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Test #: L061402511R01

Date: 7/2/2014



NVLAP LAB CODE 200927-0

Test Report: L061402511R01

Model Number: LED MV120V R30 14W 5K NFL

Report Prepared For: Moon Visions Lighting
 780 S. Floyd Rd., Suite 2B, Richardson, TX 75080

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
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Fixture catalog number is LED MV120V R30 14W 5K NFL .
 Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 5/16/14

Date of Tests: 6/4/14 - 6/9/14

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	01/04/15
Xitron Power Analysis System	2503AH	MT-EL01	01/09/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/15
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/15
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:	Moon Visions Lighting
Model Number:	LED MV120V R30 14W 5K NFL
LAMPCAT:	N/A
Driver Model Number:	N/A
Total Lumens:	1406.58
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.13
Input Power (W):	13.86
Input Power Factor:	0.91
Total Harmonic Distortion @ 120V(%):	11%
Total Harmonic Distortion @ 277V(%):	N/A
Efficacy:	102
Color Rendering Index (CRI):	84
Correlated Color Temperature (K):	5232
Chromaticity Coordinate x:	0.3391
Chromaticity Coordinate y:	0.3511
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:35
Off State Power(W):	0.00

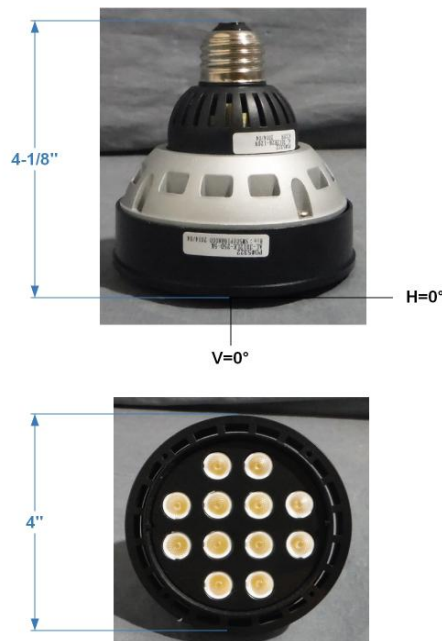
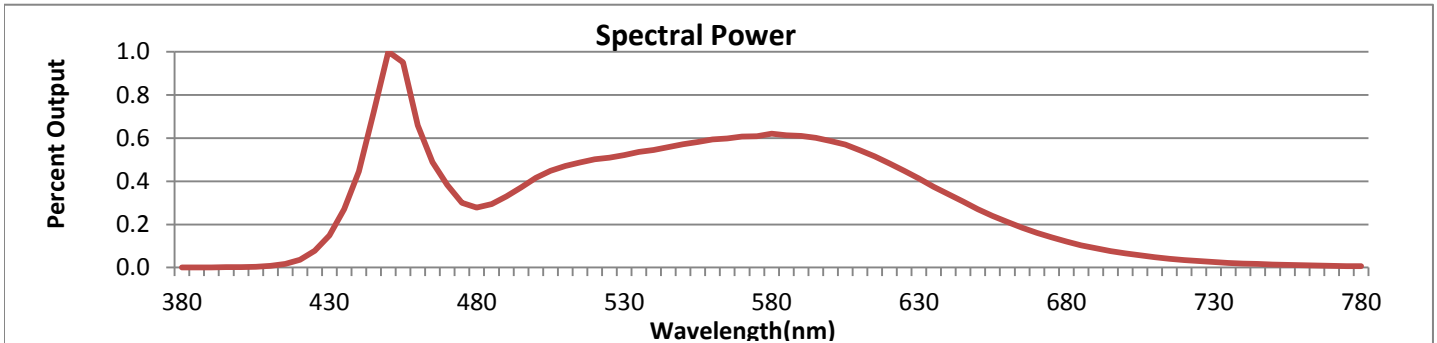


FIG.1 LUMINAIRE

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



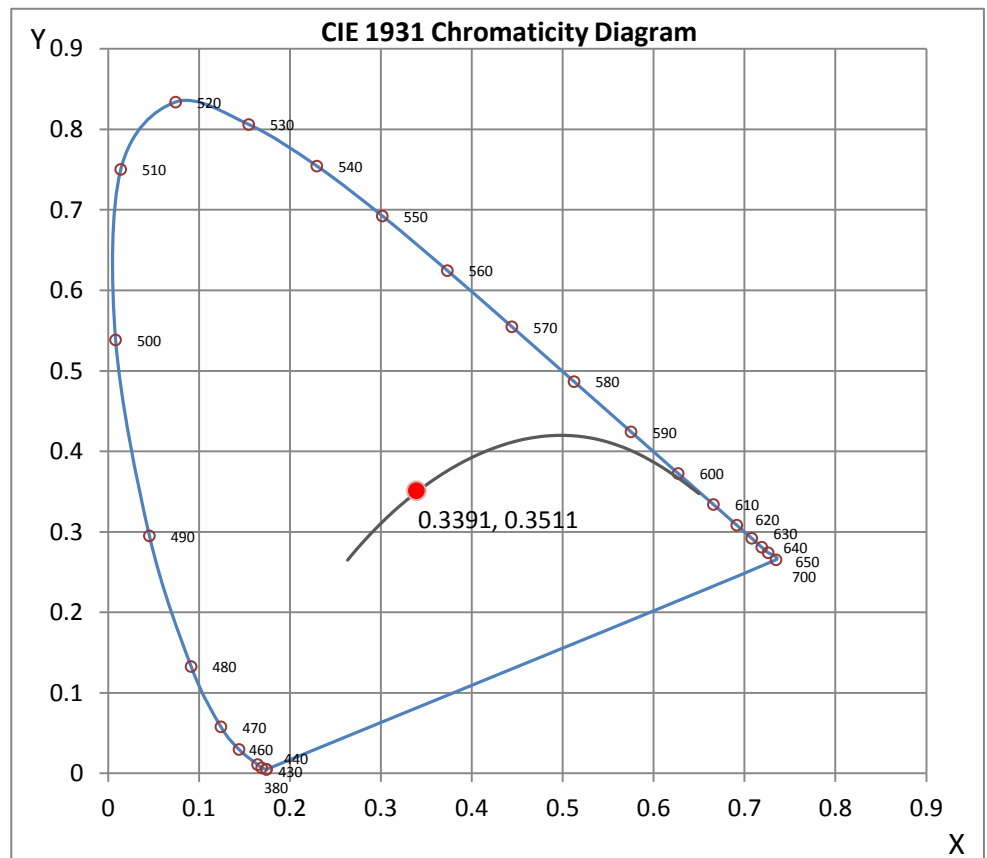
Wavelength	W/m ² nm	440	0.0136	510	0.0144	580	0.0189	650	0.0083	720	0.0011
380	0.0000	450	0.0305	520	0.0153	590	0.0186	660	0.0064	730	0.0008
390	0.0000	460	0.0201	530	0.0159	600	0.0179	670	0.0049	740	0.0006
400	0.0001	470	0.0117	540	0.0166	610	0.0166	680	0.0037	750	0.0004
410	0.0002	480	0.0085	550	0.0174	620	0.0147	690	0.0027	760	0.0003
420	0.0011	490	0.0100	560	0.0181	630	0.0126	700	0.0020	770	0.0002
430	0.0046	500	0.0127	570	0.0185	640	0.0104	710	0.0015	780	0.0002

CRI & CCT

x	0.3391
y	0.3511
u'	0.2076
v'	0.4835
CRI	83.70
CCT	5232
Duv	0.00223

R Values

R1	81.86
R2	89.49
R3	94.00
R4	83.04
R5	82.70
R6	84.74
R7	86.71
R8	66.97
R9	7.09
R10	74.86
R11	82.56
R12	64.04
R13	84.01
R14	96.75



*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.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Wilson Khounlavong

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 : L061402511R01.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L061402511R01
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 7/2/2014
 [MANUFAC] MOON VISIONS LIGHTING
 [LUMCAT] LED MV120V R30 14W 5K NFL
 [LUMINAIRE] 4"DIA. X 4-1/8"H. LED LAMP
 [MORE] NO LENS
 [LAMPPOSITION] 0,0
 [LAMPCAT] N/A
 [OTHER] CANDELA AND ELECTRICAL VALUES ARE FROM
 [MORE] LIGHT LABORATORY TEST L051409116R01
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120VAC, 13.86W
 [TEST PROCEDURE] IESNA:LM-79-08

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

CHARACTERISTICS

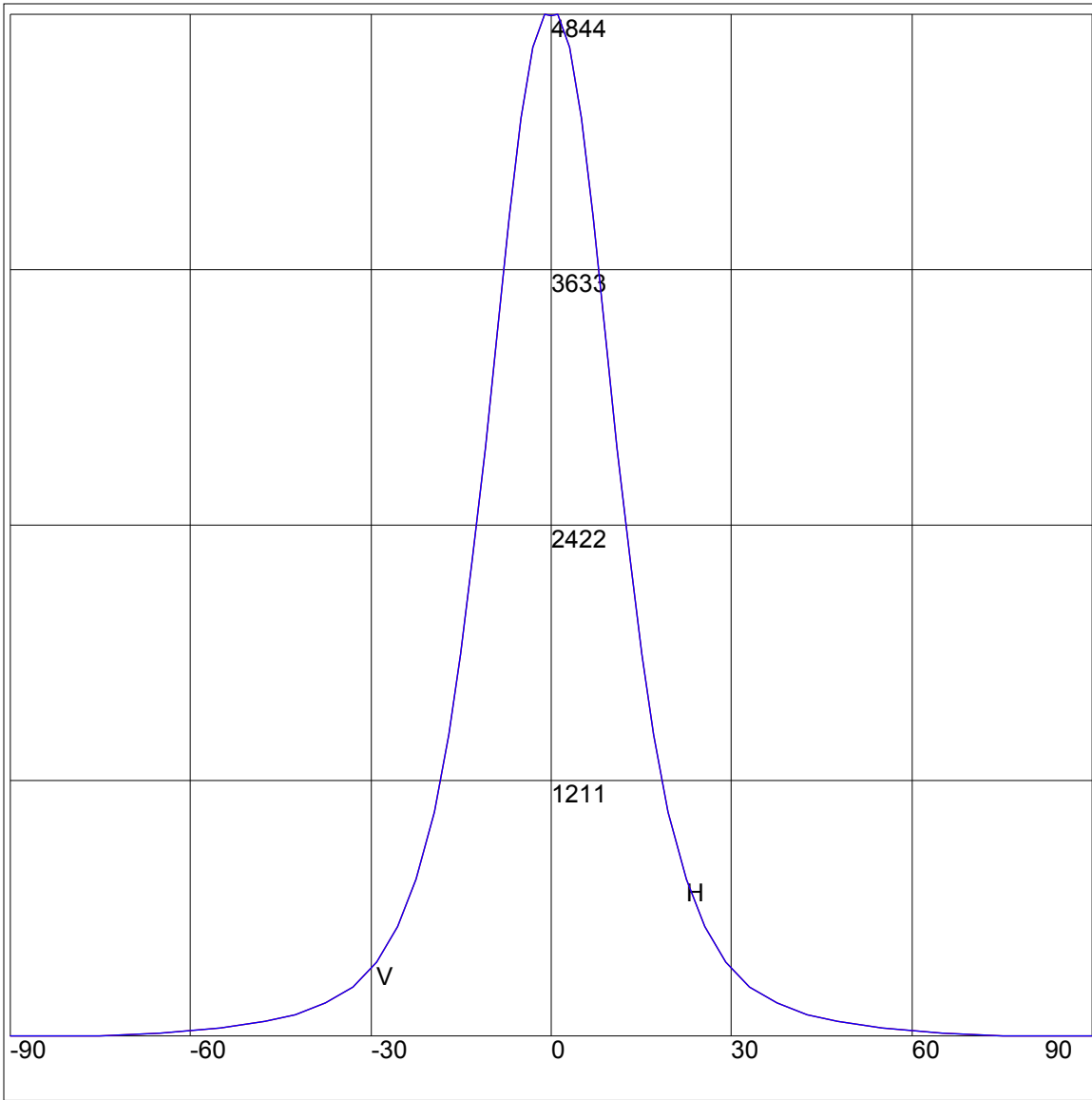
NEMA Type	4 H x 4 V
Maximum Candela	4844
Maximum Candela Angle	-1H 0V
Horizontal Beam Angle (50%)	24.8
Vertical Beam Angle (50%)	24.8
Horizontal Field Angle (10%)	52.6
Vertical Field Angle (10%)	52.6
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	510
Beam Efficiency	N.A.
Field Lumens	1068
Field Efficiency	N.A.
Spill Lumens	338
Luminaire Lumens	1407
Total Efficiency	N.A.
Total Luminaire Watts	13.86
Ballast Factor	1.00

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L061402511R01.IES

AXIAL CANDELA

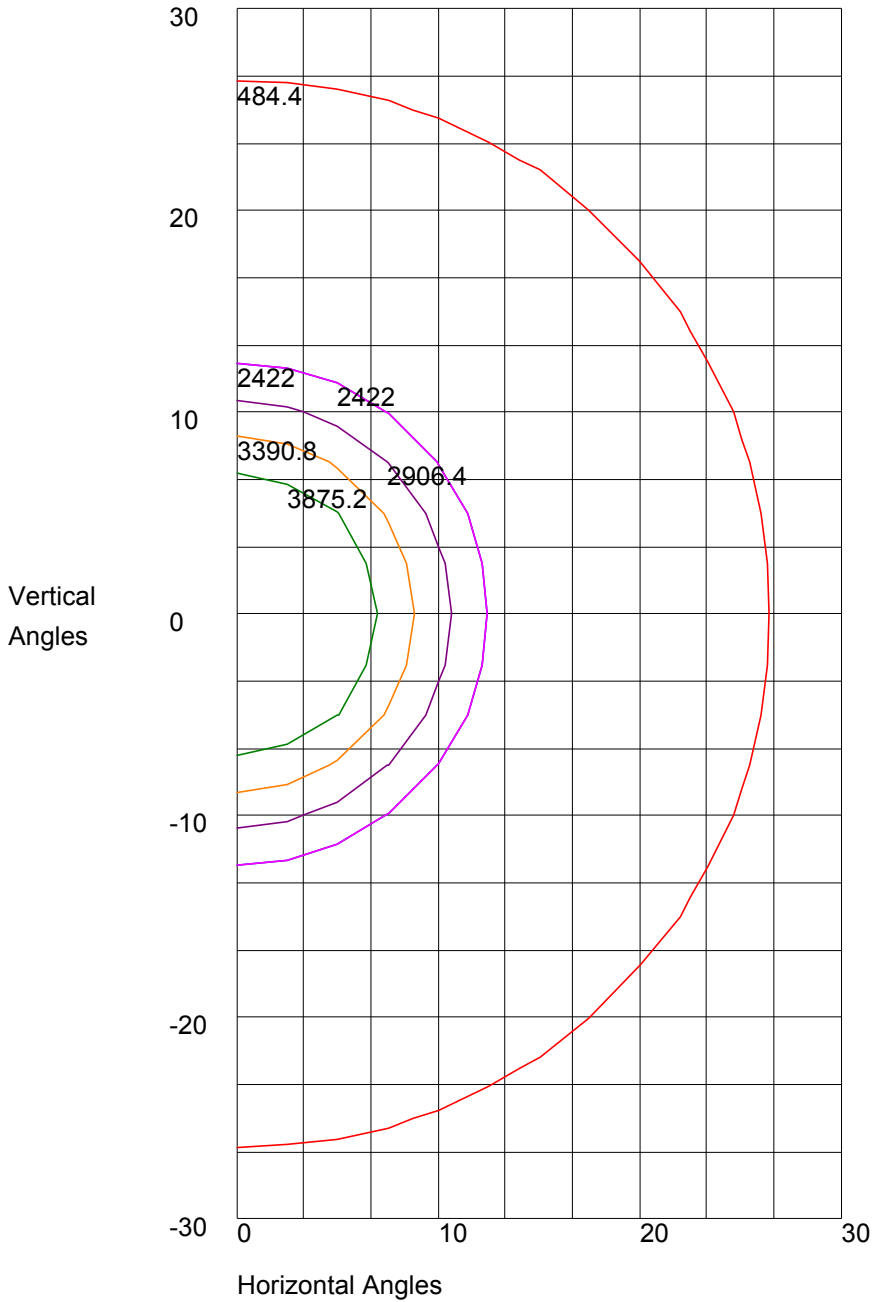
DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	0	85	0
75	5	75	5
65	17	65	17
55	40	55	40
47.5	71	47.5	71
42.5	104	42.5	104
37.5	156	37.5	156
33	234	33	234
29	353	29	353
25.5	523	25.5	523
22.5	744	22.5	744
19.5	1064	19.5	1064
17	1434	17	1434
15	1814	15	1814
13	2269	13	2269
11	2793	11	2793
9	3343	9	3343
7	3884	7	3884
5	4351	5	4351
3	4690	3	4690
1	4844	1	4844
0	4836	0	4836
-1	4844	-1	4844
-3	4690	-3	4690
-5	4351	-5	4351
-7	3884	-7	3884
-9	3343	-9	3343
-11	2793	-11	2793
-13	2269	-13	2269
-15	1814	-15	1814
-17	1434	-17	1434
-19.5	1064	-19.5	1064
-22.5	744	-22.5	744
-25.5	523	-25.5	523
-29	353	-29	353
-33	234	-33	234
-37.5	156	-37.5	156
-42.5	104	-42.5	104
-47.5	71	-47.5	71
-55	40	-55	40
-65	17	-65	17
-75	5	-75	5
-85	0	-85	0
-90	0	-90	0

AXIAL CANDELA DISPLAY



Maximum Candela = 4844 Located At Horizontal Angle = -1, Vertical Angle = 0
H - Horizontal Axial Candela
V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 4844 Located At Horizontal Angle = -1, Vertical Angle = 0
50% Maximum Candela = 2422
10% Maximum Candela = 484.4