

# Report of Test

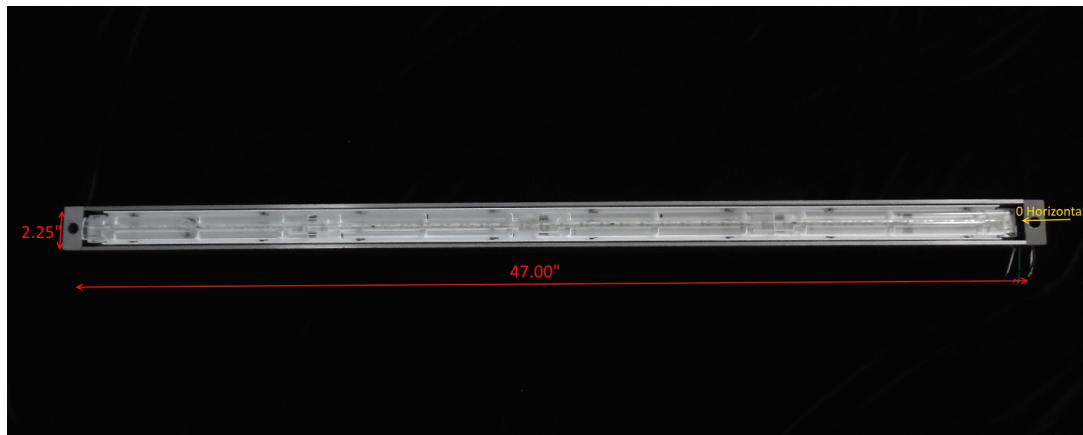
## LLIA000844-001A-R01\*

\*This test report supersedes test report LLIA000844-001

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

Pendant mounted, extruded aluminum housing with aluminum end caps,  
formed white enamel aluminum LED tray/reflector.

Three connected PAL-Lighting LED boards with 92 white LEDs and clear linear plastic lens above.  
One Osram Optotronic OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA  
120.0Vac, 60.00Hz, 0.2317A, 27.72W, 0.997PF, 6.4%THD(i)



### Performance Summary

Total Light Output	3768 lm
Luminaire Power	27.7 W
Luminous Efficacy	136.0 lm/W

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



**Test Report No. LLIA000844-001A-R01**

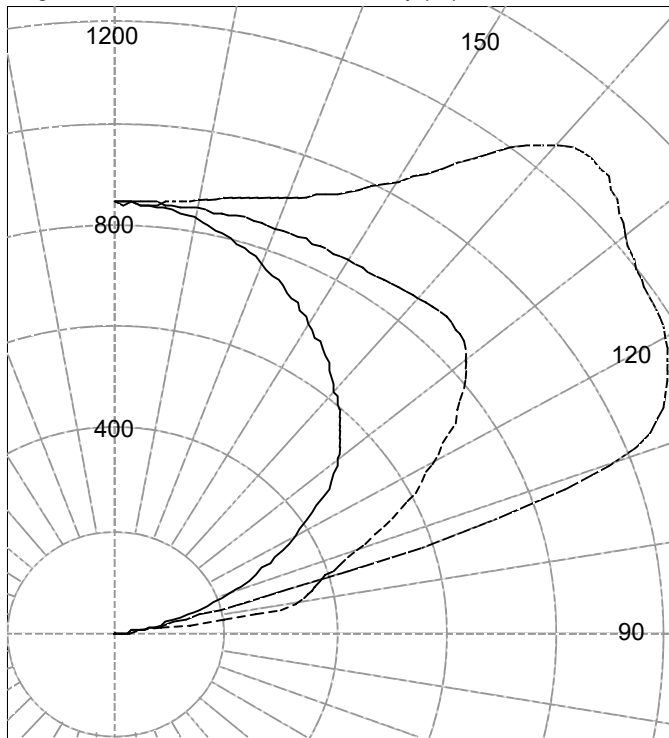
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Legend: C0-Solid, C45-Dashed, C90-Grey (cd)



(Two plane symmetry) C0-C90

**INTENSITY SUMMARY (cd)**

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
90.0	0	0	0	0	0	
95.0	30	48	82	43	41	72
100.0	82	108	331	164	107	
105.0	147	176	385	642	328	387
110.0	218	253	467	995	957	
115.0	294	339	572	1026	1109	651
120.0	377	428	664	1045	1161	
125.0	460	513	759	1068	1178	707
130.0	528	581	833	1120	1214	
135.0	578	639	861	1164	1265	688
140.0	621	683	857	1133	1251	
145.0	662	715	848	1041	1140	552
150.0	702	740	844	964	1025	
155.0	739	763	846	919	953	391
160.0	773	785	848	894	911	
165.0	802	806	847	877	886	239
170.0	825	824	846	859	862	
175.0	841	836	847	848	847	81
180.0	845	845	845	845	845	

**ZONAL FLUX AND PERCENTAGES**

Zone	Flux (lm)	% Lamp	% Luminaire
180-150	711	N / A	18.9
180-140	1262	N / A	33.5
180-120	2658	N / A	70.5
180-90	3768	N / A	100.0
140-90	2506	N / A	66.5
120-90	1110	N / A	29.5
90-0	0	N / A	0.0
180-0	3768	N / A	100.0

Total Light Output = 3,768 lm

Signed:

Authorized Signatory

Date of test 25-Aug-2017  
Date of report 15-Dec-2017



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**Intensity data (cd)**

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	0	0	0	0	0
92.5	11	21	20	16	14
95.0	30	48	82	43	41
97.5	54	76	230	80	66
100.0	82	108	331	164	107
102.5	114	141	361	331	173
105.0	147	176	385	642	328
107.5	182	213	422	911	654
110.0	218	253	467	995	957
112.5	255	296	521	1015	1065
115.0	294	339	572	1026	1109
117.5	335	384	618	1034	1139
120.0	377	428	664	1045	1161
122.5	419	473	712	1053	1173
125.0	460	513	759	1068	1178
127.5	496	548	801	1091	1190
130.0	528	581	833	1120	1214
132.5	554	612	853	1147	1242
135.0	578	639	861	1164	1265
137.5	600	663	861	1160	1272
140.0	621	683	857	1133	1251
142.5	642	700	852	1089	1203
145.0	662	715	848	1041	1140
147.5	682	728	845	998	1078
150.0	702	740	844	964	1025
152.5	721	751	845	938	984
155.0	739	763	846	919	953
157.5	756	774	847	905	929
160.0	773	785	848	894	911
162.5	788	796	847	886	897
165.0	802	806	847	877	886
167.5	814	816	846	868	874
170.0	825	824	846	859	862
172.5	835	831	846	852	853
175.0	841	836	847	848	847
177.5	845	839	848	847	844
180.0	845	845	845	845	845



**Test Number: LLIA000844-001A-R01**

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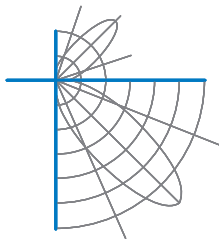
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120.0Vac, 60.00Hz, 0.2317A, 27.72W, 0.997PF, 6.4%THD(i)

**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	95	95	95	95	81	81	81	81	56	56	56	32	32	32	10	10	10	0
1	87	83	79	76	74	71	68	65	48	47	45	28	27	26	9	9	9	0
2	79	72	66	62	67	62	57	53	42	40	37	24	23	22	8	8	7	0
3	72	63	57	51	61	54	49	44	37	34	31	22	20	18	7	7	6	0
4	65	56	48	43	56	48	42	37	33	29	26	19	17	16	6	6	5	0
5	60	49	42	36	51	42	36	32	29	25	22	17	15	13	6	5	4	0
6	55	44	36	31	47	38	32	27	26	22	19	15	13	11	5	4	4	0
7	50	39	32	27	43	34	28	23	23	19	17	14	11	10	4	4	3	0
8	47	35	28	23	40	30	24	20	21	17	14	12	10	9	4	3	3	0
9	43	32	25	20	37	28	22	18	19	15	13	11	9	8	4	3	3	0
10	40	29	22	18	34	25	19	16	17	14	11	10	8	7	3	3	2	0

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.



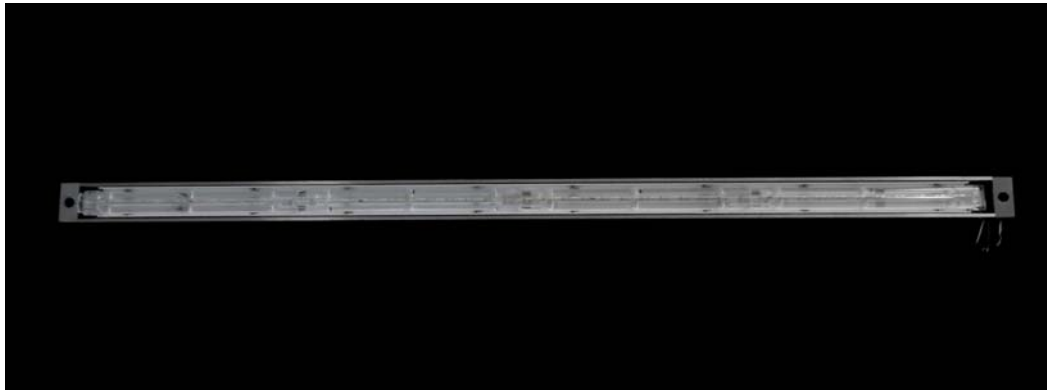
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120.0Vac, 60.00Hz, 0.2317A, 27.72W, 0.997PF, 6.4%THD(i)





**Test Report No. LLIA000844-001A**

Catalog Number: MLS2-I-HO-K40-4-X-WSOP-X-XXX-X

Pendant mounted, extruded aluminum housing with aluminum end caps,  
formed white enamel aluminum LED tray/reflector.

Three connected PAL-Lighting LED boards with 92 white LEDs and clear linear plastic lens above.

One Osram Optotronic OTi 30/120-277/1A0-DIM L LED driver programmed to 720mA  
120.0Vac, 60.00Hz, 0.2317A, 27.72W, 0.997PF, 6.4%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.

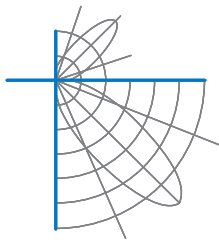
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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.



## Report of Test

**LLIA000844-001B-R01\***

Integrating Sphere Report

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

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### Performance Summary

Voltage	120.0 Vac
Current	0.2316 A
Power	27.71 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.4 %

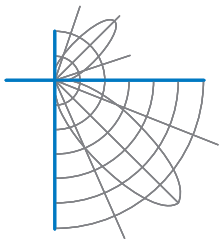
Total Luminous Flux	3883.3 lm
Efficacy	140.1 lm/W
Chromaticity (x,y)	(0.3792, 0.3761)
(u',v')	(0.2246, 0.5011)
Duv	0.0001
CCT	4029 K
CRI (Ra)	84
R9	16

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

\*This test report supersedes test report LLIA000844-001B

Test date: 08/23/2017

Report date: 12/15/2017



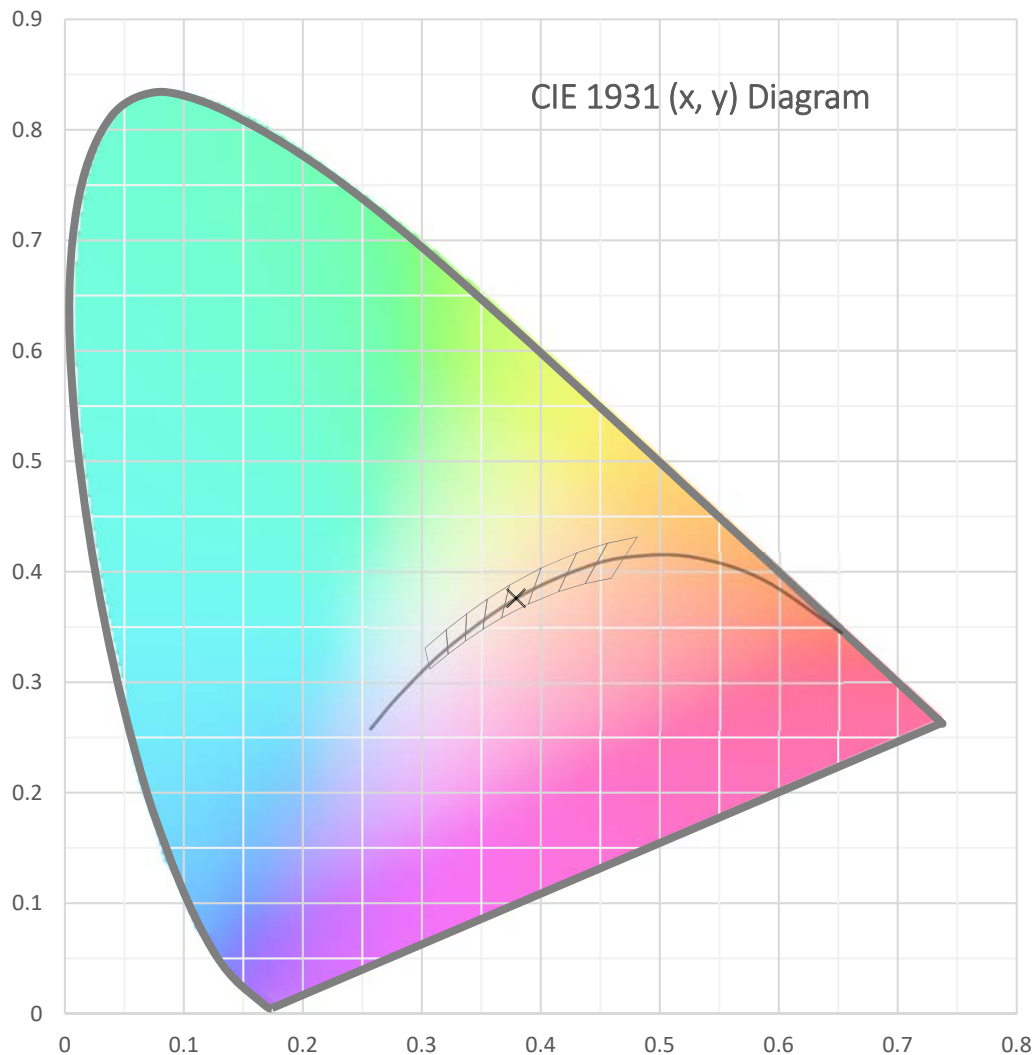
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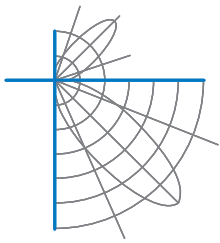
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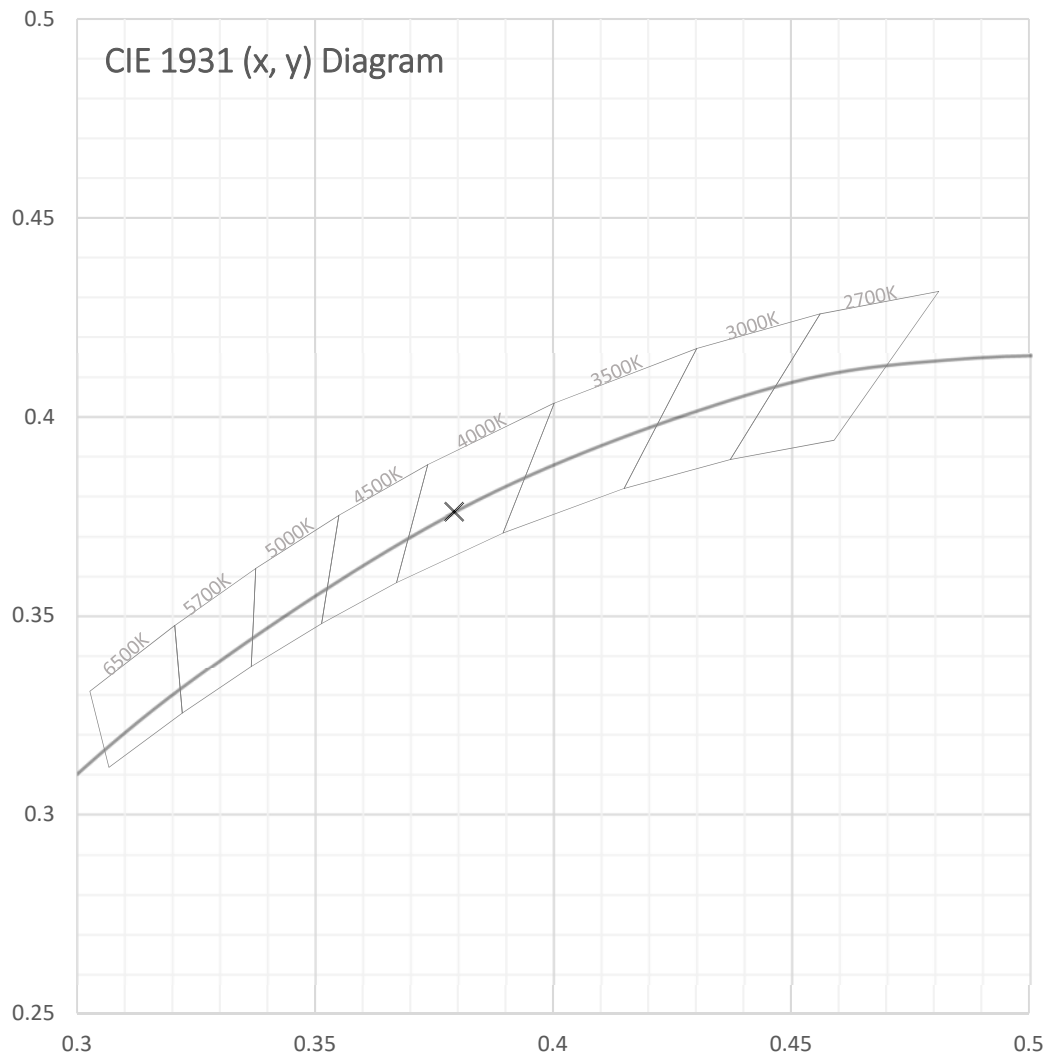
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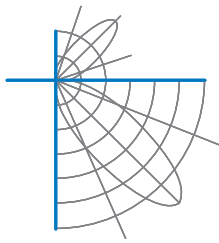
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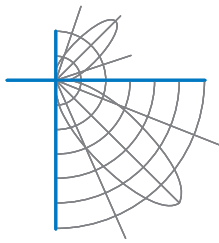
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<b>Spectral Data</b>	Total Radiant Flux	12.06 W
	Total Luminous Flux	3883.3 Lm
	Chromaticity CIE 1931 (x, y)	(0.3792, 0.3761)
	Chromaticity CIE 1976 (u', v')	(0.2246, 0.5011)
	Correlated Color Temperature (CCT)	4029 K
	Color Rendering Index (Ra)	84
	R1	83
	R2	91
	R3	95
	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)	0.0001
	Scotopic/Photopic Ratio *	1.716

**Electrical Data**

Voltage	120.0 Vac
Current	0.2316 A
Power	27.71 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.4 %



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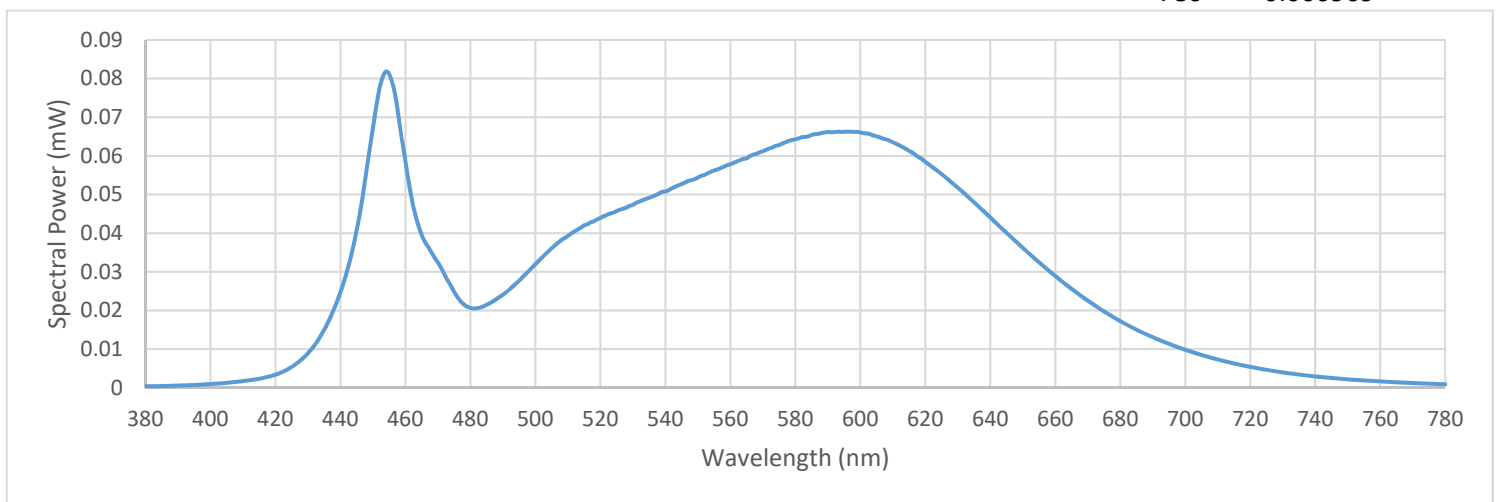
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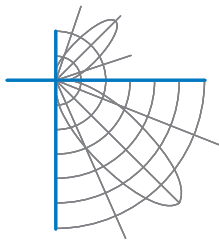
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Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000392	480	0.020646	580	0.064272	680	0.017234
385	0.000429	485	0.021484	585	0.065406	685	0.015072
390	0.000542	490	0.024100	590	0.066175	690	0.013092
395	0.000707	495	0.027684	595	0.066233	695	0.011360
400	0.000969	500	0.032042	600	0.066059	700	0.009821
405	0.001298	505	0.036044	605	0.065065	705	0.008477
410	0.001720	510	0.039259	610	0.063505	710	0.007285
415	0.002315	515	0.042027	615	0.061278	715	0.006294
420	0.003418	520	0.043983	620	0.058407	720	0.005414
425	0.005393	525	0.045692	625	0.055264	725	0.004639
430	0.008974	530	0.047346	630	0.051735	730	0.003993
435	0.015035	535	0.049161	635	0.047997	735	0.003417
440	0.024667	540	0.050771	640	0.044051	740	0.002934
445	0.040816	545	0.052697	645	0.040034	745	0.002525
450	0.067143	550	0.054415	650	0.036186	750	0.002183
455	0.081152	555	0.056249	655	0.032435	755	0.001882
460	0.058684	560	0.057803	660	0.028969	760	0.001638
465	0.039517	565	0.059373	665	0.025560	765	0.001407
470	0.032410	570	0.061205	670	0.022498	770	0.001213
475	0.024722	575	0.062785	675	0.019729	775	0.001052
						780	0.000909





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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 $\pi$ geometry
Test Temperature:	24.6 °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.  This report is free of erasures and corrections  This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with * are not covered.