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Report No: L101605906

Date: 10/31/2016



NVLAP LAB CODE 200927-0

Report No: L101605906

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

Model Number: 133431-203

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 133431-203 . 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 - 10/31/16

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:	Revolution Lighting Technologies (RVL)
Model Number:	133431-203
Driver Model Number:	N/A
Total Lumens:	10950.54
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.67
Input Power (W):	79.47
Input Power Factor:	0.99
Current ATHD @ 120V(%):	14%
Current ATHD @ 277V(%):	N/A
Efficacy:	138
Color Rendering Index (CRI):	83
Correlated Color Temperature (K):	4041
Chromaticity Coordinate x:	0.3803
Chromaticity Coordinate y:	0.3818
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:55
Off State Power(W):	0.00

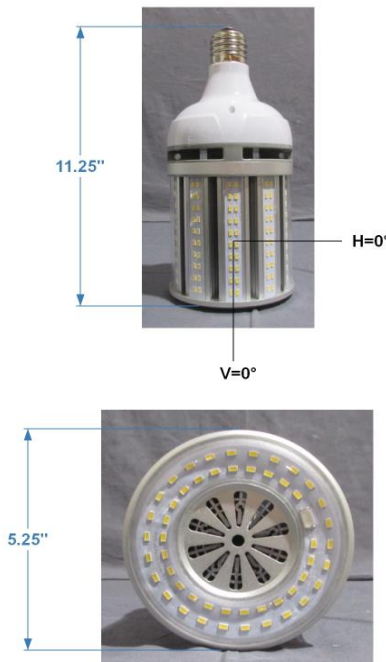
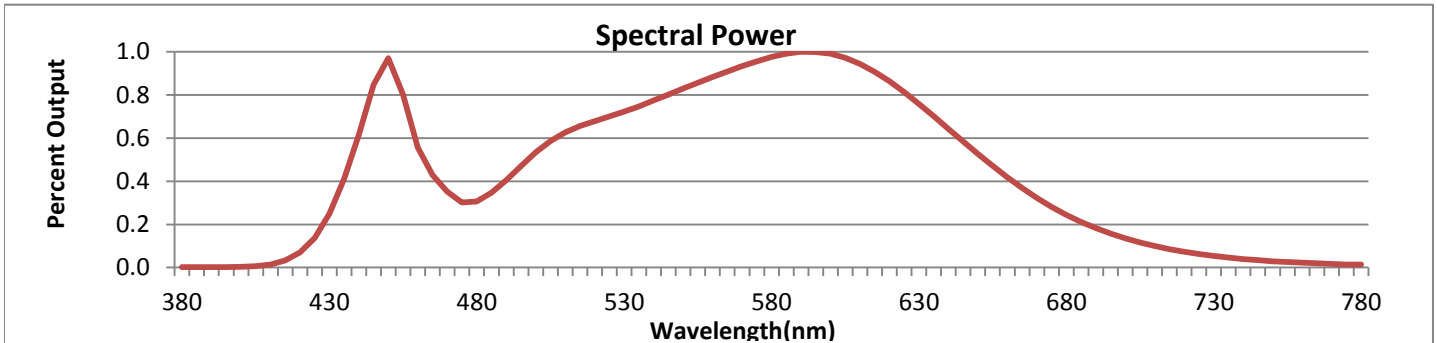


FIG. 1 LUMINAIRE

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



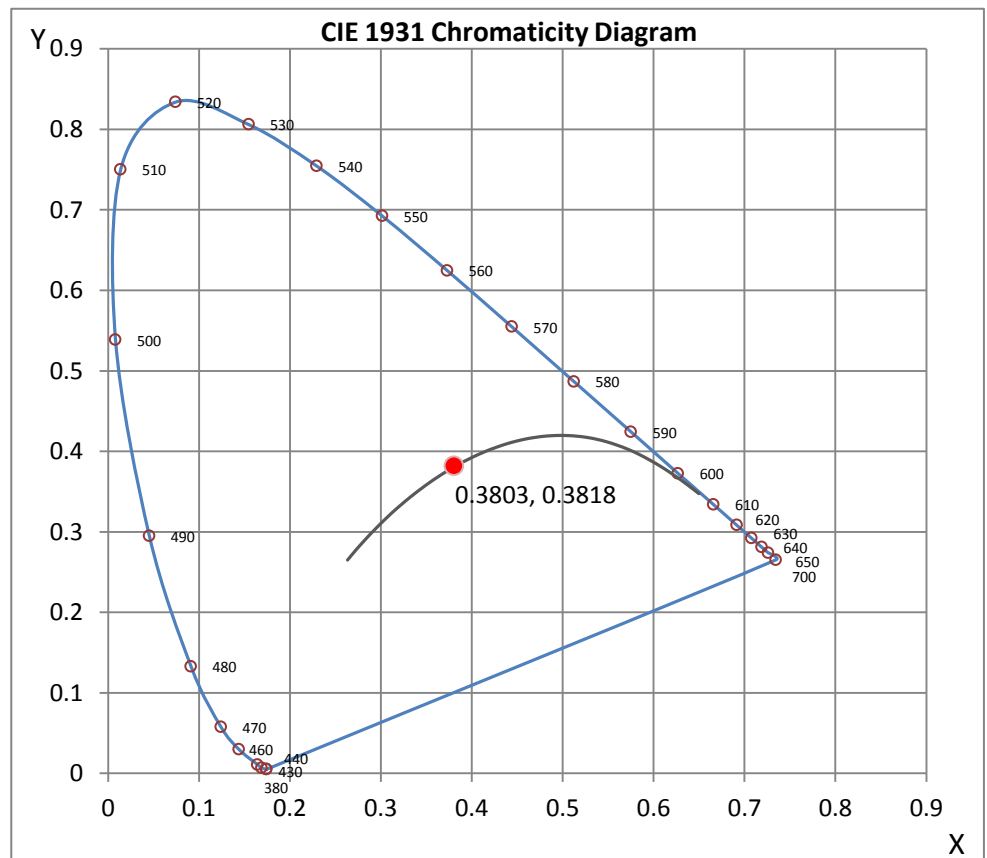
Wavelength	W/m ² nm	440	0.6160	510	0.6269	580	0.9766	650	0.5266	720	0.0729
380	0.0013	450	0.9707	520	0.6791	590	1.0000	660	0.4188	730	0.0534
390	0.0016	460	0.5563	530	0.7239	600	0.9912	670	0.3222	740	0.0398
400	0.0033	470	0.3519	540	0.7746	610	0.9443	680	0.2442	750	0.0294
410	0.0144	480	0.3060	550	0.8298	620	0.8646	690	0.1824	760	0.0221
420	0.0698	490	0.4061	560	0.8831	630	0.7586	700	0.1349	770	0.0166
430	0.2492	500	0.5347	570	0.9338	640	0.6430	710	0.0992	780	0.0143

CRI & CCT

x	0.3803
y	0.3818
u'	0.2230
v'	0.5038
CRI	82.90
CCT	4041
Duv	0.00240

R Values

R1	80.59
R2	88.24
R3	94.79
R4	82.45
R5	81.01
R6	84.16
R7	86.81
R8	65.13
R9	8.31
R10	72.76
R11	81.46
R12	65.42
R13	82.23
R14	96.93



*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.

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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 : L101605906.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L101605906
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 10/31/2016
 [MANUFAC] REVOLUTION LIGHTING TECHNOLOGIES (RVLT)
 [LUMCAT] 133431-203
 [LUMINAIRE] 80W 4000K EX39 OMNIDIRECTIONAL HIGH POWER 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, 79.47W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	10951
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	138
Total Luminaire Watts	79.47
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)	0.42 ft (Diameter)
Luminous Width (90-270)	0.42 ft (Diameter)
Luminous Height	0.44 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	54136	54136	54136
55	53805	53805	53805
65	51239	51239	51239
75	50016	50016	50016
85	52845	52845	52845

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101605906.IES

CANDELA TABULATION

	<u>0</u>
0	796
5	801
10	821
15	865
20	923
25	984
30	1037
35	1080
40	1117
45	1151
50	1169
55	1155
60	1122
65	1077
70	1035
75	997
80	971
85	964
90	955
95	948
100	937
105	915
110	883
115	844
120	794
125	738
130	672
135	597
140	510
145	429
150	351
155	270
160	188
165	114
170	60
175	31
180	0

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	324.48	N.A.	3.00
0-30	780.25	N.A.	7.10
0-40	1458.55	N.A.	13.30
0-60	3378.91	N.A.	30.90
0-80	5505.98	N.A.	50.30
0-90	6557.2	N.A.	59.90
10-90	6480.09	N.A.	59.20
20-40	1134.06	N.A.	10.40
20-50	2022.79	N.A.	18.50
40-70	2989.72	N.A.	27.30
60-80	2127.07	N.A.	19.40
70-80	1057.71	N.A.	9.70
80-90	1051.22	N.A.	9.60
90-110	1998.77	N.A.	18.30
90-120	2834.26	N.A.	25.90
90-130	3494.96	N.A.	31.90
90-150	4227.87	N.A.	38.60
90-180	4393.33	N.A.	40.10
110-180	2394.56	N.A.	21.90
0-180	10950.54	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	77.12
10-20	247.37
20-30	455.77
30-40	678.30
40-50	888.73
50-60	1031.64
60-70	1069.35
70-80	1057.71
80-90	1051.22
90-100	1033.26
100-110	965.51
110-120	835.49
120-130	660.70
130-140	461.39
140-150	271.53
150-160	126.62
160-170	35.21
170-180	3.63

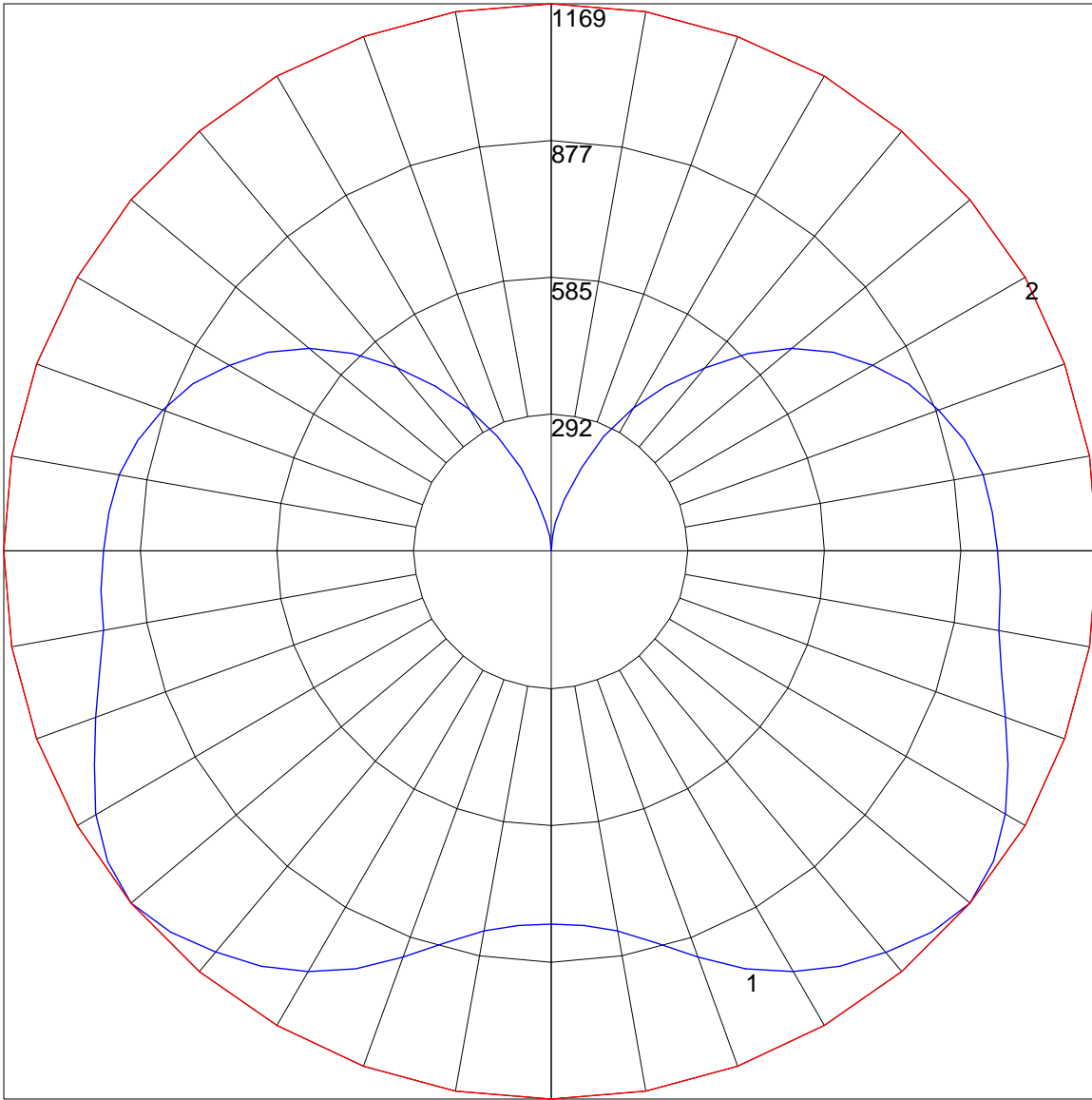
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	
0	109	109	109	109	102	102	102	102	89	89	89	77	77	77	65	65	65	60
1	95	89	83	78	88	83	77	73	71	67	63	60	57	54	50	48	46	41
2	85	75	67	60	78	70	62	56	59	54	49	50	46	42	41	38	35	30
3	76	64	55	48	70	60	51	45	51	44	39	43	37	33	35	31	28	24
4	69	56	46	39	64	52	43	36	44	37	32	37	32	27	31	26	22	19
5	63	49	40	32	58	46	37	30	39	32	26	33	27	23	27	22	19	15
6	58	44	34	28	53	41	32	26	35	28	22	29	23	19	24	19	16	13
7	53	39	30	24	49	36	28	22	31	24	19	26	21	16	22	17	14	11
8	49	35	27	21	45	33	25	19	28	22	17	24	18	14	20	15	12	9
9	46	32	24	18	42	30	22	17	26	19	15	22	16	13	18	14	11	8
10	43	29	21	16	39	27	20	15	24	17	13	20	15	11	17	12	9	7

POLAR GRAPH



Maximum Candela = 1169 Located At Horizontal Angle = 0, Vertical Angle = 50
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (50) (Through Max. Cd.)