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Report No: L121500505R01

Date: 12/15/2015



NVLAP LAB CODE 200927-0

**Report No:** L121500505R01

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

**Model Number:** 153043-103

**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 153043-103 . Received in working and undamaged condition. No modifications were necessary.

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

**Sample Arrival Date:** 12/1/15

**Date of Tests:** 12/7/15 - 12/9/15

**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-S3	1/15/16
Xitron Power Analyzer	2801	MT-EL02-1	12/9/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/05/16
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	
<b>Model Number:</b>	153043-103	
<b>Driver Model Number:</b>	XZ-POWER XZ-CI35B-420083	
<b>Total Lumens:</b>	3344.85	
<b>Input Voltage (VAC/60Hz):</b>	120.00	
<b>Input Current (Amp):</b>	0.30	
<b>Input Power (W):</b>	35.85	
<b>Input Power Factor:</b>	0.99	
<b>Current ATHD @ 120V(%):</b>	11%	
<b>Current ATHD @ 277V(%):</b>	16% (0.14A, 36.48W, 0.92PF)	
<b>Efficacy:</b>	93	
<b>Color Rendering Index (CRI):</b>	81	
<b>Correlated Color Temperature (K):</b>	3991	
<b>Chromaticity Coordinate x:</b>	0.3838	
<b>Chromaticity Coordinate y:</b>	0.3878	
<b>Ambient Temperature (°C):</b>	25.0	
<b>Stabilization Time (Hours):</b>	0:50	
<b>Total Operating Time (Hours):</b>	1:20	
<b>Off State Power(W):</b>	0.00	

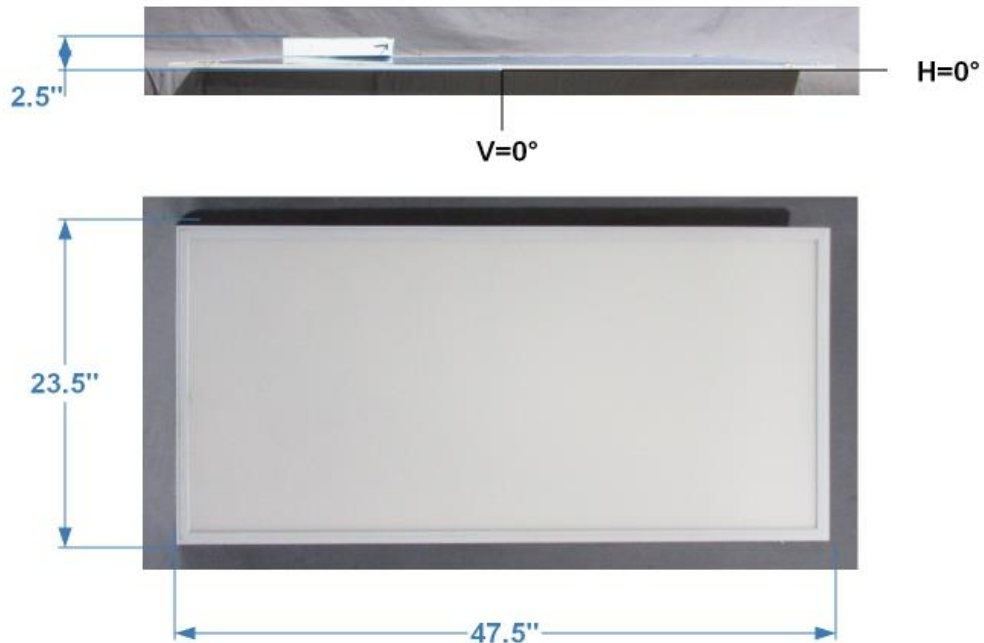
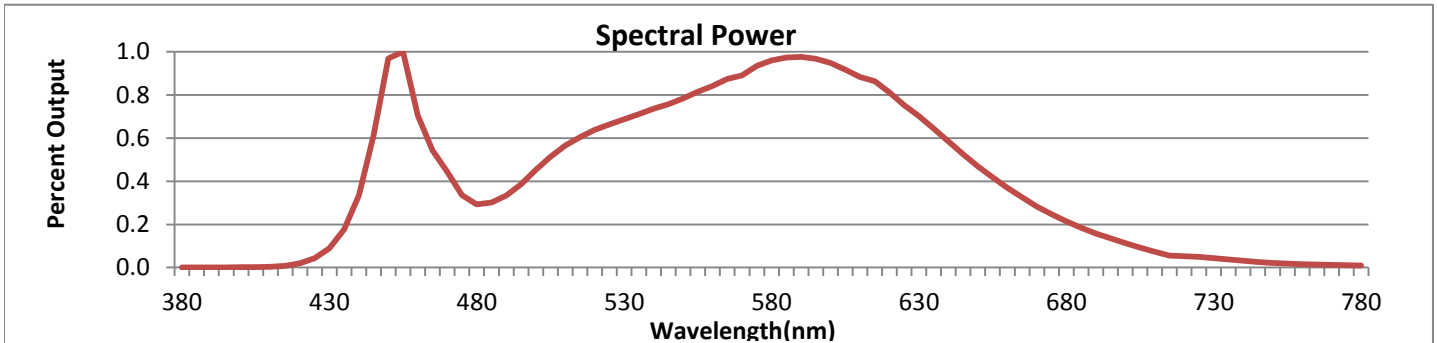


FIG. 1 LUMINAIRE

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



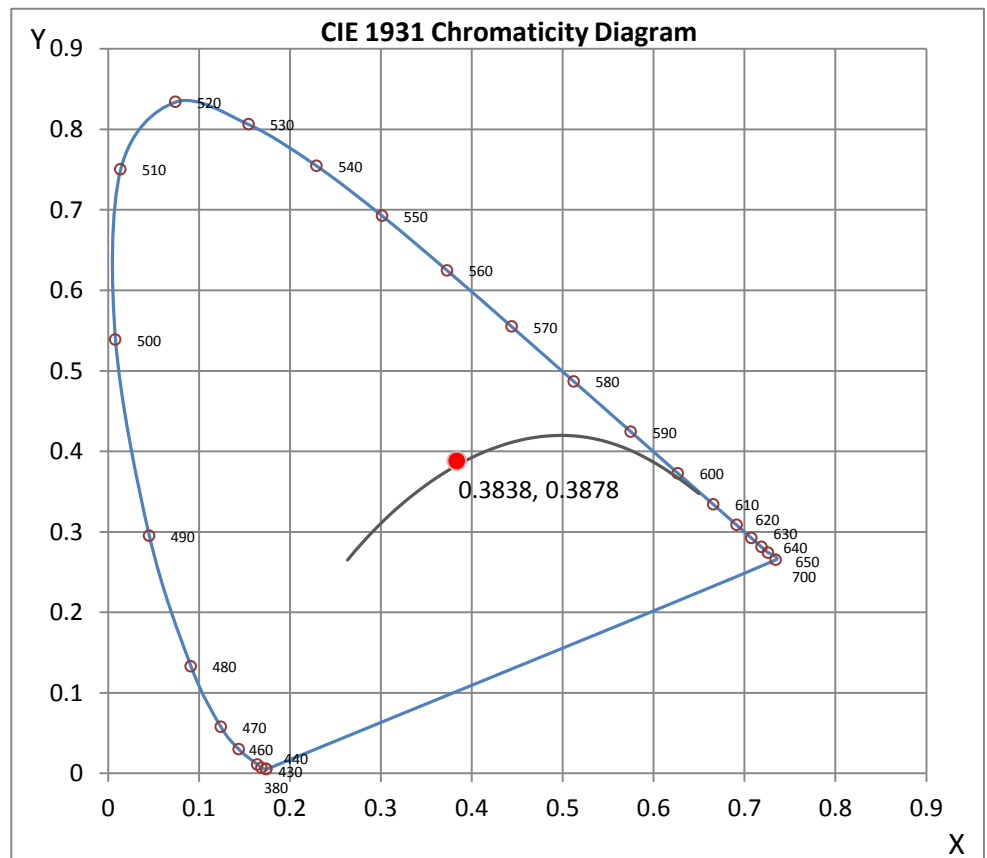
Wavelength	W/m <sup>2</sup> nm	440	0.3339	510	0.5653	580	0.9600	650	0.4698	720	0.0519
380	0.0009	450	0.9702	520	0.6385	590	0.9776	660	0.3702	730	0.0436
390	0.0011	460	0.7055	530	0.6881	600	0.9487	670	0.2831	740	0.0314
400	0.0014	470	0.4437	540	0.7368	610	0.8828	680	0.2139	750	0.0218
410	0.0037	480	0.2926	550	0.7845	620	0.8118	690	0.1585	760	0.0153
420	0.0191	490	0.3340	560	0.8423	630	0.7023	700	0.1137	770	0.0118
430	0.0894	500	0.4525	570	0.8909	640	0.5850	710	0.0727	780	0.0088

**CRI & CCT**

x	0.3838
y	0.3878
u'	0.2229
v'	0.5069
CRI	81.30
CCT	3991
Duv	0.00413

**R Values**

R1	78.66
R2	88.18
R3	95.50
R4	78.89
R5	78.30
R6	83.45
R7	85.65
R8	61.56
R9	0.58
R10	72.13
R11	77.22
R12	56.06
R13	81.03
R14	97.46



\*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 : 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 : L121500505.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L121500505  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 12/8/2015  
 [MANUFAC] REVOLUTION LIGHTING TECHNOLOGIES  
 [LUMCAT] 153043-103  
 [LUMINAIRE] 35W 2x4 LED Dimmable Thin Panel 4000K  
 [MORE] SIZE: 47.5"L. X 23.5"W. X 2.5"H.  
 [BALLASTCAT] XZ-POWER XZ-CI35B-420083  
 [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, 35.85W  
 [TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3345
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	93
Total Luminaire Watts	35.85
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.24
Spacing Criterion (90-270)	1.26
Spacing Criterion (Diagonal)	1.36
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	3.81 ft
Luminous Width (90-270)	1.81 ft
Luminous Height	0.00 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	1687	1707	1727
55	1601	1618	1637
65	1517	1528	1542
75	1338	1338	1344
85	1091	1056	1056

IES INDOOR REPORT  
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CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
<b>0</b>	1189	1189	1189	1189	1189
<b>5</b>	1181	1181	1184	1186	1187
<b>10</b>	1163	1163	1166	1169	1170
<b>15</b>	1133	1134	1138	1142	1143
<b>20</b>	1093	1095	1100	1105	1107
<b>25</b>	1043	1045	1052	1058	1060
<b>30</b>	985	987	994	1001	1003
<b>35</b>	918	921	928	935	938
<b>40</b>	845	848	854	862	864
<b>45</b>	765	767	774	780	783
<b>50</b>	680	681	687	693	695
<b>55</b>	589	591	595	600	602
<b>60</b>	504	505	509	513	514
<b>65</b>	411	412	414	417	418
<b>70</b>	315	316	317	318	319
<b>75</b>	222	222	222	223	223
<b>80</b>	136	135	135	135	135
<b>85</b>	61	60	59	59	59
<b>90</b>	0	0	0	0	0

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	433.55	N.A.	13.00
0-30	918.09	N.A.	27.40
0-40	1498.54	N.A.	44.80
0-60	2629.37	N.A.	78.60
0-80	3275.67	N.A.	97.90
0-90	3344.85	N.A.	100.00
10-90	3232.42	N.A.	96.60
20-40	1064.99	N.A.	31.80
20-50	1661.68	N.A.	49.70
40-70	1540.49	N.A.	46.10
60-80	646.30	N.A.	19.30
70-80	236.64	N.A.	7.10
80-90	69.18	N.A.	2.10
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	3344.85	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	112.43
10-20	321.12
20-30	484.54
30-40	580.45
40-50	596.70
50-60	534.13
60-70	409.66
70-80	236.64
80-90	69.18
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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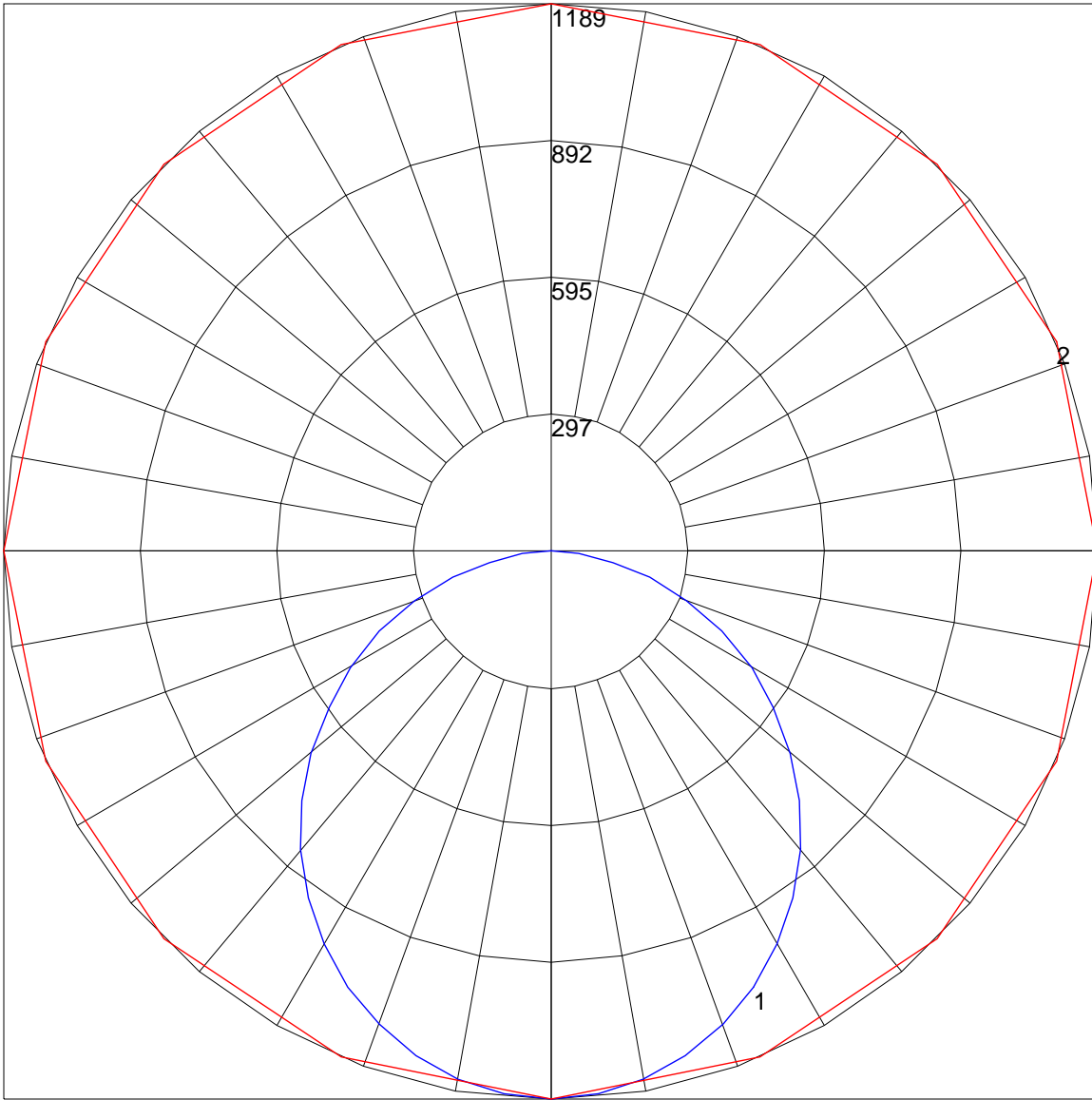
**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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
1	109	104	99	96	106	102	98	94	97	94	91	93	91	88	90	88	86	83
2	99	90	83	78	96	88	82	77	85	80	75	82	77	73	79	75	72	69
3	90	79	71	65	87	78	70	64	75	68	63	72	66	62	69	65	61	58
4	82	70	61	55	80	69	61	54	66	59	53	64	58	53	62	56	52	50
5	76	63	54	47	74	62	53	47	59	52	46	58	51	46	56	50	45	43
6	70	56	48	41	68	56	47	41	54	46	40	52	45	40	50	44	40	38
7	65	51	42	36	63	50	42	36	49	41	36	47	41	36	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32	42	36	32	30
9	56	43	35	29	55	42	34	29	41	34	29	40	33	29	39	33	29	27
10	53	40	32	26	52	39	31	26	38	31	26	37	31	26	36	30	26	24



POLAR GRAPH



Maximum Candela = 1189 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)