



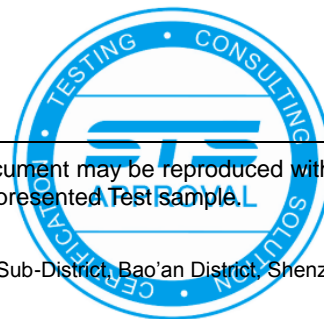
FCC SAR TEST REPORT

Report No.: STS2212073H02

Issued for
Winmate Inc.

9F, No.111-6, Shing-De Rd., San-Chung District, New Taipei
City 241, Taiwan

Product Name:	Rugged Tablet PC
Brand Name:	Winmate
Model Name:	S101TG
Series Model:	S101XXXXXXXXXXXX , ("X"= A~Z, a~z, 0~9,"-" Blank or Slash for marketing purpose only, no impact safety related constructions or critical components)
FCC ID:	PX9S10101
Test Standard:	ANSI/IEEE Std. C95.1
	FCC 47 CFR Part 2 (2.1093)
	IEEE 1528: 2013
Max. Report SAR (1g):	Body: 0.522 W/kg



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Test Report Certification

Applicant's name : Winmate Inc.
 Address..... : 9F, No.111-6, Shing-De Rd., San-Chung District, New Taipei City
 241, Taiwan
Manufacture's Name : Winmate Inc.
 Address..... : 9F, No.111-6, Shing-De Rd., San-Chung District, New Taipei City
 241, Taiwan

Product description

Product name..... : Rugged Tablet PC
 Brand name : Winmate
 Model name : S101TG
 Series Model..... : S101XXXXXXXXXXXX , ("X"= A~Z, a~z, 0~9,"-" Blank or Slash
 for marketing purpose only, no impact safety related
 constructions or critical components)
 ANSI/IEEE Std. C95.1-1992
Standards : FCC 47 CFR Part 2 (2.1093)
 IEEE 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..... : 03 Dec. 2021 ~ 07 Feb. 2023
 Date of Issue : 08 Feb. 2023
 Test Result..... : **Pass**

Testing Engineer : *Shi fan-long*

 (Shifan. Long)

Technical Manager : *Sean She*

 (Sean she)

Authorized Signatory : *Bovey Yang*

 (Bovey Yang)





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**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	08 Feb. 2023	STS2212073H02	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	Rugged Tablet PC		
Brand Name	Winmate		
Model Name	S101TG		
Series Model	S101XXXXXXXXXXXX, ("X"= A~Z, a~z, 0~9,"-" Blank or Slash for marketing purpose only, no impact safety related constructions or critical components)		
Model Difference	Only for Marketing purpose		
Battery	Rated Voltage:11.4V Charge Limit Voltage:13.05V Capacity: 3500mAh		
Device Category	Portable		
Product stage	Production unit		
RF Exposure Environment	General Population / Uncontrolled		
Hardware Version	S101TG-120		
Software Version	005		
Frequency Range	2.4G WLAN: 802.11b/g/n/ax 20: 2412~2462 MHz 802.11n/ax(40MHz): 2422~2452MHz 5.2G WLAN: 5150 to 5250 MHz 5.3G WLAN: 5250 to 5350 MHz 5.6G WLAN: 5470 to 5725 MHz 5.8G WLAN: 5725 to 5875 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV:1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz (Band 4 fall completely within the working range of Band 66, and no additional test is required.) LTE Band 5: 824 MHz ~ 849 MHz (Band 5 fall completely within the working range of Band 26, and no additional test is required.) LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz Bluetooth: 2402 MHz to 2480 MHz		
Max. Reported SAR(1g): (Limit:1.6W/kg)	Band	Mode	Body Worn and hotspot(W/kg)
	DTS	2.4G WLAN ANT A	0.297
	DTS	2.4G WLAN ANT B	0.280
	DTS	2.4G WLAN ANT A+B	0.311
	NII	5.2G WLAN ANT A	0.096
	NII	5.2G WLAN ANT B	0.268
	NII	5.2G WLAN ANT A+B	0.353



	NII	5.3G WLAN ANT A	0.103
	NII	5.3G WLAN ANT B	0.264
	NII	5.3G WLAN ANT A+B	0.358
	NII	5.6G WLAN ANT A	0.137
	NII	5.6G WLAN ANT B	0.217
	NII	5.6G WLAN ANT A+B	0.350
	NII	5.8G WLAN ANT A	0.075
	NII	5.8G WLAN ANT B	0.077
	NII	5.8G WLAN ANT A+B	0.141
	PCB	WCDMA Band II	0.463
	PCB	WCDMA Band IV	0.522
	PCB	WCDMA Band V	0.140
	PCB	LTE Band 2	0.408
	PCB	LTE Band 7	0.031
	PCB	LTE Band 12	0.249
	PCB	LTE Band 13	0.211
	PCB	LTE Band 26	0.150
	PCB	LTE Band 41	0.019
	PCB	LTE Band 66	0.208
	DSS	BT	0.055
		1-g Sum SAR	0.880
FCC Equipment Class	Part 15 Spread Spectrum Transmitter (DSS) Digital Transmission System (DTS) Unlicensed National Information Infrastructure TX(NII) PCS Licensed Transmitter worn on body (PCB)		
Operating Mode	2.4G WLAN: 802.11 b/g/n20/n40/ax20/ax40 5G WLAN: 802.11 /a/n20/n40/ac20/ac40/ac80/ac160/ax20/ax40/ax80/ax160 WCDMA: RMC, HSDPA, HSUPA Release 6 LTE: QPSK, 16QAM		
Antenna Specification	PIFA Antenna		
SIM Card	Only support single SIM Card.		
Hotspot Mode	Support		
DTM Mode	Not Support		
Note:	1. 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	ANSI/IEEE Std. C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	FCC KDB 447498 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 648474 D04 v01r03	SAR Evaluation Considerations for Wireless Handsets
8	FCC KDB 248227 D01 Wi-Fi SAR v02r02	SAR Considerations for 802.11 Devices
9	FCC KDB 941225 D01 v03r01	SAR Measurement Procedures for 3G Devices
10	FCC KDB 941225 D06 v02r01	Hotspot Mode SAR
11	FCC KDB 941225 D05 v02r05	SAR for LTE 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).

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

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:

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

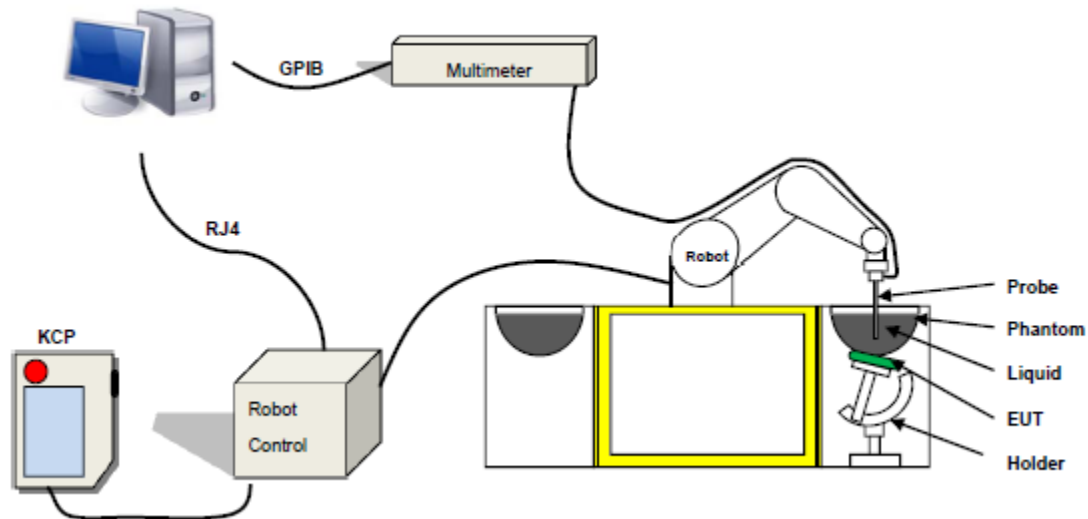
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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 07/21 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.

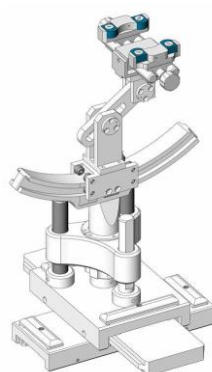


Figure-SN 32/14 SAM115



Figure-SN 32/14 SAM116

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 head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

Head Tissue

Frequency (MHz)	cellulose	DGBE	HEC	NaCl	Preventol	Sugar	X100	Water	Conductivity	Permittivity
	%	%	%	%	%	%	%	%	σ	ϵ_r
750	0.2	/	/	1.4	0.2	57.0	/	41.1	0.89	41.9
835	0.2	/	/	1.4	0.2	57.9	/	40.3	0.90	41.5
900	0.2	/	/	1.4	0.2	57.9	/	40.3	0.97	41.5
1800	/	44.5	/	0.3	/	/	30.45	55.2	1.4	40.0
1900	/	44.5	/	0.3	/	/	30.45	55.2	1.4	40.0
2000	/	44.5	/	0.3	/	/	/	55.2	1.4	40.0
2450	/	44.9	/	0.1	/	/	/	55.0	1.80	39.2
2600	/	45.0	/	0.1	/	/	/	54.9	1.96	39.0

Body Tissue

Frequency (MHz)	cellulose	DGBE	HEC	NaCl	Preventol	Sugar	X100	Water	Conductivity	Permittivity
	%	%	%	%	%	%	%	%	σ	ϵ_r
750	0.2	/	/	0.9	0.1	47.2	/	51.7	0.96	55.5
835	0.2	/	/	0.9	0.1	48.2	/	50.8	0.97	55.2
900	0.2	/	/	0.9	0.1	48.2	/	50.8	1.05	55.0
1800	/	29.4	/	0.4	/	/	30.45	70.2	1.52	53.3
1900	/	29.4	/	0.4	/	/	30.45	70.2	1.52	53.3
2000	/	29.4	/	0.4	/	/	/	70.2	1.52	53.3
2450	/	31.3	/	0.1	/	/	/	68.6	1.95	52.7
2600	/	31.7	/	0.1	/	/	/	68.2	2.16	52.3

Tissue dielectric parameters for head and body phantoms				
Frequency	ϵ_r		σ	
	S/m		S/m	
	Head	Body	Head	Body
300	45.3	58.2	0.87	0.92
450	43.5	56.7	0.87	0.94
900	41.5	55.0	0.97	1.05
1450	40.5	54.0	1.20	1.30
1800	40.0	53.3	1.40	1.52
2450	39.2	52.7	1.80	1.95
3000	38.5	52.0	2.40	2.73
5800	35.3	48.2	5.27	6.00



LIQUID MEASUREMENT RESULTS

Date	Ambient		Simulating Liquid		Parameters	Target	Measured	Deviation %	Limited %
	Temp. [°C]	Humidity %	Frequency	Temp. [°C]					
2021-12-03	22.0	45.0	2412	21.7	Permittivity	39.26	40.67	3.59	±5
					Conductivity	1.77	1.78	0.56	±5
2021-12-03	24.0	48.0	2437	23.7	Permittivity	39.2	39.06	-0.41	±5
					Conductivity	1.8	1.80	0.00	±5
2021-12-03	23.9	42.0	2450	23.6	Permittivity	39.2	38.84	-0.92	±5
					Conductivity	1.8	1.80	0.00	±5
2021-12-03	22.4	40	2462	22.1	Permittivity	39.18	38.35	-2.12	±5
					Conductivity	1.81	1.82	0.55	±5
2022-06-06	22.2	54	5180	22.0	Permittivity	36.02	36.78	2.11	±5
					Conductivity	4.64	4.63	-0.22	±5
2022-06-06	22.2	59	5200	21.9	Permittivity	36.00	36.03	0.08	±5
					Conductivity	4.66	4.60	-1.29	±5
2022-06-06	22.4	59	5230	22.0	Permittivity	35.97	36.56	1.64	±5
					Conductivity	4.69	4.68	-0.21	±5
2022-06-06	22.7	47	5240	22.4	Permittivity	35.96	36.93	2.70	±5
					Conductivity	4.70	4.70	0.00	±5
2022-06-06	22.8	48	5250	22.5	Permittivity	35.95	36.02	0.19	±5
					Conductivity	4.71	4.68	-0.64	±5
2022-06-07	22.6	59	5300	22.2	Permittivity	35.90	36.57	1.87	±5
					Conductivity	4.76	4.76	0.00	±5
2022-06-07	22.9	54	5320	22.7	Permittivity	35.88	36.52	1.78	±5
					Conductivity	4.78	4.77	-0.21	±5
2022-06-09	23.0	52	5500	22.8	Permittivity	35.68	36.54	2.41	±5
					Conductivity	4.96	4.97	0.20	±5
2022-06-09	23.3	56	5510	23.0	Permittivity	35.66	36.18	1.46	±5
					Conductivity	4.97	4.96	-0.20	±5
2022-06-10	23.4	60	5745	23.2	Permittivity	35.36	35.77	1.16	±5
					Conductivity	5.21	5.18	-0.58	±5
2022-06-10	23.3	59	5755	23.0	Permittivity	35.35	35.29	-0.17	±5
					Conductivity	5.22	5.22	0.00	±5
2022-06-10	23.7	56	5785	23.5	Permittivity	35.32	35.56	0.68	±5
					Conductivity	5.25	5.27	0.38	±5



2022-06-10	23.8	57	5800	23.5	Permittivity	35.30	36.21	2.58	±5
					Conductivity	5.27	5.26	-0.19	±5
2023-02-06	21.9	56	708	21.6	Permittivity	42.13	43.11	2.33	±5
					Conductivity	0.89	0.90	1.45	±5
2023-02-06	21.9	56	711	21.5	Permittivity	42.11	42.69	1.38	±5
					Conductivity	0.89	0.91	2.55	±5
2023-02-06	22.0	57	750	21.6	Permittivity	41.90	41.88	-0.05	±5
					Conductivity	0.89	0.90	1.12	±5
2023-02-06	22.0	57	782	21.7	Permittivity	41.73	42.42	1.66	±5
					Conductivity	0.89	0.87	-2.48	±5
2023-02-06	23.2	56	831.5	22.8	Permittivity	41.52	41.63	0.27	±5
					Conductivity	0.90	0.90	0.05	±5
2023-02-06	23.2	56	835	22.9	Permittivity	41.50	41.32	-0.43	±5
					Conductivity	0.90	0.89	-1.11	±5
2023-02-06	23.3	56	841.5	23.1	Permittivity	41.47	41.60	0.31	±5
					Conductivity	0.90	0.89	-1.20	±5
2023-02-06	23.3	56	846.6	23.0	Permittivity	41.45	41.09	-0.86	±5
					Conductivity	0.90	0.87	-3.48	±5
2023-02-07	24.0	41	1712.4	23.7	Permittivity	40.13	40.70	1.43	±5
					Conductivity	1.35	1.40	3.71	±5
2023-02-07	24.0	41	1736.6	23.7	Permittivity	40.09	41.07	2.44	±5
					Conductivity	1.36	1.41	3.39	±5
2023-02-07	24.1	41	1740	23.8	Permittivity	40.09	40.13	0.11	±5
					Conductivity	1.37	1.38	1.05	±5
2023-02-07	24.1	42	1752.6	23.8	Permittivity	40.07	41.17	2.75	±5
					Conductivity	1.37	1.43	4.16	±5
2023-02-07	24.0	41	1755	23.8	Permittivity	40.06	40.94	2.19	±5
					Conductivity	1.37	1.35	-1.77	±5
2023-02-07	24.1	42	1770	23.8	Permittivity	40.04	40.53	1.22	±5
					Conductivity	1.38	1.34	-3.10	±5
2023-02-07	24.2	42	1800	23.9	Permittivity	40.00	40.96	2.40	±5
					Conductivity	1.40	1.37	-2.14	±5
2023-02-07	23.6	44	1852.4	23.3	Permittivity	40.00	41.31	3.28	±5
					Conductivity	1.40	1.39	-0.71	±5
2023-02-07	23.6	44	1860	23.3	Permittivity	40.00	41.18	2.95	±5
					Conductivity	1.40	1.42	1.43	±5
2023-02-07	23.7	44	1900	23.4	Permittivity	40.00	40.42	1.05	±5
					Conductivity	1.40	1.40	0.00	±5



2023-02-08	23.9	56	2450	23.6	Permittivity	39.20	39.23	0.08	±5
					Conductivity	1.80	1.82	1.11	±5
2023-02-08	24.0	56	2480	23.7	Permittivity	39.15	39.82	1.72	±5
					Conductivity	1.83	1.88	2.92	±5
2023-02-08	20.3	55	2560	20.0	Permittivity	39.05	39.92	2.22	±5
					Conductivity	1.92	1.87	-2.47	±5
2023-02-08	20.3	55	2600	20.0	Permittivity	39.00	39.62	1.59	±5
					Conductivity	1.96	1.98	1.02	±5
2023-02-08	20.3	55	2680	20.0	Permittivity	38.89	39.94	2.69	±5
					Conductivity	2.05	2.01	-1.73	±5

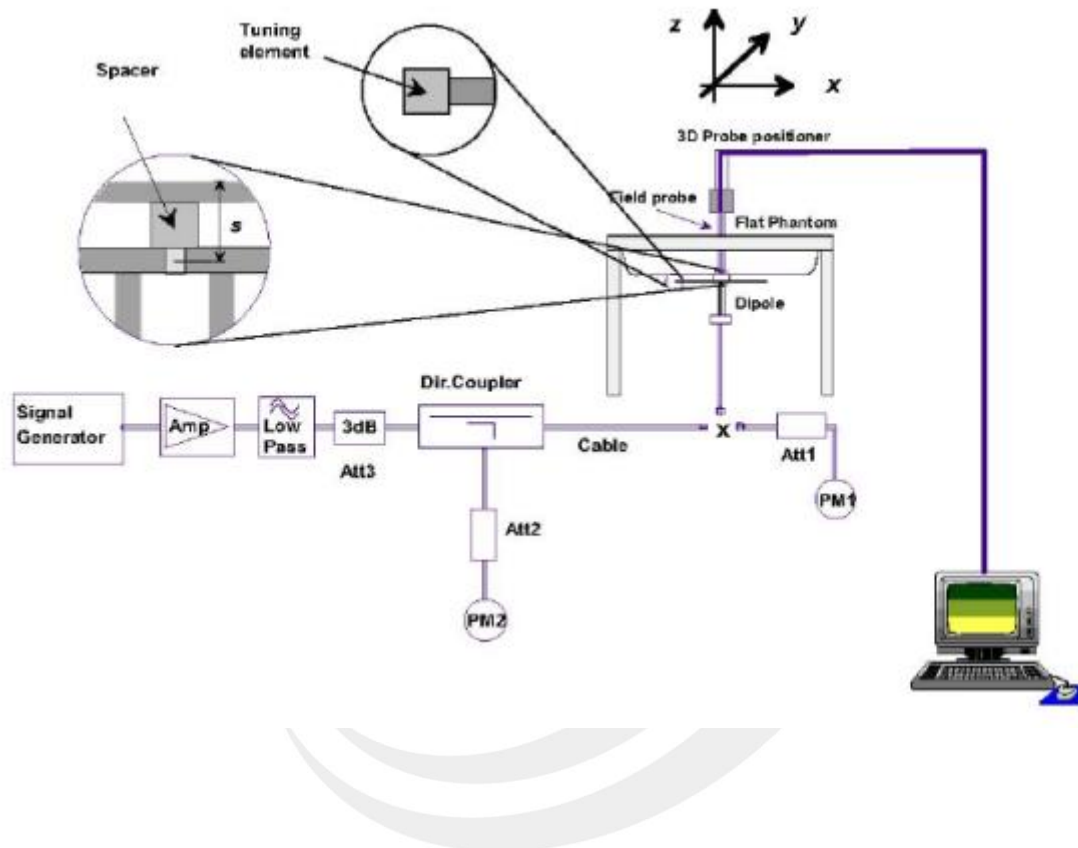


5. SAR System Validation

5.1 Validation System

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

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





5.2 Validation Result

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

Date	Freq.	Power	Tested Value	Normalized SAR	Target SAR	Tolerance	Limit
	(MHz)	(mW)	(W/Kg)	(W/kg)	1g(W/kg)	(%)	(%)
2021-12-03	2450	100	5.180	51.80	52.40	-1.14	10
2022-06-06	5200	100	15.905	159.05	159.00	0.03	10
2022-06-07	5300	100	16.651	166.51	166.40	0.07	10
2022-06-09	5600	100	17.377	173.77	173.80	-0.02	10
2022-06-10	5800	100	18.141	181.41	181.20	0.12	10
2023-02-06	750	100	0.854	8.54	8.49	0.59	10
2023-02-06	835	100	0.942	9.42	9.63	-2.18	10
2023-02-07	1800	100	3.825	38.25	38.31	-0.16	10
2023-02-07	1900	100	3.963	39.63	39.84	-0.53	10
2023-02-08	2450	100	5.485	54.85	54.70	0.27	10
2023-02-08	2600	100	5.621	56.21	56.19	0.04	10
2023-02-08	3500	100	6.861	68.61	68.37	0.35	10

Note:

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



6. SAR Evaluation Procedures

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

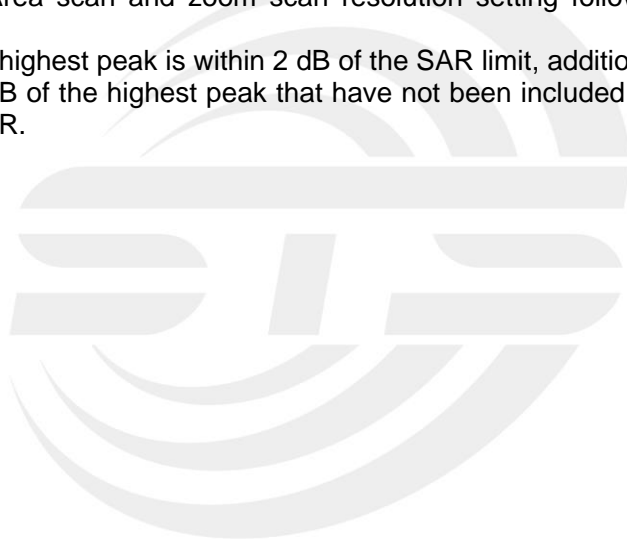
The following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 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 D01v01r01 quoted below.

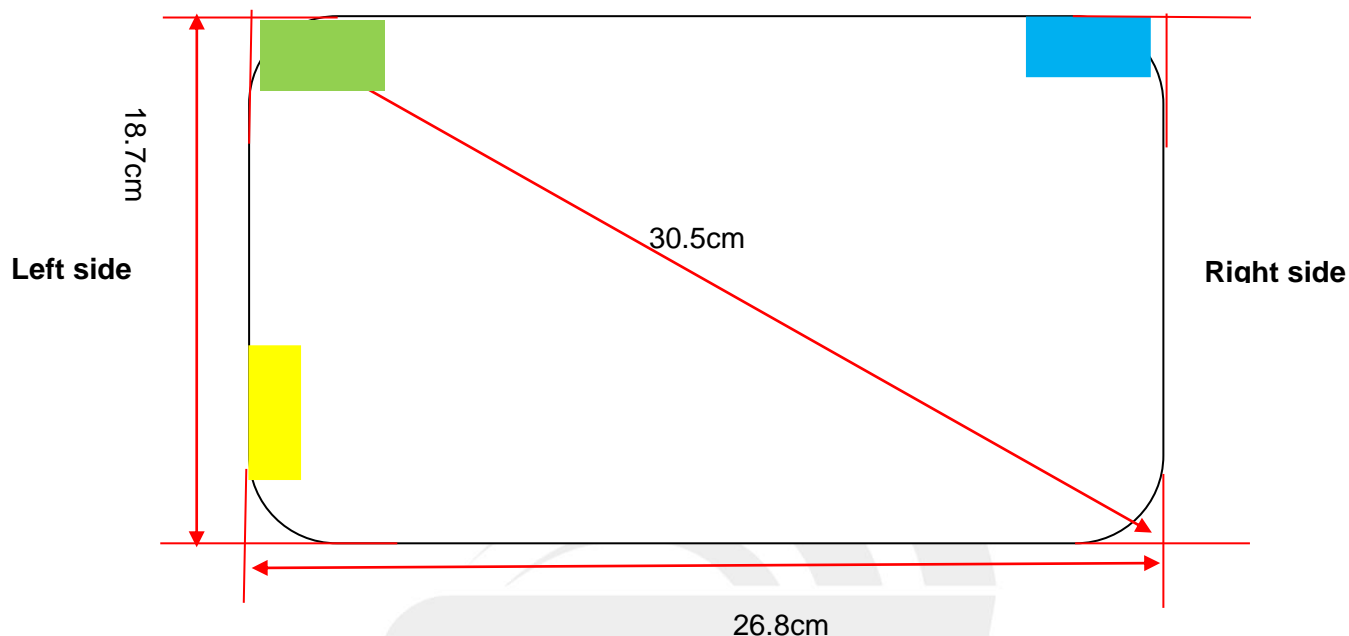
When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.



7. EUT Antenna Location Sketch

It is a Rugged Tablet PC, support WLAN mode.

Top side



Bottom side
(Front view)

- WLAN ANT A
- WLAN ANT B/BT ANT
- WWAN ANT

Antenna Separation Distance(cm)

ANT	Back Side	Front Side	Left Side	Right Side	Top Side	Bottom Side
WLAN ANT_A	≤0.5	≤0.5	24	≤0.5	≤0.5	16.5
WLAN ANT_B/ BT ANT	≤0.5	≤0.5	≤0.5	24	≤0.5	16.5
WWAN	≤0.5	≤0.5	≤0.5	26.3	9.5	2.7

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 WLAN SAR evaluation of Maximum power (dBm) summing tolerance.

Exposure Position	Wireless Interface	2.4G WLAN 802.11b ANT-A	2.4G WLAN 802.11b ANT-B	2.4G WLAN 802.11AX20 ANT-A	2.4G WLAN 802.11AX20 ANT-B
	Calculated Frequency	2437	2437	2462	2462
	Maximum Turn-up power (dBm)	15	15	19	19
	Maximum rated power(mW)	31.62	31.62	79.43	79.43
Back Side	Separation distance (mm)	≤5	≤5	≤5	≤5
	exclusion threshold(mW)	9.61	9.61	9.56	9.56
	Testing required?	YES	YES	YES	YES
Left Edge	Separation distance (mm)	240	≤5	240	≤5
	exclusion threshold(mW)	1996.09	9.61	1995.60	9.56
	Testing required?	NO	YES	NO	YES
Right Edge	Separation distance (mm)	≤5	240	≤5	240
	exclusion threshold(mW)	9.61	1996.09	9.56	1995.60
	Testing required?	YES	NO	YES	NO
Top Edge	Separation distance (mm)	≤5	≤5	≤5	≤5
	exclusion threshold(mW)	9.61	9.61	9.56	9.56
	Testing required?	YES	YES	YES	YES
Bottom Edge	Separation distance (mm)	165	165	165	165
	exclusion threshold(mW)	1246.09	1246.09	1245.60	1245.60
	Testing required?	NO	NO	NO	NO



Exposure Position	Wireless Interface	5.2G WLAN 802.11a ANT-A	5.2G WLAN 802.11a ANT-B	5.2G WLAN 802.11 n-HT40ANT-A	5.2G WLAN 802.11 n-HT40ANT-B
	Calculated Frequency(GHz)	5.24	5.2	5.23	5.23
	Maximum Turn-up power (dBm)	10.5	10	13.5	13.5
	Maximum rated power(mW)	11.22	10.00	22.39	22.39
Back Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	1.49	1.50	1.49	1.49
	Testing required?	YES	YES	YES	YES
Left Side	Separation distance (cm)	24	≤0.5	24	≤0.5
	exclusion threshold(mW)	4460.75	1.50	4460.41	1.49
	Testing required?	NO	YES	NO	YES
Right Side	Separation distance (cm)	≤0.5	24	≤0.5	24
	exclusion threshold(mW)	1.49	4459.40	1.49	4460.41
	Testing required?	YES	NO	YES	NO
Top Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	1.49	1.50	1.49	1.49
	Testing required?	YES	YES	YES	YES
Bottom Side	Separation distance (cm)	16.5	16.5	16.5	16.5
	exclusion threshold(mW)	2055.95	2056.61	2056.11	2056.11
	Testing required?	NO	NO	NO	NO



Exposure Position	Wireless Interface	5.3G WLAN 802.11a ANT-A	5.3G WLAN 802.11a ANT-B	5.3G WLAN 802.11 n-HT40ANT-A	5.3G WLAN 802.11 n-HT40ANT-B
	Calculated Frequency(GHz)	5.32	5.32	5.25	5.25
	Maximum Turn-up power (dBm)	11	10.5	14	14
	Maximum rated power(mW)	12.59	11.22	25.12	25.12
Back Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	1.47	1.47	1.49	1.49
	Testing required?	YES	YES	YES	YES
Left Side	Separation distance (cm)	24	≤0.5	24	≤0.5
	exclusion threshold(mW)	4463.43	1.47	4461.09	1.49
	Testing required?	NO	YES	NO	YES
Right Side	Separation distance (cm)	≤0.5	24	≤0.5	24
	exclusion threshold(mW)	1.47	4463.43	1.49	4461.09
	Testing required?	YES	NO	YES	NO
Top Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	1.47	1.47	1.49	1.49
	Testing required?	YES	YES	YES	YES
Bottom Side	Separation distance (cm)	16.5	16.5	16.5	16.5
	exclusion threshold(mW)	2054.65	2054.65	2055.78	2055.78
	Testing required?	NO	NO	NO	NO



Exposure Position	Wireless Interface	5.6G WLAN 802.11a ANT-A	5.6G WLAN 802.11a ANT-B	5.6G WLAN 802.11 n-HT40ANT-A	5.6G WLAN 802.11 n-HT40ANT-B
	Calculated Frequency(GHz)	5.5	5.5	5.51	5.51
	Maximum Turn-up power (dBm)	11	11	14.5	14.5
	Maximum rated power(mW)	12.59	12.59	28.18	28.18
Back Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	1.44	1.44	1.43	1.43
	Testing required?	YES	YES	YES	YES
Left Side	Separation distance (cm)	24	≤0.5	24	≤0.5
	exclusion threshold(mW)	4469.31	1.44	4469.63	1.43
	Testing required?	NO	YES	NO	YES
Right Side	Separation distance (cm)	≤0.5	24	≤0.5	24
	exclusion threshold(mW)	1.44	4469.31	1.43	4469.63
	Testing required?	YES	NO	YES	NO
Top Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	1.44	1.44	1.43	1.43
	Testing required?	YES	YES	YES	YES
Bottom Side	Separation distance (cm)	16.5	16.5	16.5	16.5
	exclusion threshold(mW)	2051.79	2051.79	2051.64	2051.64
	Testing required?	NO	NO	NO	NO



Exposure Position	Wireless Interface	5.8G WLAN 802.11a ANT-A	5.8G WLAN 802.11a ANT-B	5.8G WLAN 802.11 n-HT40ANT-A	5.8G WLAN 802.11 n-HT40ANT-B
	Calculated Frequency(GHz)	5.785	5.745	5.755	5.755
	Maximum Turn-up power (dBm)	11	10.5	14	14
	Maximum rated power(mW)	12.59	11.22	25.12	25.12
Back Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	1.38	1.39	1.38	1.38
	Testing required?	YES	YES	YES	YES
Left Side	Separation distance (cm)	24	≤0.5	24	≤0.5
	exclusion threshold(mW)	4478.26	1.39	4477.34	1.38
	Testing required?	NO	YES	NO	YES
Right Side	Separation distance (cm)	≤0.5	24	≤0.5	24
	exclusion threshold(mW)	1.38	4477.03	1.38	4477.34
	Testing required?	YES	NO	YES	NO
Top Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	1.38	1.39	1.38	1.38
	Testing required?	YES	YES	YES	YES
Bottom Side	Separation distance (cm)	16.5	16.5	16.5	16.5
	exclusion threshold(mW)	2047.47	2048.06	2047.91	2047.91
	Testing required?	NO	NO	NO	NO



	Wireless Interface	WCDMA 2	WCDMA 5	WCDMA 4	LTE Band 2
Exposure Position	Calculated Frequency(GHz)	1.8524	0.8466	1.7366	1.86
	Maximum Turn-up power (dBm)	23	23	23	23
	Maximum rated power(mW)	199.53	199.53	199.53	199.53
Back Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	3.43	9.07	3.61	3.42
	Testing required?	YES	YES	YES	YES
Left Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	3.43	9.07	3.61	3.42
	Testing required?	YES	YES	YES	YES
Right Side	Separation distance (cm)	26.3	26.3	26.3	26.3
	exclusion threshold(mW)	5066.59	2550.00	5047.18	5067.82
	Testing required?	NO	NO	NO	NO
Top Side	Separation distance (cm)	9.5	9.5	9.5	9.5
	exclusion threshold(mW)	776.91	598.75	785.06	776.40
	Testing required?	NO	NO	NO	NO
Bottom Side	Separation distance (cm)	2.7	2.7	2.7	2.7
	exclusion threshold(mW)	76.61	99.95	78.79	76.47
	Testing required?	YES	YES	YES	YES



Wireless Interface	LTE Band 7	LTE Band 12	LTE Band 13	LTE Band 26	
Exposure Position	Calculated Frequency(GHz)	2.56	0.711	0.782	0.8415
	Maximum Turn-up power (dBm)	22	23	23	24
	Maximum rated power(mW)	158.49	199.53	199.53	251.19
Back Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	2.65	11.59	10.14	9.15
	Testing required?	YES	YES	YES	YES
Left Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	2.65	11.59	10.14	9.15
	Testing required?	YES	YES	YES	YES
Right Side	Separation distance (cm)	26.3	26.3	26.3	26.3
	exclusion threshold(mW)	5165.00	2075.90	2322.30	2531.90
	Testing required?	NO	NO	NO	NO
Top Side	Separation distance (cm)	9.5	9.5	9.5	9.5
	exclusion threshold(mW)	737.33	547.27	574.77	5170.65
	Testing required?	NO	NO	NO	NO
Bottom Side	Separation distance (cm)	2.7	2.7	2.7	2.7
	exclusion threshold(mW)	66.56	105.40	102.39	100.13
	Testing required?	YES	YES	YES	YES



	Wireless Interface	LTE Band 41	LTE Band 66	BT
Exposure Position	Calculated Frequency(GHz)	2.68	1.755	2.48
	Maximum Turn-up power (dBm)	22	23	6.5
	Maximum rated power(mW)	158.49	199.53	4.47
	Separation distance (cm)	≤0.5	≤0.5	≤0.5
Back Side	exclusion threshold(mW)	2.55	3.58	2.72
	Testing required?	YES	YES	YES
	Separation distance (cm)	≤0.5	≤0.5	≤0.5
Left Side	exclusion threshold(mW)	2.55	3.58	2.72
	Testing required?	YES	YES	YES
	Separation distance (cm)	26.3	26.3	24
Right Side	exclusion threshold(mW)	5179.09	5050.34	4330.57
	Testing required?	NO	NO	NO
	Separation distance (cm)	9.5	9.5	0.5
Top Side	exclusion threshold(mW)	731.89	783.73	2.72
	Testing required?	NO	NO	YES
	Separation distance (cm)	2.7	2.7	16.5
Bottom Side	exclusion threshold(mW)	65.24	78.43	2121.21
	Testing required?	YES	YES	NO
	Separation distance (cm)	2.7	2.7	16.5

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	19.2R 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-2A > U-NII-1, U-NII-2A was chosen for SAR evaluation. Based on the measurements obtained, SAR measurements on U-NII-1 are not required as highest reported SAR from U-NII-2A band is $\leq 1.2\text{W/Kg}$.

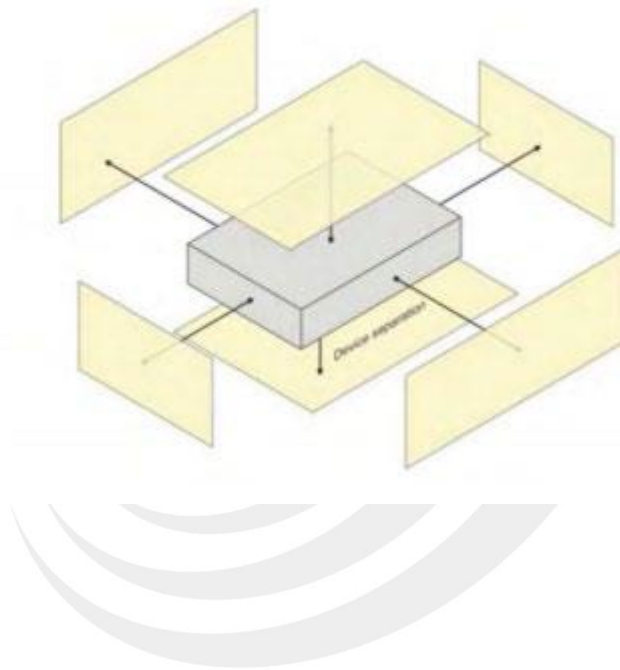


8. EUT Test Position

This EUT was tested in Back Side, Left Side, Right Side, Top Side and Bottom Side.

8.1 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. Measurement Uncertainty

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

Uncertainty Component	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
Measurement System								
Probe calibration	5.72	N	1	1	1	5.72	5.72	∞
Axial Isotropy	0.18	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.07	0.07	∞
Hemispherical Isotropy	1.04	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.42	0.42	∞
Boundary effect	0.8	R	$\sqrt{3}$	1	1	0.46	0.46	∞
Linearity	1.25	R	$\sqrt{3}$	1	1	0.72	0.72	∞
System detection limits	1.20	R	$\sqrt{3}$	1	1	0.69	0.69	∞
Modulation response	3.42	R	$\sqrt{3}$	1	1	3.42	3.42	∞
Readout Electronics	0.26	N	1	1	1	0.26	0.26	∞
Response Time	0.17	R	$\sqrt{3}$	1	1	0.10	0.10	∞
Integration Time	1.43	R	$\sqrt{3}$	1	1	0.83	0.83	∞
RF ambient conditions-Noise	3.51	R	$\sqrt{3}$	1	1	2.03	2.03	∞
RF ambient conditions-reflections	3.15	R	$\sqrt{3}$	1	1	1.82	1.82	∞
Probe positioner mechanical tolerance	1.2	R	$\sqrt{3}$	1	1	0.69	0.69	∞
Probe positioning with respect to phantom shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Post-processing	2.1	R	$\sqrt{3}$	1	1	1.21	1.21	∞
Test sample Related								
Test sample positioning	3.1	N	1	1	1	3.10	3.10	∞
Device holder uncertainty	3.8	N	1	1	1	3.80	3.80	∞
SAR drift measurement	4.5	R	$\sqrt{3}$	1	1	2.60	2.60	∞
SAR scaling	1.8	R	$\sqrt{3}$	1	1	1.04	1.04	∞
Phantom and tissue parameters								
Phantom uncertainty (shape and thickness uncertainty)	3.7	R	$\sqrt{3}$	1	1	2.14	2.14	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	2.1	N	1	1	0.84	2.10	1.76	∞
Liquid conductivity (temperature uncertainty)	2.4	R	$\sqrt{3}$	0.78	0.71	1.87	1.70	∞
Liquid conductivity (measured)	4.1	N	1	0.78	0.71	0.94	1.07	M
Liquid permittivity (temperature uncertainty)	2.7	R	$\sqrt{3}$	0.23	0.26	2.11	1.92	∞
Liquid permittivity (measured)	4.8	N	1	0.23	0.26	1.10	1.25	M
Combined Standard Uncertainty		RSS				10.37	10.27	
Expanded Uncertainty (95% Confidence interval)		K=2				20.74	20.53	



10. Conducted Power Measurement

10.1 Test Result

2.4G WLAN

Modulation	Frequency (MHz)	Ant_A Final Average Output Power (dBm)	Ant_B Final Average Output Power (dBm)	Ant_A+B Final Average Output Power (dBm)
802.11b	2412	14.71	14.50	N/A
	2437	14.79	14.61	N/A
	2462	14.74	14.58	N/A
802.11g	2412	15.12	15.87	N/A
	2437	15.19	15.84	N/A
	2462	15.09	15.92	N/A
802.11n(HT20)	2412	15.08	15.09	18.09
	2437	15.07	15.22	18.15
	2462	15.02	15.06	18.05
802.11n(HT40)	2422	15.22	14.59	17.92
	2437	14.90	15.36	18.14
	2452	14.53	14.92	17.74
802.11ax(HE20)	2412	15.05	15.51	18.29
	2437	15.48	15.42	18.46
	2462	15.64	15.82	18.74
802.11ax(HE40)	2422	15.84	15.07	18.48
	2437	15.83	15.18	18.52
	2452	15.71	15.10	18.42



5G WLAN

5.2G WLAN				
Mode	Frequency (MHz)	Ant_A Final Average Output Power (dBm)	Ant_B Final Average Output Power (dBm)	Ant_A+B Final Average Output Power (dBm)
802.11a	5180	9.83	9.78	N/A
	5200	9.89	9.88	N/A
	5240	10	9.83	N/A
802.11 n-HT20	5180	9.76	9.62	12.7
	5200	9.79	9.78	12.8
	5240	10.03	9.82	12.94
802.11 n-HT40	5190	10.39	10.18	13.3
	5230	10.36	10.26	13.32
802.11ac-VHT20	5180	9.77	9.7	12.75
	5200	9.67	9.79	12.74
	5240	9.76	9.77	12.78
802.11ac-VHT40	5190	10.23	10.17	13.21
	5230	10.25	10.2	13.24
802.11ac-VHT80	5210	10.46	10.1	13.29
802.11ax(HE20)	5180	10.01	9.76	12.9
	5200	10.14	9.84	13
	5240	10.1	9.85	12.99
802.11ax(HE40)	5190	9.88	9.82	12.86
	5230	10.05	9.91	12.99
802.11ax(HE80)	5210	10.01	9.85	12.94



5.3G WLAN				
Mode	Frequency (MHz)	Ant_A Final Average Output Power (dBm)	Ant_B Final Average Output Power (dBm)	Ant_A+B Final Average Output Power (dBm)
802.11a	5260	10.2	9.75	N/A
	5300	10.15	9.83	N/A
	5320	10.58	10.06	N/A
802.11 n-HT20	5260	10.22	9.66	12.96
	5300	10.16	9.71	12.95
	5320	10.53	9.74	13.16
802.11 n-HT40	5270	10.6	9.87	13.26
	5310	10.78	10.23	13.52
802.11ac-VHT20	5260	10.15	9.67	12.93
	5300	10.15	9.76	12.97
	5320	10.51	10.03	13.29
802.11ac-VHT40	5270	10.55	10.04	13.31
	5310	10.72	10.32	13.53
802.11ac-VHT80	5290	10.4	10.01	13.22
802.11ac-VHT160	5250	10.97	10.48	13.74
802.11ax(HE20)	5260	10.28	9.79	13.05
	5300	10.35	9.93	13.16
	5320	10.59	10.09	13.36
802.11ax(HE40)	5270	10.34	9.75	13.07
	5310	10.53	10.07	13.32
802.11ax(HE80)	5290	10.2	9.69	12.96
802.11ax(HE160)	5250	10.87	10.32	13.61



5.6G WLAN				
Mode	Frequency (MHz)	Ant_A Final Average Output Power (dBm)	Ant_B Final Average Output Power (dBm)	Ant_A+B Final Average Output Power (dBm)
802.11a	5500	10.86	10.78	N/A
	5580	10.54	10.07	N/A
	5700	10.67	10.43	N/A
802.11 n-HT20	5500	10.88	10.79	13.85
	5580	10.54	10.13	13.35
	5700	10.6	10.41	13.52
802.11 n-HT40	5510	11.27	11.17	14.23
	5550	11.12	11.07	14.11
	5670	11.07	10.63	13.87
802.11ac-VHT20	5500	10.92	10.74	13.84
	5580	10.52	10.14	13.34
	5700	10.57	10.43	13.51
802.11ac-VHT40	5510	11.21	11.18	14.21
	5550	11.05	10.99	14.03
	5670	11.05	10.66	13.87
802.11ac-VHT80	5530	11.25	11.13	14.2
	5610	10.81	10.44	13.64
802.11ac-VHT160	5530	11.1	10.79	13.96
802.11ax(HE20)	5500	10.94	10.85	13.91
	5580	10.67	10.17	13.44
	5700	10.71	10.49	13.61
802.11ax(HE40)	5510	11	10.93	13.98
	5550	10.81	10.66	13.75
	5670	10.85	10.48	13.68
802.11ax(HE80)	5530	10.99	10.89	13.95
	5610	10.56	10.24	13.41
802.11ax(HE160)	5570	10.99	10.6	13.81



5.8G WLAN				
Mode	Frequency (MHz)	Ant_A Final Average Output Power (dBm)	Ant_B Final Average Output Power (dBm)	Ant_A+B Final Average Output Power (dBm)
802.11a20	5745	10.44	10.44	N/A
	5785	10.51	10.28	N/A
	5825	10.46	10.16	N/A
802.11 n-HT20	5745	10.43	10.33	13.39
	5785	10.38	10.21	13.31
	5825	10.35	10.15	13.26
802.11 n-HT40	5755	10.82	10.66	13.75
	5795	10.68	10.6	13.65
802.11ac-VHT20	5745	10.46	10.43	13.46
	5785	10.44	10.28	13.37
	5825	10.44	10.09	13.28
802.11ac-VHT40	5755	10.73	10.68	13.72
	5795	10.66	10.45	13.57
802.11ac-VHT80	5775	10.67	10.4	13.55
802.11ax(HE20)	5745	10.87	10.45	13.68
	5785	10.61	10.52	13.58
	5825	10.48	10.46	13.48
802.11ax(HE40)	5755	10.72	10.41	13.58
	5795	10.52	10.41	13.48
802.11ax(HE80)	5775	10.41	10.12	13.28



BT				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	5.5	3.55
	39	2441	5.66	3.68
	78	2480	6.22	4.19
$\pi/4$ -QPSK(2Mbps)	0	2402	3.83	2.42
	39	2441	3.8	2.40
	78	2480	4.22	2.64
8DPSK(3Mbps)	0	2402	3.81	2.40
	39	2441	3.83	2.42
	78	2480	4.27	2.67

BLE				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	4.27	2.67
	19	2440	3.46	2.22
	39	2480	3.7	2.34
GFSK(2Mbps)	0	2402	3.36	2.17
	19	2440	2.58	1.81
	39	2480	2.34	1.71



WCDMA

Band	WCDMA Band 2			WCDMA Band 5			WCDMA Band 4		
Channel	9262	9400	9538	4132	4183	4233	1312	1413	1513
Frequency (MHz)	1852.4	1880	1907.6	826.4	836.6	846.6	1712.4	1736.6	1752.6
RMC 12.2Kbps	22.58	22.43	22.56	22.81	22.80	22.86	22.76	22.83	22.77
HSDPA Subtest-1	21.60	21.43	21.59	21.82	21.83	21.87	21.77	21.86	21.81
HSDPA Subtest-2	21.58	21.42	21.59	21.81	21.82	21.85	21.75	21.85	21.79
HSDPA Subtest-3	21.07	20.96	21.09	21.31	21.31	21.34	21.26	21.34	21.28
HSDPA Subtest-4	21.05	20.94	21.08	21.30	21.32	21.34	21.24	21.34	21.27
HSUPA Subtest-1	21.54	21.38	21.53	21.77	21.78	21.83	21.69	21.80	21.74
HSUPA Subtest-2	19.56	19.41	19.52	19.79	19.82	19.84	19.65	19.84	19.73
HSUPA Subtest-3	20.57	20.41	20.51	20.78	20.79	20.82	20.65	20.82	20.70
HSUPA Subtest-4	19.53	19.38	19.51	19.77	19.78	19.85	19.64	19.83	19.71
HSUPA Subtest-5	21.54	21.39	21.52	21.78	21.75	21.82	21.71	21.81	21.74

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.



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.





LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	22.03	21.87	22.03
1.4	1	2		22.11	21.92	22.11
1.4	1	5		22.01	21.84	22.01
1.4	3	0		22.06	21.89	22.08
1.4	3	1		22.11	21.93	22.12
1.4	3	2		22.06	21.88	22.09
1.4	6	0		21.06	20.89	21.10
1.4	1	0	16-QAM	21.35	21.15	21.38
1.4	1	2		21.43	21.25	21.43
1.4	1	5		21.33	21.16	21.32
1.4	3	0		21.11	20.95	21.12
1.4	3	1		21.13	20.95	21.14
1.4	3	2		21.09	20.90	21.07
1.4	6	0		20.12	19.97	20.18
3	1	0	QPSK	22.07	21.89	22.08
3	1	7		22.07	21.88	22.07
3	1	14		22.04	21.85	22.07
3	8	0		21.14	20.97	21.14
3	8	4		21.11	20.95	21.19
3	8	7		21.09	20.93	21.13
3	15	0		21.13	20.95	21.15
3	1	0	16-QAM	21.40	21.28	21.49
3	1	7		21.42	21.25	21.44
3	1	14		21.37	21.27	21.38
3	8	0		20.19	20.02	20.23
3	8	4		20.20	20.04	20.25
3	8	7		20.17	19.98	20.20
3	15	0		20.12	19.98	20.20



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.15	21.96	22.18
5	1	12		22.08	21.89	22.08
5	1	24		22.08	21.79	22.10
5	12	0		21.14	21.00	21.20
5	12	6		21.15	21.00	21.22
5	12	11		21.09	20.94	21.15
5	25	0		21.13	20.98	21.17
5	1	0	16-QAM	21.52	21.31	21.51
5	1	12		21.43	21.26	21.49
5	1	24		21.44	21.16	21.40
5	12	0		20.19	20.02	20.23
5	12	6		20.16	20.01	20.24
5	12	11		20.14	20.00	20.19
5	25	0		20.15	20.01	20.21
10	1	0	QPSK	22.42	22.21	22.21
10	1	24		22.11	21.91	22.12
10	1	49		22.18	21.99	22.10
10	25	0		21.21	21.02	21.23
10	25	12		21.17	21.01	21.20
10	25	24		21.03	20.88	21.18
10	50	0		21.19	21.02	21.21
10	1	0	16-QAM	21.72	21.58	21.51
10	1	24		21.45	21.28	21.48
10	1	49		21.50	21.36	21.38
10	25	0		20.22	20.03	20.22
10	25	12		20.18	20.03	20.22
10	25	24		20.05	19.90	20.19
10	50	0		20.19	20.02	20.24



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.35	22.08	22.26
15	1	37		22.09	21.91	22.12
15	1	74		22.06	21.81	22.09
15	36	0		21.31	21.03	21.25
15	36	18		21.17	21.01	21.22
15	36	39		21.12	20.85	21.19
15	75	0		21.18	21.00	21.20
15	1	0	16-QAM	21.67	21.41	21.56
15	1	38		21.43	21.25	21.43
15	1	75		21.38	21.12	21.44
15	36	0		20.32	20.08	20.26
15	36	18		20.19	20.03	20.21
15	36	39		20.10	19.88	20.18
15	75	0		20.17	19.98	20.20
20	1	0	QPSK	22.55	22.24	22.26
20	1	49		22.07	21.90	22.09
20	1	99		22.08	21.91	22.06
20	50	0		21.36	21.08	21.27
20	50	24		21.17	21.00	21.23
20	50	49		21.12	20.86	21.17
20	100	0		21.19	21.03	21.23
20	1	0	16-QAM	21.89	21.64	21.57
20	1	49		21.44	21.23	21.42
20	1	99		21.48	21.24	21.34
20	50	0		20.39	20.11	21.29
20	50	24		20.18	20.03	20.21
20	50	49		20.11	19.91	20.19
20	100	0		20.19	20.02	20.23



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.64	21.71	21.96
5	1	12		21.65	21.71	21.97
5	1	24		21.58	21.72	21.96
5	12	0		20.70	20.77	21.01
5	12	6		20.73	20.81	21.06
5	12	11		20.63	20.73	21.05
5	25	0		20.66	20.76	21.02
5	1	0	16-QAM	20.97	21.02	21.24
5	1	12		20.98	21.03	21.28
5	1	24		20.90	21.02	21.26
5	12	0		19.71	19.78	20.06
5	12	6		19.75	19.81	20.08
5	12	11		19.67	19.77	20.04
5	25	0		19.68	19.78	20.02
10	1	0	QPSK	21.75	21.82	21.83
10	1	24		21.73	21.68	21.86
10	1	49		21.78	21.69	21.83
10	25	0		20.75	20.71	20.87
10	25	12		20.75	20.75	20.92
10	25	24		20.70	20.71	20.86
10	50	0		20.74	20.73	20.85
10	1	0	16-QAM	21.07	21.10	21.13
10	1	24		21.03	21.02	21.15
10	1	49		21.08	21.04	21.15
10	25	0		19.78	19.74	19.90
10	25	12		19.79	19.77	19.91
10	25	24		19.74	19.74	19.89
10	50	0		19.77	19.77	19.91



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.78	21.80	21.79
15	1	37		21.67	21.67	21.80
15	1	74		21.77	21.63	21.84
15	36	0		20.77	20.81	20.83
15	36	18		20.73	20.75	20.88
15	36	39		20.79	20.74	20.85
15	75	0		20.75	20.71	20.88
15	1	0	16-QAM	21.07	21.09	21.10
15	1	38		20.95	20.98	21.12
15	1	75		21.06	20.93	21.14
15	36	0		19.79	19.84	19.88
15	36	18		19.77	19.79	19.91
15	36	39		19.84	19.45	19.88
15	75	0		19.78	19.74	19.85
20	1	0	QPSK	21.65	21.78	21.82
20	1	49		21.59	21.65	21.74
20	1	99		21.58	21.65	21.81
20	50	0		20.60	20.81	20.79
20	50	24		20.69	20.72	20.83
20	50	49		20.66	20.72	20.82
20	100	0		20.70	20.74	20.80
20	1	0	16-QAM	20.96	21.09	21.10
20	1	49		20.91	20.95	21.05
20	1	99		20.90	20.93	21.12
20	50	0		19.66	19.80	19.81
20	50	24		19.73	19.76	19.84
20	50	49		18.70	29.73	19.84
20	100	0		18.73	19.73	19.82



LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	22.40	22.41	22.50
1.4	1	2		22.47	22.47	22.60
1.4	1	5		22.40	22.39	22.48
1.4	3	0		22.49	22.45	22.56
1.4	3	1		22.54	22.50	22.59
1.4	3	2		22.49	22.44	22.55
1.4	6	0		21.44	21.45	21.56
1.4	1	0	16-QAM	21.67	21.72	21.80
1.4	1	2		21.72	21.77	21.88
1.4	1	5		21.63	21.69	21.81
1.4	3	0		21.46	21.49	21.61
1.4	3	1		21.51	21.53	21.65
1.4	3	2		21.45	21.48	21.60
1.4	6	0		20.49	20.53	20.65
3	1	0	QPSK	22.66	22.67	22.69
3	1	7		22.67	22.65	22.68
3	1	14		22.61	22.63	22.67
3	8	0		21.68	21.71	21.82
3	8	4		21.68	21.74	21.87
3	8	7		21.66	21.70	21.85
3	15	0		21.67	21.70	21.81
3	1	0	16-QAM	21.88	21.97	22.02
3	1	7		21.90	21.96	22.05
3	1	14		21.88	21.94	220.70
3	8	0		20.78	20.75	20.88
3	8	4		20.79	20.78	20.91
3	8	7		20.73	20.74	20.89
3	15	0		20.74	20.75	20.85



LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.72	22.71	22.75
5	1	12		22.62	22.65	22.72
5	1	24		22.72	22.75	22.71
5	12	0		21.71	21.73	21.76
5	12	6		21.73	21.71	21.79
5	12	11		21.79	21.69	21.74
5	25	0		21.68	21.74	21.73
5	1	0	16-QAM	21.93	22.01	21.97
5	1	12		21.92	21.99	21.95
5	1	24		22.02	22.06	21.96
5	12	0		20.76	20.74	20.83
5	12	6		20.77	20.75	20.84
5	12	11		20.81	20.71	20.74
5	25	0		20.71	20.74	20.77
10	1	0	QPSK	22.75	22.70	22.76
10	1	24		22.69	22.70	22.67
10	1	49		22.67	22.73	22.70
10	25	0		21.67	21.78	21.70
10	25	12		21.80	21.78	21.78
10	25	24		21.80	21.82	21.76
10	50	0		21.78	21.72	21.81
10	1	0	16-QAM	21.90	21.98	21.99
10	1	24		22.04	22.01	22.04
10	1	49		22.01	21.99	21.98
10	25	0		20.74	20.76	20.69
10	25	12		20.84	20.77	20.83
10	25	24		20.74	20.84	20.79
10	50	0		20.82	20.75	20.82



LTE Band 13 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.77	22.75	22.84
5	1	12		22.74	22.80	22.78
5	1	24		22.82	22.80	22.77
5	12	0		21.79	21.76	21.82
5	12	6		21.81	21.89	21.86
5	12	11		21.77	21.84	21.84
5	25	0		21.76	21.85	21.87
5	1	0	16-QAM	22.04	22.05	22.15
5	1	12		22.08	22.13	22.12
5	1	24		22.14	22.08	22.09
5	12	0		20.81	20.81	20.85
5	12	6		20.87	20.90	20.86
5	12	11		20.80	20.83	20.86
5	25	0		20.78	20.88	20.85
10	1	0	QPSK	/	22.85	/
10	1	24		/	22.79	/
10	1	49		/	22.77	/
10	25	0		/	21.77	/
10	25	12		/	21.90	/
10	25	24		/	21.89	/
10	50	0		/	21.90	/
10	1	0	16-QAM	/	22.05	/
10	1	24		/	22.17	/
10	1	49		/	22.09	/
10	25	0		/	20.79	/
10	25	12		/	20.92	/
10	25	24		/	20.86	/
10	50	0		/	20.92	/



LTE Band 26 Part22 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.58	23.53	23.51
1.4	1	2		23.62	23.60	23.58
1.4	1	5		23.54	23.49	23.44
1.4	3	0		23.51	23.59	23.45
1.4	3	1		23.54	23.61	23.48
1.4	3	2		23.50	23.53	23.44
1.4	6	0		22.47	22.60	22.49
1.4	1	0	16-QAM	22.64	22.80	22.31
1.4	1	2		22.71	22.83	22.41
1.4	1	5		22.59	22.77	22.29
1.4	3	0		22.68	22.77	22.65
1.4	3	1		22.73	22.86	22.70
1.4	3	2		22.66	22.80	22.63
1.4	6	0		21.64	21.74	21.71
3	1	0	QPSK	23.52	23.59	23.60
3	1	7		23.62	23.72	23.70
3	1	14		23.43	23.56	23.51
3	8	0		22.56	22.65	22.62
3	8	4		22.59	22.65	22.62
3	8	7		22.52	22.64	22.59
3	15	0		22.54	22.66	22.63
3	1	0	16-QAM	23.01	22.89	22.46
3	1	7		23.09	22.91	22.50
3	1	14		22.96	22.84	22.36
3	8	0		21.59	21.69	21.62
3	8	4		21.58	21.73	21.59
3	8	7		21.55	21.69	21.62
3	15	0		21.55	21.65	21.66



LTE Band 26 Part22 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.56	23.63	23.51
5	1	12		23.53	23.60	23.50
5	1	24		23.60	23.65	23.42
5	12	0		22.56	22.70	22.63
5	12	6		22.56	22.70	22.61
5	12	11		22.49	22.64	22.61
5	25	0		22.51	22.69	22.60
5	1	0	16-QAM	23.11	23.00	22.94
5	1	12		23.09	23.04	22.88
5	1	24		23.09	23.02	22.81
5	12	0		21.57	21.68	21.68
5	12	6		21.56	21.70	21.70
5	12	11		21.58	21.67	21.64
5	25	0		21.48	21.67	21.60
10	1	0	QPSK	23.70	23.60	23.59
10	1	24		23.68	23.63	23.55
10	1	49		23.60	23.53	23.47
10	25	0		22.60	22.62	22.57
10	25	12		22.74	22.73	22.51
10	25	24		22.70	22.68	22.47
10	50	0		22.72	22.69	22.54
10	1	0	16-QAM	23.14	22.80	22.49
10	1	24		23.16	22.85	22.37
10	1	49		23.12	22.77	22.26
10	25	0		21.66	21.64	21.57
10	25	12		21.78	21.72	21.57
10	25	24		21.69	21.63	21.51
10	50	0		21.75	21.73	21.51



LTE Band 26 Part22 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.64	23.70	23.80
15	1	37		23.64	23.67	23.71
15	1	74		23.57	23.49	23.55
15	36	0		22.74	22.65	22.71
15	36	18		22.70	22.75	22.67
15	36	39		22.68	22.66	22.58
15	75	0		22.66	22.67	22.69
15	1	0	16-QAM	23.15	22.93	22.93
15	1	38		23.15	22.88	22.80
15	1	75		23.17	22.73	22.63
15	36	0		21.74	21.74	21.72
15	36	18		21.74	21.83	21.68
15	36	39		21.75	21.73	21.57
15	75	0		21.66	21.71	21.72





LTE Band 26 Part90 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.69	23.68	23.47
1.4	1	2		23.72	23.73	23.54
1.4	1	5		23.63	23.63	23.42
1.4	3	0		23.64	23.55	23.52
1.4	3	1		23.66	23.63	23.54
1.4	3	2		23.64	23.58	23.48
1.4	6	0		22.64	22.57	22.48
1.4	1	0	16-QAM	22.54	22.75	22.77
1.4	1	2		22.58	22.84	22.81
1.4	1	5		22.51	22.70	22.73
1.4	3	0		22.82	22.82	22.71
1.4	3	1		22.89	22.86	22.79
1.4	3	2		22.80	22.75	22.70
1.4	6	0		21.85	21.77	21.64
3	1	0	QPSK	23.70	23.69	23.62
3	1	7		23.70	23.65	23.72
3	1	14		23.71	23.57	23.60
3	8	0		22.72	22.74	22.59
3	8	4		22.76	22.66	22.57
3	8	7		22.79	22.62	22.57
3	15	0		22.73	22.66	22.58
3	1	0	16-QAM	23.21	22.99	22.50
3	1	7		23.26	22.94	22.54
3	1	14		23.20	22.82	22.43
3	8	0		21.78	21.80	21.63
3	8	4		21.75	21.69	21.59
3	8	7		21.85	21.67	21.56
3	15	0		21.76	21.63	21.66



LTE Band 26 Part90 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.71	23.73	23.51
5	1	12		23.70	23.64	23.56
5	1	24		23.68	23.71	23.50
5	12	0		22.76	22.78	22.54
5	12	6		22.83	22.68	22.62
5	12	11		22.77	22.60	22.57
5	25	0		22.80	22.63	22.60
5	1	0	16-QAM	23.31	23.18	22.85
5	1	12		23.35	23.05	22.92
5	1	24		23.21	23.09	22.88
5	12	0		21.77	21.79	21.58
5	12	6		21.89	21.67	21.66
5	12	11		21.81	21.61	21.62
5	25	0		21.74	21.69	21.58
10	1	0	QPSK	/	23.74	/
10	1	24		/	23.65	/
10	1	49		/	23.63	/
10	25	0		/	22.79	/
10	25	12		/	22.69	/
10	25	24		/	22.72	/
10	50	0		/	22.77	/
10	1	0	16-QAM	/	23.31	/
10	1	24		/	23.17	/
10	1	49		/	23.18	/
10	25	0		/	21.84	/
10	25	12		/	21.71	/
10	25	24		/	21.77	/
10	50	0		/	21.79	/



LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.87	21.84	21.88
5	1	12		21.86	21.83	21.88
5	1	24		21.80	21.82	21.82
5	12	0		20.88	20.89	20.90
5	12	6		20.90	20.91	20.94
5	12	11		20.89	20.85	20.90
5	25	0		20.88	20.89	20.91
5	1	0	16-QAM	20.97	20.91	20.92
5	1	12		20.97	20.85	20.96
5	1	24		20.98	20.94	20.98
5	12	0		19.91	19.91	19.89
5	12	6		19.90	19.89	19.93
5	12	11		19.89	19.89	19.88
5	25	0		19.93	19.89	19.94
10	1	0	QPSK	21.99	21.84	21.85
10	1	24		21.99	21.83	21.84
10	1	49		21.94	21.72	21.85
10	25	0		20.99	20.86	20.90
10	25	12		21.01	20.90	20.91
10	25	24		20.98	20.86	20.88
10	50	0		20.98	20.86	20.88
10	1	0	16-QAM	21.08	20.98	20.95
10	1	24		21.08	20.99	20.96
10	1	49		21.05	20.78	20.90
10	25	0		20.03	19.91	19.90
10	25	12		20.03	19.92	19.93
10	25	24		19.97	19.86	19.85
10	50	0		20.04	19.94	19.90



LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.98	21.88	21.95
15	1	37		21.95	21.83	21.82
15	1	74		21.95	21.70	21.81
15	36	0		20.98	20.85	20.84
15	36	18		20.98	20.85	20.88
15	36	39		20.96	20.81	20.86
15	75	0		20.98	20.84	20.86
15	1	0	16-QAM	21.14	21.02	21.06
15	1	38		21.06	21.00	20.92
15	1	75		21.02	20.71	20.93
15	36	0		19.98	19.85	19.83
15	36	18		19.96	19.86	19.84
15	36	39		19.94	19.79	19.79
15	75	0		20.00	19.87	19.87
20	1	0	QPSK	21.93	21.89	21.99
20	1	49		21.86	21.80	21.82
20	1	99		21.73	21.70	21.83
20	50	0		20.94	20.91	20.96
20	50	24		20.91	20.91	20.87
20	50	49		20.87	20.72	20.84
20	100	0		20.92	20.88	20.85
20	1	0	16-QAM	21.03	21.05	21.10
20	1	49		20.93	20.95	20.88
20	1	99		20.93	20.80	20.90
20	50	0		20.06	19.94	19.96
20	50	24		19.97	19.92	19.88
20	50	49		20.05	19.78	19.85
20	100	0		20.05	19.91	19.86



LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	22.47	22.66	22.55
1.4	1	2		22.55	22.73	22.65
1.4	1	5		22.47	22.65	22.55
1.4	3	0		22.51	22.69	22.59
1.4	3	1		22.55	22.73	22.64
1.4	3	2		22.49	22.69	22.58
1.4	6	0		21.47	21.66	21.56
1.4	1	0	16-QAM	21.79	21.97	21.85
1.4	1	2		21.87	22.04	21.92
1.4	1	5		21.80	21.98	21.85
1.4	3	0		21.56	21.73	21.63
1.4	3	1		21.59	21.76	21.68
1.4	3	2		21.54	21.73	21.63
1.4	6	0		20.55	20.73	20.67
3	1	0	QPSK	22.56	22.69	22.61
3	1	7		22.52	22.67	22.62
3	1	14		22.52	22.64	22.58
3	8	0		21.53	21.70	21.63
3	8	4		21.56	21.73	21.65
3	8	7		21.54	21.67	21.64
3	15	0		21.54	21.70	21.64
3	1	0	16-QAM	21.88	22.08	21.92
3	1	7		21.87	22.03	21.93
3	1	14		21.84	22.04	21.89
3	8	0		20.60	20.77	20.68
3	8	4		20.62	20.81	20.71
3	8	7		20.58	20.74	20.67
3	15	0		20.57	20.72	20.65



LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.58	22.74	22.68
5	1	12		22.55	22.72	22.60
5	1	24		22.54	22.68	22.57
5	12	0		21.58	21.74	21.65
5	12	6		21.60	21.75	21.68
5	12	11		21.53	21.71	21.61
5	25	0		21.56	21.75	21.64
5	1	0	16-QAM	21.93	22.14	22.02
5	1	12		21.88	22.03	21.95
5	1	24		21.87	22.04	21.91
5	12	0		20.61	20.76	20.68
5	12	6		20.61	20.77	20.66
5	12	11		20.54	20.74	20.62
5	25	0		20.55	20.74	20.65
10	1	0	QPSK	22.76	22.84	22.72
10	1	24		22.66	22.73	22.62
10	1	49		22.64	22.65	22.56
10	25	0		21.72	21.78	21.69
10	25	12		21.72	21.76	21.65
10	25	24		21.69	21.71	21.63
10	50	0		21.72	21.73	21.66
10	1	0	16-QAM	22.06	22.15	22.07
10	1	24		22.03	22.08	21.97
10	1	49		21.97	21.99	21.87
10	25	0		20.74	20.76	20.70
10	25	12		20.74	20.77	20.68
10	25	24		20.71	20.70	20.61
10	50	0		20.75	20.74	20.68

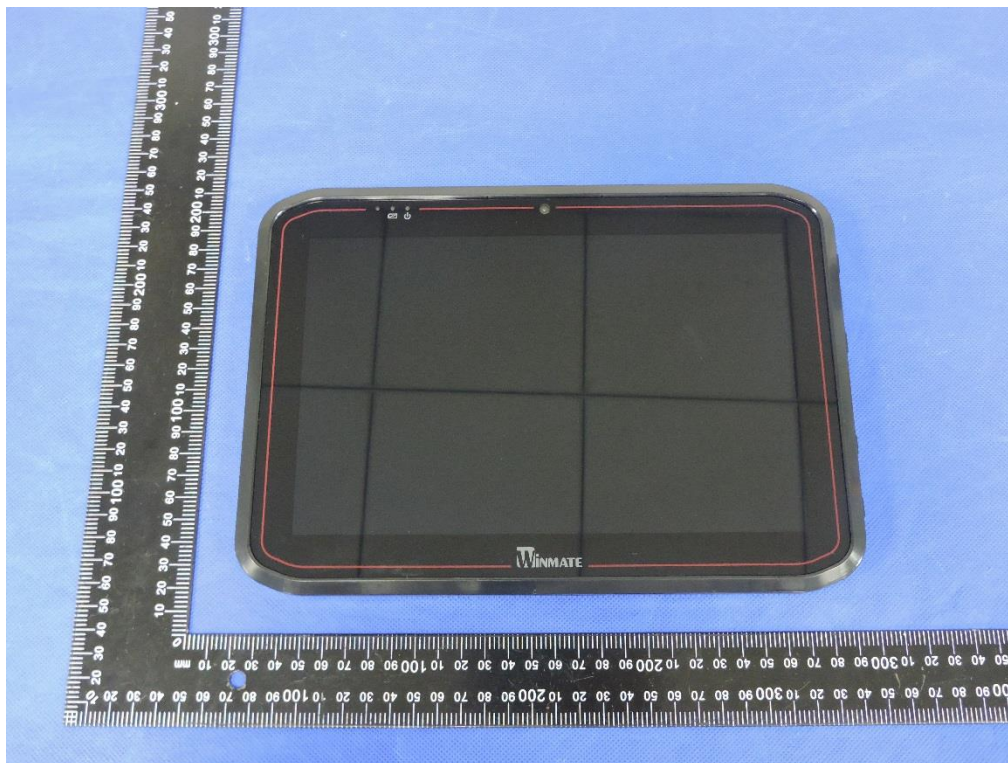


LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.81	22.88	22.93
15	1	37		22.65	22.71	22.63
15	1	74		22.69	22.70	22.57
15	36	0		21.77	21.80	21.74
15	36	18		21.72	21.76	21.70
15	36	39		21.70	21.72	21.61
15	75	0		21.75	21.78	21.66
15	1	0	16-QAM	22.18	22.22	22.27
15	1	38		22.04	22.09	21.94
15	1	75		21.96	22.03	21.89
15	36	0		20.79	20.82	20.76
15	36	18		20.78	20.76	20.67
15	36	39		20.69	20.72	20.60
15	75	0		20.76	20.78	20.68
20	1	0	QPSK	22.73	22.99	22.96
20	1	49		22.55	22.71	22.60
20	1	99		22.55	22.66	22.51
20	50	0		21.68	21.84	21.86
20	50	24		21.62	21.77	21.72
20	50	49		21.60	21.70	21.61
20	100	0		21.64	21.76	21.71
20	1	0	16-QAM	22.10	22.28	22.27
20	1	49		21.90	22.05	21.93
20	1	99		21.90	21.95	21.86
20	50	0		20.67	20.85	20.90
20	50	24		20.63	20.77	20.68
20	50	49		20.60	20.70	20.61
20	100	0		20.62	20.76	20.67

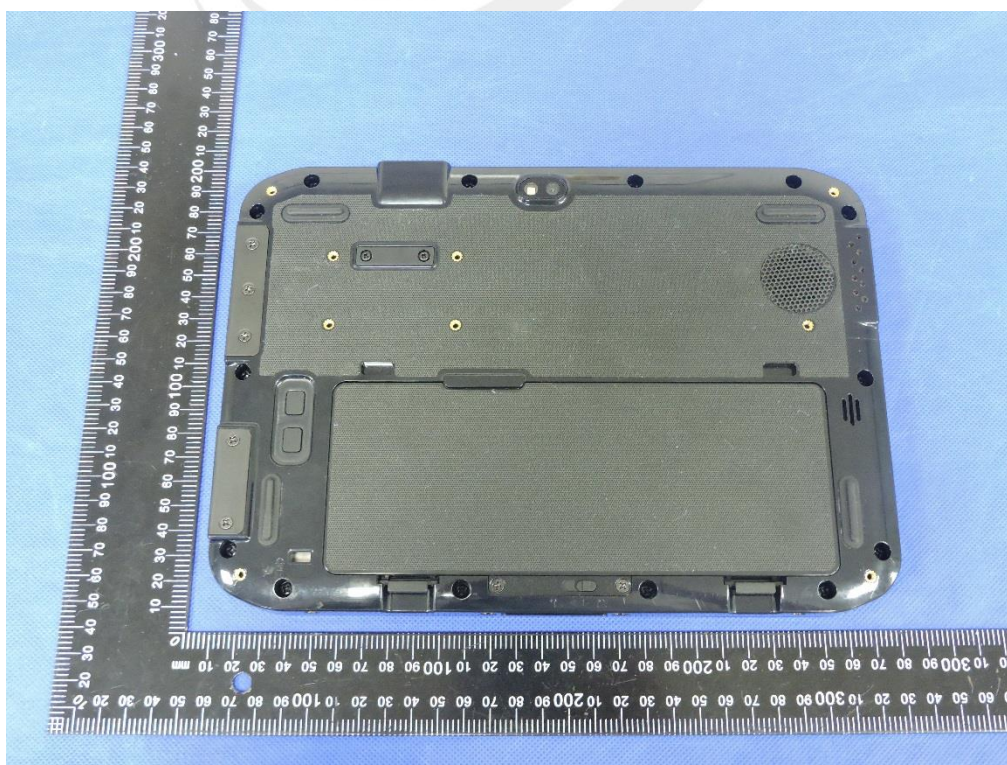
11. EUT And Test Setup Photo

11.1 EUT Photo

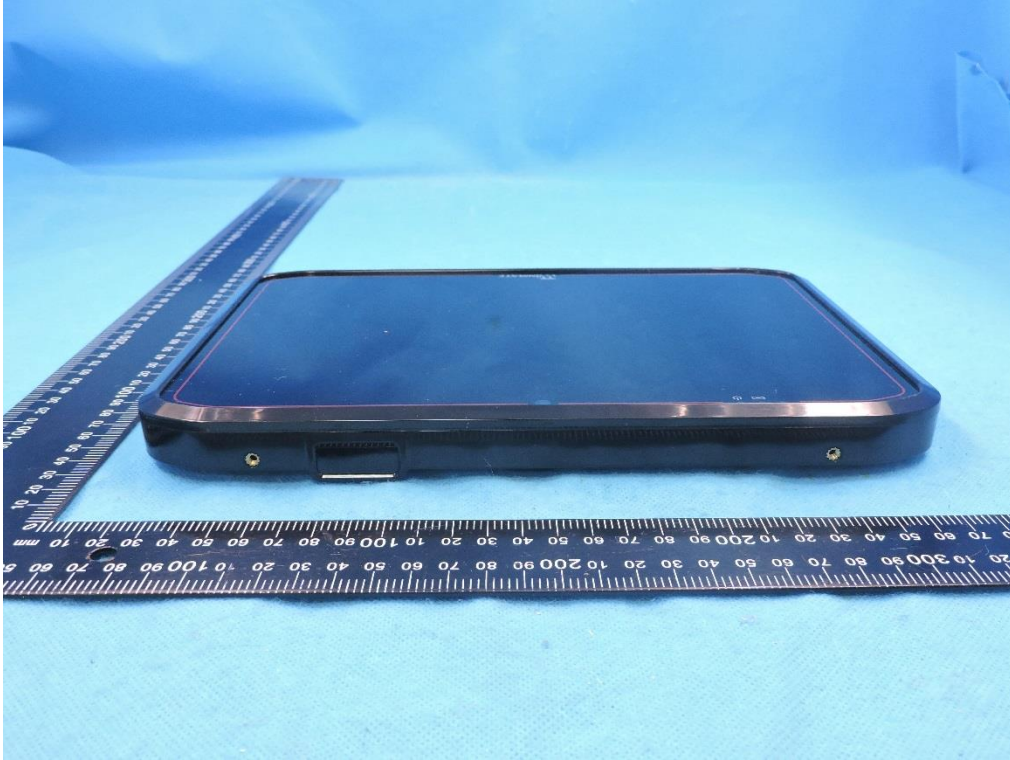
Front side



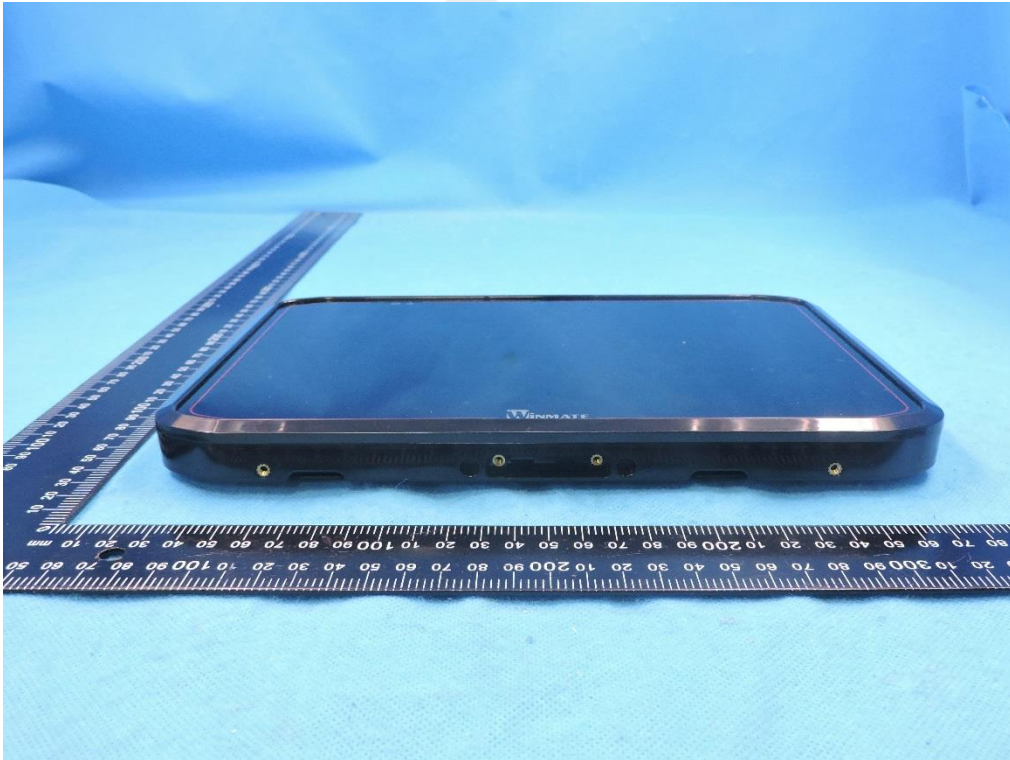
Back side



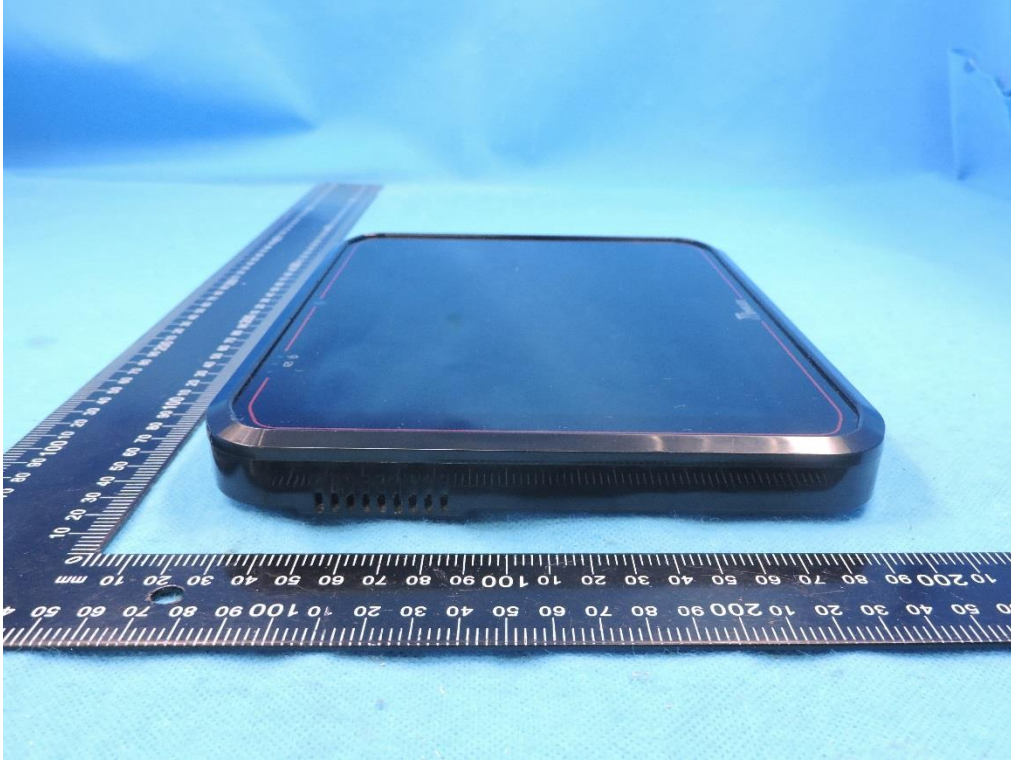
Top side



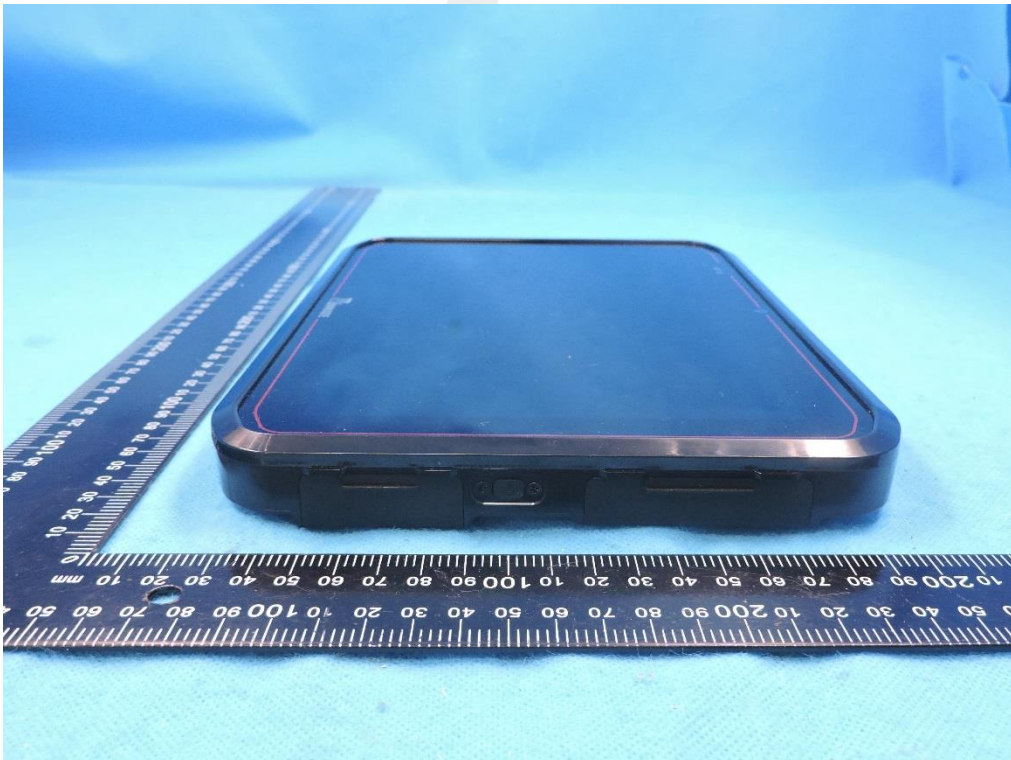
Bottom side



Left side



Right side

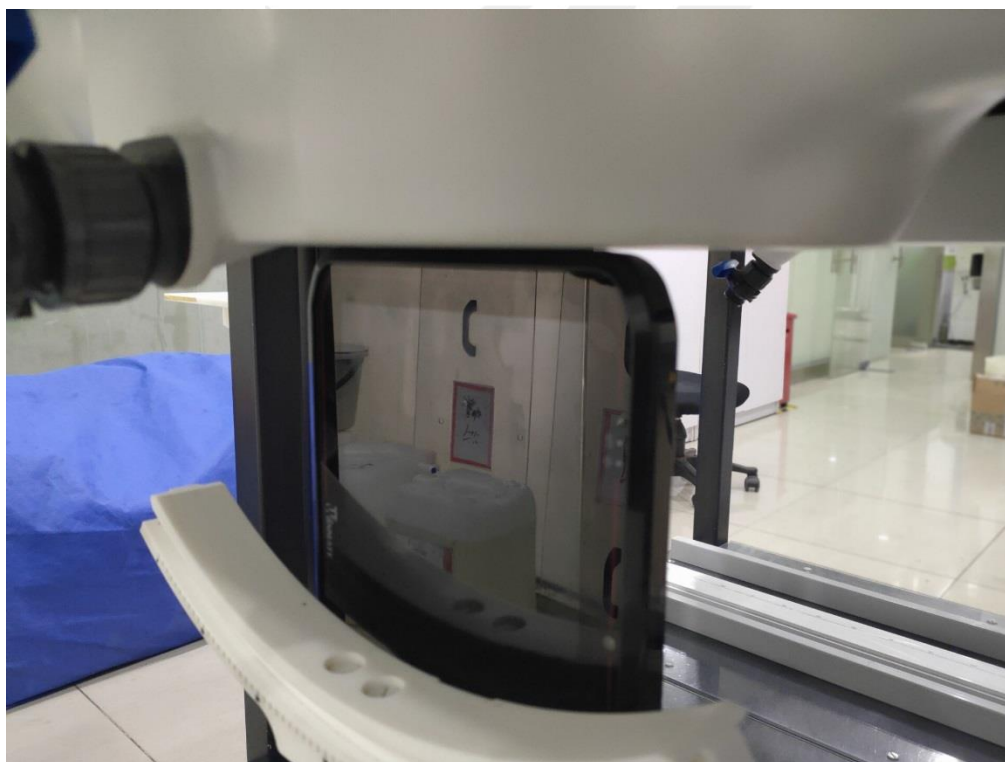


11.2 Setup Photo

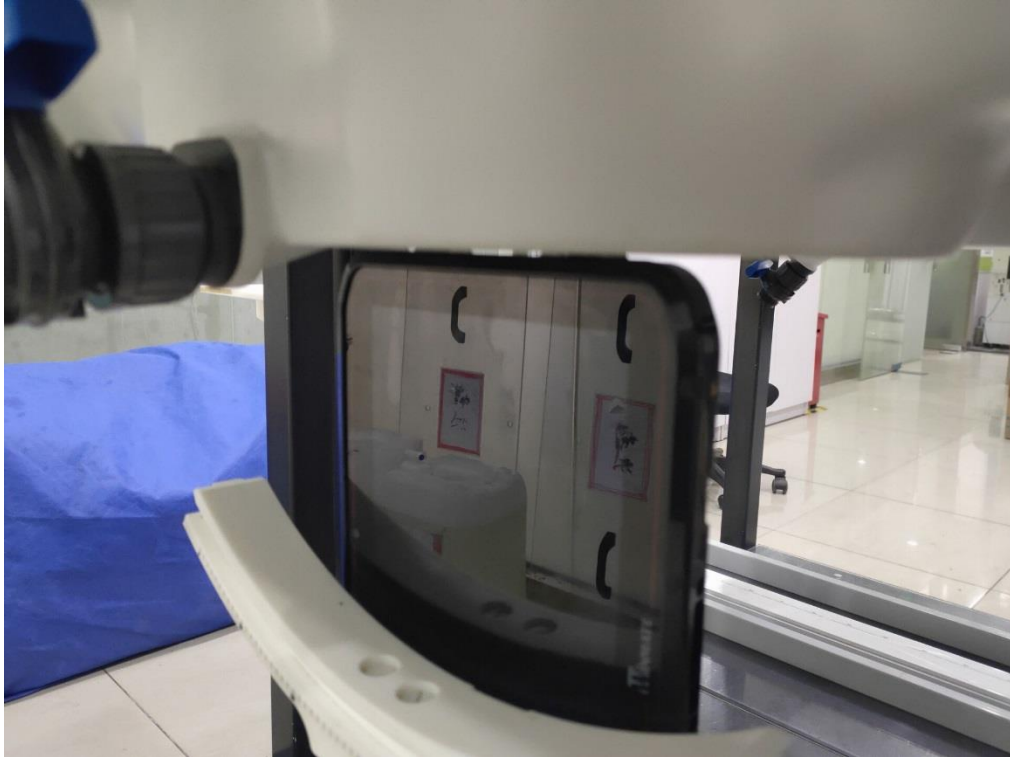
Body Back side(separation distance is 0mm)



Body Left side(separation distance is 0mm)



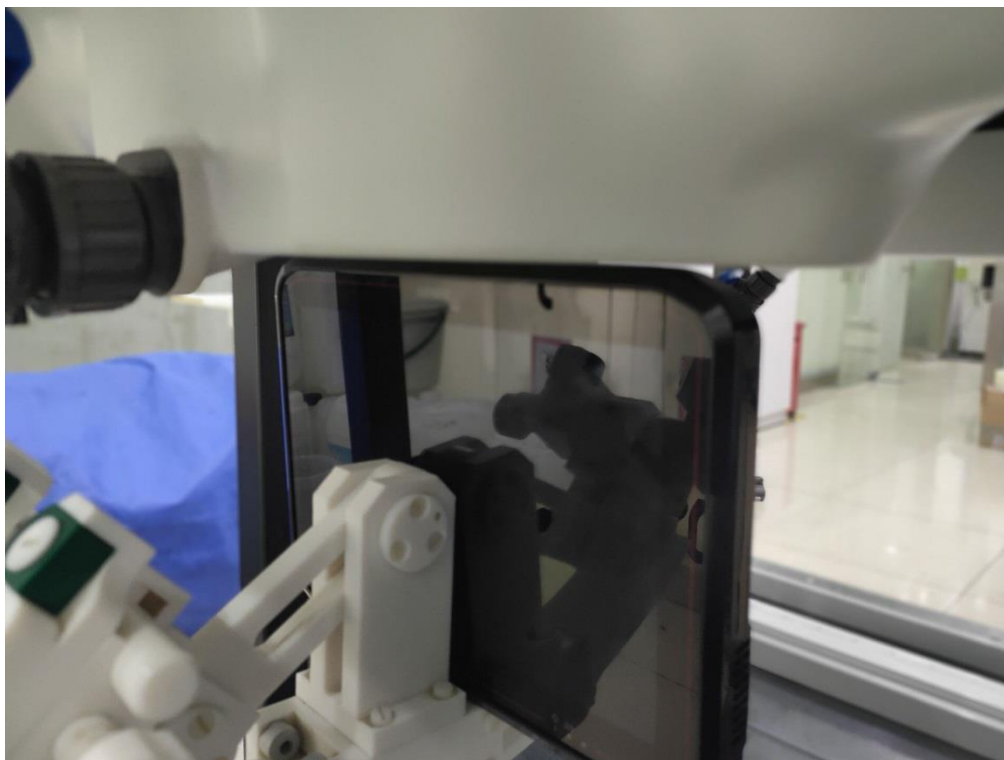
Body Right side(separation distance is 0mm)



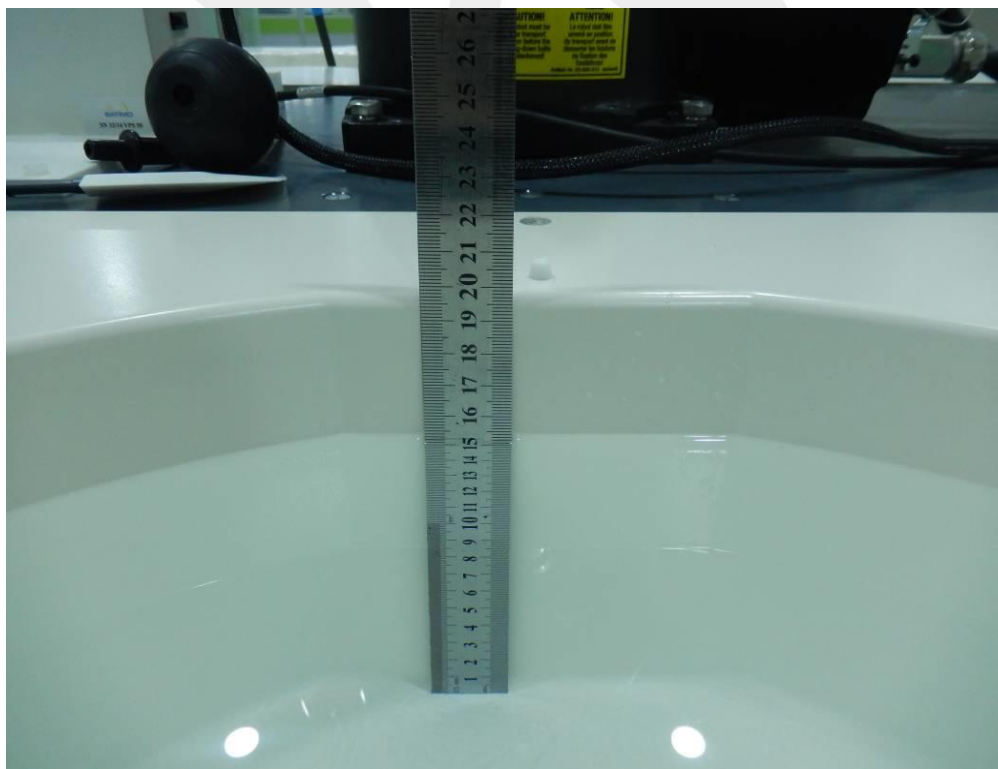
Body Bottom side(separation distance is 0mm)



Body Top side(separation distance is 0mm)



Liquid depth (15 cm)





12. SAR Result Summary

12.1 Body-worn SAR

Band	Model	Test Position	Freq.	SAR (1g) (W/kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
2.4G WLAN ANT-A	802.11b	Back Side	2437	0.102	-0.37	15.00	14.79	0.107	/
		Right Edge	2437	0.113	2.83	15.00	14.79	0.119	/
		Top Edge	2412	0.256	2.78	15.00	14.71	0.274	/
		Top Edge	2437	0.283	2.78	15.00	14.79	0.297	1
		Top Edge	2462	0.254	2.78	15.00	14.74	0.270	/
2.4G WLAN ANT-B	802.11b	Back Side	2437	0.202	-0.37	15.00	14.61	0.221	/
		Left Edge	2437	0.131	0.20	15.00	14.61	0.143	/
		Top Edge	2437	0.256	2.78	15.00	14.61	0.280	2
2.4G WLAN ANT-A	802.11ax20	Back Side	2462	0.077	-0.37	19.00	18.74	0.082	/
		Right Edge	2462	0.059	2.83	19.00	18.74	0.063	/
		Top Edge	2462	0.150	2.78	19.00	18.74	0.159	3
2.4G WLAN ANT-B	802.11ax20	Back Side	2462	0.092	-0.37	19.00	18.74	0.098	/
		Left Edge	2462	0.062	0.14	19.00	18.74	0.066	/
		Top Edge	2462	0.143	2.78	19.00	18.74	0.152	4
5.2GHz WLAN ANT-A	802.11a	Back Side	5240	0.086	-3.54	10.50	10.00	0.096	5
		Right Side	5240	0.062	-2.80	10.50	10.00	0.070	/
		Top Side	5240	0.054	-0.76	10.50	10.00	0.061	/
5.2GHz WLAN ANT-B	802.11a	Back Side	5200	0.125	-1.18	10.00	9.88	0.129	/
		Left Side	5200	0.102	0.14	10.00	9.88	0.105	/
		Top Side	5200	0.258	-2.57	10.00	9.88	0.265	6
5.2GHz WLAN ANT-A	802.11 n-HT40	Back Side	5230	0.082	-3.85	13.50	13.32	0.085	7
		Right Side	5230	0.041	-1.82	13.50	13.32	0.043	/
		Top Side	5230	0.052	-1.21	13.50	13.32	0.054	/
5.2GHz WLAN ANT-B	802.11 n-HT40	Back Side	5230	0.152	2.13	13.50	13.32	0.158	/
		Left Side	5230	0.100	3.27	13.50	13.32	0.104	/
		Top Side	5190	0.211	-2.79	13.50	13.30	0.221	/
		Top Side	5230	0.257	-0.57	13.50	13.32	0.268	8
5.3GHz WLAN ANT-A	802.11a	Back Side	5320	0.082	-2.33	11.00	10.58	0.090	9
		Right Side	5320	0.041	-2.83	11.00	10.58	0.045	/
		Top Side	5320	0.050	0.90	11.00	10.58	0.055	/



5.3GHz WLAN ANT-B	802.11a	Back Side	5320	0.126	0.42	10.50	10.06	0.139	/
		Left Side	5320	0.113	0.60	10.50	10.06	0.125	/
		Top Side	5320	0.239	-0.87	10.50	10.06	0.264	10
5.3GHz WLAN ANT-A	802.11ac-VHT160	Back Side	5250	0.097	-0.82	14.00	13.74	0.103	11
		Right Side	5250	0.052	-3.38	14.00	13.74	0.055	/
		Top Side	5250	0.070	-2.11	14.00	13.74	0.074	/
5.3GHz WLAN ANT-B	802.11ac-VHT160	Back Side	5250	0.144	-1.82	14.00	13.74	0.153	/
		Left Side	5250	0.136	0.08	14.00	13.74	0.144	/
		Top Side	5250	0.240	-0.94	14.00	13.74	0.255	12
5.6GHz WLAN ANT-A	802.11a	Back Side	5500	0.133	0.11	11.00	10.86	0.137	13
		Right Side	5500	0.121	3.64	11.00	10.86	0.125	/
		Top Side	5500	0.088	-1.36	11.00	10.86	0.091	/
5.6GHz WLAN ANT-B	802.11a	Back Side	5500	0.121	-2.75	11.00	10.78	0.127	/
		Left Side	5500	0.102	3.53	11.00	10.78	0.107	/
		Top Side	5500	0.194	-2.86	11.00	10.78	0.204	14
5.6GHz WLAN ANT-A	802.11 n-HT40	Back Side	5510	0.125	3.90	14.50	14.23	0.133	15
		Right Side	5510	0.082	-3.05	14.50	14.23	0.087	/
		Top Side	5510	0.098	2.88	14.50	14.23	0.104	/
5.6GHz WLAN ANT-B	802.11 n-HT40	Back Side	5510	0.125	2.99	14.50	14.23	0.133	/
		Left Side	5510	0.102	-0.90	14.50	14.23	0.109	/
		Top Side	5510	0.204	3.87	14.50	14.23	0.217	16
5.8GHz WLAN ANT-A	802.11a	Back Side	5785	0.036	3.97	11.00	10.51	0.040	17
		Right Side	5785	0.014	-0.95	11.00	10.51	0.016	/
		Top Side	5785	0.024	0.96	11.00	10.51	0.027	/
5.8GHz WLAN ANT-B	802.11a	Back Side	5745	0.036	-2.26	10.50	10.44	0.037	/
		Left Side	5745	0.041	2.62	10.50	10.44	0.042	/
		Top Side	5745	0.076	-0.91	10.50	10.44	0.077	18
5.8GHz WLAN ANT-A	802.11 n-HT40	Back Side	5755	0.071	-2.75	14.00	13.75	0.075	19
		Right Side	5755	0.032	-3.84	14.00	13.75	0.034	/
		Top Side	5755	0.015	-3.88	14.00	13.75	0.016	/
5.8GHz WLAN ANT-B	802.11 n-HT40	Back Side	5755	0.062	-0.41	14.00	13.75	0.066	20
		Left Side	5755	0.052	-3.05	14.00	13.75	0.055	/
		Top Side	5755	0.055	2.88	14.00	13.75	0.058	/



Position	ANT	Max. 1-g SAR	1-g Sum SAR
		(W/kg)	(W/kg)
2.4GHz WLAN 802.11ax20 ANT-A+B	ANT-A	0.159	0.311
	ANT-B	0.152	
5.2GHz WLAN 802.11 n-HT40 ANT-A+B	ANT-A	0.085	0.353
	ANT-B	0.268	
5.3GHz WLAN 802.11ac-VHT160 ANT-A+B	ANT-A	0.103	0.358
	ANT-B	0.255	
5.6GHz WLAN 802.11 n-HT40 ANT-A+B	ANT-A	0.133	0.350
	ANT-B	0.217	
5.6GHz WLAN 802.11 n-HT40 ANT-A+B	ANT-A	0.075	0.141
	ANT-B	0.066	

Band	Model	Test Position	Freq.	SAR (1g) (W/kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
WCDMA Band 2	RMC	Back Side	1852.4	0.42	-0.72	23.00	22.58	0.463	21
		Left Side	1852.4	0.214	2.17	23.00	22.58	0.236	/
		Bottom Side	1852.4	0.102	-1.37	23.00	22.58	0.112	/
WCDMA Band 4	RMC	Back Side	1712.4	0.441	3.22	23.00	22.83	0.459	/
		Back Side	1736.6	0.494	0.10	23.00	22.76	0.522	22
		Back Side	1752.6	0.423	-2.72	23.00	22.83	0.440	/
		Left Side	1740	0.354	-2.22	23.00	22.83	0.368	/
		Bottom Side	1740	0.210	2.98	23.00	22.83	0.218	/
WCDMA Band 5	RMC	Back Side	846.6	0.136	1.62	23.00	22.86	0.140	23
		Left Side	846.6	0.121	0.81	23.00	22.86	0.125	/
		Bottom Side	846.6	0.082	0.45	23.00	22.86	0.085	/
BT	GFSK	Back Side	2480	0.052	-2.50	6.50	6.22	0.055	24
		Left Side	2480	0.031	-2.41	6.50	6.22	0.033	/
		Top Side	2480	0.028	1.62	6.50	6.22	0.030	/



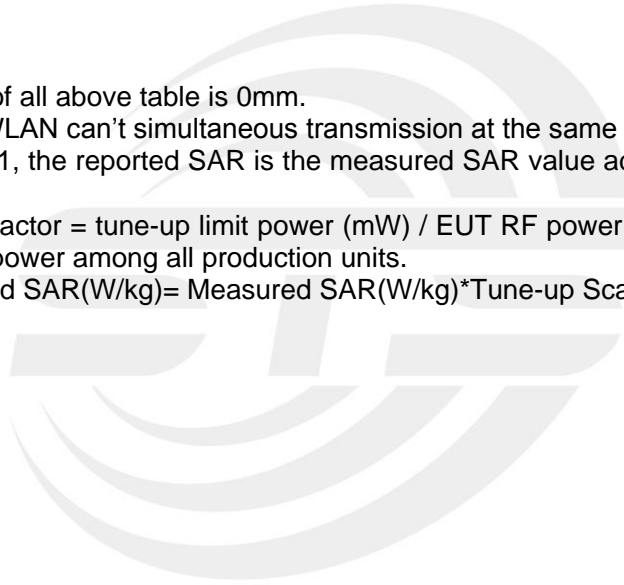
Band	BW (MHz)	Mod.	RB Size	RB offset	Test Position	Freq.	Result 1g (W/Kg)	Power Drift(%)	Max. Turn-up Power(dBm)	Meas. Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
LTE Band 2	20M	QPSK	1	0	Back Side	1860	0.368	-1.90	23	22.55	0.408	25
			50	0	Back Side	1860	0.341	1.77	22	21.36	0.395	/
			1	0	Left Side	1860	0.302	-2.31	23	22.55	0.335	/
			50	0	Left Side	1860	0.285	-2.90	22	21.36	0.330	/
			1	0	Bottom Side	1860	0.154	-0.46	23	22.55	0.171	/
			50	0	Bottom Side	1860	0.126	1.29	22	21.36	0.146	/
LTE Band 7	20M	QPSK	1	0	Back Side	2560	0.030	1.64	22	21.82	0.031	26
			50	0	Back Side	2560	0.021	-3.10	21	20.83	0.022	/
			1	0	Left Side	2560	0.022	-2.55	22	21.82	0.023	/
			50	0	Left Side	2560	0.018	0.60	21	20.83	0.019	/
			1	0	Bottom Side	2560	0.012	0.36	22	21.82	0.013	/
			50	0	Bottom Side	2560	0.014	0.17	21	20.83	0.015	/
LTE Band 12	10M	QPSK	1	0	Back Side	711	0.236	2.39	23	22.76	0.249	27
			25	0	Back Side	707.5	0.214	3.52	22	21.82	0.223	/
			1	0	Left Side	711	0.159	1.74	23	22.76	0.168	/
			25	0	Left Side	707.5	0.169	3.94	22	21.82	0.176	/
			1	0	Bottom Side	711	0.141	0.11	23	22.76	0.149	/
			25	0	Bottom Side	707.5	0.123	-0.01	22	21.82	0.128	/
LTE Band 13	10M	QPSK	1	0	Back Side	782	0.204	-3.15	23	22.85	0.211	28
			25	0	Back Side	782	0.185	-2.51	22	21.9	0.189	/
			1	0	Left Side	782	0.141	0.21	23	22.85	0.146	/
			25	0	Left Side	782	0.125	-3.90	22	21.9	0.128	/
			1	0	Bottom Side	782	0.111	-3.85	23	22.85	0.115	/
			25	0	Bottom Side	782	0.102	3.59	22	21.9	0.104	/
LTE Band 26	15M	QPSK	1	0	Back Side	841.5	0.143	2.26	24	23.8	0.150	29
			36	0	Back Side	831.5	0.125	-3.88	23	22.75	0.132	/
			1	0	Left Side	841.5	0.102	1.57	24	23.8	0.107	/
			36	0	Left Side	831.5	0.098	-2.88	23	22.75	0.104	/
			1	0	Bottom Side	841.5	0.085	1.45	24	23.8	0.089	/
			36	0	Bottom Side	831.5	0.074	-3.50	23	22.75	0.078	/



LTE Band 41	20M	QPSK	1	0	Back Side	2680	0.019	2.67	22	21.99	0.019	30
			50	0	Back Side	2680	0.018	-3.85	21	20.96	0.018	/
			1	0	Left Side	2680	0.014	-0.79	22	21.99	0.014	/
			50	0	Left Side	2680	0.014	-2.44	21	20.96	0.014	/
			1	0	Bottom Side	2680	0.009	-2.07	22	21.99	0.009	/
			50	0	Bottom Side	2680	0.008	-3.45	21	20.96	0.008	/
LTE Band 66	20M	QPSK	1	0	Back Side	1755	0.208	0.84	23	22.99	0.208	31
			50	0	Back Side	1770	0.199	-1.39	22	21.86	0.206	/
			1	0	Left Side	1755	0.151	3.54	23	22.99	0.151	/
			50	0	Left Side	1770	0.141	-3.84	22	21.86	0.146	/
			1	0	Bottom Side	1755	0.125	0.49	23	22.99	0.125	/
			50	0	Bottom Side	1770	0.136	1.88	22	21.86	0.140	/

Note:

1. The test separation of all above table is 0mm.
2. The Bluetooth and WLAN can't simultaneous transmission at the same time.
3. Per KDB 447498 D01, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For WWAN: Scaled SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor





12.2 Simultaneous Multi-band Transmission Evaluation:

Application Simultaneous Transmission information:

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

NOTE:

1. Bluetooth and WLAN can't simultaneous transmission at the same time.
2. For simultaneous transmission at body exposure position, 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 Appendix E, 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:
 $SAR_{est} = 1.6 \cdot P_{ant} / P_{th}$ [W/kg].
 P_{ant} is maximum time-averaged power or effective radiated power (ERP), whichever is greater, and P_{th} is defined in Formula KDB 447498 (B.2).

Simultaneous Mode	Position	Mode	Max. 1-g SAR	1-g Sum SAR
			(W/kg)	(W/kg)
WCDMA + 2.4G WLAN	Body	WCDMA	0.522	0.577
		2.4G WLAN	0.055	
WCDMA + Bluetooth	Body	WCDMA	0.522	0.833
		Bluetooth	0.311	
WCDMA + 5G WLAN	Body	WCDMA	0.522	0.880
		5G WLAN	0.358	
LTE + 2.4G WLAN	Body	LTE	0.408	0.463
		2.4G WLAN	0.055	
LTE + Bluetooth	Body	LTE	0.408	0.719
		Bluetooth	0.311	
LTE + 5G WLAN	Body	LTE	0.408	0.766
		5G WLAN	0.358	

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

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



13. Equipment List

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
750MHz Dipole	MVG	SID750	SN 30/14 DIP0G750-331	2020.07.14	2023.07.13
835MHz Dipole	MVG	SID835	SN 30/14 DIP0G835-332	2020.07.14	2023.07.13
1800MHz Dipole	MVG	SID1800	SN 30/14 DIP1G800-329	2020.07.14	2023.07.13
1900MHz Dipole	MVG	SID1900	SN 30/14 DIP1G900-333	2020.07.14	2023.07.13
2450MHz Dipole	MVG	SID2450	SN 30/14 DIP2G450-335	2020.07.14	2023.07.13
2600MHz Dipole	MVG	SID2600	SN 30/14 DIP2G600-336	2020.07.14	2023.07.13
Waveguide	SATIMO	SWG5500	SN 13/14 WGA32	2020.07.14	2023.07.13
E-Field Probe	MVG	SSE2	SN 07/21 EPGO352	2022.02.28	2023.02.27
Dielectric Probe Kit	MVG	SCLMP	SN 32/14 OCPG67	2022.11.15	2023.11.14
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	99899	DC-18GHz	N/A	N/A
Directional coupler	Narda	4226-20	3305	N/A	N/A
Network Analyzer	Agilent	8753ES	US38432810	2022.09.28	2023.09.27
Multi Meter	Keithley	Multi Meter 2000	4050073	2022.09.29	2023.09.28
Signal Generator	Agilent	N5182A	MY50140530	2022.09.28	2023.09.27
Wireless Communication Test Set	Agilent	8960-E5515C	MY48360751	2022.09.28	2023.09.27
Wireless Communication Test Set	R&S	CMW500	156324	2022.09.29	2023.09.28
Power Amplifier	DESAY	ZHL-42W	9638	2022.10.08	2023.10.07
Power Meter	R&S	NRP	100510	2022.09.28	2023.09.27
Power Sensor	R&S	NRP-Z11	101919	2022.09.28	2023.09.27
Power Sensor	Keysight	U2021XA	MY56280002	2022.09.29	2023.09.28
Temperature hygrometer	SuWei	SW-108	N/A	2022.09.30	2023.09.29
Thermograph	Elitech	RC-4	S/N EF7176501537	2022.09.30	2023.09.29

Note:

Per KDB 865664 D01, Dipole SAR Validation Verification, STS LAB has adopted 3 years calibration intervals. On annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole
 2. System validation with specific dipole is within 10% of calibrated value
- Return-loss in within 20% of calibrated measurement

Appendix A. System Validation Plots

System Performance Check Data (2450MHz)

Type: Phone measurement (Complete)

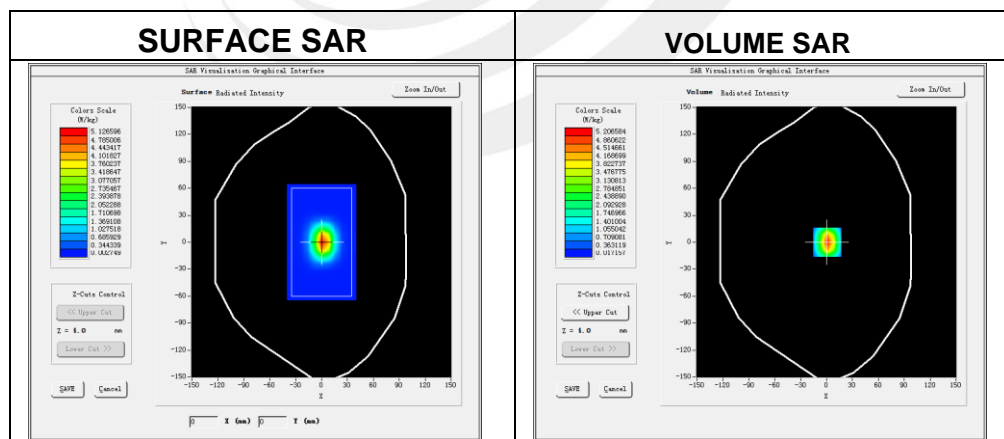
Area scan resolution: dx=8mm, dy=8mm

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

Date of measurement: 2021-12-03

Experimental conditions.

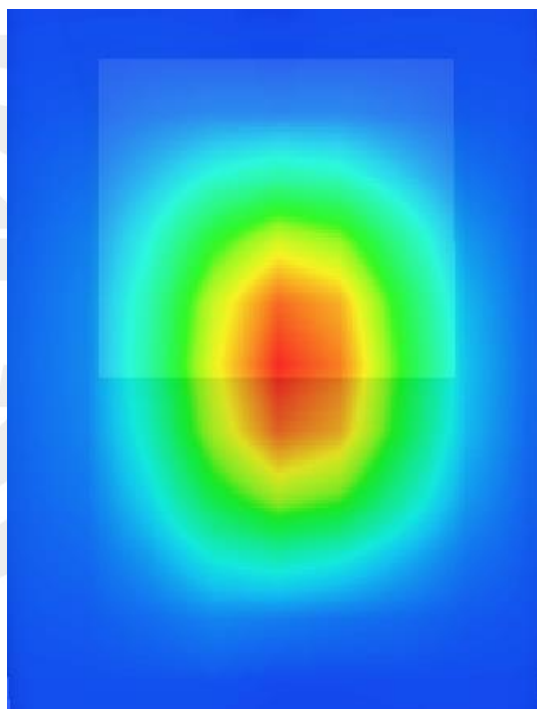
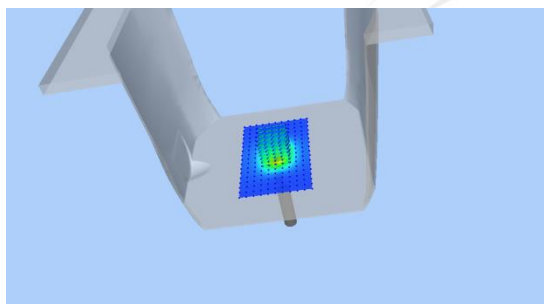
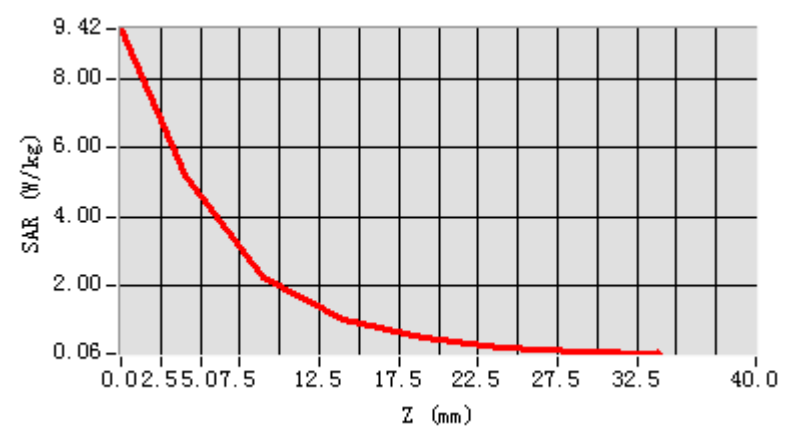
Device Position	Validation plane
Band	2450 MHz
Channels	-
Signal	CW
Frequency (MHz)	2450
Relative permittivity	38.84
Conductivity (S/m)	1.80
Probe	SN 07/21 EPGO352
ConvF	1.75
Crest factor:	1:1



Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.366721
SAR 1g (W/Kg)	5.180420

Z Axis Scan



System Performance Check Data (5200MHz)

Type: Dipole measurement (Complete)

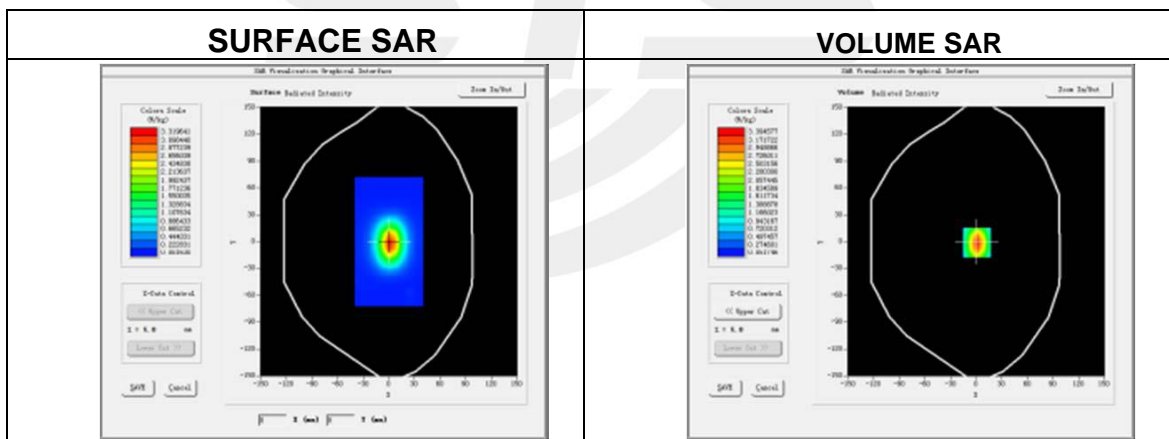
Area scan resolution: dx=8mm,dy=8mm

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

Date of measurement: 2022-06-06

Experimental conditions.

Device Position	Validation plane
Band	5200 MHz
Channels	-
Signal	CW
Frequency (MHz)	5200
Relative permittivity	36.03
Conductivity (S/m)	4.60
Probe	SN 07/21 EPGO352
ConvF	1.47
Crest factor:	1:1

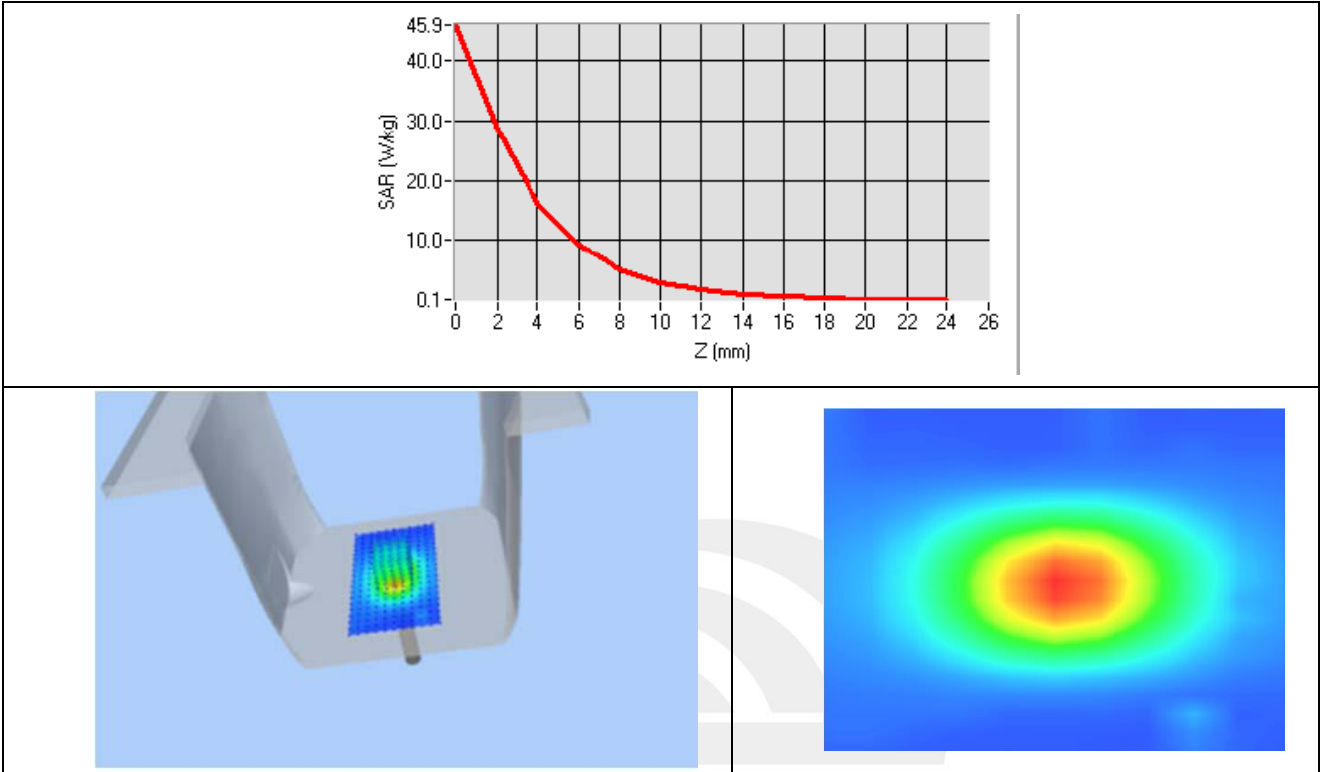


Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	5.688544
SAR 1g (W/Kg)	15.905153



Z Axis Scan



System Performance Check Data(5300MHz)

Type: Dipole measurement (Complete)

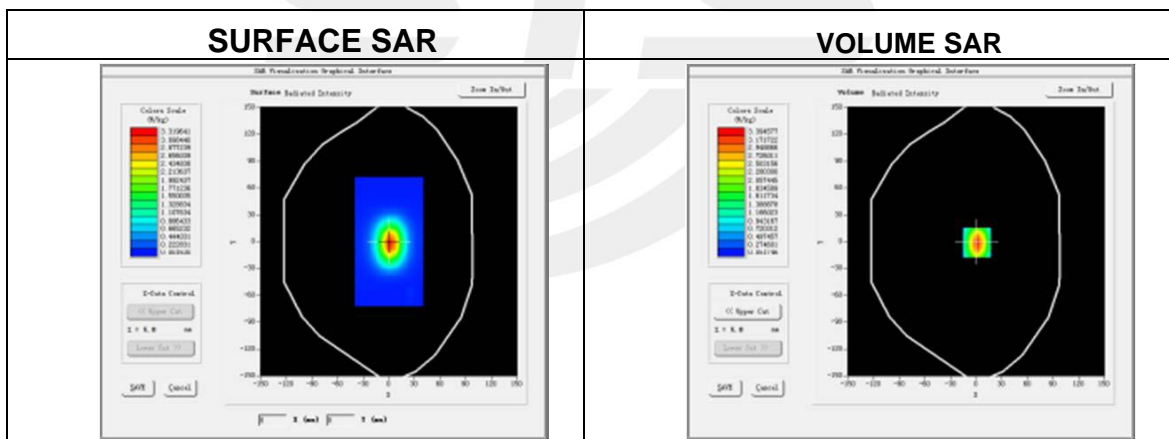
Area scan resolution: dx=8mm,dy=8mm

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

Date of measurement: 2022-06-07

Experimental conditions.

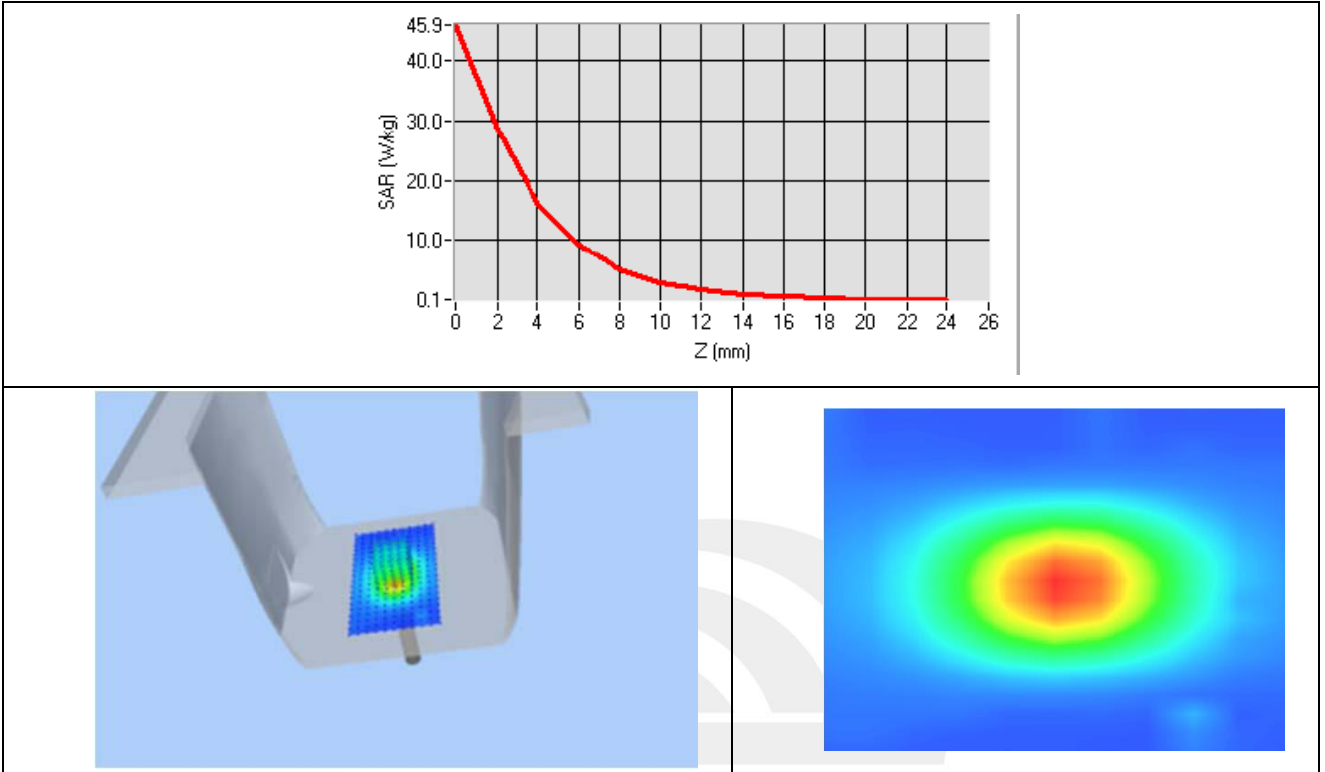
Device Position	Validation plane
Band	5300 MHz
Channels	-
Signal	CW
Frequency (MHz)	5300
Relative permittivity	36.57
Conductivity (S/m)	4.76
Probe	SN 07/21 EPGO352
ConvF	1.47
Crest factor:	1:1



Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	6.188274
SAR 1g (W/Kg)	16.650765

Z Axis Scan



System Performance Check Data (5600MHz)

Type: Dipole measurement (Complete)

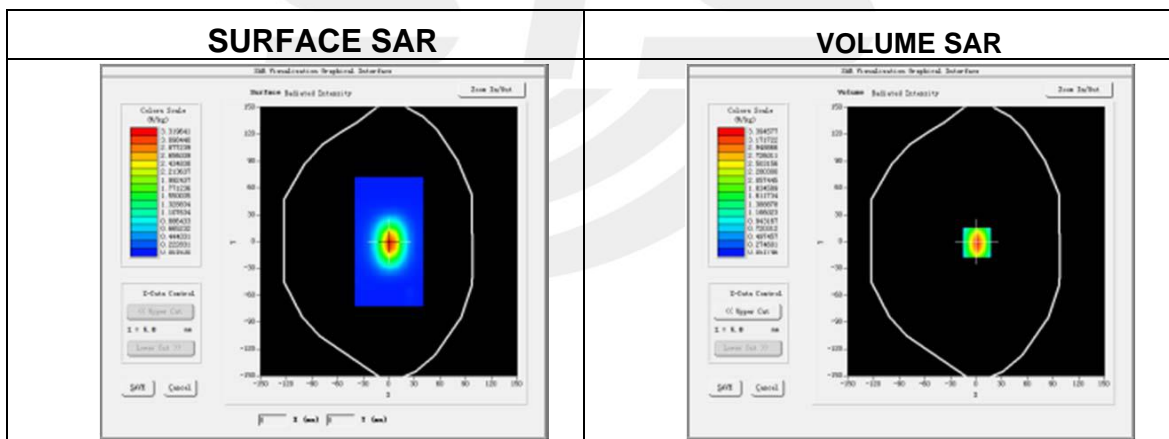
Area scan resolution: dx=8mm,dy=8mm

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

Date of measurement: 2022-06-09

Experimental conditions.

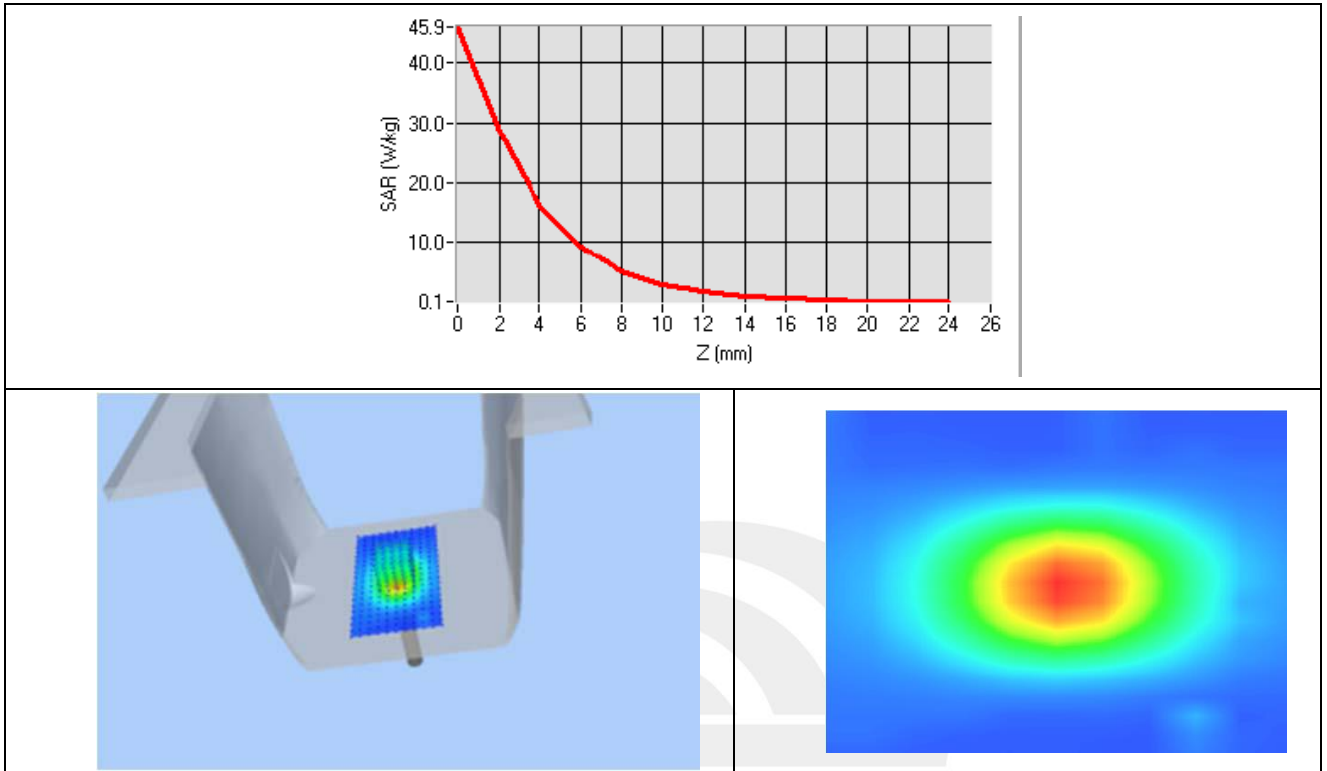
Device Position	Validation plane
Band	5600 MHz
Channels	-
Signal	CW
Frequency (MHz)	5600
Relative permittivity	36.18
Conductivity (S/m)	4.96
Probe	SN 07/21 EPGO352
ConvF	1.47
Crest factor:	1:1



Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	5.720574
SAR 1g (W/Kg)	17.376767

Z Axis Scan



System Performance Check Data (5800MHz)

Type: Dipole measurement (Complete)

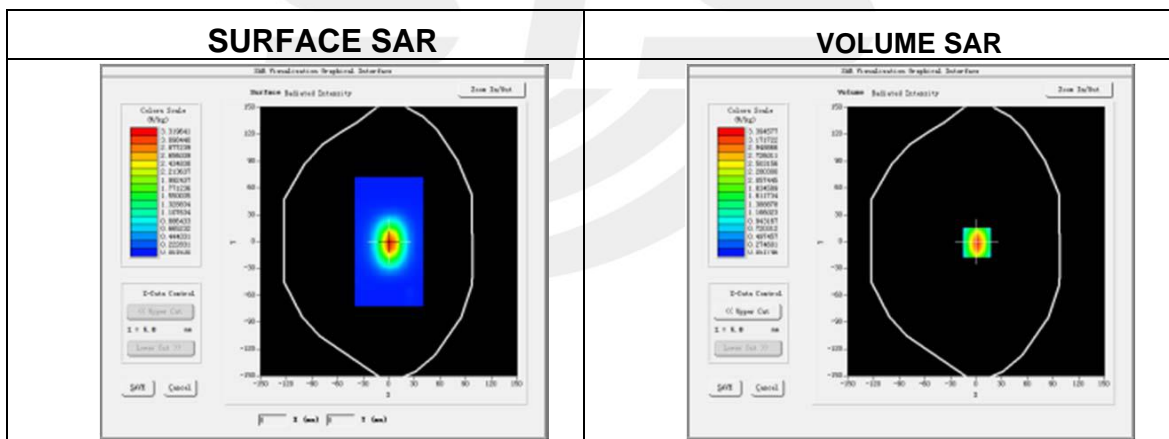
Area scan resolution: dx=8mm,dy=8mm

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

Date of measurement: 2022-06-10

Experimental conditions.

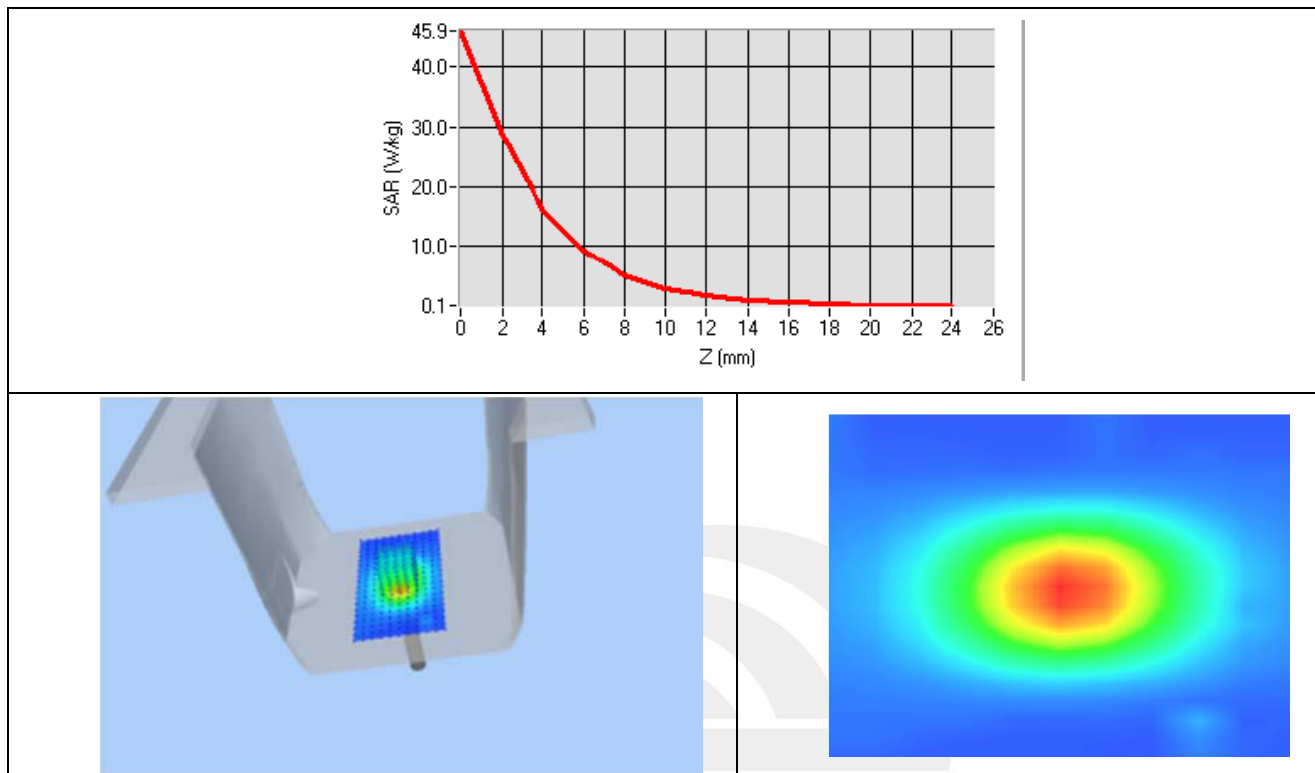
Device Position	Validation plane
Band	5800MHz
Channels	-
Signal	CW
Frequency (MHz)	5800
Relative permittivity	36.21
Conductivity (S/m)	5.26
Probe	SN 07/21 EPGO352
ConvF	1.47
Crest factor:	1:1



Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	6.173483
SAR 1g (W/Kg)	18.141361

Z Axis Scan



**System Performance Check Data (750MHz)**

Type: Phone measurement (Complete)

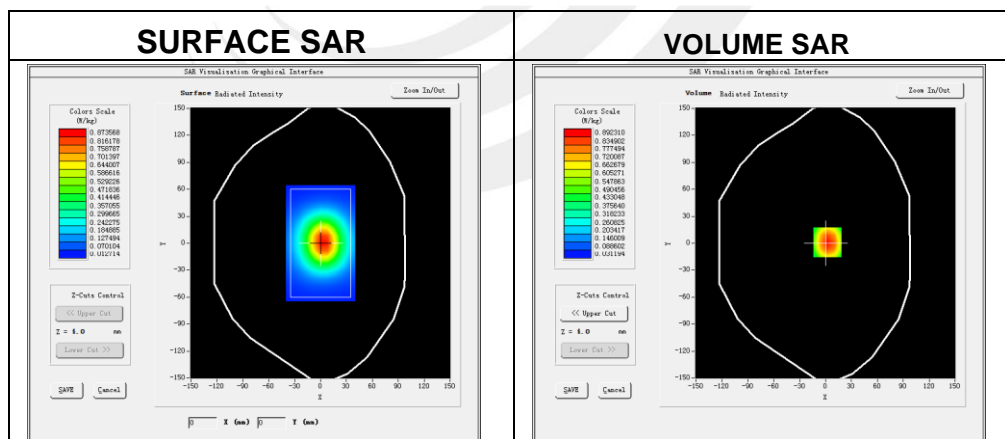
Area scan resolution: dx=8mm, dy=8mm

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

Date of measurement: 2023-02-06

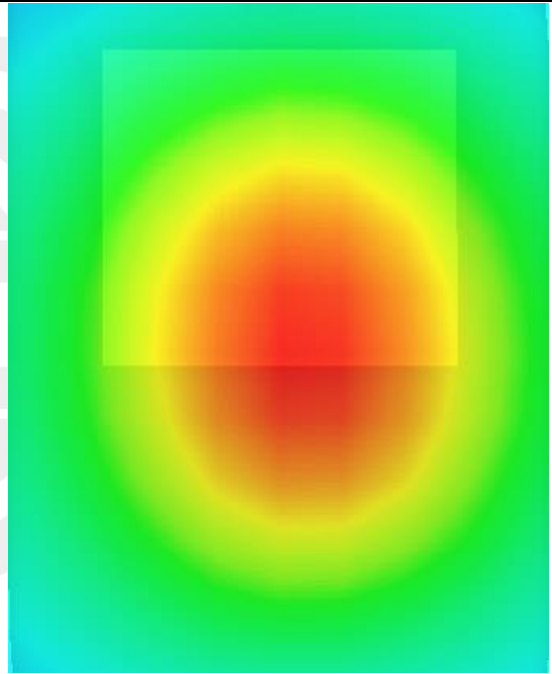
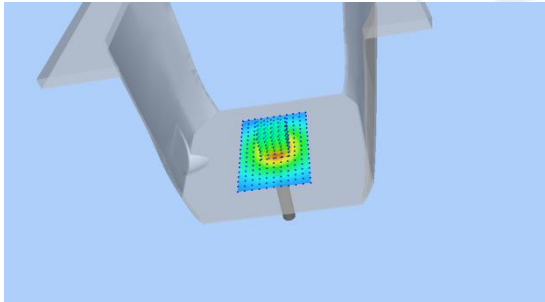
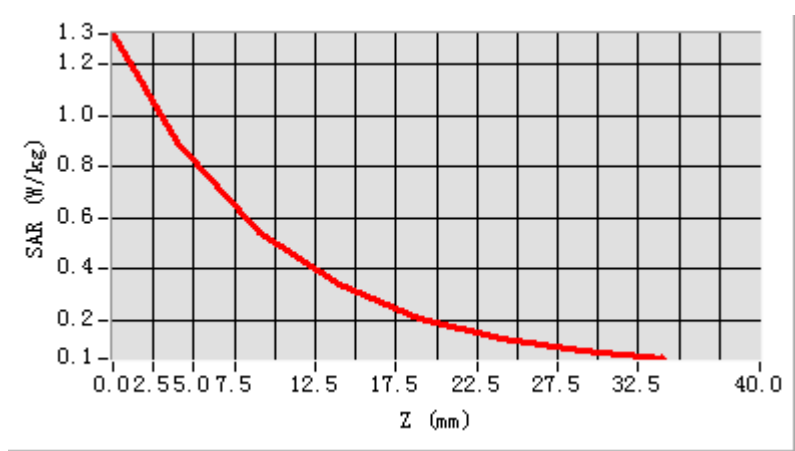
Experimental conditions

Phantom	Validation plane
Device Position	-
Band	750MHz
Channels	-
Signal	CW
Frequency (MHz)	750MHz
Relative permittivity	41.88
Conductivity (S/m)	0.90
Probe	SN 07/21 EPGO352
ConvF	1.58
Crest factor	1:1

**Maximum location: X=2.00, Y=1.00**

SAR 10g (W/Kg)	0.541169
SAR 1g (W/Kg)	0.854210

Z Axis Scan



System Performance Check Data (835MHz)

Type: Phone measurement (Complete)

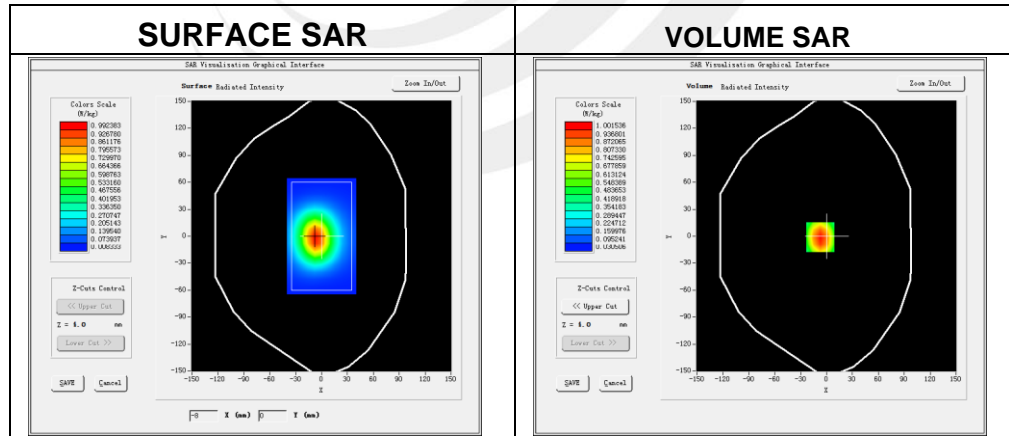
Area scan resolution: dx=8mm, dy=8mm

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

Date of measurement: 2023-02-06

Experimental conditions

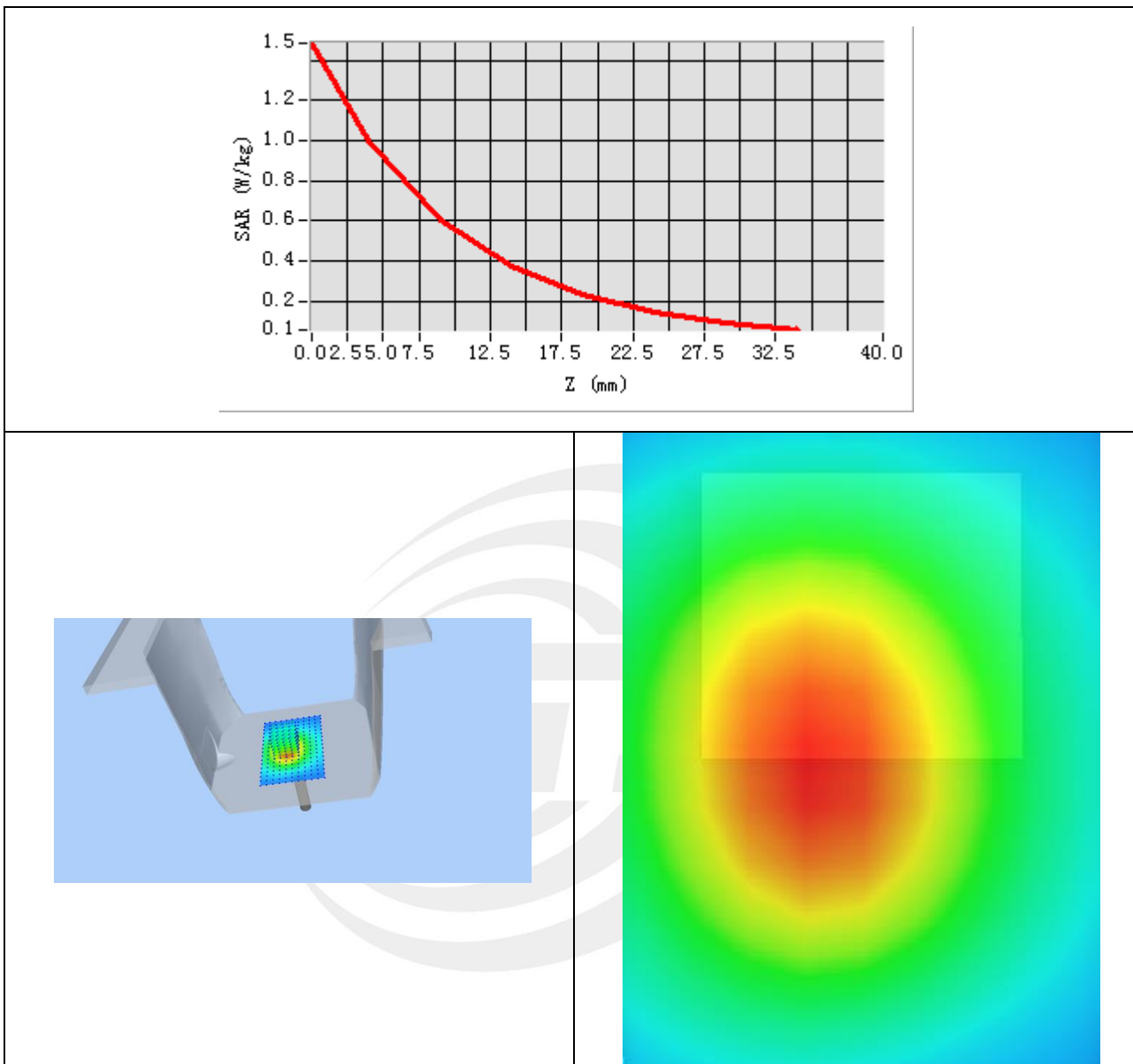
Phantom	Validation plane
Device Position	-
Band	835MHz
Channels	-
Signal	CW
Frequency (MHz)	835MHz
Relative permittivity	41.32
Conductivity (S/m)	0.89
Probe	SN 07/21 EPG0352
ConvF:	1.57
Crest factor:	1:1



Maximum location: X=-7.00, Y=-1.00

SAR 10g (W/Kg)	0.601556
SAR 1g (W/Kg)	0.941532

Z Axis Scan



System Performance Check Data(1800MHz)

Type: Phone measurement (Complete)

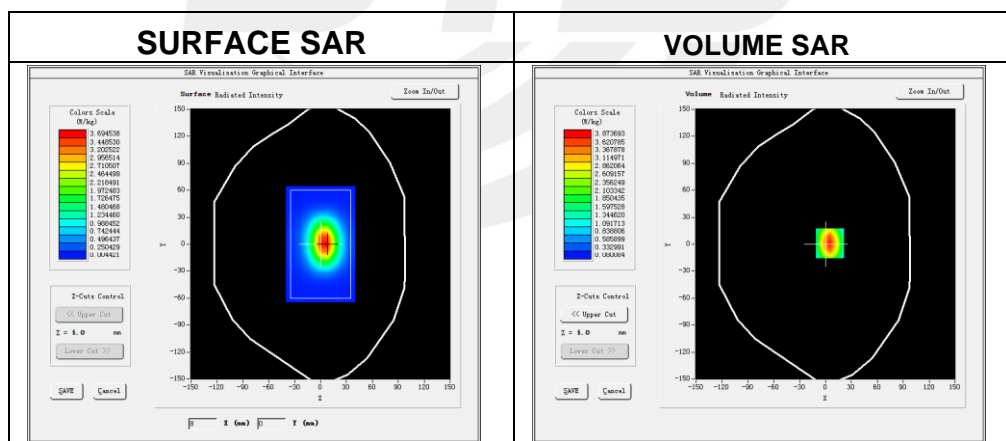
Area scan resolution: dx=8mm, dy=8mm

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

Date of measurement: 2023-02-07

Experimental conditions.

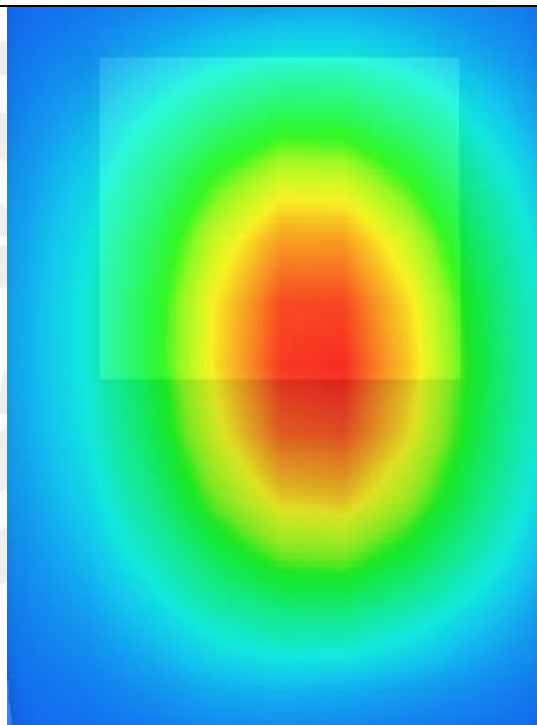
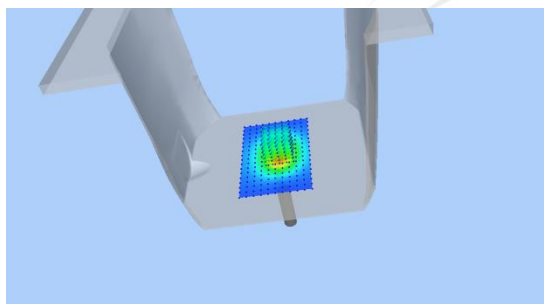
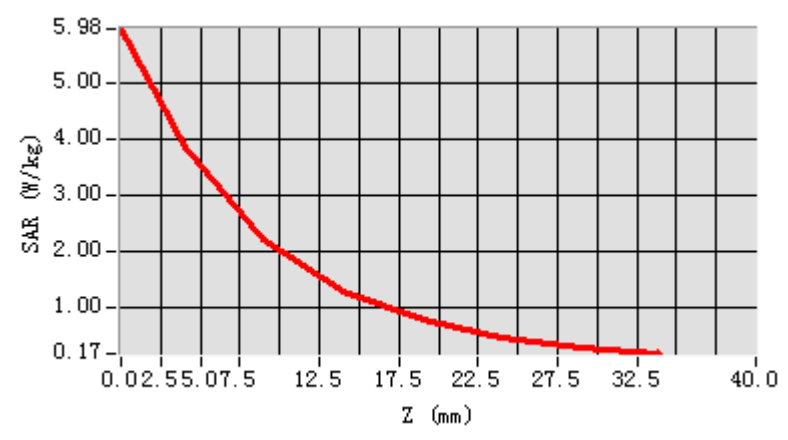
Phantom	Validation plane
Device Position	-
Band	1800MHz
Channels	-
Signal	CW
Frequency (MHz)	1800MHz
Relative permittivity	40.96
Conductivity (S/m)	1.37
Probe	SN 07/21 EPGO352
ConvF	1.60
Crest factor:	1:1



Maximum location: X=5.00, Y=1.00

SAR 10g (W/Kg)	1.992445
SAR 1g (W/Kg)	3.825038

Z Axis Scan



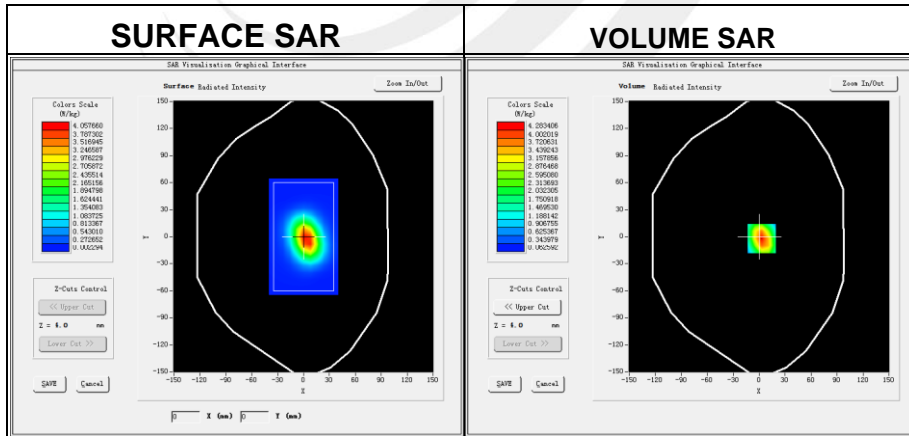


System Performance Check Data (1900MHz)

Type: Phone measurement (Complete)
 Area scan resolution: dx=8mm, dy=8mm
 Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
 Date of measurement: 2023-02-07

Experimental conditions.

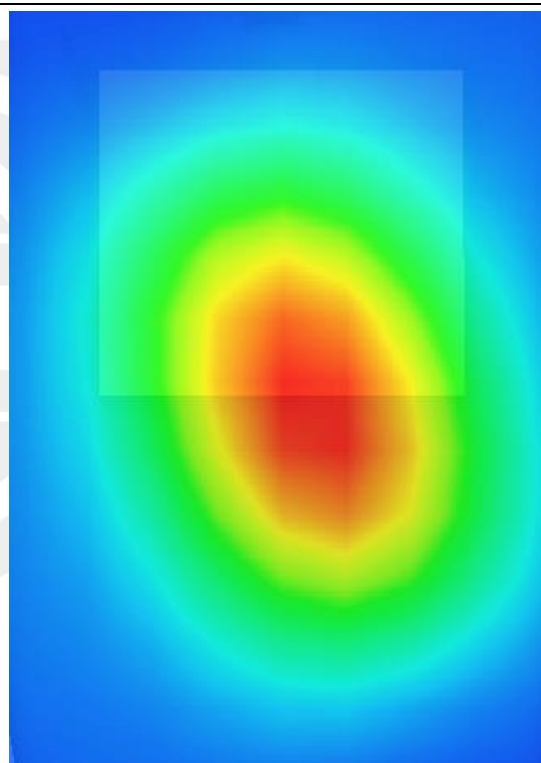
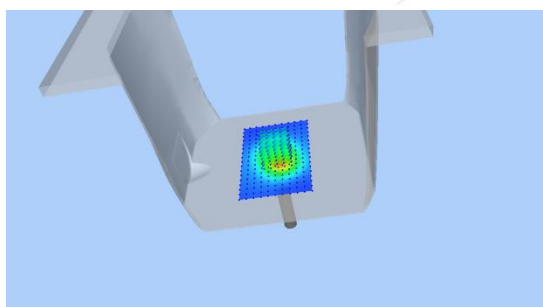
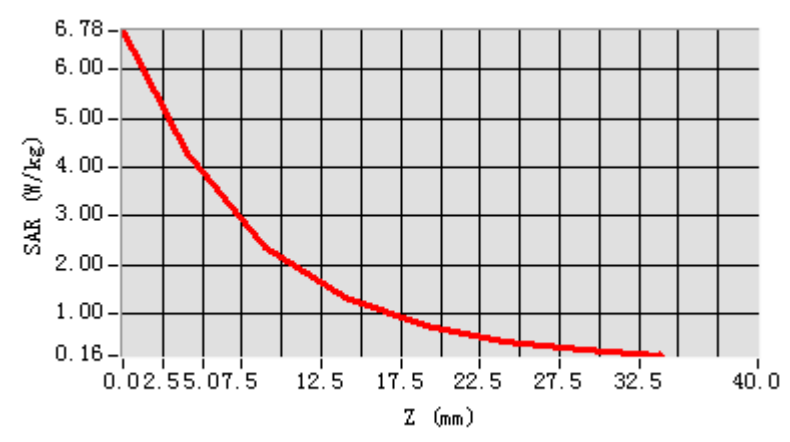
Phantom	Validation plane
Device Position	-
Band	1900MHz
Channels	-
Signal	CW
Frequency (MHz)	1900MHz
Relative permittivity	40.42
Conductivity (S/m)	1.40
Probe	SN 07/21 EPGO352
ConvF:	1.78
Crest factor:	1:1



Maximum location: X=3.00, Y=-2.00

SAR 10g (W/Kg)	2.050718
SAR 1g (W/Kg)	3.963245

Z Axis Scan



System Performance Check Data (2450MHz)

Type: Phone measurement (Complete)

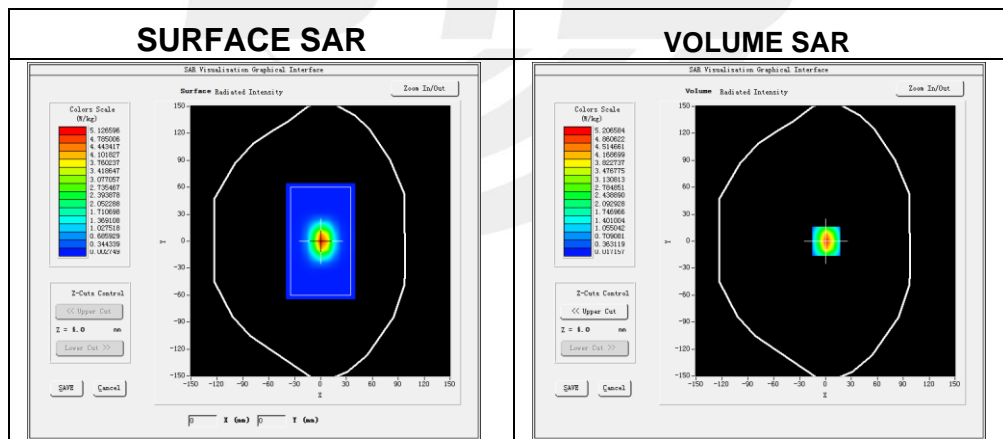
Area scan resolution: dx=8mm, dy=8mm

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

Date of measurement: 2023-02-08

Experimental conditions.

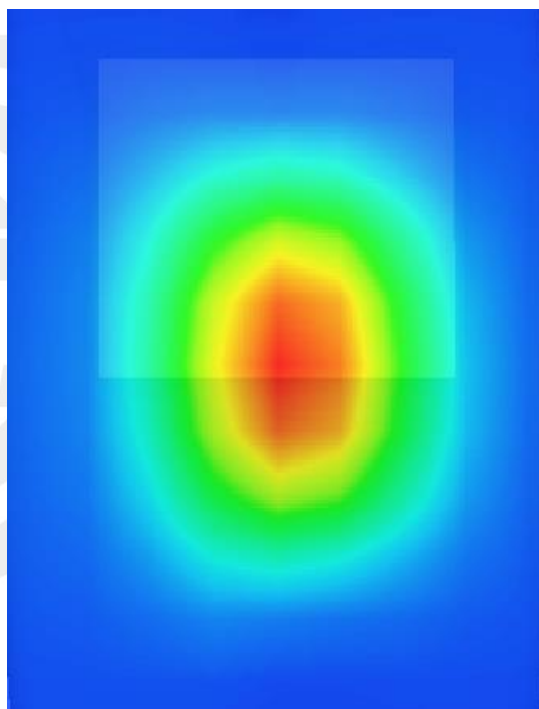
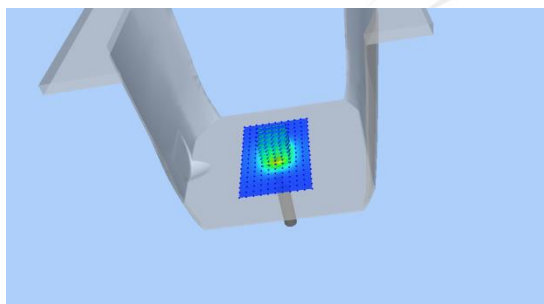
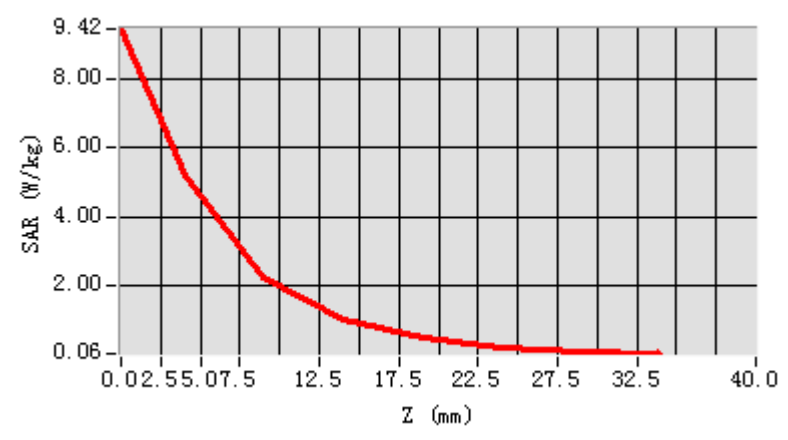
Device Position	Validation plane
Band	2450 MHz
Channels	-
Signal	CW
Frequency (MHz)	2450
Relative permittivity	39.23
Conductivity (S/m)	1.82
Probe	SN 07/21 EPGO352
ConvF	1.75
Crest factor:	1:1



Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.435540
SAR 1g (W/Kg)	5.484523

Z Axis Scan



System Performance Check Data(2600MHz)

Type: Phone measurement (Complete)

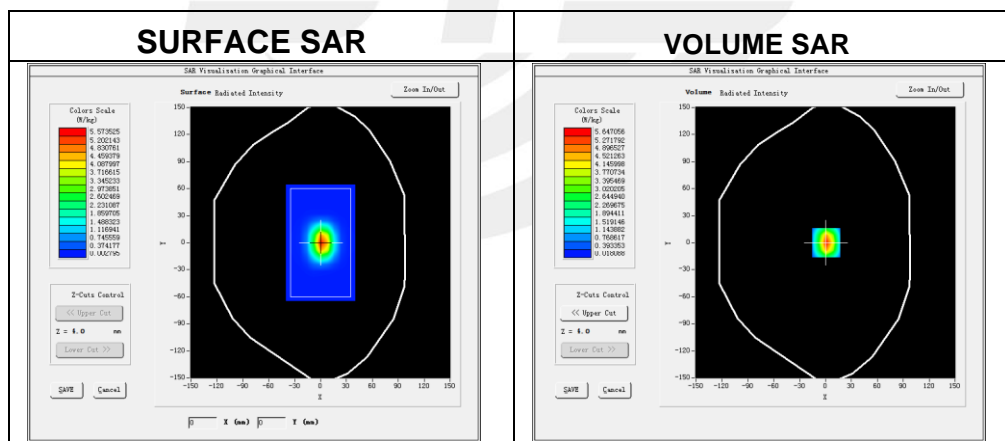
Area scan resolution: dx=8mm,dy=8mm

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

Date of measurement: 2023-02-08

Experimental conditions.

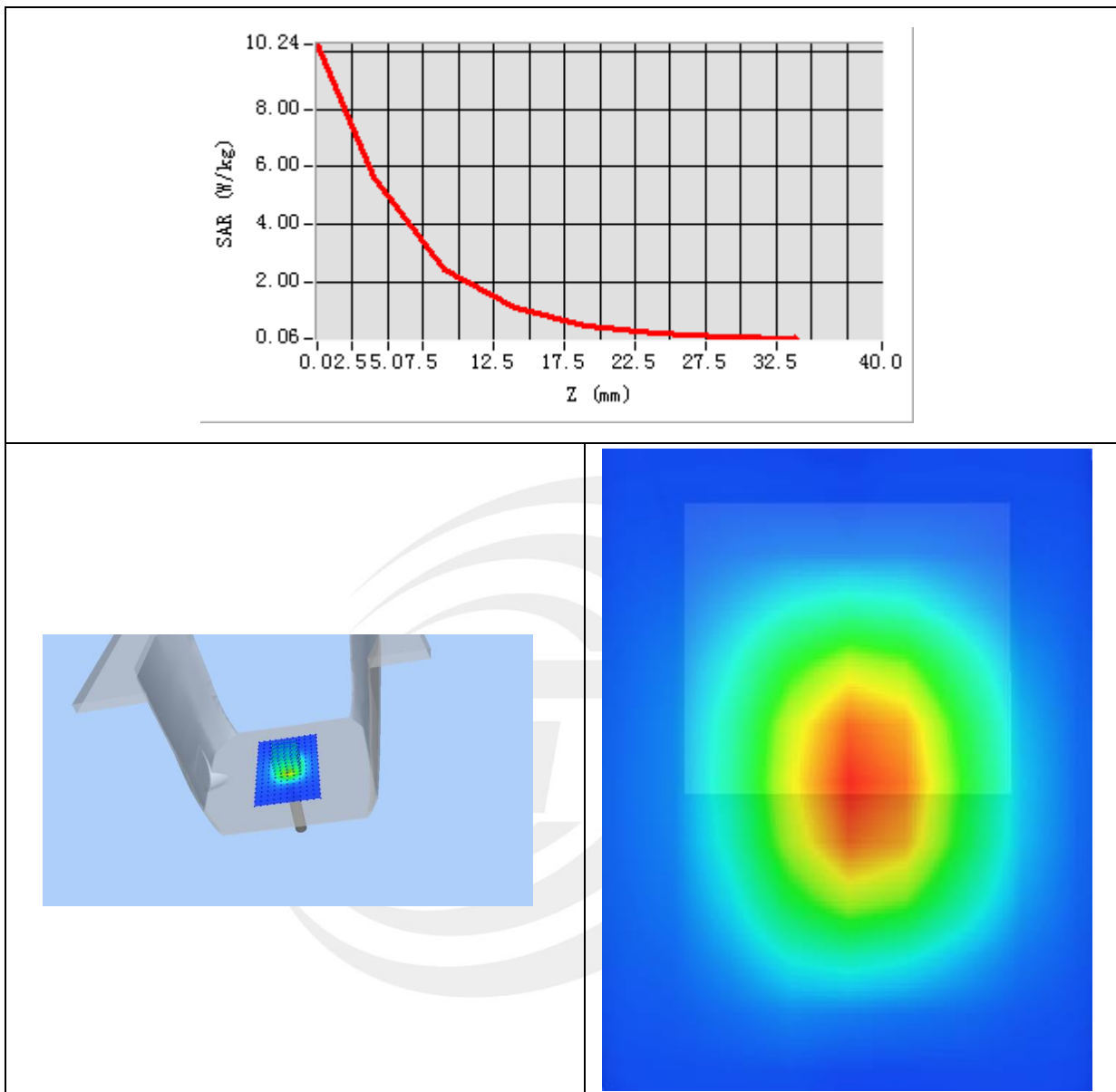
Device Position	Validation plane
Band	2600 MHz
Channels	-
Signal	CW
Frequency (MHz)	2600
Relative permittivity	39.94
Conductivity (S/m)	2.01
Probe	SN 07/21 EPGO352
ConvF	1.63
Crest factor:	1:1



Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.451943
SAR 1g (W/Kg)	5.620738

Z Axis Scan



Appendix B. SAR Test Plots

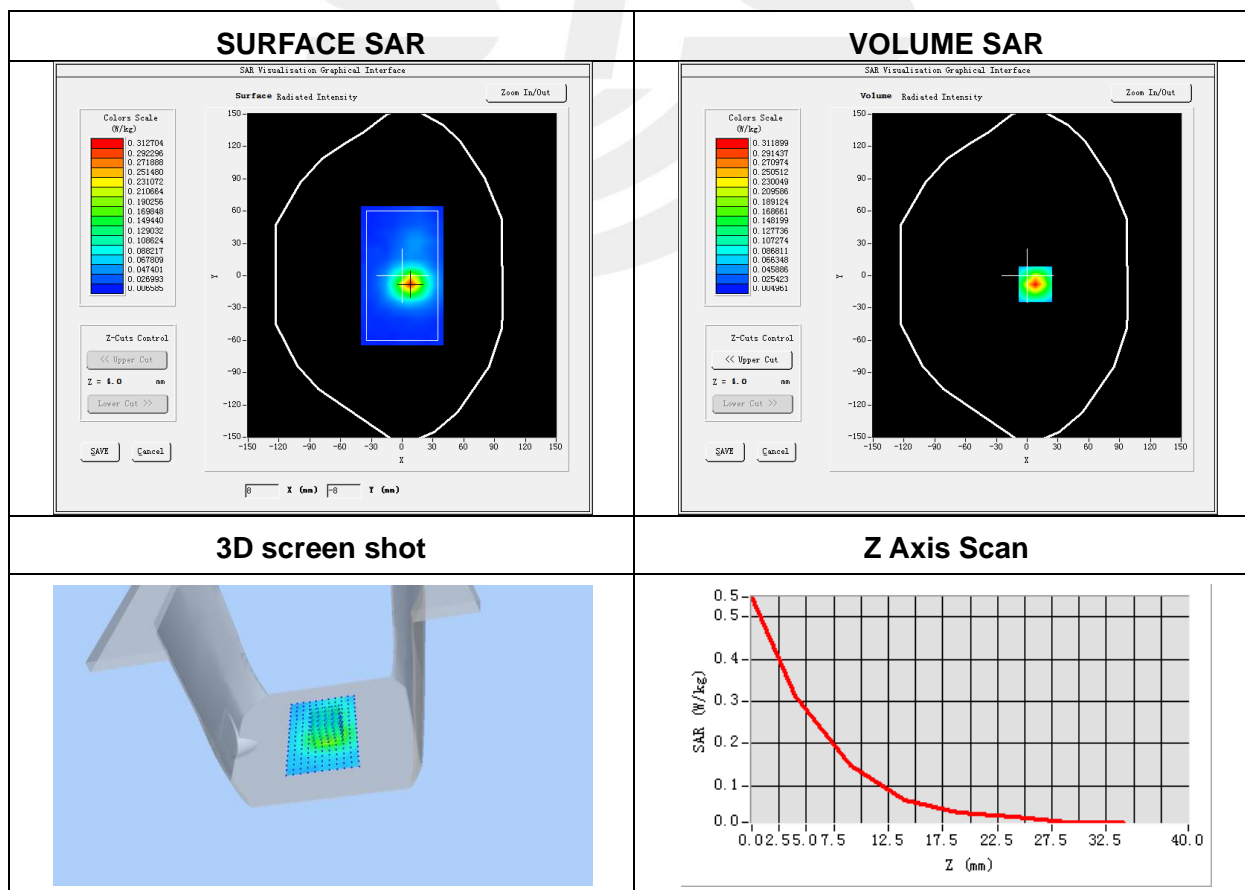
Plot 1: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2021-12-03
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Edge
Band	2.4G WLAN
Channels	Mid
ANT	ANT A
Signal	IEEE802.b (Crest factor: 1.0)
Frequency (MHz)	2437
Relative permittivity (real part)	39.06
Conductivity (S/m)	1.79

Maximum location: X=8.00, Y=-8.00

SAR Peak: 0.55 W/kg

SAR 10g (W/Kg)	0.121925
SAR 1g (W/Kg)	0.282705



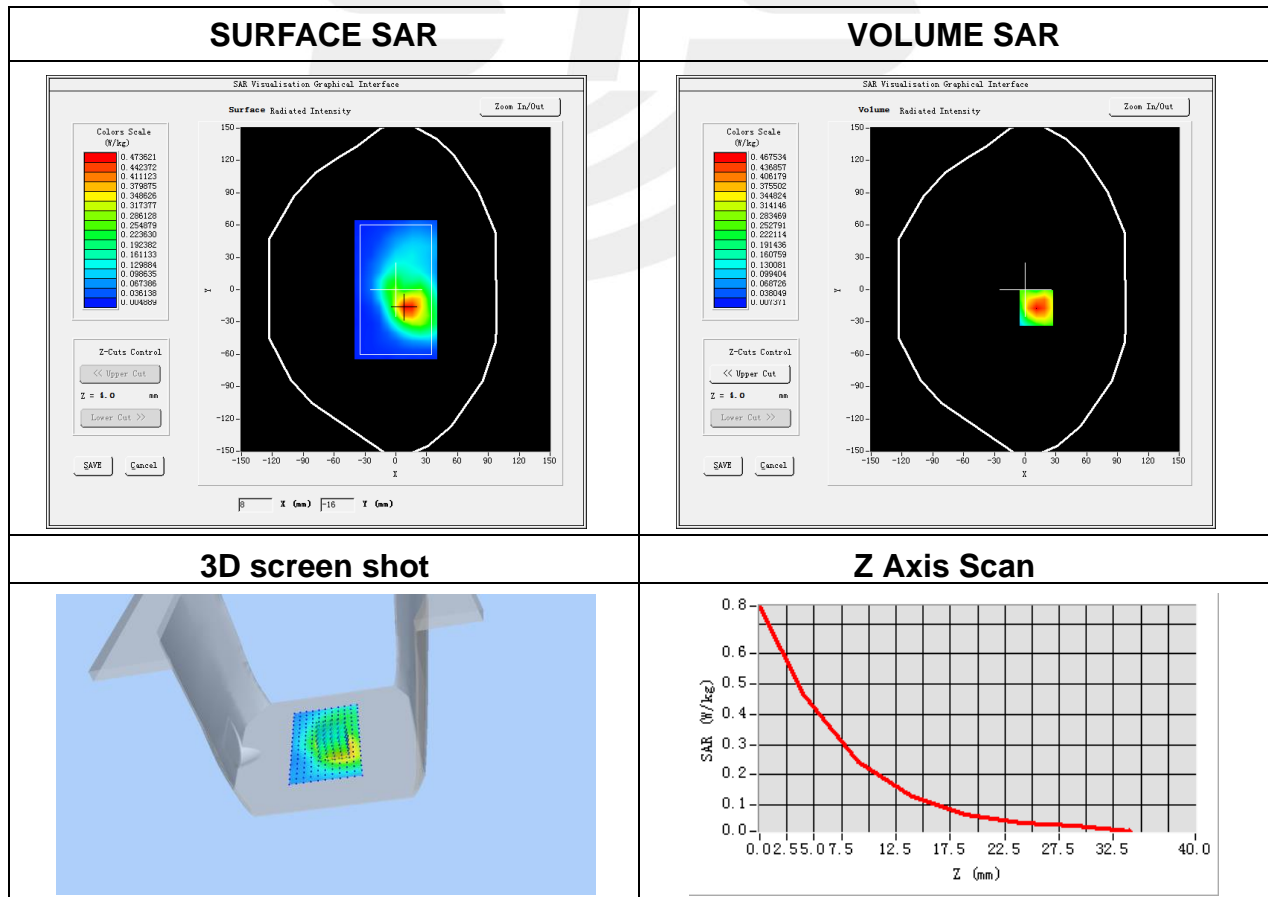
Plot 2: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2021-12-03
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Edge
Band	2.4G WLAN
ANT	ANT B
Channels	Mid
Signal	IEEE802.b (Crest factor: 1.0)
Frequency (MHz)	2437
Relative permittivity (real part)	39.06
Conductivity (S/m)	1.79

Maximum location: X=16.00, Y=30.00

SAR Peak: 0.79W/kg

SAR 10g (W/Kg)	0.112718
SAR 1g (W/Kg)	0.255740



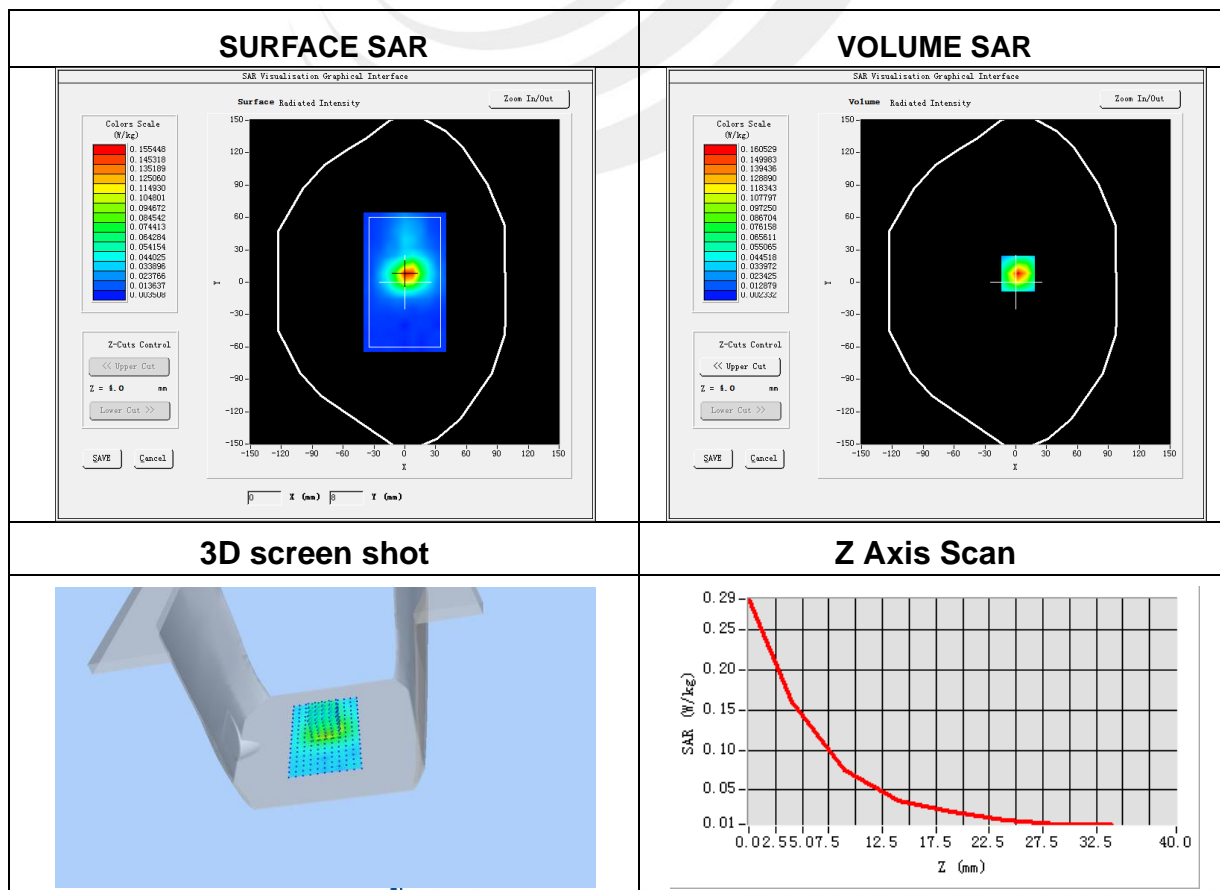
Plot 3: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2021-12-03
Probe	SN 07/21 EPGO352
ConvF	1.84
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Edge
Band	2.4G WLAN
ANT	ANT A
Channels	Mid
Signal	IEEE802.AX20 (Crest factor: 1.0)
Frequency (MHz)	2462
Relative permittivity (real part)	39.06
Conductivity (S/m)	1.79

Maximum location: X=2.00, Y=-8.00

SAR Peak: 0.28 W/kg

SAR 10g (W/Kg)	0.065576
SAR 1g (W/Kg)	0.149712



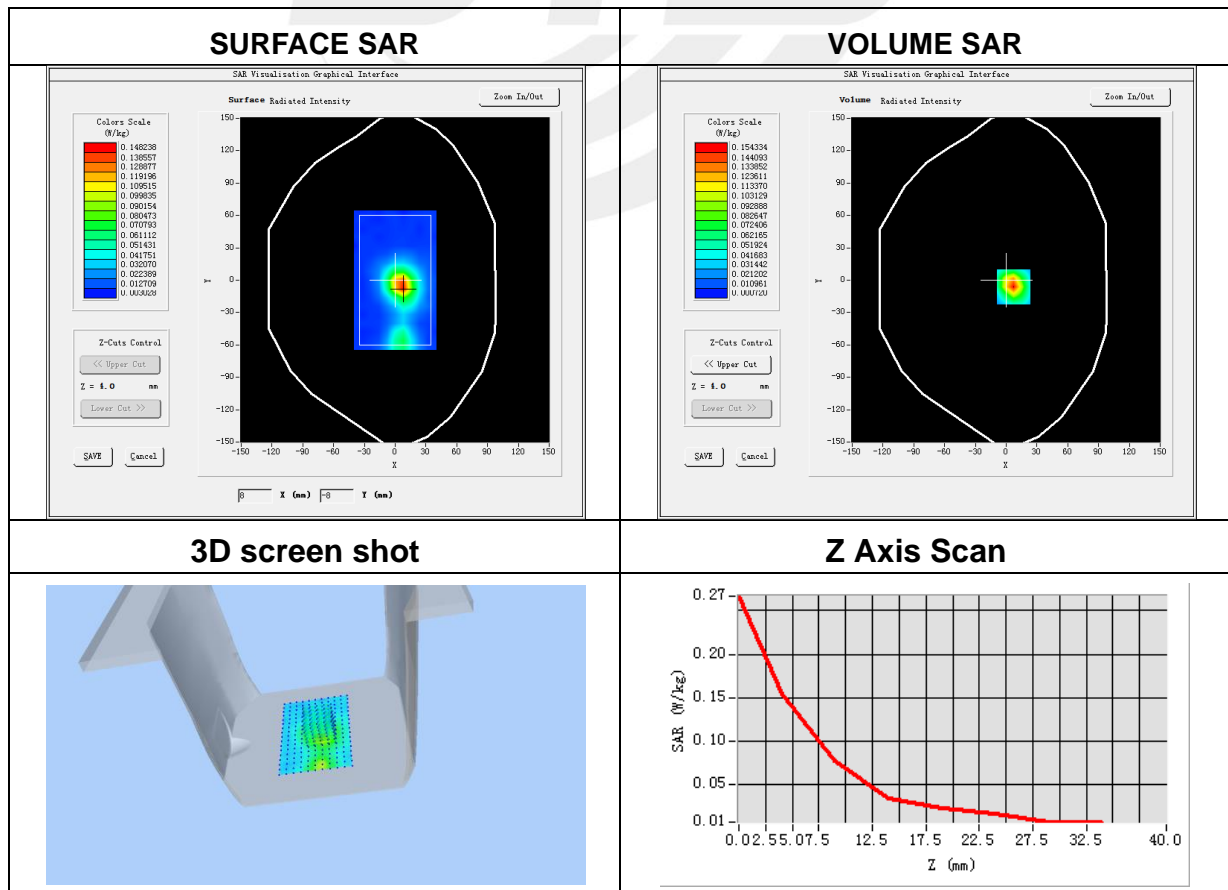
Plot 4: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2021-12-03
Probe	SN 07/21 EPGO352
ConvF	1.60
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Edge
Band	2.4G WLAN
ANT	ANT B
Channels	Mid
Signal	IEEE802.AX20 (Crest factor: 1.0)
Frequency (MHz)	2462
Relative permittivity (real part)	39.06
Conductivity (S/m)	1.79

Maximum location: X=7.00, Y=-6.00

SAR Peak: 0.27 W/kg

SAR 10g (W/Kg)	0.063073
SAR 1g (W/Kg)	0.142907



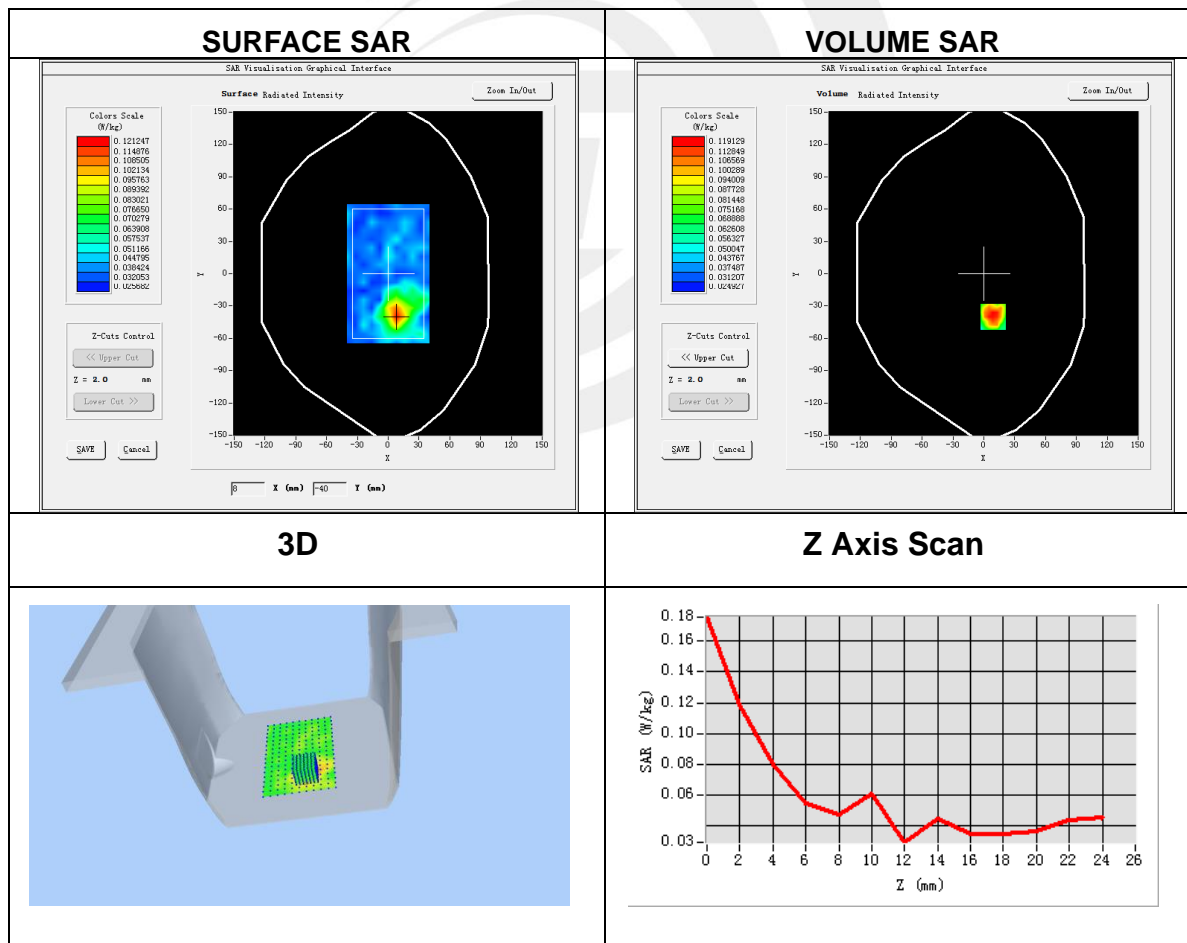
Plot 5: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-06
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	5.2G WLAN ANT A
Signal	IEEE802.11a (Crest factor: 1.0)
Frequency (MHz)	5240
Relative permittivity (real part)	36.93
Conductivity (S/m)	4.70

Maximum location: X=9.00, Y=-40.00

SAR Peak: 0.20 W/kg

SAR 10g (W/Kg)	0.054965
SAR 1g (W/Kg)	0.085740

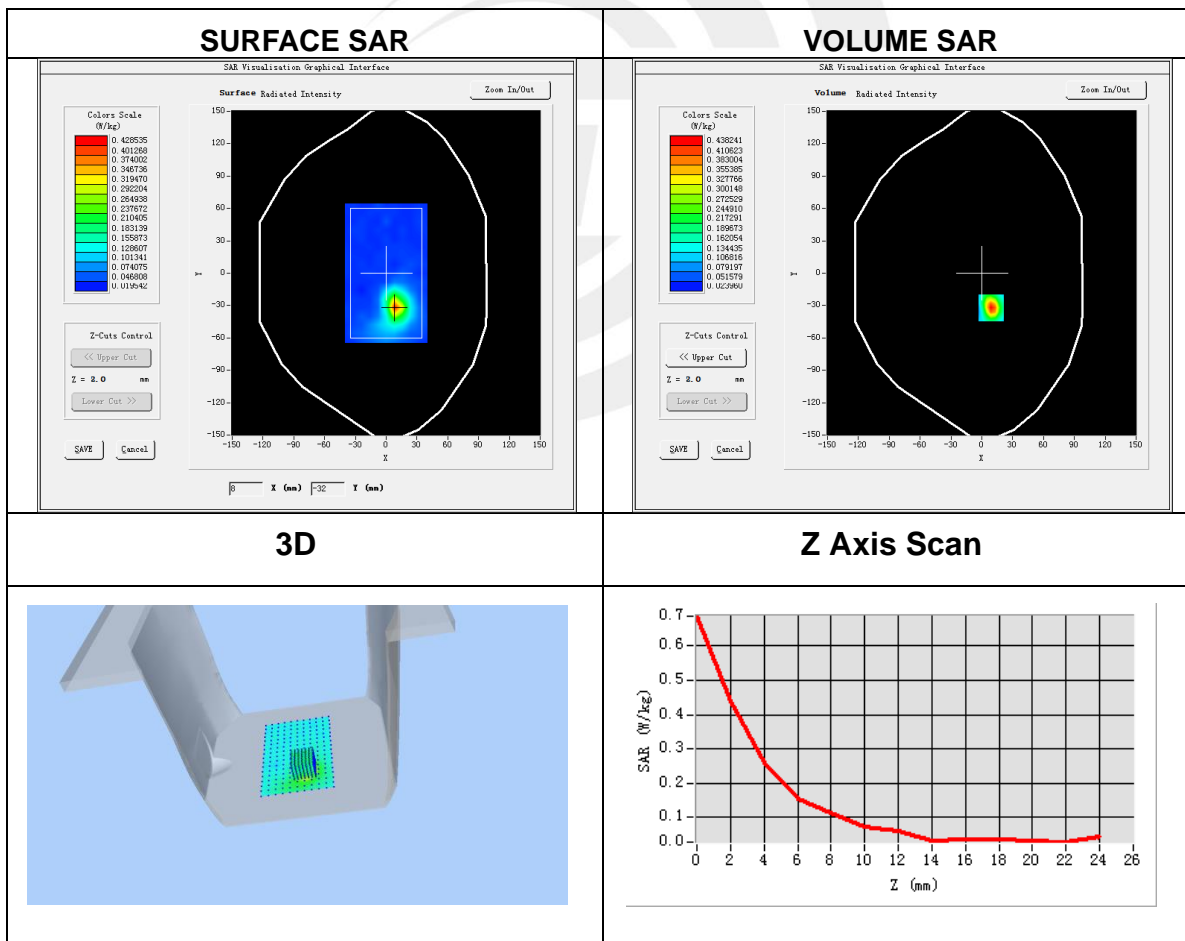


Plot 6: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-06
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	5.2G WLAN ANT B
Signal	IEEE802.11a (Crest factor: 1.0)
Frequency (MHz)	5200
Relative permittivity (real part)	36.03
Conductivity (S/m)	4.60

Maximum location: X=9.00, Y=-32.00
SAR Peak: 0.71 W/kg

SAR 10g (W/Kg)	0.103109
SAR 1g (W/Kg)	0.258252

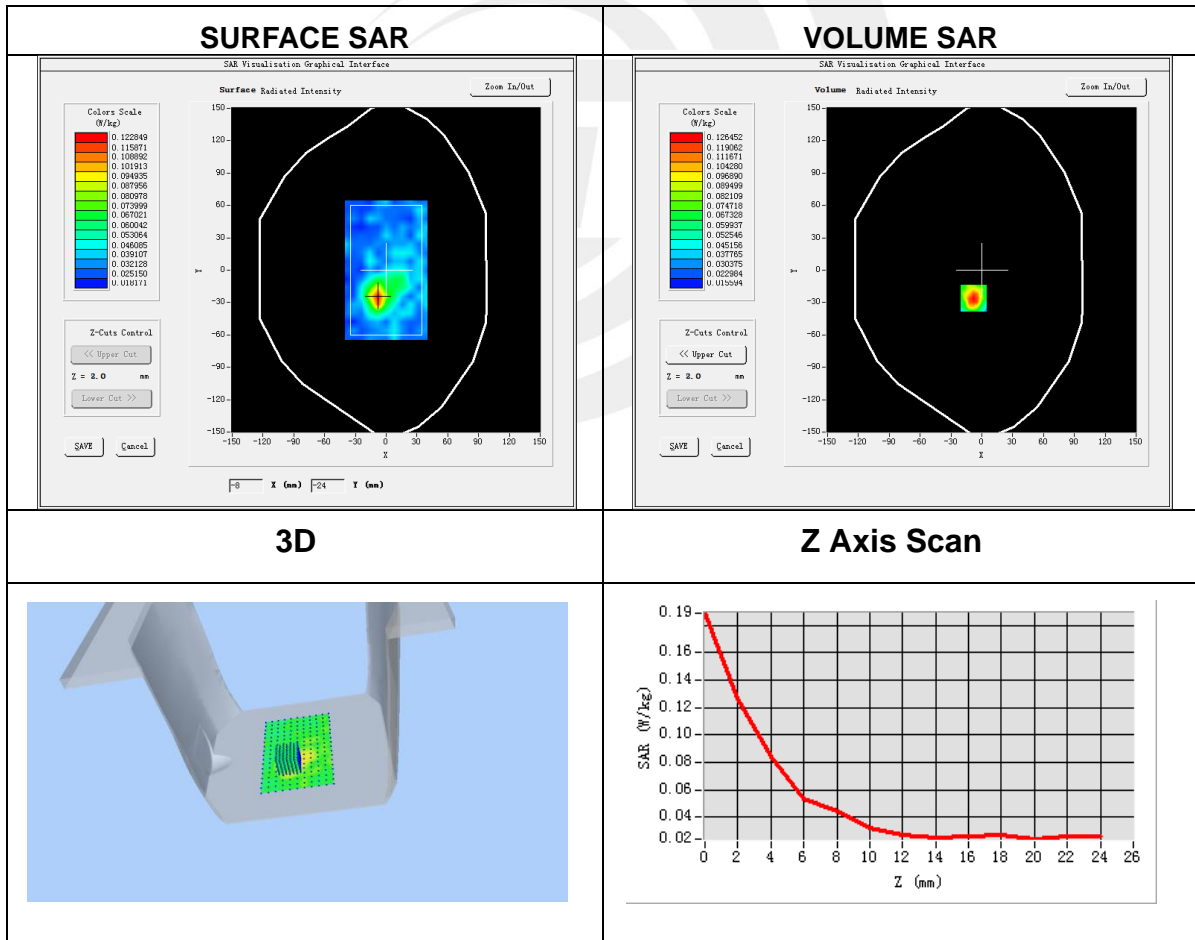


Plot 7: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-06
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	5.2G WLAN ANT A
Signal	IEEE802.11 n-HT40 (Crest factor: 1.0)
Frequency (MHz)	5230
Relative permittivity (real part)	36.56
Conductivity (S/m)	4.68

Maximum location: X=-8.00, Y=-26.00
SAR Peak: 0.20 W/kg

SAR 10g (W/Kg)	0.045804
SAR 1g (W/Kg)	0.081973

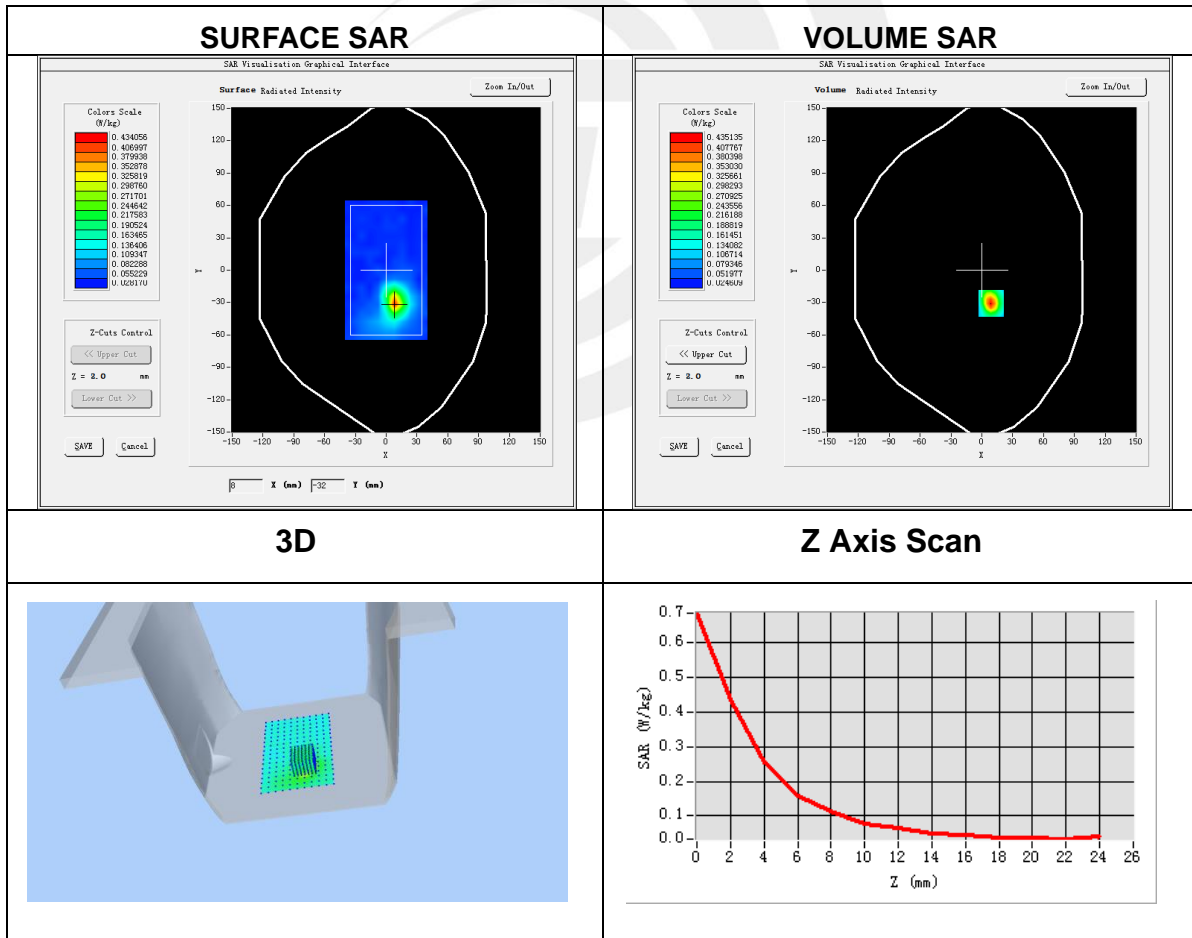


Plot 8: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-06
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	5.2G WLAN ANT B
Signal	IEEE802.11 n-HT40 (Crest factor: 1.0)
Frequency (MHz)	5230
Relative permittivity (real part)	36.56
Conductivity (S/m)	4.68

Maximum location: X=9.00, Y=-31.00
SAR Peak: 0.71 W/kg

SAR 10g (W/Kg)	0.106691
SAR 1g (W/Kg)	0.256926



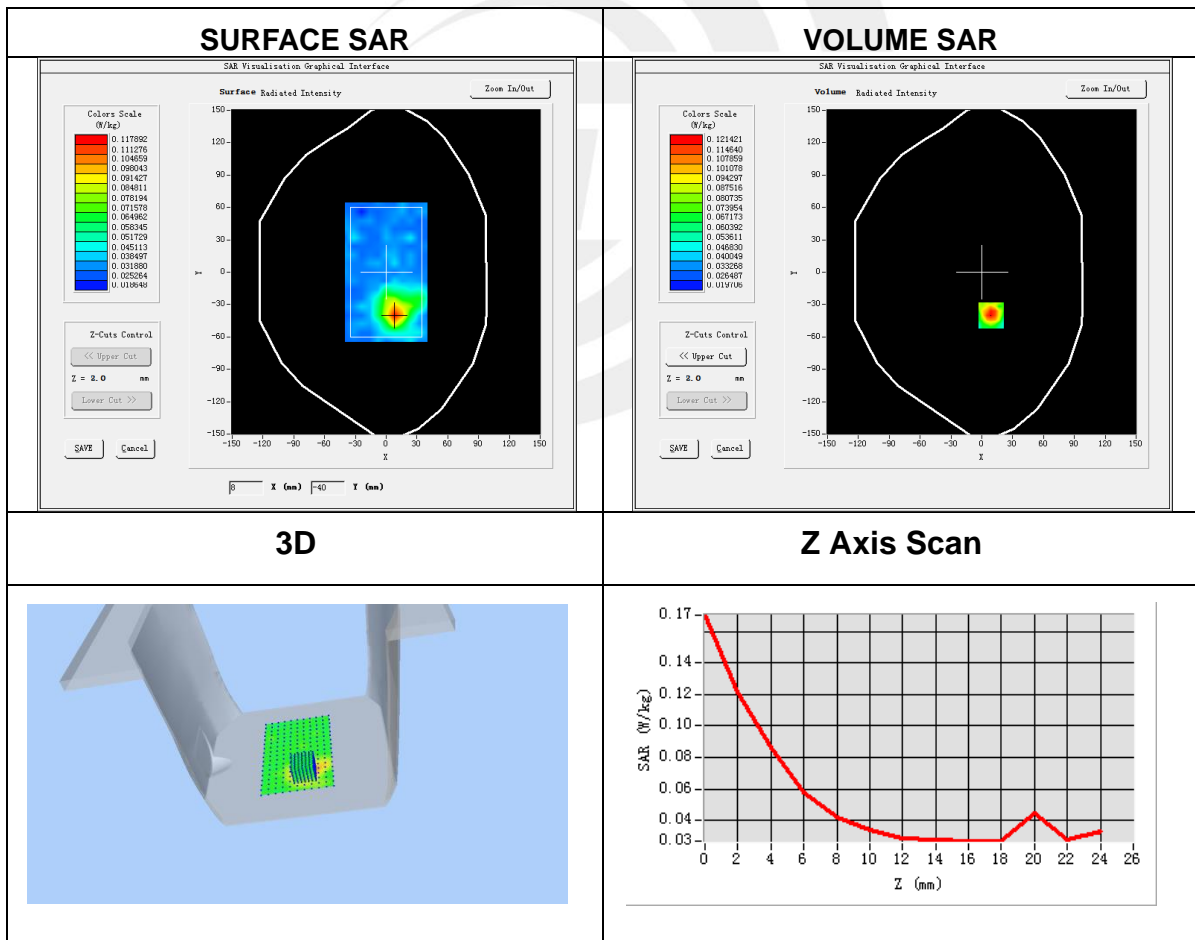
Plot 9: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-07
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	5.3G WLAN ANT A
Signal	IEEE802.11a (Crest factor: 1.0)
Frequency (MHz)	5320
Relative permittivity (real part)	36.52
Conductivity (S/m)	4.77

Maximum location: X=9.00, Y=-40.00

SAR Peak: 0.19 W/kg

SAR 10g (W/Kg)	0.048200
SAR 1g (W/Kg)	0.081640



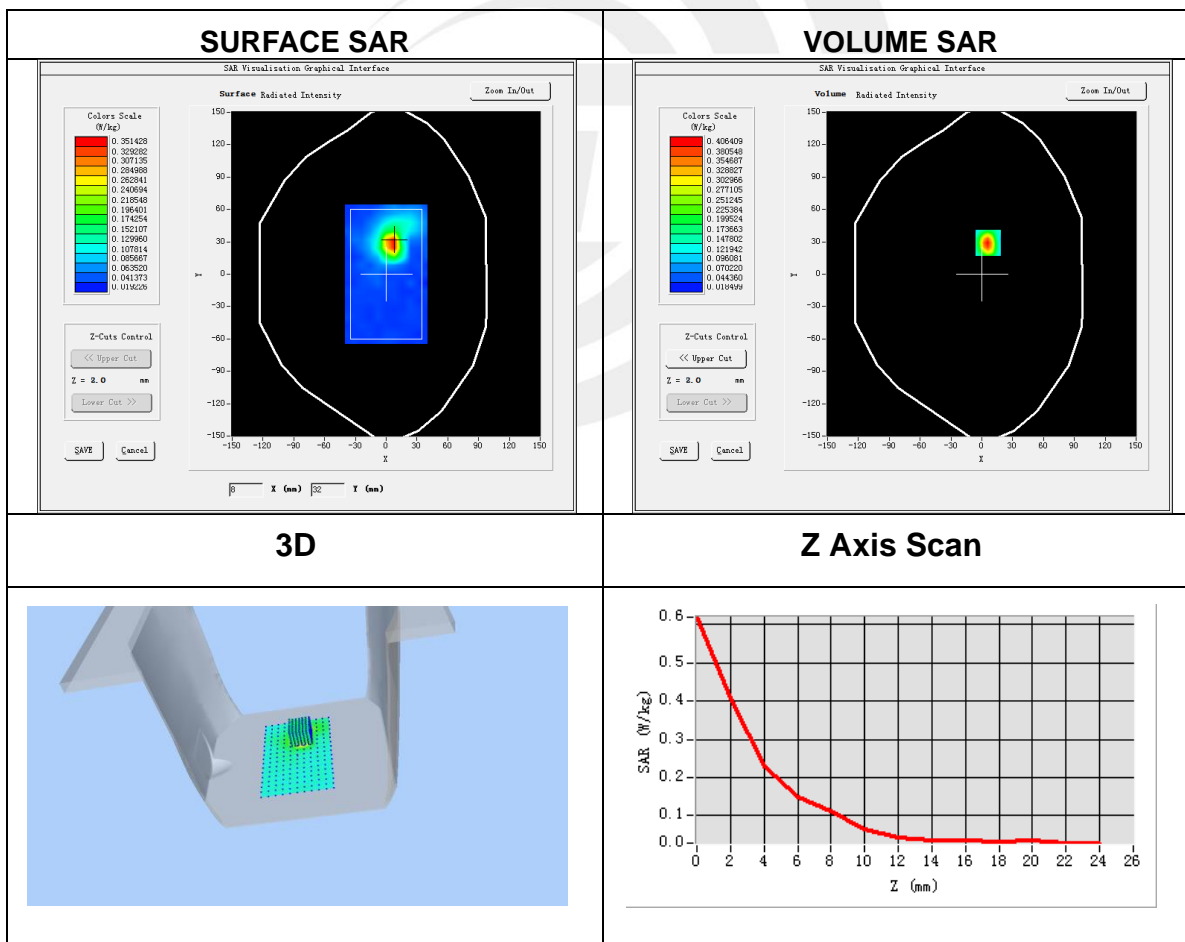
Plot 10: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-07
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	5.3G WLAN ANT B
Signal	IEEE802.11a (Crest factor: 1.0)
Frequency (MHz)	5320
Relative permittivity (real part)	36.52
Conductivity (S/m)	4.77

Maximum location: X=6.00, Y=29.00

SAR Peak: 0.64 W/kg

SAR 10g (W/Kg)	0.099511
SAR 1g (W/Kg)	0.238600



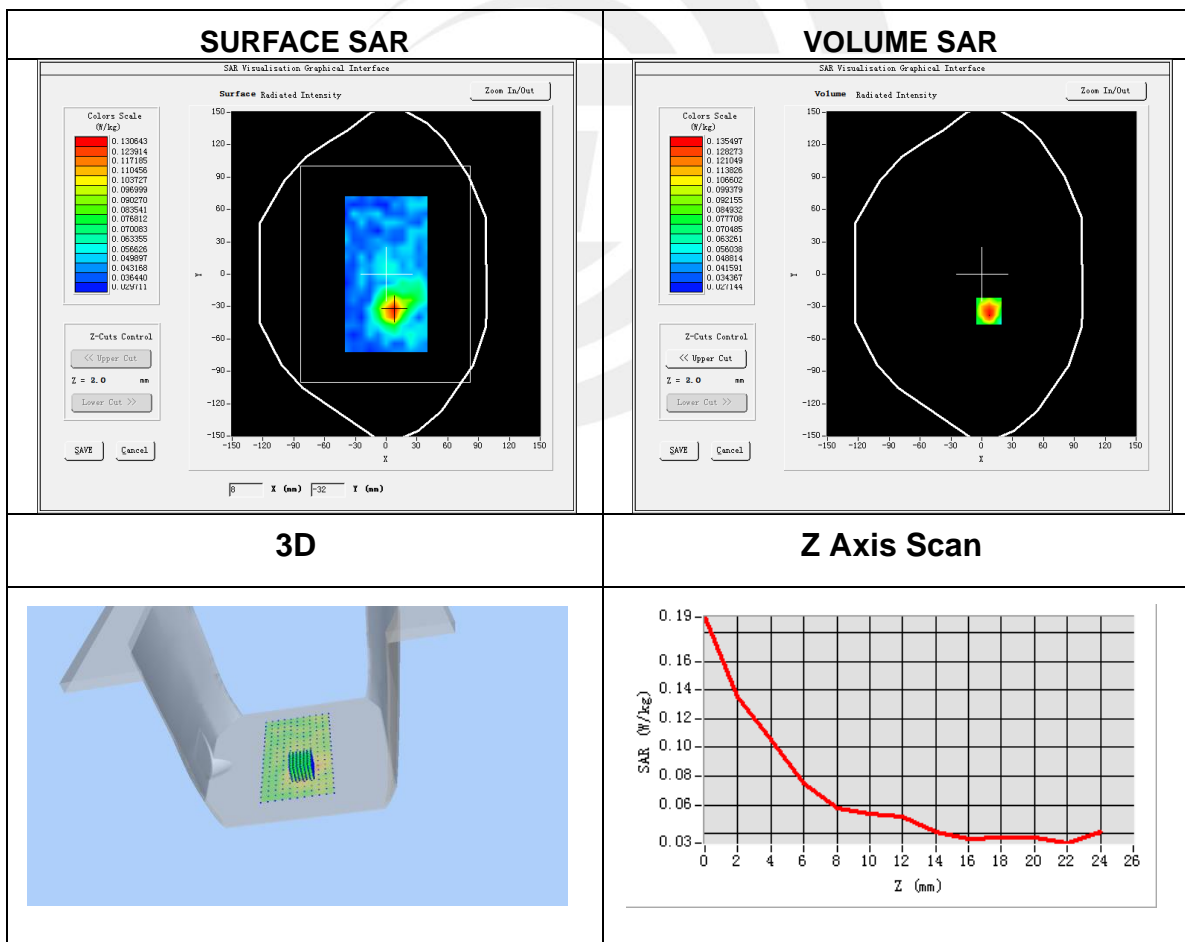
Plot 11: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-07
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	5.3G WLAN ANT A
Signal	IEEE802.11 ac-VHT160 (Crest factor: 1.0)
Frequency (MHz)	5250
Relative permittivity (real part)	36.02
Conductivity (S/m)	4.68

Maximum location: X=7.00, Y=-34.00

SAR Peak: 0.20 W/kg

SAR 10g (W/Kg)	0.060333
SAR 1g (W/Kg)	0.097283

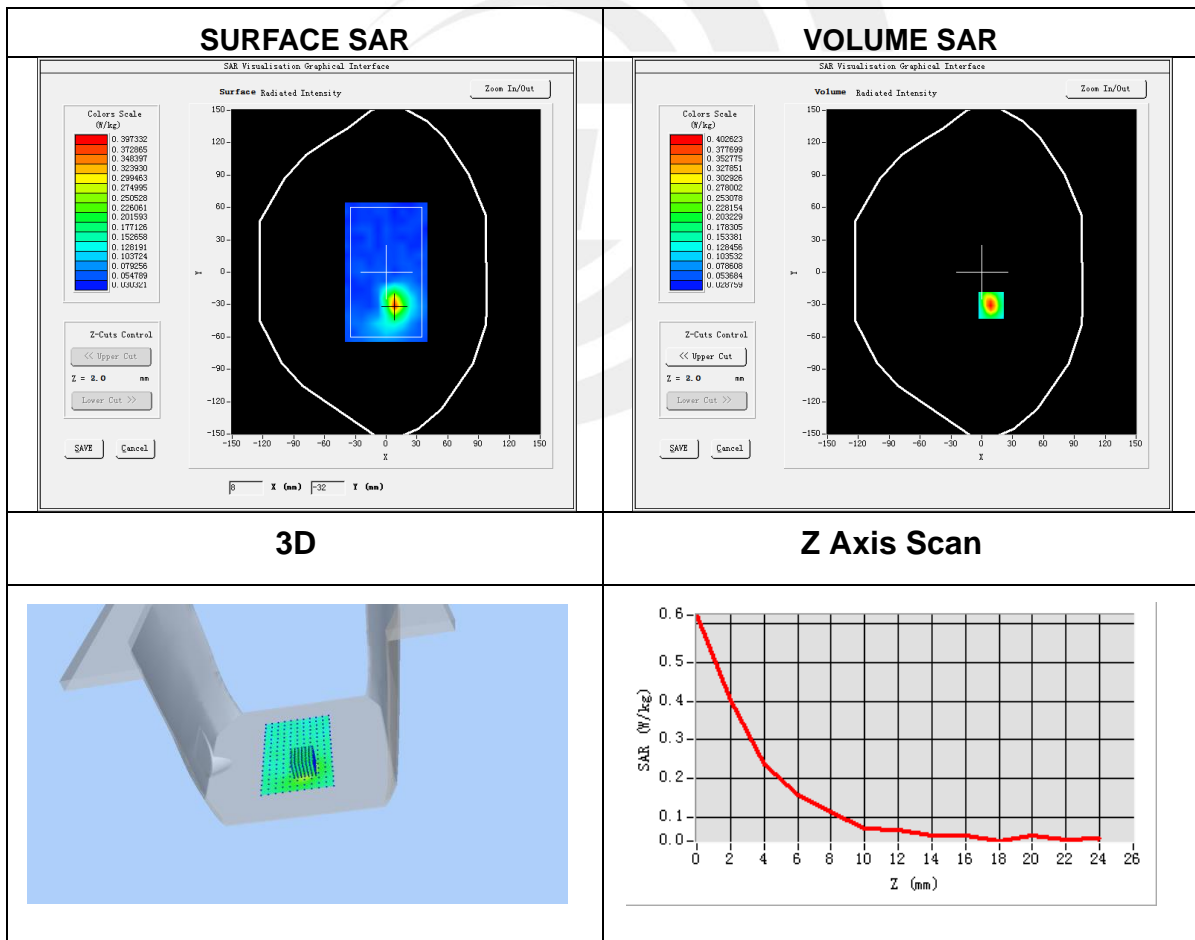


Plot 12: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-07
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	5.3G WLAN ANT B
Signal	IEEE802.11 ac-VHT160 (Crest factor: 1.0)
Frequency (MHz)	5250
Relative permittivity (real part)	36.02
Conductivity (S/m)	4.68

Maximum location: X=9.00, Y=-31.00
SAR Peak: 0.64 W/kg

SAR 10g (W/Kg)	0.108673
SAR 1g (W/Kg)	0.239563



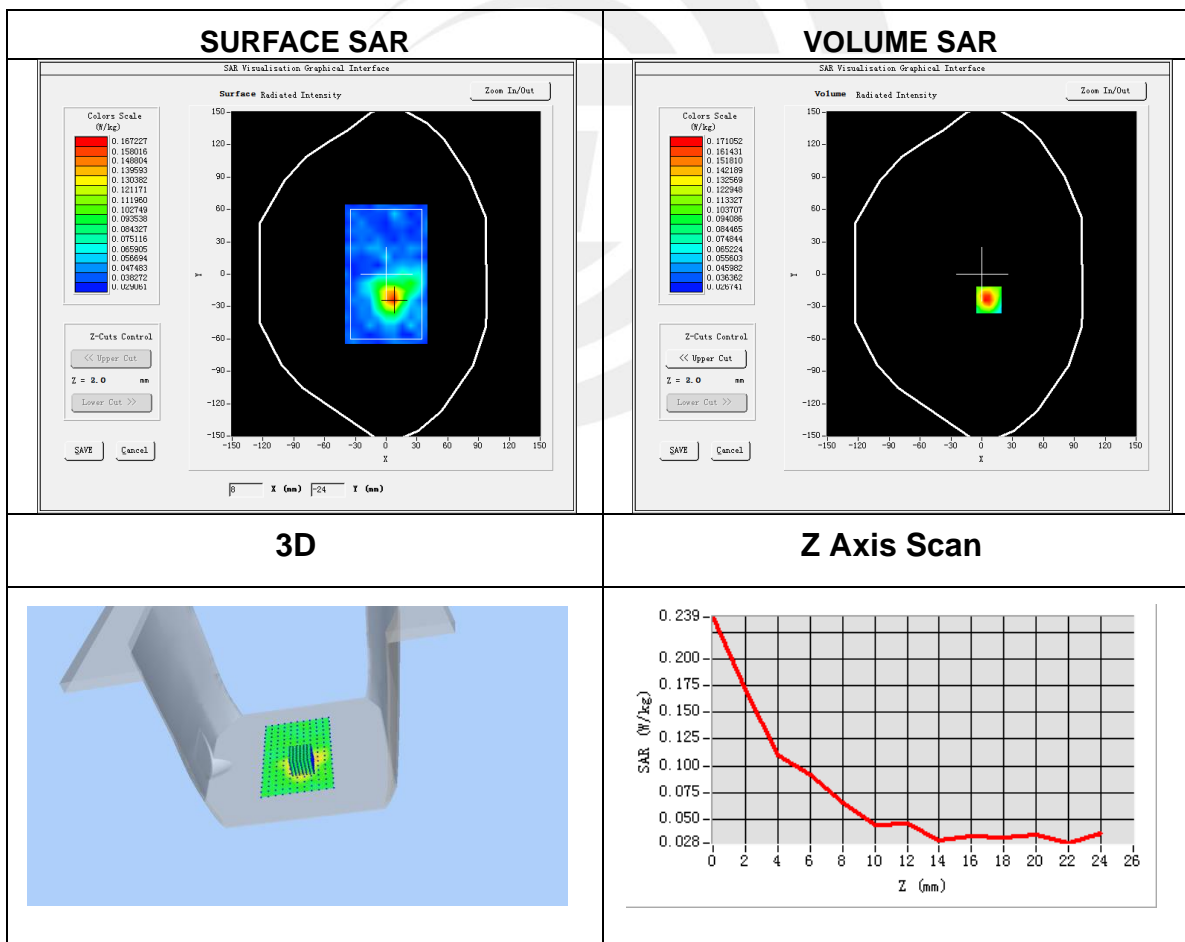
Plot 13: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-09
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	5.6G WLAN ANT A
Signal	IEEE802.11a (Crest factor: 1.0)
Frequency (MHz)	5500
Relative permittivity (real part)	36.54
Conductivity (S/m)	4.97

Maximum location: X=7.00, Y=-24.00

SAR Peak: 0.25 W/kg

SAR 10g (W/Kg)	0.063502
SAR 1g (W/Kg)	0.132515

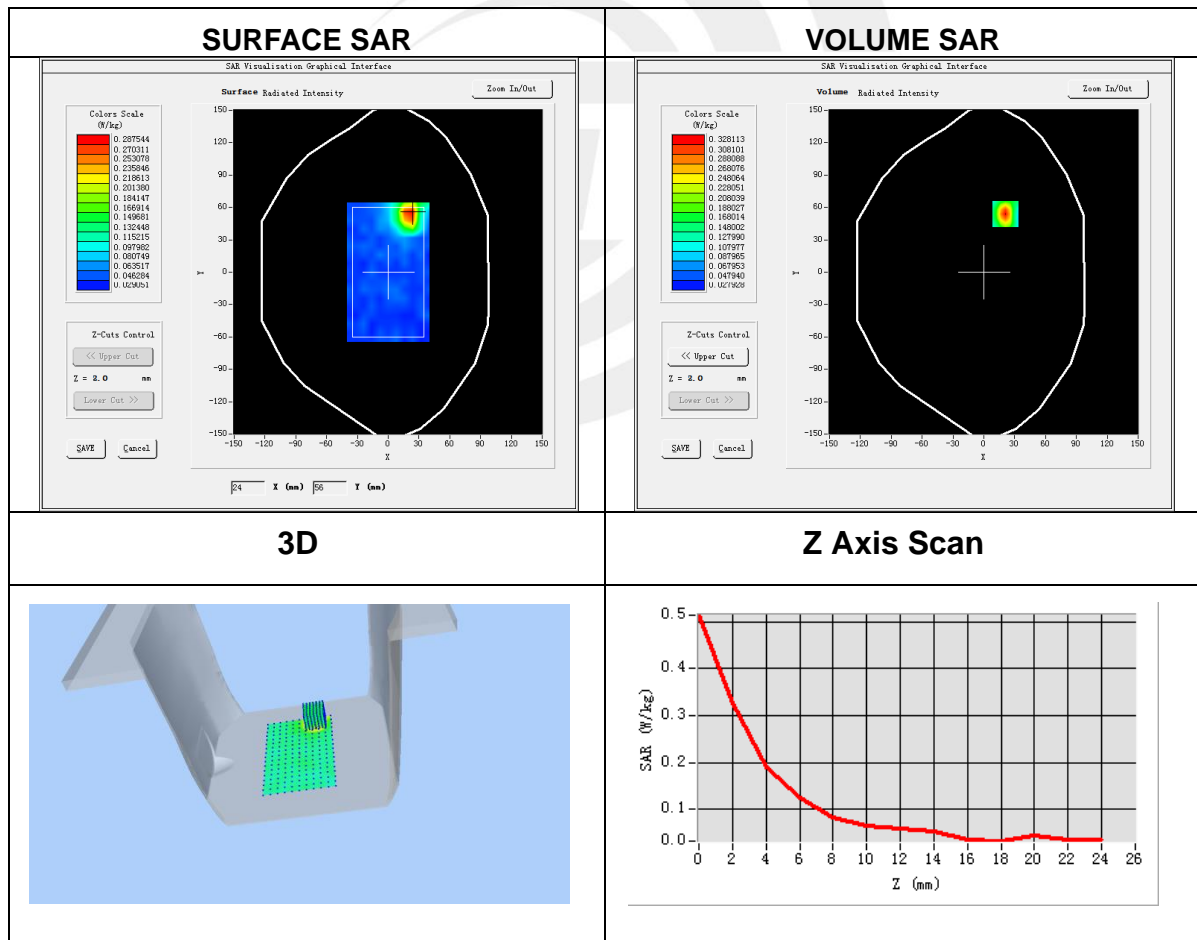


Plot 14: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-09
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	5.6G WLAN ANT B
Signal	IEEE802.11a (Crest factor: 1.0)
Frequency (MHz)	5500
Relative permittivity (real part)	36.54
Conductivity (S/m)	4.97

Maximum location: X=21.00, Y=54.00
SAR Peak: 0.54 W/kg

SAR 10g (W/Kg)	0.091561
SAR 1g (W/Kg)	0.194150



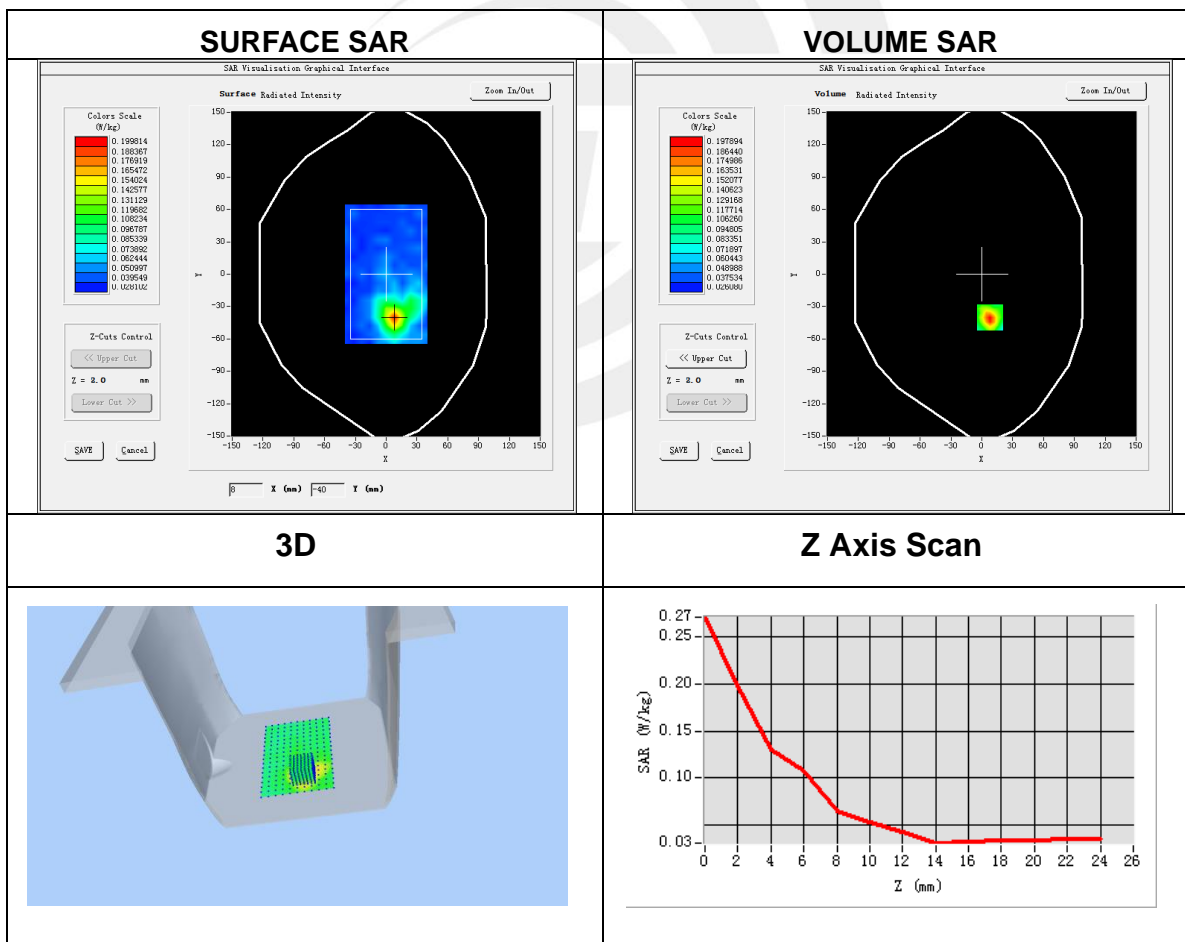
Plot 15: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-09
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	5.6G WLAN ANT A
Signal	IEEE802.11 n-HT40 (Crest factor: 1.0)
Frequency (MHz)	5510
Relative permittivity (real part)	36.18
Conductivity (S/m)	4.96

Maximum location: X=8.00, Y=-40.00

SAR Peak: 0.28 W/kg

SAR 10g (W/Kg)	0.066466
SAR 1g (W/Kg)	0.125416



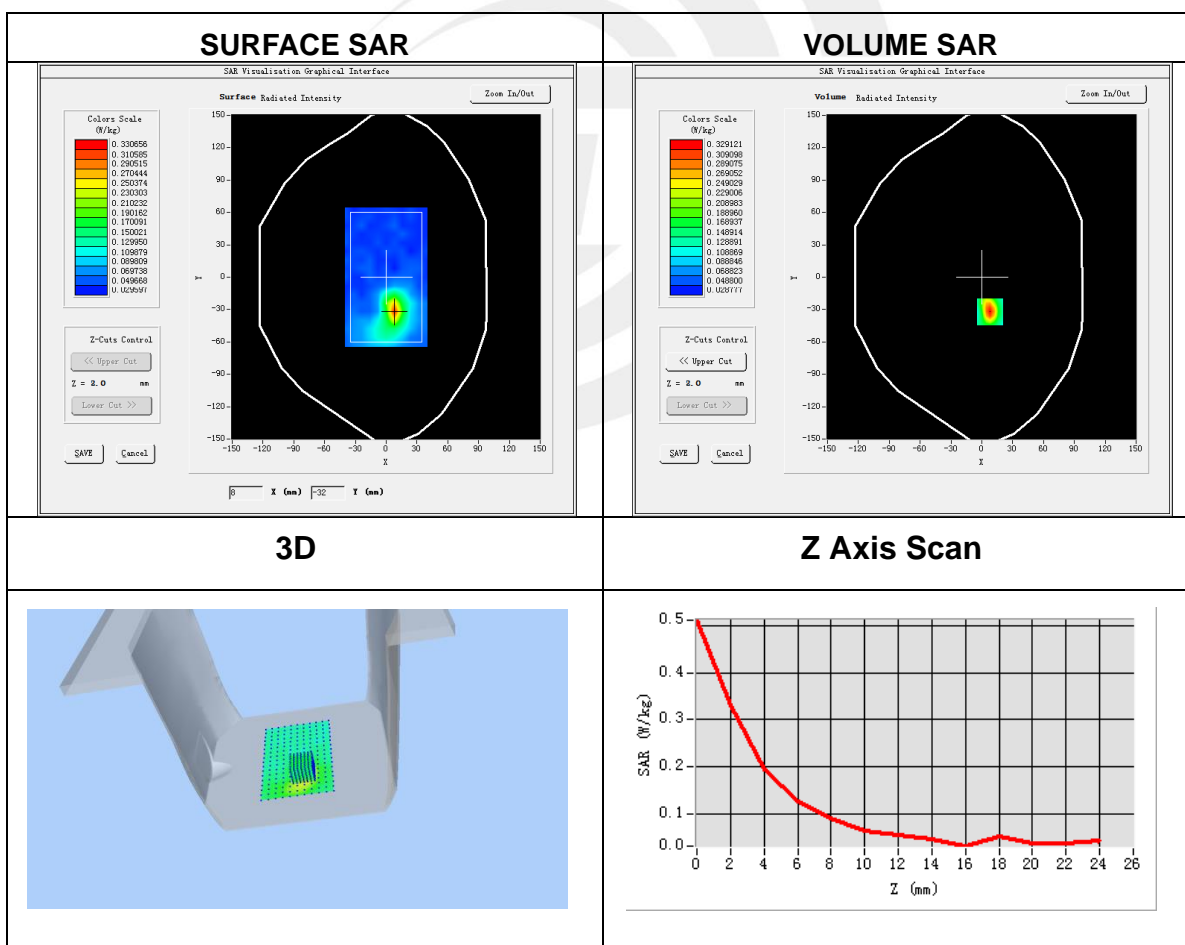
Plot 16: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-09
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	5.6G WLAN ANT B
Signal	IEEE802.11 n-HT40 (Crest factor: 1.0)
Frequency (MHz)	5510
Relative permittivity (real part)	36.18
Conductivity (S/m)	4.96

Maximum location: X=8.00, Y=-32.00

SAR Peak: 0.53 W/kg

SAR 10g (W/Kg)	0.096111
SAR 1g (W/Kg)	0.204132

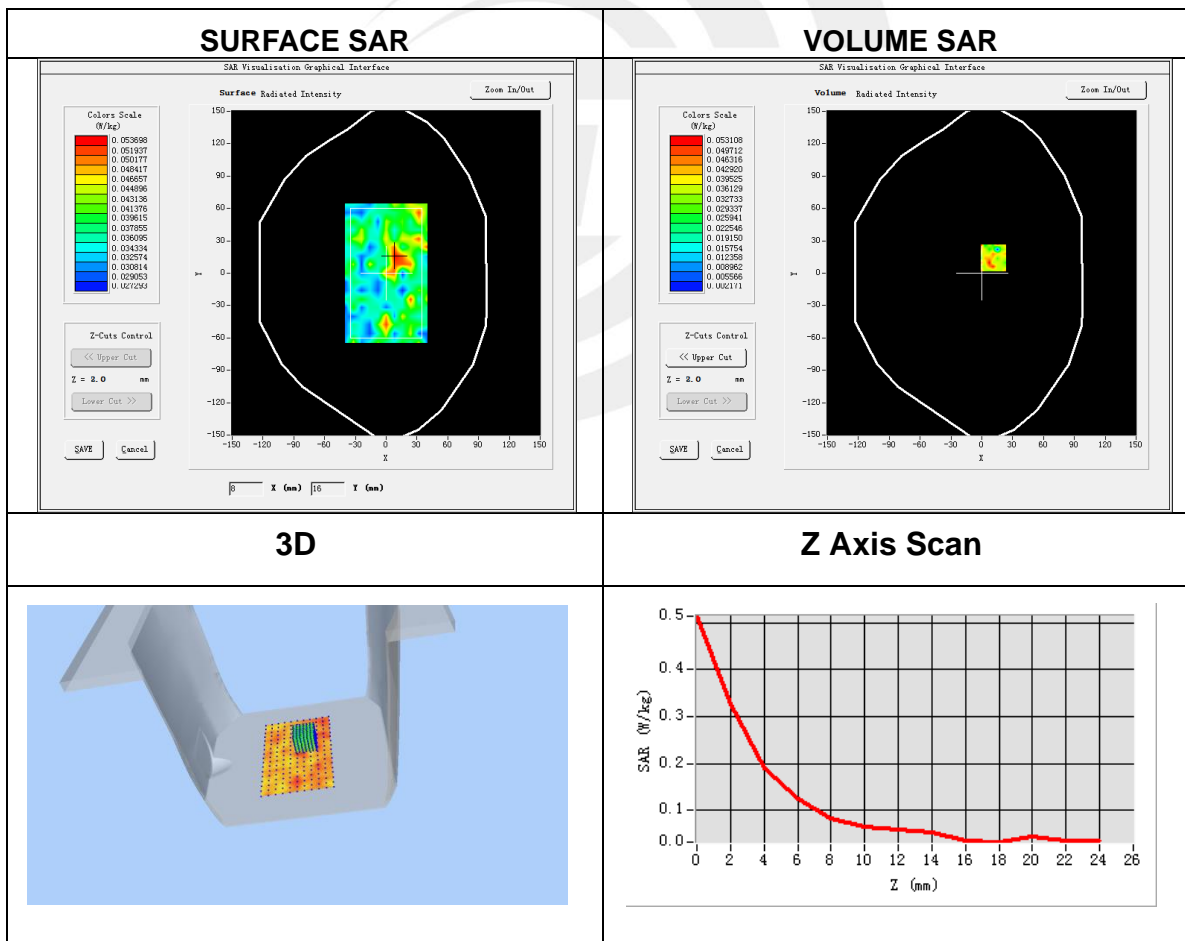


Plot 17: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-10
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	5.8G WLAN ANT A
Signal	IEEE802.11a (Crest factor: 1.0)
Frequency (MHz)	5785
Relative permittivity (real part)	35.56
Conductivity (S/m)	5.27

Maximum location: X=11.00, Y=14.00
SAR Peak: 0.07 W/kg

SAR 10g (W/Kg)	0.028288
SAR 1g (W/Kg)	0.036475

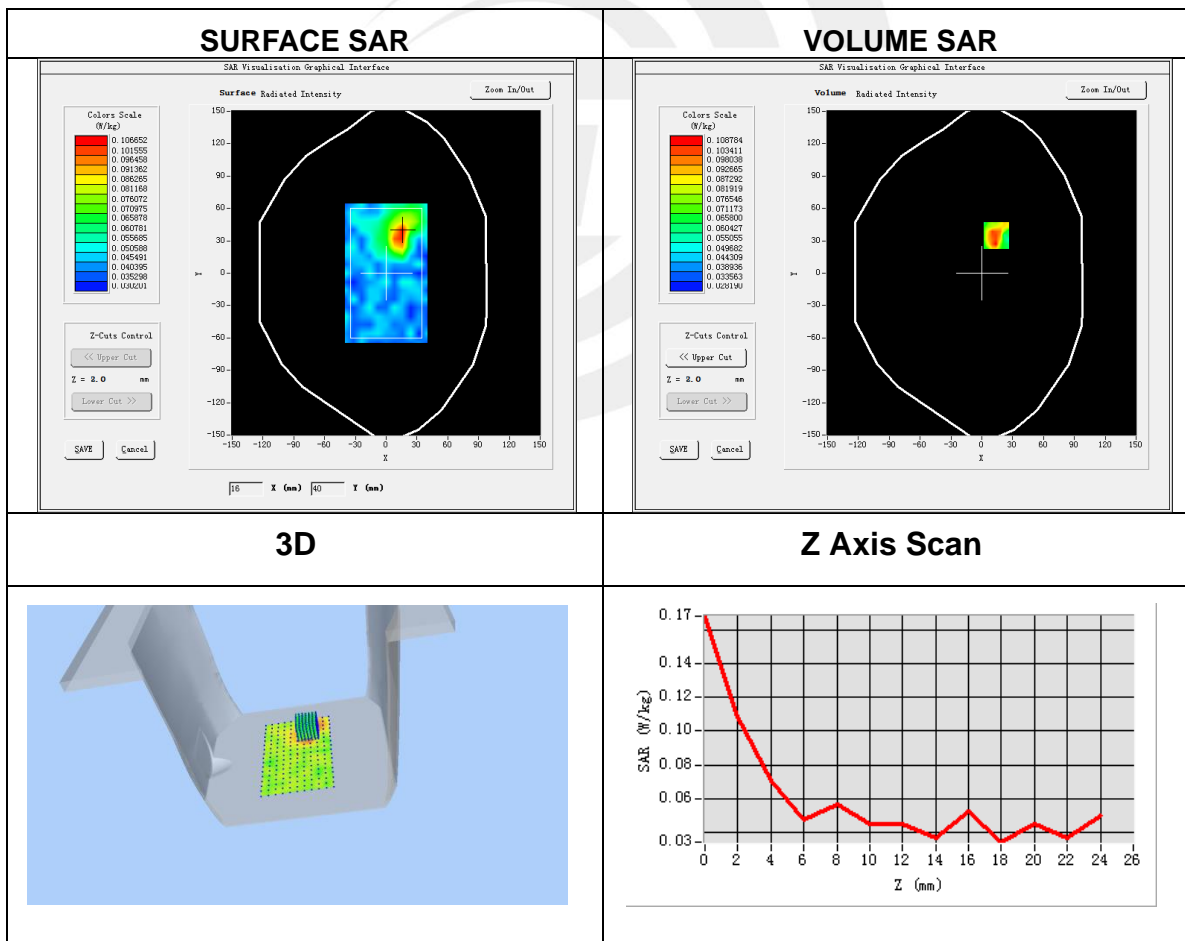


Plot 18: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-10
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	5.8G WLAN ANT B
Signal	IEEE802.11a (Crest factor: 1.0)
Frequency (MHz)	5745
Relative permittivity (real part)	35.77
Conductivity (S/m)	5.18

Maximum location: X=14.00, Y=35.00
SAR Peak: 0.17 W/kg

SAR 10g (W/Kg)	0.051895
SAR 1g (W/Kg)	0.075750



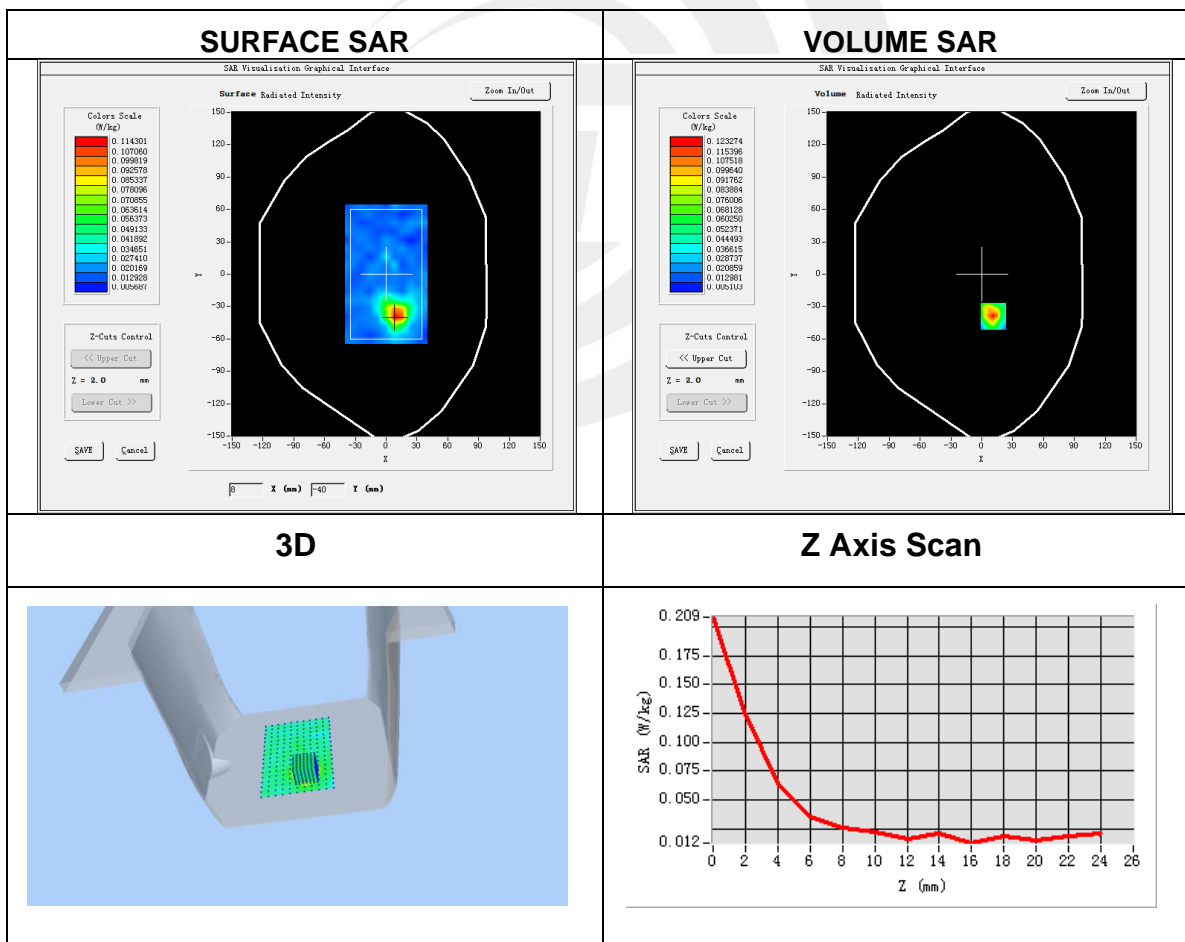
Plot 19: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-10
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	5.8G WLAN ANT A
Signal	IEEE802.11 n-HT40 (Crest factor: 1.0)
Frequency (MHz)	5755
Relative permittivity (real part)	35.29
Conductivity (S/m)	5.22

Maximum location: X=11.00, Y=-39.00

SAR Peak: 0.22 W/kg

SAR 10g (W/Kg)	0.033517
SAR 1g (W/Kg)	0.070633



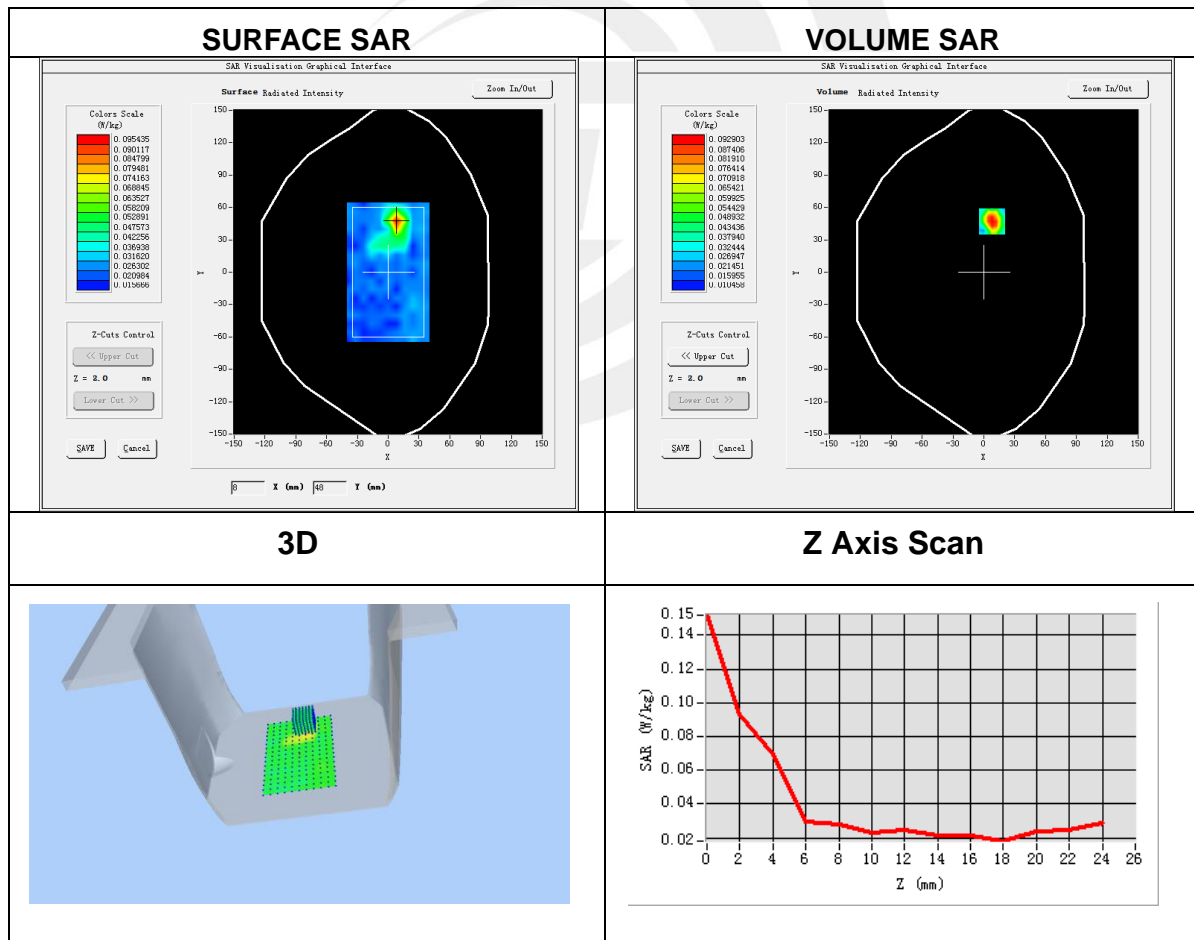
Plot 20: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2022-06-10
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	7x7x12, dx=4mm, dy=4mm, dz=2mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	5.8G WLAN ANT B
Signal	IEEE802.11 n-HT40 (Crest factor: 1.0)
Frequency (MHz)	5755
Relative permittivity (real part)	35.29
Conductivity (S/m)	5.22

Maximum location: X=8.00, Y=47.00

SAR Peak: 0.17 W/kg

SAR 10g (W/Kg)	0.033040
SAR 1g (W/Kg)	0.061541



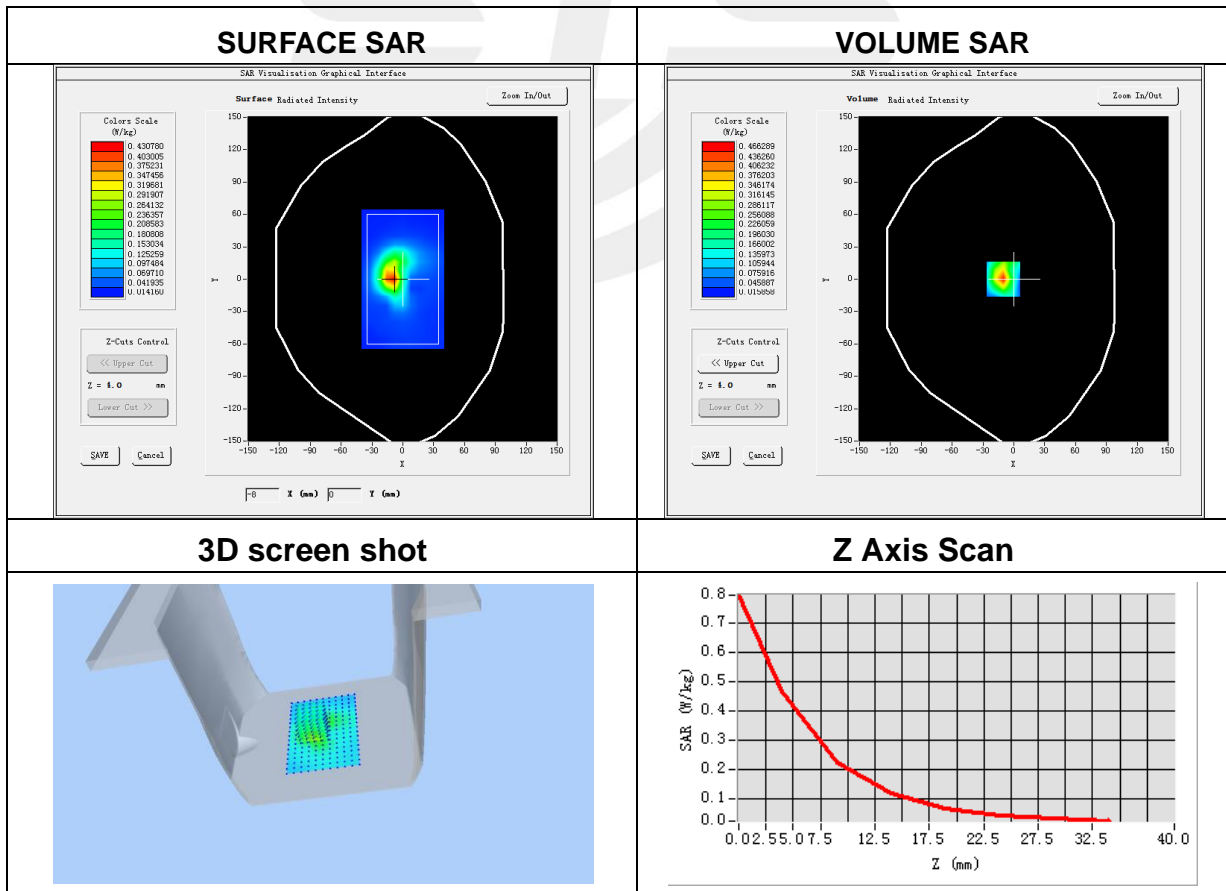
Plot 21: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-07
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	WCDMA II
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1852.4
Relative permittivity (real part)	41.31
Conductivity (S/m)	1.39

Maximum location: X=-10.00, Y=0.00

SAR Peak: 0.79 W/kg

SAR 10g (W/Kg)	0.185834
SAR 1g (W/Kg)	0.420268



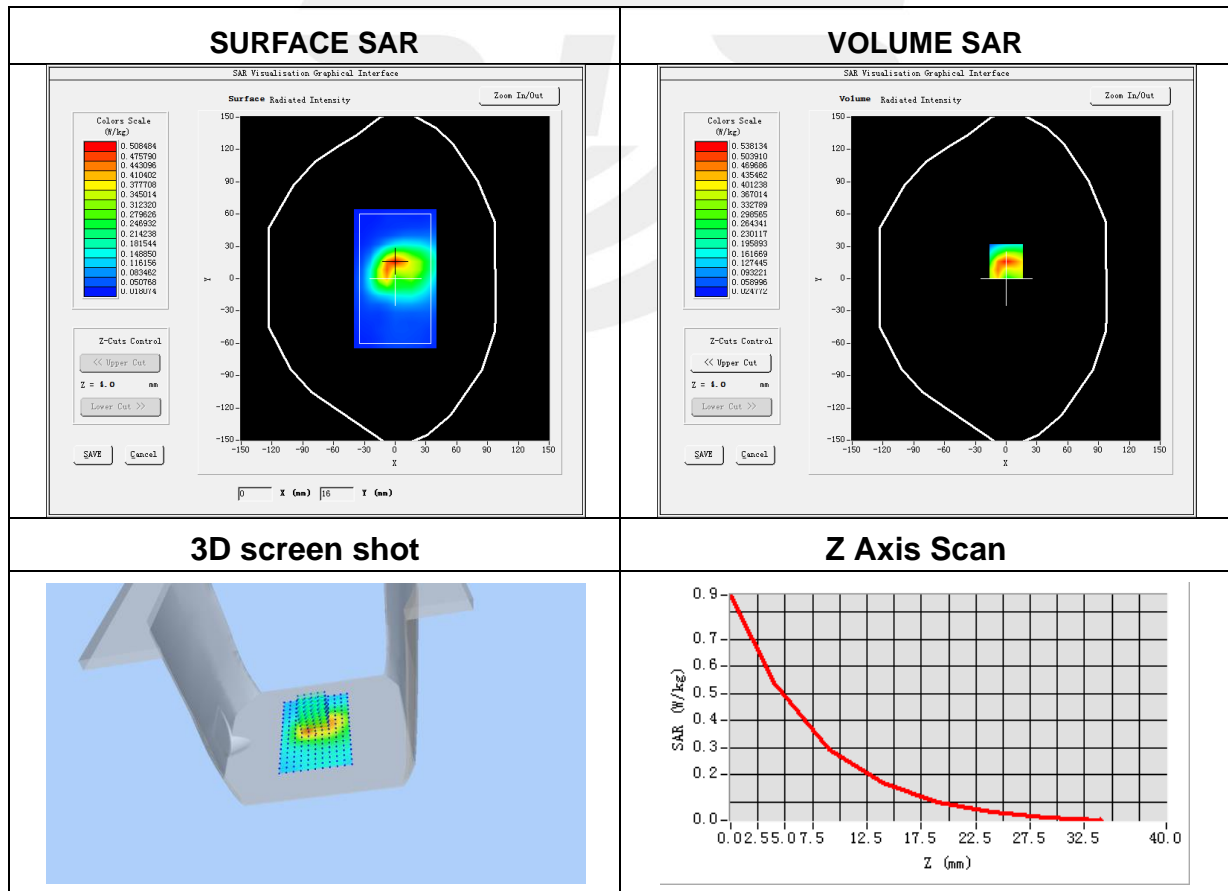
Plot 22: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-07
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	WCDMA IV
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1736.6
Relative permittivity (real part)	41.07
Conductivity (S/m)	1.41

Maximum location: X=0.00, Y=16.00

SAR Peak: 0.86 W/kg

SAR 10g (W/Kg)	0.261936
SAR 1g (W/Kg)	0.494302



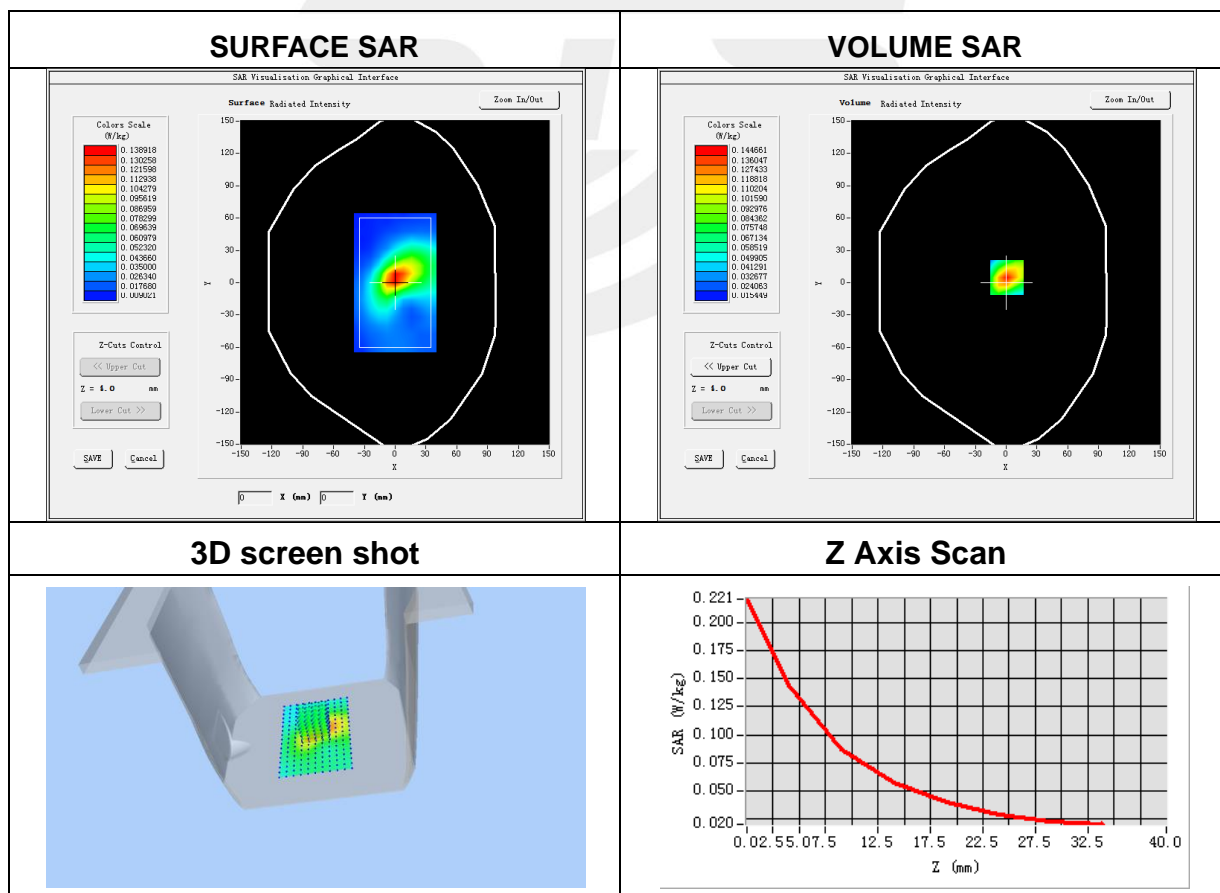
Plot 23: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-06
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	WCDMA V
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	846.6
Relative permittivity (real part)	41.09
Conductivity (S/m)	0.87

Maximum location: X=1.00, Y=5.00

SAR Peak: 0.22 W/kg

SAR 10g (W/Kg)	0.077974
SAR 1g (W/Kg)	0.136465



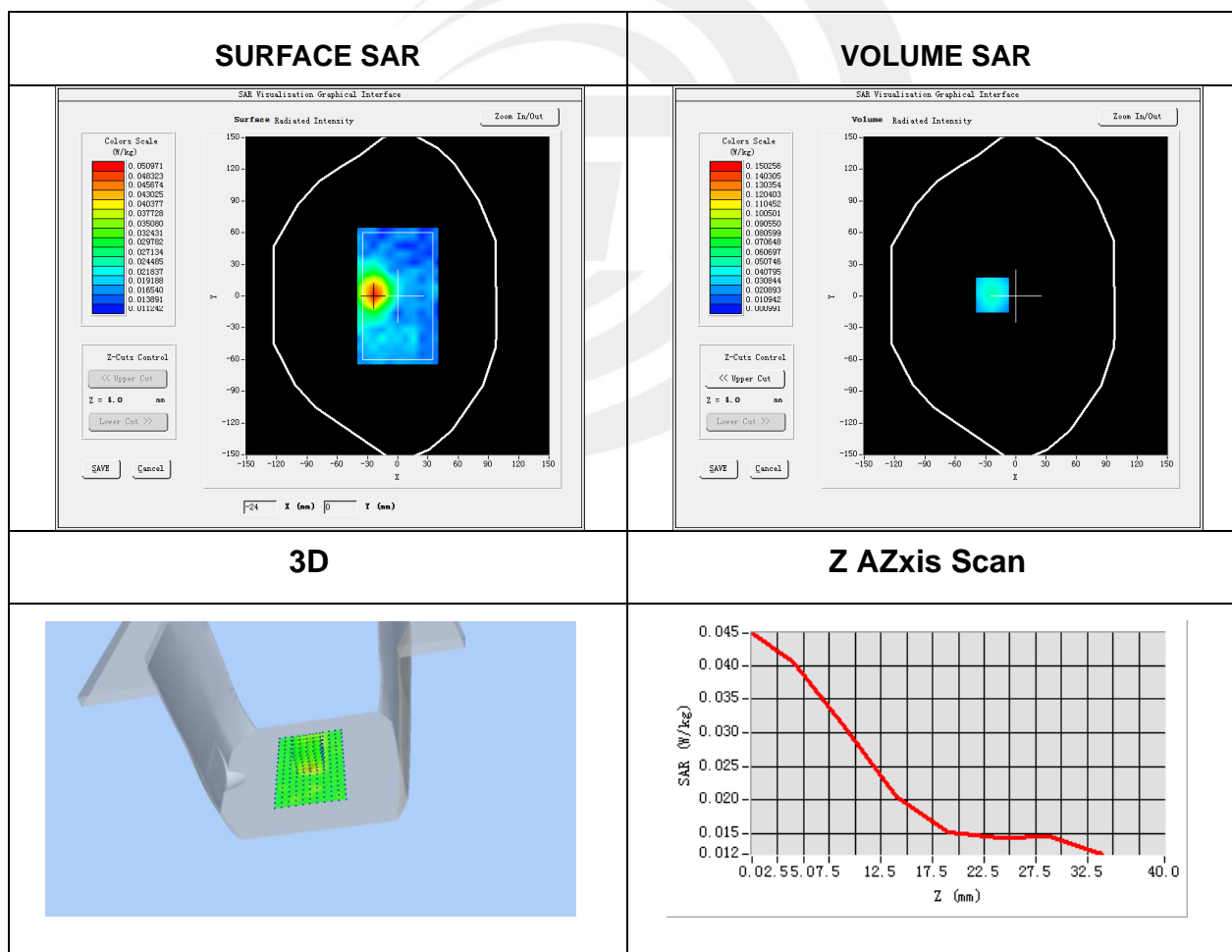
Plot 24: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-08
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	BT
Signal	GFSK (Crest factor: 1.0)
Frequency (MHz)	2480
Relative permittivity (real part)	39.82
Conductivity (S/m)	1.88

Maximum location: X=-23.00, Y=1.00

SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.033609
SAR 1g (W/Kg)	0.052223



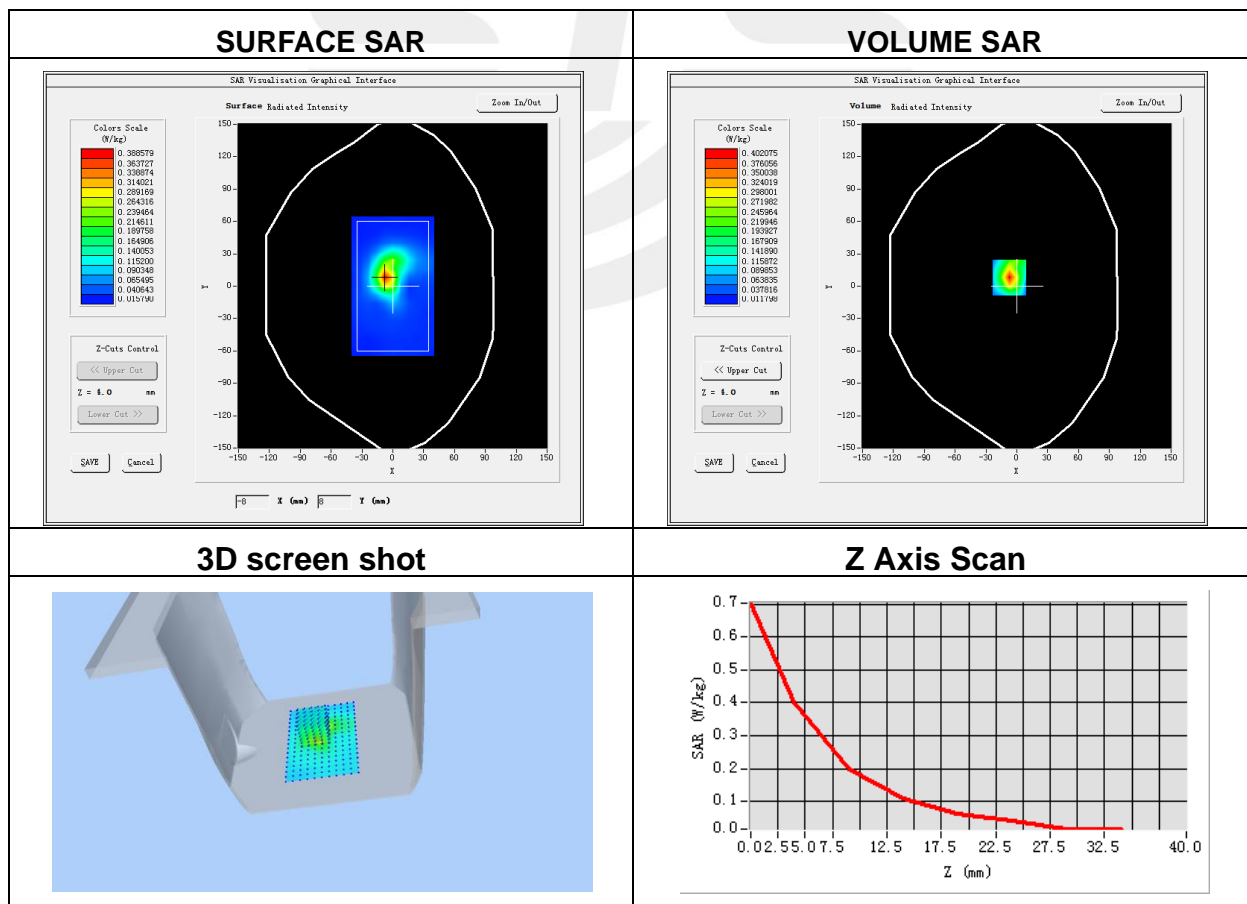
Plot 25: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-07
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 2(RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1860
Relative permittivity (real part)	41.18
Conductivity (S/m)	1.42

Maximum location: X=-7.00, Y=8.00

SAR Peak: 0.69 W/kg

SAR 10g (W/Kg)	0.165181
SAR 1g (W/Kg)	0.367810



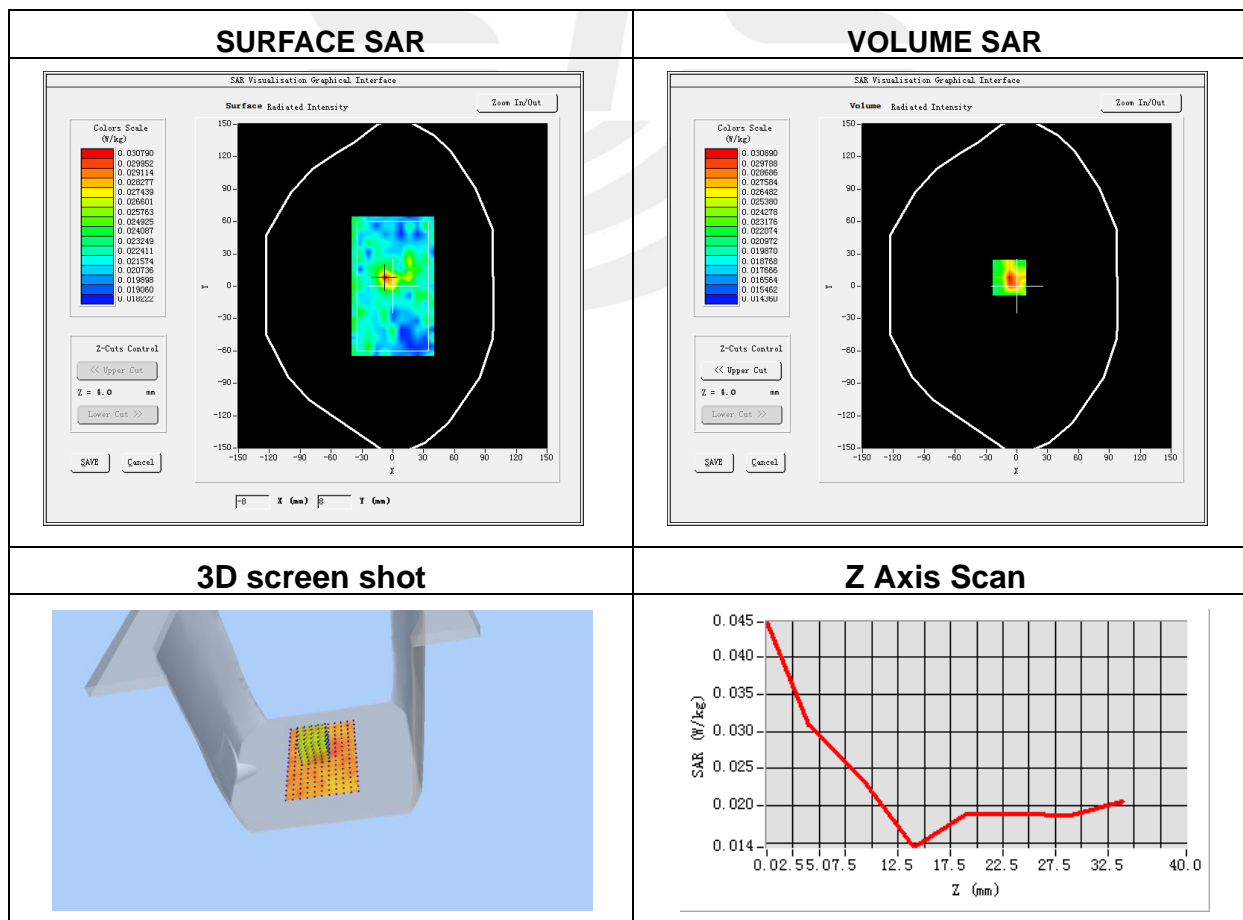
Plot 26: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-08
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 7 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2560
Relative permittivity (real part)	39.92
Conductivity (S/m)	1.87

Maximum location: X=-7.00, Y=8.00

SAR Peak: 0.05 W/kg

SAR 10g (W/Kg)	0.023127
SAR 1g (W/Kg)	0.029998



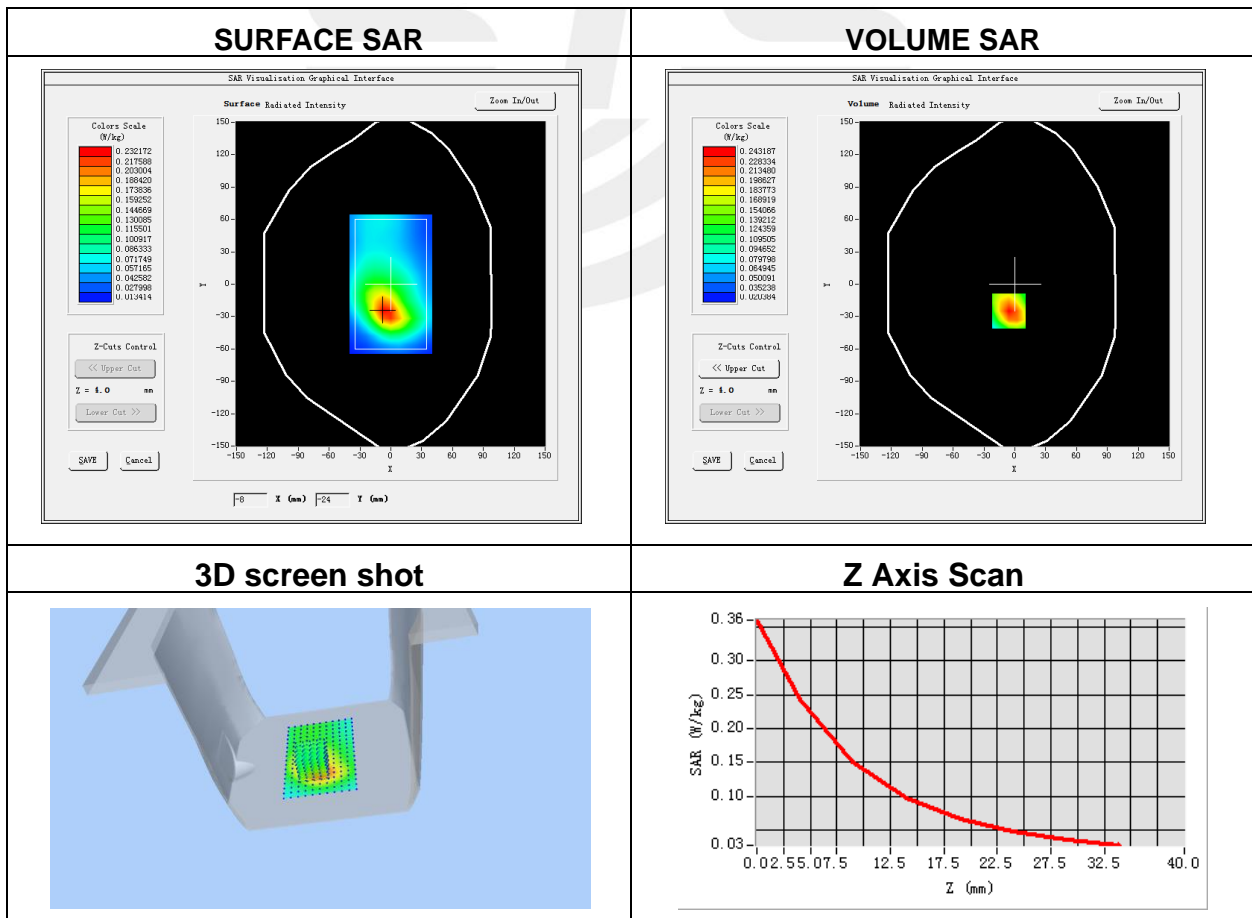
Plot 27: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-06
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 12 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	711
Relative permittivity (real part)	42.69
Conductivity (S/m)	0.91

Maximum location: X=-6.00, Y=-25.00

SAR Peak: 0.36 W/kg

SAR 10g (W/Kg)	0.140647
SAR 1g (W/Kg)	0.235707



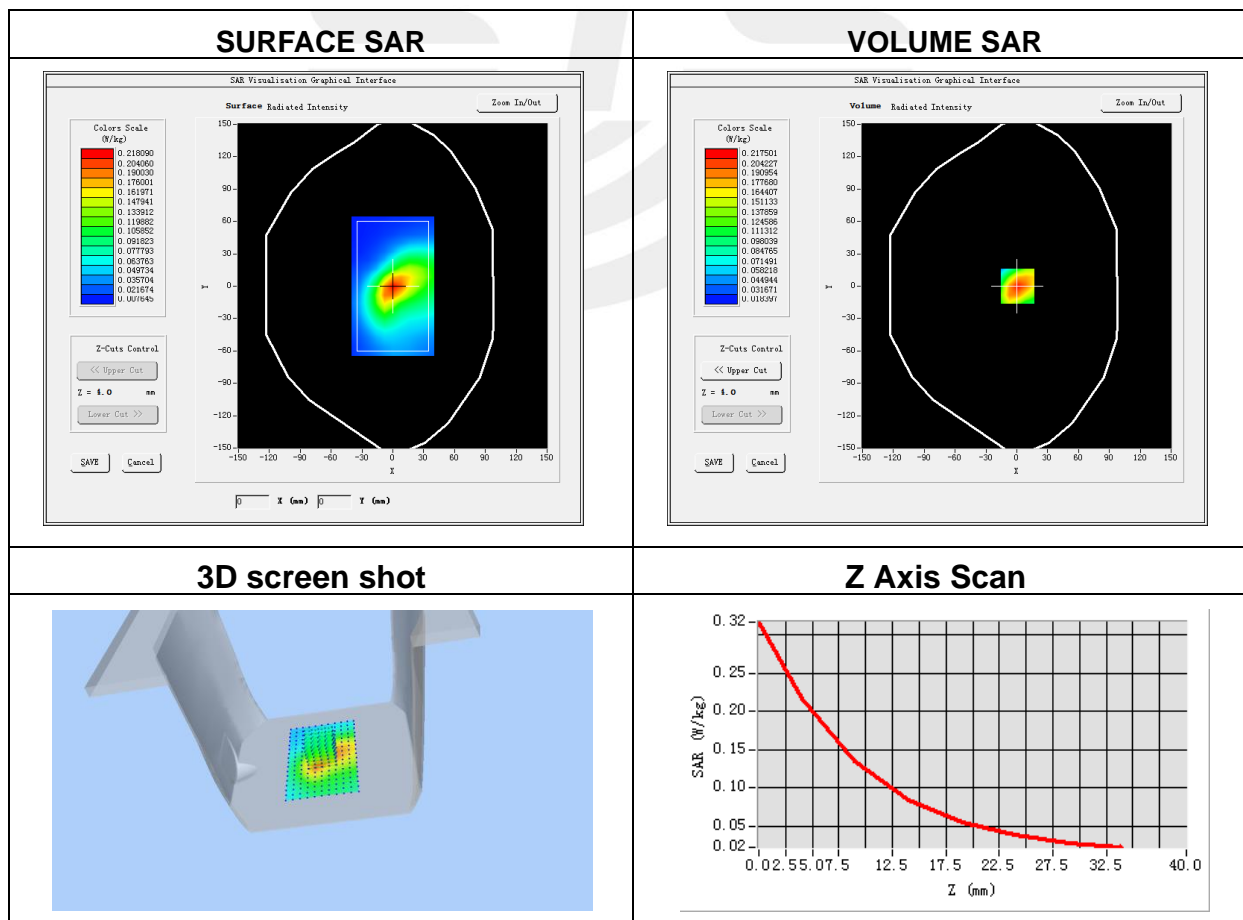
Plot 28: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-06
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back Side
Band	LTE Band 13 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	782
Relative permittivity (real part)	42.42
Conductivity (S/m)	0.87

Maximum location: X=1.00, Y=0.00

SAR Peak: 0.32 W/kg

SAR 10g (W/Kg)	0.120732
SAR 1g (W/Kg)	0.203969



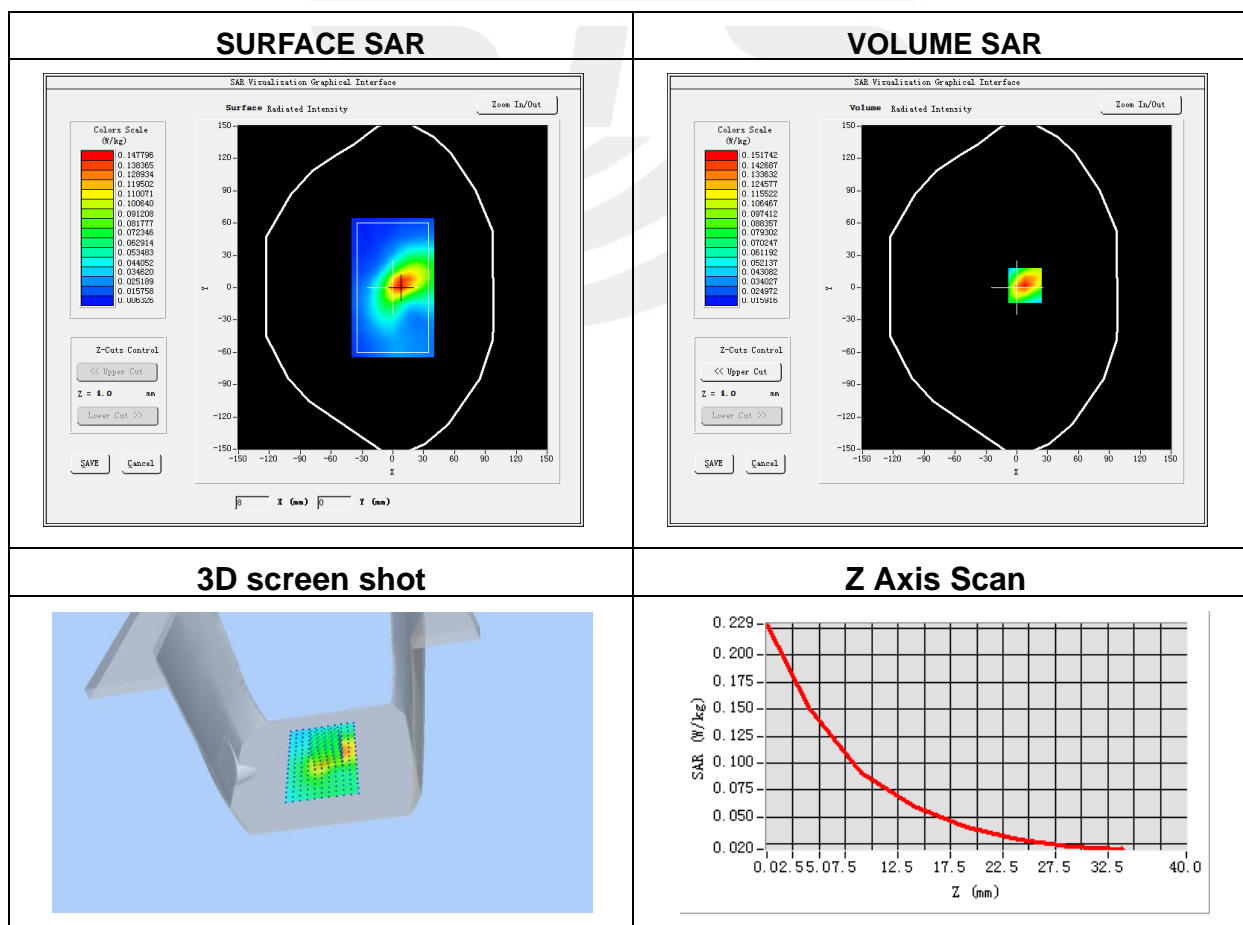
Plot 29: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-06
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	LTE Band 26 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	841.5
Relative permittivity (real part)	41.60
Conductivity (S/m)	0.89

Maximum location: X=8.00, Y=2.00

SAR Peak: 0.23 W/kg

SAR 10g (W/Kg)	0.081985
SAR 1g (W/Kg)	0.143043



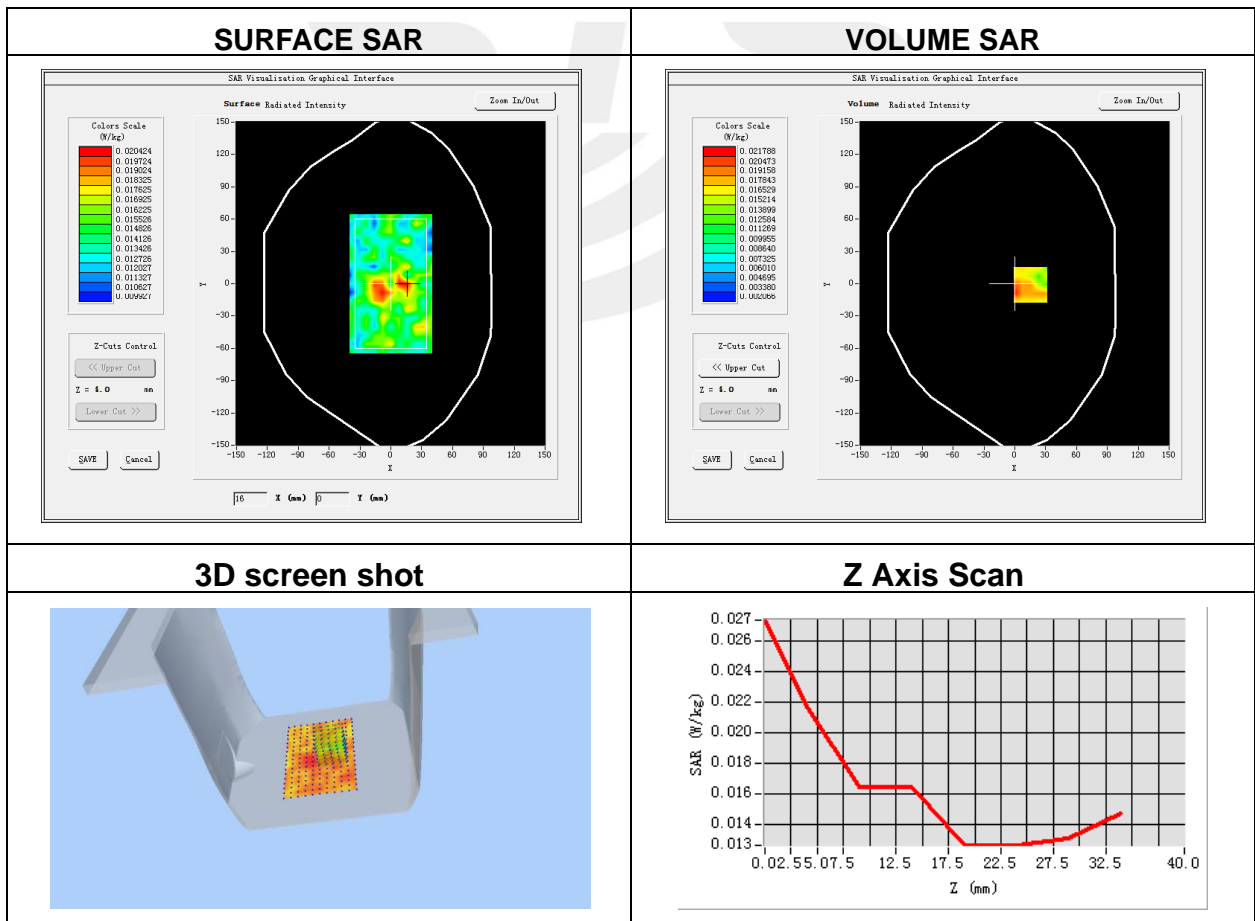
Plot 30: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-08
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	LTE Band 41 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2680
Relative permittivity (real part)	39.94
Conductivity (S/m)	2.01

Maximum location: X=15.00, Y=-1.00

SAR Peak: 0.03 W/kg

SAR 10g (W/Kg)	0.016241
SAR 1g (W/Kg)	0.019399



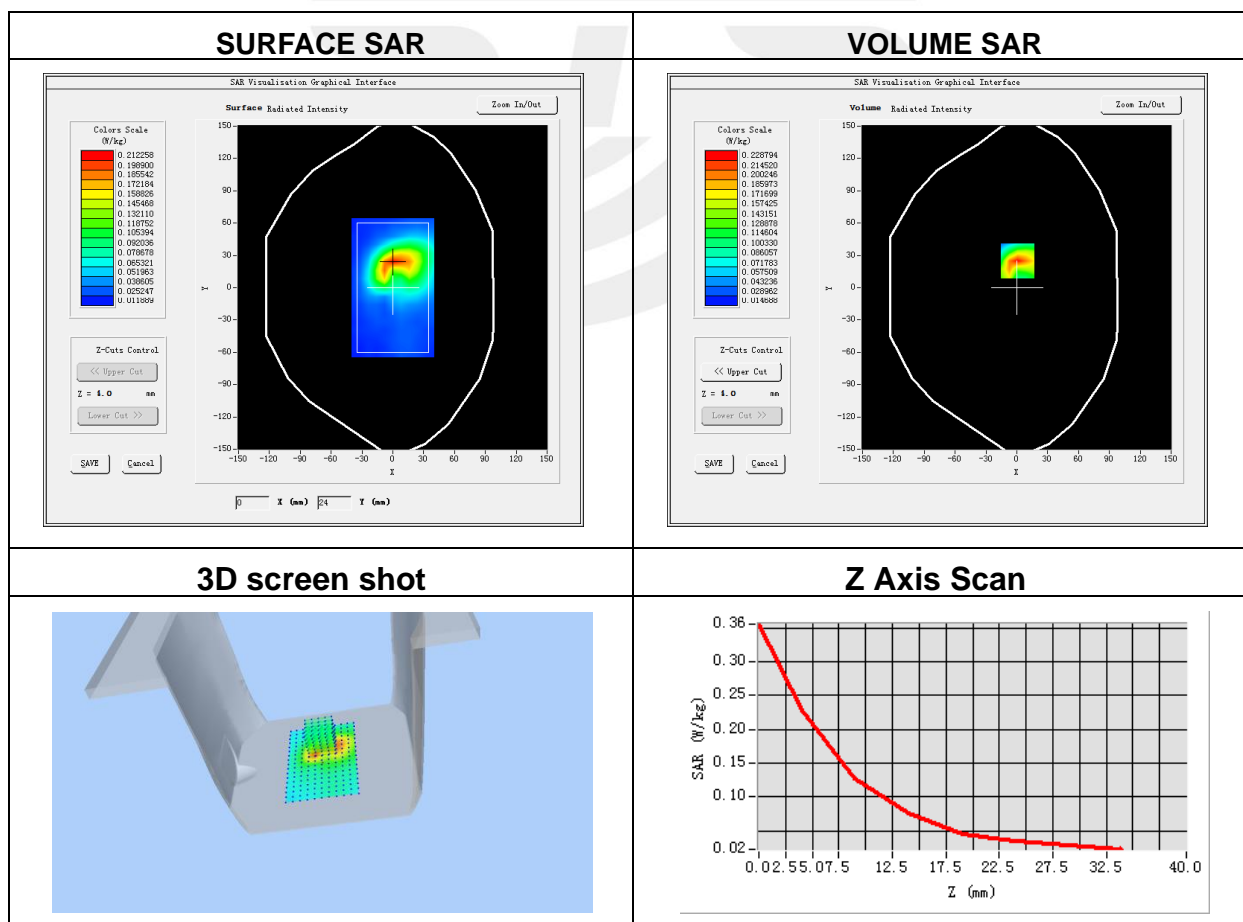
Plot 31: DUT: Rugged Tablet PC; EUT Model: S101TG

Test Date	2023-02-07
Probe	SN 07/21 EPGO352
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Top Side
Band	LTE Band 66 (RB 1)
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1755
Relative permittivity (real part)	40.94
Conductivity (S/m)	1.35

Maximum location: X=1.00, Y=25.00

SAR Peak: 0.36 W/kg

SAR 10g (W/Kg)	0.111971
SAR 1g (W/Kg)	0.207862





Appendix C. Probe Calibration And Dipole Calibration Report

Refer the appendix Calibration Report.

※※※※END OF THE REPORT※※※※

