

Report of Test 13120-4

Ecolite 1' x 4' (nominal) LED Retrofit. Cat No. LR14-1800L-40K.

Luminaire comprises a 4" x 40" (nom.) "Waveguide" LED side illuminated insert with opal diffusing panel fitted in a Lithonia 722079 troffer. All body components painted white. Enclosure box fitted to upper

Waveguide panel P/N 10011702 hinged with 2 retaining clips.

Shinelight SLD030-0700SW 100-277Vac 50/60Hz driver with dimming leads open circuit.

Tested at 120V 60Hz, measured I=157mA.

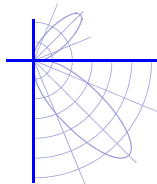


Performance Summary

Luminous flux	1743 lm
Luminaire Power	18.7 W

PREPARED FOR : Ecolite, 9919 East Montgomery, Spokane, WA 99206





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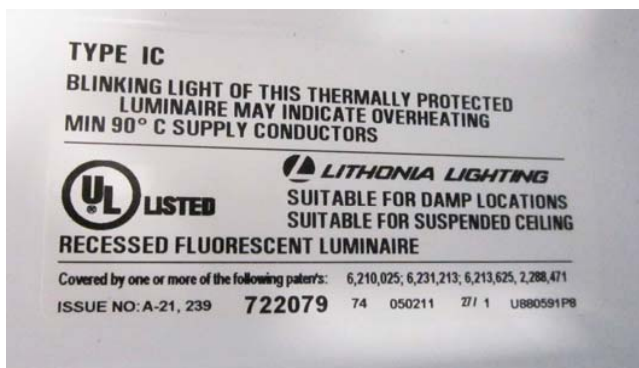
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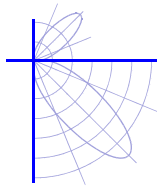
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LM-79 Performance Data

Additional description

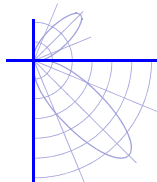
Ecolite 1x4 in Lithonia 722079 troffer.

Photometry	Total Luminous Flux	1743 lm	
	Luminous Efficacy	93.2 lm/W	
Spectral	CIE 1931 (x, y) ⁽¹⁾	(0.378, 0.369)	
	CIE 1976 (u', v') ⁽¹⁾	(0.227, 0.498)	
	Correlated Color Temperature (CCT) ⁽¹⁾	4010 K	
	Color Spatial Uniformity ⁽²⁾	0.0008	
	Color Rendering Index (CRI) ⁽¹⁾	84	
	Special CRI 9 (R ₉) ^{(1),(3)}	19	
	Distance from Planckian Locus (Duv) ^{(1),(3)}	-0.0028	
	Scotopic/Photopic Ratio ^{(1),(3)}	1.69	
Electrical	Voltage	120 V	(Setpoint 1)
	Frequency	60 Hz	
	Current	0.157 A	
	Power	18.7 W	
	Power Factor	0.99	
	Current THD	9.72 %	
	Voltage	277 V	(Setpoint 2)
	Frequency	60 Hz	
	Current	0.0733 A	
	Power	19.1 W	
	Power Factor	0.94	
	Current THD	12.6 %	

Performance data in accordance with IESNA LM-79-08. Spectral calculations are for a CIE 2° observer
Photometric and spectral values were measured at Setpoint 1

- (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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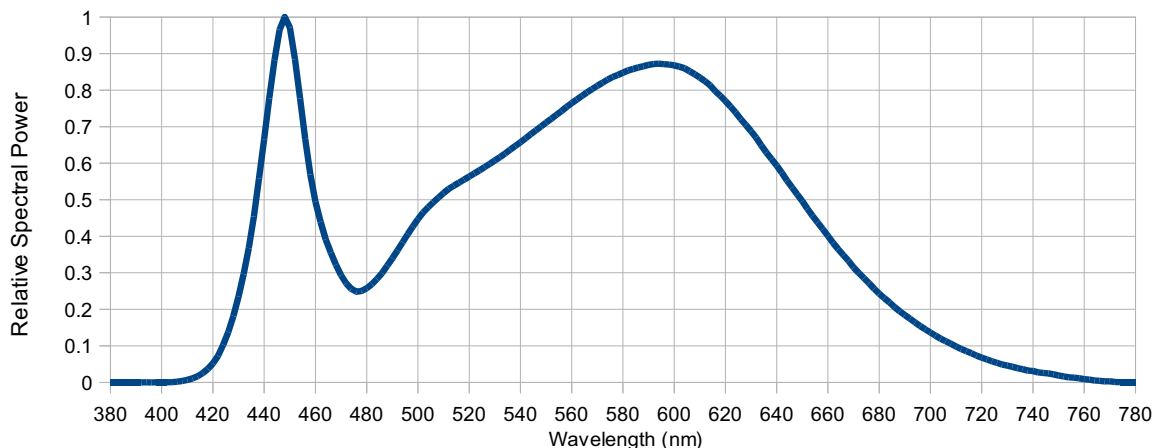
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LM-79 Performance Data

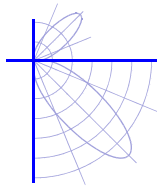
Summary Relative Spectral Irradiance Distribution (wavelength – nm, irradiance – relative to peak = 1)

380	0.00E+00	480	2.58E-01	580	8.48E-01	680	2.43E-01
385	0.00E+00	485	2.91E-01	585	8.60E-01	685	2.13E-01
390	0.00E+00	490	3.40E-01	590	8.69E-01	690	1.85E-01
395	0.00E+00	495	3.94E-01	595	8.72E-01	695	1.59E-01
400	3.86E-05	500	4.47E-01	600	8.68E-01	700	1.37E-01
405	1.40E-03	505	4.86E-01	605	8.56E-01	705	1.16E-01
410	6.75E-03	510	5.18E-01	610	8.35E-01	710	9.83E-02
415	2.12E-02	515	5.42E-01	615	8.06E-01	715	8.26E-02
420	5.23E-02	520	5.63E-01	620	7.70E-01	720	6.79E-02
425	1.20E-01	525	5.85E-01	625	7.30E-01	725	5.56E-02
430	2.35E-01	530	6.08E-01	630	6.88E-01	730	4.59E-02
435	4.11E-01	535	6.32E-01	635	6.39E-01	735	3.75E-02
440	6.65E-01	540	6.58E-01	640	5.93E-01	740	3.10E-02
445	9.24E-01	545	6.85E-01	645	5.43E-01	745	2.53E-02
450	9.72E-01	550	7.11E-01	650	4.96E-01	750	1.91E-02
455	7.22E-01	555	7.38E-01	655	4.47E-01	755	1.35E-02
460	4.95E-01	560	7.64E-01	660	4.01E-01	760	9.12E-03
465	3.74E-01	565	7.89E-01	665	3.57E-01	765	4.88E-03
470	2.94E-01	570	8.12E-01	670	3.15E-01	770	3.03E-03
475	2.52E-01	575	8.32E-01	675	2.79E-01	775	6.75E-04
						780	6.23E-04



* The spectral power distribution combines the weighted spectral power distributions of all spatial measurements.





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Tested at 120V 60Hz, measured I=157mA.

LM-79 Performance Data

Spatial measurements (lower hemisphere)

Vertical angle (deg)	CIE 1976 (u',v') coordinates	
	Horizontal 0 plane	Horizontal 90 plane
0	(0.226, 0.497)	(0.226, 0.497)
10	(0.226, 0.497)	(0.226, 0.497)
20	(0.227, 0.498)	(0.226, 0.497)
30	(0.227, 0.498)	(0.226, 0.497)
40	(0.227, 0.498)	(0.226, 0.497)
50	(0.227, 0.498)	(0.226, 0.497)
60	(0.227, 0.498)	(0.226, 0.498)
70	(0.227, 0.498)	(0.226, 0.498)
80	(0.227, 0.498)	I <= 10 %
90	I <= 10 %	I <= 10 %

Spatial measurements (upper hemisphere)

Vertical angle (deg)	CIE 1976 (u',v') coordinates	
	Horizontal 0 plane	Horizontal 90 plane
90	I <= 10 %	I <= 10 %
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

Test procedure

All measurements were performed in an environmentally controlled laboratory employing suitable baffling to minimize stray light. The sample was mounted in its normal operating orientation on a rotating mirror goniophotometer and operated from a stabilized supply. The photometric output was monitored and measurements were performed once stability was achieved.

The goniophotometer was used to measure the spatial distribution of both luminous intensity and, in conjunction with a spectroradiometer, spectral irradiance. The distribution locus comprises points in the C0 and C90 planes at no more than 10° gamma intervals from 0. The CIE (x,y) coordinates and other derived metrics (CIE (u', v'), CCT and CRI) are calculated from the weighted sum (weighted for intensity and represented solid angle) of the measured spectral irradiances.

Sample Orientation	Horiz	Stabilization Time	16 hour
		Total Operation Time	17.5 hour

Equipment and uncertainties

LightLab International R80A C-gamma rotating mirror goniophotometer with a test distance of 8 m.

Luminous Intensity	± 4 %	Temperature	± 1 °C
Luminous Flux	± 4 %	Luminous Efficacy	± 4.5 %
Horizontal, Vertical Angles	± 0.25°		

PhotoResearch PR-670 spectroradiometer (380 - 780 nm., 2 nm. per pixel) measuring at a distance from the sample deemed greater than five times the maximum observed luminous opening dimension.

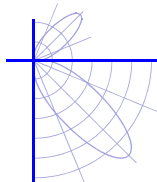
CIE (x, y) coordinates	± 0.002	CCT	± 100 K
CIE (u', v') coordinates	± 0.003	CRI	± 3
Δ (u', v') Color difference	± 0.001	Scotopic / Photopic Ratio *	± 0.02
Relative Spectral Irradiance	± 2 %	R9 *	± 3

Yokogawa WT210 power meter connected in circuit to the sample electrical supply

Voltage	± 0.5 %	Frequency *	± 0.1 Hz
Current	± 0.5 %	Power	± 0.5 %
Current THD *	± 3 %	Power Factor	± 0.02

This report contains data that are not covered by the NVLAP accreditation. Quantities marked with * are not covered.
IESNA LM-79-08 Calculator v4.4 (15th April 2013)





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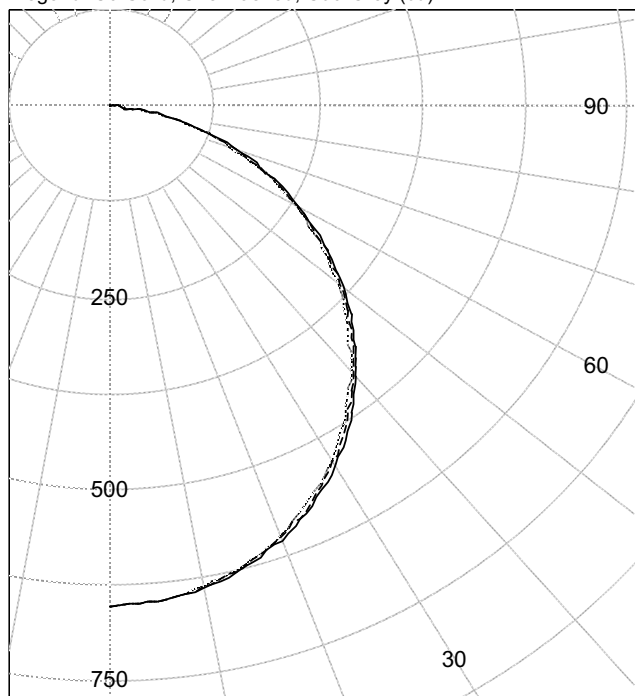
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Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



(Two plane symmetry) C0-C90

AVERAGE LUMINANCE (cd / sq.m)

Gamma	C0	C45	C90
45.0	6040	5972	5892
55.0	5648	5586	5506
65.0	5113	5063	4988
75.0	4196	4172	4097
85.0	2319	2313	2075

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	652	652	652	652	652	
5.0	649	648	648	648	648	62
10.0	639	639	638	638	637	
15.0	624	623	622	621	620	175
20.0	602	601	599	597	597	
25.0	575	573	571	568	567	263
30.0	541	540	537	534	532	
35.0	503	501	498	494	493	311
40.0	460	459	455	451	450	
45.0	414	412	409	405	404	315
50.0	365	363	361	357	355	
55.0	314	313	310	307	306	277
60.0	262	261	259	257	255	
65.0	209	209	207	205	204	205
70.0	157	156	155	154	153	
75.0	105	105	105	104	103	110
80.0	58	57	57	57	56	
85.0	20	20	20	19	18	24
90.0	0	0	0	0	0	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	500	N / A	28.7
0-40	811	N / A	46.5
0-60	1403	N / A	80.5
0-90	1743	N / A	100.0
40-90	932	N / A	53.5
60-90	339	N / A	19.5
90-180	0	N / A	0.0
0-180	1743	N / A	100.0

Total Light Output = 1743 lm.

BY:

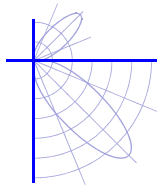
E Southgate

Eric Southgate
Authorised Signatory

Date of test
Date of report

4-May-2013
6-May-2013





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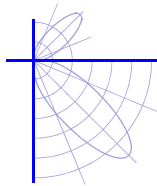
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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	652	652	652	652	652
2.5	651	651	651	651	651
5.0	649	648	648	648	648
7.5	645	644	644	644	644
10.0	639	639	638	638	637
12.5	632	632	631	630	629
15.0	624	623	622	621	620
17.5	614	613	611	610	609
20.0	602	601	599	597	597
22.5	589	588	586	584	583
25.0	575	573	571	568	567
27.5	558	557	554	552	550
30.0	541	540	537	534	532
32.5	523	521	518	514	513
35.0	503	501	498	494	493
37.5	482	481	477	473	472
40.0	460	459	455	451	450
42.5	437	436	432	428	427
45.0	414	412	409	405	404
47.5	389	388	385	381	380
50.0	365	363	361	357	355
52.5	339	338	336	332	331
55.0	314	313	310	307	306
57.5	288	287	285	282	281
60.0	262	261	259	257	255
62.5	235	235	233	231	230
65.0	209	209	207	205	204
67.5	183	183	181	180	179
70.0	157	156	155	154	153
72.5	131	130	130	129	128
75.0	105	105	105	104	103
77.5	81	80	80	79	79
80.0	58	57	57	57	56
82.5	37	37	36	36	35
85.0	20	20	20	19	18
87.5	6	7	7	7	5
90.0	0	0	0	0	0





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Test Distance: 8.0 metres

Test Temperature: 24.8 degrees Celsius

Significance: This laboratory has no control over 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.

Special Notes:

The intensity values contained in this report are shown as tested.

It should also be noted that prorating the lumen output for the use of other lamp/ballast combinations, 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 Cgamma coordinate system as described in CIE Publication number 121.

Testing Procedure: Tested in accordance with the applicable sections of N.A. IES Publication Number LM79-08.

