LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
p. 714.282.2270
f. 714.676.5558

Test #: L08123401
Date: 9/5/2012

NVLAP LAB CODE 200927-0

Test Report: **L08123401**

Model Number: **400A**

Report Prepared For: Hortilume Industries
34654 Nova Drive; Clinton Township MI 48035

Test: Electrical and Photometric tests as required by the IESNA test standards.

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products

Description of Sample: Client submitted the sample. Fixture catalog number is 400A. Received in working and undamaged condition. No modifications were necessary.

Sample Arrival Date: 8/23/12

Date of Tests: 8/31/12 - 8/31/12

Seasoning of Sample SSL: 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-S1	01/04/13
Xitron Power Analysis System	2503AH	MT-EL01	01/09/13
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/13
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

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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LM-79 Test Summary	
Manufacturer:	Hortilume Industries
Model Number:	400A
Total Lumens:	N/A
Input Voltage (VAC):	120.00
Input Current (Amp):	1.42
Input Power (W):	169.70
Input Power Factor:	0.99
Total Harmonic Distortion @ 120V(%):	N/A
Total Harmonic Distortion @ 277V(%):	N/A
Efficacy:	N/A
Color Rendering Index (CRI):	71.39
Correlated Color Temperature (CCT):	N/A
Chromaticity Coordinate x:	0.3723
Chromaticity Coordinate y:	0.1480
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	1:00
Total Operating Time (Hours):	1:30

*Note: Customer requested CRI & CCT test only

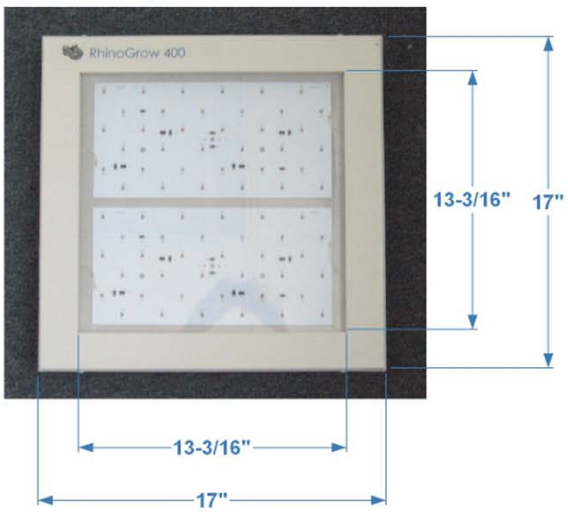

FIG. 1 LUMINAIRE

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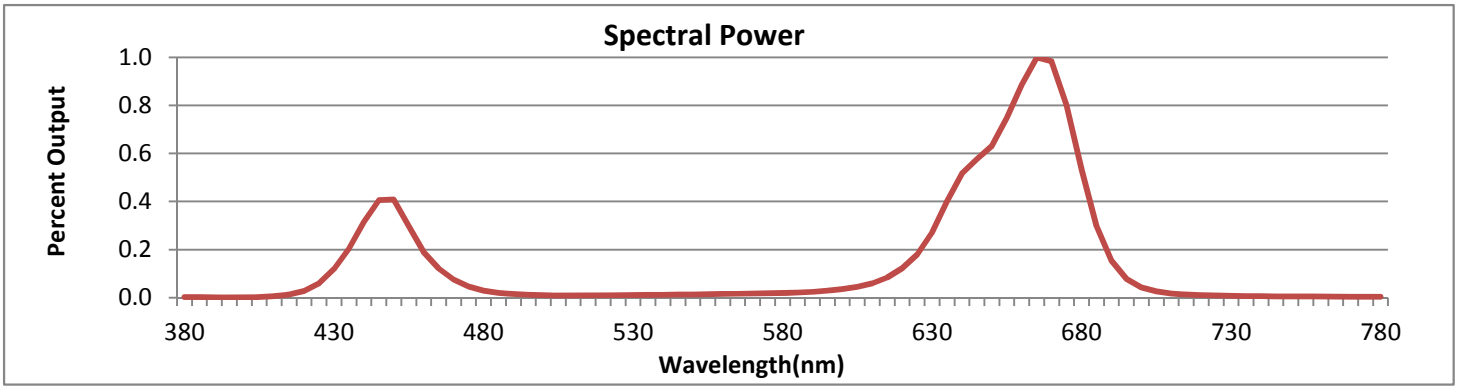


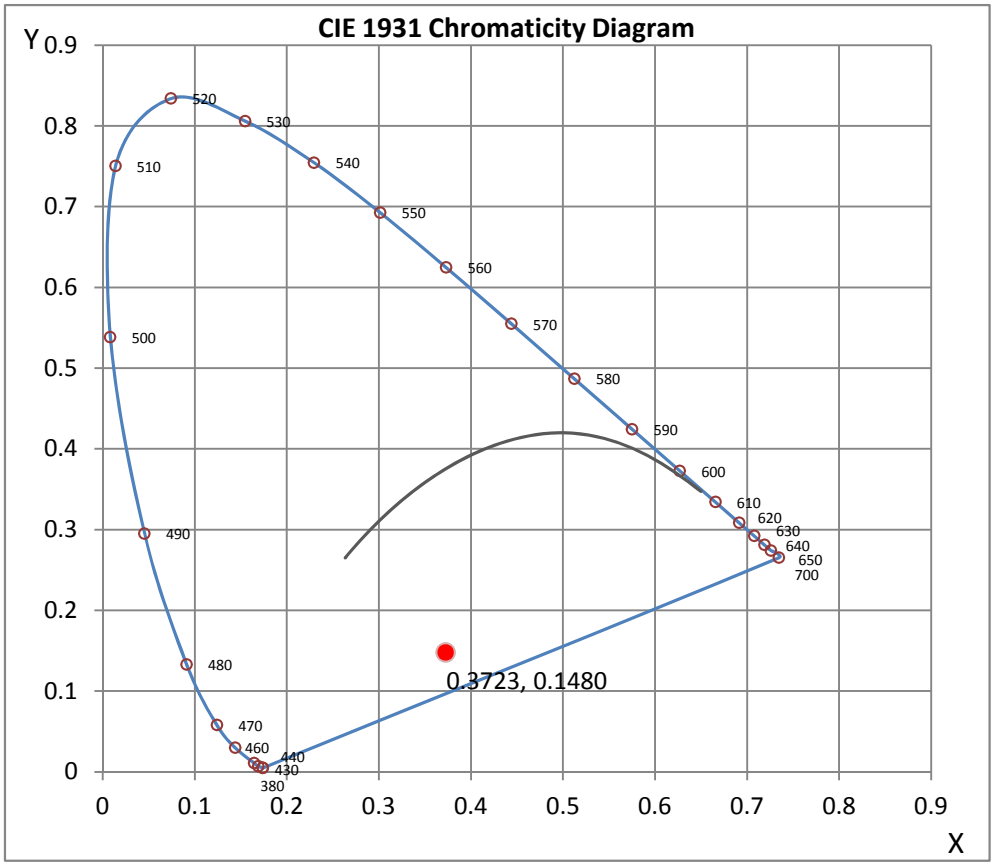
Wavelength	W/m²nm	440	1.7877	510	0.0532	580	0.1118	650	3.5672	720	0.0568
380	0.0107	450	2.3113	520	0.0537	590	0.1364	660	5.0158	730	0.0434
390	0.0053	460	1.0687	530	0.0587	600	0.1987	670	5.5671	740	0.0369
400	0.0080	470	0.4244	540	0.0677	610	0.3391	680	3.0091	750	0.0267
410	0.0317	480	0.1649	550	0.0746	620	0.6877	690	0.8715	760	0.0247
420	0.1554	490	0.0823	560	0.0852	630	1.5308	700	0.2373	770	0.0188
430	0.6723	500	0.0581	570	0.0977	640	2.9205	710	0.0946	780	0.0172

CRI & CCT

x	0.3723
y	0.1480
u'	0.3694
v'	0.3304
CRI	71.39
CCT	0
Duv	-0.03440

R Values

R1	72.44
R2	73.49
R3	70.26
R4	74.04
R5	72.65
R6	63.06
R7	78.77
R8	66.43
R9	-10.63
R10	33.61
R11	71.88
R12	38.78
R13	71.18
R14	82.86



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Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

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.

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.

Test Report Released by:

Joseph Shin
Engineering Manager

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 4*

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