



SAR TEST REPORT

Report No.: STS2211016H02

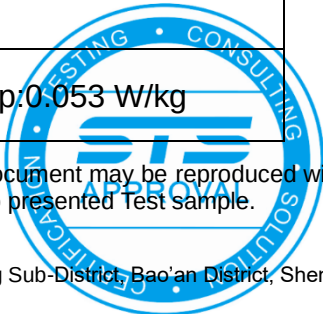
Issued for

RTX HONG KONG LTD.

8/F Corporation Square 8 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong

Product Name:	Wireless Handset
Brand Name:	Poly, hp, HP, HP Inc.
Model Name:	Rove 20
Series Model:	N/A
FCC ID:	T7HCT8437
Test Standard:	ANSI/IEEE Std. C95.1
	FCC 47 CFR Part 2 (2.1093)
	IEEE 1528: 2013
Max. Report SAR (1g):	Head: 0.080 W/kg
	Body: 0.058 W/kg
	Back side with back clip:0.053 W/kg

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Test Report Certification

Applicant's name: RTX HONG KONG LTD.

Address: 8/F Corporation Square 8 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong

Manufacture's Name: RTX HONG KONG LTD.

Address: 8/F Corporation Square 8 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong

Product description

Product name: Wireless Handset

Brand name: Poly, hp, HP, HP Inc.

Model name: Rove 20

Series Model.....: N/A

Standards: ANSI/IEEE Std. C95.1-1992
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: 17 Nov. 2022

Date of Issue: 23 Nov. 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	23 Nov. 2022	STS2211016H02	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	Wireless Handset				
Brand Name	Poly, hp, HP, HP Inc.				
Model Name	Rove 20				
Series Model	N/A				
Model difference	N/A				
Battery	Model: BP1709/A Rated Voltage: 3.7V Capacity: 1100mAH 4.1WH				
Device Category	Portable				
Product stage	Production unit				
RF Exposure Environment	General Population / Uncontrolled				
Hardware Version	V2 version				
Software Version	v0003 version				
Frequency Range	DECT: 1921.536 MHz ~ 1928.448 MHz				
Max. Reported SAR(1g): (Limit:1.6W/kg)	Band	Mode	Head(W/kg)	Body(W/kg)	Back side with back clip (W/kg)
	PUE	P32Z ANT1	0.038	0.044	0.045
		P32Z ANT2	0.044	0.022	0.026
		PP64Z ANT1	0.066	0.037	0.053
		PP64Z ANT2	0.080	0.058	0.011
FCC Equipment Class	Part 15 Unlicensed PCS portable Tx held to ear (PUE)				
Modulation Type	GFSK				
Packet type	DECT: P32Z, PP64Z				
Antenna Specification	DECT: PCB Antenna				
Hotspot Mode	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

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

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

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

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

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

Population/Uncontrolled Environments:

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

Occupational/Controlled Environments:

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

NOTE

GENERAL POPULATION/UNCONTROLLED EXPOSURE

PARTIAL BODY LIMIT

1.6 W/kg

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

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

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

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

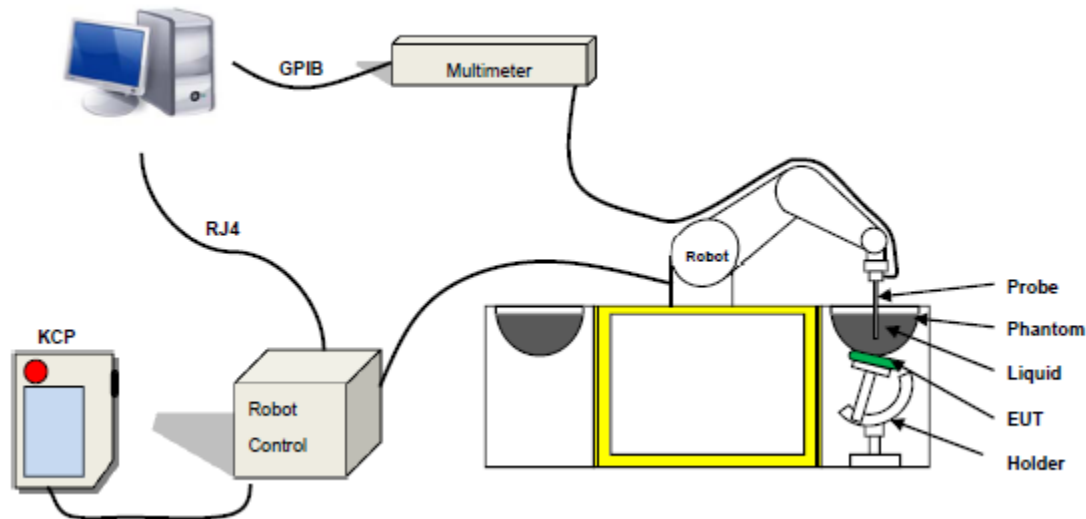
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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.

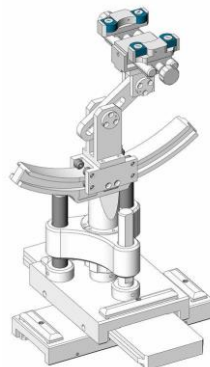


Figure-SN 32/14 SAM115



Figure-SN 21/21 ELLI48

3.2.3 Device Holder



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



4. Tissue Simulating Liquids

4.1 Simulating Liquids Parameter Check

The 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]					
2022-11-17	23.6	50.0	1900	23.3	Permittivity	40.00	40.51	1.28	±5
					Conductivity	1.40	1.41	0.71	±5
2022-11-17	23.6	50.0	1921.536	23.3	Permittivity	40.00	40.43	1.08	±5
					Conductivity	1.40	1.39	-0.71	±5
2022-11-17	23.6	50.0	1924.992	23.3	Permittivity	40.00	40.66	1.65	±5
					Conductivity	1.40	1.38	-1.43	±5
2022-11-17	23.6	51.0	1928.448	23.2	Permittivity	40.00	40.99	2.48	±5
					Conductivity	1.40	1.35	-3.57	±5

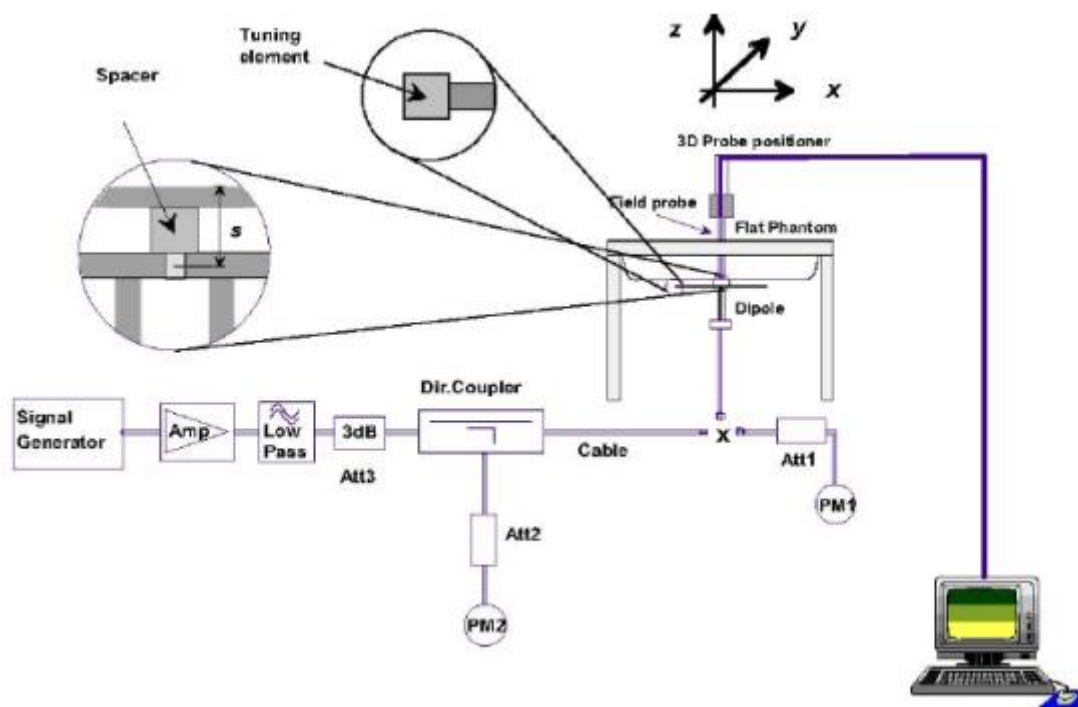


5. SAR System Validation

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)	(%)	(%)
2022-11-17	1900	100	3.993	39.93	39.84	0.23	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:

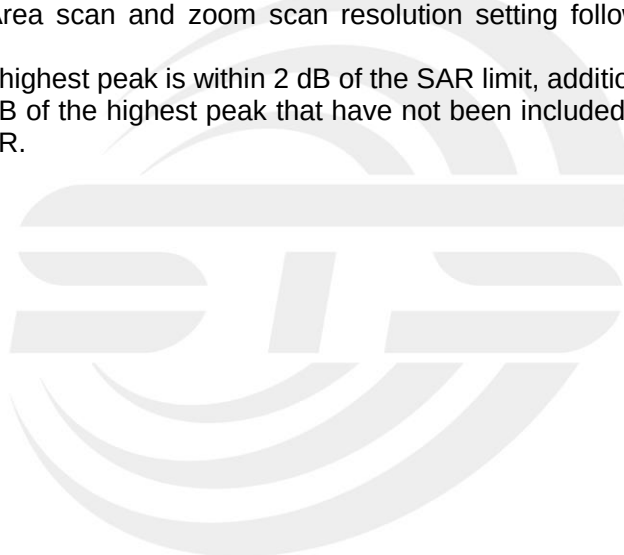
The following steps are used for each test position

- 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:

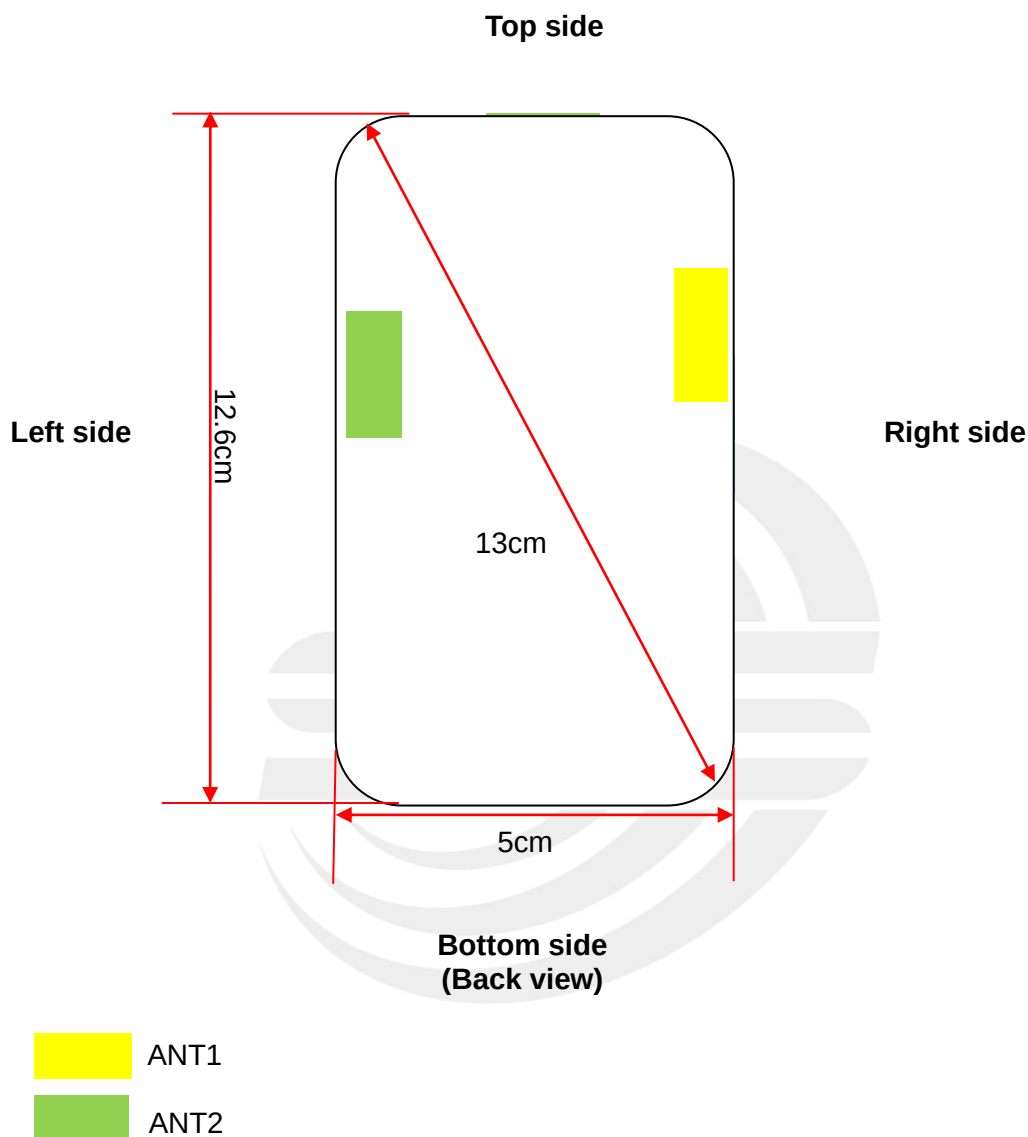
First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan 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 Wireless Handset, support DECT mode.



Antenna Separation Distance(cm)						
ANT	Back Side	Front Side	Left Side	Right Side	Top Side	Bottom Side
ANT1	≤0.5	≤0.5	4.5	≤0.5	2.5	8
ANT2	≤0.5	≤0.5	≤0.5	4.5	3	7.6

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

Exposure Position	Wireless Interface	DECT ANT1	DECT ANT2
	Calculated Frequency(GHz)	1921.536	1921.536
	Maximum Turn-up power (dBm)	18	18
	Maximum rated power(mW)	63.10	63.10
Back Side	Separation distance (cm)	≤0.5	≤0.5
	exclusion threshold(mW)	0.01	0.01
	Testing required?	YES	YES
Front Side	Separation distance (cm)	≤0.5	≤0.5
	exclusion threshold(mW)	0.01	0.01
	Testing required?	YES	YES
Left Side	Separation distance (cm)	4.5	≤0.5
	exclusion threshold(mW)	20.70	0.01
	Testing required?	YES	YES
Right Side	Separation distance (cm)	≤0.5	4.5
	exclusion threshold(mW)	0.01	20.70
	Testing required?	YES	YES
Top Side	Separation distance (cm)	2.5	3
	exclusion threshold(mW)	2.89	5.32
	Testing required?	YES	YES
Bottom Side	Separation distance (cm)	8	7.6
	exclusion threshold(mW)	142.19	119.74
	Testing required?	NO	NO

Note:

1. maximum power is the source-based time-average power and represents the maximum RF output power among production units.
2. Per KDB 447498 D04, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D04, if the maximum time-averaged power available does not exceed 1 mW. This stand-alone SAR exemption test.

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

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

Where

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

and

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

d = the separation distance (cm);

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

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



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

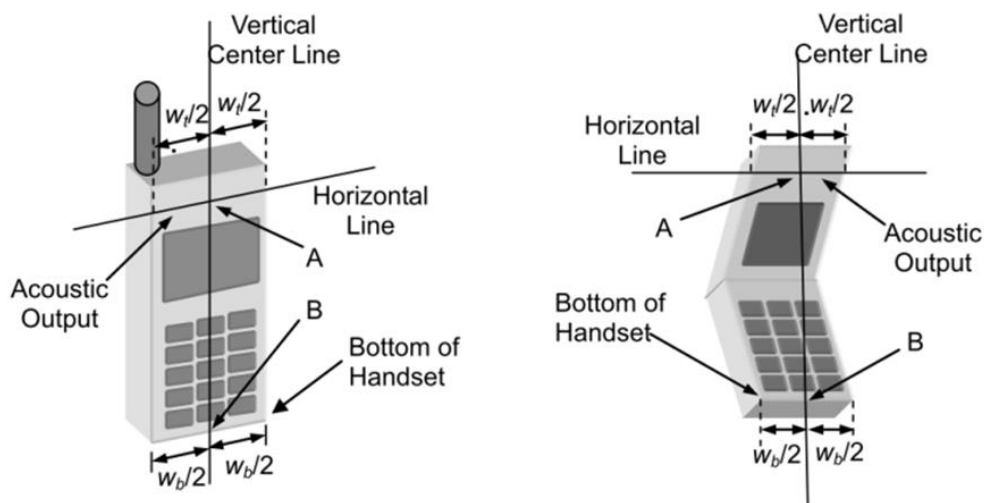


8. EUT Test Position

This EUT was tested in Right Cheek, Right Titled, Left Cheek, Left Titled, Back Side, Front Side, Left Side, Right Side and Top Side.

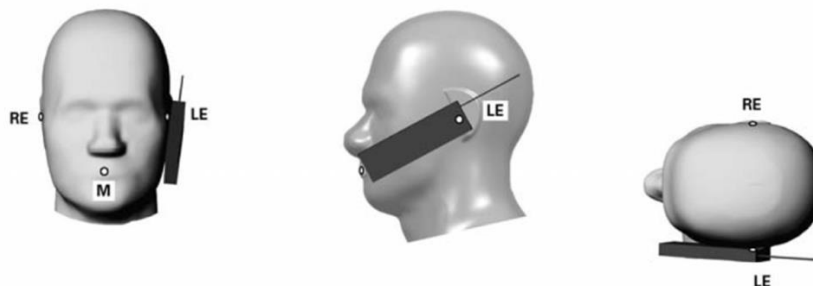
8.1 Define Two Imaginary Lines On The Handset

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



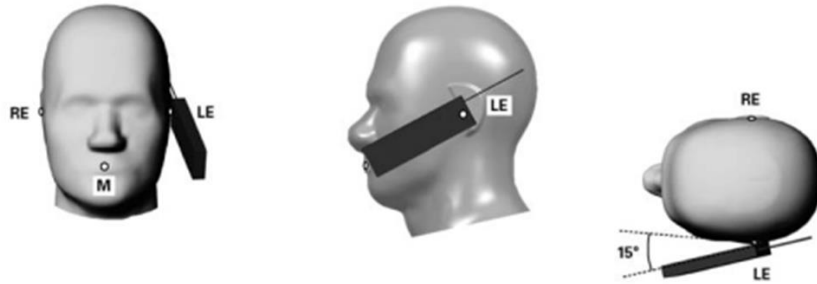
Cheek Position

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



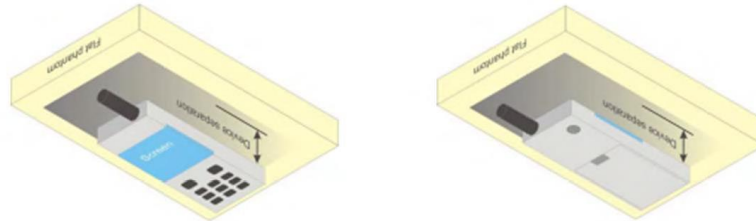
Title Position

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



Body-worn Position Conditions:

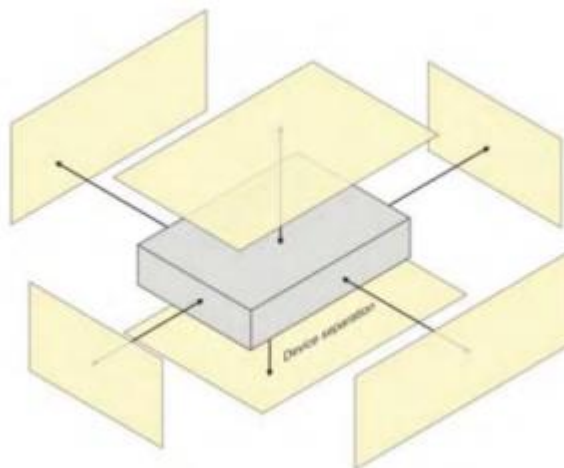
Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. When the same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



8.2 Hotspot mode exposure position condition

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing function, the relevant hand and body exposure condition are tested according to the hotspot SAR procedures in KDB 941225. A test separation distance of 10 mm is required between the phantom and all surface and edges with a transmitting antenna located within 25 mm from that surface or edge.

When form factor of a handset is smaller than 9cm x 5cm, a test separation distance of 5mm (instead of 10mm) is required for testing hotspot mode. When the separate distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration(surface).





9. Uncertainty

9.1 Measurement Uncertainty

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

Uncertainty Component	Tol (+/- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+/-%)	10g Ui (+/-%)	vi
Measurement System								
Probe calibration	5.72	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

P32Z DECT			
Carrier Channel	Frequency (MHz)	Measured Peak Output Power (dBm) ANT1	Measured Peak Output Power (dBm) ANT2
Low	1921.536	17.74	17.67
Mid	1924.992	17.60	17.56
High	1928.448	17.45	17.23

PP64Z DECT			
Carrier Channel	Frequency (MHz)	Measured Peak Output Power (dBm) ANT1	Measured Peak Output Power (dBm) ANT2
Low	1921.536	17.66	17.62
Mid	1924.992	17.60	17.50
High	1928.448	17.52	17.4

Tune up

Mode	P32Z DECT	
Channel	Ant 1	Ant 2
4	17±1dBm	17±1dBm
2	17±1dBm	17±1dBm
0	17±1dBm	17±1dBm

Mode	PP64Z DECT	
Channel	Ant 1	Ant 2
4	17±1dBm	17±1dBm
2	17±1dBm	17±1dBm
0	17±1dBm	17±1dBm

11. EUT And Test Setup Photo

11.1 EUT Photos

Front side



Back side





Top side

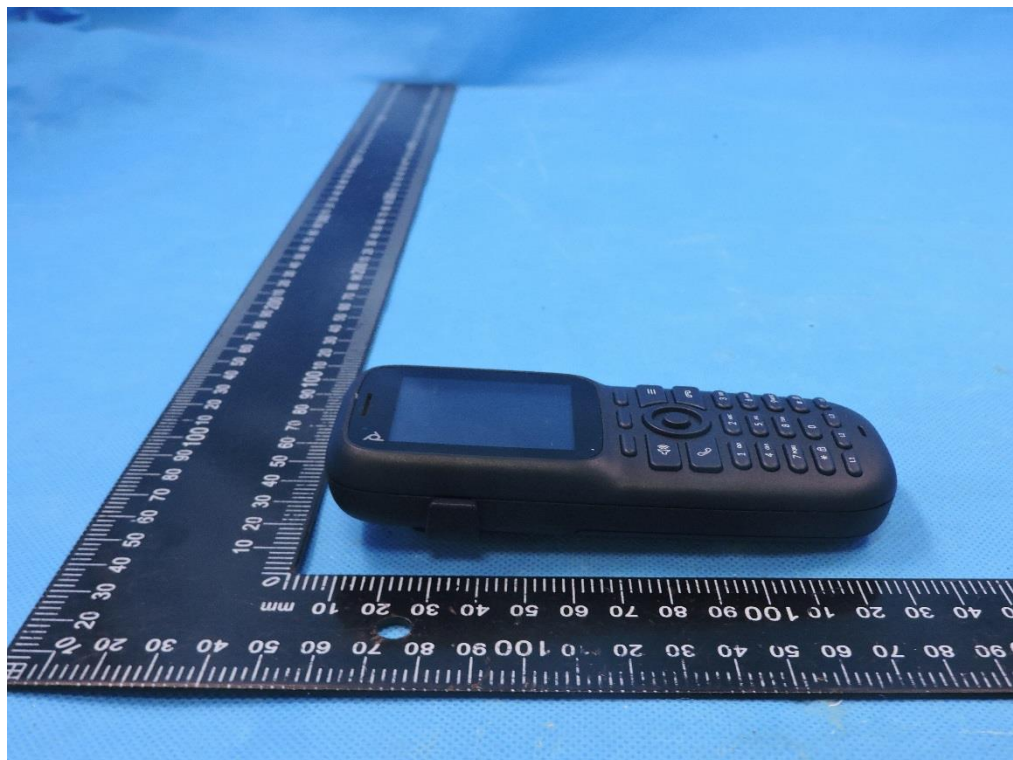


Bottom side





Left side

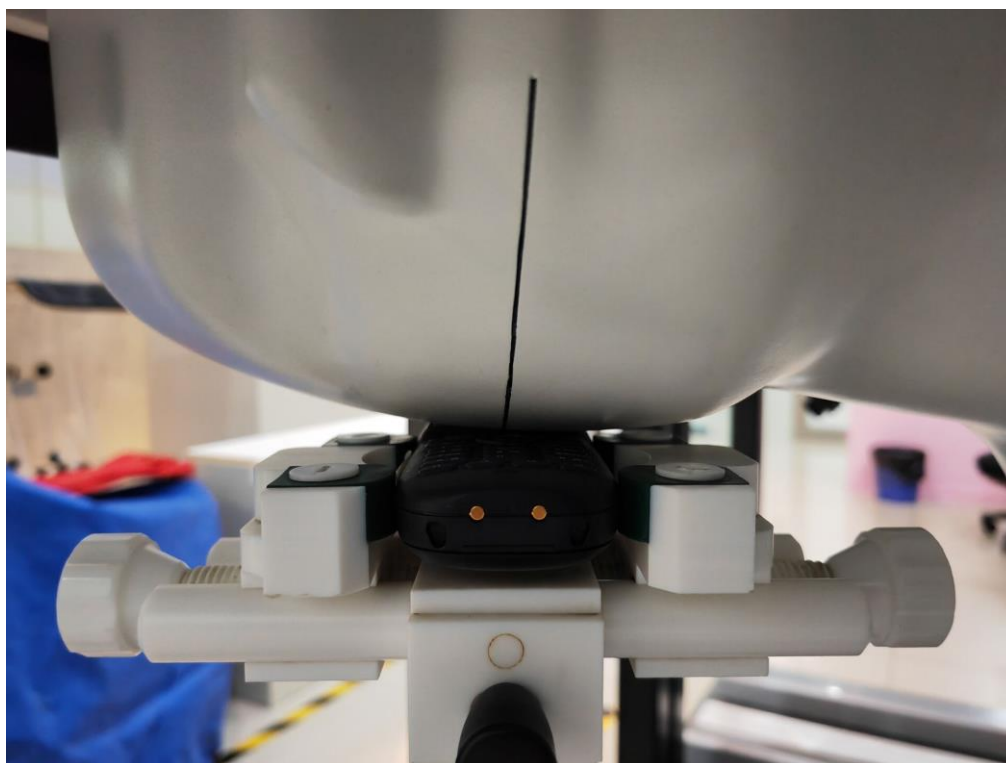


Right side

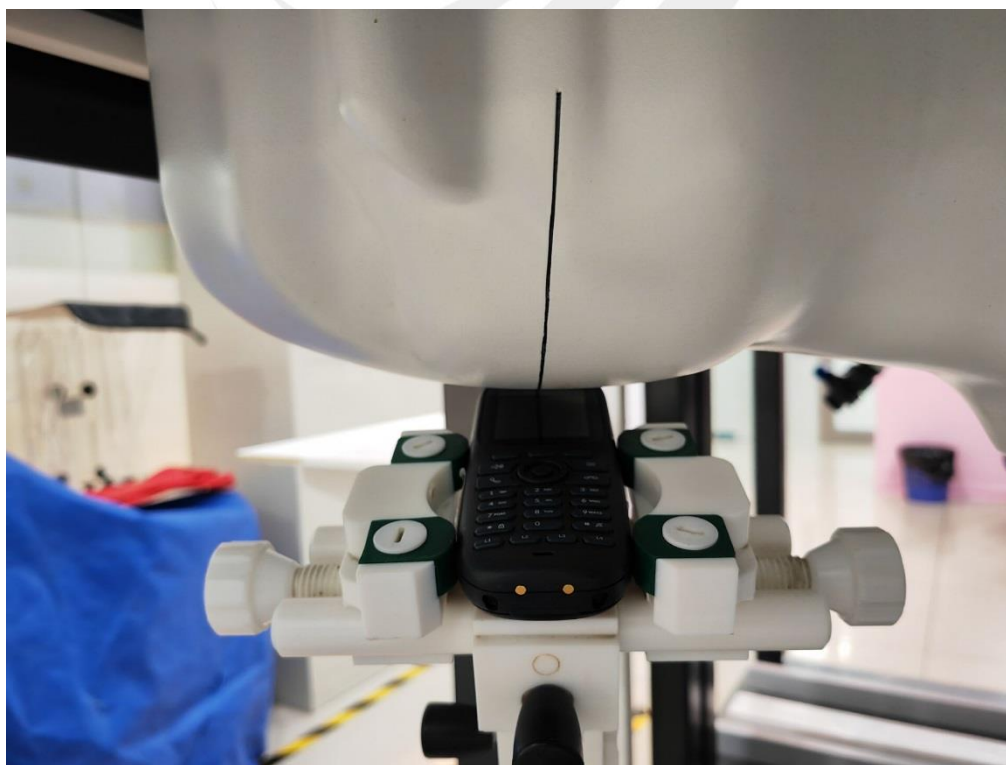


11.2 Setup Photos

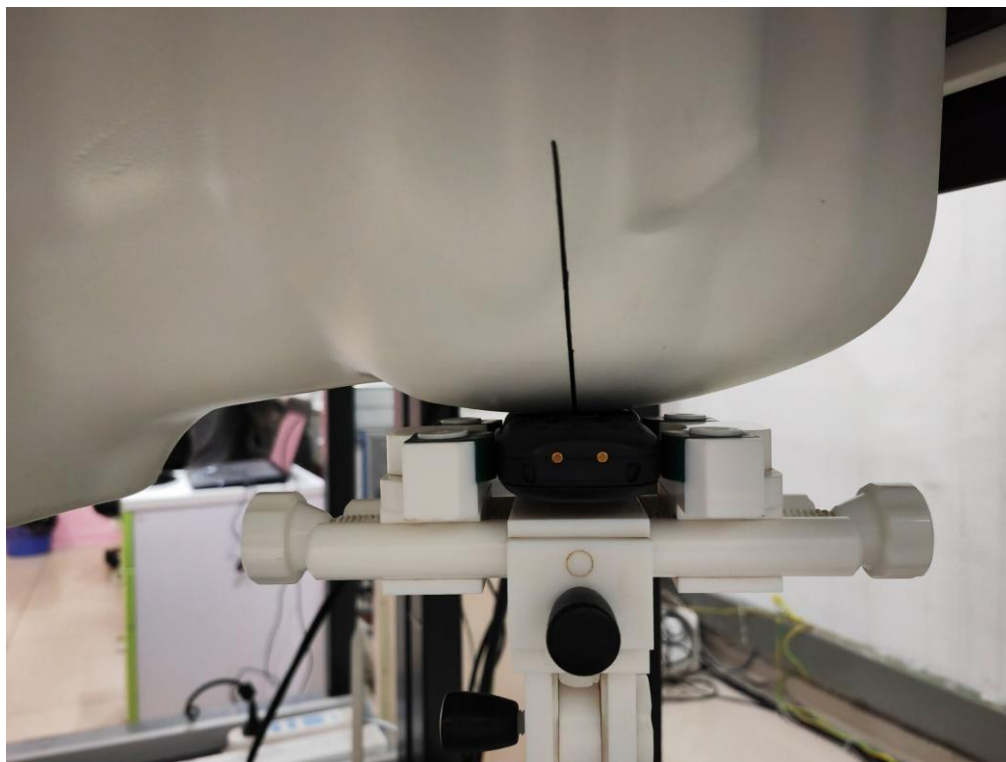
Right Cheek



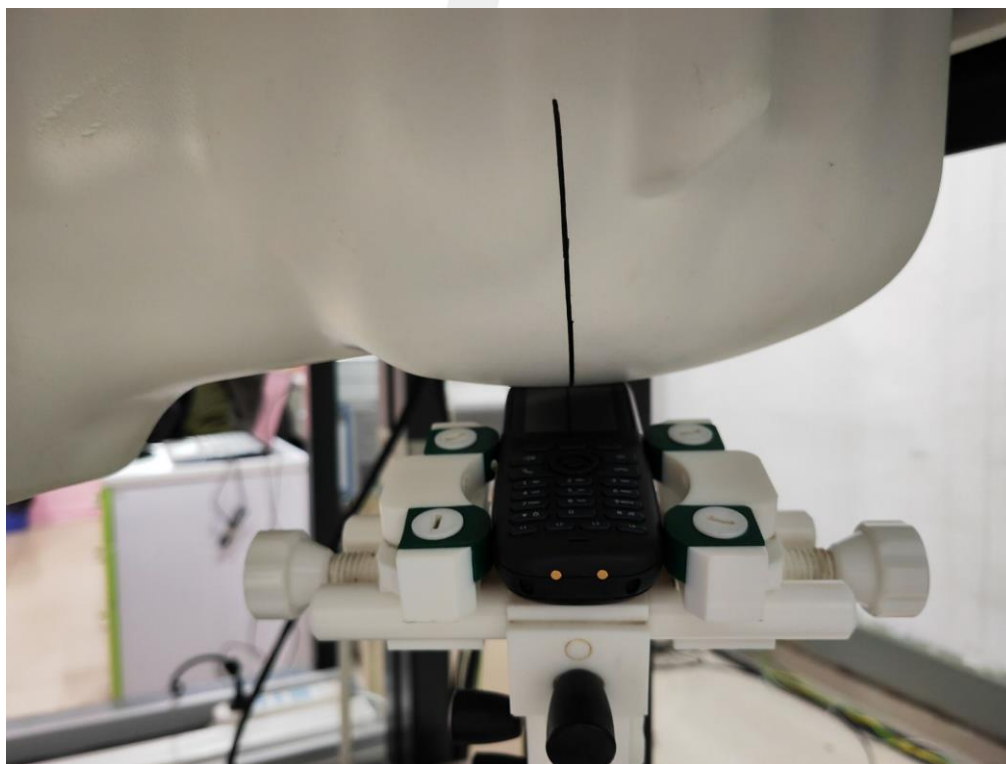
Right Tilt



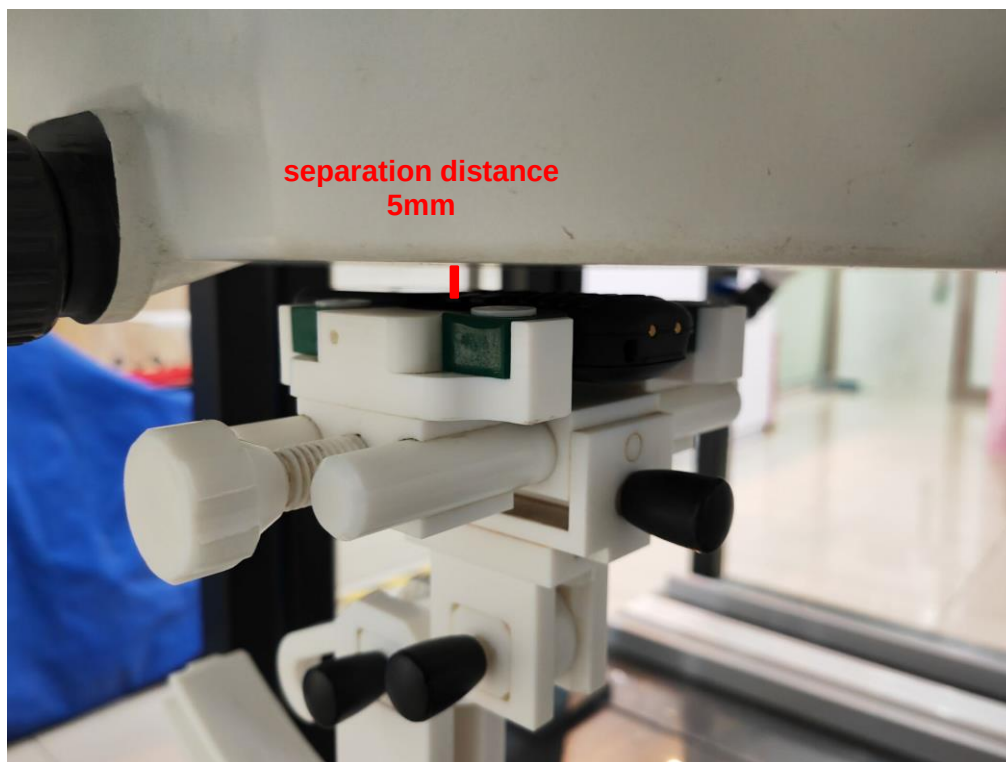
Left Cheek



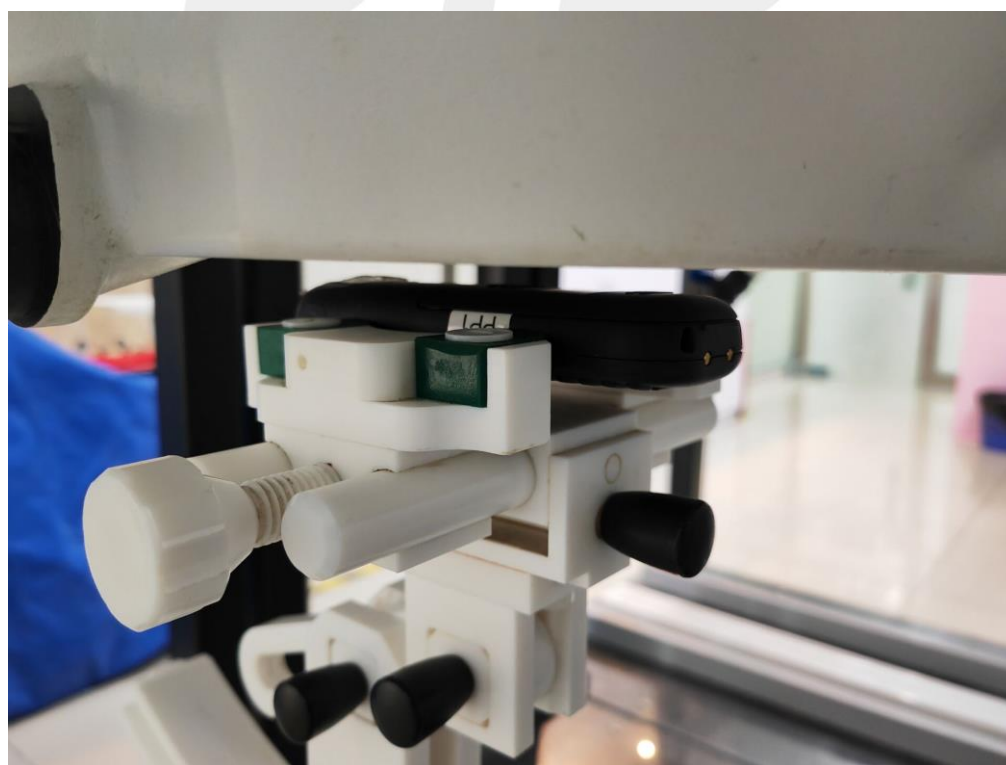
Left Tilt



Front Side



Back Side



Left Edge



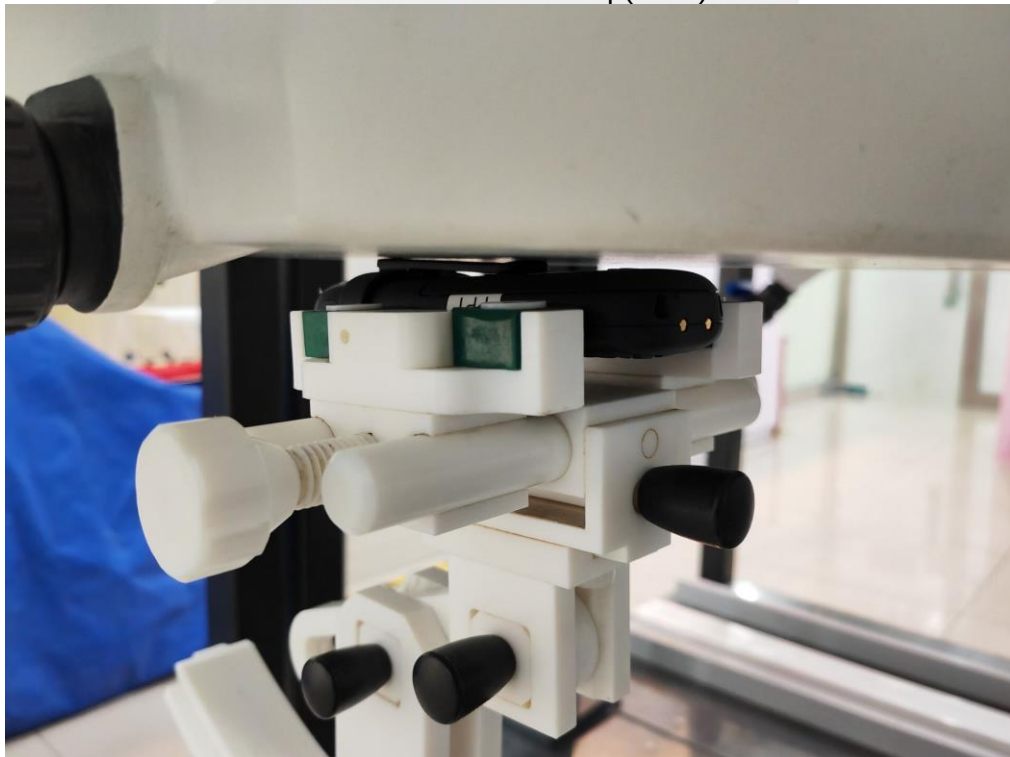
Right Edge



Top Edge

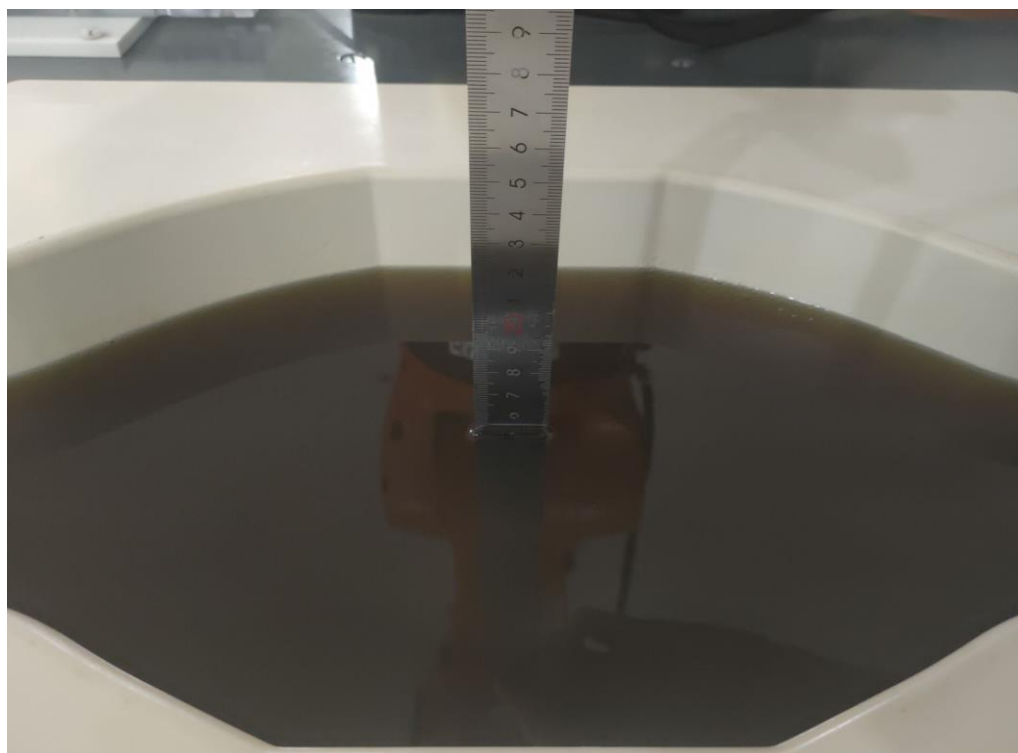


Back side with back clip(0mm)





Liquid depth (15 cm)





12. SAR Result Summary

12.1 Head SAR

Band	Model	Test Position	Freq.	SAR (1g) (W/kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas.No.
DECT P32Z	GFSK ANT1	Right Cheek	1921.536	0.013	2.02	18.00	17.74	0.014	/
		Right Tilt	1921.536	0.036	0.93	18.00	17.74	0.038	1
		Left Cheek	1921.536	0.036	2.75	18.00	17.74	0.038	/
		Left Tilt	1921.536	0.024	-1.25	18.00	17.74	0.025	/
	GFSK ANT2	Right Cheek	1921.536	0.025	-1.90	18.00	17.67	0.027	/
		Right Tilt	1921.536	0.041	-2.80	18.00	17.67	0.044	4
		Left Cheek	1921.536	0.031	1.07	18.00	17.67	0.033	/
		Left Tilt	1921.536	0.013	3.20	18.00	17.67	0.014	/
DECT PP64Z	GFSK ANT1	Right Cheek	1921.536	0.060	-3.81	18.00	17.66	0.065	/
		Right Tilt	1921.536	0.041	0.46	18.00	17.66	0.044	/
		Left Cheek	1921.536	0.061	3.47	18.00	17.66	0.066	7
		Left Tilt	1921.536	0.031	3.20	18.00	17.66	0.034	/
	GFSK ANT2	Right Cheek	1921.536	0.019	3.30	18.00	17.62	0.021	/
		Right Tilt	1921.536	0.023	-1.97	18.00	17.62	0.025	/
		Left Cheek	1921.536	0.073	2.70	18.00	17.62	0.080	10
		Left Cheek	1924.992	0.060	2.03	18.00	17.50	0.067	/
		Left Cheek	1928.448	0.051	0.42	18.00	17.40	0.059	/
		Left Tilt	1921.536	0.020	-0.59	18.00	17.62	0.022	/



12.2 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.
DECT P32Z	GFSK ANT1	Front Side	1921.536	0.009	2.49	18.00	17.74	0.010	/
		Back Side	1921.536	0.041	-0.62	18.00	17.74	0.044	2
		Back side with back clip	1921.536	0.042	-1.11	18.00	17.74	0.045	3
		Left Side	1921.536	0.027	0.84	18.00	17.74	0.029	/
		Right Side	1921.536	0.011	3.67	18.00	17.74	0.012	/
		Top Side	1921.536	0.003	-0.24	18.00	17.74	0.003	/
	GFSK ANT2	Front Side	1921.536	0.017	-3.09	18.00	17.67	0.018	/
		Back Side	1921.536	0.020	2.19	18.00	17.67	0.022	5
		Back side with back clip	1921.536	0.024	-3.19	18.00	17.67	0.026	6
		Left Side	1921.536	0.012	3.74	18.00	17.67	0.013	/
		Right Side	1921.536	0.003	-2.59	18.00	17.67	0.003	/
		Top Side	1921.536	0.010	-0.55	18.00	17.67	0.011	/
DECT PP64Z	GFSK ANT1	Front Side	1921.536	0.016	2.95	18.00	17.66	0.017	/
		Back Side	1921.536	0.034	3.10	18.00	17.66	0.037	8
		Back side with back clip	1921.536	0.049	2.81	18.00	17.66	0.053	9
		Left Side	1921.536	0.024	-1.46	18.00	17.66	0.026	/
		Right Side	1921.536	0.012	3.38	18.00	17.66	0.013	/
		Top Side	1921.536	0.009	3.83	18.00	17.66	0.010	/
	GFSK ANT2	Front Side	1921.536	0.041	3.16	18.00	17.62	0.045	/
		Back Side	1921.536	0.053	1.83	18.00	17.62	0.058	11
		Back Side	1924.992	0.036	-3.31	18.00	17.50	0.040	/
		Back Side	1928.448	0.030	-3.16	18.00	17.40	0.034	/
		Back side with back clip	1921.536	0.010	2.33	18.00	17.62	0.011	12
		Left Side	1921.536	0.011	0.44	18.00	17.62	0.012	/
		Right Side	1921.536	0.012	-3.28	18.00	17.62	0.013	/
		Top Side	1921.536	0.013	1.73	18.00	17.62	0.014	/

Note:

- The test separation of all above table is 5mm. the test separation of Back side with back clip 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.
 - For DECT: Scaled SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor



13. Equipment List

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
1900MHz Dipole	MVG	SID1900	SN 30/14 DIP1G900-333	2020.07.14	2023.07.13
E-Field Probe	MVG	SSE2	SN 07/21 EPOG352	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	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



Appendix A. System Validation Plots

System Performance Check Data (1900MHz)

Type: Phone measurement (Complete)

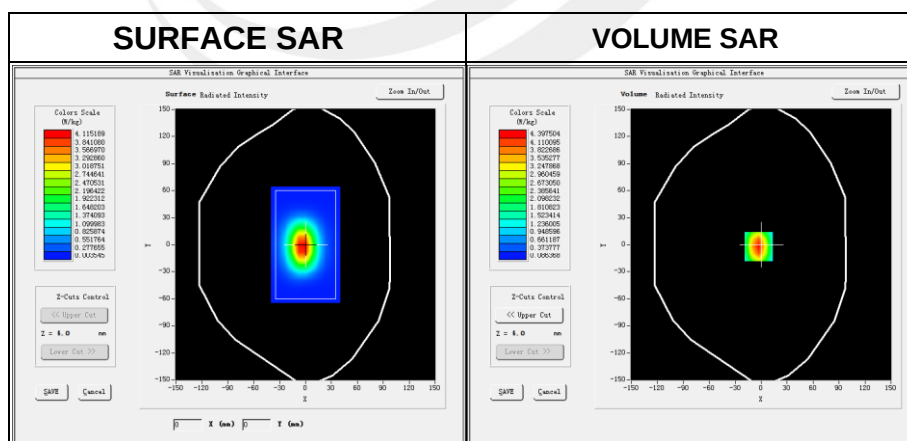
Area scan resolution: dx=8mm, dy=8mm

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

Date of measurement: 2022-11-17

Experimental conditions.

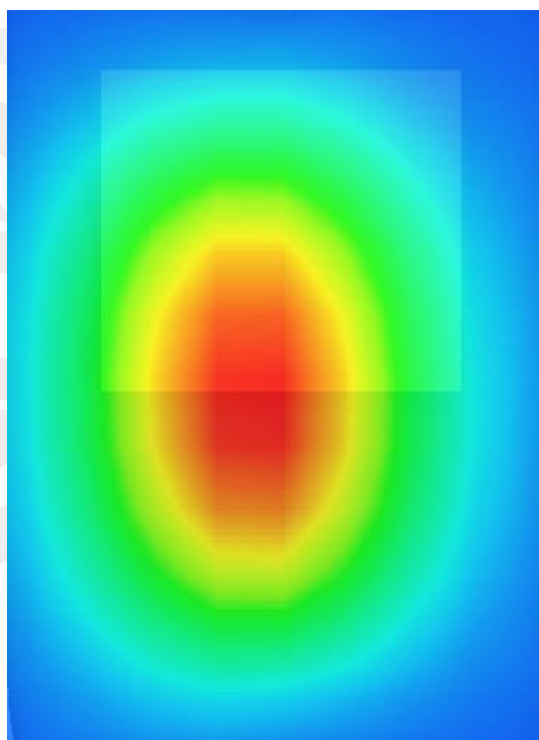
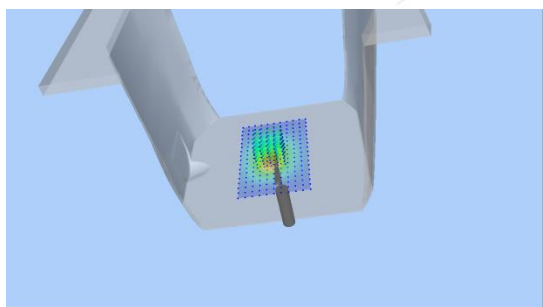
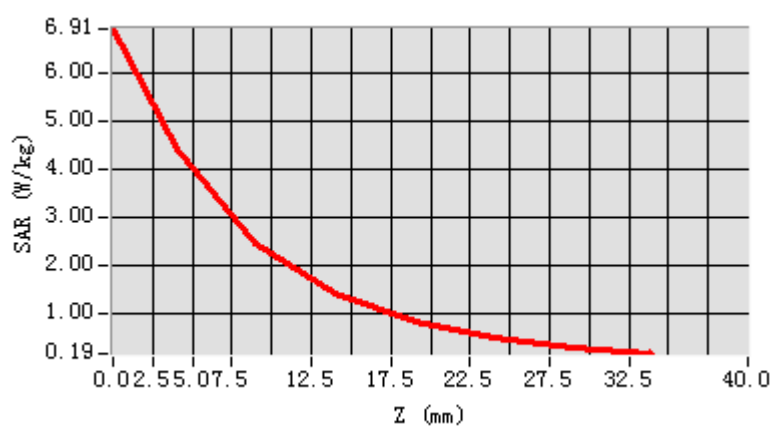
Phantom	Validation plane
Device Position	-
Band	1900MHz
Channels	-
Signal	CW
Frequency (MHz)	1900MHz
Relative permittivity	40.51
Conductivity (S/m)	1.41
Probe	SN 07/21 EPGO352
ConvF:	1.78
Crest factor:	1:1



Maximum location: X=2.00, Y=-2.00

SAR 10g (W/Kg)	2.028648
SAR 1g (W/Kg)	3.993136

Z Axis Scan



Appendix B. SAR Test Plots

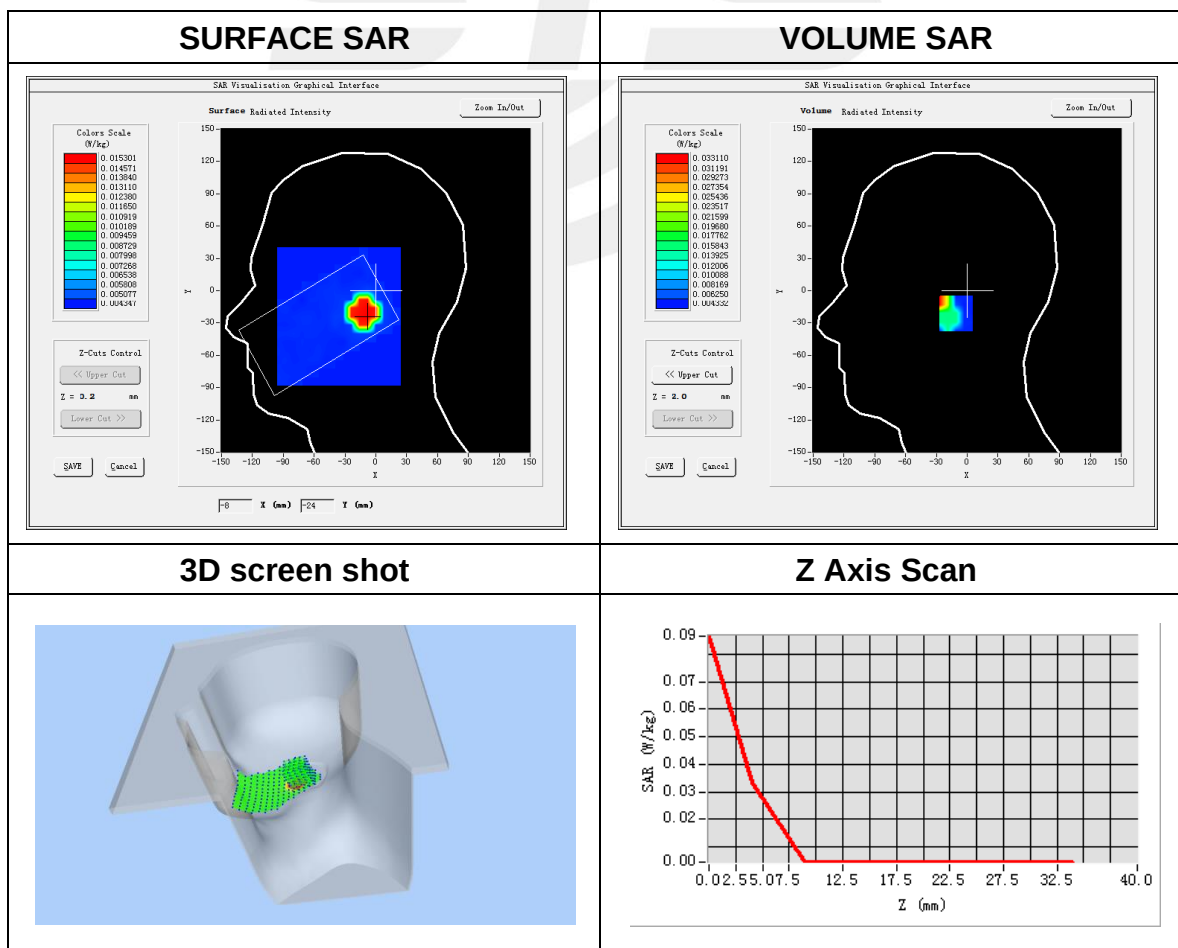
Plot 1: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPGO352
ConvF	1.78
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	Right Tilt
Device Position	Cheek
Mod.	P32Z
ANT	1
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=-2.00, Y=-21.00

SAR Peak: 0.09 W/kg

SAR 10g (W/Kg)	0.011926
SAR 1g (W/Kg)	0.035939





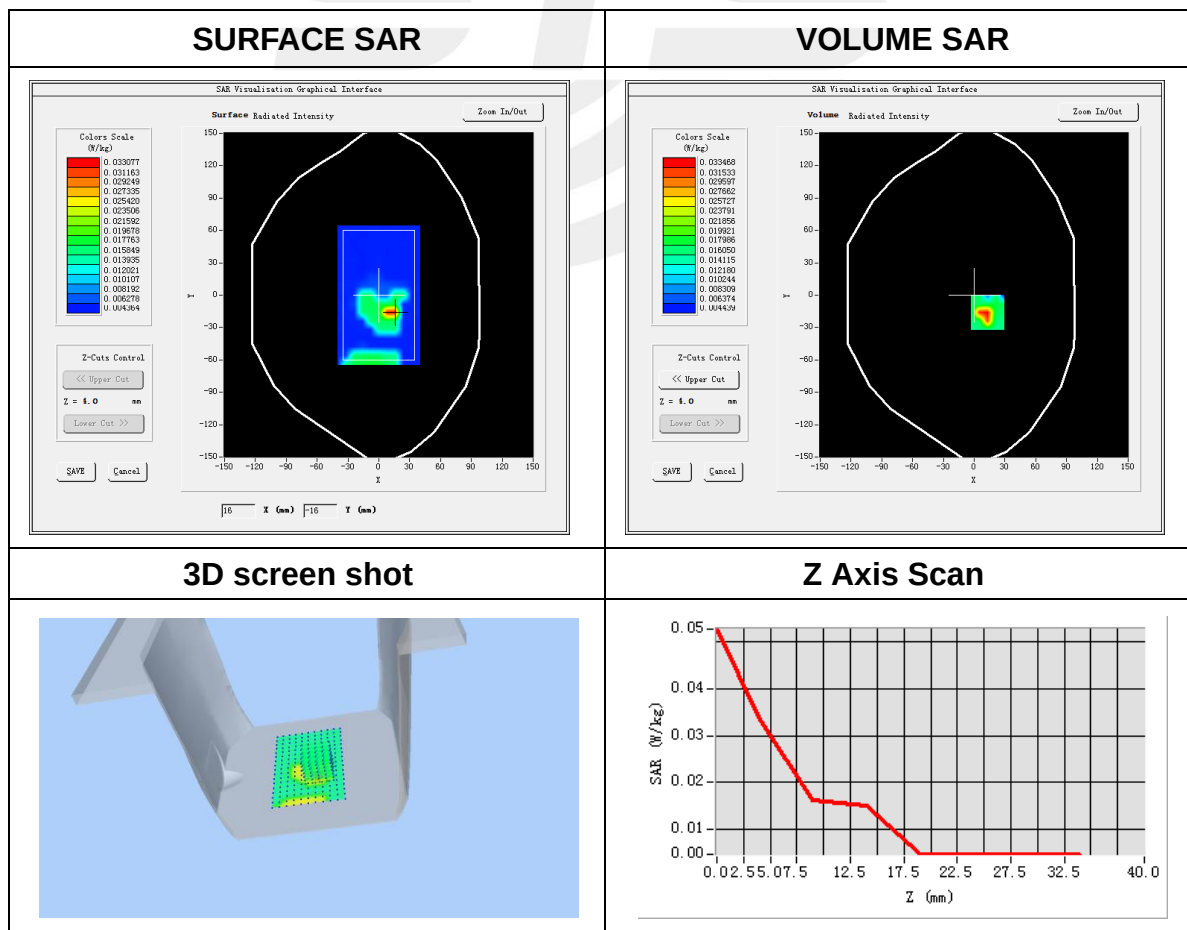
Plot 2: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
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
Mod.	P32Z
ANT	1
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=13.00, Y=-16.00

SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.017748
SAR 1g (W/Kg)	0.041309





Plot 3: DUT: Wireless Handset; EUT Model: Rove 20

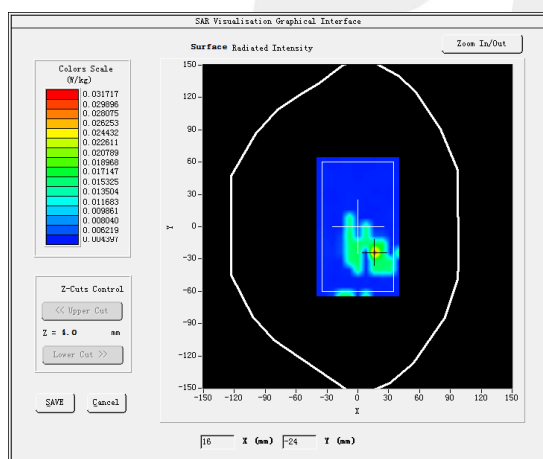
Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back side with back clip
Mod.	P32Z
ANT	1
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=17.00, Y=-24.00

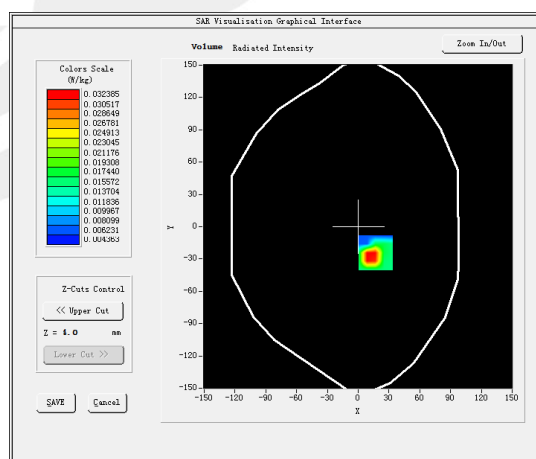
SAR Peak: 0.07 W/kg

SAR 10g (W/Kg)	0.017270
SAR 1g (W/Kg)	0.042019

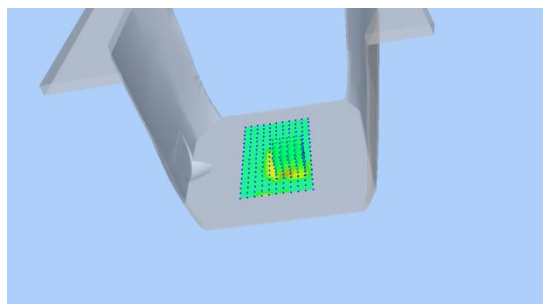
SURFACE SAR



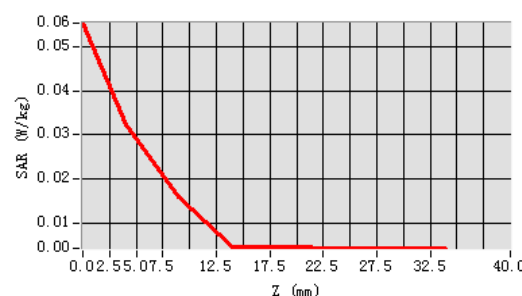
VOLUME SAR



3D screen shot



Z Axis Scan



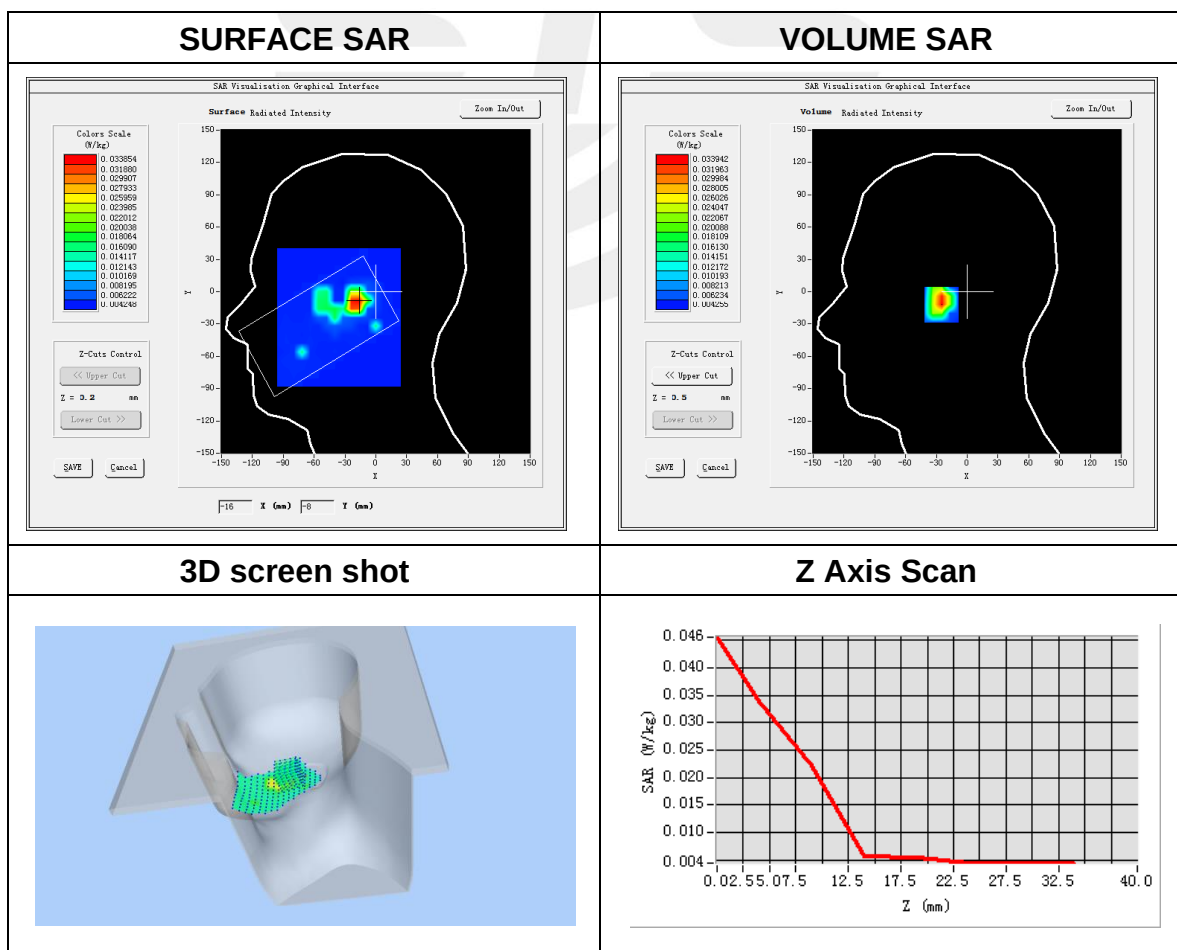
Plot 4: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
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	Right Tilt
Device Position	Cheek
Mod.	P32Z
ANT	2
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=-19.00, Y=-12.00

SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.016253
SAR 1g (W/Kg)	0.041152



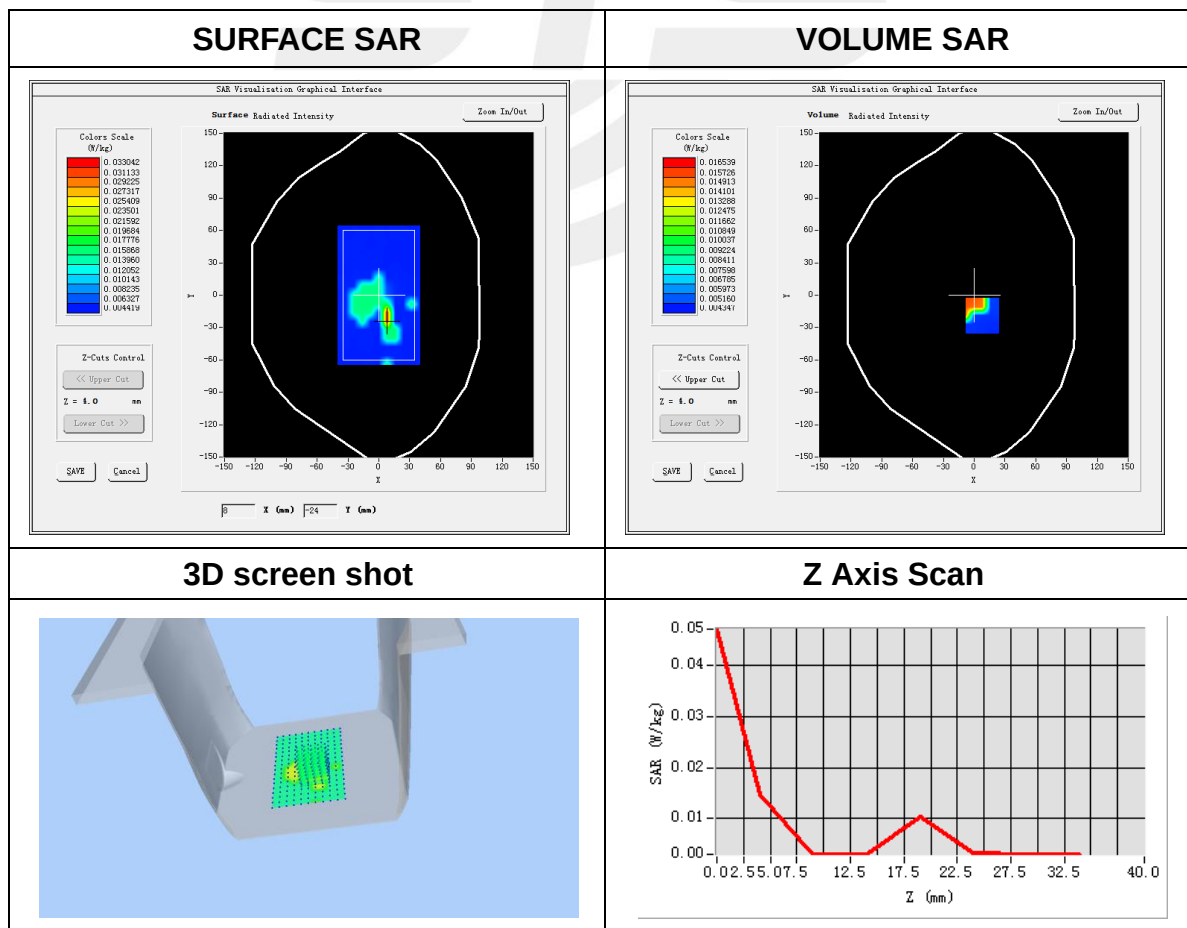

Plot 5: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
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
Mod.	P32Z
ANT	2
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=8.00, Y=-19.00

SAR Peak: 0.04 W/kg

SAR 10g (W/Kg)	0.008589
SAR 1g (W/Kg)	0.020121




Plot 6: DUT: Wireless Handset; EUT Model: Rove 20

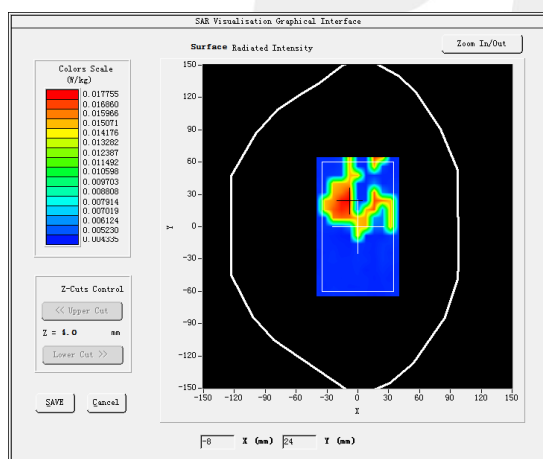
Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
Area Scan	dx=8mm, dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm, dy=8mm, dz=5mm, Complete/ndx=8mm, dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Back side with back clip
Mod.	P32Z
ANT	2
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=-11.00, Y=24.00

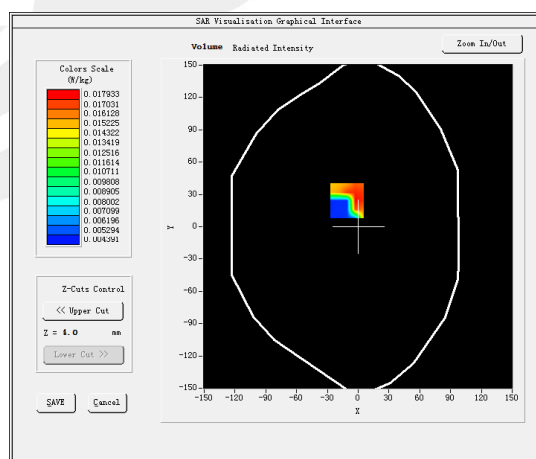
SAR Peak: 0.04 W/kg

SAR 10g (W/Kg)	0.011118
SAR 1g (W/Kg)	0.023836

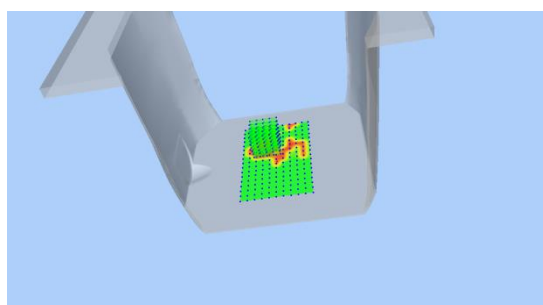
SURFACE SAR



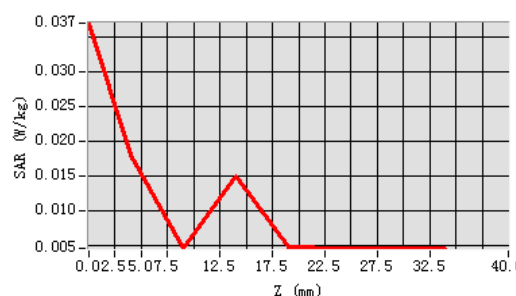
VOLUME SAR



3D screen shot



Z Axis Scan



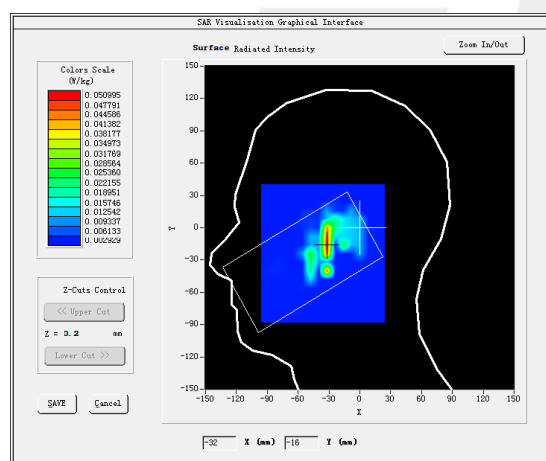
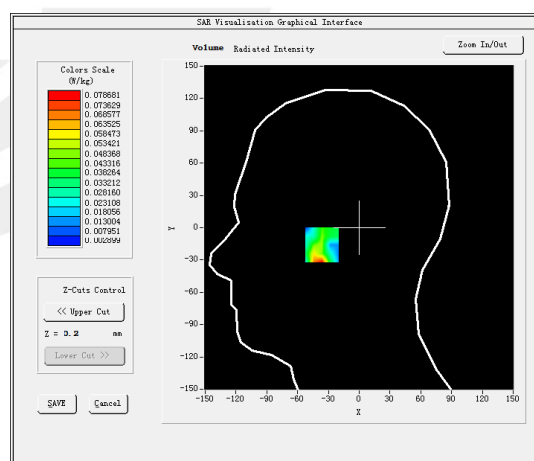
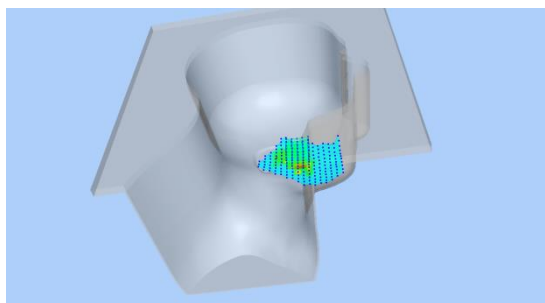
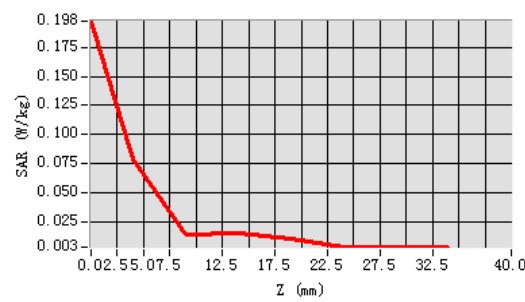
Plot 7: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
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	Left Cheek
Device Position	Cheek
Mod.	PP64Z
ANT	1
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=-32.00, Y=-16.00

SAR Peak: 0.17 W/kg

SAR 10g (W/Kg)	0.028424
SAR 1g (W/Kg)	0.061268

SURFACE SAR

VOLUME SAR

3D screen shot

Z Axis Scan


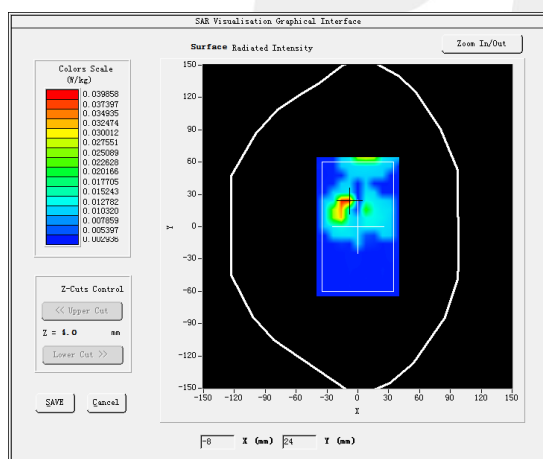
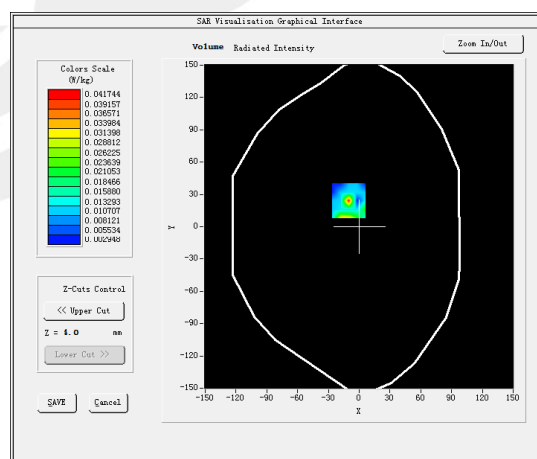
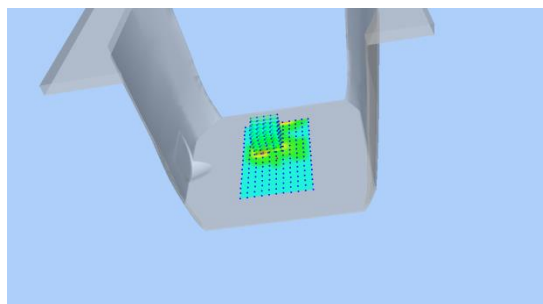
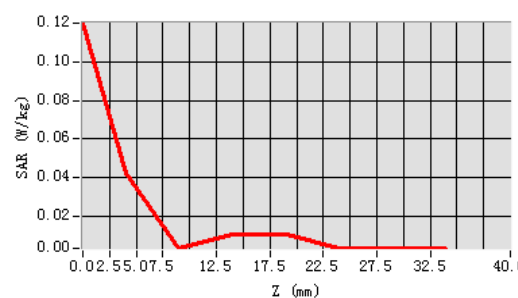

Plot 8: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
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
Mod.	PP64Z
ANT	1
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=-10.00, Y=24.00

SAR Peak: 0.11 W/kg

SAR 10g (W/Kg)	0.010816
SAR 1g (W/Kg)	0.033891

SURFACE SAR

VOLUME SAR

3D screen shot

Z Axis Scan


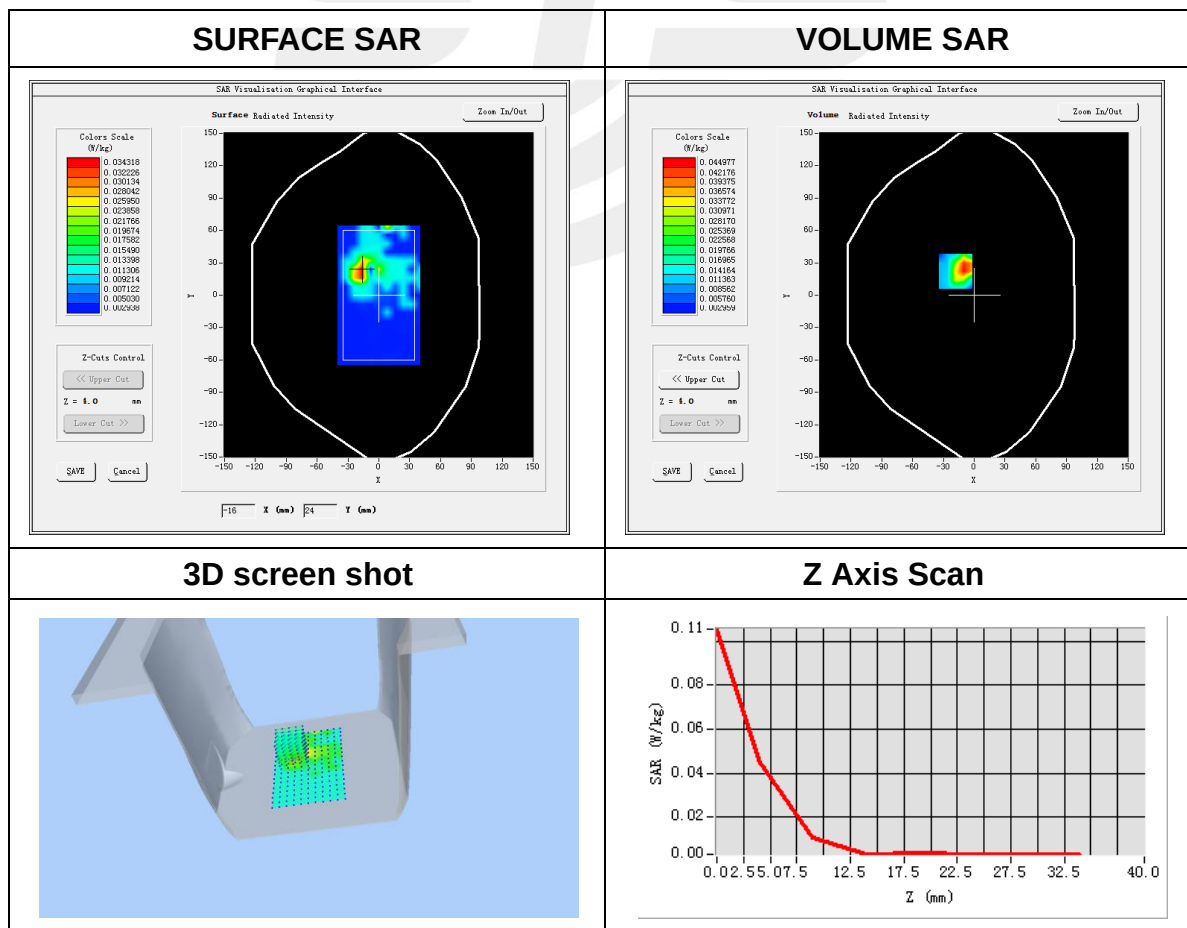
Plot 9: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
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 with back clip
Mod.	PP64Z
ANT	1
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=-18.00, Y=22.00

SAR Peak: 0.12 W/kg

SAR 10g (W/Kg)	0.019399
SAR 1g (W/Kg)	0.049348



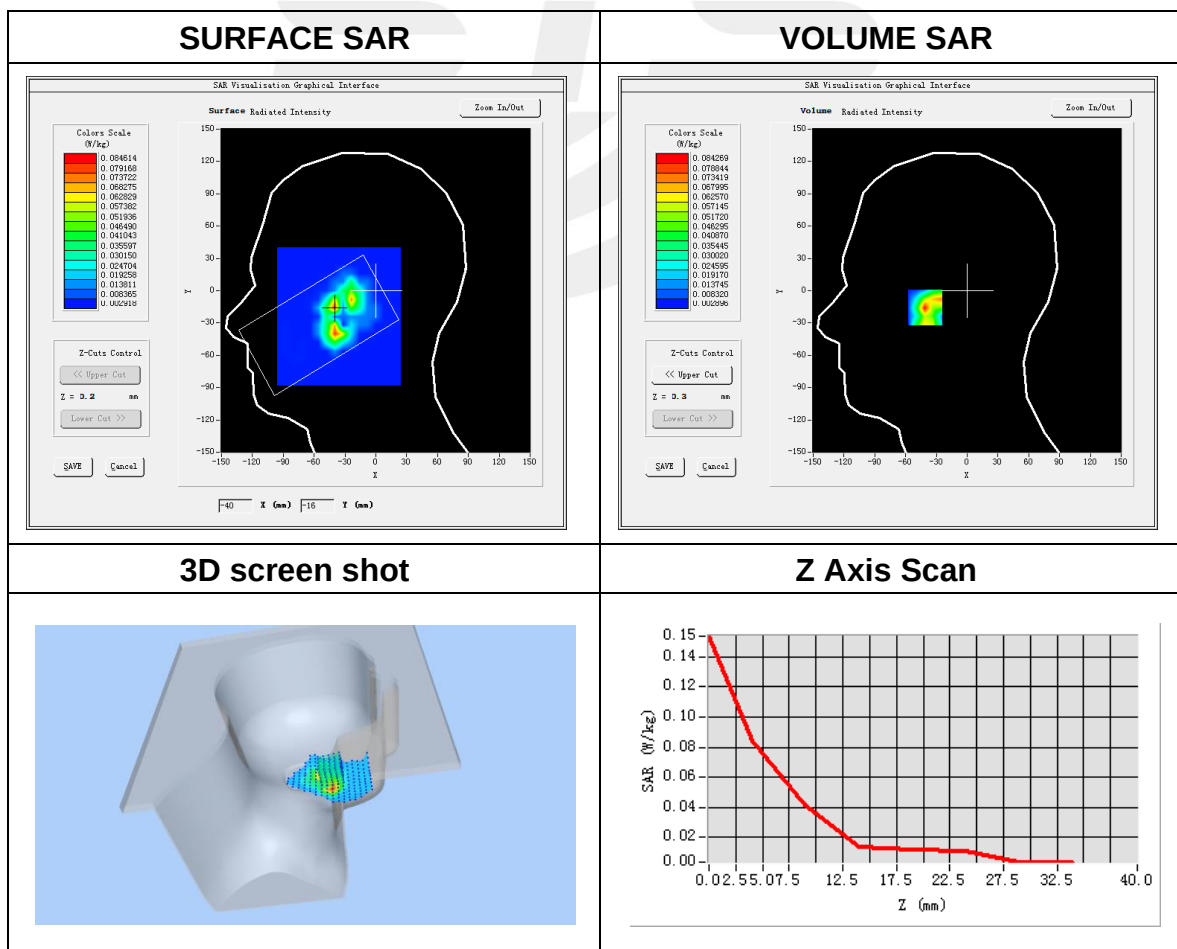
Plot 10: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
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	Left Cheek
Device Position	Cheek
Mod.	PP64Z
ANT	2
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=-41.00, Y=-15.00

SAR Peak: 0.16 W/kg

SAR 10g (W/Kg)	0.032997
SAR 1g (W/Kg)	0.073367



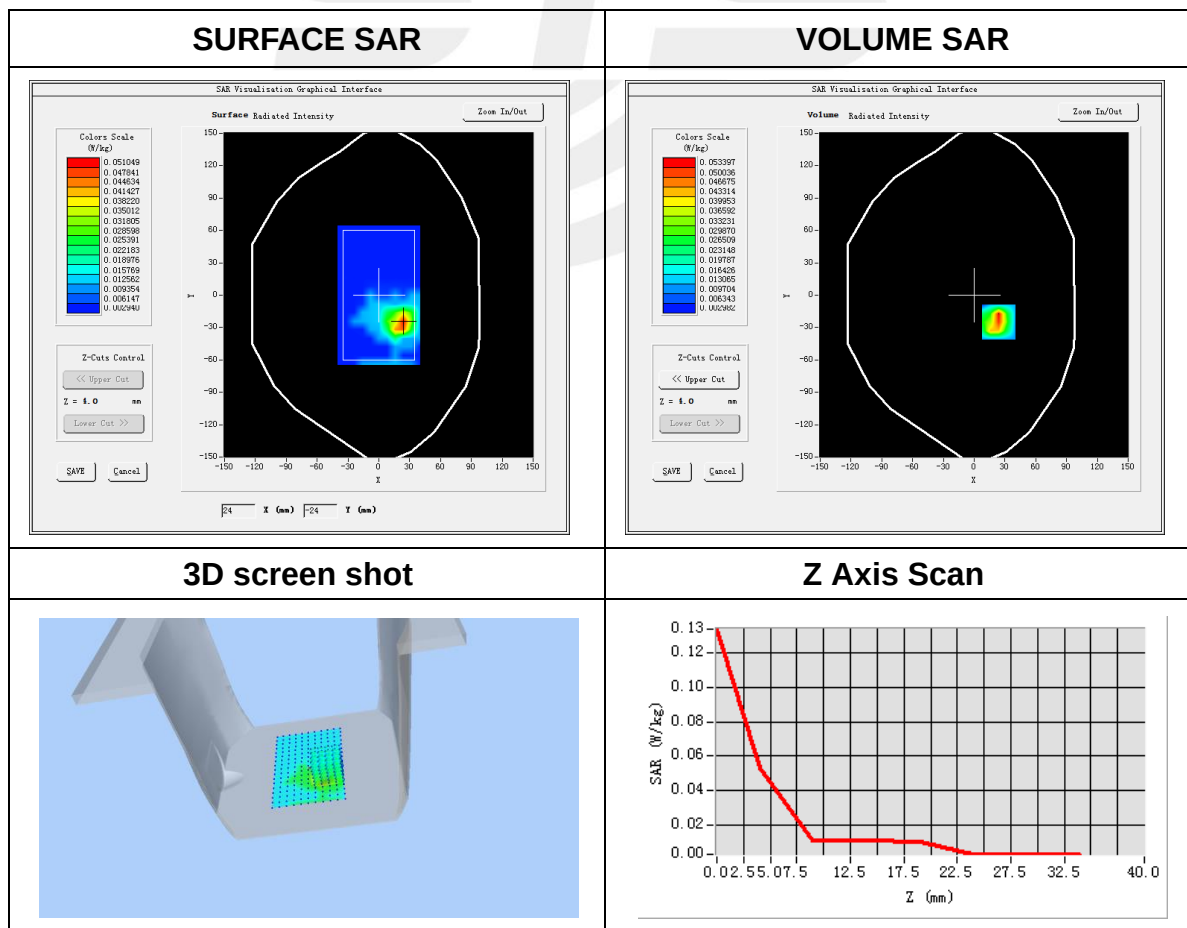
Plot 11: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
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
Mod.	PP64Z
ANT	2
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=24.00, Y=-25.00

SAR Peak: 0.13 W/kg

SAR 10g (W/Kg)	0.019974
SAR 1g (W/Kg)	0.053089





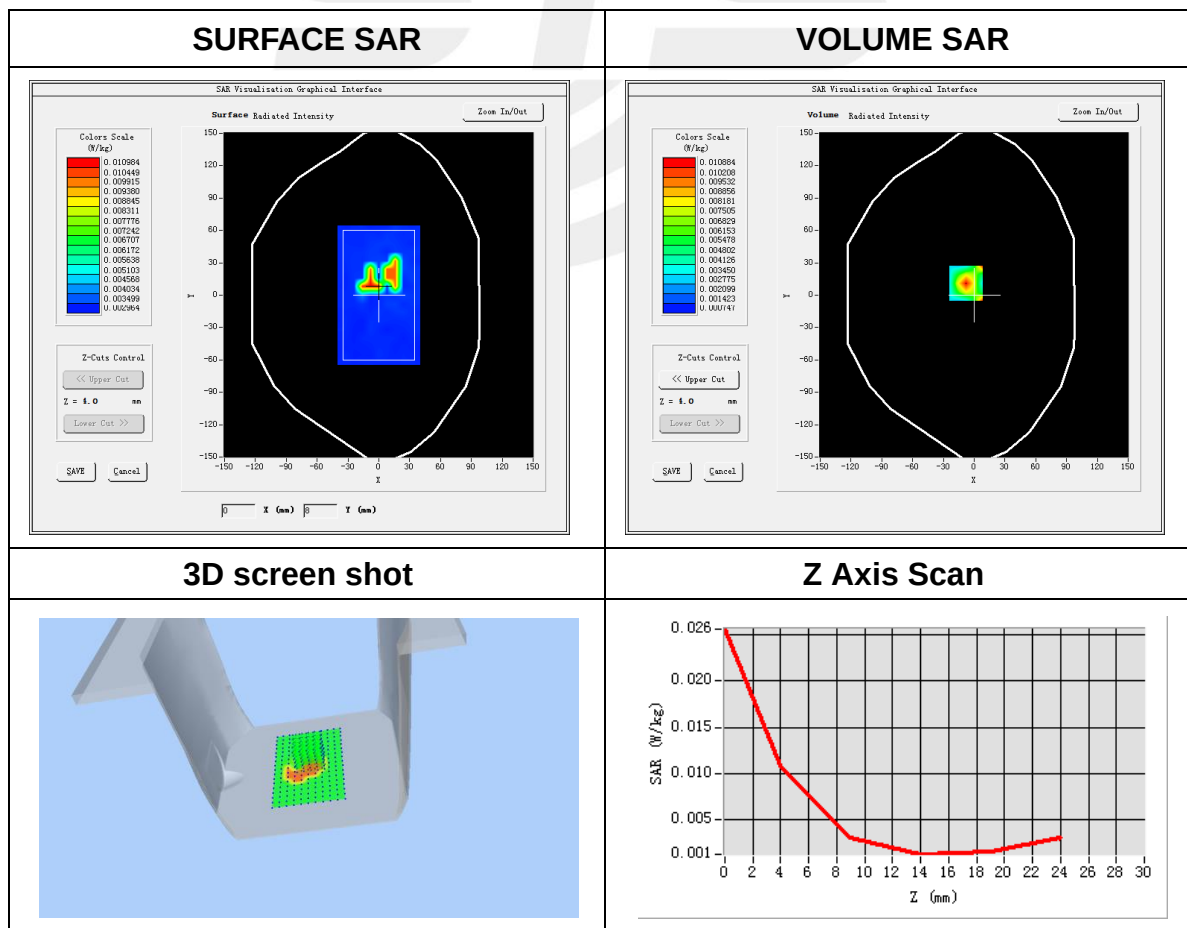
Plot 12: DUT: Wireless Handset; EUT Model: Rove 20

Test Date	2022-11-17
Probe	SN 07/21 EPG0352
ConvF	1.78
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 with back clip
Mod.	PP64Z
ANT	2
Channels	4
Frequency (MHz)	1921.536
Relative permittivity (real part)	40.43
Conductivity (S/m)	1.39

Maximum location: X=-8.00, Y=11.00

SAR Peak: 0.03 W/kg

SAR 10g (W/Kg)	0.004730
SAR 1g (W/Kg)	0.010352





Appendix C. Probe Calibration And Dipole Calibration Report

Refer the appendix Calibration Report.

※※※※END OF THE REPORT※※※※

