



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

Report No: L051503010

Date: 5/21/2015



NVLAP LAB CODE 200927-0

Report No: L051503010

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

Model Number: 3106-X-4.5-W-SP

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-SP . 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: 5/20/15 - 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

Manufacturer:	USTE, dba Vista Professional Outdoor I
Model Number:	3106-X-4.5-W-SP
Driver Model Number:	N/A
Total Lumens:	363.76
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.38
Input Power (W):	4.08
Input Power Factor:	0.89
Current ATHD @ 12V(%):	39%
Current ATHD @ 277V(%):	N/A
Efficacy:	89
Color Rendering Index (CRI):	82
Correlated Color Temperature (K):	3050
Chromaticity Coordinate x:	0.4372
Chromaticity Coordinate y:	0.4109
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:35
Off State Power(W):	0.00

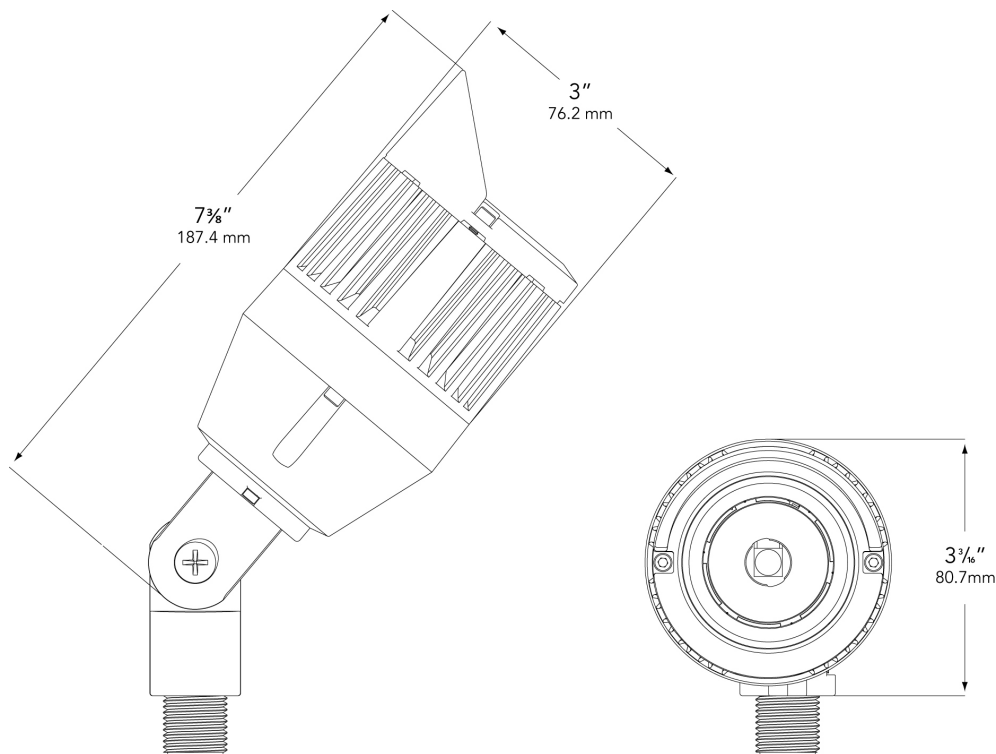
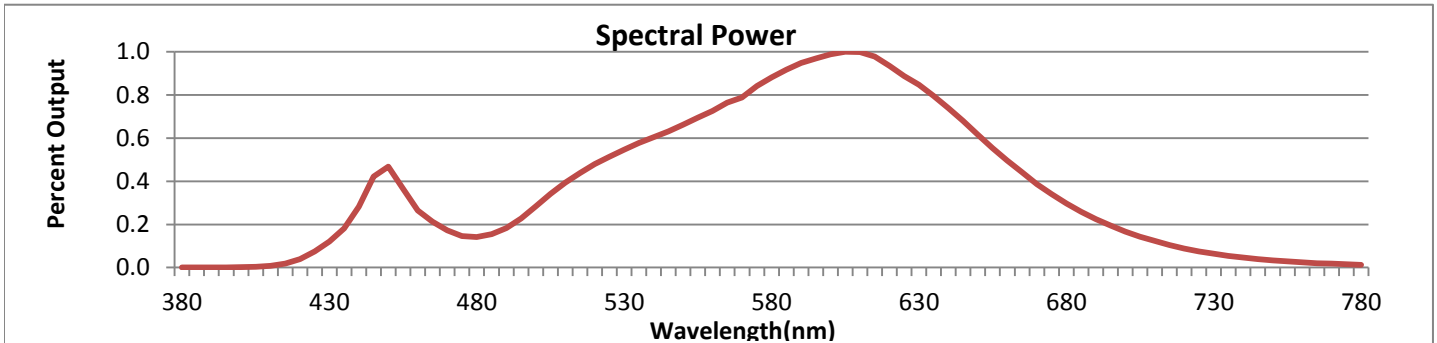


FIG. 1 LUMINAIRE

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



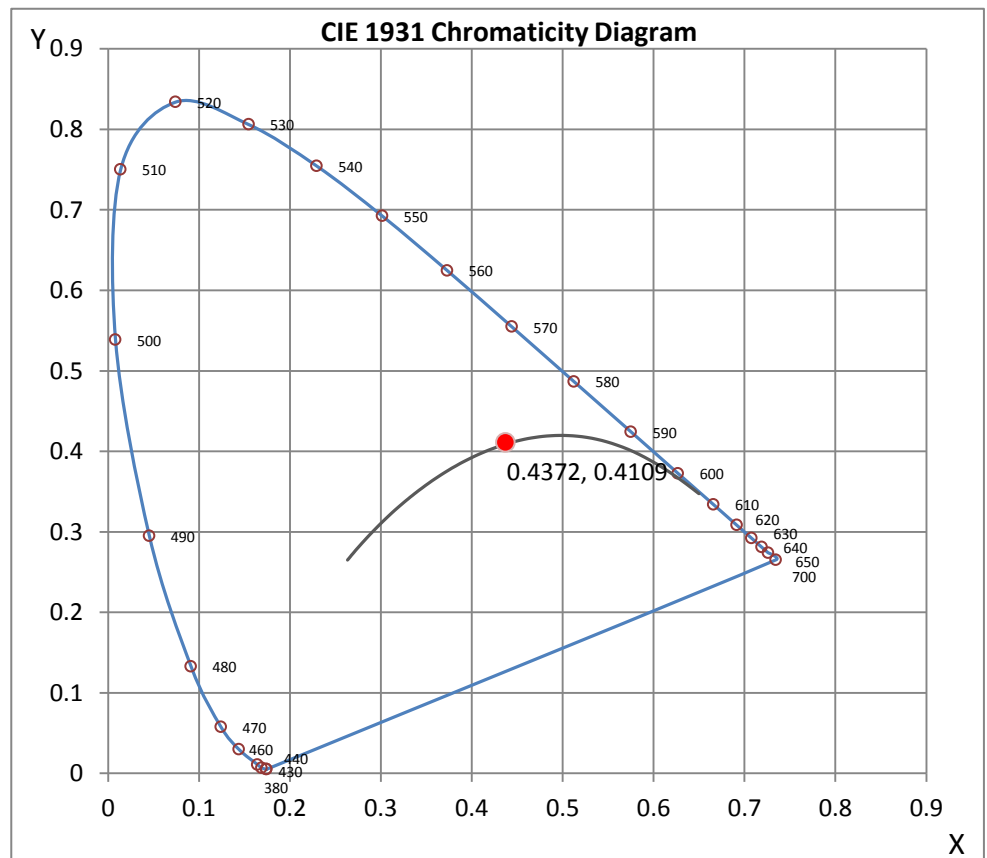
Wavelength	W/m ² nm	440	0.2828	510	0.3939	580	0.8826	650	0.6168	720	0.0877
380	0.0009	450	0.4682	520	0.4794	590	0.9482	660	0.4957	730	0.0642
390	0.0011	460	0.2653	530	0.5461	600	0.9885	670	0.3866	740	0.0463
400	0.0018	470	0.1729	540	0.6052	610	0.9994	680	0.2967	750	0.0333
410	0.0082	480	0.1421	550	0.6622	620	0.9352	690	0.2248	760	0.0239
420	0.0398	490	0.1830	560	0.7261	630	0.8474	700	0.1672	770	0.0176
430	0.1201	500	0.2840	570	0.7885	640	0.7388	710	0.1235	780	0.0127

CRI & CCT

x	0.4372
y	0.4109
u'	0.2478
v'	0.5241
CRI	82.20
CCT	3050
Duv	0.00266

R Values

R1	80.64
R2	87.78
R3	94.32
R4	82.14
R5	79.68
R6	83.85
R7	86.21
R8	63.23
R9	12.11
R10	71.23
R11	80.72
R12	64.12
R13	81.88
R14	96.26



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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.

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:

Test Report Reviewed by:

Jeff Ahn
 Engineering Manager

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 : L051503010.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L051503010
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 5/21/2015
[MANUFAC] USTE, DBA VISTA PROFESSIONAL OUTDOOR LIGHTING
[LUMCAT] 3106-X-4.5-W-SP
[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, 4.08W
[TEST PROCEDURE] IESNA:LM-79-08

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

CHARACTERISTICS

NEMA Type	3 H x 3 V
Maximum Candela	2409
Maximum Candela Angle	0H 0V
Horizontal Beam Angle (50%)	15.9
Vertical Beam Angle (50%)	15.9
Horizontal Field Angle (10%)	33.4
Vertical Field Angle (10%)	33.4
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	97
Beam Efficiency	N.A.
Field Lumens	213
Field Efficiency	N.A.
Spill Lumens	151
Luminaire Lumens	364
Total Efficiency	N.A.
Total Luminaire Watts	4.08
Ballast Factor	1.00

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L051503010.IES

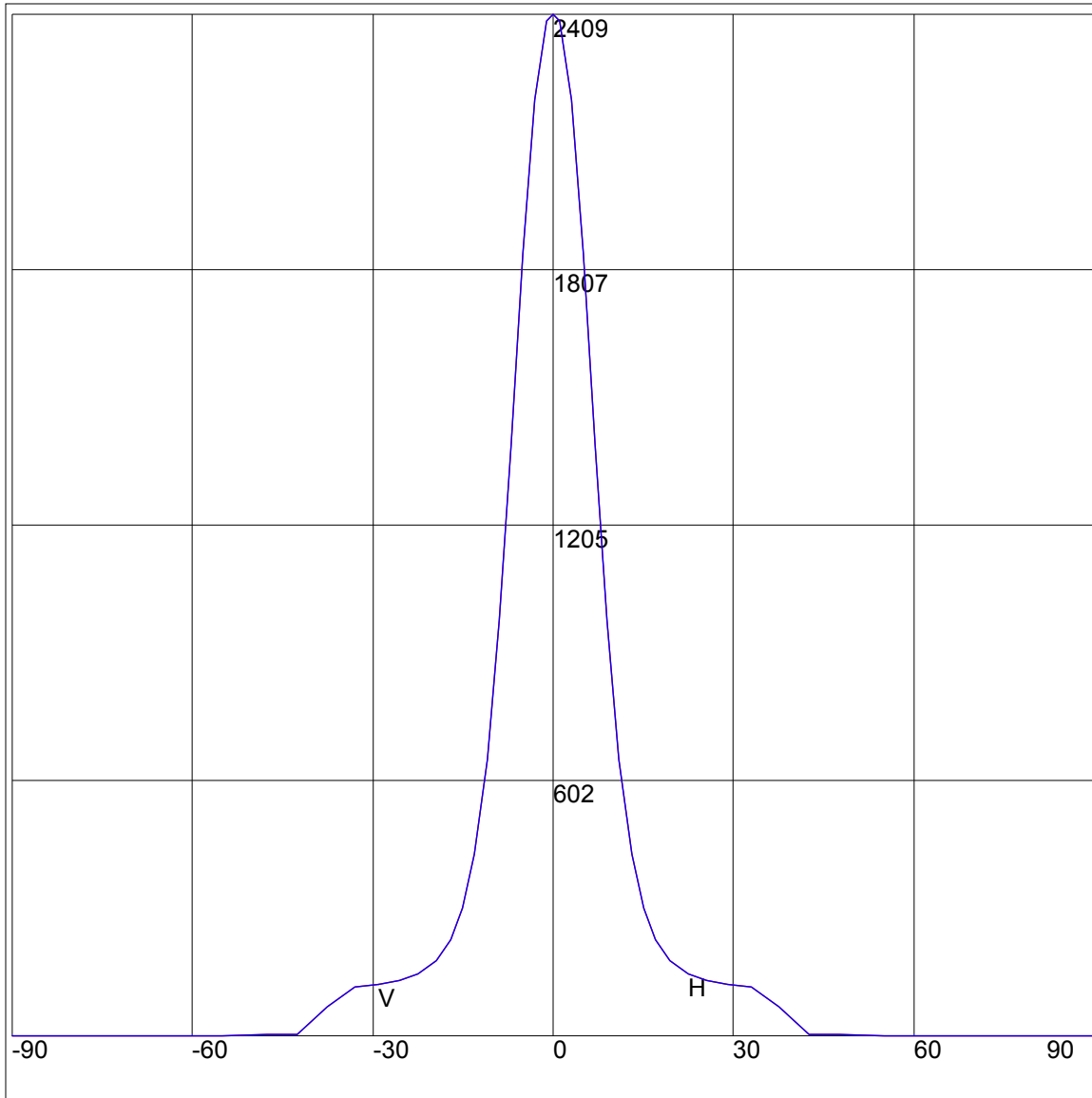
AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	0	85	0
75	0	75	0
65	0	65	0
55	2	55	2
47.5	4	47.5	4
42.5	4	42.5	4
37.5	70	37.5	70
33	116	33	116
29	123	29	123
25.5	132	25.5	132
22.5	147	22.5	147
19.5	178	19.5	178
17	229	17	229
15	303	15	303
13	431	13	431
11	654	11	654
9	983	9	983
7	1396	7	1396
5	1844	5	1844
3	2207	3	2207
1	2395	1	2395
0	2409	0	2409
-1	2395	-1	2395
-3	2207	-3	2207
-5	1844	-5	1844
-7	1396	-7	1396
-9	983	-9	983
-11	654	-11	654
-13	431	-13	431
-15	303	-15	303
-17	229	-17	229
-19.5	178	-19.5	178
-22.5	147	-22.5	147
-25.5	132	-25.5	132
-29	123	-29	123
-33	116	-33	116
-37.5	70	-37.5	70
-42.5	4	-42.5	4
-47.5	4	-47.5	4
-55	2	-55	2
-65	0	-65	0
-75	0	-75	0
-85	0	-85	0
-90	0	-90	0

ZONAL LUMEN SUMMARY

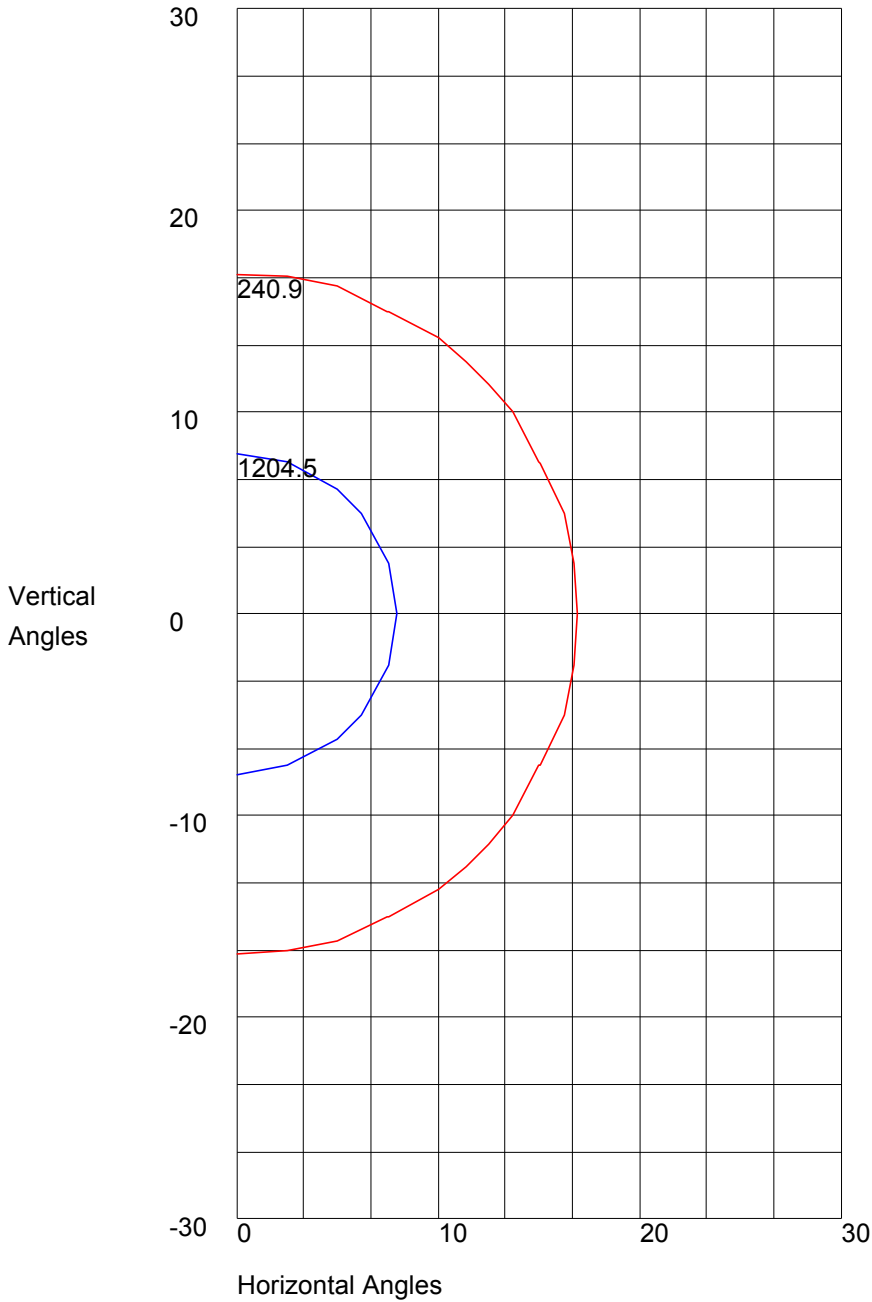
Zone	%
0-20	64
0-30	80.5
0-40	95.2
0-60	99.7
0-80	100
0-90	100
10-90	65.9
20-40	31.2
20-50	35.2
40-70	4.8
60-80	0.3
70-80	0
80-90	0
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

AXIAL CANDELA DISPLAY



Maximum Candela = 2409 Located At Horizontal Angle = 0, Vertical Angle = 0
H - Horizontal Axial Candela
V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 2409 Located At Horizontal Angle = 0, Vertical Angle = 0
50% Maximum Candela = 1204.5
10% Maximum Candela = 240.9