

Report of Test

LLIA002607-001A

Indoor Distribution Photometry Test Report

Catalog Number: R2O-L369230-9HCE0SPA-10

Track mounted aluminum and steel housing with black enamel
aluminum reflector and trim, no enclosure.

Two white COB LEDs with clear prismatic optics in black plastic holders.

One Hacth LC50-1200D-UNV-T LED driver



Prepared For:

LiteLab, Inc

251 Elm Street

Buffalo, NY 14203, USA

Performance Summary

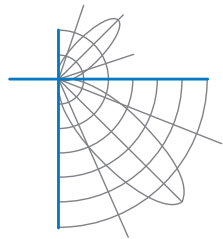
Input Voltage	120.0 Vac	Luminous Flux	5417.0 Lumens
Input Current	0.3796 A	Total Efficacy	120.4 Lm/W
Input Power	45.01 W	Downward Flux	5417.0 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.988		
Current THD	9.8 %		

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

Test date: 03/05/2025

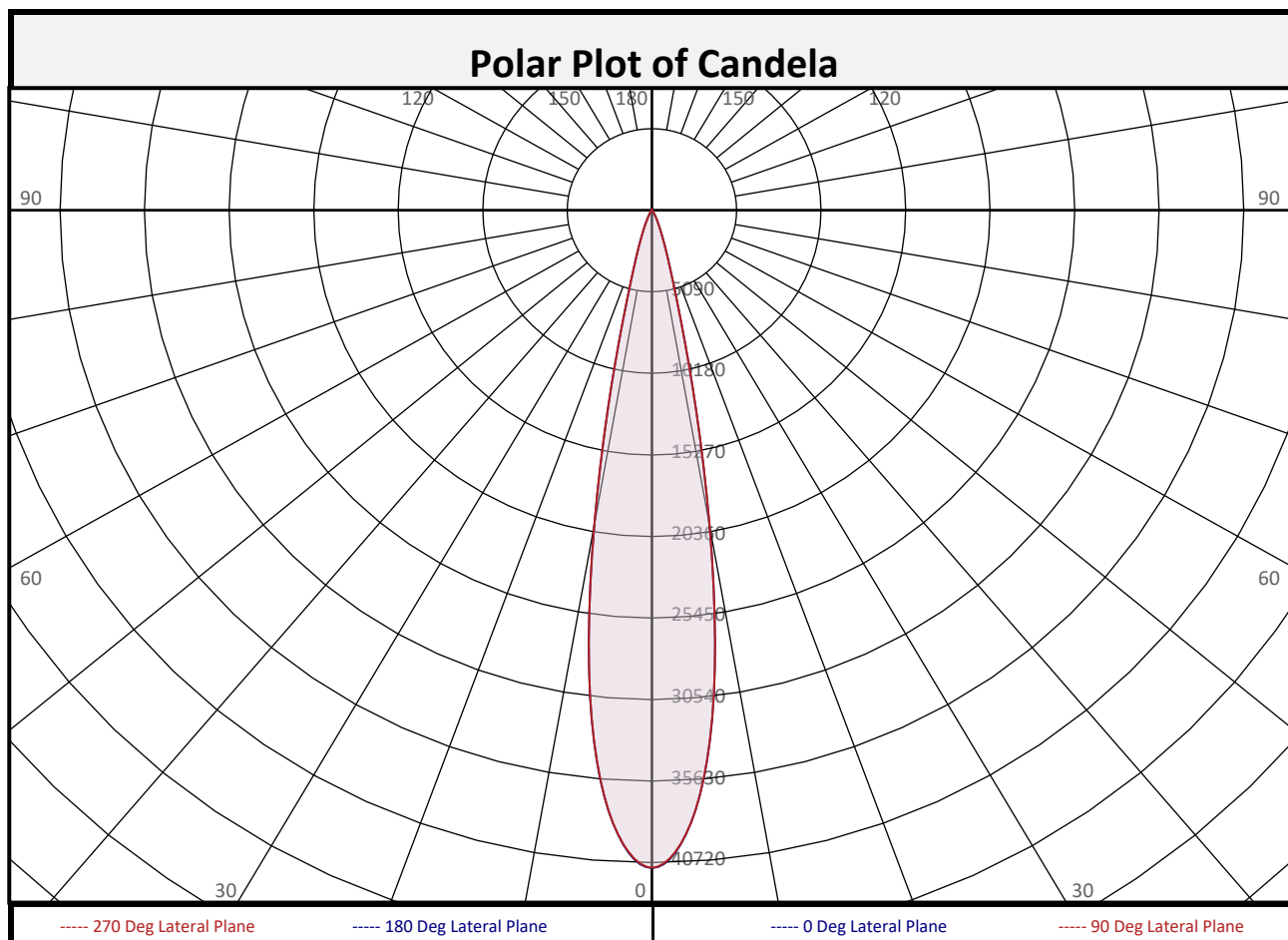
Report date: 03/06/2025

Signed: _____

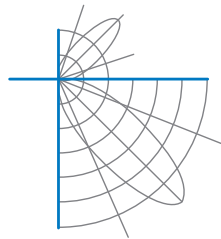


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Zonal Flux Summary										
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	2895	53.4%		90-100	0.0	0.0%		0-20	4793	88.5%
10-20	1898	35.0%		100-110	0.0	0.0%		0-30	5210	96.2%
20-30	417.0	7.7%		110-120	0.0	0.0%		0-40	5329	98.4%
30-40	119.8	2.2%		120-130	0.0	0.0%		0-60	5403	99.7%
40-50	50.8	0.9%		130-140	0.0	0.0%		0-80	5417	100.0%
50-60	22.6	0.4%		140-150	0.0	0.0%		10-90	2522	46.6%
60-70	9.5	0.2%		150-160	0.0	0.0%		20-90	587.6	10.8%
70-80	4.2	0.1%		160-170	0.0	0.0%		40-90	87.6	1.6%
80-90	0.4	0.0%		170-180	0.0	0.0%		60-90	14.1	0.3%
0-90	5417	100.0%		90-180	0.0	0.0%		0-180	5417	100.0%



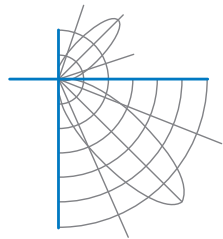
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Luminous Intensity (Candela) Table

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	41060	41060	41060	41060	41060	41060	41060	41060	41060
	2.5	39627	39691	39651	39611	39600	39611	39651	39691	39627
	5	35655	35691	35670	35648	35623	35648	35670	35691	35655
	7.5	28912	28963	28933	28940	28933	28940	28933	28963	28912
	10	19864	19890	19910	19916	19926	19916	19910	19890	19864
	12.5	11239	11266	11268	11281	11285	11281	11268	11266	11239
	15	5682	5689	5691	5707	5713	5707	5691	5689	5682
	17.5	3257	3257	3255	3255	3258	3255	3255	3257	3257
	20	2008	2019	2027	2022	2018	2022	2027	2019	2008
	22.5	1268	1280	1291	1282	1280	1282	1291	1280	1268
	25	825	835	844	839	839	839	844	835	825
	27.5	544	549	556	553	555	553	556	549	544
	30	359	362	368	367	367	367	368	362	359
	32.5	242	245	251	251	252	251	251	245	242
	35	170	174	182	179	182	179	182	174	170
	37.5	125	129	135	135	135	135	135	129	125
	40	95	100	106	105	104	105	106	100	95
	42.5	73	77	85	85	83	85	85	77	73
	45	55	61	68	66	66	66	68	61	55
	47.5	44	46	56	52	52	52	56	46	44
	50	34	37	45	43	41	43	45	37	34
	52.5	25	28	36	32	33	32	36	28	25
	55	19	21	29	26	26	26	29	21	19
	57.5	13	16	23	20	19	20	23	16	13
	60	10	13	18	15	16	15	18	13	10
	62.5	9	9	14	11	12	11	14	9	9
	65	7	8	10	10	11	10	10	8	7
	67.5	6	8	9	9	7	9	9	8	6
	70	6	5	7	7	7	7	7	5	6
	72.5	4	4	5	6	6	6	5	4	4
	75	1	3	5	4	5	4	5	3	1
	77.5	0	2	3	3	4	3	3	2	0
	80	1	1	2	2	2	2	2	1	1
	82.5	1	1	1	0	2	0	1	1	1
	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	
16 lateral half-planes of data were acquired, 22.5 degree increments shown.										

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

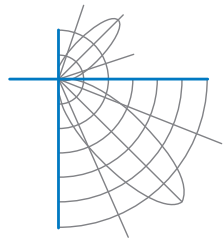


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Luminous Intensity (Candela) Table

Lateral (C-Plane) Angles										
	0	22.5	45	67.5	90	112.5	135	157.5	180	
Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	90	0	0	0	0	0	0	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
16 lateral half-planes of data were acquired, 22.5 degree increments shown.										



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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	115	114	112	110		113	111	110	109		108	106	105		104	103	102		101	100	99	98			
2	112	109	106	104		110	107	105	103		104	102	101		101	100	99		99	98	97	95			
3	109	105	102	99		108	104	101	99		101	99	97		99	97	96		97	96	94	93			
4	107	102	98	96		105	101	98	95		99	96	94		97	95	93		95	94	92	91			
5	104	99	95	93		103	98	95	92		97	94	92		95	93	91		94	92	90	89			
6	102	96	93	90		101	96	92	90		94	92	89		93	91	89		92	90	88	87			
7	100	94	91	88		99	94	90	88		92	90	87		92	89	87		91	88	87	86			
8	98	92	88	86		97	92	88	86		91	88	86		90	87	85		89	87	85	84			
9	96	90	87	84		95	90	86	84		89	86	84		88	86	84		88	85	84	83			
10	94	88	85	83		93	88	85	83		87	84	82		87	84	82		86	84	82	81			

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	1140.6	2.03	2.03
8.0	641.6	2.70	2.71
10.0	410.6	3.38	3.38
12.0	285.1	4.06	4.06
14.0	209.5	4.73	4.74
16.0	160.4	5.41	5.42

Spacing Criterion

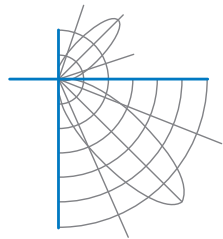
0 deg:	0.3
90 deg:	0.3
180 deg:	0.3
270 deg:	0.3

Average Luminance (cd/m²)

	0 deg Plane	45 deg Plane	90 deg Plane
0	3803123	3803123	3803123
45	7267	8848	8641
55	3139	4625	4127
65	1628	2298	2430
75	508	1896	1720
85	464	319	0

Beam and Field Angle

0-180 Degree Plane	
Beam Angle:	19.7°
Field Angle:	32.8°
90-270 Degree Plane	
Beam Angle:	19.7°
Field Angle:	32.8°



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UGR Table - Corrected

Reflectances

Ceiling Cavity	70	70	50	50	30	70	70	50	50	30
Walls	50	30	50	30	30	50	30	50	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20

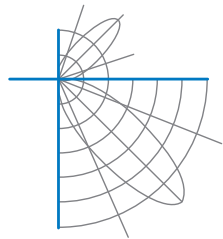
Room Size

UGR Viewed Crosswise

UGR Viewed Endwise

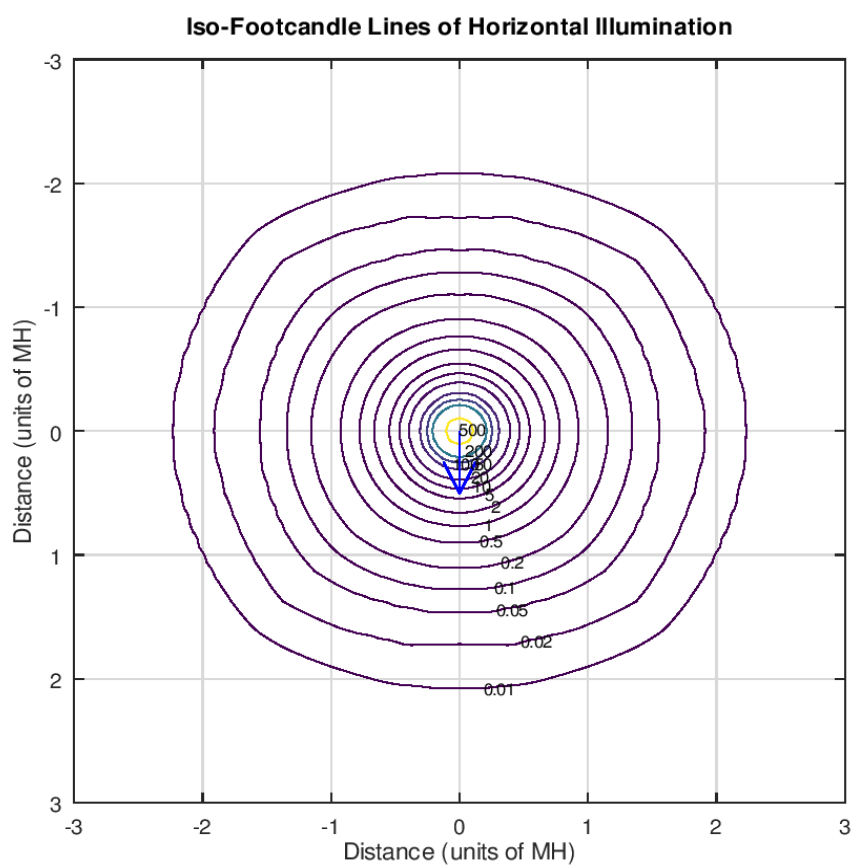
X=2H	Y=2H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
	3H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.4
	4H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.3	6.7
	6H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.4	6.8
	8H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.4	6.8
	12H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.3	6.7
4H	2H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
	3H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.2	6.6
	4H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.5	7.0
	6H	6.1	6.1	6.1	6.1	6.1	6.1	6.2	6.3	6.7	7.2
	8H	6.1	6.1	6.1	6.1	6.1	6.1	6.2	6.2	6.7	7.1
	12H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.2	6.6	7.1
8H	4H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.5	6.9
	6H	6.1	6.1	6.1	6.1	6.1	6.1	6.2	6.3	6.7	7.1
	8H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.3	6.6	7.1
	12H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.3	6.5	7.1
12H	4H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.4	6.9
	6H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.3	6.5	7.1
	8H	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.3	6.5	7.1

Maximum UGR = 7.2

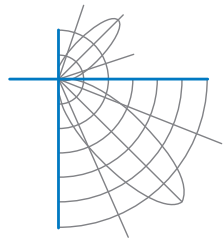


Report of Test LLIA002607-001A

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

LLIA002607-001A

Test Distance 9.5 m
Ambient Temperature 24.6 °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.

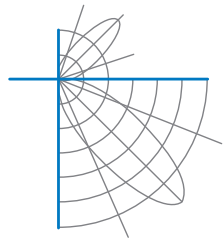
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

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.



Report of Test

LLIA002607-001B

Integrating Sphere Report

Catalog Number: R2O-L369230-9HCE0SPA-10

Track mounted aluminum and steel housing with black enamel
aluminum reflector and trim, no enclosure.

Two white COB LEDs with clear prismatic optics in black plastic holders.

One Hatch LC50-1200D-UNV-T LED driver



Performance Summary

Voltage	120.0 Vac
Current	0.3791 A
Power	45.10 W
Frequency	59.99 Hz
Power Factor	0.991
Current THD	9.8 %
Total Luminous Flux	5270.8 lm
Efficacy	116.9 lm/W
Chromaticity (x,y)	(0.4388, 0.4118)
(u',v')	(0.2485, 0.5247)
Duv	0.0028
CCT	3031 K
CRI (Ra)	90
R9	42
TM-30: Rf	91
TM-30: Rg	98
TM-30: Rcs,h1	-7

Prepared For:

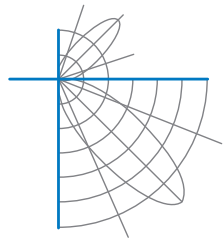
LiteLab, Inc

251 Elm Street

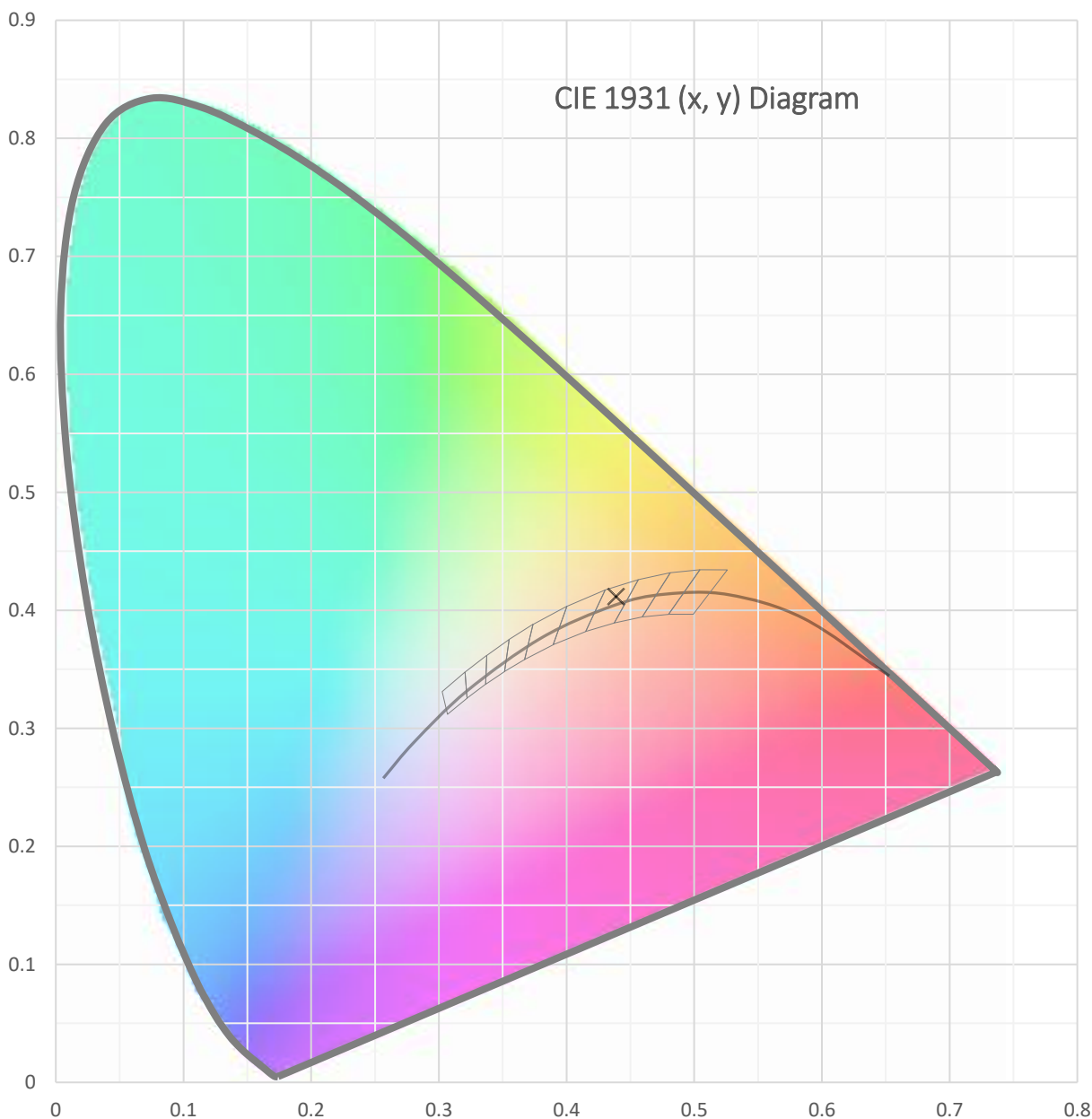
Buffalo, NY 14203, USA

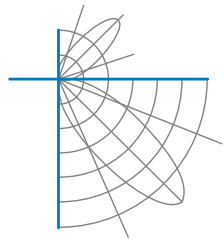
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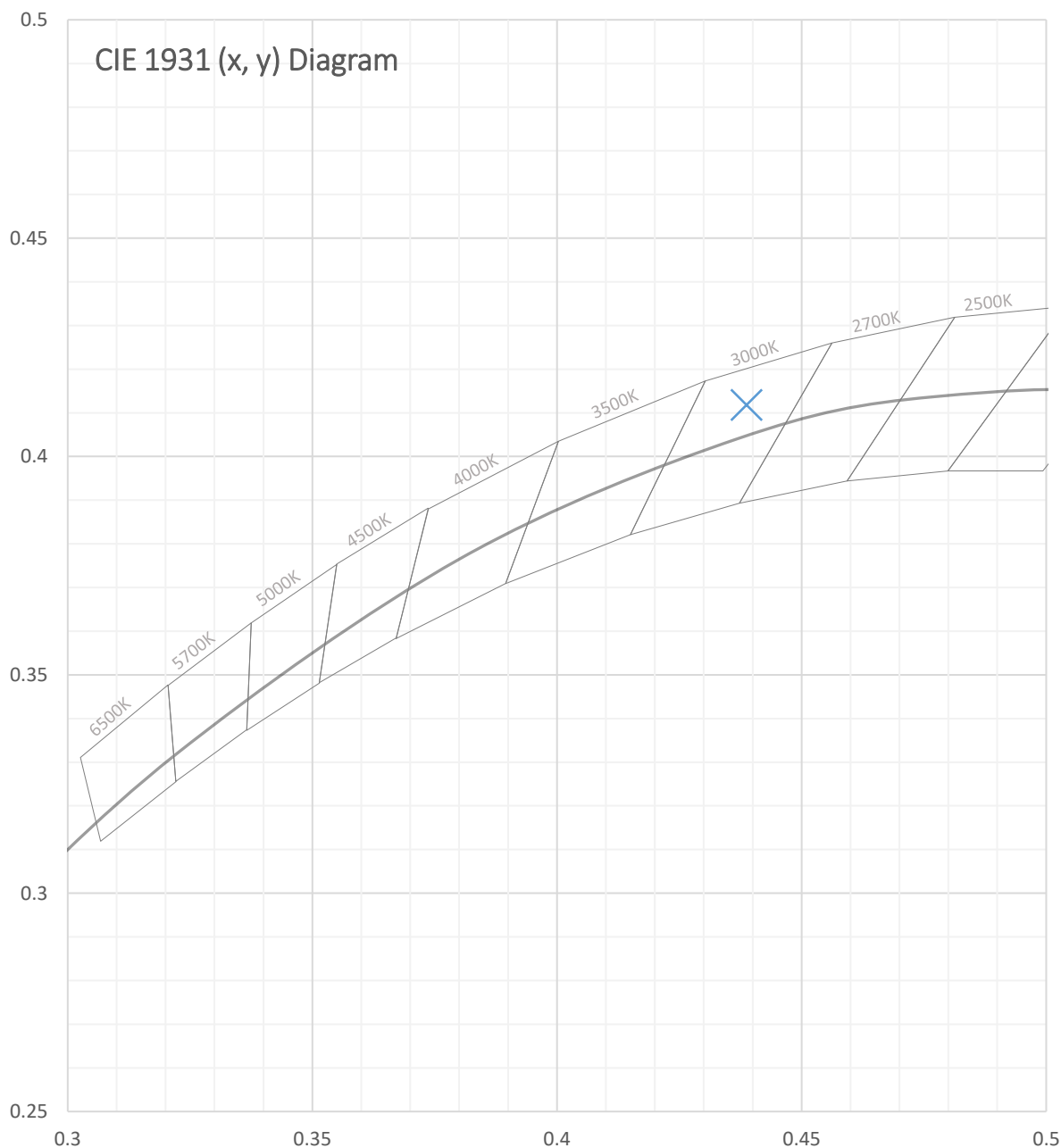


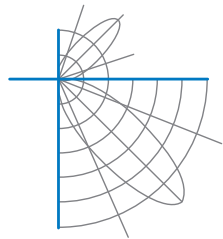
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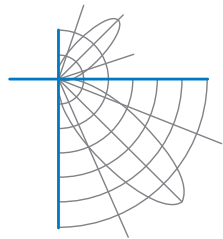


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Total Radiant Flux	15.69 W
Total Luminous Flux	5270.8 Lm
Chromaticity CIE 1931 (x, y)	(0.4388, 0.4118)
Chromaticity CIE 1976 (u', v')	(0.2485, 0.5247)
Correlated Color Temperature (CCT)	3031 K
Color Rendering Index (Ra)	90
R1	90
R2	94
R3	97
R4	92
R5	90
R6	94
R7	91
R8	76
R9	42
R10	85
R11	93
R12	80
R13	90
R14	98
TM-30: Rf	91
TM-30: Rg	98
TM-30: Rcs,h1	-7
Distance from Planckian Locus (Duv)	0.0028
Scotopic/Photopic Ratio ‡	1.387

Electrical Data

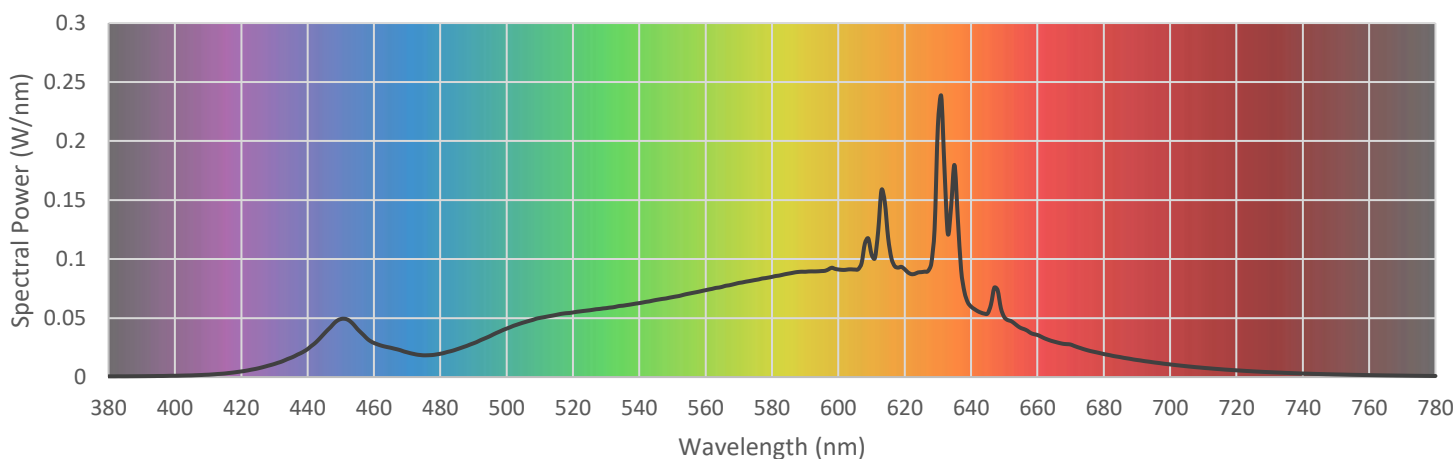
Voltage	120.0 Vac
Current	0.3791 A
Power	45.10 W
Frequency	59.99 Hz
Power Factor	0.991
Current THD	9.8 %

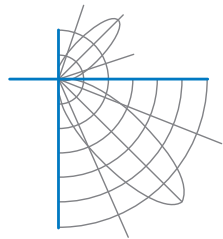


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Summary Spectral Power Distribution (wavelength - nm, spectral power - W/nm)

380	0.000614	480	0.019742	580	0.084900	680	0.019524
385	0.000627	485	0.023545	585	0.087699	685	0.016902
390	0.000739	490	0.028601	590	0.089239	690	0.014481
395	0.000919	495	0.034723	595	0.089852	695	0.012459
400	0.001103	500	0.041083	600	0.091172	700	0.010732
405	0.001423	505	0.046149	605	0.091096	705	0.009157
410	0.002009	510	0.050111	610	0.103973	710	0.007832
415	0.003024	515	0.052737	615	0.118158	715	0.006705
420	0.004756	520	0.054768	620	0.091357	720	0.005720
425	0.007342	525	0.056600	625	0.088918	725	0.004855
430	0.011112	530	0.058411	630	0.212908	730	0.004154
435	0.016373	535	0.060460	635	0.179682	735	0.003539
440	0.023726	540	0.062670	640	0.059714	740	0.003022
445	0.036825	545	0.065313	645	0.053938	745	0.002599
450	0.049163	550	0.067742	650	0.050872	750	0.002233
455	0.040727	555	0.070722	655	0.041596	755	0.001920
460	0.028885	560	0.073647	660	0.035674	760	0.001665
465	0.024853	565	0.076489	665	0.030081	765	0.001425
470	0.020966	570	0.079762	670	0.027594	770	0.001234
475	0.018424	575	0.082297	675	0.022800	775	0.001055
						780	0.000909





Test Report Number: LLIA002607-001B

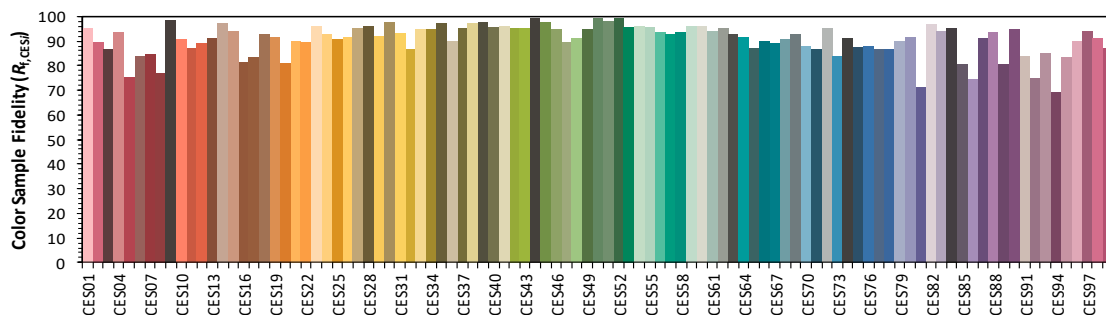
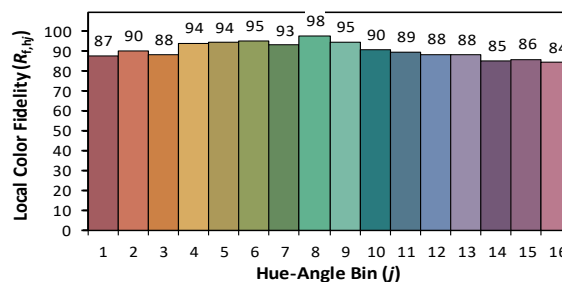
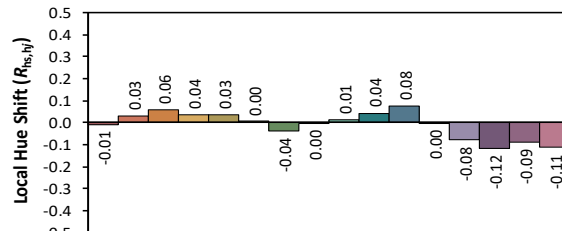
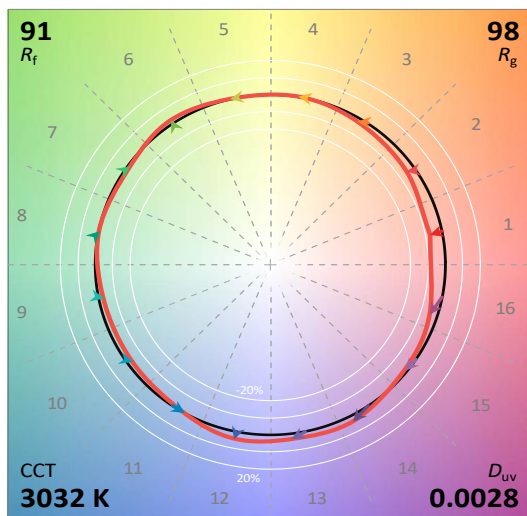
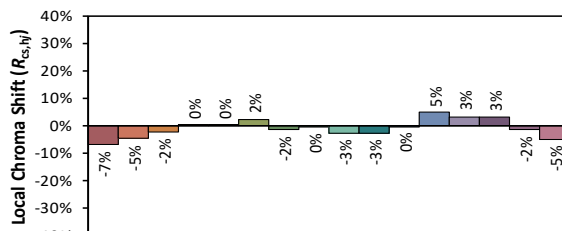
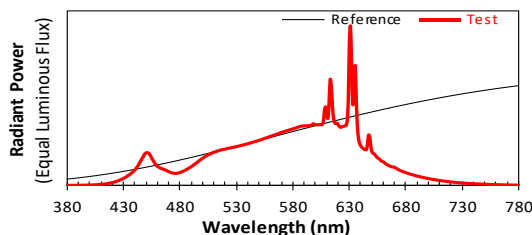
IES TM-30 Details

Source: LLIA002607-001B

Manufacturer: LiteLab, Inc

Date: 3/6/2025

Model: R20-L369230-9HCE0SPA-10



Notes:

x 0.4387
y 0.4118
u' 0.2484
v' 0.5246

CIE 13.3-1995
(CRI)
Ra 90
Rg 41

Test Report Number: LLIA002607-001B

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:	24.3 °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 ‡ 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.

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