



SAR Test Report

Report No.: STS2512210H02

Issued for

Shanghai Huace Navigation Technology Ltd.

577 Songying Road, Qingpu District, 201706 Shanghai,
China

Product Name: GNSS Data Collector

Brand Name:



Model Name: TC100

Series Model(s): N/A

FCC ID: SY4-B01022

Test Standard: ANSI/IEEE Std. C95.1
FCC 47 CFR Part 2 (2.1093)
IEEE Std. 1528-2013

Max. Report
SAR (1g)

Body: 0.779 W/kg

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

**TEST REPORT CERTIFICATION****Applicant's name** : Shanghai Huace Navigation Technology Ltd.

Address : 577 Songying Road, Qingpu District, 201706 Shanghai, China

Manufacturer's Name : Shanghai Huace Navigation Technology Ltd.

Address : 577 Songying Road, Qingpu District, 201706 Shanghai, China

Product description

Product name : GNSS Data Collector

Brand name :



Model name : TC100

Series Model..... : N/A

Standards : ANSI/IEEE Std. C95.1
FCC 47 CFR Part 2 (2.1093)
IEEE Std. 1528-2013

The device was tested by Shenzhen STS Test Services Co., Ltd. in accordance with the measurement methods and procedures specified in KDB 865664 The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Date of Test..... :

Date (s) of performance of tests..... : 24 Dec. 2025 ~ 06 Jan. 2026

Date of Issue..... : 06 Jan. 2026

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

Testing Engineer : _____

(Xin.Liu)

Technical Manager : _____

(Shifan. Long)

Authorized Signatory : _____

(Bovey Yang)





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Rev.	Issue Date	Report No.	Effect Page	Contents
00	06 Jan. 2026	STS2512210H02	ALL	Initial Issue



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	GNSS Data Collector
Brand Name	CHCNAV
Model Name	TC100
Series Model	N/A
Model Difference	N/A
Sample number	251218003-1
Battery	Model: S0661 Rated Voltage: 3.8V Charge Limit Voltage: 4.35V Capacity: 10000mAh
Device Category	Portable
Product stage	Production unit
RF Exposure Environment	General Population / Uncontrolled
Hardware Version	V1.0
Software Version	V1.0
Frequency Range	GSM 850: 824 MHz ~ 849 MHz PCS1900: 1850 MHz ~ 1910 MHz WCDMA Band 2: 1850 MHz ~ 1910 MHz WCDMA Band 4: 1710 MHz ~ 1755 MHz WCDMA Band 5: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 17 (704-716 MHz) is covered by LTE Band 12 (699-716 MHz) LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 2 (1850-1910 MHz) is covered by LTE Band 25 (1850-1915 MHz) LTE Band 26: 814 MHz ~ 824 MHz / 824 MHz ~ 849 MHz LTE Band 41: 2496 MHz ~ 2690 MHz 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 802.11 a/n20/n40/ac20/ac40/ac80: 5250 ~ 5350 MHz WLAN 802.11 a/n20/n40/ac20/ac40/ac80: 5470 ~ 5725 MHz WLAN 802.11 a/n20/n40/ac20/ac40/ac80: 5725 ~ 5850 MHz Bluetooth: 2402 MHz to 2480 MHz



Max. Reported SAR(1g): (Limit:1.6W/kg) Test distance: Body:0mm	Band	Mode	Body Worn(W/kg)
	PCB	GSM 850	0.223
	PCB	GSM 1900	0.423
	PCB	WCDMA Band 2	0.399
	PCB	WCDMA Band 4	0.114
	PCB	WCDMA Band 5	0.243
	PCB	LTE Band 4	0.357
	PCB	LTE Band 5	0.224
	PCB	LTE Band 7	0.676
	PCB	LTE Band 12&17	0.200
	PCB	LTE Band 25&2	0.779
	PCB	LTE Band 26	0.454
	PCB	LTE Band 41	0.219
	DTS	2.4G WLAN	0.056
	NII	5.2G WLAN	0.294
	NII	5.4G WLAN	0.336
	NII	5.6G WLAN	0.252
	NII	5.8G WLAN	0.226
	DSS	BT ^{Note}	0.066
1-g Sum SAR			1.115
FCC Equipment Class	Licensed Portable Transmitter Held to Ear (PCB) Part 15 Spread Spectrum Transmitter (DSS) Digital Transmission System (DTS) Unlicensed National Information Infrastructure TX(NII)		
Operating Mode:	GSM: GSM Voice; GPRS/EGPRS 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 Bluetooth: GFSK + $\pi/4$ DQPSK+8DPSK		
Antenna Specification:	GSM/WCDMA/LTE: FPC Antenna Bluetooth: FPC Antenna WLAN: FPC Antenna		
SIM Card	Support dual-SIM, dual standby, the multiple SIM card with two lines cannot transmitting at the same time		
Hotspot Mode	Not Support		
DTM Mode	Not Support		
Note: 1. The dual SIM card mobile has 2 SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (Single active) 2. After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 card to perform all tests. 3. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power			



1.2 Test Environment

Ambient conditions in the SAR laboratory:

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

1.3 Test Factory

ShenZhen STS Test Services Co.,Ltd.

A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration No.: 625569

IC Registration No.: 12108A

A2LA Certificate No.: 4338.01



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	IEEE Std C95.1, 2019	IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz. It specifies the maximum exposure limit of 1.6 W/kg as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.
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 D04 v01	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
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 648474 D04 v01r03	SAR Evaluation Considerations for Wireless Handsets
10	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:

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

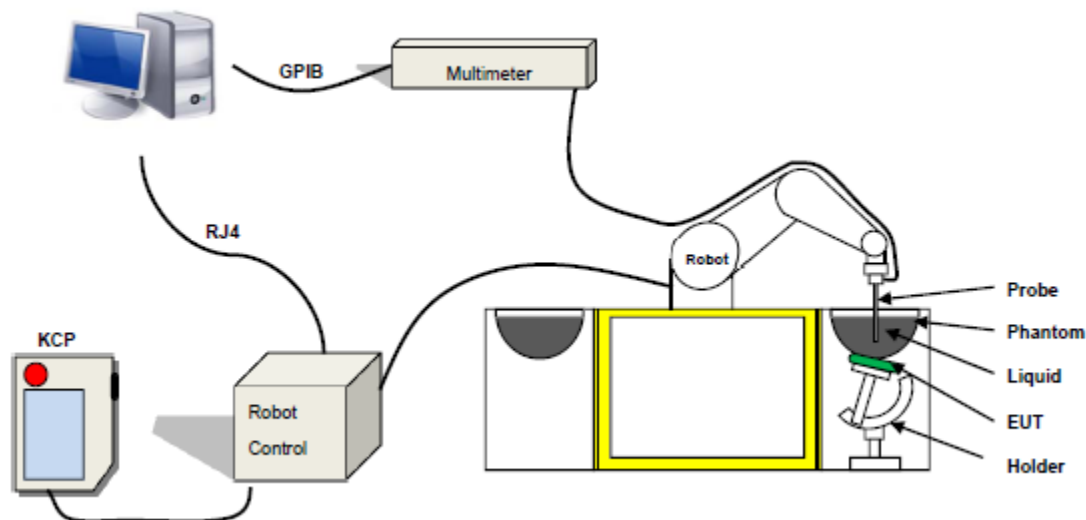
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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 Open SAR software computes the results to give a SAR value in a 1g or 10g mass.

3.2.1 Probe

For the measurements the Specific Dosimetric E-Field Probe SN 08/21 EPG0352 with following specifications is used

- Probe Length: 330 mm
- Length of Individual Dipoles: 2 mm
- 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: 150 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 Dipole

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.

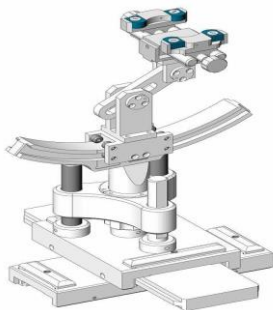
SN 32/14 SAM115



Figure-SN 21/21 ELLI48



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 if 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	ϵ_r	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



The following table gives the recipes for tissue simulating liquid and the theoretical Conductivity/Permittivity.

Head (Reference IEEE1528)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ϵ
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.4	40.0
2450	55.0	0	0	0.1	0	44.9	1.80	39.2
2600	54.9	0	0	0.1	0	45.0	1.96	39.0
Frequency (MHz)	Water (%)	Hexyl Carbitol (%)			Triton X-100 (%)		Conductivity σ (S/m)	Permittivity ϵ
5200	62.52	17.24			17.24		4.66	36.0
5800	62.52	17.24			17.24		5.27	35.3
Body (From instrument manufacturer)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ϵ
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0.1	0	31.3	1.95	52.7
2600	68.2	0	0	0.1	0	31.7	2.16	52.5
Frequency(MHz)	Water	DGBE (%)			Salt (%)		Conductivity σ (S/m)	Permittivity ϵ
5200	78.60	21.40			/		5.30	49.00
5800	78.50	21.40			0.1		6.00	48.20

**LIQUID MEASUREMENT RESULTS**

Date	Ambient		Simulating Liquid		Parameters	Target	Measured	Deviation %	Limited %
	Temp. [°C]	Humidity %	Frequency (MHz)	Temp. [°C]					
2025-12-24	20.7	56	707.5	20.4	Permittivity	42.13	41.73	-0.95	±5
					Conductivity	0.89	0.86	-3.37	±5
2025-12-24	20.7	56	711	20.4	Permittivity	42.11	42.76	1.54	±5
					Conductivity	0.89	0.88	-1.12	±5
2025-12-24	20.8	56	750	20.5	Permittivity	41.90	41.65	-0.60	±5
					Conductivity	0.89	0.87	-2.25	±5
2025-12-24	20.7	56	831.5	20.4	Permittivity	41.52	40.93	-1.42	±5
					Conductivity	0.90	0.90	0.00	±5
2025-12-24	20.8	56	835	20.5	Permittivity	41.50	41.29	-0.51	±5
					Conductivity	0.90	0.92	2.22	±5
2025-12-24	20.7	56	836.5	20.4	Permittivity	41.49	41.54	0.12	±5
					Conductivity	0.90	0.89	-1.11	±5
2025-12-24	20.7	56	841.5	20.4	Permittivity	41.47	41.64	0.41	±5
					Conductivity	0.90	0.91	1.11	±5
2025-12-24	20.7	56	844	20.3	Permittivity	41.46	41.57	0.27	±5
					Conductivity	0.90	0.92	2.22	±5
2025-12-24	20.7	56	846.6	20.4	Permittivity	41.45	41.59	0.34	±5
					Conductivity	0.90	0.91	1.11	±5
2025-12-24	20.7	56	848.8	20.4	Permittivity	41.44	41.25	-0.46	±5
					Conductivity	0.90	0.89	-1.11	±5
2025-12-28	20.6	58	1712.6	20.3	Permittivity	40.12	40.70	1.45	±5
					Conductivity	1.35	1.34	-0.74	±5
2025-12-28	20.6	58	1747.5	20.3	Permittivity	40.08	39.85	-0.57	±5
					Conductivity	1.37	1.36	-0.73	±5
2025-12-28	20.6	59	1775	20.3	Permittivity	40.04	40.42	0.95	±5
					Conductivity	1.39	1.38	-0.72	±5
2025-12-28	20.7	59	1800	20.4	Permittivity	40.00	40.14	0.35	±5
					Conductivity	1.40	1.40	0.00	±5
2025-12-31	22.9	49	1880	22.7	Permittivity	40.00	40.51	1.28	±5
					Conductivity	1.40	1.42	1.43	±5
2025-12-31	22.9	49	1882.5	22.6	Permittivity	40.00	39.54	-1.15	±5
					Conductivity	1.40	1.39	-0.71	±5
2025-12-31	23.0	50	1900	22.6	Permittivity	40.00	40.36	0.90	±5
					Conductivity	1.40	1.40	0.00	±5

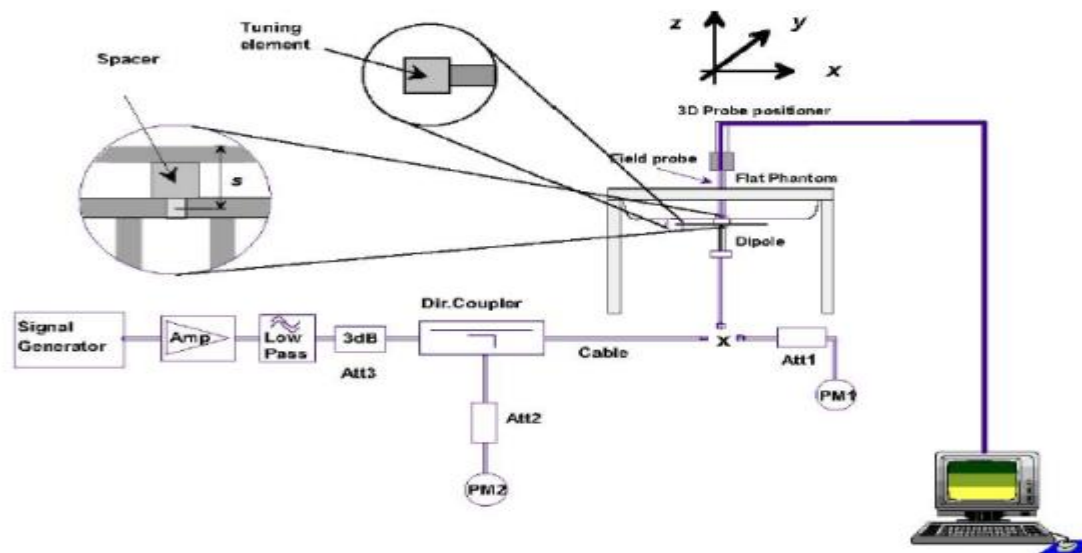


2025-12-31	22.9	49	1907.6	22.6	Permittivity	40.00	40.85	2.13	±5
					Conductivity	1.40	1.40	0.00	±5
2025-12-31	23.0	49	1909.8	22.7	Permittivity	40.00	40.78	1.95	±5
					Conductivity	1.40	1.38	-1.43	±5
2026-01-06	20.4	55	2412	20.1	Permittivity	39.27	38.98	-0.74	±5
					Conductivity	1.77	1.78	0.56	±5
2026-01-06	20.5	55	2450	20.2	Permittivity	39.20	39.92	1.84	±5
					Conductivity	1.80	1.80	0.00	±5
2025-12-30	23.2	44	2506	22.9	Permittivity	39.13	38.87	-0.66	±5
					Conductivity	1.86	1.87	0.54	±5
2025-12-30	23.2	44	2535	22.9	Permittivity	39.09	39.21	0.31	±5
					Conductivity	1.89	1.91	1.06	±5
2025-12-30	23.3	45	2560	23.0	Permittivity	39.05	39.78	1.87	±5
					Conductivity	1.92	1.92	0.00	±5
2025-12-30	23.3	45	2600	23.0	Permittivity	39.00	38.90	-0.26	±5
					Conductivity	1.96	1.96	0.00	±5
2025-12-30	23.2	44	2680	22.8	Permittivity	38.90	38.69	-0.54	±5
					Conductivity	2.05	2.04	-0.49	±5
2026-01-06	20.4	55	5180	20.0	Permittivity	36.02	36.32	0.83	±5
					Conductivity	4.64	4.65	0.22	±5
2026-01-06	20.5	55	5200	20.2	Permittivity	36.00	37.17	3.25	±5
					Conductivity	4.66	4.64	-0.43	±5
2026-01-06	20.5	55	5260	20.2	Permittivity	35.94	35.59	-0.97	±5
					Conductivity	4.72	4.72	0.00	±5
2026-01-06	20.4	55	5580	20.1	Permittivity	35.58	36.33	2.11	±5
					Conductivity	5.04	5.06	0.40	±5
2026-01-06	20.5	55	5600	20.2	Permittivity	35.55	35.92	1.04	±5
					Conductivity	5.07	5.08	0.20	±5
2026-01-06	20.4	55	5795	20.1	Permittivity	35.31	35.43	0.34	±5
					Conductivity	5.26	5.29	0.57	±5
2026-01-06	20.4	55	5800	20.0	Permittivity	35.30	34.93	-1.05	±5
					Conductivity	5.27	5.29	0.38	±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	Frequency (MHz)	Power	SAR _{1g} (W/Kg)	SAR _{10g} (W/Kg)	Drift (%)	1W Target		Difference percentage		Limited %
						SAR _{1g} (W/Kg)	SAR _{10g} (W/Kg)	1g	10g	
2025-12-24	750	100 mW	0.880	0.556	0.65	8.49	5.53	3.65%	0.54%	10
		Normalize to 1 Watt	8.80	5.56						
2025-12-24	835	100 mW	0.987	0.643	-1.35	9.63	6.15	2.49%	4.55%	10
		Normalize to 1 Watt	9.87	6.43						
2025-12-28	1800	100 mW	3.910	1.975	-1.14	38.40	20.10	1.82%	-1.74%	10
		Normalize to 1 Watt	39.10	19.75						
2025-12-31	1900	100 mW	4.004	2.033	1.20	39.84	20.20	0.50%	0.64%	10
		Normalize to 1 Watt	40.04	20.33						
2026-01-06	2450	100 mW	5.452	2.393	-3.28	54.70	24.11	-0.33%	-0.75%	10
		Normalize to 1 Watt	54.52	23.93						
2025-12-30	2600	100 mW	5.540	2.396	0.13	56.19	24.08	-1.41%	-0.50%	10
		Normalize to 1 Watt	55.40	23.96						
2026-01-06	5200	10 mW	1.677	0.579	1.56	163.88	57.29	2.31%	1.13%	10
		Normalize to 1 Watt	167.67	57.94						
2026-01-06	5600	10 mW	1.872	0.595	2.65	181.28	61.57	3.25%	-3.39%	10
		Normalize to 1 Watt	187.18	59.48						
2026-01-06	5800	10 mW	1.780	0.679	3.48	188.95	63.45	-5.82%	7.00%	10
		Normalize to 1 Watt	177.96	67.89						

Note:

(1) We use a CW signal of 20dBm(750/835/1800/1900/2450/2600MHz) and 10dBm(5000-6000MHz) for system check, and then all SAR values are normalized to 1W forward power. The result must be within $\pm 10\%$ of target value.



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

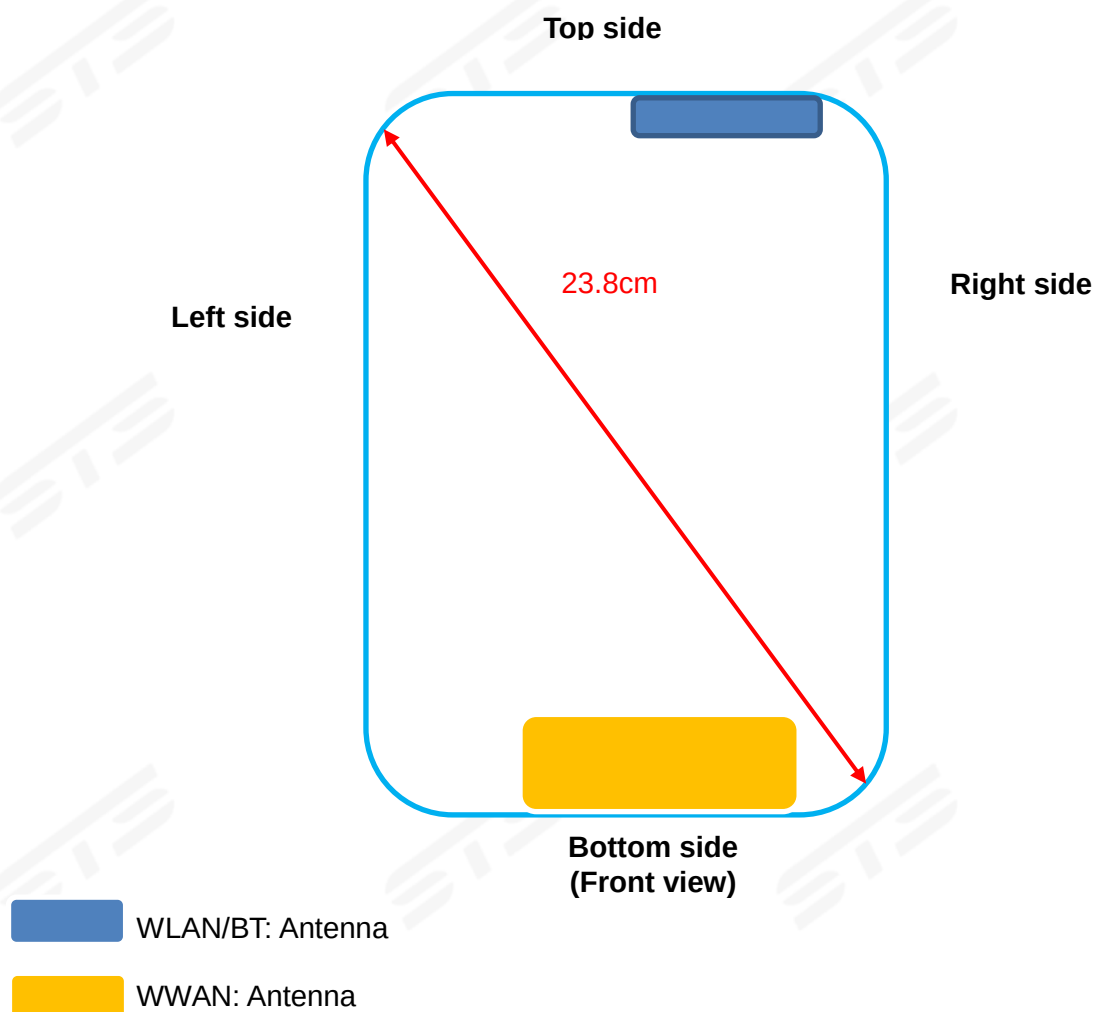
- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

➤ 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 GNSS Data Collector, support GSM/WCDMA/LTE/WLAN/BT mode.



Antenna Separation Distance(cm)					
ANT	Back Side	Left Side	Right Side	Top Side	Bottom Side
WLAN/BT	≤0.5	8.8	1.6	≤0.5	19.5
WWAN	≤0.5	4	2.2	19.8	≤0.5

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.

Exposure Position	Wireless Interface	GSM850	PCS1900	WCDMA 2	WCDMA 4	WCDMA 5	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12
	Calculated Frequency(GHz)	0.8488	1.9098	1.9076	1.7126	0.8466	1.88	1.775	0.8365	2.535	0.7075
	Maximum Turn-up power (dBm)	31	31	25	25	25	24.5	24	24	24	24
	Maximum rated power(mW)	1258.93	1258.93	316.23	316.23	316.23	281.84	251.19	251.19	251.19	251.19
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.04	3.35	3.35	3.37	6.43	3.39	3.55	9.22	2.67	11.67
	Testing required?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Left Side	Separation distance (cm)	4	4	4	4	4	4	4	4	4	4
	exclusion threshold(mW)	174.83	156.31	156.37	168.99	207.71	157.17	160.36	174.96	141.58	176.38
	Testing required?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Right Side	Separation distance (cm)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
	exclusion threshold(mW)	74.60	51.78	51.81	54.86	76.47	52.17	53.63	75.08	45.21	80.79
	Testing required?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Top Side	Separation distance (cm)	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
	exclusion threshold(mW)	1706.94	3003.69	3003.70	3428.24	3009.03	3003.79	3004.17	1682.36	3001.83	1424.48
	Testing required?	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Bottom Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	9.04	3.35	3.35	3.37	6.43	3.39	3.55	9.22	2.67	11.67
	Testing required?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Exposure Position	Wireless Interface	LTE Band 17	LTE Band 25	LTE Band 26	LTE Band 41	BT	2.4G WLAN	5.2G WLAN	5.3G WLAN	5.6G WLAN	5.8G WLAN
	Calculated Frequency(GHz)	0.71	1.8825	0.8315	2.506	2.44	2.441	5.18	5.26	5.58	5.58
	Maximum Turn-up power (dBm)	24	24	24	23.5	2	17	15	14	13.5	13.5
	Maximum rated power(mW)	251.19	251.19	251.19	223.87	1.58	50.12	31.62	25.12	22.39	22.39
Back Side	Separation distance (cm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	11.61	3.39	9.30	2.69	2.75	2.75	1.51	1.49	1.42	1.42
	Testing required?	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES
Left Side	Separation distance (cm)	4	4	4	4	8.8	8.8	8.8	8.8	8.8	8.8
	exclusion threshold(mW)	176.35	157.10	175.01	142.15	642.44	642.39	561.75	560.22	554.35	554.35
	Testing required?	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
Right Side	Separation distance (cm)	2.2	2.2	2.2	2.2	1.6	1.6	1.6	1.6	1.6	1.6
	exclusion threshold(mW)	80.66	52.14	75.27	45.46	25.13	25.13	16.63	16.49	15.97	15.97
	Testing required?	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES
Top Side	Separation distance (cm)	19.8	19.8	19.8	19.8	0.5	0.5	0.5	0.5	0.5	0.5
	exclusion threshold(mW)	1429.48	3003.78	1672.37	3001.91	2.75	2.75	1.51	1.49	1.42	1.42
	Testing required?	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES
Bottom Side	Separation distance (cm)	0.5	0.5	0.5	0.5	19.5	19.5	19.5	19.5	19.5	19.5
	exclusion threshold(mW)	11.61	3.39	9.30	2.69	2916.19	2916.19	2904.15	2903.90	2902.96	2902.96
	Testing required?	YES	YES	YES	YES	NO	NO	NO	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 D04, 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 D04, if the maximum time-averaged power available does not exceed 1 mW. This stand-alone SAR exemption test.



4. Per KDB 447498 D04, the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

5. Per KDB 447498 D04, An alternative to the SAR-based exemption is using below table and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in below table to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

RF Source frequency (MHz)	Threshold ERP(watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.



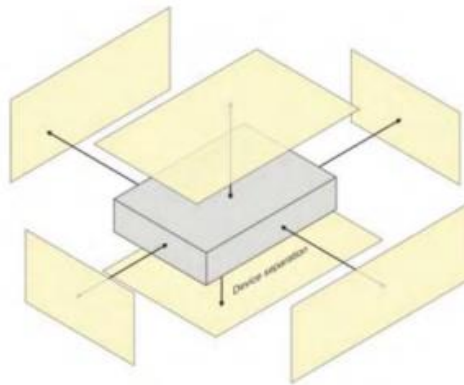
6. Per KDB 248227 D01, choose the highest output power channel to test SAR and determine further SAR exclusion 8. for each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of each of these configurations is less than 1/4db higher than those measured at the lower data rate than 11b mode, thus the SAR can be excluded.
7. Per KDB 616217 D04, SAR evaluation for the front surface of tablet display screens are generally not necessary.
8. Per KDB 248227, as maximum rated power for U-NII-1 > U-NII-2A, U-NII-1 was chosen for SAR evaluation. Based on the measurements obtained, SAR measurements on U-NII-2A are not required as highest reported SAR from U-NII-1 band is $\leq 1.2\text{W/Kg}$.

8. EUT Test Position

This EUT was tested in Rear Face, Left Side, Right Side, Top Side, Bottom Side.

8.2 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 D04 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 $> 1.2 \text{ W/kg}$, 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.





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 $k=2$.

SATIMO Uncertainty- SN 08/21 EPGO352									
Measurement uncertainty for DUT averaged over 1 gram / 10 gram.									
Uncertainty Component	Sec.	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+- %)	10g Ui (+- %)	vi
Measurement System									
Probe calibration	E.2.1	5.72	N	1.00	1.00	1.00	5.72	5.72	∞
Axial Isotropy	E.2.2	0.18	R	1.73	0.71	0.71	0.07	0.07	∞
Hemispherical Isotropy	E.2.2	1.04	R	1.73	0.71	0.71	0.42	0.42	∞
Boundary effect	E.2.3	0.80	R	1.73	1.00	1.00	0.46	0.46	∞
Linearity	E.2.4	1.25	R	1.73	1.00	1.00	0.72	0.72	∞
System detection limits	E.2.4	1.20	R	1.73	1.00	1.00	0.69	0.69	∞
Modulation response	E.2.5	3.42	R	1.73	1.00	1.00	1.97	1.97	∞
Readout Electronics	E.2.6	0.26	N	1.00	1.00	1.00	0.26	0.26	∞
Response Time	E.2.7	0.17	R	1.73	1.00	1.00	0.10	0.10	∞
Integration Time	E.2.8	1.43	R	1.73	1.00	1.00	0.83	0.83	∞
RF ambient conditions-Noise	E.6.1	3.51	R	1.73	1.00	1.00	2.03	2.03	∞
RF ambient conditions-reflections	E.6.1	3.15	R	1.73	1.00	1.00	1.82	1.82	∞
Probe positioner mechanical tolerance	E.6.2	1.20	R	1.73	1.00	1.00	0.69	0.69	∞
Probe positioning with respect to phantom shell	E.6.3	1.40	R	1.73	1.00	1.00	0.81	0.81	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	2.10	R	1.73	1.00	1.00	1.21	1.21	∞
Test sample Related									
Test sample positioning	E.4.2	3.10	N	1.00	1.00	1.00	3.10	3.10	∞
Device holder uncertainty	E.4.1	3.80	N	1.00	1.00	1.00	3.80	3.80	∞
Output power variation—SAR drift measurement	E.2.9	4.50	R	1.73	1.00	1.00	2.60	2.60	∞
SAR scaling	E.6.5	1.80	R	1.73	1.00	1.00	1.04	1.04	∞
Phantom and tissue parameters									
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	3.70	R	1.73	1.00	1.00	2.14	2.14	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.90	N	1.00	1.00	0.84	1.90	1.60	∞
Liquid conductivity measurement	E.3.3	2.40	R	1.73	0.78	0.71	1.08	0.98	M
Liquid permittivity measurement	E.3.3	4.10	N	1.00	0.78	0.71	3.20	2.91	M
Liquid conductivity—temperature uncertainty	E.3.4	2.70	R	1.73	0.23	0.26	0.36	0.41	∞
Liquid permittivity—temperature uncertainty	E.3.4	4.80	N	1.00	0.23	0.26	1.10	1.25	∞
Combined Standard Uncertainty			RSS				10.08	9.59	
Expanded Uncertainty (95% Confidence interval)			K=2				19.58	19.18	



SATIMO Uncertainty- SN 08/21 EPGO352									
System Validation uncertainty for DUT averaged over 1 gram / 10 gram.									
Uncertainty Component	Sec.	Tol (+ - %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+ %)	10g Ui (+-%)	vi
Measurement System									
Probe calibration	E.2.1	5.72	N	1.00	1.00	1.00	5.72	5.72	∞
Axial Isotropy	E.2.2	0.18	R	1.73	1.00	1.00	0.10	0.10	∞
Hemispherical Isotropy	E.2.2	1.04	R	1.73	0.00	0.00	0.00	0.00	∞
Boundary effect	E.2.3	0.80	R	1.73	1.00	1.00	0.46	0.46	∞
Linearity	E.2.4	1.25	R	1.73	1.00	1.00	0.72	0.72	∞
System detection limits	E.2.4	1.20	R	1.73	1.00	1.00	0.69	0.69	∞
Modulation response	E.2.5	3.42	R	1.73	0.00	0.00	0.00	0.00	∞
Readout Electronics	E.2.6	0.26	N	1.00	1.00	1.00	0.26	0.26	∞
Response Time	E.2.7	0.17	R	1.73	0.00	0.00	0.00	0.00	∞
Integration Time	E.2.8	1.43	R	1.73	0.00	0.00	0.00	0.00	∞
RF ambient conditions- Noise	E.6.1	3.51	R	1.73	1.00	1.00	2.03	2.03	∞
RF ambient conditions- reflections	E.6.1	3.15	R	1.73	1.00	1.00	1.82	1.82	∞
Probe positioner mechanical tolerance	E.6.2	1.20	R	1.73	1.00	1.00	0.69	0.69	∞
Probe positioning with respect to phantom shell	E.6.3	1.40	R	1.73	1.00	1.00	0.81	0.81	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	2.10	R	1.73	1.00	1.00	1.21	1.21	∞
System validation source									
Deviation of experimental dipole from numerical dipole	E.6.4	4.80	N	1.00	1.00	1.00	4.80	4.80	∞
Input power and SAR drift measurement	8,6.6.4	5.10	R	1.73	1.00	1.00	2.94	2.94	∞
Dipole axis to liquid distance	8,E.6.6	2.40	R	1.73	1.00	1.00	1.39	1.39	∞
Phantom and set-up									
Phantom shell uncertainty— shape, thickness, and permittivity	E.3.1	3.70	R	1.73	1.00	1.00	2.14	2.14	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.90	N	1.00	1.00	0.84	1.90	1.60	∞
Liquid conductivity (temperature uncertainty)	E.3.3	2.40	R	1.73	0.78	0.71	1.08	0.98	∞
Liquid conductivity (measured)	E.3.3	4.10	N	1.00	0.78	0.71	3.20	2.91	M
Liquid permittivity (temperature uncertainty)	E.3.4	2.70	R	1.73	0.23	0.26	0.36	0.41	∞
Liquid permittivity (measured)	E.3.4	4.80	N	1.00	0.23	0.26	1.10	1.25	M
Combined Standard Uncertainty			RSS				9.72	9.52	
Expanded Uncertainty (95% Confidence interval)			K=2				19.44	19.03	



SATIMO Uncertainty- SN 08/21 EPG0352									
。 System Check uncertainty for DUT averaged over 1 gram / 10 gram.									
Uncertainty Component	Sec.	Tol	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
		(+-%)							
Measurement System									
Probe calibration drift	E.2.1.3	5.72	N	1.00	1.00	1.00	5.72	5.72	∞
Axial Isotropy	E.2.2	0.18	R	1.73	0.00	0.00	0.00	0.00	∞
Hemispherical Isotropy	E.2.2	1.04	R	1.73	0.00	0.00	0.00	0.00	∞
Boundary effect	E.2.3	0.8	R	1.73	0.00	0.00	0.00	0.00	∞
Linearity	E.2.4	1.25	R	1.73	0.00	0.00	0.00	0.00	∞
System detection limits	E.2.4	1.20	R	1.73	0.00	0.00	0.00	0.00	∞
Modulation response	E.2.5	3.42	R	1.73	0.00	0.00	0.00	0.00	∞
Readout Electronics	E.2.6	0.26	N	1.00	0.00	0.00	0.00	0.00	∞
Response Time	E.2.7	0.17	R	1.73	0.00	0.00	0.00	0.00	∞
Integration Time	E.2.8	1.43	R	1.73	0.00	0.00	0.00	0.00	∞
RF ambient conditions-Noise	E.6.1	3.51	R	1.73	0.00	0.00	0.00	0.00	∞
RF ambient conditions-reflections	E.6.1	3.15	R	1.73	0.00	0.00	0.00	0.00	∞
Probe positioner mechanical tolerance	E.6.2	1.2	R	1.73	1.00	1.00	0.69	0.69	∞
Probe positioning with respect to phantom shell	E.6.3	1.4	R	1.73	1.00	1.00	0.81	0.81	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	3.9	R	1.73	0.00	0.00	0.00	0.00	∞
System check source (dipole)									
Deviation of experimental dipoles	E.6.4	4.8	N	1.00	1.00	1.00	4.80	4.80	∞
Input power and SAR drift measurement	8,6.6.4	5.1	R	1.73	1.00	1.00	2.94	2.94	∞
Dipole axis to liquid distance	8,E.6.6	2.4	R	1.73	1.00	1.00	1.39	1.39	∞
Phantom and tissue parameters									
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	3.7	R	1.73	1.00	1.00	2.14	2.14	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1.00	1.00	0.84	1.90	1.60	∞
Liquid conductivity measurement	E.3.3	2.4	R	1.73	0.78	0.71	1.08	0.98	∞
Liquid permittivity measurement	E.3.3	4.1	N	1.00	0.78	0.71	3.20	2.91	M
Liquid conductivity—temperature uncertainty	E.3.4	2.7	R	1.73	0.23	0.26	0.36	0.41	∞
Liquid permittivity—temperature uncertainty	E.3.4	4.8	N	1.00	0.23	0.26	1.10	1.25	M
Combined Standard Uncertainty			RSS				5.56	5.20	
Expanded Uncertainty (95% Confidence interval)			K=2				11.12	10.41	



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
GPRS (GMSK, 1-Slot)	32.03	32.37	32.98	32.64	32.90	32.45
GPRS (GMSK, 2-Slot)	31.23	31.87	31.13	31.74	31.49	31.37
GPRS (GMSK, 3-Slot)	30.76	30.84	30.99	30.83	30.68	30.88
GPRS (GMSK, 4-Slot)	29.92	29.78	29.90	30.35	30.39	29.79
EGPRS(8PSK, 1-Slot)	32.15	32.52	32.02	32.70	32.09	32.39
EGPRS(8PSK, 2-Slot)	31.13	31.06	32.00	32.00	31.99	31.84
EGPRS(8PSK, 3-Slot)	30.88	30.85	30.92	30.77	30.76	30.97
EGPRS(8PSK, 4-Slot)	30.22	30.24	29.74	29.71	29.68	30.47
Remark: GPRS, CS4 coding scheme. EGPRS, MCS5 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
GPRS (GMSK, 1-Slot)	23.00	23.34	23.95	23.61	23.87	23.42
GPRS (GMSK, 2-Slot)	25.21	25.85	25.11	25.72	25.47	25.35
GPRS (GMSK, 3-Slot)	26.50	26.58	26.73	26.57	26.42	26.62
GPRS (GMSK, 4-Slot)	26.91	26.77	26.89	27.34	27.38	26.78
EGPRS(8PSK, 1-Slot)	23.12	23.49	22.99	23.67	23.06	23.36
EGPRS(8PSK, 2-Slot)	25.11	25.04	25.98	25.98	25.97	25.82
EGPRS(8PSK, 3-Slot)	26.62	26.59	26.66	26.51	26.50	26.71
EGPRS(8PSK, 4-Slot)	27.21	27.23	26.73	26.70	26.67	27.46
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	1413	1513	4132	4183	4233
Frequency (MHz)	1852.4	1880	1907.6	1712.6	1740	1752.4	826.4	836.6	846.6
RMC 12.2Kbps	24.36	24.39	24.95	24.86	24.49	24.14	24.79	24.35	24.84
HSDPA Subtest-1	23.51	23.98	23.97	23.95	23.67	23.68	23.80	23.87	23.53
HSDPA Subtest-2	22.90	23.11	22.62	23.31	23.47	22.89	23.04	22.62	23.14
HSDPA Subtest-3	22.41	21.51	22.37	21.72	21.57	22.24	21.65	21.98	21.72
HSDPA Subtest-4	21.48	21.15	21.13	21.42	21.24	21.48	21.19	21.01	21.13
HSUPA Subtest-1	24.85	24.86	24.22	24.32	24.07	24.42	24.23	24.52	24.03
HSUPA Subtest-2	23.81	23.57	23.54	23.61	23.99	23.52	23.74	23.93	23.72
HSUPA Subtest-3	22.91	22.78	23.33	22.54	23.35	22.98	22.56	23.02	23.06
HSUPA Subtest-4	21.57	21.76	21.93	22.20	22.36	22.29	22.36	21.74	21.65
HSUPA Subtest-5	21.26	21.34	21.07	21.22	21.42	21.10	21.19	21.33	21.19

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	$0 \leq CM \leq 3.5$	$MAX(CM-1,0)$
Note: CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$.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)	Average Power (dBm)	Output Power (mW)
802.11b	1	2412	16.826	48.15
	7	2437	16.459	44.25
	11	2462	16.450	44.16
802.11g	1	2412	15.988	39.70
	7	2437	16.181	41.50
	11	2462	16.122	40.94
802.11 n-HT20	1	2412	16.026	40.05
	7	2437	16.241	42.08
	11	2462	16.129	41.01
802.11 n-HT40	3	2422	15.603	36.33
	6	2437	15.625	36.52
	9	2452	15.548	35.88

Bluetooth

BT		
Mode	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	1.764	1.50
$\pi/4$ -QPSK(2Mbps)	0.86	1.22
8DPSK(3Mbps)	0.864	1.22

BLE

BLE				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	-1.416	0.72
	19	2440	-1.513	0.71
	39	2480	-1.484	0.71
GFSK(2Mbps)	0	2402	-1.663	0.68
	19	2440	-1.719	0.67
	39	2480	-1.624	0.69

**5.2G WLAN**

5.2G WLAN				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
802.11a	36	5180	14.313	27.00
	40	5200	14.372	27.37
	48	5240	14.009	25.17
802.11 n-HT20	36	5180	14.748	29.84
	40	5200	14.293	26.87
	48	5240	13.879	24.43
802.11 n-HT40	38	5190	12.547	17.98
	46	5230	13.423	21.99
802.11ac-VHT20	36	5180	14.202	26.31
	40	5200	14.334	27.13
	48	5240	13.896	24.52
802.11ac-VHT40	38	5190	13.174	20.77
	46	5230	13.156	20.68
802.11ac-VHT80	42	5210	11.567	14.34

5.3G WLAN

5.3G WLAN				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
802.11a	52	5260	13.417	21.96
	60	5300	13.435	22.05
	64	5320	13.16	20.70
802.11 n-HT20	52	5260	13.584	22.82
	60	5300	13.126	20.54
	64	5320	13.125	20.54
802.11 n-HT40	54	5270	13.682	23.35
	62	5310	11.242	13.31
802.11ac-VHT20	52	5260	13.773	23.84
	60	5300	13.741	23.66
	64	5320	12.923	19.60
802.11ac-VHT40	54	5270	13.552	22.66
	62	5310	11.223	13.25
802.11ac-VHT80	58	5290	10.992	12.57

**5.6G WLAN**

5.6G WLAN				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
802.11a	100	5500	12.979	19.86
	116	5580	13.104	20.44
	140	5700	12.79	19.01
802.11 n-HT20	100	5500	13.058	20.22
	116	5580	12.924	19.61
	140	5700	11.722	14.87
802.11 n-HT40	102	5510	11.1	12.88
	134	5670	10.698	11.74
802.11ac-VHT20	100	5500	13.072	20.29
	116	5580	12.825	19.16
	140	5700	11.162	13.07
802.11ac-VHT40	102	5510	10.838	12.13
	134	5670	11.444	13.94
802.11ac-VHT80	106	5530	9.429	8.77

5.8G WLAN

5.8G WLAN				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
802.11a	149	5745	13.074	20.30
	157	5785	13.566	22.73
	165	5825	13.678	23.32
802.11 n-HT20	149	5745	13.069	20.27
	157	5785	13.399	21.87
	165	5825	13.273	21.25
802.11 n-HT40	151	5755	12.903	19.51
	159	5795	13.163	20.72
802.11ac-VHT20	149	5745	12.604	18.21
	157	5785	13.431	22.03
	165	5825	13.666	23.26
802.11ac-VHT40	151	5755	13.734	23.63
	159	5795	14.042	25.36
802.11ac-VHT80	155	5775	13.402	21.89

**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 $\frac{1}{2}$ 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 $\frac{1}{2}$ 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.
 8. According to April 2015 TCB workshop, SAR test exclusion can be applied for testing overlapping LTE bands as follows:
 - a) The maximum output power, including tolerance, for the smaller band must be $\leq$ the larger band to qualify for the SAR test exclusion.
 - b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.
- . LTE Band 2 (1850-1910 MHz) is covered by LTE Band 25(1850-1915 MHz)
 - .LTE Band 4 (1710-1755 MHz) is covered by LTE Band 66 (1710-1780MHz)
 - LTE Band 17 (704-716 MHz) is covered by LTE Band 12(699-716MHz)



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.65	23.59	23.94
1.4	1	2		23.79	23.70	23.60
1.4	1	5		23.61	23.50	23.55
1.4	3	0		23.59	23.61	23.91
1.4	3	1		23.79	23.99	23.90
1.4	3	2		23.85	23.57	23.58
1.4	6	0		23.86	23.55	23.58
1.4	1	0	16-QAM	23.86	23.51	23.84
1.4	1	2		23.55	23.57	23.87
1.4	1	5		23.57	23.53	23.58
1.4	3	0		23.71	23.77	23.54
1.4	3	1		23.95	23.78	23.56
1.4	3	2		23.78	23.81	23.90
1.4	6	0		23.84	23.61	23.75
3	1	0	QPSK	23.76	23.75	23.52
3	1	7		23.64	23.78	23.73
3	1	14		23.62	23.60	23.72
3	8	0		23.62	24.00	23.59
3	8	4		23.70	23.74	23.81
3	8	7		23.62	23.94	23.97
3	15	0		23.67	23.54	23.98
3	1	0	16-QAM	23.77	23.66	23.67
3	1	7		23.78	23.55	23.77
3	1	14		23.77	23.75	23.62
3	8	0		23.66	23.99	23.74
3	8	4		23.51	23.63	23.53
3	8	7		23.81	23.60	23.87
3	15	0		23.51	23.85	23.64



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.73	23.97	23.87
5	1	12		23.84	23.55	23.71
5	1	24		23.54	23.76	23.76
5	12	0		23.77	23.65	23.81
5	12	6		23.68	23.77	23.58
5	12	11		23.95	23.73	23.69
5	25	0		23.94	23.99	23.77
5	1	0	16-QAM	23.81	23.87	23.74
5	1	12		23.89	23.92	23.98
5	1	24		23.75	23.94	23.86
5	12	0		23.69	23.91	23.94
5	12	6		23.78	23.51	23.94
5	12	11		23.97	23.94	23.69
5	25	0		23.52	23.80	23.89
10	1	0	QPSK	23.73	23.73	23.82
10	1	24		23.53	23.65	23.55
10	1	49		23.66	24.00	23.67
10	25	0		23.93	23.79	23.99
10	25	12		23.70	23.96	23.66
10	25	24		23.52	23.73	23.91
10	50	0		23.71	23.96	23.94
10	1	0	16-QAM	23.97	23.72	23.98
10	1	24		23.51	23.65	23.67
10	1	49		23.68	23.94	23.83
10	25	0		23.88	23.62	23.95
10	25	12		23.76	23.76	23.72
10	25	24		23.96	23.82	23.85
10	50	0		23.84	23.96	23.70



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.62	23.85	23.76
15	1	37		23.77	23.66	23.90
15	1	74		23.74	23.89	23.98
15	36	0		23.78	23.76	23.88
15	36	18		23.64	23.98	23.58
15	36	39		23.72	23.55	23.78
15	75	0		23.85	23.93	23.69
15	1	0	16-QAM	23.58	23.50	23.62
15	1	38		23.96	23.51	23.58
15	1	75		23.92	23.61	23.88
15	36	0		23.83	23.52	23.82
15	36	18		23.88	23.93	23.68
15	36	39		23.66	23.57	23.51
15	75	0		23.82	23.96	23.52
20	1	0	QPSK	23.62	23.56	23.88
20	1	49		23.57	23.82	23.80
20	1	99		23.70	24.12	23.96
20	50	0		23.60	23.65	23.71
20	50	24		23.64	23.92	23.62
20	50	49		23.55	23.78	23.55
20	100	0		23.64	23.84	23.66
20	1	0	16-QAM	23.85	23.95	23.53
20	1	49		23.53	23.65	23.85
20	1	99		23.97	23.85	23.74
20	50	0		23.78	23.73	23.59
20	50	24		23.83	23.90	23.93
20	50	49		23.52	23.53	23.57
20	100	0		23.93	23.98	23.53



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.32	23.65	23.49
1.4	1	2		23.51	23.49	23.39
1.4	1	5		23.67	23.77	23.34
1.4	3	0		23.71	23.55	23.55
1.4	3	1		23.74	23.46	23.31
1.4	3	2		23.64	23.42	23.58
1.4	6	0		23.31	23.49	23.55
1.4	1	0	16-QAM	23.34	23.49	23.36
1.4	1	2		23.56	23.69	23.77
1.4	1	5		23.73	23.69	23.67
1.4	3	0		23.80	23.50	23.41
1.4	3	1		23.44	23.59	23.60
1.4	3	2		23.61	23.33	23.52
1.4	6	0		23.66	23.53	23.79
3	1	0	QPSK	23.69	23.65	23.47
3	1	7		23.48	23.69	23.35
3	1	14		23.31	23.47	23.67
3	8	0		23.49	23.69	23.42
3	8	4		23.35	23.67	23.54
3	8	7		23.53	23.43	23.53
3	15	0		23.55	23.50	23.55
3	1	0	16-QAM	23.41	23.71	23.34
3	1	7		23.35	23.79	23.34
3	1	14		23.61	23.69	23.75
3	8	0		23.71	23.74	23.41
3	8	4		23.35	23.34	23.56
3	8	7		23.63	23.72	23.57
3	15	0		23.44	23.67	23.71



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.59	23.41	23.34
5	1	12		23.50	23.42	23.49
5	1	24		23.37	23.41	23.36
5	12	0		23.75	23.57	23.52
5	12	6		23.42	23.52	23.42
5	12	11		23.34	23.64	23.43
5	25	0		23.72	23.44	23.76
5	1	0	16-QAM	23.31	23.70	23.39
5	1	12		23.31	23.79	23.36
5	1	24		23.39	23.53	23.37
5	12	0		23.77	23.47	23.52
5	12	6		23.37	23.42	23.68
5	12	11		23.31	23.47	23.31
5	25	0		23.62	23.50	23.59
10	1	0	QPSK	23.47	23.43	23.77
10	1	24		23.42	23.79	23.66
10	1	49		23.76	23.35	23.35
10	25	0		23.36	23.42	23.53
10	25	12		23.30	23.58	23.74
10	25	24		23.62	23.78	23.66
10	50	0		23.68	23.62	23.72
10	1	0	16-QAM	23.49	23.36	23.62
10	1	24		23.60	23.41	23.63
10	1	49		23.47	23.56	23.33
10	25	0		23.59	23.33	23.61
10	25	12		23.61	23.60	23.53
10	25	24		23.71	23.72	23.77
10	50	0		23.54	23.73	23.38



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.48	23.32	23.69
15	1	37		23.58	23.35	23.43
15	1	74		23.48	23.62	23.76
15	36	0		23.49	23.70	23.36
15	36	18		23.61	23.37	23.58
15	36	39		23.34	23.78	23.35
15	75	0		23.49	23.45	23.63
15	1	0	16-QAM	23.77	23.32	23.62
15	1	38		23.70	23.61	23.66
15	1	75		23.43	23.42	23.37
15	36	0		23.55	23.34	23.39
15	36	18		23.72	23.72	23.34
15	36	39		23.69	23.41	23.54
15	75	0		23.40	23.58	23.73
20	1	0	QPSK	23.65	23.71	23.38
20	1	49		23.69	23.52	23.72
20	1	99		23.49	23.77	23.79
20	50	0		23.65	23.32	23.54
20	50	24		23.62	23.99	23.77
20	50	49		23.34	23.62	23.76
20	100	0		23.39	23.65	23.59
20	1	0	16-QAM	23.47	23.45	23.38
20	1	49		23.40	23.68	23.33
20	1	99		23.59	23.35	23.38
20	50	0		23.72	23.79	23.35
20	50	24		23.77	23.43	23.30
20	50	49		23.50	23.63	23.52
20	100	0		23.49	23.80	23.33



LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.32	23.45	23.68
1.4	1	2		23.55	23.62	23.34
1.4	1	5		23.63	23.25	23.30
1.4	3	0		23.31	23.47	23.36
1.4	3	1		23.56	23.23	23.25
1.4	3	2		23.21	23.47	23.46
1.4	6	0		23.60	23.69	23.48
1.4	1	0	16-QAM	23.30	23.35	23.50
1.4	1	2		23.51	23.35	23.62
1.4	1	5		23.52	23.47	23.28
1.4	3	0		23.45	23.34	23.21
1.4	3	1		23.54	23.59	23.44
1.4	3	2		23.34	23.65	23.59
1.4	6	0		23.61	23.50	23.69
3	1	0	QPSK	23.22	23.66	23.63
3	1	7		23.32	23.44	23.30
3	1	14		23.28	23.30	23.37
3	8	0		23.27	23.43	23.29
3	8	4		23.39	23.22	23.35
3	8	7		23.39	23.42	23.48
3	15	0		23.33	23.55	23.52
3	1	0	16-QAM	23.58	23.48	23.40
3	1	7		23.54	23.34	23.36
3	1	14		23.54	23.56	23.66
3	8	0		23.35	23.38	23.44
3	8	4		23.60	23.29	23.42
3	8	7		23.21	23.36	23.43
3	15	0		23.68	23.62	23.27



LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.38	23.57	23.28
5	1	12		23.28	23.24	23.47
5	1	24		23.29	23.52	23.62
5	12	0		23.56	23.51	23.26
5	12	6		23.28	23.43	23.27
5	12	11		23.62	23.22	23.65
5	25	0		23.68	23.38	23.29
5	1	0	16-QAM	23.51	23.37	23.40
5	1	12		23.34	23.62	23.54
5	1	24		23.32	23.52	23.38
5	12	0		23.50	23.23	23.43
5	12	6		23.56	23.34	23.65
5	12	11		23.29	23.26	23.23
5	25	0		23.45	23.20	23.23
10	1	0	QPSK	23.62	23.44	23.57
10	1	24		23.27	23.66	23.35
10	1	49		23.52	23.60	23.45
10	25	0		23.54	23.28	23.26
10	25	12		23.62	23.55	23.35
10	25	24		23.34	23.53	23.45
10	50	0		23.37	23.75	23.65
10	1	0	16-QAM	23.44	23.50	23.70
10	1	24		23.68	23.21	23.66
10	1	49		23.54	23.20	23.47
10	25	0		23.20	23.22	23.26
10	25	12		23.35	23.56	23.38
10	25	24		23.33	23.21	23.59
10	50	0		23.45	23.48	23.69



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.53	23.78	23.83
5	1	12		23.72	23.84	23.55
5	1	24		23.41	23.82	23.71
5	12	0		23.83	23.55	23.80
5	12	6		23.90	23.79	23.83
5	12	11		23.77	23.90	23.83
5	25	0		23.82	23.64	23.88
5	1	0	16-QAM	23.62	23.68	23.80
5	1	12		23.55	23.50	23.82
5	1	24		23.86	23.83	23.82
5	12	0		23.86	23.45	23.59
5	12	6		23.78	23.52	23.56
5	12	11		23.75	23.56	23.79
5	25	0		23.84	23.54	23.90
10	1	0	QPSK	23.71	23.77	23.64
10	1	24		23.60	23.82	23.89
10	1	49		23.69	23.70	23.89
10	25	0		23.84	23.53	23.51
10	25	12		23.53	23.74	23.74
10	25	24		23.73	23.53	23.86
10	50	0		23.62	23.50	23.51
10	1	0	16-QAM	23.45	23.51	23.41
10	1	24		23.75	23.71	23.46
10	1	49		23.80	23.88	23.55
10	25	0		23.63	23.46	23.73
10	25	12		23.50	23.84	23.61
10	25	24		23.83	23.58	23.84
10	50	0		23.86	23.42	23.65



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.86	23.70	23.55
15	1	37		23.74	23.63	23.57
15	1	74		23.60	23.48	23.79
15	36	0		23.77	23.54	23.62
15	36	18		23.88	23.80	23.46
15	36	39		23.70	23.76	23.78
15	75	0		23.82	23.64	23.74
15	1	0	16-QAM	23.57	23.46	23.48
15	1	37		23.82	23.50	23.64
15	1	74		23.79	23.60	23.47
15	36	0		23.88	23.74	23.79
15	36	18		23.85	23.48	23.65
15	36	39		23.65	23.71	23.57
15	75	0		23.50	23.76	23.50
20	1	0	QPSK	23.77	23.79	23.70
20	1	49		23.71	24.00	23.62
20	1	99		23.81	23.59	23.50
20	50	0		23.74	23.49	23.88
20	50	24		23.55	23.78	23.61
20	50	49		23.69	23.72	23.77
20	100	0		23.83	23.70	23.89
20	1	0	16-QAM	23.57	23.81	23.48
20	1	49		23.60	23.75	23.53
20	1	99		23.85	23.76	23.70
20	50	0		23.46	23.42	23.76
20	50	24		23.77	23.75	23.57
20	50	49		23.55	23.84	23.67
20	100	0		23.84	23.73	23.58



LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.29	23.49	23.33
1.4	1	2		23.15	23.38	23.18
1.4	1	5		23.38	23.27	23.31
1.4	3	0		23.31	23.36	23.22
1.4	3	1		23.10	23.34	23.48
1.4	3	2		23.30	23.03	23.39
1.4	6	0		23.06	23.27	23.05
1.4	1	0	16-QAM	23.14	23.30	23.06
1.4	1	2		23.18	23.33	23.24
1.4	1	5		23.36	23.30	23.28
1.4	3	0		23.18	23.31	23.09
1.4	3	1		23.27	23.07	23.24
1.4	3	2		23.06	23.34	23.10
1.4	6	0		23.16	23.15	23.18
3	1	0	QPSK	23.01	23.15	23.26
3	1	7		23.46	23.04	23.49
3	1	14		23.47	23.47	23.40
3	8	0		23.43	23.39	23.40
3	8	4		23.40	23.22	23.46
3	8	7		23.20	23.46	23.04
3	15	0		23.40	23.42	23.22
3	1	0	16-QAM	23.47	23.27	23.21
3	1	7		23.46	23.32	23.28
3	1	14		23.06	23.01	23.24
3	8	0		23.34	23.09	23.08
3	8	4		23.09	23.41	23.08
3	8	7		23.31	23.04	23.35
3	15	0		23.42	23.34	23.50



LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.35	23.05	23.31
5	1	12		23.41	23.29	23.21
5	1	24		23.39	23.02	23.46
5	12	0		23.08	23.01	23.47
5	12	6		23.05	23.15	23.13
5	12	11		23.27	23.23	23.14
5	25	0		23.15	23.28	23.14
5	1	0	16-QAM	23.18	23.28	23.06
5	1	12		23.36	23.13	23.06
5	1	24		23.17	23.05	23.35
5	12	0		23.14	23.50	23.02
5	12	6		23.48	23.22	23.38
5	12	11		23.16	23.40	23.46
5	25	0		23.04	23.10	23.35
10	1	0	QPSK	23.27	23.28	23.36
10	1	24		23.46	23.57	23.02
10	1	49		23.34	23.34	23.22
10	25	0		23.18	23.17	23.24
10	25	12		23.17	23.02	23.39
10	25	24		23.14	23.00	23.13
10	50	0		23.05	23.21	23.27
10	1	0	16-QAM	23.12	23.10	23.48
10	1	24		23.02	23.13	23.15
10	1	49		23.33	23.47	23.40
10	25	0		23.35	23.05	23.30
10	25	12		23.32	23.19	23.47
10	25	24		23.14	23.39	23.01
10	50	0		23.05	23.09	23.33



LTE Band 17 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.13	23.19	23.30
5	1	12		23.21	23.29	23.30
5	1	24		23.55	23.47	23.41
5	12	0		23.41	23.54	23.48
5	12	6		23.38	23.56	23.39
5	12	11		23.24	23.26	23.43
5	25	0		23.23	23.52	23.54
5	1	0	16-QAM	23.10	23.26	23.30
5	1	12		23.38	23.59	23.41
5	1	24		23.30	23.41	23.21
5	12	0		23.39	23.55	23.59
5	12	6		23.28	23.39	23.23
5	12	11		23.24	23.32	23.42
5	25	0		23.45	23.23	23.43
10	1	0	QPSK	23.18	23.33	23.42
10	1	24		23.11	23.17	23.13
10	1	49		23.13	23.60	23.51
10	25	0		23.31	23.12	23.14
10	25	12		23.15	23.11	23.39
10	25	24		23.23	23.13	23.27
10	50	0		23.11	23.11	23.40
10	1	0	16-QAM	23.49	23.10	23.49
10	1	24		23.20	23.34	23.13
10	1	49		23.59	23.31	23.51
10	25	0		23.51	23.36	23.16
10	25	12		23.40	23.54	23.13
10	25	24		23.32	23.38	23.45
10	50	0		23.32	23.57	23.30



LTE Band 25 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.53	23.54	23.33
1.4	1	2		23.37	23.48	23.69
1.4	1	5		23.65	23.52	23.57
1.4	3	0		23.31	23.49	23.51
1.4	3	1		23.58	23.26	23.38
1.4	3	2		23.29	23.58	23.69
1.4	6	0		23.68	23.53	23.64
1.4	1	0	16-QAM	23.49	23.21	23.26
1.4	1	2		23.29	23.51	23.28
1.4	1	5		23.60	23.37	23.27
1.4	3	0		23.30	23.40	23.53
1.4	3	1		23.68	23.49	23.40
1.4	3	2		23.59	23.55	23.25
1.4	6	0		23.43	23.66	23.57
3	1	0	QPSK	23.62	23.68	23.47
3	1	7		23.22	23.41	23.59
3	1	14		23.36	23.27	23.53
3	8	0		23.60	23.60	23.53
3	8	4		23.33	23.56	23.32
3	8	7		23.61	23.63	23.67
3	15	0		23.67	23.61	23.50
3	1	0	16-QAM	23.57	23.44	23.47
3	1	7		23.60	23.21	23.67
3	1	14		23.22	23.66	23.52
3	8	0		23.42	23.38	23.26
3	8	4		23.61	23.49	23.44
3	8	7		23.40	23.41	23.56
3	15	0		23.57	23.28	23.61



LTE Band 25 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.53	23.46	23.53
5	1	12		23.70	23.25	23.58
5	1	24		23.34	23.47	23.65
5	12	0		23.29	23.30	23.37
5	12	6		23.44	23.32	23.51
5	12	11		23.46	23.29	23.39
5	25	0		23.48	23.64	23.51
5	1	0	16-QAM	23.22	23.45	23.57
5	1	12		23.69	23.59	23.43
5	1	24		23.28	23.43	23.36
5	12	0		23.48	23.47	23.23
5	12	6		23.31	23.57	23.48
5	12	11		23.61	23.59	23.22
5	25	0		23.59	23.32	23.69
10	1	0	QPSK	23.65	23.21	23.55
10	1	24		23.42	23.33	23.36
10	1	49		23.28	23.53	23.24
10	25	0		23.39	23.47	23.29
10	25	12		23.62	23.63	23.50
10	25	24		23.26	23.64	23.66
10	50	0		23.53	23.70	23.51
10	1	0	16-QAM	23.65	23.35	23.25
10	1	24		23.58	23.21	23.28
10	1	49		23.67	23.29	23.49
10	25	0		23.53	23.52	23.69
10	25	12		23.59	23.49	23.54
10	25	24		23.58	23.68	23.36
10	50	0		23.43	23.30	23.57



LTE Band 25 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.42	23.57	23.25
15	1	37		23.67	23.31	23.58
15	1	74		23.67	23.53	23.23
15	36	0		23.55	23.64	23.64
15	36	18		23.28	23.21	23.39
15	36	39		23.60	23.63	23.27
15	75	0		23.44	23.23	23.25
15	1	0	16-QAM	23.23	23.25	23.26
15	1	38		23.34	23.23	23.62
15	1	75		23.68	23.33	23.33
15	36	0		23.46	23.66	23.62
15	36	18		23.67	23.61	23.25
15	36	39		23.31	23.25	23.35
15	75	0		23.70	23.36	23.21
20	1	0	QPSK	23.36	23.60	23.44
20	1	49		23.52	23.64	23.35
20	1	99		23.52	23.26	23.56
20	50	0		23.45	23.30	23.54
20	50	24		23.47	23.22	23.27
20	50	49		23.30	23.74	23.67
20	100	0		23.21	23.52	23.27
20	1	0	16-QAM	23.34	23.25	23.59
20	1	49		23.58	23.44	23.26
20	1	99		23.64	23.34	23.61
20	50	0		23.41	23.22	23.51
20	50	24		23.63	23.50	23.22
20	50	49		23.66	23.55	23.31
20	100	0		23.35	23.65	23.51



LTE Band 26 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.48	23.39	23.46
1.4	1	2		23.18	23.04	23.19
1.4	1	5		23.34	23.01	23.05
1.4	3	0		23.45	23.35	23.03
1.4	3	1		23.44	23.08	23.32
1.4	3	2		23.35	23.35	23.23
1.4	6	0		23.00	23.45	23.11
1.4	1	0	16-QAM	23.34	23.15	23.40
1.4	1	2		23.44	23.24	23.36
1.4	1	5		23.09	23.02	23.20
1.4	3	0		23.13	23.30	23.18
1.4	3	1		23.37	23.21	23.20
1.4	3	2		23.20	23.20	23.26
1.4	6	0		23.27	23.27	23.21
3	1	0	QPSK	23.19	23.36	23.47
3	1	7		23.47	23.32	23.35
3	1	14		23.29	23.23	23.25
3	8	0		23.22	23.42	23.31
3	8	4		23.29	23.09	23.35
3	8	7		23.18	23.28	23.24
3	15	0		23.16	23.04	23.08
3	1	0	16-QAM	23.14	23.09	23.29
3	1	7		23.30	23.10	23.07
3	1	14		23.27	23.46	23.08
3	8	0		23.11	23.36	23.36
3	8	4		23.41	23.47	23.22
3	8	7		23.42	23.24	23.21
3	15	0		23.45	23.39	23.34



LTE Band 26 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.43	23.34	23.47
5	1	12		23.16	23.17	23.44
5	1	24		23.00	23.32	23.22
5	12	0		23.25	23.09	23.42
5	12	6		23.26	23.33	23.20
5	12	11		23.04	23.14	23.05
5	25	0		23.21	23.08	23.35
5	1	0	16-QAM	23.37	23.02	23.40
5	1	12		23.44	23.46	23.41
5	1	24		23.22	23.20	23.21
5	12	0		23.24	23.48	23.08
5	12	6		23.49	23.13	23.47
5	12	11		23.18	23.09	23.24
5	25	0		23.09	23.39	23.21
10	1	0	QPSK	/	23.59	/
10	1	24		/	23.35	/
10	1	49		/	23.26	/
10	25	0		/	23.35	/
10	25	12		/	23.44	/
10	25	24		/	23.34	/
10	50	0		/	23.39	/
10	1	0	16-QAM	/	23.36	/
10	1	24		/	23.44	/
10	1	49		/	23.22	/
10	25	0		/	23.29	/
10	25	12		/	23.46	/
10	25	24		/	23.08	/
10	50	0		/	23.47	/



LTE Band 26 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.41	23.30	23.16
1.4	1	2		23.54	23.46	23.23
1.4	1	5		23.56	23.17	23.19
1.4	3	0		23.39	23.26	23.22
1.4	3	1		23.44	23.54	23.15
1.4	3	2		23.59	23.41	23.10
1.4	6	0		23.30	23.59	23.18
1.4	1	0	16-QAM	23.51	23.37	23.28
1.4	1	2		23.36	23.55	23.50
1.4	1	5		23.28	23.48	23.16
1.4	3	0		23.40	23.32	23.56
1.4	3	1		23.40	23.40	23.19
1.4	3	2		23.32	23.13	23.17
1.4	6	0		23.56	23.39	23.22
3	1	0	QPSK	23.40	23.46	23.34
3	1	7		23.22	23.49	23.34
3	1	14		23.54	23.14	23.37
3	8	0		23.11	23.10	23.46
3	8	4		23.54	23.51	23.13
3	8	7		23.15	23.43	23.22
3	15	0		23.58	23.48	23.25
3	1	0	16-QAM	23.17	23.41	23.23
3	1	7		23.21	23.11	23.40
3	1	14		23.20	23.49	23.45
3	8	0		23.21	23.23	23.29
3	8	4		23.50	23.16	23.31
3	8	7		23.41	23.43	23.48
3	15	0		23.17	23.45	23.20



LTE Band 26 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.22	23.31	23.41
5	1	12		23.16	23.56	23.50
5	1	24		23.32	23.45	23.26
5	12	0		23.44	23.47	23.46
5	12	6		23.17	23.33	23.21
5	12	11		23.31	23.46	23.24
5	25	0		23.56	23.15	23.28
5	1	0	16-QAM	23.17	23.28	23.44
5	1	12		23.12	23.27	23.48
5	1	24		23.18	23.40	23.52
5	12	0		23.20	23.18	23.14
5	12	6		23.29	23.33	23.46
5	12	11		23.14	23.46	23.49
5	25	0		23.25	23.25	23.37
10	1	0	QPSK	23.23	23.22	23.60
10	1	24		23.34	23.37	23.45
10	1	49		23.44	23.39	23.30
10	25	0		23.48	23.49	23.38
10	25	12		23.45	23.59	23.28
10	25	24		23.14	23.49	23.17
10	50	0		23.23	23.25	23.10
10	1	0	16-QAM	23.40	23.53	23.43
10	1	24		23.47	23.47	23.20
10	1	49		23.53	23.26	23.20
10	25	0		23.24	23.51	23.55
10	25	12		23.10	23.35	23.52
10	25	24		23.56	23.57	23.52
10	50	0		23.37	23.49	23.26

LTE Band 26 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.55	23.67	23.57
15	1	37		23.14	23.39	23.33
15	1	74		23.55	23.11	23.52
15	36	0		23.17	23.18	23.14
15	36	18		23.34	23.12	23.18
15	36	39		23.41	23.16	23.46
15	75	0		23.14	23.22	23.53
15	1	0	16-QAM	23.21	23.45	23.24
15	1	38		23.25	23.15	23.38
15	1	75		23.18	23.50	23.48
15	36	0		23.19	23.54	23.50
15	36	18		23.33	23.54	23.51
15	36	39		23.27	23.16	23.17
15	75	0		23.24	23.29	23.48



LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.04	23.19	22.94
5	1	12		23.08	23.24	23.26
5	1	24		23.16	23.10	23.10
5	12	0		23.25	23.22	23.05
5	12	6		23.37	23.39	23.37
5	12	11		23.35	22.93	23.22
5	25	0		23.22	23.05	23.03
5	1	0	16-QAM	22.91	23.03	22.90
5	1	12		22.98	23.37	23.12
5	1	24		23.15	23.16	23.07
5	12	0		23.38	23.19	23.02
5	12	6		23.15	23.33	23.36
5	12	11		23.10	23.14	23.25
5	25	0		23.21	23.30	22.95
10	1	0	QPSK	22.95	23.40	23.20
10	1	24		23.00	23.25	23.05
10	1	49		23.01	23.16	23.32
10	25	0		23.28	23.27	22.94
10	25	12		23.06	22.92	23.21
10	25	24		23.38	23.13	23.02
10	50	0		23.05	23.08	23.25
10	1	0	16-QAM	22.91	23.24	23.11
10	1	24		23.25	23.01	23.39
10	1	49		23.27	23.24	23.30
10	25	0		23.03	23.33	23.25
10	25	12		23.27	23.04	23.18
10	25	24		23.32	23.08	23.36
10	50	0		22.98	22.90	23.06

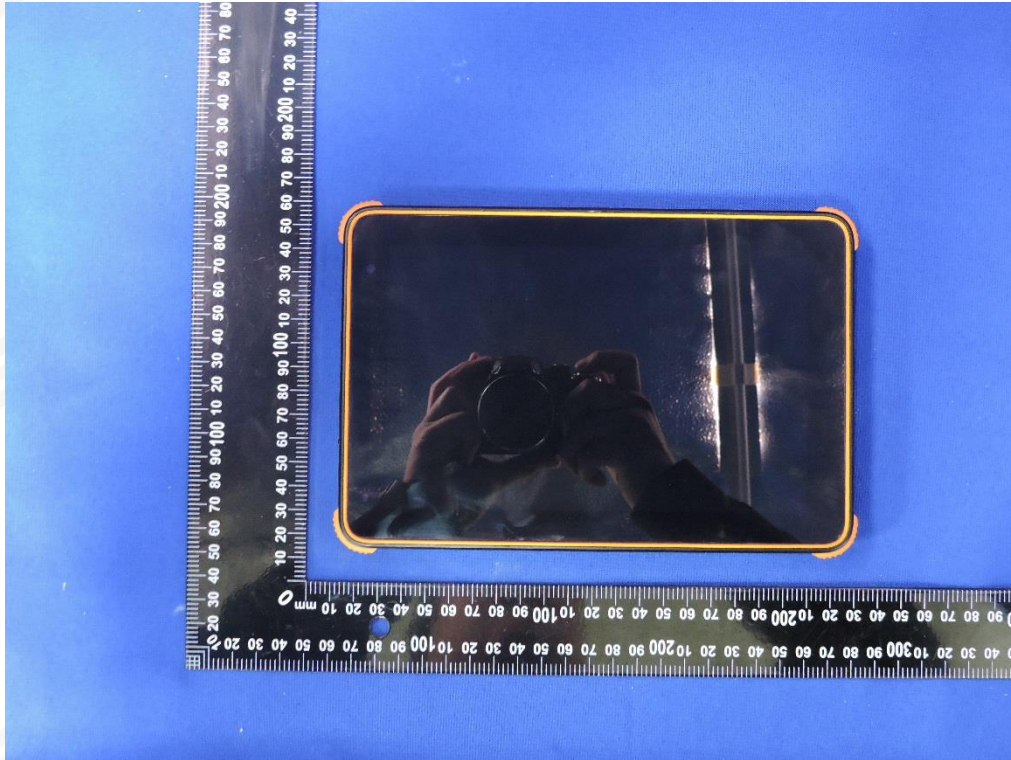


LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.29	23.11	23.27
15	1	37		23.37	23.06	23.38
15	1	74		23.33	23.29	22.99
15	36	0		23.35	23.36	23.20
15	36	18		22.97	23.06	22.95
15	36	39		23.10	22.90	23.06
15	75	0		23.34	23.05	22.93
15	1	0	16-QAM	23.27	23.33	23.30
15	1	38		23.02	23.27	23.15
15	1	75		23.26	23.05	23.08
15	36	0		23.10	23.27	23.01
15	36	18		23.21	23.26	23.17
15	36	39		23.21	23.20	22.95
15	75	0		23.08	23.25	23.32
20	1	0	QPSK	23.28	22.92	23.16
20	1	49		23.35	23.28	23.27
20	1	99		23.15	23.31	22.98
20	50	0		23.31	23.22	23.20
20	50	24		23.08	23.03	23.35
20	50	49		22.91	23.41	23.00
20	100	0		23.12	23.03	22.96
20	1	0	16-QAM	23.21	22.94	23.12
20	1	49		23.00	23.35	22.91
20	1	99		23.13	22.91	23.05
20	50	0		23.29	23.12	23.31
20	50	24		23.07	23.07	23.15
20	50	49		23.18	23.28	23.01
20	100	0		23.26	23.06	23.39

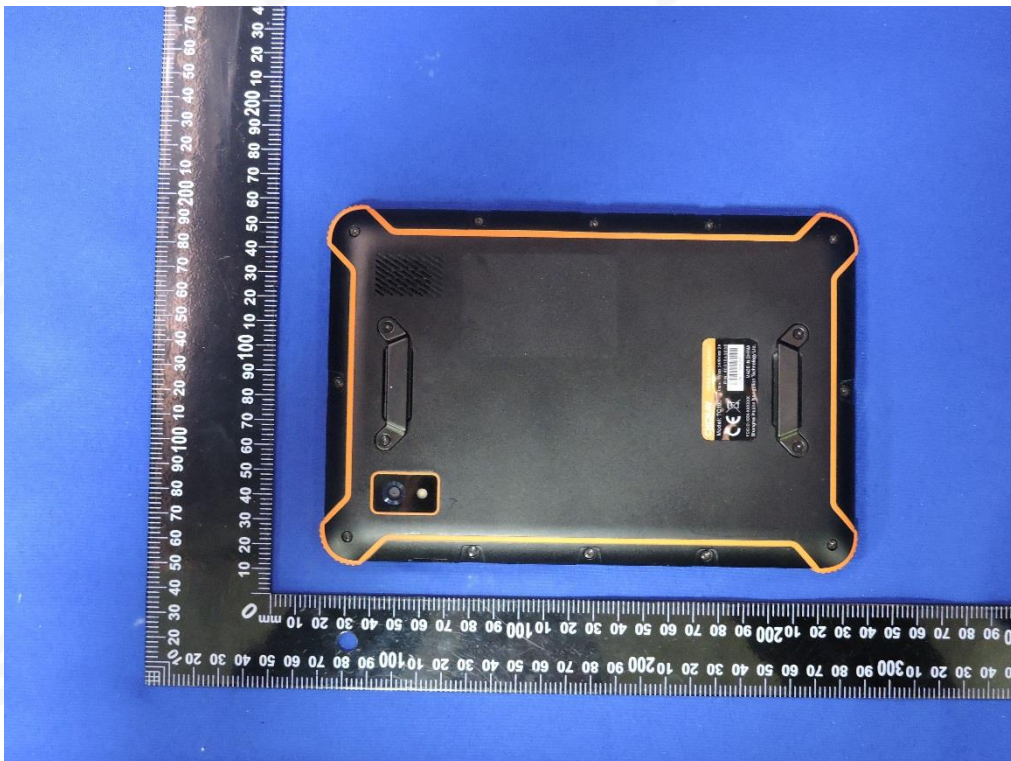
11. EUT and Test Setup Photo

11.1 EUT Photo

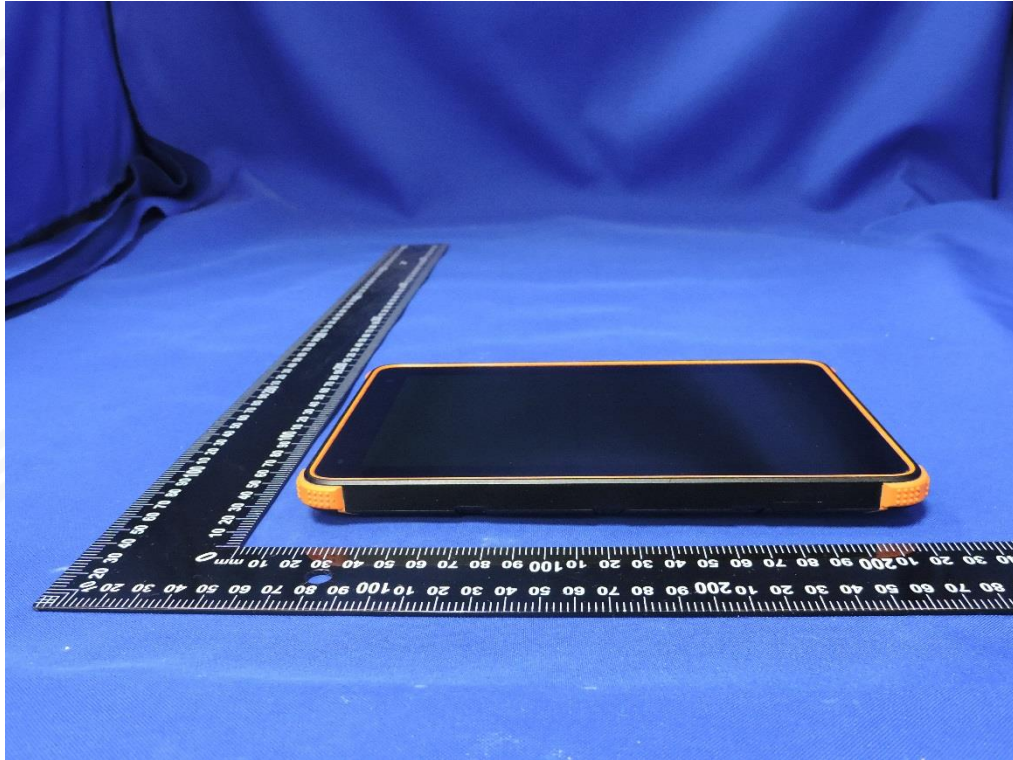
Front side



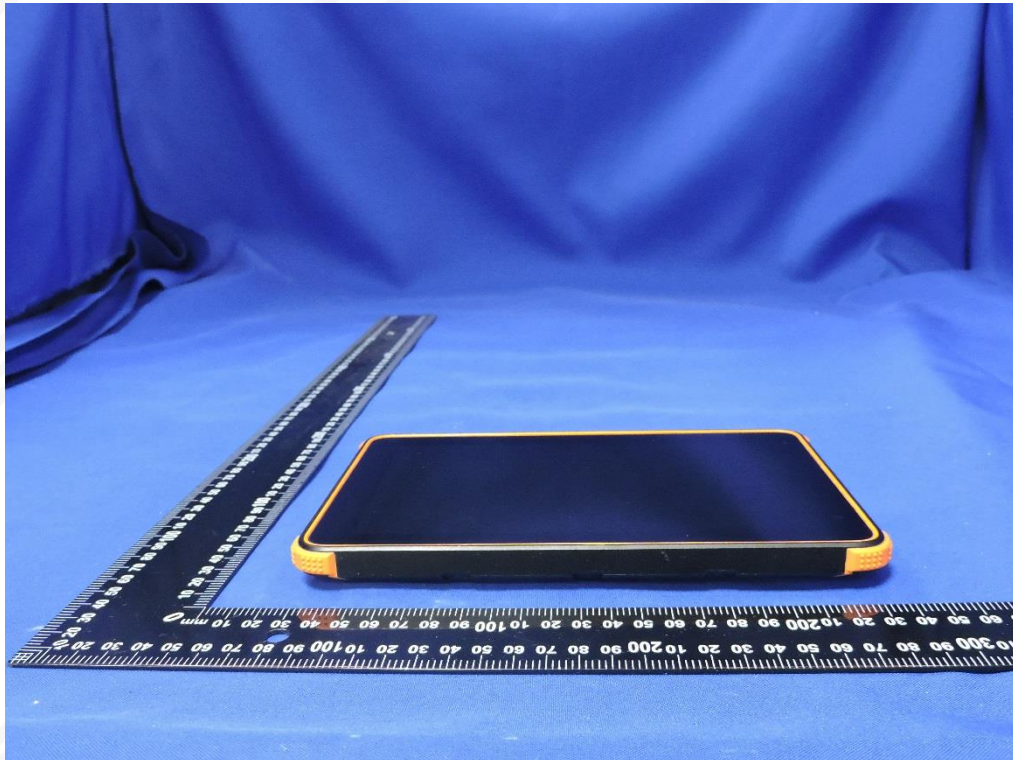
Back side



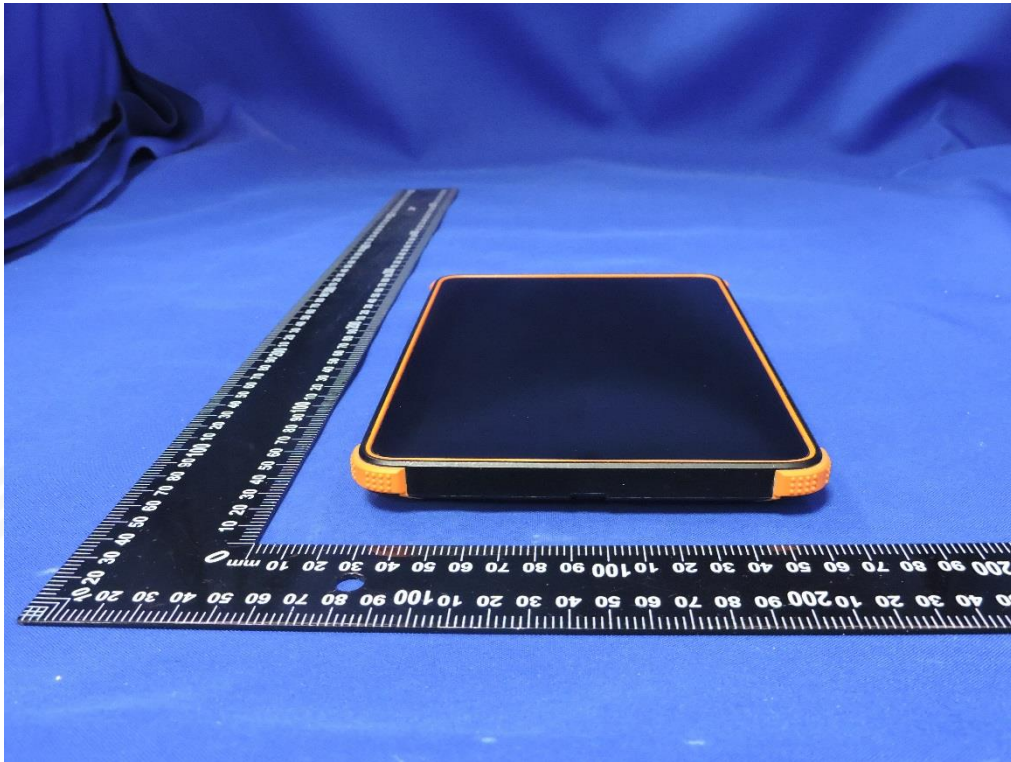
Top side



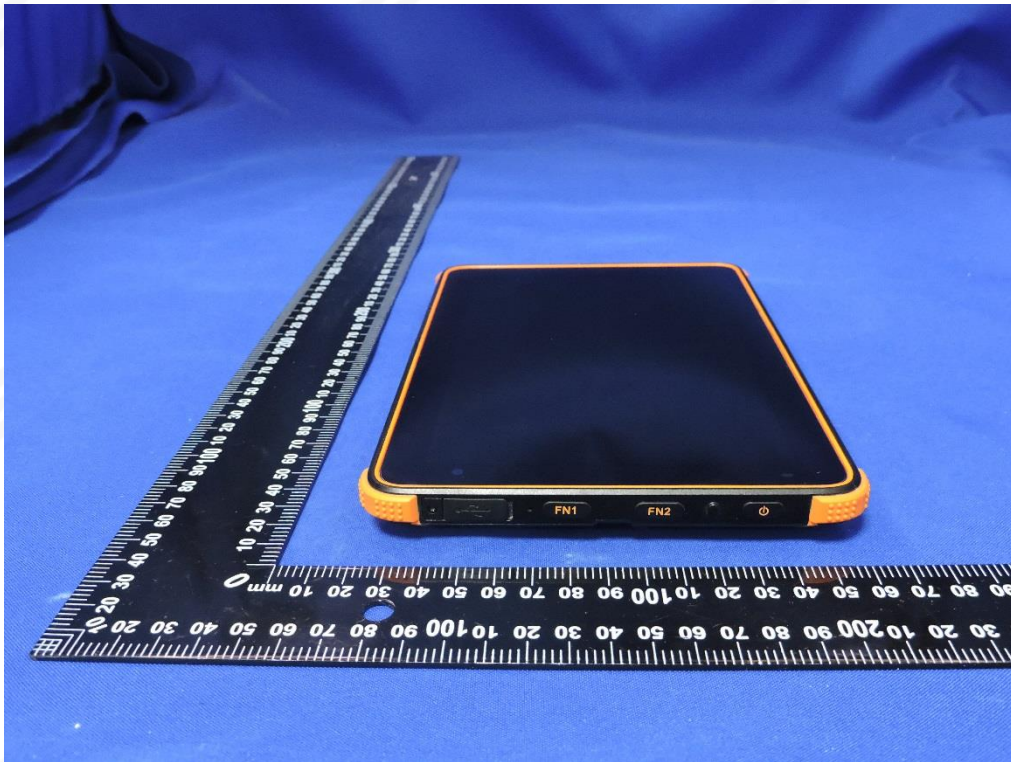
Bottom side



Left side



Right side



11.2 Setup Photo

Body Back side(separation distance is 0mm)



Body Top side(separation distance is 0mm)

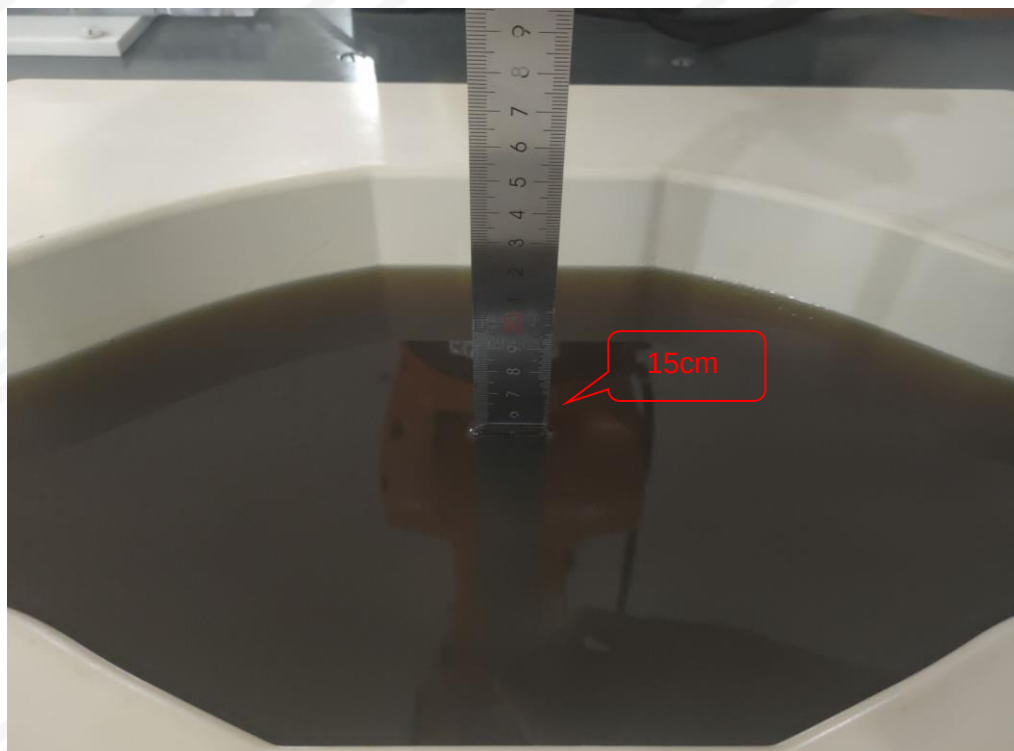


Body Right side(separation distance is 0mm)**Body Left side(separation distance is 0mm)**

Body Bottom side(separation distance is 0mm)



Liquid depth (15 cm)





12. SAR Result Summary

12.1 Body-worn SAR

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)	Scaling Factor	Scaled SAR (W/Kg)	Meas. No.
GSM850	N/A	GPRS (GMSK, 3-Slot)	N/A	N/A	Back Side	848.8	0.222	3.23	31.00	30.99	1.002	0.223	1
					Left Side	848.8	0.051	0.15	31.00	30.99	1.002	0.051	/
					Right Side	848.8	0.152	-1.33	31.00	30.99	1.002	0.152	/
					Bottom Side	848.8	0.177	-0.03	31.00	30.99	1.002	0.177	/
GSM1900	N/A	GPRS (GMSK, 3-Slot)	N/A	N/A	Back Side	1909.8	0.411	3.01	31.00	30.88	1.028	0.423	2
					Left Side	1909.8	0.102	-0.39	31.00	30.88	1.028	0.105	/
					Right Side	1909.8	0.233	-2.12	31.00	30.88	1.028	0.240	/
					Bottom Side	1909.8	0.301	3.83	31.00	30.88	1.028	0.309	/
WCDMA Band 2	N/A	RMC	N/A	N/A	Back Side	1907.6	0.394	3.56	25.00	24.95	1.012	0.399	3
					Left Side	1907.6	0.107	2.88	25.00	24.95	1.012	0.108	/
					Right Side	1907.6	0.2	-0.92	25.00	24.95	1.012	0.202	/
					Bottom Side	1907.6	0.236	1.16	25.00	24.95	1.012	0.239	/
WCDMA Band 4	N/A	RMC	N/A	N/A	Back Side	1712.6	0.11	1.60	25.00	24.86	1.033	0.114	4
					Left Side	1712.6	0.016	-0.10	25.00	24.86	1.033	0.017	/
					Right Side	1712.6	0.069	1.99	25.00	24.86	1.033	0.071	/
					Bottom Side	1712.6	0.052	2.91	25.00	24.86	1.033	0.054	/
WCDMA Band 5	N/A	RMC	N/A	N/A	Back Side	846.6	0.234	2.51	25.00	24.84	1.038	0.243	5
					Left Side	846.6	0.074	1.72	25.00	24.84	1.038	0.077	/
					Right Side	846.6	0.105	0.09	25.00	24.84	1.038	0.109	/
					Bottom Side	846.6	0.139	-0.58	25.00	24.84	1.038	0.144	/
2.4GHz WLAN	N/A	802.11b	N/A	N/A	Back Side	2412	0.054	2.22	17.00	16.826	1.041	0.056	6
					Right Side	2412	0.026	-0.19	17.00	16.826	1.041	0.027	/
					Top Side	2412	0.041	-2.91	17.00	16.826	1.041	0.043	/
5.2GHz WLAN	N/A	802.11 n-HT20	N/A	N/A	Back Side	5180	0.277	1.69	15.00	14.748	1.060	0.294	7
					Right Side	5180	0.163	-2.75	15.00	14.748	1.060	0.173	/
					Top Side	5180	0.205	-3.45	15.00	14.748	1.060	0.217	/
5.3GHz WLAN	N/A	802.11ac-VHT20	N/A	N/A	Back Side	5260	0.319	0.21	14.00	13.773	1.054	0.336	8
					Right Side	5260	0.174	-0.88	14.00	13.773	1.054	0.183	/
					Top Side	5260	0.236	1.62	14.00	13.773	1.054	0.249	/
5.6GHz WLAN	N/A	802.11a	N/A	N/A	Back Side	5580	0.23	-0.30	13.50	13.104	1.095	0.252	9
					Right Side	5580	0.114	-0.14	13.50	13.104	1.095	0.125	/
					Top Side	5580	0.196	-2.53	13.50	13.104	1.095	0.215	/
5.8GHz WLAN	N/A	802.11ac-VHT40	N/A	N/A	Back Side	5795	0.203	3.68	14.50	14.042	1.111	0.226	10
					Right Side	5795	0.107	3.44	14.50	14.042	1.111	0.119	/
					Top Side	5795	0.136	2.13	14.50	14.042	1.111	0.151	/
LTE Band 4	20M	QPSK	1	99	Back Side	1775	0.340	2.33	24.00	23.79	1.050	0.357	11
			50	24	Back Side	1747.5	0.322	-3.60	24.00	23.99	1.002	0.323	/
			1	99	Left Side	1775	0.102	-2.35	24.00	23.79	1.050	0.107	/
			50	24	Left Side	1747.5	0.121	3.71	24.00	23.99	1.002	0.121	/
			1	99	Right Side	1775	0.211	3.43	24.00	23.79	1.050	0.221	/
			50	24	Right Side	1747.5	0.231	1.05	24.00	23.99	1.002	0.232	/
			1	99	Bottom Side	1775	0.258	-2.88	24.00	23.79	1.050	0.271	/
			50	24	Bottom Side	1747.5	0.264	-0.23	24.00	23.99	1.002	0.265	/
LTE Band 5	10M	QPSK	1	24	Back Side	836.5	0.207	0.20	24.00	23.66	1.081	0.224	12
			25	12	Back Side	844	0.188	0.60	24.00	23.62	1.091	0.205	/
			1	0	Left Side	836.5	0.057	1.88	24.00	23.66	1.081	0.062	/
			25	0	Left Side	844	0.065	-0.05	24.00	23.62	1.091	0.071	/
			1	0	Right Side	836.5	0.124	-1.13	24.00	23.66	1.081	0.134	/
			25	0	Right Side	844	0.123	3.48	24.00	23.62	1.091	0.134	/
			1	0	Bottom Side	836.5	0.155	-2.56	24.00	23.66	1.081	0.168	/
			25	0	Bottom Side	844	0.163	3.66	24.00	23.62	1.091	0.178	/
LTE Band 7	10M	QPSK	1	49	Back Side	2535	0.676	-2.15	24.00	24.00	1.000	0.676	13
			50	0	Back Side	2560	0.645	3.35	24.00	23.88	1.028	0.663	/
			1	49	Left Side	2535	0.241	-0.45	24.00	24.00	1.000	0.241	/
			50	0	Left Side	2560	0.236	-2.07	24.00	23.88	1.028	0.243	/
			1	49	Right Side	2535	0.410	0.55	24.00	24.00	1.000	0.410	/
			50	0	Right Side	2560	0.422	-2.44	24.00	23.88	1.028	0.434	/
			1	49	Bottom Side	2535	0.504	-2.58	24.00	24.00	1.000	0.504	/
			50	0	Bottom Side	2560	0.531	-0.74	24.00	23.88	1.028	0.546	/



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)	Scaling Factor	Scaled SAR (W/Kg)	Meas. No.
LTE Band 12&17	10M	QPSK	1	24	Back Side	707.5	0.181	2.54	24.00	23.57	1.104	0.200	14
			25	12	Back Side	711	0.174	-0.49	23.50	23.39	1.026	0.178	/
			1	24	Left Side	707.5	0.036	-3.49	24.00	23.57	1.104	0.040	/
			25	12	Left Side	711	0.041	-3.29	23.50	23.39	1.026	0.042	/
			1	24	Right Side	707.5	0.078	-0.54	24.00	23.57	1.104	0.086	/
			25	12	Right Side	711	0.090	1.63	23.50	23.39	1.026	0.092	/
			1	24	Bottom Side	707.5	0.122	-3.24	24.00	23.57	1.104	0.135	/
			25	12	Bottom Side	711	0.101	3.27	23.50	23.39	1.026	0.104	/
LTE Band 25&2	20M	QPSK	1	0	Back Side	1882.5	0.717	-0.79	24.00	23.64	1.086	0.779	15
			50	0	Back Side	1882.5	0.674	0.11	24.00	23.74	1.062	0.716	/
			1	0	Left Side	1882.5	0.241	-3.40	24.00	23.64	1.086	0.262	/
			50	0	Left Side	1882.5	0.263	-3.27	24.00	23.74	1.062	0.279	/
			1	0	Right Side	1882.5	0.341	2.98	24.00	23.64	1.086	0.370	/
			50	0	Right Side	1882.5	0.352	2.36	24.00	23.74	1.062	0.374	/
			1	0	Bottom Side	1882.5	0.405	3.71	24.00	23.64	1.086	0.440	/
			50	0	Bottom Side	1882.5	0.478	2.01	24.00	23.74	1.062	0.507	/
LTE Band 26	15M	QPSK	1	0	Back Side	831.5	0.411	-0.70	24.00	23.57	1.104	0.454	16
			36	39	Back Side	841.5	0.369	-0.92	23.50	23.46	1.009	0.372	/
			1	0	Left Side	831.5	0.144	-1.14	24.00	23.57	1.104	0.159	/
			36	39	Left Side	841.5	0.162	-0.05	23.50	23.46	1.009	0.163	/
			1	0	Right Side	831.5	0.236	0.62	24.00	23.57	1.104	0.261	/
			36	39	Right Side	841.5	0.241	1.16	23.50	23.46	1.009	0.243	/
			1	0	Bottom Side	831.5	0.250	1.62	24.00	23.57	1.104	0.276	/
			36	39	Bottom Side	841.5	0.241	1.43	23.50	23.46	1.009	0.243	/
LTE Band 41	20M	QPSK	1	49	Back Side	2506	0.212	0.79	23.50	23.35	1.035	0.219	17
			50	49	Back Side	2680	0.201	1.44	23.50	23.41	1.021	0.205	/
			1	49	Left Side	2506	0.085	2.89	23.50	23.35	1.035	0.088	/
			50	49	Left Side	2680	0.079	-3.32	23.50	23.41	1.021	0.081	/
			1	49	Right Side	2506	0.114	-0.35	23.50	23.35	1.035	0.118	/
			50	49	Right Side	2680	0.105	-3.81	23.50	23.41	1.021	0.107	/
			1	49	Bottom Side	2506	0.136	-2.12	23.50	23.35	1.035	0.141	/
			50	49	Bottom Side	2680	0.141	2.12	23.50	23.41	1.021	0.144	/

Note:

- The test separation of all above table is 0mm.
- Per KDB 447498 D04, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - 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.
 - Scaled SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
- 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.

**12.2 Simultaneous Multi-band Transmission Evaluation**

Application Simultaneous Transmission information:

Position	Simultaneous State
Body	1. GSM + 2.4/5GHz WLAN
	2. GSM + Bluetooth
	3. WCDMA + 2.4/5GHz WLAN
	4. WCDMA + Bluetooth
	5. LTE + 2.4/5GHz 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 Average Power		Dis.	Frequency(GHz)	Stand alone SAR(1g) [W/kg]
		dBm	mW			
BT	Body	2	1.585	5	2.441	0.066

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.

Simultaneous Mode	Position	Mode	Max. 1-g SAR	1-g Sum SAR
			(W/kg)	(W/kg)
GSM + 2.4G WLAN	Body	GSM	0.423	0.479
		2.4G WLAN	0.056	
GSM + Bluetooth	Body	GSM	0.423	0.489
		Bluetooth	0.066	
GSM + 5G WLAN	Body	GSM	0.423	0.759
		5G WLAN	0.336	
WCDMA + 2.4G WLAN	Body	WCDMA	0.399	0.455
		2.4G WLAN	0.056	
WCDMA + Bluetooth	Body	WCDMA	0.399	0.465
		Bluetooth	0.066	
WCDMA + 5G WLAN	Body	WCDMA	0.399	0.735
		5G WLAN	0.336	
LTE + 2.4G WLAN	Body	LTE	0.783	0.839
		2.4G WLAN	0.056	
LTE + Bluetooth	Body	LTE	0.783	0.849
		Bluetooth	0.066	
LTE + 5G WLAN	Body	LTE	0.783	1.119
		5G WLAN	0.336	

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
SAR Test System	SATIMO	N/A	V5.3.15.11	N/A	N/A
750MHz Dipole	MVG	SID750	SN 30/14 DIP0G750-331	2023.07.04	2026.07.03
835MHz Dipole	MVG	SID835	SN 30/14 DIP0G835-332	2023.07.04	2026.07.03
1800MHz Dipole	MVG	SID1800	5023-DIP1G800-747	2023.12.20	2026.12.19
1900MHz Dipole	MVG	SID1900	SN 30/14 DIP1G900-333	2023.09.14	2026.09.13
2450MHz Dipole	MVG	SID2450	SN 30/14 DIP2G450-335	2023.07.04	2026.07.03
2600MHz Dipole	MVG	SID2600	SN 30/14 DIP2G600-336	2023.07.04	2026.07.03
E-Field Probe	MVG	SSE2	SN 08/21 EPG0352	2025.09.15	2026.09.14
Dielectric Probe Kit	MVG	SCLMP	SN 32/14 OCPG67	2025.09.15	2026.09.14
Antenna	MVG	ANTA3	SN 07/13 ZNTA52	N/A	N/A
Phantom1	MVG	SAM	SN 32/14 SAM115	N/A	N/A
Phantom3	MVG	SAM	SN 21/21 ELLI48	N/A	N/A
Phone holder	MVG	N/A	SN 32/14 MSH97	N/A	N/A
Laptop holder	MVG	N/A	SN 32/14 LSH29	N/A	N/A
Attenuator	Agilent	HXT-10-8-SMA	240327017	2025-02-22	2026-02-21
Directional coupler	Xi'an Xingbo	XBOH-OA08-20dB	211123-4-3	2025-02-22	2026-02-21
Network Analyzer	Agilent	E5071C	MY46520378	2025-09-26	2026-09-24
Multi Meter	Keithley	Multi Meter 2000	4050073	2025-09-22	2026-09-21
Signal Generator	Agilent	N5182A	MY50140530	2025-09-26	2026-09-25
Wireless Communication Test Set	Agilent	8960-E5515C	MY48360751	2025-02-22	2026-02-21
Wireless Communication Test Set	R&S	CMW500	156324	2025-09-25	2026-09-24
Power Amplifier	DESAY	WCS-DLNA50M8G50G1	CSKJLNA231227A	2025-09-29	2026-09-28
Power Meter	R&S	NRP	100510	2025-09-25	2026-09-24
Power Sensor	R&S	NRP-Z11	101919	2025-09-25	2026-09-24
Power Sensor	Keysight	U2021XA	MY56280002	2025-09-25	2026-09-24
Temperature hygrometer	TOPRIE	TP502V4-P	6700000124198	2025.10.09	2026.10.08
Thermograph	Elitech	RC-4	S/N EF7176501537	2025.10.17	2026.10.16



Appendix A. System Validation Plots

System Performance Check Data (750MHz)

Type: Phone measurement (Complete)

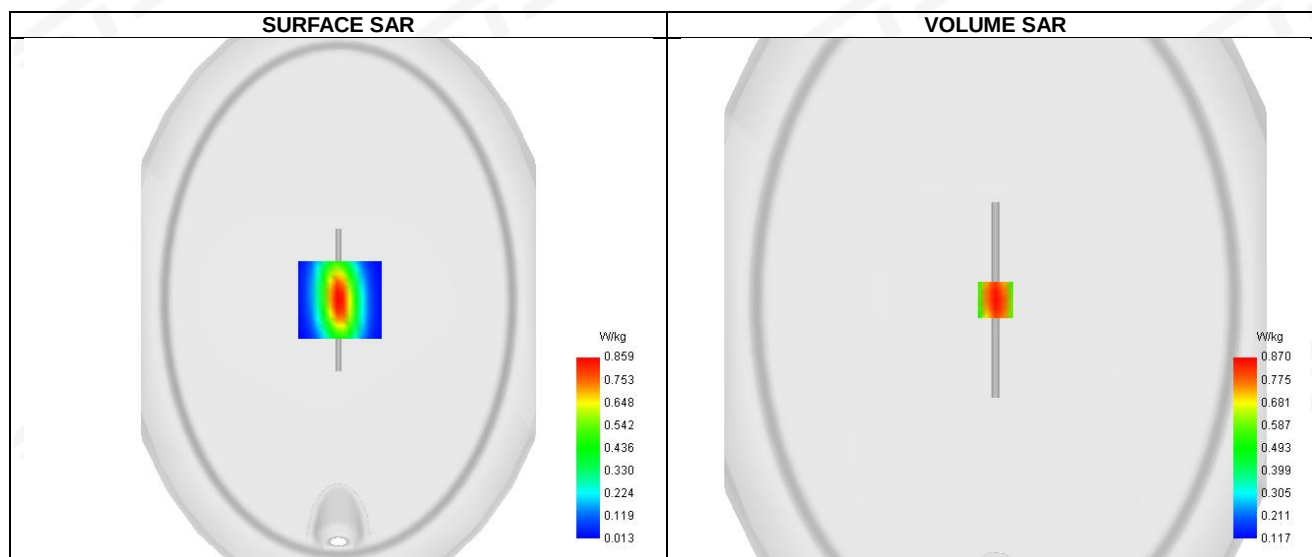
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2025-12-24

Experimental conditions

Phantom	Validation plane
Device Position	Dipole
Band	750MHz
Channels	Middle
Signal	CW
Frequency (MHz)	750MHz
Relative permittivity	41.65
Conductivity (S/m)	0.87
Probe	SN 08/21 EPGO352
ConvF	1.51
Crest factor:	1:1



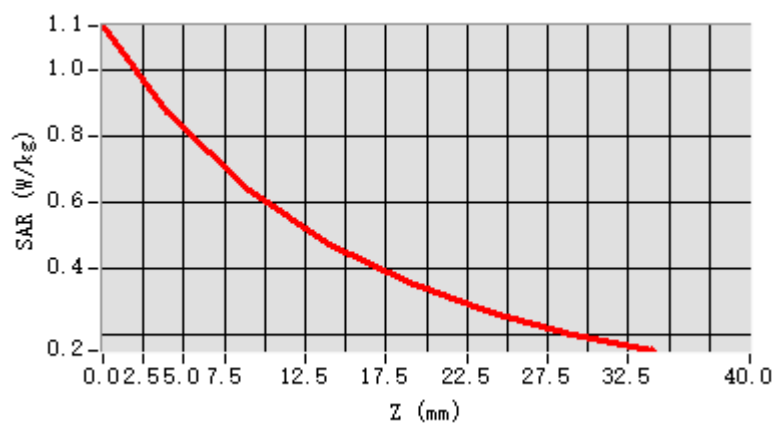
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 1.12 W/kg

D. SAR 1g & 10g

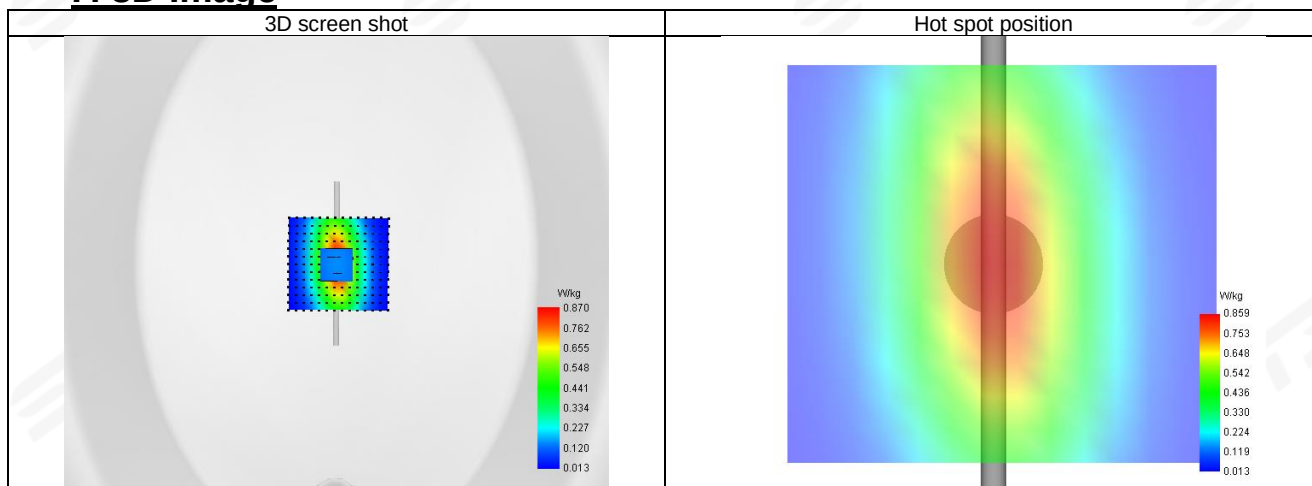
SAR 10g (W/Kg)	0.556
SAR 1g (W/Kg)	0.880
Horizontal validation criteria: minimum distance (mm)	10.125540
Vertical validation criteria: SAR ratio M2/M1 (%)	73.214521

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.121	0.860	0.634	0.470	0.357	0.267	0.199



F. 3D Image



**System Performance Check Data (835MHz)**

Type: Phone measurement (Complete)

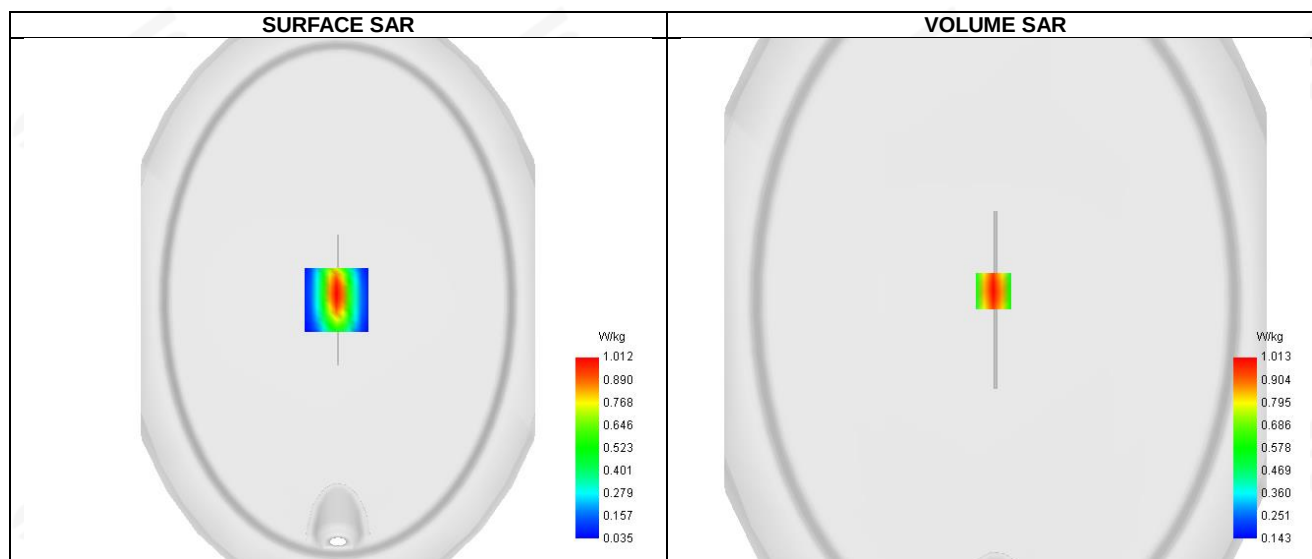
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2025-12-24

Experimental conditions

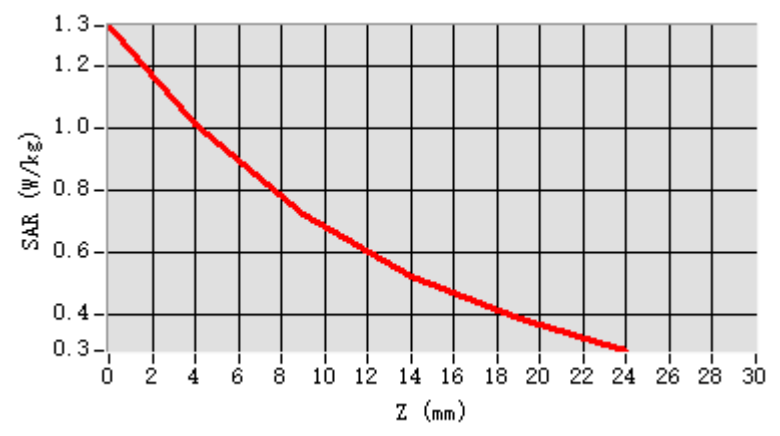
Phantom	Validation plane
Device Position	Dipole
Band	835MHz
Channels	Middle
Signal	CW
Frequency (MHz)	835MHz
Relative permittivity	41.29
Conductivity (S/m)	0.92
Probe	SN 08/21 EPGO352
ConvF	1.49
Crest factor:	1:1

**D. SAR 1g & 10g**

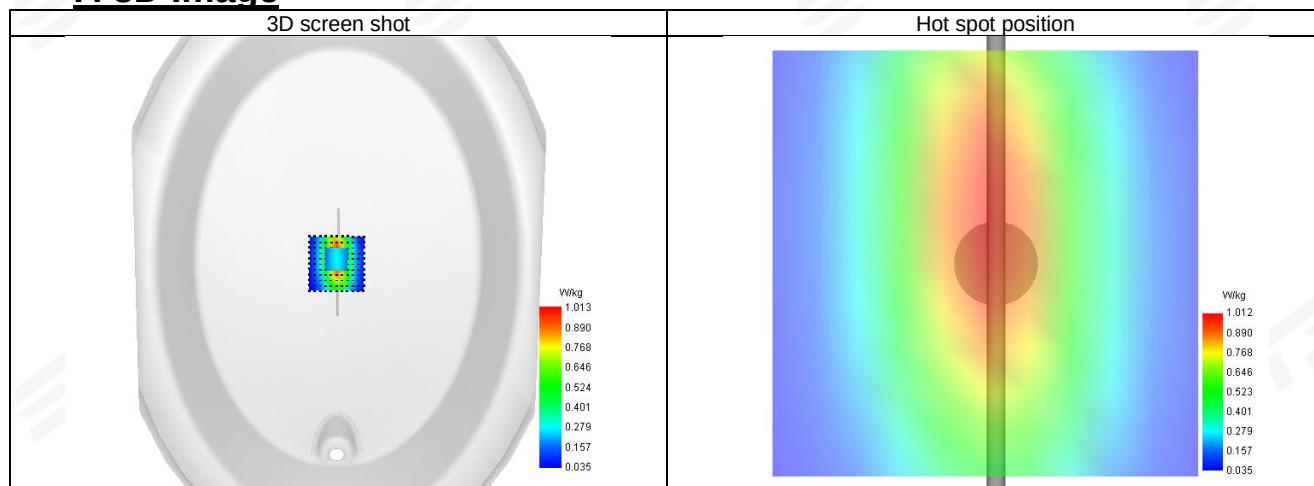
SAR 10g (W/Kg)	0.643
SAR 1g (W/Kg)	0.987
Horizontal validation criteria: minimum distance (mm)	11.250145
Vertical validation criteria: SAR ratio M2/M1 (%)	66.314040

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.327	1.013	0.723	0.524	0.387



F. 3D Image



**System Performance Check Data(1800MHz)**

Type: Phone measurement (Complete)

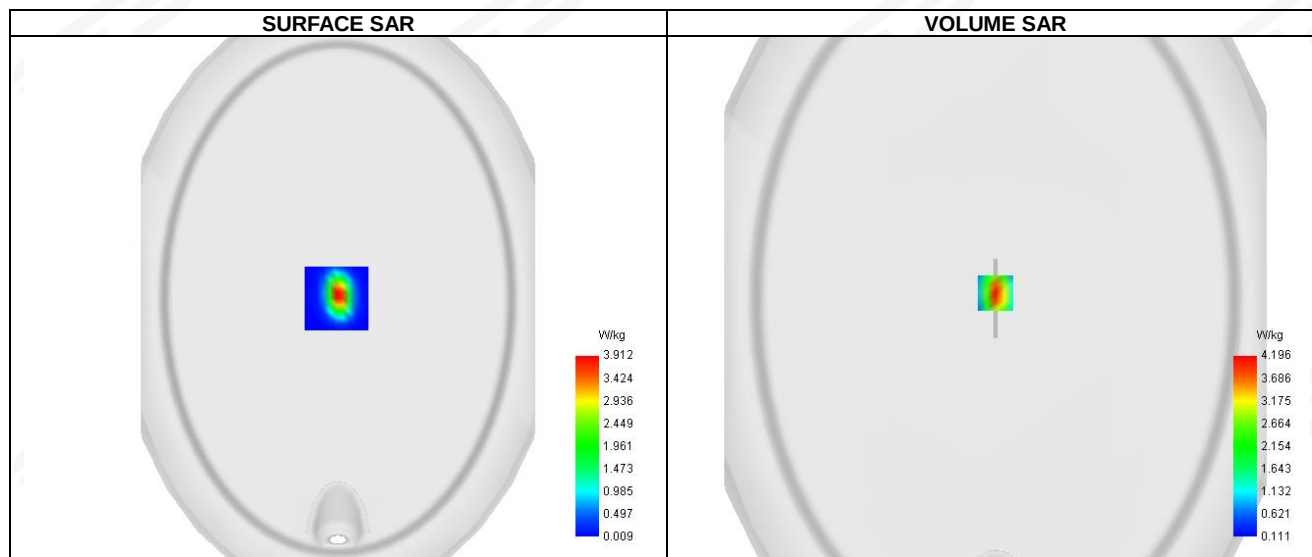
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2025-12-28

Experimental conditions.

Phantom	Validation plane
Device Position	Dipole
Band	1800MHz
Channels	Middle
Signal	CW
Frequency (MHz)	1800MHz
Relative permittivity	40.14
Conductivity (S/m)	1.40
Probe	SN 08/21 EPGO352
ConvF	1.54
Crest factor:	1:1



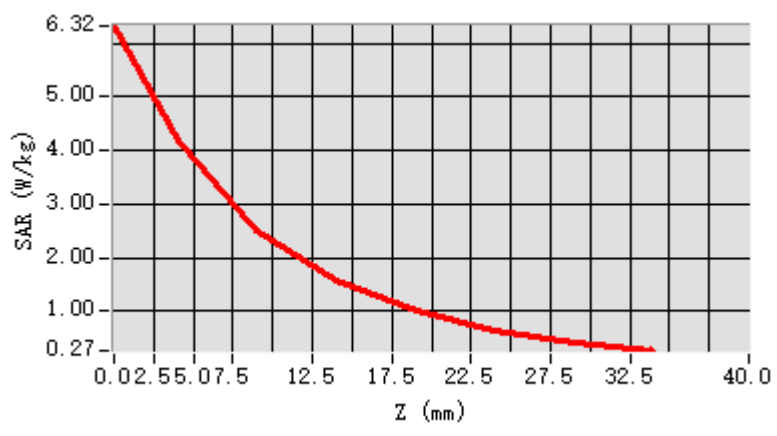
Maximum location: X=0.00, Y=5.00 ; SAR Peak: 6.33 W/kg

D. SAR 1g & 10g

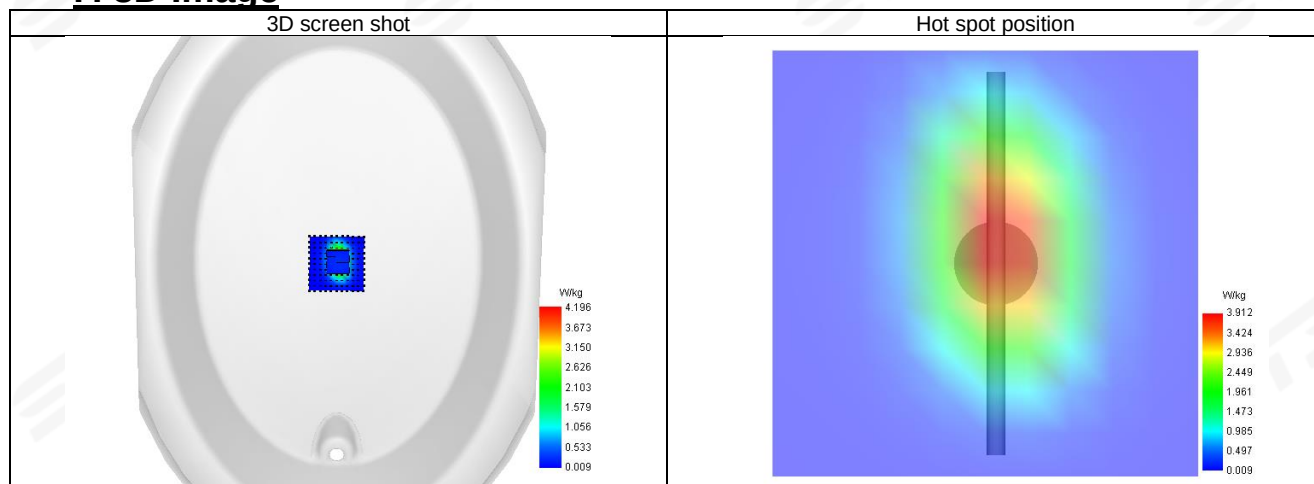
SAR 10g (W/Kg)	1.975
SAR 1g (W/Kg)	3.910
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	59.778326

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.323	4.196	2.508	1.568	1.000	0.639	0.413



F. 3D Image



**System Performance Check Data (1900MHz)**

Type: Phone measurement (Complete)

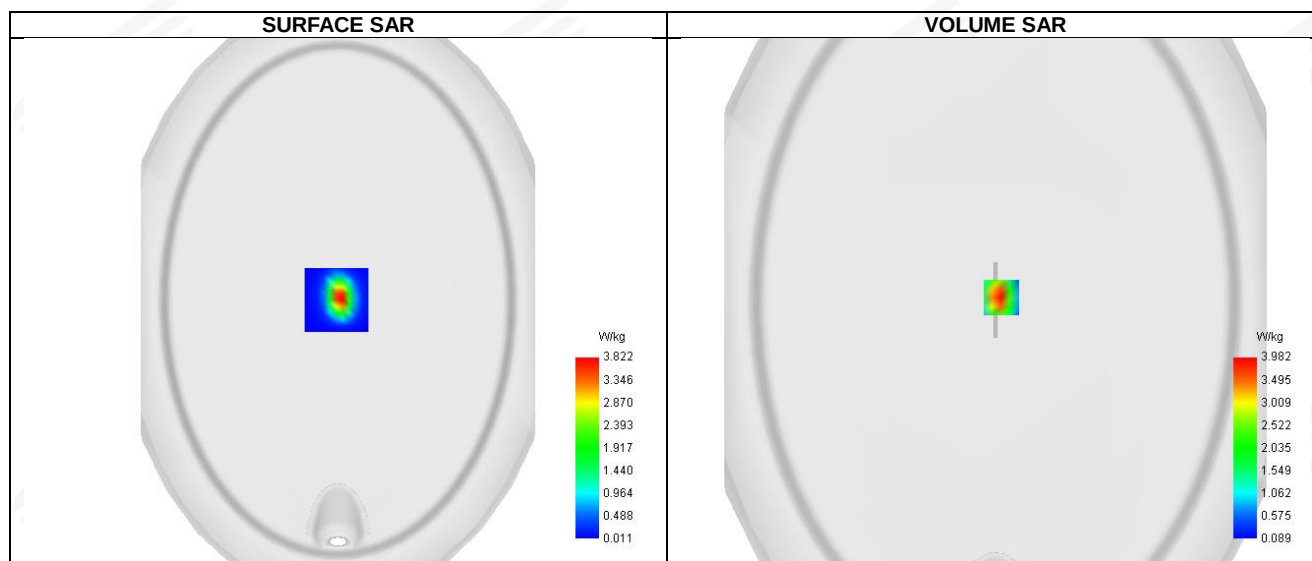
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2025-12-31

Experimental conditions.

Phantom	Validation plane
Device Position	Dipole
Band	1900MHz
Channels	Middle
Signal	CW
Frequency (MHz)	1900MHz
Relative permittivity	40.36
Conductivity (S/m)	1.40
Probe	SN 08/21 EPG0352
ConvF	1.73
Crest factor:	1:1



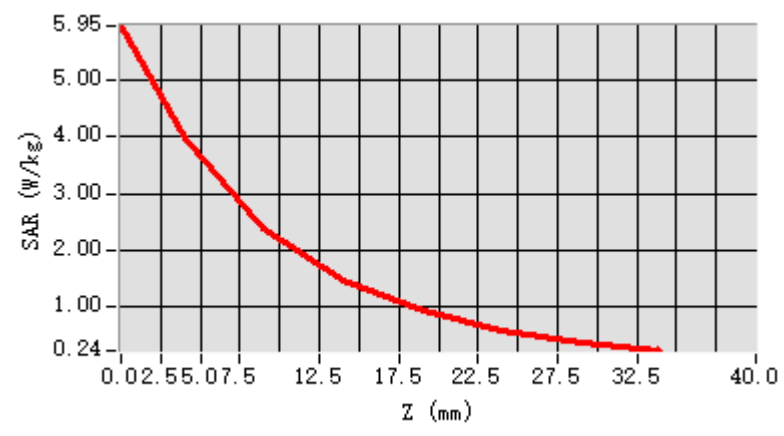
Maximum location: X=5.00, Y=2.00 ; SAR Peak: 6.10 W/kg

D. SAR 1g & 10g

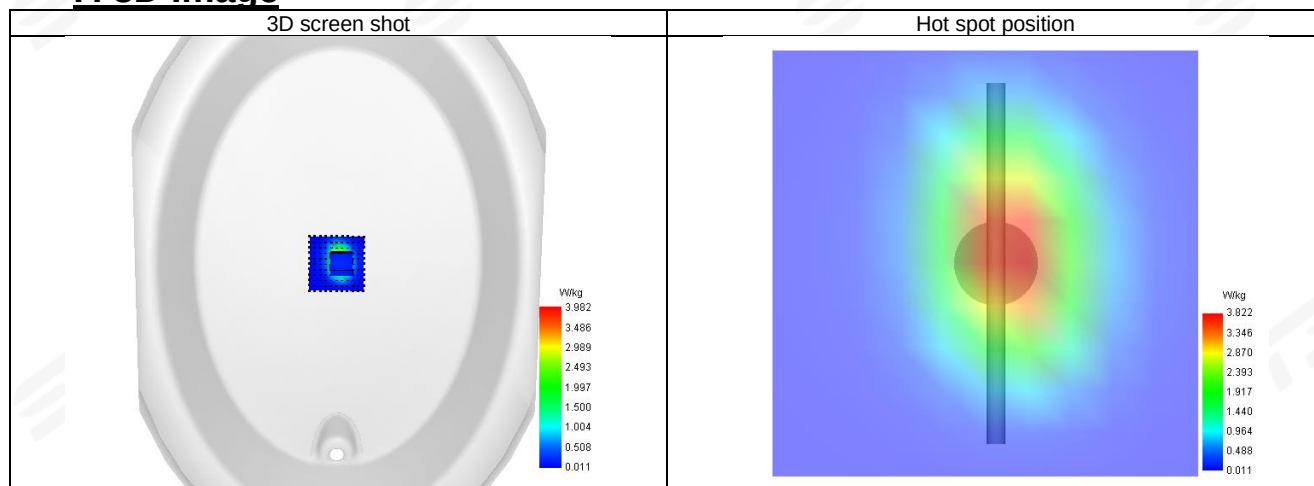
SAR 10g (W/Kg)	2.033
SAR 1g (W/Kg)	4.004
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	60.115884

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	5.952	3.982	2.394	1.483	0.934	0.587	0.374



F. 3D Image



**System Performance Check Data (2450MHz)**

Type: Phone measurement (Complete)

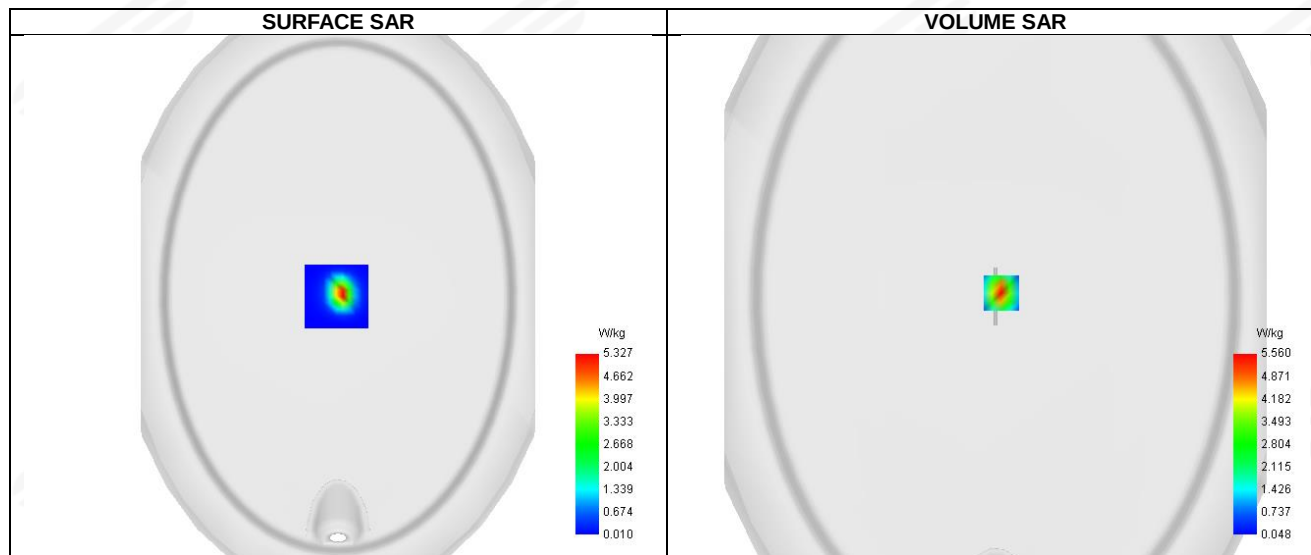
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2026-01-06

Experimental conditions.

Phantom	Validation plane
Device Position	Dipole
Band	2450MHz
Channels	Middle
Signal	CW
Frequency (MHz)	2450
Relative permittivity	39.92
Conductivity (S/m)	1.80
Probe	SN 08/21 EPG0352
ConvF	1.82
Crest factor:	1:1



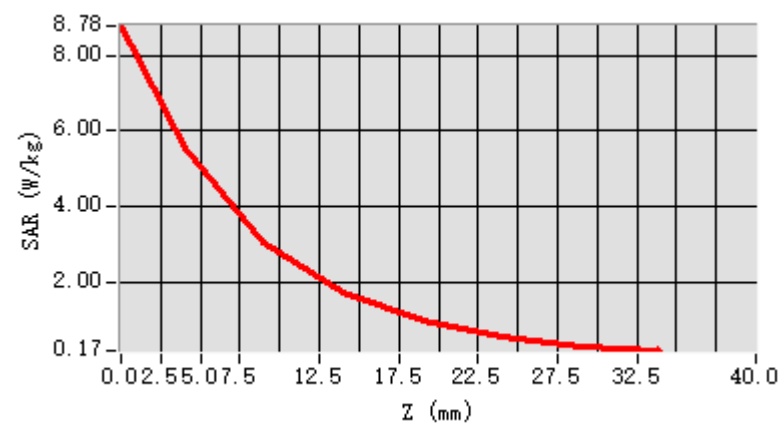
Maximum location: X=5.00, Y=3.00 ; SAR Peak: 8.72 W/kg

D. SAR 1g & 10g

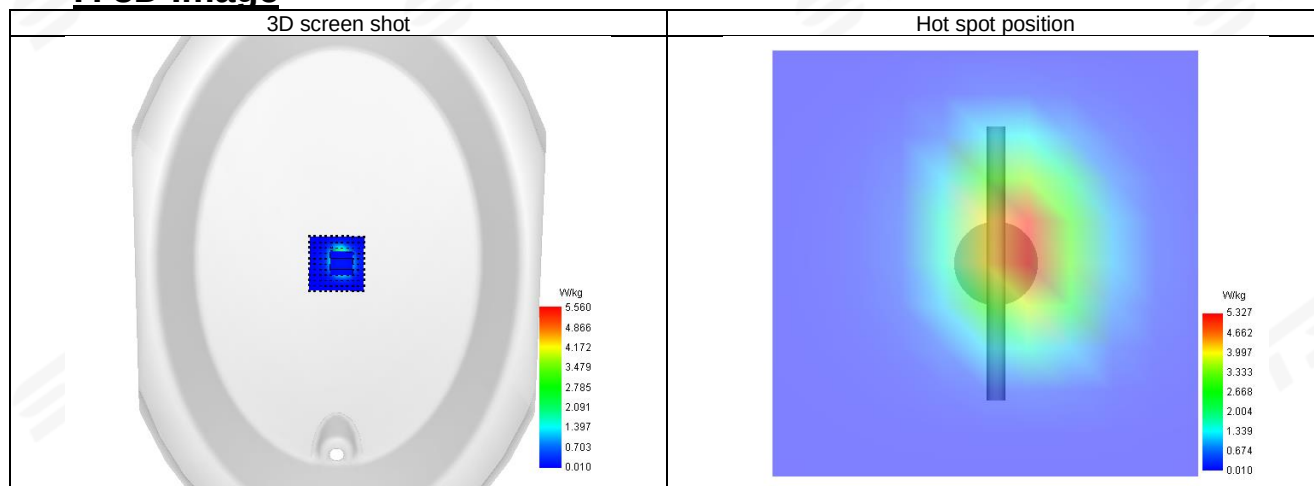
SAR 10g (W/Kg)	2.393
SAR 1g (W/Kg)	5.452
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	54.914814

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	8.776	5.560	3.053	1.724	0.963	0.537	0.300



F. 3D Image



System Performance Check Data(2600MHz)

Type: Phone measurement (Complete)

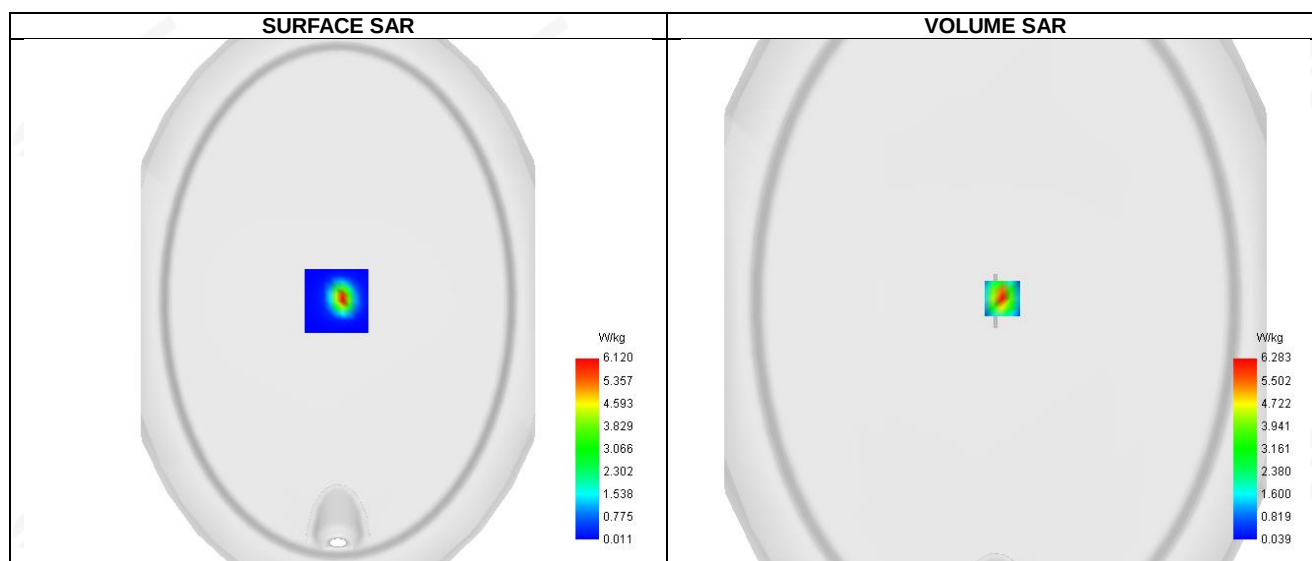
Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2025-12-30

Experimental conditions.

Phantom	Validation plane
Device Position	Dipole
Band	2600MHz
Channels	Middle
Signal	CW
Frequency (MHz)	2600
Relative permittivity	38.90
Conductivity (S/m)	1.96
Probe	SN 08/21 EPGO352
ConvF	1.70
Crest factor:	1:1

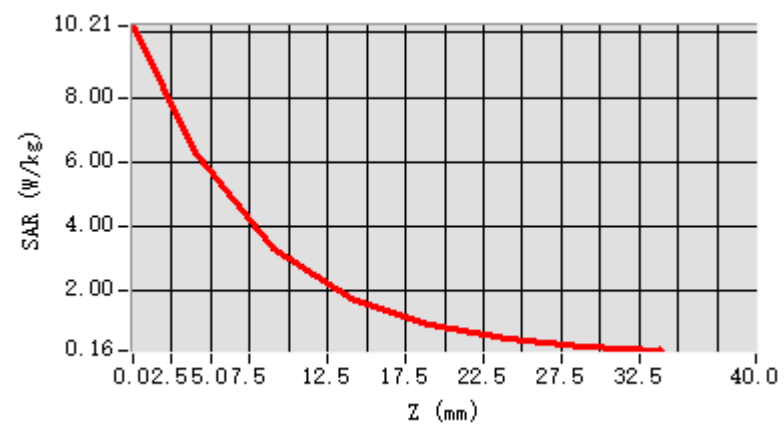


D. SAR 1g & 10g

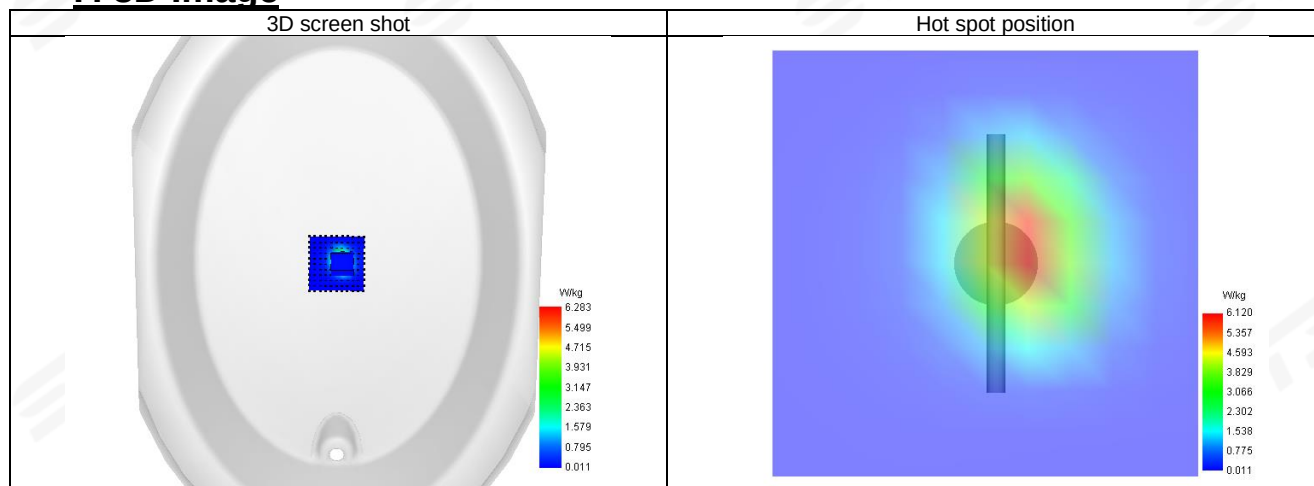
SAR 10g (W/Kg)	2.396
SAR 1g (W/Kg)	5.540
Horizontal validation criteria: minimum distance (mm)	11.313708
Vertical validation criteria: SAR ratio M2/M1 (%)	52.477333

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	10.211	6.283	3.297	1.796	0.963	0.517	0.277



F. 3D Image



**System Performance Check Data(5200MHz)**

Type: Phone measurement (Complete)

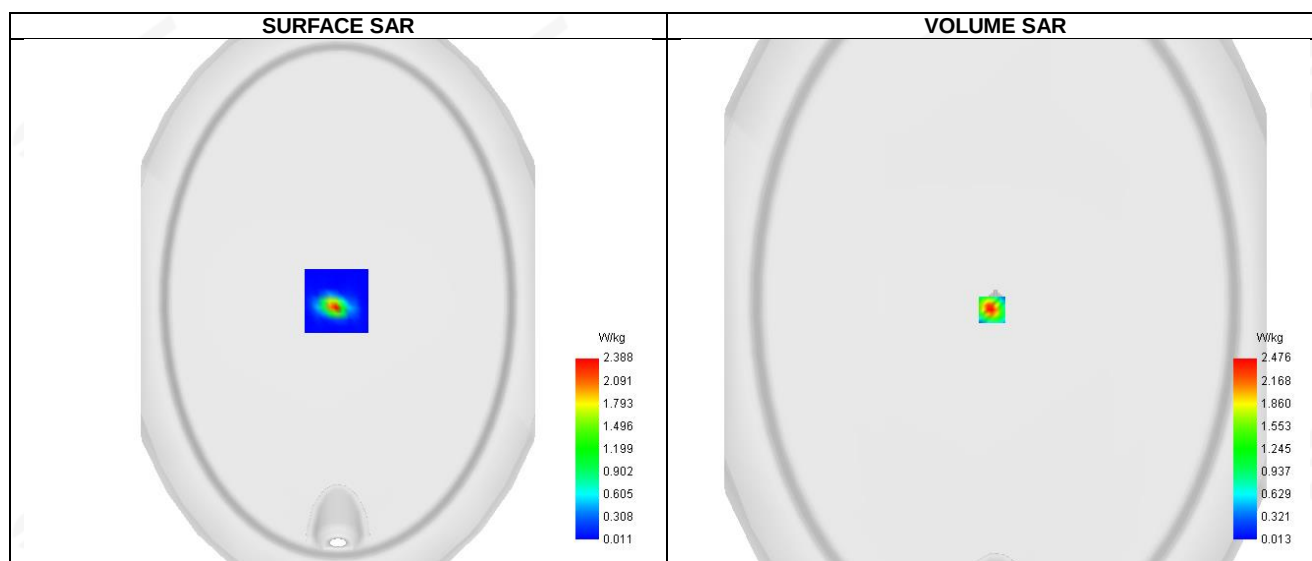
Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2026-01-06

Experimental conditions.

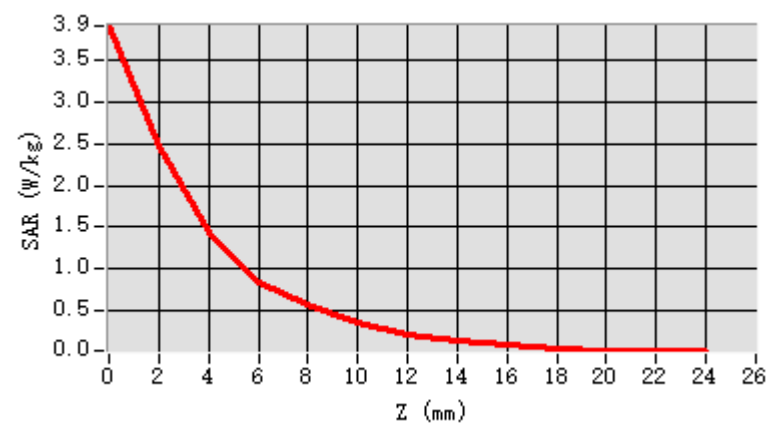
Phantom	Validation plane
Device Position	Dipole
Band	5200MHz
Channels	Middle
Signal	CW
Frequency (MHz)	5200
Relative permittivity	37.17
Conductivity (S/m)	4.64
Probe	SN 08/21 EPGO352
ConvF	1.37
Crest factor:	1:1

**D. SAR 1g & 10g**

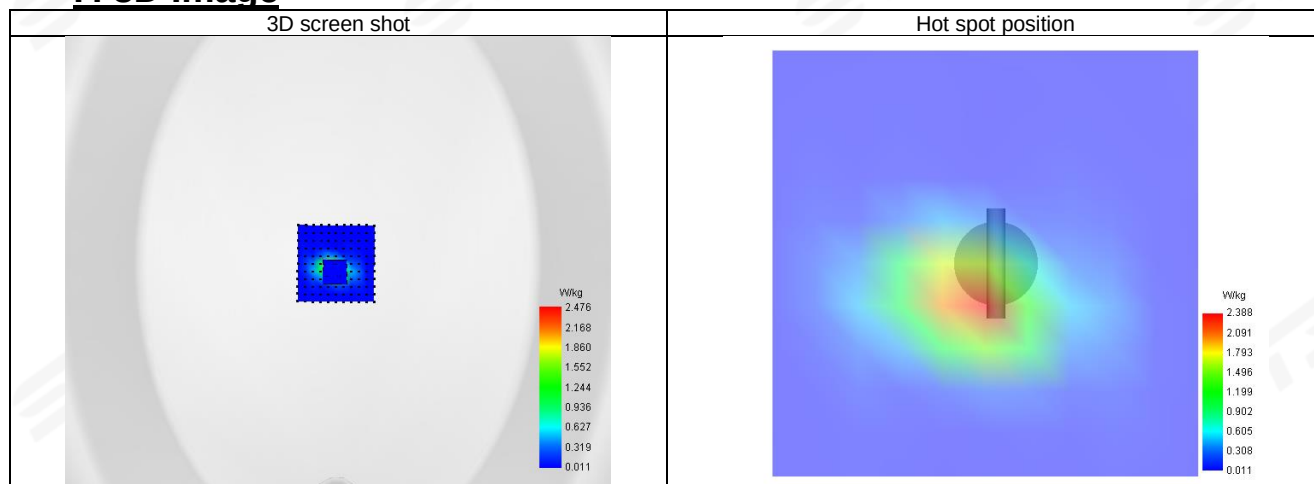
SAR 10g (W/Kg)	0.579
SAR 1g (W/Kg)	1.677
Horizontal validation criteria: minimum distance (mm)	8.944272
Vertical validation criteria: SAR ratio M2/M1 (%)	57.858396

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00
SAR (W/Kg)	3.914	2.476	1.433	0.826	0.562	0.347	0.215	0.133	0.082	0.051	0.031	0.019	0.019



F. 3D Image



**System Performance Check Data(5600MHz)**

Type: Phone measurement (Complete)

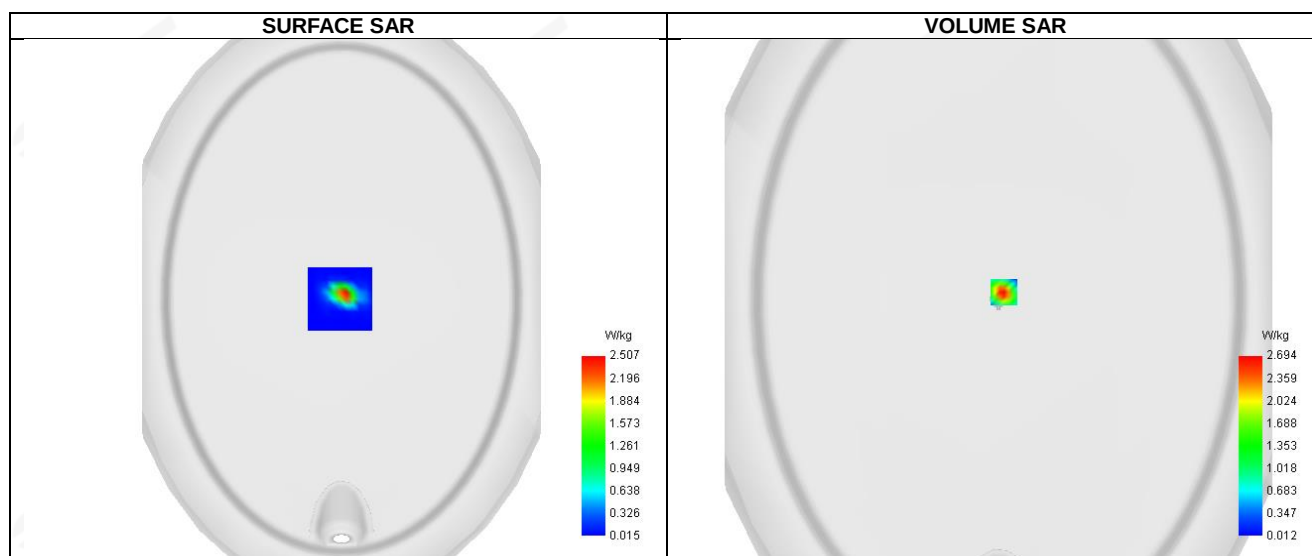
Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2026-01-06

Experimental conditions.

Phantom	Validation plane
Device Position	Dipole
Band	5600MHz
Channels	Middle
Signal	CW
Frequency (MHz)	5600
Relative permittivity	35.92
Conductivity (S/m)	5.08
Probe	SN 08/21 EPGO352
ConvF	1.21
Crest factor:	1:1



Maximum location: X=5.00, Y=6.00 ; SAR Peak: 4.74 W/kg

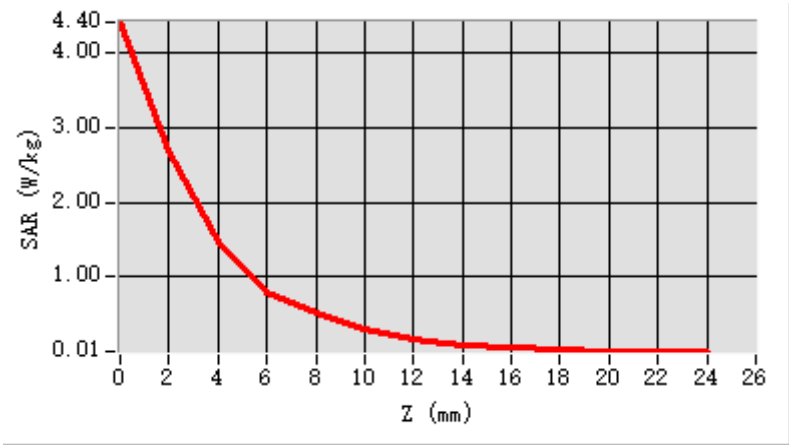
D. SAR 1g & 10g

SAR 10g (W/Kg)	0.595
SAR 1g (W/Kg)	1.872
Horizontal validation criteria: minimum distance (mm)	8.944272
Vertical validation criteria: SAR ratio M2/M1 (%)	54.801016

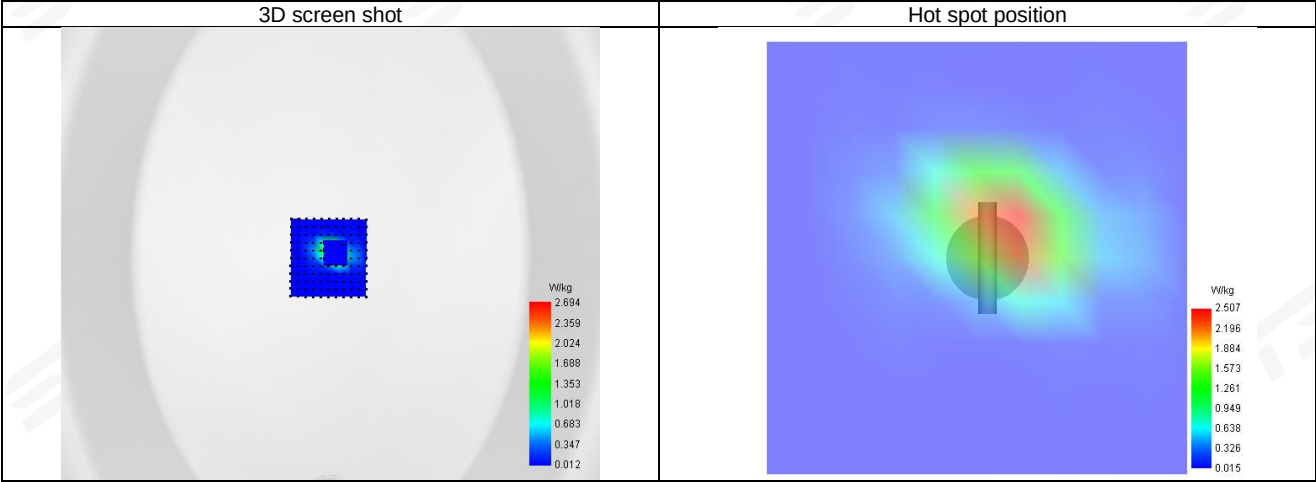


E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	4.396	2.694	1.477	0.791	0.517	0.302	0.176	0.103	0.060	0.035	0.021	0.012



F. 3D Image



**System Performance Check Data(5800MHz)**

Type: Phone measurement (Complete)

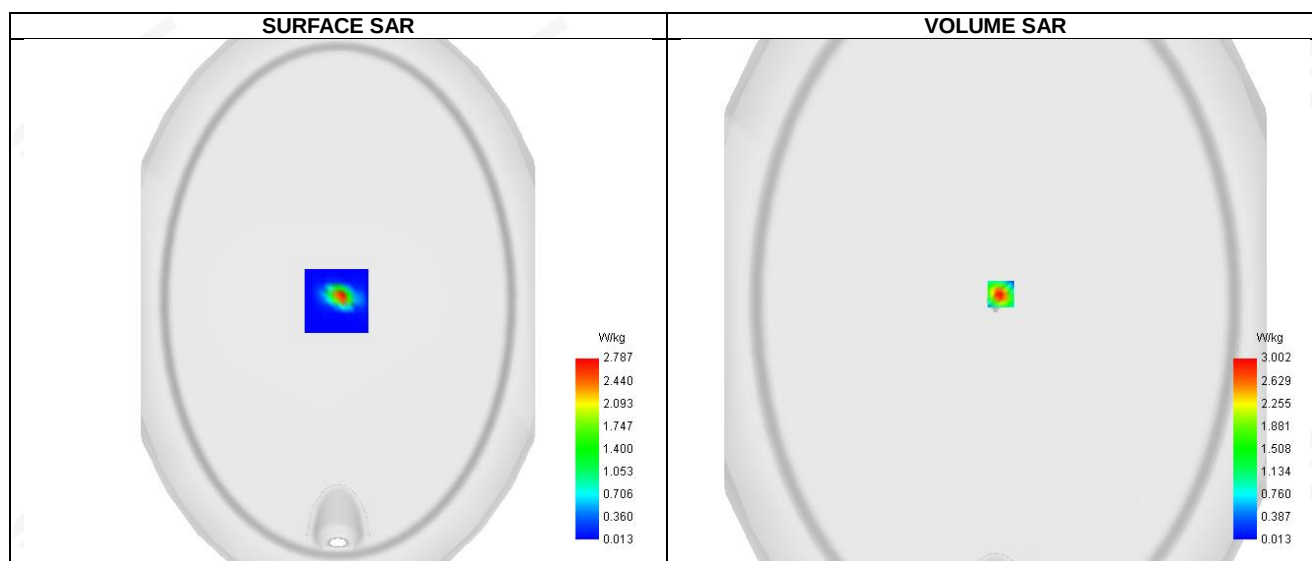
Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2026-01-06

Experimental conditions.

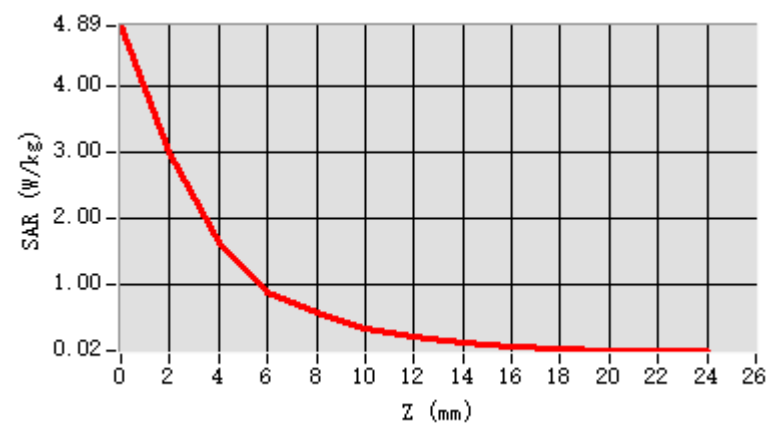
Phantom	Validation plane
Device Position	Dipole
Band	5800MHz
Channels	Middle
Signal	CW
Frequency (MHz)	5800
Relative permittivity	34.93
Conductivity (S/m)	5.29
Probe	SN 08/21 EPGO352
ConvF	1.32
Crest factor:	1:1

**D. SAR 1g & 10g**

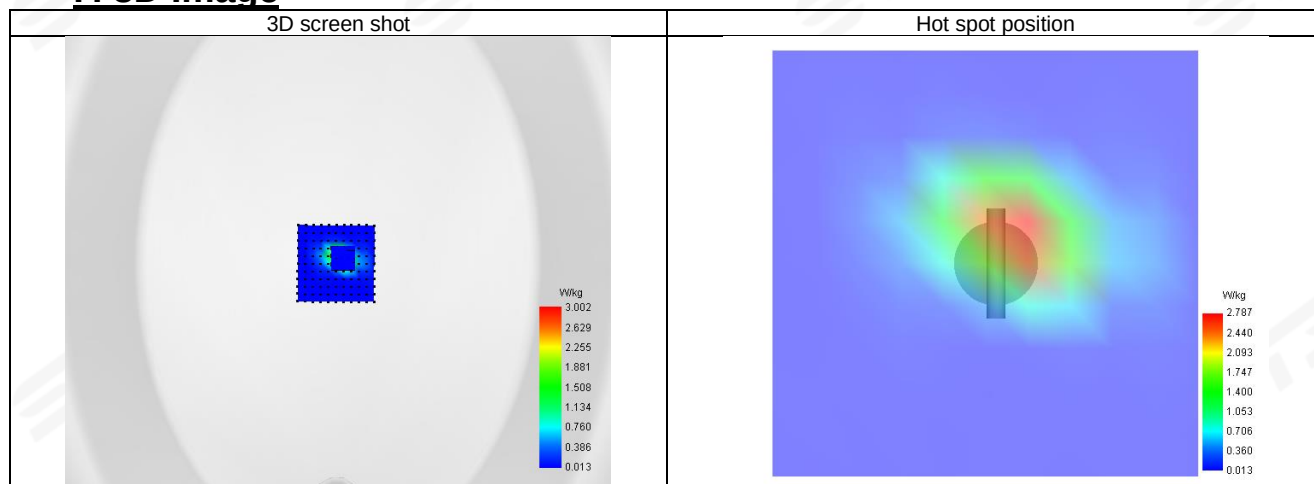
SAR 10g (W/Kg)	0.679
SAR 1g (W/Kg)	1.780
Horizontal validation criteria: minimum distance (mm)	8.944272
Vertical validation criteria: SAR ratio M2/M1 (%)	54.758355

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00
SAR (W/Kg)	4.894	3.002	1.644	0.880	0.603	0.359	0.214	0.127	0.076	0.045	0.027	0.016	0.016



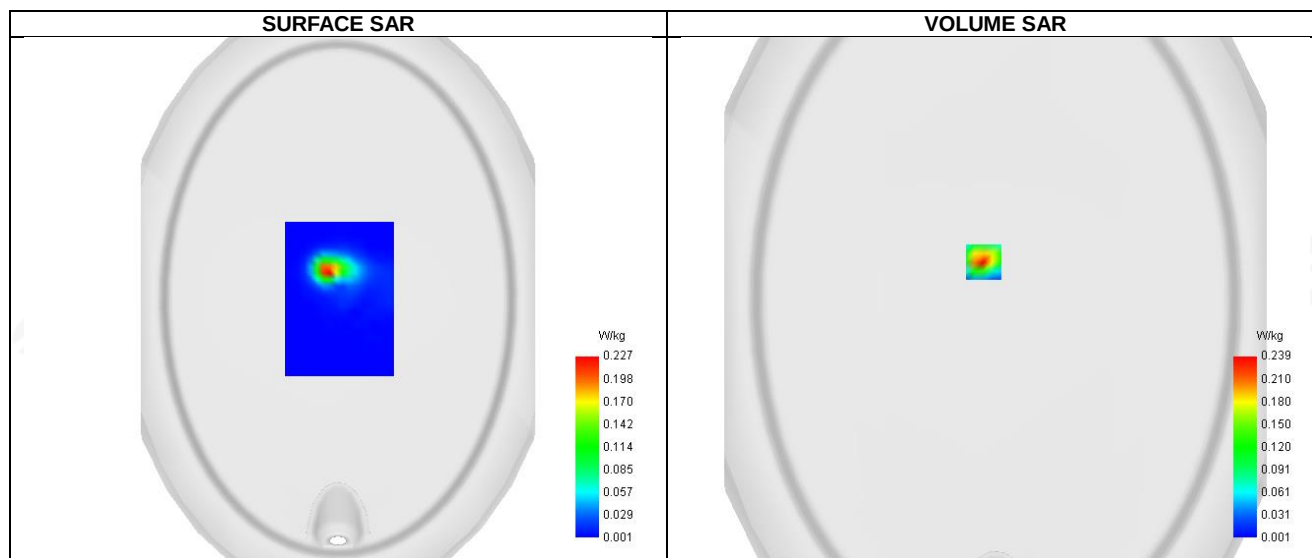
F. 3D Image



Appendix B. SAR Test Plots

Plot 1: DUT: GNSS Data Collector; EUT Model: TC100

Test Date	2025-12-24
ConvF	1.49
Probe	SN 08/21 EPG0352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	GPRS 850
Signal	Duty Cycle: 2.00 (Crest factor: 2.0)
Frequency (MHz)	848.8
Relative permittivity (real part)	41.25
Conductivity (S/m)	0.89



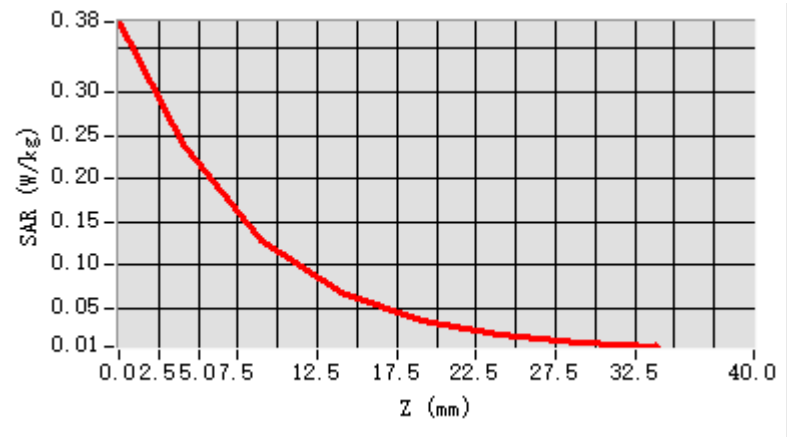
D. SAR 1g & 10g

SAR 10g (W/Kg)	0.105
SAR 1g (W/Kg)	0.222
Horizontal validation criteria: minimum distance (mm)	11.313708
Vertical validation criteria: SAR ratio M2/M1 (%)	53.670992

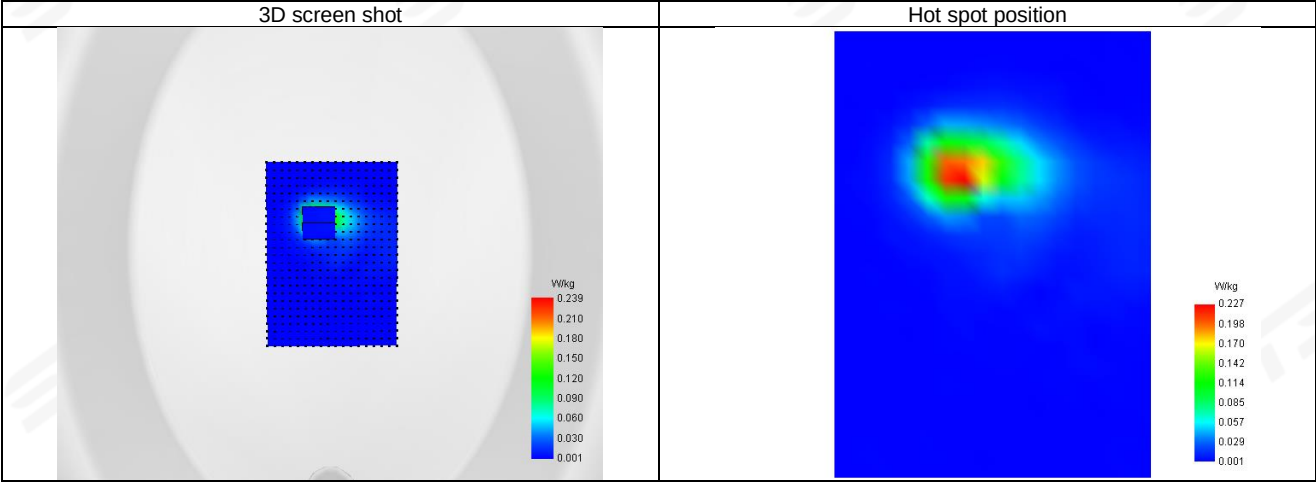


E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.381	0.239	0.129	0.068	0.036	0.019	0.010

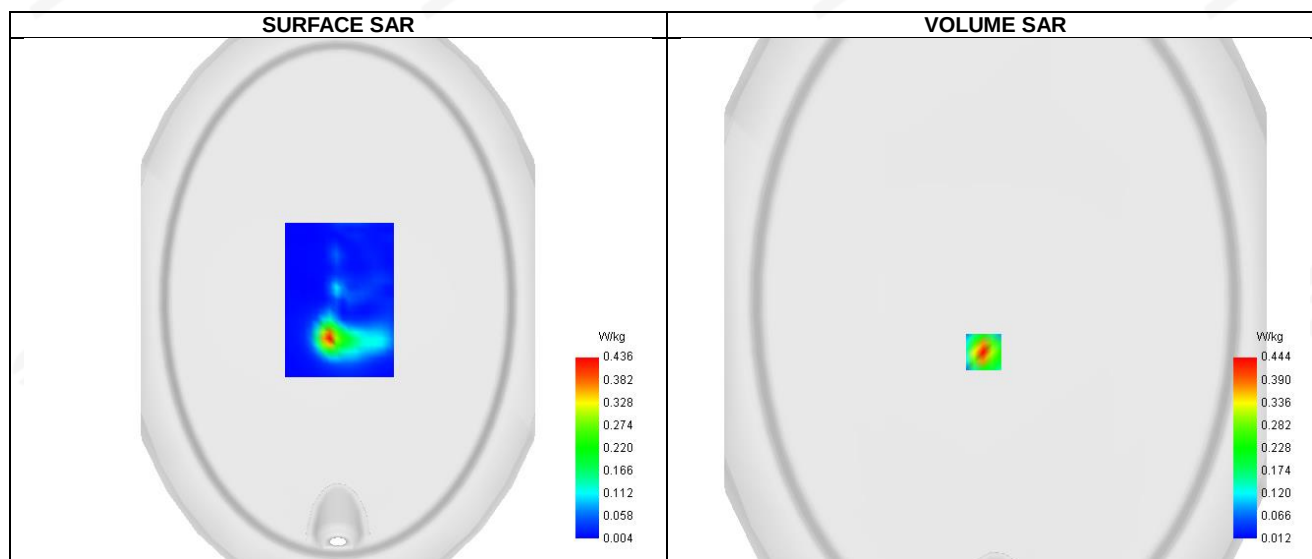


F. 3D Image



**Plot 2: DUT: GNSS Data Collector; EUT Model: TC100**

Test Date	2025-12-31
ConvF	1.73
Probe	SN 08/21 EPG0352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	GPRS 1900
Signal	Duty Cycle: 2.00 (Crest factor: 2.0)
Frequency (MHz)	1909.8
Relative permittivity (real part)	40.78
Conductivity (S/m)	1.38



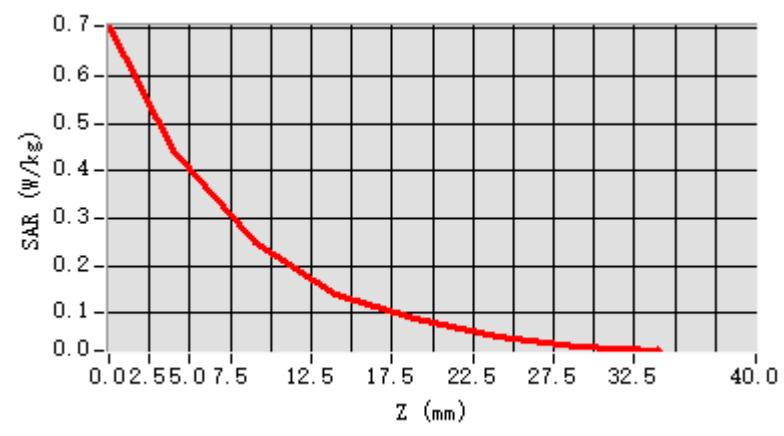
Maximum location: X=-11.00, Y=-47.00 ; SAR Peak: 0.70 W/kg

D. SAR 1g & 10g

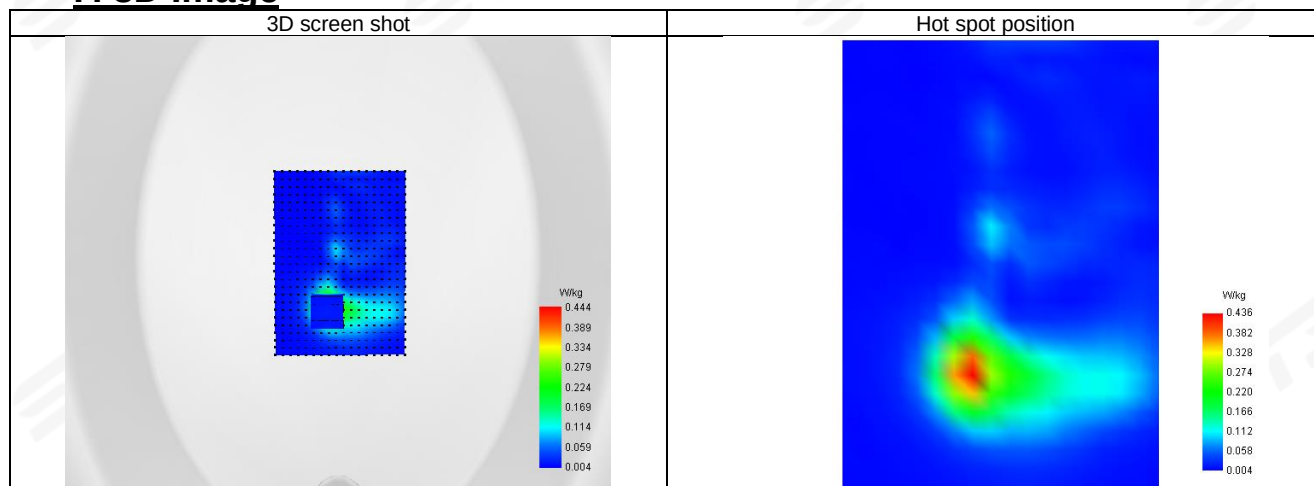
SAR 10g (W/Kg)	0.206
SAR 1g (W/Kg)	0.411
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	55.699662

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.705	0.444	0.247	0.139	0.086	0.050	0.029

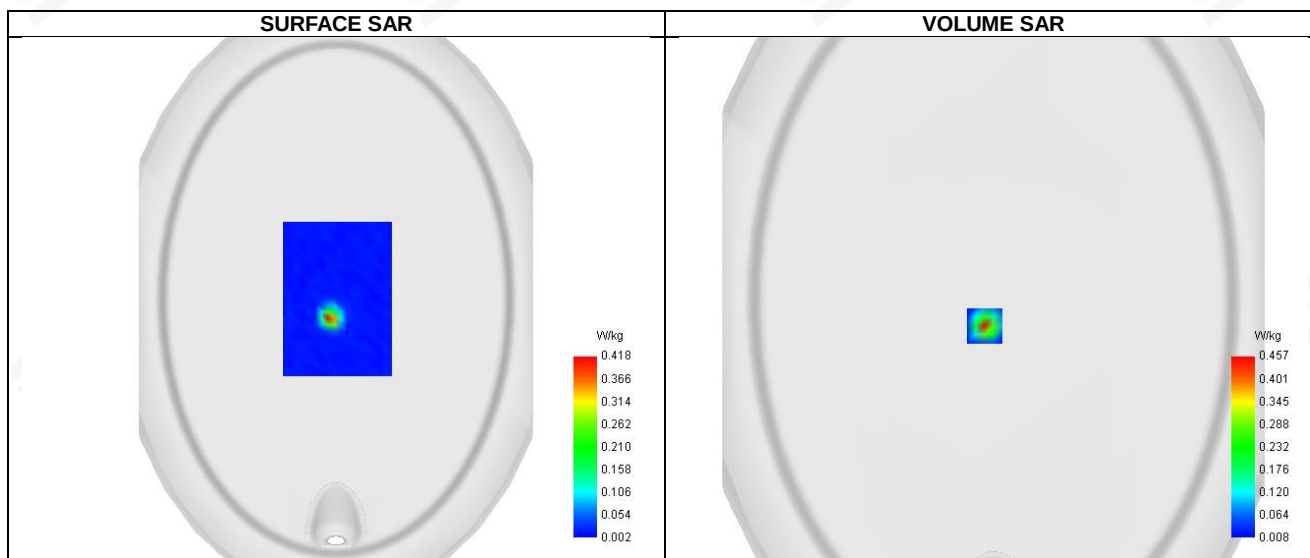


F. 3D Image



Plot 3: DUT: GNSS Data Collector; EUT Model: TC100

Test Date	2025-12-31
ConvF	1.73
Probe	SN 08/21 EPG0352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	WCDMA 2
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1907.6
Relative permittivity (real part)	40.85
Conductivity (S/m)	1.40



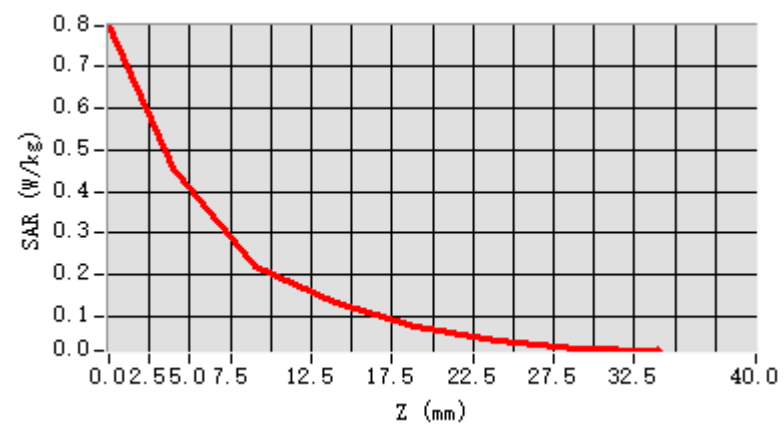
Maximum location: X=-8.00, Y=-24.00 ; SAR Peak: 0.79 W/kg

D. SAR 1g & 10g

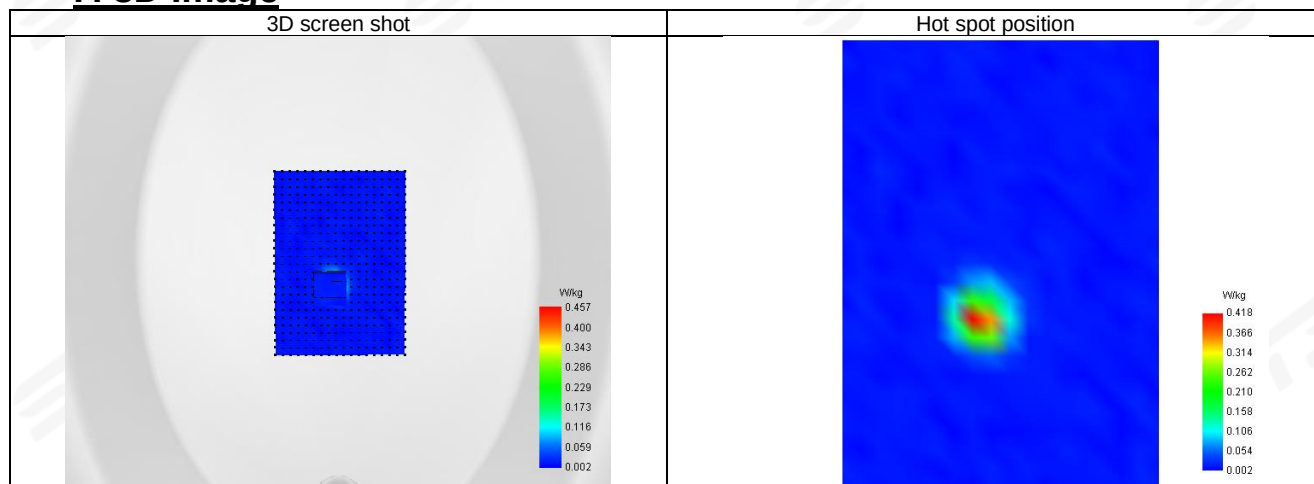
SAR 10g (W/Kg)	0.156
SAR 1g (W/Kg)	0.394
Horizontal validation criteria: minimum distance (mm)	10.201441
Vertical validation criteria: SAR ratio M2/M1 (%)	47.926220

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.799	0.457	0.219	0.133	0.073	0.040	0.022

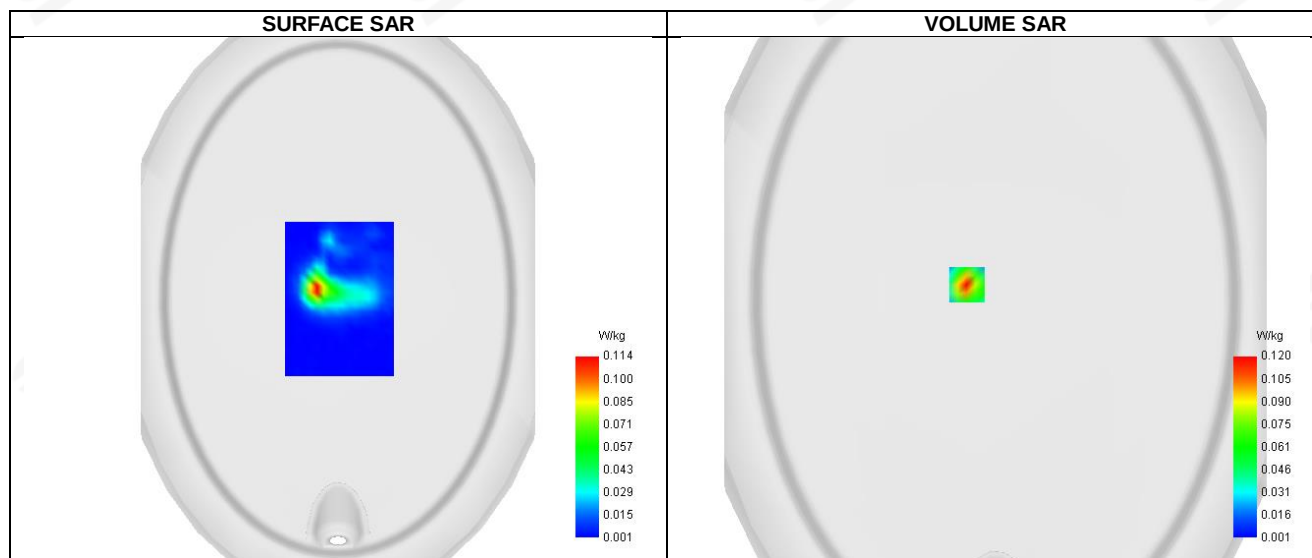


F. 3D Image



**Plot 4: DUT: GNSS Data Collector; EUT Model: TC100**

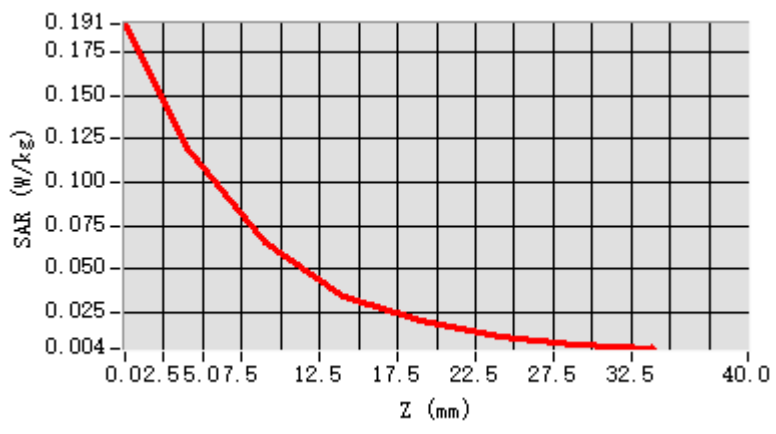
Test Date	2025-12-28
ConvF	1.54
Probe	SN 08/21 EPG0352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	WCDMA 4
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1712.6
Relative permittivity (real part)	40.70
Conductivity (S/m)	1.34

**D. SAR 1g & 10g**

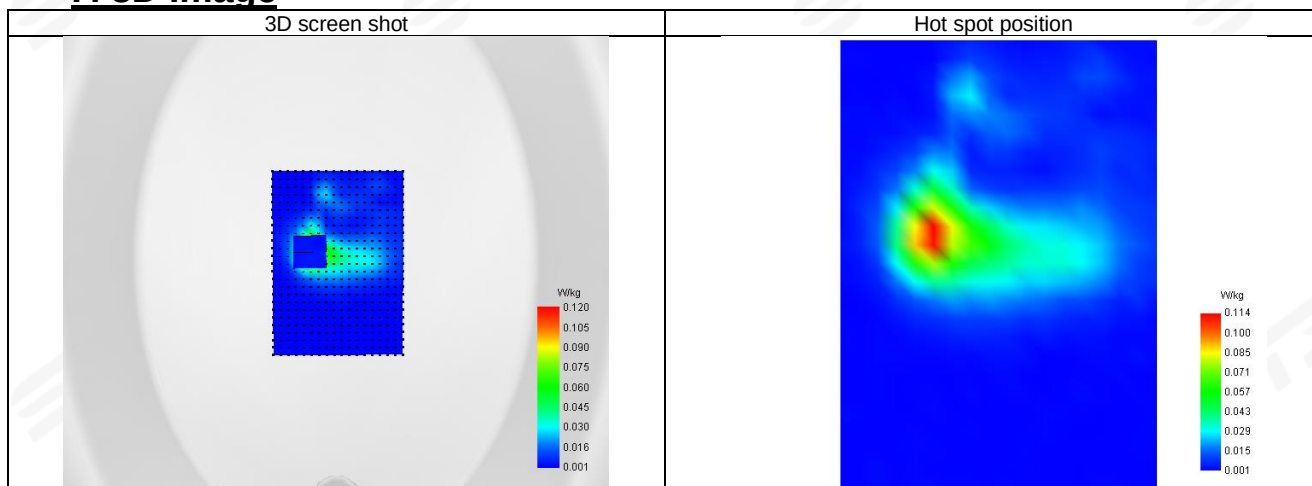
SAR 10g (W/Kg)	0.054
SAR 1g (W/Kg)	0.110
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	54.865705

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.191	0.120	0.066	0.034	0.020	0.011	0.006



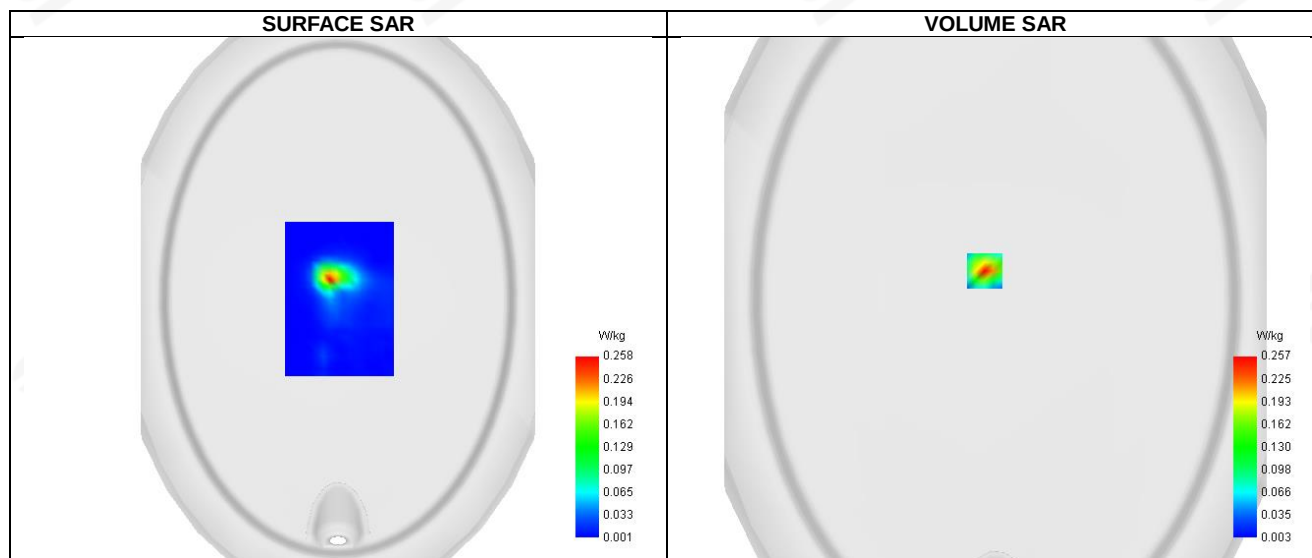
F. 3D Image





Plot 5: DUT: GNSS Data Collector; EUT Model: TC100

Test Date	2025-12-24
ConvF	1.49
Probe	SN 08/21 EPG0352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	WCDMA 5
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	846.6
Relative permittivity (real part)	41.59
Conductivity (S/m)	0.91



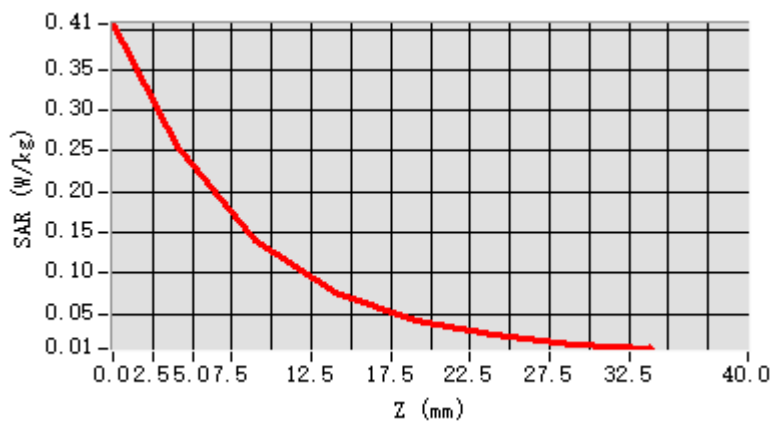
Maximum location: X=-10.00, Y=25.00 ; SAR Peak: 0.40 W/kg

D. SAR 1g & 10g

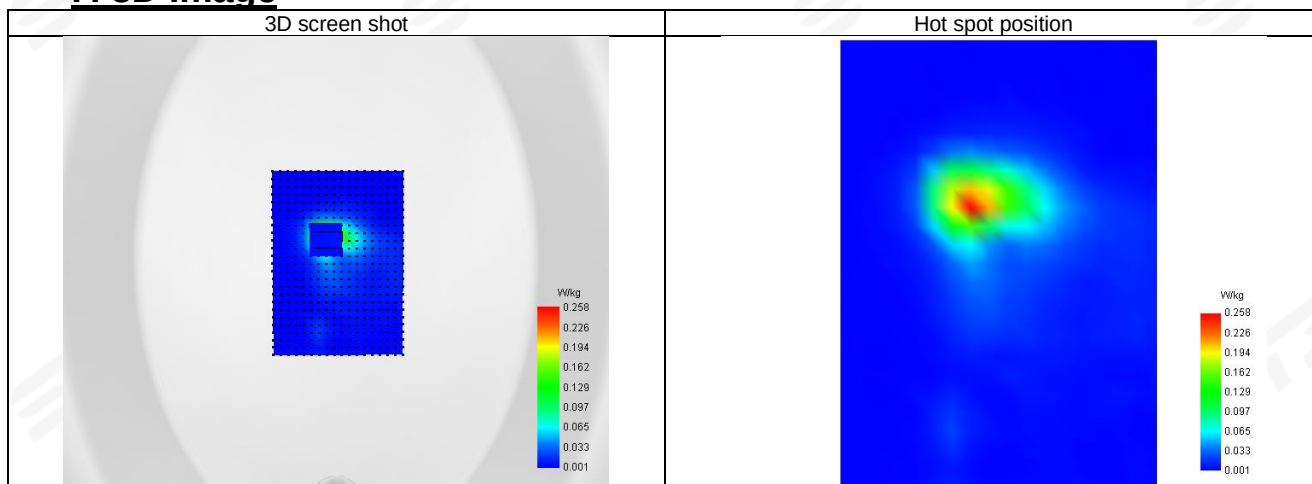
SAR 10g (W/Kg)	0.113
SAR 1g (W/Kg)	0.234
Horizontal validation criteria: minimum distance (mm)	11.313708
Vertical validation criteria: SAR ratio M2/M1 (%)	54.518480

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.406	0.257	0.140	0.077	0.042	0.023	0.013

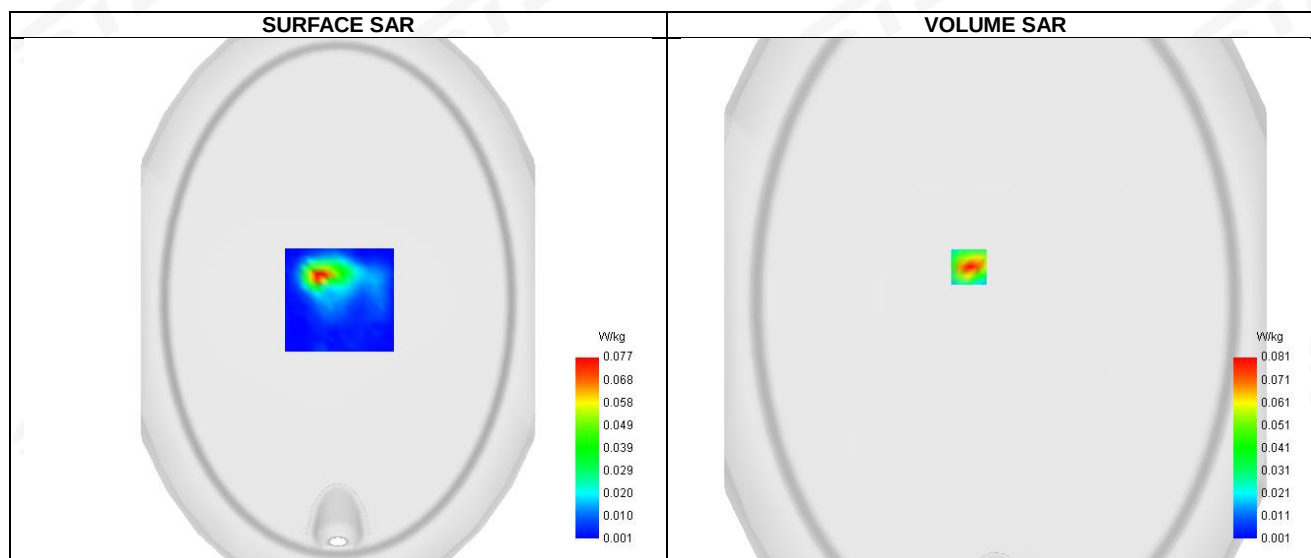


F. 3D Image



**Plot 6: DUT: GNSS Data Collector; EUT Model: TC100**

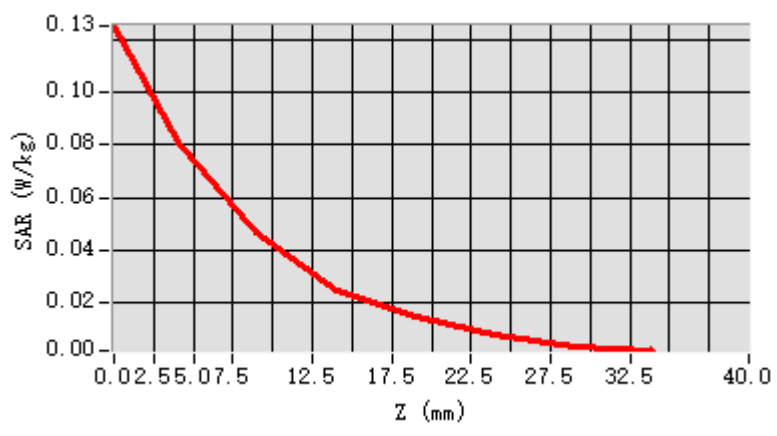
Test Date	2025-12-06
ConvF	1.82
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	IEEE 802.11b ISM
Signal	IEEE802.b (Crest factor: 1.0)
Frequency (MHz)	2412
Relative permittivity (real part)	38.98
Conductivity (S/m)	1.78

**D. SAR 1g & 10g**

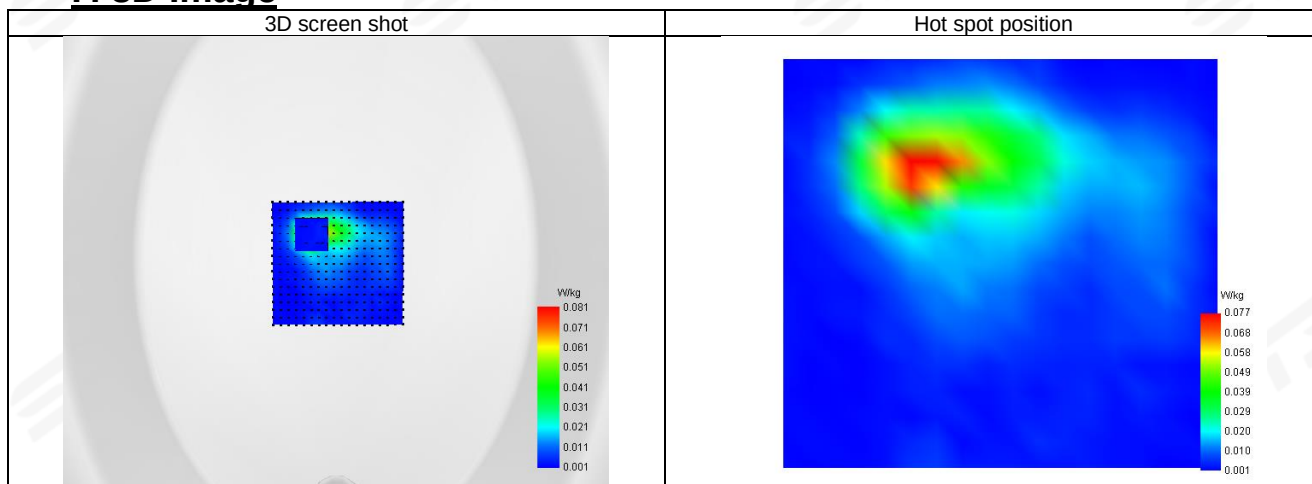
SAR 10g (W/Kg)	0.028
SAR 1g (W/Kg)	0.054
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	57.729243

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.125	0.081	0.047	0.024	0.015	0.008	0.004



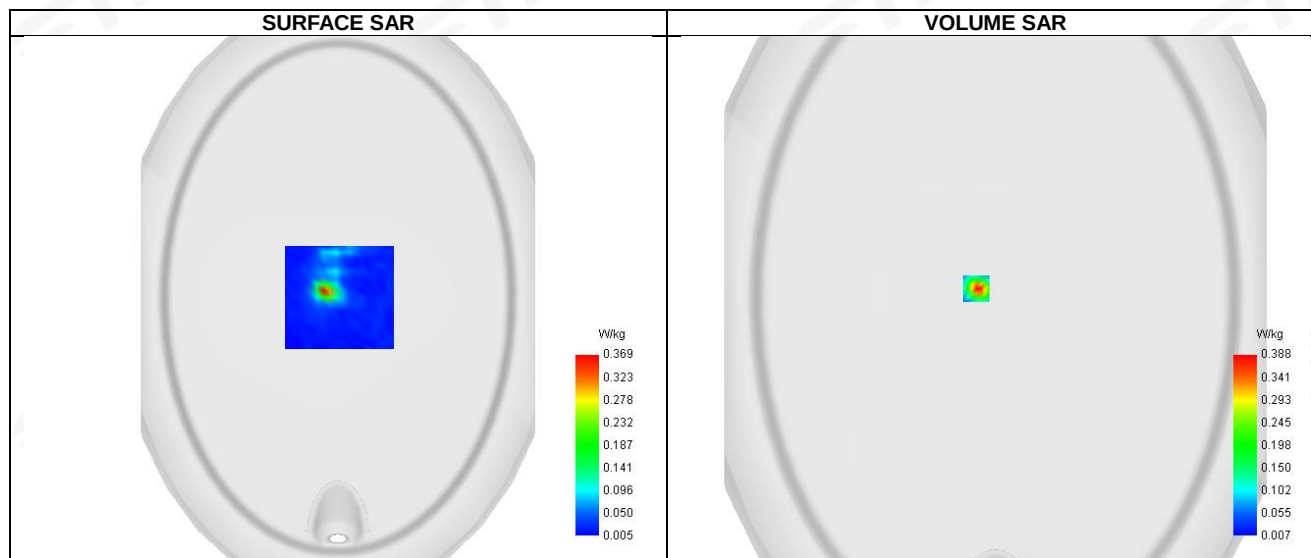
F. 3D Image





Plot 7: DUT: GNSS Data Collector; EUT Model: TC100

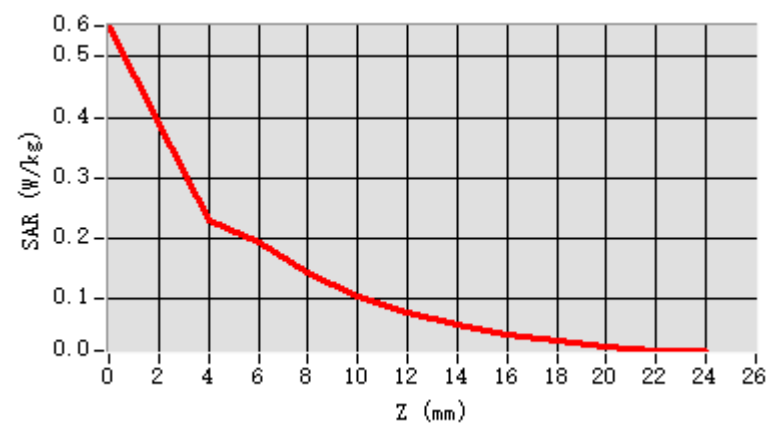
Test Date	2025-01-06
ConvF	1.37
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm, Complete
Phantom	Validation plane
Device Position	Back Side
Band	5.2GHz WLAN
Signal	802.11 n-HT20 (Crest factor: 1.0)
Frequency (MHz)	5180
Relative permittivity (real part)	36.32
Conductivity (S/m)	4.65

**D. SAR 1g & 10g**

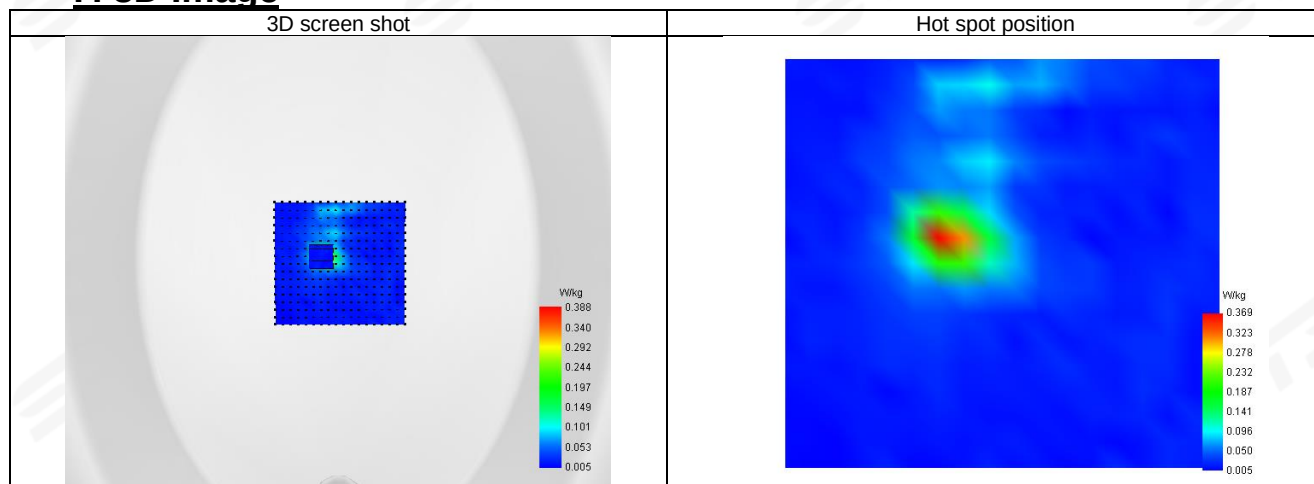
SAR 10g (W/Kg)	0.096
SAR 1g (W/Kg)	0.277
Horizontal validation criteria: minimum distance (mm)	8.944272
Vertical validation criteria: SAR ratio M2/M1 (%)	58.868792

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.551	0.388	0.229	0.194	0.142	0.105	0.077	0.056	0.041	0.030	0.022	0.016

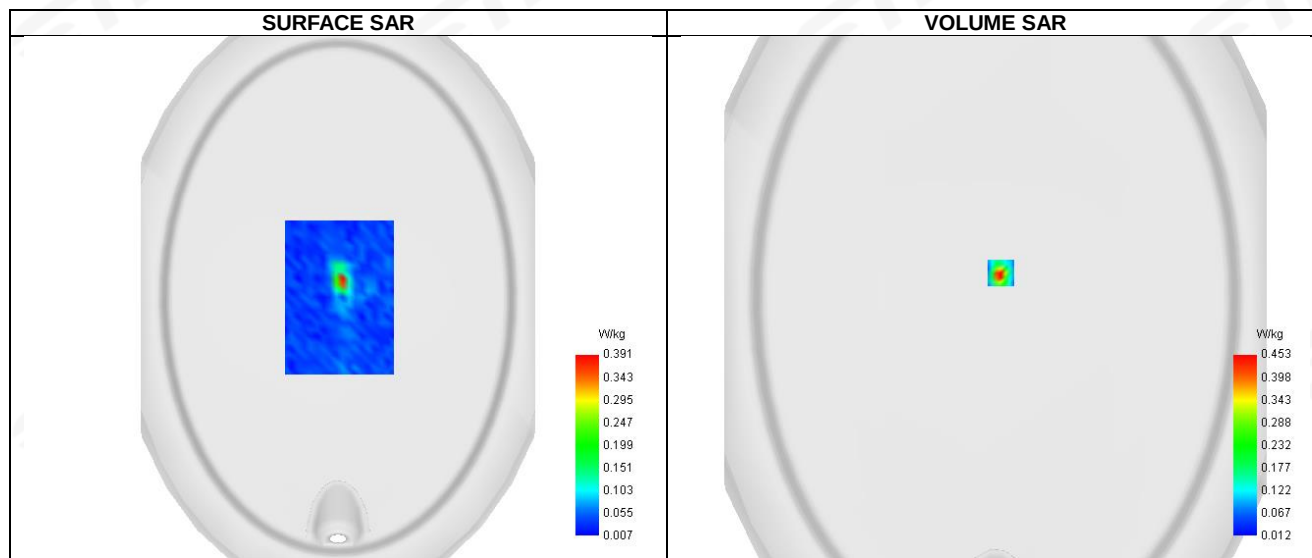


F. 3D Image



Plot 8: DUT: GNSS Data Collector; EUT Model: TC100

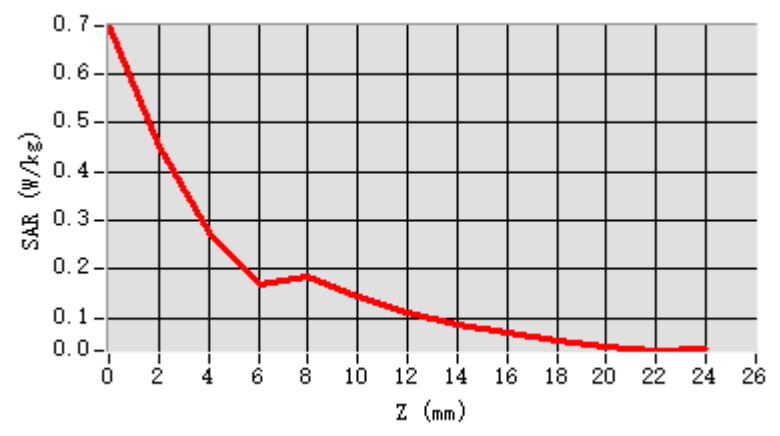
Test Date	2025-01-06
ConvF	1.37
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm, Complete
Phantom	Validation plane
Device Position	Back Side
Band	5.3GHz WLAN
Signal	802.11ac-VHT20 (Crest factor: 1.0)
Frequency (MHz)	5260
Relative permittivity (real part)	35.59
Conductivity (S/m)	4.72


D. SAR 1g & 10g

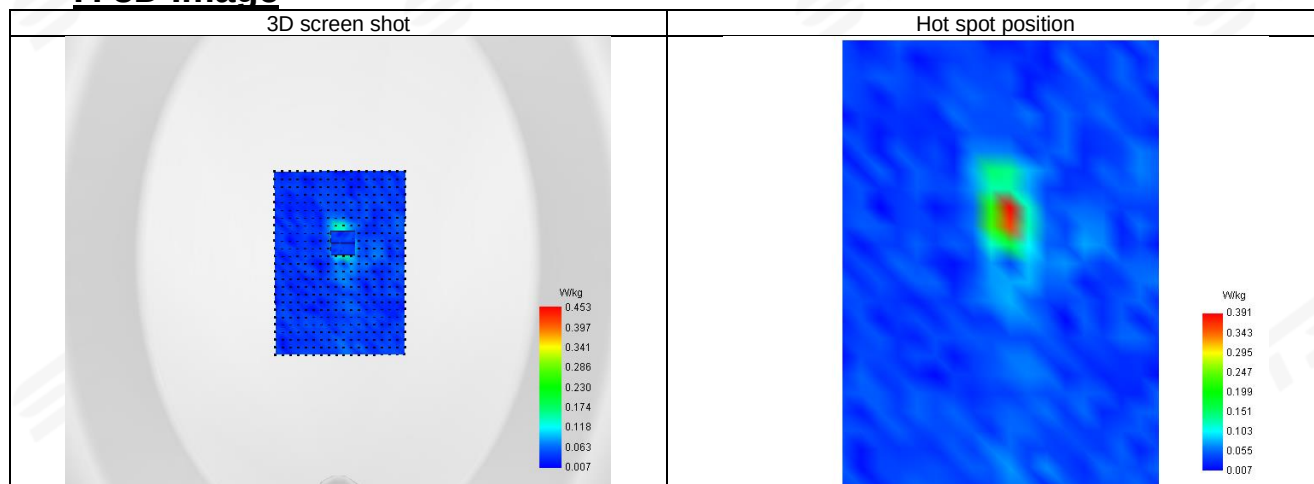
SAR 10g (W/Kg)	0.119
SAR 1g (W/Kg)	0.319
Horizontal validation criteria: minimum distance (mm)	8.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	60.886838

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.700	0.453	0.276	0.167	0.184	0.143	0.112	0.087	0.068	0.053	0.041	0.032

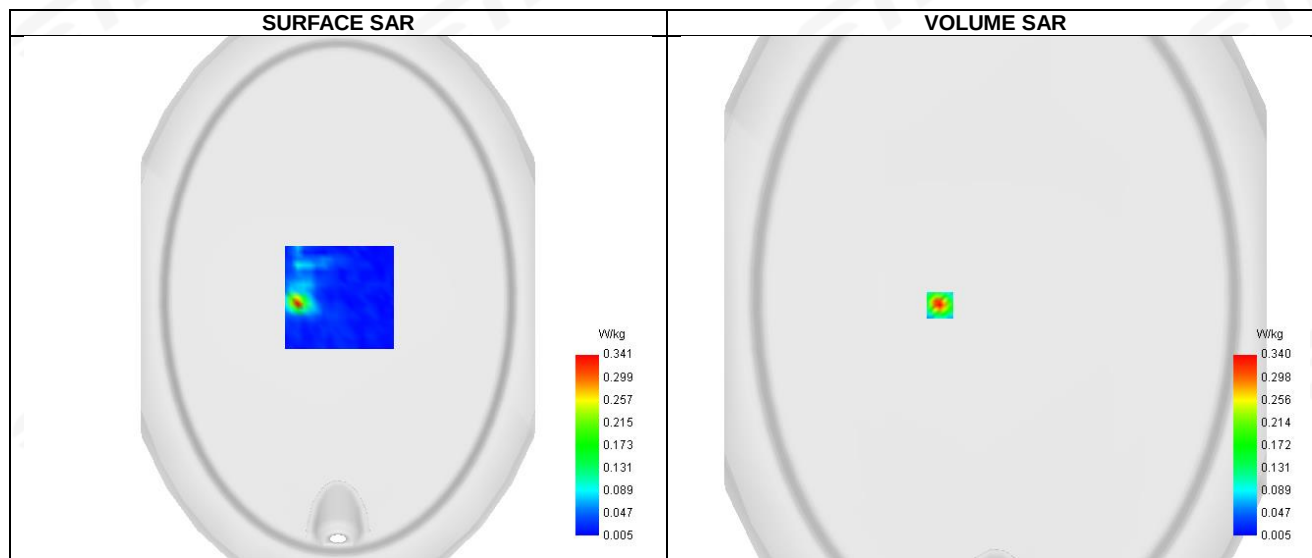


F. 3D Image



**Plot 9: DUT: GNSS Data Collector; EUT Model: TC100**

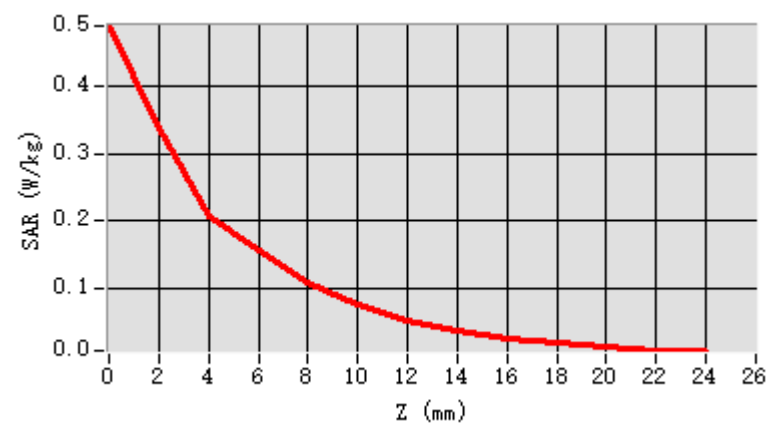
Test Date	2025-01-06
ConvF	1.21
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm, Complete
Phantom	Validation plane
Device Position	Back Side
Band	5.6GHz WLAN
Signal	802.11a (Crest factor: 1.0)
Frequency (MHz)	5580
Relative permittivity (real part)	36.33
Conductivity (S/m)	5.06

**D. SAR 1g & 10g**

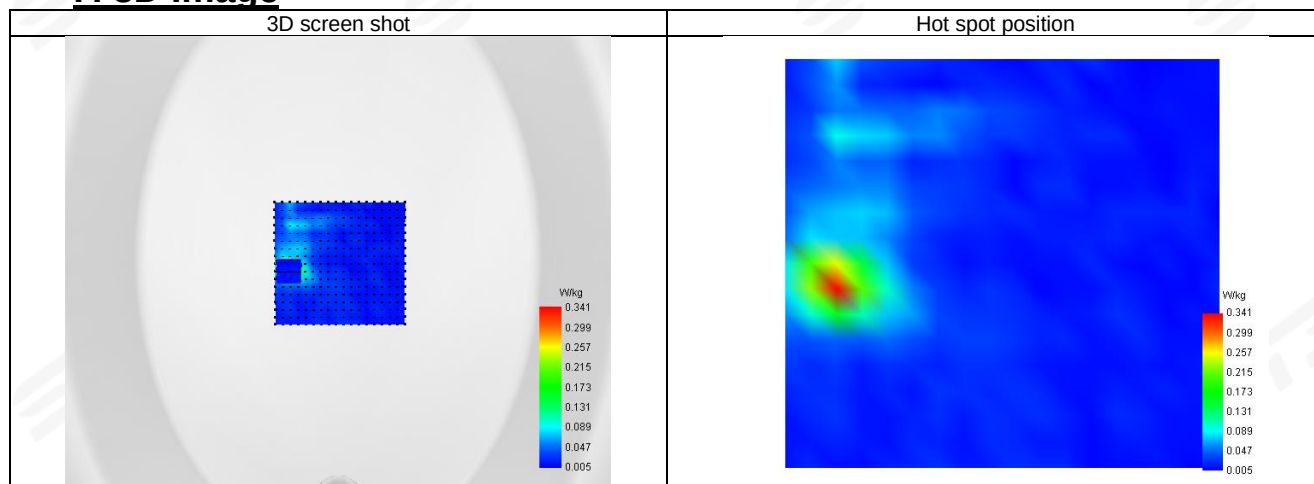
SAR 10g (W/Kg)	0.086
SAR 1g (W/Kg)	0.230
Horizontal validation criteria: minimum distance (mm)	8.944272
Vertical validation criteria: SAR ratio M2/M1 (%)	60.975672

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00
SAR (W/Kg)	0.490	0.340	0.207	0.158	0.110	0.077	0.054	0.037	0.026	0.018	0.013	0.009	0.009



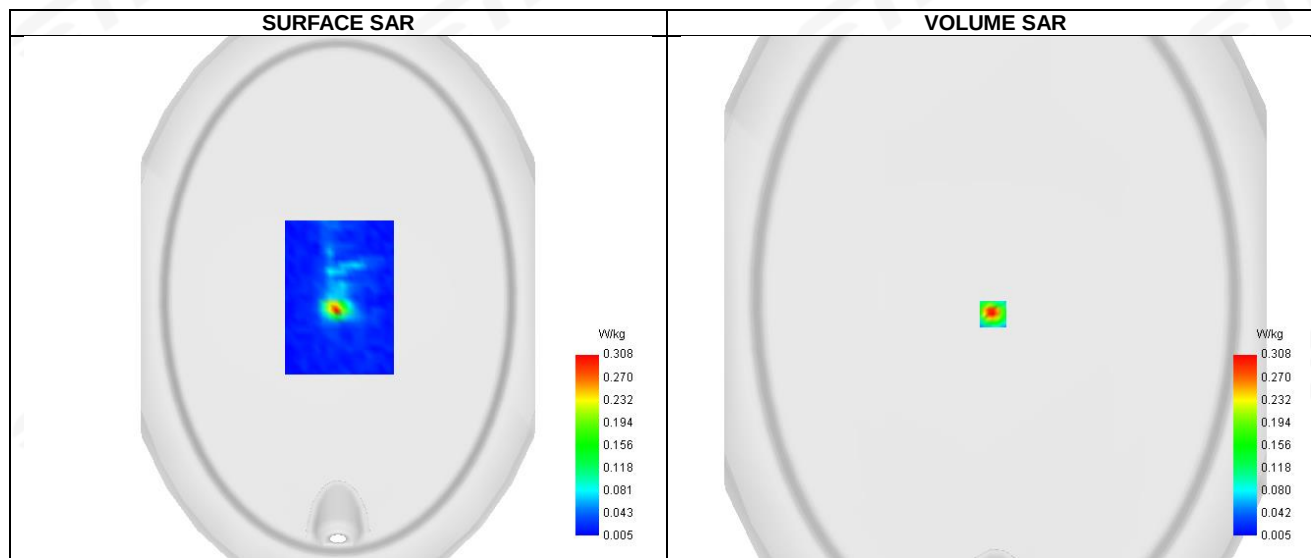
F. 3D Image





Plot 10: DUT: GNSS Data Collector; EUT Model: TC100

Test Date	2025-01-06
ConvF	1.32
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm, Complete
Phantom	Validation plane
Device Position	Back Side
Band	5.8GHz WLAN
Signal	802.11ac-VHT40 (Crest factor: 1.0)
Frequency (MHz)	5795
Relative permittivity (real part)	35.43
Conductivity (S/m)	5.29

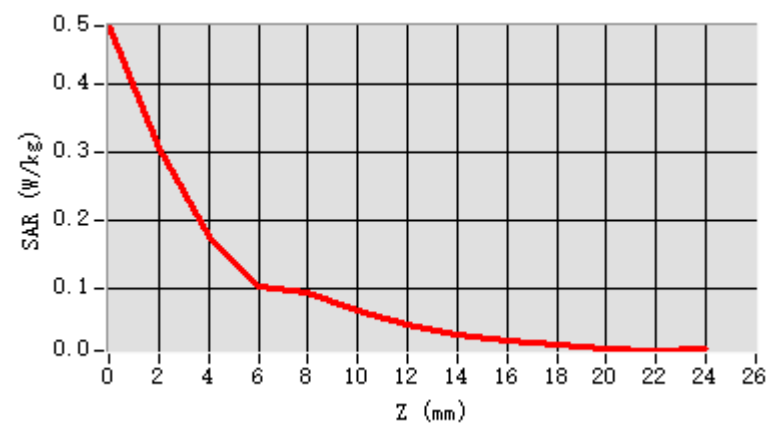


D. SAR 1g & 10g

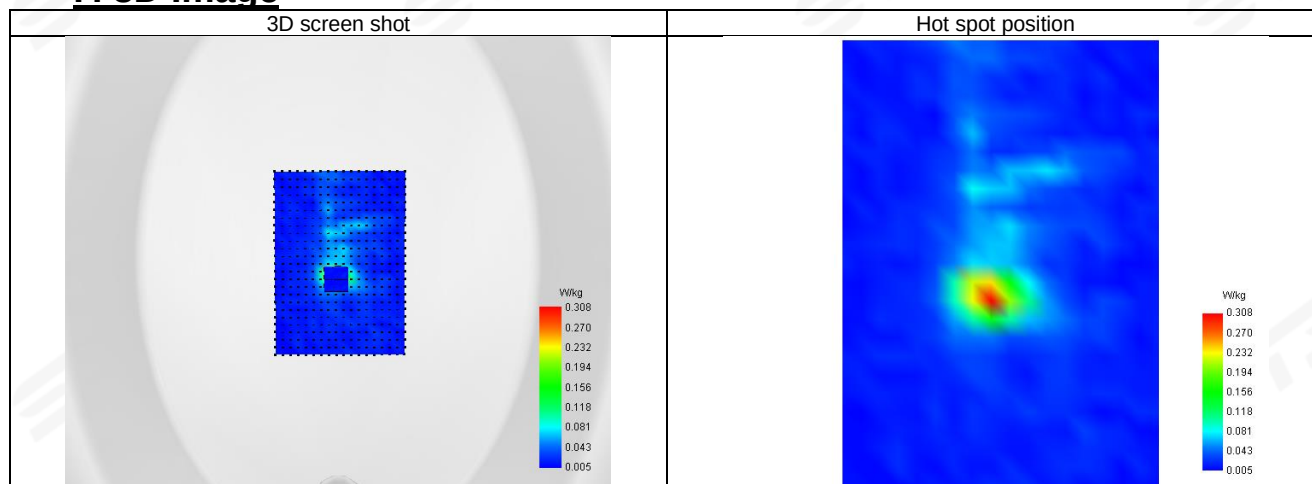
SAR 10g (W/Kg)	0.077
SAR 1g (W/Kg)	0.203
Horizontal validation criteria: minimum distance (mm)	8.944272
Vertical validation criteria: SAR ratio M2/M1 (%)	58.696989

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00
SAR (W/Kg)	0.487	0.308	0.177	0.101	0.094	0.066	0.046	0.032	0.023	0.016	0.011	0.008	0.008

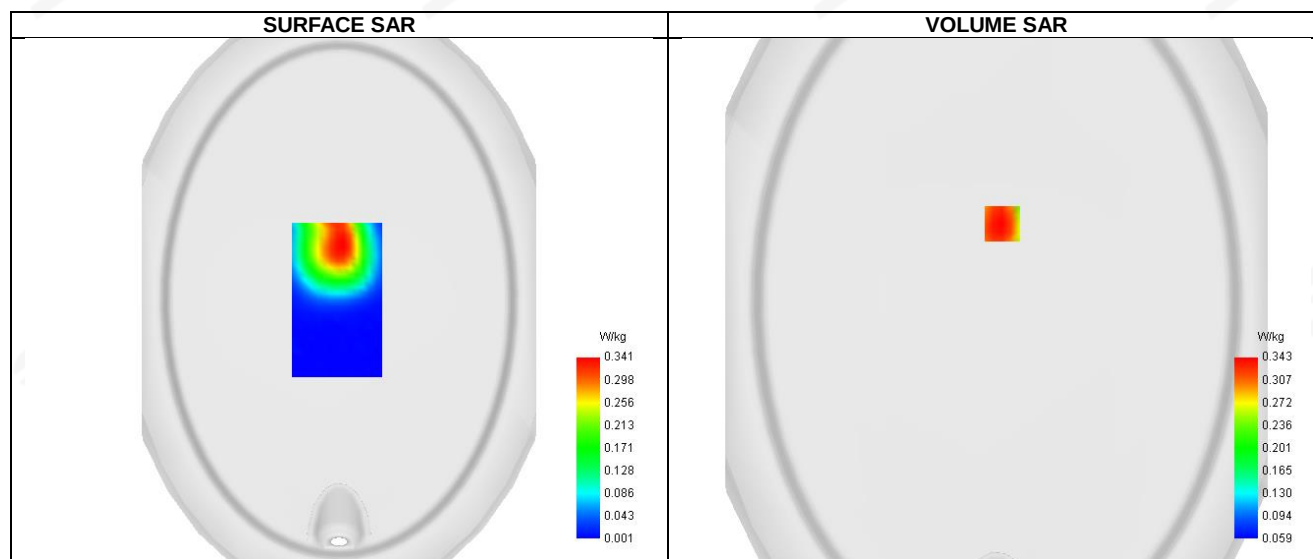


F. 3D Image



**Plot 11: DUT: GNSS Data Collector; EUT Model: TC100**

Test Date	2025-12-28
ConvF	1.54
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 4 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1775
Relative permittivity (real part)	40.42
Conductivity (S/m)	1.38



Maximum location: X=5.00, Y=69.00 ; SAR Peak: 0.42 W/kg

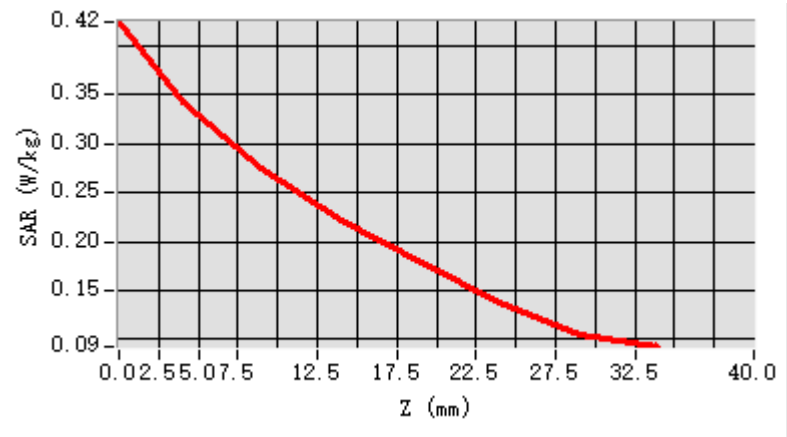
D. SAR 1g & 10g

SAR 10g (W/Kg)	0.257
SAR 1g (W/Kg)	0.340
Horizontal validation criteria: minimum distance (mm)	9.687441
Vertical validation criteria: SAR ratio M2/M1 (%)	76.221041

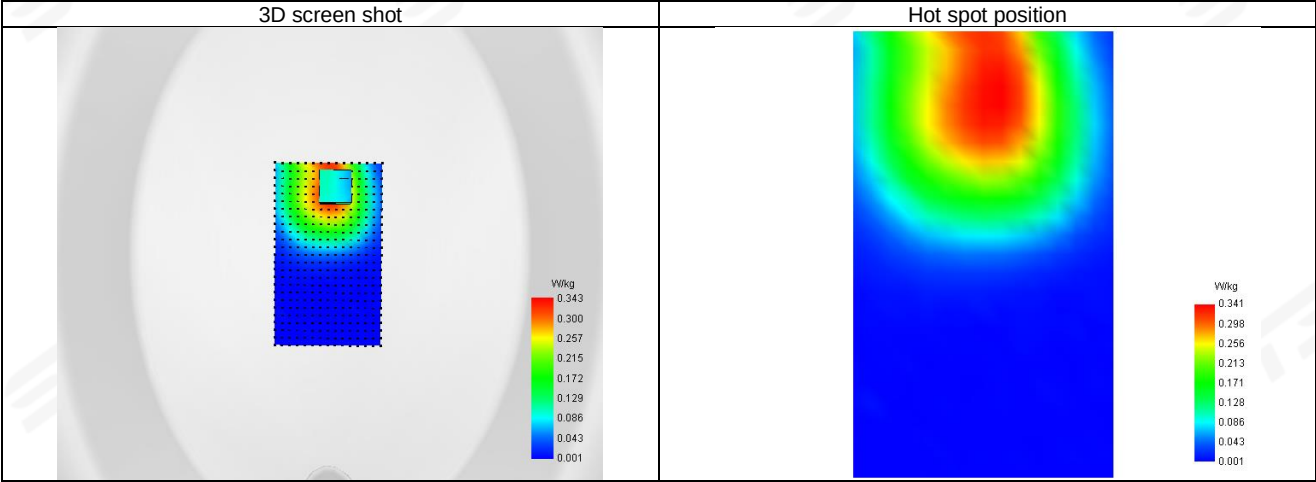


E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.424	0.343	0.274	0.222	0.180	0.137	0.105

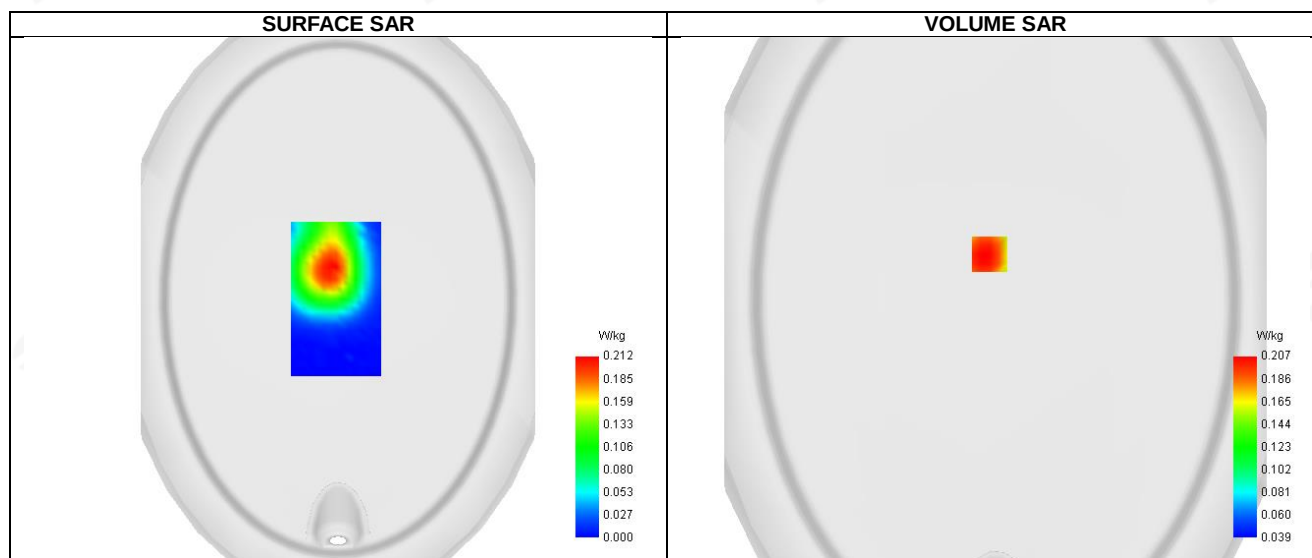


F. 3D Image



**Plot 12: DUT: GNSS Data Collector; EUT Model: TC100**

Test Date	2025-12-24
ConvF	1.49
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 5 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	836.5
Relative permittivity (real part)	41.54
Conductivity (S/m)	0.89



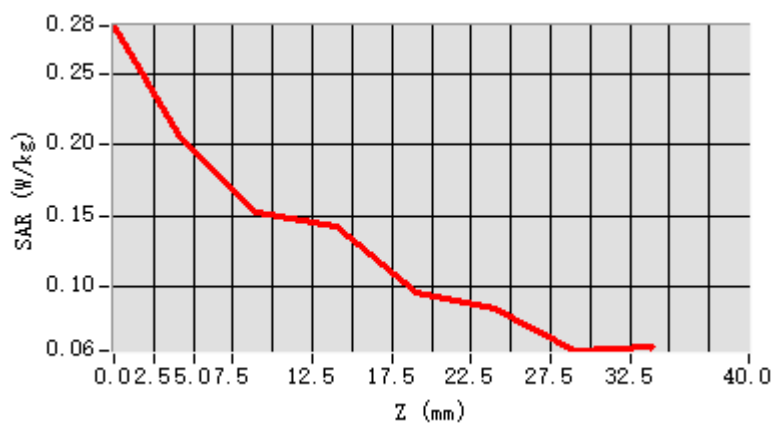
Maximum location: X=-5.00, Y=40.00 ; SAR Peak: 0.27 W/kg

D. SAR 1g & 10g

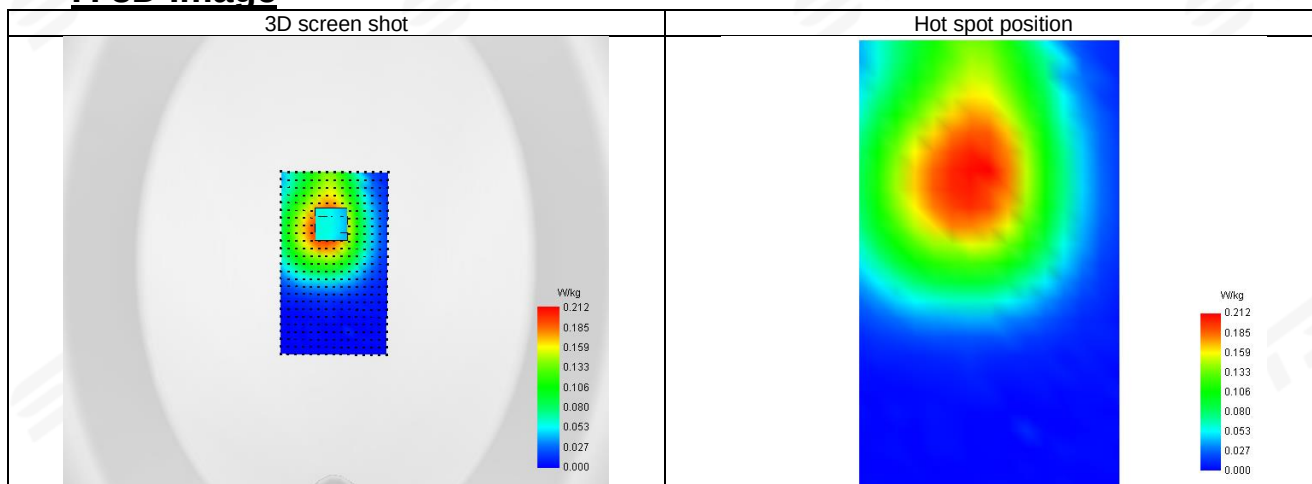
SAR 10g (W/Kg)	0.150
SAR 1g (W/Kg)	0.207
Horizontal validation criteria: minimum distance (mm)	10.102514
Vertical validation criteria: SAR ratio M2/M1 (%)	69.665210

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.283	0.207	0.152	0.142	0.096	0.085	0.055

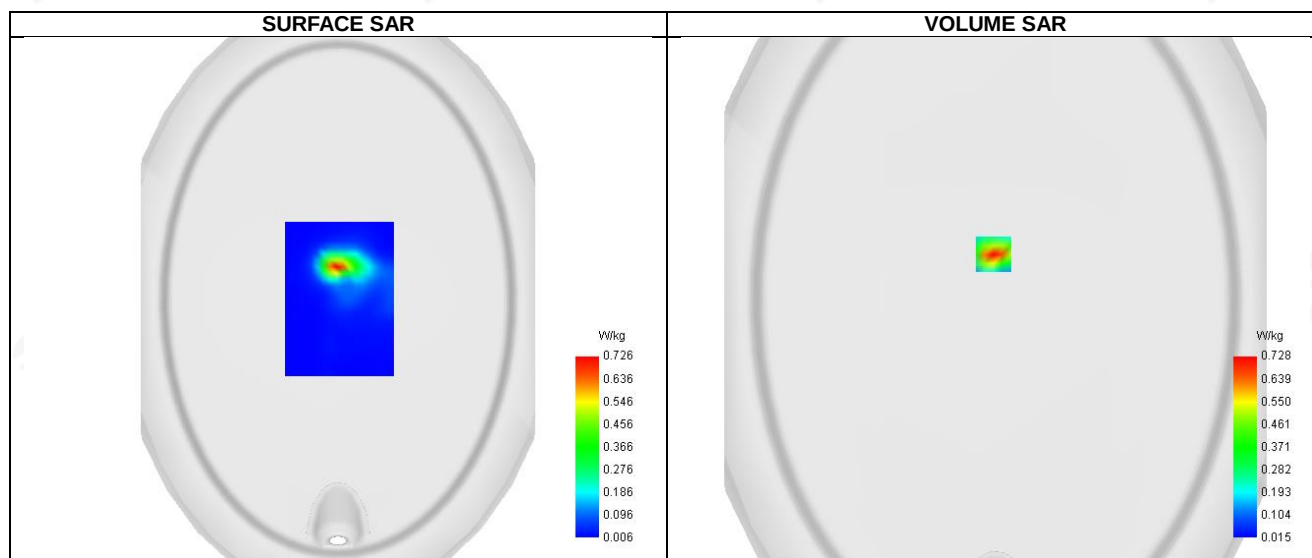


F. 3D Image



**Plot 13: DUT: GNSS Data Collector; EUT Model: TC100**

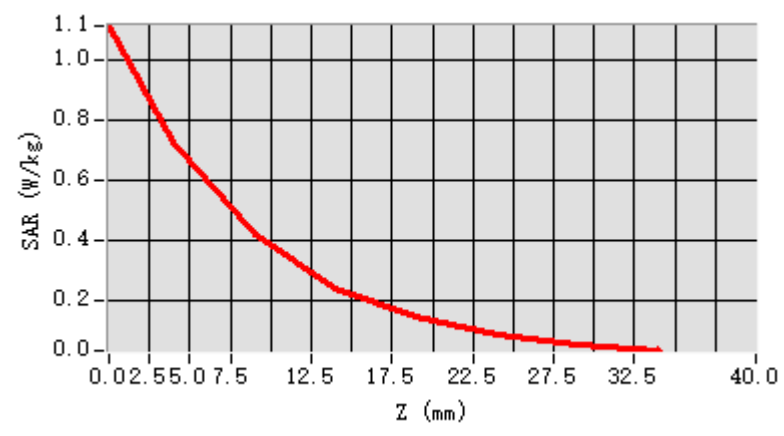
Test Date	2025-12-30
ConvF	1.70
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 7 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2535
Relative permittivity (real part)	39.21
Conductivity (S/m)	1.91

**D. SAR 1g & 10g**

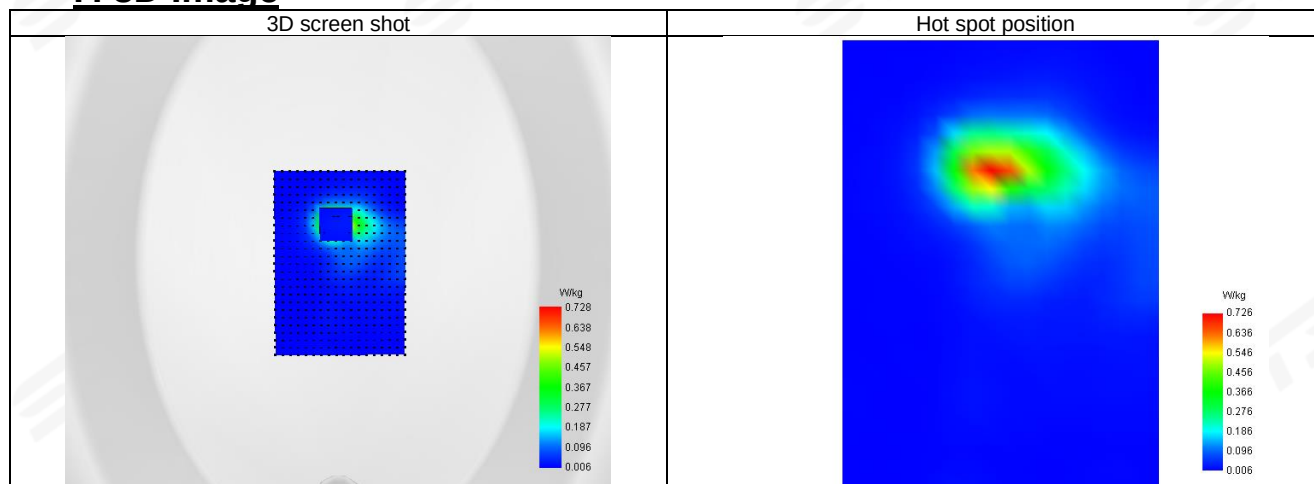
SAR 10g (W/Kg)	0.344
SAR 1g (W/Kg)	0.676
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	57.563840

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.116	0.728	0.419	0.238	0.141	0.082	0.048

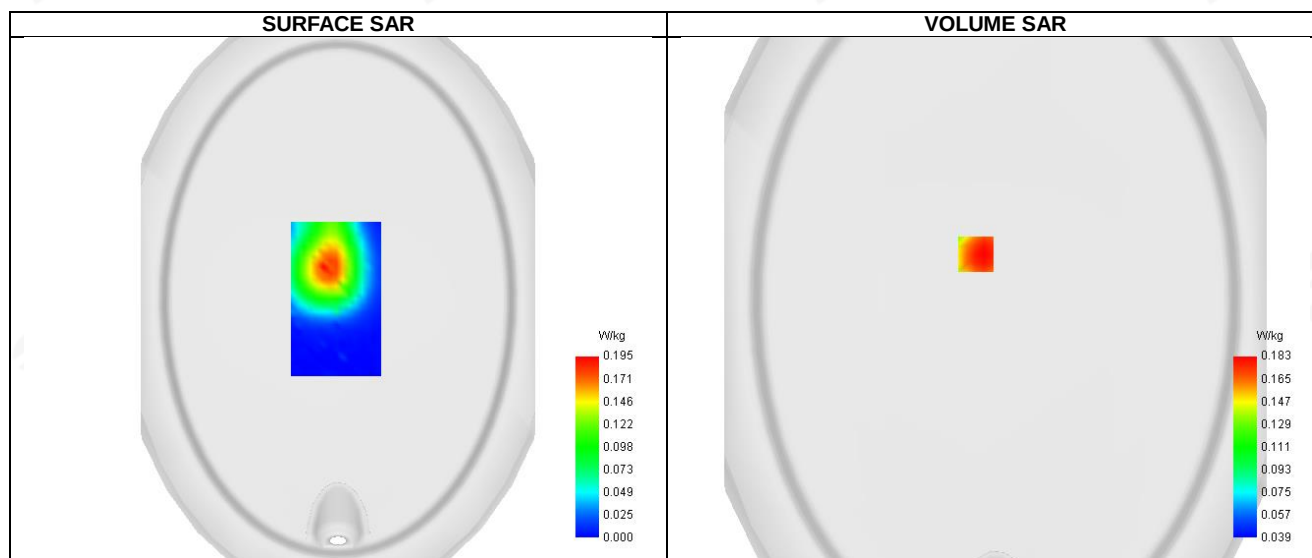


F. 3D Image



**Plot 14: DUT: GNSS Data Collector; EUT Model: TC100**

Test Date	2025-12-24
ConvF	1.51
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 12/17 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	707.5
Relative permittivity (real part)	41.73
Conductivity (S/m)	0.86



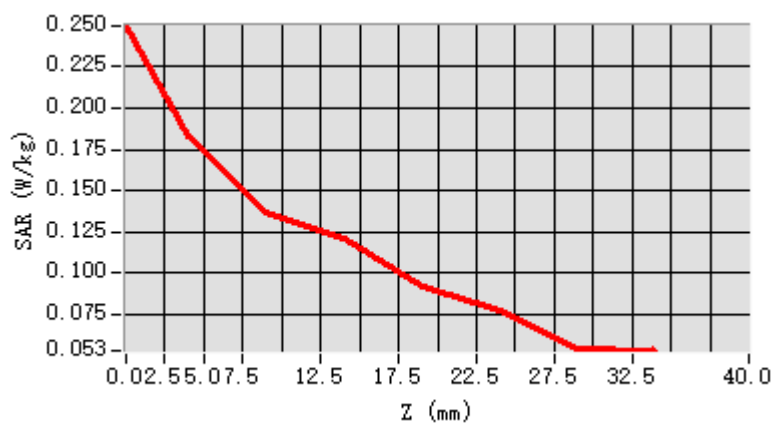
Maximum location: X=-18.00, Y=40.00 ; SAR Peak: 0.22 W/kg

D. SAR 1g & 10g

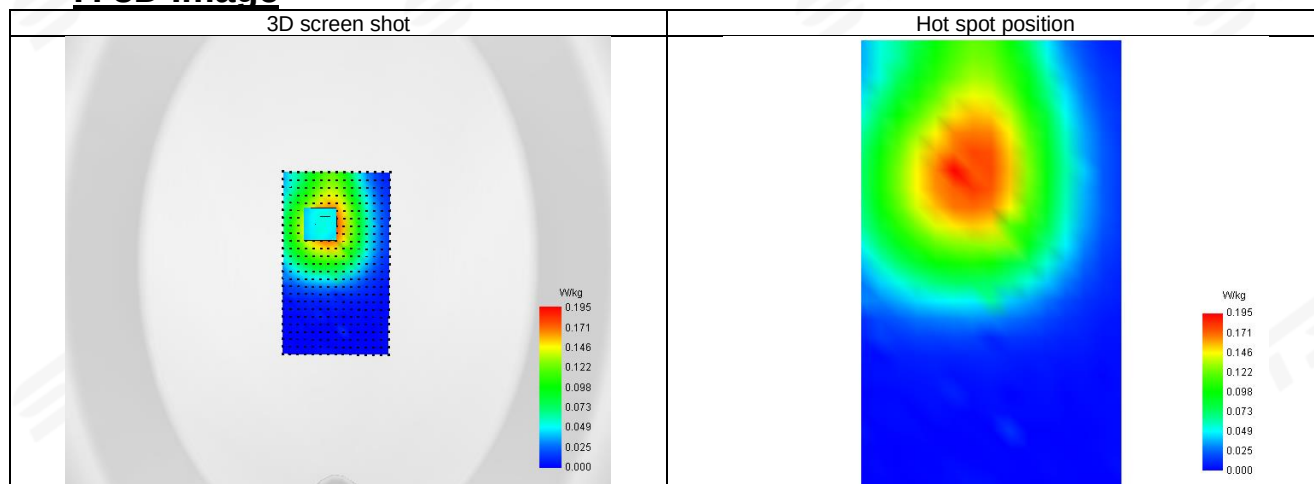
SAR 10g (W/Kg)	0.138
SAR 1g (W/Kg)	0.181
Horizontal validation criteria: minimum distance (mm)	9.363321
Vertical validation criteria: SAR ratio M2/M1 (%)	71.252240

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.250	0.183	0.137	0.121	0.091	0.077	0.054

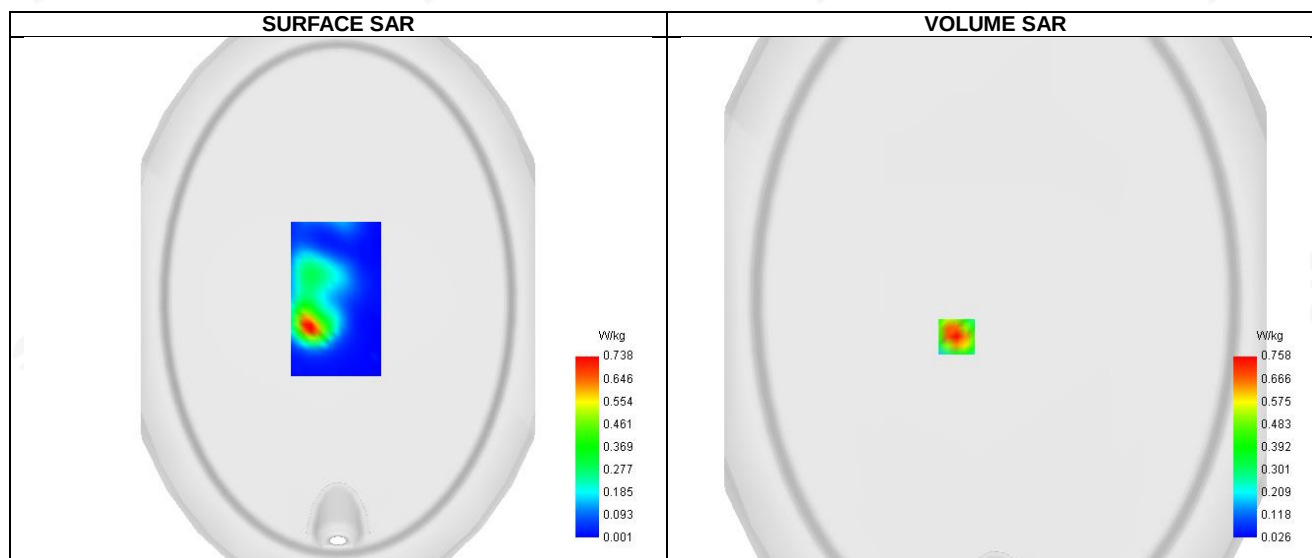


F. 3D Image



**Plot 15: DUT: GNSS Data Collector; EUT Model: TC100**

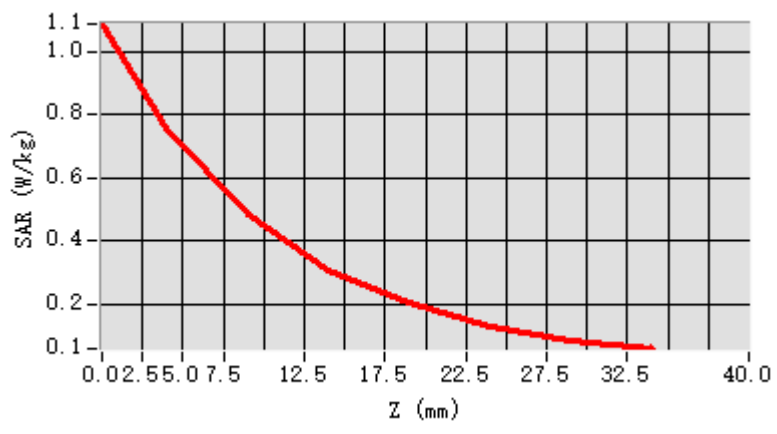
Test Date	2025-12-31
ConvF	1.73
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 25/2 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1882.5
Relative permittivity (real part)	39.54
Conductivity (S/m)	1.39

**D. SAR 1g & 10g**

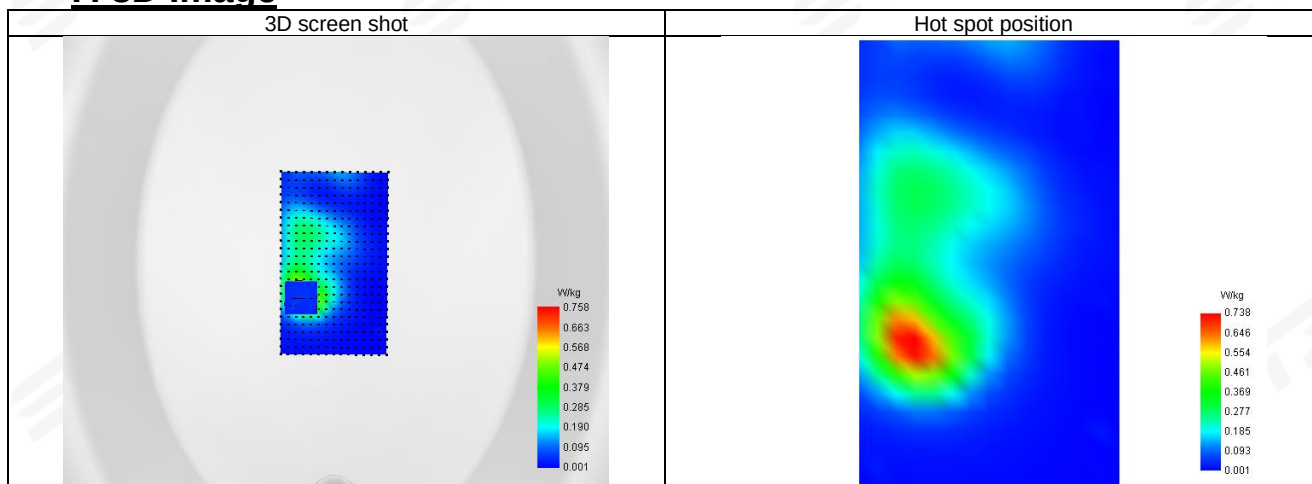
SAR 10g (W/Kg)	0.417
SAR 1g (W/Kg)	0.717
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	63.763264

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.087	0.758	0.483	0.303	0.202	0.130	0.084

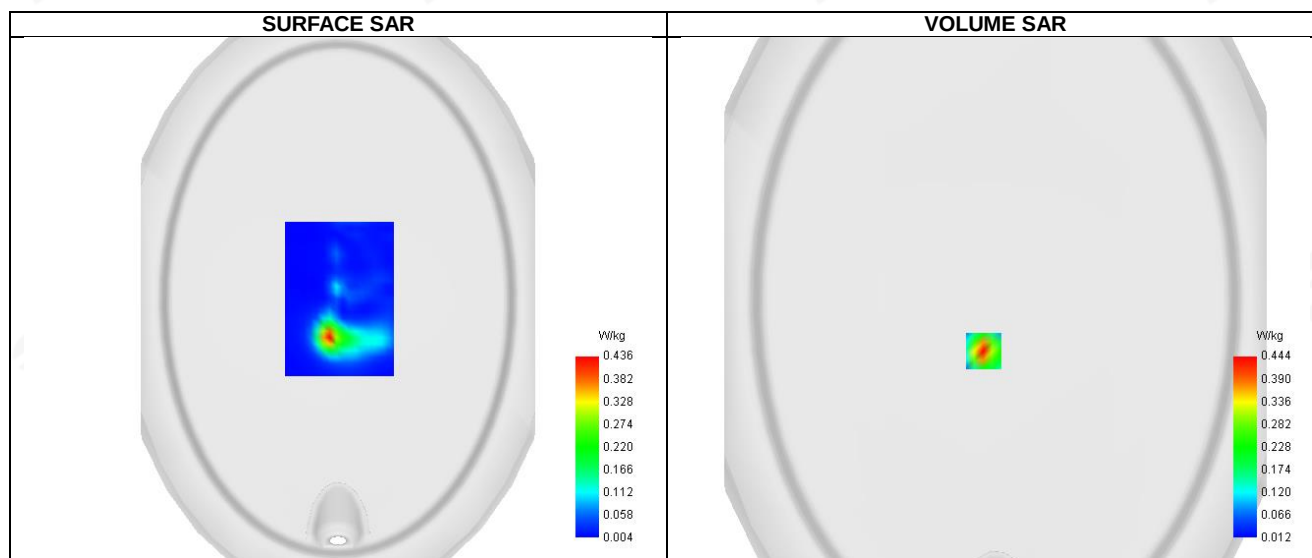


F. 3D Image



**Plot 16: DUT: GNSS Data Collector; EUT Model: TC100**

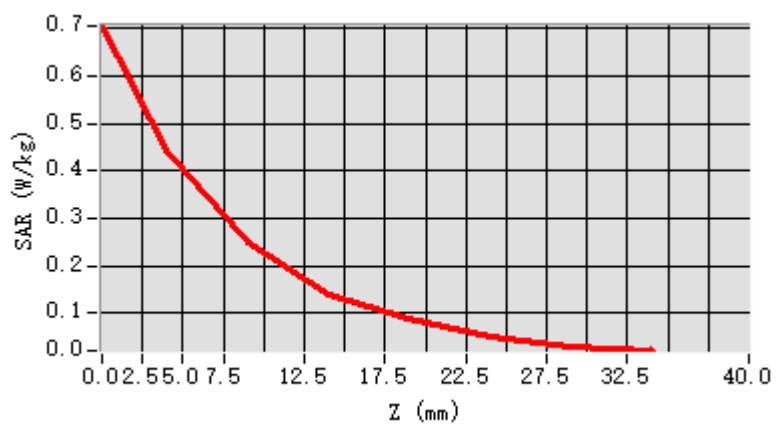
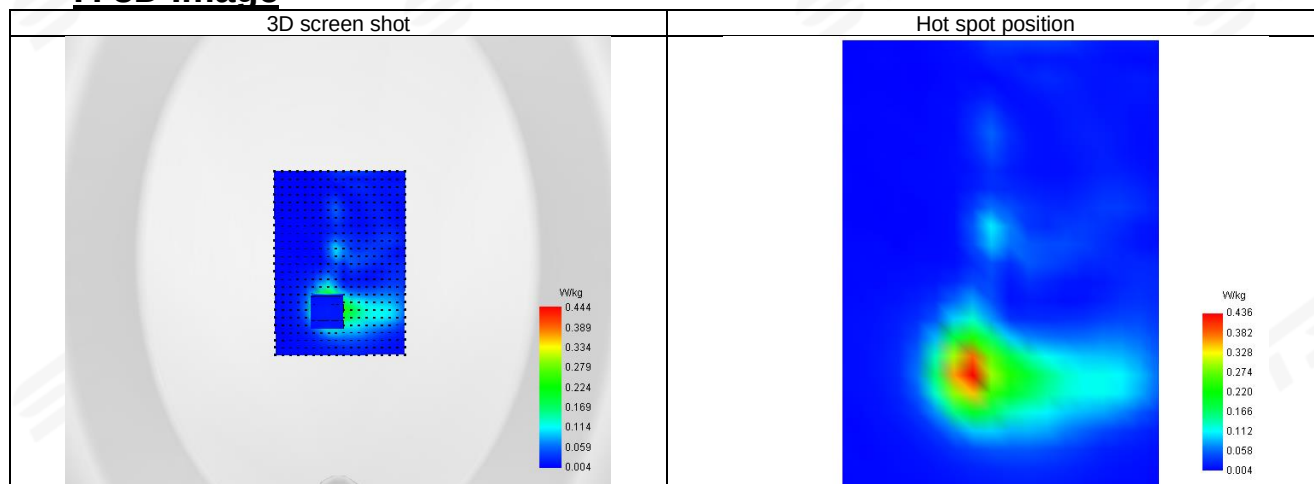
Test Date	2025-12-24
ConvF	1.49
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 26 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	831.5
Relative permittivity (real part)	40.93
Conductivity (S/m)	0.90

**D. SAR 1g & 10g**

SAR 10g (W/Kg)	0.206
SAR 1g (W/Kg)	0.411
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	55.699662

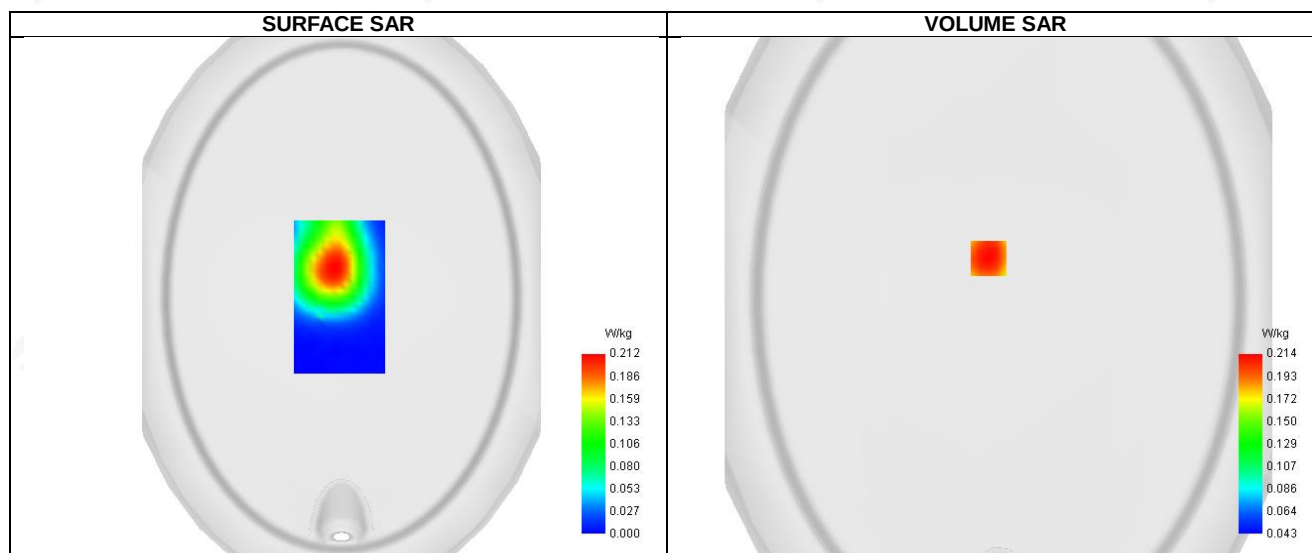
**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.705	0.444	0.247	0.139	0.086	0.050	0.029

**F. 3D Image**

**Plot 17: DUT: GNSS Data Collector; EUT Model: TC100**

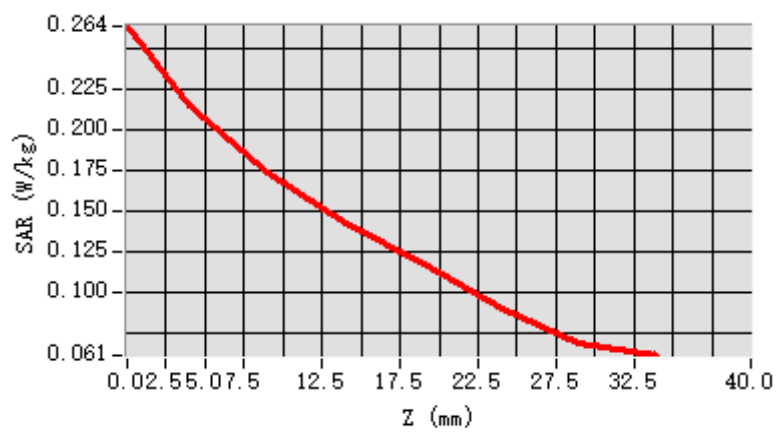
Test Date	2025-12-30
ConvF	1.70
Probe	SN 08/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 41 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2506
Relative permittivity (real part)	38.87
Conductivity (S/m)	1.87

**D. SAR 1g & 10g**

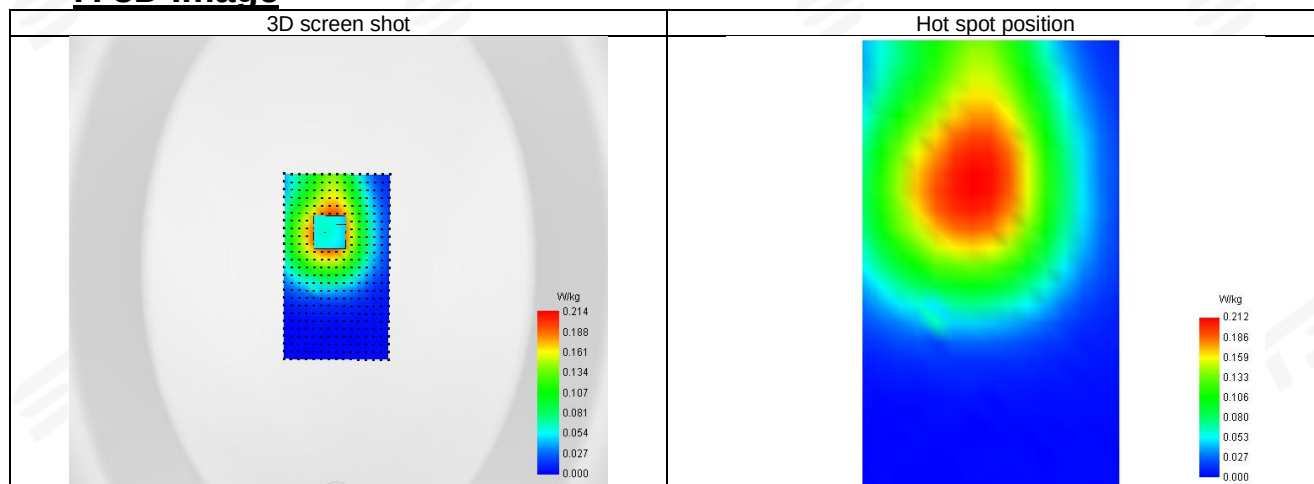
SAR 10g (W/Kg)	0.164
SAR 1g (W/Kg)	0.212
Horizontal validation criteria: minimum distance (mm)	12.364142
Vertical validation criteria: SAR ratio M2/M1 (%)	75.662514

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.264	0.214	0.174	0.142	0.117	0.090	0.069



F. 3D Image





Appendix C. Probe Calibration and Dipole Calibration Report

Refer the appendix Calibration Report.

※※※※※END OF THE REPORT※※※※※