



8165 E Kaiser Blvd. Anaheim, CA 92808  
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Report No: L101605904

Date: 10/28/2016



NVLAP LAB CODE 200927-0

**Report No:** L101605904

**Report Prepared For:** Revolution Lighting Technologies (RVLT)  
 4139 Guardian Street, Simi Valley, CA 93063

**Model Number:** 131436-203

**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 131436-203 . Received in working and undamaged condition. No modifications were necessary.

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

**Sample Arrival Date:** 10/26/16

**Date of Tests:** 10/27/16 - 10/28/16

**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**

<b>Manufacturer:</b>	Revolution Lighting Technologies (RVLT)
<b>Model Number:</b>	131436-203
<b>Driver Model Number:</b>	N/A
<b>Total Lumens:</b>	5634.83
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.36
<b>Input Power (W):</b>	42.47
<b>Input Power Factor:</b>	0.99
<b>Current ATHD @ 120V(%):</b>	15%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	133
<b>Color Rendering Index (CRI):</b>	84
<b>Correlated Color Temperature (K):</b>	4066
<b>Chromaticity Coordinate x:</b>	0.3775
<b>Chromaticity Coordinate y:</b>	0.3748
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	1:15
<b>Total Operating Time (Hours):</b>	1:50
<b>Off State Power(W):</b>	0.00

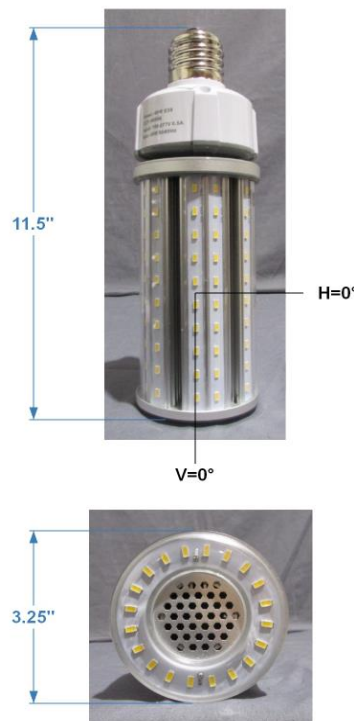
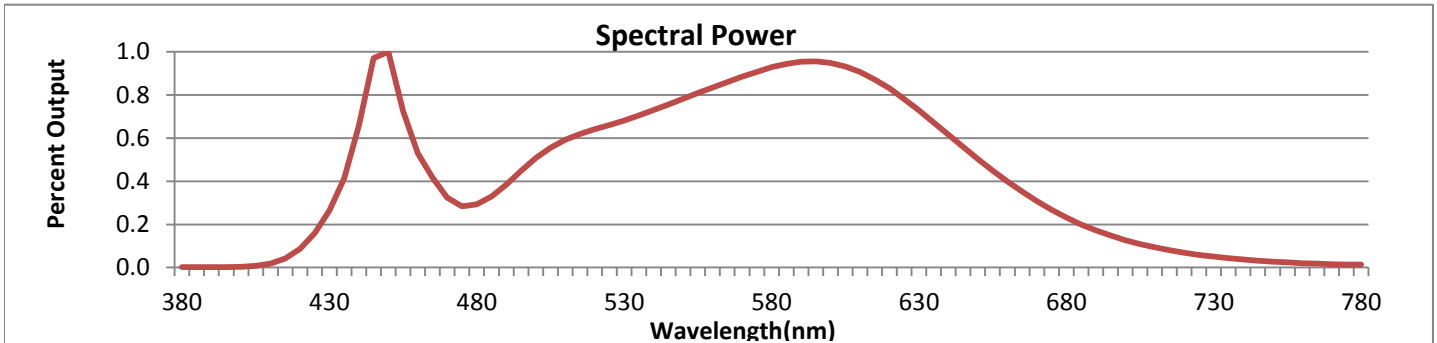


FIG. 1 LUMINAIRE

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



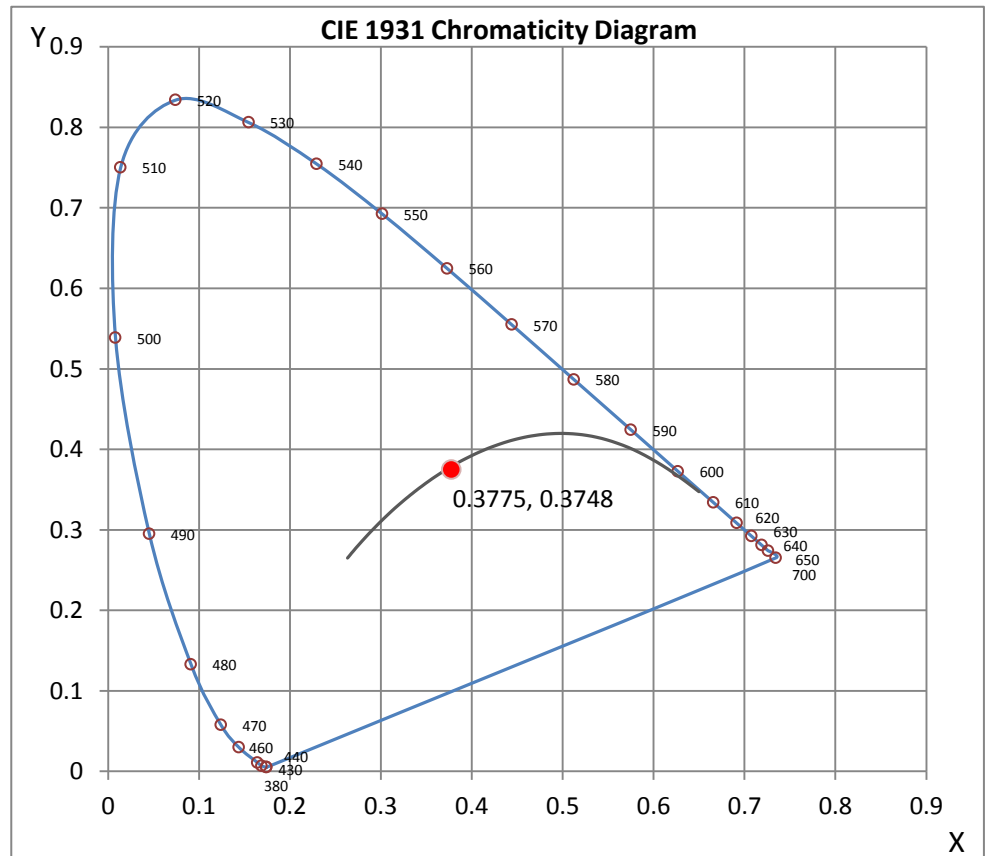
Wavelength	W/m <sup>2</sup> nm	440	0.6584	510	0.5927	580	0.9288	650	0.5041	720	0.0685
380	0.0013	450	1.0000	520	0.6421	590	0.9553	660	0.4000	730	0.0503
390	0.0018	460	0.5306	530	0.6822	600	0.9490	670	0.3073	740	0.0371
400	0.0041	470	0.3234	540	0.7310	610	0.9072	680	0.2319	750	0.0275
410	0.0187	480	0.2936	550	0.7832	620	0.8309	690	0.1724	760	0.0204
420	0.0865	490	0.3843	560	0.8347	630	0.7285	700	0.1273	770	0.0153
430	0.2645	500	0.5079	570	0.8842	640	0.6170	710	0.0935	780	0.0132

**CRI & CCT**

x	0.3775
y	0.3748
u'	0.2239
v'	0.5003
CRI	83.50
CCT	4066
Duv	-0.00004

**R Values**

R1	81.75
R2	88.80
R3	94.37
R4	83.34
R5	82.26
R6	84.74
R7	86.50
R8	66.25
R9	11.73
R10	73.81
R11	82.69
R12	67.61
R13	83.27
R14	96.69



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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: 9*

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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L101605904.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L101605904  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUE DATE] 10/28/2016  
 [MANUFAC] REVOLUTION LIGHTING TECHNOLOGIES (RVLT)  
 [LUMCAT] 131436-203  
 [LUMINAIRE] 45W 4000K 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, 42.17W  
 [\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5635
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	134
Total Luminaire Watts	42.17
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)	0.27 ft (Diameter)
Luminous Width (90-270)	0.27 ft (Diameter)
Luminous Height	0.52 ft

**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	42165	42165	42165
55	41386	41386	41386
65	39552	39552	39552
75	37673	37673	37673
85	38455	38455	38455

IES INDOOR REPORT  
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CANDELA TABULATION

	<u>0</u>
0	318
5	320
10	332
15	357
20	389
25	427
30	466
35	500
40	528
45	548
50	563
55	569
60	568
65	557
70	539
75	527
80	520
85	518
90	515
95	510
100	502
105	489
110	473
115	452
120	428
125	400
130	368
135	331
140	290
145	244
150	195
155	149
160	107
165	69
170	35
175	16
180	0

**IES INDOOR REPORT**  
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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	133.30	N.A.	2.40
0-30	331.90	N.A.	5.90
0-40	645.66	N.A.	11.50
0-60	1578.33	N.A.	28.00
0-80	2688.12	N.A.	47.70
0-90	3253.01	N.A.	57.70
10-90	3222.06	N.A.	57.20
20-40	512.36	N.A.	9.10
20-50	936.08	N.A.	16.60
40-70	1483.68	N.A.	26.30
60-80	1109.79	N.A.	19.70
70-80	558.78	N.A.	9.90
80-90	564.89	N.A.	10.00
90-110	1072.25	N.A.	19.00
90-120	1520.4	N.A.	27.00
90-130	1878.78	N.A.	33.30
90-150	2288.74	N.A.	40.60
90-180	2381.82	N.A.	42.30
110-180	1309.56	N.A.	23.20
0-180	5634.83	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	30.95
10-20	102.35
20-30	198.59
30-40	313.76
40-50	423.72
50-60	508.95
60-70	551.00
70-80	558.78
80-90	564.89
90-100	555.64
100-110	516.62
110-120	448.15
120-130	358.38
130-140	256.23
140-150	153.74
150-160	70.38
160-170	20.67
170-180	2.02

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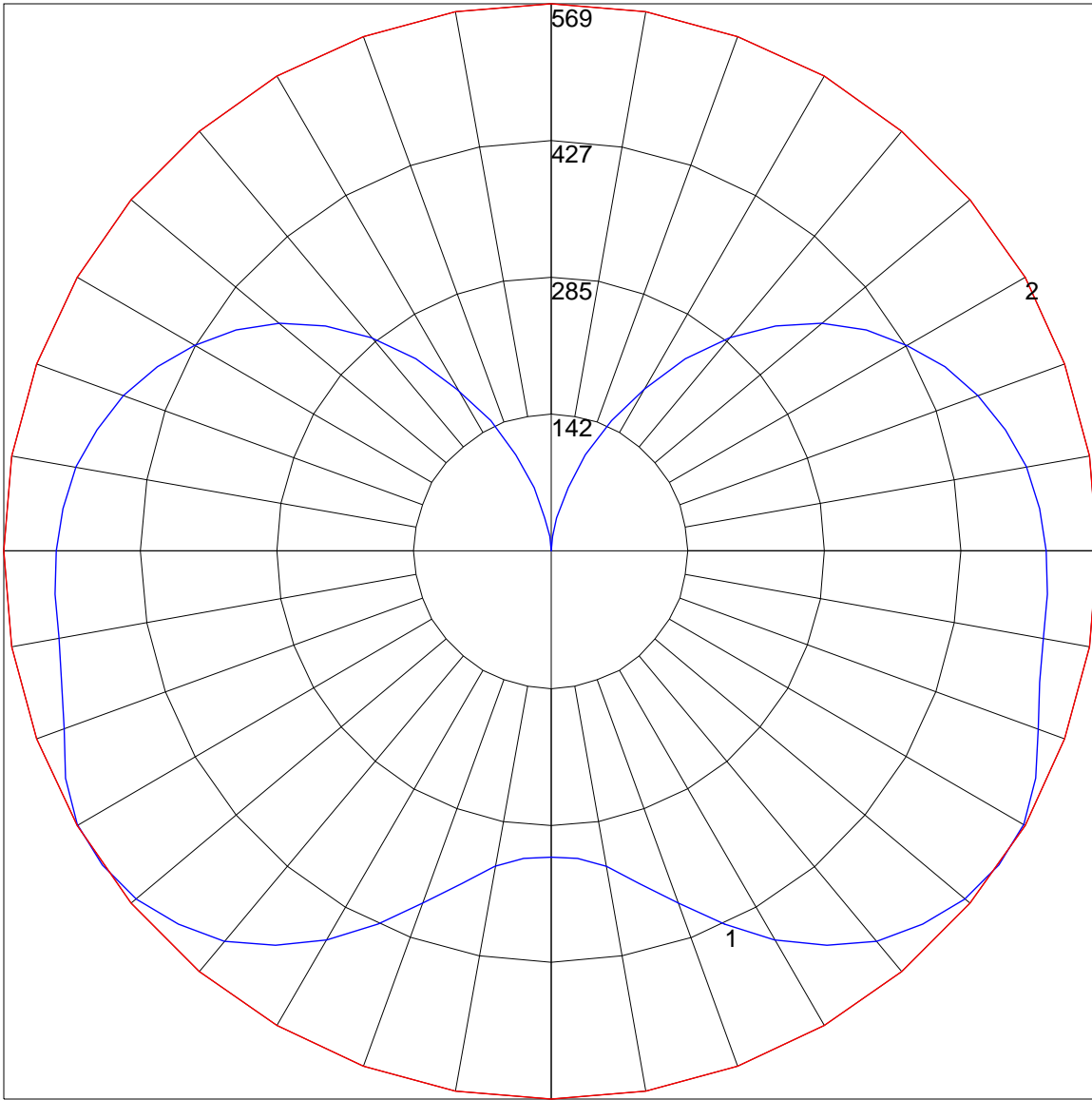
**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	102	102	102	102	88	88	88	75	75	75	63	63	63	58
1	94	88	82	77	87	81	76	72	69	65	62	58	55	52	48	46	43	38
2	84	74	66	59	77	68	61	55	58	52	47	48	44	40	39	36	33	28
3	75	63	54	47	69	59	50	43	49	43	37	41	36	31	33	29	26	22
4	68	55	45	38	63	51	42	35	43	36	30	36	30	25	29	24	21	17
5	62	48	39	32	57	45	36	29	38	31	25	31	26	21	25	21	17	14
6	57	43	33	27	52	40	31	25	34	27	21	28	22	18	23	18	14	11
7	52	38	29	23	48	35	27	21	30	23	18	25	19	15	20	16	12	10
8	48	35	26	20	44	32	24	18	27	21	16	23	17	13	18	14	11	8
9	45	31	23	17	41	29	21	16	25	18	14	21	15	12	17	13	9	7
10	42	29	21	15	39	27	19	14	23	17	12	19	14	10	16	11	8	6



POLAR GRAPH



Maximum Candela = 569 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.)