LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: **L121605915** **Issue Date: 2/8/2017**

Report Prepared For: Revolution Lighting
4139 Guardian St. Simi Valley CA 93063

Model Number: **131434-201**

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. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 12/21/16

Date of Tests: 12/22/16 - 1/5/17

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	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
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.

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Test Summary	
Manufacturer:	Revolution Lighting
Model Number:	131434-201
Driver Model Number:	N/A
Total Lumens:	3609.73
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.24
Input Power (W):	28.95
Input Power Factor:	0.99
Current ATHD @ 120V(%):	13%
Current ATHD @ 277V(%):	N/A
Efficacy:	125
Color Rendering Index (CRI):	83
Correlated Color Temperature (K):	3104
Chromaticity Coordinate x:	0.4301
Chromaticity Coordinate y:	0.4023
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:00
Total Operating Time (Hours):	1:35
Off State Power(W):	0.00

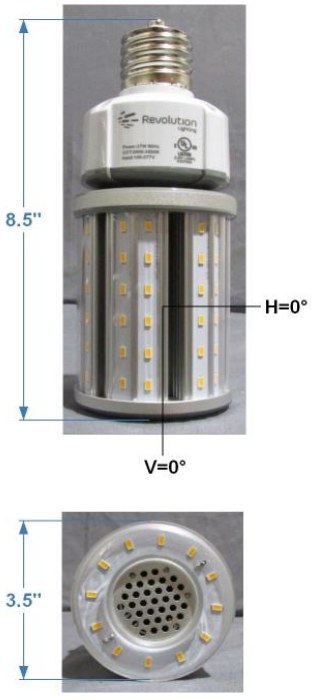

FIG. 1 LUMINAIRE

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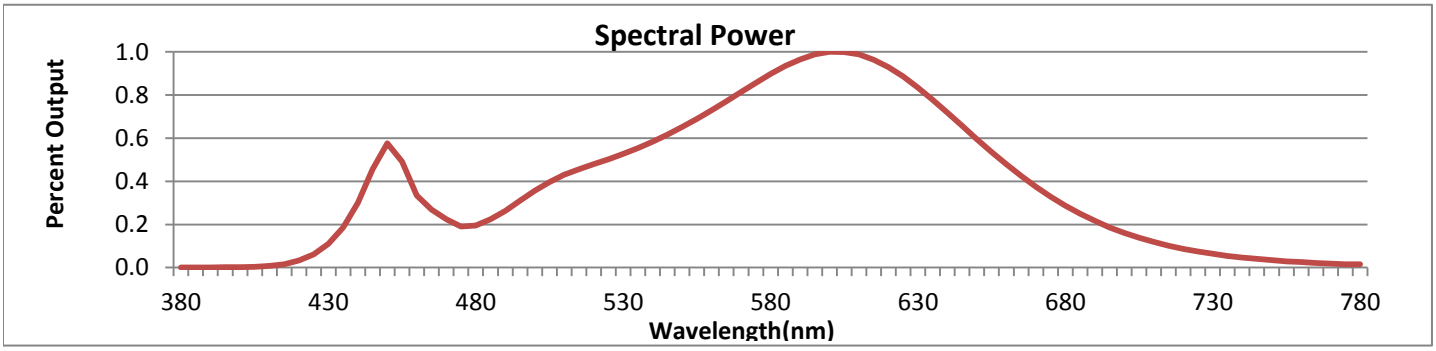


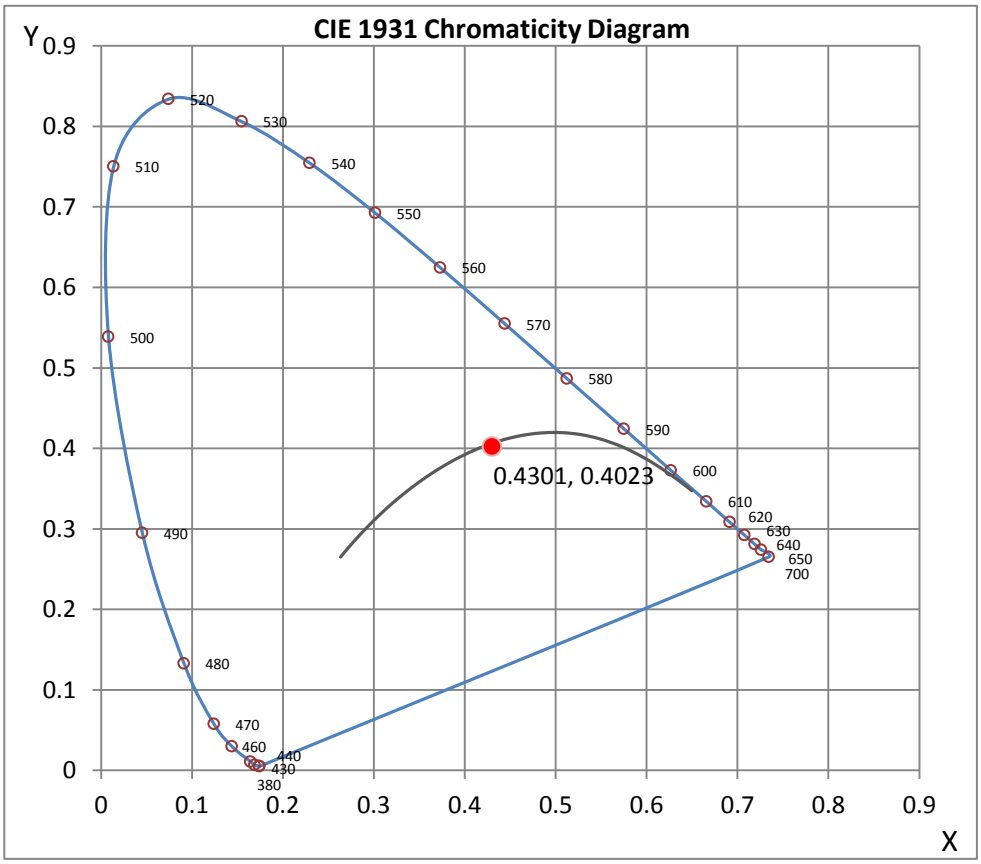
Wavelength	W/m²nm	440	0.3004	510	0.4302	580	0.8983	650	0.5955	720	0.0870
380	0.0009	450	0.5755	520	0.4799	590	0.9658	660	0.4794	730	0.0638
390	0.0010	460	0.3344	530	0.5267	600	1.0000	670	0.3747	740	0.0465
400	0.0020	470	0.2246	540	0.5841	610	0.9882	680	0.2866	750	0.0340
410	0.0075	480	0.1945	550	0.6526	620	0.9298	690	0.2164	760	0.0251
420	0.0327	490	0.2635	560	0.7296	630	0.8340	700	0.1610	770	0.0186
430	0.1106	500	0.3571	570	0.8142	640	0.7185	710	0.1187	780	0.0159

CRI & CCT

x	0.4301
y	0.4023
u'	0.2469
v'	0.5197
CRI	82.50
CCT	3104
Duv	0.00028

R Values

R1	80.51
R2	90.03
R3	96.78
R4	80.65
R5	80.60
R6	87.31
R7	83.78
R8	60.34
R9	8.52
R10	77.29
R11	79.53
R12	70.46
R13	82.58
R14	98.46



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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:

Jeff Ahn
Engineering Manager

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 9*

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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121605915.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121605915
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 1/5/2017
[MANUFAC] REVOLUTION LIGHTING
[LUMCAT] 131434-201
[LUMINAIRE] 27W 3000K EX39 OMNIDIRECTIONAL UTILITY LAMP
[BALLASTCAT] N/A
[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, 28.95W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3610
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	125
Total Luminaire Watts	28.95
Ballast Factor	1.00
CIE Type	General Diffuse
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Circular w/ Sides
Luminous Length (0-180)	0.29 ft (Diameter)
Luminous Width (90-270)	0.29 ft (Diameter)
Luminous Height	0.33 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	32468	32468	32468
55	33541	33541	33541
65	33009	33009	33009
75	33111	33111	33111
85	35650	35650	35650

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121605915.IES

CANDELA TABULATION

	0
0	190.24
5	192.05
10	200.63
15	217.73
20	237.38
25	259.96
30	288.38
35	311.70
40	330.51
45	345.32
50	356.33
55	362.67
60	362.09
65	351.91
70	342.42
75	337.26
80	334.96
85	335.13
90	334.39
95	332.43
100	328.04
105	321.31
110	311.38
115	298.31
120	282.20
125	263.53
130	240.99
135	215.29
140	185.67
145	151.39
150	117.36
155	89.43
160	62.78
165	35.78
170	14.08
175	3.17
180	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121605915.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	80.94	N.A.	2.20
0-30	202.50	N.A.	5.60
0-40	398.01	N.A.	11.00
0-60	988.79	N.A.	27.40
0-80	1695.69	N.A.	47.00
0-90	2061.09	N.A.	57.10
10-90	2042.48	N.A.	56.60
20-40	317.07	N.A.	8.80
20-50	583.98	N.A.	16.20
40-70	940.16	N.A.	26.00
60-80	706.91	N.A.	19.60
70-80	357.52	N.A.	9.90
80-90	365.40	N.A.	10.10
90-110	701.17	N.A.	19.40
90-120	996.67	N.A.	27.60
90-130	1232.51	N.A.	34.10
90-150	1494.76	N.A.	41.40
90-180	1548.63	N.A.	42.90
110-180	847.46	N.A.	23.50
0-180	3609.73	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	18.62
10-20	62.32
20-30	121.55
30-40	195.51
40-50	266.91
50-60	323.86
60-70	349.38
70-80	357.52
80-90	365.40
90-100	362.05
100-110	339.12
110-120	295.50
120-130	235.84
130-140	166.44
140-150	95.81
150-160	42.13
160-170	11.08
170-180	0.65

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121605915.IES

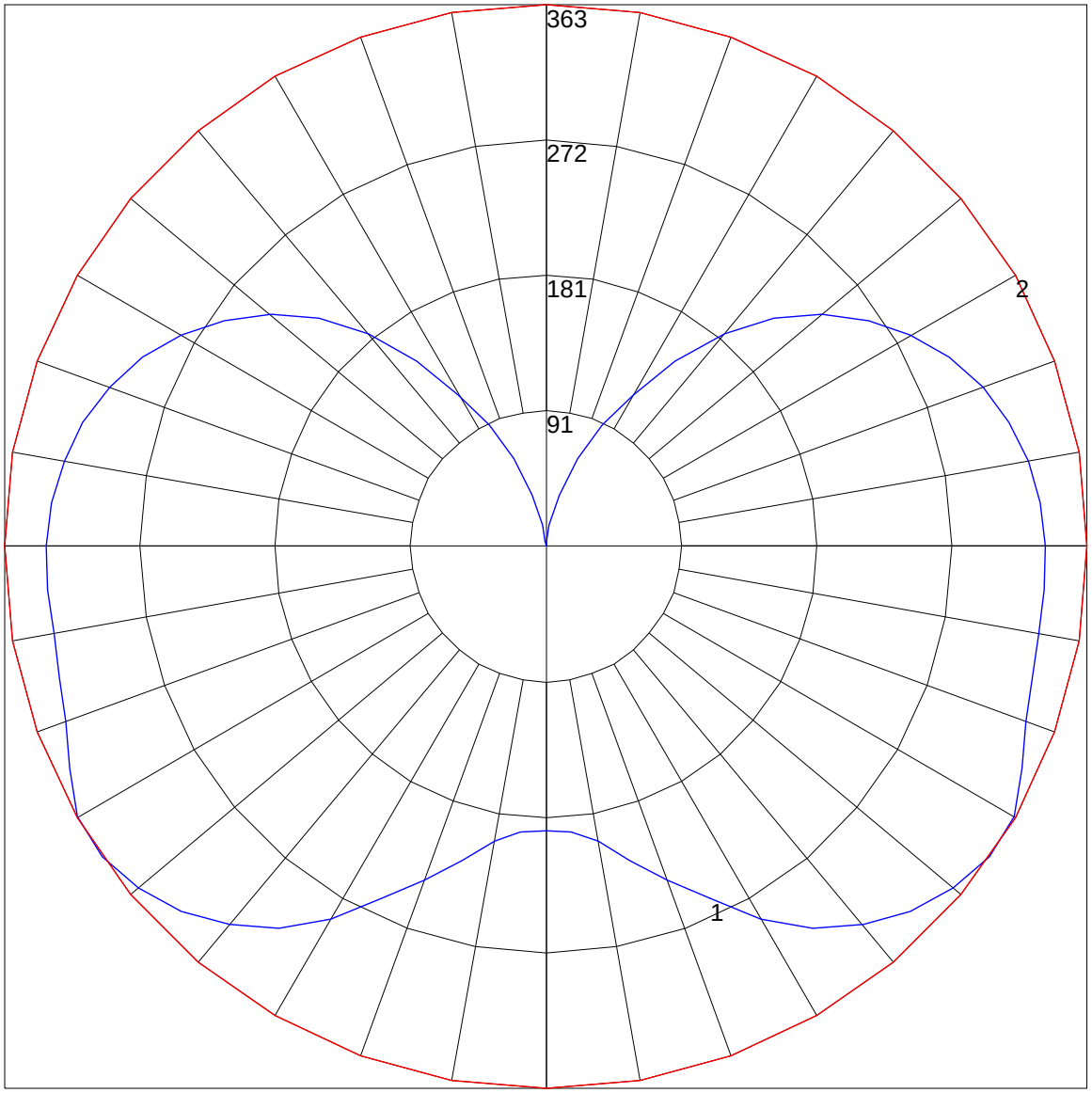
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	109	109	109	109	101	101	101	101	87	87	87	74	74	74	63	63	63	57
1	94	88	82	77	87	81	76	71	69	65	61	58	55	52	47	45	43	38
2	84	74	65	59	77	68	61	54	58	52	47	48	43	39	39	35	32	28
3	75	63	54	46	69	58	50	43	49	42	37	41	35	31	33	29	25	21
4	68	55	45	38	62	51	42	35	43	36	30	35	30	25	28	24	20	17
5	62	48	39	31	57	44	36	29	37	30	25	31	25	21	25	20	17	13
6	57	43	33	27	52	39	31	25	33	26	21	28	22	18	22	18	14	11
7	52	38	29	23	48	35	27	21	30	23	18	25	19	15	20	15	12	9
8	48	34	26	20	44	32	24	18	27	20	16	22	17	13	18	14	10	8
9	45	31	23	17	41	29	21	16	25	18	14	20	15	11	17	12	9	7
10	42	28	20	15	38	26	19	14	22	16	12	19	14	10	15	11	8	6

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121605915.IES

POLAR GRAPH



Maximum Candela = 362.67 Located At Horizontal Angle = 0, Vertical Angle = 55
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (55) (Through Max. Cd.)