

RF EXPOSURE REPORT



FCC Applicant: TIEN HSIN INDUSTRIES CO., LTD.
NO.6, WU-GONG 8TH RD., WUFENG DIST., TAICHUNG
CITY 413, TAIWAN (R.O.C.)

FCC Manufacturer: TIEN HSIN INDUSTRIES CO., LTD.
NO.6, WU-GONG 8TH RD., WUFENG DIST., TAICHUNG
CITY 413, TAIWAN (R.O.C.)

Product Name: K-Force WE 12S

Brand Name: FSA

Model No.: RD-ED-8412

Model Difference: N/A

Report Number: TESA2212000557E5

FCC ID 2ALMLKW12RD8412

Issue Date: Jan. 19, 2023

Date of EUT Received: Dec. 2, 2022

Approved By

John Yeh

We hereby certify that:

The above equipment was evaluate by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §2.109.

The results of this report relate only to the sample identified in this report.

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Revision History

| Report Number | Revision | Description | Issue Date | Revised By | Remark |
|------------------|----------|-------------|---------------|------------|--------|
| TESA2212000557E5 | 00 | Original | Jan. 19, 2023 | Candice Li | |
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Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

| | |
|-------------------|------------------------|
| Product Name: | K-Force WE 12S |
| Brand Name: | FSA |
| Model No.: | RD-ED-8412 |
| Model Difference: | N/A |
| Hardware Version: | S132.7.2.0 |
| Firmware Version: | S132.7.2.0 |
| Power Supply: | 7.4Vdc from li-battery |

1.2 Evaluation site

| Laboratory | Site Address | | FCC Designation number | ISED Company Number | CAB Identifier |
|---|-------------------------------------|---|------------------------|---------------------|----------------|
| SGS Taiwan Ltd. Central RF Lab. (TAF code 3702) | <input type="checkbox"/> | No. 134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, 24803, Taiwan. | TW0027 | 4620A | TW3702 |
| | <input checked="" type="checkbox"/> | No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 333 Taiwan. | TW0028 | 4620E | |
| | <input type="checkbox"/> | 1F, No. 8, Alley 15, Lane 120, Sec. 1, Nei Hu Road, Nei Hu District, Taipei City, 222 Taiwan. | TW0029 | 23862 | |

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1.3 Antenna Information:

The antenna information is provided by the applicant.

1.3.1 BLE

| Antenna Type | Brand | Freq. (MHz) | Peak Antenna Gain (dBi) |
|-----------------------------|-------|-------------|-------------------------|
| Copper Foil Sticker Antenna | FSA | 2400~2500 | 3.76 |

Note: Antenna information is provided by the applicant.

1.4 Rated Power

1.4.1 BLE

| Mode | Freq. Range (MHz) | Channels | Modulation Technology | Max Output Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) |
|------|-------------------|----------|-----------------------|------------------------|--------------------|------------|
| BLE | 2402-2480 | 40 | GFSK | -6.5 | 3.76 | -2.74 |

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2 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Averaging Time (minute) |
|---|----------------------------------|----------------------------------|--|----------------------------|
| 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 |
| 300-1500 | / | / | f/1500 | 30 |
| 1500-100000 | / | / | 1.0 | 30 |

f = frequency in MHz

* = Plane-wave equipment power density

Prediction of MPE limit at a given distance

$$S = PG / 4\pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

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2.2 Power Density Calculation (Worst Case)

FCC Standalone MPE

| Operation Mode | Evaluation Frequency (MHz) | Operation Distance (cm) | Max. Output Power Include Tolerance (dBm) | Antenna Gain (dBi) | Max. EIRP (mW) | Power Density (PD) (mW/cm ²) | Limit (mW/cm ²) | Pass / Fail | Power Density / Limit |
|----------------|----------------------------|-------------------------|---|--------------------|----------------|--|-----------------------------|-------------|-----------------------|
| BLE | 2402.00 | 20 | -6.5 | 3.76 | 0.53 | 0.0001 | 1.000 | Pass | 0.000 |

~ End of Report ~

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