



REPORT No.: SZ24030044S02

TEST REPORT

APPLICANT : OnePlus Technology (Shenzhen) Co., Ltd.
PRODUCT NAME : Wireless Earbuds
MODEL NAME : E512A
BRAND NAME : ONEPLUS
FCC ID : 2ABZ2-E512A
STANDARD(S) : FCC 47 CFR Part 2(2.1091)
RECEIPT DATE : 2024-03-06
TEST DATE : 2024-03-26
ISSUE DATE : 2024-08-15



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MORLAB

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Change History		
Version	Date	Reason for change
1.0	2024-08-15	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	OnePlus Technology (Shenzhen) Co., Ltd.
Applicant Address:	18C02, 18C03, 18C04, and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen, Guangdong, P.R. China
Manufacturer:	OnePlus Technology (Shenzhen) Co., Ltd.
Manufacturer Address:	18C02, 18C03, 18C04, and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen, Guangdong, P.R. China

1.2. Equipment under Test (EUT) Description

Product Name:	Wireless Earbuds
EUT No.:	3#
Hardware Version:	X23E3_06
Software Version:	V.2.6
Frequency Bands:	Bluetooth(Earphone): 2402 MHz ~ 2480 MHz Wireless charging(Charging case): 110KHz ~ 205 KHz
Modulation Mode:	BR+EDR: GFSK(1Mbps), $\pi/4$ -DQPSK(2Mbps), 8-DPSK(3Mbps) BLE: GFSK(1Mbps, 2Mbps) Wireless charging: ASK
Antenna Type:	Bluetooth: LDS Antenna Wireless charging: Coil Antenna
SIM Cards Description:	N/A

1.3. Accessories Information

Battery Type 1: (Earphone)	Manufacturer:	XINYU GANFENG ELECTRONICS CO., LTD.
	Brand Name:	N/A
	Model:	112570
	Capacity:	58 mAh
	Rated Voltage:	3.85 V
Battery Type 2:	Manufacturer:	Chongqing VDL Electronics Co., Ltd.



(Charging case)	Brand Name:	N/A
	Model:	SZS601826-2P
	Capacity:	566 mAh
	Rated Voltage:	3.85 V

1.4. MPE Results Summary

Operation Frequency	Highest MPE Summary	
	E-field (V/m)	H-field (A/m)
110 KHz ~ 205 KHz	6.58	0.0813

Note:

1. The test results of Bluetooth are recorded in SZ24030044S01.
2. When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.



1.5. Photographs of the EUT

Please refer to the External Photos for the Photos of the EUT

1.6. Applied Reference Documents

Leading reference documents for testing:

Identity	Document Title	Method determination /Remark
FCC 47 CFR Part 2(2.1091)	Radio Frequency Radiation Exposure Evaluation: mobile devices	No deviation
KDB 447498 D01v06	General RF Exposure Guidance	No deviation
KDB 680106 D01v03	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications	No deviation
Note 1: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.		

2. RF Exposure Requirement

2.1. General Information

For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15cm. E-field and H-field strength measurements or numerical modeling may be used to demonstrate compliance.

Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m.

2.2. RF Exposure Limit

Basic Restrictions Reference levels

Basic Restriction for electric, magnetic and electromagnetic fields (0Hz to 300GHz)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	* 100	6
3.0-30	1842/f	4.89/f	* 900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	* 100	30
1.34-30	824/f	2.19/f	* 180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

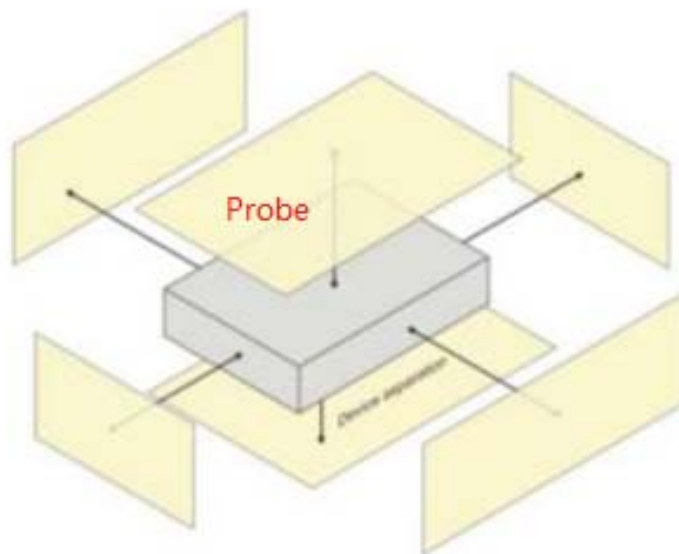
2.3. Test Information

The EUT working at normal charging mode, use the E-Probe measure the H-field Strength, E-field Strength separately.

2.4. Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Radiated Frequency	7×10^8
Uncertainty for test site temperature and humidity	0.6 °C
	3%

2.5. Test Setup



3. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
STT	Broadband Field meter	SEM-600	D-1044	2021.11.15	2024.11.14
STT	Probe	LF-04	I-1044	2021.11.15	2024.11.14
STT	Probe holder	TR-01	N/A	N/A	N/A
STT	Optical fiber line	L=5M	N/A	N/A	N/A

4. RF Exposure Assessment

Test Date: 2024.03.26
Temperature: 25±2 °C Humidity: 20-60%

➤ E-Field Strength Result

E-field strength result (Test frequency range from 110 KHz ~ 205 KHz)					
Test Loading	Exposure Position	Distance (cm)	E-field Strength (Max. V/m)	Limit 50%(V/m)	Verdict
110 KHz ~ 205 KHz	Front Side	15	6.58	307	PASS
	Back Side	15	2.50	307	PASS
	Left Side	15	3.49	307	PASS
	Right Side	15	4.23	307	PASS
	Top Side	15	4.08	307	PASS
	Bottom Side	15	4.53	307	PASS

➤ H-Field Strength Result

H-field strength result (Test frequency range from 110 KHz ~ 205 KHz)					
Test Loading	Exposure Position	Distance (cm)	H-field Strength (Max. A/m)	Limit 50%(A/m)	Verdict
110 KHz ~ 205 KHz	Front Side	15	0.0813	0.815	PASS
	Back Side	15	0.0245	0.815	PASS



	Left Side	15	0.0485	0.815	PASS
	Right Side	15	0.0569	0.815	PASS
	Top Side	15	0.0463	0.815	PASS
	Bottom Side	15	0.0783	0.815	PASS

Note:

3. According to the user manual, output power from each primary coil is less than or equal to 15 watts.
4. According to KDB 680106 D01V03 section 5 b), the aggregate H-field strengths at 15 cm surrounding the device above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit
5. This device designed for typical desktop applications, therefore mobile exposure conditions are applied and client device is placed directly in contact with the transmitter.
6. The EUT test photos, please see the Annex B.

➤ **Simultaneous Transmission Consideration**

Since wireless charging is on the front of the charging box, the cover is closed at this time, and if the cover does not opened, the Bluetooth cannot be connected, so the simultaneous transmission of Bluetooth and wireless charging does not support.

➤ **Conclusion:**

According to FCC 47 CFR Part 2(2.1091), this device complies with human exposure basic restrictions.



Annex A General Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
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2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Facilities and Accreditations

The FCC designation number is CN1192, the test firm registration number is 226174.

Note:

The main report is end here and the other Annex B will be submitted separately.

***** END OF REPORT *****