

TEST REPORT

Product Name : Laser Engraving Machine
Model Number : A1, A1Pro, A1Plus, A1Plus+, A1Max, K14,
K14Pro, K14Plus, K14Plus+, K14Max
FCC ID : 2A79Y-A1

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Report Number : EDG2412130017E00102R
Date(s) of Tests : Jan 21, 2025 to Feb 24, 2025
Date of issue : Feb 24, 2025

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1. TEST RESULT CERTIFICATION

Applicant : Dongguan Xinjia Laser Technology Co.,Ltd.
Address : Room 602, No.419, Jinxing Road, Liaobu Town, Dongguan City, Guangdong Province
Manufacturer : Dongguan Xinjia Laser Technology Co.,Ltd.
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Factory : Dongguan Xinjia Laser Technology Co.,Ltd.
Address : Room 602, No.419, Jinxing Road, Liaobu Town, Dongguan City, Guangdong Province
EUT : Laser Engraving Machine
Model Name : A1, A1Pro, A1Plus, A1Plus+, A1Max, K14, K14Pro, K14Plus, K14Plus+, K14Max
Trademark : **UTKA**

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
§ 15.247(i), § 2.1091	PASS

The above equipment was tested by EMTEK(DONGGUAN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules FCC § 15.247(i), § 2.1093.
The test results of this report relate only to the tested sample identified in this report

Date of Test : Jan 21, 2025 to Feb 24, 2025

Prepared by :

Warren Deng

Warren Deng /Editor

Tim Dong

Reviewer :

Tim Dong /Supervisor

Approve & Authorized Signer :

 

Sam Lv / Manager

Modified History

Version	Report No.	Revision Date	Summary
	EDG2412130017E00102R	/	Original Report



2. EUT Specification

Characteristics	Description
Product:	Laser Engraving Machine
Model Number:	A1, A1Pro, A1Plus, A1Plus+, A1Max, K14, K14Pro, K14Plus, K14Plus+, K14Max All products are the same, only the model numbers are different. Here we selected A1 for all the test.
Sample:	2#
Device Type:	2.4G WIFI
Data Rate:	802.11b 802.11g 802.11n(20MHz channel bandwidth) 802.11n(40MHz channel bandwidth)
Modulation:	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n;
Operating Frequency Range(s) :	2412-2462MHz for 802.11b/g/n(HT20); 2422-2452MHz for 802.11n(HT40);
Number of Channels:	11 channels for 802.11b/g/n(HT20); 7 Channels for 802.11n(HT40);
Transmit Power Max:	13.70dBm(0.023442 W)
Antenna Gain:	1.23 dBi
Power supply:	DC 24V from adapter Adapter: Model: K651-2402500U/K651-2402500J INPUT: 100-240V~50/60Hz 1.5A OUTPUT: 24V/2500mA
Evaluation applied:	☒ MPE Evaluation ☐ SAR Evaluation

3. Test Requirement:

RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = Power density in mW/cm²

P_{out} =output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π =3.1416

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

4. Measurement Result

Antenna gain:
2.4G: 1.23 dBi

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2412	11B	10.86	11±1	12	15.849	1.23	1.33	0.0042	1
2437		10.76	11±1	12	15.849	1.23	1.33	0.0042	1
2462		12.26	12±1	13	19.953	1.23	1.33	0.0053	1
2412	11G	8.12	8±1	9	7.943	1.23	1.33	0.0021	1
2437		8.64	8±1	9	7.943	1.23	1.33	0.0021	1
2462		13.49	13±1	14	25.119	1.23	1.33	0.0066	1
2412	11N20SISO	10.77	11±1	12	15.849	1.23	1.33	0.0042	1
2437		8.54	8±1	9	7.943	1.23	1.33	0.0021	1
2462		13.7	14±1	15	31.623	1.23	1.33	0.0084	1
2422	11N40SISO	9.98	10±1	11	12.589	1.23	1.33	0.0033	1
2437		8.64	8±1	9	7.943	1.23	1.33	0.0021	1
2452		11.5	11±1	12	15.849	1.23	1.33	0.0042	1

According to KDB 447498, no stand-alone required for WIFI antenna, and no simultaneous SAR measurement is required.

*** End of Report ***