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Report No: L111602307R01

Date: 11/15/2016



NVLAP LAB CODE 200927-0

Report No: L111602307R01

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

Model Number: 128013-123

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 128013-123 . Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 11/9/16

Date of Tests: 11/11/16 - 11/15/16

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
Model Number:	128013-123
Driver Model Number:	LETRON LP0237-1850(2 DRIVERS)
Total Lumens:	21678.97
Input Voltage (VAC/60Hz):	277.00
Input Current (Amp):	0.62
Input Power (W):	155.71
Input Power Factor:	0.91
Current ATHD @ 120V(%):	N/A
Current ATHD @ 277V(%):	16%
Efficacy:	139
Color Rendering Index (CRI):	83
Correlated Color Temperature (K):	4050
Chromaticity Coordinate x:	0.3810
Chromaticity Coordinate y:	0.3856
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:15
Off State Power(W):	0.00

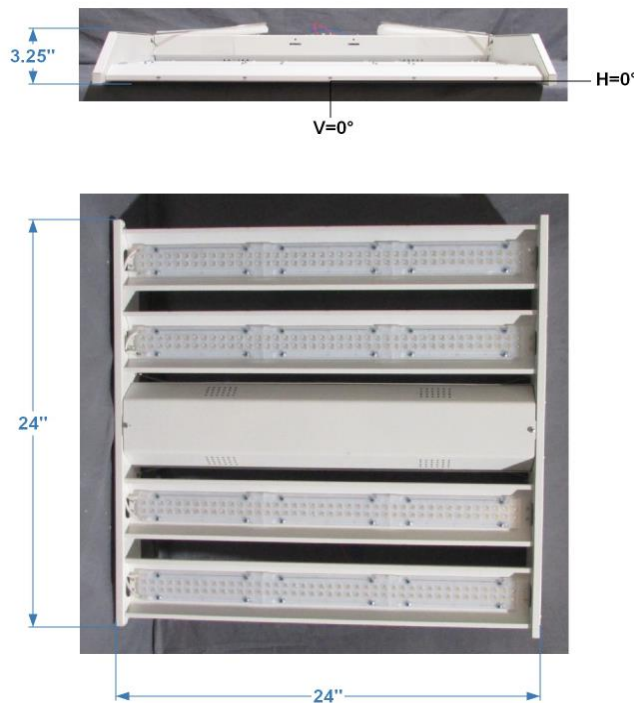
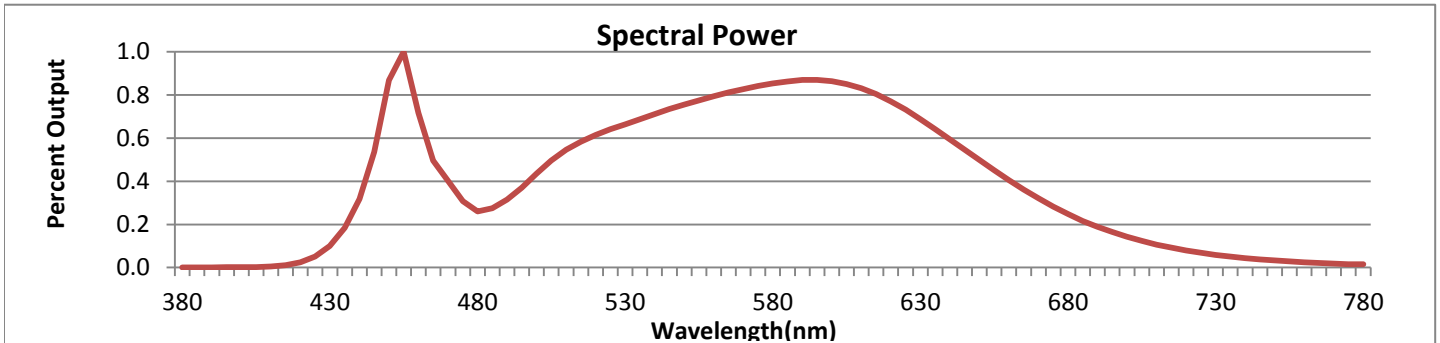


FIG. 1 LUMINAIRE

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



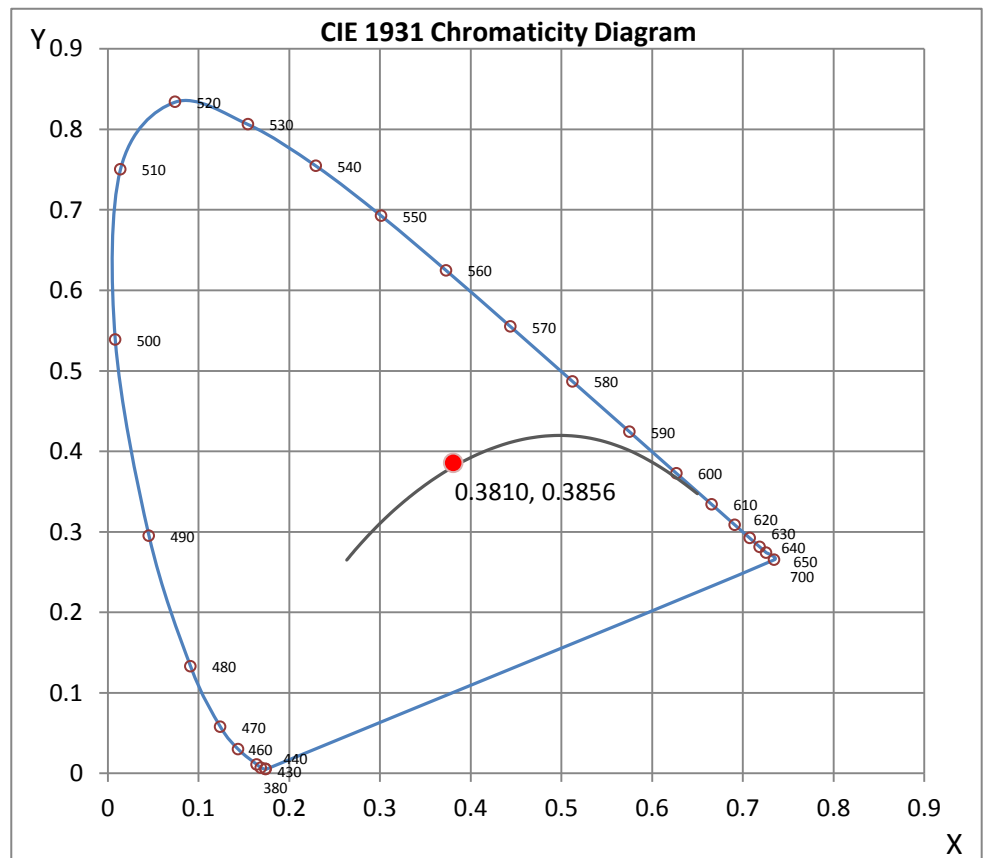
Wavelength	W/m ² nm	440	0.3179	510	0.5462	580	0.8545	650	0.4988	720	0.0793
380	0.0010	450	0.8692	520	0.6145	590	0.8697	660	0.4061	730	0.0588
390	0.0011	460	0.7169	530	0.6644	600	0.8638	670	0.3205	740	0.0435
400	0.0017	470	0.4007	540	0.7116	610	0.8316	680	0.2481	750	0.0327
410	0.0053	480	0.2602	550	0.7562	620	0.7711	690	0.1885	760	0.0245
420	0.0249	490	0.3153	560	0.7941	630	0.6873	700	0.1422	770	0.0184
430	0.0999	500	0.4348	570	0.8277	640	0.5945	710	0.1065	780	0.0160

CRI & CCT

x	0.3810
y	0.3856
u'	0.2220
v'	0.5055
CRI	83.30
CCT	4050
Duv	0.00393

R Values

R1	81.28
R2	88.80
R3	94.57
R4	81.67
R5	80.50
R6	83.88
R7	88.25
R8	67.50
R9	14.91
R10	73.09
R11	79.93
R12	56.79
R13	83.07
R14	96.76



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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*

*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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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L111602307R01.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L111602307R01
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 11/15/2016
 [MANUFAC] REVOLUTION LIGHTING TECHNOLOGIES
 [LUMCAT] 128013-123
 [LUMINAIRE] 167W ECO LINEAR HIGH BAY 4000K MEDIUM OPTIC
 [BALLASTCAT] LETRON LP0237-1850(2 DRIVERS)
 [LAMPPOSITION] 0,0
 [LAMPCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 277VAC, 155.71W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	21679
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	139
Total Luminaire Watts	155.71
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.24
Spacing Criterion (90-270)	1.20
Spacing Criterion (Diagonal)	1.28
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.92 ft
Luminous Width (90-270)	1.88 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	19398	25280	20262
55	7895	12383	7963
65	3215	4173	2347
75	1945	1209	449
85	889	649	581

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L111602307R01.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	11535	11535	11535	11535	11535
5	11778	11756	11706	11658	11683
10	12161	12128	12026	11878	11772
15	12343	12379	12264	11938	11715
20	12000	12182	12159	11598	11245
25	11077	11455	11615	10870	10468
30	9749	10298	10734	9874	9338
35	8205	8811	9460	8586	8069
40	6496	7079	7828	7096	6663
45	4604	5200	6000	5353	4809
50	2809	3349	4074	3454	2900
55	1520	1856	2384	1890	1533
60	797	936	1215	929	776
65	456	498	592	446	333
70	279	302	307	166	133
75	169	173	105	44	39
80	85	69	29	30	30
85	26	17	19	18	17
90	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L111602307R01.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	4540.34	N.A.	20.90
0-30	9654.13	N.A.	44.50
0-40	15083.34	N.A.	69.60
0-60	20986.61	N.A.	96.80
0-80	21656.07	N.A.	99.90
0-90	21678.97	N.A.	100.00
10-90	20552.79	N.A.	94.80
20-40	10543.00	N.A.	48.60
20-50	14617.77	N.A.	67.40
40-70	6439.89	N.A.	29.70
60-80	669.46	N.A.	3.10
70-80	132.85	N.A.	0.60
80-90	22.90	N.A.	0.10
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	21678.97	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	1126.18
10-20	3414.16
20-30	5113.79
30-40	5429.21
40-50	4074.77
50-60	1828.49
60-70	536.62
70-80	132.85
80-90	22.90
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

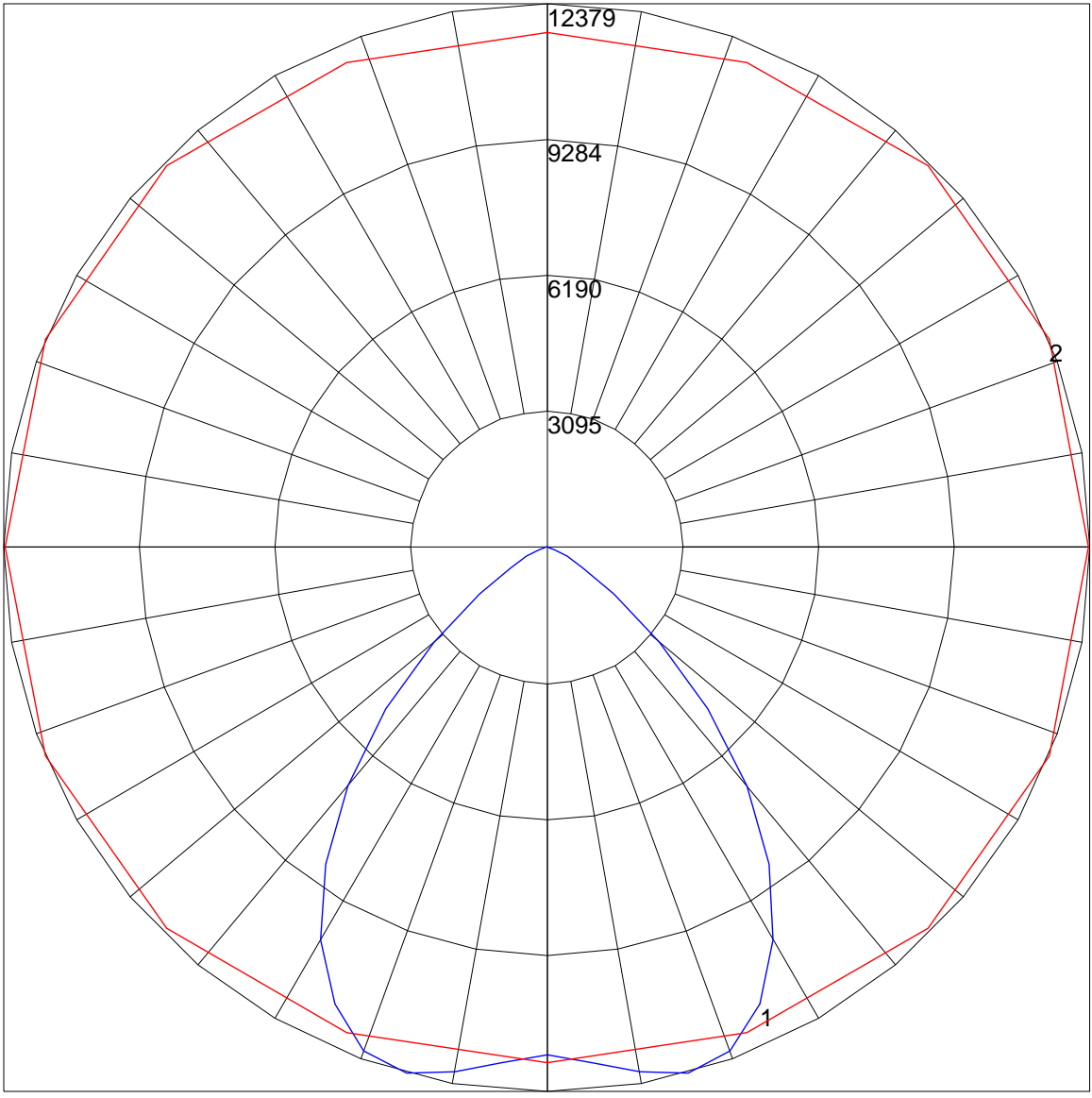
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	0
1	112	109	106	103	109	106	104	101	102	100	98	99	97	95	95	94	92	90	0
2	105	99	94	89	102	97	92	88	93	90	86	90	87	84	88	85	83	81	0
3	98	90	83	78	95	88	82	78	85	80	76	83	79	75	80	77	74	72	0
4	91	82	75	69	89	80	74	69	78	72	68	76	71	67	74	70	66	65	0
5	85	74	67	62	83	73	67	62	71	66	61	70	64	60	68	63	60	58	0
6	79	68	61	56	78	67	60	55	66	60	55	64	59	54	63	58	54	52	0
7	74	63	55	50	73	62	55	50	61	54	50	59	54	49	58	53	49	47	0
8	70	58	51	46	68	57	50	45	56	50	45	55	49	45	54	49	45	43	0
9	65	54	46	42	64	53	46	42	52	46	41	51	45	41	50	45	41	39	0
10	62	50	43	38	60	49	43	38	48	42	38	48	42	38	47	42	38	36	0

POLAR GRAPH



Maximum Candela = 12379 Located At Horizontal Angle = 22.5, Vertical Angle = 15
1 - Vertical Plane Through Horizontal Angles (22.5 - 202.5) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (15) (Through Max. Cd.)