



Report of Test

LLIA001201-001A

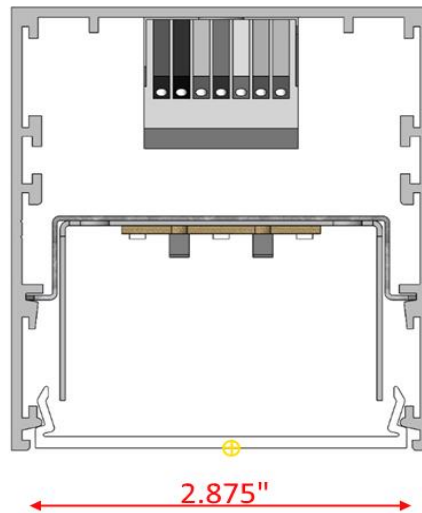
Indoor Distribution Photometry Test Report

Catalog Number: MLS3-D-MO-K35-80-XX-LOH-XXXX-120

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

144 white LEDs, one Osram PrevaLED BAR

One Osram Optotronic OTi 20/120-277/700 DIM-1 L G2 LED driver labeled as 300mA.



Prepared For:

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

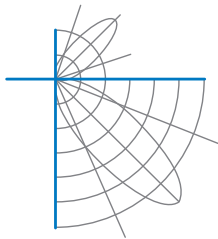
Performance Summary			
Input Voltage	120.0 V	Luminous Flux	1853.0 Lumens
Input Current	0.1451 A	Total Efficacy	107.5 Lm/W
Input Power	17.24 W	Downward Flux	1853.0 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.990		
Current THD	5.8 %		

This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

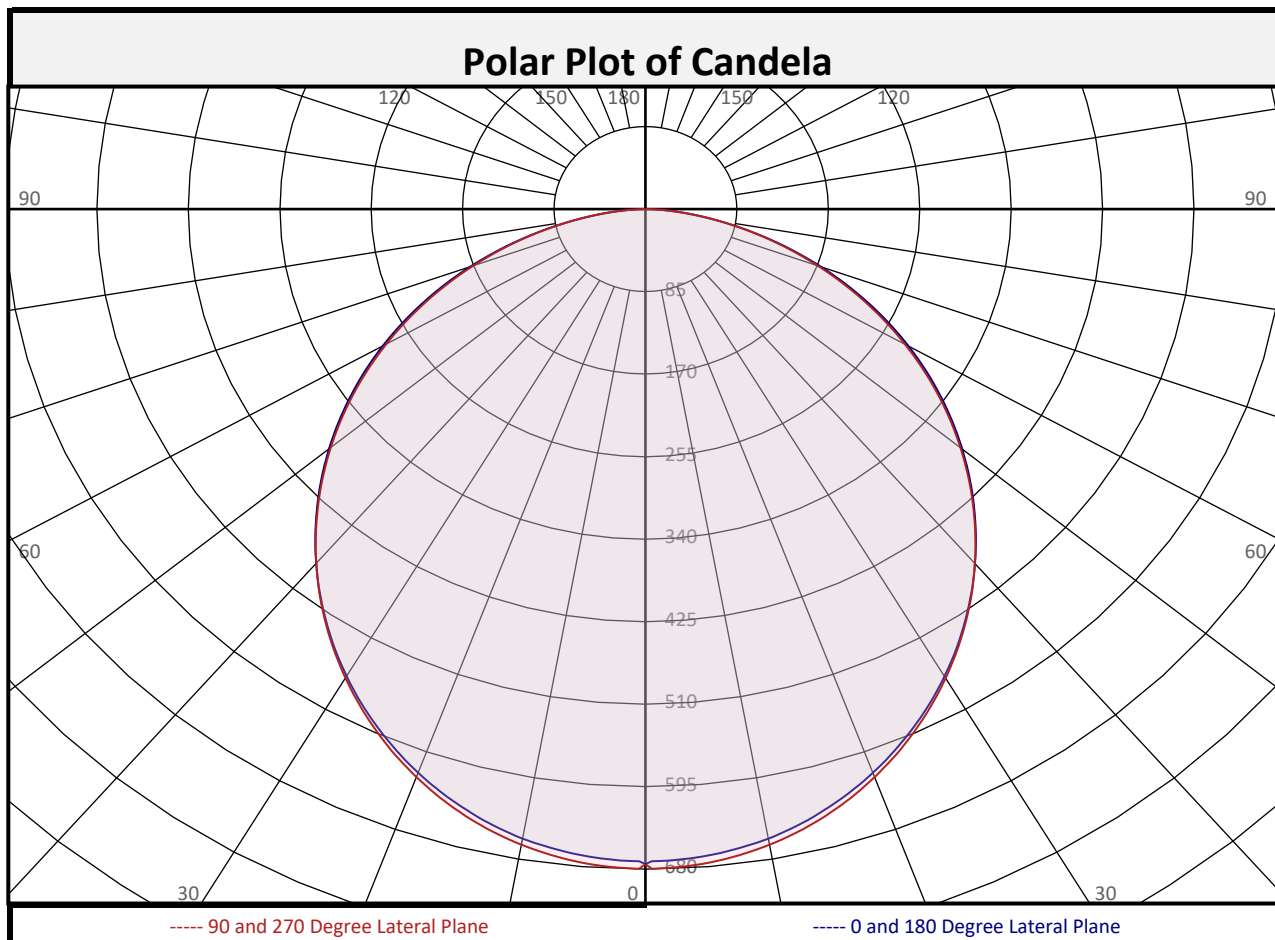
Test date: 12/20/2019

Report date: 12/23/2019

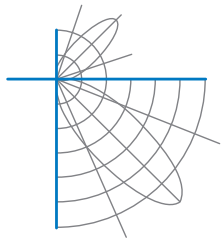
Signed: _____



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Zonal Flux Summary											
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total	
0-10	63.8	3.4%		90-100	0.0	0.0%		0-20	245.2	13.2%	
10-20	181.5	9.8%		100-110	0.0	0.0%		0-30	517.3	27.9%	
20-30	272.0	14.7%		110-120	0.0	0.0%		0-40	841.3	45.4%	
30-40	324.0	17.5%		120-130	0.0	0.0%		0-60	1471	79.4%	
40-50	332.5	17.9%		130-140	0.0	0.0%		0-80	1821	98.3%	
50-60	297.6	16.1%		140-150	0.0	0.0%		10-90	1789	96.5%	
60-70	224.2	12.1%		150-160	0.0	0.0%		20-50	928.5	50.1%	
70-80	125.4	6.8%		160-170	0.0	0.0%		40-90	1012	54.6%	
80-90	32.1	1.7%		170-180	0.0	0.0%		60-90	381.7	20.6%	
0-90	1853	100.0%		90-180	0.0	0.0%		0-180	1853	100.0%	

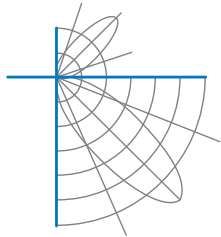


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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	0	675	675	675	675	675	675	675	675	675
	2.5	671	672	673	676	679	676	673	672	671
	5	668	669	671	673	676	673	671	669	668
	7.5	664	665	666	669	671	669	666	665	664
	10	659	659	660	663	665	663	660	659	659
	12.5	651	651	652	655	657	655	652	651	651
	15	641	642	643	645	647	645	643	642	641
	17.5	630	630	632	634	636	634	632	630	630
	20	618	618	619	621	623	621	619	618	618
	22.5	604	604	605	607	609	607	605	604	604
	25	589	589	590	592	593	592	590	589	589
	27.5	573	573	573	575	576	575	573	573	573
	30	556	555	556	557	558	557	556	555	556
	32.5	537	537	537	539	539	539	537	537	537
	35	518	518	517	519	519	519	517	518	518
	37.5	498	497	497	498	498	498	497	497	498
	40	476	476	475	477	476	477	475	476	476
	42.5	454	454	454	454	454	454	454	454	454
	45	432	432	431	431	430	431	431	432	432
	47.5	408	408	407	407	406	407	407	408	408
	50	384	384	383	383	382	383	383	384	384
	52.5	359	359	358	358	357	358	358	359	359
	55	334	334	333	332	331	332	333	334	334
	57.5	308	309	307	306	305	306	307	309	308
	60	282	282	281	280	278	280	281	282	282
	62.5	255	256	254	253	251	253	254	256	255
	65	228	228	227	226	224	226	227	228	228
	67.5	201	201	199	198	197	198	199	201	201
	70	173	173	172	171	170	171	172	173	173
	72.5	146	146	145	144	143	144	145	146	146
75	119	119	118	118	117	118	118	119	119	
77.5	92	93	93	93	92	93	93	93	92	
80	67	68	69	69	69	69	69	68	67	
82.5	45	46	47	48	48	48	47	46	45	
85	26	26	28	29	28	29	28	26	26	
87.5	11	11	11	11	11	11	11	11	11	
90	0	0	0	1	1	1	0	0	0	



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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	90	0	0	0	1	1	1	0	0	0
	92.5	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0	0	0	0
	110	0	0	0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0	0	0	0
	115	0	0	0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0	0	0	0
	120	0	0	0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0
	137.5	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	
142.5	0	0	0	0	0	0	0	0	0	
145	0	0	0	0	0	0	0	0	0	
147.5	0	0	0	0	0	0	0	0	0	
150	0	0	0	0	0	0	0	0	0	
152.5	0	0	0	0	0	0	0	0	0	
155	0	0	0	0	0	0	0	0	0	
157.5	0	0	0	0	0	0	0	0	0	
160	0	0	0	0	0	0	0	0	0	
162.5	0	0	0	0	0	0	0	0	0	
165	0	0	0	0	0	0	0	0	0	
167.5	0	0	0	0	0	0	0	0	0	
170	0	0	0	0	0	0	0	0	0	
172.5	0	0	0	0	0	0	0	0	0	
175	0	0	0	0	0	0	0	0	0	
177.5	0	0	0	0	0	0	0	0	0	
180	0	0	0	0	0	0	0	0	0	



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Coefficients of Utilization/Room 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
RCR																						
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102	100
1	109	104	100	96		106	102	98	94		98	94	91		94	91	89		90	88	86	84
2	99	91	84	78		96	89	83	77		85	80	75		82	78	74		79	75	72	70
3	90	80	72	65		88	78	71	64		75	69	63		72	67	62		70	65	61	59
4	83	71	62	55		80	69	61	55		67	60	54		64	58	53		62	57	53	50
5	76	63	54	48		74	62	54	47		60	52	47		58	51	46		56	50	46	44
6	70	57	48	42		68	56	47	41		54	47	41		52	46	41		51	45	40	38
7	65	52	43	37		63	51	42	37		49	42	36		48	41	36		46	40	36	34
8	61	47	39	33		59	46	38	33		45	38	32		44	37	32		43	37	32	30
9	57	43	35	29		55	43	35	29		41	34	29		40	34	29		39	33	29	27
10	53	40	32	27		52	39	32	27		38	31	27		37	31	26		37	31	26	25

For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp 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)	Ground-level distance to half-of-nadir illuminance (ft)		
		0-180 deg	90-270 deg	
6.0	18.7	7.36	7.38	
8.0	10.5	9.81	9.84	
10.0	6.7	12.27	12.30	
12.0	4.7	14.72	14.76	
14.0	3.4	17.17	17.22	
16.0	2.6	19.63	19.68	

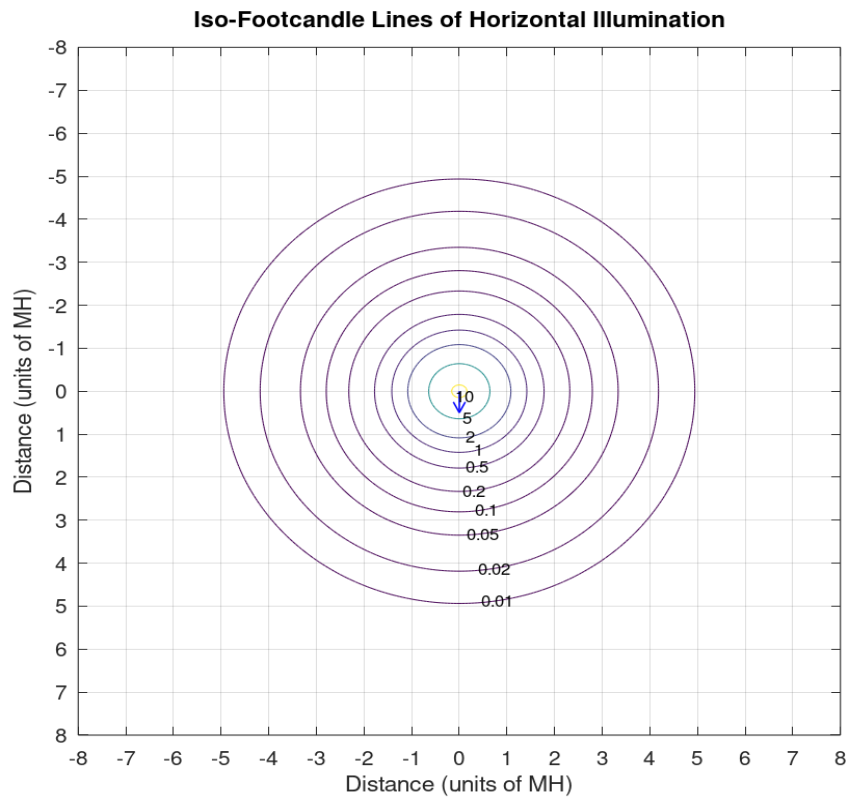
Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	7741	7741	7741
45	7001	6990	6981
55	6680	6661	6623
65	6190	6157	6089
75	5259	5244	5193
85	3368	3684	3741

Spacing Criterion	
0 degree plane:	1.2
90 degree plane:	1.2
180 degree plane:	1.2
270 degree plane:	1.2



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Iso-Illuminance Plot



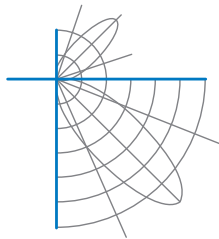
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.



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Additional Pictures of Test Subject





Report of Test

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Test Distance 9.5 m
Ambient Temperature 24.5 °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-79-19 and ANSI C82.77-10:2014. Format of reports and angular increments based on IES LM-41-14 and LM-46-04.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

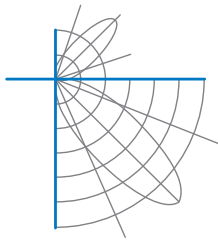
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the CIE C-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

LLIA001201-001B

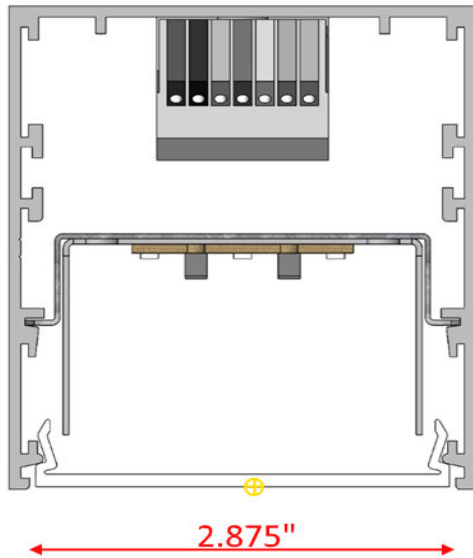
Integrating Sphere Report

Catalog Number: MLS3-D-MO-K35-80-XX-LOH-XXXX-120

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

144 white LEDs, one Osram PrevaLED BAR

One Osram Optotronic OTi 20/120-277/700 DIM-1 L G2 LED driver labeled as 300mA.



Performance Summary

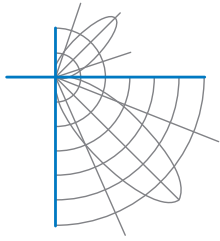
Voltage	120.0 Vac
Current	0.1450 A
Power	17.22 W
Frequency	59.99 Hz
Power Factor	0.989
Current THD	5.8 %
Total Luminous Flux	1857.2 lm
Efficacy	107.9 lm/W
Chromaticity (x,y)	(0.4051, 0.3938)
(u',v')	(0.2343, 0.5125)
Duv	0.0014
CCT	3530 K
CRI (Ra)	82
R9	6
TM-30: Rf	81
TM-30: Rg	98

Prepared For:

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

Test date: 12/19/2019

Report date: 12/23/2019



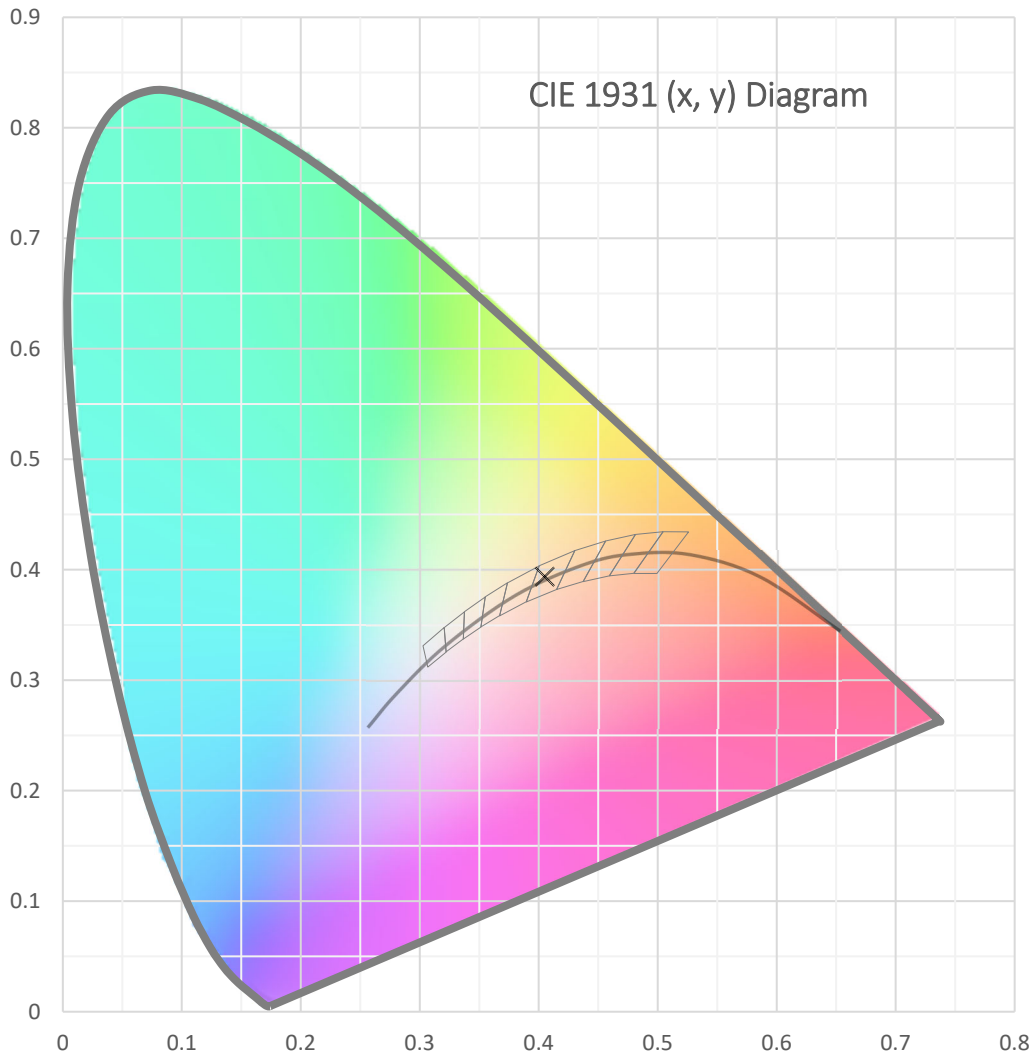
Test Report Number: LLIA001201-001B

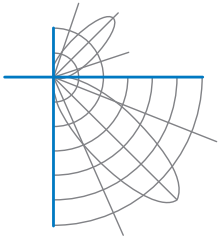
Catalog Number: MLS3-D-MO-K35-80-XX-LOH-XXXX-120

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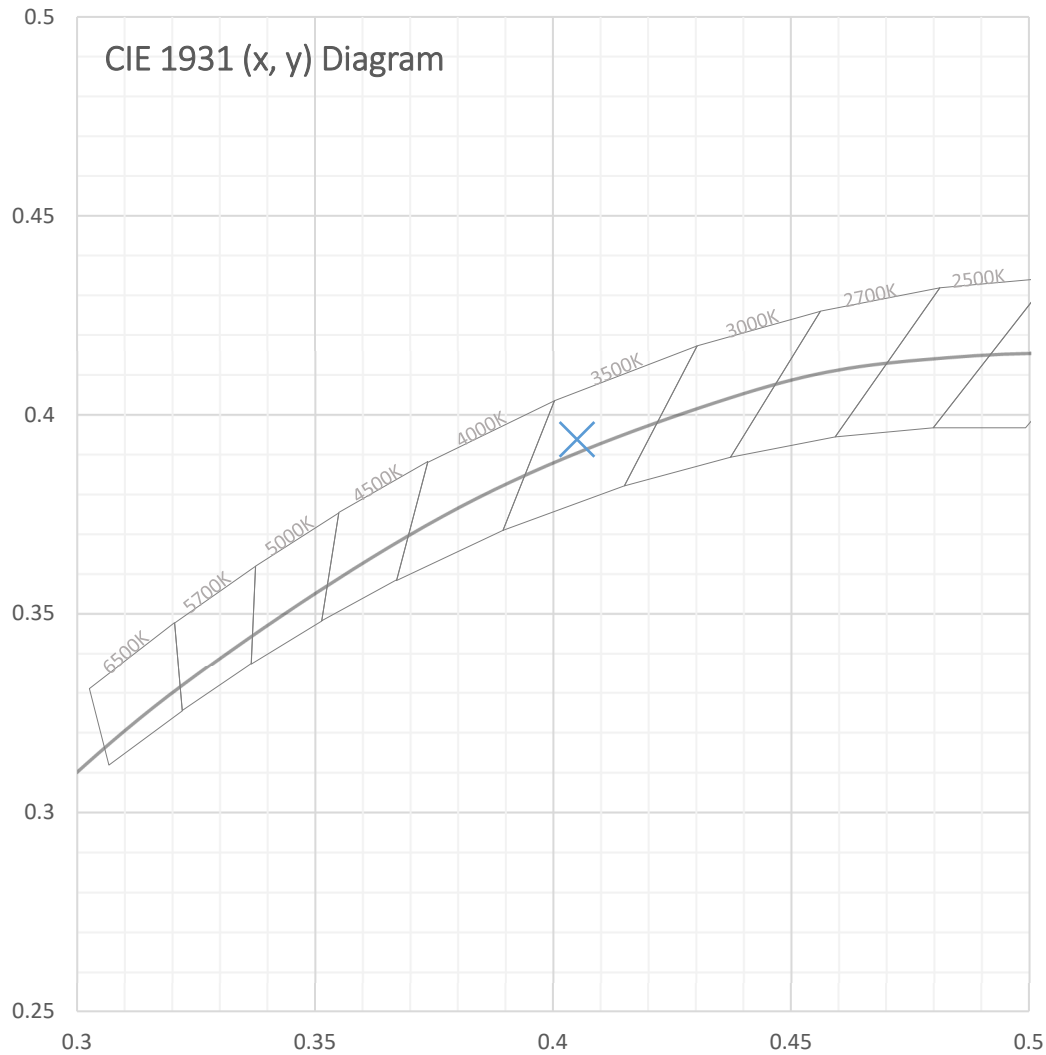
Test Report Number: LLIA001201-001B

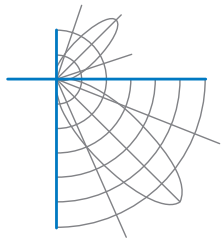
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Test Report Number: LLIA001201-001B

Catalog Number: MLS3-D-MO-K35-80-XX-LOH-XXXX-120

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

144 white LEDs, one Osram PrevaLED BAR

One Osram Optotronic OTi 20/120-277/700 DIM-1 L G2 LED driver labeled as 300mA.

Spectral Data

Total Radiant Flux	5.521 W
Total Luminous Flux	1857.2 Lm
Chromaticity CIE 1931 (x, y)	(0.4051, 0.3938)
Chromaticity CIE 1976 (u', v')	(0.2343, 0.5125)
Correlated Color Temperature (CCT)	3530 K
Color Rendering Index (Ra)	82
R1	81
R2	87
R3	93
R4	83
R5	81
R6	83
R7	86
R8	63
R9	6
R10	70
R11	84
R12	60
R13	82
R14	96
TM-30: Rf	81
TM-30: Rg	98
Distance from Planckian Locus (Duv)	0.0014
Scotopic/Photopic Ratio *	1.490

Electrical Data

Voltage	120.0 Vac
Current	0.1450 A
Power	17.22 W
Frequency	59.99 Hz
Power Factor	0.989
Current THD	5.8 %



Test Report Number: LLIA001201-001B

Catalog Number: MLS3-D-MO-K35-80-XX-LOH-XXXX-120

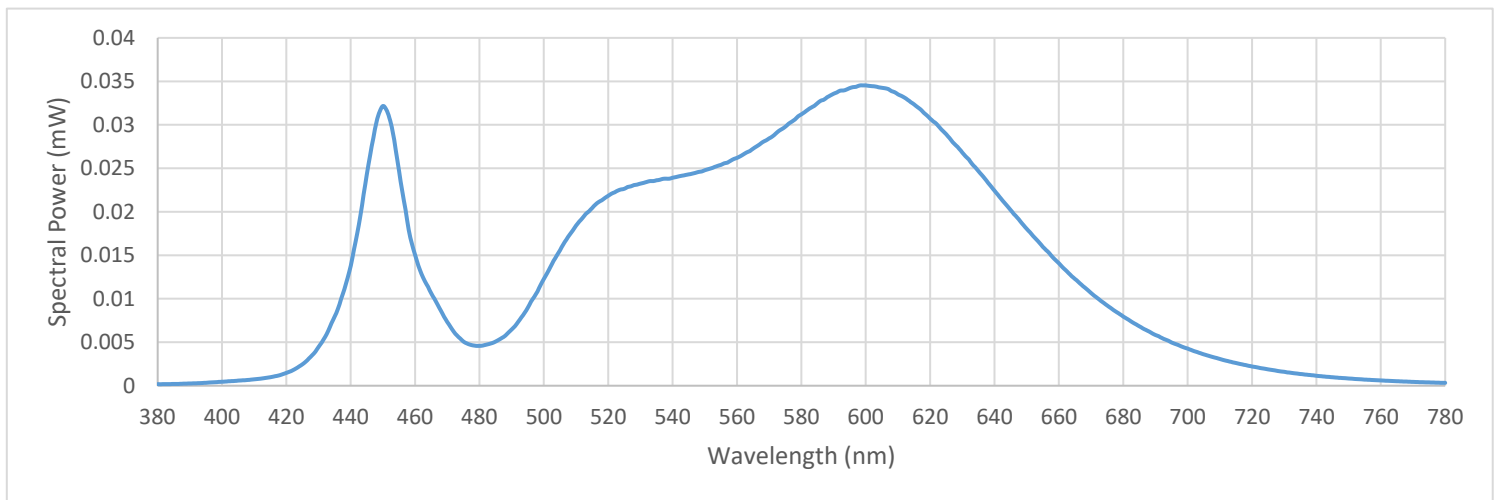
Pendant mounted, extruded aluminum housing, formed white enamel aluminum reflector, translucent white plastic enclosure.

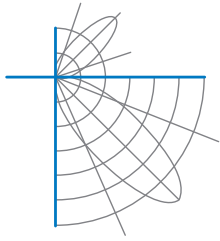
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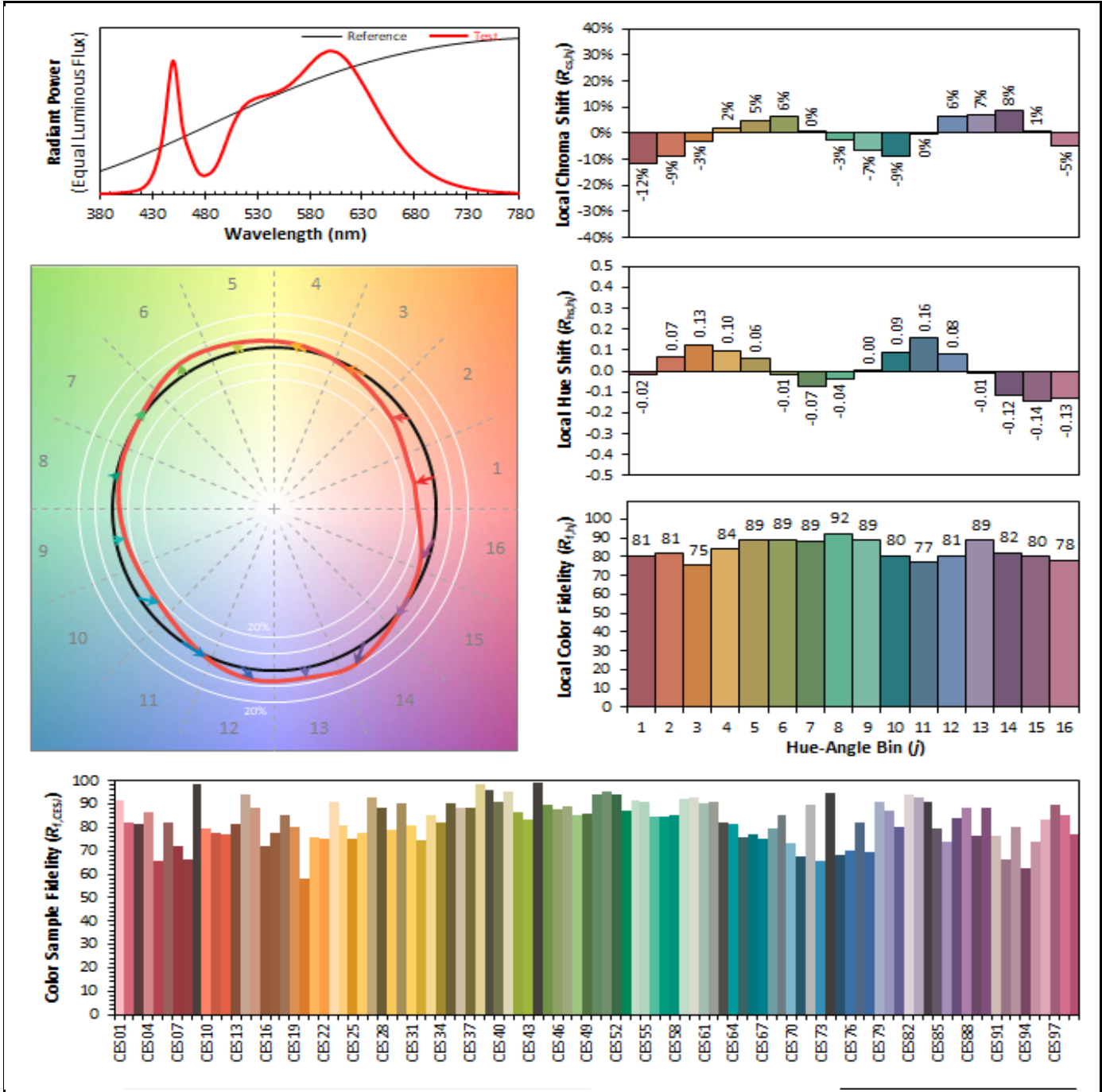
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

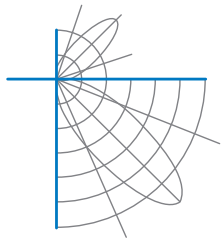
380	0.000186	480	0.004596	580	0.031215	680	0.007958
385	0.000204	485	0.005077	585	0.032507	685	0.006841
390	0.000265	490	0.006481	590	0.033589	690	0.005843
395	0.000343	495	0.008974	595	0.034233	695	0.004980
400	0.000459	500	0.012300	600	0.034539	700	0.004268
405	0.000588	505	0.015600	605	0.034260	705	0.003620
410	0.000746	510	0.018420	610	0.033513	710	0.003074
415	0.000985	515	0.020454	615	0.032359	715	0.002616
420	0.001481	520	0.021851	620	0.030723	720	0.002221
425	0.002479	525	0.022649	625	0.028906	725	0.001880
430	0.004469	530	0.023251	630	0.026815	730	0.001601
435	0.007963	535	0.023626	635	0.024676	735	0.001355
440	0.013810	540	0.023920	640	0.022418	740	0.001150
445	0.024302	545	0.024310	645	0.020205	745	0.000979
450	0.032177	550	0.024781	650	0.018045	750	0.000836
455	0.024656	555	0.025406	655	0.015978	755	0.000716
460	0.015034	560	0.026208	660	0.014083	760	0.000614
465	0.010615	565	0.027277	665	0.012287	765	0.000524
470	0.007338	570	0.028449	670	0.010665	770	0.000447
475	0.005090	575	0.029788	675	0.009231	775	0.000385
						780	0.000330





IES TM-30 Details





Test Report Number: LLIA001201-001B

Catalog Number: MLS3-D-MO-K35-80-XX-LOH-XXXX-120

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

144 white LEDs, one Osram PrevaLED BAR

One Osram Optotronic OTi 20/120-277/700 DIM-1 L G2 LED driver labeled as 300mA.

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: 25.1 °C

Test Procedure: Tested in accordance with the applicable sections of:
LM-79-19, LM-78-07, LM-58-13, ANSI_ANSLG C78.377-2017,
ANSI C82-77-10:2014, TM-30-15

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.