

Report of Test

LLIA000817-009A

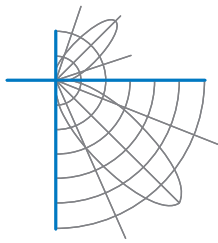
Catalog Number: MLS2-D-MO-K40-80-4-XX-AL-XXX-UNV
Pendant mounted, extruded aluminum housing, formed white enamel
aluminum reflectors, translucent white plastic enclosure.
92 white LEDs
One Osram Optotronic OT30W/PRG1050C/UNV/DIM/L LED driver
120.0Vac, 60.00Hz, 0.1547A, 18.46W, 0.994PF, 5.1%THD(i)



Performance Summary

Total Light Output	1853 lm
Luminaire Power	18.5 W
Luminous Efficacy	100.2 lm/W

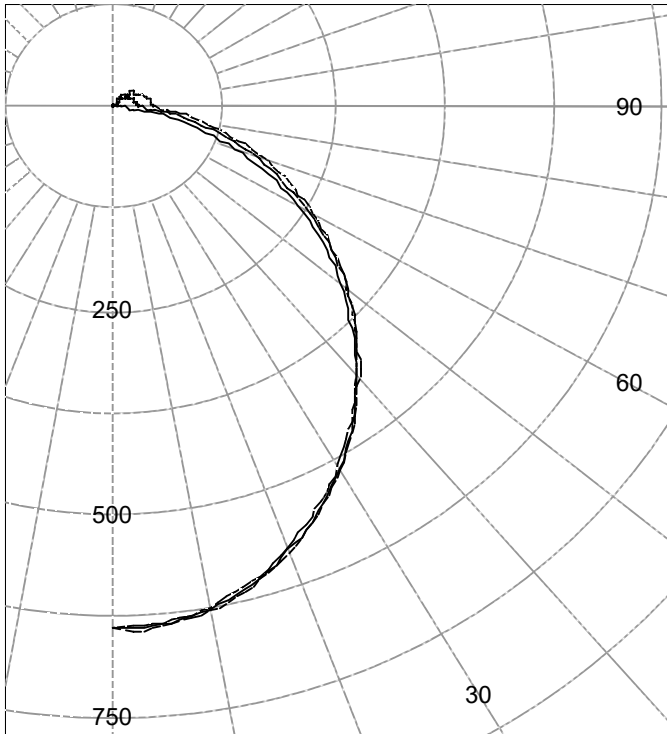
PREPARED FOR : Precision Architectural Lighting, 4830 Timber Creek Drive, Houston, TX 77017



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



(Two plane symmetry) C0-C90

AVERAGE LUMINANCE (cd / m²)

Gamma	C0	C45	C90
45.0	7916	7534	7295
55.0	7358	6974	6778
65.0	6678	6311	6251
75.0	5545	5476	5677
85.0	3653	4688	5358

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	642	642	642	642	642	
5.0	638	634	641	639	636	61
10.0	626	623	629	627	624	
15.0	607	604	609	607	604	171
20.0	581	578	583	580	577	
25.0	549	549	551	548	544	252
30.0	512	510	514	511	508	
35.0	473	470	475	472	469	295
40.0	429	428	433	431	429	
45.0	383	385	391	389	388	299
50.0	336	340	347	346	346	
55.0	289	296	303	303	304	268
60.0	242	251	257	260	262	
65.0	194	204	212	218	220	208
70.0	146	157	167	176	179	
75.0	100	111	125	135	139	130
80.0	57	70	86	98	102	
85.0	23	36	53	65	70	56
90.0	0	13	28	40	44	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	484	N / A	26.1
0-40	779	N / A	42.0
0-60	1346	N / A	72.6
0-90	1740	N / A	93.9
40-90	961	N / A	51.9
60-90	394	N / A	21.3
90-180	113	N / A	6.1
0-180	1853	N / A	100.0

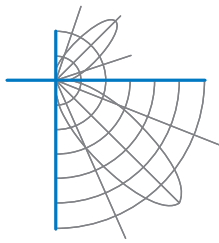
Total Light Output = 1,853 lm

Spacing Criterion: 0-180 1.2
Spacing Criterion: 90-270 1.2

Signed:

Authorized Signatory

Date of test 14-Jul-2017
Date of report 18-Jul-2017



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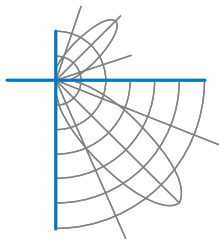
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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	642	642	642	642	642
2.5	641	637	644	642	638
5.0	638	634	641	639	636
7.5	633	629	636	634	631
10.0	626	623	629	627	624
12.5	617	614	620	618	615
15.0	607	604	609	607	604
17.5	595	591	597	595	591
20.0	581	578	583	580	577
22.5	567	563	567	565	561
25.0	549	549	551	548	544
27.5	531	529	533	530	527
30.0	512	510	514	511	508
32.5	493	490	497	492	489
35.0	473	470	475	472	469
37.5	451	450	454	451	449
40.0	429	428	433	431	429
42.5	406	406	412	410	409
45.0	383	385	391	389	388
47.5	360	362	369	367	367
50.0	336	340	347	346	346
52.5	313	318	325	325	325
55.0	289	296	303	303	304
57.5	266	273	280	282	283
60.0	242	251	257	260	262
62.5	218	227	235	239	241
65.0	194	204	212	218	220
67.5	170	181	189	196	200
70.0	146	157	167	176	179
72.5	123	134	146	155	159
75.0	100	111	125	135	139
77.5	78	90	104	116	120
80.0	57	70	86	98	102
82.5	39	52	68	81	86
85.0	23	36	53	65	70
87.5	10	23	39	51	56
90.0	0	13	28	40	44

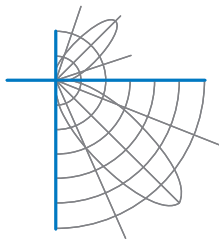


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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	0	13	28	40	44
92.5	0	12	27	39	43
95.0	0	12	27	38	43
97.5	0	12	26	38	42
100.0	0	12	26	37	41
102.5	0	11	26	37	40
105.0	0	11	25	36	40
107.5	0	11	25	35	39
110.0	0	11	24	34	38
112.5	0	11	24	33	37
115.0	0	11	23	32	36
117.5	0	10	23	31	35
120.0	0	10	22	30	34
122.5	0	10	21	30	33
125.0	0	9	21	28	31
127.5	0	9	20	27	30
130.0	0	9	19	26	28
132.5	0	8	18	25	27
135.0	0	8	17	23	26
137.5	0	7	16	22	24
140.0	0	7	15	21	22
142.5	0	6	14	19	21
145.0	0	6	13	18	19
147.5	0	6	12	16	18
150.0	0	5	11	15	16
152.5	0	4	10	13	14
155.0	0	4	8	12	13
157.5	0	3	7	10	11
160.0	0	3	6	9	10
162.5	0	2	5	8	8
165.0	0	2	4	6	7
167.5	0	0	3	5	6
170.0	0	0	3	4	4
172.5	0	0	0	3	3
175.0	0	0	0	0	0
177.5	0	0	0	0	0
180.0	0	0	0	0	0



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Coefficients Of Utilization - Zonal Cavity Method

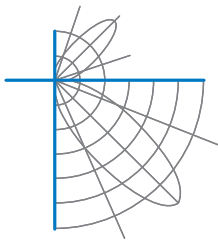
Effective Floor Cavity Reflectance 0.20

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	118	118	118	118	114	114	114	114	108	108	108	102	102	102	96	96	96	94
1	107	102	97	93	104	99	95	91	94	90	87	89	86	84	84	82	80	78
2	97	89	82	76	94	86	80	75	82	76	72	78	73	69	74	70	67	64
3	88	78	70	63	85	76	68	62	72	66	60	68	63	58	65	61	57	54
4	81	69	60	53	78	67	59	53	64	57	51	61	55	50	58	53	49	46
5	75	62	53	46	72	60	52	46	57	50	44	55	48	43	52	47	42	40
6	69	56	47	40	67	54	46	40	52	44	39	50	43	38	48	42	37	35
7	64	50	42	36	62	49	41	35	47	40	35	45	39	34	43	38	33	31
8	59	46	38	32	58	45	37	31	43	36	31	42	35	30	40	34	30	28
9	56	42	34	29	54	41	34	28	40	33	28	38	32	27	37	31	27	25
10	52	39	31	26	51	38	31	26	37	30	25	36	29	25	34	29	25	23

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	17.8	7.15	7.10
8.0	10.0	9.53	9.47
10.0	6.4	11.92	11.84
12.0	4.5	14.30	14.20
14.0	3.3	16.68	16.57
16.0	2.5	19.07	18.94



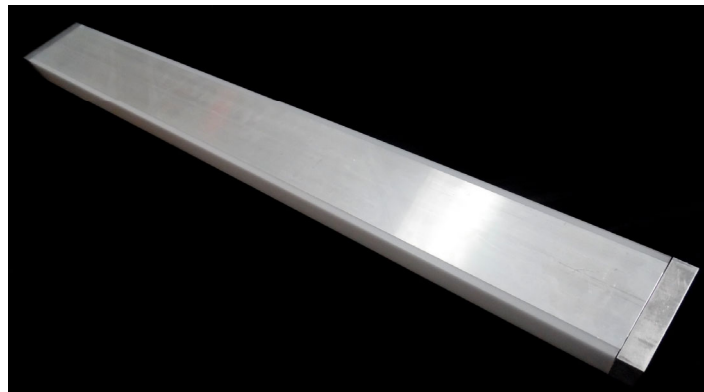
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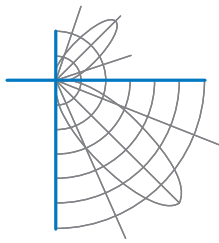
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Test Distance 9.5 m
Test Temperature 24.9 °C

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.

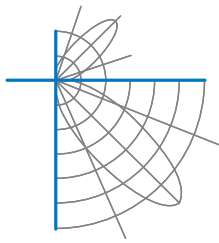
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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

LLIA000817-009B

Integrating Sphere Report

Catalog Number: MLS2-D-MO-K40-80-4-XX-AL-XXX-UNV

Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflectors, translucent white plastic enclosure.

92 white LEDs

One Osram Optotronic OT30W/PRG1050C/UNV/DIM/L LED driver



Performance Summary

Voltage	120.0 Vac
Current	0.1548 A
Power	18.48 W
Frequency	60.00 Hz
Power Factor	0.994
Current THD	5.1 %

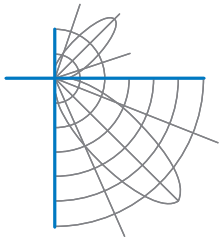
Total Luminous Flux	1905.2 lm
Efficacy	103.1 lm/W
Chromaticity (x,y)	(0.3804, 0.3790)
(u',v')	(0.2242, 0.5026)
Duv	0.0011
CCT	4017 K
CRI (Ra)	85
R9	19

Prepared For:

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

Test date: 07/13/2017

Report date: 07/18/2017



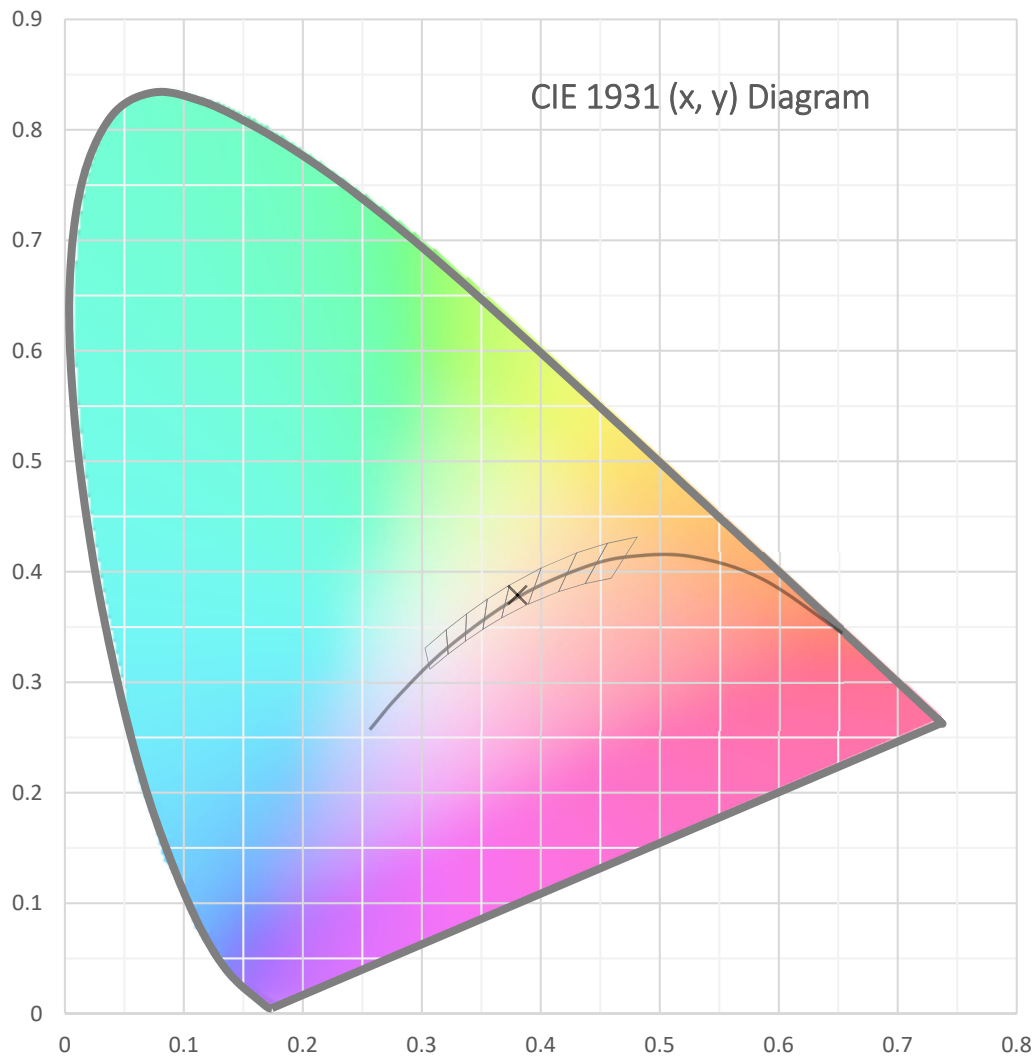
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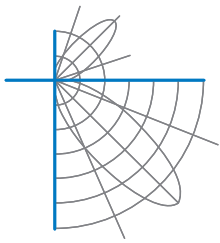
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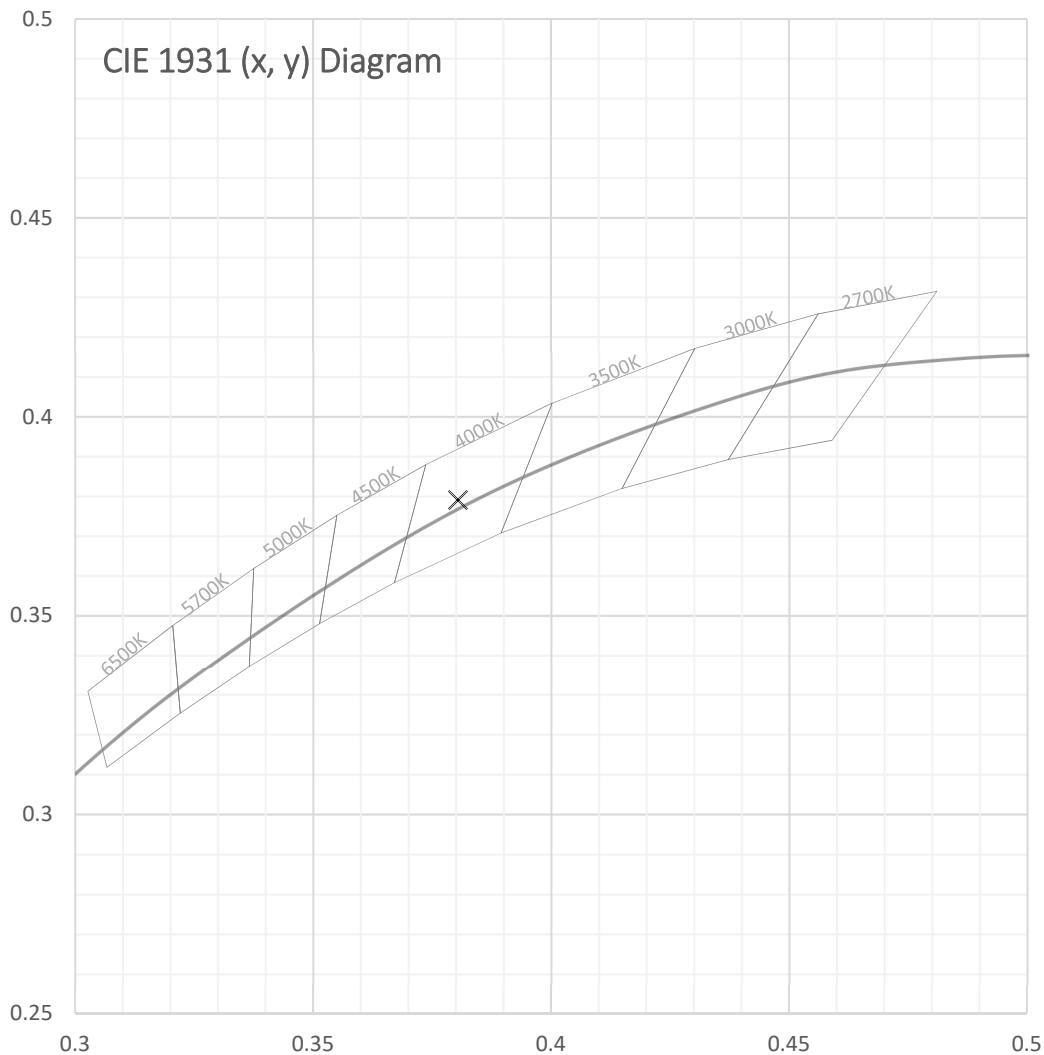
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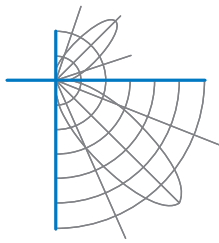
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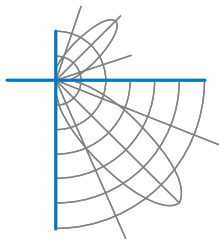
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Spectral Data

Total Radiant Flux	5.936 W
Total Luminous Flux	1905.2 Lm
Chromaticity CIE 1931 (x, y)	(0.3804, 0.3790)
Chromaticity CIE 1976 (u', v')	(0.2242, 0.5026)
Correlated Color Temperature (CCT)	4017 K
Color Rendering Index (Ra)	85
R1	83
R2	91
R3	96
R4	82
R5	82
R6	87
R7	87
R8	68
R9	19
R10	79
R11	80
R12	60
R13	85
R14	98
Distance from Planckian Locus (Duv)	0.0011
Scotopic/Photopic Ratio *	1.723

Electrical Data

Voltage	120.0 Vac
Current	0.1548 A
Power	18.48 W
Frequency	60.00 Hz
Power Factor	0.994
Current THD	5.1 %



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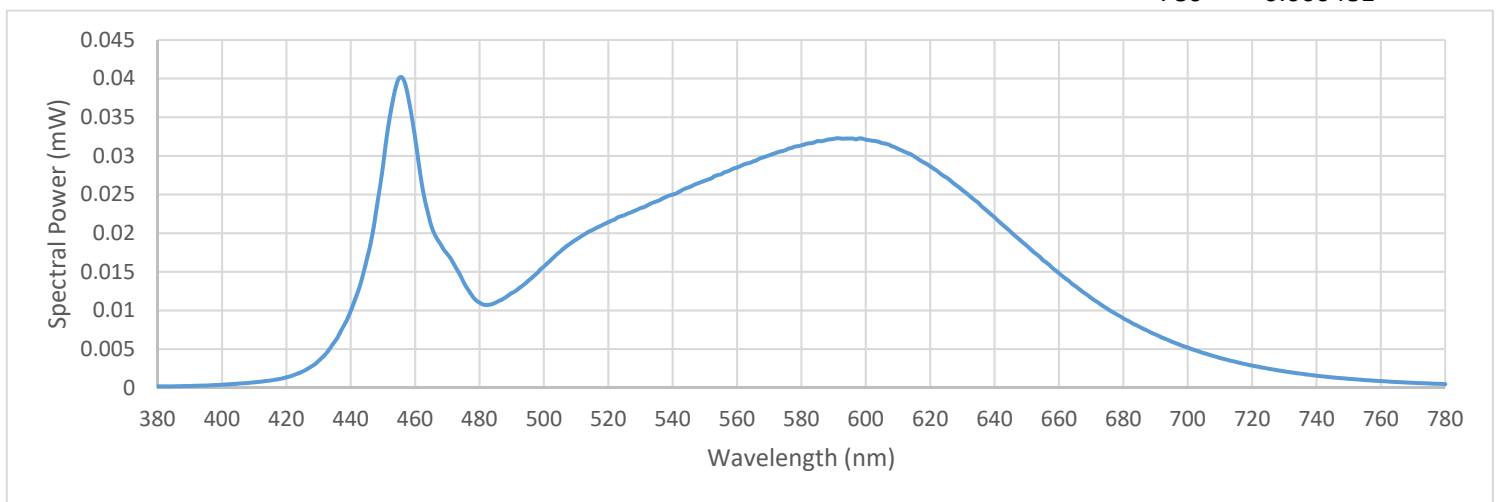
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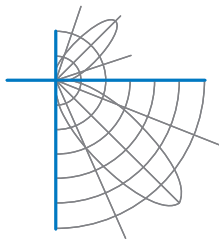
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Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000181	480	0.011020	580	0.031363	680	0.008988
385	0.000189	485	0.011007	585	0.031917	685	0.007900
390	0.000230	490	0.012256	590	0.032194	690	0.006885
395	0.000294	495	0.013786	595	0.032236	695	0.005969
400	0.000398	500	0.015685	600	0.032103	700	0.005201
405	0.000534	505	0.017598	605	0.031666	705	0.004488
410	0.000704	510	0.019169	610	0.030914	710	0.003866
415	0.000941	515	0.020398	615	0.029944	715	0.003344
420	0.001352	520	0.021427	620	0.028666	720	0.002871
425	0.002097	525	0.022336	625	0.027217	725	0.002473
430	0.003470	530	0.023242	630	0.025570	730	0.002126
435	0.005965	535	0.024112	635	0.023911	735	0.001828
440	0.009931	540	0.024986	640	0.022052	740	0.001564
445	0.016642	545	0.025929	645	0.020187	745	0.001347
450	0.028654	550	0.026790	650	0.018379	750	0.001161
455	0.040051	555	0.027616	655	0.016521	755	0.001002
460	0.032282	560	0.028490	660	0.014833	760	0.000867
465	0.020971	565	0.029279	665	0.013173	765	0.000749
470	0.017300	570	0.030070	670	0.011620	770	0.000642
475	0.013703	575	0.030733	675	0.010236	775	0.000555
						780	0.000481





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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: 24.8 °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
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