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Test #: S01130101

Date: 1/1/2013



NVLAP LAB CODE 200927-0

Test Report: S01130101

Model Number: LUMINAIRE CATALOG NUMBER

Report Prepared For: MANUFACTURE NAME
 8165 E. KAISER BLVD, ANAHEIM, CA 92808

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 LUMINAIRE CATALOG NUMBER. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 1/1/13

Date of Tests: 1/1/13 - 1/1/13

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	01/04/14
Xitron Power Analysis System	2503AH	MT-EL01	01/09/14
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/14
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.

LM-79 Test Summary

Manufacturer:	MANUFACTURE NAME
Model Number:	LUMINAIRE CATALOG NUMBER
LAMPCAT:	N/A
Driver Model Number:	LED DRIVER CATALOG NUMBER
Total Lumens:	2326.00
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.43
Input Power (W):	51.86
Input Power Factor:	0.9930
Total Harmonic Distortion @ 120V(%):	8.6%
Total Harmonic Distortion @ 277V(%):	N/A
Efficacy:	44.85
Color Rendering Index (CRI):	80.80
Correlated Color Temperature (K):	2992
Chromaticity Coordinate x:	0.4376
Chromaticity Coordinate y:	0.4043
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	1:55
Total Operating Time (Hours):	2:40
Off State Power(W):	0.00

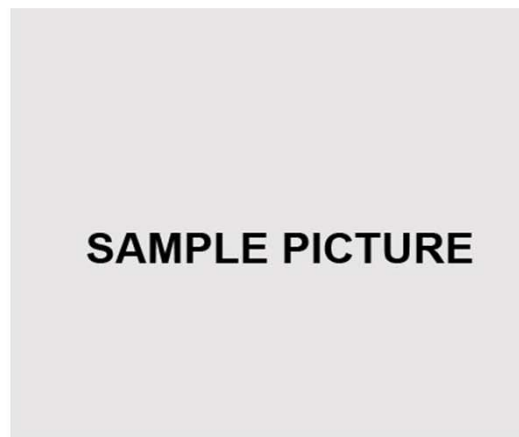
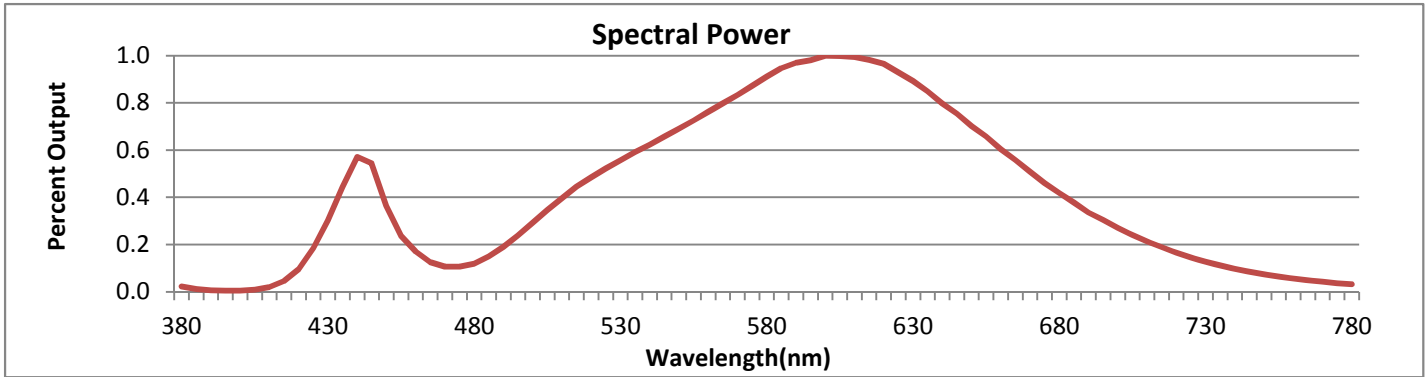


FIG. 1 LUMINAIRE

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



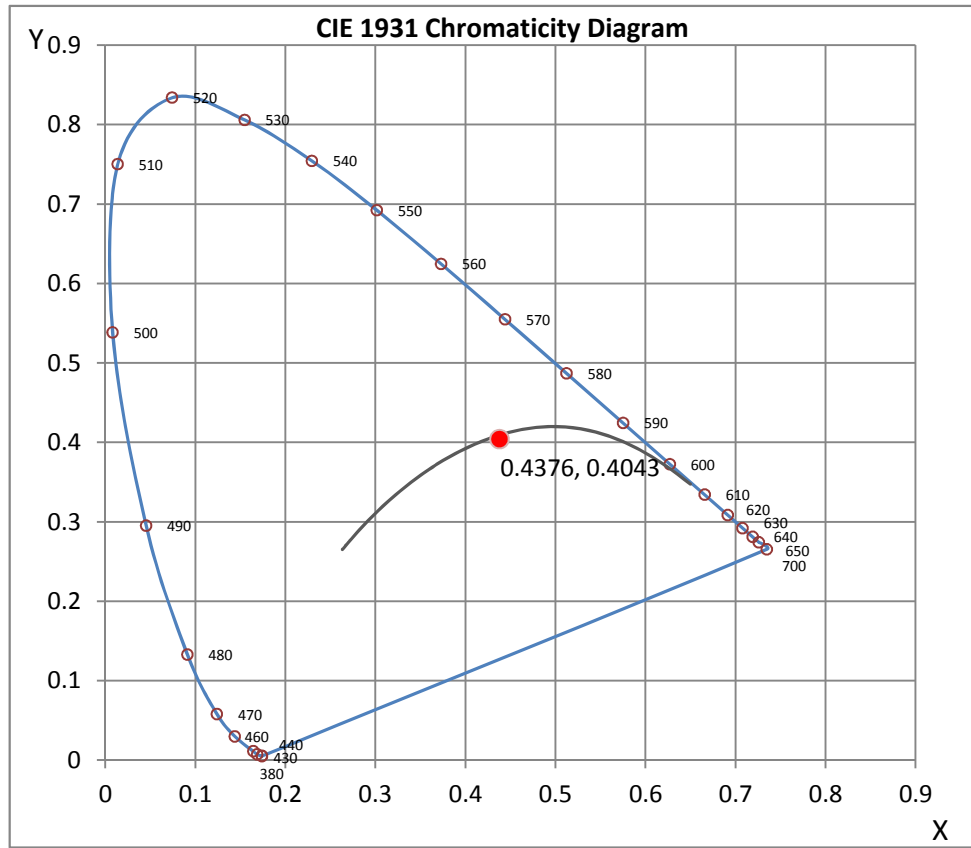
Wavelength	W/m ² nm	440	0.1081	510	0.0752	580	0.1726	650	0.1328	720	0.0313
380	0.0041	450	0.0688	520	0.0918	590	0.1838	660	0.1145	730	0.0241
390	0.0012	460	0.0322	530	0.1055	600	0.1894	670	0.0965	740	0.0184
400	0.0009	470	0.0200	540	0.1180	610	0.1884	680	0.0792	750	0.0140
410	0.0038	480	0.0226	550	0.1308	620	0.1830	690	0.0636	760	0.0107
420	0.0180	490	0.0360	560	0.1445	630	0.1690	700	0.0511	770	0.0080
430	0.0572	500	0.0553	570	0.1579	640	0.1512	710	0.0405	780	0.0061

CRI & CCT

x	0.4376
y	0.4043
u'	0.2509
v'	0.5216
CRI	80.80
CCT	2992
Duv	0.00000

R Values

R1	79.46
R2	85.88
R3	91.58
R4	80.84
R5	78.43
R6	80.69
R7	85.07
R8	64.63
R9	16.35
R10	67.32
R11	79.38
R12	64.36
R13	80.57
R14	94.72



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

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:



Jeff Ahn
Engineering Manager

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 8*

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Photometric Test Report

IES FLOOD REPORT
PHOTOMETRIC FILENAME : LED-FLOOD-SAMPLE.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] S01130101
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 1/1/2013
[MANUFAC] MANUFACTURE NAME
[LUMCAT] LUMINAIRE CATALOG NUMBER
[LUMINAIRE] LUMINAIRE SIZE & DESCRIPTION
[BALLASTCAT] LED DRIVER CATALOG NUMBER
[BALLAST] ELECTRICAL PROPERTIES OF THE DRIVER
[LAMPPOSITION] 0,0
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[_INPUT] 120VAC, 51.86W
[_TEST PROCEDURE] IESNA:LM-79-08

Note: Candela values converted from Type-C to Type-B

CHARACTERISTICS

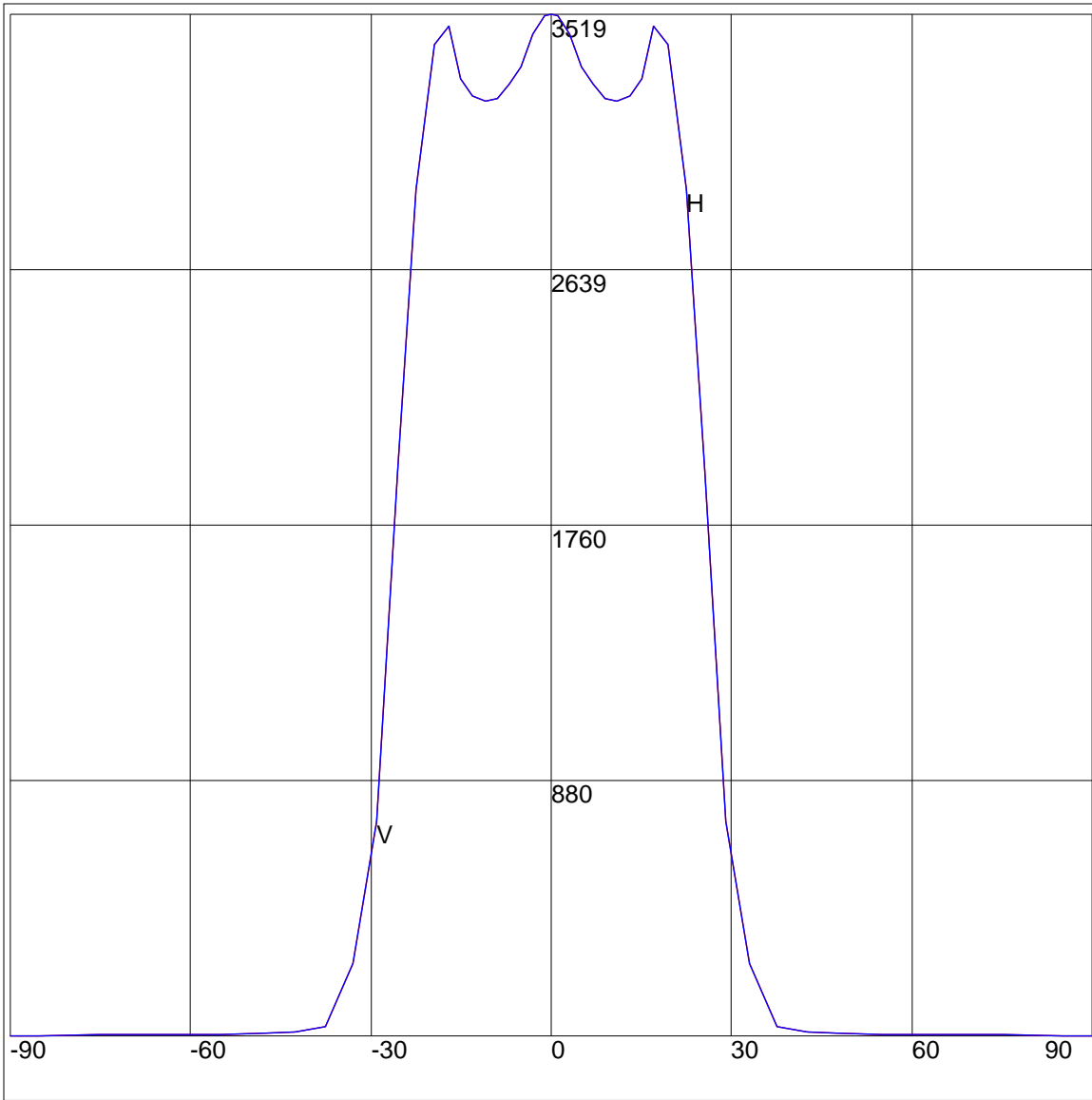
NEMA Type	4 H x 4 V
Maximum Candela	3519
Maximum Candela Angle	0H 0V
Horizontal Beam Angle (50%)	52.1
Vertical Beam Angle (50%)	52.1
Horizontal Field Angle (10%)	64.3
Vertical Field Angle (10%)	64.3
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	1932
Beam Efficiency	N.A.
Field Lumens	2235
Field Efficiency	N.A.
Spill Lumens	91
Luminaire Lumens	2326
Total Efficiency	N.A.
Total Luminaire Watts	51.86
Ballast Factor	1.00

IES FLOOD REPORT
PHOTOMETRIC FILENAME : LED-FLOOD-SAMPLE.IES

AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	0	85	0
75	6	75	6
65	7	65	7
55	8	55	8
47.5	11	47.5	11
42.5	15	42.5	15
37.5	32	37.5	32
33	250	33	250
29	741	29	741
25.5	1945	25.5	1945
22.5	2915	22.5	2915
19.5	3417	19.5	3417
17	3480	17	3480
15	3296	15	3296
13	3238	13	3238
11	3219	11	3219
9	3230	9	3230
7	3278	7	3278
5	3336	5	3336
3	3453	3	3453
1	3516	1	3516
0	3519	0	3519
-1	3516	-1	3516
-3	3453	-3	3453
-5	3336	-5	3336
-7	3278	-7	3278
-9	3230	-9	3230
-11	3219	-11	3219
-13	3238	-13	3238
-15	3296	-15	3296
-17	3480	-17	3480
-19.5	3417	-19.5	3417
-22.5	2915	-22.5	2915
-25.5	1945	-25.5	1945
-29	741	-29	741
-33	250	-33	250
-37.5	32	-37.5	32
-42.5	15	-42.5	15
-47.5	11	-47.5	11
-55	8	-55	8
-65	7	-65	7
-75	6	-75	6
-85	0	-85	0
-90	0	-90	0

AXIAL CANDELA DISPLAY

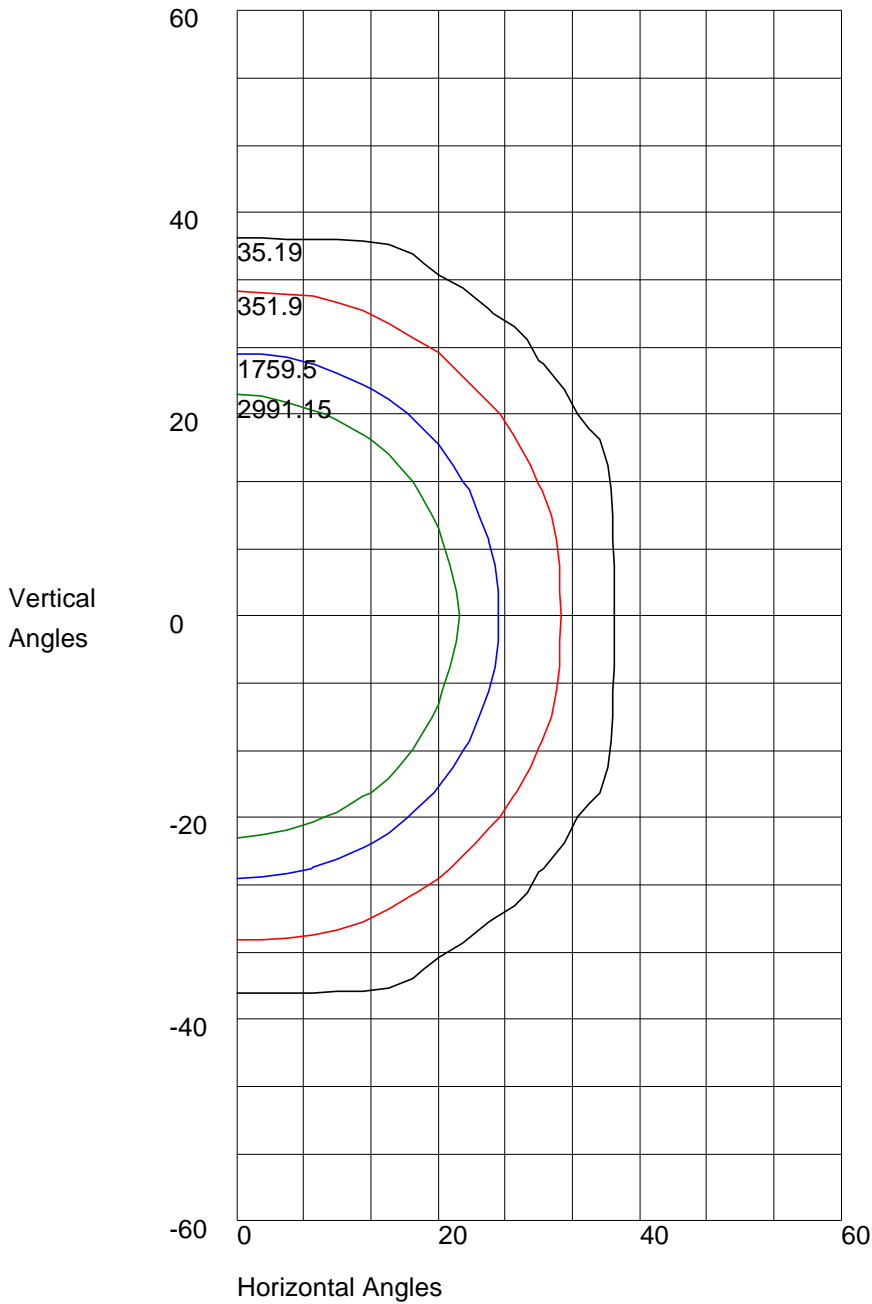


Maximum Candela = 3519 Located At Horizontal Angle = 0, Vertical Angle = 0

H - Horizontal Axial Candela

V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 3519 Located At Horizontal Angle = 0, Vertical Angle = 0
50% Maximum Candela = 1759.5
10% Maximum Candela = 351.9