RF Exposure Evaluation Report

Product	:	28W Fiber Laser Engraver
Trade mark	:	Lumitool
Model/Type reference	:	F28
Serial Number	:	N/A
Report Number	:	EED32S80419302
FCC ID	:	2BKJ5LUMITOOLF28
Date of Issue	:	Jul. 15, 2026
Test Standards	:	47 CFR Part 1.1307 47 CFR Part 1.1310 47 CFR Part 2.1091 KDB 447498 D04 Interim General RF Exposure Guidance v01
Test result	:	PASS

Prepared for:

Shenzhen Earain Automation Equipment Co., Ltd
903, Building 1, Nantai Yunchuanggu Park, South of the intersection of Guangming Avenue and Dongchang Road, Fenghuang Street, Guangming District, Shenzhen, Guangdong, China

Prepared by:

Centre Testing International Group Co., Ltd.
Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Compiled by: Win Wei — Win Wei

Reviewed by: Keven Tan — Keven Tan

Approved by: Aaron Ma — Aaron Ma

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2 General Information

2.1 Client Information

Applicant:	Shenzhen Earain Automation Equipment Co., Ltd
Address of Applicant:	903, Building 1, Nantai Yunchuanggu Park, South of the intersection of Guangming Avenue and Dongchang Road, Fenghuang Street, Guangming District, Shenzhen, Guangdong, China
Manufacturer:	Shenzhen Earain Automation Equipment Co., Ltd
Address of Manufacturer:	903, Building 1, Nantai Yunchuanggu Park, South of the intersection of Guangming Avenue and Dongchang Road, Fenghuang Street, Guangming District, Shenzhen, Guangdong, China
Factory:	Shenzhen Earain Automation Equipment Co., Ltd
Address of Factory:	903, Building 1, Nantai Yunchuanggu Park, South of the intersection of Guangming Avenue and Dongchang Road, Fenghuang Street, Guangming District, Shenzhen, Guangdong, China

2.2 General Description of EUT

Product Name:	28W Fiber Laser Engraver
Model No.:	F28
Test Model No.:	F28
Trade Mark:	Lumitool

2.3 Product Specification subjective to this standard

Frequency Range:	2.4G Wi-Fi: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz	
Modulation Type:	2.4G Wi-Fi: IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20) : OFDM (64QAM, 16QAM,QPSK, BPSK)	
Test Power Grade:	Default	
Test Software of EUT:	EspRFTestTool_v3.6_Manual	
Antenna Type:	PCB Antenna	
Antenna Gain:	1.97 dBi	
Power Supply:	Adapter:	Model: BSG-12020000 Input: 100-240V~, 3.0A Output: 12.0V ⎓ 20.0A
Sample Received Date:	Jun. 16, 2026	
Sample tested Date:	Jun. 16, 2026 to Jun. 26, 2026	

2.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164, Test Firm Registration No.: 260439

2.5 Deviation from Standards

None.

2.6 Abnormalities from Standard Conditions

None.

2.7 Other Information Requested by the Customer

None.

3 SAR Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).
This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). Pth is given by Formula

$$P_{\text{th}}\,(\text{mW}) = \begin{cases} ERP_{20\text{ cm}}(d/20\text{ cm})^{x} & d \le 20\text{ cm} \\ ERP_{20\text{ cm}} & 20\text{ cm} < d \le 40\text{ cm} \end{cases}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\text{ cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and ERP20cm is per Formula (B.1).

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

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

3.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3.1.3 EUT RF Exposure Evaluation

For Stand alone:

Freq. (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@2.4G Wi-Fi	20	12.97	1.97	12.79	19.01	3060.00	0.0062	Pass

Note：

①EIRP=conducted power+antenna gain；

②ERP=EIRP-2.15;

③EIRP(dBm) = Field strength of the fundamental signal(dBuV/m@3m) – 95.23;

④ERP(mW) = 10^(ERP (dBm)/10);

⑤The estimation distance is 20cm;

⑥The test data please refer to the report of EED32S80419301 and only the worst case data was recorded in the report.

Statement

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;

2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;

3. The result(s) shown in this report refer(s) only to the sample(s) tested;

4. Unless otherwise stated,the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule stated in ILAC-G8:09/2019/CNAS-GL015:2022;

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*** End of Report ***