

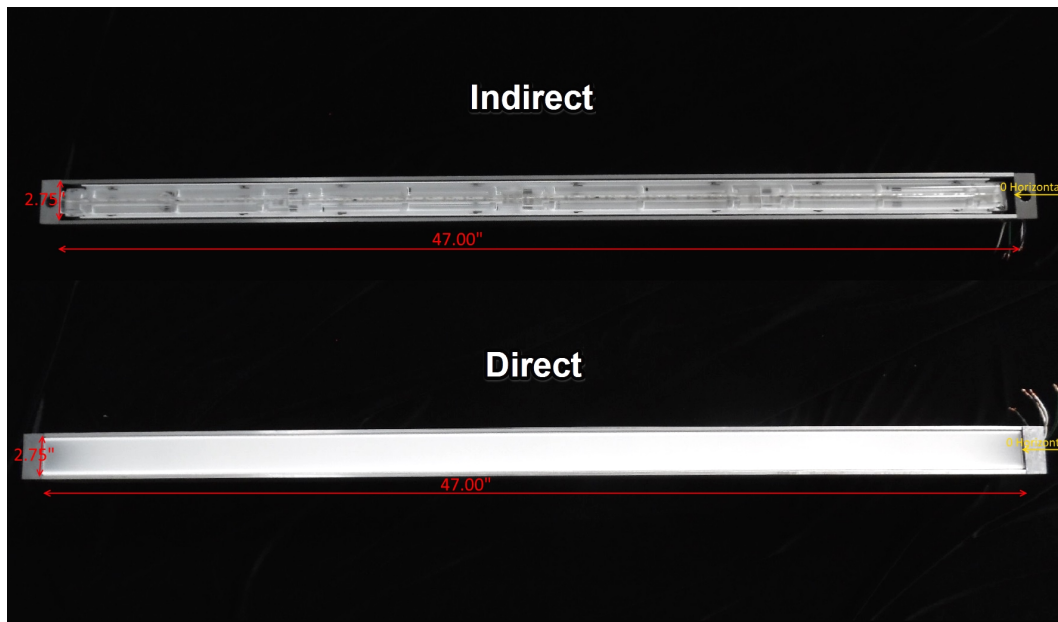
Report of Test

LLIA000844-003A-R01*

*This test report supersedes test report LLIA000844-003A

Catalog Number: MLS2-I/D-HO/HO-K40-XX-4-XX-WSOP/LOH-XXXX-120

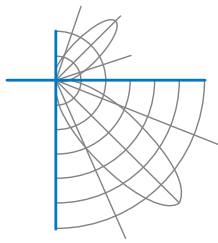
Pendant mounted, extruded aluminum housing with aluminum end caps, formed white enamel aluminum LED tray/reflectors, frosted plastic lower enclosure. Three upper connected PAL-Lighting LED boards with 92 LEDs, clear linear plastic lens above, three lower connected PAL-Lighting LED boards with 92 LEDs. Two Osram Optotronic OTi 30/120-277/1A0-DIM L LED drivers programmed to 720mA. 120.0Vac, 60.00Hz, 0.4633A, 55.43W, 0.997PF, 6.1%THD(i)



Performance Summary

Total Light Output	6911 lm
Luminaire Power	55.4 W
Luminous Efficacy	124.7 lm/W

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

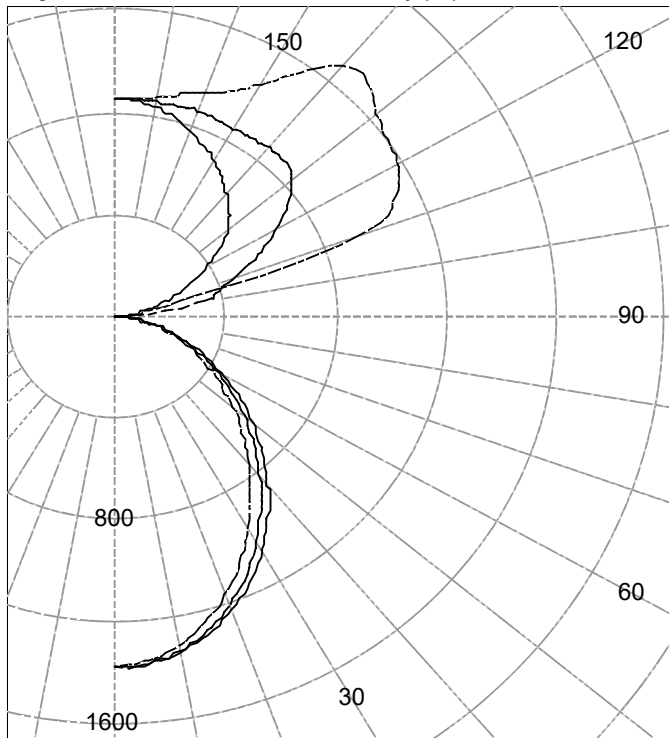


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Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



(Two plane symmetry) C0-C90

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	1380	1380	1380	1380	1380	
5.0	1371	1362	1375	1369	1358	129
10.0	1342	1331	1339	1330	1315	
15.0	1295	1282	1283	1267	1248	359
20.0	1232	1215	1209	1186	1164	
25.0	1154	1134	1121	1092	1067	512
30.0	1065	1042	1022	989	963	
35.0	966	943	919	884	858	571
40.0	861	838	813	778	753	
45.0	754	733	707	675	653	544
50.0	647	630	606	576	557	
55.0	542	529	509	481	465	453
60.0	441	434	416	392	379	
65.0	347	344	327	308	298	323
70.0	258	257	244	229	222	
75.0	176	176	167	158	153	177
80.0	103	104	99	94	92	
85.0	44	44	42	39	37	47
90.0	2	2	3	3	2	

AVERAGE LUMINANCE (cd / m²)

Gamma	C0	C45	C90
45.0	15671	14701	13567
55.0	13880	13041	11917
65.0	12068	11377	10366
75.0	9971	9457	8711
85.0	7424	7059	6167

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	1001	N / A	14.5
0-40	1572	N / A	22.7
0-60	2569	N / A	37.2
0-90	3115	N / A	45.1
40-90	1543	N / A	22.3
60-90	547	N / A	7.9
90-180	3796	N / A	54.9
0-180	6911	N / A	100.0

Total Light Output = 6,911 lm

Signed:

Authorized Signatory

Date of test

28-Aug-2017

Date of report

15-Dec-2017



Test Report No. LLIA000844-003A-R01

Catalog Number: MLS2-I/D-HO/HO-K40-XX-4-XX-WSOP/LOH-XXXX-120

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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	1380	1380	1380	1380	1380
2.5	1378	1370	1384	1379	1369
5.0	1371	1362	1375	1369	1358
7.5	1359	1349	1360	1353	1339
10.0	1342	1331	1339	1330	1315
12.5	1321	1309	1314	1301	1284
15.0	1295	1282	1283	1267	1248
17.5	1265	1250	1248	1228	1208
20.0	1232	1215	1209	1186	1164
22.5	1195	1176	1166	1140	1117
25.0	1154	1134	1121	1092	1067
27.5	1111	1089	1073	1041	1016
30.0	1065	1042	1022	989	963
32.5	1016	993	971	937	911
35.0	966	943	919	884	858
37.5	914	891	866	831	805
40.0	861	838	813	778	753
42.5	808	786	760	726	703
45.0	754	733	707	675	653
47.5	700	681	656	625	604
50.0	647	630	606	576	557
52.5	594	579	557	528	510
55.0	542	529	509	481	465
57.5	491	481	462	436	422
60.0	441	434	416	392	379
62.5	394	388	371	349	338
65.0	347	344	327	308	298
67.5	302	300	285	268	260
70.0	258	257	244	229	222
72.5	216	216	204	192	187
75.0	176	176	167	158	153
77.5	138	138	131	125	122
80.0	103	104	99	94	92
82.5	72	72	69	66	64
85.0	44	44	42	39	37
87.5	19	19	16	14	13
90.0	2	2	3	3	2



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	2	2	3	3	2
92.5	11	20	20	15	14
95.0	30	48	71	43	42
97.5	54	76	214	76	66
100.0	82	108	329	154	105
102.5	113	141	364	307	168
105.0	146	175	387	609	309
107.5	180	212	422	903	629
110.0	216	251	466	1003	953
112.5	254	294	519	1026	1078
115.0	293	338	571	1037	1125
117.5	335	383	618	1045	1159
120.0	377	428	666	1056	1182
122.5	419	474	714	1063	1197
125.0	460	516	763	1077	1204
127.5	497	552	806	1099	1217
130.0	529	586	840	1127	1242
132.5	557	618	860	1155	1271
135.0	581	646	869	1174	1297
137.5	604	671	869	1172	1307
140.0	626	692	866	1146	1288
142.5	647	710	861	1102	1240
145.0	668	726	857	1054	1175
147.5	689	739	855	1011	1110
150.0	708	751	854	976	1054
152.5	728	762	854	950	1010
155.0	746	774	856	931	977
157.5	764	785	858	917	952
160.0	781	796	859	906	932
162.5	797	807	858	898	917
165.0	811	817	858	889	904
167.5	823	826	857	880	891
170.0	835	835	857	870	877
172.5	845	842	857	863	866
175.0	851	847	857	859	858
177.5	855	850	858	857	854
180.0	855	855	855	855	855



Test Number: LLIA000844-003A-R01

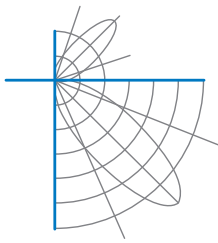
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Coefficients Of Utilization - Zonal Cavity Method																		
Effective Floor Cavity Reflectance 0.20																		
RC	80				70				50			30			10			0
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
0	106	106	106	106	97	97	97	97	81	81	81	65	65	65	52	52	52	45
1	97	93	89	85	89	85	82	79	71	69	67	58	56	55	46	45	44	38
2	88	81	75	70	81	75	69	65	62	59	55	51	48	46	41	39	37	32
3	81	72	64	59	74	66	60	55	55	51	47	45	42	39	36	34	32	28
4	74	63	56	50	68	58	52	47	49	44	40	41	37	34	33	30	28	24
5	68	57	49	43	62	52	45	40	44	39	35	36	33	29	29	27	24	21
6	63	51	43	37	57	47	40	35	40	34	30	33	29	26	27	24	22	19
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	24	22	19	17
8	54	42	34	29	49	39	32	27	33	28	24	28	24	21	23	20	17	15
9	50	38	31	26	46	35	29	24	30	25	21	25	21	19	21	18	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	19	16	14	12

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.

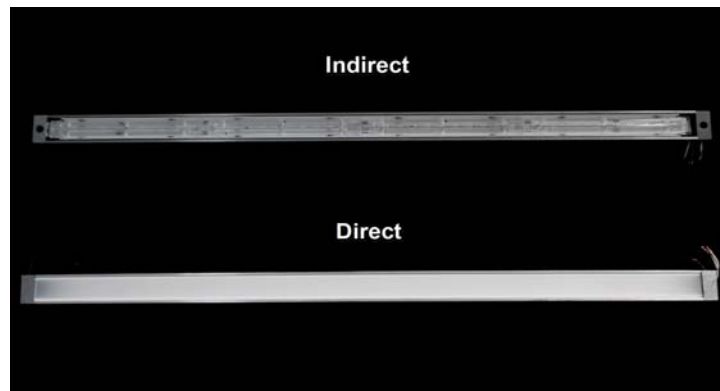
Circle of Light Plot			
Height(ft)	Illuminance at Nadir (fc)	Beam Width (across 50% Nadir Illum)	
		0-180	90-270
6.0	38.3	6.94	6.40
8.0	21.6	9.26	8.53
10.0	13.8	11.57	10.66
12.0	9.6	13.89	12.80
14.0	7.0	16.20	14.93
16.0	5.4	18.51	17.06

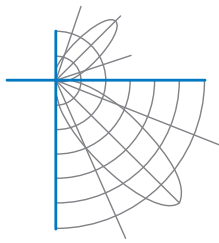


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Test Distance 9.5 m
Test Temperature 24.7 °C

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.

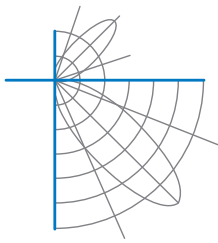
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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.



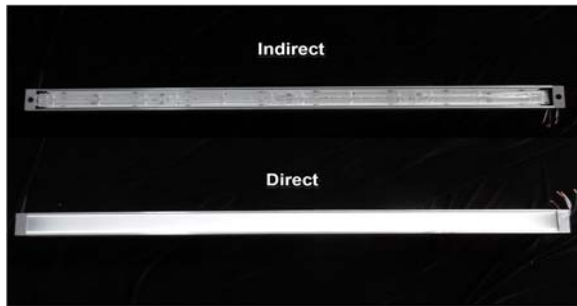
Report of Test

LLIA000844-003B-R01*

Integrating Sphere Report

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Performance Summary

Voltage	120.0 Vac
Current	0.4626 A
Power	55.34 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.1 %

Total Luminous Flux	6953.8 lm
Efficacy	125.7 lm/W
Chromaticity (x,y)	(0.3803, 0.3773)
(u',v')	(0.2248, 0.5018)
Duv	0.0003
CCT	4007 K
CRI (Ra)	84
R9	16

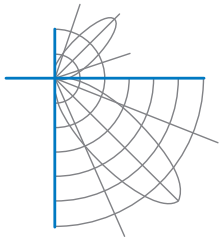
Prepared For:

Precision Architectural Lighting
4830 Timber Creek Drive
Houston, TX 77017, USA

*This test report supersedes test report LLIA000844-003B

Test date: 08/24/2017

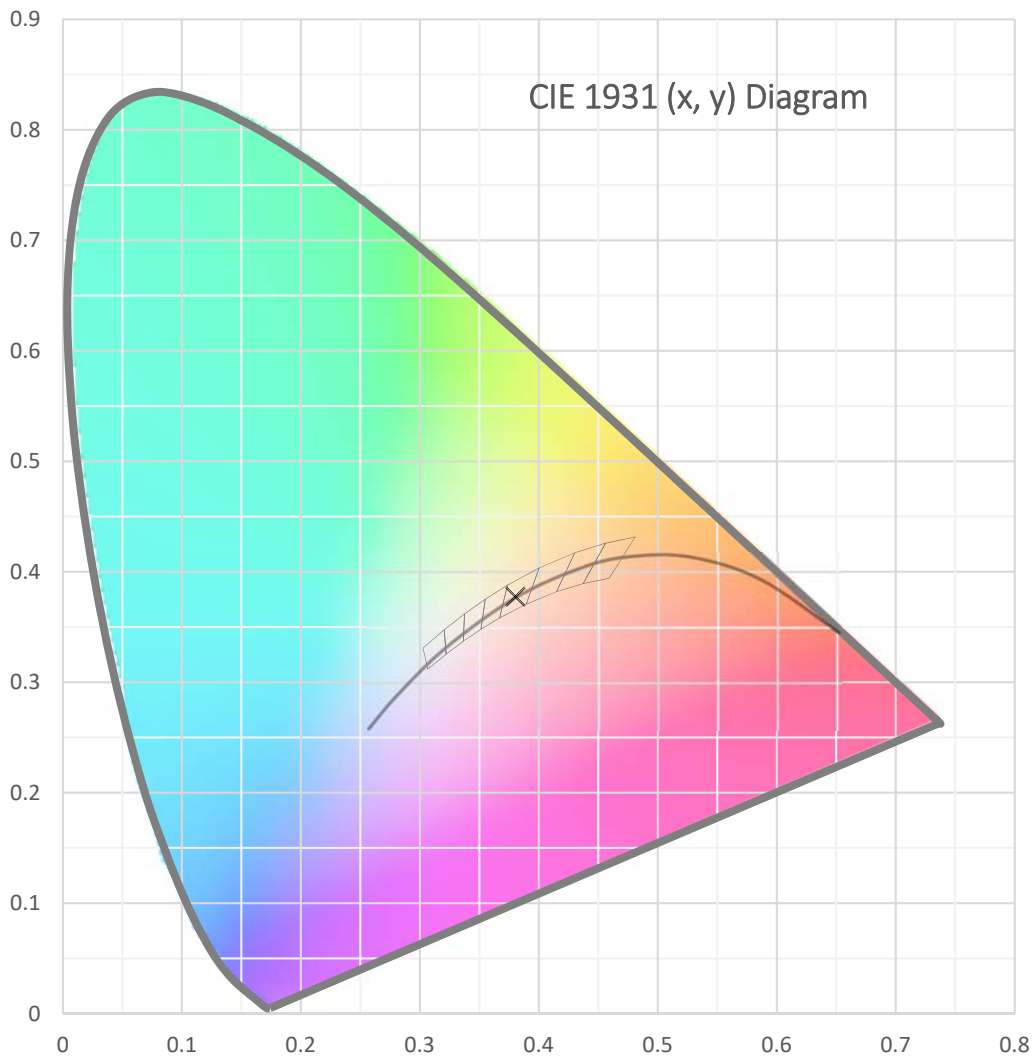
Report date: 12/15/2017

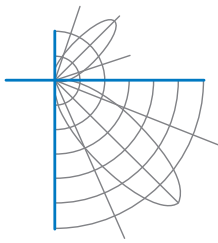


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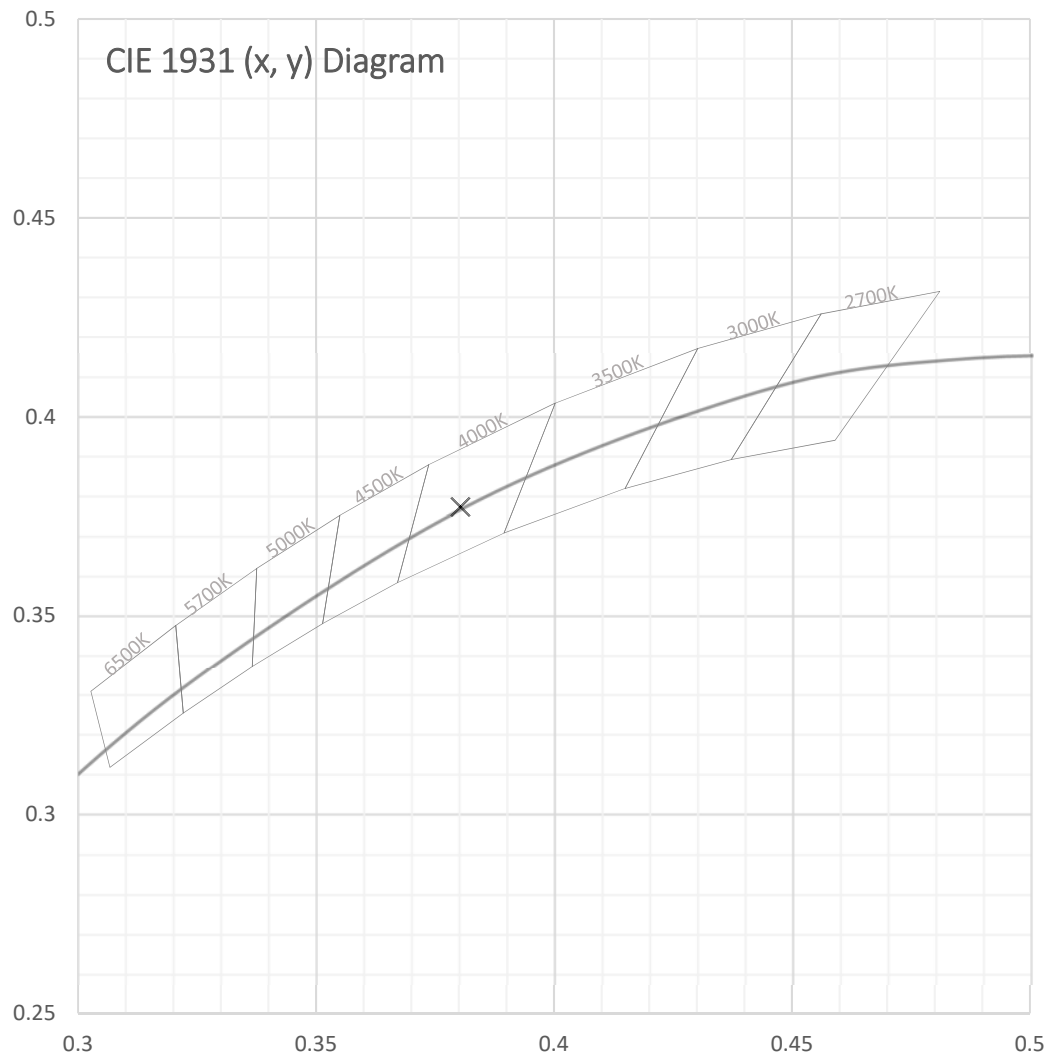




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Spectral Data	Total Radiant Flux	21.58 W
	Total Luminous Flux	6953.8 Lm
	Chromaticity CIE 1931 (x, y)	(0.3803, 0.3773)
	Chromaticity CIE 1976 (u', v')	(0.2248, 0.5018)
	Correlated Color Temperature (CCT)	4007 K
	Color Rendering Index (Ra)	84
	R1	83
	R2	91
	R3	96
	R4	82
	R5	82
	R6	86
	R7	87
	R8	67
	R9	16
	R10	77
	R11	80
	R12	61
	R13	85
	R14	98
	Distance from Planckian Locus (Duv)	0.0003
	Scotopic/Photopic Ratio *	1.711

Electrical Data

Voltage	120.0 Vac
Current	0.4626 A
Power	55.34 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.1 %



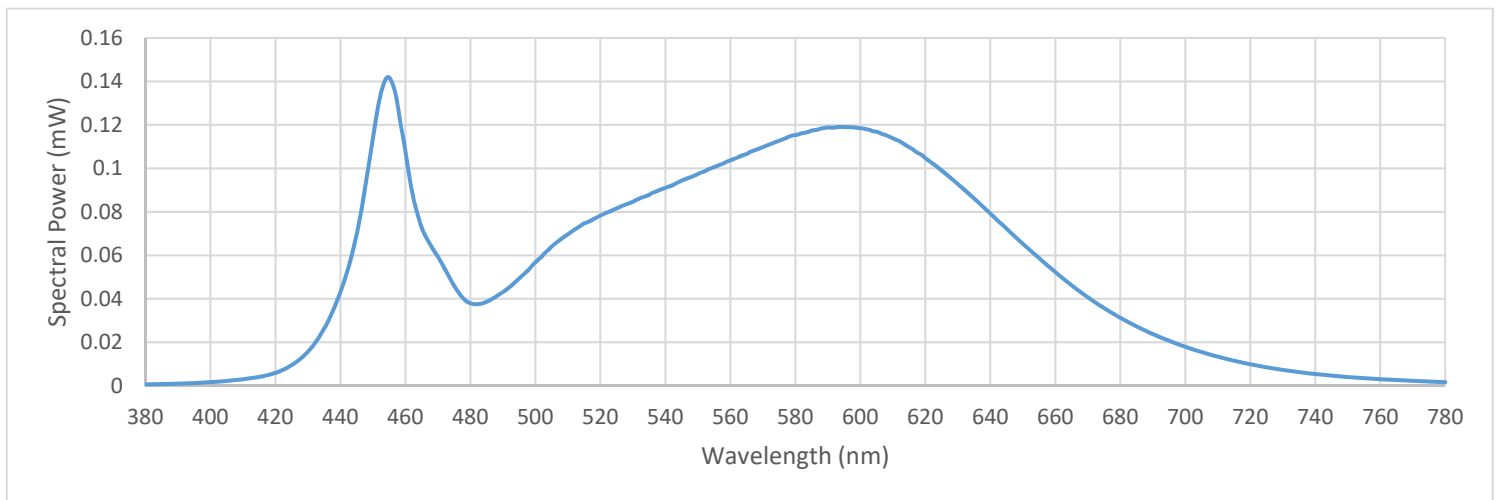
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Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000677	480	0.038012	580	0.115310	680	0.031269
385	0.000755	485	0.038695	585	0.117372	685	0.027364
390	0.000950	490	0.043120	590	0.118830	690	0.023803
395	0.001226	495	0.049224	595	0.118963	695	0.020680
400	0.001667	500	0.056781	600	0.118430	700	0.017943
405	0.002210	505	0.064017	605	0.116840	705	0.015485
410	0.002990	510	0.069668	610	0.113880	710	0.013323
415	0.004031	515	0.074716	615	0.109742	715	0.011522
420	0.005965	520	0.078343	620	0.104760	720	0.009897
425	0.009453	525	0.081626	625	0.099050	725	0.008514
430	0.015785	530	0.084602	630	0.092707	730	0.007334
435	0.026321	535	0.087781	635	0.086262	735	0.006292
440	0.043031	540	0.090972	640	0.079174	740	0.005396
445	0.069933	545	0.094284	645	0.072155	745	0.004655
450	0.113978	550	0.097364	650	0.065267	750	0.004011
455	0.141819	555	0.100567	655	0.058634	755	0.003463
460	0.107926	560	0.103643	660	0.052389	760	0.003014
465	0.072736	565	0.106575	665	0.046221	765	0.002612
470	0.059334	570	0.109733	670	0.040689	770	0.002242
475	0.045836	575	0.112644	675	0.035682	775	0.001941
						780	0.001679





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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: 25.3 °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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