



FCC SAR TEST REPORT

Report No.: STS2209318H03

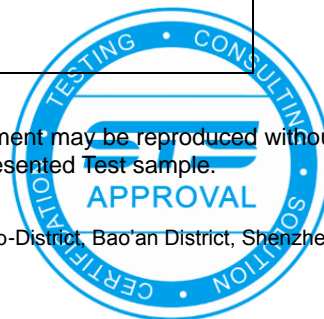
Issued for

QIYUE(Shenzhen) Technology Co., Ltd.

Room 1312P4, Building A, Galaxy Century, No.3069, Caitian Road, Gangxia Community, Futian Street, Futian District, Shenzhen China

Product Name:	NPad
Brand Name:	N-ONE
Model Name:	TAB001
Series Model:	TAB002, TAB003, TAB004, TAB005, TAB006, TAB007, TAB008, TAB009, TAB010
FCC ID:	2A8TT-TAB
Test Standard:	ANSI/IEEE Std. C95.1
	FCC 47 CFR Part 2 (2.1093)
	IEEE 1528: 2013
Max. Report SAR (1g):	Body: 1.253 W/kg

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Test Report Certification

Applicant's name : QIYUE(Shenzhen) Technology Co., Ltd.
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Fuhai Street. bao'an District. Shenzhen China

Product description

Product name : NPad
Brand name : N-ONE
Model name : TAB001
Series Model..... : TAB002, TAB003, TAB004, TAB005, TAB006,
TAB007, TAB008, TAB009, TAB010
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 : 27 Sept. 2022 ~ 28 Sept. 2022

Date of Issue..... : 30 Sept. 2022

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

Testing Engineer :

(Shifan. Long)

Technical Manager :

(Sean she)

Authorized Signatory :

(Bovey Yang)





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**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	30 Sept. 2022	STS2209318H03	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	NPad		
Brand Name	N-ONE		
Model Name	TAB001		
Series Model	TAB002, TAB003, TAB004, TAB005, TAB006, TAB007, TAB008, TAB009, TAB010		
Model Difference	Only different in model name.		
Battery	Rated Voltage:3.8V Charge Limit Voltage:4.35V Capacity: 6200mAh		
Device Category	Portable		
Product stage	Production unit		
RF Exposure Environment	General Population / Uncontrolled		
IMEI	867400020316612/01 867400020316620/01		
Hardware Version	P30-T310-V1.0-220830-H		
Software Version	Ums312_2h10_p30_3g_w21.15.5		
Frequency Range	WLAN802.11b/g/n20: 2412 MHz ~ 2462 MHz WLAN 802.11n40: 2422 MHz ~ 2452 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5150 ~ 5250 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5250 ~ 5350 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5470 ~ 5725 MHz WLAN 802.11a/n20/n40/ac20/ac40/ac80: 5725 ~ 5850 MHz Bluetooth: 2402 MHz to 2480 MHz		
Max. Reported SAR(1g): (Limit:1.6W/kg)	Band	Mode	Body Worn (W/kg)
	DTS	2.4G WLAN	0.349
	DSS	BT	0.116
	NII	5.2G WLAN	1.253
	NII	5.3G WLAN	1.043
	NII	5.6G WLAN	0.920
Max. Reported SAR(1g): (Limit:1.6W/kg)	NII	5.8G WLAN	0.756
FCC Equipment Class	Part 15 Spread Spectrum Transmitter (DSS) Digital Transmission System (DTS) Unlicensed National Information Infrastructure TX(NII)		
Operating Mode:	2.4G WLAN : 802.11b(DSSS):CCK,DQPSK,DBPSK 802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM 5G WLAN: 802.11a(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11ac(OFDM):BPSK,QPSK,16-QAM,64-QAM,256-QAM Bluetooth: GFSK +π/4DQPSK+8DPSK		
Antenna Specification:	Bluetooth: PIFA Antenna WLAN: PIFA Antenna		



Hotspot Mode	Does not 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 248227 D01 Wi-Fi SAR v02r02	SAR Considerations for 802.11 Devices

(A). Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

(B). Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

NOTE: Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1 gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

Population/Uncontrolled Environments:

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

Occupational/Controlled Environments:

Are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

NOTE

GENERAL POPULATION/UNCONTROLLED EXPOSURE

PARTIAL BODY LIMIT

1.6 W/kg

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 EPGO352 with following specifications is used

- Probe Length: 330 mm
- Length of Individual Dipoles: 2 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter: 2.5 mm
- Distance between dipole/probe extremity: 1 mm
- Dynamic range: 0.01-100 W/kg
- Probe linearity: 3%
- Axial Isotropy: < 0.10 dB
- Spherical Isotropy: < 0.10 dB
- Calibration range: 150 MHz to 6 GHz for head & body simulating liquid.
- Angle between probe axis (evaluation axis) and surface normal line: less than 30°



Figure 1-MVG COMOSAR Dosimetric E field Dipole

3.2.2 Phantom

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

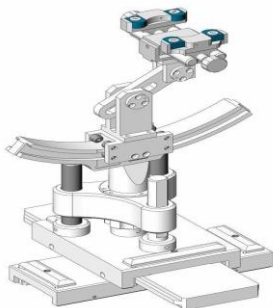
SN 32/14 SAM115



Figure-SN 21/21 ELLI48



3.2.3 Device Holder



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

4. Tissue Simulating Liquids



4. 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 σ	Permittivity 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 σ	Permittivity 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	
	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(MHz)	Temp. [°C]					
2022-09-27	21.4	55	2412	21.1	Permittivity	39.27	40.34	2.72	±5
					Conductivity	1.77	1.74	-1.69	±5
2022-09-27	21.4	55	2441	21.1	Permittivity	39.22	40.06	2.14	±5
					Conductivity	1.79	1.83	2.23	±5
2022-09-27	21.4	56	2450	21.0	Permittivity	39.20	39.15	-0.13	±5
					Conductivity	1.80	1.77	-1.67	±5
2022-09-27	21.4	56	5180	21.1	Permittivity	36.02	36.41	1.08	±5
					Conductivity	4.64	4.65	0.22	±5
2022-09-27	21.4	56	5200	21.1	Permittivity	36.00	36.49	1.36	±5
					Conductivity	4.66	4.64	-0.43	±5
2022-09-27	21.4	57	5240	21.1	Permittivity	35.96	36.53	1.59	±5
					Conductivity	4.70	4.75	1.06	±5
2022-09-27	21.5	57	5260	21.2	Permittivity	35.94	37.15	3.37	±5
					Conductivity	4.72	4.71	-0.21	±5
2022-09-28	20.4	49	5300	20.0	Permittivity	35.90	36.82	2.56	±5
					Conductivity	4.76	4.75	-0.21	±5
2022-09-28	20.4	49	5320	20.1	Permittivity	35.88	36.53	1.81	±5
					Conductivity	4.78	4.74	-0.84	±5
2022-09-28	20.4	49	5500	20.1	Permittivity	35.68	36.45	2.16	±5
					Conductivity	4.96	4.95	-0.20	±5
2022-09-28	20.5	49	5580	20.2	Permittivity	35.58	36.71	3.18	±5
					Conductivity	5.04	5.00	-0.79	±5
2022-09-28	20.5	50	5600	20.2	Permittivity	35.55	36.05	1.41	±5
					Conductivity	5.07	5.18	2.17	±5
2022-09-28	20.5	50	5700	20.2	Permittivity	35.43	36.05	1.75	±5
					Conductivity	5.17	5.18	0.19	±5
2022-09-28	20.5	50	5745	20.2	Permittivity	35.37	36.01	1.81	±5
					Conductivity	5.21	5.23	0.38	±5
2022-09-28	20.6	50	5800	20.3	Permittivity	35.30	35.77	1.33	±5
					Conductivity	5.27	5.22	-0.95	±5



6. SAR Evaluation Procedures

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

The following steps are used for each test position

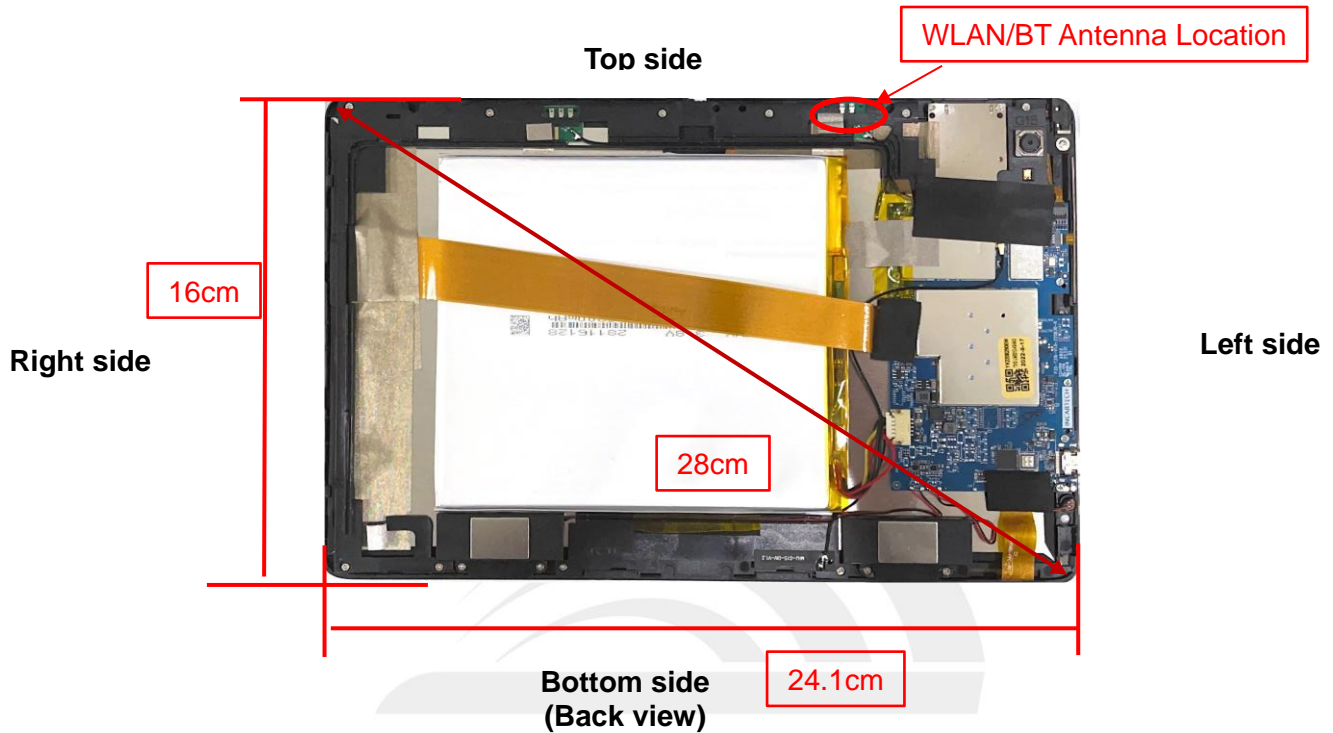
- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible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

➤ Area Scan& Zoom Scan

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01 quoted below. When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

7. EUT Antenna Location Sketch

It is a NPad, support Bluetooth/WIFI modes.



Antenna Separation Distance(cm)					
ANT	Back Side	Left Side	Right Side	Top Side	Bottom Side
WLAN/BT	≤0.5	6	15	≤0.5	15

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

Exposure Position	Wireless Interface	BT	2.4G WLAN	5.2G WLAN	5.3G WLAN	5.6G WLAN	5.8G WLAN
	Calculated Frequency(GHz)	2.411	2.412	5.18	5.26	5.5	5.745
	Maximum Turn-up power (dBm)	5	12.5	11.5	11.6	12.1	10.6
	Maximum rated power(mW)	3.16	17.78	14.13	14.45	16.22	11.48
Back Side	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	2.78	2.78	1.51	1.49	1.44	1.39
	Testing required?	YES	YES	YES	YES	YES	YES
Left Edge	Separation distance (cm)	6	6	6	6	6	6
	exclusion threshold(mW)	311.13	311.10	254.75	253.73	250.79	247.95
	Testing required?	NO	NO	NO	NO	NO	NO
Right Edge	Separation distance (cm)	15	15	15	15	15	15
	exclusion threshold(mW)	1772.16	1772.12	1689.49	1687.87	1683.18	1678.60
	Testing required?	NO	NO	NO	NO	NO	NO
Top Edge	Separation distance (cm)	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5
	exclusion threshold(mW)	2.78	2.78	1.51	1.49	1.44	1.39
	Testing required?	YES	YES	YES	YES	YES	YES
Bottom Edge	Separation distance (cm)	15	15	15	15	15	15
	exclusion threshold(mW)	1772.16	1772.12	1689.49	1687.87	1683.18	1678.60
	Testing required?	NO	NO	NO	NO	NO	NO

**Note:**

1. maximum power is the source-based time-average power and represents the maximum RF output power among production units.
2. Per KDB 447498 D04, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D04, if the maximum time-averaged power available does not exceed 1 mW. This stand-alone SAR exemption test.
4. Per KDB 447498 D04, the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

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

Where

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

and

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

d = the separation distance (cm);



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

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

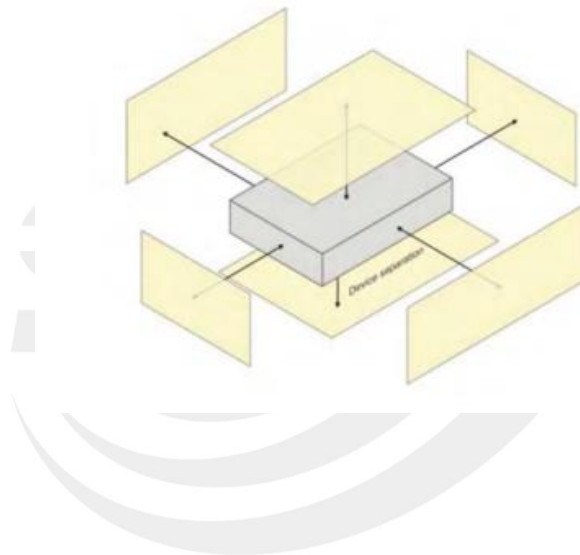
8. EUT Test Position

This EUT was tested in Back Side, and Top Side.

8.1 Body-worn Position Conditions

Body-worn Position Conditions:

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





9. Uncertainty

9.1 Measurement Uncertainty

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

Uncertainty Component	Tol (+/- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+/-%)	10g Ui (+/-%)	v_i
Measurement System								
Probe calibration	5.86	N	1	1	1	5.86	5.86	∞
Axial Isotropy	0.16	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.07	0.07	∞
Hemispherical Isotropy	1.06	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.43	0.43	∞
Boundary effect	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	1.27	R	$\sqrt{3}$	1	1	0.73	0.73	∞
System detection limits	1.23	R	$\sqrt{3}$	1	1	0.71	0.71	∞
Modulation response	3.6	R	$\sqrt{3}$	1	1	3.60	3.60	∞
Readout Electronics	0.28	N	1	1	1	0.28	0.28	∞
Response Time	0.19	R	$\sqrt{3}$	1	1	0.11	0.11	∞
Integration Time	1.47	R	$\sqrt{3}$	1	1	0.85	0.85	∞
RF ambient conditions- Noise	3.5	R	$\sqrt{3}$	1	1	2.02	2.02	∞
RF ambient conditions- reflections	3.2	R	$\sqrt{3}$	1	1	1.85	1.85	∞
Probe positioner mechanical tolerance	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Post-processing	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
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	4.8	R	$\sqrt{3}$	1	1	2.77	2.77	∞
SAR scaling	2	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and tissue parameters								
Phantom uncertainty (shape and thickness uncertainty)	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	2	N	1	1	0.84	2.00	1.68	∞
Liquid conductivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.78	0.71	1.95	1.78	∞
Liquid conductivity (measured)	4	N	1	0.78	0.71	0.92	1.04	M
Liquid permittivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.23	0.26	1.95	1.78	∞
Liquid permittivity (measured)	5	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty		RSS				10.60	10.51	
Expanded Uncertainty (95% Confidence interval)		K=2				21.21	21.03	



10. Conducted Power Measurement

10.1 Test Result

2.4G WLAN

2.4GWIFI				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
802.11b	1	2412	12.41	17.42
	6	2437	11.85	15.31
	11	2462	11.92	15.56
802.11g	1	2412	8.71	7.43
	6	2437	8.44	6.98
	11	2462	8.1	6.46
802.11 n-HT20	1	2412	8.97	7.89
	6	2437	8.73	7.46
	11	2462	8.49	7.06
802.11 n-HT40	3	2422	8.33	6.81
	6	2437	8.23	6.65
	9	2452	8.39	6.90

Bluetooth

BT				
Mode	Channel Number	Frequency (MHz)	Average Power (dBm)	Output Power (mW)
GFSK(1Mbps)	0	2402	3.98	2.50
	39	2441	4.84	3.05
	78	2480	4.21	2.64
$\pi/4$ -QPSK(2Mbps)	0	2402	2.62	1.83
	39	2441	3.28	2.13
	78	2480	2.61	1.82
8DPSK(3Mbps)	0	2402	2.61	1.82
	39	2441	3.16	2.07
	78	2480	2.59	1.82

**WLAN (5.2Gband)**

5.2G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	36	5180	10.62	11.53
	40	5200	10.67	11.67
	48	5240	10.92	12.36
802.11 n-HT20	36	5180	10.91	12.33
	40	5200	11.06	12.76
	48	5240	11.03	12.68
802.11 n-HT40	38	5190	10.92	12.36
	46	5230	11.01	12.62
802.11ac-VHT20	36	5180	11.44	13.93
	40	5200	11.35	13.65
	48	5240	11.11	12.91
802.11ac-VHT40	38	5190	10.92	12.36
	46	5230	10.89	12.27
802.11ac-VHT80	42	5210	11.04	12.71

**WLAN (5.3Gband)**

5.3G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	52	5260	10.65	11.61
	60	5300	10.81	12.05
	64	5320	11.09	12.85
802.11 n-HT20	52	5260	11.51	14.16
	60	5300	10.82	12.08
	64	5320	10.96	12.47
802.11 n-HT40	54	5270	10.44	11.07
	62	5310	10.75	11.89
802.11ac-VHT20	52	5260	10.63	11.56
	60	5300	10.78	11.97
	64	5320	11.28	13.43
802.11ac-VHT40	54	5270	10.4	10.96
	62	5310	10.76	11.91
802.11ac-VHT80	58	5290	10.67	11.67

**WLAN (5.6Gband)**

5.6G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	100	5500	10.74	11.86
	116	5580	9.44	8.79
	140	5700	9.53	8.97
802.11 n-HT20	100	5500	12.07	16.11
	116	5580	10.57	11.40
	140	5700	10.92	12.36
802.11 n-HT40	102	5510	10.62	11.53
	110	5550	9.95	9.89
	134	5670	9.71	9.35
802.11ac-VHT20	100	5500	10.8	12.02
	116	5580	9.65	9.23
	140	5700	10.05	10.12
802.11ac-VHT40	102	5510	10.57	11.40
	110	5550	9.92	9.82
	134	5670	9.88	9.73
802.11ac-VHT80	106	5530	10.46	11.12
	122	5610	9.43	8.77

**WLAN (5.8Gband)**

5.8G WLAN				
Mode	Channel Number	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
802.11a20	149	5745	9.96	9.91
	157	5785	9.51	8.93
	165	5825	8.52	7.11
802.11 n-HT20	149	5745	10.4	10.96
	157	5785	9.9	9.77
	165	5825	8.9	7.76
802.11 n-HT40	151	5755	10.14	10.33
	159	5795	9.45	8.81
802.11ac-VHT20	149	5745	10.46	11.12
	157	5785	9.9	9.77
	165	5825	8.82	7.62
802.11ac-VHT40	151	5755	10.12	10.28
	159	5795	9.46	8.83
802.11ac-VHT80	155	5775	9.82	9.59



11. EUT and Test Setup Photo

11.1 EUT Photo

Front side



Back side





Top side



Bottom side





Left side



Right side

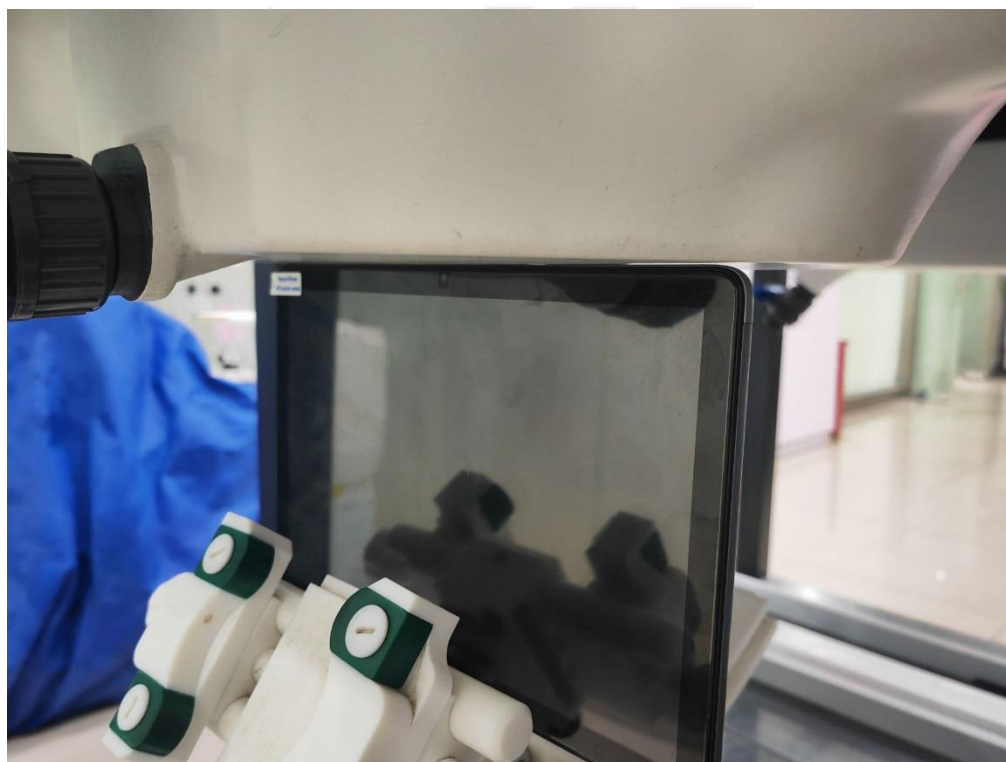


11.2 Setup Photo

Body Back side(separation distance is 0mm)

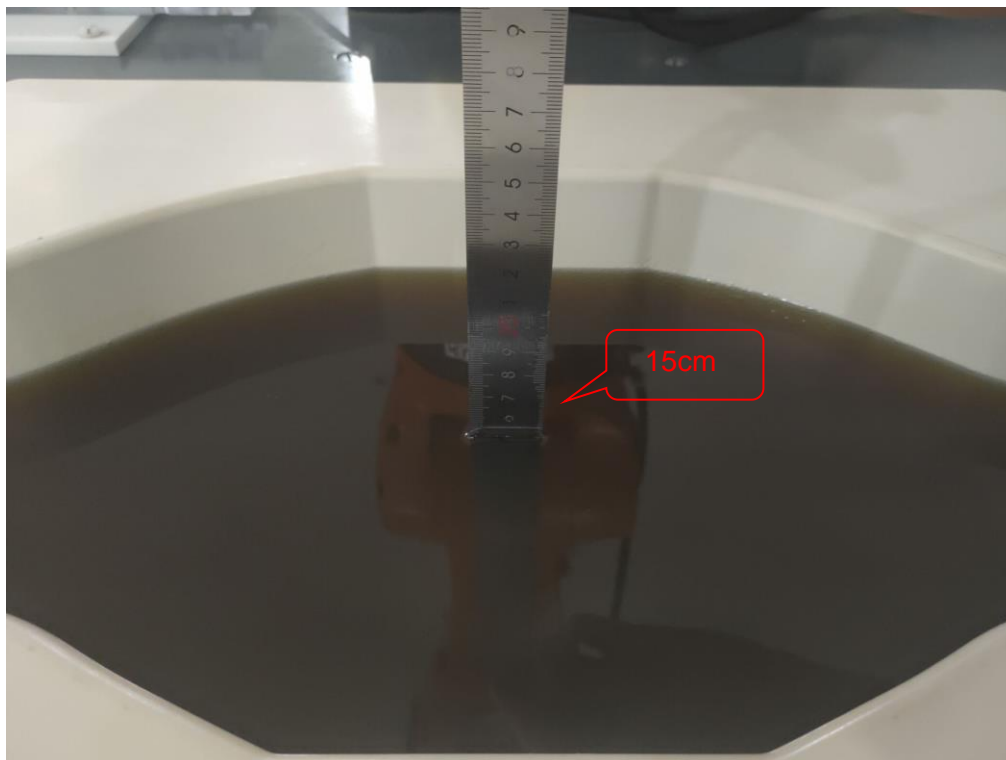


Body Top side(separation distance is 0mm)





Liquid depth (15 cm)





12. SAR Result Summary

12.1 Body 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.
2.4GHz WLAN	802.11b	Back Side	2412	0.342	-0.05	12.50	12.41	0.349	1
		Top Side	2412	0.281	3.74	12.50	12.41	0.287	/
BT	GFSK	Back Side	2441	0.112	2.51	5.00	4.84	0.116	2
		Top Side	2441	0.087	1.09	5.00	4.84	0.090	/
5.2GHz WLAN	802.11ac-VHT20	Back Side	5180	0.408	-2.27	11.50	11.44	0.414	/
		Top Side	5180	1.236	1.92	11.50	11.44	1.253	3
		Top Side	5200	1.123	3.23	11.50	11.35	1.162	/
		Top Side	5240	0.921	0.76	11.50	11.11	1.008	/
5.3GHz WLAN	802.11 n-HT20	Back Side	5260	0.538	-0.05	11.60	11.51	0.549	/
		Top Side	5260	1.022	-3.73	11.60	11.51	1.043	4
		Top Side	5300	0.814	-2.85	11.60	10.82	0.974	/
		Top Side	5320	0.872	-2.72	11.60	10.96	1.010	/
5.6GHz WLAN	802.11 n-HT20	Back Side	5500	0.680	2.06	12.10	12.07	0.685	/
		Top Side	5500	0.914	2.20	12.10	12.07	0.920	5
		Top Side	5580	0.547	2.02	12.10	10.57	0.778	/
		Top Side	5700	0.556	-0.91	12.10	10.92	0.730	/
5.8GHz WLAN	802.11ac-VHT20	Back Side	5745	0.200	1.76	10.60	10.46	0.207	/
		Top Side	5745	0.732	0.16	10.60	10.46	0.756	6

Note:

- The test separation of all above table is 0mm.
- Per KDB 447498 D04, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - Scaled SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
- Per KDB 248227- When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg. (The highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power was 0.280 W/Kg for Body)
- The Bluetooth and WLAN can't simultaneous transmission at the same time.

**12.2 Repeated SAR**

Band	Mode	Test Position	Freq.	Result 1g (W/Kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR(W/Kg)	Meas. No.
5.2GHz WLAN	802.11ac-VHT20	Top Side	5180	1.192	-3.31	11.50	11.44	1.209	-
		Top Side	5200	1.121	2.46	11.50	11.35	1.160	-
		Top Side	5240	0.898	2.62	11.50	11.11	0.982	-
5.3GHz WLAN	802.11 n-HT20	Top Side	5260	1.003	0.85	11.60	11.51	1.024	-
		Top Side	5300	0.795	2.30	11.60	10.82	0.951	-
		Top Side	5320	0.868	3.32	11.60	10.96	1.006	-
5.6GHz WLAN	802.11 n-HT20	Top Side	5500	0.902	2.98	12.10	12.07	0.908	-

12.3 Repeated SAR

Band	Mode	Test Position	Freq.	Original Measured SAR 1g(W/kg)	1 st Repeated SAR 1g	Ratio	Original Measured SAR 1g(W/kg)	2nd Repeated SAR 1g	Ratio
5.2GHz WLAN	802.11ac-VHT20	Top Side	5180	1.236	1.192	1.037	-	-	-
		Top Side	5200	1.123	1.121	1.002	-	-	-
		Top Side	5240	0.921	0.898	1.026	-	-	-
5.3GHz WLAN	802.11 n-HT20	Top Side	5260	1.022	1.003	1.019	-	-	-
		Top Side	5300	0.814	0.795	1.024	-	-	-
		Top Side	5320	0.872	0.868	1.005	-	-	-
5.6GHz WLAN	802.11 n-HT20	Top Side	5500	0.914	0.902	1.013	-	-	-

Note:

1. Per KDB 865664 D01, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/Kg.
2. Per KDB 865664 D01, if the ratio of largest to smallest SAR for the original and first repeated measurement is ≤ 1.2 and the measured SAR < 1.45 W/Kg, only one repeated measurement is required.
3. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/Kg.
4. The ratio is the difference in percentage between original and repeated measured SAR.



13. Equipment List

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
2450MHzDipole	MVG	SID2450	SN 30/14 DIP2G450-335	2020.07.14	2023.07.13
Waveguide	MVG	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	2021.11.23	2022.11.22
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	2021.09.29	2022.09.28
Multi Meter	Keithley	Multi Meter 2000	4050073	2021.10.08	2022.10.07
Signal Generator	Agilent	N5182A	MY50140530	2021.09.30	2022.09.29
Wireless Communication Test Set	Agilent	8960-E5515C	MY48360751	2021.09.30	2022.09.29
Wireless Communication Test Set	R&S	CMW500	117239	2021.09.30	2022.09.29
Power Amplifier	DESAY	ZHL-42W	9638	2021.10.09	2022.10.08
Power Meter	R&S	NRP	100510	2021.09.29	2022.09.28
Power Sensor	R&S	NRP-Z11	101919	2021.09.29	2022.09.28
Temperature hygrometer	SuWei	SW-108	N/A	2021.10.09	2022.10.08
Thermograph	Elitech	RC-4	S/N EF7176501537	2021.10.09	2022.10.08

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)

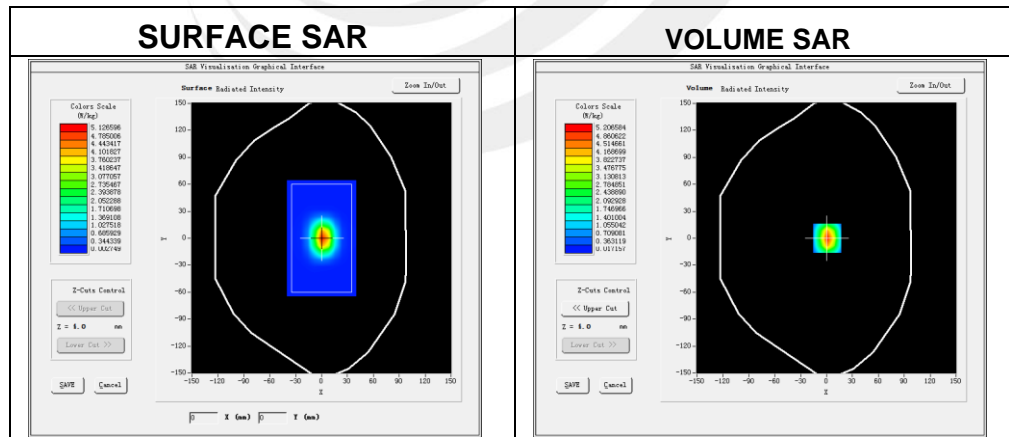
Area scan resolution: dx=8mm, dy=8mm

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

Date of measurement: 2022-09-27

Experimental conditions.

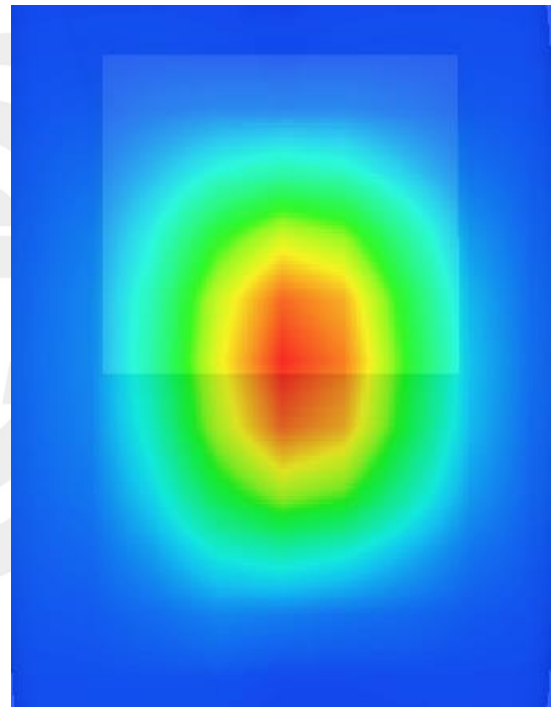
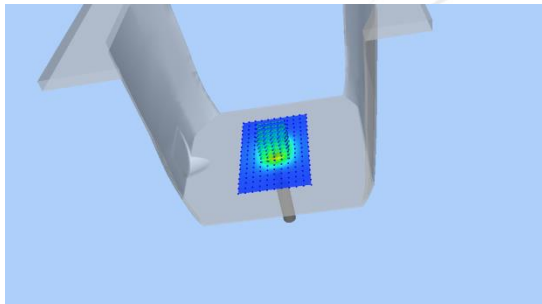
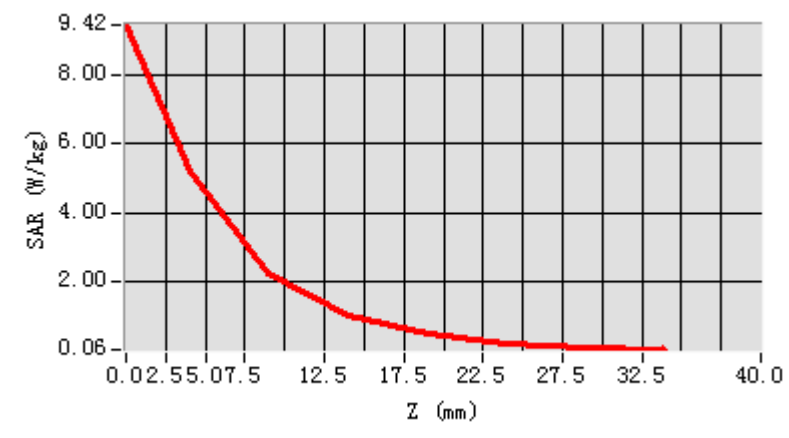
Device Position	Validation plane
Band	2450 MHz
Channels	-
Signal	CW
Frequency (MHz)	2450
Relative permittivity	39.15
Conductivity (S/m)	1.77
Probe	SN 07/21 EPGO352
ConvF	1.75
Crest factor:	1:1



Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.391570
SAR 1g (W/Kg)	5.566641

Z Axis Scan



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

Type: Dipole measurement (Complete)

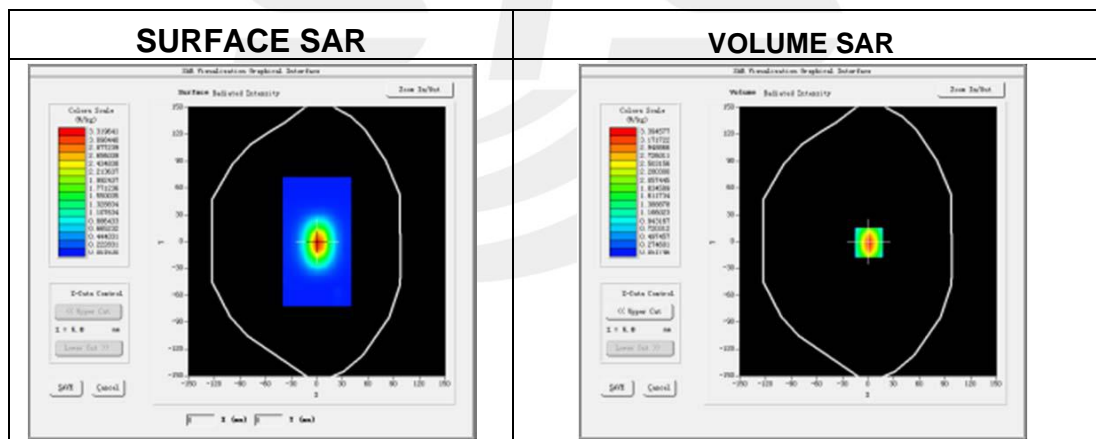
Area scan resolution: dx=8mm,dy=8mm

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

Date of measurement: 2022-09-27

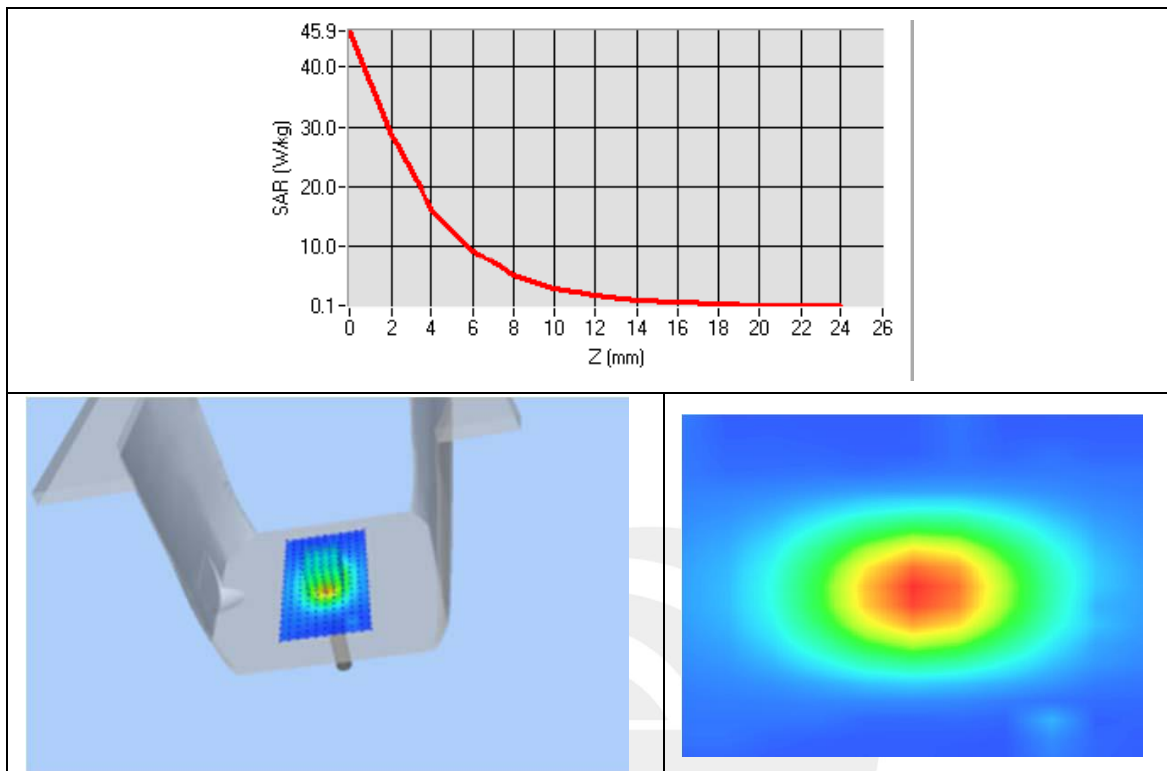
Experimental conditions.

Device Position	Validation plane
Band	5200 MHz
Channels	-
Signal	CW
Frequency (MHz)	5200
Relative permittivity	36.49
Conductivity (S/m)	4.64
Probe	SN 07/21 EPGO352
ConvF	1.65
Crest factor:	1:1

**Maximum location: X=7.00, Y=2.00**

SAR 10g (W/Kg)	5.667514
SAR 1g (W/Kg)	15.898046

Z Axis Scan





System Performance Check Data (5300MHz)

Type: Dipole measurement (Complete)

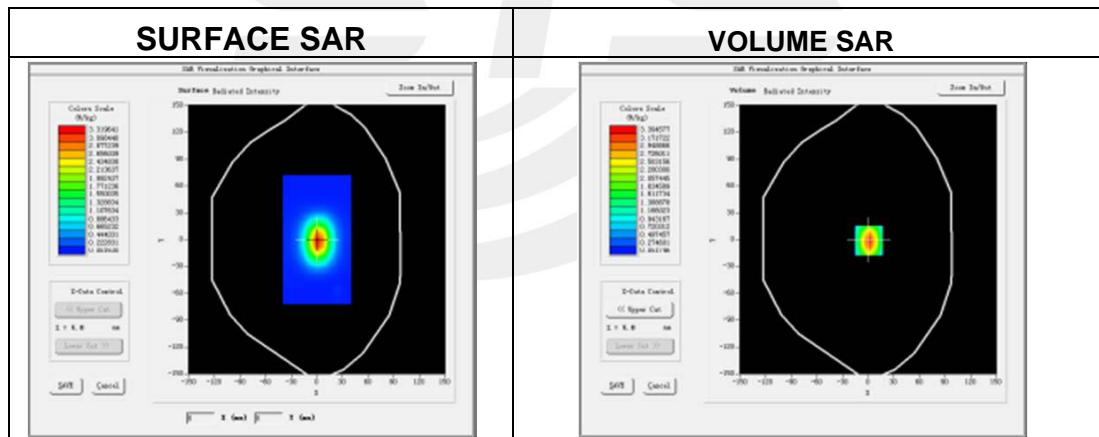
Area scan resolution: dx=8mm,dy=8mm

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

Date of measurement: 2022-09-28

Experimental conditions.

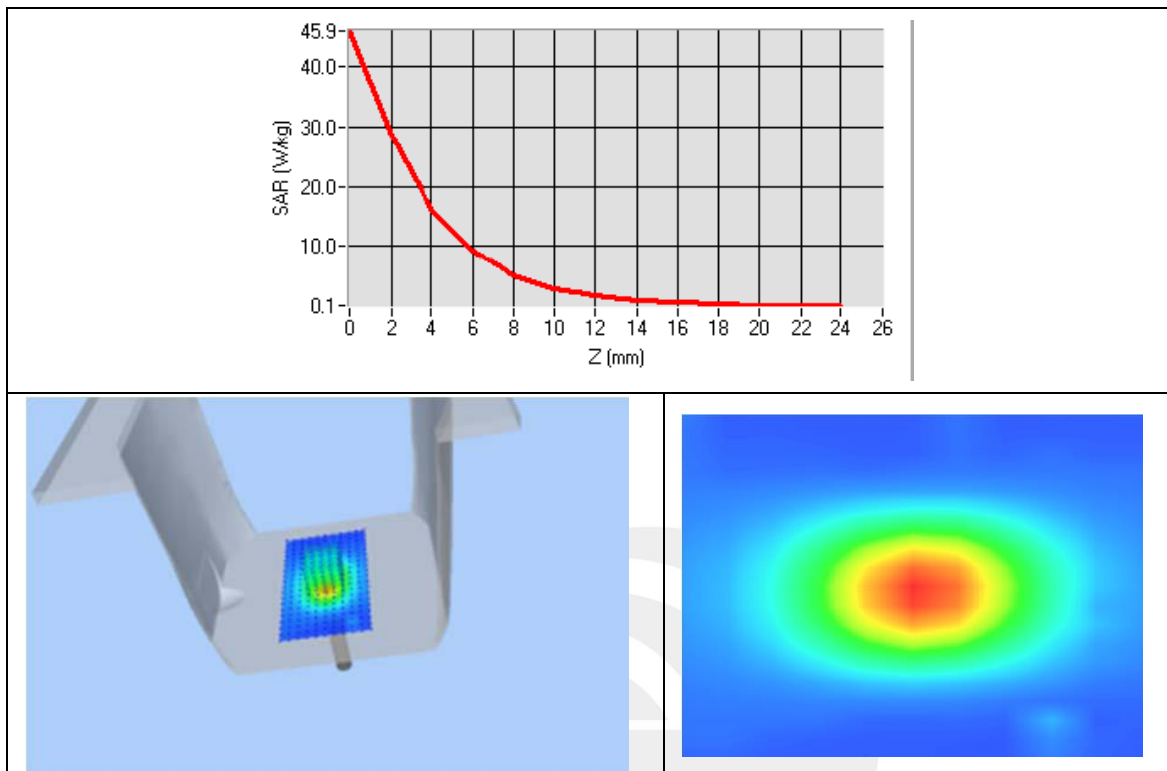
Device Position	Validation plane
Band	5300 MHz
Channels	-
Signal	CW
Frequency (MHz)	5300
Relative permittivity	36.82
Conductivity (S/m)	4.75
Probe	SN 07/21 EPGO352
ConvF	1.65
Crest factor:	1:1



Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	6.181995
SAR 1g (W/Kg)	16.917459

Z Axis Scan





System Performance Check Data (5600MHz)

Type: Dipole measurement (Complete)

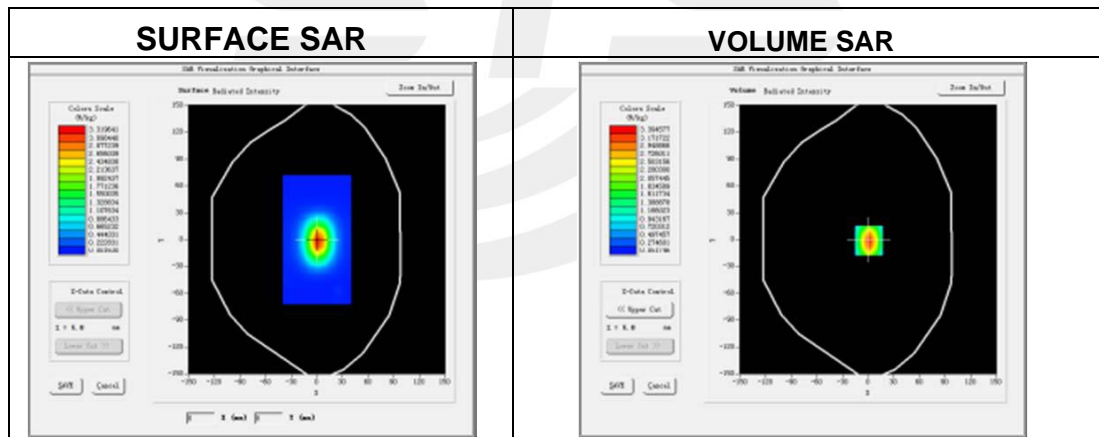
Area scan resolution: dx=8mm,dy=8mm

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

Date of measurement: 2022-09-28

Experimental conditions.

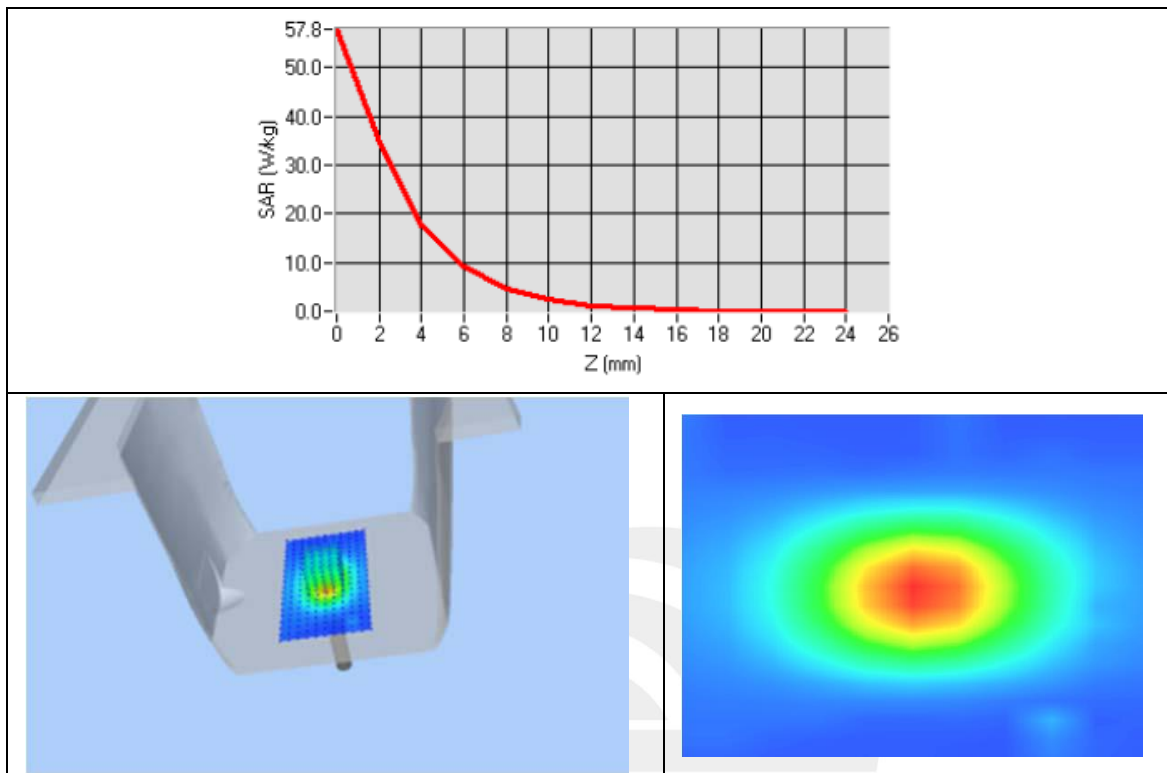
Device Position	Validation plane
Band	5600 MHz
Channels	-
Signal	CW
Frequency (MHz)	5600
Relative permittivity	36.05
Conductivity (S/m)	5.18
Probe	SN 07/21 EPGO352
ConvF	1.64
Crest factor:	1:1



Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	5.679288
SAR 1g (W/Kg)	17.704165

Z Axis Scan





System Performance Check Data (5800MHz)

Type: Dipole measurement (Complete)

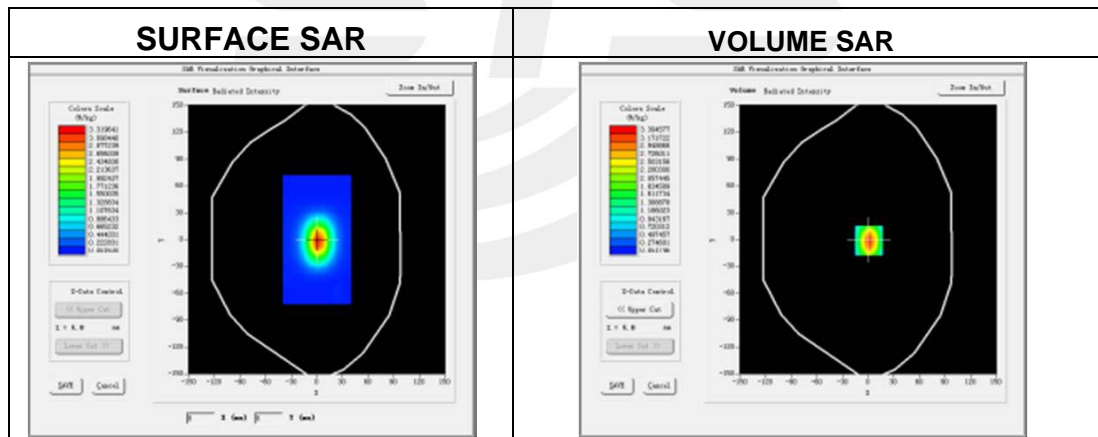
Area scan resolution: dx=8mm,dy=8mm

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

Date of measurement: 2022-09-28

Experimental conditions.

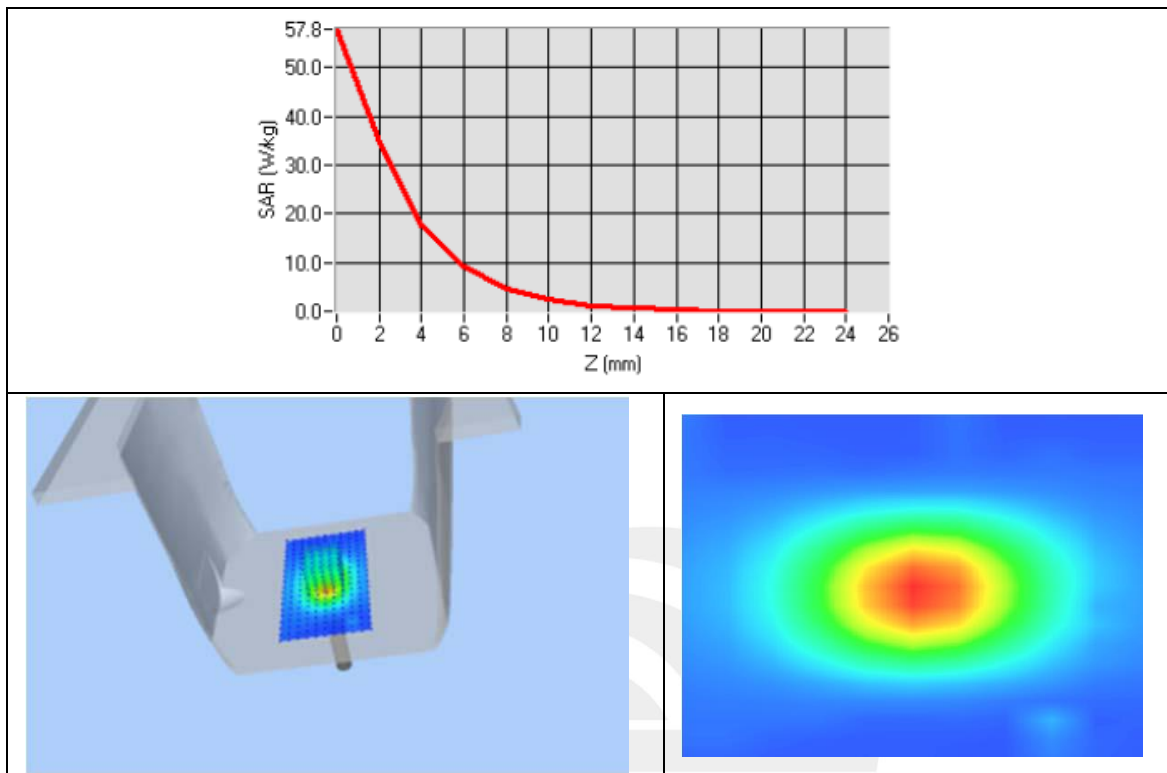
Device Position	Validation plane
Band	5800 MHz
Channels	-
Signal	CW
Frequency (MHz)	5800
Relative permittivity	35.77
Conductivity (S/m)	5.22
Probe	SN 07/21 EPGO352
ConvF	1.64
Crest factor:	1:1



Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	6.130287
SAR 1g (W/Kg)	18.576868

Z Axis Scan



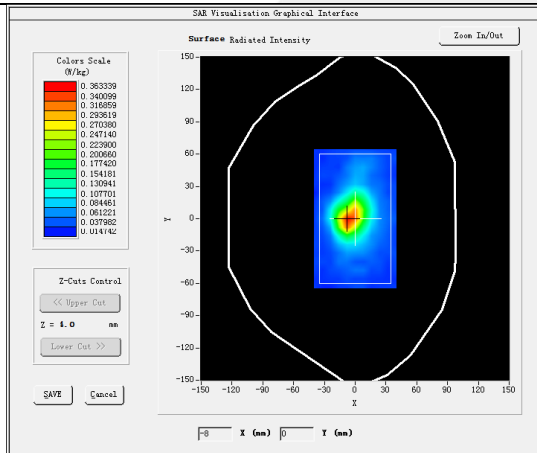
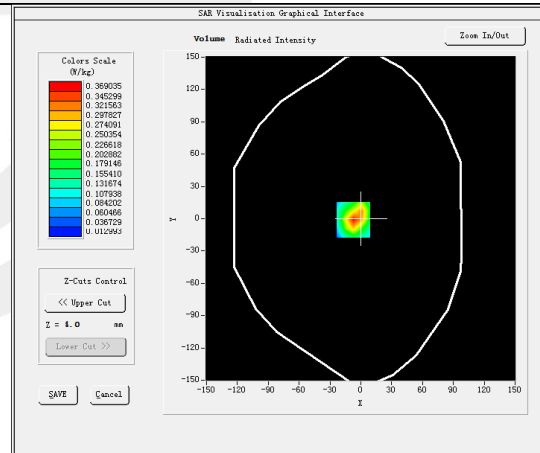
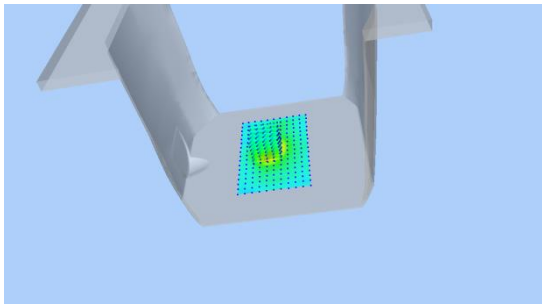
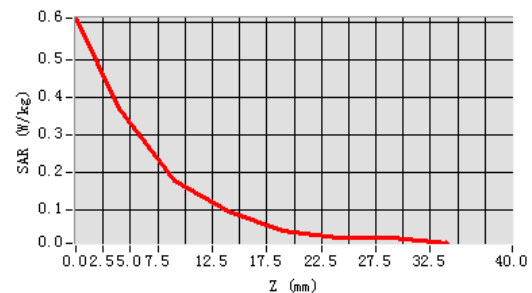
**Appendix B. SAR Test Plots****Plot 1: DUT: NPad; EUT Model: TAB001**

Test Date	2022-09-27
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	IEEE 802.11b ISM
Signal	IEEE802.b (Crest factor: 1.0)
Frequency (MHz)	2412
Relative permittivity (real part)	40.34
Conductivity (S/m)	1.74

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

SAR Peak: 0.63 W/kg

SAR 10g (W/Kg)	0.167317
SAR 1g (W/Kg)	0.341933

SURFACE SAR**VOLUME SAR****3D****Z AZxis Scan**



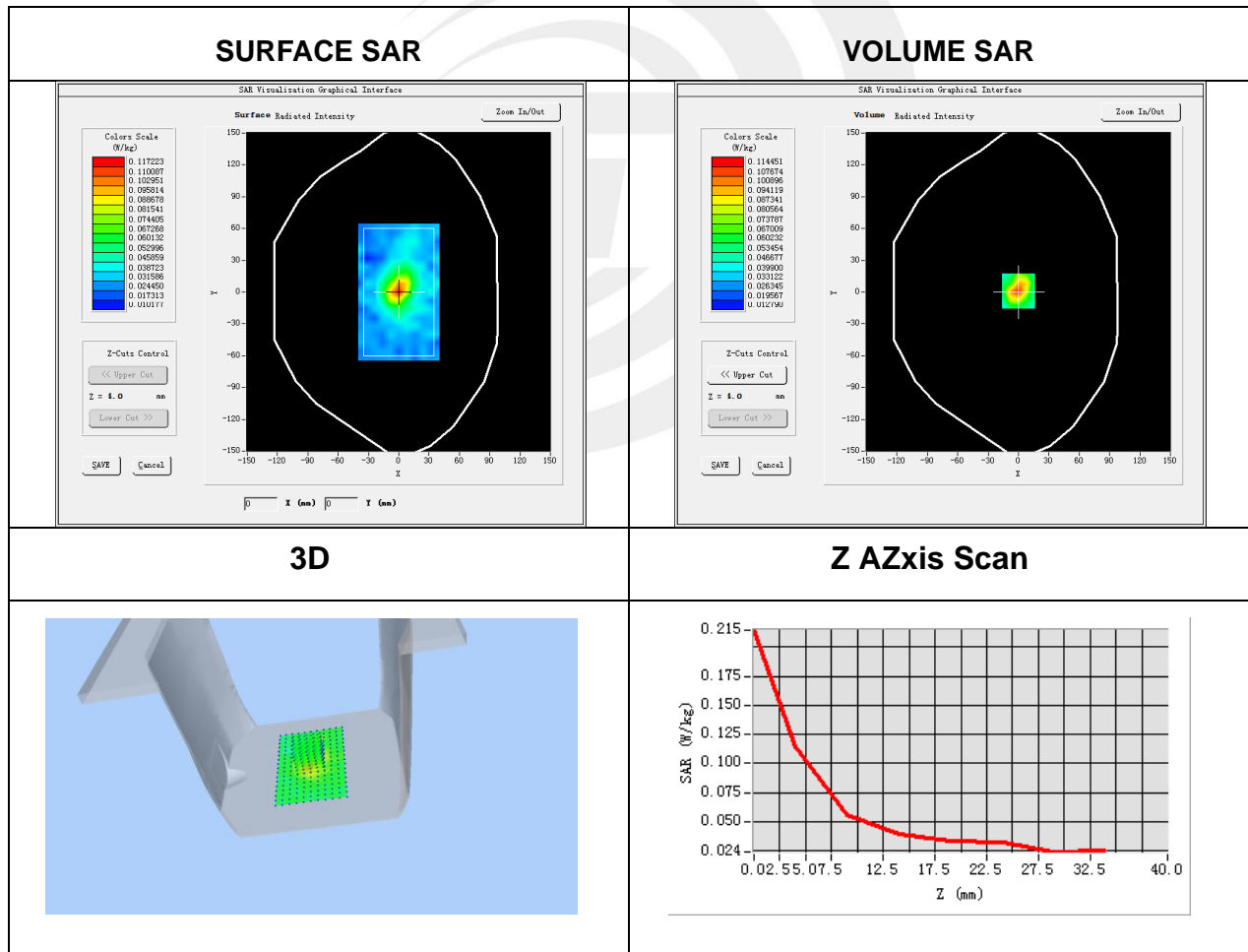
Plot 2: DUT: NPad; EUT Model: TAB001

Test Date	2022-09-27
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)	2441
Relative permittivity (real part)	40.06
Conductivity (S/m)	1.83

Maximum location: X=0.00, Y=1.00

SAR Peak: 0.21 W/kg

SAR 10g (W/Kg)	0.059671
SAR 1g (W/Kg)	0.111773





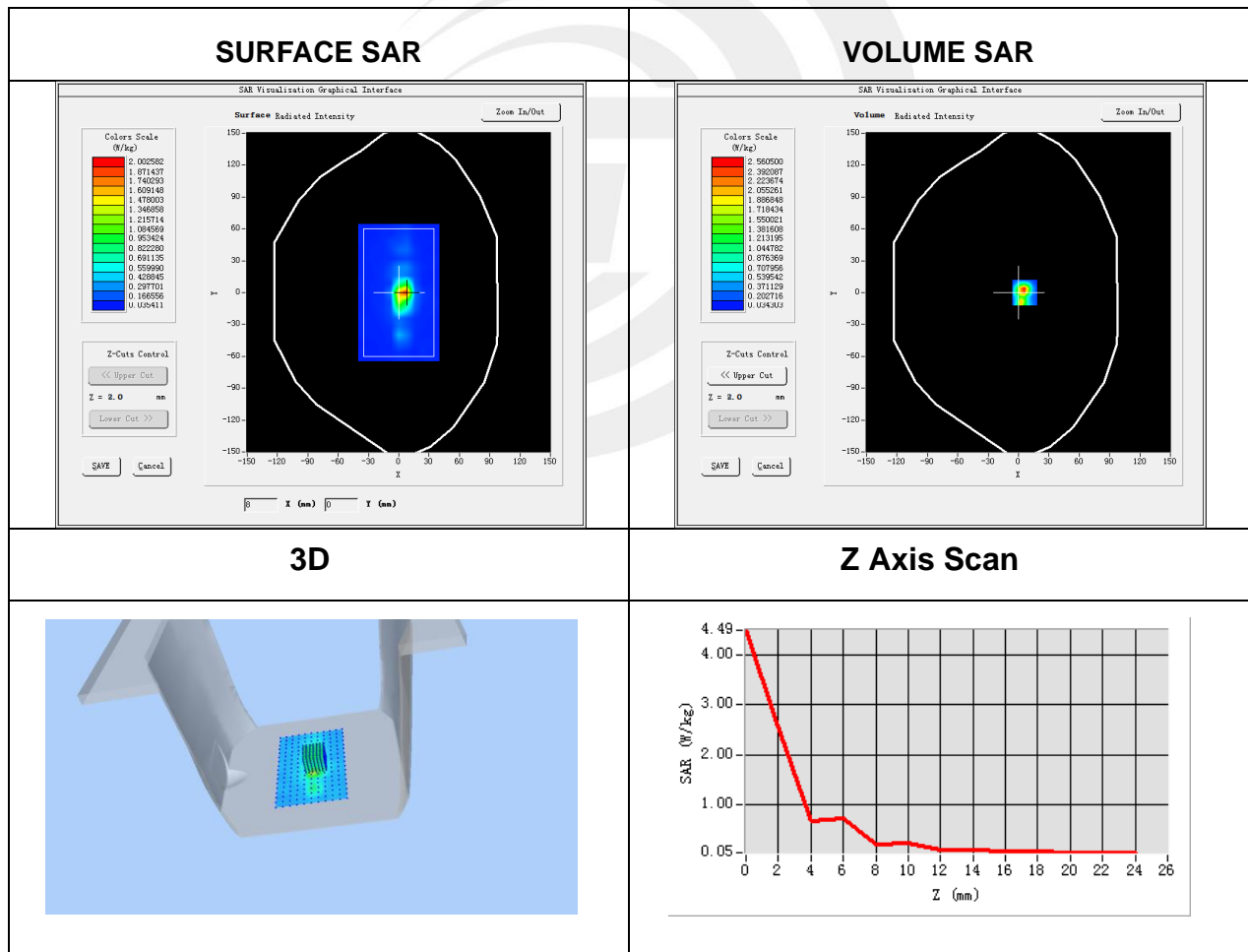
Plot 3: DUT: NPad; EUT Model: TAB001

Test Date	2022-09-27
Probe	SN 07/21 EPG0352
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	802.11ac-VHT20
Signal	IEEE802.ac (Crest factor: 1.0)
Frequency (MHz)	5180
Relative permittivity (real part)	36.41
Conductivity (S/m)	4.65

Maximum location: X=6.00, Y=0.00

SAR Peak: 4.81 W/kg

SAR 10g (W/Kg)	0.331501
SAR 1g (W/Kg)	1.236406





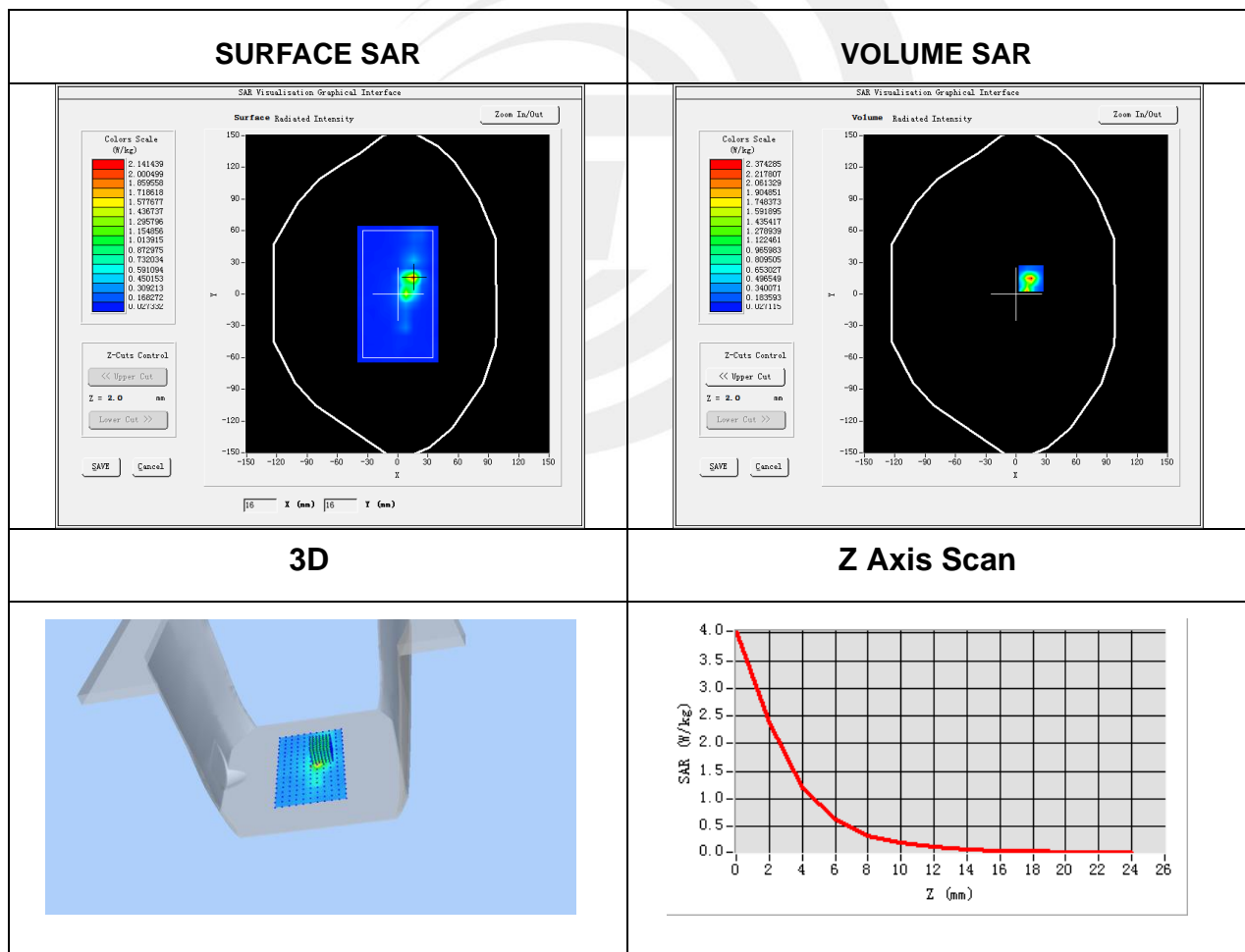
Plot 4: DUT: NPad; EUT Model: TAB001

Test Date	2022-09-27
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	802.11 n-HT20
Signal	IEEE802.n (Crest factor: 1.0)
Frequency (MHz)	5260
Relative permittivity (real part)	37.15
Conductivity (S/m)	4.71

Maximum location: X=15.00, Y=15.00

SAR Peak: 4.27 W/kg

SAR 10g (W/Kg)	0.271822
SAR 1g (W/Kg)	1.022108





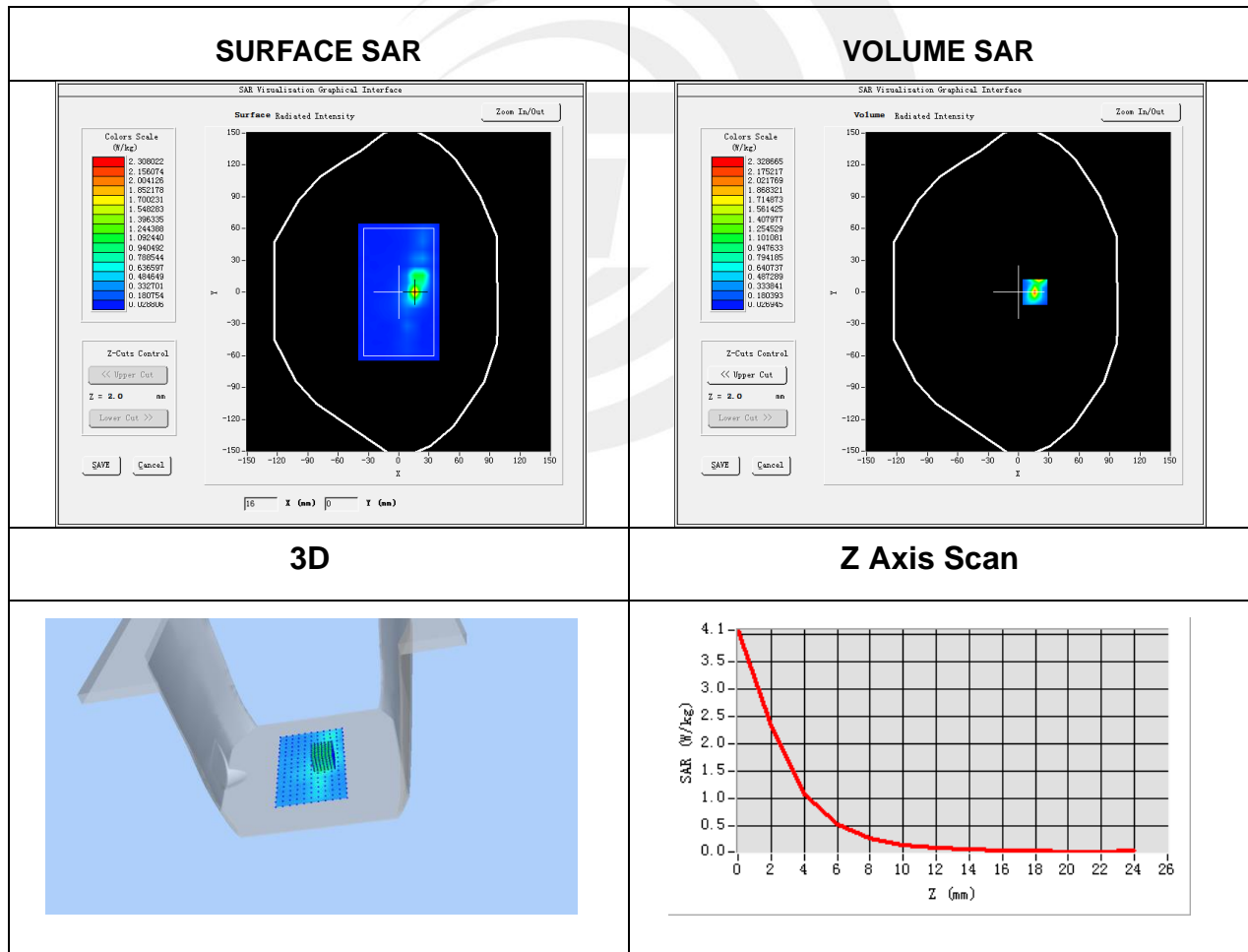
Plot 5: DUT: NPad; EUT Model: TAB001

Test Date	2022-09-28
Probe	SN 07/21 EPG0352
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	802.11 n-HT20
Signal	IEEE802.n (Crest factor: 1.0)
Frequency (MHz)	5500
Relative permittivity (real part)	36.45
Conductivity (S/m)	4.95

Maximum location: X=16.00, Y=0.00

SAR Peak: 4.28 W/kg

SAR 10g (W/Kg)	0.254055
SAR 1g (W/Kg)	0.914159



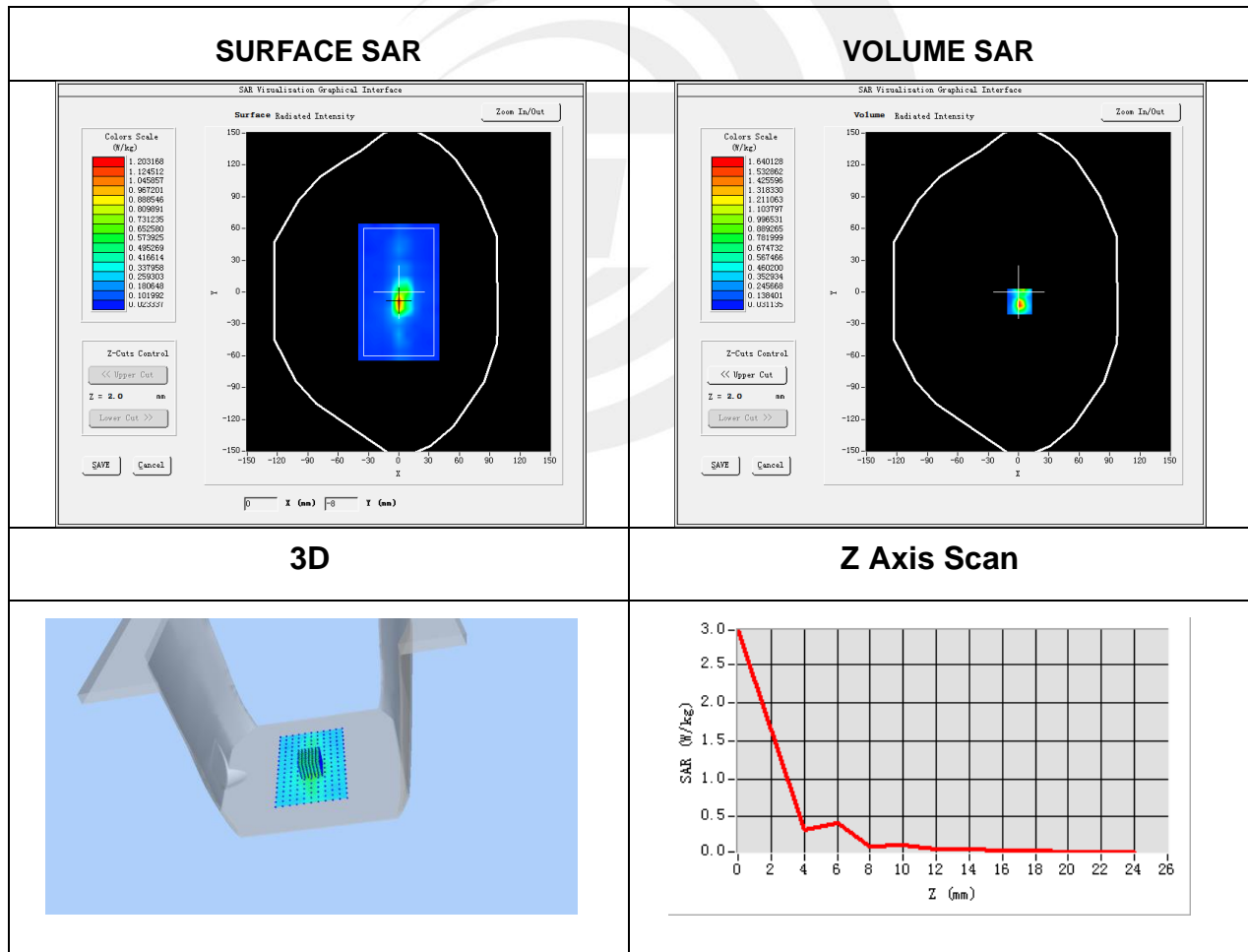

Plot 6: DUT: NPad; EUT Model: TAB001

Test Date	2022-09-28
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	802.11ac-VHT20
Signal	IEEE802.ac (Crest factor: 1.0)
Frequency (MHz)	5745
Relative permittivity (real part)	36.01
Conductivity (S/m)	5.23

Maximum location: X=1.00, Y=-9.00

SAR Peak: 3.16 W/kg

SAR 10g (W/Kg)	0.204630
SAR 1g (W/Kg)	0.731882





Appendix C. Probe Calibration and Dipole Calibration Report

Refer the appendix Calibration Report.

※※※※※END OF THE REPORT※※※※※

