



RF Exposure Report

FCC ID: 2AX2R-ZE8000

Applicant: final Inc.

Address: 4-44-1, Nakasaiwai-cho, Saiwai-Ku, Kawasaki-shi, Kanagawa
212-0012, Japan

Manufacturer: final Inc.

Address: 4-44-1, Nakasaiwai-cho, Saiwai-Ku, Kawasaki-shi, Kanagawa
212-0012, Japan

Brand: final

Test Model(s): FI-ZE8DPLTW

Series Model(s): N/A

Test Date: Aug. 17, 2022~ Aug. 24, 2022

Issued Date: Sep. 06, 2022

Issued By: Hwa-Hsing (Dongguan) Testing Co., Ltd.

Address: No.101, Bld N1, Yuyuan 2Rd, Yuyuan Industrial Park, HuangJiang
Town, Dongguan, China

Test Firm Registration No.: 915896

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

The above equipment has been tested by **Hwa-Hsing (Dongguan) Testing Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :

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Release control record

| Issue No. | Reason for change | Date issued |
|---------------------|-------------------|---------------|
| 220524EL11-SE-US-01 | Original Release | Sep. 06, 2022 |



1 General Information

1.1 General Description of EUT

| | |
|---------------------|---|
| Product | ZE8000 |
| Brand | final |
| Test Model(s) | FI-ZE8DPLTW |
| Series Model(s) | N/A |
| Status of EUT | Engineering Prototype |
| Power Supply Rating | DC 5V/420mA from USB or DC 3.8V from Battery in charging case DC 3.85V from Battery in each headphone |
| Modulation Type | GFSK, $\pi/4$ DQPSK, 8DPSK |
| Transfer Rate | 1/2/3Mbps |
| Operating Frequency | 2402 ~ 2480MHz |
| Number of Channel | 79 |
| Output Power(AVG) | BLE: L: -4.035dBm R: -4.872dBm EDR: L: 7.195dBm R: 7.088dBm |
| Antenna Type | FPC Antenna |
| Antenna Gain | L: 0.89dBi R: 1.41dBi |
| Antenna Connector | N/A |
| Accessory Device | N/A |
| Cable Supplied | USB Type-C Charging Cable 37cm, Unshielded and detachable |

Note:

1. Please refer to the EUT photo document (Reference No.: 220524EL11-01&02) for detailed product photo.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.



2 RF exposure limit

The corresponding SAR Exclusion Threshold condition, listed below:

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, 16 where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, the distance of 5 mm is applied to determine SAR test exclusion.

2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:

a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · (f(MHz)/150)] mW, at 100MHz to 1500 MHz

b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at > 1500 MHz and ≤ 6 GHz

3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion.

a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by $[1 + \log(100/f(\text{MHz}))]$ for test separation distances > 50 mm and < 200 mm.

b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$ for test separation distances ≤ 50 mm.

c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

3 Calculation

The antenna of this product, under normal use condition, is at less than 5mm away from the body of the user.



4 Calculation SAR test exclusion thresholds

The measured of Maximum RF Conduced Power

| Mode | Frequency (MHz) | Maximum RF Power (dBm) |
|-------|-----------------|------------------------|
| GFSK | 2402-2480 | 7.195 |
| 8DPSK | 2402-2480 | 2.332 |
| BLE | 2402-2480 | -4.035 |

The tuned Power (declared by client)

| Mode | Frequency (MHz) | Target Power (dBm) | Tolerance (dBm) | Lower Tolerance (dBm) | Upper Tolerance (dBm) |
|-------|-----------------|--------------------|-----------------|-----------------------|-----------------------|
| GFSK | 2402-2480 | 7 | ±2 | 5 | 9 |
| 8DPSK | 2402-2480 | 7 | ±2 | 5 | 9 |
| BLE | 2402-2480 | -6 | ±2 | -8 | -4 |

SAR Test Exclusion Thresholds

| Frequency (MHz) | Maximum source-based time averaged conducted output power(dBm) | Minimum separation distance (mm) | Result of Eq. 1 | Limit for 1-g SAR | Limit for 10-g extremity SAR | Verdict |
|-----------------|--|----------------------------------|-----------------|-------------------|------------------------------|-----------------|
| 2402-2480 | 9 | 5 | 2.502 | 3.0 | 7.5 | Exempt from SAR |

Conclusion: Therefore this device complies with FCC's RF radiation exposure limits for general population without SAR evaluation.



Appendix – Information on the Testing Laboratories

We, [Hwa-Hsing \(Dongguan\) Co., Ltd.](#), A global provider of TESTING and CERTIFICATION services for consumer products, electronic products and wireless information technology products. Adhering to the core values “HONEST and TRUSTWORTHY, OBJECTIVE and IMPARTIALITY, RIGOROUS and AFFICIENT”, commitment to provide professional, perfect and efficient comprehensive ONE-STOP solution of TESTING and CERTIFICATION services for Manufacturers, Buyers, Traders, Brands, Retailers. Assist client to better manage risk, protect their brands, reduce costs and cut time to over 150 markets in global. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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