

# **SAR Test Report**

Report No.: AGC12383230701FH01

FCC ID : 2AX2R-ZE8000MK2

**APPLICATION PURPOSE**: Original Equipment

**PRODUCT DESIGNATION**: TWS Bluetooth Earphone

BRAND NAME : final

**MODEL NAME** : FI-ZE8DPLTW

**APPLICANT**: final Inc.

**DATE OF ISSUE** : Oct. 25, 2023

IEEE Std. 1528:2013

**STANDARD(S)** : FCC 47 CFR Part 2§2.1093

IEEE Std C95.1 ™-2005

**REPORT VERSION**: V1.0

Attestation of Global Confidence (Shenzhen) Co., Ltd.



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# **Report Revise Record**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Oct. 25, 2023	Valid	Initial Release

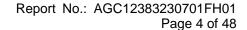


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Test Report			
Applicant Name	final Inc.		
Applicant Address	4-44-1, Nakasaiwai-cho, Saiwai-Ku, Kawasaki-shi, Kanagawa 212-0012, Japan		
Manufacturer Name	Hunan Yingzhun Technology Co., Ltd.		
Manufacturer Address	No. 28 Yongyang Road, Liuyang Hi-tech Industrial Development Zone, Changsha City, Hunan Province, P.R. China		
Factory Name	Hunan Yingzhun Technology Co., Ltd.		
Factory Address	No. 28 Yongyang Road, Liuyang Hi-tech Industrial Development Zone, Changsha City, Hunan Province, P.R. China		
Product Designation TWS Bluetooth Earphone			
Brand Name	final		
Model Name	FI-ZE8DPLTW		
EUT Voltage	DC3.85V by battery		
Applicable Standard	IEEE Std. 1528:2013 FCC 47 CFR Part 2§2.1093 IEEE Std C95.1 ™-2005		
Date of receipt of test item	Jul. 19, 2023		
Test Date	Oct. 18, 2023		
Report Template	AGCRT-US-2.4G/SAR (2021-04-20)		

Note: The results of testing in this report apply to the product/system which was tested only.

	Alan Dua	7
Prepared By	Alan Duan (Project Engineer)	Oct. 18, 2023
	Calin Li	4
Reviewed By	Calvin Liu (Reviewer)	Oct. 25, 2023
Approved By	Max Zhan	1
	Max Zhang (Authorized Officer)	Oct. 25, 2023





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# 1. SUMMARY OF MAXIMUM SAR VALUE

The maximum results of Specific Absorption Rate (SAR) found during testing for EUT are as follows:

the maximum recalled a specific range price range (or may realisting techning recalling recallin					
Frequency Band	Highest Reported 1g-SAR(W/kg)	SAR Test Limit (W/kg)			
Left Ear.					
BT(BR/EDR)	0.287				
BT(BLE) _GFSK_1M	0.212	1.6			
BT (BLE)_GFSK_2M	0.118				
Right Ear.					
BT(BR/EDR)	0.313				
BT(BLE) _GFSK_1M	0.221	1.6			
BT (BLE)_GFSK_2M	0.114				
SAR Test Result	PASS				

This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/kg) specified in IEEE Std. 1528:2013; FCC 47CFR § 2.1093; IEEE/ANSI C95.1:2005 and the following specific FCC Test Procedures:

- KDB 447498 D04 General RF Exposure Guidance v01
- KDB 865664 D01 SAR Measurement 100MHz to 6GHz v01r04



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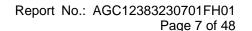
# 2. GENERAL INFORMATION

2.1. EUT Description

General Information	
Product Designation	TWS Bluetooth Earphone
Test Model	FI-ZE8DPLTW
Hardware Version	V1.0
Software Version	V1.0
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	FPC
Bluetooth	
Operation Frequency	2402~2480MHz
Antenna Gain	Left Ear. :0.09dBi; Right Ear. :0dBi;
Bluetooth Version	V5.2
Type of modulation	BR/EDR: GFSK, ∏/4-DQPSK, 8-DPSK; BLE: GFSK
Avg. Burst Power         Left Ear. : BR/EDR: 10.638dBm; BLE: 6.978dBm           (dBm)         Right Ear. : BR/EDR: 10.744dBm; BLE: 6.881dBm	
Li-ion Battery	
Brand Name	N/A
Model Name	ICB1154F6
Manufacturer Name	EVE Energy Co.,Ltd
Manufacturer Address	NO.38, Hui Feng 7th Road, Zhongkai Hi-Tech Zone, 516006 Huizhou, Guangdong, PEOPLES REPUBLIC OF CHINA
Capacitance	54mAh
Rated Voltage	DC3.85V

Note: 1. The sample used for testing is end product.

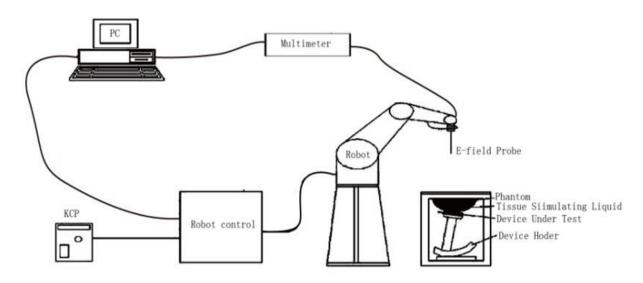
2. The test sample has no any deviation to the test method of standard mentioned in page 1.





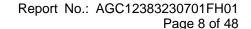
#### 3. SAR MEASUREMENT SYSTEM

# 3.1. The SATIMO system used for performing compliance tests consists of following items



The COMOSAR system for performing compliance tests consists of the following items:

- The PC. It controls most of the bench devices and stores measurement data. A computer running WinXP and the Opensar software.
- The E-Field probe. The probe is a 3-axis system made of 3 distinct dipoles. Each dipole returns a voltage in function of the ambient electric field.
- The Keithley multimeter measures each probe dipole voltages.
- The SAM phantom simulates a human head. The measurement of the electric field is made inside the phantom.
- The liquids simulate the dielectric properties of the human head tissues.
- The network emulator controls the mobile phone under test.
- The validation dipoles are used to measure a reference SAR. They are used to periodically check the bench to make sure that there is no drift of the system characteristics over time.
- •The phantom, the device holder and other accessories according to the targeted measurement.





#### 3.2. COMOSAR E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SATIMO. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. SATIMO conducts the probe calibration in compliance with international and national standards (e.g. IEEE1528 etc.)Under ISO17025.The calibration data are in Appendix D.

# **Isotropic E-Field Probe Specification**

Model	SSE2		
Manufacture	MVG		
Identification No.	SN 45/22 EPGO391		
Frequency	0.15GHz-6GHz Linearity:±0.09dB(0.15GHz-6GHz)		
Dynamic Range	0.01W/kg-100W/kg Linearity:±0.09dB		
Dimensions	Overall length:330mm Length of individual dipoles:2mm Maximum external diameter:8mm Probe Tip external diameter:2.5mm Distance between dipoles/ probe extremity:1mm		
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precisin of better 30%.		

#### 3.3. Robot

The COMOSAR system uses the KUKA robot from SATIMO SA (France). For the 6-axis controller COMOSAR system, the KUKA robot controller version from SATIMO is used.

The XL robot series have many features that are important for our application:

- ☐ High precision (repeatability 0.02 mm)
- ☐ High reliability (industrial design)
- ☐ Jerk-free straight movements
- ☐ Low ELF interference (the closed metallic

construction shields against motor control fields)

□ 6-axis controller



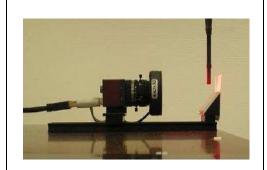




# 3.4. Video Positioning System

The video positioning system is used in OpenSAR to check the probe. Which is composed of a camera, LED, mirror and mechanical parts. The camera is piloted by the main computer with firewire link. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.

The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

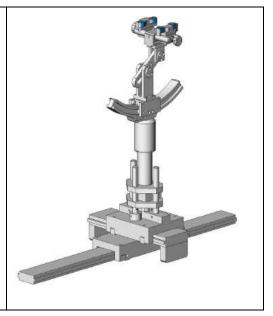


#### 3.5. Device Holder

The COMOSAR device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).

Thus the device needs no repositioning when changing the angles. The COMOSAR device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity

 $\epsilon r = 3$  and loss tangent  $\delta = 0.02$ . The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.





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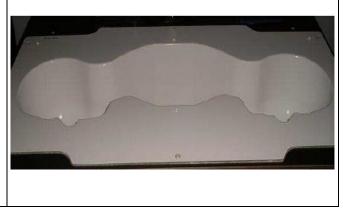
#### 3.6. SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

□ Left head

☐ Right head

☐ Flat phantom



The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.



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#### 4. SAR MEASUREMENT PROCEDURE

# 4.1. Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in 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 occupational/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 given mass 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 can be obtained using either of the following equations:

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

$$SAR = c_h \frac{dT}{dt}\Big|_{t=0}$$

Where

SAR is the specific absorption rate in watts per kilogram;

E is the r.m.s. value of the electric field strength in the tissue in volts per meter;

 $\sigma$  is the conductivity of the tissue in siemens per metre;

 $\rho$  is the density of the tissue in kilograms per cubic metre;

c<sub>h</sub> is the heat capacity of the tissue in joules per kilogram and Kelvin;

 $\frac{dT}{dt}$  | t = 0 is the initial time derivative of temperature in the tissue in kelvins per second



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#### 4.2. SAR Measurement Procedure

#### Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurement are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface is 2.7mm This distance cannot be smaller than the distance os sensor calibration points to probe tip as `defined in the probe properties,

#### Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in SATIMO software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in db) is specified in the standards for compliance testing. For example, a 2db range is required in IEEE Standard 1528 and IEC62209 standards, whereby 3db is a requirement when compliance is assessed in accordance with the ARIB standard (Japan) If one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximum are detected, the number of Zoom Scan has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100MHz to 6GHz

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
	≤2 GHz: ≤15 mm 2 – 3 GHz: ≤12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
Maximum area scan spatial resolution: Δx <sub>Area</sub> , Δy <sub>Area</sub>	When the x or y dimension o measurement plane orientation the measurement resolution r x or y dimension of the test d measurement point on the test	on, is smaller than the above, nust be ≤ the corresponding levice with at least one

### Step 3: Zoom Scan

Zoom Scan are used to assess the peak spatial SAR value within a cubic average volume containing 1g abd 10g of simulated tissue. The Zoom Scan measures points(refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1g and 10g and displays these values next to the job's label.



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#### Zoom Scan Parameters extracted from KDB865664 d01 SAR Measurement 100MHz to 6GHz

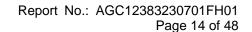
Maximum zoom scan spatial resolution: Δx <sub>Zoom</sub> , Δy <sub>Zoom</sub>			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform	grid: Δz <sub>Zoom</sub> (n)	3 - 4 GHz: ≤ 4 mm ≤ 5 mm 4 - 5 GHz: ≤ 3 mm 5 - 6 GHz: ≤ 2 mm	
	Δz <sub>Zoom</sub> (1): between 1 <sup>st</sup> two points closest to phantom surface		≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
	grid	Δz <sub>Zoom</sub> (n>1): between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
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: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

#### Step 4: Power Drift Measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the same settings. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

<sup>\*</sup> When zoom scan is required and the <u>reported</u> 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 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.



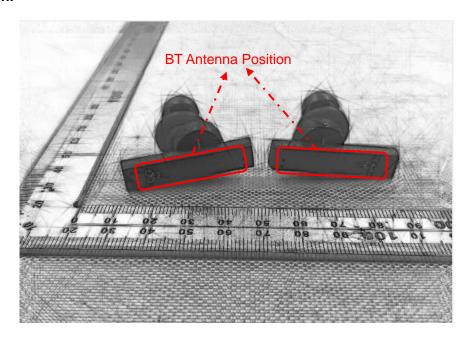


# 4.3. RF Exposure Conditions

Test Configuration and setting:

The device is a TWS Bluetooth Earphone, and supports Bluetooth wireless technology. For SAR testing, the device was controlled by software to test at reference fixed frequency points.

#### **Antenna Location:**





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# 5. TISSUE 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 15cm. For head SAR testing the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15cm For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in 5.2

5.1. The composition of the tissue simulating liquid

Ingredient (% Weight) Frequency (MHz)	Water	Nacl	Polysorbate 20	DGBE	1,2 Propanediol	Triton X-100
2450 Head	71.88	0.16	0.0	7.99	0.0	19.97

# 5.2. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE 1528 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 IEEE 1528 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 IEEE 1528.

Target Frequency	he	ead	bo	dy
(MHz)	εr	σ (S/m)	εr	σ (S/m)
300	45.3	0.87	45.3	0.87
450	43.5	0.87	43.5	0.87
835	41.5	0.90	41.5	0.90
900	41.5	0.97	41.5	0.97
915	41.5	1.01	41.5	1.01
1450	40.5	1.20	40.5	1.20
1610	40.3	1.29	40.3	1.29
1800 – 2000	40.0	1.40	40.0	1.40
2450	39.2	1.80	39.2	1.80
3000	38.5	2.40	38.5	2.40

( $\varepsilon r = relative permittivity, \sigma = conductivity and \rho = 1000 kg/m3)$ 



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#### 5.3. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using SATIMO Dielectric Probe Kit and R&S Network Analyzer ZVL6.

Tissue Stimulant Measurement for 2450MHz							
	Fr.	Dielectric Parameters (±10%)			+ .:		
	(MHz)	εr39.2(35.28-43.12)	δ[s/m]1.80(1.62-1.98)	Temp [°C]	Test time		
111	2402	40.89	1.75				
Head	2440	40.57	1.76				
	2441	40.57	1.76	20.2	Oct. 18, 2023		
	2450	40.33	1.78				
	2480	39.40	1.81				



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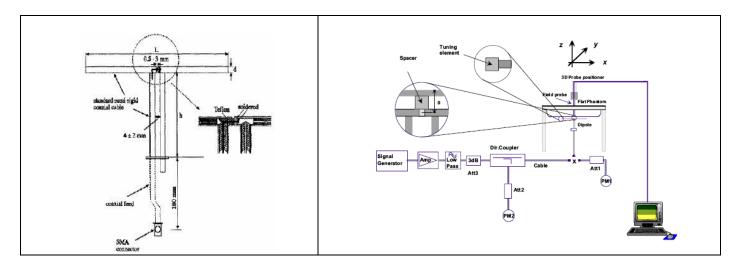
#### 6. SAR SYSTEM CHECK PROCEDURE

# **6.1. SAR System Check Procedures**

SAR system check is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are remeasured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

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

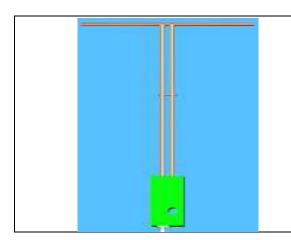
The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system check setup is shown as below.





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# 6.2. SAR System Check 6.2.1. Dipoles



The dipoles are based on the IEEE-1528 standard, and are complied with mechanical and electrical specifications in line with the requirements of IEEE. the table below provides details for the mechanical and electrical Specifications for the dipoles.

Frequency	L (mm)	h (mm)	d (mm)
2450MHz	51.5	30.4	3.6



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# 6.2.2. System Check Result

System Performance Check at 2450MHz for Head									
Validation Kit: SN 29/15 DIP 2G450-393									
Frequency		rget (W/kg)	Referenc (± 10			alized (W/kg)	Tissue Temp.	Test time	
[MHz]	1g	10g	1g	10g	1g	10g	[°Cj		
2450	54.32	24.25	48.888-59.752	21.825-26.675	56.37	25.45	20.2	Oct. 18, 2023	

#### Note:

(1) We use a CW signal of 18dBm for system check, and then all SAR values are normalized to 1W forward power. The result must be within ±10% of target value.



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# 7. EUT TEST POSITION

This EUT was tested in Back, Front.

#### 7.1. Test Position

- (1) To position the EUT parallel to the phantom surface.
- (2) To adjust the EUT parallel to the flat phantom.
- (3) To adjust the distance between the EUT surface and the flat phantom to 0mm.



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# 8. SAR EXPOSURE LIMITS

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

	1 0/
Type Exposure	Uncontrolled Environment Limit (W/kg)
Spatial Peak SAR (1 g cube tissue for brain or body)	1.60
Spatial Average SAR (Whole body)	0.08
Spatial Peak SAR (Limbs)	4.0



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# 9. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA



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# **10. TEST EQUIPMENT LIST**

Equipment description	Manufacturer/ Model	Identification No.	Software version	Current calibration date	Next calibration date
SAR Probe	MVG	SN 45/22 EPGO391	N/A	Dec. 02, 2022	Dec. 01, 2023
Phantom	SATIMO	SN_4511_SAM90	N/A	Validated. No cal required.	Validated. No cal required.
Liquid	SATIMO	N/A	N/A	Validated. No cal required.	Validated. No cal required.
Multimeter	Keithley 2000	1350784	N/A	Jun. 02, 2023	Jun. 01, 2024
SAR Software	SATIMO-OpenSAR	N/A	OpenSAR V4_02_32	N/A	N/A
Dipole	SATIMO SID2450	SN 29/15 DIP 2G450-393	N/A	Apr. 28,2022	Apr. 27,2025
Signal Generator	Agilent-E4438C	US41461365	V5.03	Jun. 01, 2023	May 31, 2024
EXA Signal Analyzer	Agilent / N9010A	MY53470504	N/A	Jun. 01, 2023	May 31, 2024
Network Analyzer	Rhode & Schwarz ZVL6	101443	3.2	Sep. 21, 2023	Sep. 20, 2024
Attenuator	Warison /WATT-6SR1211	S/N:WRJ34AYM2F1	N/A	June 07,2023	June 06,2024
Attenuator	Mini-circuits / VAT-10+	31405	N/A	June 07,2023	June 06,2024
Amplifier	AS0104-55_55	1004793	N/A	N/A	N/A
Directional Couple	Werlatone/ C5571-10	SN99463	N/A	Mar. 10,2022	Mar. 09,2024
Directional Couple	Werlatone/ C6026-10	SN99482	N/A	Mar. 10,2022	Mar. 09,2024
Power Sensor	NRP-Z21	1137.6000.02	N/A	Sep. 05,2023	Sep. 04,2024
Power Sensor	NRP-Z23	100323	N/A	Feb. 15,2023	Feb. 14,2024
Power Viewer	R&S	V2.3.1.0		N/A	N/A
Calibration standard parts for network sub - port	R&S/ ZV-Z132	N/A	V2.3.1.0	Nov. 15,2022	Nov. 14,2023

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

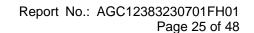
- 1. There is no physical damage on the dipole;
- 2. System validation with specific dipole is within 10% of calibrated value;
- 3. Return-loss is within 20% of calibrated measurement;
- 4. Impedance is within  $5\Omega$  of calibrated measurement.



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# 11. MEASUREMENT UNCERTAINTY

11. MEASUREMENT UNCERTAINTY SATIMO Uncertainty- SN 45/22 EPGO391									
M	عد easurement ر					10 gram.			
Uncertainty Component	Sec.	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
Measurement System		(+- 70)	Dist.				(+-70)	(+-70)	
Probe calibration	E.2.1	7.000	N	1	1	1	7.000	7.000	∞
Axial Isotropy	E.2.2	0.215	R	1.732	0.707	0.707	0.088	0.088	∞
Hemispherical Isotropy	E.2.2	0.215	R	1.732	0.707	0.707	0.088	0.088	∞
Boundary effect	E.2.3	1.000	R	1.732	1	1	0.577	0.577	∞
Linearity	E.2.4	0.995	R	1.732	1	1	0.574	0.574	∞
System detection limits	E.2.4	1.000	R	1.732	1	1	0.577	0.577	∞
Modulation response	E2.5	3.000	R	1.732	1	1	1.732	1.732	∞
Readout Electronics	E.2.6	0.021	N	1	1	1	0.021	0.021	∞
Response Time	E.2.7	0.000	R	1.732	1	1	0.000	0.000	∞
Integration Time	E.2.8	1.400	R	1.732	1	1	0.808	0.808	∞
RF ambient conditions-Noise	E.6.1	3.000	R	1.732	1	1	1.732	1.732	∞
RF ambient conditions-reflections	E.6.1	3.000	R	1.732	1	1	1.732	1.732	∞
Probe positioner mechanical tolerance	E.6.2	1.400	R	1.732	1	1	0.808	0.808	∞
Probe positioning with respect to phantom shell	E.6.3	1.400	R	1.732	1	1	0.808	0.808	∞
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	2.300	R	1.732	1	1	1.328	1.328	∞
Test sample Related									
Test sample positioning	E.4.2	2.6	N	1	1	1	2.60	2.60	8
Device holder uncertainty	E.4.1	3	N	1	1	1	3.00	3.00	8
Output power variation—SAR drift measurement	E.2.9	5	R	1.732	1	1	2.89	2.89	8
SAR scaling	E.6.5	5	R	1.732	1	1	2.89	2.89	∞
Phantom and tissue parameter	s								
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	4	R	1.732	1	1	2.309	2.309	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1	1	0.84	1.900	1.596	∞
Liquid conductivity measurement	E.3.3	4	N	1	0.78	0.71	3.120	2.840	М
Liquid permittivity measurement	E.3.3	5	N	1	0.23	0.26	1.150	1.300	М
Liquid conductivity—temperature uncertainty	E.3.4	2.5	R	1.732	0.78	0.71	1.126	1.025	∞
Liquid permittivity—temperature uncertainty	E.3.4	2.5	R	1.732	0.23	0.26	0.332	0.375	∞
Combined Standard Uncertainty			RSS				10.529	10.344	
Expanded Uncertainty (95% Confidence interval)			K=2				21.059	20.689	





SATIMO Uncertainty- SN 45/22 EPGO391 System Validation uncertainty for DUT averaged over 1 gram / 10 gram.									
Uncertainty Component	Sec.	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
Measurement System									
Probe calibration	E.2.1	7.000	N	1	1	1	7.000	7.000	∞
Axial Isotropy	E.2.2	0.215	R	1.732	1.000	1.000	0.124	0.124	∞
Hemispherical Isotropy	E.2.2	0.215	R	1.732	0.000	0.000	0.000	0.000	∞
Boundary effect	E.2.3	1.000	R	1.732	1.000	1.000	0.577	0.577	∞
Linearity	E.2.4	0.995	R	1.732	1.000	1.000	0.574	0.574	∞
System detection limits	E.2.4	1.000	R	1.732	1.000	1.000	0.577	0.577	∞
Modulation response	E2.5	3.000	R	1.732	0.000	0.000	0.000	0.000	∞
Readout Electronics	E.2.6	0.021	N	1.000	1.000	1.000	0.021	0.021	∞
Response Time	E.2.7	0.000	R	1.732	0.000	0.000	0.000	0.000	∞
Integration Time	E.2.8	1.400	R	1.732	0.000	0.000	0.000	0.000	∞
RF ambient conditions-Noise	E.6.1	3.000	R	1.732	1.000	1.000	1.732	1.732	∞
RF ambient conditions-reflections	E.6.1	3.000	R	1.732	1.000	1.000	1.732	1.732	∞
Probe positioner mechanical tolerance	E.6.2	1.400	R	1.732	1.000	1.000	0.808	0.808	∞
Probe positioning with respect to phantom shell	E.6.3	1.400	R	1.732	1.000	1.000	0.808	0.808	8
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	2.300	R	1.732	1.000	1.000	1.328	1.328	8
System validation source									
Deviation of experimental dipole from numerical dipole	E.6.4	5	N	1	1	1	5	5	8
Input power and SAR drift measurement	8,6.6.4	5	R	1.732	1	1	2.887	2.887	∞
Dipole axis to liquid distance	8,E.6.6	2	R	1.732	1	1	1.155	1.155	$\infty$
Phantom and set-up									
Phantom shell uncertainty—shape, thickness, and permittivity	E.3.1	4	R	1.732	1	1	2.309	2.309	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1	1	0.84	1.9	1.596	8
Liquid conductivity (temperature uncertainty)	E.3.3	4	N	1	0.78	0.71	3.12	2.84	8
Liquid conductivity (measured)	E.3.3	5	N	1	0.23	0.26	1.15	1.3	М
Liquid permittivity (temperature uncertainty)	E.3.4	2.5	R	1.732	0.78	0.71	1.126	1.025	∞
Liquid permittivity (measured)	E.3.4	2.5	R	1.732	0.23	0.26	0.332	0.375	М
Combined Standard Uncertainty			RSS				10.462	10.276	
Expanded Uncertainty (95% Confidence interval)			K=2				20.925	20.552	





SATIMO Uncertainty- SN 45/22 EPGO391									
System Check uncertainty for DUT averaged over 1 gram / 10 gram.  Uncertainty Company									
Uncertainty Component	Sec.	(+- %)	Dist.	Div.	Ci (1g)	Ci (10g)	(+-%)	(+-%)	vi
Measurement System									
Probe calibration drift	E.2.1.3	7.000	N	1	1	1	7	7	∞
Axial Isotropy	E.2.2	0.215	R	$\sqrt{3}$	0	0	0	0	$\infty$
Hemispherical Isotropy	E.2.2	0.215	R	√3	0	0	0	0	$\infty$
Boundary effect	E.2.3	1.000	R	√3	0	0	0	0	∞
Linearity	E.2.4	0.995	R	$\sqrt{3}$	0	0	0	0	∞
System detection limits	E.2.4	1	R	√3	0	0	0	0	∞
Modulation response	E2.5	3	R	$\sqrt{3}$	0	0	0	0	$\infty$
Readout Electronics	E.2.6	0.021	N	$\sqrt{3}$	0	0	0	0	8
Response Time	E.2.7	0	R	$\sqrt{3}$	0	0	0	0	8
Integration Time	E.2.8	1.4	R	$\sqrt{3}$	0	0	0	0	8
RF ambient conditions-Noise	E.6.1	3	R	√3	0	0	0	0	∞
RF ambient conditions-reflections	E.6.1	3	R	√3	0	0	0	0	∞
Probe positioner mechanical tolerance	E.6.2	1.4	R	√3	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	E.6.3	1.4	R	√3	1	1	0.81	0.81	8
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	E.5	2.3	R	√3	0	0	0	0.00	8
System check source (dipole)									
Deviation of experimental dipoles	E.6.4	2	N	1	1	1	2	2	∞
Input power and SAR drift measurement	8,6.6.4	5	R	√3	1	1	2.89	2.89	∞
Dipole axis to liquid distance	8,E.6.6	2	R	√3	1	1	1.15	1.15	$\infty$
Phantom and tissue parameter	s								
Phantom shell uncertainty—shape, thickness,	E.3.1	4	R	√3	1	1	2.31	2.31	∞
and permittivity Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	1.9	N	1.000	1	0.84	1.90	1.60	∞
Liquid conductivity measurement	E.3.3	4	N	1.000	0.78	0.71	3.12	2.84	8
Liquid permittivity measurement	E.3.3	5	N	1.000	0.23	0.26	1.15	1.30	М
Liquid conductivity—temperature uncertainty	E.3.4	2.5	R	√3	0.78	0.71	1.13	1.02	8
Liquid permittivity—temperature uncertainty	E.3.4	2.5	R	√3	0.23	0.26	0.33	0.38	М
Combined Standard Uncertainty			RSS				8.927	8.708	
Expanded Uncertainty (95% Confidence interval)			K=2				17.853	17.415	



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# 12. CONDUCTED POWER MEASUREMENT

Bluetooth_V5.2  Modulation	Channel	Frequency(MHz)	Avg. Burst Power (dBm)
Left Ear.			()
BR/EDR			
	0	2402	10.442
GFSK	39	2441	10.346
	78	2480	10.357
	0	2402	9.887
π /4-DQPSK	39	2441	9.888
	78	2480	9.908
	0	2402	10.638
8-DPSK	39	2441	10.584
	78	2480	10.604
BLE			
	0	2402	6.736
GFSK 1M	19	2440	6.727
	39	2480	6.808
	0	2402	6.978
GFSK 2M	19	2440	6.966
	39	2480	6.788
Right Ear.			•
BR/EDR			
	0	2402	10.660
GFSK	39	2441	10.743
	78	2480	10.546
	0	2402	10.170
π /4-DQPSK	39	2441	10.144
	78	2480	9.931
	0	2402	10.744
8-DPSK	39	2441	10.743
	78	2480	10.573
BLE			
	0	2402	6.815
GFSK 1M	19	2440	6.864
	39	2480	6.701
	0	2402	6.860
GFSK 2M	19	2440	6.881
	39	2480	6.744



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#### 13. TEST RESULTS

# 13.1. SAR Test Results Summary 13.1.1. Test position and configuration

- 1. The EUT is a TWS Bluetooth Earphone.
- 2. According to KDB 447498 D04 General RF Exposure Guide v01, due to maximum peak power for bluetooth is more than just a test exclusion threshold, which must be tested.
- 3. Test procedure:
  - (1) For the front and back side,Lab. test 1-g SAR at a test separation distance of 0mm from the flat phantom filled with head tissue simulating Liquid.
- 4. For SAR testing, the device was controlled by software to test at reference fixed frequency points.

#### 13.1.2. Operation Mode

- 1. Per KDB 447498 D04 v01 ,for each exposure position, if the highest 1-g SAR is  $\leq$  0.8 W/kg, testing for low and high channel is optional.
- 2. Per KDB 865664 D01 v01r04,for each frequency band, if the measured SAR is ≥0.8W/kg, testing for repeated SAR measurement is required, that the highest measured SAR is only to be tested. When the SAR results are near the limit, the following procedures are required for each device to verify these types of SAR measurement related variation concerns by repeating the highest measured SAR configuration in each frequency band.
  - (1) When the original highest measured SAR is  $\geq$ 0.8W/kg, repeat that measurement once.
  - (2) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is >1.20 or when the original or repeated measurement is ≥1.45 W/kg.
  - (3) Perform a third repeated measurement only if the original, first and second repeated measurement is ≥1.5 W/kg and ratio of largest to smallest SAR for the original, first and second measurement is ≥ 1.20.
- 3. Maximum Scaling SAR in order to calculate the Maximum SAR values to test under the standard Peak Power, Calculation method is as follows:

  Maximum Scaling SAR =tested SAR (Max.) ×[maximum turn-up power (mW)/ maximum measurement output power(mW)]



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# 13.1.3. SAR Test Results Summary

SAR MEASURE	MENT								
Depth of Liquid (cm):>15 Relative Humidity (%): 44.2									
Product: TWS BI	luetooth Earphon	Э				1			
Position	Mode	Ch.	Fr. (MHz)	Power Drift (<±5%)	SAR (1g) (W/kg)	Max. Tune-up Power (dBm)	Meas. output Power (dBm)	Scaled SAR (W/kg)	Limit W/kg
Left Ear.									
Test Mode: BT (I	BR/EDR)								
Back	1DH5	0	2402	-0.32	0.263	10.50	10.442	0.267	1.6
Back	1DH5	39	2441	0.05	0.208	10.50	10.346	0.216	1.6
Back	1DH5	78	2480	0.28	0.278	10.50	10.357	0.287	1.6
Front	1DH5	39	2441	-0.10	0.012	10.50	10.346	0.012	1.6
Test Mode: BT (I	BLE)_GFSK_1M			_					
Back	GFSK	0	2402	0.22	0.197	7.00	6.736	0.209	1.6
Back	GFSK	19	2440	-0.16	0.199	7.00	6.727	0.212	1.6
Back	GFSK	39	2480	0.32	0.196	7.00	6.808	0.205	1.6
Front	GFSK	19	2440	-0.05	0.012	7.00	6.727	0.013	1.6
Test Mode: BT (I	BLE)_GFSK_2M								
Back	GFSK	19	2440	-0.24	0.117	7.00	6.966	0.118	1.6
Front	GFSK	19	2440	-0.10	0.012	7.00	6.966	0.012	1.6
Right Ear.									
Test Mode: BT (I	BR/EDR)								
Back	1DH5	0	2402	-0.11	0.283	10.80	10.660	0.292	1.6
Back	1DH5	39	2441	-0.05	0.289	10.80	10.743	0.293	1.6
Back	1DH5	78	2480	0.23	0.295	10.80	10.546	0.313	1.6
Front	1DH5	39	2441	-0.10	0.014	10.80	10.743	0.014	1.6
Test Mode: BT (I	BLE)_GFSK_1M			_					
Back	GFSK	0	2402	0.27	0.171	7.00	6.815	0.178	1.6
Back	GFSK	19	2440	-0.10	0.176	7.00	6.864	0.182	1.6
Back	GFSK	39	2480	-0.30	0.206	7.00	6.701	0.221	1.6
Front	GFSK	19	2440	0.23	0.012	7.00	6.864	0.012	1.6
Test Mode: BT (I	BLE)_GFSK_2M								
Back	GFSK	19	2440	-0.12	0.111	7.00	6.881	0.114	1.6
Front	GFSK	19	2440	0.36	0.011	7.00	6.881	0.011	1.6

#### Note:

- When the 1-g SAR is  $\leq$  0.8W/kg, testing for low and high channel is optional.
- The test separation of all above table is 0mm.
- Plots are only shown for the bold markered worst case SAR results.



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# APPENDIX A. SAR SYSTEM CHECK DATA

Test Laboratory: AGC Lab Date: Oct. 18, 2023

System Check Head 2450 MHz

DUT: Dipole 2450 MHz Type: SID 2450

Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1; Conv.F=2.34 Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz;  $\sigma = 1.78$  mho/m;  $\epsilon r = 40.33$ ;  $\rho = 1000$  kg/m³;

Phantom section: Flat Section; Input Power=18dBm

Ambient temperature (°C):20.6, Liquid temperature (°C): 20.2

#### **SATIMO Configuration**

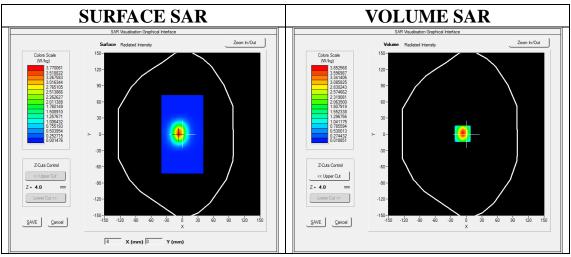
• Probe: SSE2; Calibrated: Dec. 02, 2022; Serial No.: SN 45/22 EPGO391

Sensor-Surface: 4mm (Mechanical Surface Detection)

· Phantom: SAM twin phantom

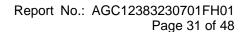
Measurement SW: OpenSAR V4\_02\_35

Configuration/System Check 2450MHz Head/Area Scan: Measurement grid: dx=8mm, dy=8mm Configuration/System Check 2450MHz Head/Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm

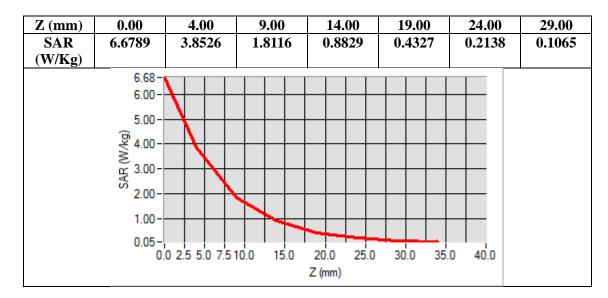


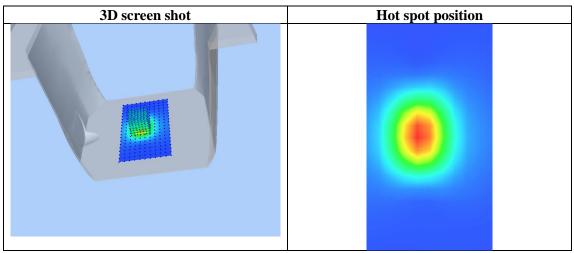
Maximum location: X=-7.00, Y=1.00 SAR Peak: 6.61 W/kg

SAR 10g (W/Kg) 1.605671 SAR 1g (W/Kg) 3.556496











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#### APPENDIX B. SAR MEASUREMENT DATA

Left Ear.

Test Laboratory: AGC Lab Date: Oct. 18, 2023

BT (BR/EDR) High- Back (1DH5)

DUT: TWS Bluetooth Earphone; Type: FI-ZE8DPLTW

Communication System: BT; Communication System Band: Bluetooth; Duty Cycle:76.97%; Conv.F=2.34; Frequency: 2480 MHz; Medium parameters used: f = 2450 MHz;  $\sigma = 1.81$  mho/m;  $\epsilon = 39.40$ ;  $\rho = 1000$  kg/m³;

Phantom section: Flat Section

Ambient temperature (°C):20.6, Liquid temperature (°C): 20.2

#### **SATIMO Configuration:**

Probe: SSE2; Calibrated: Dec. 02, 2022; Serial No.: SN 45/22 EPGO391

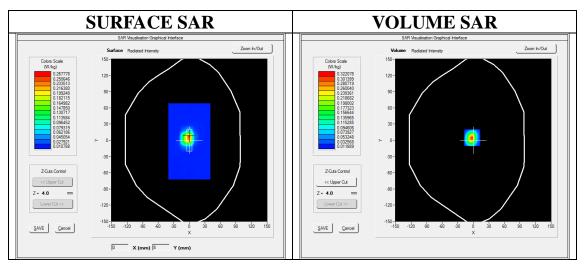
Sensor-Surface: 4mm (Mechanical Surface Detection)

· Phantom: SAM twin phantom

Measurement SW: OpenSAR V4\_02\_35

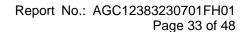
Configuration/BT (BR/EDR) High-Back /Area Scan: Measurement grid: dx=8mm, dy=8mm Configuration/BT (BR/EDR) High-Back /Zoom Scan: Measurement grid: dx=5mm, dy=5mm, dz=5mm;

Area Scan	surf_sam_plan.txt, h= 5.00 mm			
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm			
Phantom	Validation plane			
Device Position	Back			
Band	BT (BR/EDR)			
Channels	High			
Signal	Crest factor: 1.30			

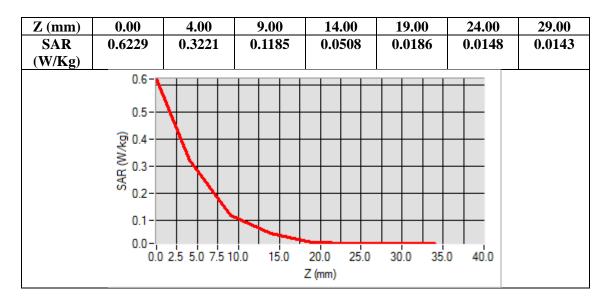


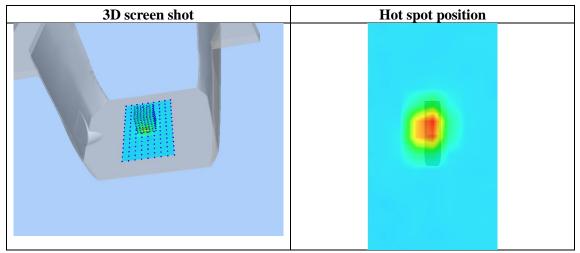
Maximum location: X=-2.00, Y=5.00 SAR Peak: 0.63 W/kg

SAR 10g (W/Kg)	0.095550
SAR 1g (W/Kg)	0.278444











Date: Oct. 18, 2023

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Test Laboratory: AGC Lab
BT (BLE) Mid- Back (GFSK\_1M)

DUT: TWS Bluetooth Earphone; Type: FI-ZE8DPLTW

Communication System: BT; Communication System Band: Bluetooth; Duty Cycle:61.92%; Conv.F=2.34; Frequency: 2440 MHz; Medium parameters used: f = 2450 MHz;  $\sigma = 1.76$  mho/m;  $\epsilon = 40.57$ ;  $\rho = 1000$  kg/m³;

Phantom section: Flat Section

Ambient temperature (°C):20.6, Liquid temperature (°C): 20.2

#### SATIMO Configuration:

Probe: SSE2; Calibrated: Dec. 02, 2022; Serial No.: SN 45/22 EPGO391

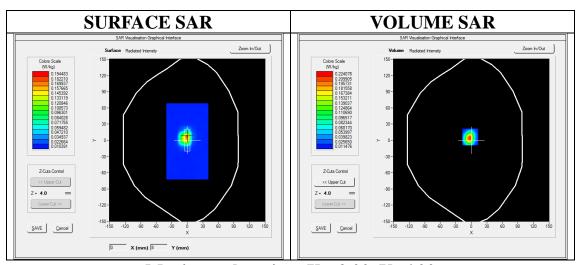
Sensor-Surface: 4mm (Mechanical Surface Detection)

· Phantom: SAM twin phantom

• Measurement SW: OpenSAR V4\_02\_35

Configuration/BT (BLE) Mid-Back /Area Scan: Measurement grid: dx=8mm, dy=8mm Configuration/BT (BLE) Mid-Back /Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm;

Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Back
Band	BT (BLE)
Channels	Middle
Signal	Crest factor: 1.0

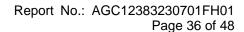


Maximum location: X=-2.00, Y=6.00 SAR Peak: 0.45 W/kg

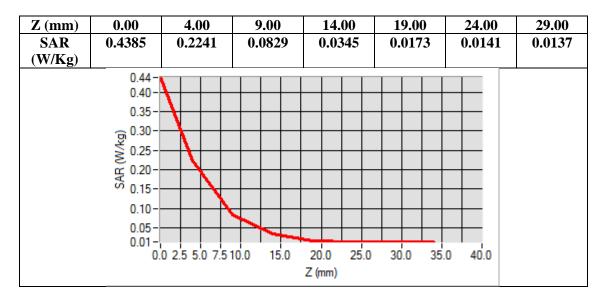
SAR 10g (W/Kg)	0.068743
SAR 1g (W/Kg)	0.198733

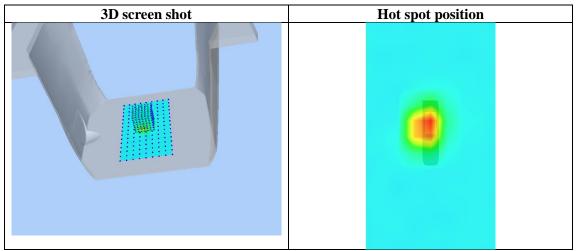


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Test Laboratory: AGC Lab Date: Oct. 18, 2023

BT (BLE) Mid- Back (GFSK\_2M)

DUT: TWS Bluetooth Earphone; Type: FI-ZE8DPLTW

Communication System: BT; Communication System Band: Bluetooth; Duty Cycle:55.5%; Conv.F=2.34; Frequency: 2440 MHz; Medium parameters used: f = 2450 MHz;  $\sigma = 1.76 \text{ mho/m}$ ;  $\epsilon = 40.57$ ;  $\rho = 1000 \text{ kg/m}^3$ ;

Phantom section: Flat Section

Ambient temperature (°C):20.6, Liquid temperature (°C): 20.2

#### SATIMO Configuration:

Probe: SSE2; Calibrated: Dec. 02, 2022; Serial No.: SN 45/22 EPGO391

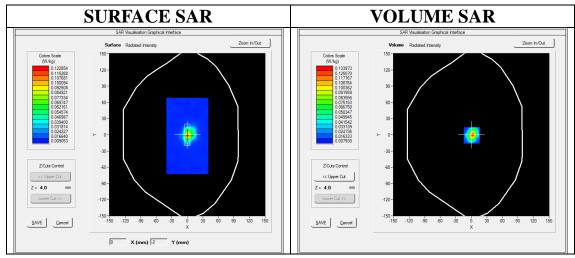
• Sensor-Surface: 4mm (Mechanical Surface Detection)

· Phantom: SAM twin phantom

• Measurement SW: OpenSAR V4\_02\_35

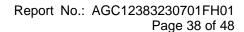
Configuration/BT (BLE) Mid-Back /Area Scan: Measurement grid: dx=8mm, dy=8mm Configuration/BT (BLE) Mid-Back /Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm;

Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Back
Band	BT (BLE)
Channels	Middle
Signal	Crest factor: 1.0

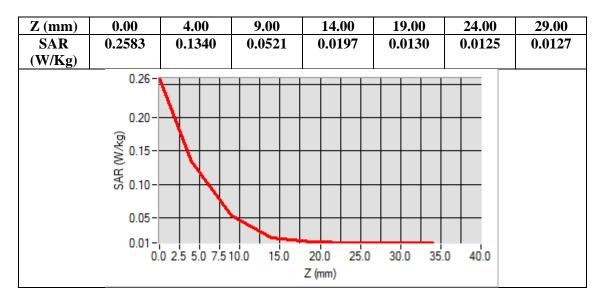


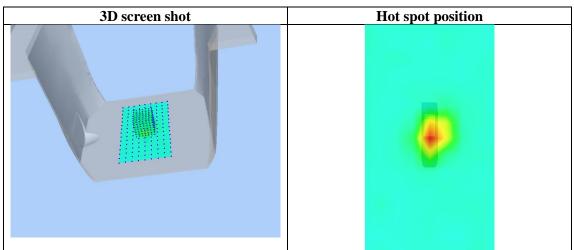
Maximum location: X=1.00, Y=-1.00 SAR Peak: 0.27 W/kg

	0
SAR 10g (W/Kg)	0.040118
SAR 1g (W/Kg)	0.117054











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Right Ear.

Test Laboratory: AGC Lab Date: Oct. 18, 2023

BT (BR/EDR) High- Back (1DH5)

DUT: TWS Bluetooth Earphone; Type: FI-ZE8DPLTW

Communication System: BT; Communication System Band: Bluetooth; Duty Cycle:76.97%; Conv.F=2.34; Frequency: 2480 MHz; Medium parameters used: f = 2450 MHz;  $\sigma = 1.81$  mho/m;  $\epsilon = 39.40$ ;  $\rho = 1000$  kg/m³;

Phantom section: Flat Section

Ambient temperature (°C):20.6, Liquid temperature (°C): 20.2

## SATIMO Configuration:

Probe: SSE2; Calibrated: Dec. 02, 2022; Serial No.: SN 45/22 EPGO391

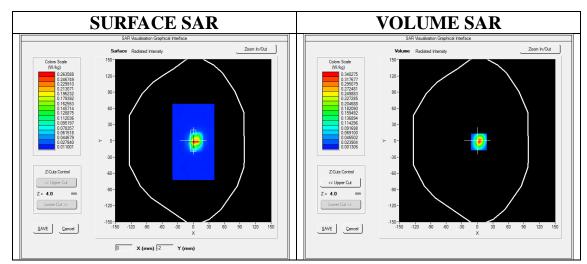
• Sensor-Surface: 4mm (Mechanical Surface Detection)

· Phantom: SAM twin phantom

Measurement SW: OpenSAR V4\_02\_35

Configuration/BT (BR/EDR) High-Back /Area Scan: Measurement grid: dx=8mm, dy=8mm Configuration/BT (BR/EDR) High-Back /Zoom Scan: Measurement grid: dx=5mm, dy=5mm, dz=5mm;

Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Back
Band	BT (BR/EDR)
Channels	High
Signal	Crest factor: 1.30

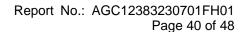


Maximum location: X=3.00, Y=-2.00 SAR Peak: 0.66 W/kg

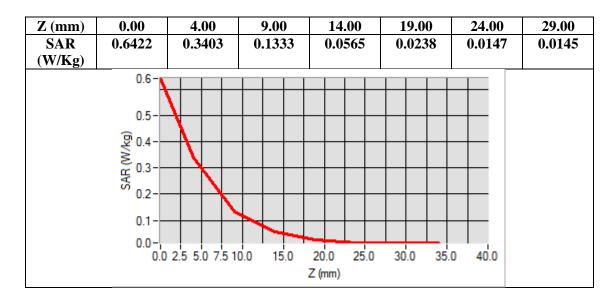
SAR 10g (W/Kg)	0.101542
SAR 1g (W/Kg)	0.295458

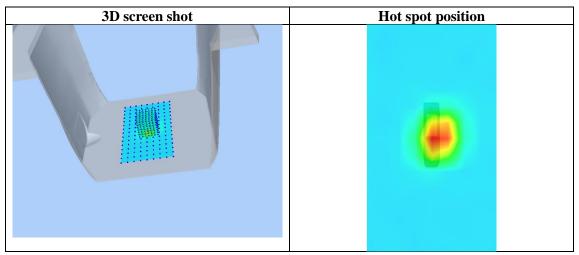
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Test Laboratory: AGC Lab Date: Oct. 18, 2023

BT (BLE) High- Back (GFSK\_1M)

DUT: TWS Bluetooth Earphone; Type: FI-ZE8DPLTW

Communication System: BT; Communication System Band: Bluetooth; Duty Cycle:61.92%; Conv.F=2.34; Frequency: 2480 MHz; Medium parameters used: f = 2450 MHz;  $\sigma = 1.81$  mho/m;  $\epsilon = 39.40$ ;  $\rho = 1000$  kg/m<sup>3</sup>;

Phantom section: Flat Section

Ambient temperature (°C):20.6, Liquid temperature (°C): 20.2

#### SATIMO Configuration:

Probe: SSE2; Calibrated: Dec. 02, 2022; Serial No.: SN 45/22 EPGO391

• Sensor-Surface: 4mm (Mechanical Surface Detection)

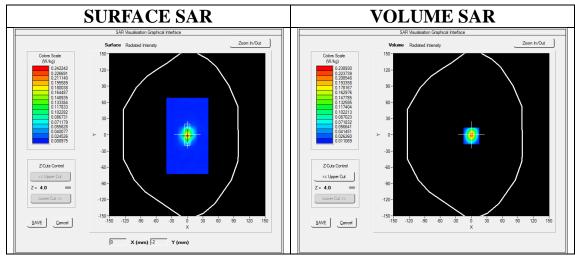
· Phantom: SAM twin phantom

• Measurement SW: OpenSAR V4\_02\_35

Configuration/BT (BLE) High -Back /Area Scan: Measurement grid: dx=8mm, dy=8mm

Configuration/BT (BLE) High -Back /Zoom Scan: Measurement grid: dx=5mm, dy=5mm, dz=5mm;

Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Back
Band	BT (BLE)
Channels	High
Signal	Crest factor: 1.0

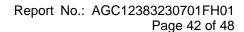


Maximum location: X=0.00, Y=-2.00 SAR Peak: 0.45 W/kg

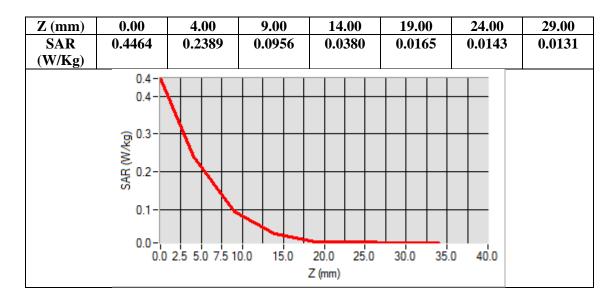
_		0
	SAR 10g (W/Kg)	0.072204
	SAR 1g (W/Kg)	0.205587

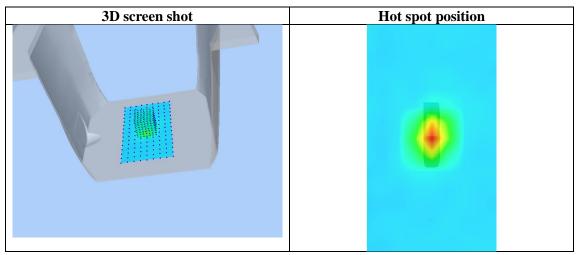
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Test Laboratory: AGC Lab Date: Oct. 18, 2023

BT (BLE) Mid- Back (GFSK\_2M)

DUT: TWS Bluetooth Earphone; Type: FI-ZE8DPLTW

Communication System: BT; Communication System Band: Bluetooth; Duty Cycle:55.5%; Conv.F=2.34; Frequency: 2440 MHz; Medium parameters used: f = 2450 MHz;  $\sigma = 1.76$  mho/m;  $\epsilon = 40.57$ ;  $\rho = 1000$  kg/m³;

Phantom section: Flat Section

Ambient temperature (°C):20.6, Liquid temperature (°C): 20.2

#### SATIMO Configuration:

Probe: SSE2; Calibrated: Dec. 02, 2022; Serial No.: SN 45/22 EPGO391

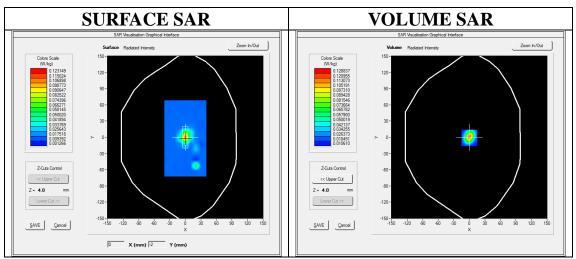
Sensor-Surface: 4mm (Mechanical Surface Detection)

· Phantom: SAM twin phantom

• Measurement SW: OpenSAR V4\_02\_35

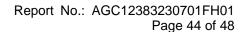
Configuration/BT (BLE) Mid-Back /Area Scan: Measurement grid: dx=8mm, dy=8mm Configuration/BT (BLE) Mid-Back /Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm;

Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Back
Band	BT (BLE)
Channels	Middle
Signal	Crest factor: 1.0

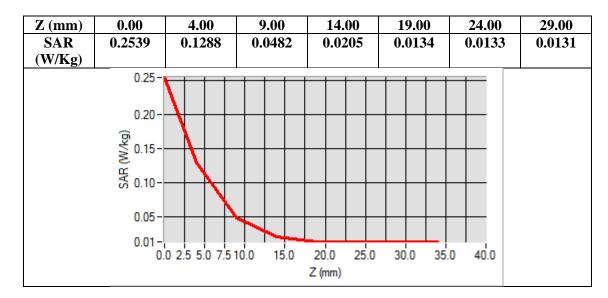


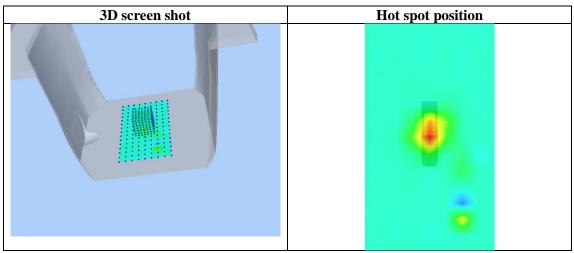
Maximum location: X=0.00, Y=-1.00 SAR Peak: 0.26 W/kg

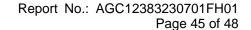
SAR 10g (W/Kg)	0.039629
SAR 1g (W/Kg)	0.111387







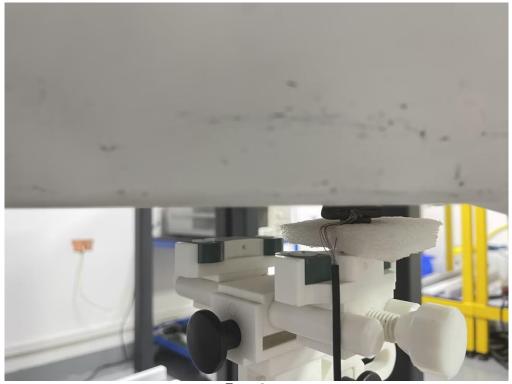




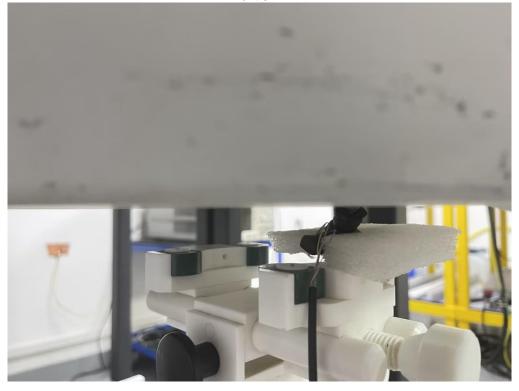


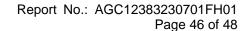
## APPENDIX C. TEST SETUP PHOTOGRAPHS

Left Ear. Back 0mm



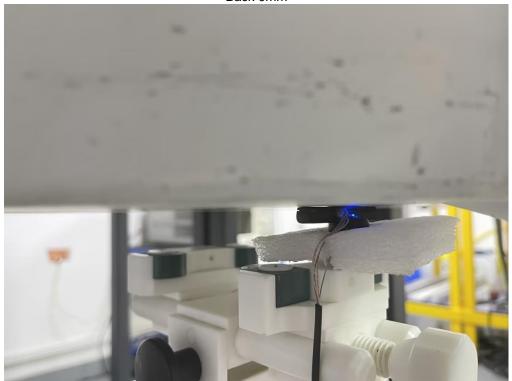
Front 0mm



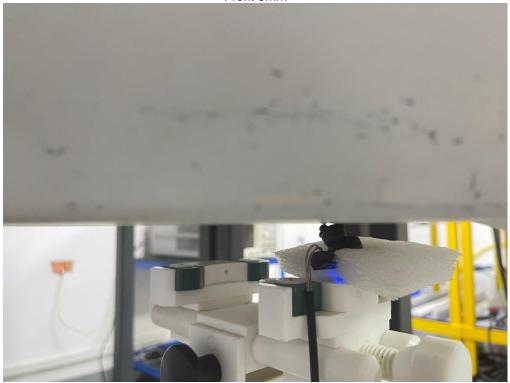










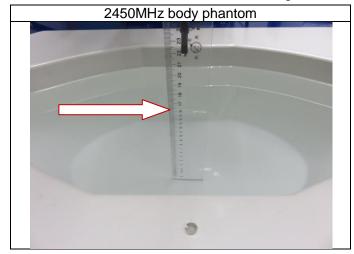




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### DEPTH OF THE LIQUID IN THE PHANTOM—ZOOM IN

Note: The position used in the measurement were according to IEEE Std. 1528:2013





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# **APPENDIX D. CALIBRATION DATA**

Refer to Attached files.

----END OF REPORT----



## Conditions of Issuance of Test Reports

- 1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").
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- 3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
- 4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
- 5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
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