



TEST REPORT

For

PhotonTek, Inc.

Ewropa Business centre, Level 3-701, Dun Karm Street Birkirkara, BKR 9034, Malta

Model Number:	X 1000W PRO 2.9 277V	
Report Type:	Electrical, Photometric and ISTMT tests according to the following standards and show the compliance to " Testing and Reporting Requirements for LED-based Horticultural Lighting Version 3.0 "	
Standards:	ANSI/IES LM-79-19: Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products ANSI C82.77-10-2014: Harmonic Emission Limits – Related Power Quality Requirements for Lighting ANSI/UL 1598-2008: Standard for Safety of Luminaires	
Project Engineer:	Bay Wang	
Report Number:	RKSB230222001-10	
Sample Size:	One sample was received on 2023-02-22 and used for testing.	
Test Date:	2023-02-22 to 2023-02-25	
Report Date:	2023-03-02	
Reviewed By:	Seven Xia/ EE Engineer	
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan). No. 248 Chenghu Road, Kunshan, Jiangsu, People's Republic of China Tel: +86-0512-86175000 Fax: +86-0512-88934268	

1. Product Information and Description

Product Primary Use: LED Horticultural Lighting
 Voltage and Frequency: 277V, 50/60Hz
 LED#1 Source Manufacturer: DONGGUAN LEDSTAR PHOTOELECTRIC TECHNOLOGY.,LTD
 LED#1 Source Model: **LDR-3030TTB4080-E040KH0**
 LED#2 Source Manufacturer: LUMILEDS
 LED#2 Source Model: **L130-4080HA3000001**
 LED#3 Source Manufacturer: OSRAM Opto Semiconductors (Malaysia) Sdn
 LED#3 Source Model: GH CSSRM4.24
 Driver Model: LDP480T054HE
 With Fans: No
 Rated Ambient Temperature Range: -20°C~+40°C

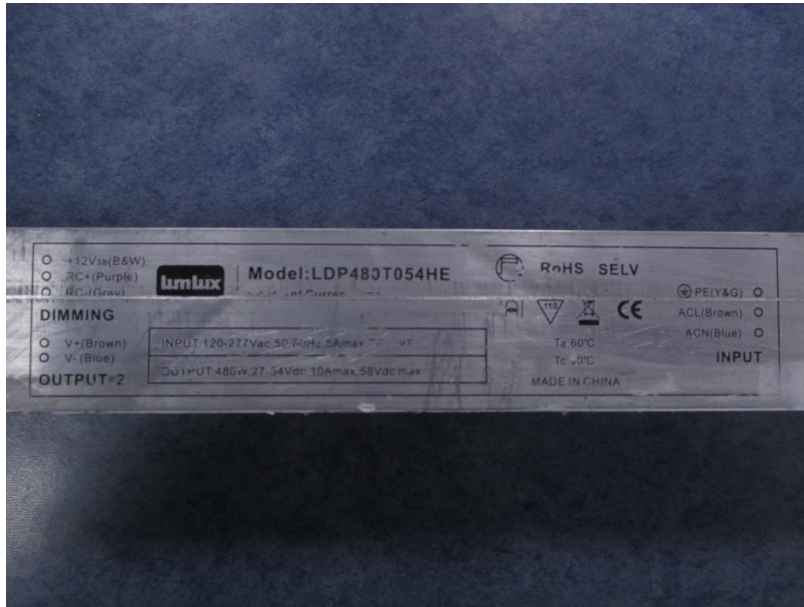
2. Test List

Test Model	Test Item			
	Goniophotometer Test	Integrating Sphere Test	THDi and PF Test	In-Situ Temperature Measurement Test
X 1000W PRO 2.9 277V	Yes	Yes	Yes	Yes

3. Product Photo



LED Driver Photo:



4. SUMMARY OF TEST RESULT

Test Item	Units	Test Result	DLC Requirements	DLC Requirements(With tolerances and/or allowances)	Conclusion
PPF (400-700nm)	μmol/s	2961.87	None.	None.	N/A
PPF (400-500nm)	μmol/s	427.44	None.	None.	N/A
PPF (500-600nm)	μmol/s	1064.80	None.	None.	N/A
PPF (600-700nm)	μmol/s	1469.63	None.	None.	N/A
PPE	μmol/J	2.87	≥2.3μmol/J	≥2.19μmol/J	Pass
Far Red Photon Flux (PFF _{FR})	μmol/s	50.72	None.	None.	N/A
Spectral Quantum Distribution(SQD)	μmol/s/nm	See details below	None.	None.	N/A
PPID	μmol/s/sr	See details below	None.	None.	N/A
PfMP (Hours) for LED _{#1}	(Hours)	>54000	Q ₉₀ ≥36000	Q ₉₀ ≥36000	Pass
PfMP (Hours) for LED _{#2}	(Hours)	54000	Q ₉₀ ≥36000	Q ₉₀ ≥36000	Pass
PfMP (Hours) for LED _{#3}	(Hours)	>102000	Q ₉₀ ≥36000	Q ₉₀ ≥36000	Pass
Driver Lifetime	(Hours)	51000	≥50,000	≥50,000	Pass
Power Factor(PF)	/	0.9654	≥0.9	≥0.87	Pass
THDi	/	4.84%	≤20%	≤25%	Pass

Note:

1. TM-21 calculator is used to calculate the Q₉₀ life. Test data from LM-80 test report of LED light source was used.
2. Driver Lifetime calculation base on the In-situ driver case temperature and driver specification.
3. The DLC requirements were listed according to Requirements for LED-based Horticultural Lighting Version 3.0.
4. The conclusion is for reference only. Test report that indicate product performance meets DLC Technical Requirements do not represent official DLC product qualification. All decisions regarding product qualification are made by the DLC.

5. Test Data

[Integrating Sphere System]

Photometric and Electrical Measurement Result

Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
277.0	60	3.86	1032.49	0.9654	172870.7	167.43

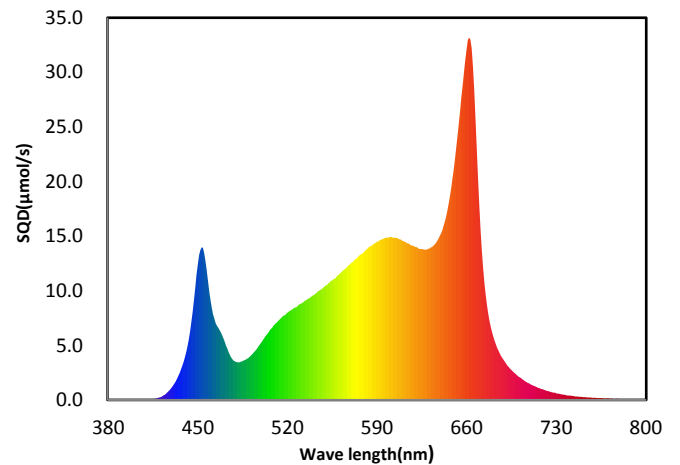
PPF($\mu\text{mol/s}$)	PPE($\mu\text{mol/J}$)	CCT (K)	Duv
2961.87	2.87	3442	-0.00930

Test Voltage(V)	Power Factor	THDi
277	0.9654	4.84%

Color Rendering Index

Ra			
95.0			
R1	R2	R3	R4
96	97	95	93
R5	R6	R7	R8
96	93	95	95
R9	R10	R11	R12
93	93	92	77
R13	R14	R15	
97	97	99	

Spectral quantum distribution (SQD)



[Goniophotometer System]

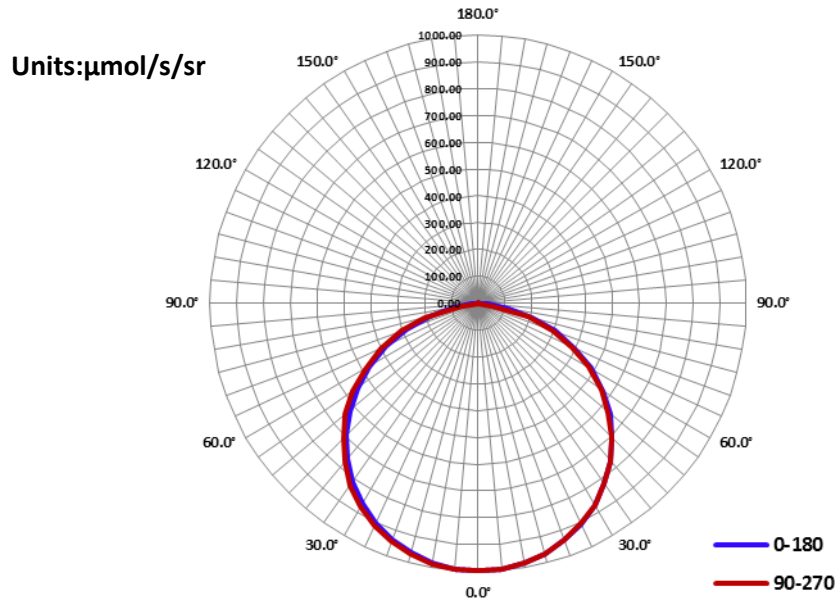
Photometric and Electrical Measurement Result

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
277.0	60	3.8600	1032.49	0.9654

Luminous Flux (lm)	Efficacy (lm/W)	I _{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
172870.7	167.48	58239.3	1.29	1.30

Test Voltage(V)	Power Factor	THDi
277	0.966	4.82%

Photosynthetic Photon Intensity Distribution(PPID)



In-Situ Temperature Measurement Test

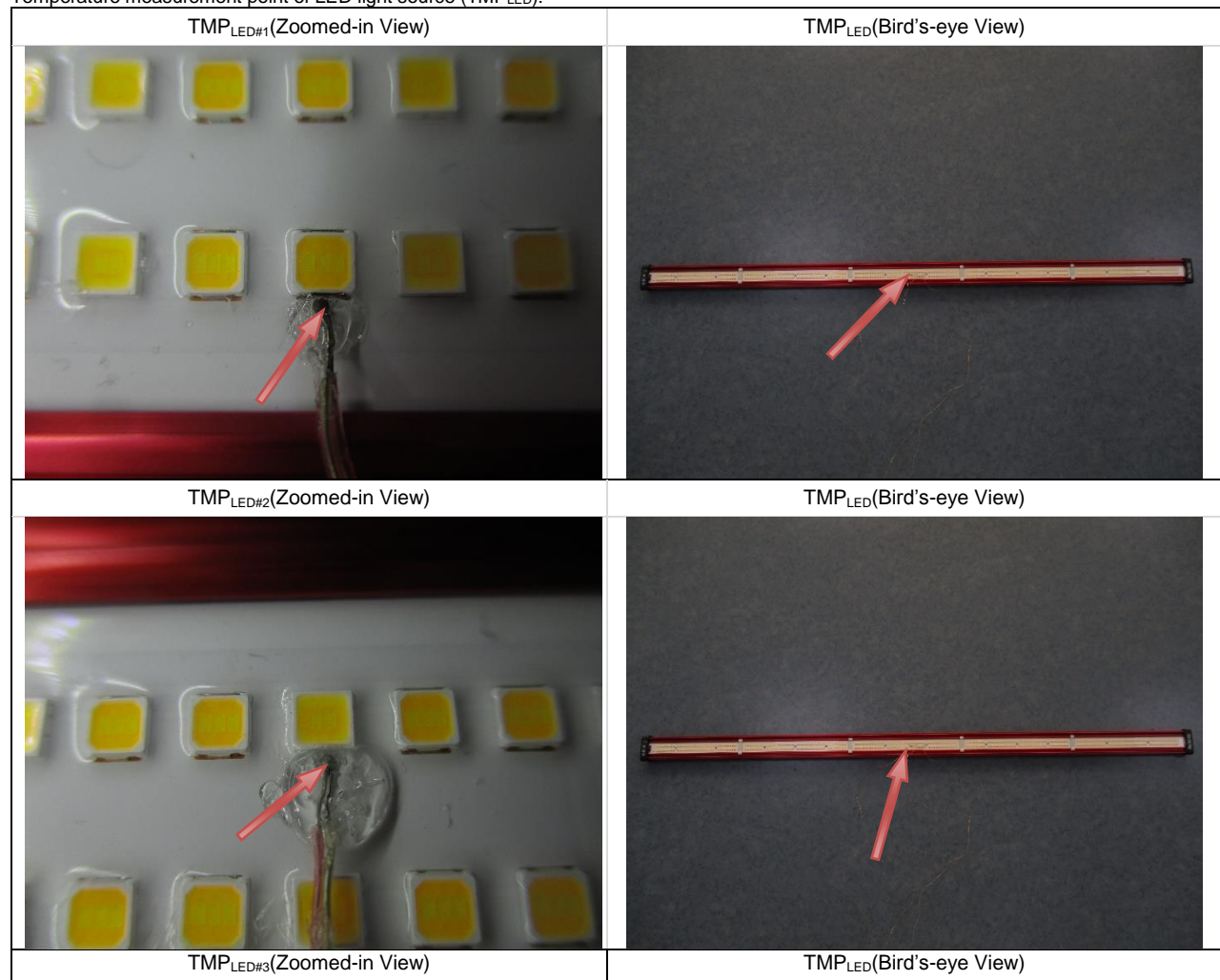
Test Voltage: 277V 60Hz; Ambient temperature: 40° C

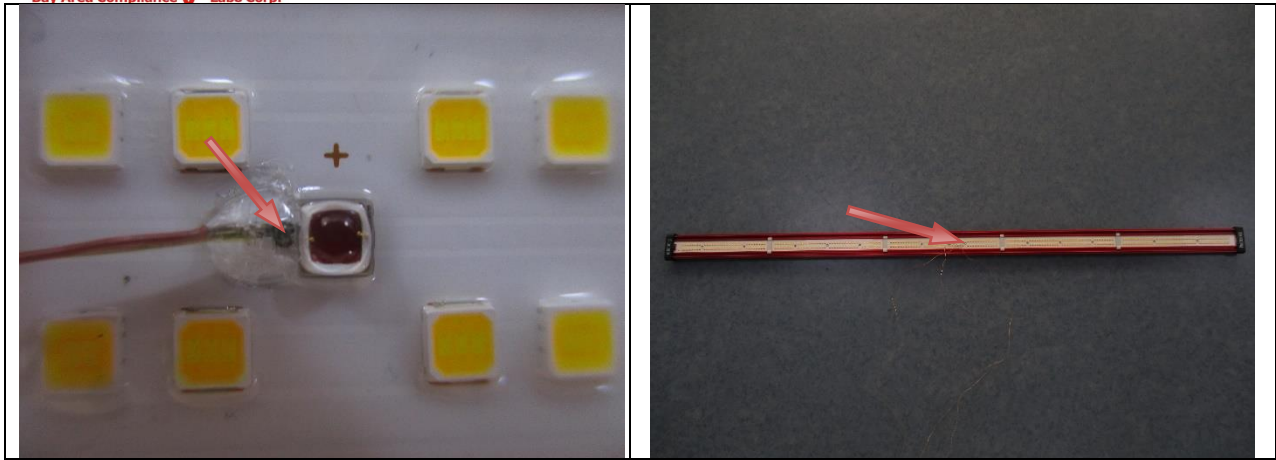
Type of Thermocouples: K; Test Duration: ≥3.5 hours

Test Result:

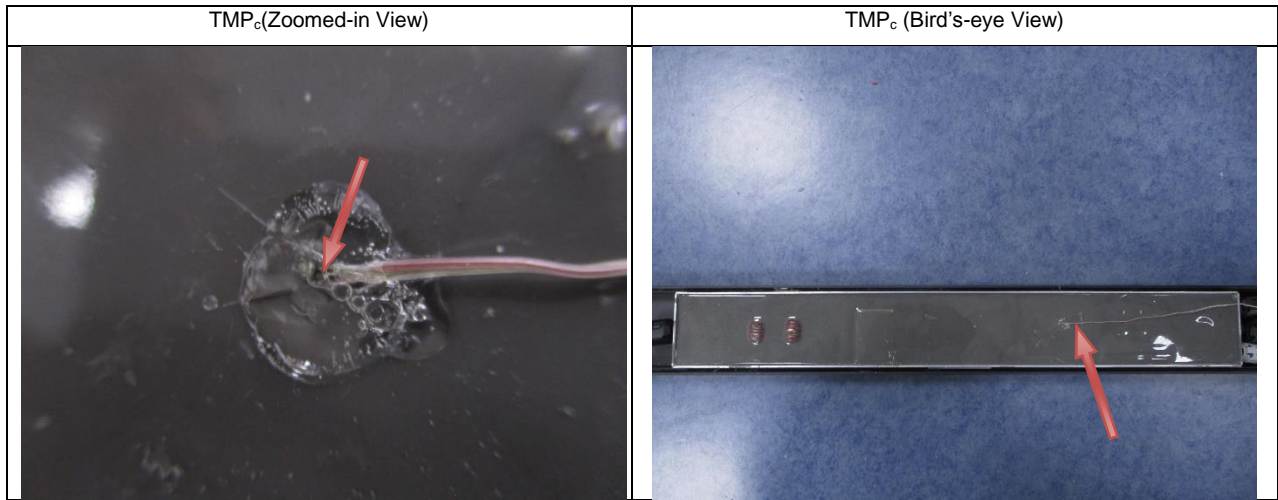
Test Item	Test Result
TMP _{LED#1} (°C)	59.1
TMP _{LED#2} (°C)	59.3
TMP _{LED#3} (°C)	65.6
TMP _c (°C)	74.1
Drive Current/Individual LED source(mA) for LED#1	78.3
Drive Current/Individual LED source(mA) for LED#2	78.3
Drive Current/Individual LED source(mA) for LED#3	626.4

Temperature measurement point of LED light source (TMP_{LED}):





Temperature measurement point of drive (TMPc):



Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
Integrating Sphere	INVENTFINE	Dia 1.5m	JWWCV090112	2022-06-21	2023-06-20
Power Meter	INVENTFINE	WT500	GSJWQ20009	2022-11-03	2023-11-02
Spectral photometer	INVENTFINE	CMS-3S	GSGSE100017	2022-06-21	2023-06-20
AC Power Supply	INVENTFINE	CHP500	JWJSD010071	2022-06-21	2023-06-20
Standard Light Source	Osram	24V/50W	JWWCR020104	2021-09-15	2023-09-14
Thermal Meter	ANYMETRE	TH-20E	N/A	2022-11-11	2023-11-10
DC Power Supply	INVENTFINE	WL3005	JWWCP020069	2022-06-21	2023-06-20
AC Power Supply	INVENTFINE	CHP-5KVA	900511765	2022-06-21	2023-06-20
DC Power Supply	INVENTFINE	WL3010	JWDMP030001	2022-06-21	2023-06-20
Power Meter	INVENTFINE	WT500	GSDSQ200007	2022-11-03	2023-11-02
Goniophotometer	INVENTFINE	GPM-1900	YWGCF120001	2022-11-14	2023-11-13
Wireless Weather Station	ZHONGXING	KG218	N/A	2022-06-21	2023-06-20
Standard Light Source	INVENTFINE	N/A	JWBYR040008	2021-12-23	2023-12-22
Digital Multimeter	FLUKE	115C	37840512WS	2022-06-22	2023-06-21
Hybrid Recorder	YOKOGAWA	DR230	47JH0903	2022-06-22	2023-06-21
Power Supply	SC	SC/BP-11003	1608110030553	2022-06-21	2023-06-20

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Kunshan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

6. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with IES LM-79-19. The ambient temperature of the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ during measurement. And relative humidity is less than 65%. The product was operated in its intended orientation in application during all testing.

Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, Spectroradiometer, and integrating sphere. The integrating sphere system is calibrated by standard spectrum light source before measurement. 4π geometry was used during measurement.

Goniophotometer System

Type C goniophotometer was used for measuring luminous intensity distribution. The vertical angle (γ) test intervals were set no more than 1 degree while data for 5 degree intervals is reported. The horizontal angle (C plane) test intervals were set no more than 22.5 degree.

ISTMT Test

The LED which has the highest temperature was measured at the location of LED case which is specified by LED source manufacturer and detailed by LM-80 report. The drive current of LED package/module/ array was calculated as the total output current of the driver measured by multimeter, divided by the number of branches in parallel of LEDs.

Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk "★"
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