



Report of Test

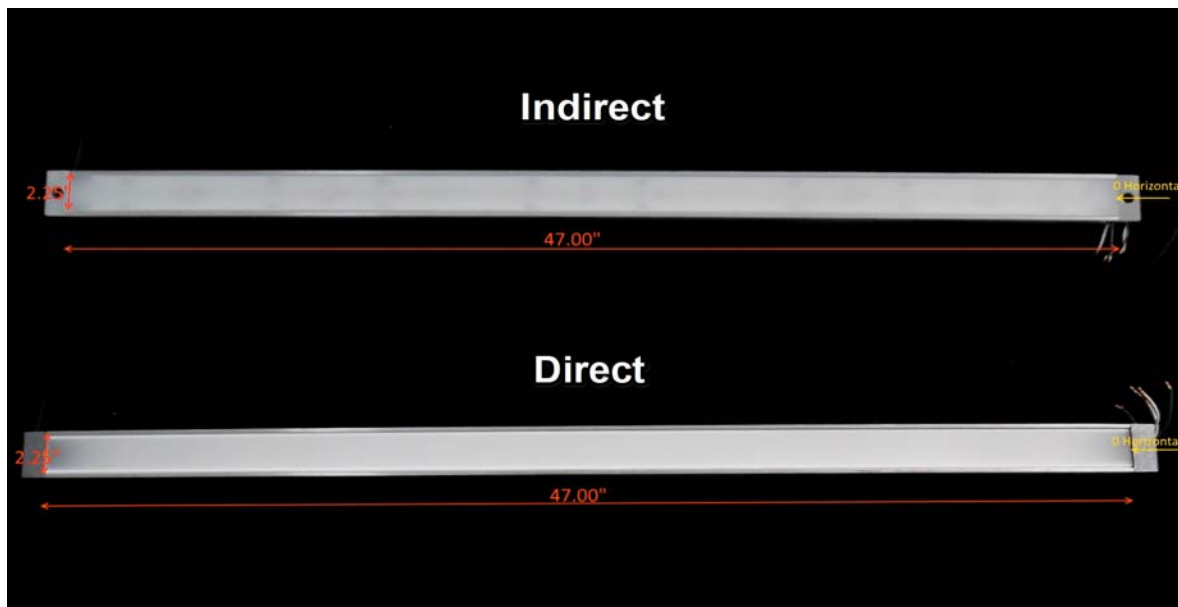
LLIA000844-008A-R01*

*This test report supersedes test report LLIA000844-008A

Catalog Number: MLS2-I/D-MO/MO-K40-XX-4-XX-FDC/LOH-XXXX-120

Pendant mounted, extruded aluminum housing with aluminum end caps, formed white enamel aluminum LED tray/reflectors, frosted plastic enclosures. Three upper connected PAL-Lighting LED boards with 92 LEDs, three lower connected PAL-Lighting LED boards with 92 LEDs .

Two Osram Optotronic OTi 30/120-277/1A0-DIM L LED drivers programmed to 480mA
120.0Vac, 60.00Hz, 0.3103A, 37.03W, 0.995PF, 5.2%THD(i)



Performance Summary

Total Light Output	4549 lm
Luminaire Power	37.0 W
Luminous Efficacy	122.9 lm/W

PREPARED FOR : Precision Architectural Lighting, 4830 Timber Creek Drive, Houston, TX 77017



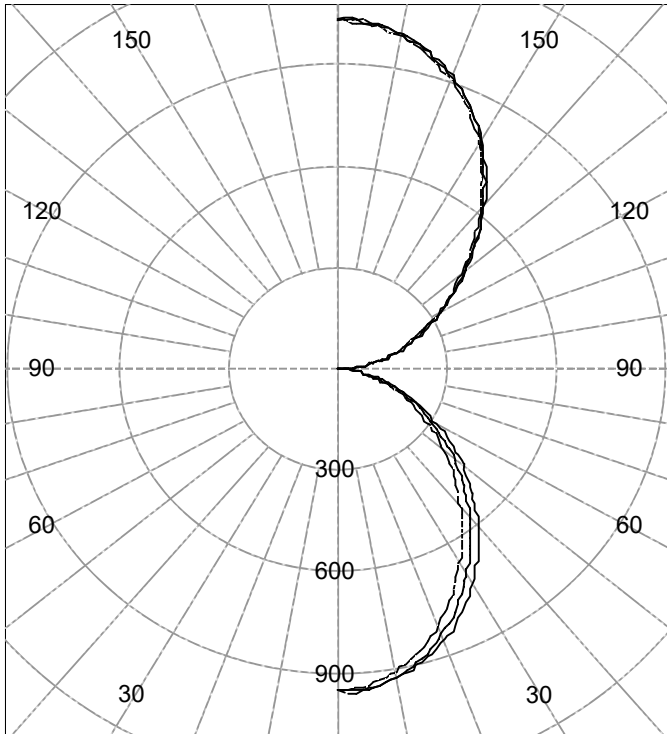
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Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



(Two plane symmetry) C0-C90

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	952	952	952	952	952	
5.0	946	940	949	945	937	89
10.0	926	919	924	917	907	
15.0	894	884	885	873	861	247
20.0	850	838	833	817	802	
25.0	797	782	772	751	734	353
30.0	734	718	704	679	662	
35.0	666	649	632	607	589	393
40.0	593	577	558	533	517	
45.0	519	504	486	462	447	373
50.0	445	433	416	394	381	
55.0	372	363	349	329	318	310
60.0	303	298	284	268	259	
65.0	238	236	223	210	203	221
70.0	177	176	166	156	152	
75.0	120	121	114	107	104	121
80.0	71	71	67	64	62	
85.0	30	30	29	26	26	32
90.0	1	2	3	3	3	

AVERAGE LUMINANCE (cd / m²)

Gamma	C0	C45	C90
45.0	9608	8988	8274
55.0	8482	7952	7253
65.0	7380	6920	6300
75.0	6085	5741	5282
85.0	4541	4280	3865

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	690	N / A	15.2
0-40	1083	N / A	23.8
0-60	1766	N / A	38.8
0-90	2140	N / A	47.0
40-90	1057	N / A	23.2
60-90	374	N / A	8.2
90-180	2410	N / A	53.0
0-180	4549	N / A	100.0

Total Light Output = 4,549 lm

Signed:

Authorized Signatory

Date of test

1-Sep-2017

Date of report

15-Dec-2017



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	952	952	952	952	952
2.5	951	945	955	952	945
5.0	946	940	949	945	937
7.5	938	931	939	933	924
10.0	926	919	924	917	907
12.5	912	903	906	897	886
15.0	894	884	885	873	861
17.5	874	863	861	846	832
20.0	850	838	833	817	802
22.5	825	811	804	785	769
25.0	797	782	772	751	734
27.5	766	751	738	715	698
30.0	734	718	704	679	662
32.5	701	684	668	643	625
35.0	666	649	632	607	589
37.5	630	613	595	570	553
40.0	593	577	558	533	517
42.5	557	541	522	498	482
45.0	519	504	486	462	447
47.5	482	468	450	428	414
50.0	445	433	416	394	381
52.5	408	398	382	361	349
55.0	372	363	349	329	318
57.5	337	330	316	298	288
60.0	303	298	284	268	259
62.5	270	266	253	238	231
65.0	238	236	223	210	203
67.5	207	206	194	183	177
70.0	177	176	166	156	152
72.5	148	148	139	131	128
75.0	120	121	114	107	104
77.5	94	95	90	85	83
80.0	71	71	67	64	62
82.5	49	50	47	45	43
85.0	30	30	29	26	26
87.5	13	13	11	10	10
90.0	1	2	3	3	3



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120.0Vac, 60.00Hz, 0.3103A, 37.03W, 0.995PF, 5.2%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	1	2	3	3	3
92.5	25	27	27	28	28
95.0	51	51	52	52	52
97.5	76	76	76	76	75
100.0	101	101	100	99	99
102.5	126	126	125	123	122
105.0	153	152	149	147	146
107.5	180	178	175	171	170
110.0	204	205	200	197	195
112.5	231	233	227	222	221
115.0	260	261	256	250	248
117.5	289	290	285	278	276
120.0	320	321	316	308	305
122.5	353	352	348	339	337
125.0	387	385	382	373	370
127.5	423	420	418	408	405
130.0	460	457	455	445	441
132.5	499	495	494	484	480
135.0	540	534	534	524	519
137.5	581	575	575	566	560
140.0	622	616	617	608	602
142.5	664	657	659	651	645
145.0	705	697	700	693	687
147.5	745	737	741	735	728
150.0	783	775	780	775	768
152.5	820	812	818	813	807
155.0	854	846	854	849	843
157.5	886	878	887	882	876
160.0	915	907	917	913	907
162.5	941	933	943	940	934
165.0	964	956	967	963	957
167.5	983	976	987	983	977
170.0	999	992	1003	999	994
172.5	1011	1004	1015	1012	1007
175.0	1020	1013	1025	1022	1016
177.5	1026	1019	1030	1027	1021
180.0	1027	1027	1027	1027	1027



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Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53	47
1	97	93	89	86	89	86	83	80	72	70	67	59	58	56	48	46	46	40
2	89	82	76	71	81	75	70	66	63	60	56	52	50	47	42	40	39	34
3	81	72	65	59	74	66	60	55	56	51	48	46	43	40	38	35	33	29
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	34	31	29	25
5	68	57	49	43	63	53	46	40	45	39	35	37	33	30	30	28	25	22
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	22	19
7	58	46	38	33	54	43	36	31	37	31	27	31	27	24	25	22	20	17
8	54	42	34	29	50	39	32	28	34	28	24	28	24	21	23	20	18	16
9	50	38	31	26	46	36	29	25	31	26	22	26	22	19	22	19	16	14
10	47	35	28	23	43	33	26	22	28	23	20	24	20	17	20	17	15	13

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Beam Width (across 50% Nadir Illum)	
		0-180	90-270
6.0	26.5	6.94	6.38
8.0	14.9	9.25	8.50
10.0	9.5	11.57	10.63
12.0	6.6	13.88	12.75
14.0	4.9	16.19	14.88
16.0	3.7	18.50	17.00

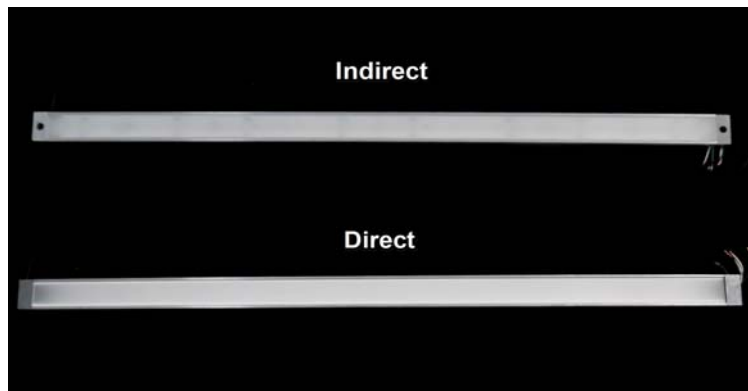


Test Report No. LLIA000844-008A-R01

Catalog Number: MLS2-I/D-MO/MO-K40-XX-4-XX-FDC/LOH-XXXX-120

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Two Osram Optotronic OTi 30/120-277/1A0-DIM L LED drivers programmed to 480mA
120.0Vac, 60.00Hz, 0.3103A, 37.03W, 0.995PF, 5.2%THD(i)





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120.0Vac, 60.00Hz, 0.3103A, 37.03W, 0.995PF, 5.2%THD(i)

Test Distance 9.5 m
Test Temperature 24.8 °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.

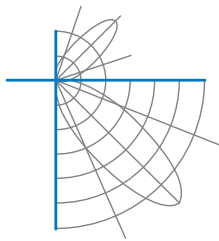
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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.



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LLIA000844-008B-R01*

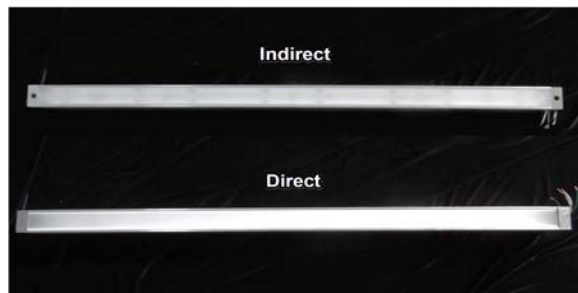
Integrating Sphere Report

Catalog Number: MLS2-I/D-MO/MO-K40-XX-4-XX-FDC/LOH-XXXX-120

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Performance Summary

Voltage	120.0 Vac
Current	0.3100 A
Power	37.01 W
Frequency	60.00 Hz
Power Factor	0.995
Current THD	5.3 %

Total Luminous Flux	4540.4 lm
Efficacy	122.7 lm/W
Chromaticity (x,y)	(0.3826, 0.3790)
(u',v')	(0.2257, 0.5029)
Duv	0.0004
CCT	3957 K
CRI (Ra)	84
R9	16

Prepared For:

Precision Architectural Lighting

4830 Timber Creek Drive

Houston, TX 77017, USA

*This test report supersedes test report LLIA000844-008B

Test date: 08/30/2017

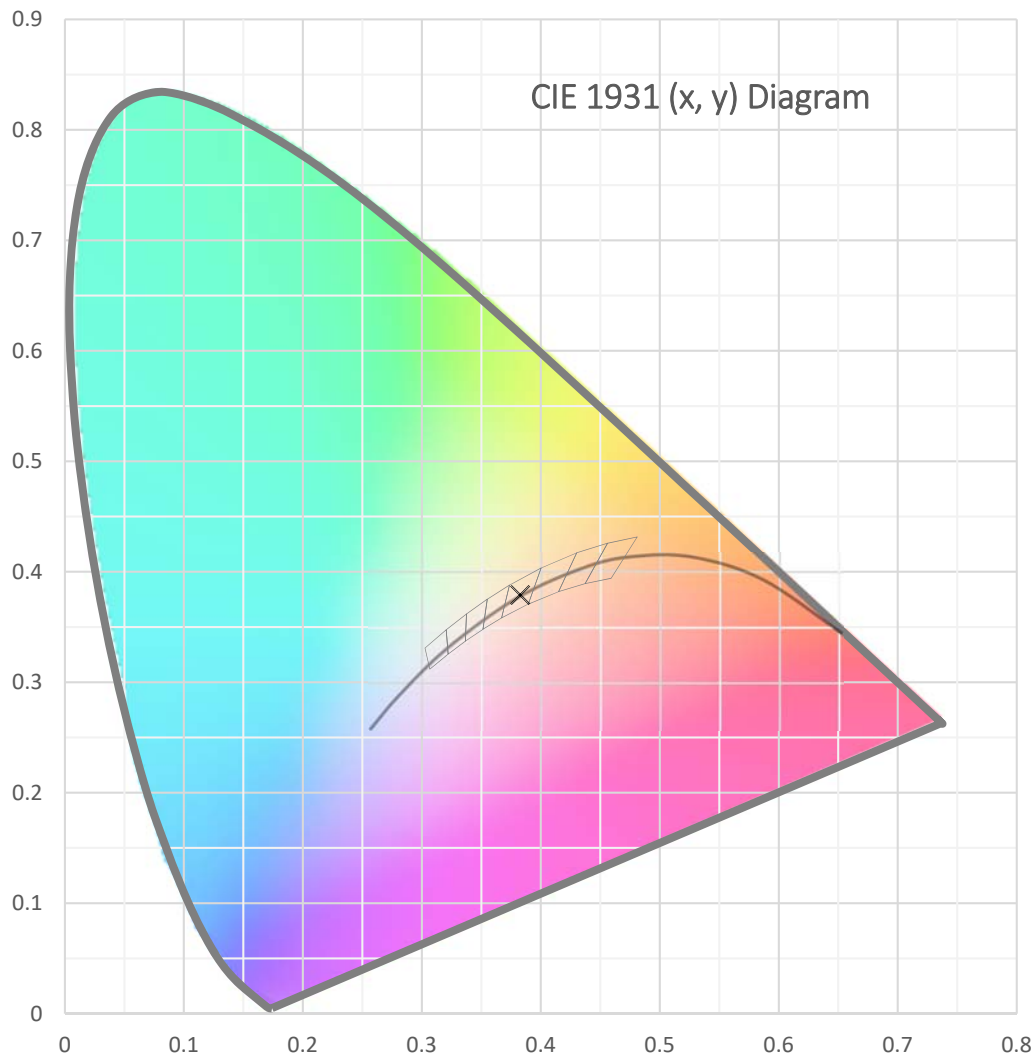
Report date: 12/15/2017

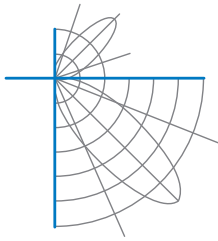


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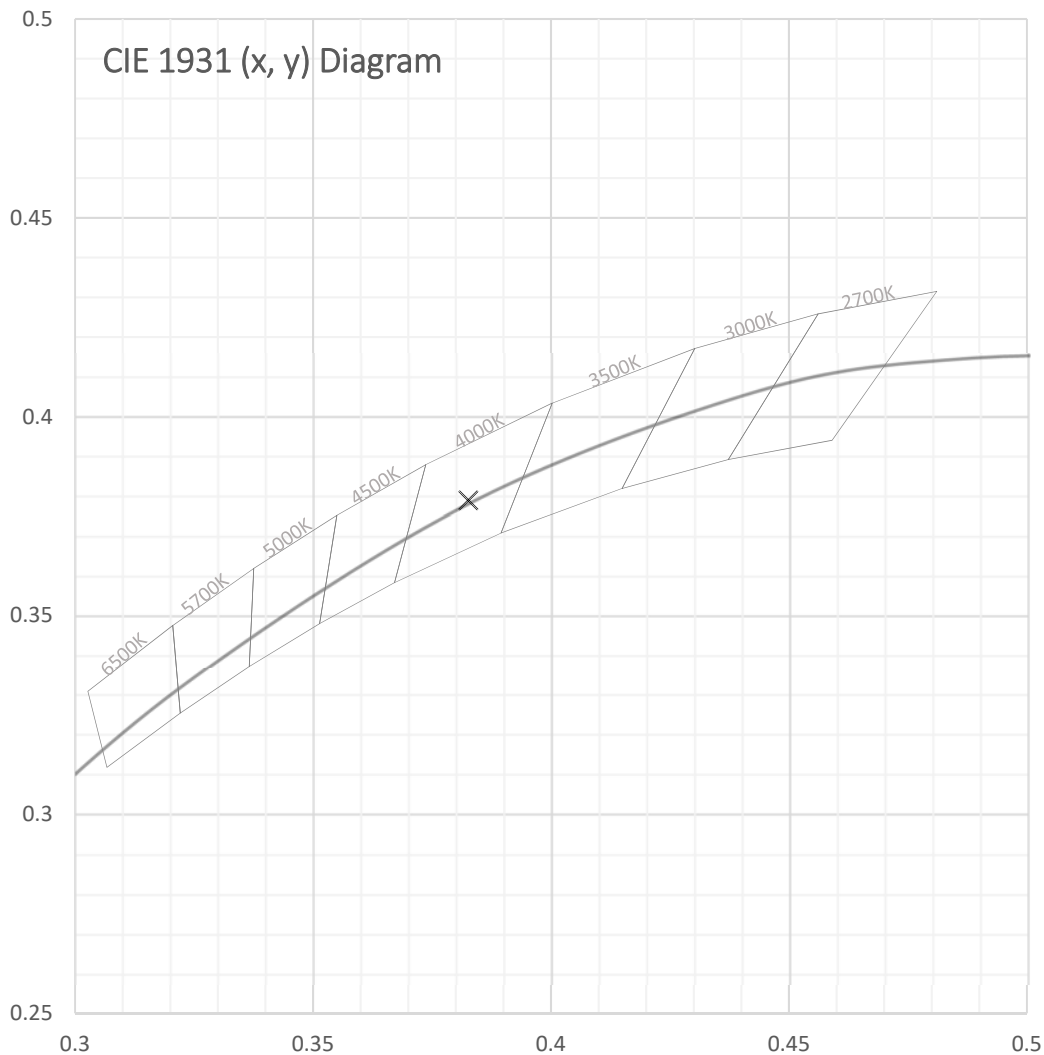




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Spectral Data	Total Radiant Flux	14.06 W
	Total Luminous Flux	4540.4 Lm
	Chromaticity CIE 1931 (x, y)	(0.3826, 0.3790)
	Chromaticity CIE 1976 (u', v')	(0.2257, 0.5029)
	Correlated Color Temperature (CCT)	3957 K
	Color Rendering Index (Ra)	84
	R1	83
	R2	91
	R3	96
	R4	82
	R5	82
	R6	86
	R7	87
	R8	67
	R9	16
	R10	77
	R11	81
	R12	61
	R13	85
	R14	98
	Distance from Planckian Locus (Duv)	0.0004
	Scotopic/Photopic Ratio *	1.695

Electrical Data

Voltage	120.0 Vac
Current	0.3100 A
Power	37.01 W
Frequency	60.00 Hz
Power Factor	0.995
Current THD	5.3 %



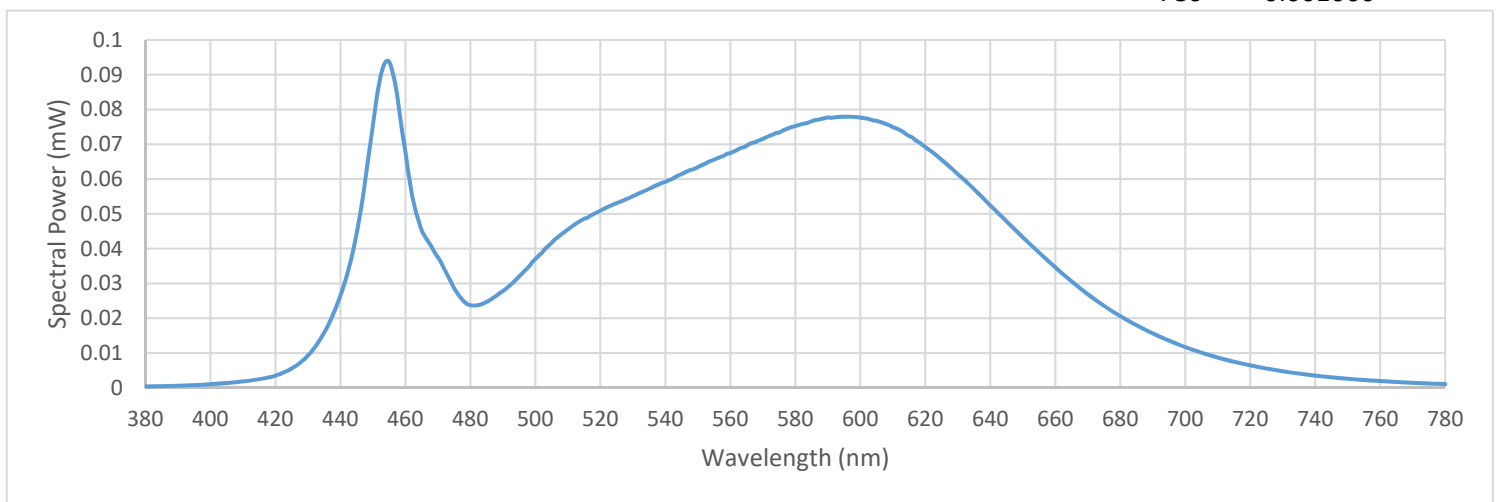
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Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000421	480	0.023757	580	0.075222	680	0.020609
385	0.000460	485	0.024727	585	0.076617	685	0.018007
390	0.000576	490	0.027788	590	0.077719	690	0.015645
395	0.000762	495	0.031924	595	0.077891	695	0.013543
400	0.001025	500	0.037000	600	0.077629	700	0.011719
405	0.001368	505	0.041661	605	0.076751	705	0.010093
410	0.001817	510	0.045532	610	0.074936	710	0.008661
415	0.002421	515	0.048599	615	0.072376	715	0.007463
420	0.003513	520	0.050974	620	0.069168	720	0.006439
425	0.005553	525	0.053031	625	0.065556	725	0.005521
430	0.009294	530	0.055010	630	0.061314	730	0.004763
435	0.015879	535	0.057142	635	0.057103	735	0.004066
440	0.026451	540	0.059196	640	0.052393	740	0.003483
445	0.044494	545	0.061426	645	0.047774	745	0.003005
450	0.075489	550	0.063429	650	0.043219	750	0.002579
455	0.093690	555	0.065530	655	0.038824	755	0.002227
460	0.067784	560	0.067455	660	0.034666	760	0.001930
465	0.045285	565	0.069568	665	0.030559	765	0.001658
470	0.037503	570	0.071522	670	0.026854	770	0.001433
475	0.028560	575	0.073362	675	0.023564	775	0.001238
						780	0.001066





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Test Equipment Configuration: LightLab International Allentown 2m Integrating Sphere
Measurements acquired using a Labsphere CDS 2600 spectroradiometer
Testing was performed using 4 π geometry

Test Temperature: 24.2 °C

Test Procedure: Tested in accordance with the applicable sections of:
LM-79-08, LM-78-07, LM-58-13, ANSI_ANSLG C78.377-2015, ANSI C82-77-10:2014

Significance: 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.

Notes: The measurements 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.

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