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Report No: L051503012

Date: 5/22/2015



NVLAP LAB CODE 200927-0

**Report No:** L051503012

**Report Prepared For:** USTE, dba Vista Professional Outdoor Lighting  
 1625 Surveyor Ave., Simi Valley CA 93063

**Model Number:** 3106-X-4.5-W-WF

**Test:** Electrical and Photometric tests

**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. Catalog number is 3106-X-4.5-W-WF. Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 5/15/15

**Date of Tests:** 5/21/15 - 5/21/15

**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-S1	11/10/15
Xitron Power Analysis System	2503AH	MT-EL01	10/20/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/05/16
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.

**Test Summary**

<b>Manufacturer:</b>	USTE, dba Vista Professional Outdoor I
<b>Model Number:</b>	3106-X-4.5-W-WF
<b>Driver Model Number:</b>	N/A
<b>Total Lumens:</b>	331.82
<b>Input Voltage (VAC/60Hz):</b>	12.00
<b>Input Current (Amp):</b>	0.38
<b>Input Power (W):</b>	4.09
<b>Input Power Factor:</b>	0.89
<b>Current ATHD @ 12V(%):</b>	39%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	81
<b>Color Rendering Index (CRI):</b>	83
<b>Correlated Color Temperature (K):</b>	3023
<b>Chromaticity Coordinate x:</b>	0.4390
<b>Chromaticity Coordinate y:</b>	0.4112
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:55
<b>Total Operating Time (Hours):</b>	1:55
<b>Off State Power(W):</b>	0.00

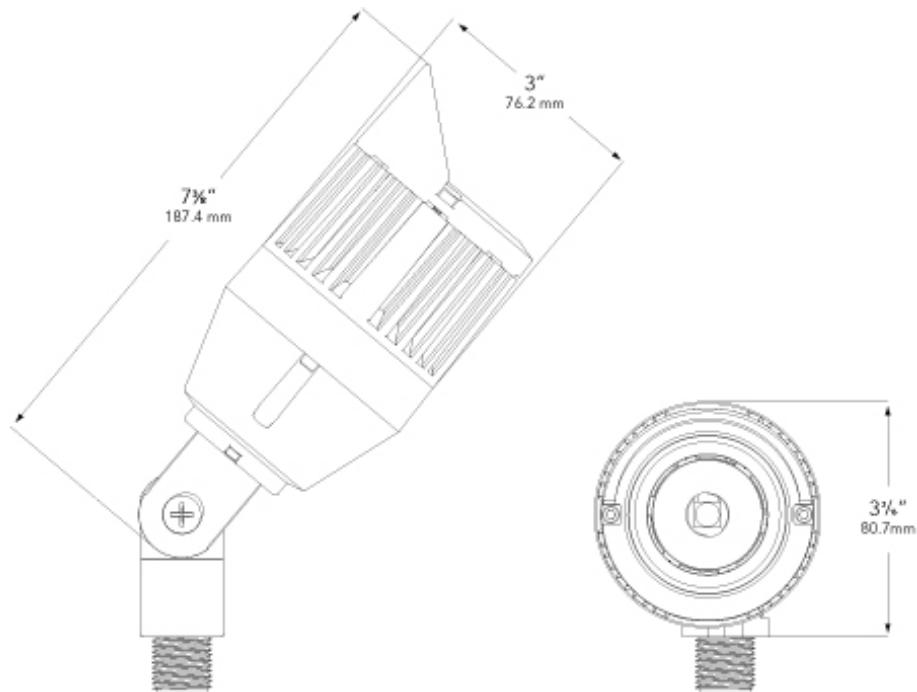
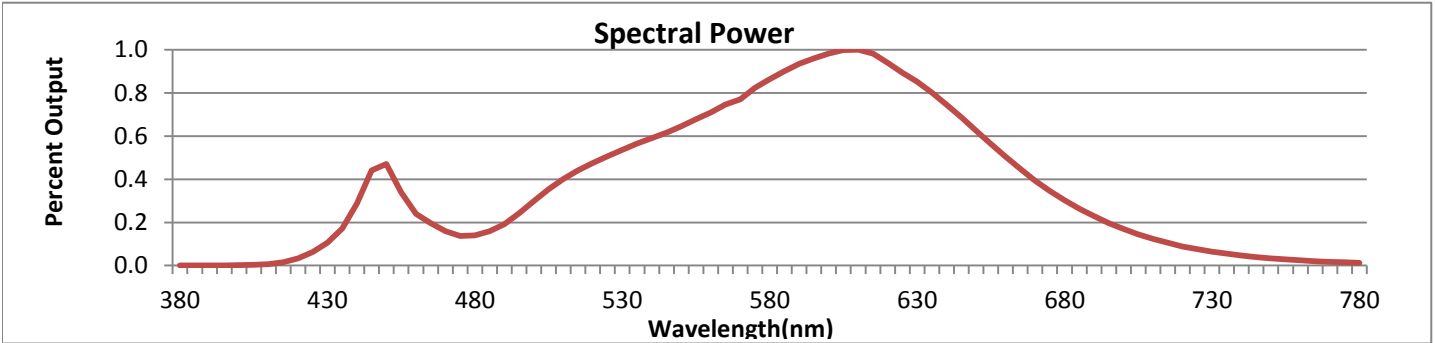


FIG. 1 LUMINAIRE

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



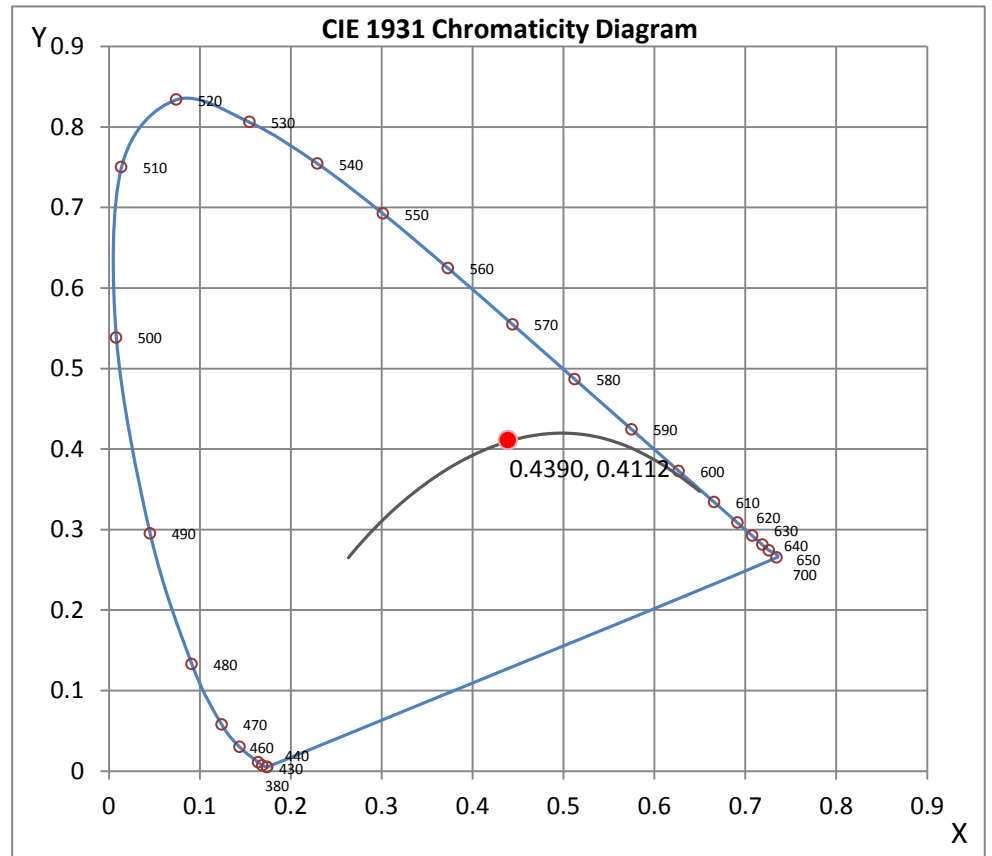
Wavelength	W/m <sup>2</sup> nm	440	0.2866	510	0.4013	580	0.8642	650	0.6255	720	0.0884
380	0.0007	450	0.4710	520	0.4758	590	0.9353	660	0.5044	730	0.0642
390	0.0009	460	0.2392	530	0.5360	600	0.9827	670	0.3943	740	0.0463
400	0.0015	470	0.1589	540	0.5912	610	1.0000	680	0.3027	750	0.0333
410	0.0064	480	0.1402	550	0.6465	620	0.9403	690	0.2284	760	0.0236
420	0.0327	490	0.1924	560	0.7101	630	0.8529	700	0.1693	770	0.0174
430	0.1065	500	0.2992	570	0.7710	640	0.7456	710	0.1243	780	0.0126

**CRI & CCT**

x	0.4390
y	0.4112
u'	0.2489
v'	0.5245
CRI	83.30
CCT	3023
Duv	0.00253

**R Values**

R1	81.90
R2	88.67
R3	95.04
R4	83.55
R5	81.17
R6	85.41
R7	86.55
R8	64.43
R9	15.50
R10	73.53
R11	82.83
R12	66.91
R13	83.11
R14	96.69



\*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 : Keyur Patel

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 : L051503012.IES**

### DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L051503012  
[TESTLAB] LIGHT LABORATORY, INC.  
[ISSUEDATE] 5/22/2015  
[MANUFAC] USTE, DBA VISTA PROFESSIONAL OUTDOOR LIGHTING  
[LUMCAT] 3106-X-4.5-W-WF  
[LUMINAIRE] 6"DIA. X 2-3/4"H. LED ACCENT  
[MORE] CLEAR LENS  
[LAMPPOSITION] 0,0  
[LAMPCAT] N/A  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[INPUT] 12VAC, 4.09W  
[TEST PROCEDURE] IESNA:LM-79-08

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

### CHARACTERISTICS

NEMA Type	5 H x 5 V
Maximum Candela	512.37
Maximum Candela Angle	0H 0V
Horizontal Beam Angle (50%)	44.8
Vertical Beam Angle (50%)	44.8
Horizontal Field Angle (10%)	76.7
Vertical Field Angle (10%)	76.7
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	183
Beam Efficiency	N.A.
Field Lumens	305
Field Efficiency	N.A.
Spill Lumens	27
Luminaire Lumens	332
Total Efficiency	N.A.
Total Luminaire Watts	4.09
Ballast Factor	1.00

**IES FLOOD REPORT**  
**PHOTOMETRIC FILENAME : L051503012.IES**

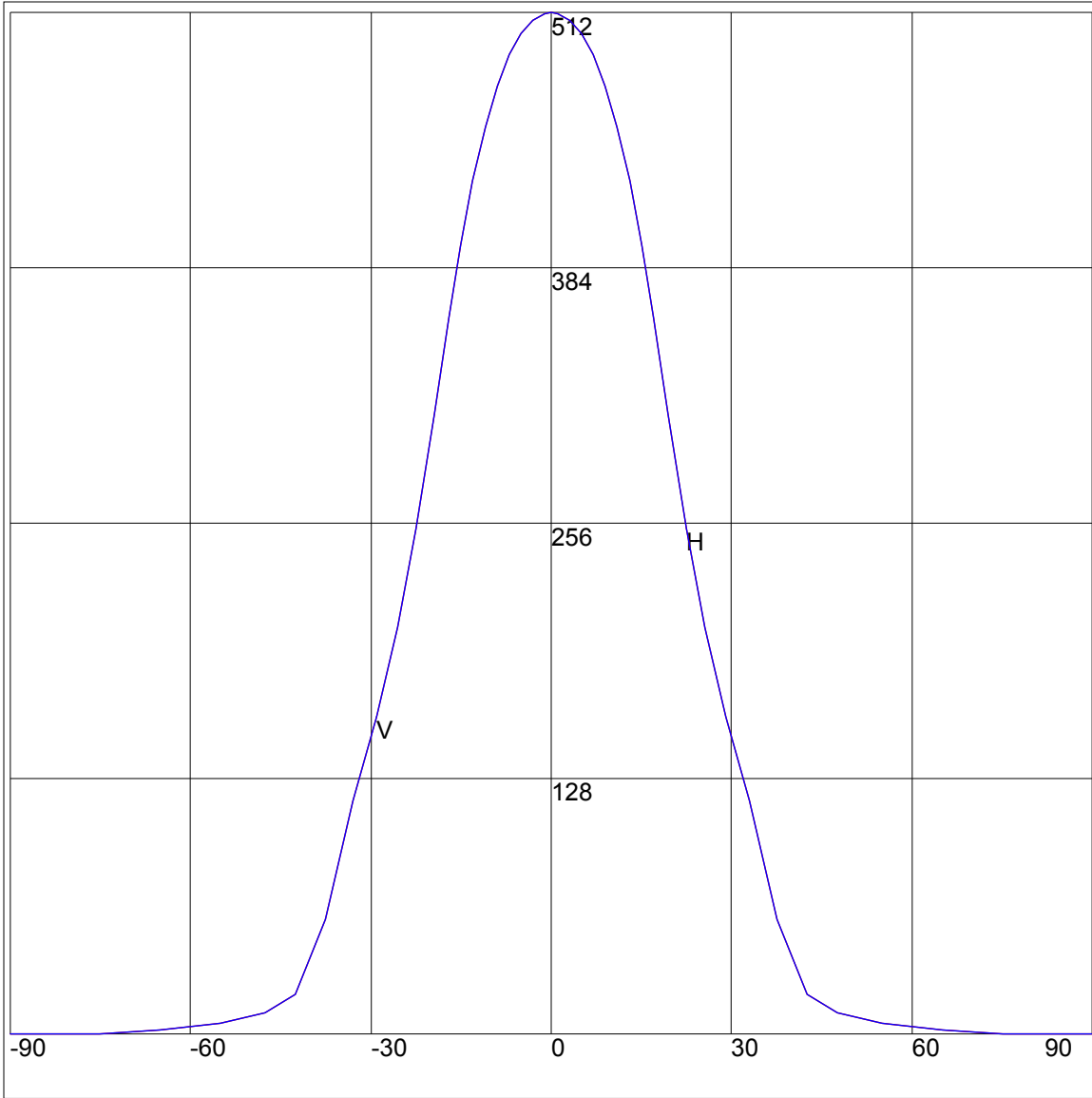
**AXIAL CANDELA**

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	0	85	0
75	.17	75	.17
65	2.2	65	2.2
55	5.87	55	5.87
47.5	10.84	47.5	10.84
42.5	19.88	42.5	19.88
37.5	57.87	37.5	57.87
33	116.96	33	116.96
29	159.6	29	159.6
25.5	203.95	25.5	203.95
22.5	253.93	22.5	253.93
19.5	311.33	19.5	311.33
17	359.49	17	359.49
15	395.73	15	395.73
13	427.7	13	427.7
11	454.79	11	454.79
9	475.7	9	475.7
7	491.31	7	491.31
5	501.9	5	501.9
3	508.64	3	508.64
1	512.02	1	512.02
0	512.37	0	512.37
-1	512.02	-1	512.02
-3	508.64	-3	508.64
-5	501.9	-5	501.9
-7	491.31	-7	491.31
-9	475.7	-9	475.7
-11	454.79	-11	454.79
-13	427.7	-13	427.7
-15	395.73	-15	395.73
-17	359.49	-17	359.49
-19.5	311.33	-19.5	311.33
-22.5	253.93	-22.5	253.93
-25.5	203.95	-25.5	203.95
-29	159.6	-29	159.6
-33	116.96	-33	116.96
-37.5	57.87	-37.5	57.87
-42.5	19.88	-42.5	19.88
-47.5	10.84	-47.5	10.84
-55	5.87	-55	5.87
-65	2.2	-65	2.2
-75	.17	-75	.17
-85	0	-85	0
-90	0	-90	0

**ZONAL LUMEN SUMMARY**

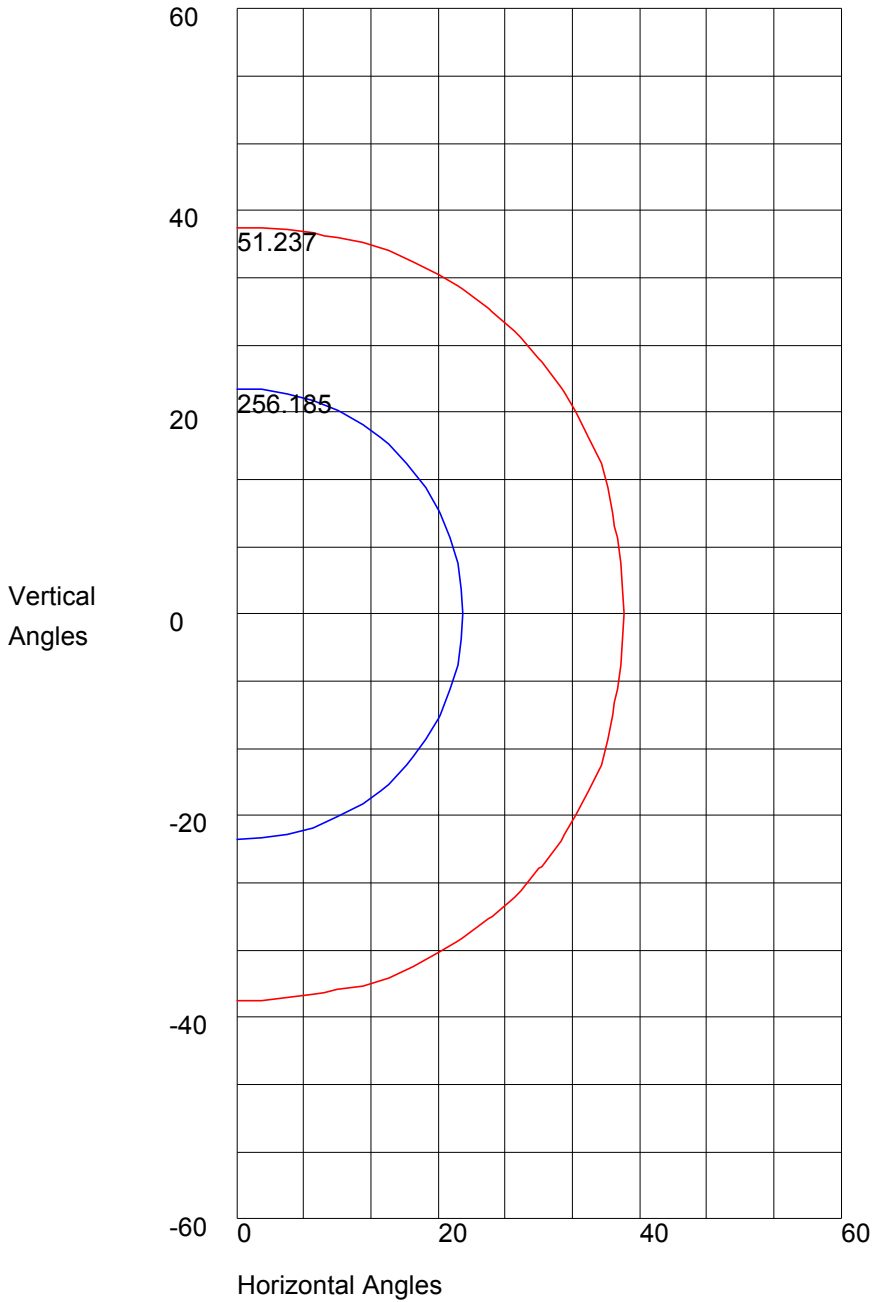
Zone	%
0-20	45.1
0-30	74
0-40	90.9
0-60	98.5
0-80	100
0-90	100
10-90	88.5
20-40	45.8
20-50	51.7
40-70	8.7
60-80	1.5
70-80	0.4
80-90	0
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

AXIAL CANDELA DISPLAY



Maximum Candela = 512.37 Located At Horizontal Angle = 0, Vertical Angle = 0  
H - Horizontal Axial Candela  
V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 512.37 Located At Horizontal Angle = 0, Vertical Angle = 0  
50% Maximum Candela = 256.185  
10% Maximum Candela = 51.237