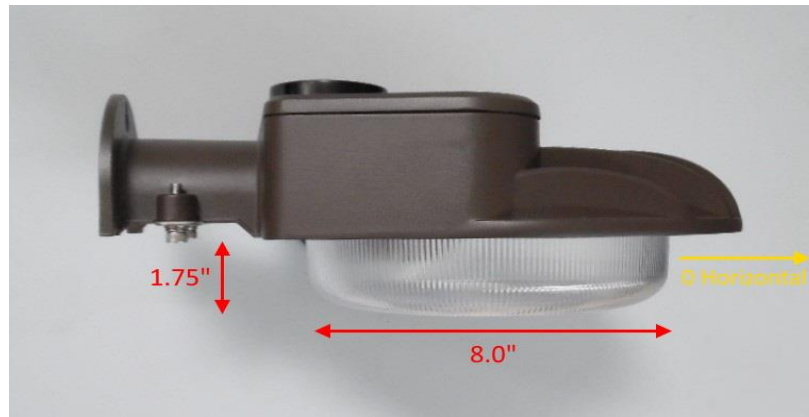


Report of Test

LLIA001561-003

Indoor Distribution Photometry Test Report

Catalog Number: ARL-BL-60W-PCTS-BZ - 40W and 4000K Setting
Pole/arm mount, brown painted cast aluminum luminaire and driver housings,
white plastic reflector, clear plastic drop enclosure with concentric lenses.
256 LEDs, 128 cool white and 128 warm white LEDs on white circuit board
One LED Power HB-HLA60-46 LED driver with one Linoya LYSPD10A surge suppressor



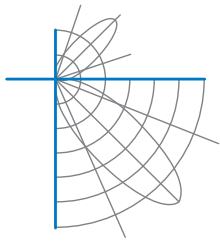
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 V	Luminous Flux	6994.9 Lumens
Input Current	0.3582 A	Total Efficacy	164.3 Lm/W
Input Power	42.58 W	Downward Flux	6910.6 Lumens
Frequency	60.00 Hz	Downward Flux	98.8 % of Total
Power Factor	0.990		
Current THD	5.0 %		

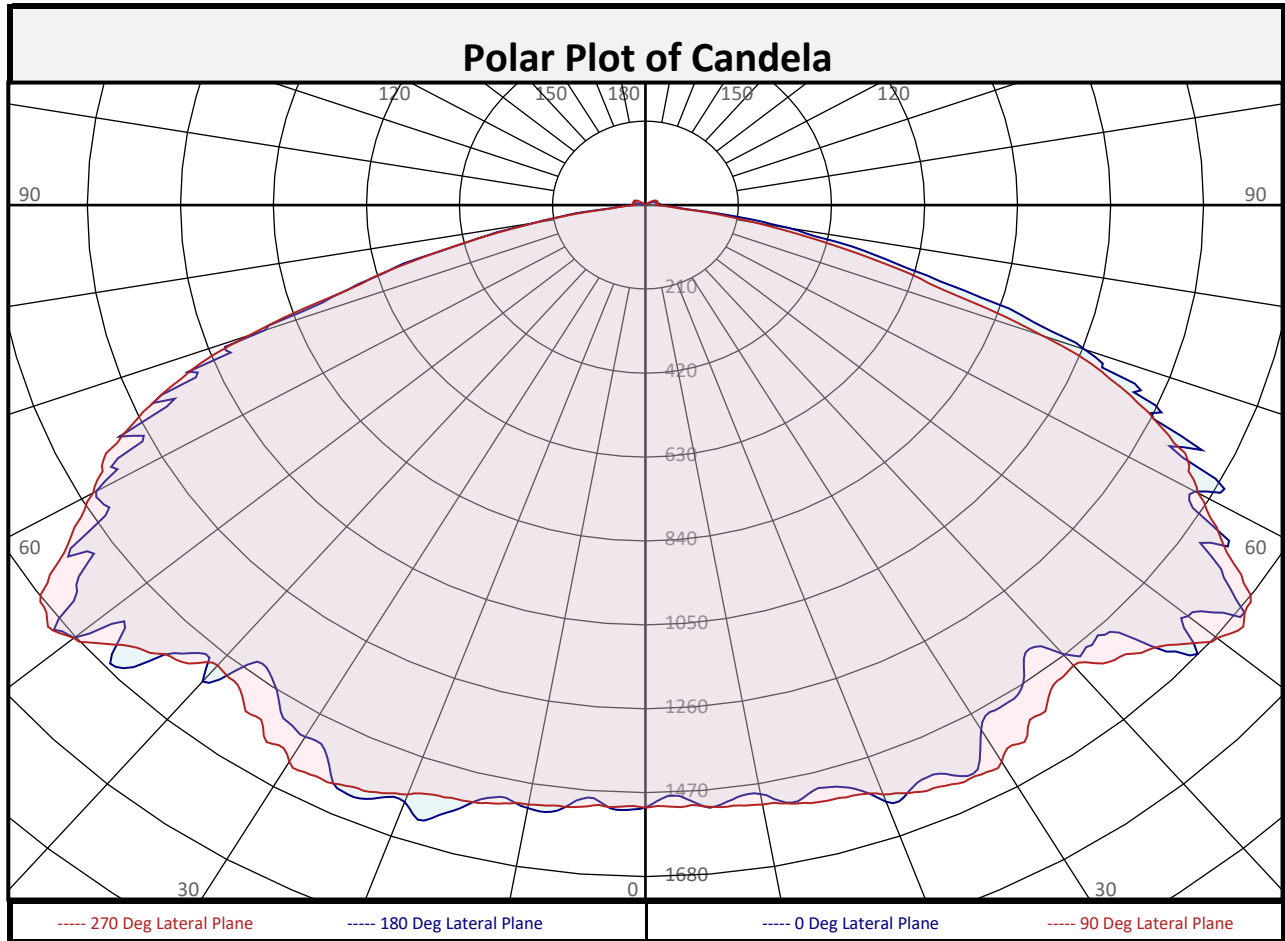
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 10/13/2021
Report date: 10/14/2021

Signed: _____

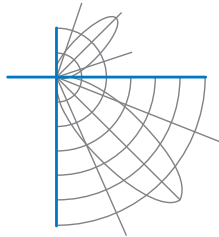


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Zonal Flux Summary

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	144.5	2.1%	90-100	28.1	0.4%	0-20	584.1	8.4%
10-20	439.6	6.3%	100-110	27.4	0.4%	0-30	1321	18.9%
20-30	737.2	10.5%	110-120	19.7	0.3%	0-40	2286	32.7%
30-40	964.9	13.8%	120-130	7.5	0.1%	0-60	4922	70.4%
40-50	1225	17.5%	130-140	1.6	0.0%	0-80	6802	97.2%
50-60	1411	20.2%	140-150	0.1	0.0%	10-90	6766	96.7%
60-70	1248	17.8%	150-160	0.0	0.0%	20-50	2927	41.8%
70-80	632.0	9.0%	160-170	0.0	0.0%	40-90	4624	66.1%
80-90	108.7	1.6%	170-180	0.0	0.0%	60-90	1989	28.4%
0-90	6911	98.8%	90-180	84.3	1.2%	0-180	6995	100.0%

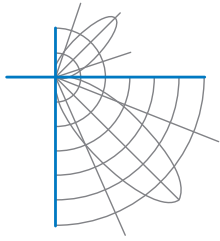


Report of Test

LLIA001561-003

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.	0	1507	1507	1507	1507	1507	1507	1507	1507	1507
	2.5	1478	1483	1486	1493	1506	1517	1531	1529	1514
	5	1509	1518	1494	1492	1510	1531	1510	1497	1488
	7.5	1500	1509	1533	1499	1515	1531	1503	1518	1528
	10	1496	1499	1516	1515	1522	1529	1532	1543	1531
	12.5	1531	1539	1512	1551	1533	1529	1557	1541	1516
	15	1509	1539	1537	1562	1544	1538	1575	1542	1553
	17.5	1528	1525	1584	1559	1549	1557	1560	1599	1609
	20	1588	1559	1572	1554	1569	1570	1574	1620	1589
	22.5	1577	1610	1564	1571	1589	1601	1608	1592	1607
	25	1569	1572	1562	1582	1602	1615	1620	1617	1618
	27.5	1603	1572	1592	1590	1610	1627	1615	1613	1556
	30	1516	1599	1609	1600	1608	1612	1585	1538	1536
	32.5	1490	1509	1582	1579	1592	1586	1588	1526	1522
	35	1479	1483	1560	1553	1555	1563	1574	1522	1461
	37.5	1410	1495	1546	1537	1513	1549	1552	1475	1439
	40	1466	1463	1541	1529	1503	1534	1552	1493	1556
	42.5	1493	1513	1541	1547	1549	1556	1566	1587	1520
	45	1512	1572	1581	1580	1583	1588	1597	1566	1635
	47.5	1667	1590	1614	1615	1627	1623	1610	1640	1613
50	1599	1660	1618	1636	1684	1628	1614	1671	1683	
52.5	1693	1635	1604	1655	1703	1640	1598	1609	1627	
55	1587	1604	1568	1618	1648	1597	1550	1596	1520	
57.5	1563	1499	1527	1538	1536	1517	1502	1467	1446	
60	1433	1468	1473	1462	1440	1439	1436	1390	1432	
62.5	1368	1408	1420	1405	1380	1375	1366	1342	1280	
65	1266	1307	1342	1310	1267	1280	1276	1231	1192	
67.5	1211	1200	1197	1169	1134	1132	1131	1110	1094	
70	1055	1039	1006	985	952	939	948	954	914	
72.5	862	834	812	761	705	738	760	722	704	
75	615	647	647	590	548	561	581	567	566	
77.5	476	479	475	421	389	402	410	395	390	
80	326	326	308	277	250	258	262	264	252	
82.5	177	173	160	143	140	135	144	151	161	
85	69	71	70	64	63	64	68	69	69	
87.5	43	42	42	39	39	41	44	44	43	
90	28	27	27	25	25	25	26	26	26	



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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	28	27	27	25	25	25	26	26	26
	92.5	26	27	27	25	25	25	25	25	25
	95	28	28	28	26	26	26	26	25	25
	97.5	26	27	26	25	25	25	25	24	23
	100	28	29	30	28	27	27	27	25	22
	102.5	29	30	31	28	28	28	28	25	21
	105	27	27	30	28	28	28	27	24	16
	107.5	25	25	26	26	26	26	24	21	10
	110	23	24	25	26	26	25	23	18	5
	112.5	22	23	25	27	27	26	22	17	3
	115	17	20	24	26	27	25	19	14	3
	117.5	12	15	20	23	24	23	15	11	2
	120	7	10	16	20	21	20	12	8	0
	122.5	4	6	11	16	18	17	8	5	0
	125	3	4	8	13	15	13	6	4	0
	127.5	1	3	5	9	11	10	5	3	0
	130	0	2	4	6	7	7	3	2	0
	132.5	0	0	3	4	5	5	3	2	0
	135	0	0	2	3	4	3	2	0	0
	137.5	0	0	1	2	3	3	1	0	0
	140	0	0	0	2	2	2	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		110	110	110		105	105	105		101	101	101	99
1	107	102	97	93		104	100	95	91		95	92	88		91	88	85		87	85	83	80
2	96	87	79	73		93	85	78	72		81	75	70		78	73	68		74	70	67	64
3	87	75	66	59		84	73	65	58		70	63	57		67	61	56		64	59	54	52
4	78	65	55	48		76	64	55	48		61	53	47		58	52	46		56	50	45	43
5	71	57	48	40		69	56	47	40		54	46	39		52	44	39		49	43	38	36
6	65	51	41	34		63	50	41	34		48	40	34		46	39	33		44	38	33	30
7	60	46	36	30		58	45	36	29		43	35	29		41	34	29		40	33	28	26
8	56	41	32	26		54	41	32	26		39	31	25		38	30	25		36	30	25	23
9	52	38	29	23		50	37	29	23		36	28	23		34	27	22		33	27	22	20
10	48	34	26	20		47	34	26	20		33	25	20		32	25	20		31	24	20	18

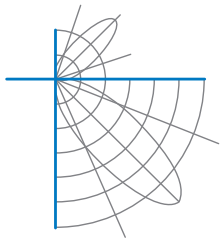
For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are 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	41.9	8.83	9.23	
8.0	23.5	11.77	12.30	
10.0	15.1	14.71	15.38	
12.0	10.5	17.65	18.45	
14.0	7.7	20.60	21.53	
16.0	5.9	23.54	24.60	

Spacing Criterion	
0 deg:	1.5
90 deg:	1.5
180 deg:	1.5
270 deg:	1.5

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	46469	46469	46469
45	51577	53939	54012
55	61043	60316	63401
65	57849	61308	57858
75	35948	37778	32000
85	5796	5880	5334

Beam and Field Angle	
0-180 Degree Plane	
Beam Angle:	143.3°
Field Angle:	164.7°
90-270 Degree Plane	
Beam Angle:	142.1°
Field Angle:	163.6°



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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

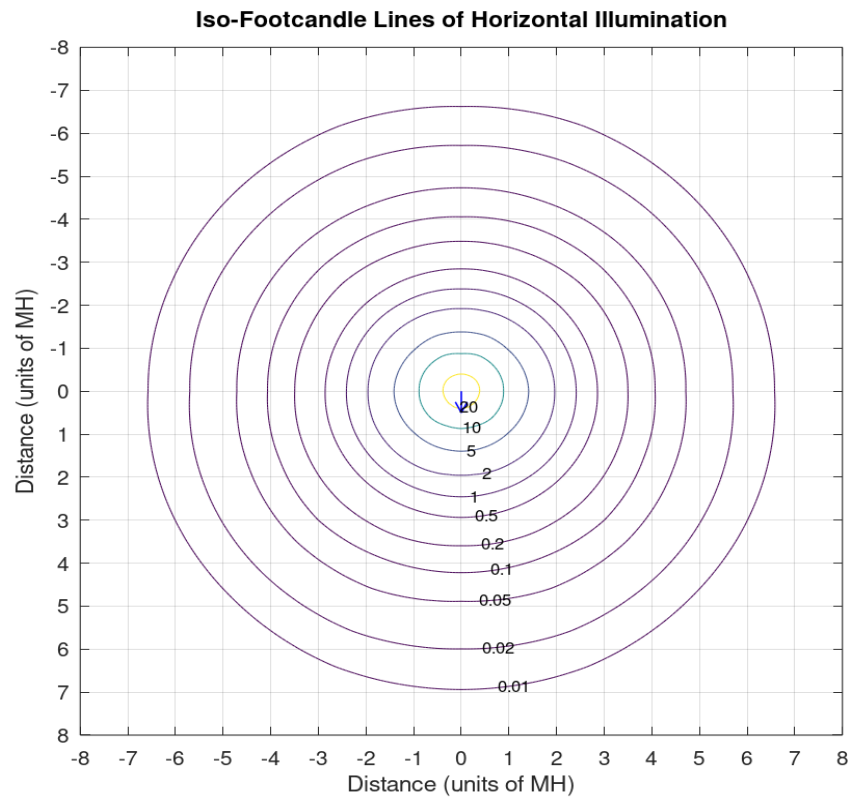
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	26.3	28.1	26.7	28.4	28.8	26.4	28.2	26.8	28.5	28.9
	3H	28.5	30.1	28.9	30.4	30.8	28.4	30	28.8	30.4	30.8
	4H	29	30.5	29.4	30.9	31.3	28.9	30.4	29.3	30.7	31.1
	6H	29.3	30.7	29.7	31.1	31.5	29	30.5	29.5	30.8	31.2
	8H	29.3	30.7	29.8	31.1	31.5	29	30.4	29.5	30.8	31.2
	12H	29.3	30.6	29.8	31	31.5	29	30.3	29.5	30.7	31.2
4H	2H	27.1	28.7	27.6	29	29.4	27.2	28.7	27.6	29.1	29.5
	3H	29.4	30.7	29.8	31.1	31.5	29.3	30.5	29.7	31	31.4
	4H	30	31.2	30.5	31.6	32.1	29.8	30.9	30.2	31.4	31.8
	6H	30.4	31.4	30.8	31.8	32.3	30	31	30.5	31.5	32
	8H	30.4	31.4	30.9	31.8	32.3	30	31	30.5	31.5	31.9
	12H	30.4	31.3	30.9	31.8	32.3	30	30.9	30.5	31.4	31.9
8H	4H	30.2	31.2	30.7	31.6	32.1	30	30.9	30.4	31.4	31.9
	6H	30.6	31.4	31.1	31.9	32.4	30.3	31.1	30.8	31.6	32.1
	8H	30.7	31.4	31.2	31.9	32.4	30.3	31	30.8	31.5	32
	12H	30.7	31.3	31.2	31.8	32.4	30.3	30.9	30.8	31.5	32
12H	4H	30.2	31.1	30.7	31.6	32.1	30	30.8	30.5	31.3	31.8
	6H	30.6	31.4	31.2	31.8	32.4	30.3	31	30.8	31.5	32
	8H	30.7	31.4	31.3	31.9	32.4	30.3	31	30.9	31.5	32

Maximum UGR = 32.4

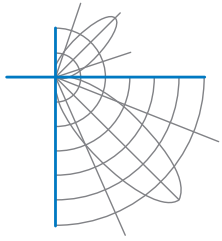


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Iso-Illuminance Plot



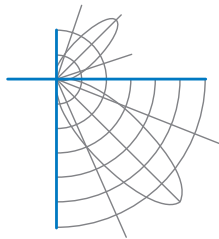
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution 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 24.4 °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-41-14 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.