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Report No: L092212601



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Issue Date: 9/29/2022

Report Prepared For: Grand Master Level
PO Box 423, Qualicum Beach, BC, V9K1S9

Model Number: Master 4 Veg

Test: Photosynthetically active radiation (PAR) & Electrical measurement

Standards Used: Appropriate part or all test guidelines were used for test performed:

IESNA LM79: 2019 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77-10:2014: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with max power output.

Date of Tests: 9/29/22

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

General Information

Manufacturer:	Grand Master LEDs
Model Number:	Master 4 Veg
Driver Model Number:	CUSTOM DRIVER

Photometric, PPF & Electrical Test Results

Total PPF (μmol/s):	1247.10	* 380 - 780nm range
Total PPF (μmol/s):	1224.27	* 400 - 700nm range
Total Radiant Flux(W):	273.81	* 380 - 780nm range
Total Lumens (lm):	85287.88	* 380 - 780nm range
PPF Efficacy (μmol/Joule):	2.53	* 380 - 780nm range
PPF Efficacy (μmol/Joule):	2.48	* 400 - 700nm range
Luminous Efficacy (lm/W):	172.93	
Input Voltage (VAC/60Hz):	240.02	
Input Current (Amp):	2.0691	
Input Power (W):	493.18	
Input Power Factor:	0.9930	
Current ATHD (%):	7.3%	

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	0:50

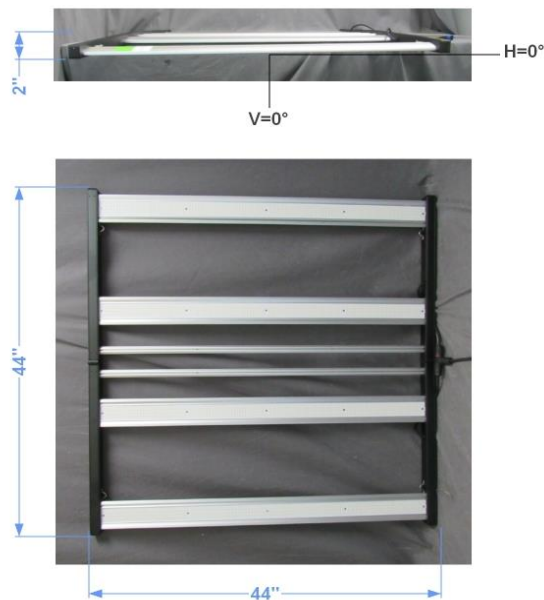
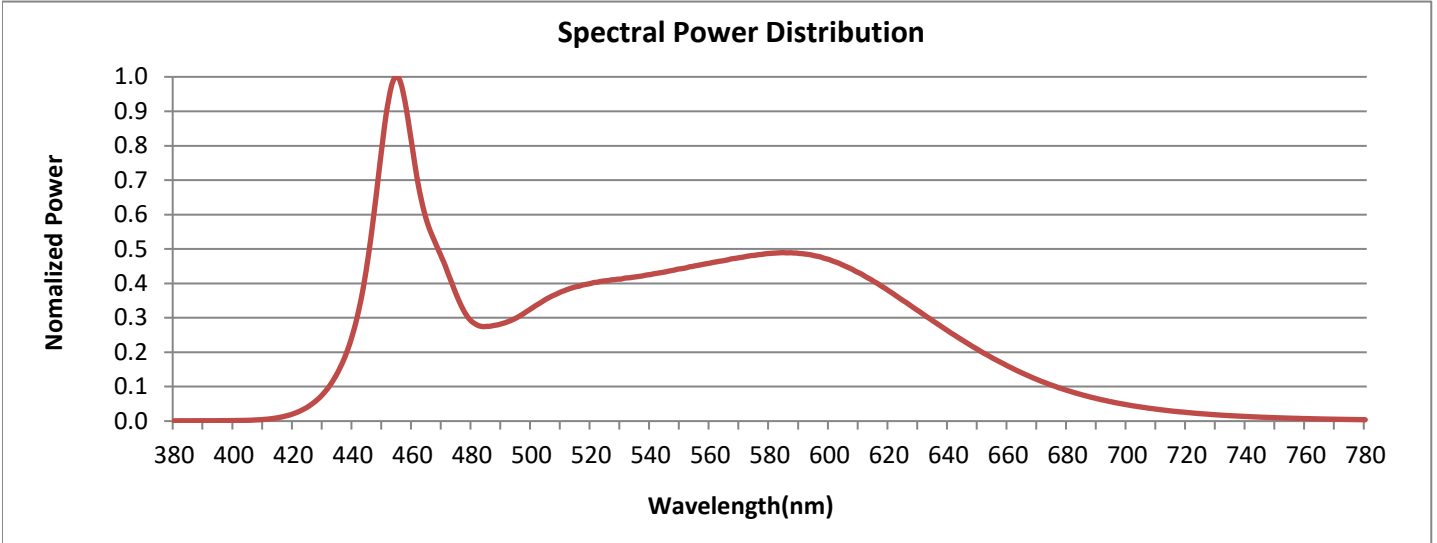


FIG. 1 LUMINAIRE

Colorimetry Test Results

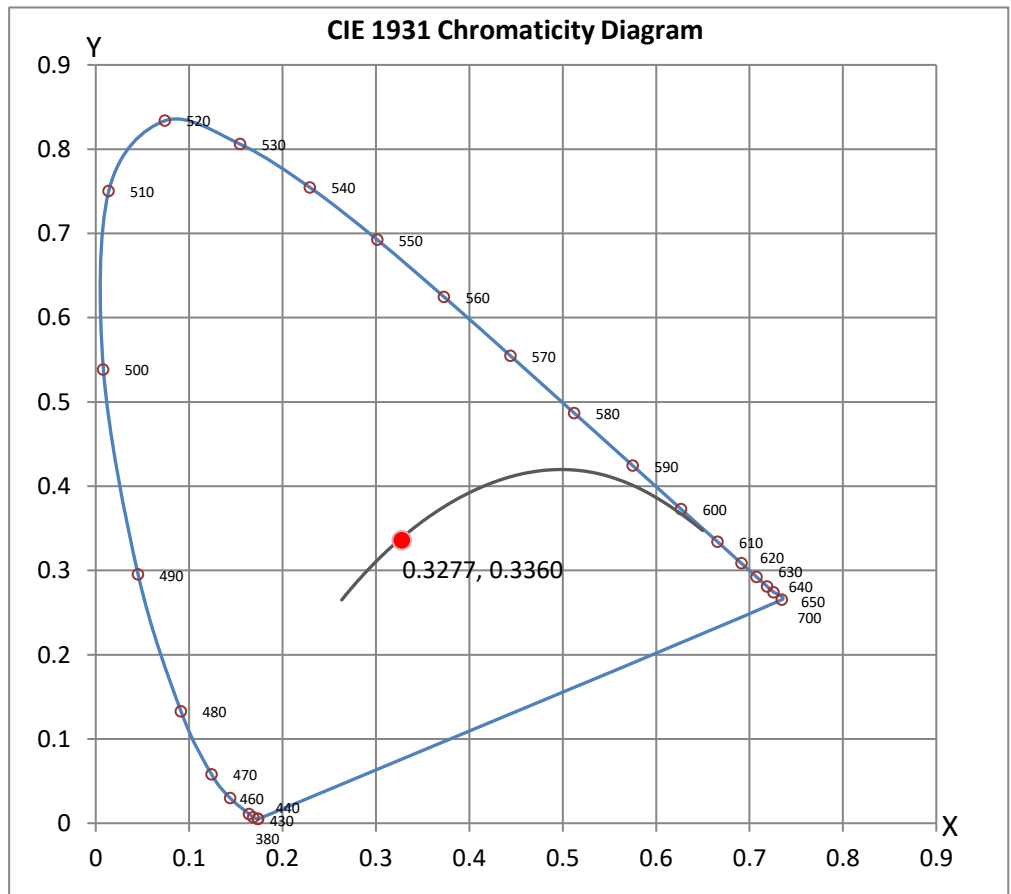


CRI & CCT

x	0.3277
y	0.3360
u'	0.2056
v'	0.4742
CRI	86.00
CCT	5718
Duv	-0.00044

R Values

R1	85.82
R2	94.30
R3	94.71
R4	83.27
R5	85.59
R6	88.92
R7	85.78
R8	69.51
R9	18.56
R10	85.02
R11	83.41
R12	63.51
R13	89.19
R14	97.79
R15	81.57



Test Methods

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

The results related only to the samples as received and tested. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government.

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Test Report Reviewed by:



Steve Kang
Quality Assurance