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Report No: L101606205

Date: 11/4/2016



NVLAP LAB CODE 200927-0

Report No: L101606205

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

Model Number: 153045-105

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 153045-105 . 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: 10/31/16 - 11/4/16

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.

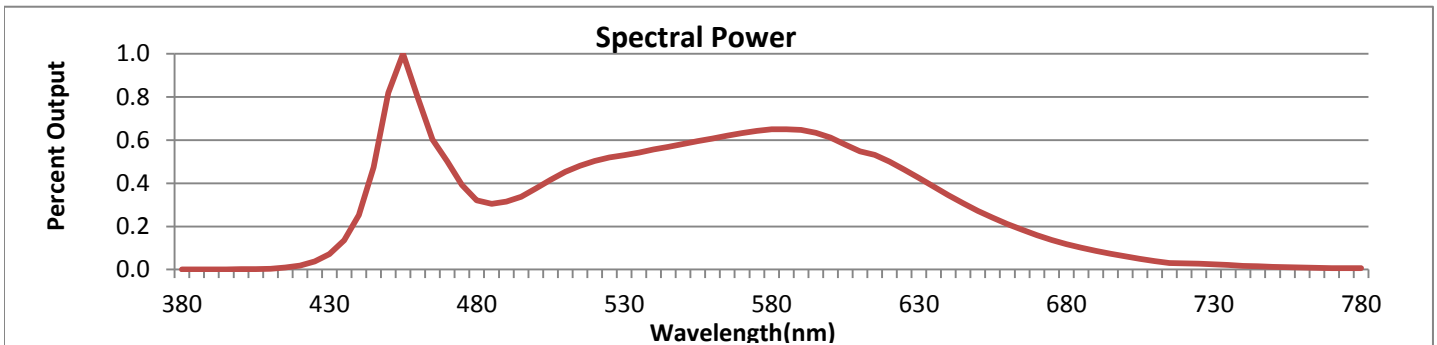
Test Summary

Manufacturer:	Revolution Lighting Technologies (RVL)
Model Number:	153045-105
Driver Model Number:	REVOLUTION LED POWER SUPPLY 150000-D09
Total Lumens:	4467.63
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.40
Input Power (W):	48.17
Input Power Factor:	0.99
Current ATHD @ 120V(%):	10%
Current ATHD @ 277V(%):	N/A
Efficacy:	93
Color Rendering Index (CRI):	81
Correlated Color Temperature (K):	4965
Chromaticity Coordinate x:	0.3471
Chromaticity Coordinate y:	0.3631
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:05
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.



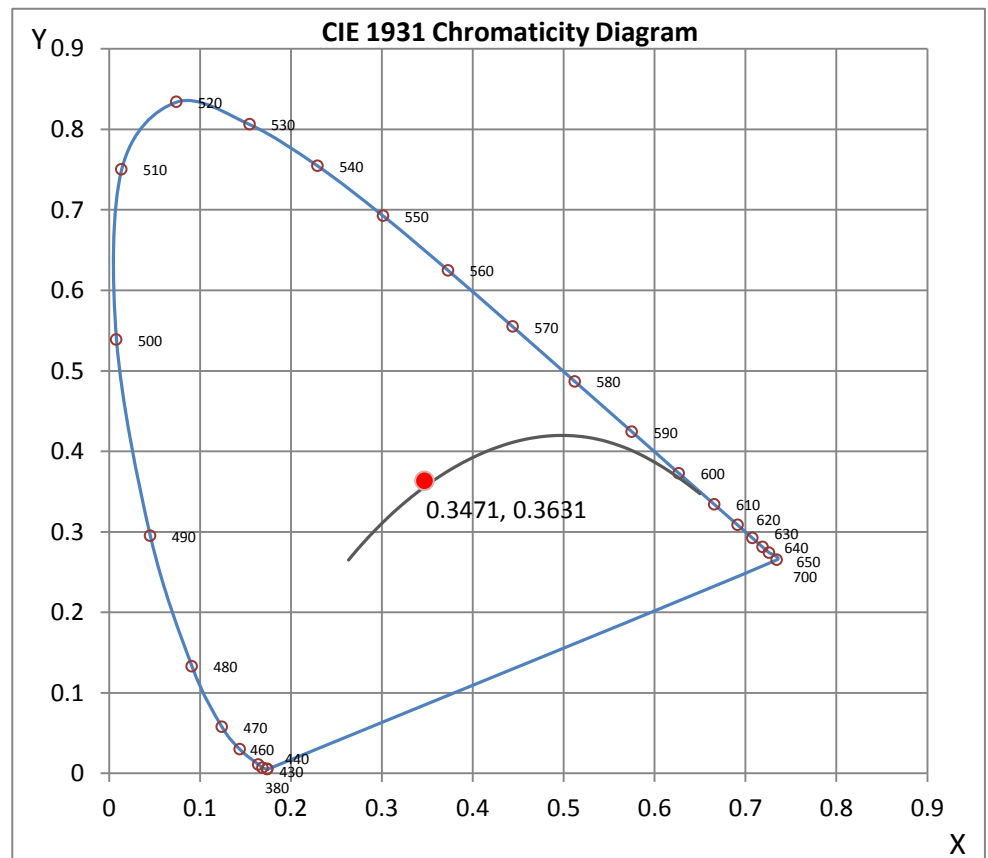
Wavelength	W/m ² nm	440	0.2523	510	0.4524	580	0.6499	650	0.2720	720	0.0285
380	0.0009	450	0.8194	520	0.5032	590	0.6468	660	0.2117	730	0.0240
390	0.0008	460	0.7973	530	0.5301	600	0.6121	670	0.1587	740	0.0175
400	0.0013	470	0.5014	540	0.5567	610	0.5487	680	0.1175	750	0.0125
410	0.0038	480	0.3211	550	0.5820	620	0.5009	690	0.0860	760	0.0091
420	0.0187	490	0.3144	560	0.6080	630	0.4243	700	0.0609	770	0.0071
430	0.0720	500	0.3756	570	0.6331	640	0.3451	710	0.0389	780	0.0063

CRI & CCT

x	0.3471
y	0.3631
u'	0.2084
v'	0.4905
CRI	81.40
CCT	4965
Duv	0.00490

R Values

R1	79.02
R2	90.09
R3	94.97
R4	76.41
R5	78.36
R6	84.84
R7	84.86
R8	62.31
R9	-1.78
R10	75.78
R11	75.04
R12	53.25
R13	82.44
R14	97.28



*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 : L101606205.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L101606205
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 11/3/2016
 [MANUFAC] REVOLUTION LIGHTING TECHNOLOGIES (RVLT)
 [LUMCAT] 153045-105
 [LUMINAIRE] 50W 2X4 ECO THIN PANEL 5000K
 [BALLASTCAT] REVOLUTION LED POWER SUPPLY 150000-D09
 [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, 48.17W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4468
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	93
Total Luminaire Watts	48.17
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.24
Spacing Criterion (90-270)	1.28
Spacing Criterion (Diagonal)	1.38
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	3.79 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	2270	2306	2346
55	2159	2192	2230
65	2036	2062	2096
75	1756	1756	1769
85	1367	1313	1277

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101606205.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	1574	1574	1574	1574	1574
5	1564	1564	1567	1570	1571
10	1541	1542	1547	1551	1552
15	1504	1506	1512	1518	1521
20	1453	1456	1464	1473	1476
25	1388	1392	1402	1413	1417
30	1312	1316	1329	1341	1345
35	1225	1230	1243	1256	1261
40	1129	1134	1146	1160	1165
45	1024	1028	1040	1052	1058
50	911	914	925	936	941
55	790	793	802	812	816
60	678	681	688	696	700
65	549	551	556	562	565
70	418	418	421	424	426
75	290	290	290	291	292
80	173	172	170	169	169
85	76	75	73	71	71
90	0	0	0	0	0

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	575.69	N.A.	12.90
0-30	1221.97	N.A.	27.40
0-40	1999.37	N.A.	44.80
0-60	3521.78	N.A.	78.80
0-80	4381.4	N.A.	98.10
0-90	4467.63	N.A.	100.00
10-90	4318.68	N.A.	96.70
20-40	1423.68	N.A.	31.90
20-50	2225.78	N.A.	49.80
40-70	2072.64	N.A.	46.40
60-80	859.63	N.A.	19.20
70-80	309.39	N.A.	6.90
80-90	86.22	N.A.	1.90
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	4467.63	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	148.94
10-20	426.75
20-30	646.28
30-40	777.40
40-50	802.10
50-60	720.31
60-70	550.23
70-80	309.39
80-90	86.22
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

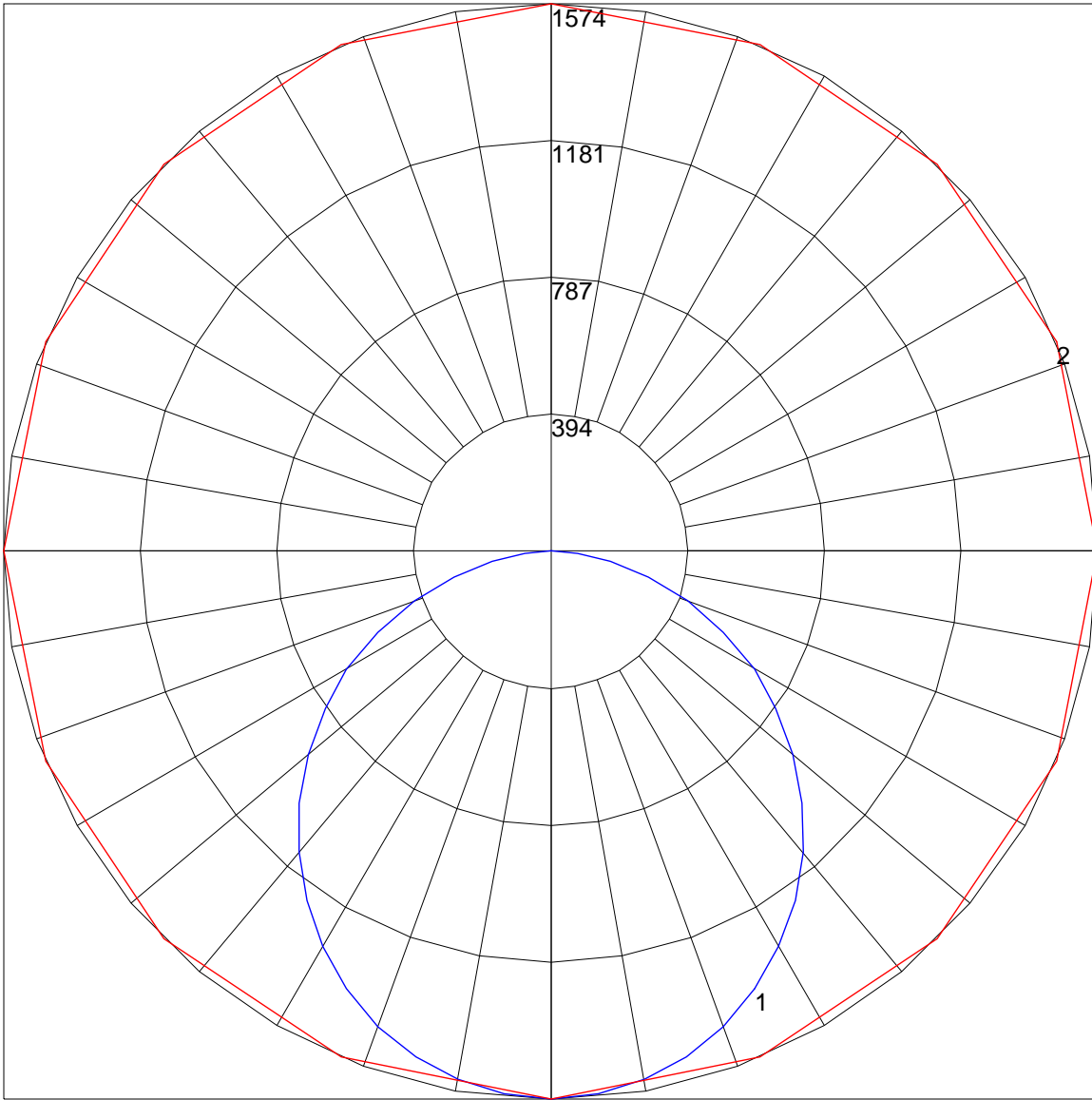
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	100	96	106	102	98	94	97	94	91	93	91	88	90	88	86	84
2	99	90	84	78	96	89	82	77	85	80	75	82	77	73	79	75	72	70
3	90	79	71	65	88	78	70	64	75	68	63	72	66	62	69	65	61	59
4	82	70	61	55	80	69	61	54	66	59	54	64	58	53	62	57	52	50
5	76	63	54	47	74	62	53	47	60	52	46	58	51	46	56	50	45	43
6	70	57	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 = 1574 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.)