LightLab INTERNATIONAL ALLENTOWN LLC

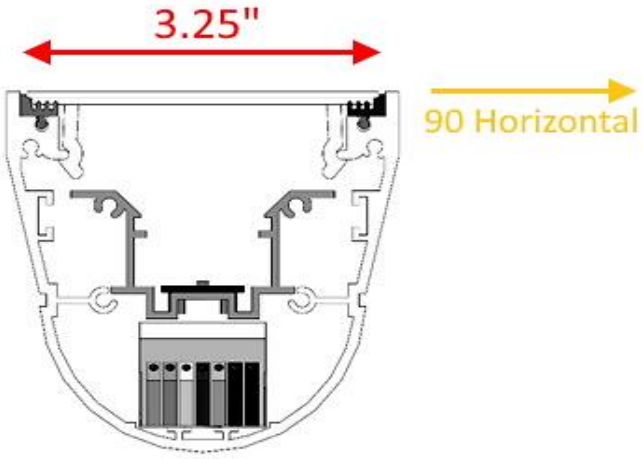
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001618-001A

Indoor Distribution Photometry Test Report

Catalog Number: ACC-WL66-WB-HO-K40-80-4-XXX-XXX-UNV
Indirect pendant mount, aluminum housing and end caps, white painted aluminum reflector, translucent white linear prismatic "polycarbonate" enclosure.
Osram PrevaLED - 144 white LEDs
One Osram Oti 85/120-277/2A3 DIM-1L LED driver labeled as 1620mA



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

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	2874.6	Lumens
Input Current	0.2815	A	Total Efficacy	87.1	Lm/W
Input Power	33.02	W	Downward Flux	0.0	Lumens
Frequency	60.00	Hz	Downward Flux	0.0	% of Total
Power Factor	0.978				
Current THD	13.9	%			

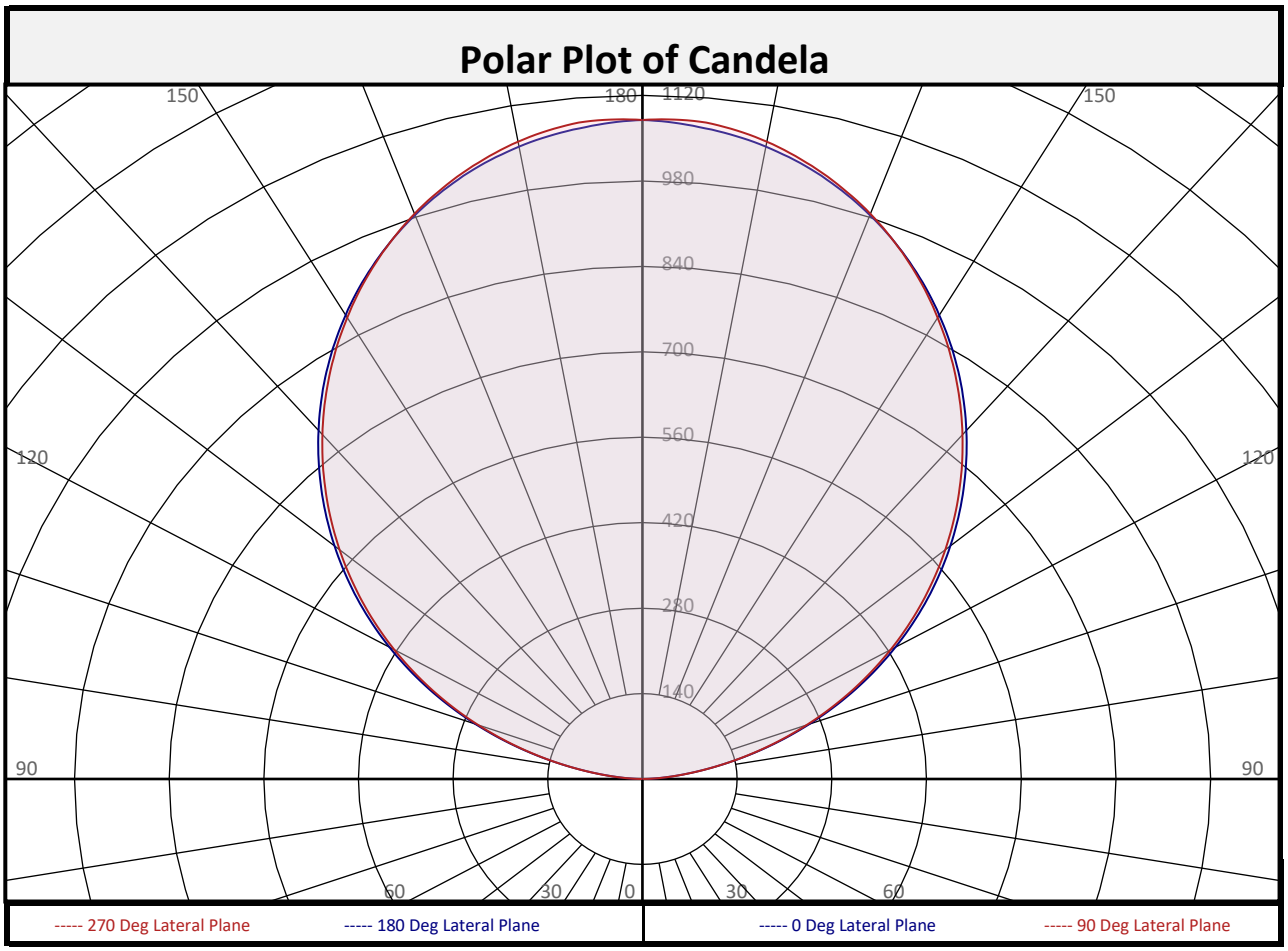
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 12/30/2021
Report date: 01/06/2022

Signed: Michael L. Grather

Report of Test

LLIA001618-001A



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	0.0	0.0%	90-100	47.1	1.6%	0-20	0.0	0.0%
10-20	0.0	0.0%	100-110	189.2	6.6%	0-30	0.0	0.0%
20-30	0.0	0.0%	110-120	341.4	11.9%	0-40	0.0	0.0%
30-40	0.0	0.0%	120-130	456.0	15.9%	0-60	0.0	0.0%
40-50	0.0	0.0%	130-140	514.1	17.9%	0-80	0.0	0.0%
50-60	0.0	0.0%	140-150	506.5	17.6%	10-90	0.0	0.0%
60-70	0.0	0.0%	150-160	429.6	14.9%	20-50	0.0	0.0%
70-80	0.0	0.0%	160-170	288.7	10.0%	40-90	0.0	0.0%
80-90	0.0	0.0%	170-180	101.9	3.5%	60-90	0.0	0.0%
0-90	0.0	0.0%	90-180	2875	100.0%	0-180	2875	100.0%

Report of Test

LLIA001618-001A

Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles								
	0	22.5	45	67.5	90	112.5	135	157.5	180
0	0	0	0	0	0	0	0	0	0
2.5	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
7.5	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
12.5	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
17.5	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
22.5	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
27.5	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
32.5	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
37.5	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
42.5	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
47.5	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0
52.5	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0
57.5	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0
62.5	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0
67.5	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0
72.5	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0
77.5	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0
82.5	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0
87.5	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0

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LLIA001618-001A

Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	0	0	0	0	0	0	0	0	0
	92.5	16	16	17	18	18	18	17	16	16
	95	38	38	39	40	40	40	39	38	38
	97.5	66	67	68	68	68	68	68	67	66
	100	101	102	102	102	101	102	102	102	101
	102.5	139	139	139	139	138	139	139	139	139
	105	179	179	179	178	177	178	179	179	179
	107.5	220	221	220	219	217	219	220	221	220
	110	263	263	262	260	258	260	262	263	263
	112.5	305	305	304	302	300	302	304	305	305
	115	348	348	346	343	341	343	346	348	348
	117.5	390	390	387	384	382	384	387	390	390
	120	432	432	429	426	424	426	429	432	432
	122.5	474	473	470	467	465	467	470	473	474
	125	515	513	510	507	505	507	510	513	515
	127.5	555	554	550	547	545	547	550	554	555
	130	595	593	590	587	585	587	590	593	595
	132.5	634	632	628	625	624	625	628	632	634
	135	672	670	666	663	662	663	666	670	672
	137.5	709	707	703	701	700	701	703	707	709
	140	745	743	739	737	736	737	739	743	745
	142.5	781	779	775	773	772	773	775	779	781
	145	815	812	809	807	807	807	809	812	815
	147.5	847	845	842	841	841	841	842	845	847
	150	878	876	874	873	873	873	874	876	878
	152.5	908	906	904	903	904	903	904	906	908
	155	935	933	932	932	933	932	932	933	935
	157.5	960	959	958	959	960	959	958	959	960
	160	983	982	982	984	985	984	982	982	983
	162.5	1004	1003	1004	1006	1008	1006	1004	1003	1004
	165	1023	1022	1023	1026	1028	1026	1023	1022	1023
	167.5	1039	1038	1040	1043	1046	1043	1040	1038	1039
	170	1052	1052	1054	1057	1060	1057	1054	1052	1052
	172.5	1063	1062	1065	1068	1072	1068	1065	1062	1063
	175	1070	1070	1072	1077	1080	1077	1072	1070	1070
	177.5	1076	1076	1078	1080	1082	1080	1078	1076	1076
	180	1080	1080	1080	1080	1080	1080	1080	1080	1080

Report of Test

LLIA001618-001A

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	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	8	0
2	79	72	66	62		67	62	57	53		42	40	37		24	23	22		8	7	7	0
3	72	63	57	51		61	54	49	44		37	34	31		21	20	18		7	6	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		5	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	27	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, 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.

Report of Test

LLIA001618-001A

Additional Pictures of Test Subject

Report of Test

LLIA001618-001A

Test Distance	9.5 m
Ambient 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 IES LM-79-19. Format of reports and angular increments based on IES LM-41-20 and LM-46-20.

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.

LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001618-001B

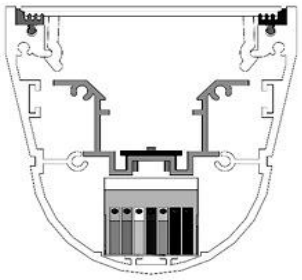
Integrating Sphere Report

Catalog Number: ACC-WL66-WB-HO-K40-80-4-XXX-XXX-UNV

Indirect pendant mount, aluminum housing and end caps, white painted aluminum reflector, translucent white linear prismatic "polycarbonate" enclosure.

Osram PrevaLED - 144 white LEDs

One Osram Oti 85/120-277/2A3 DIM-1L LED driver labeled as 1620mA



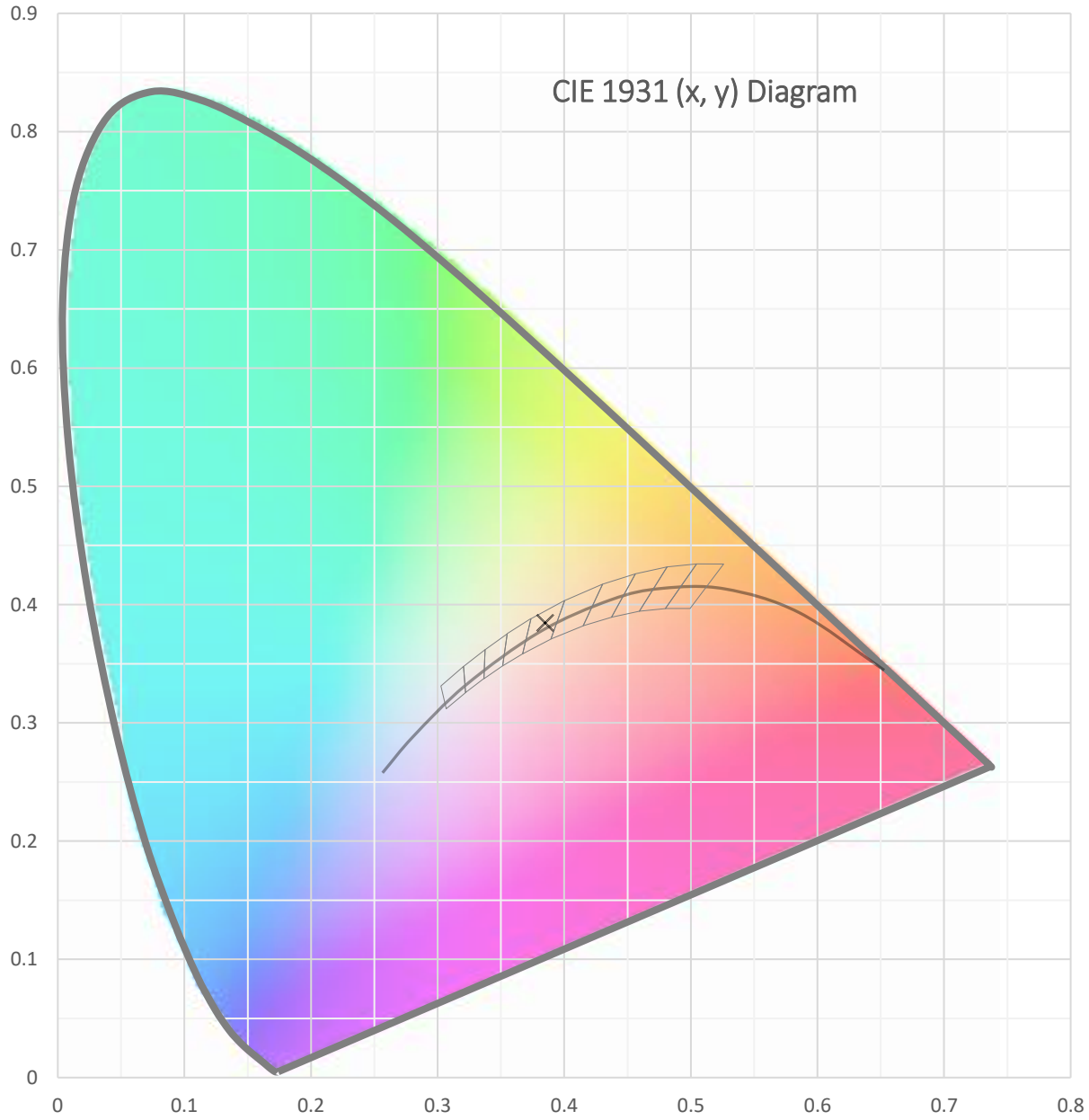
Performance Summary

Voltage	120.0	Vac
Current	0.2800	A
Power	32.91	W
Frequency	59.99	Hz
Power Factor	0.980	
Current THD	14.0	%
Total Luminous Flux	2949.1	lm
Efficacy	89.6	lm/W
Chromaticity (x,y)	(0.3850, 0.3844)	
(u',v')	(0.2251, 0.5056)	
Duv	0.0022	
CCT	3936	K
CRI (Ra)	82	
R9	4	
TM-30: Rf	82	
TM-30: Rg	96	
TM-30: Rcs,h1	-12	

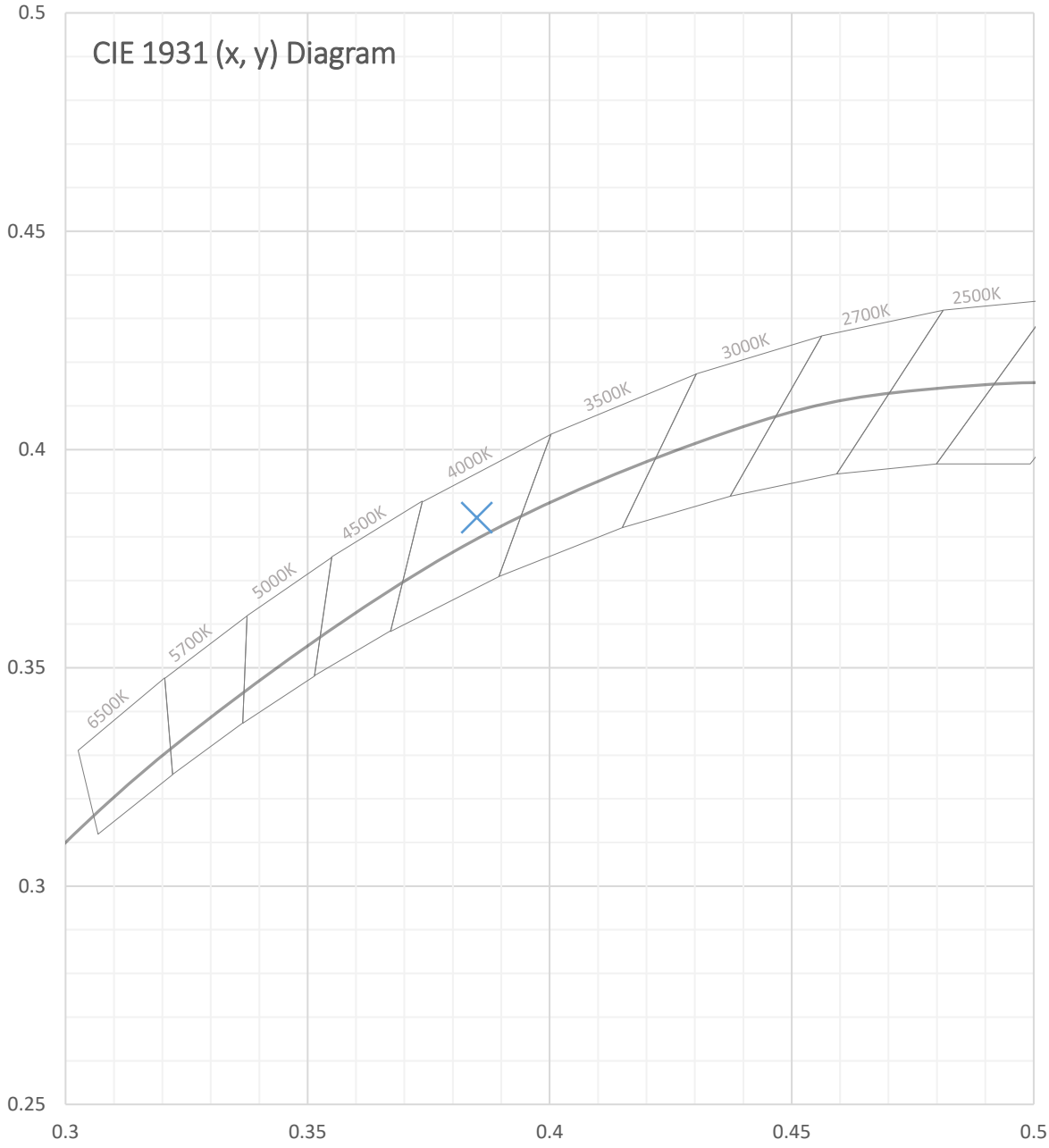
Prepared For:
Precision Architectural Lighting
4830 Timber Creek Drive
Houston, TX 77017, USA

Test date: 01/04/2022
Report date: 01/06/2022

Test Report Number: LLIA001618-001B



Test Report Number: LLIA001618-001B



Test Report Number: LLIA001618-001B

Total Radiant Flux	8.786	W
Total Luminous Flux	2949.1	Lm
Chromaticity CIE 1931 (x, y)	(0.3850, 0.3844)	
Chromaticity CIE 1976 (u', v')	(0.2251, 0.5056)	
Correlated Color Temperature (CCT)	3936	K
Color Rendering Index (Ra)	82	
R1	81	
R2	88	
R3	93	
R4	83	
R5	81	
R6	84	
R7	86	
R8	64	
R9	4	
R10	71	
R11	83	
R12	58	
R13	83	
R14	96	
TM-30: Rf	82	
TM-30: Rg	96	
TM-30: Rcs,h1	-12	
Distance from Planckian Locus (Duv)	0.0022	
Scotopic/Photopic Ratio ǂ	1.639	

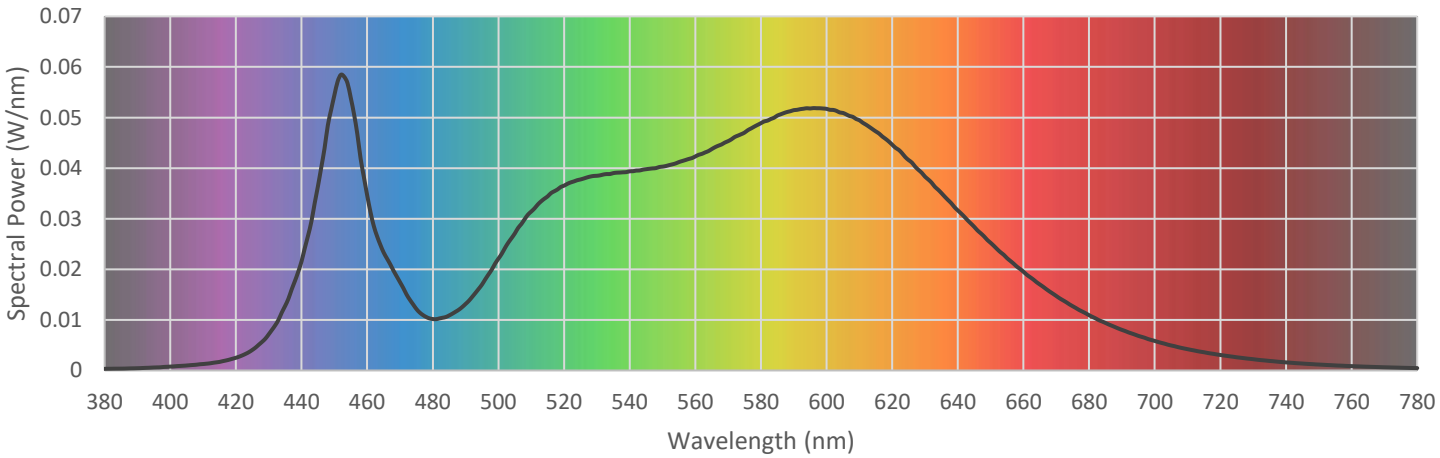
Electrical Data

Voltage	120.0	Vac
Current	0.2800	A
Power	32.91	W
Frequency	59.99	Hz
Power Factor	0.980	
Current THD	14.0	%

Test Report Number: LLIA001618-001B

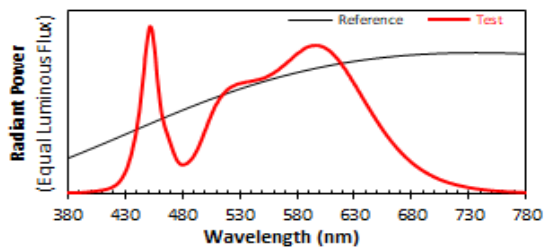
Summary Spectral Power Distribution (wavelength - nm, spectral power - W/nm)

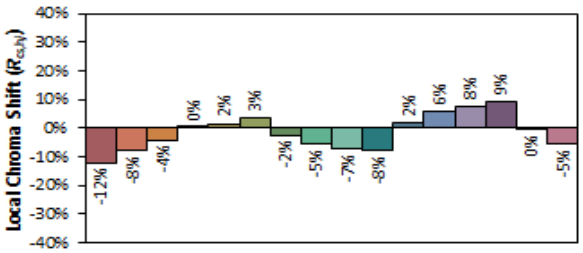
380	0.000331	480	0.010166	580	0.048886	680	0.010920
385	0.000363	485	0.010883	585	0.050389	685	0.009394
390	0.000447	490	0.013154	590	0.051458	690	0.008024
395	0.000587	495	0.016988	595	0.051789	695	0.006841
400	0.000768	500	0.022105	600	0.051720	700	0.005839
405	0.000982	505	0.027095	605	0.050906	705	0.004945
410	0.001273	510	0.031419	610	0.049459	710	0.004211
415	0.001691	515	0.034410	615	0.047251	715	0.003601
420	0.002509	520	0.036535	620	0.044633	720	0.003059
425	0.004063	525	0.037760	625	0.041593	725	0.002604
430	0.007152	530	0.038486	630	0.038313	730	0.002227
435	0.012761	535	0.039012	635	0.035070	735	0.001881
440	0.021589	540	0.039373	640	0.031633	740	0.001595
445	0.036456	545	0.039791	645	0.028398	745	0.001369
450	0.054410	550	0.040293	650	0.025227	750	0.001167
455	0.053896	555	0.041198	655	0.022199	755	0.000997
460	0.034609	560	0.042306	660	0.019516	760	0.000859
465	0.023343	565	0.043763	665	0.016996	765	0.000735
470	0.017459	570	0.045332	670	0.014726	770	0.000631
475	0.012151	575	0.047022	675	0.012703	775	0.000544
						780	0.000469

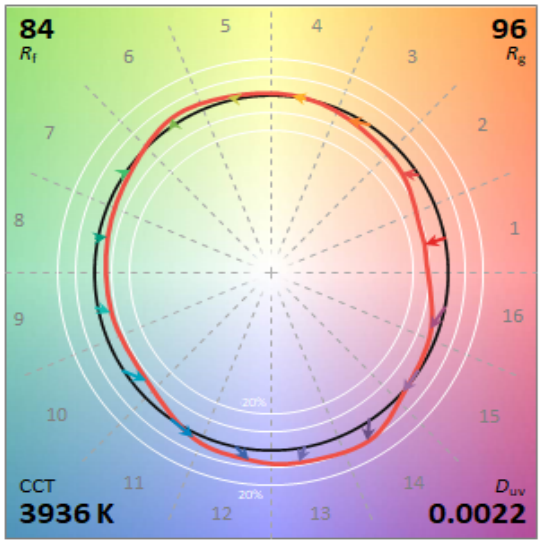


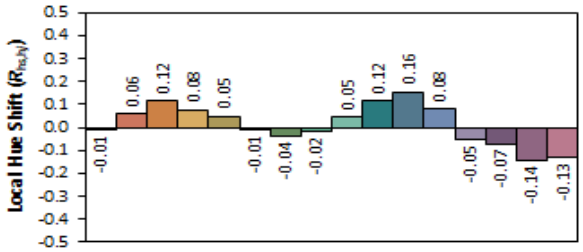
Test Report Number: LLIA001618-001B

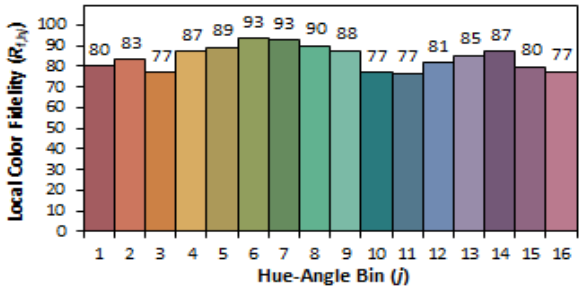
IES TM-30 Details

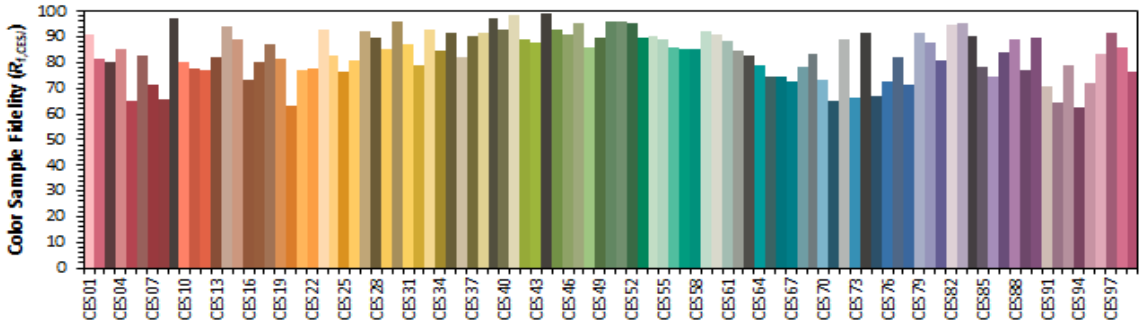












Notes:

x	0.3850
y	0.3843
u'	0.2251
v'	0.5055

CIE 13.3-1995 (CRI)

R_a	82
R_9	4

Test Report Number: LLIA001618-001B

Test Equipment Configuration:	LightLab International Allentown 2m Integrating Sphere Measurements acquired using a Labsphere CDS 2600 spectroradiometer Testing was performed using 4π geometry
Test Temperature:	25.2 °C
Test Procedure:	Tested in accordance with the applicable sections of: LM-79-19, LM-78-20, LM-58-20, ANSI_ANSLG C78.377-2017, TM-30-20
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 ǂ 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.

USA west coast LightLab International, LLC, 24825 N. 16th Avenue, Suite 125, Phoenix, AZ, 85085, Ph : +1 623-434-1499, Fx : +1 623-434-1492, www.lightlabint.com

USA east coast LightLab Int'l Allentown LLC, 905 Harrison Street, Suite 135, Allentown, PA 18103, Ph: +1 484-273-0705, www.lightlaballentown.com (issuing laboratory)

Australasia & S.E. Asia LightLab International, 50 Redcliffe Gardens Drive, Clontarf, Queensland, 4019, Australia, Ph : +61 7 3283 7862, Fx : +61 7 3283 8751, www.lightlabint.com