

Report of Test LLI-19090-2

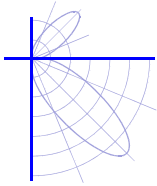
Optolum - Linear strip luminaire. Product ID: OPST---H--409--L--D-A-48
Extruded aluminum housing with frosted clear plastic flat lens.
336 LEDs mounted in single row.
No driver.
Operating at 24v DC.



Performance Summary

Total Light Output	1098 lm
Luminaire Power	22.6 W
Luminous Efficacy	48.6 lm/W
CCT	4170 K
CIE(x,y) 1931	(0.373, 0.370)
CRI	94

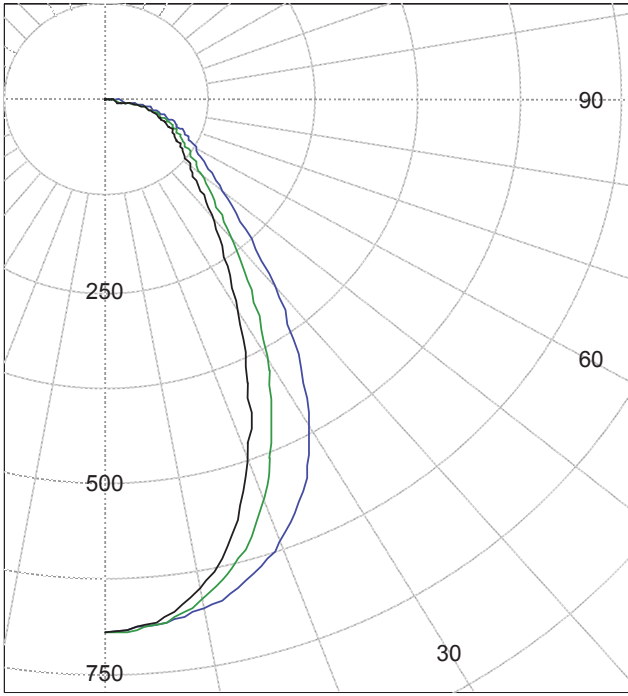
PREPARED FOR : Optolum, Tempe, AZ 85281



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Legend: C0-Black, C45-Green, C90-Blue (cd)



(Two plane symmetry) C0-C90

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	694	694	694	694	694	
5.0	683	685	687	689	687	65
10.0	648	653	663	672	674	
15.0	586	596	620	642	650	173
20.0	500	516	555	597	615	
25.0	406	424	474	534	562	219
30.0	319	336	386	455	490	
35.0	248	262	304	367	403	197
40.0	195	205	236	285	314	
45.0	157	163	185	219	239	149
50.0	130	135	149	171	184	
55.0	111	115	125	139	147	115
60.0	97	99	107	117	123	
65.0	84	86	93	101	106	93
70.0	72	73	79	86	90	
75.0	57	58	63	70	74	67
80.0	38	39	43	49	53	
85.0	13	13	15	22	27	21
90.0	0	0	0	0	0	

ZONAL FLUX AND PERCENTAGES

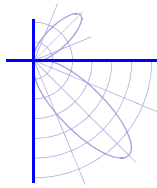
Zone	Flux (lm)	% Lamp	% Luminaire
0-30	457	N / A	41.6
0-40	653	N / A	59.5
0-60	917	N / A	83.5
0-90	1098	N / A	100.0
40-90	445	N / A	40.5
60-90	181	N / A	16.5
90-180	0	N / A	0.0
0-180	1098	N / A	100.0

Total Light Output = 1,098 lm

Signed:

Ryder Tunney
Ryder Tunney
Authorized Signatory

Date of test 4-Apr-2019
Date of report 5-Apr-2019

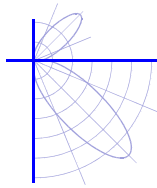


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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	694	694	694	694	694
2.5	692	692	693	693	691
5.0	683	685	687	689	687
7.5	669	672	677	682	682
10.0	648	653	663	672	674
12.5	621	628	644	659	664
15.0	586	596	620	642	650
17.5	545	558	590	622	634
20.0	500	516	555	597	615
22.5	453	470	516	568	591
25.0	406	424	474	534	562
27.5	361	378	430	496	529
30.0	319	336	386	455	490
32.5	281	296	344	411	448
35.0	248	262	304	367	403
37.5	220	231	268	325	358
40.0	195	205	236	285	314
42.5	174	182	209	250	274
45.0	157	163	185	219	239
47.5	142	148	166	193	209
50.0	130	135	149	171	184
52.5	120	124	136	154	164
55.0	111	115	125	139	147
57.5	104	107	115	127	134
60.0	97	99	107	117	123
62.5	90	93	100	109	114
65.0	84	86	93	101	106
67.5	78	80	86	94	98
70.0	72	73	79	86	90
72.5	65	66	71	79	82
75.0	57	58	63	70	74
77.5	49	50	54	60	64
80.0	38	39	43	49	53
82.5	26	26	30	37	41
85.0	13	13	15	22	27
87.5	4	4	4	7	11
90.0	0	0	0	0	0



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LM-79 Performance Data

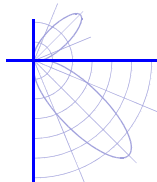
Spectral	CIE 1931 (x, y) ⁽¹⁾	(0.373, 0.370)
	CIE 1976 (u', v') ⁽¹⁾	(0.223, 0.497)
	Correlated Color Temperature (CCT) ⁽¹⁾	4170 K
	Spatial Δ (u', v') Uniformity ⁽²⁾	4.39E-03
	Color Rendering Index (Ra) ⁽¹⁾	94.3
	Special CRI 9 (R ₉) ^{(1),(3)}	83.6
	Distance from Planckian Locus (Duv) ^{(1),(3)}	-8.37E-04
	Scotopic/Photopic Ratio ^{(1),(3)}	1.85
Electrical	Voltage	24.00 V
	Current	0.942 A
	Power	22.6 W

Performance data in accordance with IESNA LM-79-08. Spectral calculations are for a CIE 2° observer

(1) Value is computed from the weighted average of the spatial measurements

(2) Value is the maximum deviation of the spatial u' and v' measurements from the weighted average

(3) Quantity is in addition to the scope of IESNA LM-79-08



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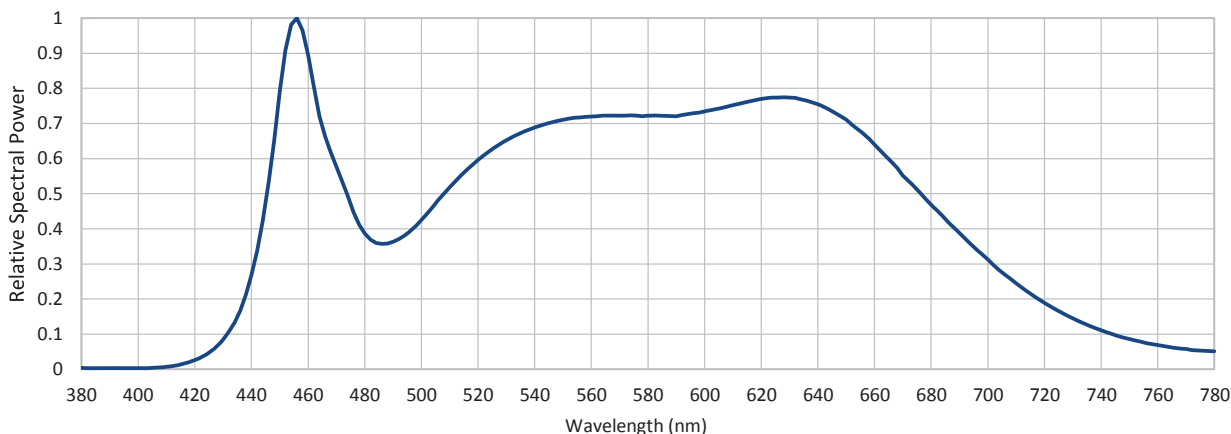
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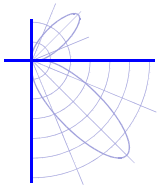
LM-79 Performance Data

Relative spectral power distribution

(Relative to peak = 1, weighted average of spatial measurements)

λ (nm)	Relative Power	λ (nm)	Relative Power	λ (nm)	Relative Power	λ (nm)	Relative Power	λ (nm)	Relative Power
380	0.004	460	0.893	540	0.689	620	0.770	700	0.313
385	0.003	465	0.692	545	0.701	625	0.774	705	0.277
390	0.003	470	0.576	550	0.711	630	0.774	710	0.245
395	0.003	475	0.471	555	0.717	635	0.767	715	0.216
400	0.003	480	0.386	560	0.720	640	0.755	720	0.189
405	0.004	485	0.358	565	0.722	645	0.735	725	0.166
410	0.007	490	0.363	570	0.722	650	0.711	730	0.145
415	0.014	495	0.386	575	0.722	655	0.677	735	0.126
420	0.026	500	0.425	580	0.722	660	0.641	740	0.111
425	0.048	505	0.472	585	0.722	665	0.599	745	0.098
430	0.085	510	0.518	590	0.721	670	0.552	750	0.086
435	0.150	515	0.560	595	0.728	675	0.512	755	0.077
440	0.268	520	0.596	600	0.734	680	0.469	760	0.069
445	0.477	525	0.627	605	0.743	685	0.428	765	0.062
450	0.789	530	0.652	610	0.752	690	0.388	770	0.058
455	0.991	535	0.672	615	0.762	695	0.349	775	0.054
								780	0.051

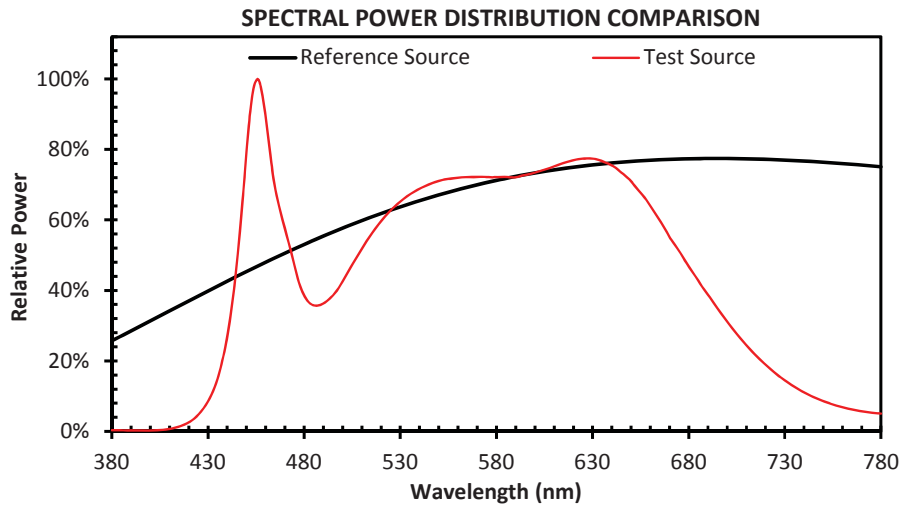




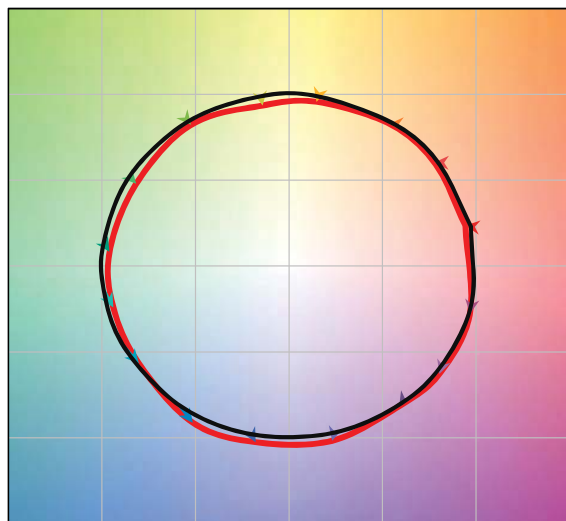
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R_f	88
R_g	98



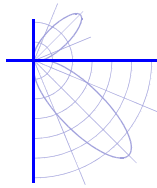
COLOR VECTOR GRAPHIC



— Test Source → Series1

COLOR DISTORTION GRAPHIC





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Test Distance 8.0 m
Test Temperature 25.3 °C

Notes The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

Tested in accordance with the applicable sections of publications: IES LM-79-08 (Sec. 12), IES LM-16-93, IES LM-58-13, CIE 13.3:1995, CIE 15:2004, ANSI C78.377:2015, ANSI C82.77-10:2014.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the CIE Gamma coordinate system as defined in CIE publication number 121.

This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with * are not covered.

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.