

Report of Test

LLIA001084-007A

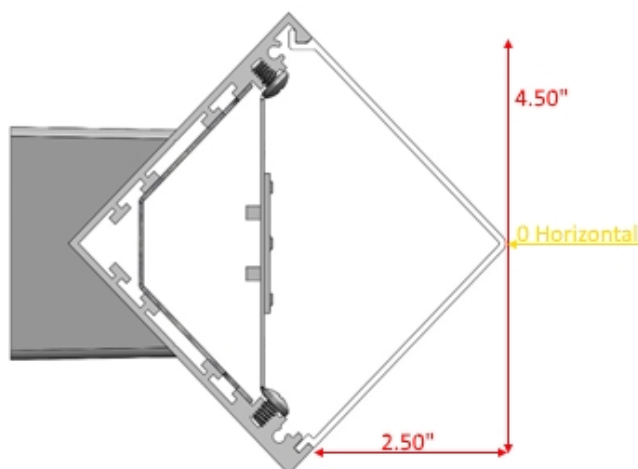
Catalog Number: AS350-HO-K40-80-4-DW-LOH-FXXX-UNV-XXX

Surface wall mounted, extruded aluminum housing, formed white enamel aluminum LED tray, frosted plastic enclosure.

144 white LEDs, One Osram PrevaLED BAR with 144 LEDs

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver.

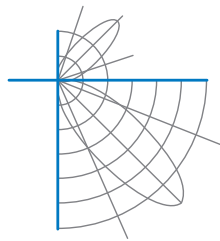
120.0Vac, 60.00Hz, 0.2305A, 27.58W, 0.997PF, 5.7%THD(i)



Performance Summary

Total Light Output	3389 lm
Luminaire Power	27.6 W
Luminous Efficacy	122.8 lm/W

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



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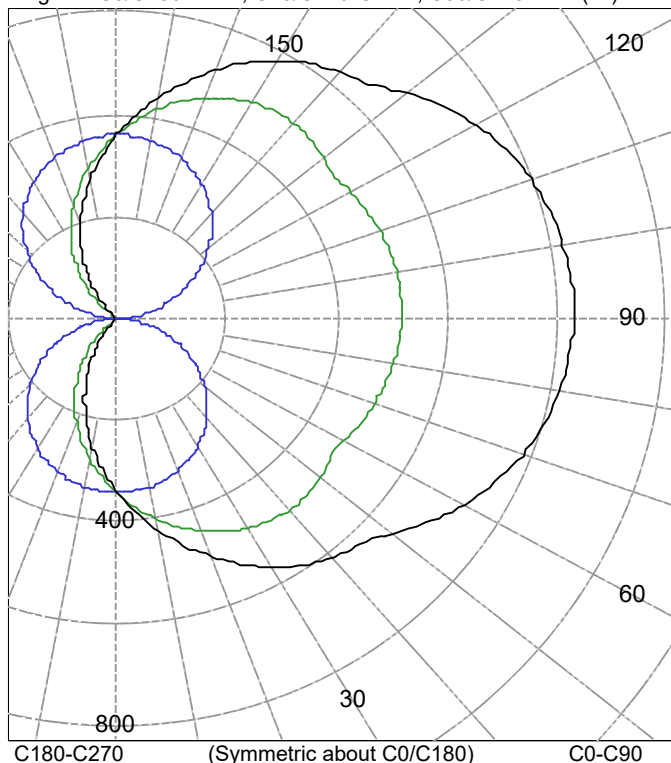
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120.0Vac, 60.00Hz, 0.2305A, 27.58W, 0.997PF, 5.7%THD(i)

Legend: C0/C180-Black, C45/C225-Green, C90/C270-Blue (cd)



AVERAGE LUMINANCE (cd/m²)

Gamma	C0	C45	C90
45.0	4098	3819	3836
55.0	4393	3660	3562
65.0	4786	3858	3197
75.0	5202	4197	2650
85.0	5684	4688	1587

INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	343	343	343	343	343	33
5.0	384	382	374	356	341	
10.0	424	419	400	368	337	
15.0	462	454	424	377	329	95
20.0	499	486	445	382	319	148
25.0	534	516	462	384	307	
30.0	565	543	476	383	292	
35.0	592	565	486	378	274	188
40.0	614	582	490	369	254	210
45.0	629	592	490	357	232	
50.0	658	600	485	341	207	
55.0	697	631	474	323	181	228
60.0	731	658	478	303	154	245
65.0	761	682	489	279	127	
70.0	785	702	497	252	99	
75.0	804	718	504	246	72	257
80.0	817	730	510	242	47	263
85.0	826	738	515	240	22	
90.0	830	743	519	241	1	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	276	N / A	8.1
0-40	464	N / A	13.7
0-60	902	N / A	26.6
0-90	1667	N / A	49.2
40-90	1203	N / A	35.5
60-90	765	N / A	22.6
90-180	1722	N / A	50.8
0-180	3389	N / A	100.0

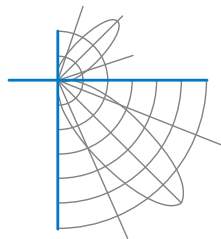
Total Light Output = 3,389 lm

Spacing Criterion: 0-180 2.4
Spacing Criterion: 90-270 1.3

Signed:

Authorized Signatory

Date of test 4-Mar-2019
Date of report 4-Mar-2019



Test Report No. LLIA001084-007A

Catalog Number: AS350-HO-K40-80-4-DW-LOH-FXXX-UNV-XXX

Surface wall mounted, extruded aluminum housing, formed
white enamel aluminum LED tray, frosted plastic enclosure.

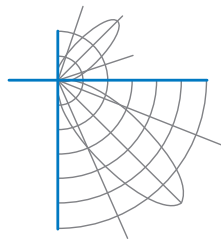
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120.0Vac, 60.00Hz, 0.2305A, 27.58W, 0.997PF, 5.7%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	343	343	343	343	343
2.5	363	363	360	349	342
5.0	384	382	374	356	341
7.5	404	401	387	363	339
10.0	424	419	400	368	337
12.5	444	437	412	373	333
15.0	462	454	424	377	329
17.5	481	470	435	380	325
20.0	499	486	445	382	319
22.5	517	502	454	383	314
25.0	534	516	462	384	307
27.5	550	530	470	384	300
30.0	565	543	476	383	292
32.5	579	554	481	381	283
35.0	592	565	486	378	274
37.5	603	574	489	374	264
40.0	614	582	490	369	254
42.5	622	588	491	363	243
45.0	629	592	490	357	232
47.5	637	595	488	350	219
50.0	658	600	485	341	207
52.5	678	616	480	333	194
55.0	697	631	474	323	181
57.5	715	645	472	313	167
60.0	731	658	478	303	154
62.5	747	670	484	291	140
65.0	761	682	489	279	127
67.5	774	692	493	266	113
70.0	785	702	497	252	99
72.5	795	710	501	248	86
75.0	804	718	504	246	72
77.5	811	724	507	243	59
80.0	817	730	510	242	47
82.5	822	734	513	241	34
85.0	826	738	515	240	22
87.5	829	741	517	240	10
90.0	830	743	519	241	1



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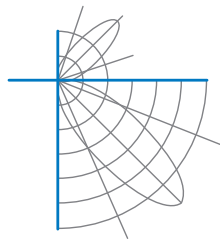
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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	830	743	519	241	1
92.5	831	743	519	242	11
95.0	830	742	519	242	24
97.5	828	740	518	244	36
100.0	825	737	517	246	49
102.5	821	734	515	248	62
105.0	816	729	513	251	76
107.5	809	723	511	254	90
110.0	802	716	508	256	104
112.5	792	708	505	266	119
115.0	782	699	502	280	133
117.5	770	689	498	293	147
120.0	757	678	493	306	162
122.5	742	666	488	317	176
125.0	726	653	482	328	190
127.5	709	639	486	339	203
130.0	690	624	491	349	217
132.5	670	607	496	358	230
135.0	650	602	499	366	243
137.5	640	598	501	374	255
140.0	632	593	501	380	266
142.5	623	587	500	386	277
145.0	612	579	498	390	288
147.5	599	569	495	394	297
150.0	585	558	491	397	306
152.5	570	546	485	399	315
155.0	554	533	478	400	323
157.5	537	519	470	399	330
160.0	519	504	462	398	336
162.5	501	488	452	396	342
165.0	481	471	441	394	347
167.5	462	454	430	390	351
170.0	442	436	417	385	355
172.5	421	418	405	380	358
175.0	400	400	391	374	360
177.5	380	381	377	367	361
180.0	362	362	362	362	362



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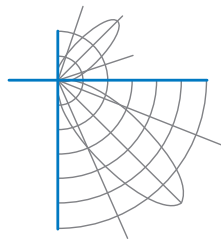
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Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
0.0	343	343	343	343	343
2.5	342	333	330	324	319
5.0	341	324	314	305	299
7.5	339	315	299	285	278
10.0	337	305	283	266	257
12.5	333	294	267	246	236
15.0	329	283	250	226	216
17.5	325	272	234	206	195
20.0	319	260	217	187	175
22.5	314	248	200	167	155
25.0	307	235	183	148	135
27.5	300	222	166	129	115
30.0	292	209	149	110	96
32.5	283	195	132	92	78
35.0	274	181	115	74	60
37.5	264	167	99	57	43
40.0	254	153	82	40	26
42.5	243	139	66	24	11
45.0	232	124	51	9	2
47.5	219	110	36	2	1
50.0	207	96	22	1	1
52.5	194	82	8	1	1
55.0	181	68	1	1	1
57.5	167	55	1	1	1
60.0	154	42	1	1	1
62.5	140	29	1	1	1
65.0	127	16	1	1	1
67.5	113	4	1	1	1
70.0	99	1	1	1	1
72.5	86	1	1	1	1
75.0	72	1	1	1	1
77.5	59	0	0	1	1
80.0	47	0	1	1	1
82.5	34	0	1	1	1
85.0	22	0	0	1	1
87.5	10	0	0	1	1
90.0	1	0	0	1	1



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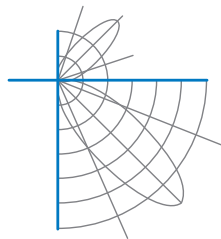
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120.0Vac, 60.00Hz, 0.2305A, 27.58W, 0.997PF, 5.7%THD(i)

Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
90.0	1	0	0	1	1
92.5	11	0	0	1	1
95.0	24	0	0	1	1
97.5	36	0	1	1	1
100.0	49	0	1	1	1
102.5	62	0	1	1	1
105.0	76	1	1	1	1
107.5	90	1	1	1	1
110.0	104	1	1	1	1
112.5	119	12	1	1	1
115.0	133	25	1	1	1
117.5	147	38	1	1	1
120.0	162	51	1	1	1
122.5	176	65	1	1	1
125.0	190	79	5	1	1
127.5	203	94	20	2	2
130.0	217	108	35	2	2
132.5	230	123	50	7	2
135.0	243	138	65	23	8
137.5	255	153	81	39	25
140.0	266	168	97	55	42
142.5	277	182	114	73	60
145.0	288	197	131	90	78
147.5	297	211	148	108	96
150.0	306	225	165	127	116
152.5	315	239	182	146	135
155.0	323	252	200	166	155
157.5	330	265	217	185	176
160.0	336	278	234	205	196
162.5	342	290	251	225	217
165.0	347	302	268	245	238
167.5	351	313	285	265	258
170.0	355	324	301	285	279
172.5	358	334	317	304	300
175.0	360	343	333	324	321
177.5	361	352	349	344	342
180.0	362	362	362	362	362



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Coefficients Of Utilization - Zonal Cavity Method

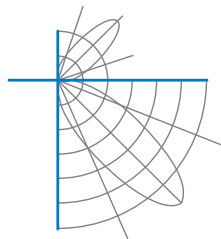
Effective Floor Cavity Reflectance 0.20

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
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	55	55	55	49
1	94	88	83	78	86	81	76	72	67	64	61	55	52	50	43	41	40	34
2	84	75	68	61	77	69	62	57	57	52	48	46	42	39	36	33	31	26
3	76	65	56	50	69	60	52	46	49	44	39	40	35	32	31	28	25	21
4	69	57	48	41	63	52	44	38	43	37	32	35	30	26	27	24	21	17
5	63	50	41	35	58	46	38	32	38	32	27	31	26	22	24	21	18	14
6	58	45	36	30	53	41	33	28	34	28	23	28	23	19	22	18	15	12
7	54	40	32	26	49	37	29	24	31	25	20	25	20	17	20	16	13	11
8	50	37	28	23	45	34	26	21	28	22	18	23	18	15	18	15	12	9
9	46	33	25	20	42	31	23	19	26	20	16	21	17	13	17	13	11	8
10	43	30	23	18	39	28	21	17	24	18	14	20	15	12	16	12	10	7

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	9.5	9.11	7.59
8.0	5.4	12.15	10.11
10.0	3.4	15.19	12.64
12.0	2.4	18.22	15.17
14.0	1.7	21.26	17.70
16.0	1.3	24.30	20.23



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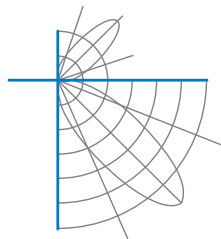
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Test Distance 9.5 m
Test Temperature 24.9 °C

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.

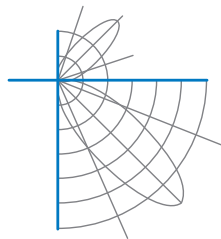
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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

LLIA001084-007B

Integrating Sphere Report

Catalog Number: AS350-HO-K40-80-4-DW-LOH-FXXX-UNV-XXX

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Performance Summary

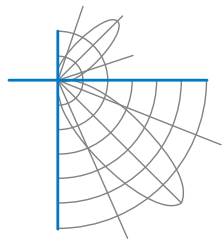
Voltage	120.0 Vac
Current	0.2305 A
Power	27.58 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	5.7 %
Total Luminous Flux	3471.3 lm
Efficacy	125.9 lm/W
Chromaticity (x,y)	(0.3787, 0.3742)
(u',v')	(0.2250, 0.5002)
Duv	-0.0007
CCT	4028 K
CRI (Ra)	85
R9	19
TM-30: Rf	82
TM-30: Rg	95

Prepared For:

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

Test date: 02/27/2019

Report date: 03/04/2019



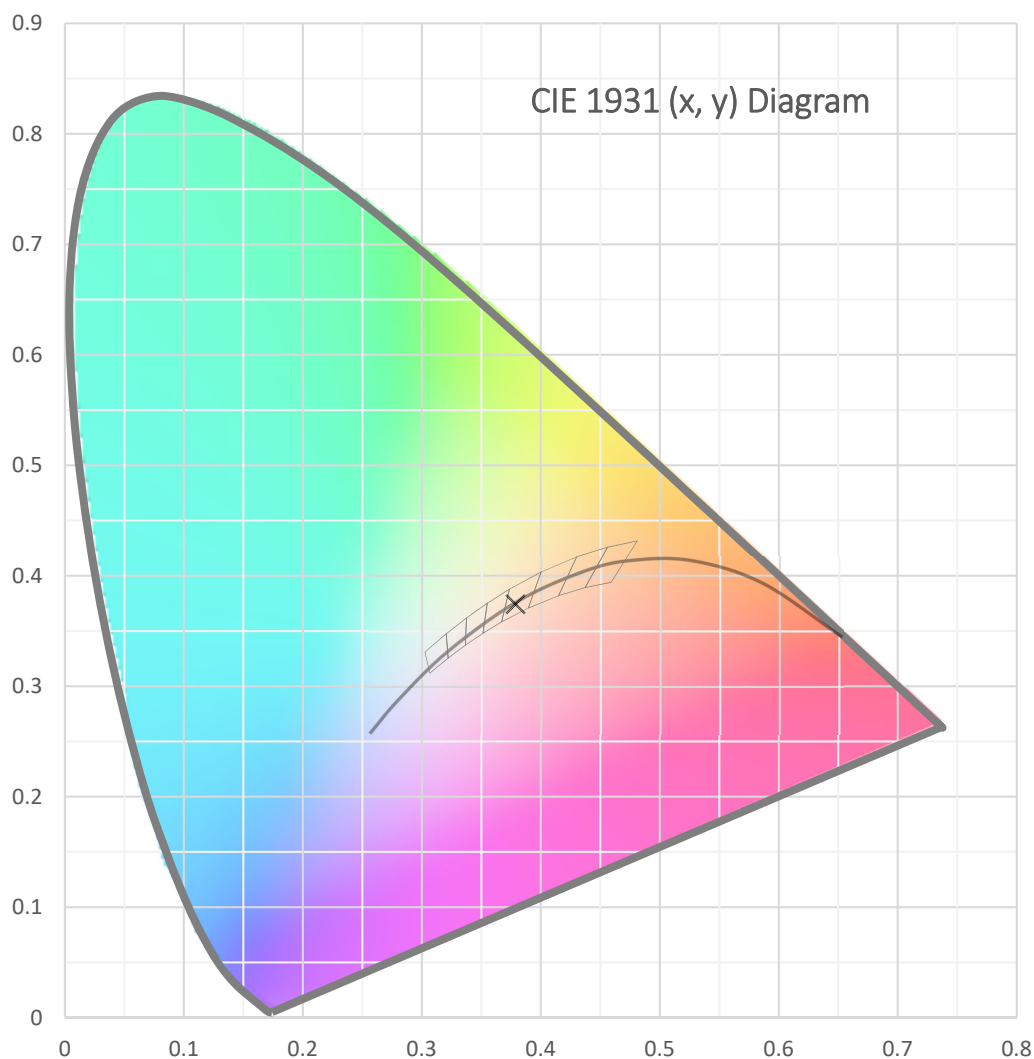
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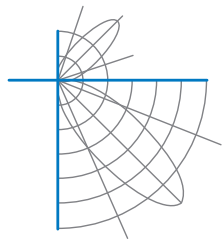
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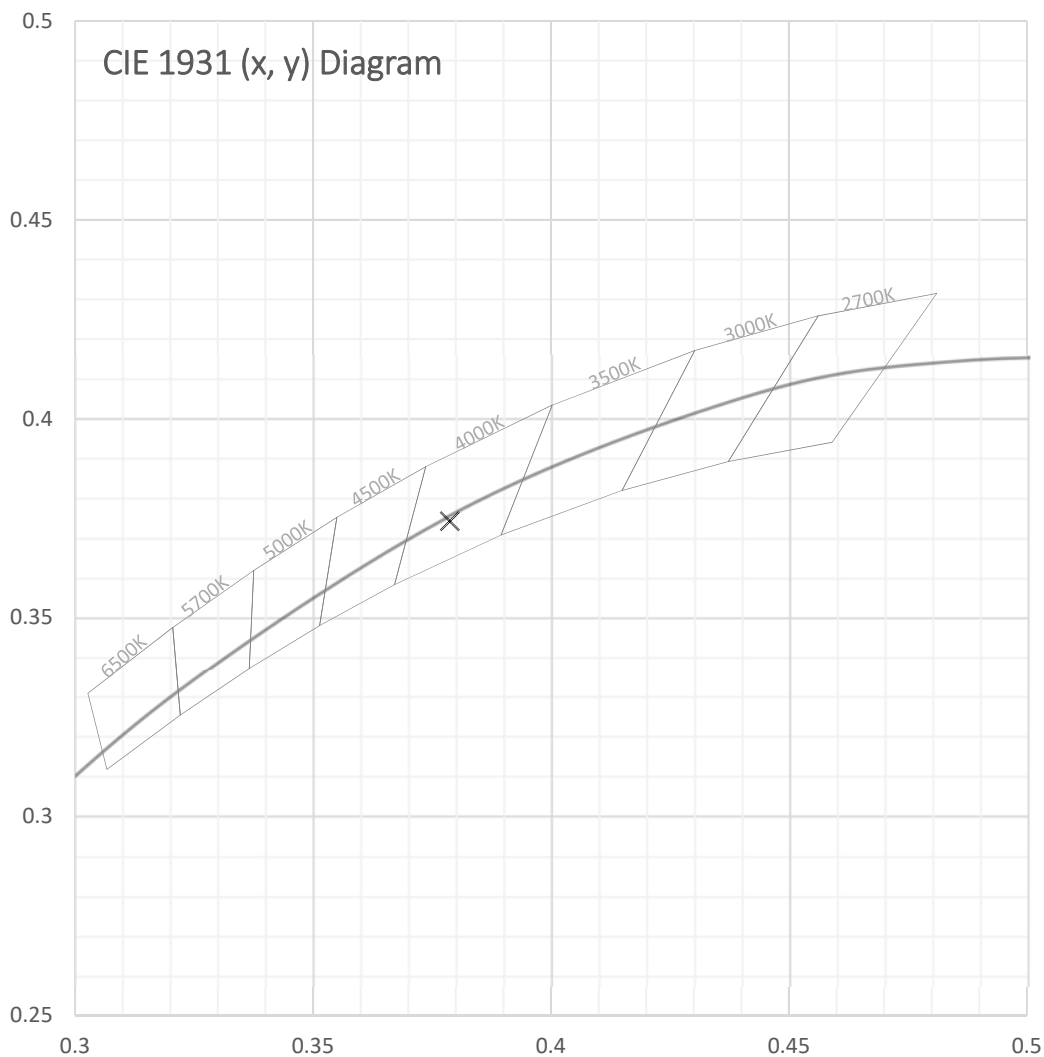
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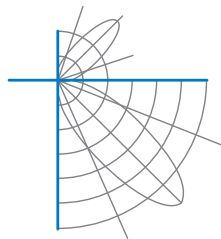
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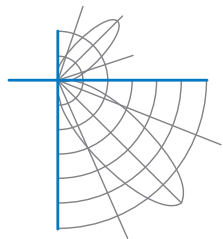
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Spectral Data

Total Radiant Flux	10.89 W
Total Luminous Flux	3471.3 Lm
Chromaticity CIE 1931 (x, y)	(0.3787, 0.3742)
Chromaticity CIE 1976 (u', v')	(0.2250, 0.5002)
Correlated Color Temperature (CCT)	4028 K
Color Rendering Index (Ra)	85
R1	84
R2	92
R3	96
R4	82
R5	83
R6	87
R7	87
R8	68
R9	19
R10	79
R11	80
R12	62
R13	86
R14	98
TM-30: Rf	82
TM-30: Rg	95
Distance from Planckian Locus (Duv)	-0.0007
Scotopic/Photopic Ratio *	1.725

Electrical Data

Voltage	120.0 Vac
Current	0.2305 A
Power	27.58 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	5.7 %



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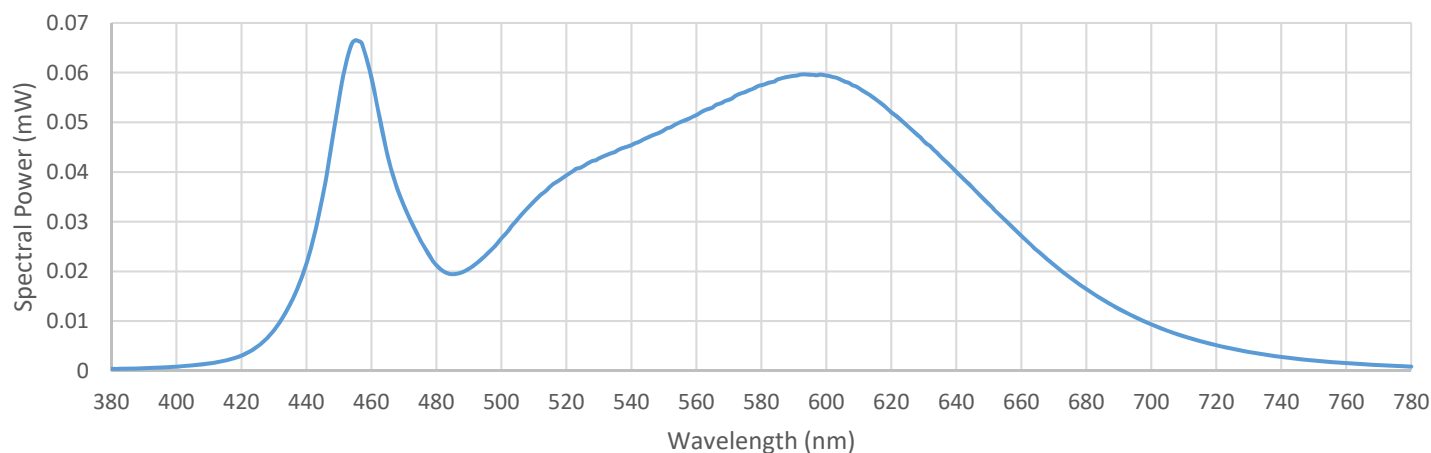
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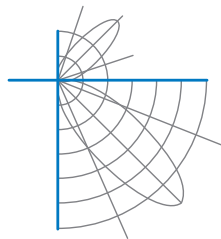
144 white LEDs, One Osram PrevaLED BAR with 144 LEDs

One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver.

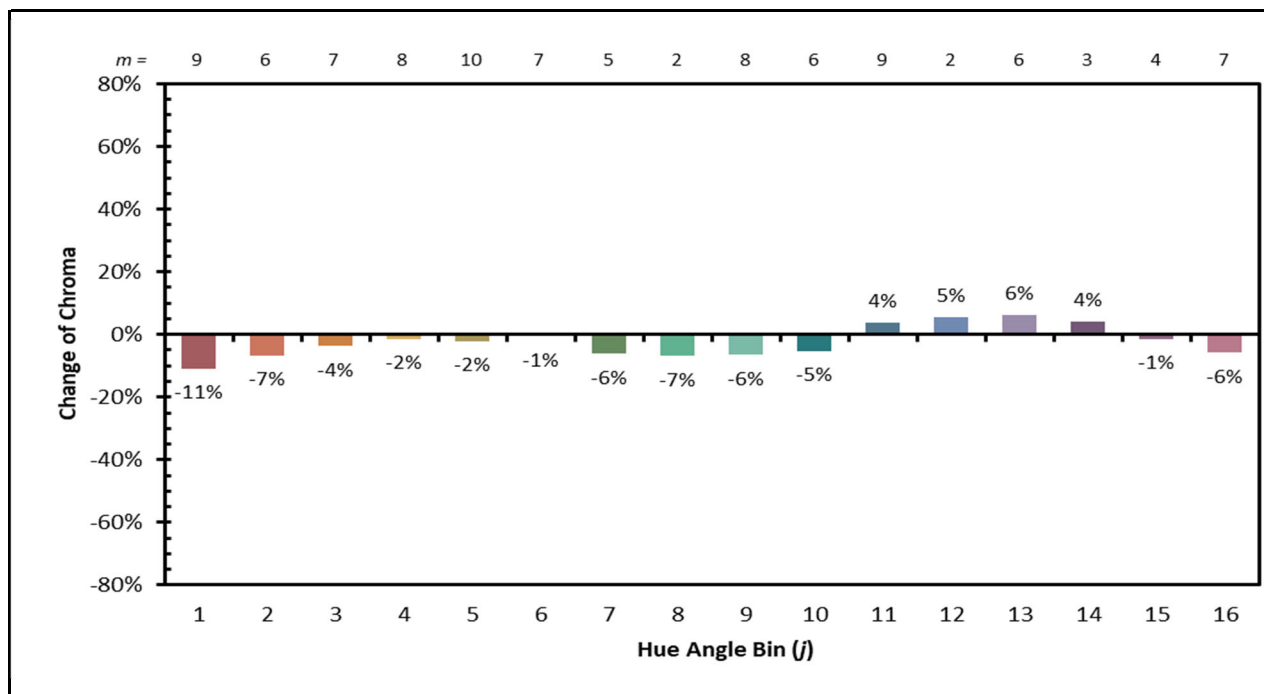
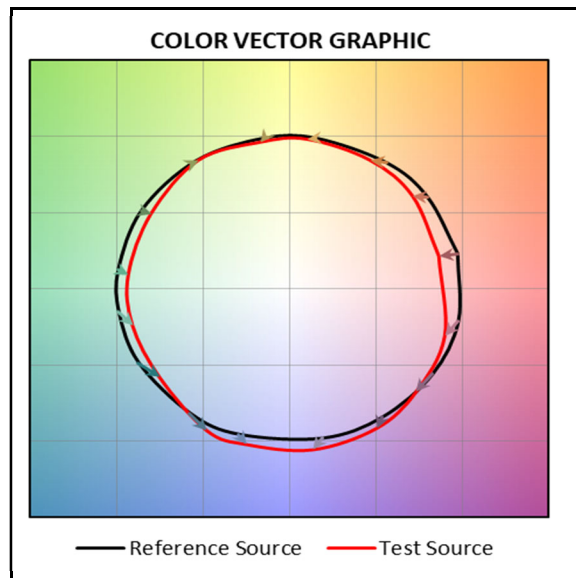
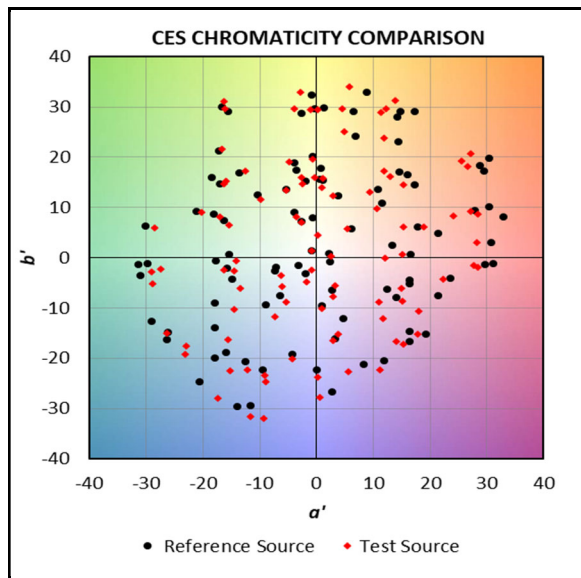
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

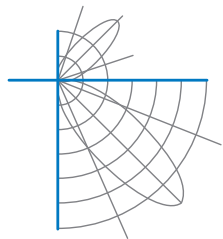
380	0.000385	480	0.021239	580	0.057467	680	0.016433
385	0.000409	485	0.019442	585	0.058631	685	0.014353
390	0.000523	490	0.020530	590	0.059354	690	0.012453
395	0.000652	495	0.023132	595	0.059562	695	0.010803
400	0.000833	500	0.026631	600	0.059417	700	0.009337
405	0.001097	505	0.030450	605	0.058406	705	0.008050
410	0.001475	510	0.033996	610	0.056906	710	0.006930
415	0.002044	515	0.037052	615	0.054700	715	0.005980
420	0.003065	520	0.039340	620	0.051978	720	0.005142
425	0.004903	525	0.041087	625	0.049283	725	0.004404
430	0.008151	530	0.042740	630	0.046207	730	0.003791
435	0.013490	535	0.044049	635	0.043241	735	0.003247
440	0.021573	540	0.045399	640	0.040011	740	0.002780
445	0.035120	545	0.046928	645	0.036833	745	0.002402
450	0.054521	550	0.048404	650	0.033554	750	0.002058
455	0.066483	555	0.050007	655	0.030272	755	0.001768
460	0.059101	560	0.051439	660	0.027213	760	0.001539
465	0.043083	565	0.052983	665	0.024114	765	0.001327
470	0.033226	570	0.054526	670	0.021297	770	0.001139
475	0.026353	575	0.056073	675	0.018786	775	0.000987
						780	0.000850





IES TM-30 Summary





Test Report Number: LLIA001084-007B

Catalog Number: AS350-HO-K40-80-4-DW-LOH-FXXX-UNV-XXX

Surface wall mounted, extruded aluminum housing, formed
white enamel aluminum LED tray, frosted plastic enclosure.

144 white LEDs, One Osram PrevaLED BAR with 144 LEDs
One Osram Optotronic OTi30/120-277/1A0 DIM-1 L LED driver.

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:	25.8 °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, 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.

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