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Report No: L021606601

Date: 3/3/2016



NVLAP LAB CODE 200927-0

Report No: L021606601

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

Model Number: RK91-B-NS-30-C-MV-CX-ND

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 RK91-B-NS-30-C-MV-CX-ND. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 2/22/16

Date of Tests: 3/1/16 - 3/1/16

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	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
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:	Vista Professional Outdoor Lighting
Model Number:	RK91-B-NS-30-C-MV-CX-ND
Driver Model Number:	ERP ESP040W-0900-42
Total Lumens:	2795.98
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.31
Input Power (W):	36.31
Input Power Factor:	0.99
Current ATHD @ 120V(%):	11%
Current ATHD @ 277V(%):	N/A
Efficacy:	77
Color Rendering Index (CRI):	83
Correlated Color Temperature (K):	2929
Chromaticity Coordinate x:	0.4415
Chromaticity Coordinate y:	0.4046
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:15
Total Operating Time (Hours):	2:00
Off State Power(W):	0.00

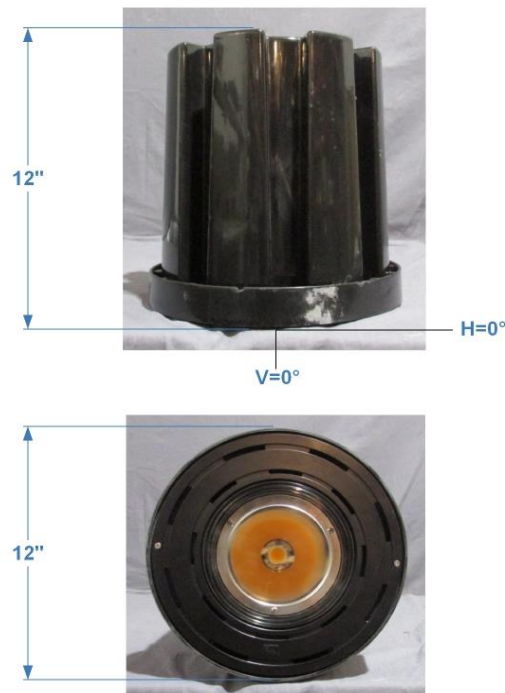
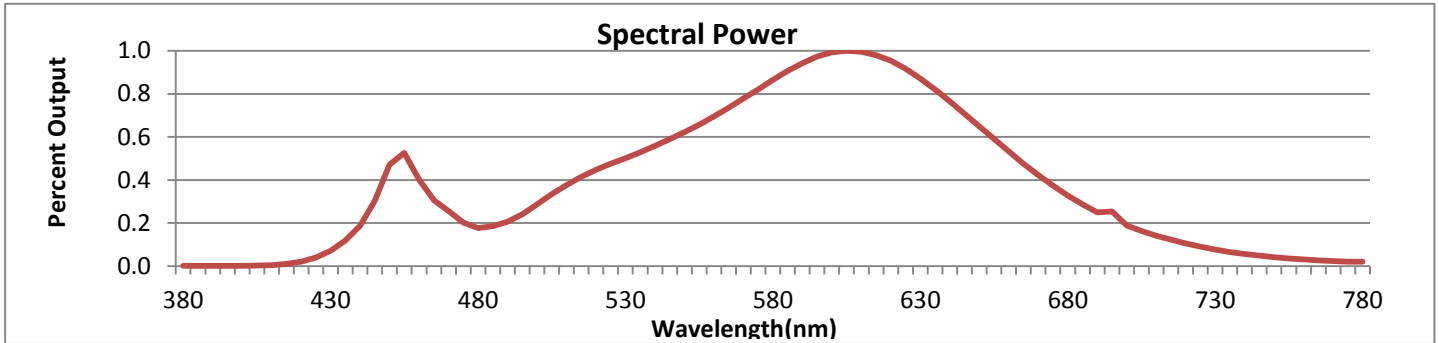


FIG. 1 LUMINAIRE

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



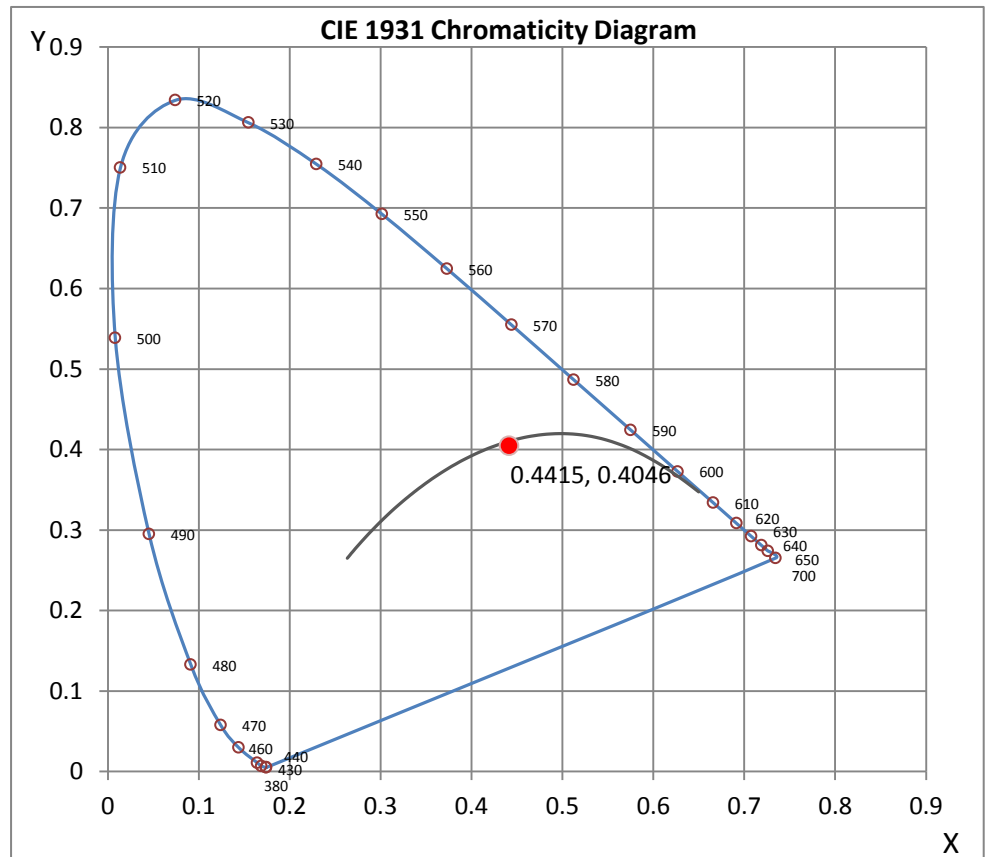
Wavelength	W/m ² nm	440	0.0061	510	0.0124	580	0.0284	650	0.0213	720	0.0035
380	0.0000	450	0.0155	520	0.0147	590	0.0310	660	0.0175	730	0.0025
390	0.0000	460	0.0132	530	0.0165	600	0.0326	670	0.0139	740	0.0018
400	0.0000	470	0.0084	540	0.0183	610	0.0327	680	0.0108	750	0.0014
410	0.0002	480	0.0058	550	0.0204	620	0.0313	690	0.0082	760	0.0010
420	0.0007	490	0.0068	560	0.0229	630	0.0286	700	0.0062	770	0.0008
430	0.0023	500	0.0094	570	0.0256	640	0.0252	710	0.0046	780	0.0007

CRI & CCT

x	0.4415
y	0.4046
u'	0.2533
v'	0.5223
CRI	83.30
CCT	2929
Duv	-0.00039

R Values

R1	81.82
R2	90.99
R3	96.85
R4	80.74
R5	81.22
R6	88.25
R7	84.10
R8	62.13
R9	15.27
R10	78.64
R11	79.13
R12	68.99
R13	83.91
R14	98.53



*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 : JEFF AHN

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 : L021606601.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L021606601
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 3/3/2016
[MANUFAC] VISTA PROFESSIONAL OUTDOOR LIGHTING
[LUMCAT] RK91-B-NS-30-C-MV-CX-ND
[LUMINAIRE] 12"DIA. X 12"H. LED Ingrade, NS Distribution
[BALLASTCAT] ERP ESP040W-0900-42
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 36.31W
[TEST PROCEDURE] IESNA:LM-79-08

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

CHARACTERISTICS

NEMA Type	2 H x 2 V
Maximum Candela	28253
Maximum Candela Angle	0H 0V
Horizontal Beam Angle (50%)	13.1
Vertical Beam Angle (50%)	13.1
Horizontal Field Angle (10%)	27.9
Vertical Field Angle (10%)	27.9
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	923
Beam Efficiency	N.A.
Field Lumens	1710
Field Efficiency	N.A.
Spill Lumens	1086
Luminaire Lumens	2796
Total Efficiency	N.A.
Total Luminaire Watts	36.31
Ballast Factor	1.00

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L021606601.IES

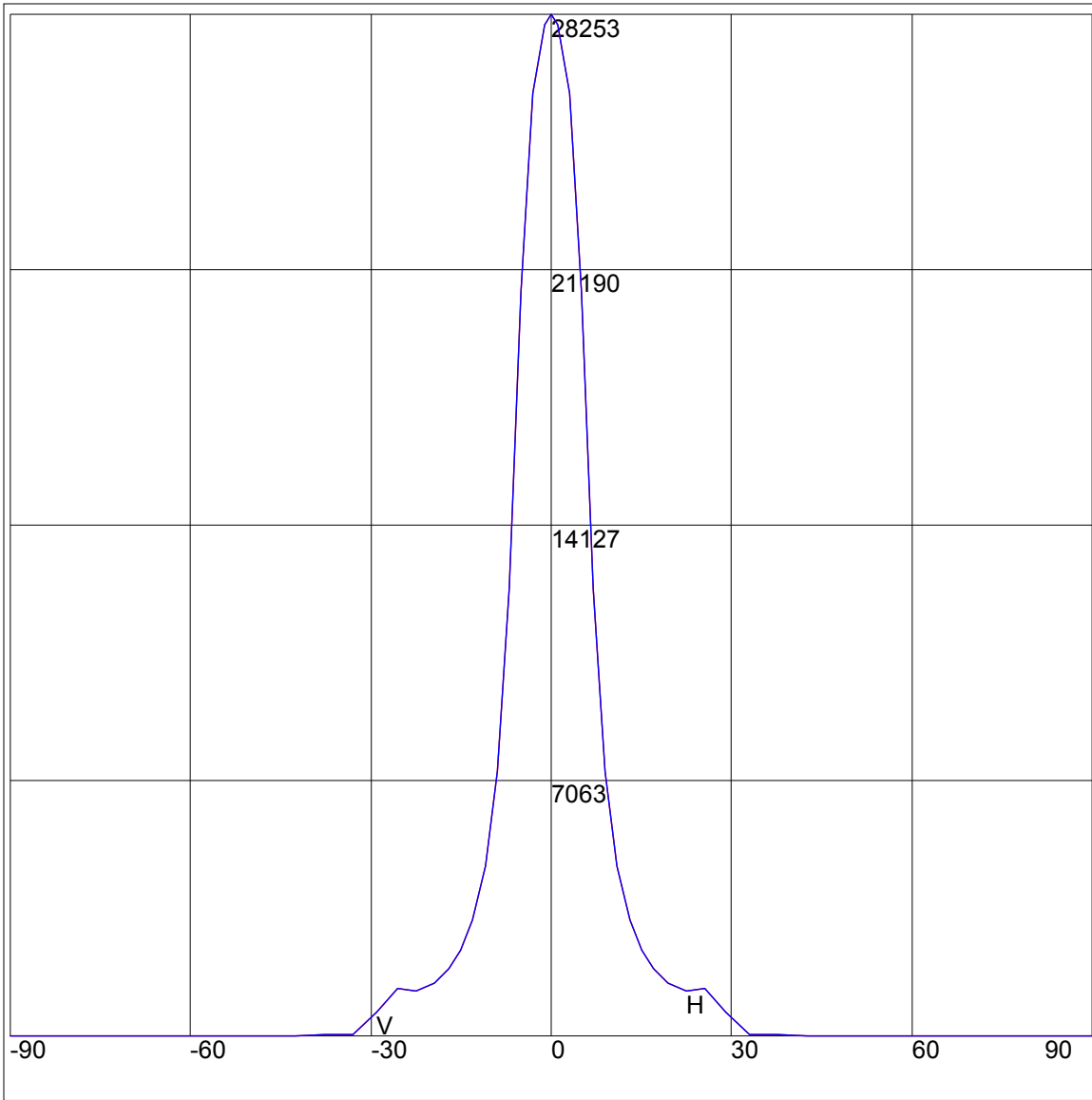
AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	14	85	14
75	16	75	16
65	18	65	18
55	21	55	21
47.5	25	47.5	25
42.5	31	42.5	31
37.5	44	37.5	44
33	71	33	71
29	671	29	671
25.5	1322	25.5	1322
22.5	1260	22.5	1260
19.5	1484	19.5	1484
17	1884	17	1884
15	2378	15	2378
13	3222	13	3222
11	4694	11	4694
9	7314	9	7314
7	12388	7	12388
5	20568	5	20568
3	26087	3	26087
1	27972	1	27972
0	28253	0	28253
-1	27972	-1	27972
-3	26087	-3	26087
-5	20568	-5	20568
-7	12388	-7	12388
-9	7314	-9	7314
-11	4694	-11	4694
-13	3222	-13	3222
-15	2378	-15	2378
-17	1884	-17	1884
-19.5	1484	-19.5	1484
-22.5	1260	-22.5	1260
-25.5	1322	-25.5	1322
-29	671	-29	671
-33	71	-33	71
-37.5	44	-37.5	44
-42.5	31	-42.5	31
-47.5	25	-47.5	25
-55	21	-55	21
-65	18	-65	18
-75	16	-75	16
-85	14	-85	14
-90	0	-90	0

ZONAL LUMEN SUMMARY

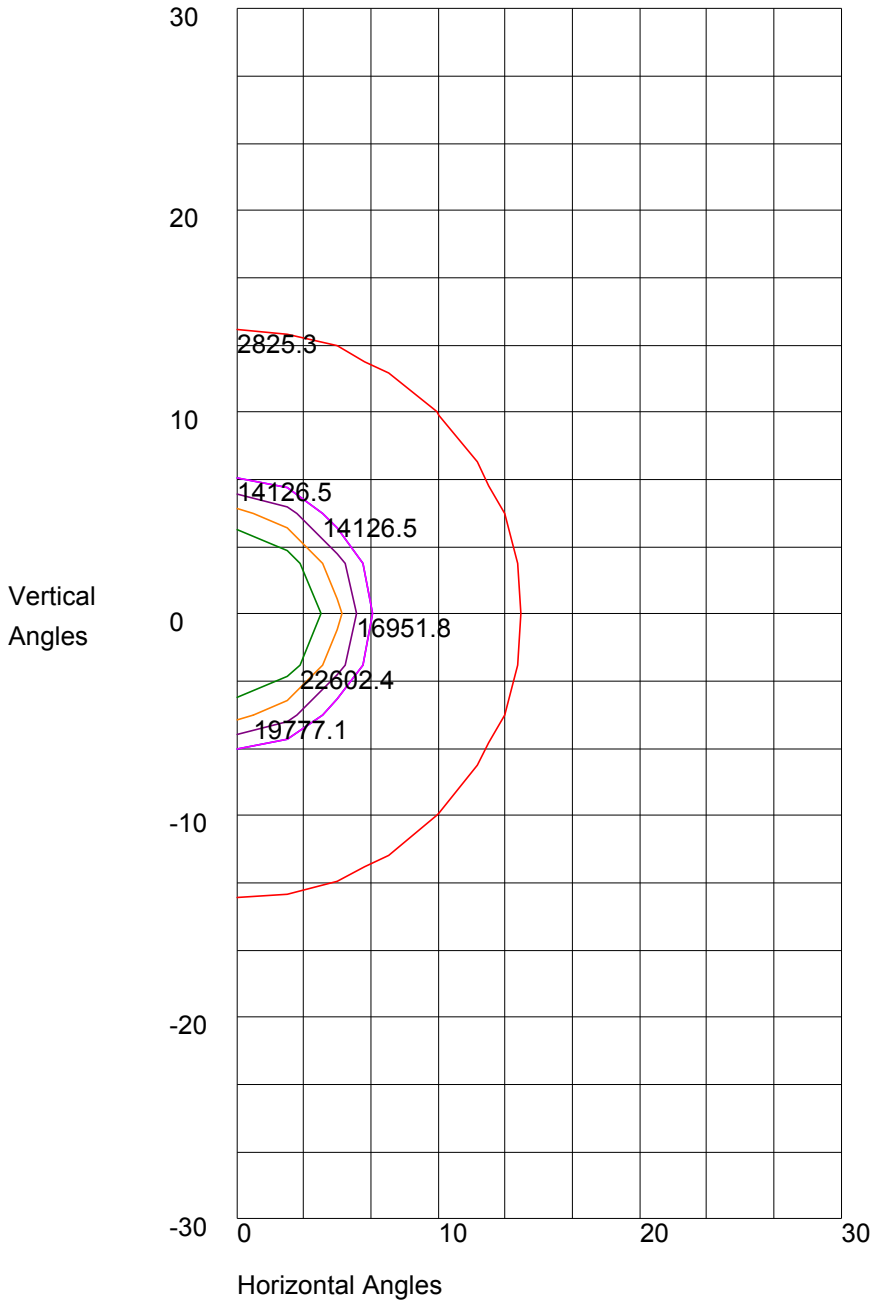
Zone	%
0-20	74.9
0-30	93
0-40	96.6
0-60	98
0-80	99.3
0-90	100
10-90	54.8
20-40	21.7
20-50	22.6
40-70	2
60-80	1.3
70-80	0.6
80-90	0.7
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

AXIAL CANDELA DISPLAY



Maximum Candela = 28253 Located At Horizontal Angle = 0, Vertical Angle = 0
H - Horizontal Axial Candela
V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 28253 Located At Horizontal Angle = 0, Vertical Angle = 0
50% Maximum Candela = 14126.5
10% Maximum Candela = 2825.3