Certificate # 2861.01

TEST REPORT

Verified Code: 357838

Report No.:	E202012093237-4-G1	**Application No.:**	E202012093237
Client:	JIANGMEN PEL LIGHTING CO.LTD.		
Address:	2nd Floor, Building#2, No.30, Gaoxin East Road, Jianghai District, Jiangmen City, Guangdong, China		
Sample Description:	12V RGB LED STRIP		
Model:	DR-12V-5050-RGB-300-10m-BL-U		
Test Specification:	CFR 47, FCC Part 2.1091 Radiofrequency radiation exposure evaluation: mobile devices. KDB 447498 D01 General RF Exposure Guidance v06		
Receipt Date:	2020-12-15		
Test Date:	2021-02-02 to 2021-03-16		
Issue Date:	2021-05-06		
Test Result:	Pass		

Prepared By:	**Reviewed By:**	**Approved By:**
Test Engineer	Technical Manager	Manager
Xie Fang	Jiang Tao	GUANGZHOU GRG METROLOGY & TEST CO.,LTD. APPROVED(03)

Other Aspects:

Note: This report instead the report E202012093237-4, and from the date of issuance of this report, the report which being replaced become invalid.

Abbreviations: *ok / P = passed; fail / F = failed; n.a. / N = not applicable;*

DIRECTIONS OF TEST

1. **This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.**

2. **The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.**

3. **If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.**

TABLE OF CONTENTS

1. GENERAL DESCRIPTION OF EUT

1.1 APPLICANT

Name:	JIANGMEN PEL LIGHTING CO.LTD.
Address:	2nd Floor, Building#2, No.30, Gaoxin East Road, Jianghai District, Jiangmen City, Guangdong, China

1.2 MANUFACTURER

Name:	JIANGMEN PEL LIGHTING CO.LTD.
Address:	2nd Floor, Building#2, No.30, Gaoxin East Road, Jianghai District, Jiangmen City, Guangdong, China

1.3 FACTORY

Name :	JIANGMEN PEL LIGHTING CO.LTD.
Address :	2nd Floor, Building#2, No.30, Gaoxin East Road, Jianghai District, Jiangmen City, Guangdong, China

1.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment:	12V RGB LED STRIP
Model No.:	DR-12V-5050-RGB-300-10m-BL-U
Adding Model:	/
Trade Name:	PEL
FCC ID:	2AYYP-IR40BT
Power Supply:	DC12V power supplied by adapter
Adapter Specification:	MODEL:GQ36-120300-AU INPUT:100-240V~50/60Hz 1.0A Max OUTPUT:12V ⎓3.0A
Frequency Range:	2402 ~ 2480MHz
Transmit Power:	1.041dBm
Modulation type:	GFSK for 1Mbps
Channel space:	2MHz
Antenna Specification:	PCB Antenna with 3.5dBi (Max)
Temperature Range:	-25℃~85℃
Hardware Version:	V2.0
Software Version:	1.4.0

Sample No: E202012093237-0001, E202012093237-A021

Note: /

2. LABORATORY AND ACCREDITATIONS

2.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co,. Ltd.

Add	:	Address: No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China
P.C.	:	518000
Tel	:	0755-61180008
Fax	:	0755-61180008

2.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to GB/T 27025(ISO/IEC 17025:2017)

USA	A2LA(Certificate #:2861.01)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
USA	FCC

Copies of granted accreditation certificates are available for downloading from our web site, http://www.grgtest.com

3. EVALUATION METHOD

Exposure category: General population/uncontrolled environment
EUT Type: Production Unit
Device Type: Mobile Device

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.
In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.
In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0. The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3.1 LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

(B)Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength(H) (A/m)	Power Density (S) (Mw/cm^2)	Averaging Time$[E]^2$, $[H]^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100,000	/	/	1.0	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

4. CALCULATION METHOD

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01
$S=PG/4\pi R^2$
Where: S=power density
P=power input to antenna
G=power gain of the antenna in the direction of interest relative to anisotropic radiator
R=distance to the center of radiation of the antenna
From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the maximum gain of the used as following information, the RF power density can be obtained.

Frequency Band	Antenna type	Internal Identification	Maximum antenna gain
2.4GHz	PCB antenna	Antenna 1	3.5dBi

4.1 CONDUCTED POWER RESULTS

Frequency(MHz)	Conducted Output Power (dBm)
2402	-2.306
2426	1.041
2480	-3.410

4.2 MANUFACTURING TOLERANCE

Frequency (MHz)	2402	2426	2480
Target (dBm)	-2.0	1.0	-3.0
Tolerance ±(dB)	1.0	1.0	1.0

4.3 MEASUREMENT RESULTS

Frequency (MHz)	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	Duty Cycle	MPE (mW/cm^2)	MPE Limits (mW/cm^2)
	(dBm)	(mW)					
2426	2	1.5849	3.5	2.2387	100%	0.0007	1.0000

Remark: 1. Maximum conducted output power including tune-up tolerance;
2. MPE use distance is 20cm from manufacturer declaration of user manual.

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;
∑of MPE ratios≤ 1.0

5. CONCLUSION

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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