7		22.93	23.06	23.13
3	15	0		22.88	23.07	22.91

LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.76	24.84	24.78
5	1	12		24.83	24.96	24.81
5	1	24		24.84	25.06	24.77
5	12	0		23.86	23.83	23.99
5	12	6		23.81	23.9	23.99
5	12	11		23.82	23.88	24.04
5	25	0		23.85	23.9	24.03
5	1	0	16-QAM	23.97	23.89	24.49
5	1	12		24.05	23.95	24.58
5	1	24		24.1	24	24.53
5	12	0		22.76	22.72	22.92
5	12	6		22.75	22.79	23.02
5	12	11		22.72	22.75	23.01
5	25	0		23.02	22.94	23.23
10	1	0	QPSK	24.73	25.03	25.17
10	1	24		24.78	24.99	25.05
10	1	49		24.85	25	25.1
10	25	0		23.79	23.8	24.05
10	25	12		23.81	23.99	24
10	25	24		23.88	23.85	23.92
10	50	0		23.84	23.98	24.07
10	1	0	16-QAM	24.84	23.92	24.08
10	1	24		24.83	23.98	24.15
10	1	49		24.93	23.84	24.12
10	25	0		22.63	22.89	23.08
10	25	12		22.68	22.94	23.08
10	25	24		22.65	22.97	23.15
10	50	0		22.83	22.88	23.03

LTE Band 13 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.02	23.73	23.79
5	1	12		23.87	23.71	23.79
5	1	24		23.87	23.84	23.88
5	12	0		22.95	22.88	22.91
5	12	6		22.91	22.82	22.97
5	12	11		22.76	22.86	22.87
5	25	0		22.82	22.89	22.82
5	1	0	16-QAM	22.77	23.43	23.03
5	1	12		22.48	23.4	23.02
5	1	24		22.56	23.53	23
5	12	0		21.79	22.16	21.87
5	12	6		22.13	22.21	21.81
5	12	11		22.19	21.89	22.22
5	25	0		22.34	22.36	21.98
10	1	0	QPSK	/	24.02	/
10	1	24		/	23.8	/
10	1	49		/	23.93	/
10	25	0		/	22.89	/
10	25	12		/	22.85	/
10	25	24		/	22.96	/
10	50	0		/	22.89	/
10	1	0	16-QAM	/	23.04	/
10	1	24		/	22.91	/
10	1	49		/	22.96	/
10	25	0		/	21.21	/
10	25	12		/	21.18	/
10	25	24		/	20.74	/
10	50	0		/	21.21	/

LTE Band 17 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.66	24.79	24.97
5	1	12		24.72	24.79	25.09
5	1	24		24.75	24.75	25.07
5	12	0		23.86	23.93	24.06
5	12	6		23.89	23.9	24.05
5	12	11		23.93	23.94	24.09
5	25	0		23.85	24	24.01
5	1	0	16-QAM	24.44	24.04	23.97
5	1	12		24.36	24	24.15
5	1	24		24.54	24.02	24.06
5	12	0		22.83	22.75	22.87
5	12	6		22.79	22.82	22.86
5	12	11		22.87	22.85	22.87
5	25	0		22.98	23.11	23.11
10	1	0	QPSK	24.82	24.85	24.86
10	1	24		24.89	24.97	25.01
10	1	49		25.02	25.1	25.08
10	25	0		23.84	23.86	23.89
10	25	12		23.92	23.98	23.91
10	25	24		23.97	23.97	24.07
10	50	0		23.98	23.92	23.96
10	1	0	16-QAM	24.84	24.6	23.74
10	1	24		24.92	24.67	23.93
10	1	49		24.97	24.8	24.05
10	25	0		22.97	22.98	23.03
10	25	12		22.96	23.01	23.07
10	25	24		22.99	22.97	23.13
10	50	0		22.96	23.03	22.98

LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	25.05	24.85	25.02
5	1	12		25.03	24.83	25.04
5	1	24		25.08	24.77	25.03
5	12	0		24.07	24.04	24
5	12	6		24.04	23.97	23.94
5	12	11		23.92	23.98	23.93
5	25	0		23.97	24.02	23.98
5	1	0	16-QAM	24.6	25.35	24.28
5	1	12		24.56	25.34	24.14
5	1	24		24.62	25.32	24.2
5	12	0		23.21	23.22	22.99
5	12	6		23.06	23.16	22.91
5	12	11		23.01	23.15	22.95
5	25	0		23.27	23.34	23.13
10	1	0	QPSK	25.1	25.24	24.85
10	1	24		25.17	25.32	24.82
10	1	49		25.2	25.27	24.95
10	25	0		23.91	24.04	23.88
10	25	12		23.96	24.04	24.02
10	25	24		24	24	23.93
10	50	0		23.75	23.61	23.6
10	1	0	16-QAM	25.2	24.38	25
10	1	24		25.3	24.34	25.27
10	1	49		25.14	24.33	25.3
10	25	0		23.06	23.09	23.17
10	25	12		23.1	23.09	23.15
10	25	24		23.12	23.09	23.06
10	50	0		22.9	22.87	22.72

LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	24.93	24.81	25.04
15	1	37		25.01	24.75	24.97
15	1	74		25.08	24.72	25.03
15	36	0		23.99	24.03	23.86
15	36	18		23.95	24.05	23.86
15	36	39		24.02	23.93	23.94
15	75	0		23.69	23.66	23.52
15	1	0	16-QAM	24.72	25.02	24.3
15	1	38		24.68	24.88	24.17
15	1	75		24.64	25.26	24.35
15	36	0		23.37	23.05	23.16
15	36	18		23.24	23.11	23.06
15	36	39		23.28	22.98	23.11
15	75	0		23.13	23.06	23.13
20	1	0	QPSK	25.18	25.36	24.78
20	1	49		25.2	25.24	24.82
20	1	99		25.21	25.25	24.82
20	50	0		24.01	24.04	24.05
20	50	24		23.95	24.06	23.91
20	50	49		23.97	24.09	23.84
20	100	0		23.66	23.63	23.68
20	1	0	16-QAM	25.23	24.34	24.78
20	1	49		25.23	24.39	24.78
20	1	99		25.29	24.37	24.79
20	50	0		23.14	23.39	23.03
20	50	24		23.1	23.24	22.9
20	50	49		23.1	23.24	22.98
20	100	0		22.68	22.84	22.84

LTE Band 40 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	12.36	12.7	12.57
5	1	12		12.85	13.1	12.96
5	1	24		12.22	12.45	12.34
5	12	0		11.75	11.88	11.79
5	12	6		11.84	11.97	11.88
5	12	11		11.63	11.72	11.66
5	25	0		11.66	11.82	11.72
5	1	0	16-QAM	11.99	11.99	11.81
5	1	12		12.4	12.4	12.3
5	1	24		11.98	11.72	11.6
5	12	0		10.99	11.08	10.96
5	12	6		11.11	11.16	11.05
5	12	11		10.9	10.92	10.83
5	25	0		10.94	11.03	10.83
10	1	0	QPSK	/	12.94	/
10	1	24		/	13.11	/
10	1	49		/	13.08	/
10	25	0		/	12.05	/
10	25	12		/	12.07	/
10	25	24		/	12.07	/
10	50	0		/	12.05	/
10	1	0	16-QAM	/	12.23	/
10	1	24		/	12.52	/
10	1	49		/	12.38	/
10	25	0		/	11.23	/
10	25	12		/	11.25	/
10	25	24		/	11.24	/
10	50	0		/	11.19	/

LTE Band 40 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	12.24	12.13	12.18
5	1	12		12.73	12.64	12.62
5	1	24		12.23	12.09	12.18
5	12	0		11.53	11.49	11.49
5	12	6		11.7	11.65	11.62
5	12	11		11.53	11.5	11.47
5	25	0		11.53	11.49	11.48
5	1	0	16-QAM	11.43	11.44	11.77
5	1	12		12	11.99	12.25
5	1	24		11.44	11.42	11.77
5	12	0		10.65	10.71	10.7
5	12	6		10.81	10.86	10.82
5	12	11		10.66	10.7	10.69
5	25	0		10.73	10.68	10.68
10	1	0	QPSK	/	12.34	/
10	1	24		/	12.67	/
10	1	49		/	12.87	/
10	25	0		/	11.6	/
10	25	12		/	11.73	/
10	25	24		/	11.85	/
10	50	0		/	11.71	/
10	1	0	16-QAM	/	11.7	/
10	1	24		/	12.13	/
10	1	49		/	12.24	/
10	25	0		/	10.82	/
10	25	12		/	10.93	/
10	25	24		/	11.07	/
10	50	0		/	10.95	/

LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	24.19	23.84	23.95
1.4	1	2		24.06	23.99	24.02
1.4	1	5		24.12	23.94	23.99
1.4	3	0		23.97	23.91	24
1.4	3	1		24.01	23.95	24.02
1.4	3	2		23.95	23.89	24.02
1.4	6	0		23.09	22.98	23.06
1.4	1	0	16-QAM	24.09	23.18	23.01
1.4	1	2		24.12	23.17	22.98
1.4	1	5		24.2	23.21	23.02
1.4	3	0		23.32	22.89	23.05
1.4	3	1		23.36	22.91	23.07
1.4	3	2		23.3	22.94	23.12
1.4	6	0		22.28	22.3	22.11
3	1	0	QPSK	24	24.04	24.03
3	1	7		24.05	24.08	24.02
3	1	14		24	23.98	23.99
3	8	0		23.21	23.15	23.1
3	8	4		23.15	23.12	23.02
3	8	7		23.1	23.12	22.94
3	15	0		23.1	23.1	22.98
3	1	0	16-QAM	24.28	23.73	23.08
3	1	7		24.3	23.69	23.01
3	1	14		24.31	23.68	23.05
3	8	0		22.17	22.44	22.1
3	8	4		22.12	22.41	22.06
3	8	7		22.1	22.4	22.04
3	15	0		22.33	22.25	22.19

LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	24.06	24.13	23.76
5	1	12		24.07	24.11	23.76
5	1	24		24.02	24.16	23.79
5	12	0		23.13	23.15	23
5	12	6		23.05	23.14	22.94
5	12	11		23.21	23.05	22.93
5	25	0		23.11	23.13	23.06
5	1	0	16-QAM	23.25	22.87	23.61
5	1	12		23.26	22.87	23.64
5	1	24		23.26	22.84	23.61
5	12	0		22.2	22.08	22.07
5	12	6		22.17	22.07	22.11
5	12	11		22.16	22.08	22.02
5	25	0		22.39	22.25	22.31
10	1	0	QPSK	24.17	24.14	24.06
10	1	24		23.99	24.19	24.03
10	1	49		24.09	24.2	24.03
10	25	0		23.12	23.07	23.07
10	25	12		23.09	23.04	23.09
10	25	24		23.12	23.05	23.01
10	50	0		23.14	23.1	23.11
10	1	0	16-QAM	22.83	23.14	23.38
10	1	24		22.75	23.26	23.35
10	1	49		22.73	23.19	23.35
10	25	0		22.23	22.26	22.2
10	25	12		22.23	22.23	22.23
10	25	24		22.18	22.27	22.15
10	50	0		22.24	22.11	22.25

LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	24	24.03	23.9
15	1	37		23.94	24.09	23.94
15	1	74		23.91	24.14	23.93
15	36	0		23.05	22.99	23.15
15	36	18		23.14	23.1	23.12
15	36	39		23	23.03	23.01
15	75	0		23.01	23.14	23.05
15	1	0	16-QAM	24.3	23.75	23.7
15	1	38		24.29	23.75	23.72
15	1	75		24.21	23.83	23.7
15	36	0		22.27	22.34	22.19
15	36	18		22.2	22.32	22.17
15	36	39		22.21	22.38	22.07
15	75	0		22.19	22.18	22.21
20	1	0	QPSK	25.01	25.09	25.06
20	1	49		25.07	25.14	24.98
20	1	99		25.06	25.18	25.02
20	50	0		24.11	24.19	24.04
20	50	24		24.1	24.16	24.05
20	50	49		24.01	24.05	24.04
20	100	0		24.16	24.2	24.03
20	1	0	16-QAM	24.36	23.82	23.46
20	1	49		24.33	23.8	23.45
20	1	99		24.31	23.76	23.37
20	50	0		22.18	22.25	22.21
20	50	24		22.08	22.24	22.2
20	50	49		22.09	22.26	22.19
20	100	0		22.25	22.29	22.07

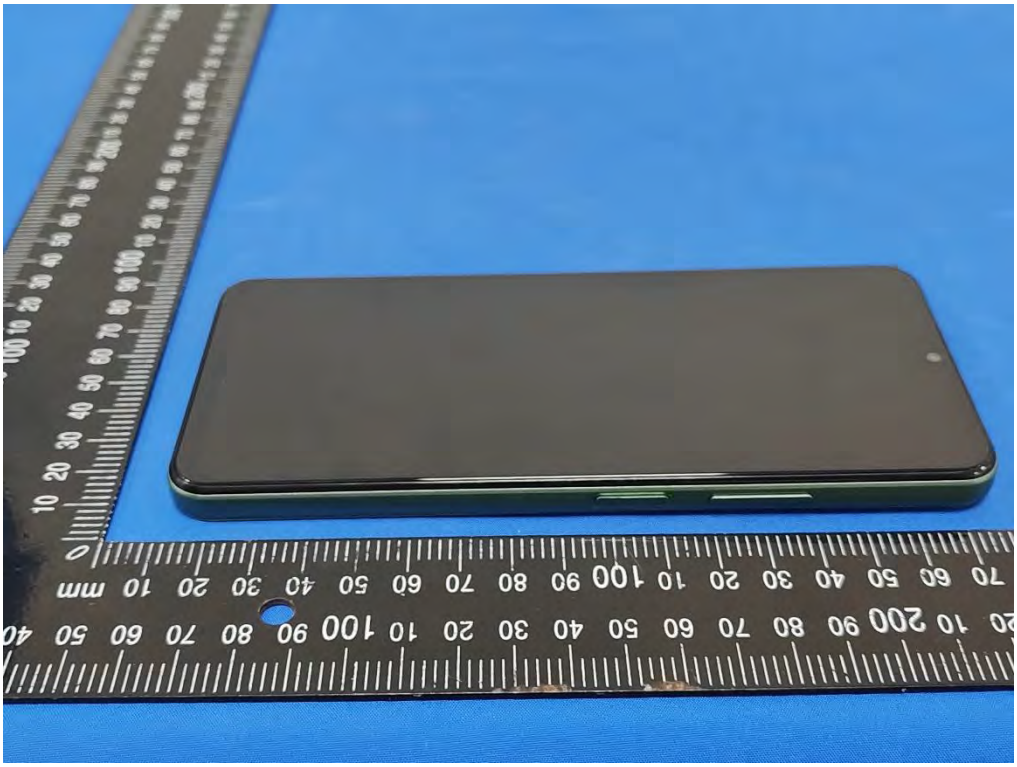
11. EUT and Test Setup Photo

11.1 EUT Photos

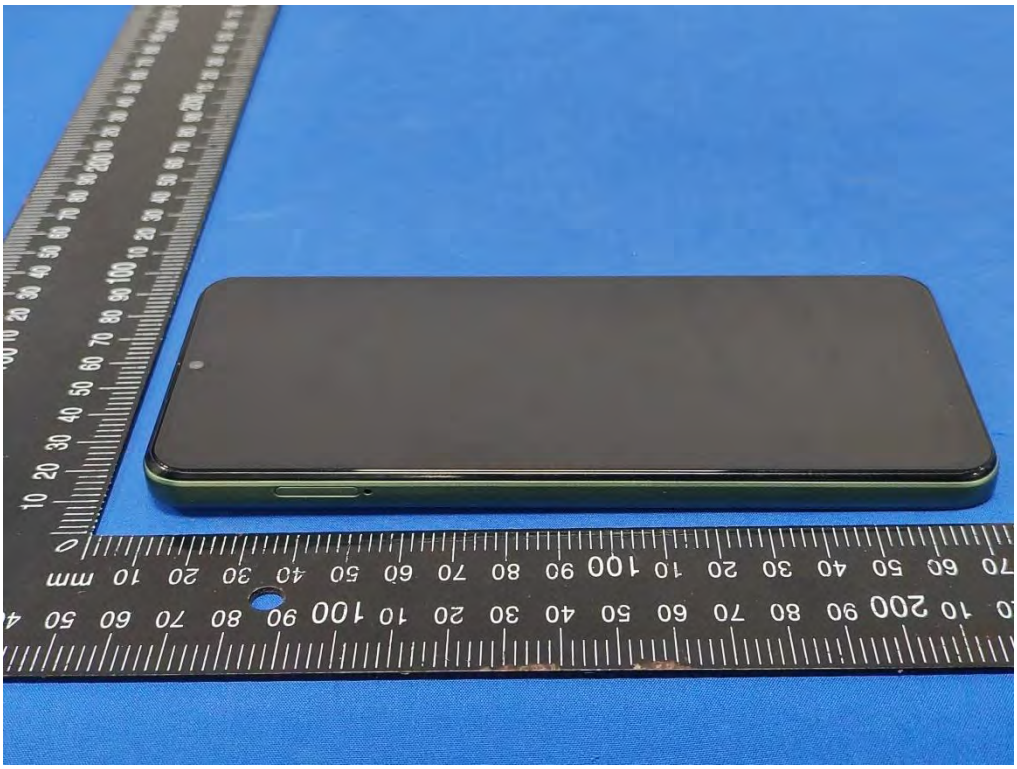
Front side

Back side

Right Edge



Left Edge

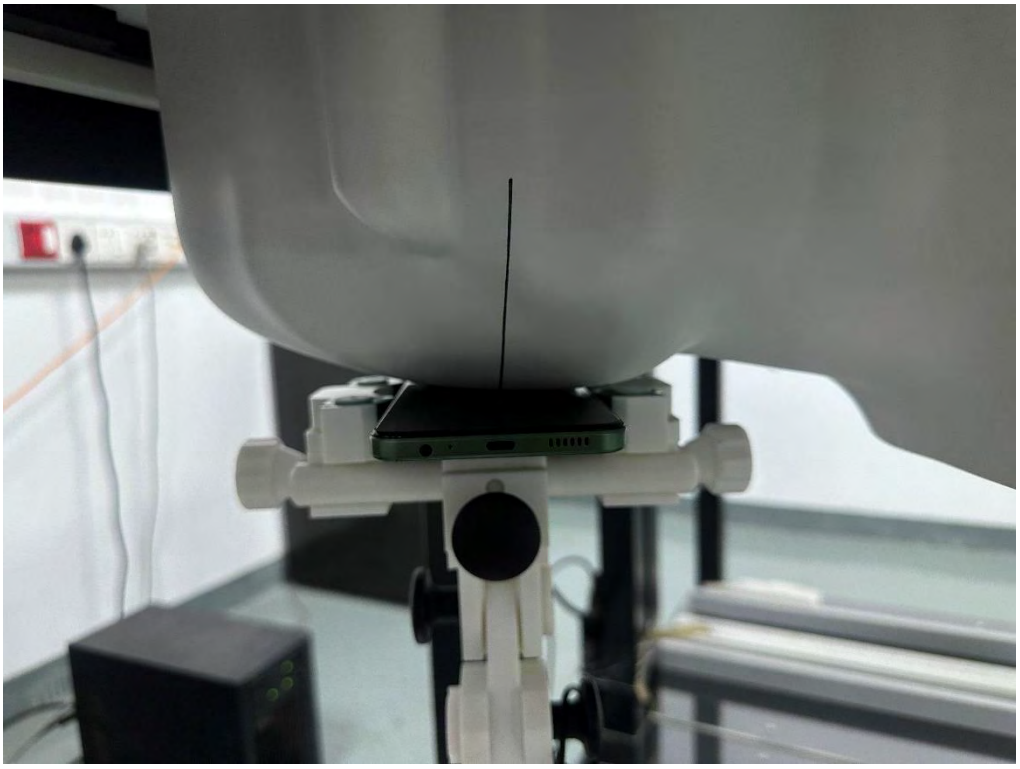


Top Edge

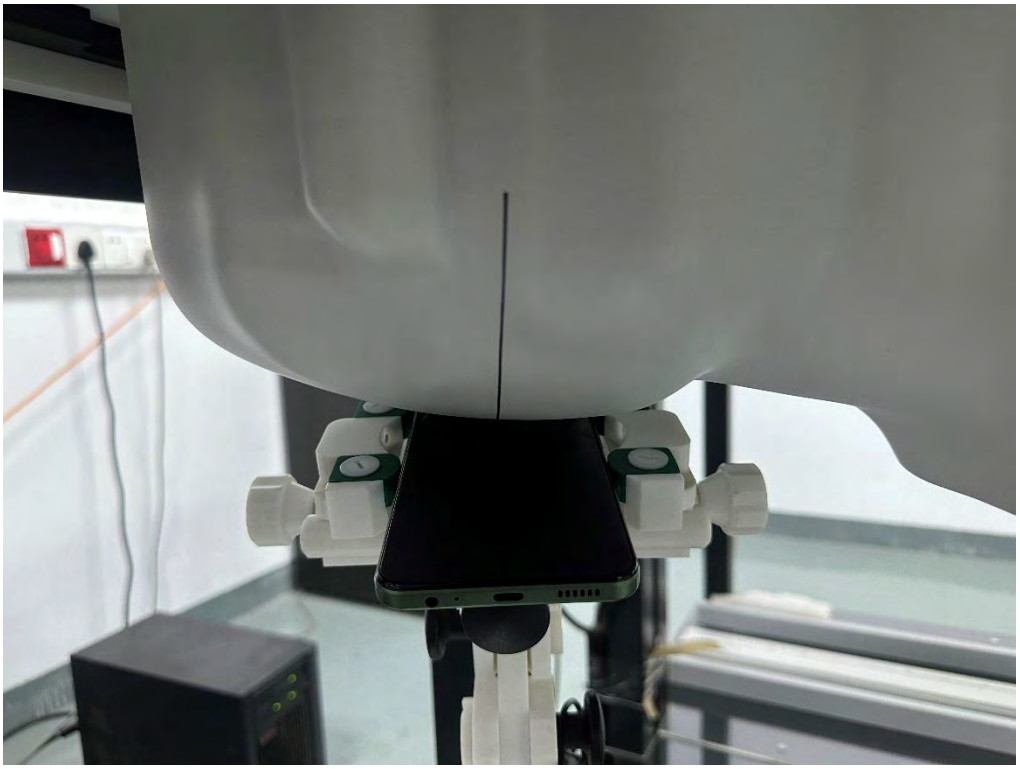
Bottom Edge

11.2 Setup Photos

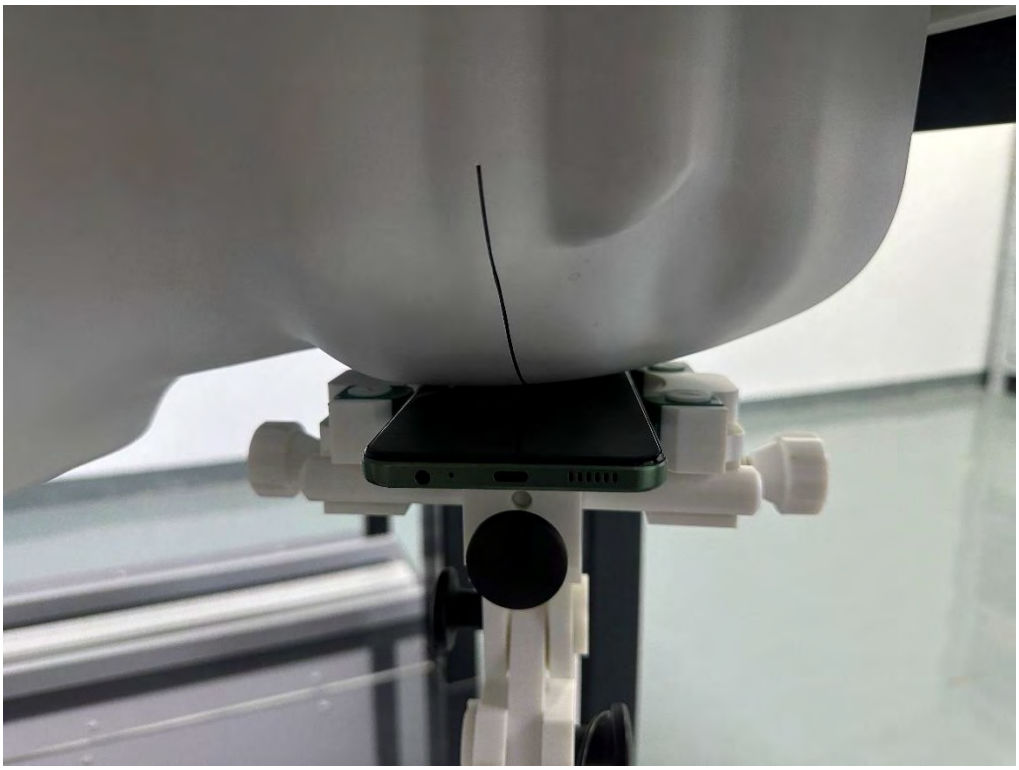
Right Touch



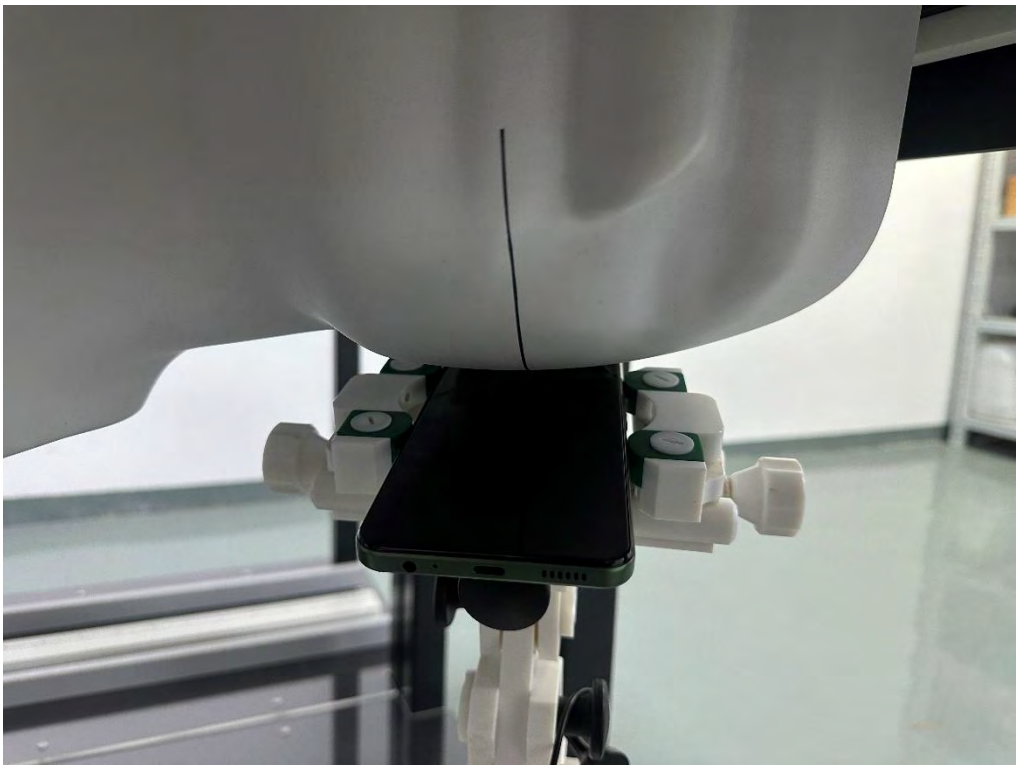
Right Tilt



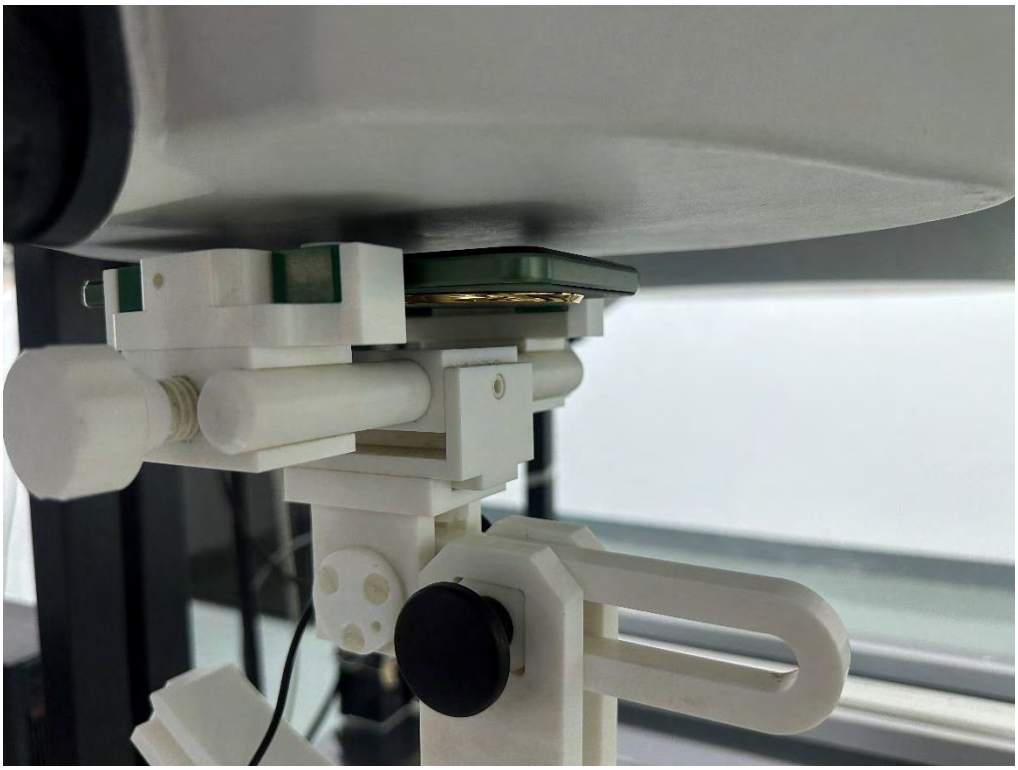
Left Touch



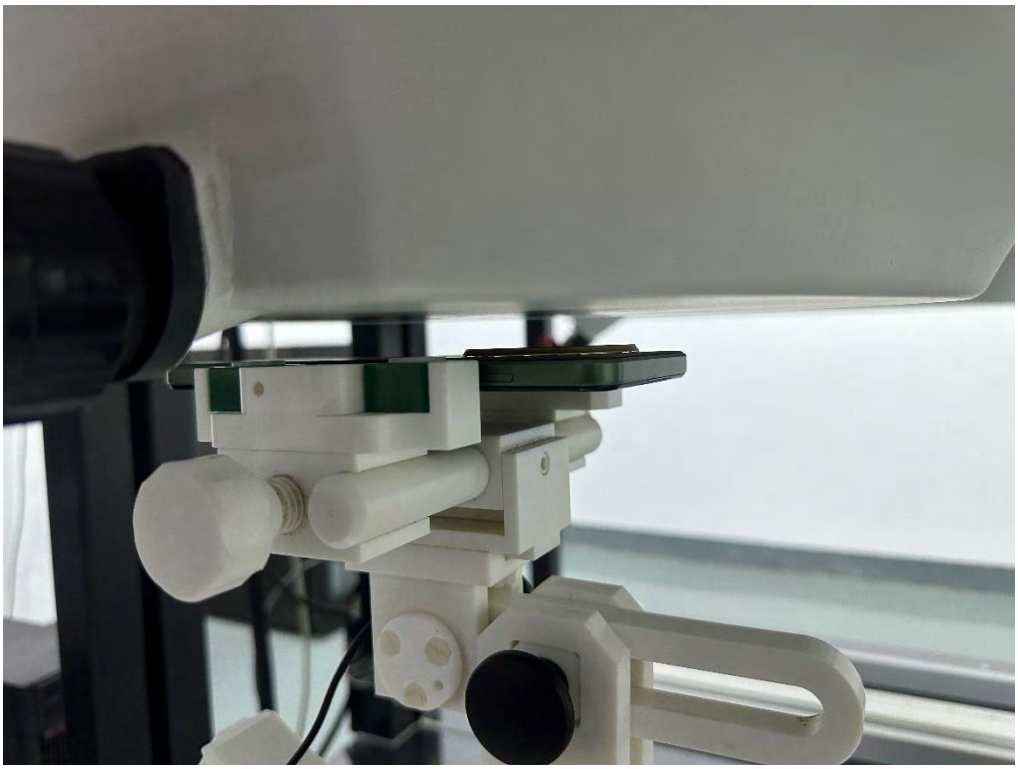
Left Tilt



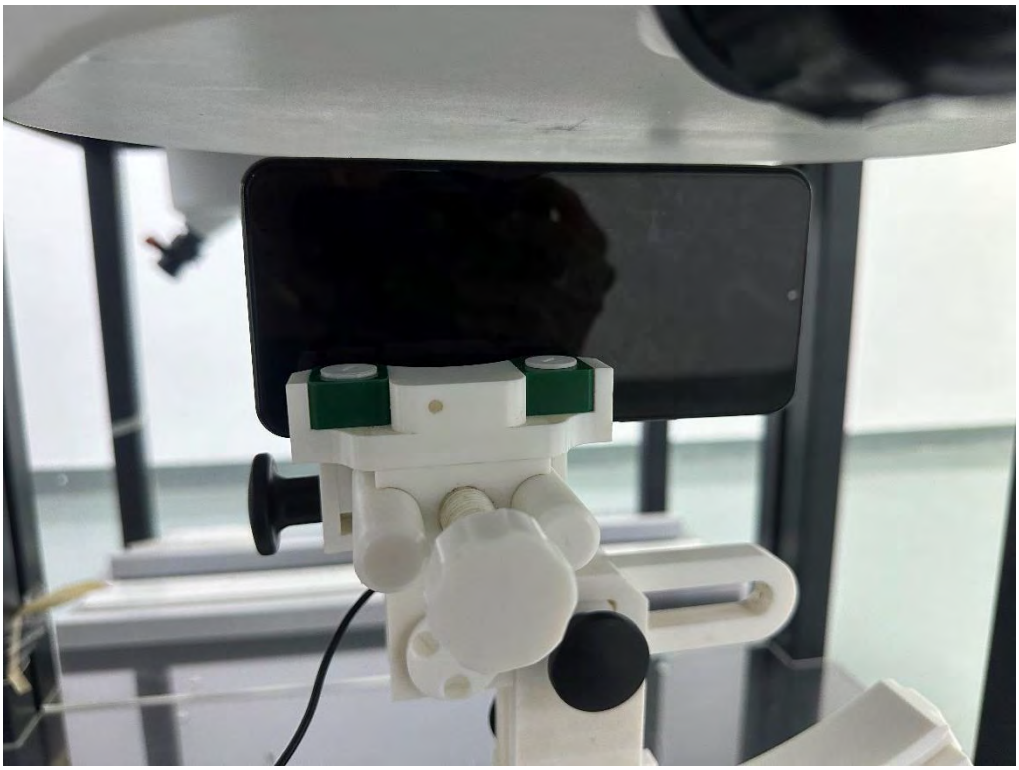
Body Front side (separation distance is 10mm)



Body Back side (separation distance10mm)

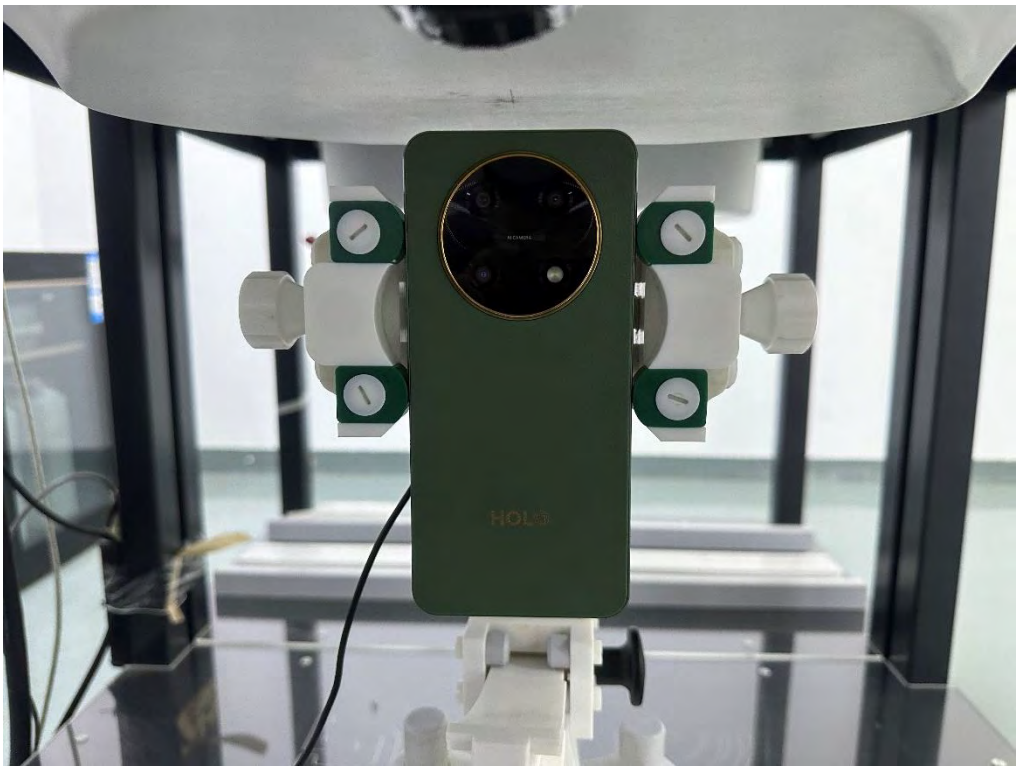


Body Left side (separation distance is 10mm)

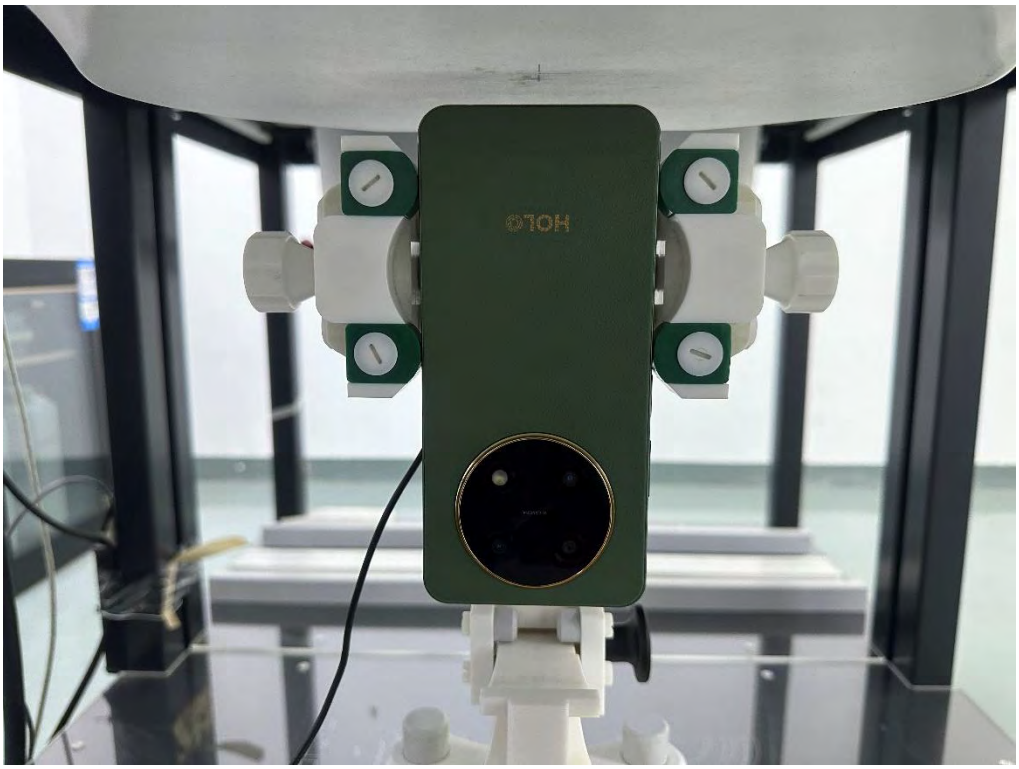


Body Right side (separation distance is 10mm)

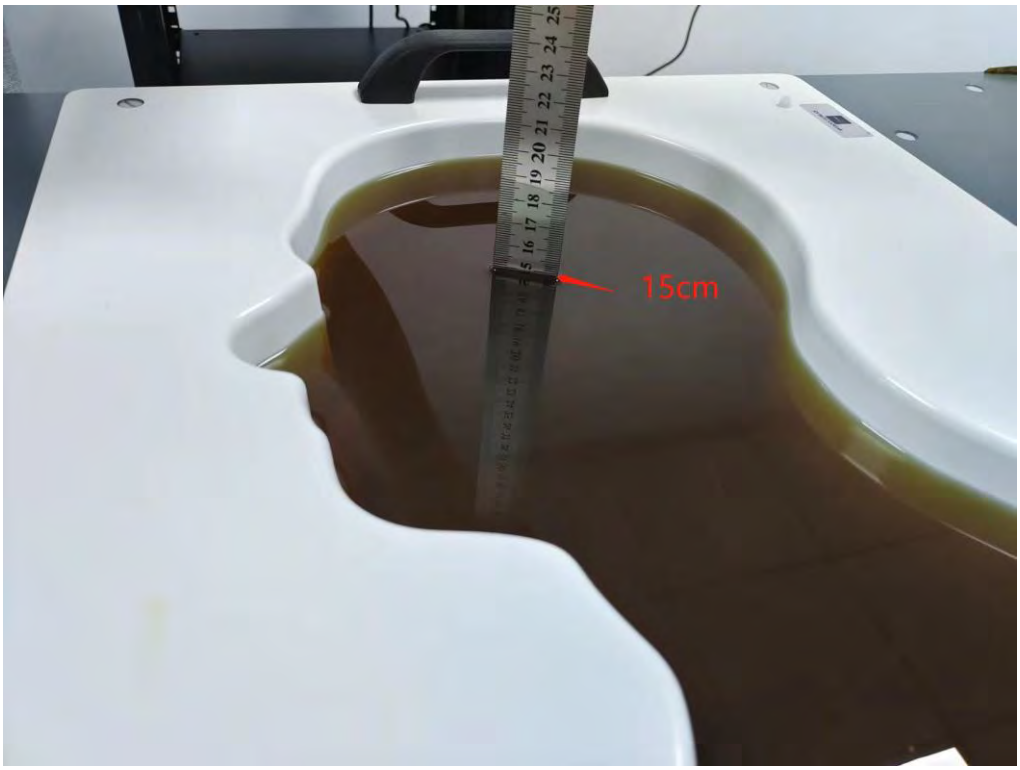
Body Top side (separation distance is 10mm)



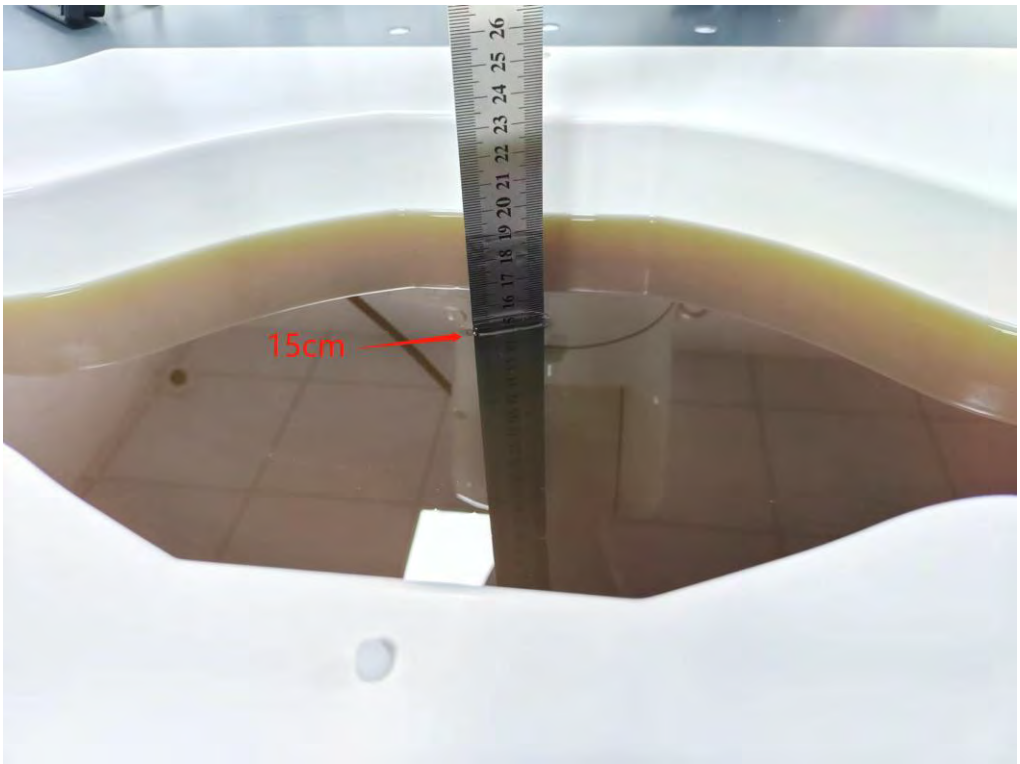
Body Bottom side (separation distance is 10mm)



Liquid depth (15 cm)



Liquid depth (15 cm)



12. SAR Result Summary

12.1 Head SAR

Band	Model	Test Position	Freq.	SAR (1g) (W/kg)	Power Drift (%)	Max. Turn-up Power (dBm)	Meas. Output Power (dBm)	Scaled SAR (W/Kg)	Meas. No.
GSM850	GSM	Right Cheek	836.6	0.200	-1.22	34.50	34.05	**0.222**	**1**
		Right Tilt	836.6	0.165	-3.44	34.50	34.05	0.183	/
		Left Cheek	836.6	0.173	3.75	34.50	34.05	0.192	/
		Left Tilt	836.6	0.140	1.78	34.50	34.05	0.155	/
PCS 1900	GSM	Right Cheek	1909.8	0.198	0.50	31.00	30.60	**0.217**	**3**
		Right Tilt	1909.8	0.163	1.87	31.00	30.60	0.179	/
		Left Cheek	1909.8	0.054	-2.90	31.00	30.60	0.059	/
		Left Tilt	1909.8	0.043	0.17	31.00	30.60	0.047	/
WCDMA Band II	RMC	Right Cheek	1907.6	0.095	3.06	24.00	23.66	**0.103**	**5**
		Right Tilt	1907.6	0.078	0.10	24.00	23.66	0.084	/
		Left Cheek	1907.6	0.039	0.14	24.00	23.66	0.042	/
		Left Tilt	1907.6	0.032	0.47	24.00	23.66	0.035	/
WCDMA Band IV	RMC	Right Cheek	1740	0.080	-1.18	23.80	23.55	0.085	/
		Right Tilt	1740	0.064	3.58	23.80	23.55	0.068	/
		Left Cheek	1740	0.130	-1.12	23.80	23.55	**0.138**	**7**
		Left Tilt	1740	0.105	-2.46	23.80	23.55	0.111	/
WCDMA Band V	RMC	Right Cheek	846.6	0.159	-0.23	24.00	23.92	**0.162**	**9**
		Right Tilt	846.6	0.129	-1.94	24.00	23.92	0.131	/
		Left Cheek	846.6	0.159	-2.26	24.00	23.92	0.162	/
		Left Tilt	846.6	0.133	-3.04	24.00	23.92	0.135	/
2.4G WLAN	802.11b	Right Cheek	2437	0.110	4.00	16.00	15.63	0.120	/
		Right Tilt	2437	0.135	2.82	16.00	15.63	**0.147**	**11**
		Left Cheek	2437	0.113	2.15	16.00	15.63	0.123	/
		Left Tilt	2437	0.134	1.83	16.00	15.63	0.146	/
5.2G WLAN	802.11a	Right Cheek	5180	0.370	3.83	16.00	15.91	0.378	/
		Right Tilt	5180	0.459	-2.48	16.00	15.91	0.469	/
		Left Cheek	5180	0.552	-1.46	16.00	15.91	0.564	/
		Left Tilt	5180	0.686	-2.17	16.00	15.91	**0.700**	**13**
5.3G WLAN	802.11n-HT40	Right Cheek	5270	0.366	1.34	15.50	15.00	0.411	/
		Right Tilt	5270	0.451	3.69	15.50	15.00	0.506	/
		Left Cheek	5270	0.517	-3.87	15.50	15.00	0.580	/
		Left Tilt	5270	0.643	-1.20	15.50	15.00	**0.721**	**15**
5.6G WLAN	802.11ac-VHT40	Right Cheek	5500	0.348	-3.90	16.00	15.65	0.377	/
		Right Tilt	5500	0.429	0.74	16.00	15.65	0.465	/
		Left Cheek	5500	0.653	-3.59	16.00	15.65	0.708	/
		Left Tilt	5510	0.643	-1.96	16.00	15.15	0.782	/
		Left Tilt	5500	0.814	-3.36	16.00	15.65	**0.882**	**17**
		Left Tilt	5670	0.688	-0.92	16.00	15.46	0.779	/
5.8G WLAN	802.11ac-VHT40	Right Cheek	5755	0.472	-3.36	16.00	15.54	0.525	/
		Right Tilt	5755	0.584	0.66	16.00	15.54	0.649	/
		Left Cheek	5755	0.670	2.75	16.00	15.54	0.745	/
		Left Tilt	5755	0.831	2.01	16.00	15.54	**0.924**	**19**
		Left Tilt	5795	0.628	-0.37	16.00	15.05	0.782	/

Band	BW (MHz)	Mod.	RB Size	RB offset	Test Position	Freq.	SAR (1g) (W/kg)	Power Drift (%)	Max. Turn-up Power (dBm)	Meas. Output Power (dBm)	Scaled SAR (W/Kg)	Meas. No.
LTE Band 2	20M	QPSK	1	0	Right Cheek	1900	0.334	-0.60	25.80	25.58	**0.351**	**21**
			50	0	Right Cheek	1900	0.285	0.90	24.50	24.46	0.288	/
			1	0	Right Tilt	1900	0.233	-3.04	25.80	25.58	0.245	/
			50	0	Right Tilt	1900	0.200	3.56	24.50	24.46	0.202	/
			1	0	Left Cheek	1900	0.153	3.04	25.80	25.58	0.161	/
			50	0	Left Cheek	1900	0.132	-2.69	24.50	24.46	0.133	/
			1	0	Left Tilt	1900	0.110	2.55	25.80	25.58	0.116	/
			50	0	Left Tilt	1900	0.092	0.14	24.50	24.46	0.093	/
LTE Band 4	20M	QPSK	1	0	Right Cheek	1745	0.189	0.20	25.00	24.62	**0.206**	**23**
			50	0	Right Cheek	1720	0.163	3.51	23.70	23.53	0.170	/
			1	0	Right Tilt	1745	0.136	-3.40	25.00	24.62	0.148	/
			50	0	Right Tilt	1720	0.117	-2.66	23.70	23.53	0.122	/
			1	0	Left Cheek	1745	0.096	1.47	25.00	24.62	0.105	/
			50	0	Left Cheek	1720	0.084	-1.70	23.70	23.53	0.087	/
			1	0	Left Tilt	1745	0.067	0.71	25.00	24.62	0.073	/
			50	0	Left Tilt	1720	0.058	-2.59	23.70	23.53	0.060	/
LTE Band 5	10M	QPSK	1	0	Right Cheek	844	0.201	2.67	25.00	24.51	**0.225**	**25**
			25	0	Right Cheek	844	0.172	-1.95	23.70	23.60	0.176	/
			1	0	Right Tilt	844	0.142	1.91	25.00	24.51	0.159	/
			25	0	Right Tilt	844	0.123	-3.18	23.70	23.60	0.126	/
			1	0	Left Cheek	844	0.134	-2.05	25.00	24.51	0.150	/
			25	0	Left Cheek	844	0.113	0.35	23.70	23.60	0.116	/
			1	0	Left Tilt	844	0.097	0.37	25.00	24.51	0.109	/
			25	0	Left Tilt	844	0.085	2.56	23.70	23.60	0.087	/
LTE Band 7	20M	QPSK	1	0	Right Cheek	2560	0.088	-2.38	25.20	25.06	**0.091**	**27**
			50	0	Right Cheek	2560	0.079	-1.34	24.00	23.98	0.079	/
			1	0	Right Tilt	2560	0.075	0.17	25.20	25.06	0.077	/
			50	0	Right Tilt	2560	0.069	2.12	24.00	23.98	0.069	/
			1	0	Left Cheek	2560	0.059	1.66	25.20	25.06	0.061	/
			50	0	Left Cheek	2560	0.052	0.87	24.00	23.98	0.052	/
			1	0	Left Tilt	2560	0.045	-2.74	25.20	25.06	0.046	/
			50	0	Left Tilt	2560	0.038	-2.89	24.00	23.98	0.038	/
LTE Band 12	10M	QPSK	1	0	Right Cheek	711	0.247	-3.70	25.50	25.17	**0.266**	**29**
			25	0	Right Cheek	711	0.211	-1.03	24.50	24.05	0.234	/
			1	0	Right Tilt	711	0.174	-0.82	25.50	25.17	0.188	/
			25	0	Right Tilt	711	0.148	1.11	24.50	24.05	0.164	/
			1	0	Left Cheek	711	0.149	1.12	25.50	25.17	0.161	/
			25	0	Left Cheek	711	0.130	-3.53	24.50	24.05	0.144	/
			1	0	Left Tilt	711	0.106	-1.31	25.50	25.17	0.114	/
			25	0	Left Tilt	711	0.091	-3.43	24.50	24.05	0.101	/

LTE Band 13	10M	QPSK	1	0	Right Cheek	782	0.182	-2.73	24.50	24.02	**0.203**	**31**
			25	0	Right Cheek	782	0.154	1.01	23.00	22.96	0.155	/
			1	0	Right Tilt	782	0.129	2.78	24.50	24.02	0.144	/
			25	0	Right Tilt	782	0.109	1.66	23.00	22.96	0.110	/
			1	0	Left Cheek	782	0.099	2.40	24.50	24.02	0.111	/
			25	0	Left Cheek	782	0.086	3.57	23.00	22.96	0.087	/
			1	0	Left Tilt	782	0.070	-0.26	24.50	24.02	0.078	/
			25	0	Left Tilt	782	0.062	-1.12	23.00	22.96	0.063	/
LTE Band 17	10M	QPSK	1	0	Right Cheek	710	0.237	1.21	25.50	25.10	**0.260**	**33**
			25	0	Right Cheek	711	0.215	0.83	24.50	24.07	0.237	/
			1	0	Right Tilt	710	0.198	-2.83	25.50	25.10	0.217	/
			25	0	Right Tilt	711	0.184	2.16	24.50	24.07	0.203	/
			1	0	Left Cheek	710	0.203	-0.62	25.50	25.10	0.223	/
			25	0	Left Cheek	711	0.171	0.54	24.50	24.07	0.189	/
			1	0	Left Tilt	710	0.144	-2.35	25.50	25.10	0.158	/
			25	0	Left Tilt	711	0.122	0.35	24.50	24.07	0.135	/
LTE Band 38	20M	QPSK	1	0	Right Cheek	2595	0.082	0.59	25.50	25.36	0.085	/
			50	0	Right Cheek	2595	0.068	3.17	24.50	24.09	0.075	/
			1	0	Right Tilt	2595	0.059	-1.59	25.50	25.36	0.061	/
			50	0	Right Tilt	2595	0.050	-0.01	24.50	24.09	0.055	/
			1	0	Left Cheek	2595	0.124	-1.71	25.50	25.36	**0.128**	**35**
			50	0	Left Cheek	2595	0.108	-0.08	24.50	24.09	0.119	/
			1	0	Left Tilt	2595	0.089	-2.29	25.50	25.36	0.092	/
			50	0	Left Tilt	2595	0.074	2.07	24.50	24.09	0.081	/
LTE Band 40	10M	QPSK	1	0	Right Cheek	2310	0.056	2.57	13.50	13.11	0.061	/
			50	0	Right Cheek	2310	0.047	-0.59	12.50	12.07	0.052	/
			1	0	Right Tilt	2310	0.043	0.89	13.50	13.11	0.047	/
			50	0	Right Tilt	2310	0.039	-1.42	12.50	12.07	0.043	/
			1	0	Left Cheek	2310	0.075	-0.19	13.50	13.11	**0.082**	**37**
			50	0	Left Cheek	2310	0.064	1.44	12.50	12.07	0.071	/
			1	0	Left Tilt	2310	0.053	3.51	13.50	13.11	0.058	/
			50	0	Left Tilt	2310	0.047	0.06	12.50	12.07	0.052	/
LTE Band 66	20M	QPSK	1	0	Right Cheek	1745	0.185	0.75	25.30	25.18	**0.190**	**39**
			50	0	Right Cheek	1745	0.160	-3.94	24.30	24.19	0.164	/
			1	0	Right Tilt	1745	0.131	-1.58	25.30	25.18	0.135	/
			50	0	Right Tilt	1745	0.115	3.06	24.30	24.19	0.118	/
			1	0	Left Cheek	1745	0.096	-2.53	25.30	25.18	0.099	/
			50	0	Left Cheek	1745	0.080	2.68	24.30	24.19	0.082	/
			1	0	Left Tilt	1745	0.070	-1.39	25.30	25.18	0.072	/
			50	0	Left Tilt	1745	0.061	-1.34	24.30	24.19	0.063	/

Note:
1. Per KDB 447498 D01, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
b. Scaled SAR(W/kg) = Measured SAR(W/kg) *Tune-up Scaling Factor
2. Per KDB 865664 D01, Repeated measurement is not required when the original highest measured SAR is <0.80 W/kg.

12.2 Body-worn and Hotspot SAR

Band	Model	Test Position	Freq.	SAR (1g) (W/kg)	Power Drift (%)	Max. Turn-up Power (dBm)	Meas. Output Power (dBm)	Scaled SAR (W/Kg)	Meas. No.
GSM850	GPRS (GMSK, 2-Slot)	Front Side	836.6	0.119	-3.80	31.50	31.44	0.121	/
		Back Side	836.6	0.182	0.12	31.50	31.44	0.185	/
		Left Side	836.6	0.074	1.86	31.50	31.44	0.075	/
		Right Side	836.6	0.129	2.10	31.50	31.44	0.131	/
		Top Side	836.6	0.036	-1.25	31.50	31.44	0.037	/
		Bottom Side	836.6	0.404	-1.90	31.50	31.44	**0.410**	**2**
PCS 1900	GPRS (GMSK, 3-Slot)	Front Side	1880	0.172	0.72	27.00	26.52	0.192	/
		Back Side	1880	0.419	-1.93	27.00	26.52	0.468	/
		Left Side	1880	0.129	1.87	27.00	26.52	0.144	/
		Right Side	1880	0.105	-2.02	27.00	26.52	0.117	/
		Bottom Side	1880	0.453	-1.45	27.00	26.52	**0.506**	**4**
WCDMA Band II	RMC	Front Side	1907.6	0.266	-2.31	24.00	23.66	0.288	/
		Back Side	1907.6	0.658	2.17	24.00	23.66	0.712	/
		Left Side	1907.6	0.198	2.28	24.00	23.66	0.214	/
		Right Side	1907.6	0.168	-0.70	24.00	23.66	0.182	/
		Bottom Side	1907.6	0.672	3.07	24.00	23.66	**0.727**	**6**
WCDMA Band IV	RMC	Front Side	1740	0.281	-1.10	23.80	23.55	0.298	/
		Back Side	1740	0.740	-0.57	23.80	23.55	0.784	/
		Left Side	1740	0.143	1.73	23.80	23.55	0.151	/
		Right Side	1740	0.123	-2.85	23.80	23.55	0.130	/
		Bottom Side	1712.6	0.769	3.59	23.80	23.45	0.834	/
		Bottom Side	1740	0.883	-0.49	23.80	23.55	**0.935**	**8**
		Bottom Side	1752.4	0.832	1.54	23.80	23.52	0.887	/
WCDMA Band V	RMC	Front Side	846.6	0.150	-1.92	24.00	23.92	0.153	/
		Back Side	846.6	0.204	0.24	24.00	23.92	**0.208**	**10**
		Left Side	846.6	0.072	-3.30	24.00	23.92	0.073	/
		Right Side	846.6	0.165	-2.50	24.00	23.92	0.168	/
		Bottom Side	846.6	0.174	2.35	24.00	23.92	0.177	/
2.4GHz WLAN	802.11b	Front Side	2437	0.077	3.52	16.00	15.63	0.084	/
		Back Side	2437	0.132	1.76	16.00	15.63	**0.144**	**12**
		Right Side	2437	0.059	3.74	16.00	15.63	0.064	/
		Top Side	2437	0.066	-3.15	16.00	15.63	0.072	/
5.2GHz WLAN	802.11a	Front Side	5180	0.121	2.82	16.00	15.91	0.124	/
		Back Side	5180	0.209	1.82	16.00	15.91	0.213	/
		Right Side	5180	0.096	0.28	16.00	15.91	0.098	/
		Top Side	5180	0.225	1.73	16.00	15.91	**0.230**	**14**
5.3GHz WLAN	802.11n-HT40	Front Side	5270	0.070	-2.54	15.50	15.00	0.079	/
		Back Side	5270	0.106	-0.98	15.50	15.00	0.119	/
		Right Side	5270	0.056	3.45	15.50	15.00	0.063	/
		Top Side	5270	0.121	-1.48	15.50	15.00	**0.136**	**16**
5.6GHz WLAN	802.11ac-VHT40	Front Side	5500	0.103	-3.15	16.00	15.65	0.112	/
		Back Side	5500	0.151	-2.99	16.00	15.65	0.164	/
		Right Side	5500	0.082	-1.82	16.00	15.65	0.089	/
		Top Side	5500	0.177	-2.75	16.00	15.65	**0.192**	**18**
5.8GHz WLAN	802.11ac-VHT40	Front Side	5755	0.131	1.18	16.00	15.54	0.146	/
		Back Side	5755	0.196	-1.06	16.00	15.54	0.218	/
		Right Side	5755	0.105	-0.31	16.00	15.54	0.117	/
		Top Side	5755	0.230	-1.75	16.00	15.54	**0.256**	**20**

Band	BW (MHz)	Mod.	RB Size	RB offset	Test Position	Freq.	SAR (1g) (W/kg)	Power Drift (%)	Max. Turn-up Power (dBm)	Meas. Output Power (dBm)	Scaled SAR (W/Kg)	Meas. No.
LTE Band 2	20M	QPSK	1	0	Front side	1900	0.321	1.45	25.80	25.58	0.338	/
			50	0	Front side	1900	0.275	-0.63	24.50	24.46	0.278	/
			1	0	Back Side	1860	0.642	3.20	25.80	24.95	0.781	/
			1	0	Back Side	1880	0.603	-3.19	25.80	24.90	0.742	/
			1	0	Back Side	1900	0.794	-1.04	25.80	25.58	0.835	/
			50	0	Back Side	1900	0.678	0.95	24.50	24.46	0.684	/
			1	0	Left Side	1900	0.242	1.33	25.80	25.58	0.255	/
			50	0	Left Side	1900	0.205	-0.62	24.50	24.46	0.207	/
			1	0	Right Side	1900	0.198	-3.49	25.80	25.58	0.208	/
			50	0	Right Side	1900	0.167	1.80	24.50	24.46	0.169	/
			1	0	Bottom Side	1860	0.729	3.95	25.80	24.95	0.887	/
			1	0	Bottom Side	1880	0.711	-2.01	25.80	24.90	0.875	/
			1	0	Bottom Side	1900	0.909	-2.07	25.80	25.58	**0.956**	**22**
			50	0	Bottom Side	1900	0.770	-3.78	24.50	24.46	0.777	/
LTE Band 4	20M	QPSK	1	0	Front side	1745	0.413	-1.17	25.00	24.62	0.451	/
			50	0	Front side	1720	0.351	3.22	23.70	23.53	0.365	/
			1	0	Back Side	1720	0.936	3.01	25.00	24.58	1.031	/
			1	0	Back Side	1732.5	0.891	1.66	25.00	24.50	1.000	/
			1	0	Back Side	1745	1.023	2.50	25.00	24.62	**1.117**	**24**
			50	0	Back Side	1720	0.873	-0.14	23.70	23.53	0.908	/
			50	0	Back Side	1732.5	0.762	-0.50	23.70	23.42	0.813	/
			50	0	Back Side	1745	0.818	-1.09	23.70	23.50	0.857	/
			100	0	Back Side	1720	0.701	0.79	23.70	23.55	0.726	/
			1	0	Left Side	1745	0.712	2.16	25.00	24.62	0.777	/
			50	0	Left Side	1720	0.263	1.31	23.70	23.53	0.273	/
			1	0	Right Side	1745	0.258	1.61	25.00	24.62	0.282	/
			50	0	Right Side	1720	0.222	-1.14	23.70	23.53	0.231	/
			1	0	Bottom Side	1720	0.853	-1.93	25.00	24.58	0.940	/
			1	0	Bottom Side	1732.5	0.810	-3.81	25.00	24.50	0.909	/
			1	0	Bottom Side	1745	0.986	0.37	25.00	24.62	1.076	/
			50	0	Bottom Side	1720	0.762	1.92	23.70	23.53	0.792	/

LTE Band 5	10M	QPSK	1	0	Front side	844	0.150	0.79	25.00	24.51	0.168	/
			25	0	Front side	844	0.131	2.41	23.70	23.60	0.134	/
			1	0	Back Side	844	0.227	3.67	25.00	24.51	**0.254**	**26**
			25	0	Back Side	844	0.191	-3.79	23.70	23.60	0.195	/
			1	0	Left Side	844	0.095	-2.77	25.00	24.51	0.106	/
			25	0	Left Side	844	0.082	-2.83	23.70	23.60	0.084	/
			1	0	Right Side	844	0.159	2.17	25.00	24.51	0.178	/
			25	0	Right Side	844	0.135	-2.90	23.70	23.60	0.138	/
			1	0	Bottom Side	844	0.190	1.16	25.00	24.51	0.213	/
			25	0	Bottom Side	844	0.160	-2.10	23.70	23.60	0.164	/
LTE Band 7	20M	QPSK	1	0	Front side	2560	0.452	-1.62	25.20	25.06	0.467	/
			50	0	Front side	2560	0.386	-0.41	24.00	23.98	0.388	/
			1	0	Back Side	2510	0.966	1.85	25.20	24.72	1.079	/
			1	0	Back Side	2535	1.013	-3.73	25.20	24.82	1.106	/
			1	0	Back Side	2560	1.122	3.20	25.20	25.06	**1.159**	**28**
			50	0	Back Side	2510	0.905	-2.09	24.00	23.91	0.924	/
			50	0	Back Side	2535	0.871	0.05	24.00	23.89	0.893	/
			50	0	Back Side	2560	0.953	-1.33	24.00	23.98	0.957	/
			100	0	Back Side	2560	0.764	1.29	24.20	24.03	0.794	/
			1	0	Left Side	2560	0.341	-3.06	25.20	25.06	0.352	/
			50	0	Left Side	2560	0.291	-1.08	24.00	23.98	0.292	/
			1	0	Right Side	2560	0.285	1.84	25.20	25.06	0.294	/
			50	0	Right Side	2560	0.241	2.76	24.00	23.98	0.242	/
			1	0	Bottom Side	2510	0.894	-0.70	25.20	24.72	0.998	/
			1	0	Bottom Side	2535	0.935	0.39	25.20	24.82	1.020	/
			1	0	Bottom Side	2560	1.018	-0.28	25.20	25.06	1.051	/
			50	0	Bottom Side	2510	0.796	-0.16	24.00	23.91	0.813	/
			50	0	Bottom Side	2535	0.758	-0.14	24.00	23.89	0.777	/
			50	0	Bottom Side	2560	0.865	3.55	24.00	23.98	0.869	/
			100	0	Bottom Side	2560	0.703	2.60	24.20	24.03	0.731	/

LTE Band 12	10M	QPSK	1	0	Front side	711	0.191	3.05	25.50	25.17	0.206	/
			25	0	Front side	711	0.163	1.80	24.50	24.05	0.181	/
			1	0	Back Side	711	0.289	-3.65	25.50	25.17	**0.312**	**30**
			25	0	Back Side	711	0.247	3.85	24.50	24.05	0.274	/
			1	0	Left Side	711	0.117	-1.99	25.50	25.17	0.126	/
			25	0	Left Side	711	0.102	1.37	24.50	24.05	0.113	/
			1	0	Right Side	711	0.203	-1.68	25.50	25.17	0.219	/
			25	0	Right Side	711	0.175	-1.45	24.50	24.05	0.194	/
			1	0	Bottom Side	711	0.127	-3.72	25.50	25.17	0.137	/
			25	0	Bottom Side	711	0.111	0.49	24.50	24.05	0.123	/
LTE Band 13	10M	QPSK	1	0	Front side	782	0.114	-0.35	24.50	24.02	0.127	/
			25	0	Front side	782	0.100	-1.02	23.00	22.96	0.101	/
			1	0	Back Side	782	0.169	-2.43	24.50	24.02	**0.189**	**32**
			25	0	Back Side	782	0.145	-3.83	23.00	22.96	0.146	/
			1	0	Left Side	782	0.068	3.00	24.50	24.02	0.076	/
			25	0	Left Side	782	0.061	-3.82	23.00	22.96	0.062	/
			1	0	Right Side	782	0.120	-2.42	24.50	24.02	0.134	/
			25	0	Right Side	782	0.103	-3.86	23.00	22.96	0.104	/
			1	0	Bottom Side	782	0.168	-3.05	24.50	24.02	0.188	/
			25	0	Bottom Side	782	0.146	1.17	23.00	22.96	0.147	/
LTE Band 17	10M	QPSK	1	0	Front side	710	0.210	-1.90	25.50	25.10	0.230	/
			25	0	Front side	711	0.181	-2.15	24.50	24.07	0.200	/
			1	0	Back Side	710	0.323	-1.72	25.50	25.10	**0.354**	**34**
			25	0	Back Side	711	0.277	-0.63	24.50	24.07	0.306	/
			1	0	Left Side	710	0.130	2.56	25.50	25.10	0.143	/
			25	0	Left Side	711	0.111	1.15	24.50	24.07	0.123	/
			1	0	Right Side	710	0.230	2.06	25.50	25.10	0.252	/
			25	0	Right Side	711	0.197	3.92	24.50	24.07	0.218	/
			1	0	Bottom Side	710	0.172	-2.66	25.50	25.10	0.189	/
			25	0	Bottom Side	711	0.147	-1.13	24.50	24.07	0.162	/

LTE Band 38	20M	QPSK	1	0	Front side	2595	0.206	0.08	25.50	25.36	0.213	/
			50	0	Front side	2595	0.175	-1.35	24.50	24.09	0.192	/
			1	0	Back Side	2595	0.511	-3.23	25.50	25.36	0.528	/
			50	0	Back Side	2595	0.437	3.79	24.50	24.09	0.480	/
			1	0	Left Side	2595	0.158	-2.86	25.50	25.36	0.163	/
			50	0	Left Side	2595	0.133	-0.46	24.50	24.09	0.146	/
			1	0	Right Side	2595	0.131	-3.06	25.50	25.36	0.135	/
			50	0	Right Side	2595	0.113	3.83	24.50	24.09	0.124	/
			1	0	Bottom Side	2595	0.618	0.25	25.50	25.36	**0.638**	**36**
			50	0	Bottom Side	2595	0.525	-3.85	24.50	24.09	0.577	/
LTE Band 40	10M	QPSK	1	0	Front side	2310	0.188	-1.33	13.50	13.11	0.206	/
			50	0	Front side	2310	0.160	-3.90	12.50	12.07	0.177	/
			1	0	Back Side	2310	0.285	1.65	13.50	13.11	0.312	/
			50	0	Back Side	2310	0.240	0.84	12.50	12.07	0.265	/
			1	0	Left Side	2310	0.115	-2.29	13.50	13.11	0.126	/
			50	0	Left Side	2310	0.099	-3.69	12.50	12.07	0.109	/
			1	0	Right Side	2310	0.203	-1.73	13.50	13.11	0.222	/
			50	0	Right Side	2310	0.176	3.26	12.50	12.07	0.194	/
			1	0	Bottom Side	2310	0.290	3.38	13.50	13.11	**0.317**	**38**
			50	0	Bottom Side	2310	0.249	-0.77	12.50	12.07	0.275	/

LTE Band 66	20M	QPSK	1	0	Front side	1745	0.765	0.61	25.30	25.18	0.786	/
			50	0	Front side	1745	0.650	1.25	24.30	24.19	0.667	/
			1	0	Back Side	1720	1.048	-3.12	25.30	25.06	1.108	/
			1	0	Back Side	1745	1.172	-0.21	25.30	25.18	**1.205**	**40**
			1	0	Back Side	1770	1.022	3.91	25.30	25.02	1.090	/
			50	0	Back Side	1720	0.880	-1.90	24.30	24.11	0.919	/
			50	0	Back Side	1745	0.998	-3.66	24.30	24.19	1.024	/
			50	0	Back Side	1770	0.853	-3.64	24.30	24.05	0.904	/
			100	0	Back Side	1745	0.768	-2.94	24.30	24.20	0.786	/
			1	0	Left Side	1745	0.473	-1.42	25.30	25.18	0.486	/
			50	0	Left Side	1745	0.405	-1.94	24.30	24.19	0.415	/
			1	0	Right Side	1720	0.754	3.77	25.30	25.06	0.797	/
			1	0	Right Side	1745	0.822	2.00	25.30	25.18	0.845	/
			1	0	Right Side	1770	0.735	0.42	25.30	25.02	0.784	/
			50	0	Right Side	1745	0.702	-2.29	24.30	24.19	0.720	/
			1	0	Bottom Side	1720	1.011	3.97	25.30	25.06	1.068	/
			1	0	Bottom Side	1745	1.127	3.85	25.30	25.18	1.159	/
			1	0	Bottom Side	1770	0.993	3.31	25.30	25.02	1.059	/
			50	0	Bottom Side	1720	0.910	-1.19	24.30	24.11	0.951	/
			50	0	Bottom Side	1745	0.960	-3.65	24.30	24.19	0.985	/
			50	0	Bottom Side	1720	0.867	-1.97	24.30	24.05	0.918	/
			100	0	Bottom Side	1745	0.723	0.95	24.30	24.20	0.740	/

Note:

1. The test separation of all above table is 10mm.
2. Per KDB 447498 D01, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. Scaled SAR(W/kg) = Measured SAR(W/kg) *Tune-up Scaling Factor
3. When the user enables the personal Wireless router functions for the handsets, actual operations include simultaneous transmission of both the Wi-Fi transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. The “Portable Hotspot” feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.

12.3 Repeated SAR

Band	Mode	Test Position	Ch.	Result 1g (W/Kg)	Power Drift (%)	Max. Turn-up Power (dBm)	Meas. Output Power (dBm)	Scaled SAR (W/Kg)	Meas. No.
5.6G WLAN	802.11ac-VHT40	Left Tilt	5500	0.786	-0.03	16.00	15.65	0.852	-
5.8G WLAN	802.11ac-VHT40	Left Tilt	5755	0.814	3.64	16.00	15.54	0.905	-
WCDMA Band IV	RMC	Bottom Side	1712.6	0.735	-0.67	23.80	23.45	0.797	-
		Bottom Side	1740	0.881	1.77	23.80	23.55	0.933	-
		Bottom Side	1752.4	0.827	3.63	23.80	23.52	0.882	-

Band	BW (MHz)	Mod.	RB Size	RB offset	Test Position	Freq.	Result 1g (W/Kg)	Power Drift (%)	Max. Turn-up Power (dBm)	Meas. Output Power (dBm)	Scaled SAR (W/Kg)	Meas. No.
LTE Band 2	20M	QPSK	1	0	Back Side	1900	0.775	3.72	25.80	25.58	0.815	-
			1	0	Bottom Side	1860	0.760	-0.77	25.80	24.95	0.924	-
			1	0	Bottom Side	1880	0.651	0.75	25.80	24.90	0.801	-
			1	0	Bottom Side	1900	0.622	-3.67	25.80	25.58	0.654	-
LTE Band 4	20M	QPSK	1	0	Back Side	1720	0.930	-1.37	25.00	24.58	1.025	-
			1	0	Back Side	1732.5	0.698	-1.66	25.00	24.50	0.783	-
			1	0	Back Side	1745	0.674	3.66	25.00	24.62	0.736	-
			50	0	Back Side	1720	0.760	3.80	23.70	23.53	0.790	-
			50	0	Back Side	1732.5	0.651	0.84	23.70	23.42	0.694	-
			50	0	Back Side	1745	0.622	1.21	23.70	23.50	0.651	-
			1	0	Bottom Side	1720	0.844	3.24	25.00	24.58	0.930	-
			1	0	Bottom Side	1732.5	0.797	0.24	25.00	24.50	0.895	-
			1	0	Bottom Side	1745	0.960	0.23	25.00	24.62	1.048	-
LTE Band 7	20M	QPSK	1	0	Back Side	2510	0.931	-2.25	25.20	24.72	1.040	-
			1	0	Back Side	2535	0.967	2.97	25.20	24.82	1.056	-
			1	0	Back Side	2560	1.107	1.16	25.20	25.06	1.144	-
			50	0	Back Side	2510	0.878	0.38	24.00	23.91	0.896	-
			50	0	Back Side	2535	0.857	3.28	24.00	23.89	0.879	-
			50	0	Back Side	2560	0.944	-2.57	24.00	23.98	0.949	-
			1	0	Bottom Side	2510	0.860	-1.87	25.20	24.72	0.961	-
			1	0	Bottom Side	2535	0.892	1.22	25.20	24.82	0.974	-
			1	0	Bottom Side	2560	0.968	3.02	25.20	25.06	1.000	-

			50	0	Bottom Side	2510	0.758	-3.96	24.00	23.91	0.774	-
			50	0	Bottom Side	2560	0.837	-3.22	24.00	23.98	0.840	-
LTE Band 66	20M	QPSK	1	0	Back Side	1745	1.159	-0.87	25.30	25.18	1.192	-
			50	0	Back Side	1720	0.698	0.30	24.30	24.11	0.729	-
			50	0	Back Side	1745	0.674	2.61	24.30	24.19	0.691	-
			50	0	Back Side	1770	0.760	-3.31	24.30	24.05	0.805	-
			100	0	Back Side	1745	0.651	-0.48	24.30	24.20	0.666	-
			1	0	Right Side	1745	0.622	2.24	25.30	25.18	0.639	-
			1	0	Bottom Side	1720	0.972	-1.71	25.30	25.06	1.028	-
			1	0	Bottom Side	1745	1.079	3.70	25.30	25.18	1.109	-
			1	0	Bottom Side	1770	0.982	-3.11	25.30	25.02	1.048	-
			50	0	Bottom Side	1720	0.893	-0.64	24.30	24.11	0.933	-
			50	0	Bottom Side	1745	0.939	3.91	24.30	24.19	0.963	-
			50	0	Bottom Side	1720	0.866	0.62	24.30	24.05	0.917	-

12.4 Repeated SAR measurement

Band	Mode	Test Position	Ch.	Original Measured SAR 1g(W/kg)	1 st Repeated SAR 1g	Ratio
5.6G WLAN	802.11ac-VHT40	Left Tilt	5500	0.814	0.786	1.035
5.8G WLAN	802.11ac-VHT40	Left Tilt	5755	0.831	0.814	1.021
WCDMA Band IV	RMC	Bottom Side	1712.6	0.769	0.735	1.046
		Bottom Side	1740	0.883	0.881	1.003
		Bottom Side	1752.4	0.832	0.827	1.006

Band	BW (MHz)	Mod.	RB Size	RB offset	Test Position	Freq.	Original Measured SAR 1g(W/kg)	1 st Repeated SAR 1g	Ratio
LTE Band 2	20M	QPSK	1	0	Back Side	1900	0.794	0.775	1.024
			1	0	Bottom Side	1860	0.729	0.723	1.009
			1	0	Bottom Side	1880	0.711	0.702	1.014
			1	0	Bottom Side	1900	0.909	0.864	1.052
LTE Band 4	20M	QPSK	1	0	Back Side	1720	0.936	0.930	1.006
			1	0	Back Side	1732.5	0.891	0.891	1.000
			1	0	Back Side	1745	1.023	1.009	1.014
			50	0	Back Side	1720	0.873	0.832	1.049
			50	0	Back Side	1732.5	0.762	0.749	1.017
			50	0	Back Side	1745	0.818	0.812	1.008
			1	0	Bottom Side	1720	0.853	0.844	1.010
			1	0	Bottom Side	1732.5	0.810	0.797	1.016
			1	0	Bottom Side	1745	0.986	0.960	1.027
LTE Band 7	20M	QPSK	1	0	Back Side	2510	0.966	0.931	1.037
			1	0	Back Side	2535	1.013	0.967	1.047
			1	0	Back Side	2560	1.122	1.107	1.013
			50	0	Back Side	2510	0.905	0.878	1.031
			50	0	Back Side	2535	0.871	0.857	1.016
			50	0	Back Side	2560	0.953	0.944	1.009
			1	0	Bottom Side	2510	0.894	0.860	1.039
			1	0	Bottom Side	2535	0.935	0.892	1.048
			1	0	Bottom Side	2560	1.018	0.968	1.052
			50	0	Bottom Side	2510	0.796	0.758	1.050
			50	0	Bottom Side	2560	0.865	0.837	1.034
LTE Band 66	20M	QPSK	1	0	Back Side	1745	1.172	1.159	1.011
			50	0	Back Side	1720	0.880	0.880	1.000
			50	0	Back Side	1745	0.998	0.977	1.022
			50	0	Back Side	1770	0.853	0.834	1.023
			100	0	Back Side	1745	0.768	0.744	1.032
			1	0	Right Side	1745	0.822	0.787	1.045
			1	0	Bottom Side	1720	1.011	0.972	1.040
			1	0	Bottom Side	1745	1.127	1.079	1.045
			1	0	Bottom Side	1770	0.993	0.982	1.011
			50	0	Bottom Side	1720	0.910	0.893	1.019
			50	0	Bottom Side	1745	0.960	0.939	1.022
			50	0	Bottom Side	1720	0.867	0.866	1.002

Note:

1. Per KDB 865664 D01,for each frequency band ,repeated SAR measurement is required only when the measured SAR is⩾0.8W/Kg.
2. Per KDB 865664 D01,if the ratio of largest to smallest SAR for the original and first repeated measurement is⩽1.2 and the measured SAR＜1.45W/Kg, only one repeated measurement is required.
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 ⩾1.45W/Kg.
4. The ratio is the difference in percentage between original and repeated measured SAR.

12.5 Simultaneous Multi-band Transmission Evaluation

Application Simultaneous Transmission information:

Position	Simultaneous State
Head	1. GSM + 2.4GHz WLAN/5G WLAN
	2. GSM + Bluetooth
	3. WCDMA + 2.4GHz WLAN/5G WLAN
	4. WCDMA + Bluetooth
	5. LTE + 2.4GHz WLAN/5G WLAN
	6. LTE + Bluetooth
Body	1. GSM + 2.4GHz WLAN/5G WLAN
	2. GSM + Bluetooth
	3. WCDMA + 2.4GHz WLAN/5G WLAN
	4. WCDMA + Bluetooth
	5. LTE + 2.4GHz WLAN/5G WLAN
	6. LTE + Bluetooth

NOTE:
1. Bluetooth and WLAN can't simultaneous transmission at the same time.
2. For simultaneous transmission at head and body exposure position, 2 transmitters simultaneous transmission was the worst state.
3. If the test separation distance is <5mm, 5mm is used for excluded SAR calculation.
4. KDB 447498 / 4.3.2 (2) 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:
a) (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f (GHz) /x] W/kg for test separation distances≤ 50 mm;
Where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.
b) 0.4W/Kg for 1-g SAR and 1.0W/Kg for 10-g SAR, when the separation distance is >50mm.

Estimated SAR		Maximum Turn-up Power		Antenna to user(mm)	Frequency (GHz)	Stand Alone SAR(1g) [W/kg]
		dBm	mW			
BT	Head	3.5	2.239	5	2.441	0.093
	Body			5	2.441	0.093

Simultaneous Mode	Position	Mode	Max. 1-g SAR (W/kg)	1-g Sum SAR (W/kg)
GSM + 2.4G WLAN	Head	GSM	0.222	0.369
		2.4G WLAN	0.147	
	Body	GSM	0.506	0.650
		2.4G WLAN	0.144	
GSM + Bluetooth	Head	GSM	0.222	0.315
		Bluetooth	0.093	
	Body	GSM	0.506	0.599
		Bluetooth	0.093	
GSM + 5G WLAN	Head	GSM	0.222	1.146
		5G WLAN	0.924	
	Body	GSM	0.506	0.762
		5G WLAN	0.256	
WCDMA + 2.4G WLAN	Head	WCDMA	0.162	0.309
		2.4G WLAN	0.147	
	Body	WCDMA	0.935	1.079
		2.4G WLAN	0.144	
WCDMA + Bluetooth	Head	WCDMA	0.162	0.255
		Bluetooth	0.093	
	Body	WCDMA	0.935	1.028
		Bluetooth	0.093	
WCDMA + 5G WLAN	Head	WCDMA	0.162	1.086
		5G WLAN	0.924	
	Body	WCDMA	0.935	1.191
		5G WLAN	0.256	
LTE + 2.4G WLAN	Head	LTE	0.406	0.553
		2.4G WLAN	0.147	
	Body	LTE	1.205	1.349
		2.4G WLAN	0.144	
LTE + Bluetooth	Head	LTE	0.406	0.499
		Bluetooth	0.093	
	Body	LTE	1.205	1.298
		Bluetooth	0.093	
LTE + 5G WLAN	Head	LTE	0.406	1.330
		5G WLAN	0.924	
	Body	LTE	1.205	1.461
		5G WLAN	0.256	

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna.

When the sum of SAR 1g of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR-1g 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR 1g is greater than the SAR limit (SAR-1g 1.6 W/kg), SAR test exclusion is determined by the SPLSR.

13. Equipment List

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
750MHz Dipole	MVG	DIP0G750	SN 06/22 DIP0G750-638	2022.02.11	2025.02.10
835MHz Dipole	MVG	DIP0G835	SN 06/22 DIP0G835-639	2022.02.11	2025.02.10
1800MHz Dipole	MVG	DIP1G800	SN 06/22 DIP1G800-640	2022.02.11	2025.02.10
1900MHz Dipole	MVG	DIP1G900	SN 06/22 DIP1G900-641	2022.02.11	2025.02.10
2300MHz Dipole	MVG	DIP2G300	SN 06/22 DIP2G100-644	2022.02.11	2025.02.10
2450MHz Dipole	MVG	DIP2G450	SN 06/22 DIP2G450-645	2022.02.11	2025.02.10
2600MHz Dipole	MVG	DIP2G600	SN 06/22 DIP2G600-646	2022.02.11	2025.02.10
5000MHz Dipole	MVG	DIP5G000	SN 06/22 DIP5G000-653	2022.02.11	2025.02.10
E-Field Probe	MVG	EPGO364	SN 04/22 EPGO364	2024.02.07	2025.02.06
Liquid Calibration Kit	MVG	OCPG 87	SN 06/22 OCPG87	2024.02.07	2025.02.06
Antenna	MVG	ANTA 73	SN 06/22 ANTA 73	N/A	N/A
Ellipsoid Phantom	MVG	ELLI 51	SN 06/22 ELLI 51	N/A	N/A
Phantom	MVG	SAM 148	SN 06/22 SAM148	N/A	N/A
Phone holder	MVG	MSH 117	SN 06/22 MSH 117	N/A	N/A
Laptop positioner	MVG	LSH 36	SN 06/22 LSH 38	N/A	N/A
Directional coupler	SHW	SHWDCP	202203280013	N/A	N/A
Network Analyzer	ZVL	R&S	116184-HC	2024.03.25	2025.03.24
Multi Meter	DMM6500	Keithley	4527252	2024.03.15	2025.03.14
Signal Generator	Keysight	N5182B	MY59100717	2024.03.09	2025.03.08
Wireless Communication Test Set	R&S	CMW500	137737	2024.03.09	2025.03.08
Power Sensor	R&S	Z11	116184	2024.02.23	2025.02.22
Electronic Temperature hygrometer	N/A	ST-W2318	N/A	2024.03.11	2025.03.10
Temperature hygrometer	N/A	TP101	N/A	2024.03.11	2025.03.10

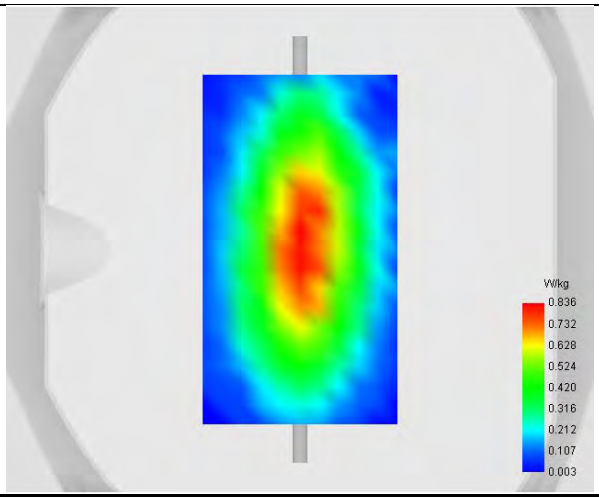
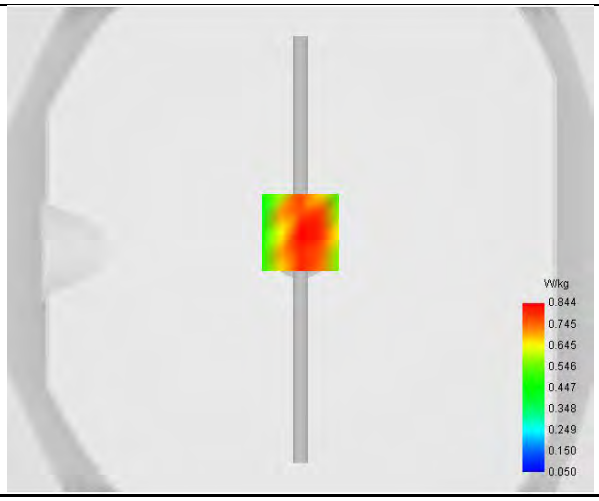
Appendix A. System Validation Plots

System Performance Check Data (750MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2024-09-07

Experimental conditions.

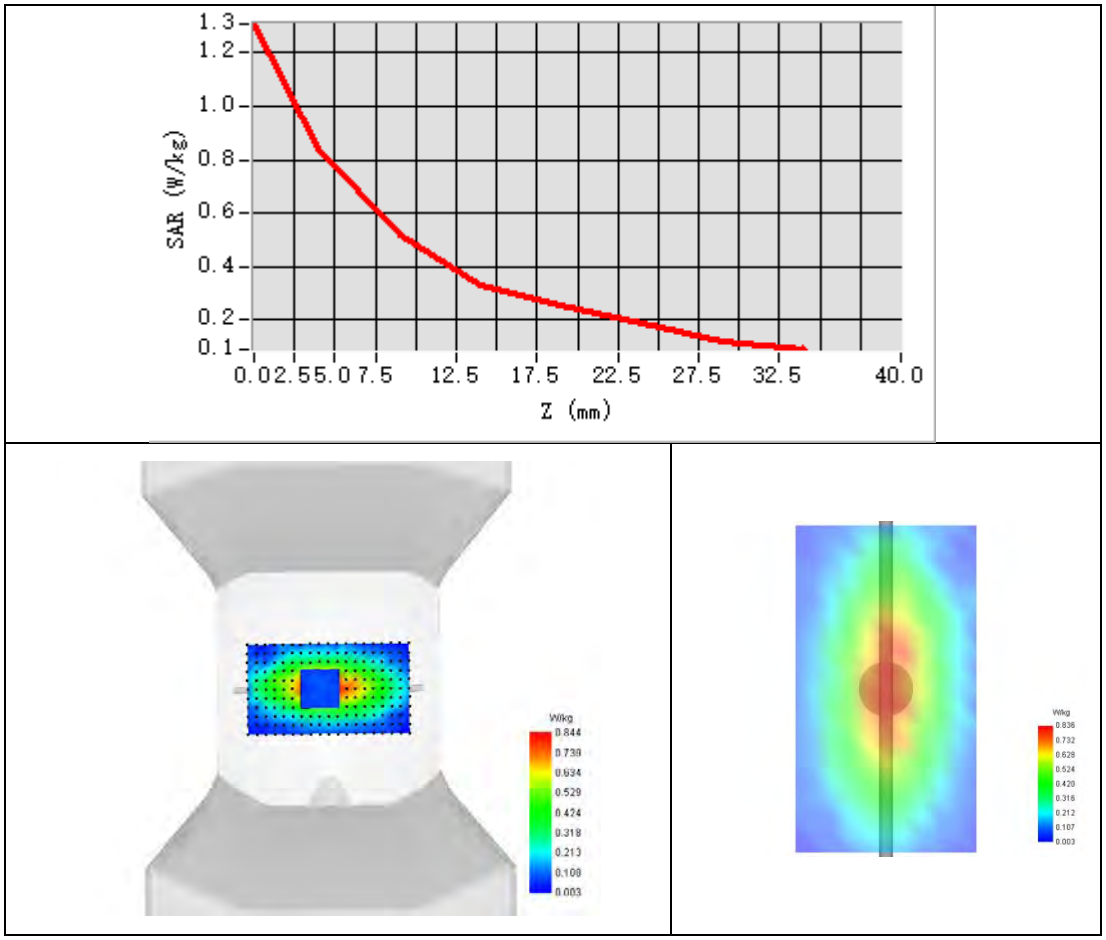
Phantom	Validation plane
Device Position	Dipole
Band	CW750
Channels	Middle
Signal	CW
Frequency (MHz)	750.000
Relative permittivity	41.78
Conductivity (S/m)	0.86
Probe	SN 04/22 EPGO364
ConvF	1.68
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=7.00 ; SAR Peak: 1.29 W/kg

SAR 10g (W/Kg)	0.527
SAR 1g (W/Kg)	0.795

Z Axis Scan

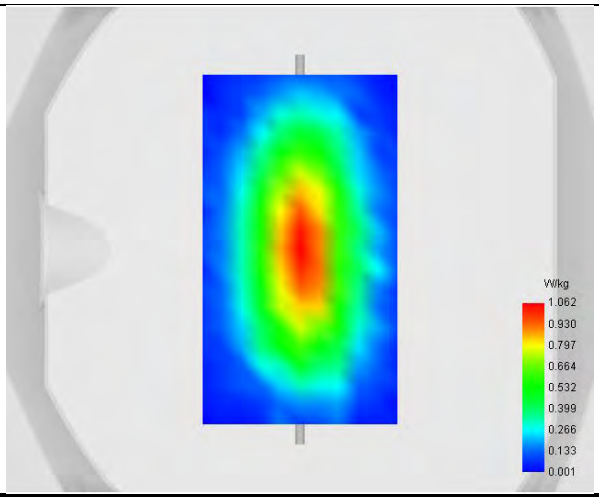
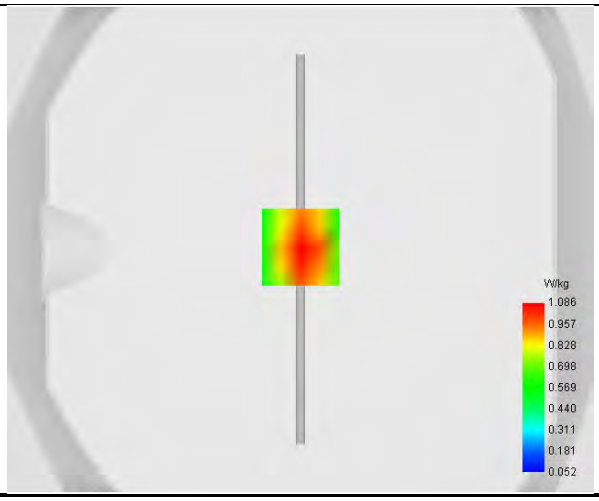

1.3
1.2
1.0
0.8
0.6
0.4
0.2
0.1
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)
W/kg
0.844
0.739
0.634
0.529
0.424
0.318
0.213
0.108
0.003
W/kg
0.836
0.732
0.628
0.524
0.420
0.316
0.212
0.107
0.003

System Performance Check Data (835MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2024-09-12

Experimental conditions.

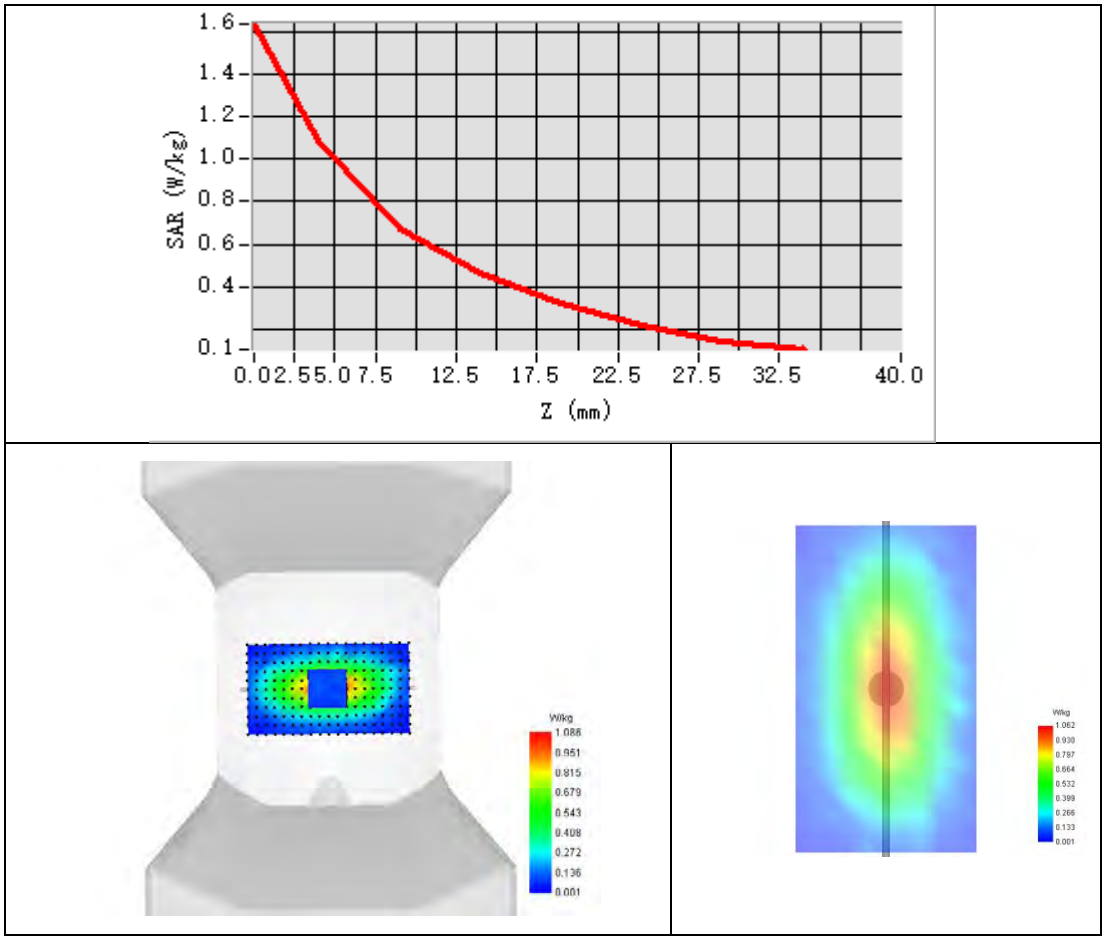
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Channels	Middle
Signal	CW
Frequency (MHz)	835.000
Relative permittivity	41.38
Conductivity (S/m)	0.92
Probe	SN 04/22 EPGO364
ConvF	1.70
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=1.00 ; SAR Peak: 1.63 W/kg

SAR 10g (W/Kg)	0.636
SAR 1g (W/Kg)	0.952

Z Axis Scan

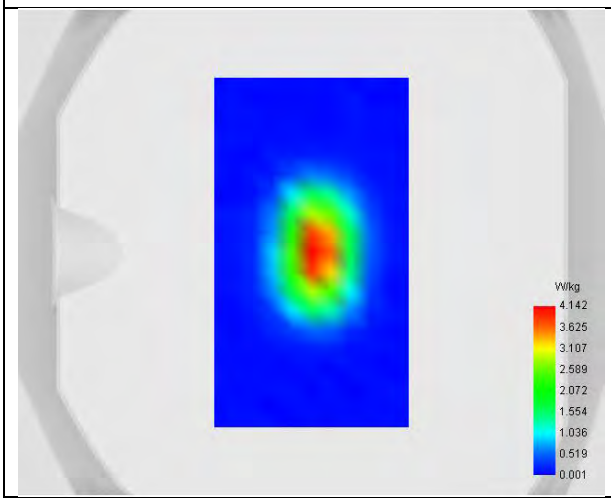
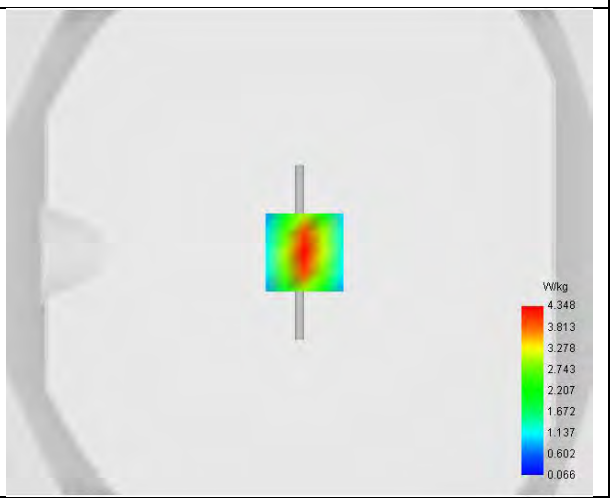

SAR (W/kg)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.1
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)
W/kg
1.088
0.951
0.815
0.679
0.543
0.408
0.272
0.136
0.001
W/kg
1.062
0.930
0.797
0.664
0.532
0.399
0.266
0.133
0.001

System Performance Check Data (1800MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2024-09-09

Experimental conditions.

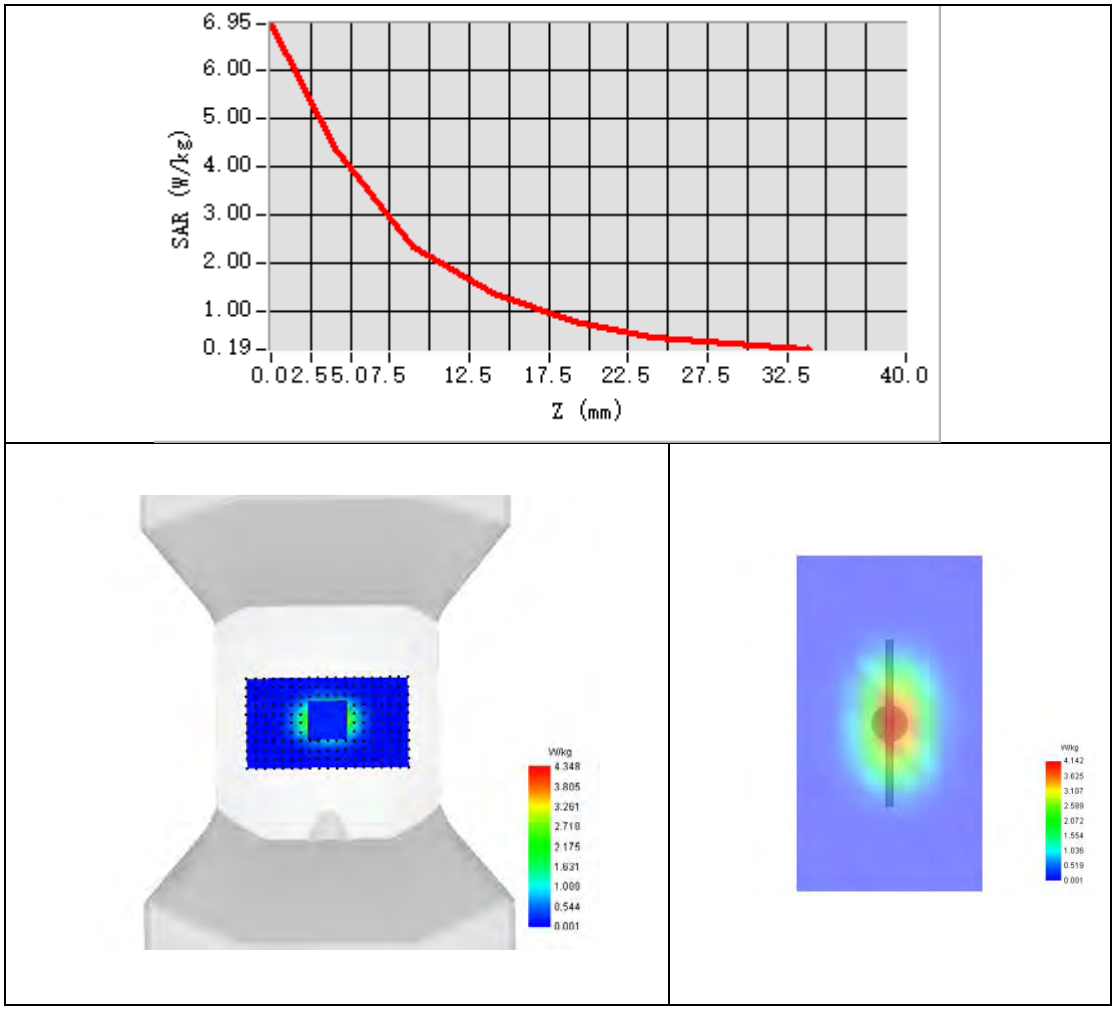
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Channels	Middle
Signal	CW
Frequency (MHz)	1800.000
Relative permittivity	41.32
Conductivity (S/m)	1.44
Probe	SN 04/22 EPGO364
ConvF	1.91
Crest factor:	1:1

SURFACE	VOLUME SAR
	

Maximum location: X=2.00, Y=0.00 ; SAR Peak: 6.91 W/kg

SAR 10g (W/Kg)	2.042
SAR 1g (W/Kg)	3.899

Z Axis Scan

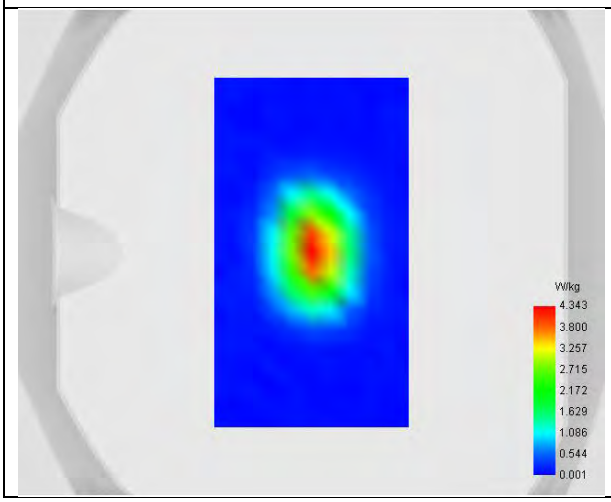
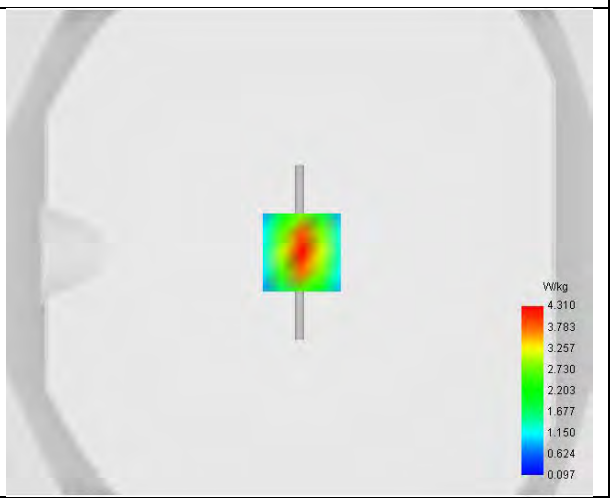

6.95
6.00
5.00
4.00
3.00
2.00
1.00
0.19
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)
W/kg
4.348
3.805
3.261
2.718
2.175
1.631
1.088
0.544
0.001
W/kg
4.142
3.625
3.107
2.589
2.072
1.554
1.036
0.519
0.001

System Performance Check Data (1800MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2024-09-10

Experimental conditions.

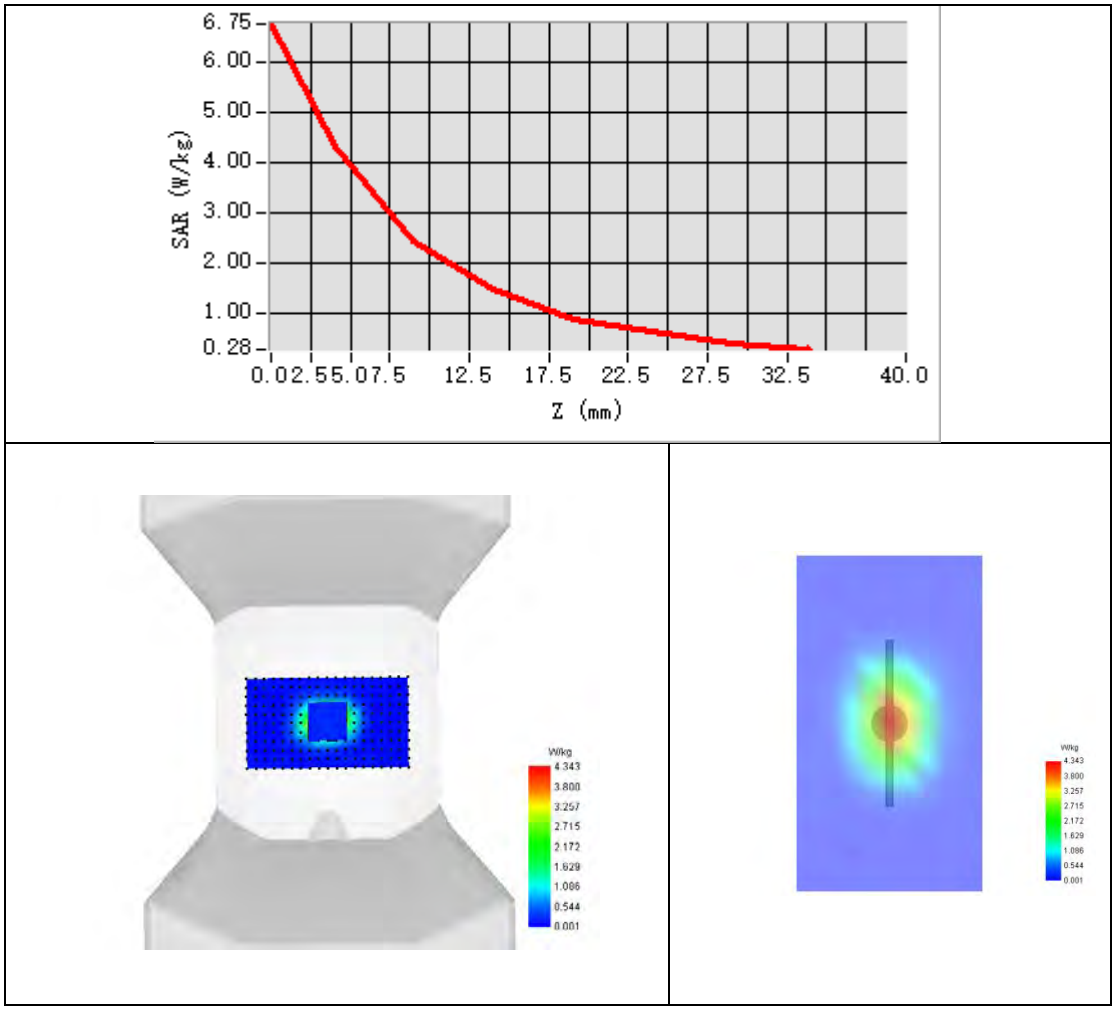
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Channels	Middle
Signal	CW
Frequency (MHz)	1800.000
Relative permittivity	40.96
Conductivity (S/m)	1.35
Probe	SN 04/22 EPGO364
ConvF	1.91
Crest factor:	1:1

SURFACE	VOLUME SAR
	

Maximum location: X=1.00, Y=0.00 ; SAR Peak: 6.69 W/kg

SAR 10g (W/Kg)	2.057
SAR 1g (W/Kg)	3.906

Z Axis Scan

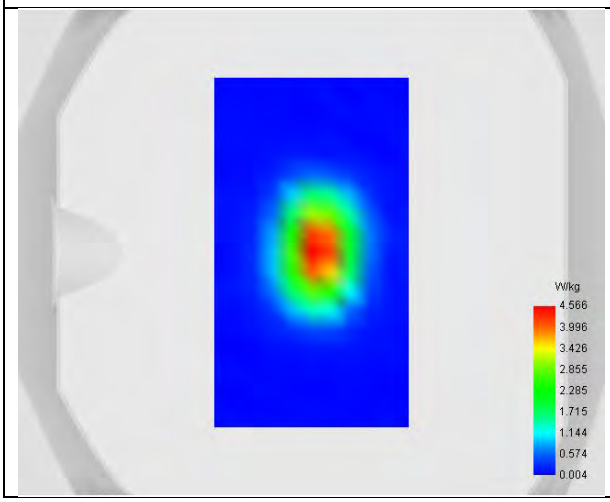
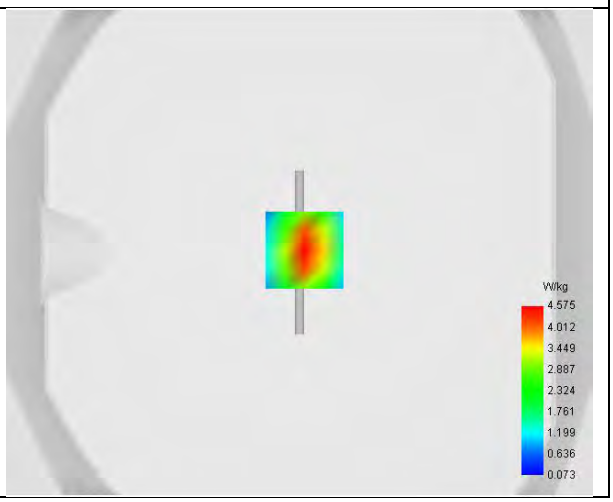

6.75
6.00
5.00
4.00
3.00
2.00
1.00
0.28
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)
W/kg
4.343
3.800
3.257
2.715
2.172
1.629
1.086
0.544
0.001

System Performance Check Data (1900MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2024-09-11

Experimental conditions.

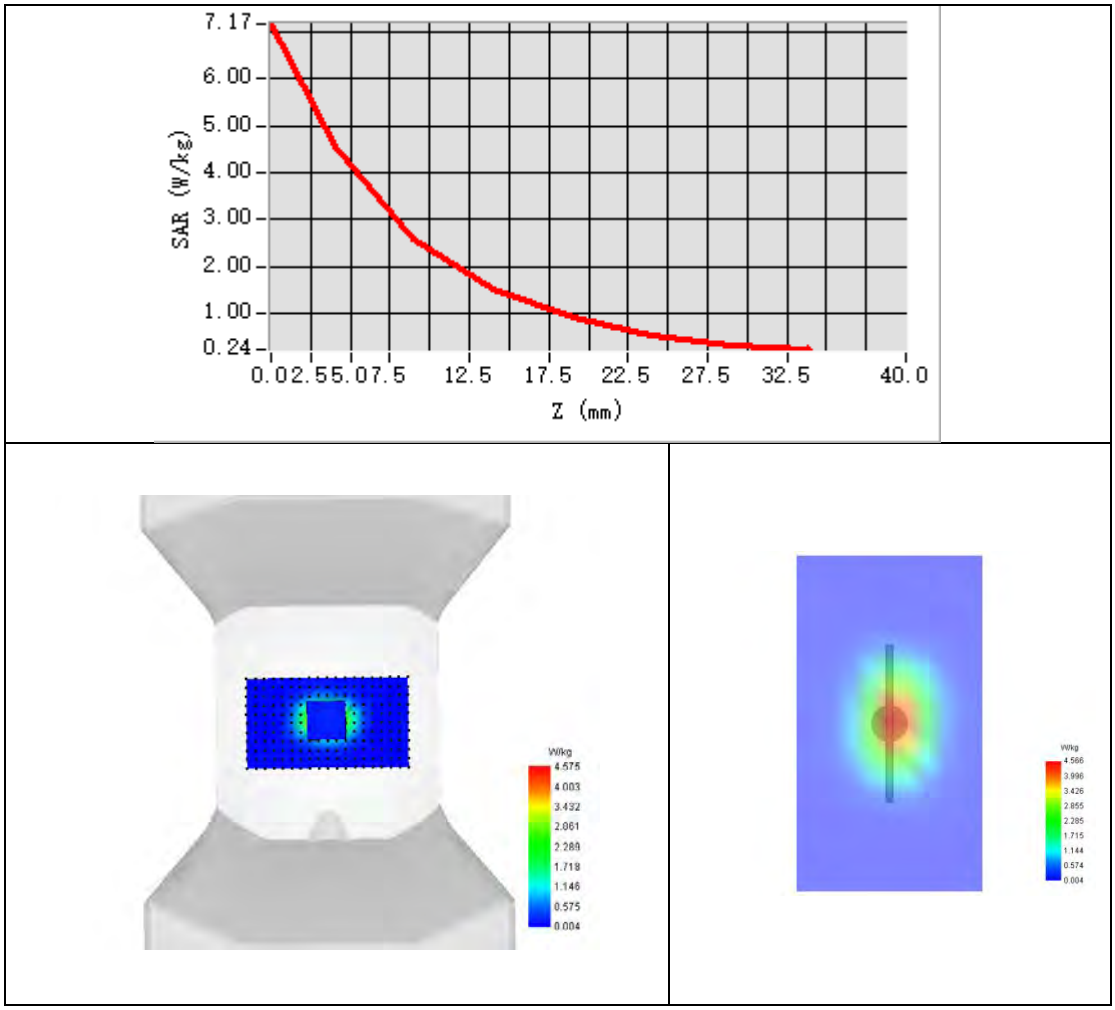
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Channels	Middle
Signal	CW
Frequency (MHz)	1900.000
Relative permittivity	40.91
Conductivity (S/m)	1.34
Probe	SN 04/22 EPGO364
ConvF	2.24
Crest factor:	1:1

SURFACE	VOLUME SAR
	

Maximum location: X=2.00, Y=1.00 ; SAR Peak: 7.14 W/kg

SAR 10g (W/Kg)	2.062
SAR 1g (W/Kg)	4.122

Z Axis Scan

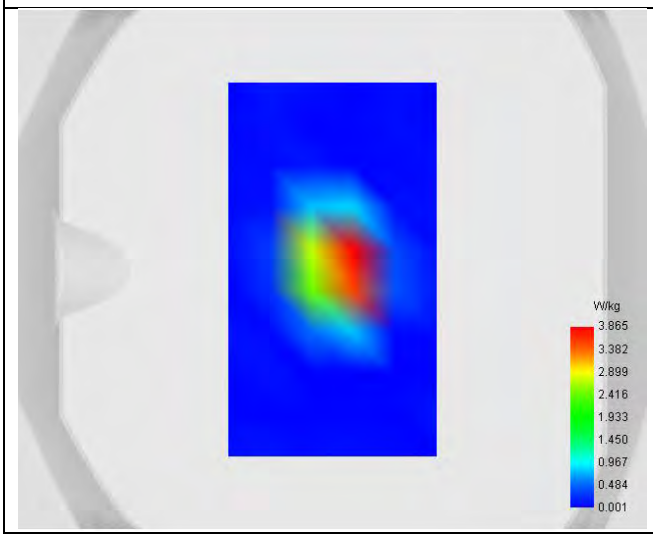
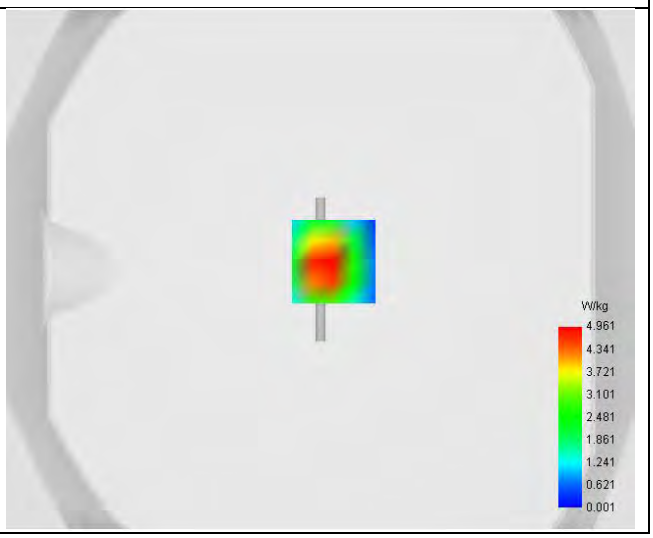

7.17
6.00
5.00
4.00
3.00
2.00
1.00
0.24
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)
W/kg
4.575
4.003
3.432
2.861
2.289
1.718
1.146
0.575
0.004
W/kg
4.566
3.996
3.426
2.855
2.285
1.715
1.144
0.574
0.004

System Performance Check Data (2300MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2024-09-13

Experimental conditions.

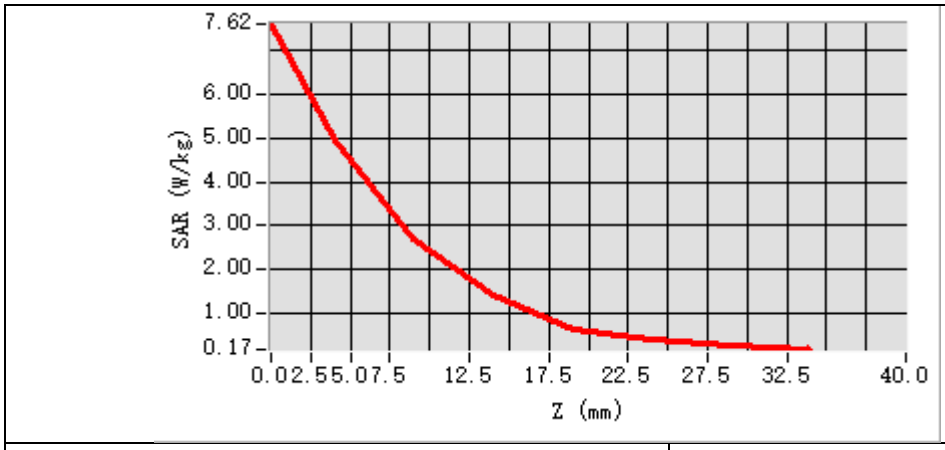
Phantom	Validation plane
Device Position	Dipole
Band	CW2300
Channels	Middle
Signal	CW
Frequency (MHz)	2300.000
Relative permittivity	40.31
Conductivity (S/m)	1.64
Probe	SN 04/22 EPGO364
ConvF	2.31
Crest factor:	1:1

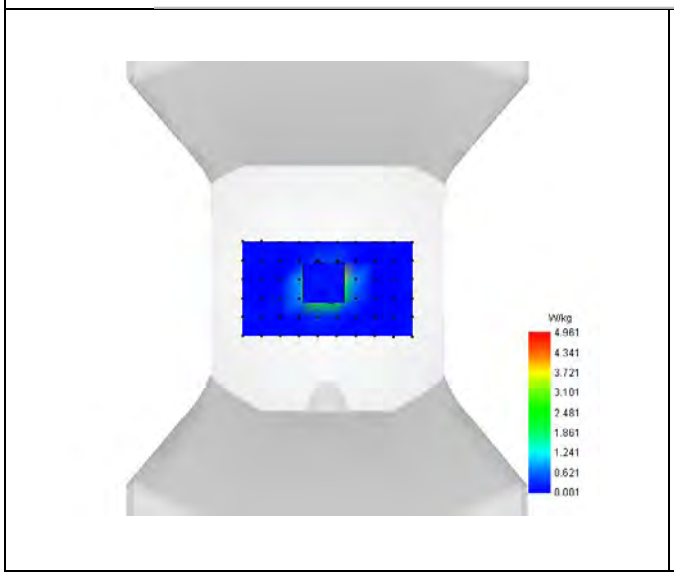
SURFACE	VOLUME SAR
	

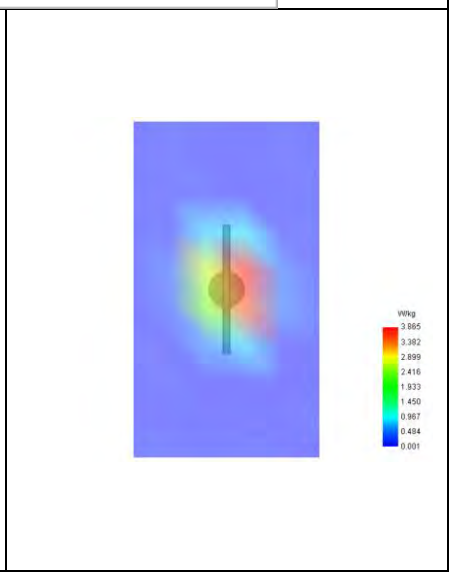
Maximum location: X=5.00, Y=3.00 ; SAR Peak: 8.60 W/kg

SAR 10g (W/Kg)	2.311
SAR 1g (W/Kg)	5.109

Z Axis Scan


7.62
6.00
5.00
4.00
3.00
2.00
1.00
0.17
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)


W/kg
4.961
4.341
3.721
3.101
2.481
1.861
1.241
0.621
0.001

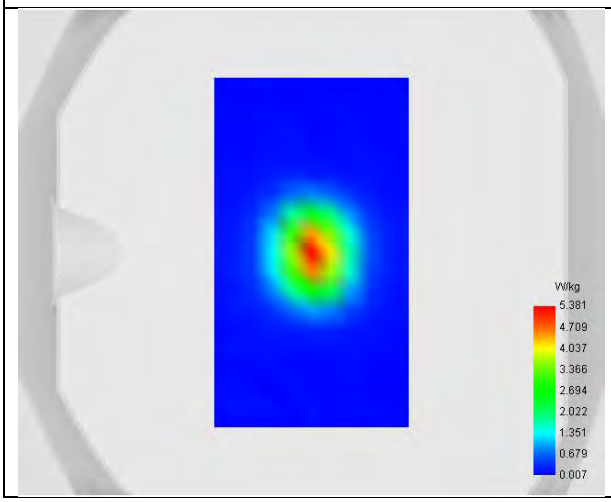
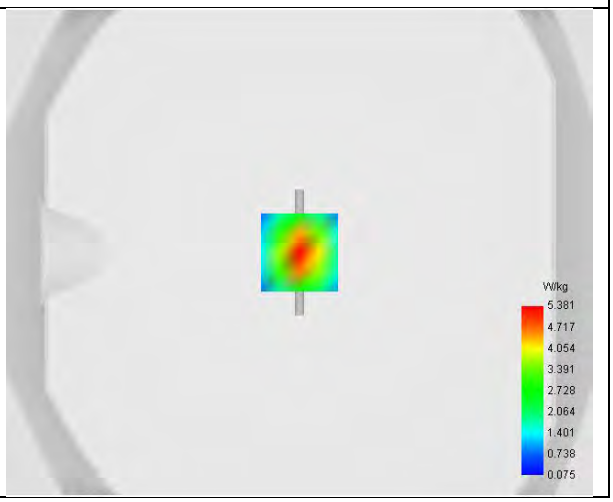

W/kg
3.865
3.382
2.899
2.416
1.933
1.450
0.967
0.484
0.001

System Performance Check Data (2450MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2024-09-13

Experimental conditions.

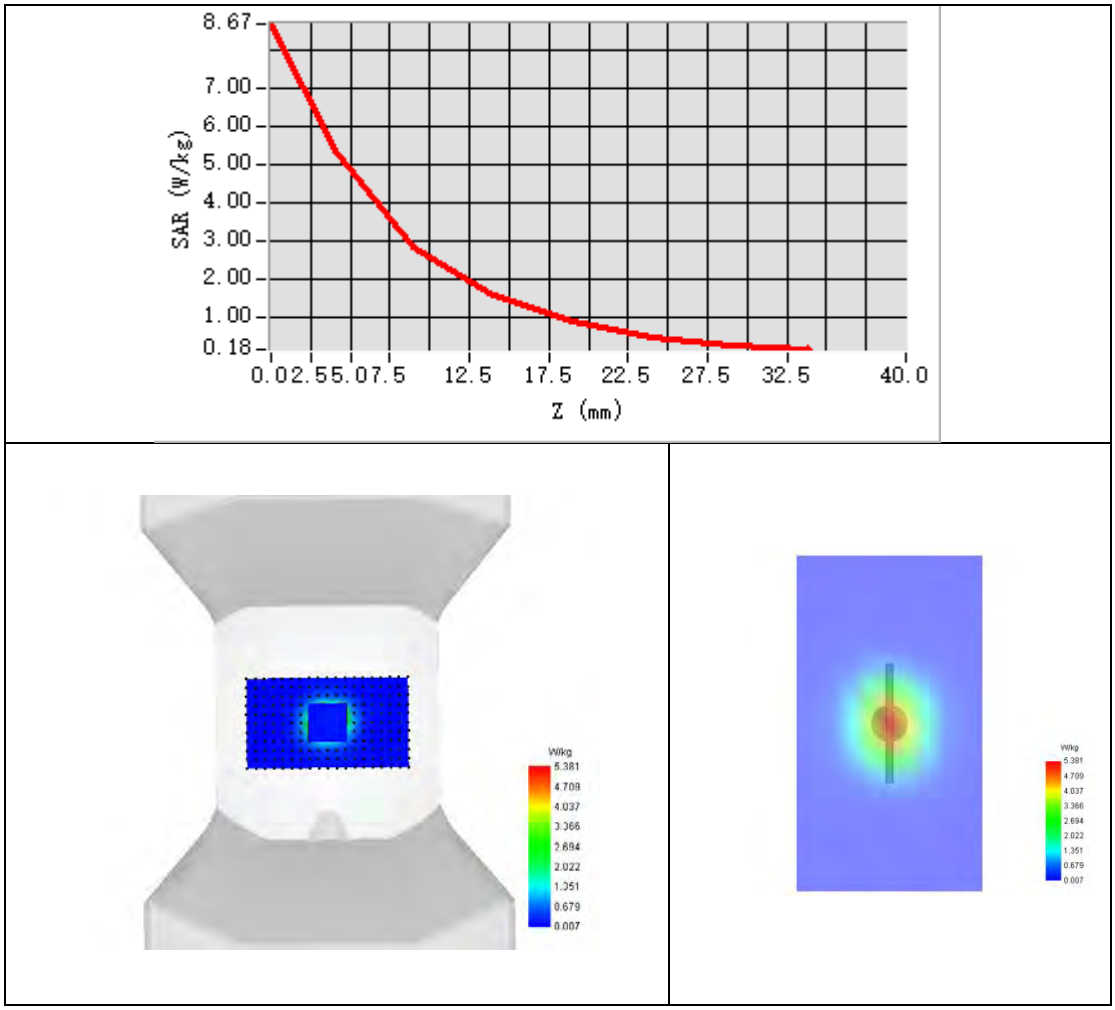
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Channels	Middle
Signal	CW
Frequency (MHz)	2450.000
Relative permittivity	39.66
Conductivity (S/m)	1.86
Probe	SN 04/22 EPGO364
ConvF	2.30
Crest factor:	1:1

SURFACE	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00 ; SAR Peak: 8.61 W/kg

SAR 10g (W/Kg)	2.351
SAR 1g (W/Kg)	5.384

Z Axis Scan

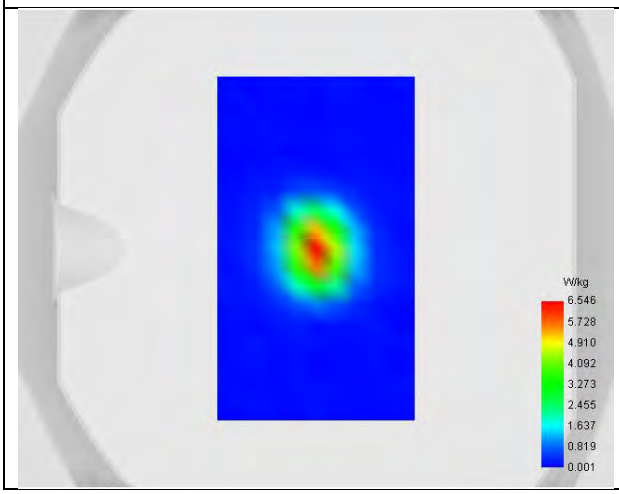
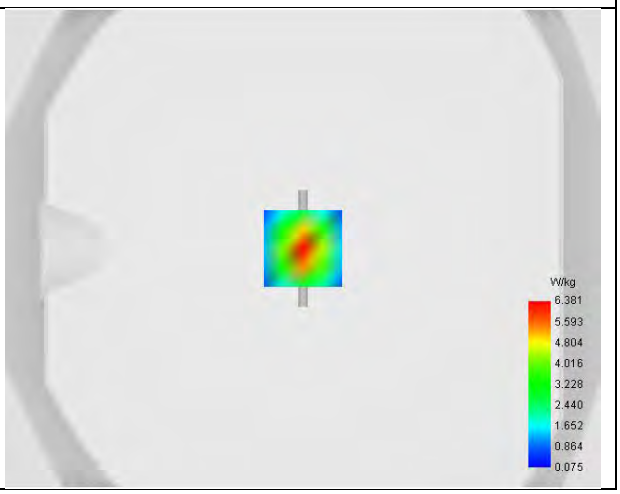

8.67
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.18
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)
W/kg
5.381
4.709
4.037
3.366
2.694
2.022
1.351
0.679
0.007

System Performance Check Data (2600MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2024-09-08

Experimental conditions.

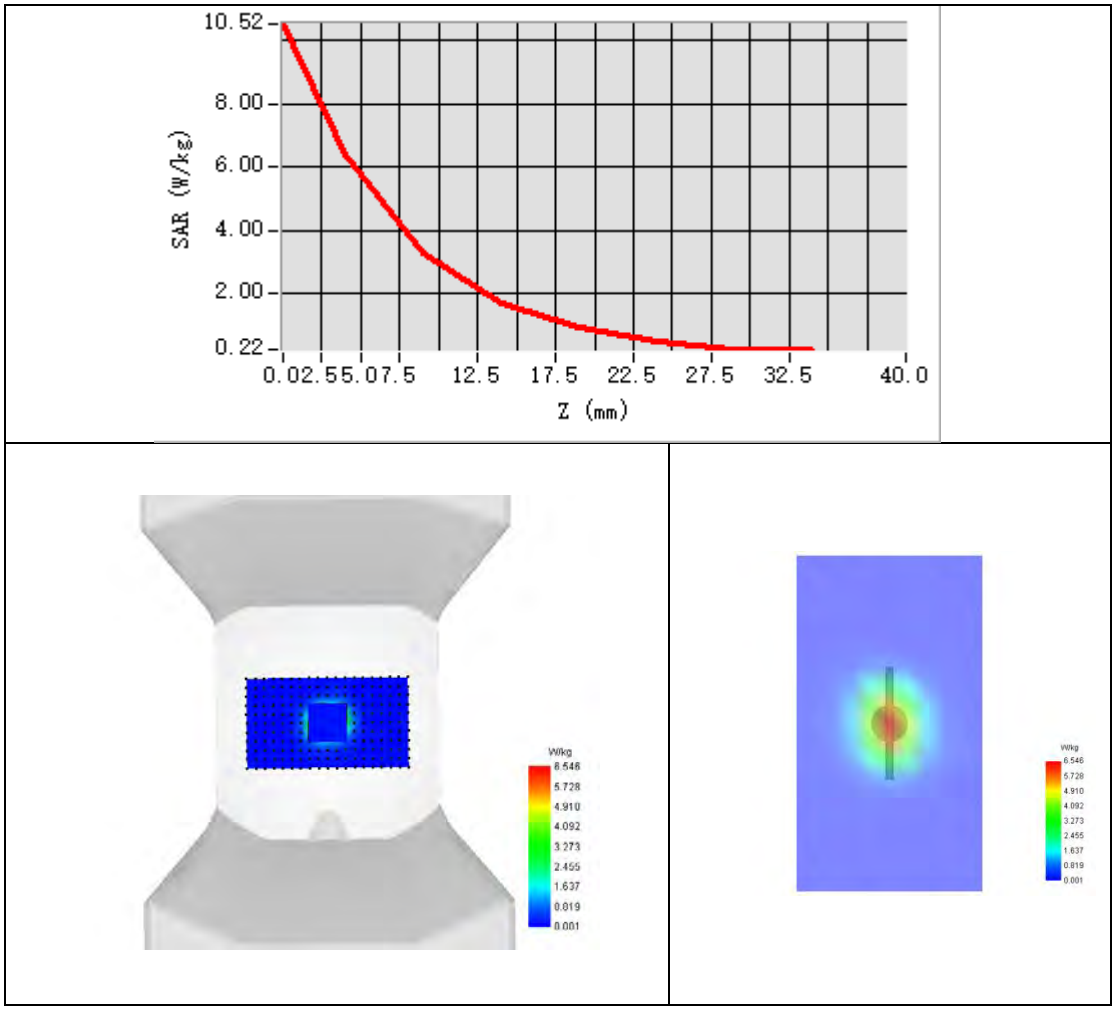
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Channels	Middle
Signal	CW
Frequency (MHz)	2600.000
Relative permittivity	39.79
Conductivity (S/m)	1.98
Probe	SN 04/22 EPGO364
ConvF	2.35
Crest factor:	1:1

SURFACE	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00 ; SAR Peak: 10.40 W/kg

SAR 10g (W/Kg)	2.439
SAR 1g (W/Kg)	5.677

Z Axis Scan

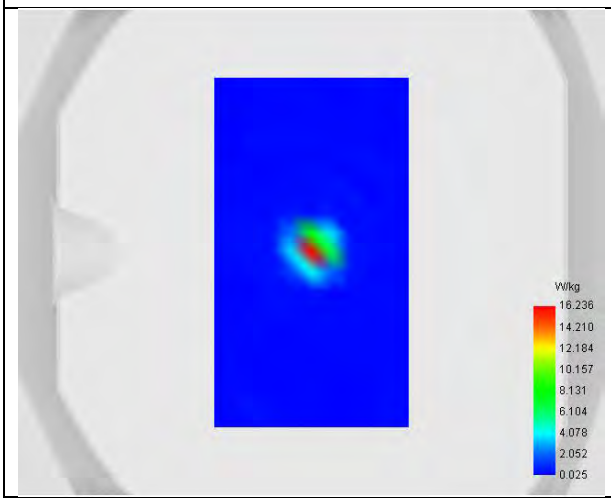
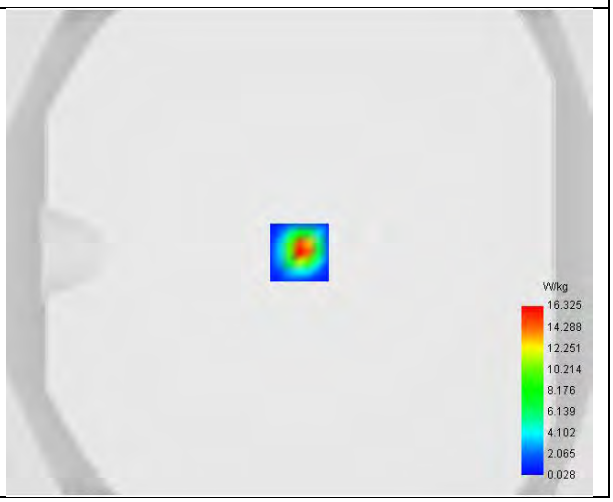

10.52
8.00
6.00
4.00
2.00
0.22
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)
W/kg
8.546
5.728
4.910
4.092
3.273
2.455
1.637
0.819
0.001

System Performance Check Data (5200MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm
Date of measurement: 2024-09-14

Experimental conditions.

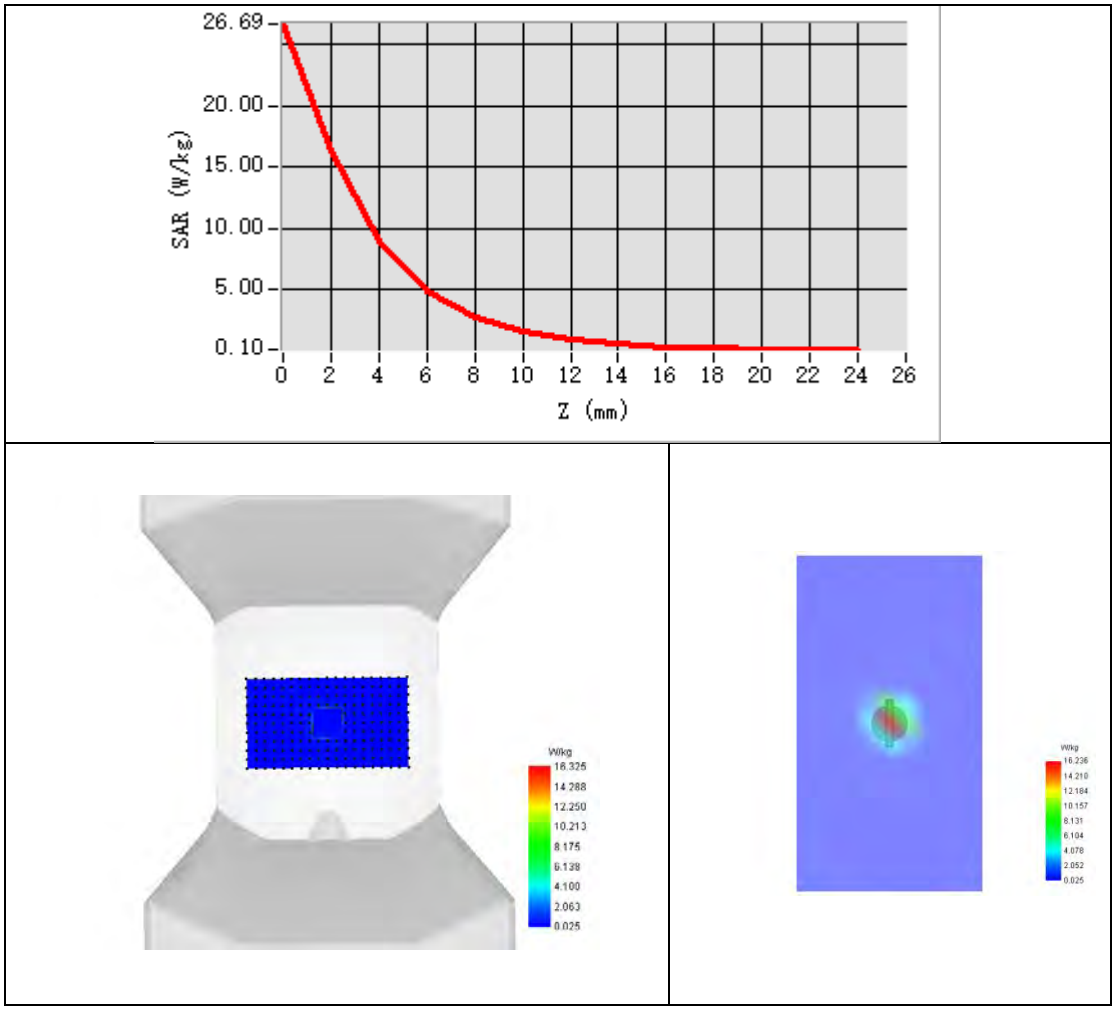
Phantom	Validation plane
Device Position	Dipole
Band	CW5200
Channels	Middle
Signal	CW
Frequency (MHz)	5200.000
Relative permittivity	36.63
Conductivity (S/m)	4.62
Probe	SN 04/22 EPGO364
ConvF	1.98
Crest factor:	1:1

SURFACE	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00 ; SAR Peak: 28.79 W/kg

SAR 10g (W/Kg)	2.325
SAR 1g (W/Kg)	8.088

Z Axis Scan

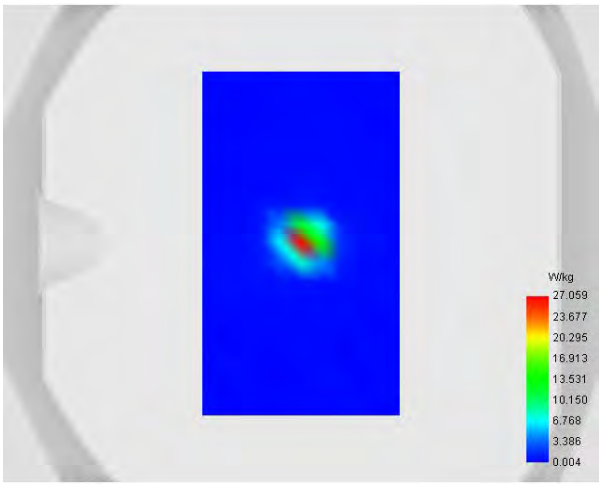
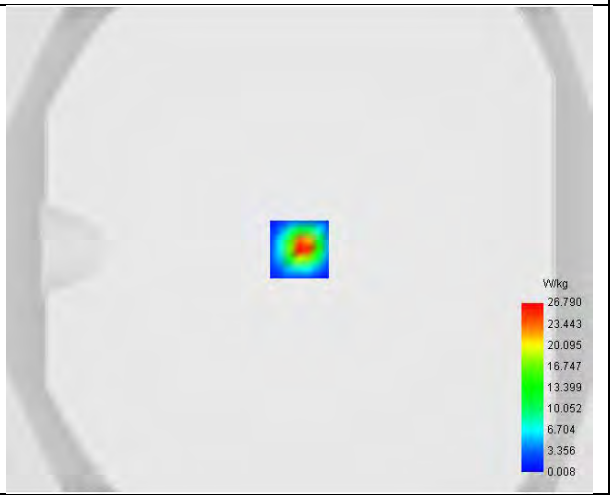

26.69
20.00
15.00
10.00
5.00
0.10
SAR (W/kg)
0 2 4 6 8 10 12 14 16 18 20 22 24 26
Z (mm)
W/kg
16.325
14.288
12.250
10.213
8.175
6.138
4.100
2.063
0.025
W/kg
16.236
14.210
12.184
10.157
8.131
6.104
4.078
2.052
0.025

System Performance Check Data (5400MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm
Date of measurement: 2024-09-14

Experimental conditions.

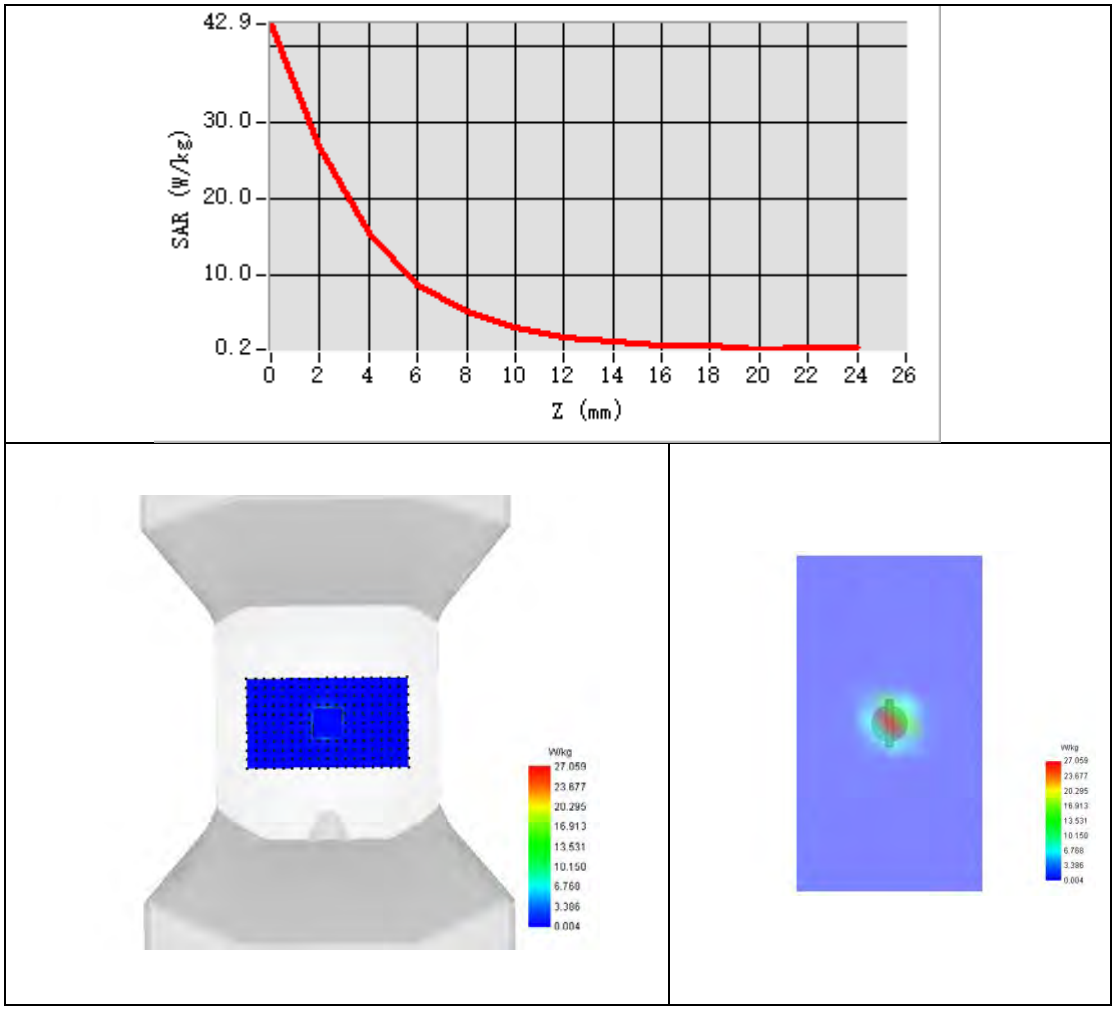
Phantom	Validation plane
Device Position	Dipole
Band	CW5400
Channels	Middle
Signal	CW
Frequency (MHz)	5400.000
Relative permittivity	36.50
Conductivity (S/m)	4.87
Probe	SN 04/22 EPGO364
ConvF	1.83
Crest factor:	1:1

SURFACE	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00 ; SAR Peak: 46.43 W/kg

SAR 10g (W/Kg)	2.438
SAR 1g (W/Kg)	8.483

Z Axis Scan

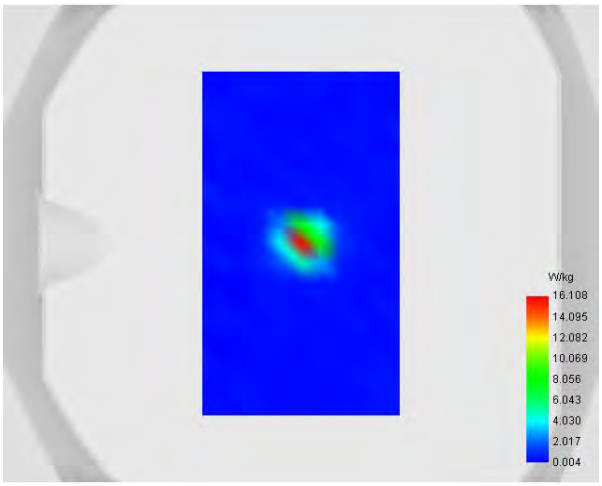
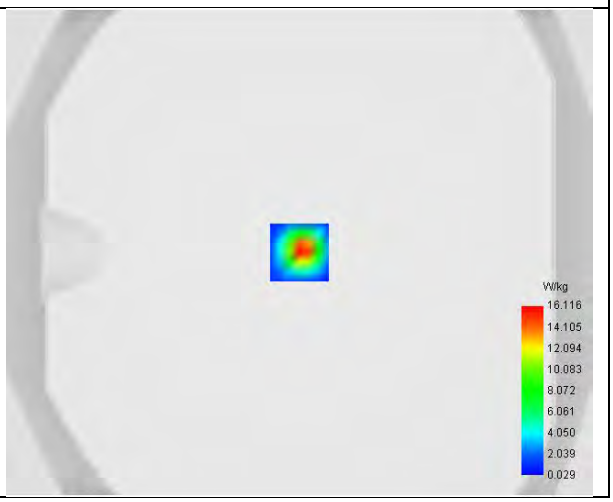

42.9
30.0
20.0
10.0
0.2
SAR (W/kg)
0 2 4 6 8 10 12 14 16 18 20 22 24 26
Z (mm)
W/kg
27.059
23.677
20.295
16.913
13.531
10.150
6.768
3.386
0.004

System Performance Check Data (5600MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm
Date of measurement: 2024-09-15

Experimental conditions.

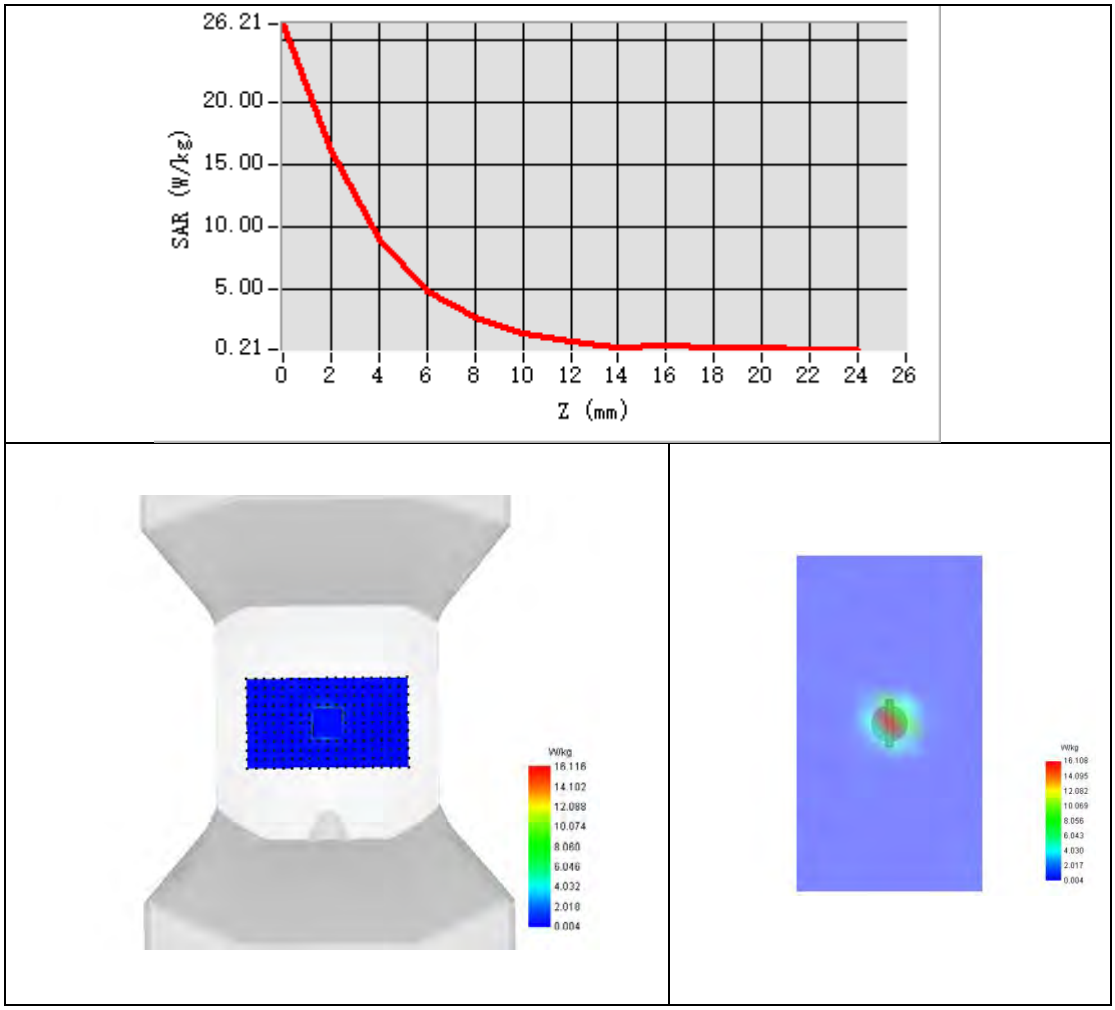
Phantom	Validation plane
Device Position	Dipole
Band	CW5600
Channels	Middle
Signal	CW
Frequency (MHz)	5600.000
Relative permittivity	35.98
Conductivity (S/m)	5.08
Probe	SN 04/22 EPGO364
ConvF	1.86
Crest factor:	1:1

SURFACE	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00 ; SAR Peak: 27.99 W/kg

SAR 10g (W/Kg)	2.352
SAR 1g (W/Kg)	8.137

Z Axis Scan

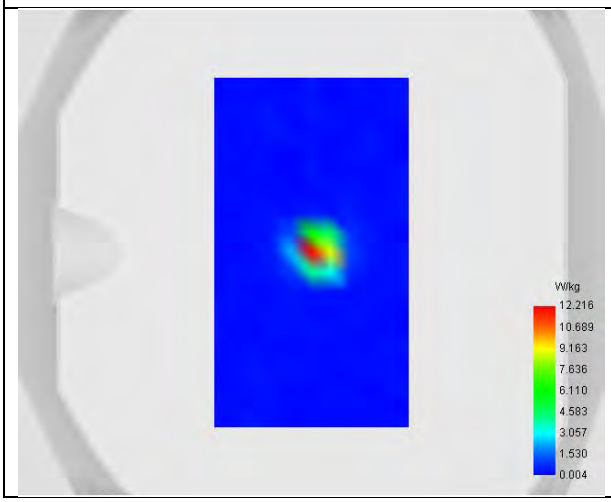
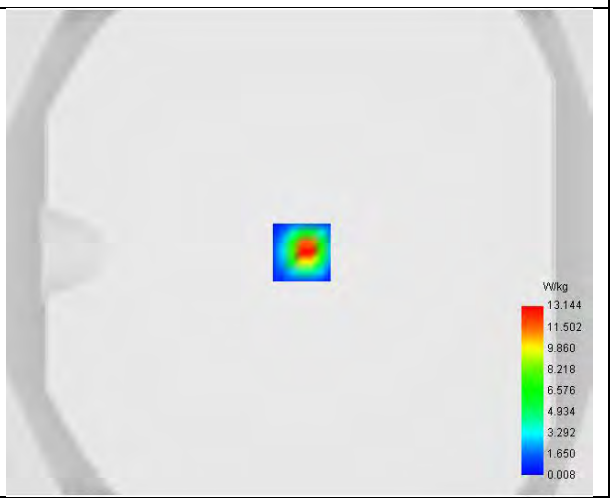

26.21
20.00
15.00
10.00
5.00
0.21
SAR (W/kg)
0 2 4 6 8 10 12 14 16 18 20 22 24 26
Z (mm)
W/kg
16.116
14.102
12.089
10.074
8.060
6.046
4.032
2.018
0.004
W/kg
16.108
14.095
12.082
10.069
8.056
6.043
4.030
2.017
0.004

System Performance Check Data (5800MHz)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm
Date of measurement: 2024-09-15

Experimental conditions.

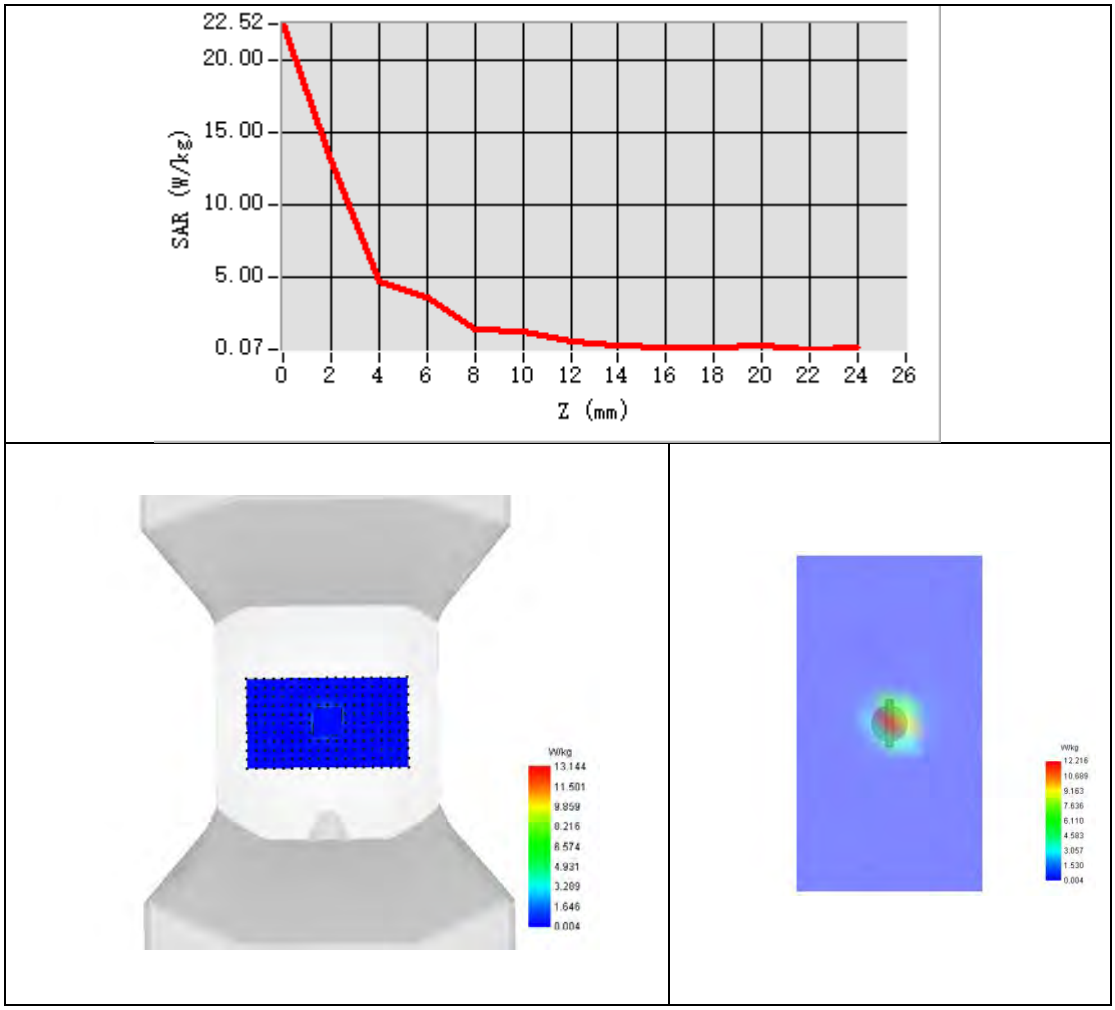
Phantom	Validation plane
Device Position	Dipole
Band	CW5800
Channels	Middle
Signal	CW
Frequency (MHz)	5800.000
Relative permittivity	35.80
Conductivity (S/m)	5.19
Probe	SN 04/22 EPGO364
ConvF	1.71
Crest factor:	1:1

SURFACE	VOLUME SAR
	

Maximum location: X=1.00, Y=0.00 ; SAR Peak: 24.09 W/kg

SAR 10g (W/Kg)	2.389
SAR 1g (W/Kg)	8.174

Z Axis Scan

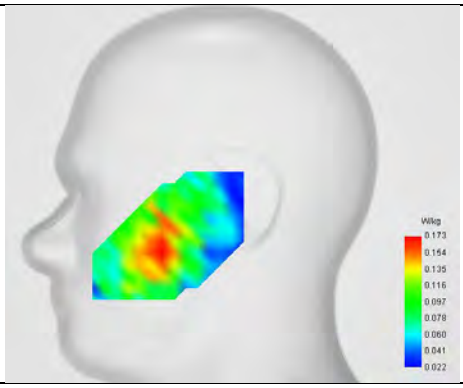
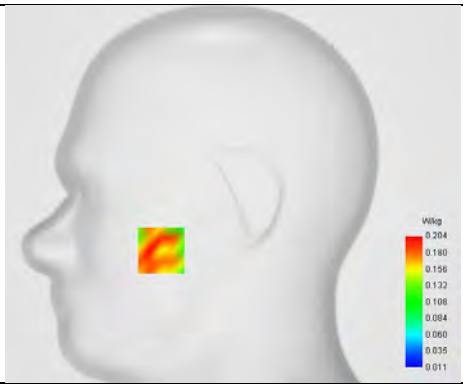
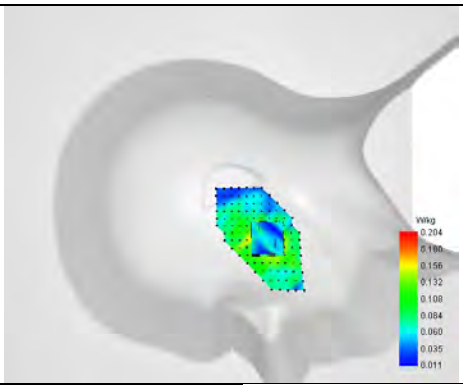
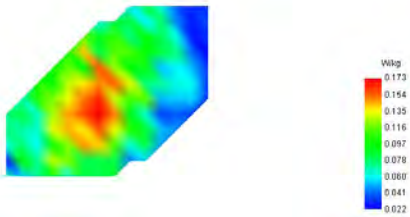

22.52
20.00
15.00
10.00
5.00
0.07
SAR (W/kg)
0 2 4 6 8 10 12 14 16 18 20 22 24 26
Z (mm)
W/kg
13.144
11.501
9.859
8.216
6.574
4.931
3.289
1.646
0.004
W/kg
12.216
10.689
9.163
7.636
6.110
4.583
3.057
1.530
0.004

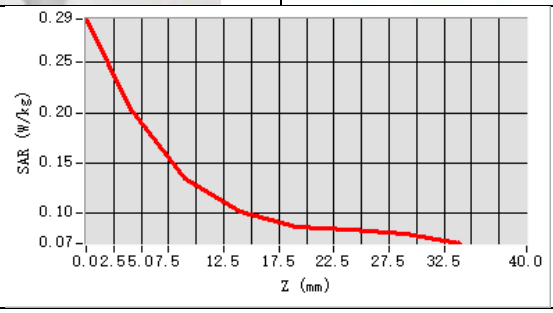
Appendix B. SAR Test Plots

Plot 1:

Test Date	2024-09-12
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	GPRS850
Signal	TDMA (GPRS)
Frequency	836.6
SAR 10g (W/Kg)	0.113
SAR 1g (W/Kg)	0.200
ConvF	1.70
Relative permittivity	41.38
Conductivity (S/m)	0.92

Maximum location: X=-49.00, Y=-38.00 ; SAR Peak: 0.34 W/kg

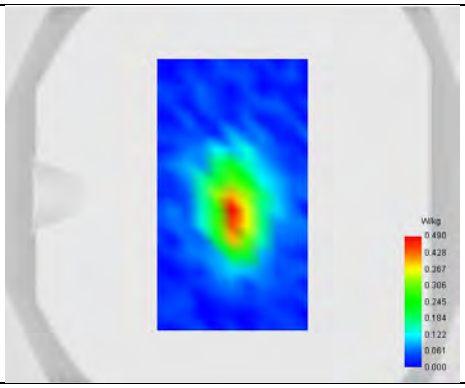
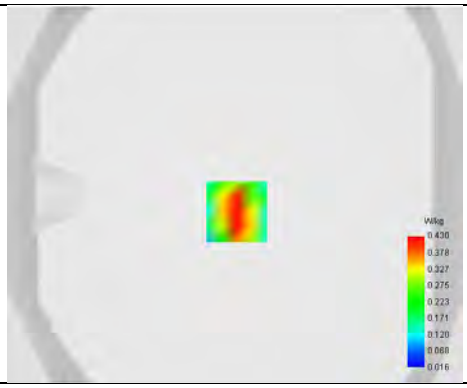
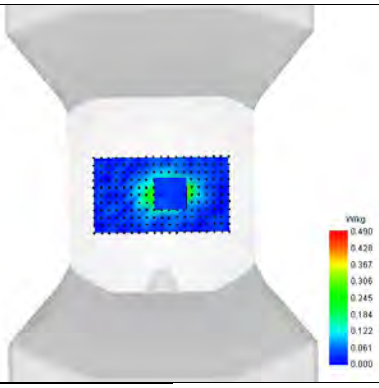
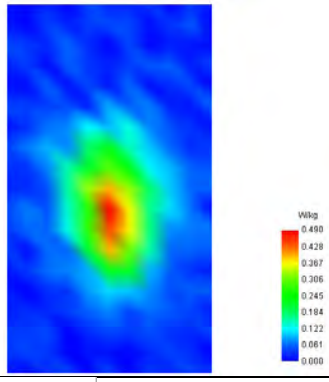
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

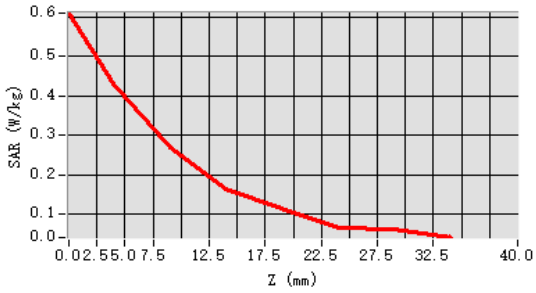


Plot 2:

Test Date	2024-09-12
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Bottom Side
Band	GPRS850
Signal	TDMA (GPRS)
Frequency	836.6
SAR 10g (W/Kg)	0.223
SAR 1g (W/Kg)	0.404
ConvF	1.70
Relative permittivity	41.38
Conductivity (S/m)	0.92

Maximum location: X=1.00, Y=-9.00 ; SAR Peak: 0.67 W/kg

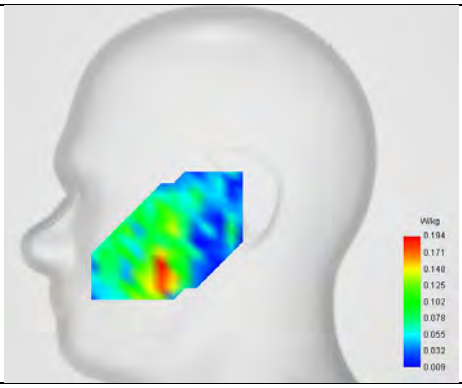
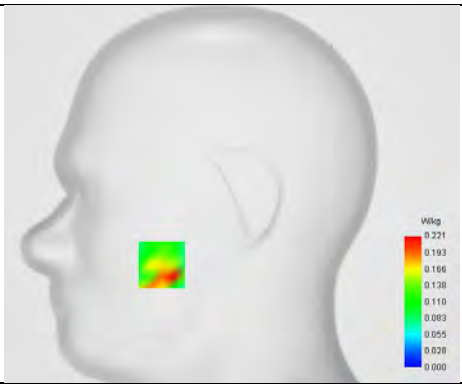
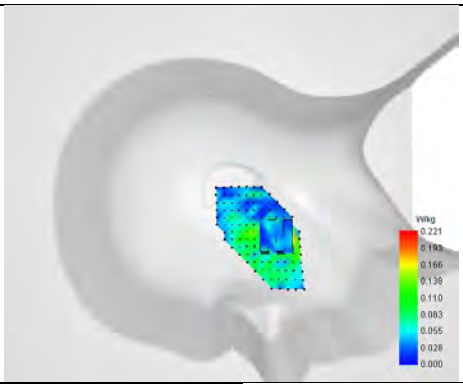
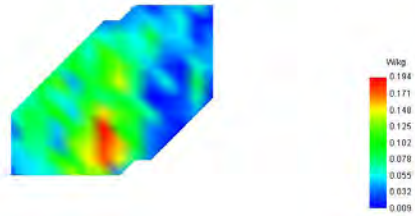
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

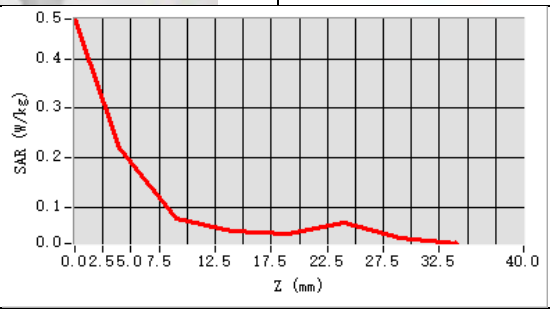


Plot 3:

Test Date	2024-09-11
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	GPRS1900
Signal	TDMA (GPRS)
Frequency	1909.8
SAR 10g (W/Kg)	0.110
SAR 1g (W/Kg)	0.198
ConvF	2.24
Relative permittivity	40.91
Conductivity (S/m)	1.34

Maximum location: X=-48.00, Y=-48.00 ; SAR Peak: 0.39 W/kg

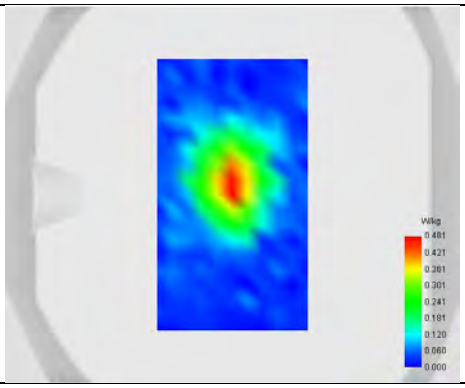
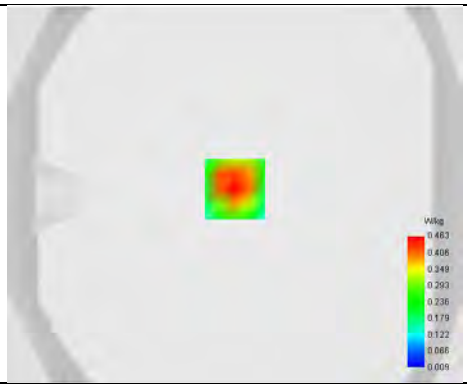
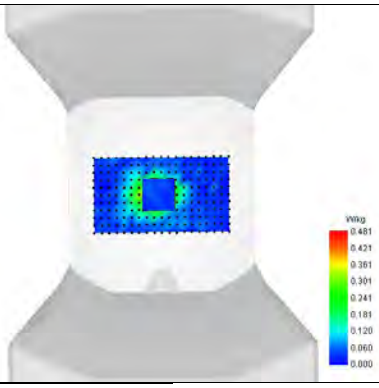
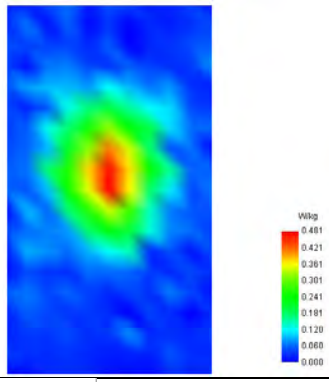
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

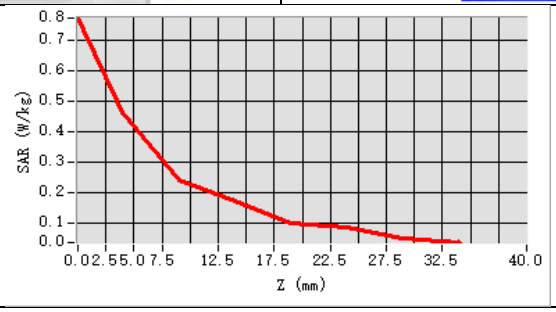


Plot 4:

Test Date	2024-09-11
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Bottom Side
Band	GPRS1900
Signal	TDMA (GPRS)
Frequency	1880
SAR 10g (W/Kg)	0.238
SAR 1g (W/Kg)	0.453
ConvF	2.24
Relative permittivity	40.91
Conductivity (S/m)	1.34

Maximum location: X=0.00, Y=3.00 ; SAR Peak: 0.79 W/kg

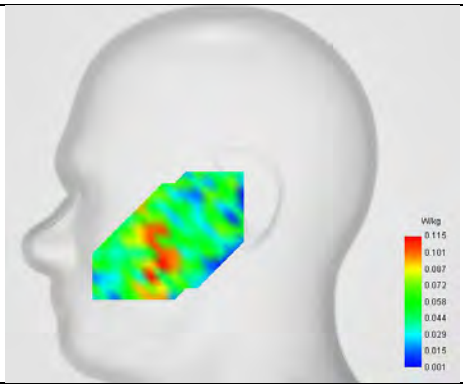
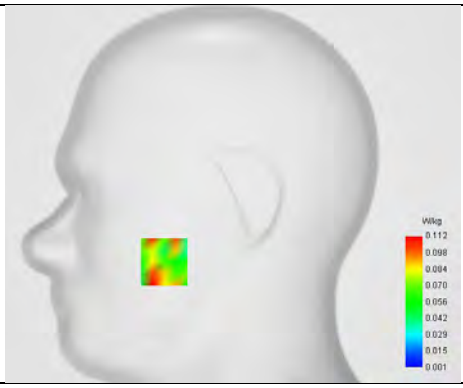
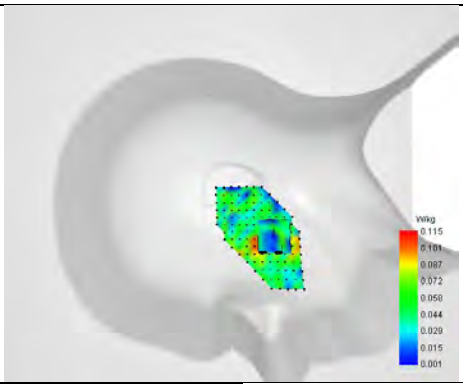
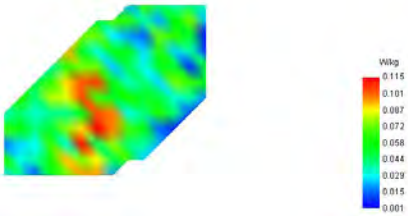
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

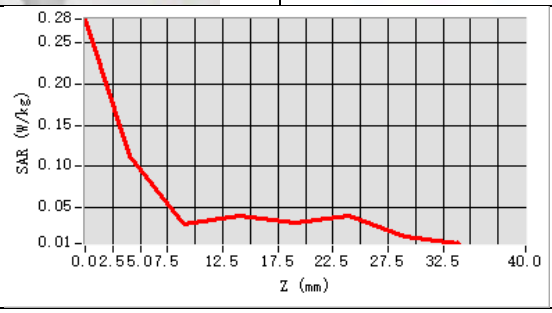


Plot 5:

Test Date	2024-09-11
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	Band 2 (1900)
Signal	WCDMA
Frequency	1907.6
SAR 10g (W/Kg)	0.043
SAR 1g (W/Kg)	0.095
ConvF	2.24
Relative permittivity	40.91
Conductivity (S/m)	1.34

Maximum location: X=-47.00, Y=-46.00 ; SAR Peak: 0.22 W/kg

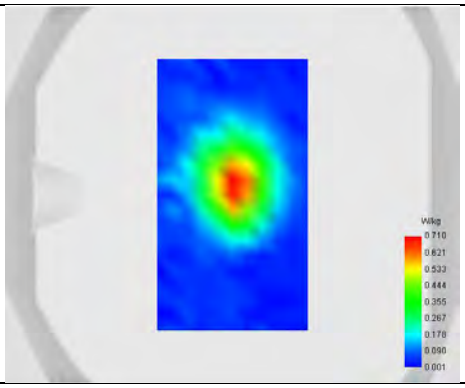
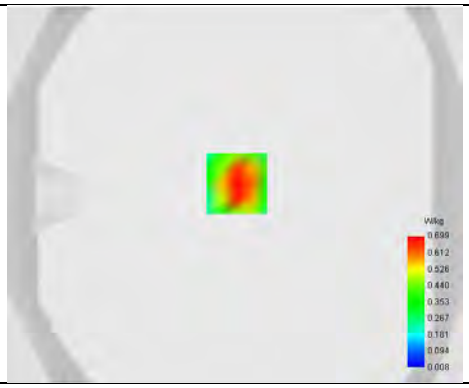
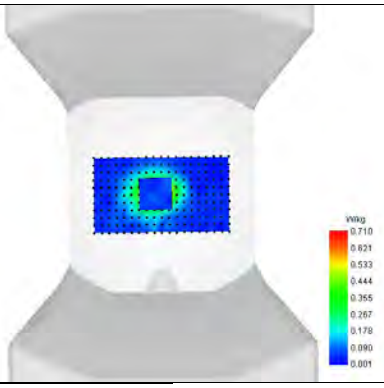
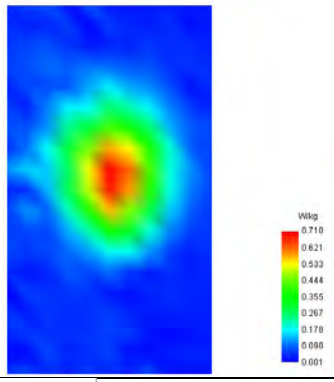
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

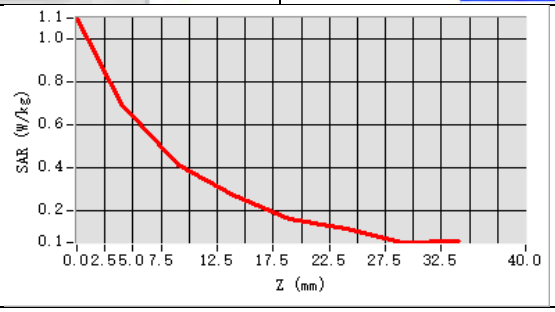


Plot 6:

Test Date	2024-09-11
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Bottom Side
Band	Band 2 (1900)
Signal	WCDMA
Frequency	1907.6
SAR 10g (W/Kg)	0.373
SAR 1g (W/Kg)	0.672
ConvF	2.24
Relative permittivity	40.91
Conductivity (S/m)	1.34

Maximum location: X=1.00, Y=6.00 ; SAR Peak: 1.09 W/kg

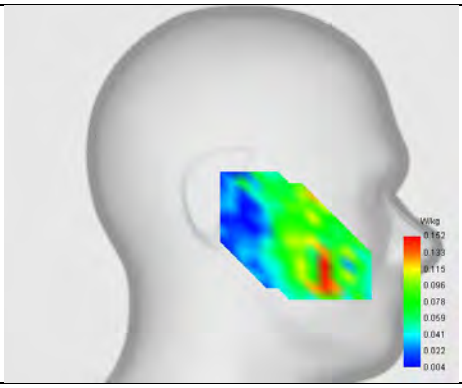
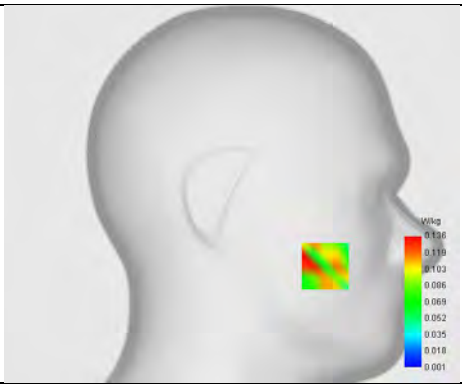
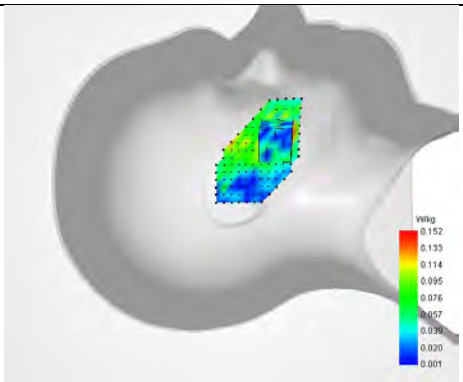
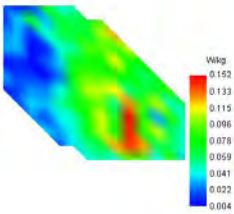
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

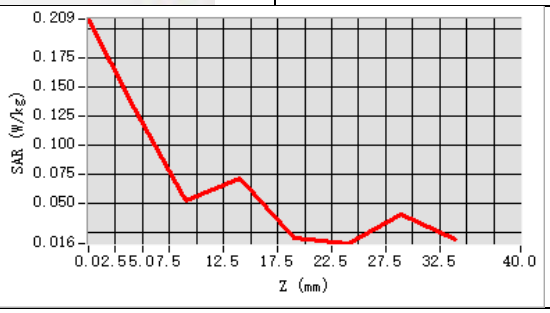


Plot 7:

Test Date	2024-09-09
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	Band 4 (1700)
Signal	WCDMA
Frequency	1740
SAR 10g (W/Kg)	0.066
SAR 1g (W/Kg)	0.130
ConvF	1.91
Relative permittivity	41.32
Conductivity (S/m)	1.44

Maximum location: X=-64.00, Y=-49.00 ; SAR Peak: 0.28 W/kg

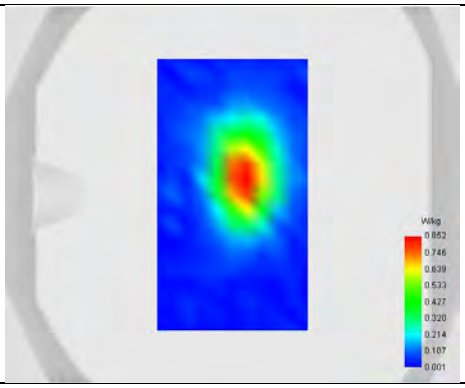
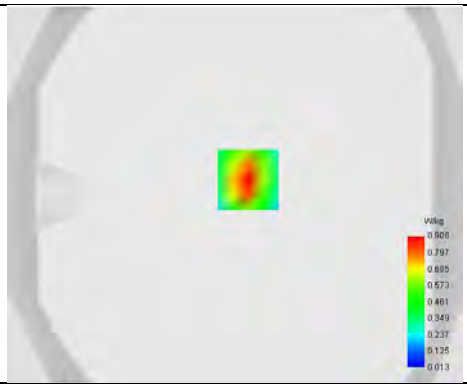
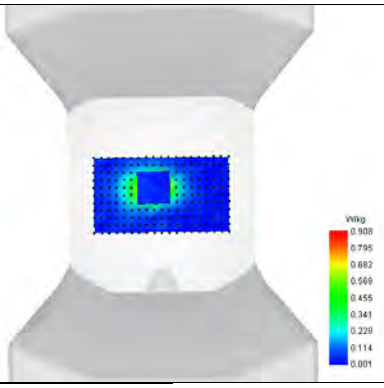
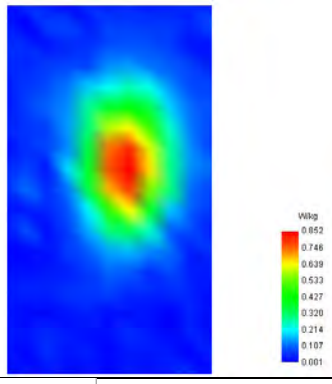
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

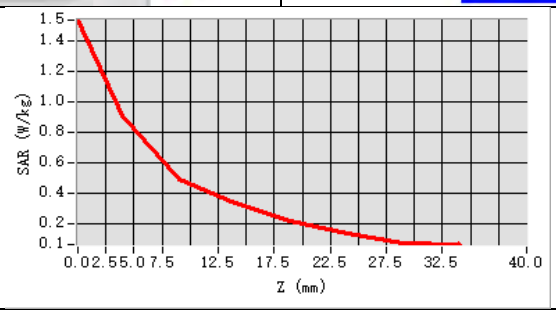


Plot 8:

Test Date	2024-09-09
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Bottom Side
Band	Band 4 (1700)
Signal	WCDMA
Frequency	1740
SAR 10g (W/Kg)	0.459
SAR 1g (W/Kg)	0.883
ConvF	1.91
Relative permittivity	41.32
Conductivity (S/m)	1.44

Maximum location: X=7.00, Y=8.00 ; SAR Peak: 1.57 W/kg

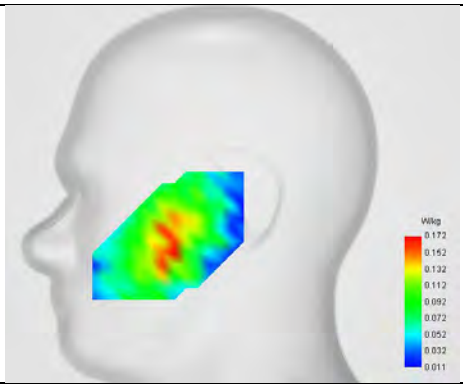
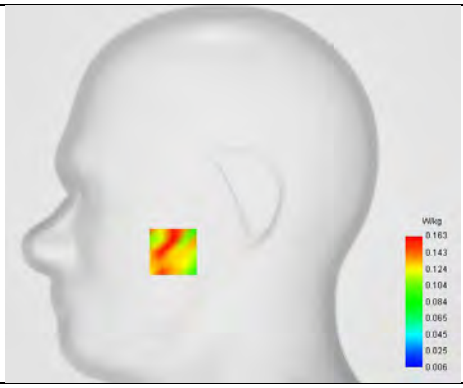
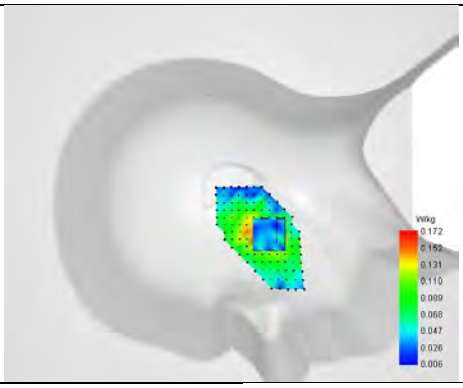
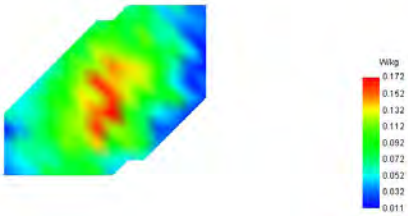
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

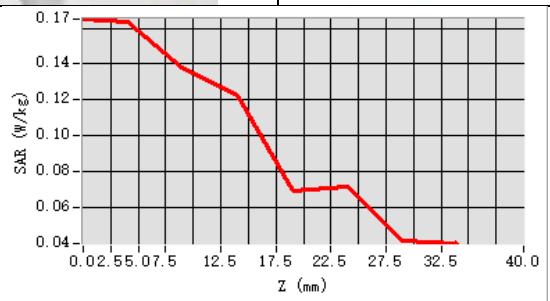


Plot 9:

Test Date	2024-09-12
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	Band 5 (850)
Signal	WCDMA
Frequency	846.6
SAR 10g (W/Kg)	0.105
SAR 1g (W/Kg)	0.159
ConvF	1.70
Relative permittivity	41.38
Conductivity (S/m)	0.92

Maximum location: X=-41.00, Y=-39.00 ; SAR Peak: 0.30 W/kg

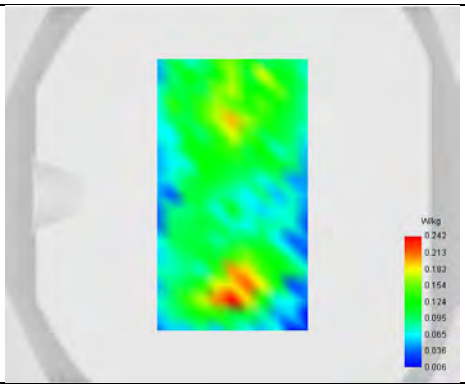
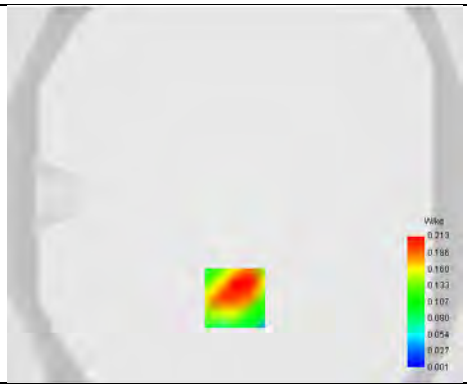
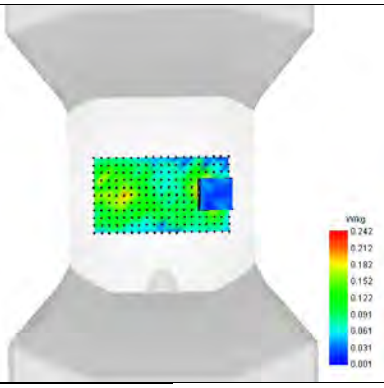
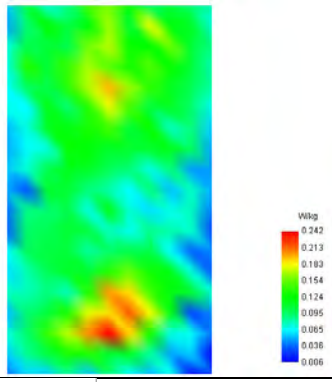
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

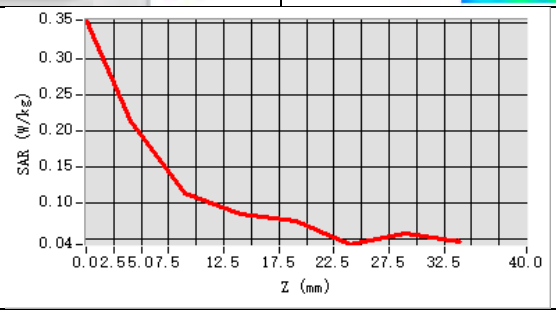


Plot 10:

Test Date	2024-09-12
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	Band 5 (850)
Signal	WCDMA
Frequency	846.6
SAR 10g (W/Kg)	0.101
SAR 1g (W/Kg)	0.204
ConvF	1.70
Relative permittivity	41.38
Conductivity (S/m)	0.92

Maximum location: X=0.00, Y=-55.00 ; SAR Peak: 0.34 W/kg

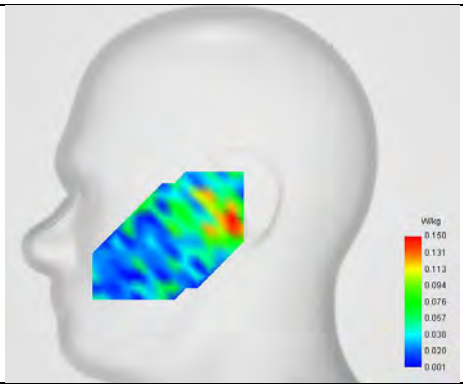
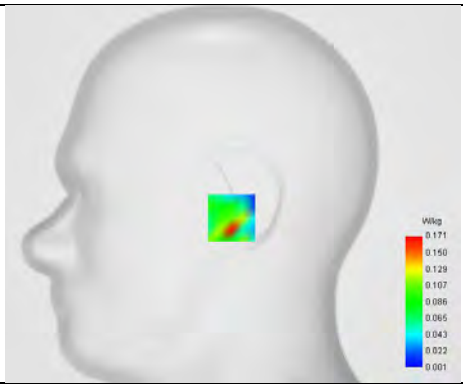
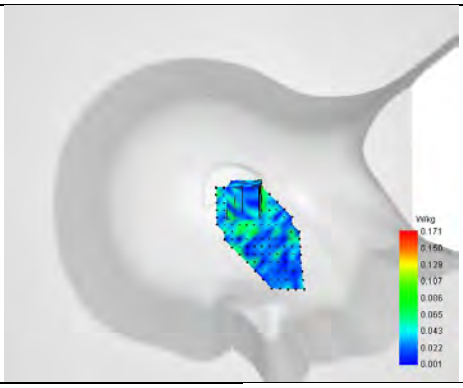
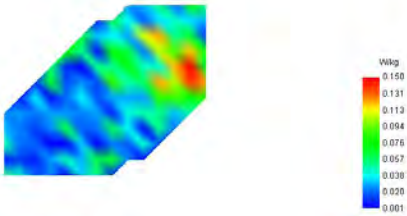
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

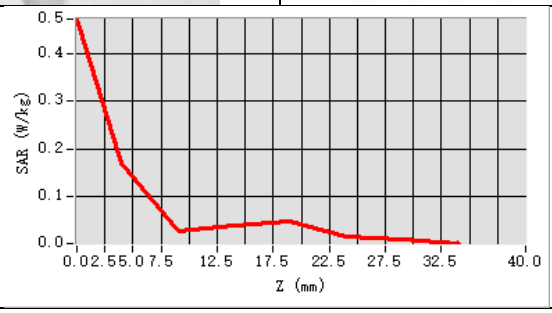


Plot 11:

Test Date	2024-09-13
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Tilt
Band	ISM
Signal	IEEE 802.11b
Frequency	2437
SAR 10g (W/Kg)	0.063
SAR 1g (W/Kg)	0.135
ConvF	2.30
Relative permittivity	39.66
Conductivity (S/m)	1.86

Maximum location: X=-1.00, Y=-16.00 ; SAR Peak: 0.30 W/kg

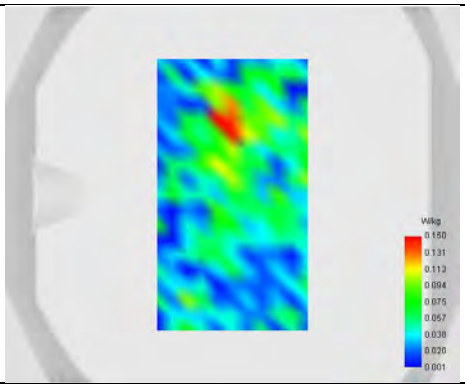
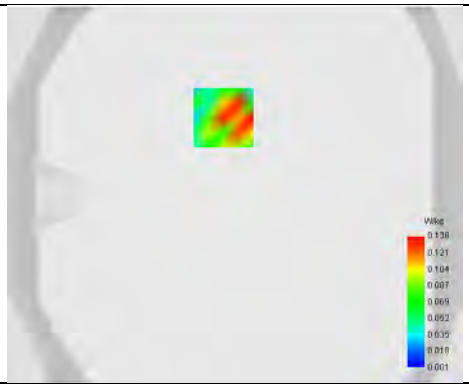
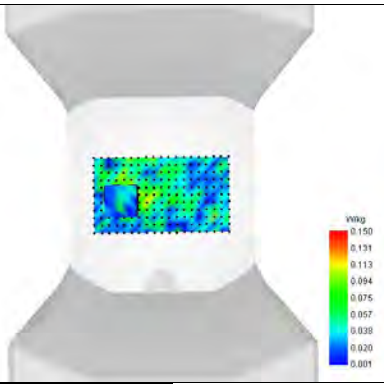
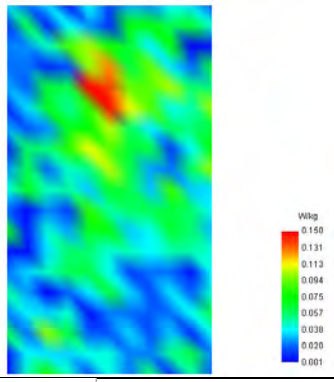
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

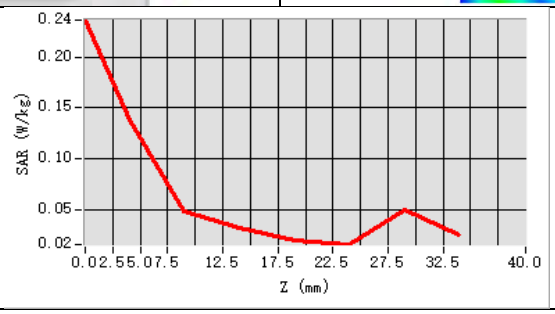


Plot 12:

Test Date	2024-09-13
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Back side
Band	ISM
Signal	IEEE 802.11b
Frequency	2437
SAR 10g (W/Kg)	0.068
SAR 1g (W/Kg)	0.132
ConvF	2.30
Relative permittivity	39.66
Conductivity (S/m)	1.86

Maximum location: X=-6.00, Y=41.00 ; SAR Peak: 0.26 W/kg

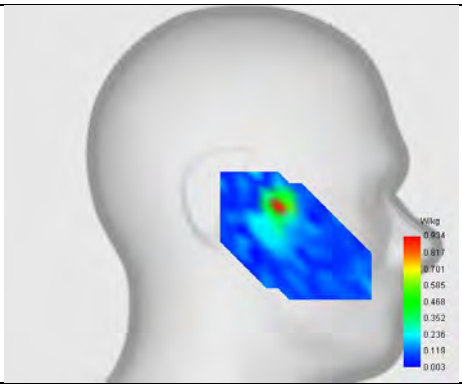
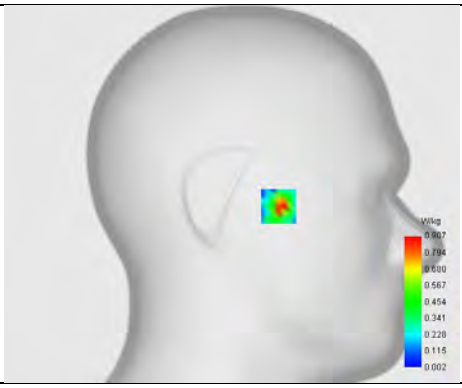
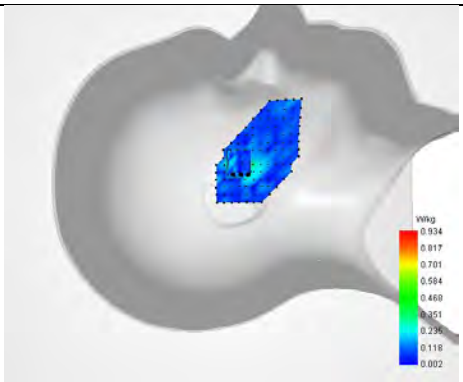
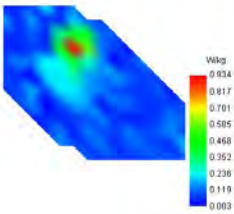
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

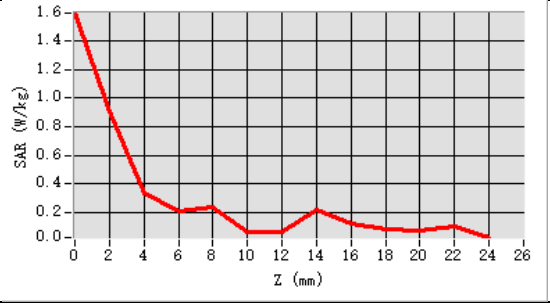


Plot 13:

Test Date	2024-09-14
Area Scan	dx=8mm dy=8mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Left head
Device Position	Tilt
Band	U-NII-1
Signal	IEEE 802.11a
Frequency	5180
SAR 10g (W/Kg)	0.245
SAR 1g (W/Kg)	0.686
ConvF	1.98
Relative permittivity	36.63
Conductivity (S/m)	4.62

Maximum location: X=-32.00, Y=-8.00 ; SAR Peak: 2.71 W/kg

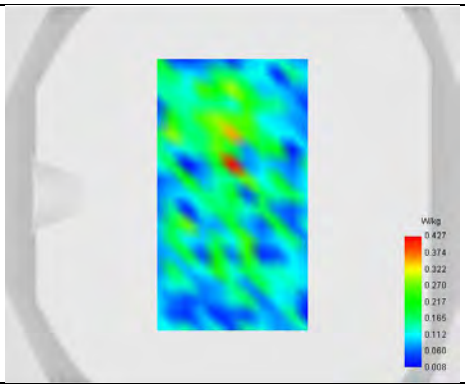
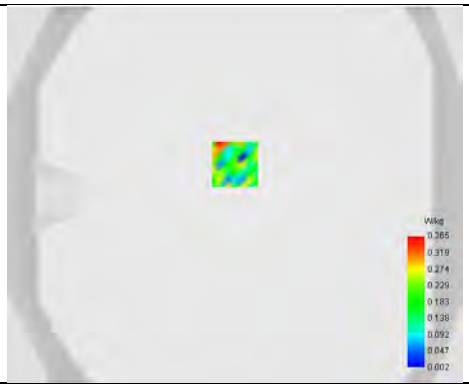
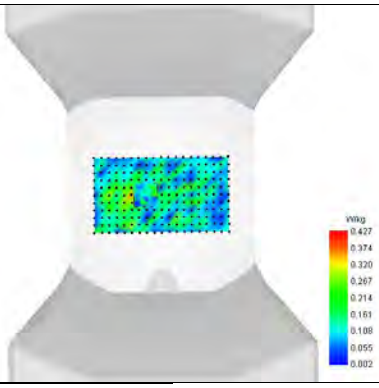
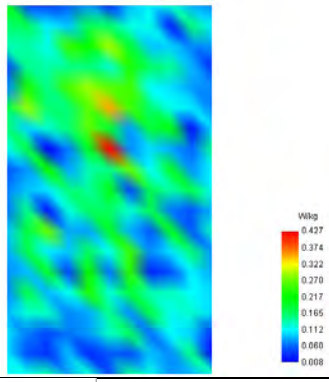
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

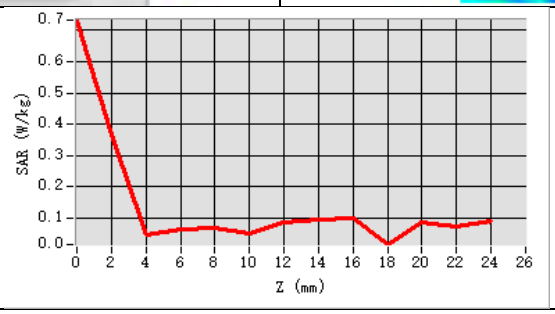


Plot 14:

Test Date	2024-09-14
Area Scan	dx=8mm dy=8mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Top side
Band	U-NII-1
Signal	IEEE 802.11a
Frequency	5180
SAR 10g (W/Kg)	0.087
SAR 1g (W/Kg)	0.225
ConvF	1.98
Relative permittivity	36.63
Conductivity (S/m)	4.62

Maximum location: X=0.00, Y=16.00 ; SAR Peak: 1.23 W/kg

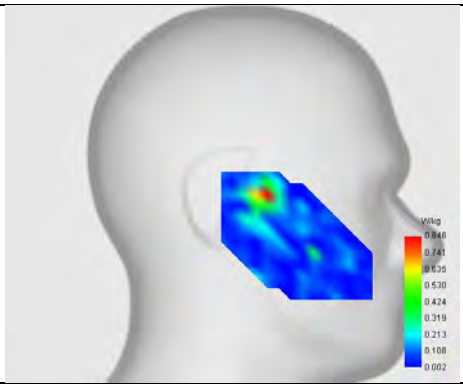
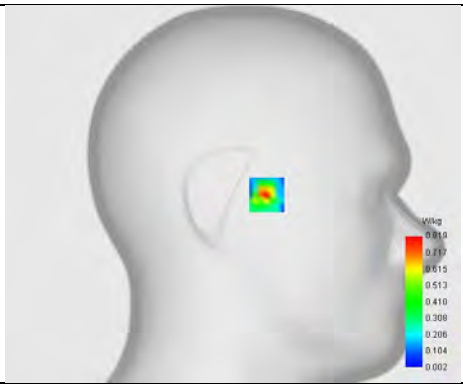
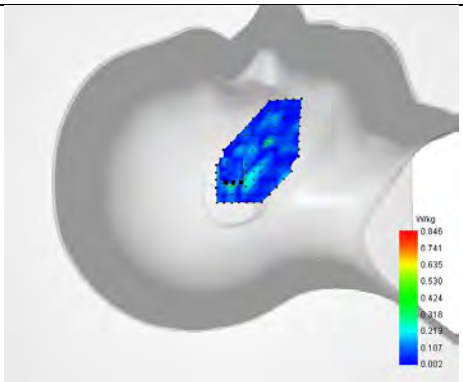
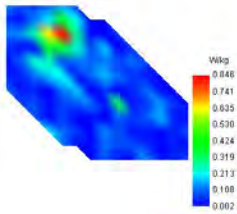
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

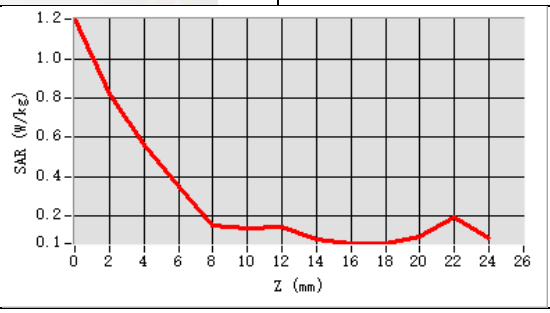


Plot 15:

Test Date	2024-09-14
Area Scan	dx=8mm dy=8mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Left head
Device Position	Tilt
Band	U-NII-2a
Signal	IEEE 802.11n
Frequency	5270
SAR 10g (W/Kg)	0.186
SAR 1g (W/Kg)	0.643
ConvF	1.83
Relative permittivity	36.50
Conductivity (S/m)	4.87

Maximum location: X=-23.00, Y=0.00 ; SAR Peak: 2.43 W/kg

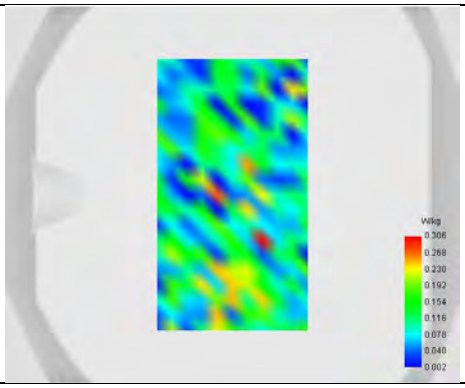
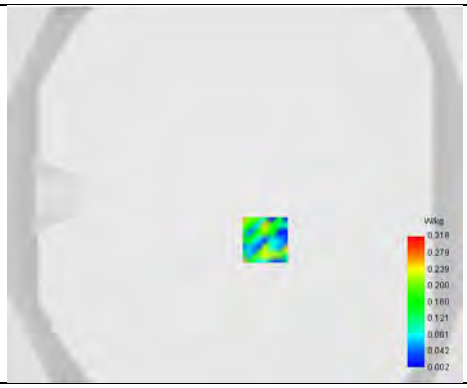
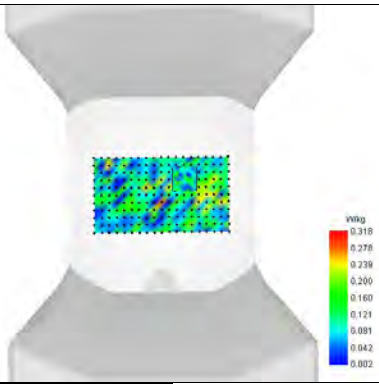
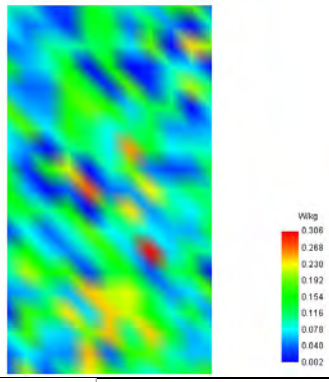
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

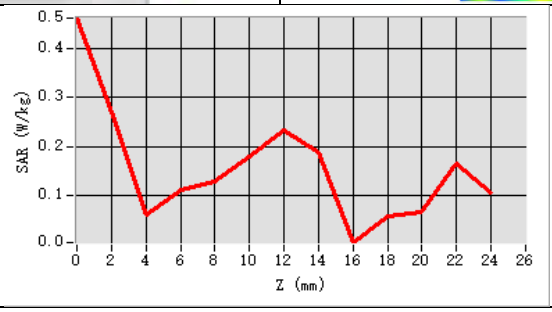


Plot 16:

Test Date	2024-09-14
Area Scan	dx=8mm dy=8mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Top Side
Band	U-NII-2a
Signal	IEEE 802.11n
Frequency	5270
SAR 10g (W/Kg)	0.078
SAR 1g (W/Kg)	0.121
ConvF	1.83
Relative permittivity	36.50
Conductivity (S/m)	4.87

Maximum location: X=16.00, Y=-24.00 ; SAR Peak: 1.02 W/kg

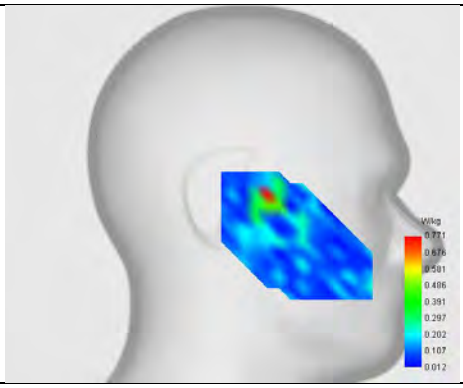
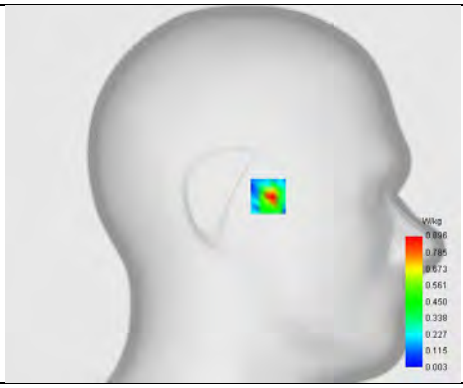
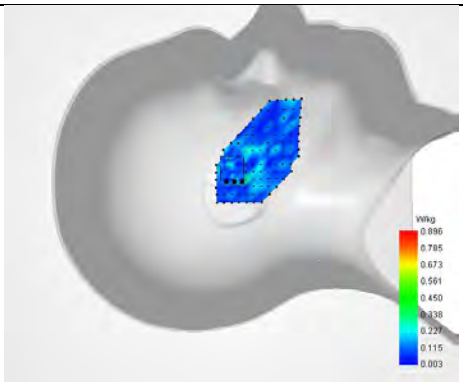
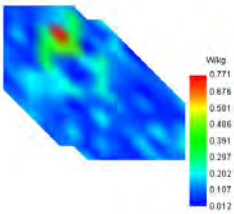
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

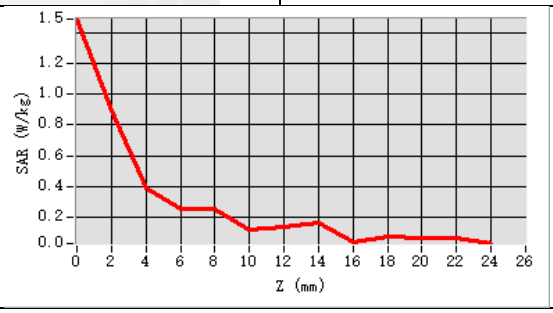


Plot 17:

Test Date	2024-09-15
Area Scan	dx=8mm dy=8mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Left head
Device Position	Tilt
Band	U-NII-2c
Signal	IEEE 802.11n
Frequency	5500
SAR 10g (W/Kg)	0.277
SAR 1g (W/Kg)	0.814
ConvF	1.86
Relative permittivity	35.98
Conductivity (S/m)	5.08

Maximum location: X=-24.00, Y=-1.00 ; SAR Peak: 3.50 W/kg

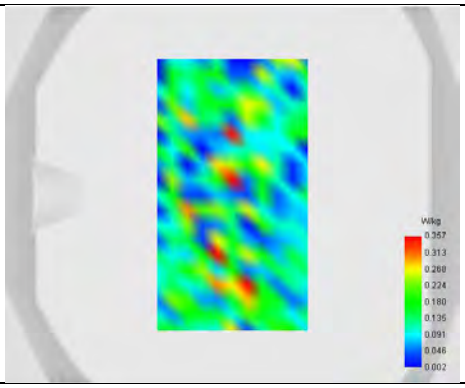
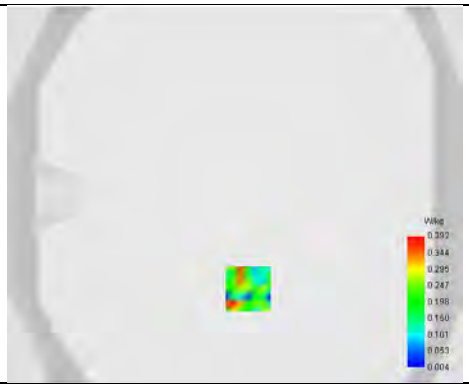
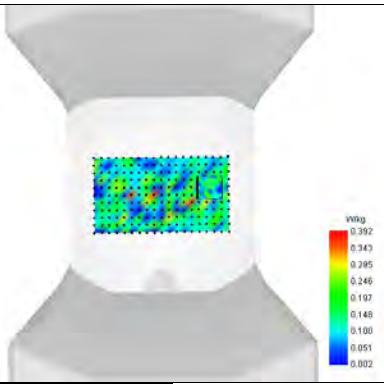
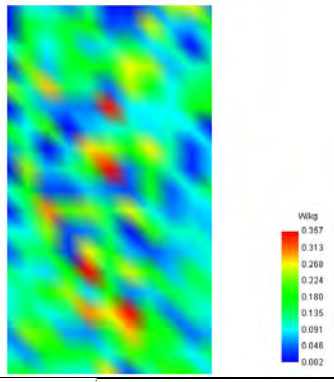
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

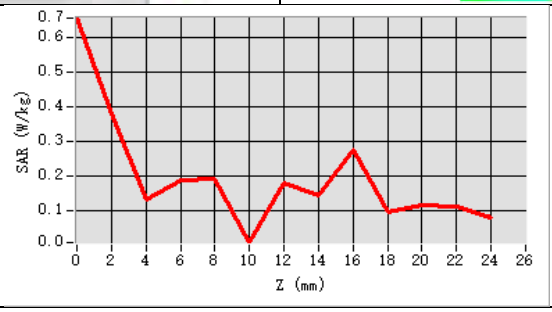


Plot 18:

Test Date	2024-09-15
Area Scan	dx=8mm dy=8mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Top Side
Band	U-NII-2c
Signal	IEEE 802.11n
Frequency	5500
SAR 10g (W/Kg)	0.087
SAR 1g (W/Kg)	0.177
ConvF	1.86
Relative permittivity	35.98
Conductivity (S/m)	5.08

Maximum location: X=7.00, Y=-50.00 ; SAR Peak: 1.27 W/kg

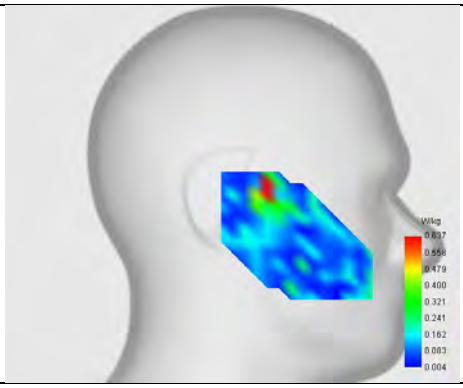
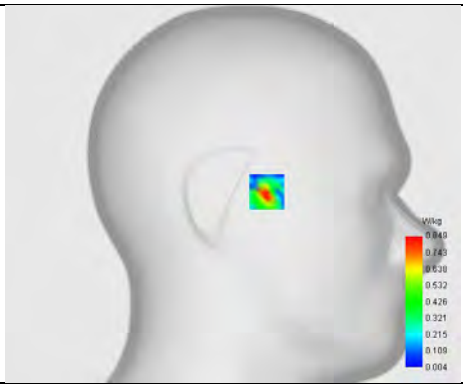
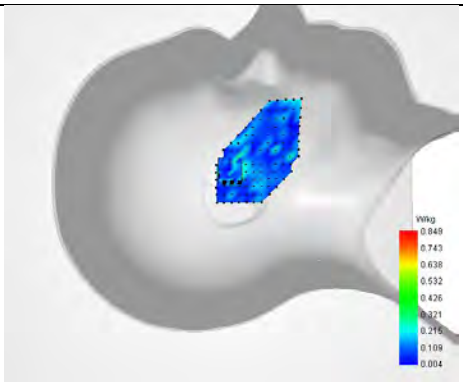
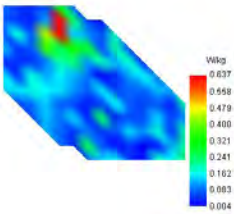
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

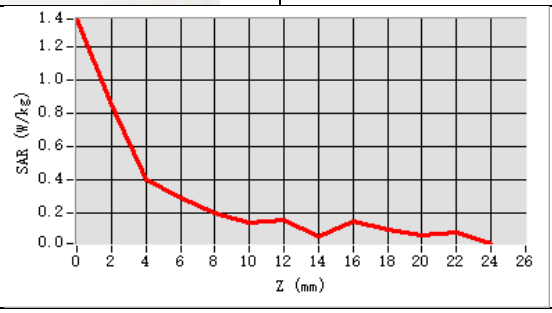


Plot 19:

Test Date	2024-09-15
Area Scan	dx=8mm dy=8mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Left head
Device Position	Tilt
Band	U-NII-3
Signal	IEEE 802.11n
Frequency	5755
SAR 10g (W/Kg)	0.243
SAR 1g (W/Kg)	0.831
ConvF	1.71
Relative permittivity	35.80
Conductivity (S/m)	5.19

Maximum location: X=-23.00, Y=2.00 ; SAR Peak: 3.53 W/kg

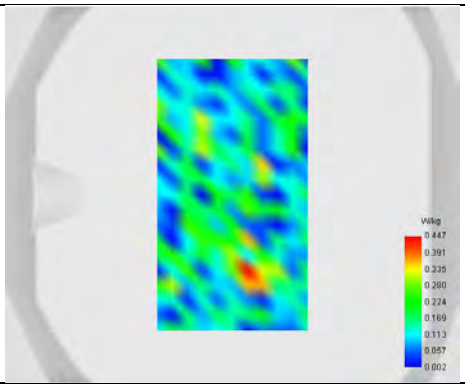
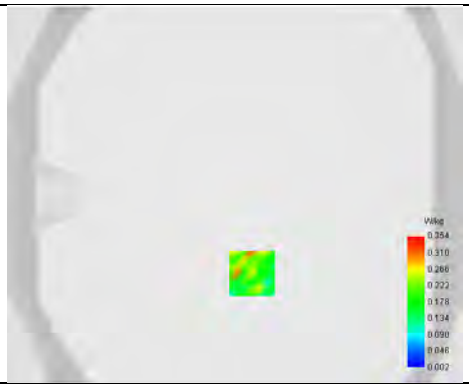
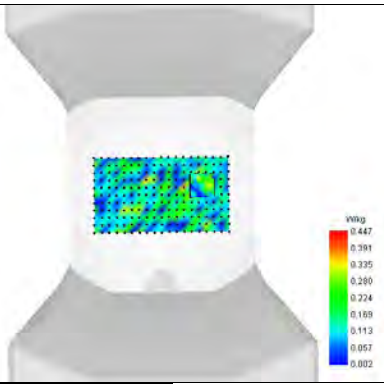
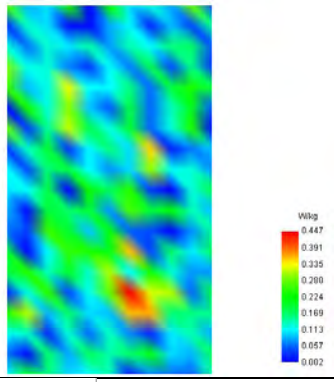
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

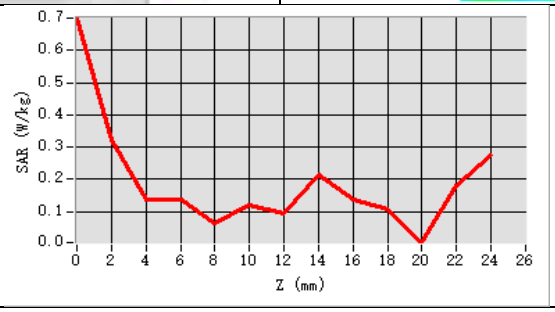


Plot 20:

Test Date	2024-09-15
Area Scan	dx=8mm dy=8mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Top Side
Band	U-NII-3
Signal	IEEE 802.11n
Frequency	5755
SAR 10g (W/Kg)	0.124
SAR 1g (W/Kg)	0.230
ConvF	1.71
Relative permittivity	35.80
Conductivity (S/m)	5.19

Maximum location: X=9.00, Y=-42.00 ; SAR Peak: 1.07 W/kg

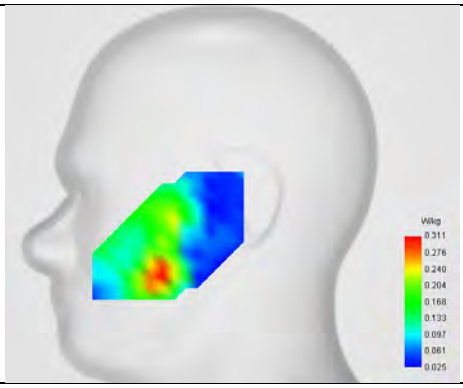
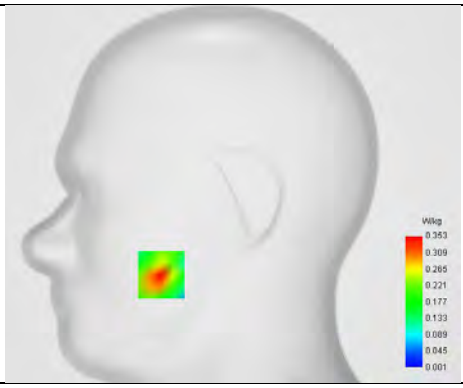
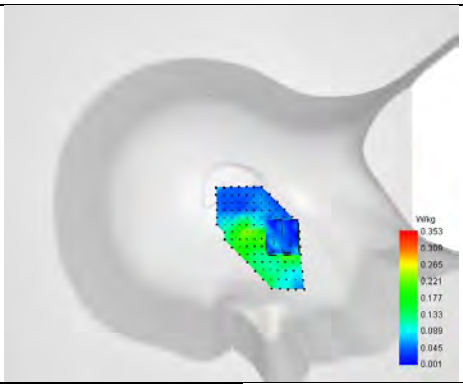
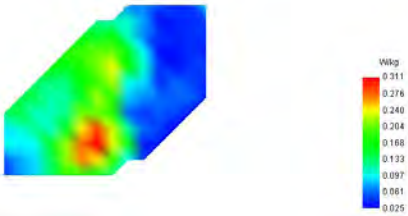
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

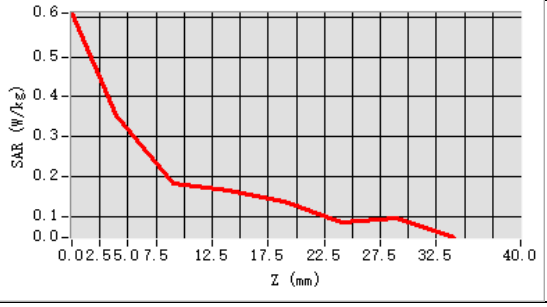


Plot 21:

Test Date	2024-09-11
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE band 2
Signal	LTE FDD
Frequency	1900
SAR 10g (W/Kg)	0.190
SAR 1g (W/Kg)	0.334
ConvF	2.24
Relative permittivity	40.91
Conductivity (S/m)	1.34

Maximum location: X=-49.00, Y=-55.00 ; SAR Peak: 0.63 W/kg

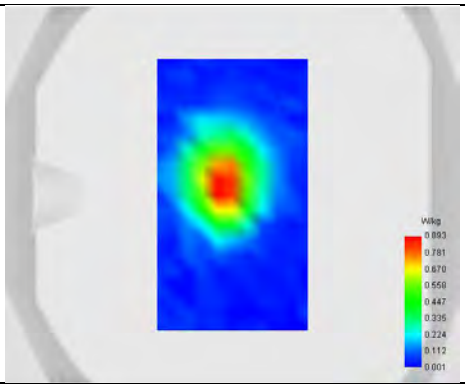
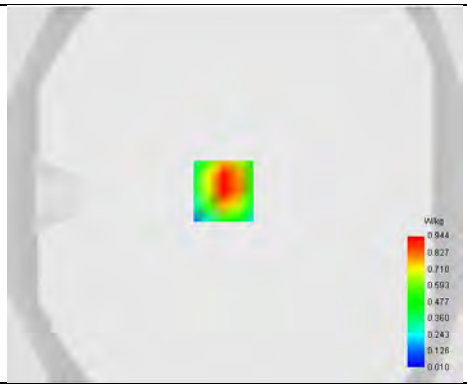
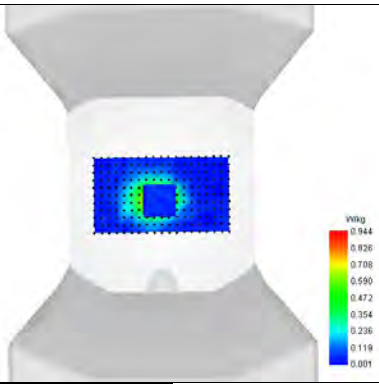
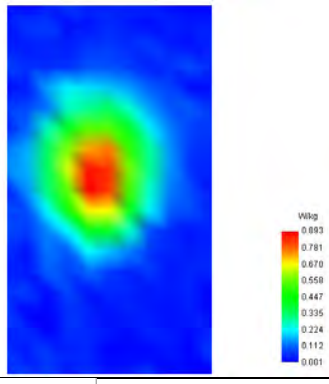
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

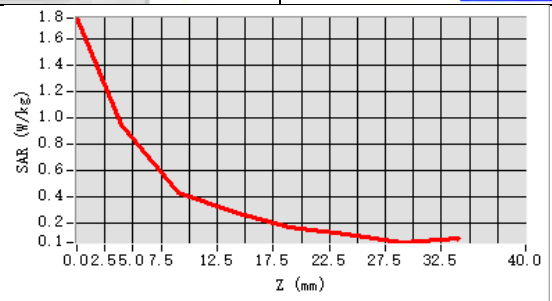


Plot 22:

Test Date	2024-09-11
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Bottom Side
Band	LTE band 2
Signal	LTE FDD
Frequency	1900
SAR 10g (W/Kg)	0.491
SAR 1g (W/Kg)	0.909
ConvF	2.24
Relative permittivity	40.91
Conductivity (S/m)	1.34

Maximum location: X=-6.00, Y=2.00 ; SAR Peak: 1.55 W/kg

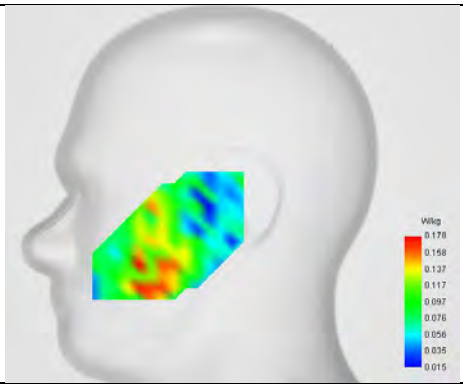
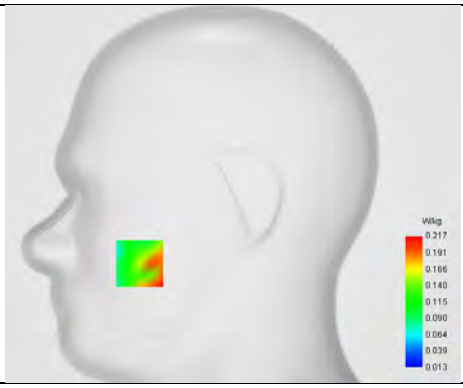
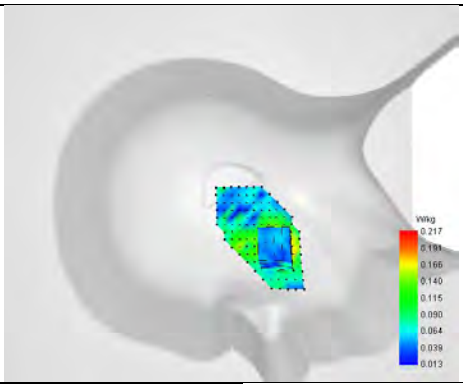
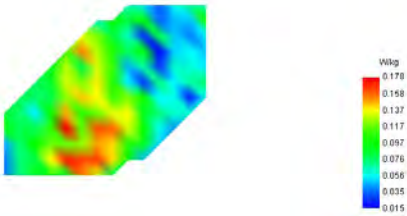
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

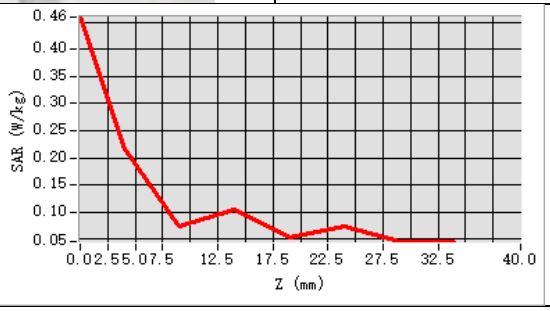


Plot 23:

Test Date	2024-09-09
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE band 4
Signal	LTE FDD
Frequency	1745
SAR 10g (W/Kg)	0.081
SAR 1g (W/Kg)	0.189
ConvF	1.91
Relative permittivity	41.32
Conductivity (S/m)	1.44

Maximum location: X=-64.00, Y=-47.00 ; SAR Peak: 0.43 W/kg

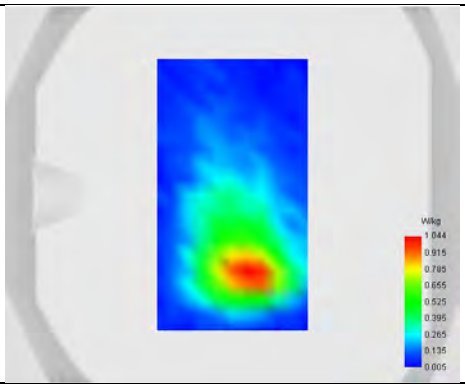
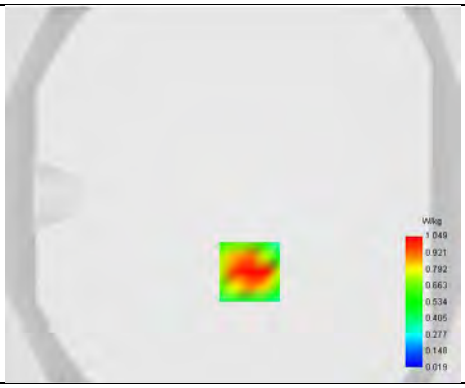
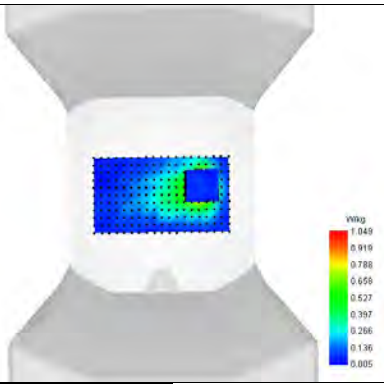
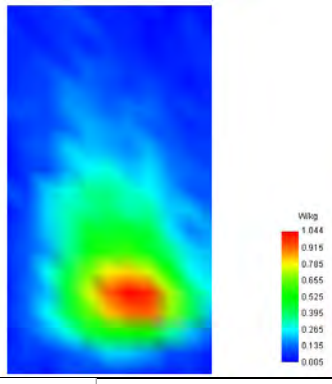
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

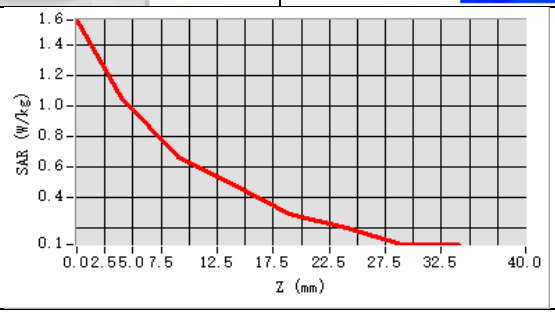


Plot 24:

Test Date	2024-09-09
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE band 4
Signal	LTE FDD
Frequency	1745
SAR 10g (W/Kg)	0.576
SAR 1g (W/Kg)	1.023
ConvF	1.91
Relative permittivity	41.32
Conductivity (S/m)	1.44

Maximum location: X=9.00, Y=-41.00 ; SAR Peak: 1.67 W/kg

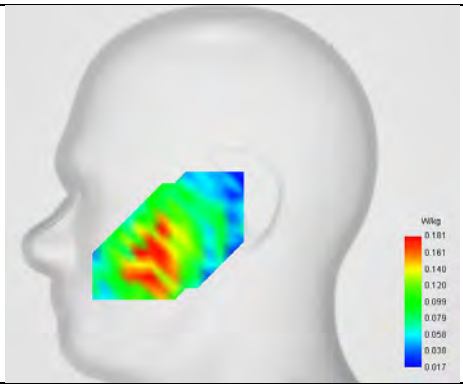
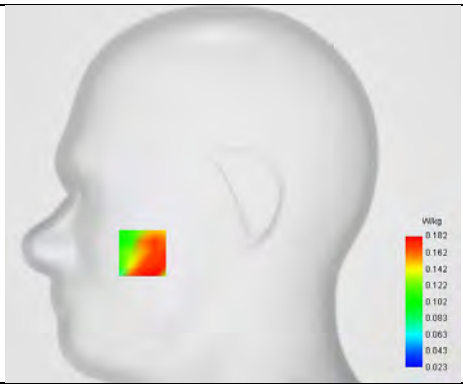
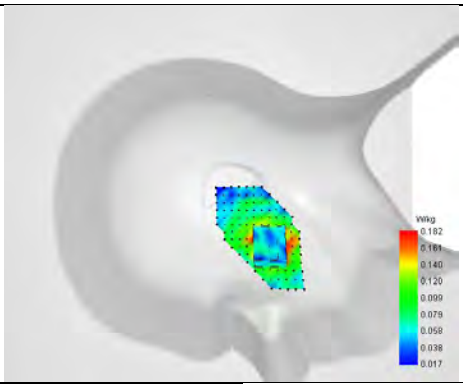
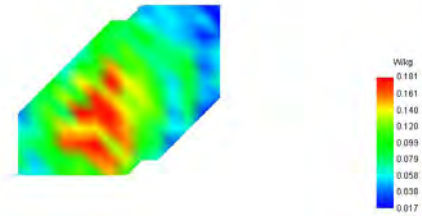
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

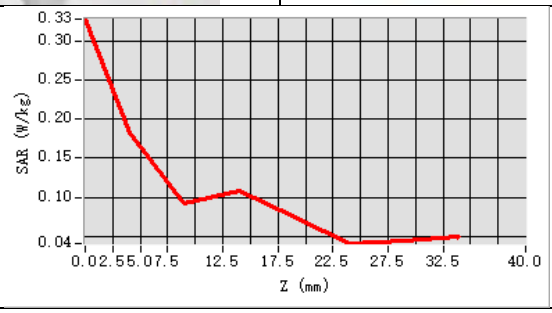


Plot 25:

Test Date	2024-09-12
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE band 5
Signal	LTE FDD
Frequency	844
SAR 10g (W/Kg)	0.115
SAR 1g (W/Kg)	0.201
ConvF	1.70
Relative permittivity	41.38
Conductivity (S/m)	0.92

Maximum location: X=-62.00, Y=-40.00 ; SAR Peak: 0.35 W/kg

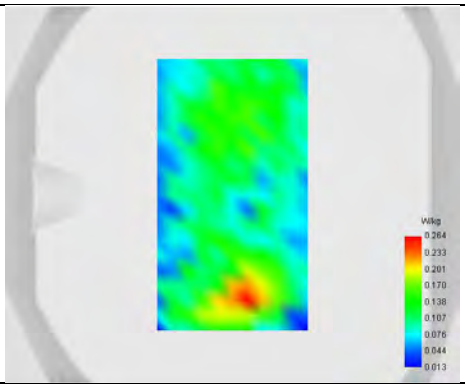
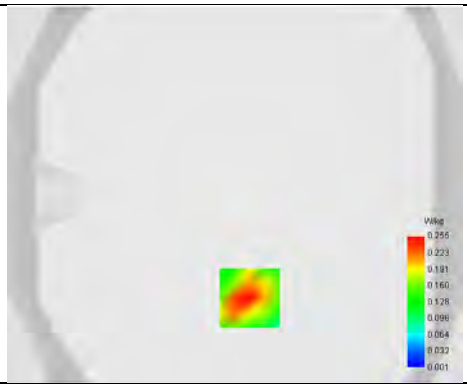
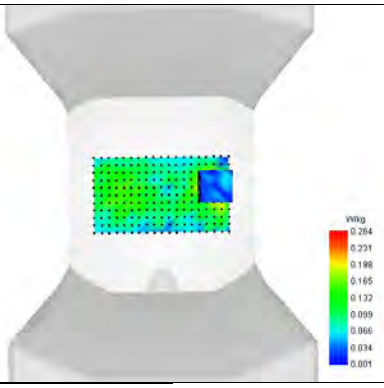
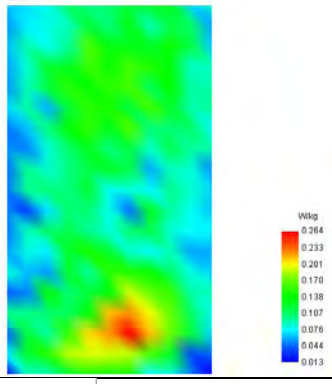
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

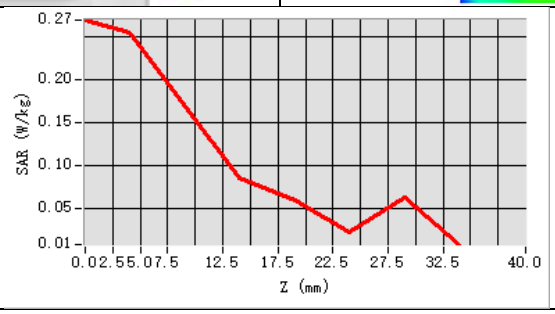


Plot 26:

Test Date	2024-09-12
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE band 5
Signal	LTE FDD
Frequency	844
SAR 10g (W/Kg)	0.130
SAR 1g (W/Kg)	0.227
ConvF	1.70
Relative permittivity	41.38
Conductivity (S/m)	0.92

Maximum location: X=8.00, Y=-55.00 ; SAR Peak: 0.37 W/kg

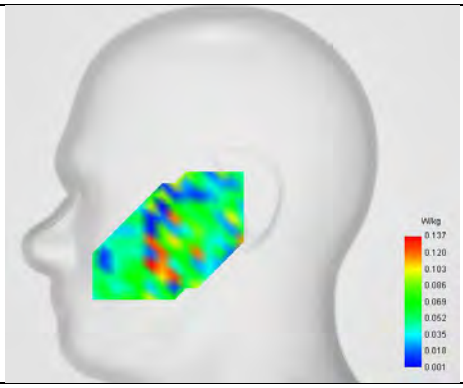
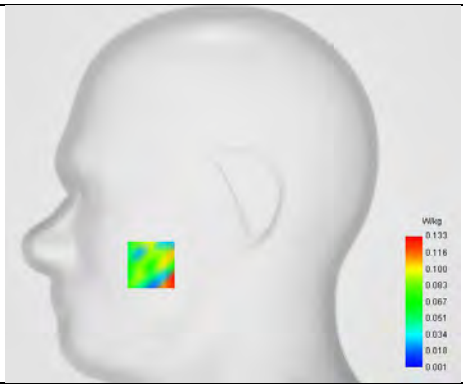
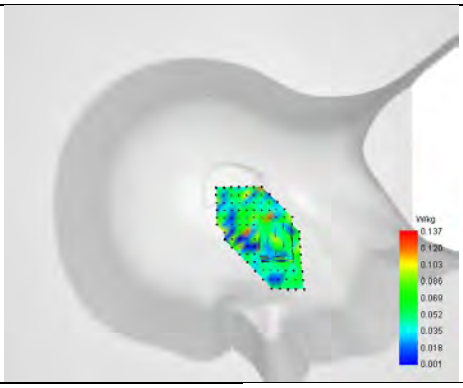
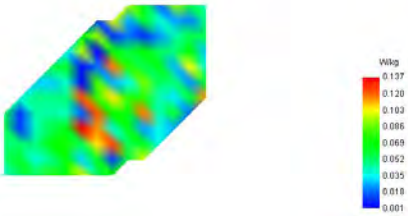
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

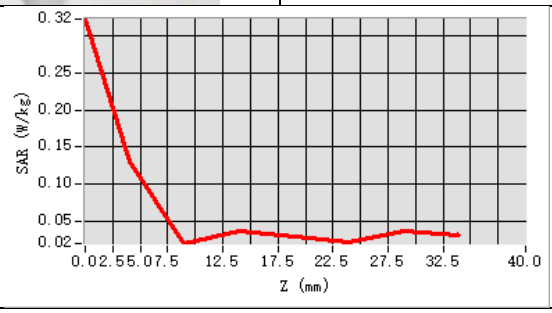


Plot 27:

Test Date	2024-09-08
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE band 7
Signal	LTE FDD
Frequency	2560
SAR 10g (W/Kg)	0.054
SAR 1g (W/Kg)	0.088
ConvF	2.35
Relative permittivity	39.79
Conductivity (S/m)	1.98

Maximum location: X=-56.00, Y=-48.00 ; SAR Peak: 0.36 W/kg

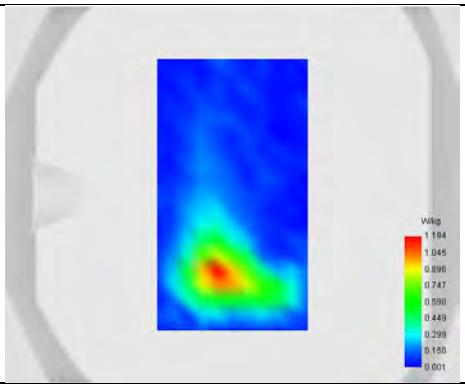
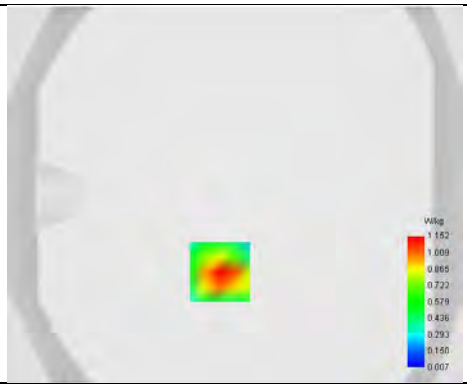
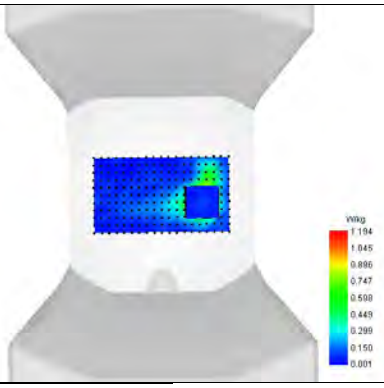
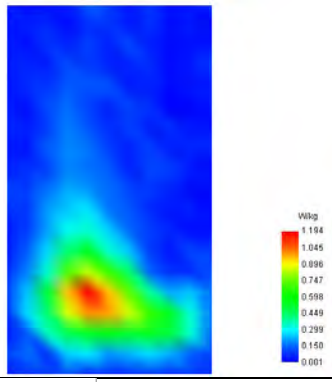
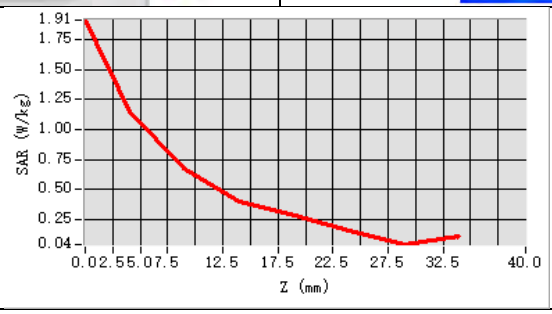
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	



Plot 28:

Test Date	2024-09-08
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE band 7
Signal	LTE FDD
Frequency	2560
SAR 10g (W/Kg)	0.571
SAR 1g (W/Kg)	1.122
ConvF	2.35
Relative permittivity	39.79
Conductivity (S/m)	1.98

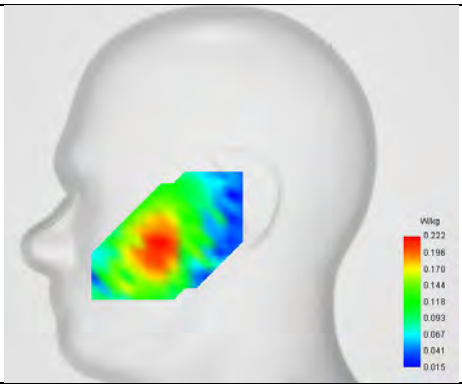
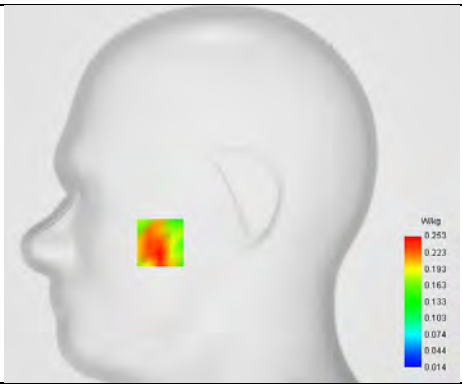
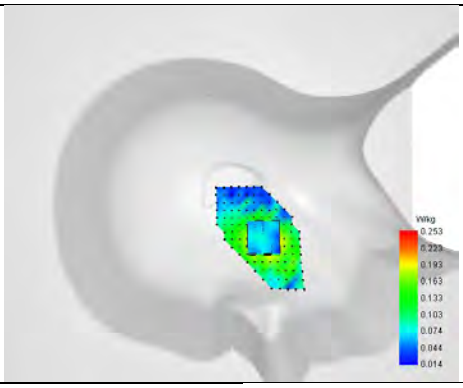
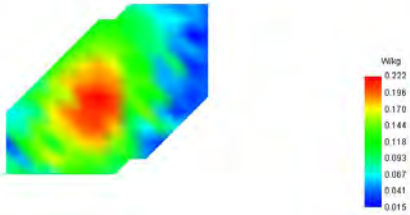
Maximum location: X=-8.00, Y=-41.00 ; SAR Peak: 1.89 W/kg

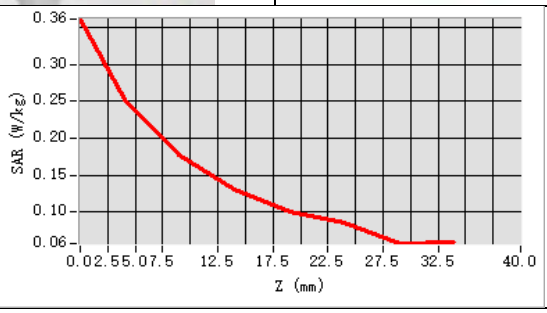
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	
	

Plot 29:

Test Date	2024-09-07
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE band 12
Signal	LTE FDD
Frequency	711
SAR 10g (W/Kg)	0.150
SAR 1g (W/Kg)	0.247
ConvF	1.68
Relative permittivity	41.78
Conductivity (S/m)	0.86

Maximum location: X=-49.00, Y=-33.00 ; SAR Peak: 0.41 W/kg

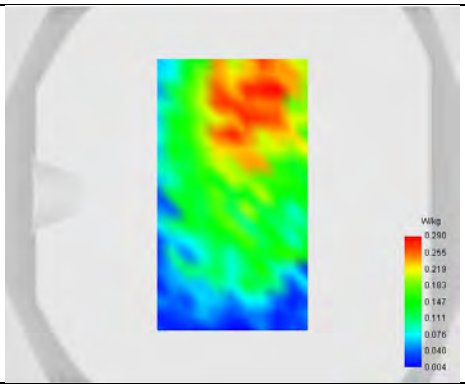
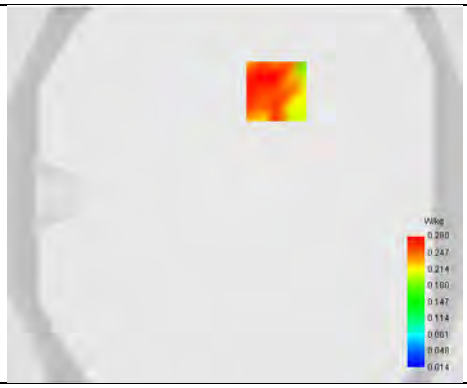
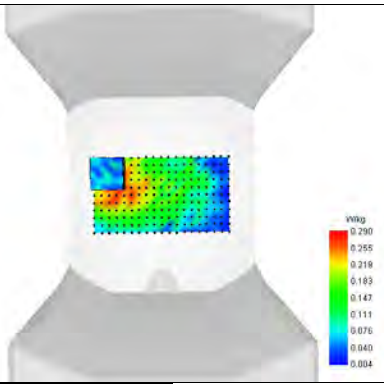
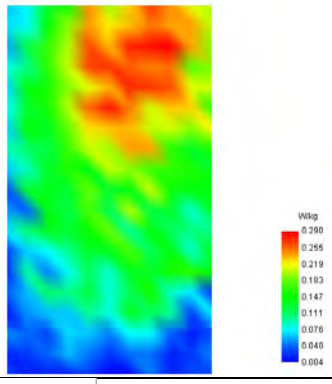
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

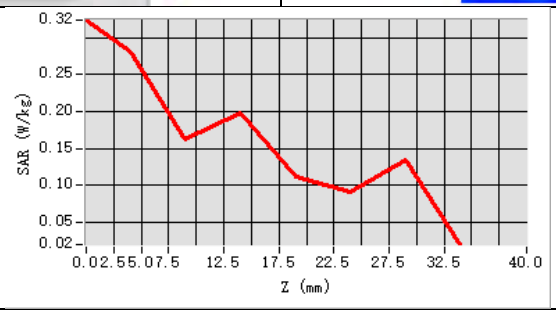


Plot 30:

Test Date	2024-09-07
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE band 12
Signal	LTE FDD
Frequency	711
SAR 10g (W/Kg)	0.170
SAR 1g (W/Kg)	0.289
ConvF	1.68
Relative permittivity	41.78
Conductivity (S/m)	0.86

Maximum location: X=22.00, Y=55.00 ; SAR Peak: 0.45 W/kg

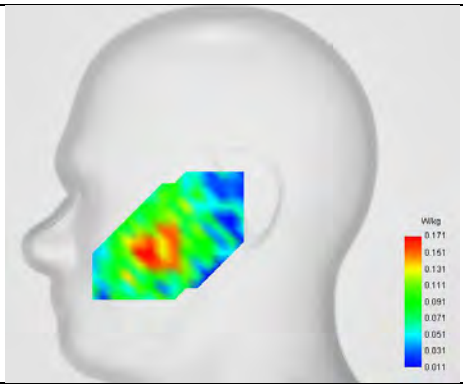
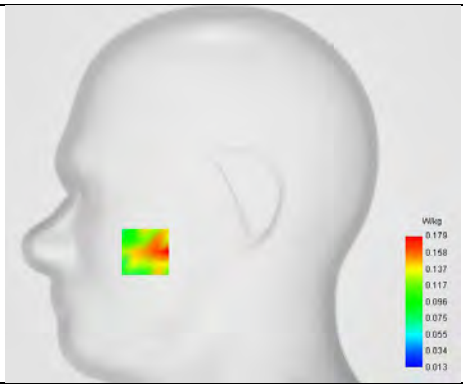
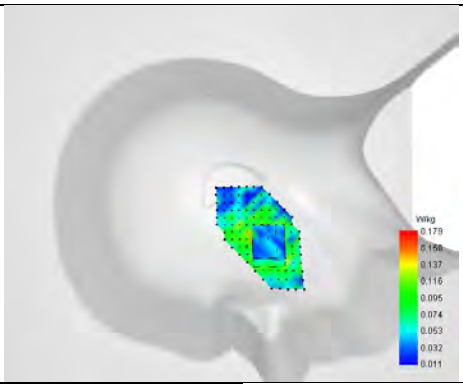
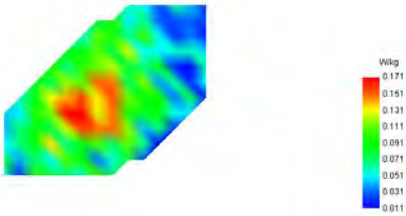
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

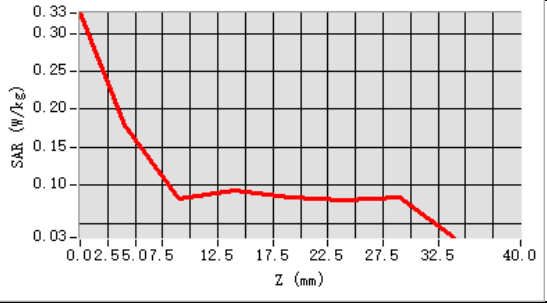


Plot 31:

Test Date	2024-09-07
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE band 13
Signal	LTE FDD
Frequency	782
SAR 10g (W/Kg)	0.108
SAR 1g (W/Kg)	0.182
ConvF	1.68
Relative permittivity	41.78
Conductivity (S/m)	0.86

Maximum location: X=-60.00, Y=-39.00 ; SAR Peak: 0.34 W/kg

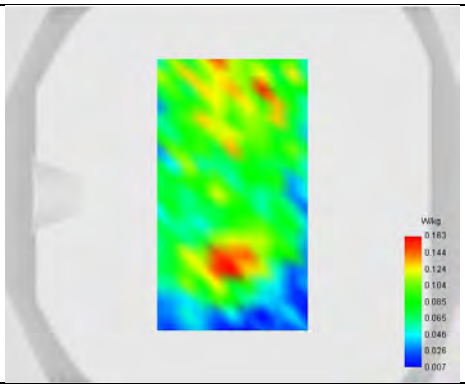
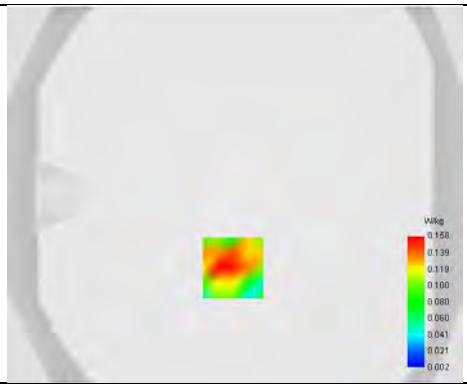
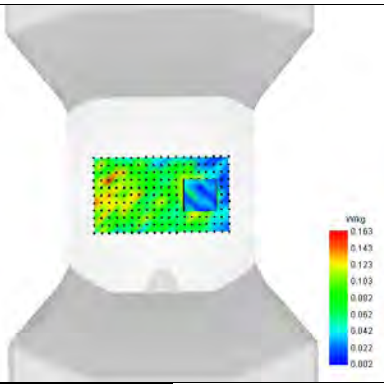
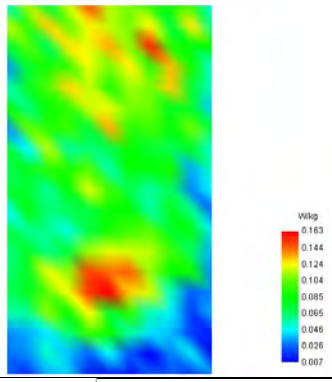
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

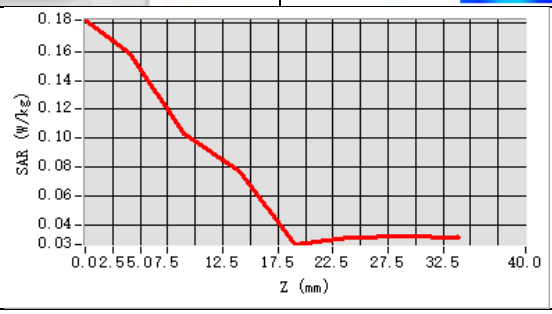


Plot 32:

Test Date	2024-09-07
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE band 13
Signal	LTE FDD
Frequency	782
SAR 10g (W/Kg)	0.094
SAR 1g (W/Kg)	0.169
ConvF	1.68
Relative permittivity	41.78
Conductivity (S/m)	0.86

Maximum location: X=-1.00, Y=-39.00 ; SAR Peak: 0.28 W/kg

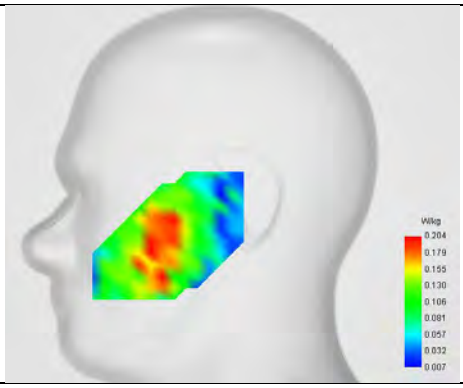
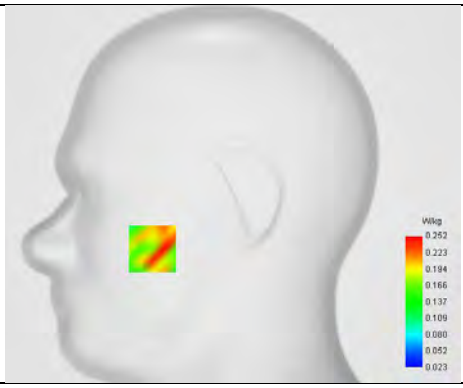
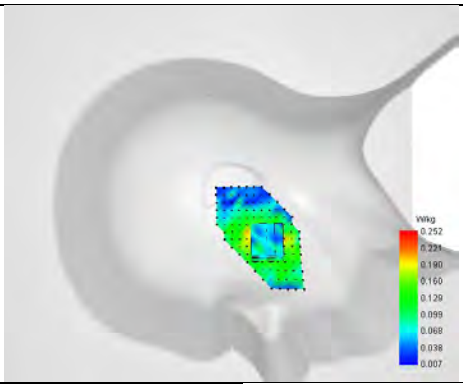
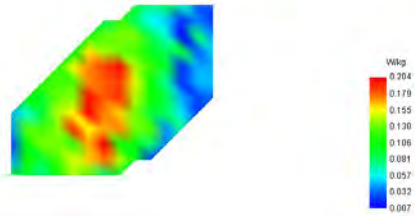
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

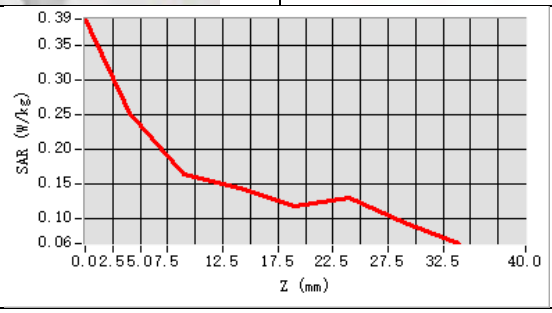


Plot 33:

Test Date	2024-09-07
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE band 17
Signal	LTE FDD
Frequency	710
SAR 10g (W/Kg)	0.152
SAR 1g (W/Kg)	0.237
ConvF	1.68
Relative permittivity	41.78
Conductivity (S/m)	0.86

Maximum location: X=-55.00, Y=-37.00 ; SAR Peak: 0.39 W/kg

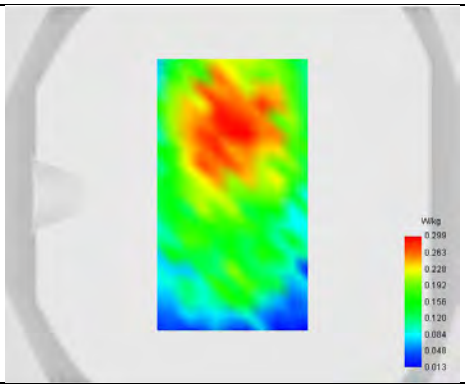
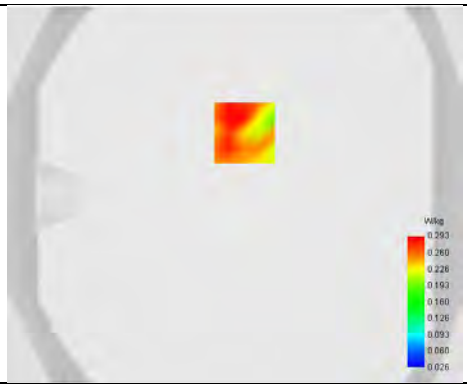
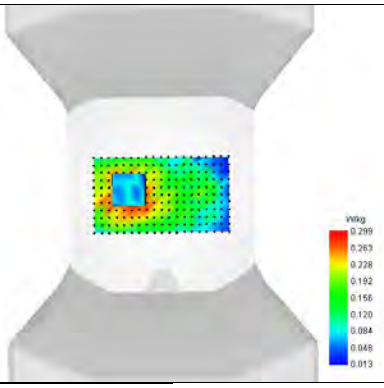
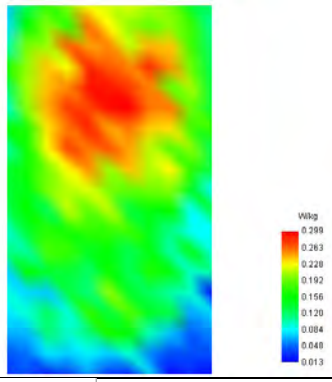
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

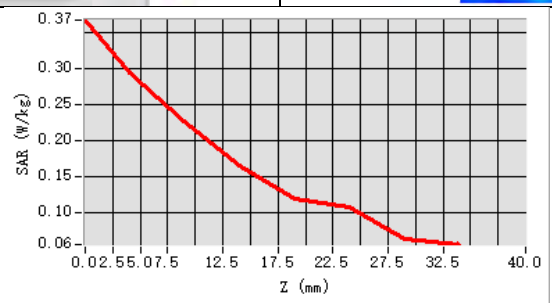


Plot 34:

Test Date	2024-09-07
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE band 17
Signal	LTE FDD
Frequency	710
SAR 10g (W/Kg)	0.202
SAR 1g (W/Kg)	0.323
ConvF	1.68
Relative permittivity	41.78
Conductivity (S/m)	0.86

Maximum location: X=5.00, Y=33.00 ; SAR Peak: 0.47 W/kg

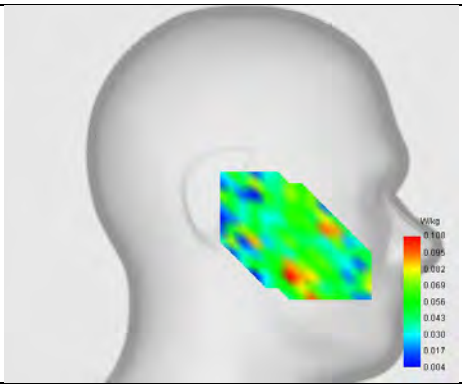
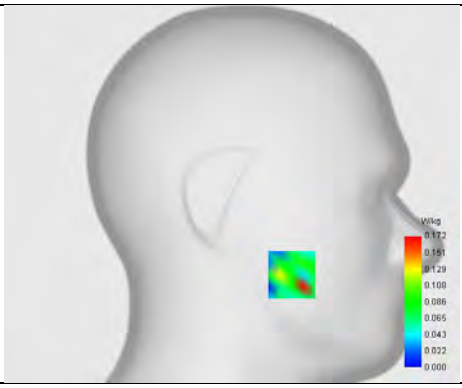
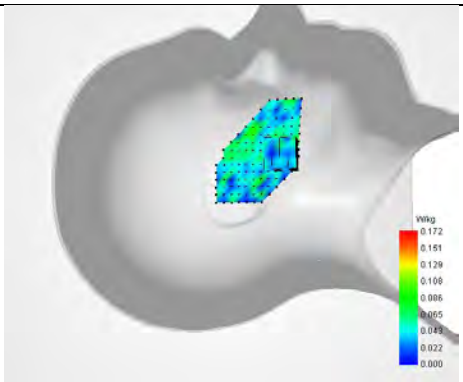
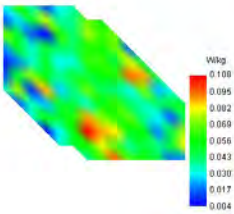
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

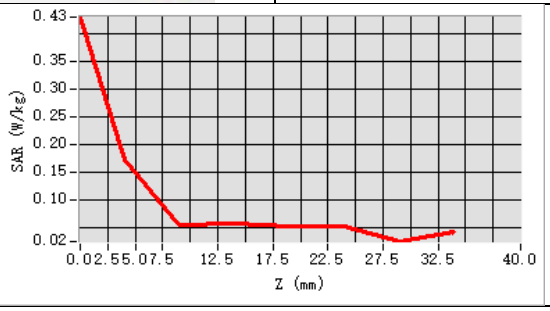


Plot 35:

Test Date	2024-09-08
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 38
Signal	LTE TDD
Frequency	2595
SAR 10g (W/Kg)	0.047
SAR 1g (W/Kg)	0.124
ConvF	2.35
Relative permittivity	39.79
Conductivity (S/m)	1.98

Maximum location: X=-41.00, Y=-55.00 ; SAR Peak: 0.27 W/kg

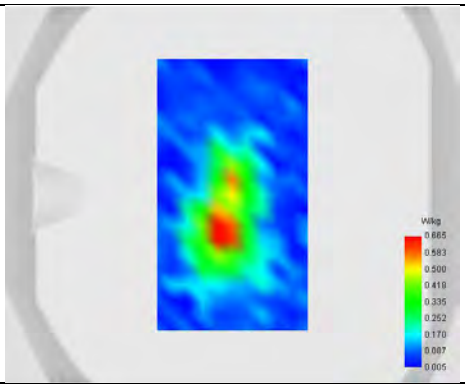
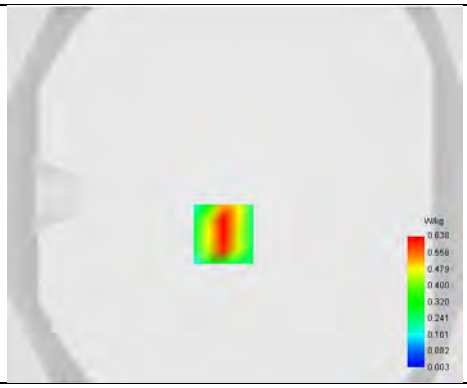
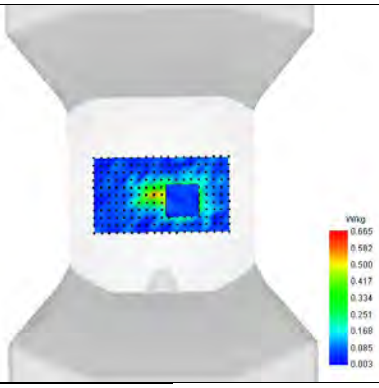
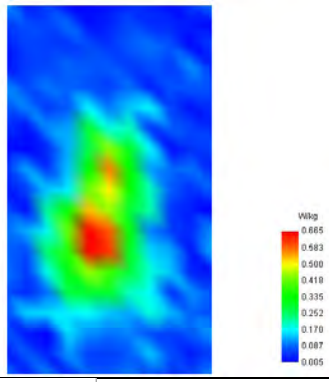
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

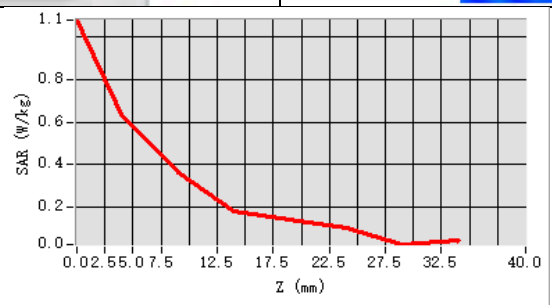


Plot 36:

Test Date	2024-09-08
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Bottom Side
Band	LTE band 38
Signal	LTE TDD
Frequency	2595
SAR 10g (W/Kg)	0.296
SAR 1g (W/Kg)	0.618
ConvF	2.35
Relative permittivity	39.79
Conductivity (S/m)	1.98

Maximum location: X=-6.00, Y=-21.00 ; SAR Peak: 1.13 W/kg

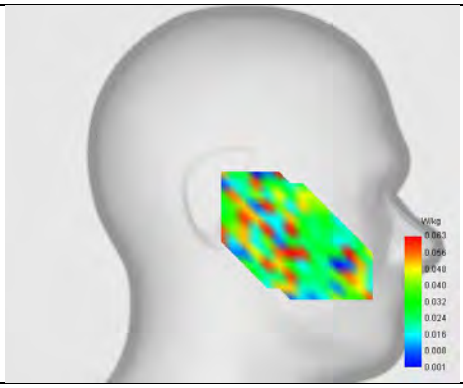
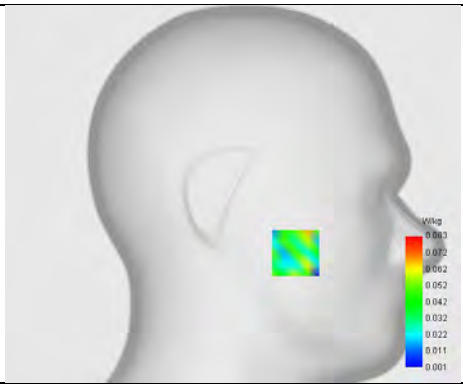
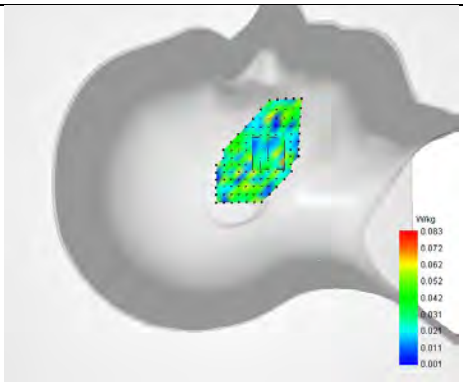
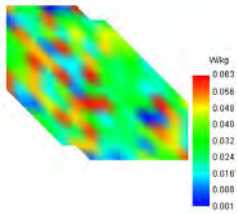
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

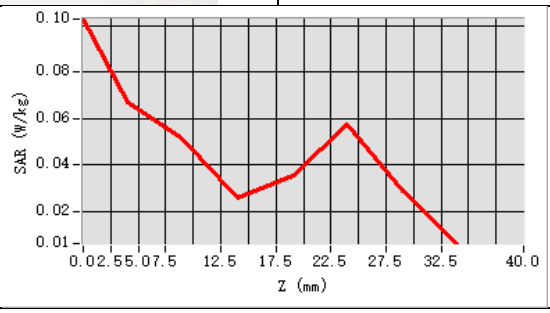


Plot 37:

Test Date	2024-09-13
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 40
Signal	LTE TDD
Frequency	2310
SAR 10g (W/Kg)	0.030
SAR 1g (W/Kg)	0.075
ConvF	2.31
Relative permittivity	40.31
Conductivity (S/m)	1.64

Maximum location: X=-43.00, Y=-40.00 ; SAR Peak: 0.20 W/kg

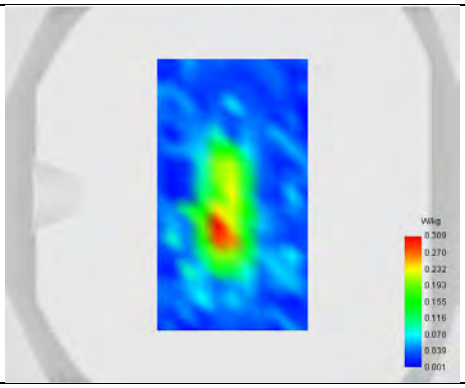
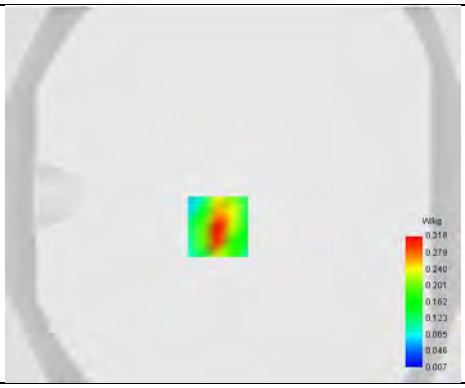
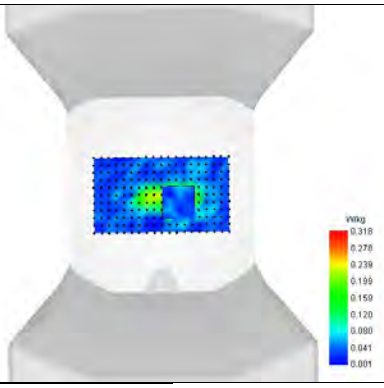
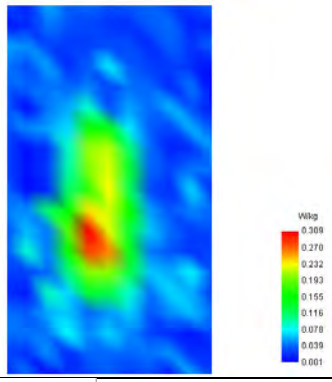
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

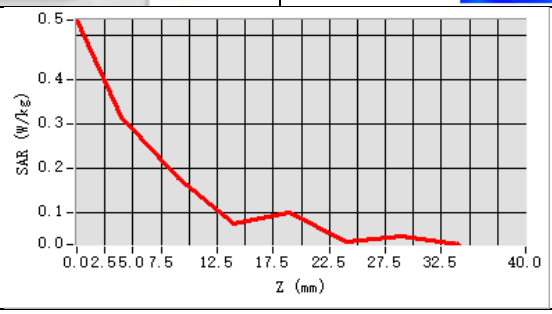


Plot 38:

Test Date	2024-09-13
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Bottom Side
Band	LTE band 40
Signal	LTE TDD
Frequency	2310
SAR 10g (W/Kg)	0.145
SAR 1g (W/Kg)	0.290
ConvF	2.31
Relative permittivity	40.31
Conductivity (S/m)	1.64

Maximum location: X=-8.00, Y=-17.00 ; SAR Peak: 0.54 W/kg

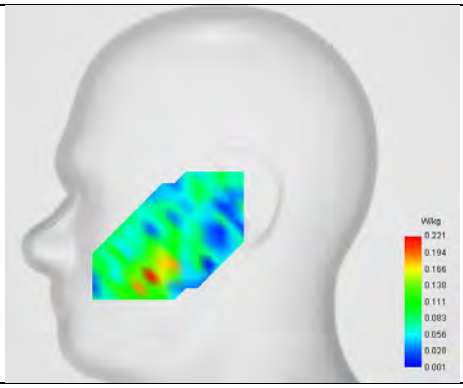
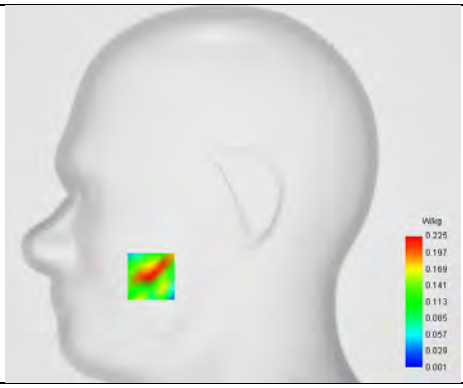
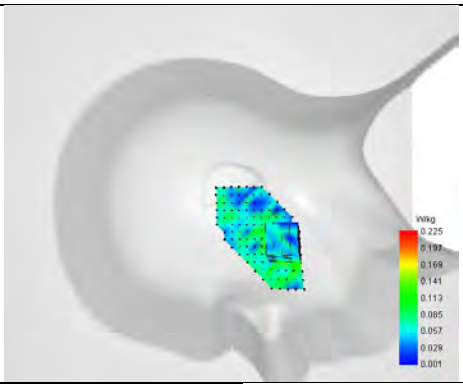
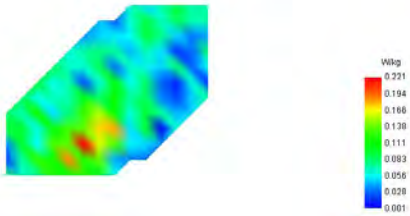
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

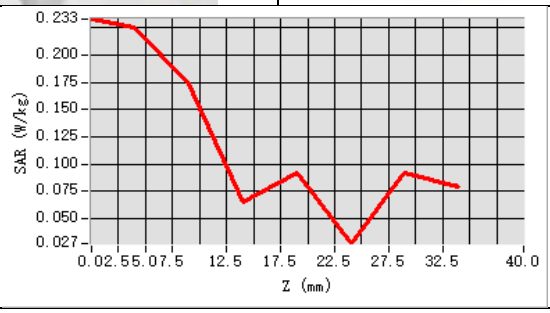


Plot 39:

Test Date	2024-09-10
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Right head
Device Position	Cheek
Band	LTE band 66
Signal	LTE FDD
Frequency	1745
SAR 10g (W/Kg)	0.099
SAR 1g (W/Kg)	0.185
ConvF	1.91
Relative permittivity	40.96
Conductivity (S/m)	1.35

Maximum location: X=-56.00, Y=-56.00 ; SAR Peak: 0.39 W/kg

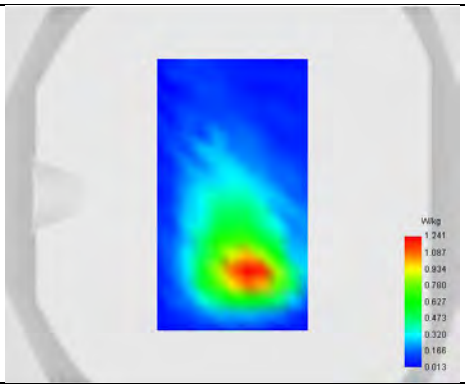
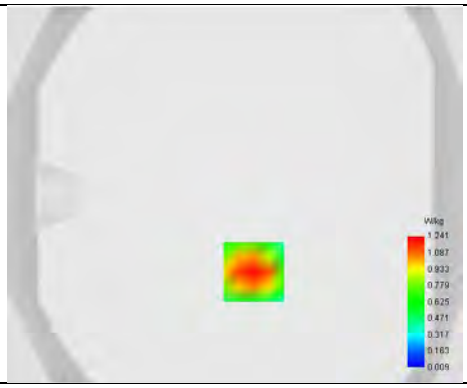
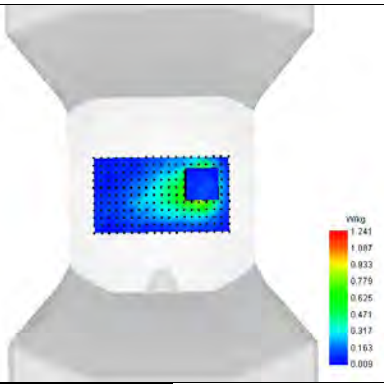
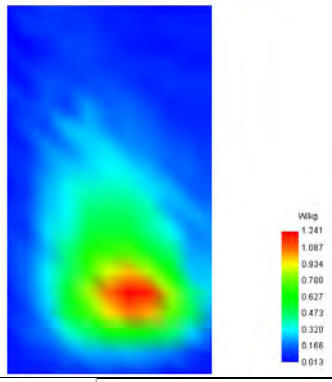
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	

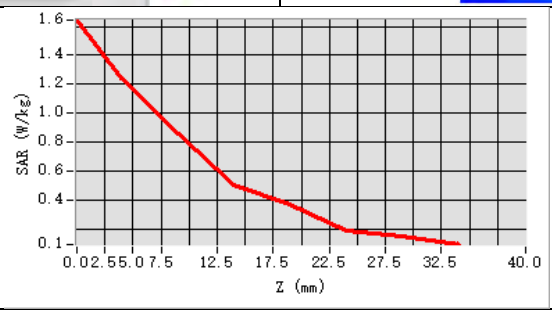


Plot 40:

Test Date	2024-09-10
Area Scan	dx=8mm dy=8mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE band 66
Signal	LTE FDD
Frequency	1745
SAR 10g (W/Kg)	0.683
SAR 1g (W/Kg)	1.172
ConvF	1.91
Relative permittivity	40.96
Conductivity (S/m)	1.35

Maximum location: X=10.00, Y=-41.00 ; SAR Peak: 1.76 W/kg

SURFACE SAR	VOLUME SAR
	
3D screen shot	**Hot spot position**
	



Appendix C. Probe Calibration and Dipole Calibration Report

Refer the appendix Calibration Report.

※※※※※END OF THE REPORT※※※※※