



TEST REPORT

For

PhotonTek, Inc.

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

| | | |
|--------------------------|---|--|
| Model Number: | XT 1000W CO2 PRO 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 2.0 " | |
| Standards: | IES LM-79-08: Approved Method: Electrical & Photometric Measurement 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: | George Yang | |
| Report Number: | RKSB210819001-10 | |
| Sample Size: | One sample was received on 2021-08-19 and used for testing. | |
| Test Date: | 2021-08-20 to 2021-08-21 | |
| Report Date: | 2021-08-26 | |
| Reviewed By: | Seven Xia/ EE Engineer | |
| Prepared By: | Bay Area Compliance Laboratories Corp. (Kunshan). No. 248 Chenghu Road, Kunshan, Jiangsu Province, People's Republic of China Tel: +86-0512-86175000 Fax: +86-0512-88934268 | |

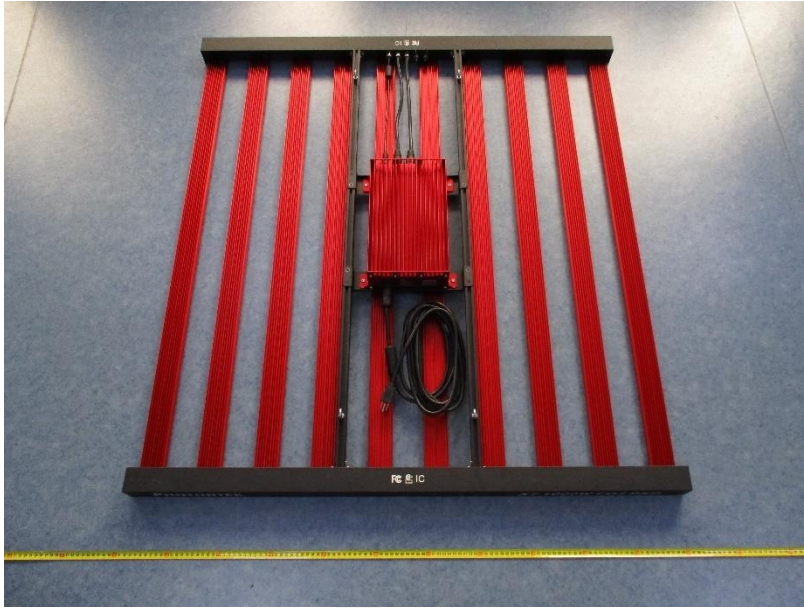
1. Product Information and Description

| | |
|----------------------------------|--|
| Product Primary Use: | Horticultural Lighting |
| Voltage and Frequency: | 277VAC, 60Hz |
| LED#1 Source Manufacturer: | DONGGUAN LEDSTAR PHOTOELECTRIC TECHNOLOGY.,LTD |
| LED#1 Source Model: | LDR-3030TTB4370 |
| LED#2 Source Manufacturer: | OSRAM Opto Semiconductors |
| LED#2 Source Model: | GH CSSRM4.24 |
| Driver Model: | LDP1K0T054HE |
| With Fans: | No |
| Rated Ambient Temperature Range: | -10°C~+40°C |

2. Test List

| Test Model | Test Item | | | |
|-----------------------|----------------------|-------------------------|------------------|--------------------------------------|
| | Goniophotometer Test | Integrating Sphere Test | THDi and PF Test | In-Situ Temperature Measurement Test |
| XT 1000W CO2 PRO 277V | Yes | Yes | Yes | Yes |

3. Product Photo



LED Driver Photo:



FINVA

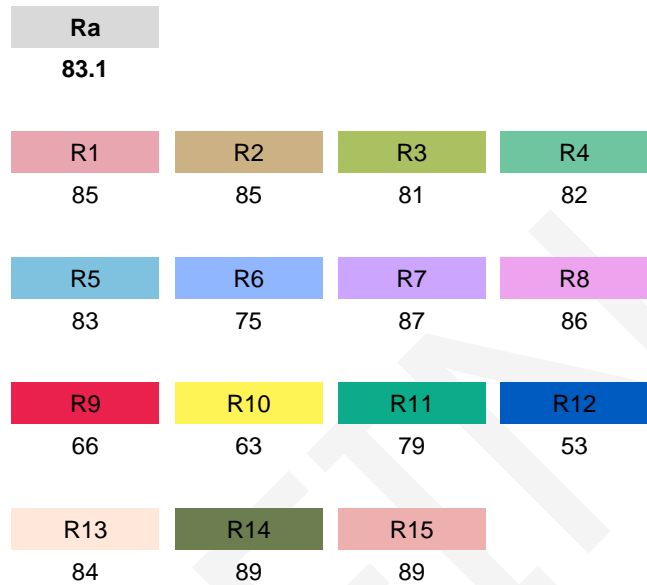
4. Test Result

Photometric and Electrical Measurement Result

| Voltage (V) | Frequency (Hz) | Current (A) | Power (W) | Power Factor | Luminous Flux(lm) | Efficacy (lm/W) |
|-------------|----------------|-------------|-----------|--------------|-------------------|-----------------|
| 277.0 | 60 | 3.856 | 1004.05 | 0.94 | 172032.5 | 171.34 |

| Radiant Flux (W) | CCT (K) | Duv | x | y | u' | v' |
|------------------|---------|----------|--------|--------|--------|--------|
| 590.485 | 3915 | -0.00956 | 0.3774 | 0.3552 | 0.2320 | 0.4912 |

Color Rendering Index



Photosynthetic Photon Measurement Result

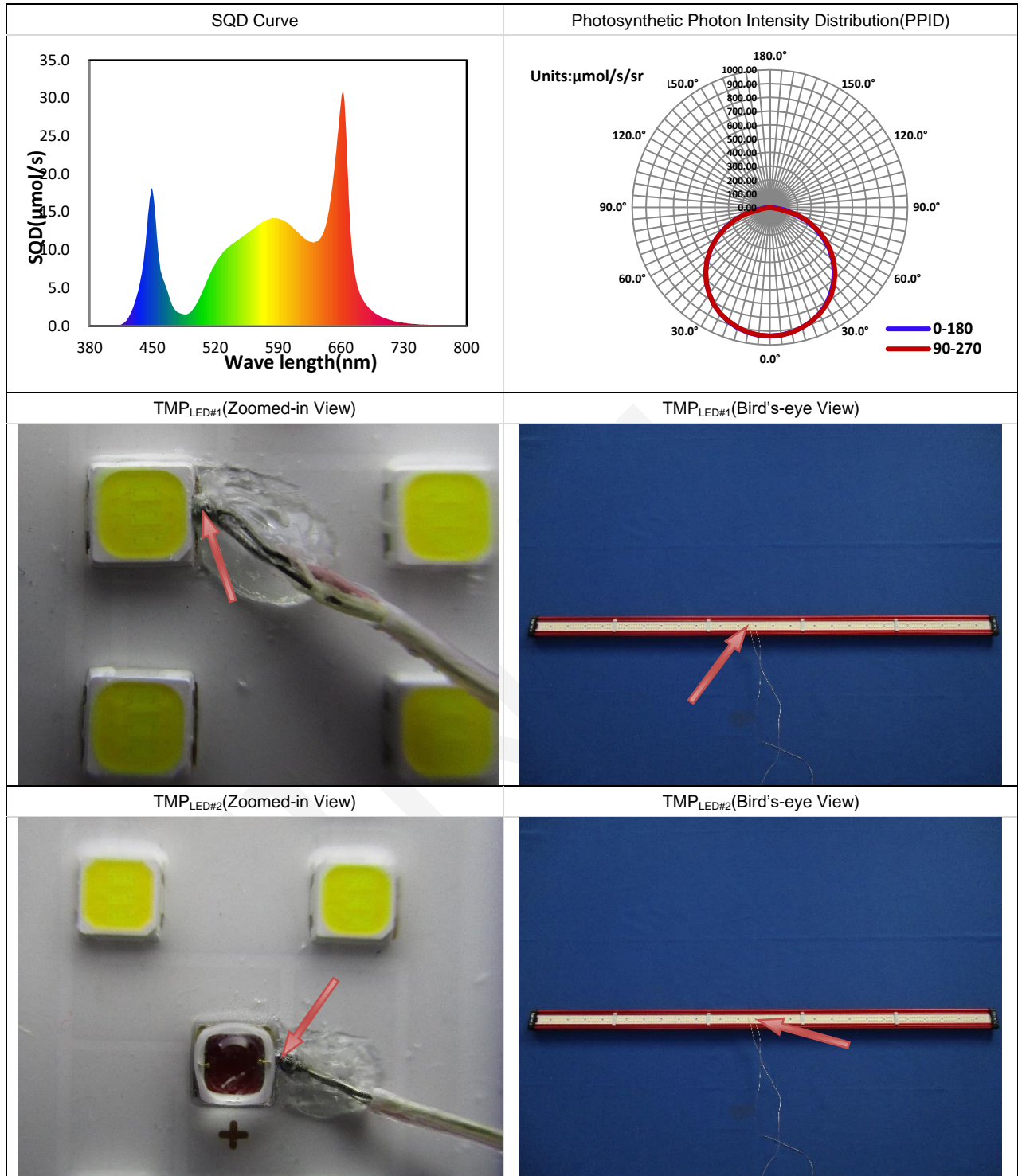
| Test Orientation: Downward; Test Voltage: 277V 60Hz; | | | | | |
|--|--------|-------------|------------------|---|------------|
| Test Item | Units | Test Result | DLC Requirements | DLC Requirements(With tolerances and/or allowances) | Conclusion |
| PPF (400-700nm) | μmol/s | 2787.24 | None. | None. | N/A |
| PPF (400-500nm) | μmol/s | 448.58 | None. | None. | N/A |
| PPF (500-600nm) | μmol/s | 1102.02 | None. | None. | N/A |
| PPF (600-700nm) | μmol/s | 1253.36 | None. | None. | N/A |
| PPE | μmol/J | 2.78 | ≥1.9μmol/J | ≥1.81μmol/J | Pass |
| Far Red Photon Flux (PFR) | μmol/s | 37.12 | None. | None. | N/A |
| PFR/(PPF+PFR) | / | 1.31% | None. | None. | N/A |

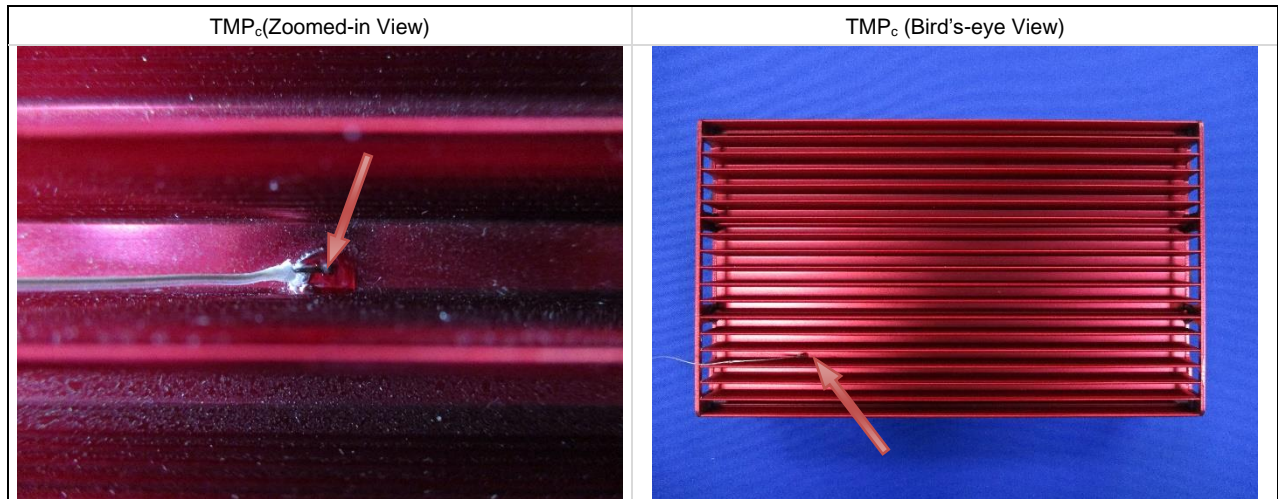
| THDi, PF Test; Orientation: Downward; | | | | | |
|---------------------------------------|--------------|-------------|------------------|---|------------|
| Test Voltage(V) | Test Item | Test Result | DLC Requirements | DLC Requirements(With tolerances and/or allowances) | Conclusion |
| 276.97 | Power Factor | 0.9406 | ≥0.9 | ≥0.87 | Pass |
| 276.97 | THDi | 12.75% | ≤20% | ≤25% | Pass |

| In-Situ Temperature Measurement Test: Test Voltage: 277V 60Hz; Ambient temperature: 40° C | | | | | |
|---|-------------|------------------------|---|------------|--|
| Test Item | Test Result | DLC Requirements | DLC Requirements(With tolerances and/or allowances) | Conclusion | |
| TMP _{LED#1} (°C) | 68.2 | ≤105 | With tolerance of ≤ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance | Pass | |
| TMP _{LED#2} (°C) | 68.1 | ≤105 | With tolerance of ≤ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance | Pass | |
| TMP _c (°C) | 68.1 | ≤85 | With tolerance of ≤ 1.1°C or 0.4%, whichever is greater due to thermocouple tolerance | Pass | |
| Drive Current/Individual LED source(mA) for LED _{#1} | 102.5 | ≤300 | With +5% tolerance | Pass | |
| Drive Current/Individual LED source(mA) for LED _{#2} | 307.6 | ≤1000 | With +5% tolerance | Pass | |
| PfMP (Hours) for LED _{#1} | >54,000 | Q ₉₀ ≥36000 | Q ₉₀ ≥36000 | Pass | |
| PfMP (Hours) for LED _{#2} | >102,000 | Q ₉₀ ≥36000 | Q ₉₀ ≥36000 | Pass | |

Note:

- The test results were measured directly from the test equipment.
- The DLC requirements were listed according to Requirements for LED-based Horticultural Lighting Version 2.0.
- 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.





FINAL

5. Description of Test Equipment

| Device | Manufacture | Model No | Serial No | Calibration date | Calibration due date |
|--------------------------|-------------|-------------|---------------|------------------|----------------------|
| Integrating Sphere | INVENTFINE | Dia 1.5m | JWWCV090112 | 2020-12-23 | 2021-12-22 |
| Power Meter | INVENTFINE | WT500 | GSJWQ20009 | 2021-03-16 | 2022-03-15 |
| Spectral photometer | INVENTFINE | CMS-3S | GSGSE100017 | 2020-12-23 | 2021-12-22 |
| AC Power Supply | INVENTFINE | CHP500 | JWJSD010071 | 2020-11-25 | 2021-11-24 |
| Standard Light Source | INVENTFINE | N/A | JWWCR020105 | 2020-10-20 | 2021-10-19 |
| Thermal Meter | ANYMETRE | TH-20E | N/A | 2020-11-30 | 2021-11-29 |
| DC Power Supply | INVENTFINE | WL3005 | JWWCP020069 | 2020-11-25 | 2021-11-24 |
| AC Power Supply | INVENTFINE | CHP-5KVA | 900511765 | 2020-11-25 | 2021-11-24 |
| DC Power Supply | INVENTFINE | WL3010 | JWDMP030001 | 2020-11-25 | 2021-11-24 |
| Power Meter | INVENTFINE | WT500 | GSDSQ200007 | 2021-03-16 | 2022-03-15 |
| Goniophotometer | INVENTFINE | GPM-1900 | YWGCF120001 | 2020-12-23 | 2021-12-22 |
| Wireless Weather Station | ZHONGXING | KG218 | N/A | 2020-11-27 | 2021-11-26 |
| Standard Light Source | INVENTFINE | N/A | JWBYR040008 | 2020-12-23 | 2021-12-22 |
| Digital Multimeter | FLUKE | 115C | 37840512WS | 2020-10-08 | 2021-10-07 |
| Hybrid Recorder | YOKOGAWA | DR230 | 47JH0903 | 2020-11-25 | 2021-11-24 |
| Power Supply | SC | SC/BP-11003 | 1608110030553 | 2020-11-25 | 2021-11-24 |

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-79-08. 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. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
3. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.
5. This report cannot be reproduced except in full, without prior written approval of the Company.
6. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

*****END OF REPORT*****

FURNIVAL