



8165 E Kaiser Blvd. Anaheim, CA 92808  
 p. 714.282.2270  
 f. 714.676.5558

Test #: L09137201

Date: 9/27/2013



NVLAP LAB CODE 200927-0

**Test Report:** L09137201

**Model Number:** LR5-RIA-40-LED

**Report Prepared For:** C.W. Cole & Co., Inc.  
 2560 N. Rosemead Blvd. South El Monte, CA 91733

**Test:** Electrical and Photometric tests as required by the IESNA test standards.

**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. Fixture catalog number is LR5-RIA-40-LED. Received in working and undamaged condition. No modifications were necessary.

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

**Sample Arrival Date:** 9/18/13

**Date of Tests:** 9/26/13 - 9/27/13

**Seasoning of Sample SSL:** 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	01/04/14
Xitron Power Analysis System	2503AH	MT-EL01	01/09/14
Fluke Digital Thermometer	52kJ	MT-TP02-GC	01/04/14
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.

**LM-79 Test Summary**

<b>Manufacturer:</b>	C.W. Cole & Co., Inc.
<b>Model Number:</b>	LR5-RIA-40-LED
<b>LAMPCAT:</b>	N/A
<b>Driver Model Number:</b>	PHILIPS ADVANCE LED120A0700C24F
<b>Total Lumens:</b>	846.87
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.14
<b>Input Power (W):</b>	16.63
<b>Input Power Factor:</b>	0.99
<b>Total Harmonic Distortion @ 120V(%):</b>	7%
<b>Total Harmonic Distortion @ 277V(%):</b>	N/A
<b>Efficacy:</b>	51
<b>Color Rendering Index (CRI):</b>	85
<b>Correlated Color Temperature (K):</b>	2964
<b>Chromaticity Coordinate x:</b>	0.4379
<b>Chromaticity Coordinate y:</b>	0.4017
<b>Ambient Temperature (°F):</b>	77.0
<b>Stabilization Time (Hours):</b>	0:45
<b>Total Operating Time (Hours):</b>	1:10
<b>Off State Power(W):</b>	0.00

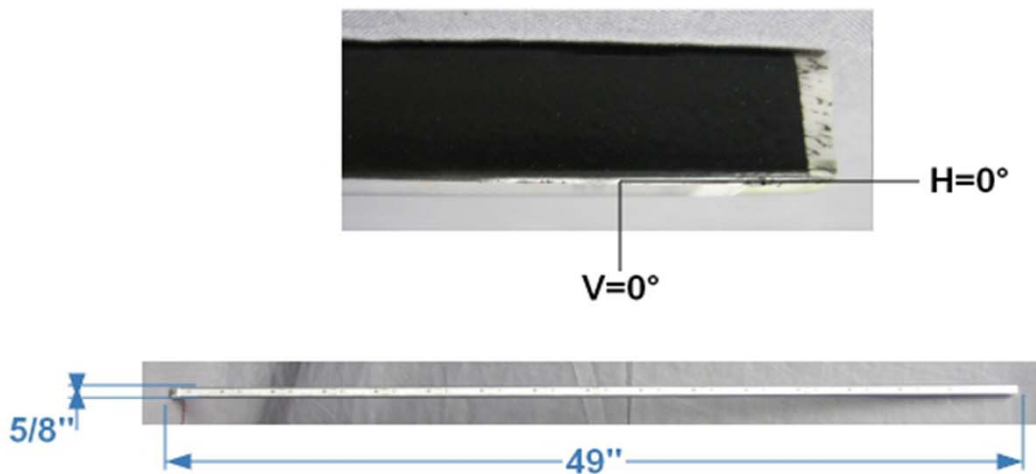
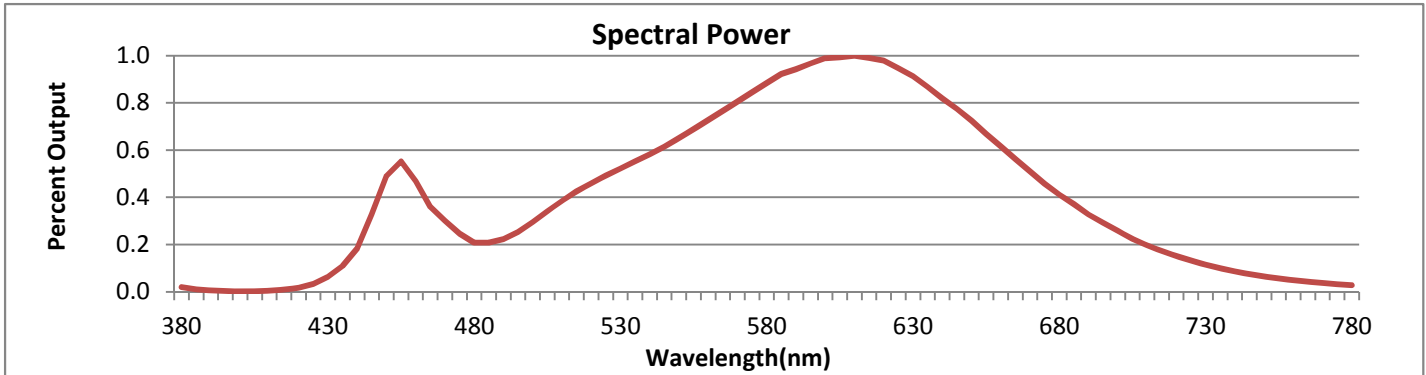


FIG1. LUMINAIRE

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



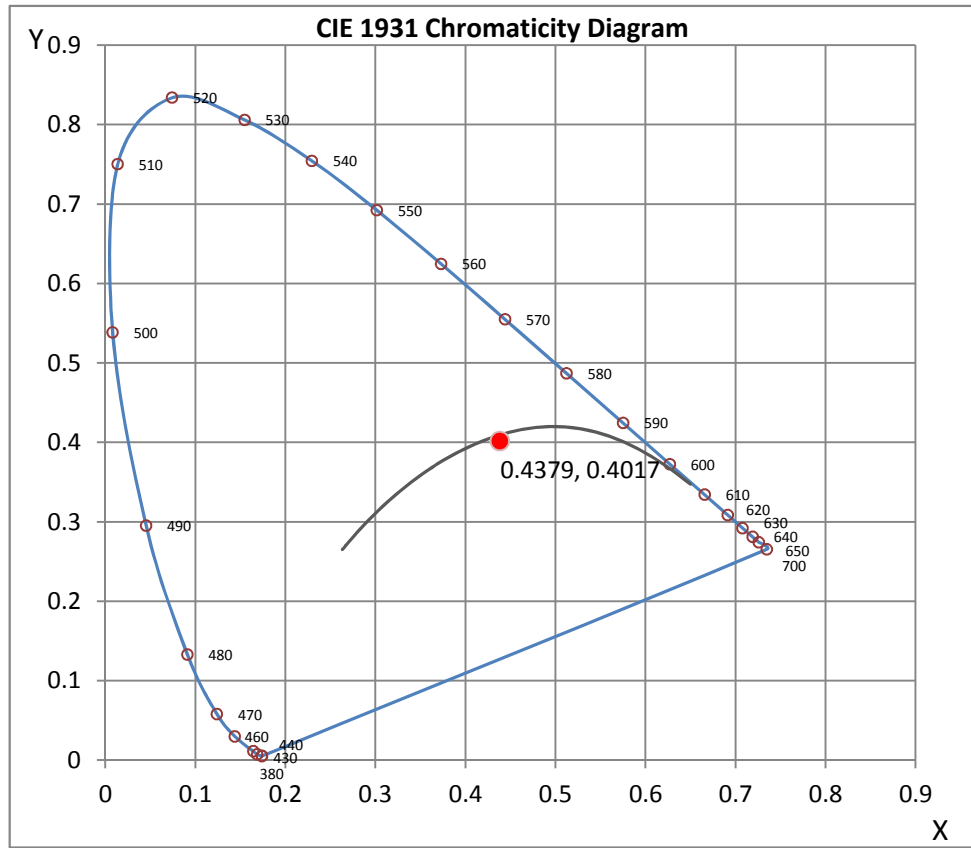
Wavelength	W/m <sup>2</sup> nm	440	0.0139	510	0.0289	580	0.0665	650	0.0545	720	0.0113
380	0.0015	450	0.0369	520	0.0345	590	0.0709	660	0.0463	730	0.0086
390	0.0004	460	0.0352	530	0.0392	600	0.0744	670	0.0383	740	0.0065
400	0.0002	470	0.0226	540	0.0438	610	0.0752	680	0.0310	750	0.0048
410	0.0003	480	0.0156	550	0.0489	620	0.0737	690	0.0246	760	0.0037
420	0.0012	490	0.0168	560	0.0547	630	0.0687	700	0.0194	770	0.0028
430	0.0047	500	0.0222	570	0.0607	640	0.0617	710	0.0149	780	0.0021

**CRI & CCT**

x	0.4379
y	0.4017
u'	0.2522
v'	0.5206
CRI	84.80
CCT	2964
Duv	-0.00108

**R Values**

R1	83.60
R2	91.97
R3	96.86
R4	81.82
R5	82.75
R6	88.89
R7	85.84
R8	66.96
R9	26.64
R10	80.42
R11	79.69
R12	69.55
R13	85.91
R14	98.40



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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:

Jeff Ahn  
 Engineering Manager

Test Report Reviewed by:

Steve Kang  
 Quality Assurance

*\*Attached are photometric data reports. Total number of pages: 10*

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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L09137201.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L09137201  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 09/27/2013  
 [MANUFAC] C.W.COLE & CO., INC.  
 [LUMCAT] LR5-RIA-40-LED  
 [LUMINAIRE] 49"L. X 5/8"W. X 5/8"H. LED LIGHTTRAIL  
 [MORE] LINEAR PRISMATIC ACRYLIC LENS  
 [BALLASTCAT] PHILIPS ADVANCE LED120A0700C24F  
 [BALLAST] INPUT: 120VAC, 0.2A, 60Hz OUTPUT: 7.8-24.6VDC, 0.70ADC  
 [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, 16.63W  
 [\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	847
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	51
Total Luminaire Watts	16.63
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.28
Spacing Criterion (90-270)	1.28
Spacing Criterion (Diagonal)	1.38
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	4.00 ft
Luminous Width (90-270)	0.05 ft
Luminous Height	0.00 ft

**IES INDOOR REPORT**  
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**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	16577	16425	16805
55	15468	15093	14155
65	12850	10051	8652
75	7479	6232	6232
85	2468	6169	6169

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>	322	322	322	322	322
<b>5</b>	321	320	320	319	319
<b>10</b>	318	316	315	315	315
<b>15</b>	312	309	309	307	305
<b>20</b>	303	301	298	298	297
<b>25</b>	292	290	287	289	289
<b>30</b>	277	275	274	274	273
<b>35</b>	260	257	258	256	257
<b>40</b>	241	236	237	240	239
<b>45</b>	218	214	216	220	221
<b>50</b>	193	189	193	193	192
<b>55</b>	165	162	161	154	151
<b>60</b>	133	130	118	110	105
<b>65</b>	101	94	79	71	68
<b>70</b>	67	61	49	44	46
<b>75</b>	36	34	30	30	30
<b>80</b>	14	17	19	18	17
<b>85</b>	4	8	10	10	10
<b>90</b>	0	0	0	0	0

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	117.49	N.A.	13.90
0-30	250.53	N.A.	29.60
0-40	411.54	N.A.	48.60
0-60	719.10	N.A.	84.90
0-80	837.37	N.A.	98.90
0-90	846.87	N.A.	100.00
10-90	816.46	N.A.	96.40
20-40	294.05	N.A.	34.70
20-50	461.11	N.A.	54.40
40-70	390.63	N.A.	46.10
60-80	118.27	N.A.	14.00
70-80	35.20	N.A.	4.20
80-90	9.49	N.A.	1.10
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	846.87	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	30.40
10-20	87.09
20-30	133.04
30-40	161.01
40-50	167.06
50-60	140.50
60-70	83.07
70-80	35.20
80-90	9.49
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



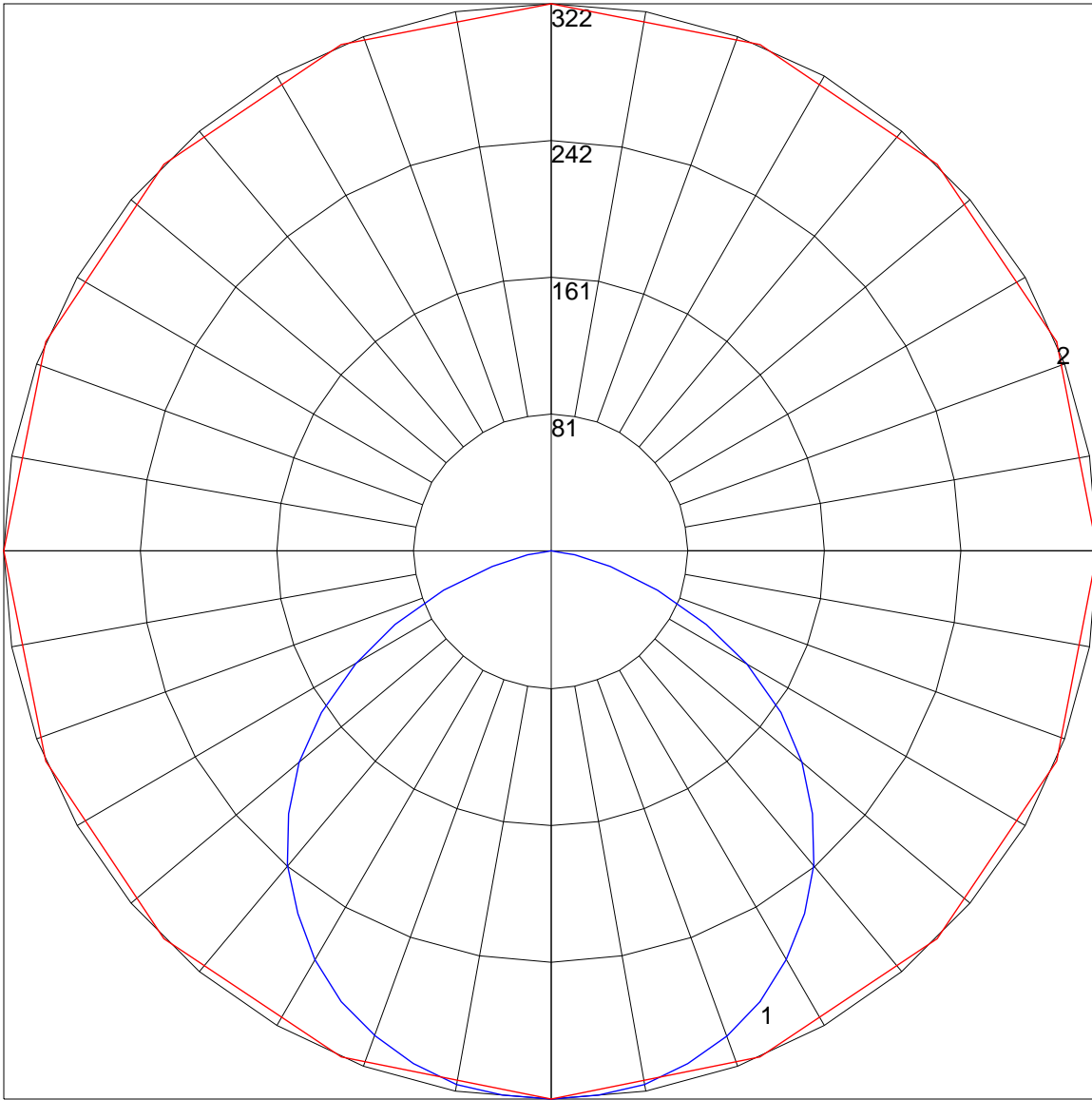
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	110	105	101	98	107	103	100	96	99	96	93	95	93	90	91	90	88	86
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	75	73
3	92	82	74	68	89	80	73	67	77	71	66	75	70	65	72	68	64	62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	65	57	50	76	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	44	39	51	44	38	50	43	38	48	42	38	36
8	62	49	40	35	60	48	40	35	47	40	34	46	39	34	44	38	34	32
9	58	45	37	31	56	44	36	31	43	36	31	42	35	31	41	35	31	29
10	54	41	33	28	53	41	33	28	40	33	28	39	32	28	38	32	28	26

POLAR GRAPH



Maximum Candela = 322 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.)