



## LED Lamp Flicker Test Report

☒ NEMA 77-2017/IEEE 1789-2015

### Prepared For

**RAB Lighting Inc.**

**Room 6A33, No.1388, Wuzhong road, Shanghai, China**

**Xiao Xiang, 15921313292, gary.xiao@rabweb.com**

### Prepared By

**Deliver Co., Ltd.**

**Block 11, 78 Keling Road, SSTP, Suzhou, China**

**0512-66801950, kevin.jia@szdeliver.com**

### Project Number

**DLF2408121**

### Report Number

**DLF2408121-1c**

### Test Date

**2024/9/9**

### Issue Date

**2024/9/11**

### Prepared By

*Wangzun Zhu*

**Wangzun Zhu**

### Approved By

*Kevin Jia*

**Kevin Jia**

This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government. The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

## 1.0 Test Summary

DLC Technical Requirements v5.0 draft

Requirement Category (Test Data Source)	Test Method	Requirements		Test value
Pst	NEMA 77-2017	$\leq 1.0$		0.624
SVM	NEMA 77-2017	Tier 1 $\leq 0.4$	Tier 2 $\leq 0.9$	2.025

## 2.0 Production Description

### Product Description:

**Model Number:** L2X @ 3000K

**Build Level:** N/A

**Electrical Specification:** 120V/60Hz

**Sample No.:** A1

### Photos



### 3.0 Test Report

#### Test No.1: Flicker Test

##### Test Method

The test was performed using a relative photometry method, according to NEMA 77-2017 - Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria

IEEE 1789-2015 -Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers

The measurement was taken one test sample combined with the dimmers. The sample was tested at the rated electrical parameter, and allowed to stabilize and verify by taking light output measurements every minute with interval 0.00004 seconds and equipment period 2 seconds, until consecutive measurements are no more than 0.5% apart

##### Electrical Rating

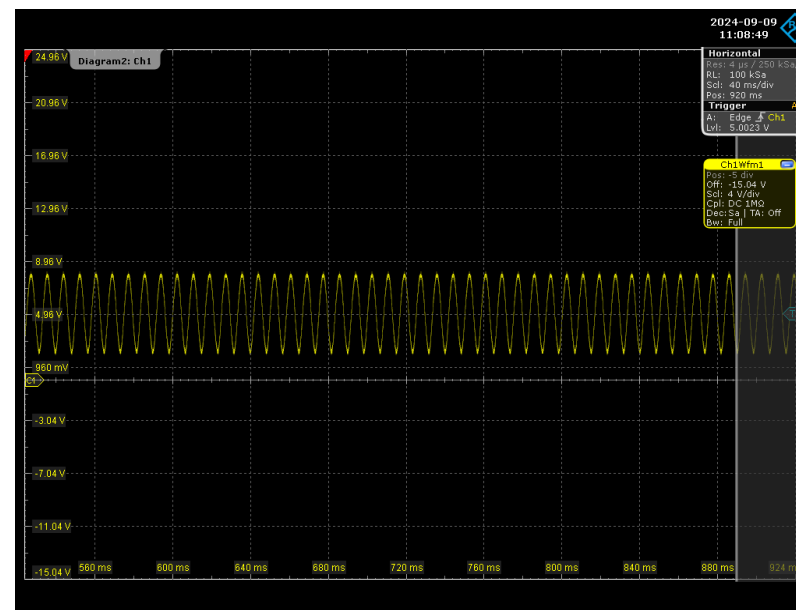
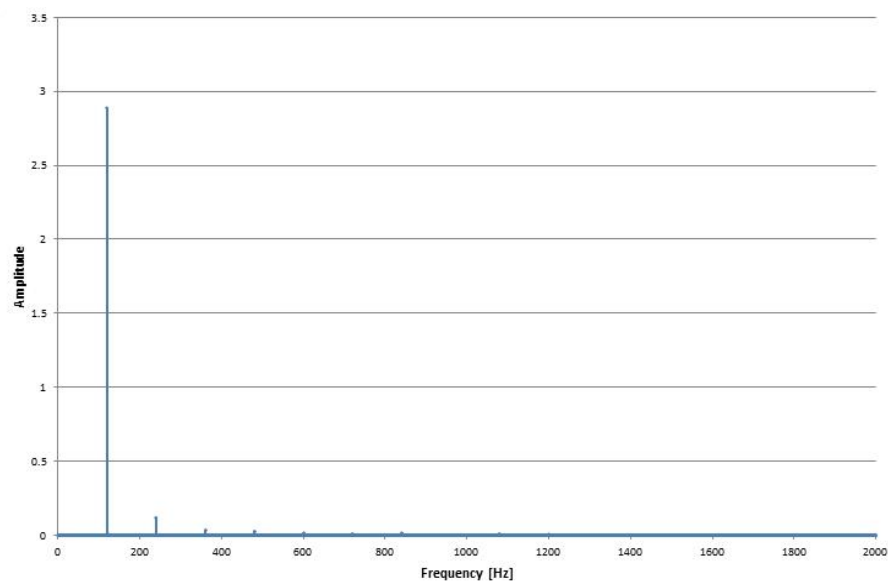
Model No.	Voltage (V)	Current (A)	Wattage (W)	PF	ATHD (%)
L2X @ 3000K	120.06	0.168	19.7	0.979	13.33

##### Dimmer Information

Dimmable/Non-dimmable	Dimmer	Dimming Type	Prodcut Model No.	Temperature(°C)
Dimmable	PWM	PWM	L2X @ 3000K	25.1

Metric	Value at 100% Light Output	Value at 20% Light Output	Value at Minimum Light Output
Short Term Flicker (Pst)	0.413	0.347	0.624
Stroboscopic Visibility Measure (SVM)	2.02479	1.51812	0.38892
Percent amplitude modulation; Unfiltered	61.18%	45.96%	13.10%
Percent amplitude modulation; 1,000 Hz cut-off	58.65%	43.30%	12.28%
Percent amplitude modulation; 400 Hz cut-off	57.88%	42.94%	12.23%
Percent amplitude modulation; 200 Hz cut-off	56.43%	42.35%	11.66%
Percent amplitude modulation; 90 Hz cut-off	0.59%	0.55%	1.01%
Percent amplitude modulation; 40 Hz cut-off	0.48%	0.43%	0.97%
Flicker Index; Unfiltered	0.17843	0.13236	0.03403
Flicker Index; 1,000 Hz cut-off	0.19322	0.12091	0.03673
Flicker Index; 400 Hz cut-off	0.18836	0.12105	0.03628
Flicker Index; 200 Hz cut-off	0.17702	0.13215	0.03184
Flicker Index; 90 Hz cut-off	0.00083	0.00088	0.00099
Flicker Index; 40 Hz cut-off	0.00065	0.00081	0.00098

## Waveform and Relative Energy Graph



## 4.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF116	AC Power Source	2023/12/16	2024/12/15
DLF516	Power Meter	2023/12/16	2024/12/15
DLF114	Temperature & Humidity Datalogger	2023/12/28	2024/12/27
DLF511	AC Power Source	2023/12/16	2024/12/15
DLF507	DC Power Source	2023/12/16	2024/12/15
DLF119	Power Meter	2023/12/16	2024/12/15
DLF073	Power Analyzer	2024/6/20	2025/6/19
DLF003	Temperature & Humidity Datalogger	2024/6/20	2025/6/19
DLF118	Flash Meter + Oscilloscope	2023/12/16	2024/12/15
	Oscilloscope manufactured by Rohde-schwarz, model RTO1012.	2023/12/16	2024/12/15
	Flash Meter (Photodetector +trans-impedance amplifier) manufactured by LMT, model SF 100. Photodetector rised time is less than 5 $\mu$ s.	2023/12/16	2024/12/15

\*\*\*\*\* End of Test Report\*\*\*\*\*