



SAR Test Report

For

Applicant Name: Dongguan Lucky Sonics CO., Ltd
Rooms 801 and 802, Building A1, Everbright We Valley, No. 2
Address: Headquarters 2nd Road, Songshan Lake North Industrial Zone,
Dongguan City
EUT Name: 318 SPORTS WALKIE TALKIE
Brand Name: 318
Model Number: TALKIE TAG G1 US

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.
101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou
Address: Community, Songgang Subdistrict, Bao'an District, Shenzhen,
China

Report Number: BTF250623R00601
Test Standards: 47 CFR Part 2.1093 IEEE Std. 1528-2013
IEEE C95.1-2019
FCC ID: 2AQAB-TALKIETAGG1
Test Conclusion: Pass
Test Date: 2025-08-09 to 2025-08-12
Date of Issue: 2025-08-13

Tested By: Kris. Li
Kris. Li / Tester
Date: 2025-08-13

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Amenda Zhong / Project Engineer
Date: 2025-08-13

Approved By: Ryan.CJ
Ryan.CJ / EMC Manager
Date: 2025-08-13



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Revision History		
Version	Issue Date	Revisions Content
R_V0	2025-08-13	Original
<i>Note:</i>		<i>Once the revision has been made, then previous versions reports are invalid.</i>

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1. Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

Test Location:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China
Description:	All measurement facilities used to collect the measurement data are located at 101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China
FCC Registration Number	518915
Designation Number	CN1409

1.3 Laboratory Condition

Ambient Temperature:	21°C to 25°C
Ambient Relative Humidity:	48% to 59%
Ambient Pressure:	100 kPa to 102 kPa

1.4 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2. Product Information

2.1 Application Information

Company Name:	Dongguan Lucky Sonics CO., Ltd
Address:	Rooms 801 and 802, Building A1, Everbright We Valley, No. 2 Headquarters 2nd Road, Songshan Lake North Industrial Zone, Dongguan City

2.2 Manufacturer Information

Company Name:	Dongguan Lucky Sonics CO., Ltd
Address:	Rooms 801 and 802, Building A1, Everbright We Valley, No. 2 Headquarters 2nd Road, Songshan Lake North Industrial Zone, Dongguan City

2.3 Factory Information

Company Name:	HAICHENG EIECTRIC (SHENZHEN) CO., LTD.
Address:	401, Building 62, Longwangmiao Industrial Zone East District, Baishixia CommunityFuyong Subdistrict Bao'an District, Shenzhen

2.4 General Description of Equipment under Test (EUT)

EUT Name	318 SPORTS WALKIE TALKIE
Under Test Model Name	TALKIE TAG G1 US
Software Version	V1.0
Hardware Version	V1.0
Sample No.	BTFSN250623013

2.5 Equipment under Test Ancillary Equipment

Ancillary Equipment 1	Rechargeable Battery	
	Capacity	730mAh
	Nominal Voltage	3.8V

2.6 Technical Information

Network and Wireless connectivity	4G Network FDD LTE Band 2/4/5/12/13/66 BT (EDR+BLE)
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	LTE, Bluetooth		
Frequency Range	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 12	TX: 698 ~ 716 MHz	RX: 728 ~ 746 MHz
	LTE Band 13	TX: 777 ~ 787 MHz	RX: 746 ~ 756 MHz
	LTE Band 66	TX: 1710 ~ 1780 MHz	RX: 2110 ~ 2200 MHz
	Bluetooth	2402 ~ 2480 MHz	
	BLE	2402 ~ 2480 MHz	
Antenna Type	WWAN: Internal Antenna BT/BLE: Internal Antenna		
Hotspot Function	Not Support		
Power Reduction	Not Support		
Exposure Category	General Population/Uncontrolled exposure		
EUT Stage	Portable Device		
Product	Type		
	☐ Production unit	☒ Identical prototype	

3. Summary of Test Results

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	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
3	IEEE C95.1-2019	IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz
4	KDB 447498 D01	General RF Exposure Guidance v06
5	KDB 865664 D01	SAR measurement 100MHz to 6GHz v01r04
6	KDB 648474 D04	Handset SAR v01r03
7	KDB 690783 D01	SAR Listings on Grant v01r03

3.2 Device Category and SAR Limit

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for occupational/controlled Exposure should be applied for this device, it is 0.4 W/kg&8.0 W/kg as averaged over any 1 gram of tissue.

Body Position	SAR Value (W/Kg)	
	General Population/ Uncontrolled Exposure	Occupational/ Controlled Exposure
Whole-Body SAR (averaged over the entire body)	0.08	0.4
Partial-Body SAR (averaged over any 1 gram of tissue)	1.60	8.0
SAR for hands, wrists, feet and ankles (averaged over any 10 grams of tissue)	4.0	20.0

NOTE:

General Population/Uncontrolled Exposure: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. General population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment- related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Occupational/Controlled Exposure: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure. In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3 Test Result Summary

The maximum results of Specific Absorption Rate (SAR) found during test as bellows:

<Highest Reported standalone SAR Summary>

Frequency Band		Maximum Reported SAR (W/kg) -1g
		Body SAR (5mm gap)
WWAN	LTE Band 2	0.576
	LTE Band 4	0.770
	LTE Band 5	0.047
	LTE Band 12	0.019
	LTE Band 13	0.086
	LTE Band 66	0.683
Bluetooth	Bluetooth	0.015
Limits (W/kg)		1.6
Test Verdict		Pass

This device is in compliance with Specific Absorption Rate (SAR) for General Population/Uncontrolled Exposure Limits (1.6 W/kg) specified in FCC47 CFR part 2(2.1093) and ANSI/IEEE C95.1-2019, and had been tested in accordance with the measurement methods and procedures specified in IEEE Std. 1528-2013.

<Highest Reported Simultaneous SAR>

Exposure Position	Simultaneous Configuration	Highest Reported Simultaneous Transmission SAR (W/kg)	Limit (W/kg)	Verdict
Body 1-g SAR (5 mm Gap)	LTE Band 4 + BT	0.785	1.6	Pass

3.4 Test Uncertainty

3.4.1 Measurement uncertainty evaluation for SAR test

Measurement uncertainty evaluation for SAR test (450MHz to 6GHz)

Uncertainty Component	Tol (+-%)	Prob. Dist.	Div.	Unc. $u(x_i)=a(x_i)/q_i$	Ci (1g)	Ci (10g)	1g Ui (+-%)	10 g Ui (+-%)	Vi veff
Measurement System									
Probe calibration	14	N (k = 2)	2	7.00	1	1	7.00	7.00	∞
Probe calibration drift	4	R	$\sqrt{3}$	2.31	1	1	2.31	2.31	∞
Probe linearity	4.7	R	$\sqrt{3}$	2.71	1	1	2.71	2.71	∞
detection limit	1	R	$\sqrt{3}$	0.58	1	1	0.58	0.58	∞
Probe isotropy	3.5	R	$\sqrt{3}$	2.02	0.71	0.71	1.43	1.43	∞
Hemispherical Isotropy	5.9	N	1	5.90	0.71	0.71	4.19	4.19	∞
Boundary effect	1	R	1.73	0.58	1	1	0.58	0.58	∞
Integration time	1.4	R	1.73	0.81	1	1	0.81	0.81	∞
Response time	0	R	1.73	0.00	1	1	0.00	0.00	∞
Readout electronics	0.5	N	1	0.50	1	1	0.50	0.50	∞
RF ambient and noise	3	R	$\sqrt{3}$	1.73	1	1	1.73	1.73	∞
Probe positioning errors	3.28	N	1	3.28	0.33	0.33	1.08	1.08	∞
Data processing errors	2.3	R	1	1.33	1	1	1.33	1.33	∞
Conductivity measurement	4.07	N	1	2.35	0.79	0.77	1.86	1.81	∞
Permittivity measurement	5.06	N	1	2.92	0.23	0.26	0.67	0.76	∞
Liquid Conductivity - Temperature Uncertainty	2.5	R	1	1.44	0.79	0.77	1.14	1.11	∞
Liquid Permittivity - Temperature Uncertainty	2.5	R	$\sqrt{3}$	1.44	0.23	0.26	0.33	0.38	∞
Shell permittivity	2.9	R	$\sqrt{3}$	1.67	0.25	0.25	0.42	0.42	∞
Repeatability of positioning the DUT or source against the phantom	2.7	N	1	2.70	2	2	5.40	5.40	∞
Uncertainty in accepted power	3	R	1	3.00	1	1	3.00	3.00	∞
Effect of operating mode on probe sensitivity	2.3	R	$\sqrt{3}$	1.33	1	1	1.33	1.33	∞
Variation in SAR due to drift in output of DUT	2.2	N	1	2.20	1	1	2.20	2.20	∞
Phantom deviation from target (ϵ' , σ)	1.9	N	1	1.90	1	1	1.90	1.90	∞
SAR scaling	0	R	$\sqrt{3}$	0.00	1	1	0.00	0.00	∞
Probe calibration	14	N (k = 2)	2	7.00	1	1	7.00	7.00	∞
Combined uncertainty	/						11.94	11.94	
Expanded Uncertainty (95% Confidence interval)	/						23.89	23.88	

* This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.4.2 Measurement uncertainty evaluation for system check

Uncertainty Component	Tol (+- %)	Prob. Dist.	Div.	Unc. $u(x_i)=a(x_i)/q_i$	Ci (1g)	Ci (10 g)	1g Ui (+- %)	10 g Ui (+- %)	Vi veff
Measurement System									
Probe calibration	14	N (k = 2)	2	7.00	1	1	7.00	7.00	∞
Probe calibration drift	4	R	1.73	2.31	1	1	2.31	2.31	∞
Probe linearity	4.7	R	1.73	2.72	1	1	2.72	2.72	∞
Detection limit	1	R	1.73	0.58	1	1	0.58	0.58	∞
Axial Isotropy	3.5	R	1.73	2.02	1	1	2.02	2.02	∞
Hemispherical Isotropy	5.9	R	1.73	3.41	0.71	0.71	2.42	2.42	∞
Boundary effect	1	R	1.73	0.58	0.71	0.71	0.41	0.41	∞
Integration time	1.4	R	1.73	0.81	1	1	0.81	0.81	∞
Response time	0	R	1.73	0.00	1	1	0.00	0.00	∞
Readout electronics	0.5	N	1	0.50	1	1	0.50	0.50	∞
Noise	3	R	1.73	1.73	1	1	1.73	1.73	∞
Reflections	3	R	1.73	1.73	1	1	1.73	1.73	∞
Positioner Mechanical Tolerance	3.28	R	1.73	1.90	0.33	0.33	0.63	0.63	∞
Positioning with respect to Phantom Shell	3.28	R	1.73	1.90	0.33	0.33	0.63	0.63	∞
Data processing errors	2.3	R	1.73	1.33	1	1	1.33	1.33	∞
Conductivity measurement	4.07	N	1	4.07	0.79	0.77	3.22	3.13	∞
Permittivity measurement	5.06	N	1	5.06	0.23	0.26	1.16	1.32	∞
Liquid Conductivity - Temperature Uncertainty	2.5	R	1.73	1.45	0.79	0.77	1.14	1.11	∞
Liquid Permittivity - Temperature Uncertainty	2.5	R	1.73	1.45	0.23	0.26	0.33	0.38	∞
Shell permittivity	2.9	R	1.73	1.68	0.25	0.25	0.42	0.42	∞
Distance between the radiating element of the DUT and the phantom medium	2.7	N	1	2.70	2	2	5.40	5.40	∞
Deviation of experimental antennas	4.5	N	1.73	2.60	1	1	2.60	2.60	∞
Other uncertainty contributions	2	R	1	2.00	1	1	2.00	2.00	∞
Uncertainty in accepted power	3	R	1.73	1.73	1	1	1.73	1.73	∞
Phantom deviation from target (ϵ', σ)	1.9	N	1	1.90	1	0.87	1.90	1.65	∞
$u(\Delta SAR)$	/						11.89	11.85	
Expanded uncertainty (95% confidence interval)	/						23.79	23.70	

4.2.2 Robot



A standard high precision 6-axis robot (Denso) with teaches pendant with Scanning System

- It must be able to scan all the volume of the phantom to evaluate the tridimensional distribution of SAR.
- Must be able to set the probe orthogonal of the surface of the phantom ($\pm 30^\circ$).
- Detects stresses on the probe and stop itself if necessary to keep the integrity of the probe.

4.2.3 E-Field Probe

For the measurements, the Specific Dosimetric SSE2 E-Field Probe with following specifications is used:

- Dynamic range: 0.01-100 W/kg
- Tip diameter: 2mm for SSE2
- Distance between probe tip and sensor centre: 1mm for SSE2
- Distance between sensor centre and the inner phantom surface: 2mm for $f \geq 4\text{GHz}$.
- Probe linearity: $<0.25\text{dB}$.
- Axial Isotropy: $<0.25\text{dB}$.
- Spherical Isotropy: $<0.50\text{dB}$.
- Calibration range: 150 to 6000 MHz for head & body simulating liquid
- Angle between probe axis (evaluation axis) and surface normal line: less than 20° .



4.2.4 Phantoms

SAM Phantom

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The probe scanning of the E-Field is done in the 2 halves of the normalized head. The normalized shape of the phantom corresponds to the dimensions of 90% of an adult head size. It enables the dosimetric evaluation of left and right-hand phone usage and includes an additional flat phantom part for the simplified body performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.



SAM Phantom

The thickness of the phantom amounts to $2\text{ mm} \pm 0.2\text{ mm}$. The materials for the phantom do not affect the radiation of the device under test (DUT) : $\epsilon_r' < 5$
The head is filled with tissue simulating liquid. The hand do not have to be modeled.

TWIN SAM phantom

	Mechanical	Electrical	
Overall thickness	$2 \pm 0.2\text{ mm}$ (except ear area)	Relative permittivity	3.4
Dimensions	1000 mm(L) x 500 mm(W) x 200 mm(H)	Loss tangent	0.02
Maximum volume	27 L		
Material	Fiberglass based		

ELLIPTICAL Phantom

The phantom is for Body performance check filled with tissue-equivalent liquid to a depth of at least 150 mm, whose shell material is resistant to damage or reaction with tissue-equivalent liquid chemicals.



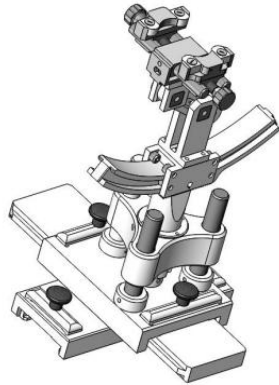
ELLI Phantom

The shape of the phantom is an ellipse with length $600\text{ mm} \pm 5\text{ mm}$ and width $400\text{ mm} \pm 5\text{ mm}$.
The phantom shell is made of low-loss and low-permittivity material, having loss tangent $\tan \delta \leq 0.05$ and relative permittivity:
 $\epsilon_r' \leq 5$ for $f \leq 3\text{ GHz}$
 $3 \leq \epsilon_r' \leq 5$ for $f > 3\text{ GHz}$
The thickness of the bottom-wall of the flat phantom is 2.0 mm with a tolerance of $\pm 0.2\text{ mm}$.

Technical & mechanical characteristics

Shell thickness	$2\text{ mm} \pm 0.2\text{ mm}$
Filling volume	25 L
Dimensions	600 mm x 400 mm x 200mm
Permittivity	4.4
Loss tangent	0.017

4.2.5 Device Holder



System Material	Permittivity	Loss tangent
Delrin	3.7	0.005

(The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than 1°.)

System Material	Permittivity	Loss tangent
PMMA	2.9	0.028

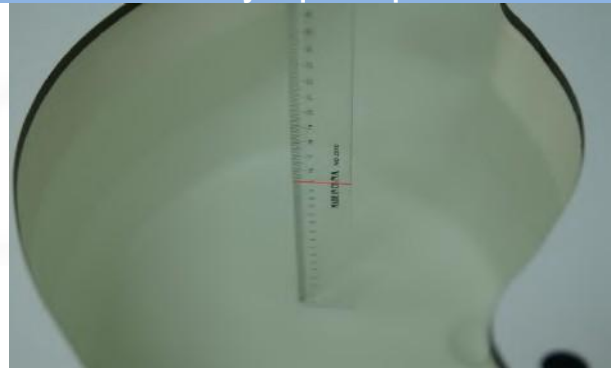
4.2.6 Simulating Liquid

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5%.

Head Liquid Depth



Body Liquid Depth



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

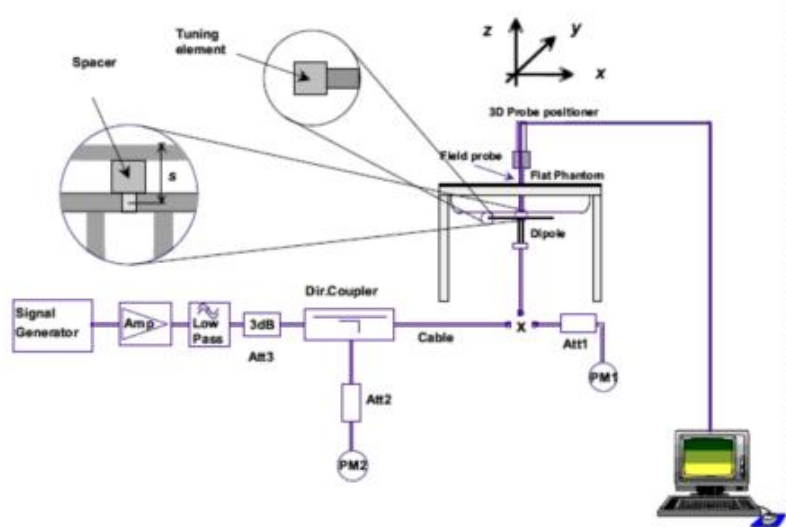
Head (Reference IEEE1528)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
450	48.53	55.6	0.2	1.4	0.2	0	0.91	42.8
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.4	40.0
2450	55.0	0	0	0.1	0	44.9	1.80	39.2
2600	54.9	0	0	0.1	0	45.0	1.96	39.0
Frequency (MHz)	Water (%)	Hexyl Carbitol (%)			Triton X-100 (%)		Conductivity σ (S/m)	Permittivity ε
5200	62.52	17.24			17.24		4.66	36.0
5800	62.52	17.24			17.24		5.27	35.3
Body (From instrument manufacturer)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
450	53.1	45.1	0	0.9	0.1	0	0.081	57.2
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0.1	0	31.3	1.95	52.7
2600	68.2	0	0	0.1	0	31.7	2.16	52.5
Frequency(MHz)	Water	DGBE (%)			Salt (%)		Conductivity σ (S/m)	Permittivity ε
5200	78.60	21.40			/		5.30	49.00
5800	78.50	21.40			0.1		6.00	48.20

5. System Verification

5.1 Purpose of System Check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. The setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

5.2 System Check Setup



6. TEST POSITION CONFIGURATIONS

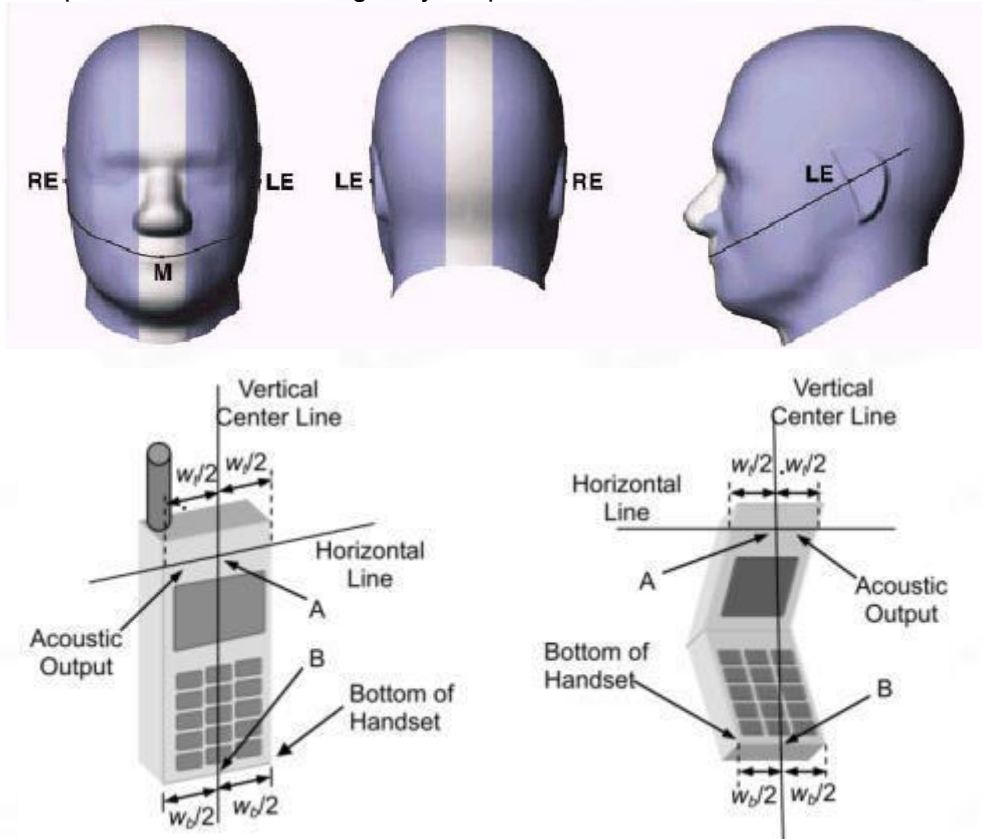
According to KDB 648474 D04 Handset, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

6.1 Head Exposure Conditions

Head exposure is limited to next to the ear voice mode operations. Head SAR compliance is tested according to the test positions defined in IEEE Std 1528-2013 using the SAM phantom illustrated as below.

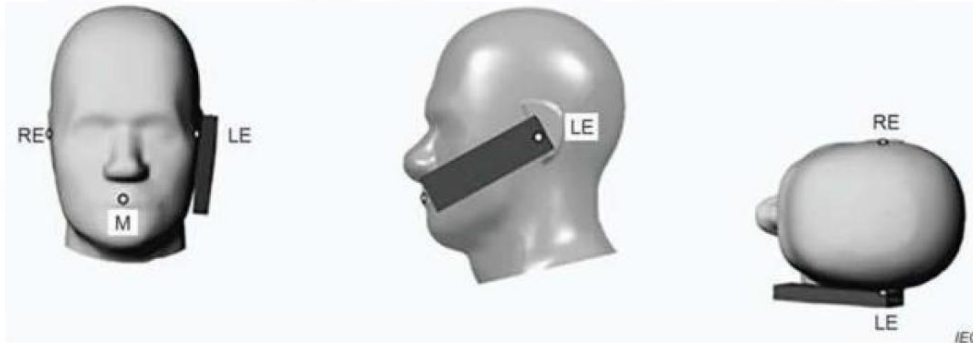
6.1.1 Two Imaginary Lines on the Handset

- The vertical center line 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 bottom of the handset.
- The horizontal line is perpendicular to the vertical center line and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
- 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 center line is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



6.1.2 Two Imaginary Lines on the Handset

- 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 three 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.
- 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 the 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.



6.1.3 Titled Position

- To position the device in the “cheek” position described above.
- While maintaining the device 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 contact with the ear is lost.



6.2 Devices used with body-worn accessories

A device within the scope of this document intended for use with a body-worn accessory approved or specified by the device manufacturer shall be assessed according to the following requirements.

a) If the user instructions provided by the manufacturer specify the intended use with a carry accessory (belt-clip, holster, carry-case or similar), the device shall be placed in that carry accessory and positioned in the intended use conditions against the flat phantom.

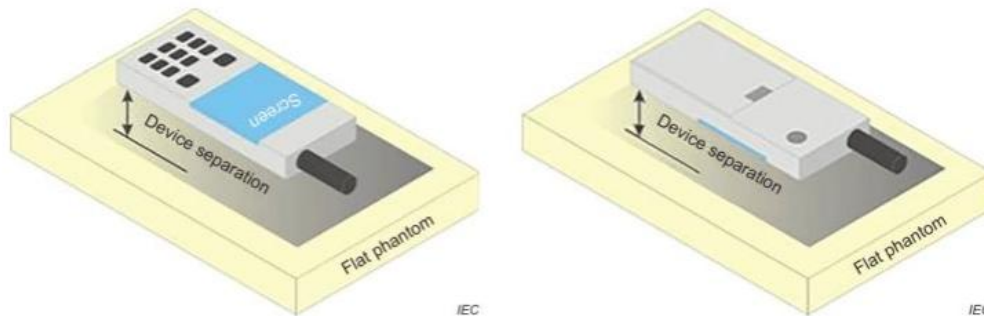
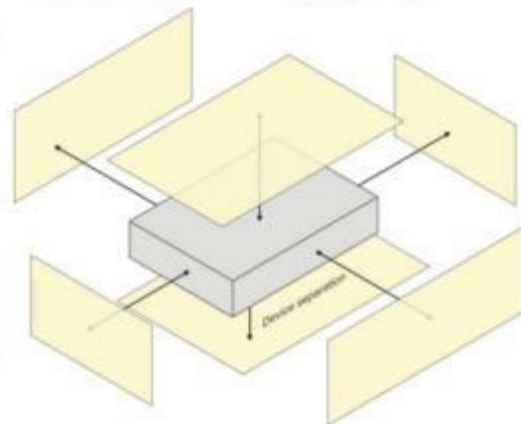


Figure 6 – Test positions for body-worn devices

6.3 Hotspot Mode Exposure Position Conditions

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing functions, the relevant hand and body exposure conditions 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 surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge. When the form factor of a handset is smaller than 9 cm x 5 cm, a test separation distance of 5 mm (instead of 10 mm) is required for testing hotspot mode. When the separation 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).



6.4 Product Specific 10g Exposure Consideration

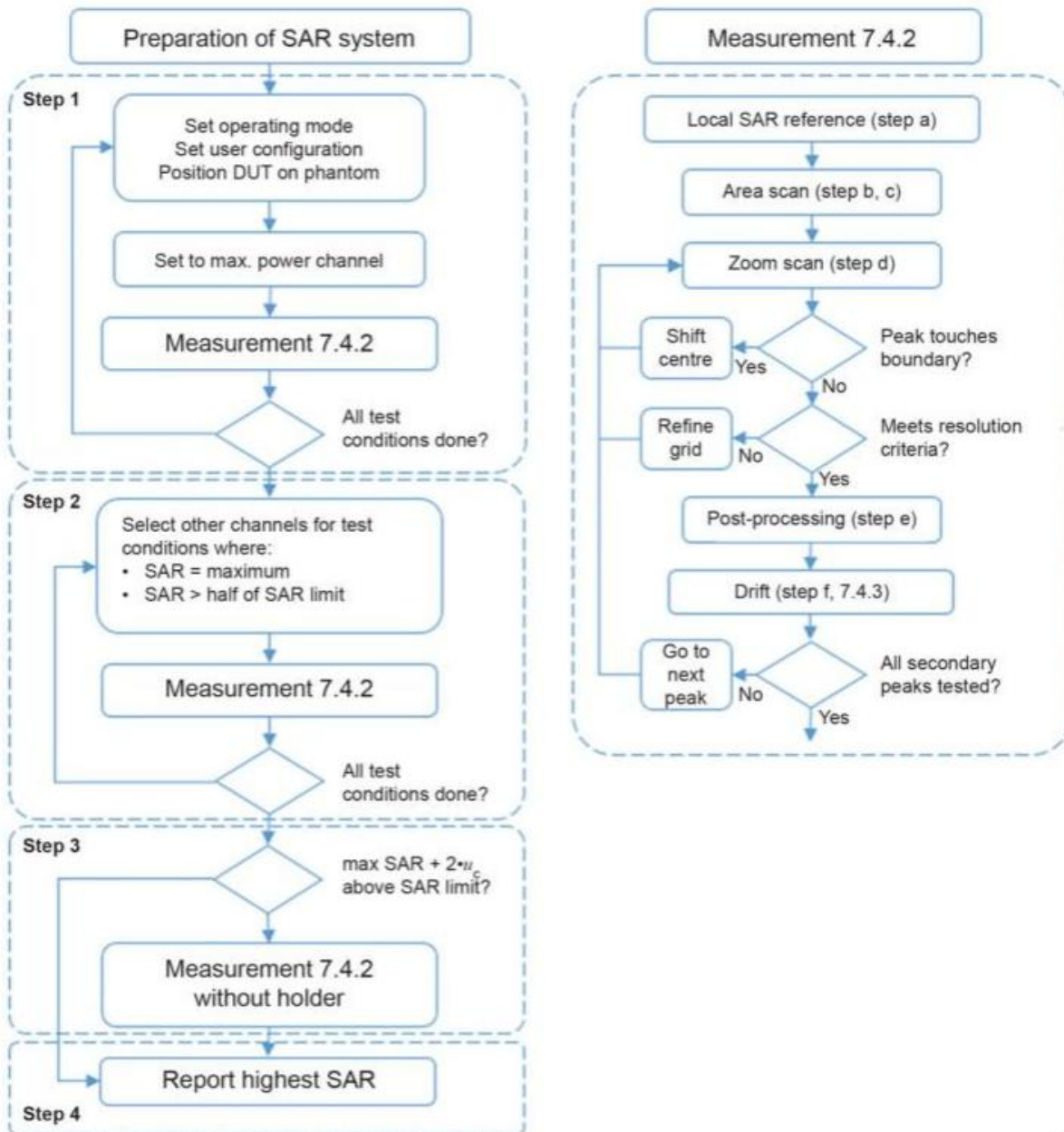
According with FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance;

The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

7. Measurement Procedure

7.1 Measurement Process Diagram

Body SAR



IEC

7.2 SAR Scan General Requirement

Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1 g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2013.

			≤3GHz	>3GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5±1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30°±1°	20°±1°
Maximum area scan spatial resolution: Δx Area , Δy Area			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3–4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx Zoom , Δy Zoom			≤ 2 GHz: ≤ 8 mm 2 –3 GHz: ≤ 5 mm*	3–4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: Δz Zoom (n)		≤ 5 mm	3–4 GHz: ≤ 4 mm
				4–5 GHz: ≤ 3 mm
				5–6 GHz: ≤ 2 mm
	graded grid	Δz Zoom (1): between 1st two points closest to phantom surface	≤ 4 mm	3–4 GHz: ≤ 3 mm
				4–5 GHz: ≤ 2.5 mm
				5–6 GHz: ≤ 2 mm
			Δz Zoom (n>1): between subsequent points	≤ 1.5·Δz Zoom (n-1)
Minimum zoom scan volume	x, y, z		≥30 mm	3–4 GHz: ≥ 28 mm
				4–5 GHz: ≥ 25 mm
				5–6 GHz: ≥ 22 mm
Note:				
1. δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528- 2011 for details.				
2. * When zoom scan is required and the reported SAR from the area scan based 1 g SAR estimation procedures of KDB				
447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

7.3 Measurement Procedure

The following steps are used for each test position

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

7.4 Area & Zoom Scan Procedure

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 D01v01r04 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.

8. Conducted RF Output Power

8.1 LTE

Band 2

LTE-FDD Band 2				Maximum Tune-up(dBm)	Conducted Power(dBm)			
Bandwidth	Modulation	RB allocation	RB offset		18607	18900	19193	
					1850.7MHz	1880.0MHz	1909.3MHz	
1.4MHz	QPSK	1	0	22.50	22.25	22.25	21.81	
			2	22.50	22.44	22.18	21.77	
			5	22.50	22.38	22.17	21.81	
		3	0	22.50	22.23	22.01	21.68	
			2	22.50	22.34	22.10	21.89	
			3	22.50	22.31	22.04	21.75	
		6	0	21.50	21.26	21.14	20.66	
		16QAM	1	0	21.50	21.24	20.94	20.69
				2	21.50	21.23	20.91	20.77
	5			21.50	21.23	20.90	20.76	
	3		0	21.50	21.38	21.19	20.71	
			2	21.50	21.41	21.19	20.68	
			3	21.50	21.48	21.15	20.64	
	6	0	20.50	20.38	20.03	19.70		
	Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18615	18900	19185
1851.5MHz						1880.0MHz	1908.5MHz	
3MHz	QPSK	1	0	22.50	22.20	22.01	22.01	
			7	22.50	22.29	22.10	21.85	
			14	22.50	22.21	21.92	21.64	
		8	0	21.50	21.18	21.02	21.01	
			4	21.50	21.18	21.00	20.98	
			7	21.50	21.33	21.01	20.90	
		15	0	21.50	21.29	21.00	20.91	
	16QAM	1	0	21.50	21.40	20.83	21.07	
			7	22.00	21.63	21.02	21.03	
			14	21.50	21.41	20.82	20.78	
		8	0	20.50	20.22	20.09	20.14	
			4	20.50	20.30	20.16	20.06	
			7	20.50	20.28	20.10	19.95	
		15	0	20.50	20.17	20.17	20.03	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18625	18900
1852.5MHz	1880.0MHz						1907.5MHz	
5MHz	QPSK	1	0	23.00	22.62	22.46	22.53	
			13	23.00	22.55	22.23	22.23	
			24	23.00	22.67	22.15	21.95	
		12	0	22.00	21.57	21.34	21.50	
			6	22.00	21.57	21.26	21.26	
			13	22.00	21.59	21.22	21.07	
		25	0	22.00	21.56	21.29	21.23	
	16QAM	1	0	22.00	21.73	21.58	21.65	
			13	22.00	21.74	21.40	21.46	
			24	22.00	21.86	21.34	21.18	
		12	0	21.00	20.60	20.41	20.55	
			6	21.00	20.64	20.33	20.45	
			13	21.00	20.68	20.30	20.26	
		25	0	21.00	20.72	20.40	20.44	

LTE-FDD Band 2				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		18650	18900	19150
					1855.0MHz	1880.0MHz	1905.0MHz
10MHz	QPSK	1	0	23.50	22.76	22.92	23.42
			25	23.50	22.86	22.41	23.02
			49	23.50	23.15	22.13	22.47
		25	0	22.50	21.74	21.57	22.26
			13	22.00	21.87	21.51	21.96
			25	22.00	21.96	21.38	21.88
		50	0	22.50	21.91	21.53	22.08
	16QAM	1	0	22.50	21.97	21.76	22.41
			25	22.50	22.15	21.30	22.04
			49	22.50	22.30	21.08	21.54
		12	0	22.50	21.74	21.84	22.31
			19	22.00	21.94	21.50	21.96
			38	22.50	22.09	21.29	21.61
		27	0	21.00	20.78	20.74	20.92
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18675	18900	19125
					1857.5MHz	1880.0MHz	1902.5MHz
15MHz	QPSK	1	0	23.50	22.70	23.07	23.36
			38	23.50	22.99	22.48	23.41
			74	23.50	23.25	22.27	22.60
		36	0	22.50	21.89	21.85	22.46
			18	22.50	22.04	21.52	22.34
			39	22.50	22.22	21.38	22.03
		75	0	22.50	21.98	21.58	22.31
	16QAM	1	0	23.00	22.00	22.09	22.62
			38	23.00	22.29	21.46	22.68
			74	23.00	22.60	21.21	21.89
		12	0	23.00	21.75	22.03	22.50
			31	22.50	22.00	21.49	22.48
			63	22.50	22.29	21.24	21.87
		27	0	21.50	20.82	20.95	21.03
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18700	18900	19100
					1860.0MHz	1880.0MHz	1900.0MHz
20MHz	QPSK	1	0	23.50	23.26	23.36	22.70
			50	24.00	23.66	22.43	23.44
			99	24.00	23.94	22.28	22.60
		50	0	22.50	22.35	21.96	22.31
			25	23.00	22.55	21.64	22.54
			50	23.00	22.88	21.38	22.24
		100	0	23.00	22.63	21.64	22.24
	16QAM	1	0	23.00	22.31	22.72	22.14
			50	23.00	22.71	21.84	22.87
			99	23.00	22.99	21.69	22.04
		12	0	22.50	22.21	22.38	21.94
			44	23.00	22.56	21.59	22.48
			88	23.00	22.87	21.32	21.86
		27	0	21.50	21.42	21.17	21.05

Band 4

LTE-FDD Band 4				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		19957	20175	20393
					1710.7MHz	1732.5MHz	1754.3MHz
1.4MHz	QPSK	1	0	23.50	22.15	22.82	23.20
			2	23.50	22.11	22.90	23.18
			5	23.50	22.02	22.87	23.08
		3	0	23.50	21.91	22.78	23.11
			2	23.50	21.93	22.80	23.11
			3	23.50	21.89	22.78	23.20
		6	0	22.50	21.16	21.90	22.28
	16QAM	1	0	22.50	21.02	21.90	22.14
			2	22.50	21.01	21.95	22.13
			5	22.50	21.00	22.00	22.14
		3	0	22.50	21.20	21.89	22.34
			2	22.50	21.25	21.90	22.36
			3	22.50	21.19	21.90	22.35
		6	0	21.50	20.25	21.03	21.29
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	19965	20175	20385
					1711.5MHz	1732.5MHz	1753.5MHz
3MHz	QPSK	1	0	23.50	21.85	22.61	23.09
			7	23.50	21.96	22.90	23.18
			14	23.00	21.62	22.72	22.96
		8	0	22.50	20.92	21.86	22.16
			4	22.50	20.91	21.94	22.20
			7	22.50	20.82	21.91	22.17
		15	0	22.50	20.83	21.86	22.18
	16QAM	1	0	22.50	20.70	21.78	22.39
			7	23.00	20.79	22.01	22.51
			14	22.50	20.60	21.85	22.33
		8	0	21.50	19.97	21.01	21.27
			4	21.50	20.00	21.09	21.34
			7	21.50	19.91	21.07	21.31
		15	0	21.50	19.97	20.99	21.23
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	19976	20175	20375
					1712.5MHz	1732.5MHz	1752.5MHz
5MHz	QPSK	1	0	23.50	22.30	22.77	23.22
			13	23.50	22.13	22.86	23.08
			24	23.50	22.00	22.96	23.06
		12	0	22.50	21.25	21.87	22.31
			6	22.50	21.16	21.95	22.22
			13	22.50	21.19	22.00	22.22
		25	0	22.50	21.24	21.95	22.24
	16QAM	1	0	23.00	21.57	21.95	22.51
			13	22.50	21.40	22.10	22.41
			24	22.50	21.33	22.21	22.41
		12	0	21.50	20.38	20.99	21.35
			6	21.50	20.32	21.08	21.31
			13	21.50	20.26	21.17	21.31
		25	0	21.50	20.38	21.11	21.36

LTE-FDD Band 4				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		20000	20175	20350
					1715.0MHz	1732.5MHz	1750.0MHz
10MHz	QPSK	1	0	24.00	22.20	22.59	23.56
			25	24.00	21.99	22.92	23.53
			49	23.50	22.22	23.13	23.42
		25	0	23.00	21.26	21.80	22.65
			13	23.00	21.19	21.99	22.56
			25	22.50	21.17	22.11	22.46
		50	0	23.00	21.19	21.98	22.57
	16QAM	1	0	23.00	21.18	21.66	22.90
			25	23.00	20.98	22.05	22.80
			49	23.00	21.12	22.27	22.69
		12	0	23.00	21.28	21.69	22.70
			19	23.00	21.12	21.95	22.62
			38	22.50	21.20	22.13	22.49
		27	0	21.50	20.28	20.90	21.48
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20025
1717.5MHz	1732.5MHz						1747.5MHz
15MHz	QPSK	1	0	23.50	22.39	22.42	23.31
			38	24.00	22.28	23.14	23.58
			74	24.00	22.67	23.50	23.44
		36	0	22.50	21.29	21.76	22.44
			18	23.00	21.44	22.10	22.72
			39	22.50	21.56	22.33	22.46
		75	0	22.50	21.56	22.02	22.47
	16QAM	1	0	22.50	21.67	21.49	22.26
			38	23.00	21.72	22.11	22.66
			74	23.00	22.05	22.54	22.39
		12	0	22.50	21.55	21.57	22.27
			31	23.00	21.45	22.05	22.53
			63	22.50	21.82	22.37	22.28
		27	0	22.00	20.41	20.86	21.63
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20050
1720.0MHz	1732.5MHz						1745.0MHz
20MHz	QPSK	1	0	23.00	22.33	22.38	22.97
			50	23.50	22.29	23.00	23.36
			99	23.50	23.00	23.38	23.45
		50	0	22.50	21.26	21.78	22.15
			25	22.50	21.47	22.10	22.37
			50	22.50	21.73	22.39	22.43
		100	0	22.50	21.59	22.05	22.28
	16QAM	1	0	22.50	21.86	21.49	22.02
			50	23.00	21.86	22.20	22.52
			99	23.00	22.53	22.65	22.46
		12	0	22.50	21.36	21.47	22.06
			44	22.50	21.42	22.07	22.49
			88	23.00	22.01	22.54	22.30
		27	0	21.50	20.33	20.64	21.47

Band 5

LTE-FDD Band 5				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		20407	20525	20643
					824.7MHz	836.5MHz	848.3MHz
1.4MHz	QPSK	1	0	23.00	22.54	22.42	22.98
			2	23.00	22.58	22.37	22.85
			5	23.00	22.52	22.28	22.60
		3	0	23.00	22.47	22.47	22.94
			2	23.00	22.45	22.46	22.84
			3	23.00	22.56	22.32	22.73
		6	0	22.00	21.65	21.43	21.84
	16QAM	1	0	22.50	21.63	21.45	22.04
			2	22.00	21.66	21.56	21.99
			5	22.00	21.73	21.42	21.81
		3	0	22.00	21.59	21.35	21.85
			2	22.00	21.61	21.40	21.95
			3	22.00	21.60	21.43	21.87
		6	0	21.50	20.60	20.57	21.08
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20415	20525	20635
					825.5MHz	836.5MHz	847.5MHz
3MHz	QPSK	1	0	23.00	22.34	22.37	22.93
			7	23.50	22.68	22.42	23.05
			14	23.00	22.57	22.09	22.46
		8	0	22.50	21.46	21.39	22.08
			4	22.00	21.63	21.36	21.98
			7	22.00	21.63	21.25	21.94
		15	0	22.50	21.54	21.29	22.00
	16QAM	1	0	22.50	21.20	21.42	22.26
			7	22.50	21.45	21.55	22.28
			14	22.00	21.42	21.12	21.80
		8	0	21.50	20.53	20.61	21.13
			4	21.50	20.65	20.58	21.08
			7	21.00	20.63	20.44	20.95
		15	0	21.50	20.59	20.47	21.06

LTE-FDD Band 5				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		20425	20525	20625
					826.5MHz	836.5MHz	846.5MHz
5MHz	QPSK	1	0	23.00	22.53	22.53	22.76
			13	23.00	22.73	22.36	22.89
			24	23.50	23.01	22.18	22.59
		12	0	22.50	21.62	21.52	22.07
			6	22.50	21.84	21.41	22.11
			13	22.00	21.99	21.30	21.98
		25	0	22.50	21.84	21.42	22.03
	16QAM	1	0	22.50	21.78	21.71	22.13
			13	22.50	22.01	21.51	22.31
			24	22.50	22.25	21.35	21.93
		12	0	21.50	20.71	20.58	21.17
			6	21.50	20.83	20.49	21.23
			13	21.50	21.00	20.40	21.13
		25	0	21.50	20.91	20.53	21.18

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20450	20525	20600
					829.0MHz	836.5MHz	844.0MHz
10MHz	QPSK	1	0	23.00	22.53	22.90	22.48
			25	23.50	23.15	22.43	22.82
			49	23.00	22.88	22.33	22.87
		25	0	22.00	21.81	21.70	21.63
			13	22.50	22.07	21.51	21.89
			25	22.50	22.08	21.34	22.07
		50	0	22.00	21.94	21.50	21.85
	16QAM	1	0	22.50	21.69	22.19	21.35
			25	22.50	22.17	21.78	21.73
			49	22.00	21.95	21.58	21.74
		12	0	22.00	21.67	21.82	21.51
			19	22.50	22.03	21.55	21.90
			38	22.50	21.97	21.31	22.07
		27	0	21.50	20.98	20.69	21.23

Band 12

LTE-FDD Band 12				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		23017	23095	23173
					699.7MHz	707.5MHz	715.3MHz
1.4MHz	QPSK	1	0	22.50	22.42	22.46	22.30
			2	23.00	22.39	22.62	22.36
			5	23.00	22.22	22.53	22.45
		3	0	23.00	22.35	22.50	22.31
			2	23.00	22.28	22.52	22.38
			3	23.00	22.19	22.50	22.39
		6	0	22.00	21.23	21.63	21.43
	16QAM	1	0	22.00	21.33	21.57	21.15
			2	22.00	21.28	21.73	21.26
			5	22.00	21.14	21.72	21.26
		3	0	22.00	21.50	21.52	21.45
			2	22.00	21.48	21.62	21.53
			3	22.00	21.41	21.63	21.53
		6	0	21.00	20.36	20.74	20.42
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23025	23095	23165
					700.5MHz	707.5MHz	714.5MHz
3MHz	QPSK	1	0	23.00	22.35	22.58	22.34
			7	23.00	22.16	22.73	22.32
			14	22.50	21.81	22.27	22.34
		8	0	22.00	21.31	21.56	21.38
			4	22.00	21.06	21.62	21.40
			7	22.00	20.89	21.58	21.39
		15	0	22.00	21.18	21.55	21.36
	16QAM	1	0	22.00	21.71	21.35	21.33
			7	22.00	21.50	21.55	21.38
			14	21.50	21.11	21.10	21.28
		8	0	21.00	20.46	20.65	20.44
			4	21.00	20.26	20.74	20.47
			7	21.00	20.11	20.67	20.46
		15	0	21.00	20.20	20.69	20.39

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23035	23095	23155
					701.5MHz	707.5MHz	713.5MHz
5MHz	QPSK	1	0	23.00	22.62	22.52	22.39
			13	23.00	22.04	22.66	22.58
			24	23.00	22.41	22.38	22.60
		12	0	22.00	21.32	21.69	21.50
			6	22.00	21.23	21.63	21.56
			13	22.00	21.32	21.47	21.61
	16QAM	25	0	22.00	21.32	21.54	21.56
			0	22.00	21.85	21.59	21.60
			13	22.00	21.28	21.75	21.77
		1	24	22.00	21.63	21.49	21.81
			0	21.00	20.38	20.68	20.55
			6	21.00	20.22	20.69	20.62
10MHz	QPSK	12	13	21.00	20.34	20.62	20.67
			25	21.00	20.40	20.67	20.65
		25	0	21.00	20.40	20.67	20.65
	16QAM	1	0	23.00	22.53	22.35	22.76
			25	23.00	22.39	22.72	22.51
			49	23.00	22.61	22.34	22.79
	QPSK	25	0	22.00	21.29	21.60	21.71
			13	22.00	21.45	21.65	21.60
			25	22.00	21.61	21.56	21.64
	16QAM	50	0	22.00	21.55	21.58	21.69
			0	22.00	21.89	21.14	21.83
			25	22.00	21.72	21.60	21.51
10MHz	QPSK	1	49	22.00	21.97	21.26	21.83
			0	22.00	21.32	21.43	21.76
			19	22.00	21.50	21.70	21.54
	16QAM	12	38	22.00	21.79	21.48	21.65
			27	21.00	20.31	20.68	20.62
			0	21.00	20.31	20.68	20.62

Band 13

LTE-FDD Band 13				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		23205	23230	23255
5MHz	QPSK	1	0	23.00	22.81	22.47	22.22
			13	23.00	22.59	21.92	22.01
			24	22.50	22.12	21.70	22.07
		12	0	22.00	21.82	21.43	21.19
			6	22.00	21.72	21.20	21.12
			13	21.50	21.49	21.09	21.20
	16QAM	25	0	22.00	21.76	21.26	21.18
			0	22.50	22.01	21.88	21.43
			13	22.00	21.89	21.30	21.30
		1	24	21.50	21.37	21.11	21.41
			0	21.00	20.98	20.56	20.30
			6	21.00	20.93	20.36	20.26
5MHz	QPSK	12	13	21.00	20.60	20.26	20.33
			25	21.00	20.75	20.46	20.38
			0	21.00	20.75	20.46	20.38
	16QAM	1	0	23.00	22.81	22.47	22.22
			13	23.00	22.59	21.92	22.01
			24	22.50	22.12	21.70	22.07
	QPSK	12	0	22.00	21.82	21.43	21.19
			6	22.00	21.72	21.20	21.12
			13	21.50	21.49	21.09	21.20
	16QAM	25	0	22.00	21.76	21.26	21.18
			0	22.50	22.01	21.88	21.43
			13	22.00	21.89	21.30	21.30
	QPSK	1	24	21.50	21.37	21.11	21.41
			0	21.00	20.98	20.56	20.30
			6	21.00	20.93	20.36	20.26
	16QAM	12	13	21.00	20.60	20.26	20.33
			25	21.00	20.75	20.46	20.38
			0	21.00	20.75	20.46	20.38

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23230
					782.0MHz
10MHz	QPSK	1	0	23.00	22.82
			25	22.50	22.01
			49	22.50	22.03
		25	0	22.00	21.66
			13	21.50	21.28
			25	21.50	21.11
		50	0	21.50	21.36
	16QAM	1	0	22.00	21.87
			25	21.50	21.12
			49	21.50	21.20
		12	0	22.00	21.76
			19	21.50	21.16
			38	21.50	21.05
		27	0	21.00	20.74

Band 66

LTE-FDD Band 66				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		131979	132322	132665
					1710.7MHz	1745.0MHz	1779.3MHz
1.4MHz	QPSK	1	0	23.50	22.03	23.30	22.29
			2	23.50	21.98	23.24	22.10
			5	23.50	22.02	23.18	22.16
		3	0	23.50	21.92	23.02	22.05
			2	23.50	21.92	23.13	22.07
			3	23.50	21.92	23.10	22.10
		6	0	22.50	21.00	22.09	21.33
	16QAM	1	0	22.00	20.89	21.94	21.38
			2	22.50	20.92	22.06	21.36
			5	22.50	20.94	22.07	21.36
		3	0	22.50	21.15	22.25	21.19
			2	22.50	21.16	22.27	21.22
			3	22.50	21.15	22.25	21.23
		6	0	21.50	20.13	21.35	20.32
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	131987
1711.5MHz	1745.0MHz						1778.5MHz
3MHz	QPSK	1	0	23.00	22.04	22.92	21.95
			7	23.50	22.04	23.17	21.97
			14	23.00	21.84	22.98	21.95
		8	0	22.50	20.95	22.03	21.10
			4	22.50	21.08	22.09	21.13
			7	22.50	21.02	22.06	21.13
		15	0	22.50	21.00	22.03	21.09
	16QAM	1	0	22.00	20.79	21.97	21.32
			7	22.50	20.94	22.16	21.41
			14	22.00	20.69	21.96	21.33
		8	0	21.50	20.10	21.25	20.24
			4	21.50	20.16	21.32	20.31
			7	21.50	20.10	21.28	20.31
		15	0	21.50	20.10	21.22	20.20

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	131997	132322	132647
					1712.5MHz	1745.0MHz	1777.5MHz
5MHz	QPSK	1	0	23.50	22.09	23.03	22.14
			13	23.50	21.99	23.08	21.96
			24	23.50	22.03	23.20	22.10
		12	0	22.50	21.05	22.10	21.12
			6	22.50	21.29	22.10	21.08
			13	22.50	21.11	22.15	21.07
		25	0	22.50	21.23	22.06	21.08
	16QAM	1	0	22.50	21.44	22.19	21.24
			13	22.50	21.32	22.27	21.16
			24	22.50	21.29	22.49	21.18
		12	0	21.50	20.25	21.28	20.20
			6	21.50	20.11	21.30	20.19
			13	21.50	20.13	21.36	20.21
		25	0	21.50	20.12	21.32	20.22
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	132022	132322	132622
					1715.0MHz	1745.0MHz	1775.0MHz
10MHz	QPSK	1	0	23.00	22.04	22.79	22.26
			25	23.50	21.94	23.17	22.22
			49	23.50	21.97	23.13	22.30
		25	0	22.50	20.93	22.10	21.23
			13	22.50	20.83	22.23	21.26
			25	22.50	20.81	22.26	21.24
		50	0	22.50	20.81	22.19	21.25
	16QAM	1	0	22.00	21.22	21.79	21.27
			25	22.50	21.17	22.09	21.29
			49	22.50	21.15	22.09	21.32
		12	0	22.50	20.95	22.04	21.15
			19	22.50	21.01	22.25	21.22
			38	22.50	20.94	22.27	21.17
		27	0	21.50	20.07	21.26	20.31

LTE-FDD Band 66				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		132047	132322	132597
15MHz	QPSK	1	0	23.50	22.05	23.12	22.66
			38	23.50	21.84	23.42	22.44
			74	23.50	22.21	23.24	22.53
		36	0	22.50	21.06	22.11	21.55
			18	22.50	20.99	22.32	21.61
			39	22.50	21.17	22.35	21.50
		75	0	22.50	21.14	22.21	21.60
	16QAM	1	0	22.50	21.38	22.03	22.00
			38	22.50	21.21	22.32	21.81
			74	22.50	21.37	22.17	21.82
		12	0	22.50	21.10	22.09	21.72
			31	22.50	21.21	22.29	21.62
			63	22.50	21.41	22.25	21.56
		27	0	21.50	20.29	21.34	20.80

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	132072	132322	132572
					1720.0MHz	1745.0MHz	1770.0MHz
20MHz	QPSK	1	0	23.00	22.09	22.90	22.75
			50	23.50	22.03	23.32	22.27
			99	23.50	22.60	23.02	22.48
		50	0	22.50	21.07	22.06	21.69
			25	22.50	21.06	22.31	21.49
			50	22.50	21.42	22.31	21.42
		100	0	22.50	21.20	22.17	21.60
	16QAM	1	0	22.50	21.53	22.24	21.95
			50	23.00	21.43	22.76	21.63
			99	23.00	22.13	22.56	22.01
		12	0	22.00	21.15	21.99	21.81
			44	22.50	21.08	22.30	21.43
			88	22.50	21.58	22.14	21.43
		27	0	21.50	20.26	21.23	20.60

8.2 Bluetooth

EDR	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power (dBm)		
			0	39	78
			2402MHz	2441MHz	2480MHz
	GFSK	5.00	4.07	4.50	4.80
	$\pi/4$ QPSK	4.50	3.48	3.82	4.11
	8DPSK	4.50	3.49	3.82	4.11
BLE	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power (dBm)		
			0	20	39
			2402MHz	2440MHz	2480MHz
	1Mbps	2.00	1.29	1.50	1.70
	2Mbps	2.00	1.42	1.63	1.82

Note

- Per KDB 447498 D04 Interim General RF Exposure Guidance v01, the 1-g SAR test exclusion thresholds for 300 MHz to 6 GHz at *test separation distances* ≤ 40 cm are determined by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B. 2})$$

where

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B. 1})$$

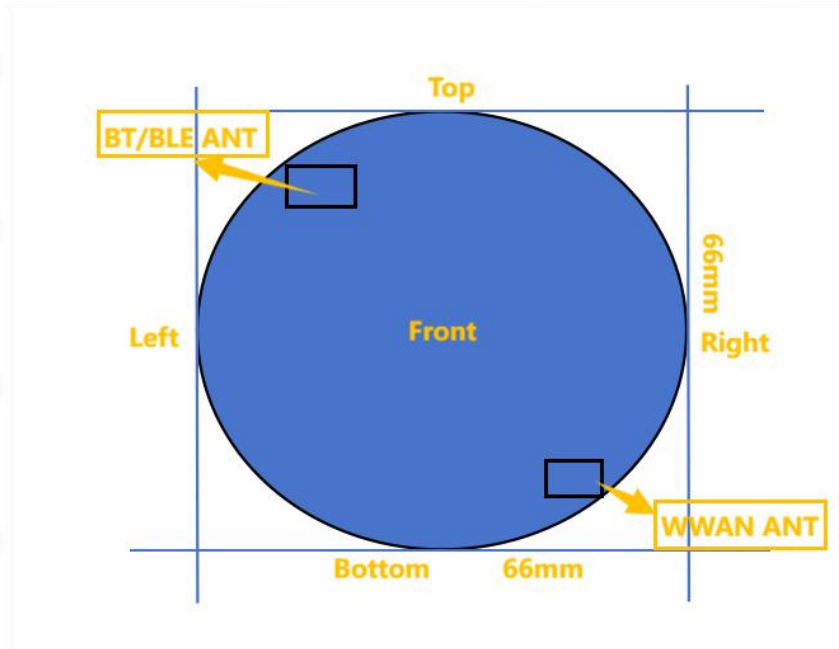
and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

*When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine estimated SAR.

- Per KDB 248227 D01 v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
- The output power of all data rate were prescan, just the worst case (the lowest data rate) of all mode were shown in report.

9. Test Exclusion Consideration

Antenna information:



WWAN	LTE TX/RX
BT/BLE	BT/BLE TX/RX
Note: 1. KDB 447498 D04v01, particular DUT edges were not required to be evaluated for SAR if the antenna-to-edge distance is greater than 2.5cm. 2. Per KDB648474 D04, 10-g extremity SAR is not required when Body-Worn mode 1-g reported SAR<1.2W/Kg. 3. The EUT is used together with the protective case. The protective case has a back clip at the back, which can be attached to the clothing for use. Therefore, it does not come into direct contact with the human skin. A conservative test separation distance of 10mm is adopted.	

Distance of The Antenna to the EUT surface and edge (mm)						
Antenna	Front Side (mm)	Back Side (mm)	Left Edge (mm)	Right Edge (mm)	Top Edge (mm)	Bottom Edge (mm)
WWAN	<25	<25	50	<25	50	<25
BT/BLE	<25	<25	<25	50	<25	50
Positions for SAR test						
Antenna	Front Side (mm)	Back Side (mm)	Left Edge (mm)	Right Edge (mm)	Top Edge (mm)	Bottom Edge (mm)
WWAN	Yes	Yes	No	No	No	No
BT/BLE	Yes	Yes	No	No	No	No

10. Test Result

Body-worn (5mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 2 (BW: 20MHz)	1RB	Front	18700	1860.0	-1.340	0.568	100.00	1.000	23.94	24.00	1.014	0.576	1#
		Back	18700	1860.0	2.180	0.476	100.00	1.000	23.94	24.00	1.014	0.483	/
	50%RB	Front	18700	1860.0	0.670	0.532	100.00	1.000	22.88	23.00	1.028	0.547	/
		Back	18700	1860.0	3.280	0.451	100.00	1.000	22.88	23.00	1.028	0.464	/
Body-worn (5mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 4 (BW: 20MHz)	1RB	Front	20300	1745.0	-2.310	0.761	100.00	1.000	23.45	23.50	1.012	0.770	2#
		Back	20300	1745.0	0.480	0.716	100.00	1.000	23.45	23.50	1.012	0.725	/
	50%RB	Front	20300	1745.0	1.460	0.729	100.00	1.000	22.43	22.50	1.016	0.741	/
		Back	20300	1745.0	3.050	0.675	100.00	1.000	22.43	22.50	1.016	0.686	/
Body-worn (5mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 5 (BW: 10MHz)	1RB	Front	20450	829.0	-1.760	0.043	100.00	1.000	23.15	23.50	1.084	0.047	3#
		Back	20450	829.0	2.110	0.037	100.00	1.000	23.15	23.50	1.084	0.040	/
	50%RB	Front	20450	829.0	3.360	0.035	100.00	1.000	22.08	22.50	1.102	0.039	/
		Back	20450	829.0	0.750	0.031	100.00	1.000	22.08	22.50	1.102	0.034	/
Body-worn (5mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 12 (BW: 10MHz)	1RB	Front	23130	711.0	-0.340	0.018	100.00	1.000	22.79	23.00	1.050	0.019	4#
		Back	23130	711.0	1.540	0.012	100.00	1.000	22.79	23.00	1.050	0.013	/
	50%RB	Front	23130	711.0	3.110	0.015	100.00	1.000	21.71	22.00	1.069	0.016	/
		Back	23130	711.0	1.080	0.010	100.00	1.000	21.71	22.00	1.069	0.011	/
Body-worn (5mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 13 (BW: 10MHz)	1RB	Front	23230	782.0	-1.250	0.083	100.00	1.000	22.82	23.00	1.042	0.086	5#
		Back	23230	782.0	2.550	0.075	100.00	1.000	22.82	23.00	1.042	0.078	/
	50%RB	Front	23230	782.0	0.540	0.073	100.00	1.000	21.66	22.00	1.081	0.079	/
		Back	23230	782.0	1.850	0.064	100.00	1.000	21.66	22.00	1.081	0.069	/
Body-worn (5mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 66 (BW: 20MHz)	1RB	Front	132322	1745.0	-3.640	0.655	100.00	1.000	23.32	23.50	1.042	0.683	6#
		Back	132322	1745.0	3.150	0.612	100.00	1.000	23.32	23.50	1.042	0.638	/
	50%RB	Front	132322	1745.0	2.060	0.610	100.00	1.000	22.31	22.50	1.045	0.637	/
		Back	132322	1745.0	1.330	0.574	100.00	1.000	22.31	22.50	1.045	0.600	/
Body-worn (5mm gap)													
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.	
Bluetooth	Front	78	2480	-3.190	0.014	100.00	1.000	4.80	5.00	1.047	0.015	7 #	
	Back	78	2480	2.150	0.010	100.00	1.000	4.80	5.00	1.047	0.010	/	

Note:

- The maximum SAR Value of each test band is marked bold.
- SAR plot is provided only for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
- Per KDB 447498 D01 v06, for each exposure position, if the highest output power channel Reported SAR ≤ 0.8 W/kg, other channels SAR testing is not necessary.
- Per KDB 447498 D01 v06, body-supported use is evaluated with the device positioned at 0mm from a flat phantom filled with body tissue-equivalent medium.
- Per KDB 447498 D01 v06, the report SAR is measured SAR value adjusted for maximum tune-up tolerance. Scaling Factor = $10^{(tune-up\ limit\ power(dBm) - Ave.\ power\ power(dBm))/10}$, where tune-up limit is the maximum rated power among all production units.

Reported SAR(W/kg)=Measured SAR (W/kg)*Scaling Factor.

11. SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10 , the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3. 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, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 , and the original, first or second repeated measurement is ≥ 1.5 W/kg, perform a third repeated measurement.

Note: For 1g SAR, the highest measured 1g SAR is $0.761 < 0.80$ W/kg, repeated measurement is not required.

12. Simultaneous Transmission

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 SAR to Peak Location Ratio (SPLSR).

12.1 Simultaneous Transmission Mode Considerations

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. The device has 2 Tx antennas, WWAN main antenna supports LTE, BT antenna supports BT and BLE. The 2 antennas can always transmit simultaneously. The work mode combination is showed as below table.

Application Simultaneous Transmission information:

NO.	Configuration	Head	Body-worn
1	WWAN+BT	Yes	Yes

12.2 Sum SAR of Simultaneous Transmission

Body-worn

Band	Channel Type	Test Position	Scaled		Σ SAR (W/kg) WWAN + BT	SPLSR	Remark
			WWAN	Bluetooth			
LTE Band 4	1RB	Front	0.770	0.015	0.785	N/A	N/A
		Back	0.725	0.010	0.735	N/A	N/A
	50%RB	Front	0.741	0.015	0.756	N/A	N/A
		Back	0.686	0.010	0.696	N/A	N/A

13. Test Equipment List

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
E-Field Probe	MVG	SSE2	0125-EPGO-445	2025/02/01	2026/01/31
6 1/2 Digital Multimeter	Keithley	DMM6500	4527164	2024/10/25	2025/10/24
Wideband Radio Communication Tester	ROHDE & SCHWARZ	CMW500	161997	2024/10/25	2025/10/24
MXG Vector Signal Generator	Agilent	N5182A	MY46240163	2024/10/25	2025/10/24
E-Series Avg. Power Sensor	KEYSIGHT	E9300A	MY55050017	2025/04/02	2026/04/01
EPM Series Power Meter	KEYSIGHT	E4418B	MY41293435	2025/04/02	2026/04/01
10dB Attenuator	MIDWEST MICROWAVE	263-10dB	N/A	2025/04/02	2026/04/01
Coupler	MERRIMAC	CWM-10R-10.8G	LOT-83391	2024/10/25	2025/10/24
750MHz Validation Dipole	MVG	SID750	07/22 DIP 0G750-655	2025/05/26	2028/05/25
835MHz Validation Dipole	MVG	SID835	07/22 DIP 0G835-656	2025/05/26	2028/05/25
1800MHz Validation Dipole	MVG	SID1800	07/22 DIP 1G800-657	2025/05/26	2028/05/25
1900MHz Validation Dipole	MVG	SID1900	07/22 DIP 1G900-658	2025/05/26	2028/05/25
2450MHz Validation Dipole	MVG	SID2450	07/22 DIP 2G450-661	2025/05/26	2028/05/25
LIMESAR Dielectric Probe	MVG	SCLMP	06/22 OCPG88	2025/02/05	2026/02/04
ENA Series Network Analyzer	Agilent	E5071B	MY42301221	2024/10/25	2025/10/24
Thermometer	Riters	DT-232	21A11	2025/04/02	2026/04/01
Antenna network emulator	MVG	ANTA 74	07/22 ANTA 74	N/A	N/A
SAM Phantom	MVG	SAM	07/22 SAM149	N/A	N/A
Mobile Phone Positioning System	MVG	MSH 118	07/22 MSH 118	N/A	N/A
Mechanical Calibration Kit	PNA	N/A	N/A	2024/10/25	2025/10/24
Open SAR test software	MVG	N/A	V5.3.5	N/A	N/A
Note: For dipole antennas, BTF has adopted 3 years as calibration intervals, and 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; 3. Return-loss in within 20% of calibrated measurement. 4. Impedance (real or imaginary parts) in within 5 Ohms of calibrated measurement.					

ANNEX A Simulating Liquid Verification Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an SCLMP Dielectric Probe Kit.

Dielectric performance of tissue simulating liquid									
Frequency (MHz)	ϵ_r		σ (s/m)		Delta (ϵ_r)	Delta (σ)	Limit	Temp (°C)	Date
	Target	Measured	Target	Measured					
750	41.90	42.12	0.89	0.88	0.53%	-1.12%	±5%	20.5	9/8/2025
835	41.50	41.71	0.90	0.90	0.51%	0.00%	±5%	20.7	10/8/2025
1800	40.00	40.22	1.40	1.37	0.55%	-2.14%	±5%	20.9	11/8/2025
1900	40.00	40.17	1.40	1.39	0.43%	-0.71%	±5%	21.3	12/8/2025
2450	39.20	38.84	1.80	1.82	-0.92%	1.11%	±5%	21.3	12/8/2025

NOTE: The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 °C of the conditions expected during the SAR evaluation to satisfy protocol requirements.

ANNEX B System Check Result

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

Frequency (MHz)	Input Power (mW)	10g SAR (W/Kg)	1g SAR (W/Kg)	10g SAR 1W input power normalized (W/Kg)	1g SAR 1W input power normalized (W/Kg)	10g SAR Standard target (1W) (W/Kg)	1g SAR Standard target (1W) (W/Kg)	10g SAR Deviation	1g SAR Deviation
750	100	0.536	0.818	5.36	8.18	5.55	8.41	-3.42%	-2.73%
835	100	0.661	0.998	6.61	9.98	6.12	9.46	8.01%	5.50%
1800	100	1.902	3.440	19.02	34.40	19.83	37.93	-4.08%	-9.31%
1900	100	2.197	4.182	21.97	41.82	20.82	40.29	5.52%	3.80%
2450	100	2.586	5.684	25.86	56.84	24.55	52.72	5.34%	7.81%

System Performance Check Data (750 MHz)

System check at 750 MHz

Date of measurement: 9/8/2025

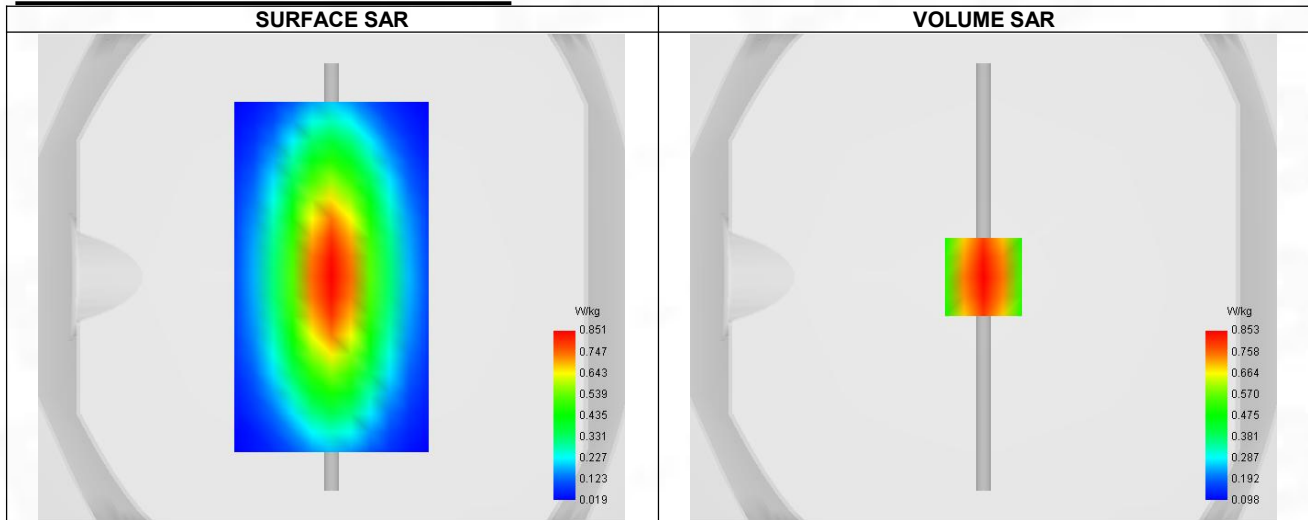
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.24
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW750
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	750.000
Relative permittivity (real part)	42.123
Relative permittivity (imaginary part)	21.328
Conductivity (S/m)	0.878

C. SAR Surface and Volume



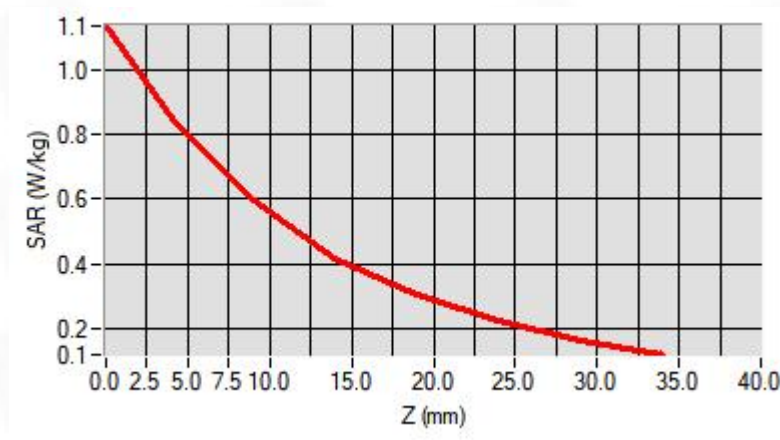
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 1.16 W/kg

D. SAR 1g & 10g

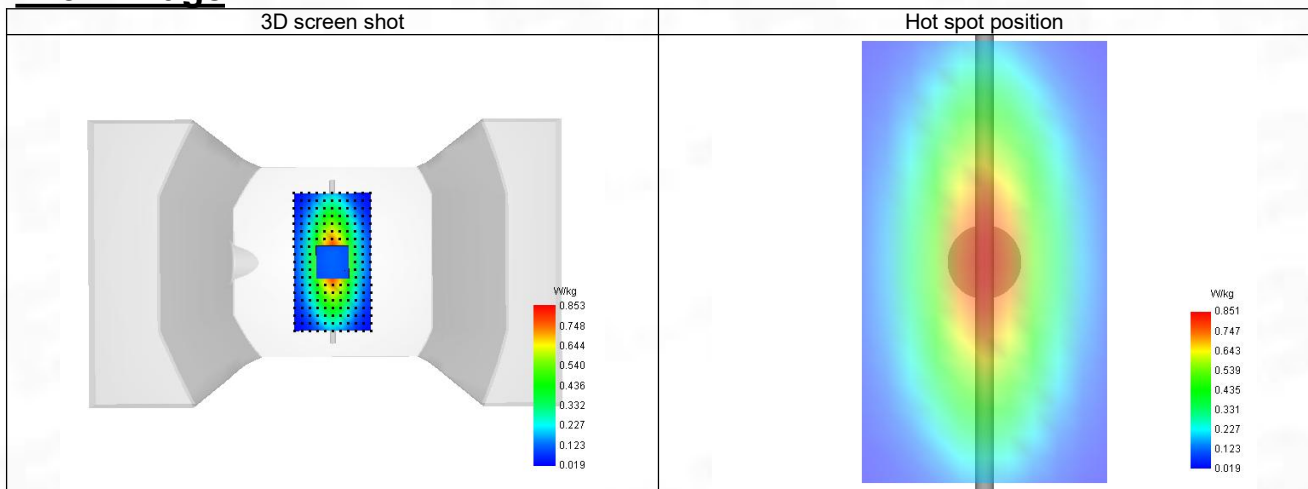
SAR 10g (W/Kg)	0.536
SAR 1g (W/Kg)	0.818
Variation (%)	-1.490
Horizontal validation criteria: minimum distance (mm)	22.627417
Vertical validation criteria: SAR ratio M2/M1 (%)	70.277244

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.136	0.853	0.599	0.418	0.304	0.223	0.162



F. 3D Image



System Performance Check Data (835 MHz)

System check at 835 MHz

Date of measurement: 10/8/2025

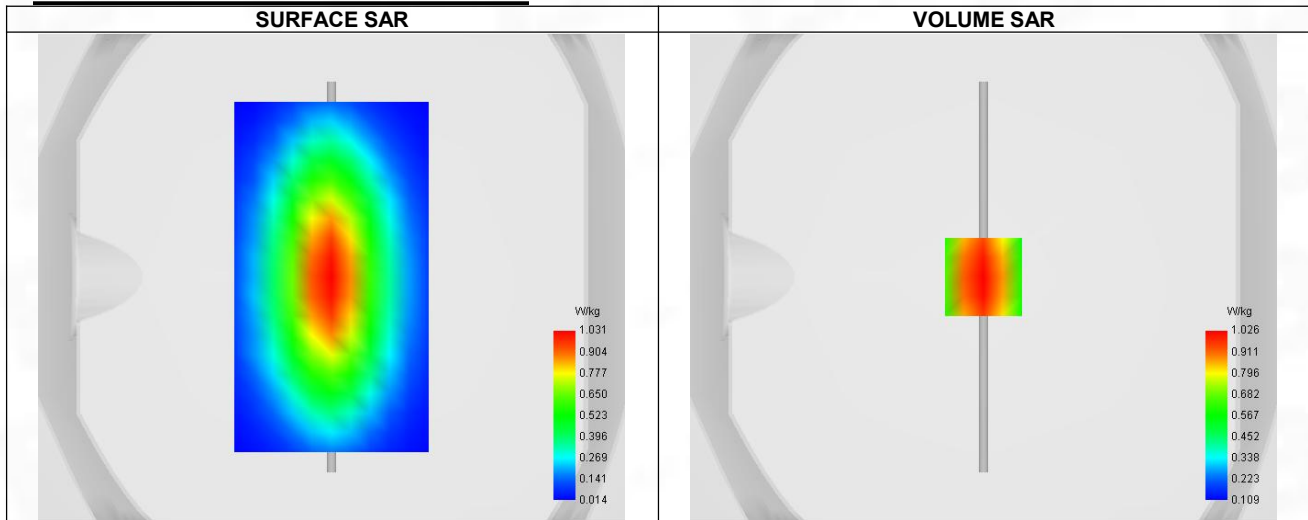
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.15
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	835.000
Relative permittivity (real part)	41.713
Relative permittivity (imaginary part)	20.574
Conductivity (S/m)	0.896

C. SAR Surface and Volume



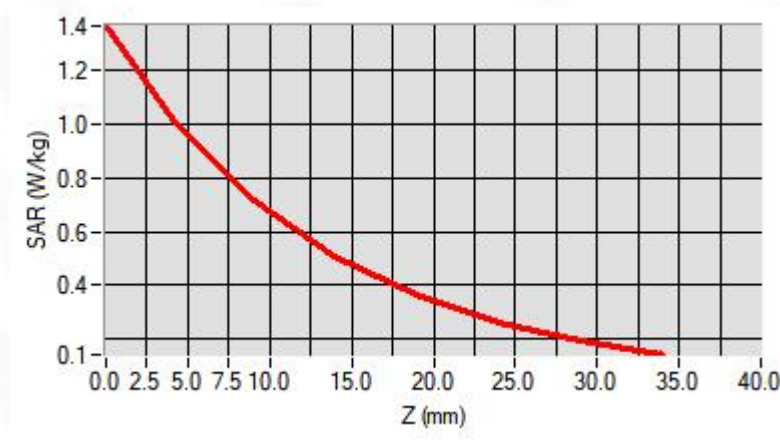
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 1.38 W/kg

D. SAR 1g & 10g

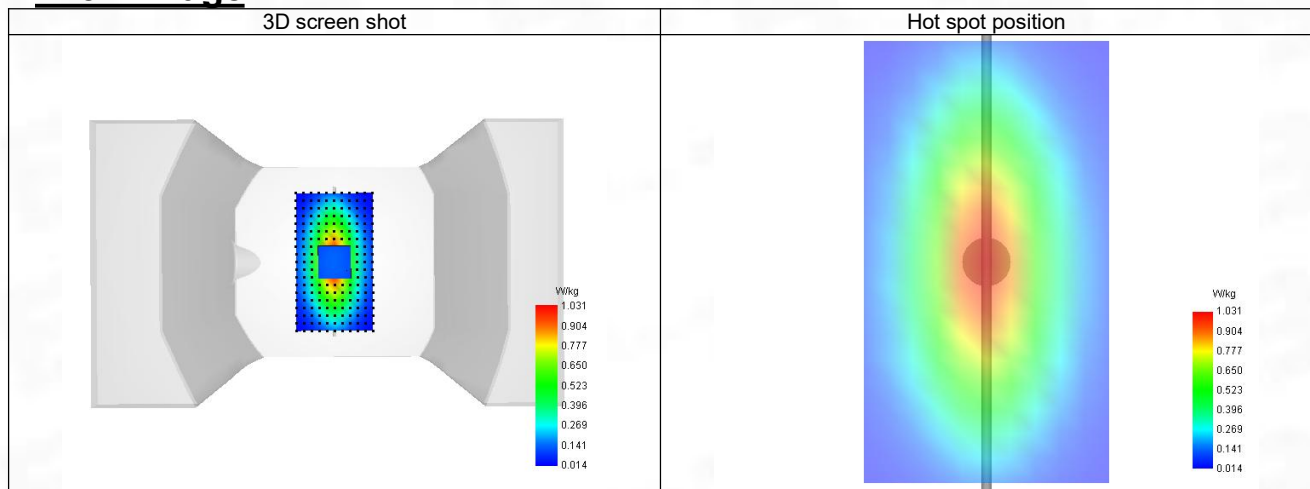
SAR 10g (W/Kg)	0.661
SAR 1g (W/Kg)	0.998
Variation (%)	-0.340
Horizontal validation criteria: minimum distance (mm)	22.627417
Vertical validation criteria: SAR ratio M2/M1 (%)	69.627603

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.366	1.026	0.714	0.508	0.362	0.262	0.196



F. 3D Image



System Performance Check Data (1800 MHz)

System check at 1800 MHz

Date of measurement: 11/8/2025

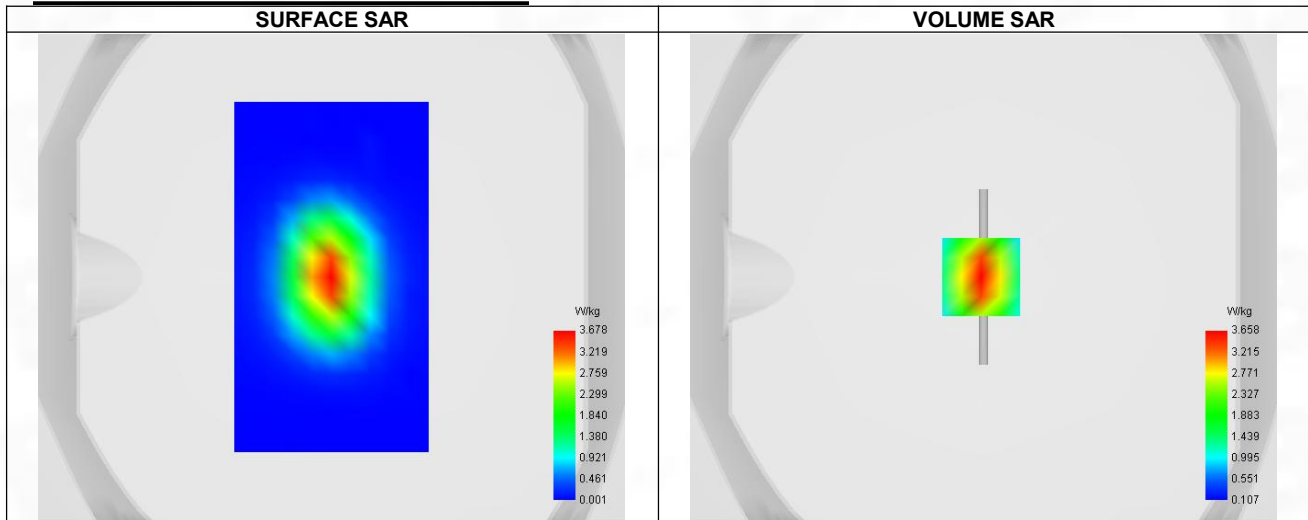
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.20
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	1800.000
Relative permittivity (real part)	40.223
Relative permittivity (imaginary part)	16.654
Conductivity (S/m)	1.365

C. SAR Surface and Volume



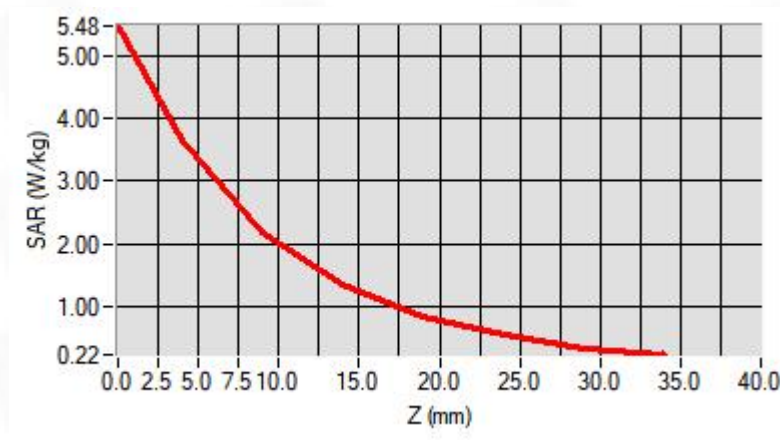
Maximum location: X=-1.00, Y=0.00 ; SAR Peak: 5.44 W/kg

D. SAR 1g & 10g

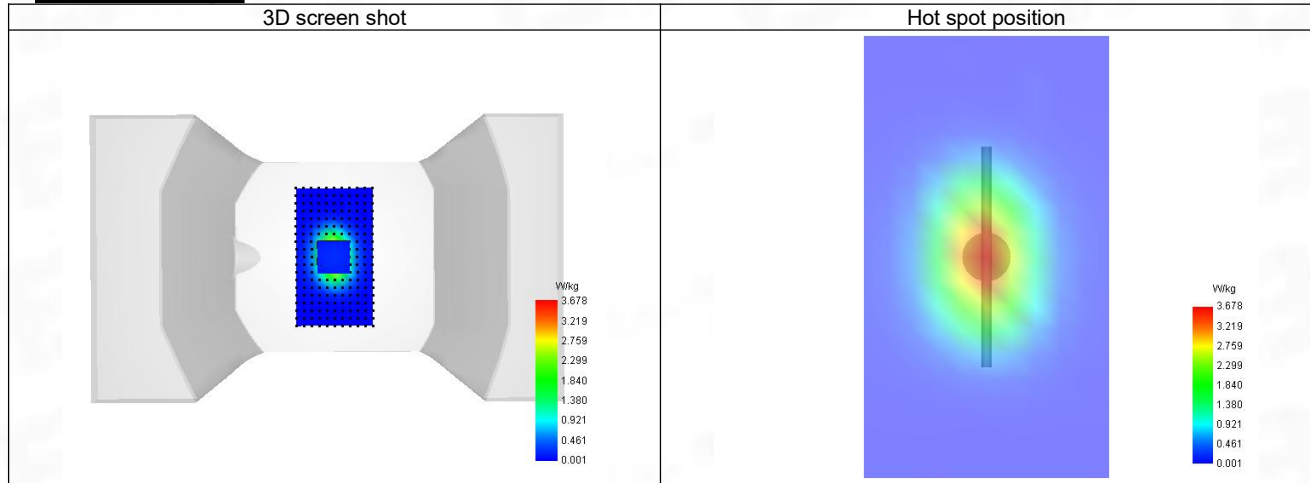
SAR 10g (W/Kg)	1.902
SAR 1g (W/Kg)	3.440
Variation (%)	-2.240
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	59.922006

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	5.484	3.658	2.192	1.351	0.836	0.527	0.321



F. 3D Image



System Performance Check Data (1900 MHz)

System check at 1900 MHz

Date of measurement: 12/8/2025

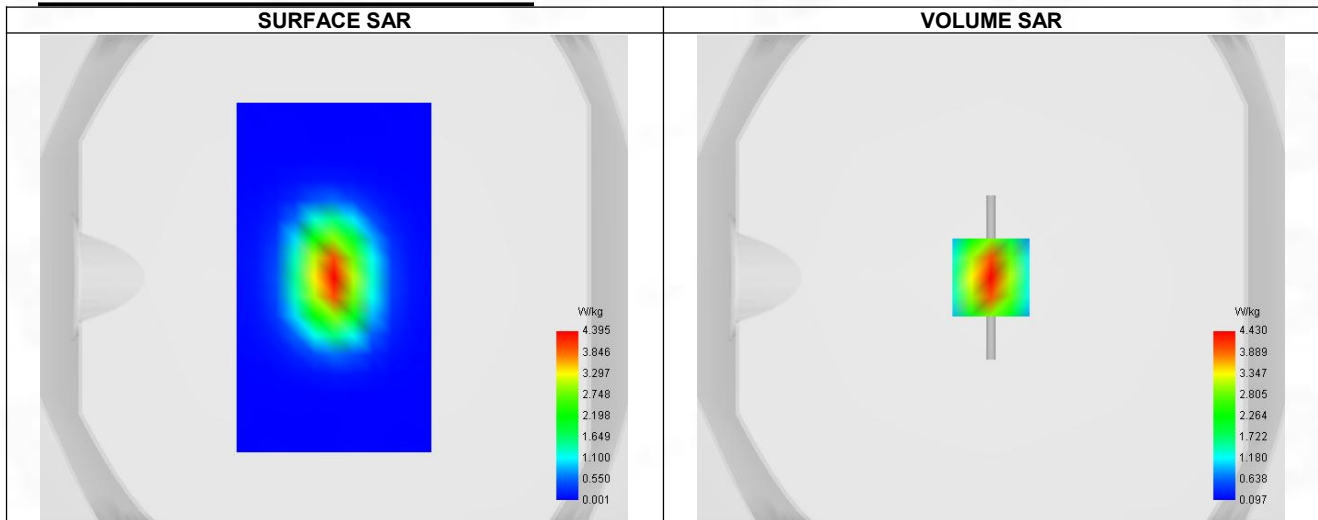
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.31
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	1900.000
Relative permittivity (real part)	40.173
Relative permittivity (imaginary part)	15.421
Conductivity (S/m)	1.393

C. SAR Surface and Volume



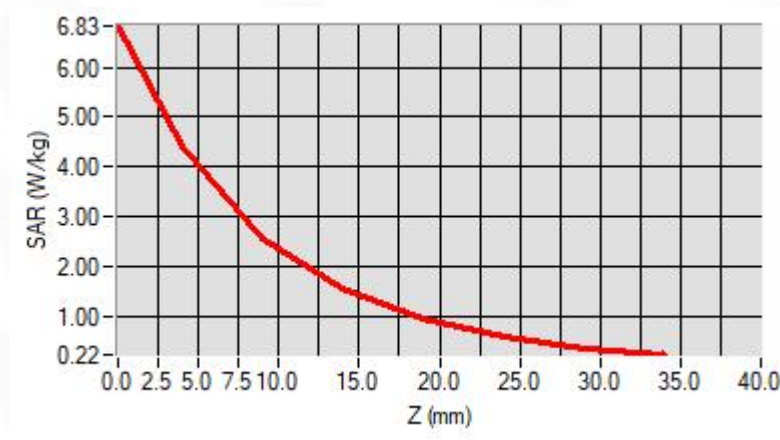
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 6.78 W/kg

D. SAR 1g & 10g

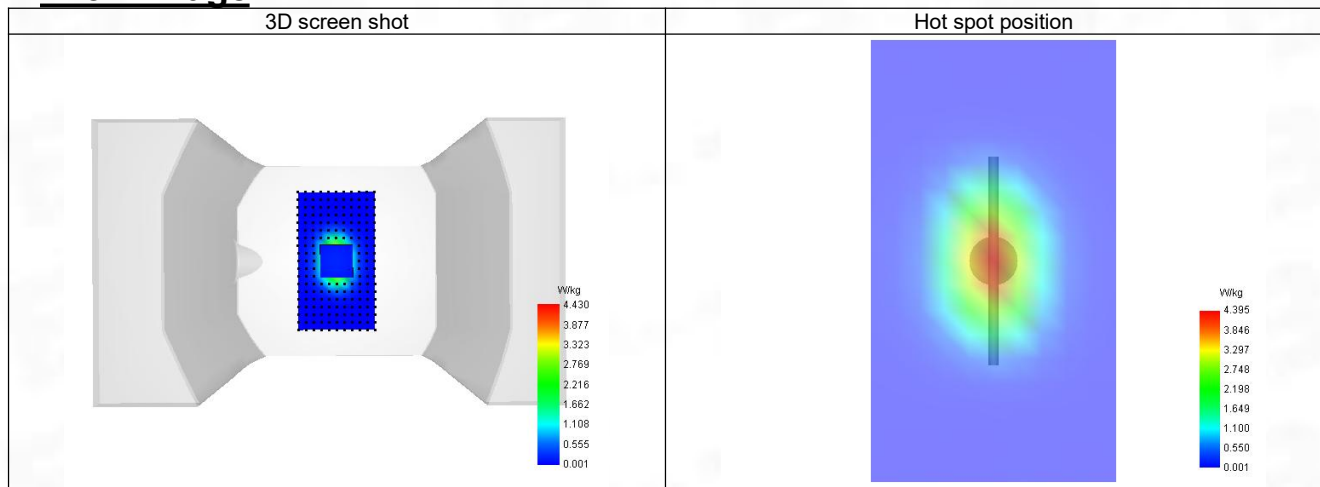
SAR 10g (W/Kg)	2.197
SAR 1g (W/Kg)	4.182
Variation (%)	3.200
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	57.523356

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.834	4.430	2.549	1.534	0.932	0.571	0.350



F. 3D Image



System Performance Check Data (2450 MHz)

System check at 1900 MHz

Date of measurement: 12/8/2025

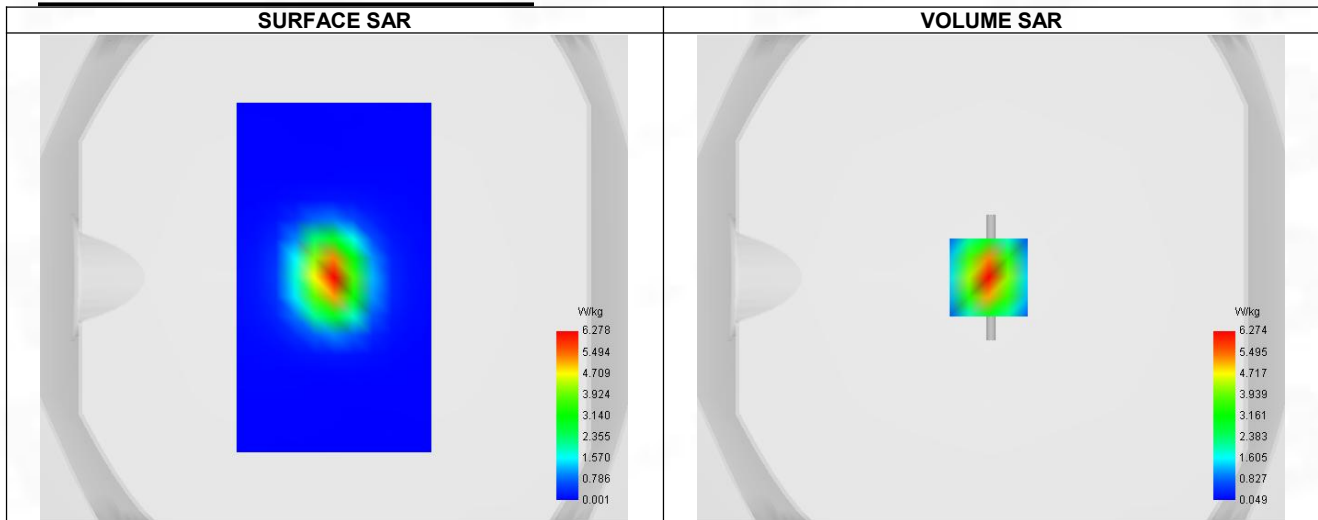
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.40
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	2450.000
Relative permittivity (real part)	38.838
Relative permittivity (imaginary part)	13.657
Conductivity (S/m)	1.821

C. SAR Surface and Volume



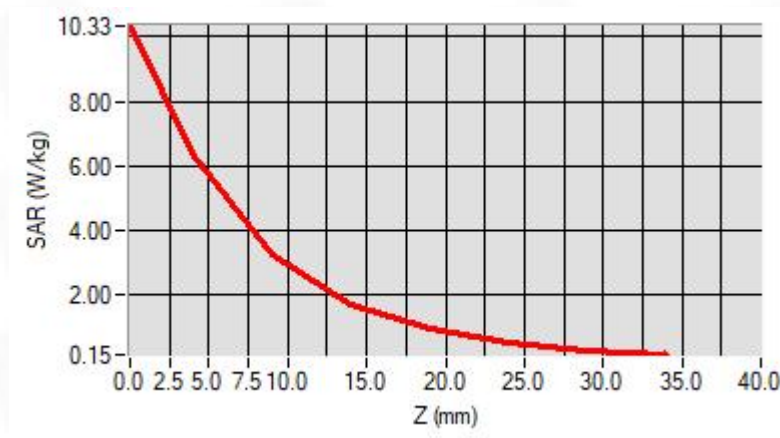
Maximum location: X=-1.00, Y=0.00 ; SAR Peak: 10.22 W/kg

D. SAR 1g & 10g

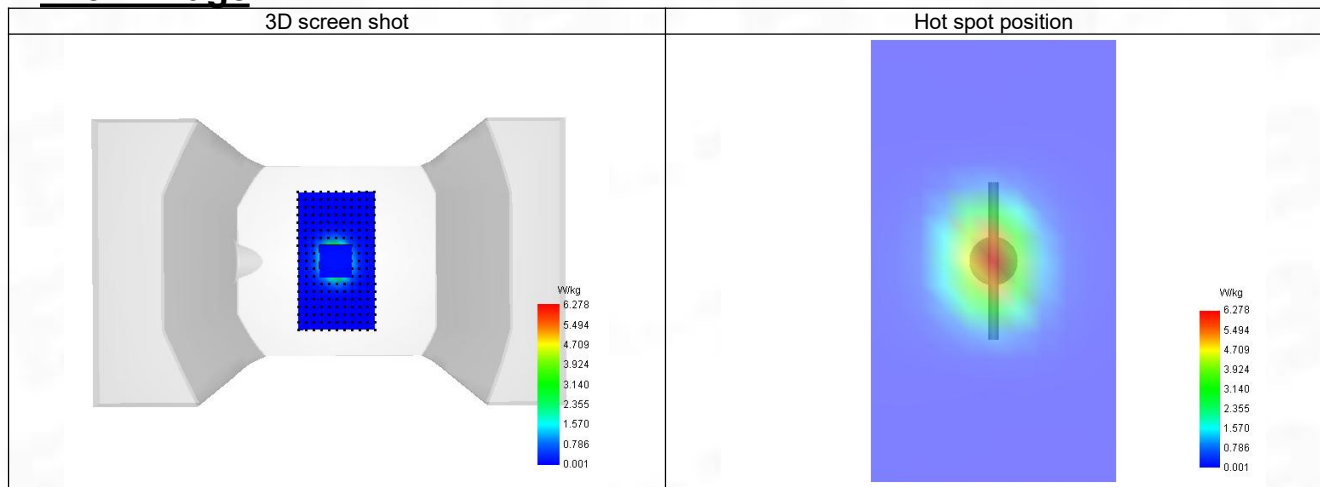
SAR 10g (W/Kg)	2.586
SAR 1g (W/Kg)	5.684
Variation (%)	-0.550
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	51.565921

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	10.329	6.274	3.235	1.727	0.935	0.499	0.273



F. 3D Image



ANNEX C Test Data

1-Body-worn with Front position in dist. 5mm on Channel 18700 in LTE band 2

SAR Measurement at LTE band 2 (Body, Validation Plane)

Date of measurement: 12/8/2025

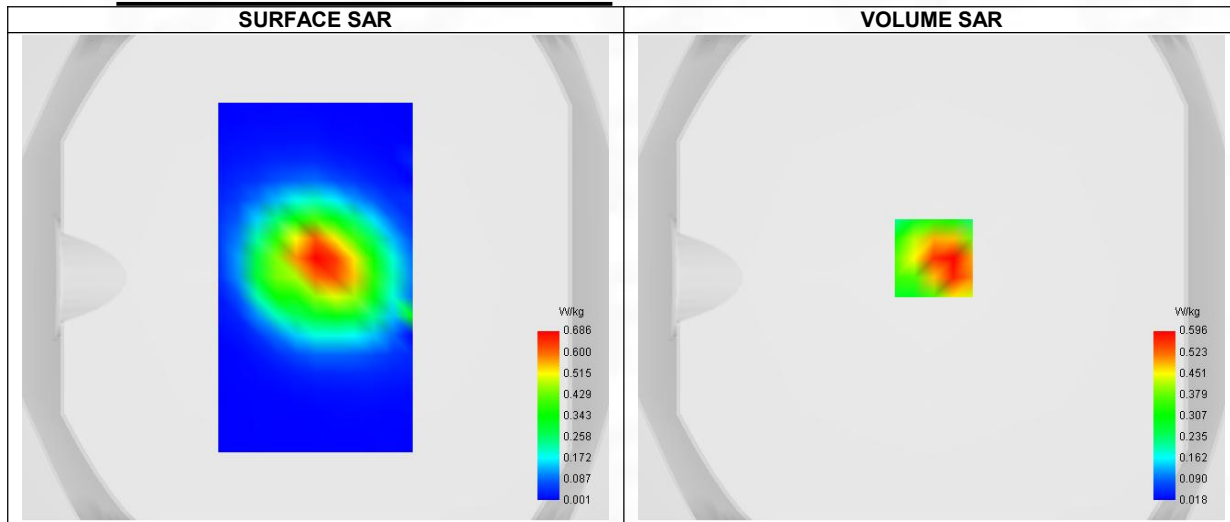
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.31
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 2
Channels/Frequency	Lower (18700)/ frequency 1860.000 Mhz
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	99
RB size	1

B. Permittivity

Middle TX Frequency (MHz)	1868.910
Relative permittivity (real part)	40.189
Relative permittivity (imaginary part)	15.804
Conductivity (S/m)	1.384

C. SAR Surface and Volume



D. SAR 1g & 10g

SAR 10g (W/Kg)	0.320
SAR 1g (W/Kg)	0.568
Variation (%)	-1.340
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	62.799265

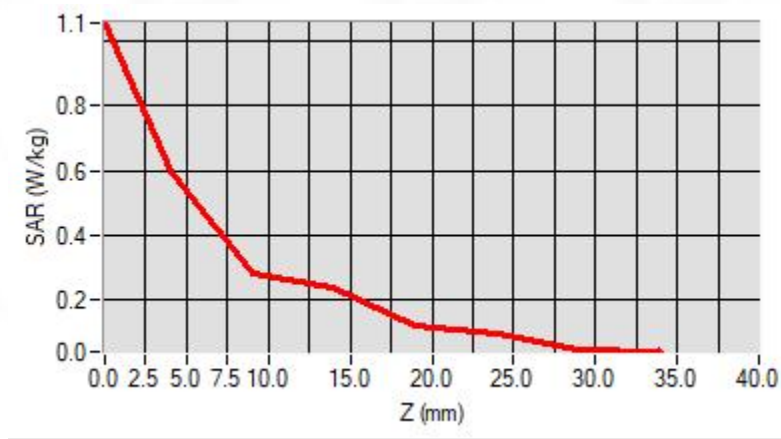
E. Z Axis Scan

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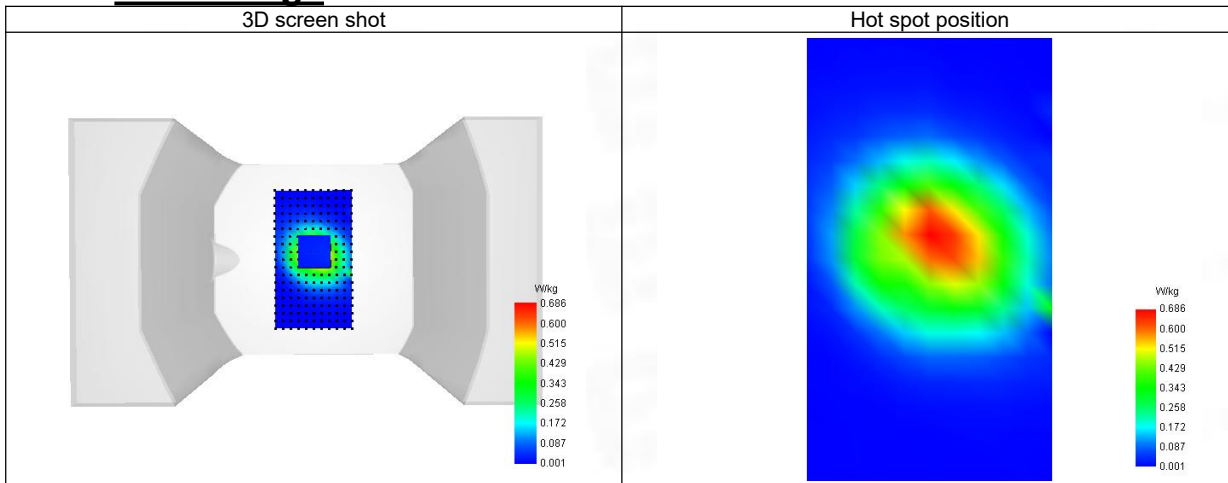
BTF Testing Lab (Shenzhen) Co., Ltd.

101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.056	0.596	0.284	0.240	0.118	0.097	0.047



F. 3D Image



2-Body-worn with Front position in dist. 5mm on Channel 20300 in LTE band 4

SAR Measurement at LTE band 4 (Body, Validation Plane)

Date of measurement: 11/8/2025

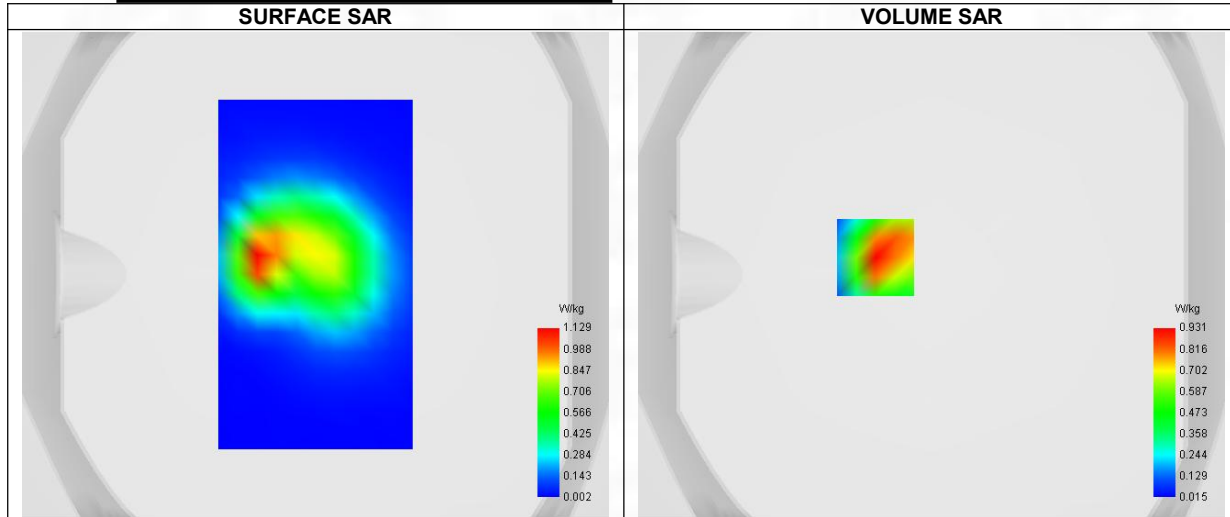
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.20
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 4
Channels/Frequency	Higher (20300)/ frequency 1745.000 Mhz
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	99
RB size	1

B. Permittivity

Middle TX Frequency (MHz)	1753.910
Relative permittivity (real part)	40.294
Relative permittivity (imaginary part)	16.841
Conductivity (S/m)	1.343

C. SAR Surface and Volume



Maximum location: X=-23.00, Y=7.00 ; SAR Peak: 1.35 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.481
SAR 1g (W/Kg)	0.761
Variation (%)	-2.310
Horizontal validation criteria: minimum distance (mm)	11.313708
Vertical validation criteria: SAR ratio M2/M1 (%)	61.925449

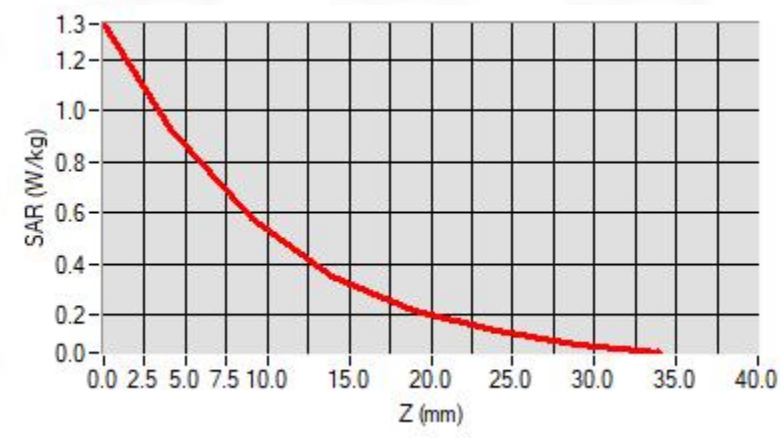
E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.343	0.931	0.576	0.350	0.213	0.135	0.082

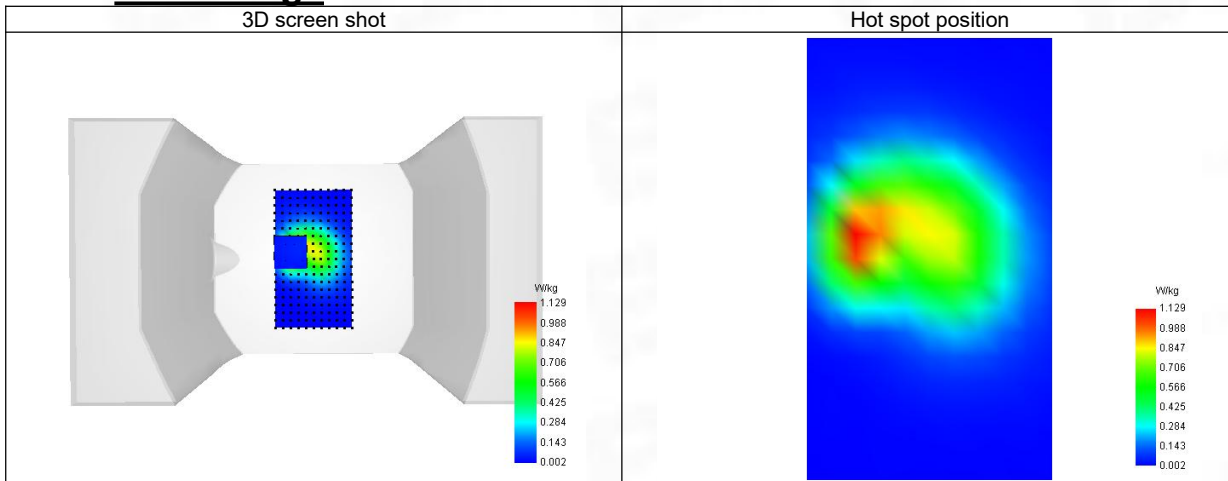
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101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China



F. 3D Image



3-Body-worn with Front position in dist. 5mm on Channel 20450 in LTE band 5

SAR Measurement at LTE band 5 (Body, Validation Plane)

Date of measurement: 10/8/2025

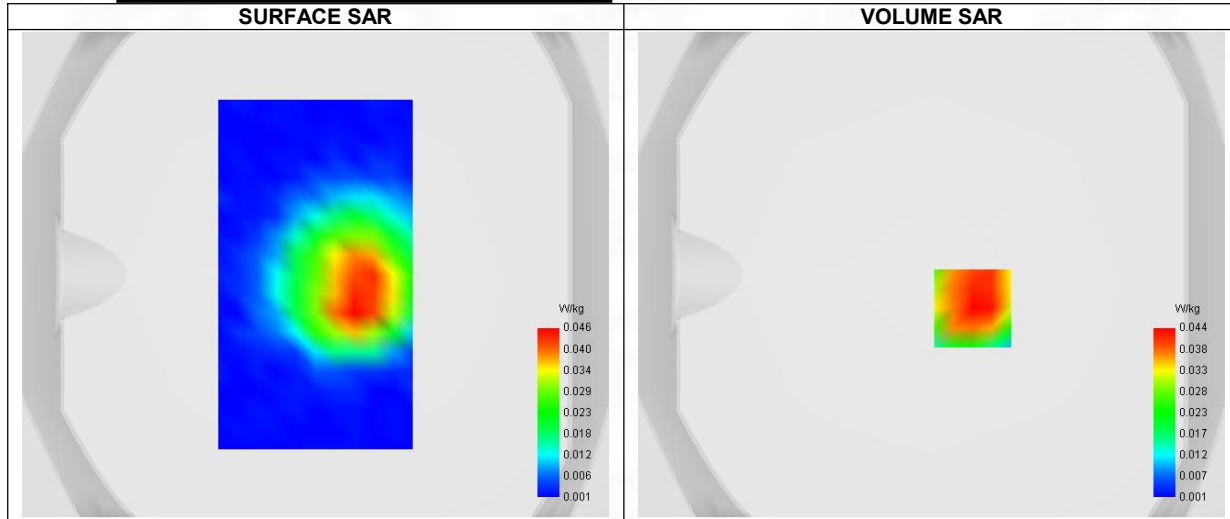
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.15
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 5
Channels/Frequency	Lower (20450)/ frequency 829.000 Mhz
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

B. Permittivity

Middle TX Frequency (MHz)	829.090
Relative permittivity (real part)	41.742
Relative permittivity (imaginary part)	20.626
Conductivity (S/m)	0.895

C. SAR Surface and Volume



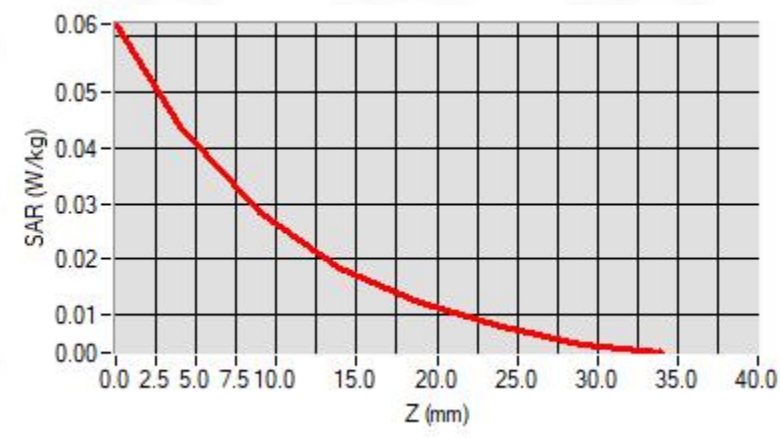
Maximum location: X=17.00, Y=-14.00 ; SAR Peak: 0.07 W/kg

D. SAR 1g & 10g

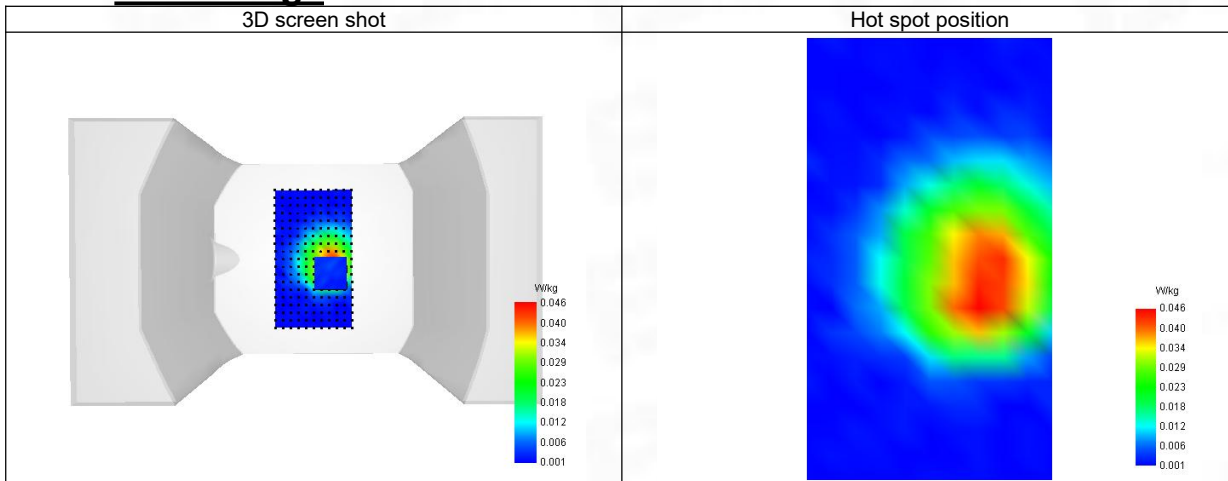
SAR 10g (W/Kg)	0.026
SAR 1g (W/Kg)	0.043
Variation (%)	-1.760
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	65.203544

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.062	0.044	0.028	0.018	0.012	0.008	0.005



F. 3D Image



4-Body-worn with Front position in dist. 5mm on Channel 23130 in LTE band 12

SAR Measurement at LTE band 12 (Body, Validation Plane)

Date of measurement: 9/8/2025

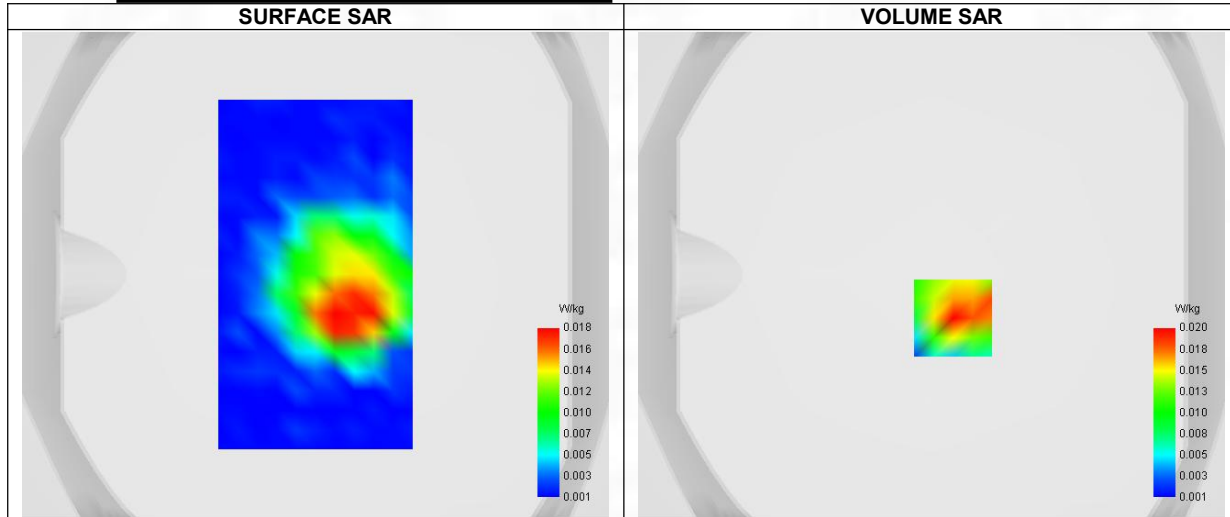
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.24
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 12
Channels/Frequency	Higher (23130)/ frequency 711.000 Mhz
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	49
RB size	1

B. Permittivity

Middle TX Frequency (MHz)	715.410
Relative permittivity (real part)	42.290
Relative permittivity (imaginary part)	21.635
Conductivity (S/m)	0.871

C. SAR Surface and Volume



Maximum location: X=9.00, Y=-18.00 ; SAR Peak: 0.03 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.010
SAR 1g (W/Kg)	0.018
Variation (%)	-0.340
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	62.483282

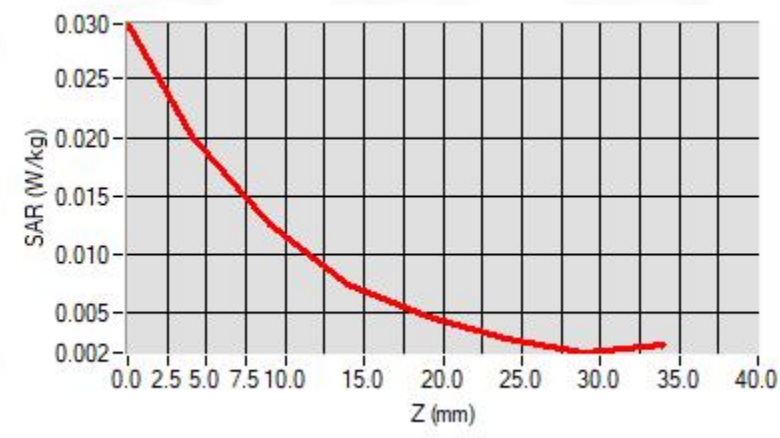
E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.030	0.020	0.013	0.007	0.005	0.003	0.002

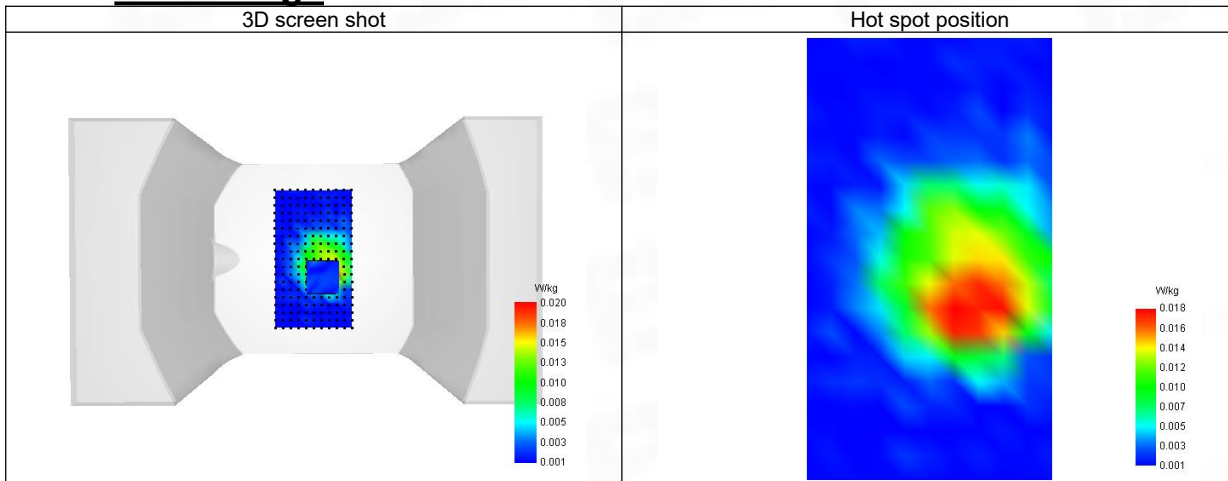
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BTF Testing Lab (Shenzhen) Co., Ltd.

101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China



F. 3D Image



5-Body-worn with Front position in dist. 5mm on Channel 23230 in LTE band 13

SAR Measurement at LTE band 13 (Body, Validation Plane)

Date of measurement: 9/8/2025

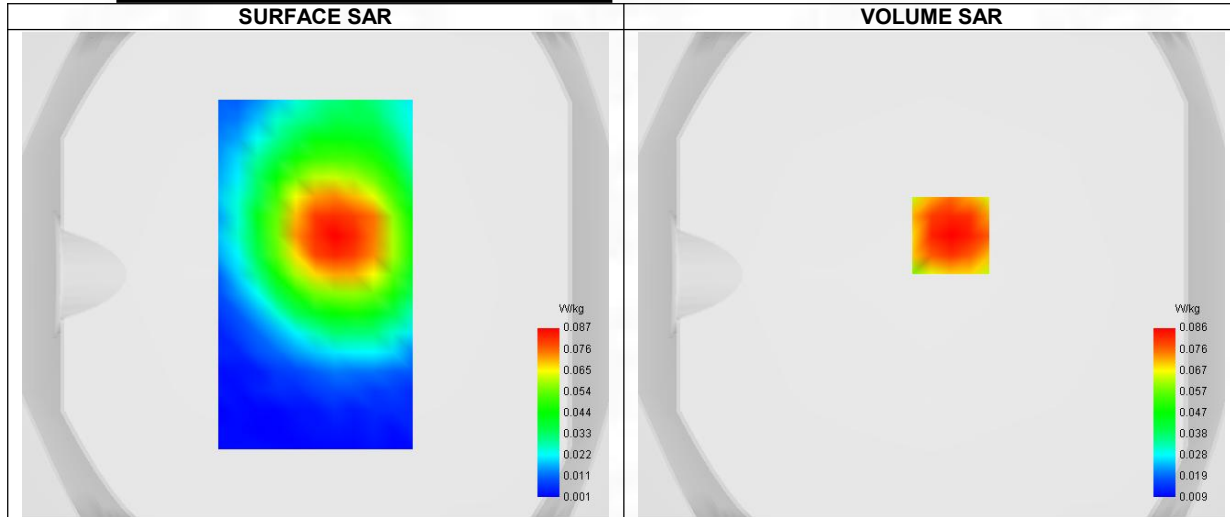
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.24
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 13
Channels/Frequency	Middle (23230)/ frequency 782.000 Mhz
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	0
RB size	1

B. Permittivity

Middle TX Frequency (MHz)	777.590
Relative permittivity (real part)	41.990
Relative permittivity (imaginary part)	21.083
Conductivity (S/m)	0.884

C. SAR Surface and Volume



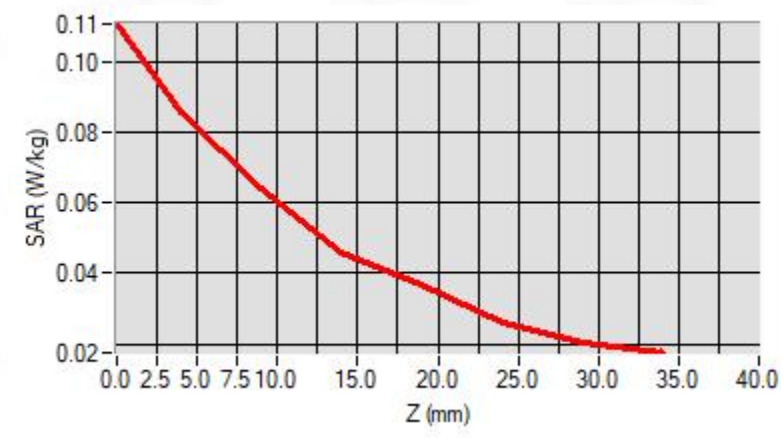
Maximum location: X=8.00, Y=16.00 ; SAR Peak: 0.11 W/kg

D. SAR 1g & 10g

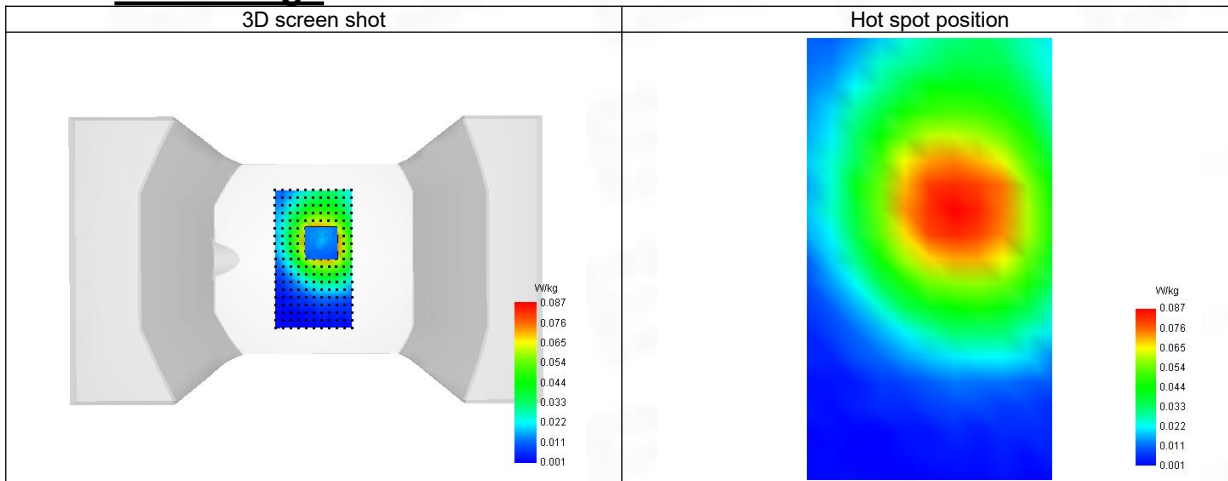
SAR 10g (W/Kg)	0.058
SAR 1g (W/Kg)	0.083
Variation (%)	-1.250
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	74.793531

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.111	0.086	0.064	0.046	0.037	0.026	0.020



F. 3D Image



6-Body-worn with Front position in dist. 5mm on Channel 132322 in LTE band 66

SAR Measurement at LTE band 66 (Body, Validation Plane)

Date of measurement: 11/8/2025

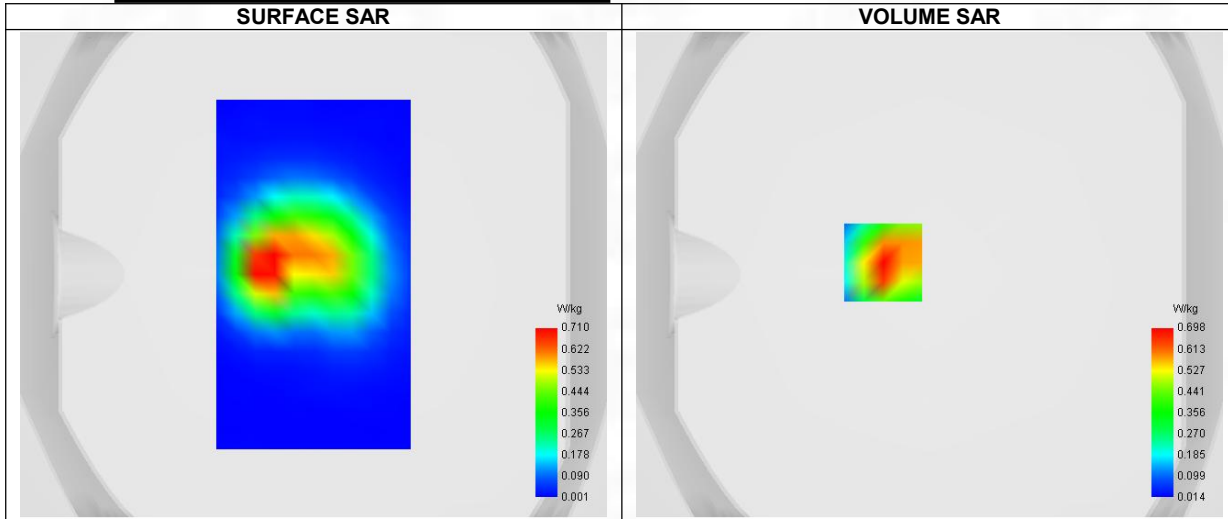
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.20
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 66
Channels/Frequency	Middle (132322)/ frequency 1745.000 Mhz
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	50
RB size	1

B. Permittivity

Middle TX Frequency (MHz)	1745.090
Relative permittivity (real part)	40.308
Relative permittivity (imaginary part)	16.877
Conductivity (S/m)	1.338

C. SAR Surface and Volume

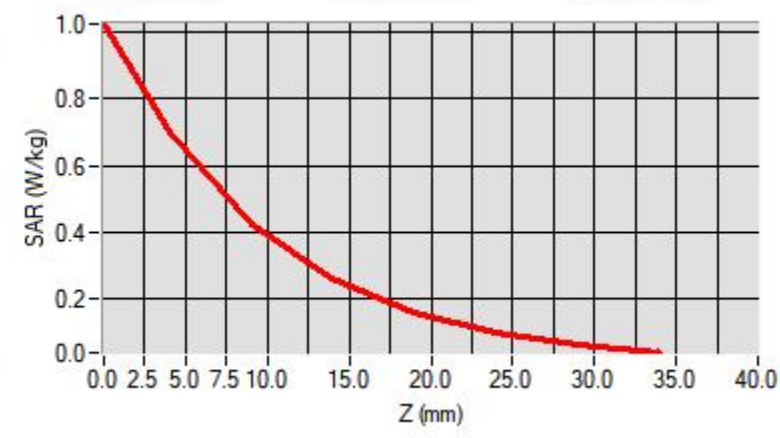


D. SAR 1g & 10g

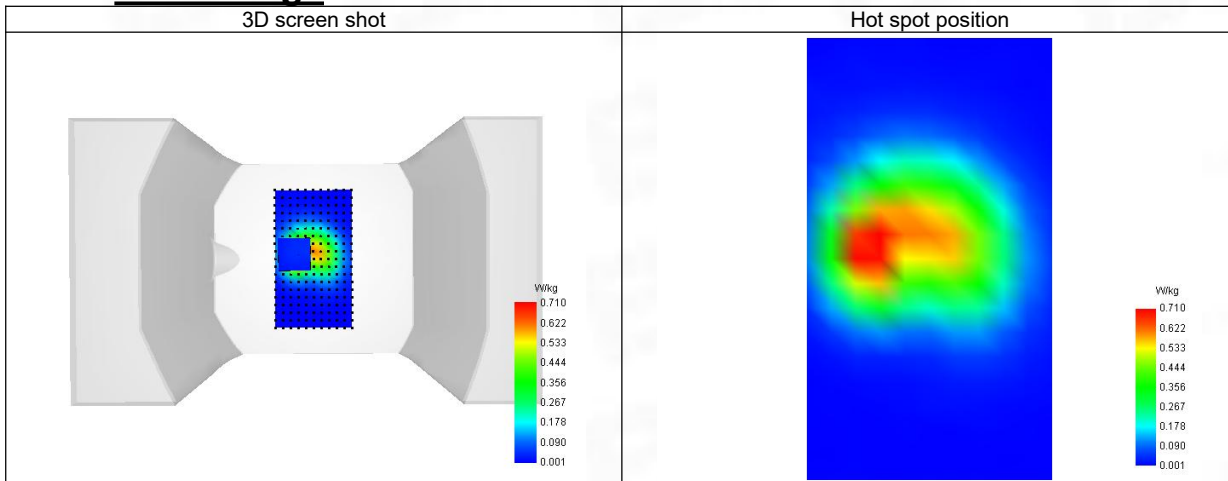
SAR 10g (W/Kg)	0.356
SAR 1g (W/Kg)	0.655
Variation (%)	-3.640
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	60.888158

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.023	0.698	0.425	0.263	0.161	0.100	0.064



F. 3D Image



7-Body-worn with Front position in dist. 5mm on Channel 78 in Bluetooth

SAR Measurement at Bluetooth (Body, Validation Plane)

Date of measurement: 12/8/2025

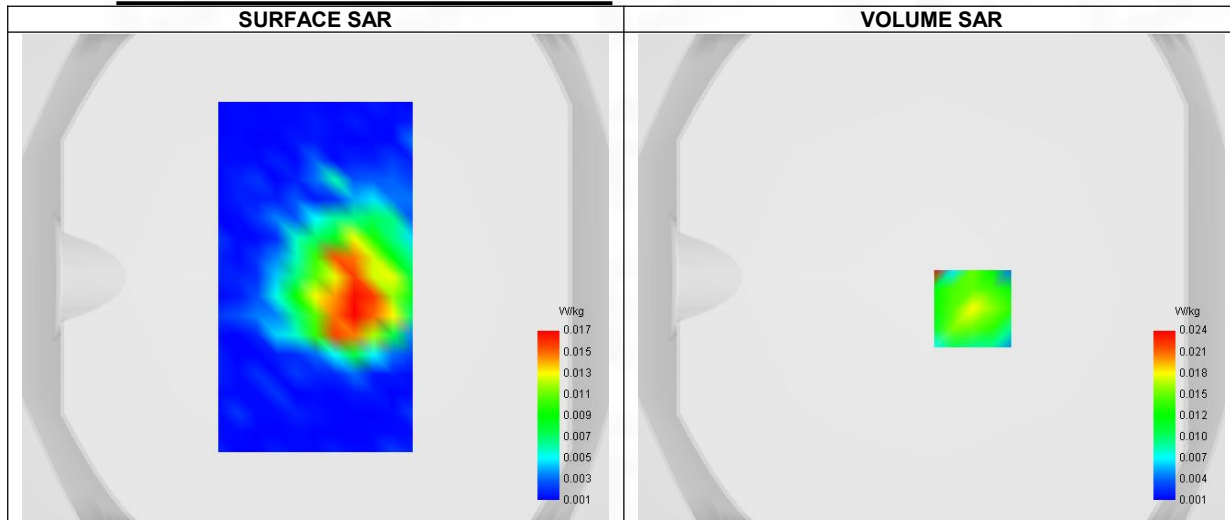
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.40
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	Bluetooth
Channels/Frequency	Higher (78)/ frequency 2480.000 Mhz
Signal	Bluetooth

B. Permittivity

Middle TX Frequency (MHz)	2480.000
Relative permittivity (real part)	38.777
Relative permittivity (imaginary part)	13.476
Conductivity (S/m)	1.841

C. SAR Surface and Volume

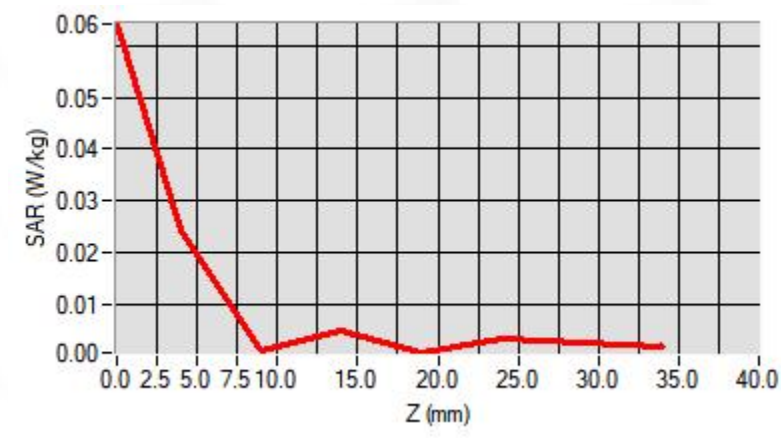


D. SAR 1g & 10g

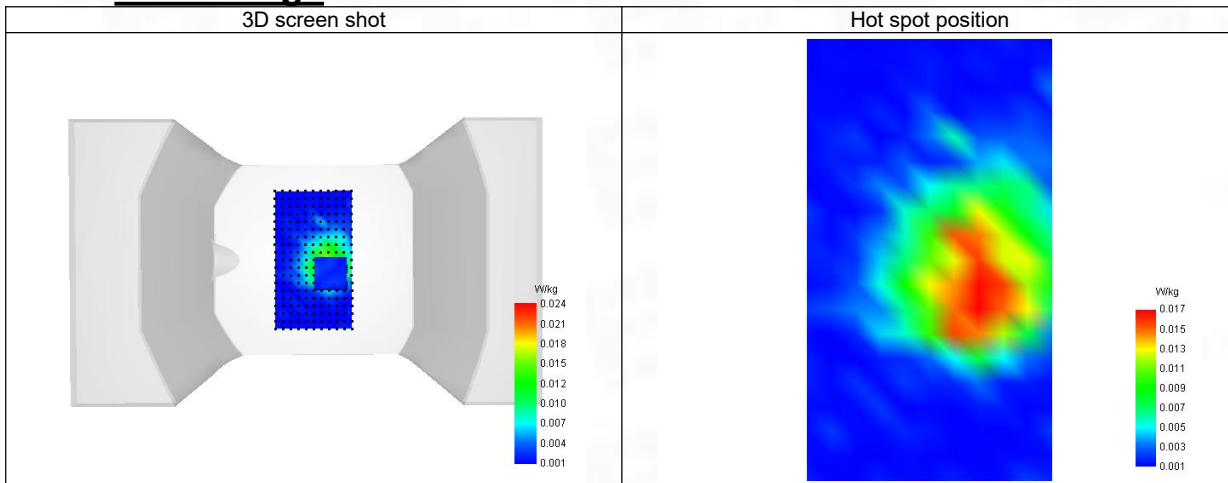
SAR 10g (W/Kg)	0.007
SAR 1g (W/Kg)	0.014
Variation (%)	-3.190
Horizontal validation criteria: minimum distance (mm)	8.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	31.504924

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.064	0.024	0.001	0.005	0.001	0.004	0.003



F. 3D Image

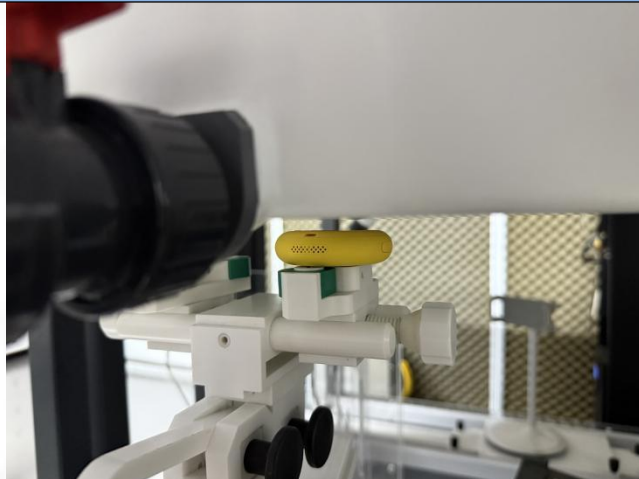


ANNEX D SAR Test Setup Photos

Reference Photo: simulation liquid depth 15cm



Reference Photos



Front (dist. 5mm)



Back (dist. 5mm)

ANNEX E EUT External and Internal Photos

Please refer to RF Report.

ANNEX F Calibration Information

Please refer to the document "Calibration.pdf".



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--END OF REPORT--