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Report No: L101605905

Date: 10/28/2016



NVLAP LAB CODE 200927-0

Report No: L101605905

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

Model Number: 131436-205

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 131436-205 . 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

Manufacturer:	Revolution Lighting Technologies (RVLT)
Model Number:	131436-205
Driver Model Number:	N/A
Total Lumens:	5491.86
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.37
Input Power (W):	43.71
Input Power Factor:	0.99
Current ATHD @ 120V(%):	14%
Current ATHD @ 277V(%):	N/A
Efficacy:	126
Color Rendering Index (CRI):	85
Correlated Color Temperature (K):	5402
Chromaticity Coordinate x:	0.3347
Chromaticity Coordinate y:	0.3416
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:20
Total Operating Time (Hours):	1:50
Off State Power(W):	0.00

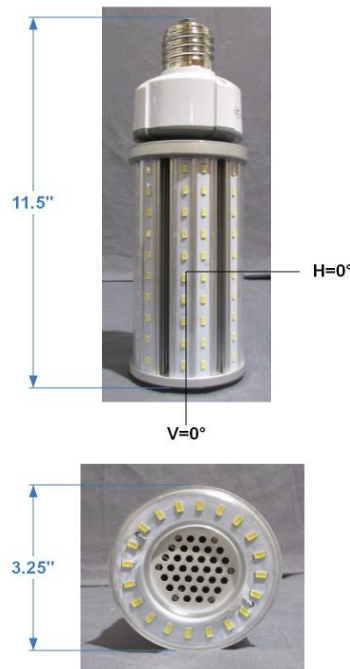
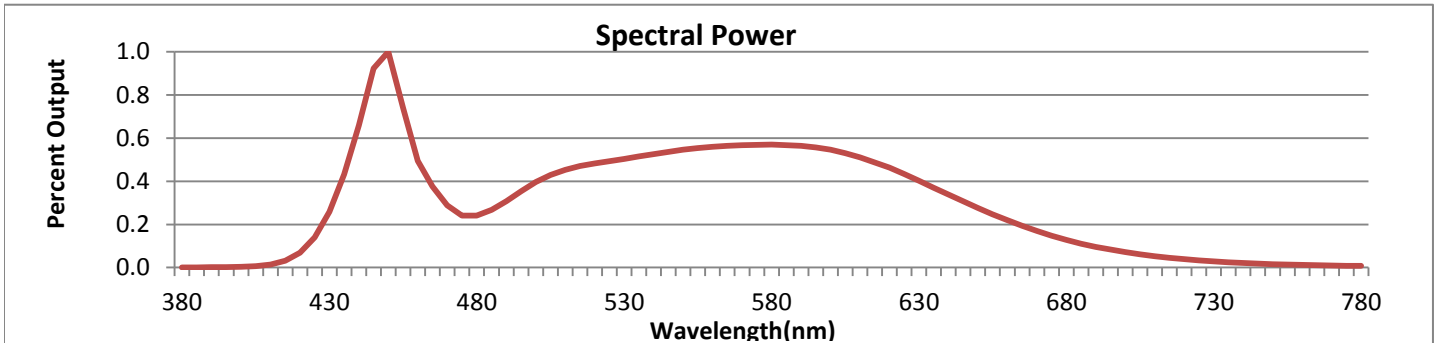


FIG. 1 LUMINAIRE

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



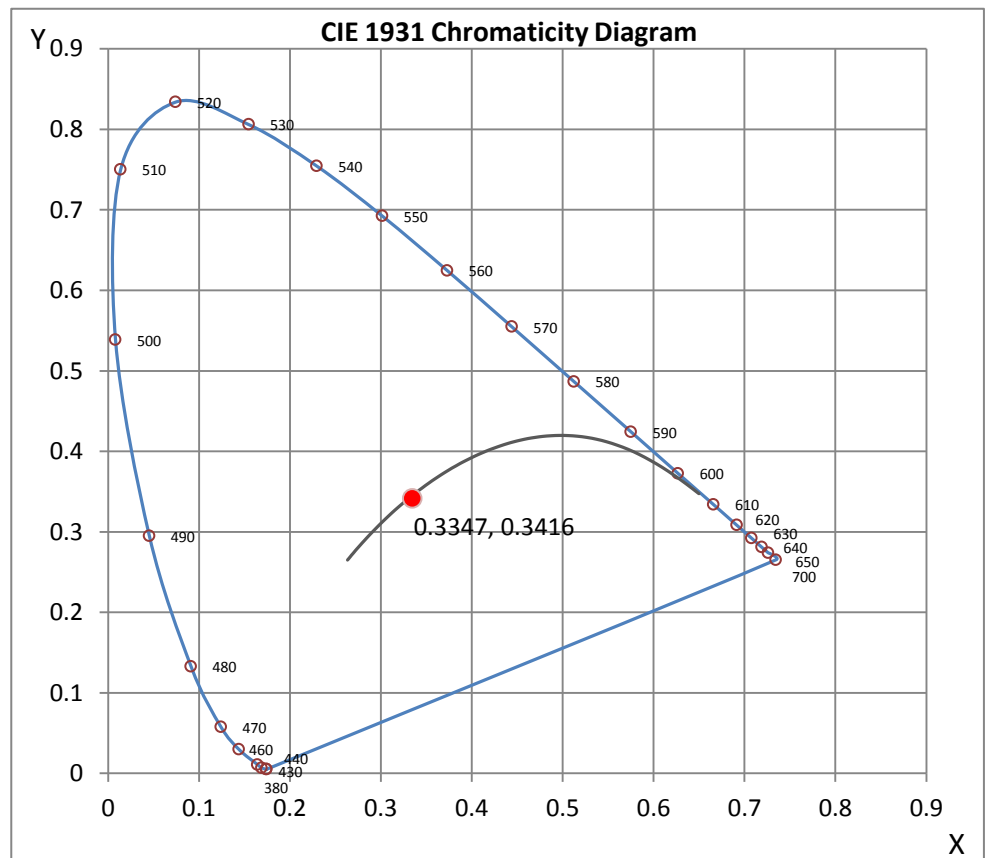
Wavelength	W/m ² nm	440	0.6591	510	0.4537	580	0.5703	650	0.2771	720	0.0389
380	0.0009	450	1.0000	520	0.4824	590	0.5649	660	0.2198	730	0.0285
390	0.0014	460	0.4943	530	0.5036	600	0.5460	670	0.1697	740	0.0210
400	0.0032	470	0.2885	540	0.5265	610	0.5115	680	0.1286	750	0.0157
410	0.0138	480	0.2414	550	0.5467	620	0.4629	690	0.0959	760	0.0117
420	0.0692	490	0.3080	560	0.5597	630	0.4026	700	0.0714	770	0.0088
430	0.2582	500	0.3962	570	0.5674	640	0.3394	710	0.0528	780	0.0076

CRI & CCT

x	0.3347
y	0.3416
u'	0.2082
v'	0.4781
CRI	84.70
CCT	5402
Duv	-0.00071

R Values

R1	84.17
R2	88.12
R3	90.46
R4	85.99
R5	85.20
R6	83.39
R7	87.30
R8	72.60
R9	20.08
R10	71.58
R11	86.52
R12	68.42
R13	84.87
R14	94.48



*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 : L101605905.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L101605905
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUE DATE] 10/28/2016
 [MANUFAC] REVOLUTION LIGHTING TECHNOLOGIES (RVLT)
 [LUMCAT] 131436-205
 [LUMINAIRE] 45W 5000K 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, 43.71W
 [_TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5492
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	126
Total Luminaire Watts	43.71
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	41165	41165	41165
55	40368	40368	40368
65	38274	38274	38274
75	36815	36815	36815
85	37639	37639	37639

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101605905.IES

CANDELA TABULATION

	<u>0</u>
0	303
5	305
10	319
15	344
20	377
25	415
30	454
35	489
40	514
45	535
50	549
55	555
60	553
65	539
70	524
75	515
80	509
85	507
90	503
95	498
100	490
105	478
110	461
115	441
120	418
125	390
130	359
135	322
140	282
145	236
150	188
155	145
160	103
165	66
170	33
175	16
180	0

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	128.34	N.A.	2.30
0-30	321.38	N.A.	5.90
0-40	627.59	N.A.	11.40
0-60	1537.01	N.A.	28.00
0-80	2617.21	N.A.	47.70
0-90	3169.83	N.A.	57.70
10-90	3140.24	N.A.	57.20
20-40	499.25	N.A.	9.10
20-50	912.51	N.A.	16.60
40-70	1444.05	N.A.	26.30
60-80	1080.2	N.A.	19.70
70-80	545.57	N.A.	9.90
80-90	552.62	N.A.	10.10
90-110	1046.99	N.A.	19.10
90-120	1484.21	N.A.	27.00
90-130	1833.84	N.A.	33.40
90-150	2232.14	N.A.	40.60
90-180	2322.04	N.A.	42.30
110-180	1275.04	N.A.	23.20
0-180	5491.86	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	29.59
10-20	98.75
20-30	193.04
30-40	306.21
40-50	413.27
50-60	496.16
60-70	534.63
70-80	545.57
80-90	552.62
90-100	542.54
100-110	504.45
110-120	437.22
120-130	349.62
130-140	249.44
140-150	148.86
150-160	68.15
160-170	19.80
170-180	1.94

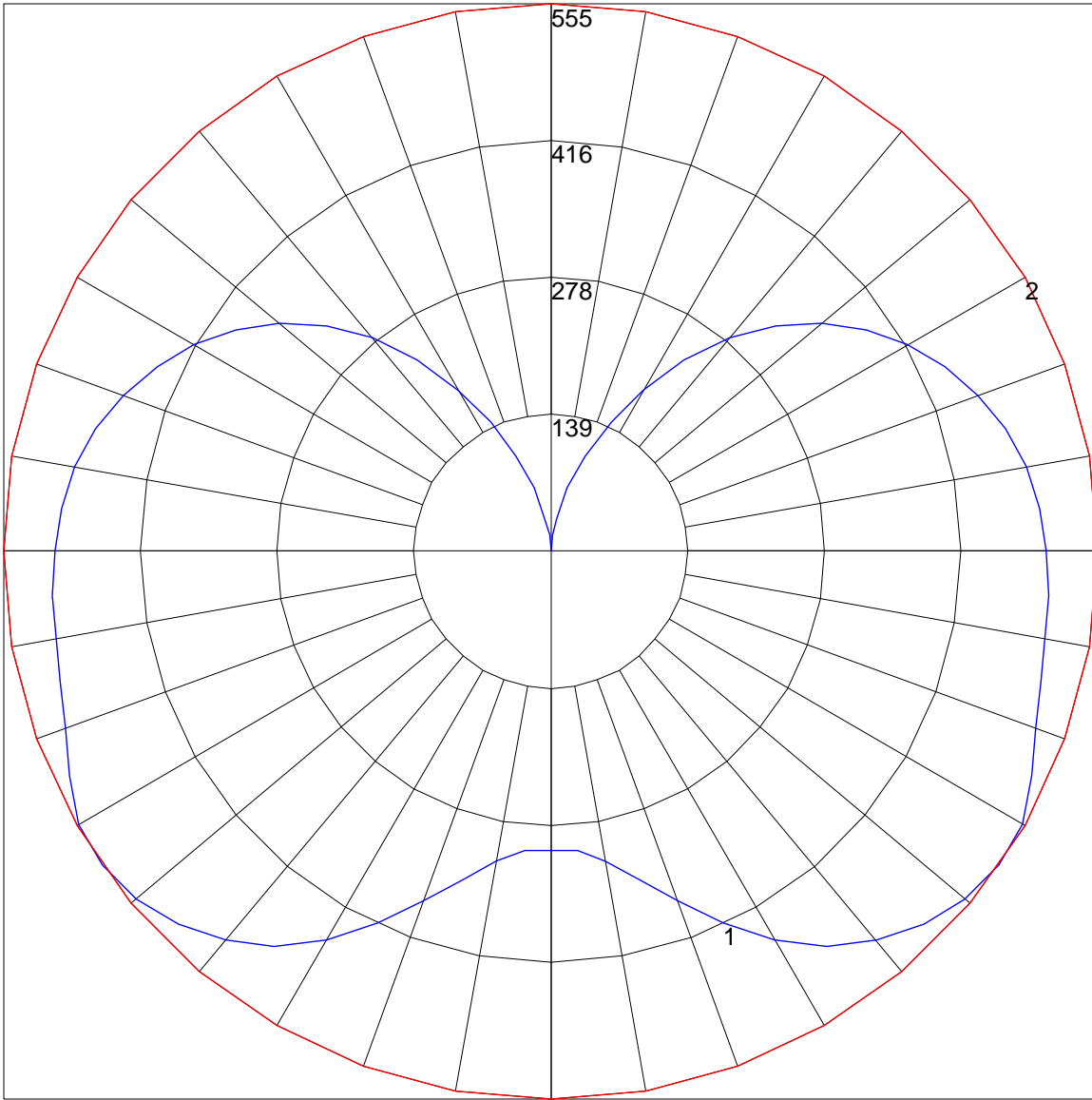
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	21
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	22	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	16	12	19	14	10	16	11	8	6

POLAR GRAPH



Maximum Candela = 555 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.)