

Indoor Photometric Report

IES Header Data

ISSUE DATE	Tuesday, December 6, 2022
MANUFAC	Cerno LLC
TEST	1
TEST LAB	Photopia for SOLIDWORKS 2022.0.8.11443 see: www.ltioptics.com/ies
TEST DATE	Tuesday, December 6, 2022 12:50:34 PM
LUMINAIRE	Plura 46, 08-100-46WF-27P1
LAMP	LED, 2700K, 6.58W/ea, Circular Array of (5)
LAMPCAT	COB

Input

Number of Lamps	5
Luminous flux per Lamp	640 lm
Total Input Luminous flux	3200 lm
Input Watts	37,82 W

Output

Total Output Luminous flux	2348.41 lm
Efficiency	73.39 %
Efficacy	62.1 lm/W

Luminous Dimensions

0° - 180° Size	1.15 m
90° - 270° Size	1.15 m
Height	0.3 m

Photometry Information

Distribution	Semi-Direct
Photometry Type	C

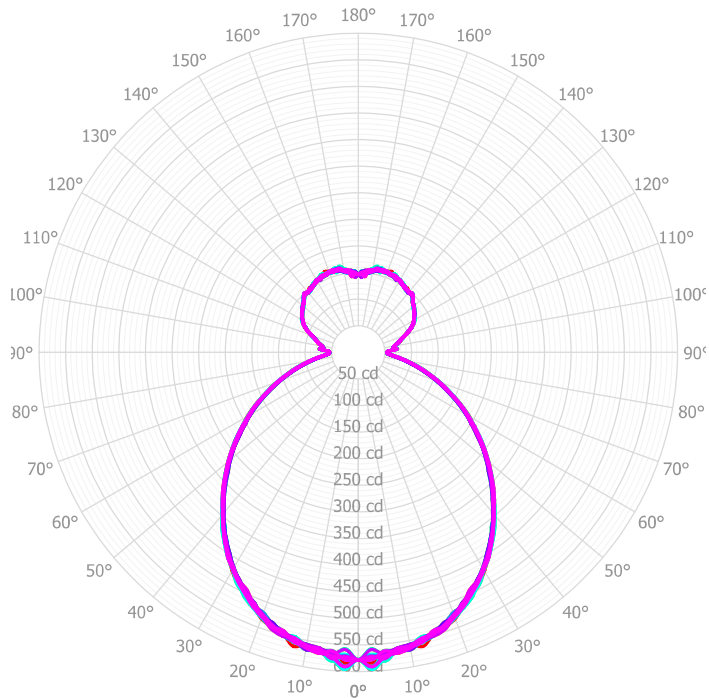
Spacing Criterion

Two luminaires, plane 0°	1.21
Two luminaires, plane 90°	1.21
Four luminaires	1.32

Full Beam Angle

0° - 180°	105.33°
90° - 270°	105.14°

Candela Polar Plot



Candela Distribution

	0.00°	5.00°	10.00°	15.00°	20.00°	25.00°	30.00°	35.00°	40.00°	45.00°	50.00°	55.00°	60.00°	65.00°	70.00°	75.00°	80.00°	85.00°	90.00°
0.00°	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81	577.81
2.50°	584.66	574.21	578.53	591.50	572.10	559.36	574.70	576.13	591.38	577.53	570.64	574.41	577.85	557.92	596.74	568.30	591.36	568.97	575.24
5.00°	562.82	573.40	563.59	574.50	578.02	569.80	570.94	567.22	573.71	569.39	575.17	567.55	563.32	571.86	576.15	572.70	569.57	582.49	573.88
7.50°	570.90	563.93	570.07	568.75	560.89	562.24	560.68	562.79	569.43	565.16	565.72	566.61	566.06	560.86	563.57	561.19	563.35	563.12	561.41
10.00°	559.27	560.91	564.29	559.94	561.82	562.24	557.66	567.69	564.55	557.19	567.79	560.36	559.84	558.99	558.57	560.32	562.08	560.74	557.78
12.50°	565.92	557.99	555.52	550.44	553.46	551.60	556.59	551.84	553.61	556.50	555.34	557.13	554.01	556.42	558.87	557.81	554.84	547.85	551.81
15.00°	547.17	542.09	547.24	548.34	547.63	551.93	550.01	545.13	548.36	542.46	549.34	551.08	546.30	547.17	544.57	548.34	548.83	548.64	549.18
17.50°	540.51	540.02	541.87	537.30	539.33	545.23	542.41	541.17	533.05	536.60	536.33	538.39	541.39	538.57	540.79	539.75	538.75	535.90	534.48
20.00°	533.11	529.51	528.32	525.17	528.03	526.92	524.10	527.65	528.46	529.60	520.67	526.21	531.43	526.27	521.57	530.62	530.40	529.96	528.98
22.50°	515.49	517.44	510.67	516.66	513.17	512.75	511.80	513.43	510.12	509.48	515.86	512.20	517.12	517.02	516.84	514.54	513.65	519.01	518.08
25.00°	504.00	501.12	501.02	502.53	493.72	499.92	498.22	500.64	501.75	500.44	497.88	497.20	498.24	500.31	501.08	503.15	500.85	507.35	502.62
27.50°	491.48	485.24	486.05	488.12	484.02	484.37	484.61	482.56	483.12	484.48	484.37	483.10	485.25	484.29	484.13	490.23	487.71	487.76	492.86
30.00°	474.23	470.85	468.37	471.91	471.09	469.66	467.55	470.46	469.05	472.70	467.08	469.21	469.36	467.74	469.49	471.09	471.16	472.38	472.87
32.50°	455.19	456.81	454.47	452.51	456.79	454.23	450.60	452.82	449.38	449.07	449.70	449.27	452.62	455.07	452.29	456.66	455.17	455.59	456.61
35.00°	437.07	436.26	436.90	437.45	432.68	435.37	433.97	431.77	431.99	432.00	433.19	434.65	431.27	430.98	434.75	438.36	434.28	436.43	438.75
37.50°	419.63	415.94	417.51	416.28	416.59	414.92	416.18	413.82	413.26	415.45	414.25	411.17	415.83	415.70	415.53	417.83	415.38	420.28	420.91
40.00°	393.91	396.96	397.00	396.04	396.67	393.78	393.46	392.91	394.65	392.99	393.65	397.86	394.66	392.84	397.39	396.47	395.86	399.51	399.22
42.50°	377.66	378.56	375.11	378.24	376.45	373.78	372.59	373.86	374.58	373.71	373.04	376.85	372.63	375.99	377.18	378.87	377.90	378.80	377.21
45.00°	358.96	359.67	355.69	358.41	356.14	357.80	356.16	353.16	354.53	355.48	352.34	354.52	354.69	356.59	355.24	358.25	356.32	358.76	355.18
47.50°	339.68	338.97	338.90	337.88	336.55	334.71	335.39	334.94	331.46	335.06	331.92	334.23	334.96	337.82	335.79	336.21	338.08	339.94	335.90
50.00°	320.09	316.35	318.81	319.31	318.68	316.98	313.76	314.88	314.67	312.84	314.73	314.16	314.05	317.80	317.42	316.42	316.91	318.11	320.15
52.50°	299.65	298.94	299.93	296.14	294.71	294.94	294.09	294.75	293.95	294.27	293.81	296.16	294.61	295.08	296.31	297.50	299.66	299.32	298.89

55.00°	280.25	279.44	277.40	276.37	275.83	275.20	275.74	271.40	273.74	272.50	273.87	273.14	275.32	276.02	274.47	279.71	279.53	279.48	279.77
57.50°	257.86	258.97	258.72	256.41	253.38	255.64	251.58	253.71	254.41	253.08	251.91	256.56	256.64	253.90	254.64	255.67	258.09	258.19	259.75
60.00°	241.46	238.39	238.57	238.30	235.34	234.49	236.55	235.61	233.65	235.33	234.47	233.58	235.17	236.38	235.61	236.96	235.98	239.78	239.87
62.50°	221.50	219.78	219.64	219.11	217.34	216.97	217.02	214.23	215.30	215.12	215.51	215.30	213.77	216.01	217.19	218.53	218.96	220.35	220.37
65.00°	200.71	199.75	196.52	197.17	196.38	196.95	195.78	195.90	195.69	193.98	193.20	194.63	195.21	195.06	196.63	196.57	199.95	199.58	200.21
67.50°	181.40	180.11	180.71	179.15	176.93	176.89	175.72	176.18	174.83	174.23	174.97	175.95	177.22	177.62	179.83	178.81	178.57	179.49	182.52
70.00°	162.80	161.72	161.22	160.58	160.03	157.77	156.94	156.25	156.34	156.85	157.05	156.49	156.14	156.71	160.42	160.52	162.61	162.42	161.95
72.50°	143.52	143.91	142.17	141.45	139.93	138.33	140.14	139.57	137.21	138.78	138.59	138.53	138.36	139.12	141.79	142.70	140.76	143.09	144.95
75.00°	128.39	124.98	125.11	124.52	122.57	121.64	121.65	121.07	120.14	120.78	122.14	120.67	121.30	122.52	123.54	124.94	126.22	127.30	125.47
77.50°	110.97	108.92	108.28	107.47	105.95	105.96	105.13	104.88	103.30	103.54	103.71	104.20	105.29	104.55	106.54	107.40	109.61	109.95	110.20
80.00°	93.94	93.97	92.37	91.27	90.51	90.92	90.27	89.02	87.47	88.64	87.81	88.65	88.14	89.57	90.16	92.90	93.65	93.40	94.51
82.50°	78.89	78.92	78.67	76.06	75.92	74.02	74.13	74.78	74.10	73.68	73.13	74.11	75.07	74.38	74.76	75.67	77.12	79.10	78.60
85.00°	65.54	65.31	65.16	64.25	62.79	63.23	62.77	62.39	61.57	61.26	62.91	62.67	62.78	63.22	63.27	62.95	64.36	65.40	66.78
87.50°	55.95	56.96	55.91	55.84	55.77	55.50	54.85	54.82	54.67	54.59	54.99	55.15	54.64	54.76	54.36	55.33	56.75	56.35	56.52
90.00°	55.40	55.04	54.86	54.90	53.89	53.55	54.34	53.35	54.46	53.84	54.42	53.85	54.08	54.62	54.13	55.10	55.00	56.48	54.77
92.50°	57.53	57.81	57.06	55.94	55.80	55.83	56.37	55.90	55.90	56.40	56.63	56.45	56.25	56.26	56.46	56.19	57.01	57.70	58.79
95.00°	74.13	72.38	71.49	72.38	71.49	72.98	72.85	72.69	71.70	72.91	71.55	71.96	72.78	73.70	73.07	73.35	72.35	71.87	72.95
97.50°	66.81	66.77	66.10	65.86	66.17	66.38	67.07	65.92	65.86	65.99	65.52	66.26	65.46	65.76	66.09	67.24	67.44	66.96	67.58
100.00°	70.62	69.30	70.15	69.90	68.89	68.52	69.91	68.89	68.84	69.24	69.49	69.17	69.14	69.50	68.65	70.62	69.98	70.27	69.79
102.50°	76.93	75.43	75.07	75.19	74.01	74.44	75.02	74.51	74.76	74.67	73.16	74.79	75.17	75.65	75.33	75.64	75.85	76.27	75.76
105.00°	81.81	81.16	80.69	80.70	80.34	79.45	79.60	79.21	80.17	80.03	80.01	79.09	80.08	80.17	80.31	79.62	80.71	80.14	80.57
107.50°	86.84	87.04	86.01	86.72	85.08	86.06	84.90	85.18	85.54	85.03	85.36	85.57	85.41	85.33	85.42	85.92	87.70	86.82	87.36
110.00°	92.81	92.47	93.70	92.44	95.10	92.94	93.58	92.33	92.37	93.41	92.69	92.84	93.18	94.16	93.46	94.07	93.94	94.46	94.06
112.50°	102.76	101.96	101.63	102.80	103.16	100.60	100.95	100.97	101.88	101.69	101.54	100.97	101.40	102.67	101.36	101.41	102.39	101.84	102.07
115.00°	111.23	108.71	109.69	110.04	110.12	110.30	109.62	109.78	110.01	108.45	110.89	110.12	108.71	108.54	109.49	109.24	108.66	110.54	109.01
117.50°	117.03	117.95	115.22	114.64	116.34	115.96	115.98	116.18	115.71	115.53	116.11	115.76	116.01	116.14	116.87	116.92	115.46	117.13	117.99
120.00°	122.83	120.50	120.84	120.24	121.39	119.97	120.52	120.61	121.17	121.73	121.32	121.33	120.90	122.32	120.36	121.66	120.59	121.82	123.51
122.50°	126.36	124.92	124.56	125.63	125.36	124.49	125.11	124.99	125.24	125.67	125.00	125.18	125.33	125.73	124.41	124.06	125.27	125.69	126.18
125.00°	129.85	128.54	128.02	129.45	128.74	128.21	128.53	129.09	129.79	129.81	126.95	128.66	129.40	127.95	127.91	129.25	128.54	128.76	129.22
127.50°	133.30	133.41	132.98	131.70	133.01	131.69	132.98	131.48	132.87	132.13	131.70	133.88	131.08	131.44	132.00	130.94	133.00	133.34	133.61
130.00°	136.11	136.45	135.32	135.60	135.86	136.16	136.81	135.15	136.61	135.79	134.89	137.10	136.00	136.96	134.83	133.54	135.92	137.18	136.95
132.50°	138.90	139.87	138.31	138.69	138.29	140.30	138.15	138.24	137.87	140.49	138.56	140.08	139.06	138.16	139.07	139.12	138.91	140.10	139.63
135.00°	146.05	145.16	146.07	145.02	144.50	144.61	144.13	144.48	144.49	144.25	144.42	146.76	144.54	142.59	144.17	145.19	145.92	145.71	145.48
137.50°	148.52	150.84	149.07	148.23	150.10	150.39	147.09	148.87	149.74	149.79	147.62	149.01	149.94	148.69	148.95	149.82	151.16	150.27	148.83
140.00°	145.66	148.27	147.11	148.68	148.69	148.14	146.46	145.84	146.53	148.56	145.84	146.47	147.79	149.01	146.58	146.32	145.79	147.72	146.39
142.50°	152.14	149.29	149.73	150.07	149.04	146.98	147.72	149.57	149.77	148.47	148.46	149.81	146.90	147.73	146.53	149.74	148.45	148.49	149.54
145.00°	150.61	149.19	150.65	150.81	150.69	149.63	152.27	152.75	151.71	151.05	149.71	149.05	150.14	151.60	151.69	152.34	151.82	151.62	151.44
147.50°	153.38	154.48	151.95	153.27	152.59	153.54	151.90	153.16	152.56	153.41	151.40	153.40	153.53	152.32	152.49	152.55	153.90	155.95	154.38
150.00°	156.49	156.72	154.39	154.91	156.37	157.43	156.88	155.03	155.80	156.75	154.32	156.45	154.50	156.48	155.27	154.33	157.71	154.89	154.86
152.50°	157.02	155.73	158.44	158.36	154.51	155.35	158.03	156.74	153.51	156.03	156.57	156.16	157.50	154.75	154.28	157.45	157.01	157.57	159.80
155.00°	159.74	159.28	158.35	160.11	157.91	156.59	160.38	159.16	157.97	157.12	156.20	158.50	158.01	157.09	158.03	157.12	157.71	159.03	162.82
157.50°	164.47	159.74	160.29	157.38	157.37	159.20	157.61	156.06	158.51	159.61	157.43	158.59	159.96	159.18	159.69	160.20	158.58	157.88	160.42
160.00°	162.50	159.49	160.86	160.36	159.72	159.33	162.02	160.65	159.75	158.94	158.40	159.14	160.64	160.81	157.86	160.15	158.84	161.83	158.23
162.50°	159.48	161.21	162.50	157.93	162.35	160.56	157.64	160.35	160.88	158.86	158.13	160.65	160.15	159.77	158.17	158.46	162.19	159.98	159.57
165.00°	157.78	160.94	158.80	159.21	159.45	158.64	161.23	158.19	162.38	159.30	160.77	159.55	159.72	157.78	160.24	159.79	164.88	159.39	154.93
167.50°	161.42	161.00	158.79	159.10	158.50	159.31	162.51	156.98	159.56	156.75	158.23	156.73	162.27	157.97	158.17	157.85	157.34	157.96	166.30
170.00°	156.91	157.27	155.97	154.67	157.19	156.10	156.07	156.98	155.16	153.48	155.94	155.04	157.69	158.16	155.63	156.93	153.48	156.11	160.49
172.50°	153.01	156.26	154.91	151.61	156.86	155.02	155.30	152.96	152.64	150.98	153.46	155.09	150.52	156.86	150.91	155.99	150.43	153.13	155.62
175.00°	152.99	142.99	152.23	152.40	152.40	152.79	149.35	155.37	149.84	152.42	149.39	153.76	152.42	149.83	151.74	152.86	152.17	152.60	148.46
177.50°	142.60	147.89	150.11	147.61	147.60	150.88	141.52	145.75	152.66	145.42	145.09	151.61	152.97	153.50	148.97	146.37	152.04	145.60	144.51
180.00°	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62	146.62

Zonal Lumen Summary

Zone Lumen % Fixture

Zone	Lumens	% Fixture
0° - 10°	54.97	2.34%
10° - 20°	154.31	6.57%
20° - 30°	230.37	9.81%
30° - 40°	271.55	11.56%
40° - 50°	274.66	11.70%
50° - 60°	246.81	10.51%
60° - 70°	195.24	8.31%
70° - 80°	130.56	5.56%
80° - 90°	72.80	3.10%
90° - 100°	70.17	2.99%
100° - 110°	85.18	3.63%
110° - 120°	107.66	4.58%
120° - 130°	115.29	4.91%
130° - 140°	111.08	4.73%
140° - 150°	94.77	4.04%
150° - 160°	72.99	3.11%
160° - 170°	45.18	1.92%
170° - 180°	14.83	0.63%
0° - 90°	1631.27	69.46%
90° - 180°	717.14	30.54%
0° - 180°	2348.41	100.00%

Indoor CU Table

Values are lumens delivered to the workplane from a single luminaire

	pfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	2625	2625	2625	2625	2481	2481	2481	2481	2211	2211	2211	1964	1964	1964	1738	1738	1631
	1	2376	2262	2159	2066	2239	2139	2048	1966	1908	1838	1774	1697	1643	1593	1501	1461	1369
	2	2157	1966	1808	1675	2029	1860	1720	1600	1662	1551	1455	1479	1393	1317	1310	1244	1164
	3	1964	1724	1537	1389	1846	1633	1465	1331	1462	1327	1217	1303	1197	1108	1156	1073	1004
	4	1797	1525	1325	1173	1688	1446	1266	1126	1297	1151	1035	1160	1042	946	1031	937	877
RCR	5	1650	1359	1156	1006	1551	1291	1106	968	1161	1009	893	1041	917	819	928	828	776
	6	1521	1221	1019	874	1431	1161	976	842	1047	894	779	941	814	718	842	738	693
	7	1408	1103	906	767	1325	1051	869	740	951	798	687	857	730	635	769	664	624
	8	1308	1004	812	680	1233	957	780	657	868	719	612	785	659	567	707	602	567
	9	1220	918	733	608	1151	877	706	588	798	652	549	723	599	510	653	549	518
	10	1142	844	666	548	1078	807	642	531	736	594	496	669	548	463	606	503	476

Cone of Light

Mtg Height	Light Level	Beam Diameter
2.0 m	144.5 lx	5.2 m
2.5 m	92.5 lx	6.6 m
3.0 m	64.2 lx	7.9 m
3.5 m	47.2 lx	9.2 m
4.0 m	36.1 lx	10.5 m
4.5 m	28.5 lx	11.8 m
5.0 m	23.1 lx	13.1 m
5.5 m	19.1 lx	14.4 m
6.0 m	16.1 lx	15.7 m

UGR CIE 190:2010

Ceiling reflectance		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall reflectance		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Plane reflectance		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
2H	2H	4,7	5,8	5,5	6,6	7,6	4,7	5,8	5,5	6,6	7,6
	3H	6,5	7,5	7,3	8,3	9,3	6,5	7,5	7,3	8,3	9,3
	4H	7,2	8,1	8,0	9,0	10,0	7,2	8,2	8,0	9,0	10,0
	6H	7,8	8,7	8,6	9,5	10,5	7,8	8,7	8,6	9,5	10,5
	8H	8,0	8,9	8,8	9,7	10,7	8,0	8,9	8,8	9,7	10,7
	12H	8,2	9,0	9,0	9,8	10,9	8,2	9,0	9,1	9,9	10,9
4H	2H	5,2	6,2	6,0	7,0	8,0	5,2	6,2	6,0	7,0	8,0
	3H	7,2	8,0	8,0	8,8	9,8	7,2	8,0	8,0	8,8	9,8
	4H	8,0	8,7	8,8	9,6	10,6	8,0	8,7	8,8	9,6	10,6
	6H	8,7	9,4	9,6	10,2	11,3	8,7	9,4	9,6	10,2	11,3
	8H	9,0	9,6	9,9	10,5	11,5	9,0	9,6	9,9	10,5	11,6
	12H	9,3	9,8	10,2	10,7	11,8	9,3	9,8	10,2	10,7	11,8
8H	4H	8,3	8,9	9,1	9,7	10,8	8,3	8,9	9,1	9,7	10,8
	6H	9,1	9,6	10,0	10,5	11,6	9,1	9,6	10,0	10,5	11,6
	8H	9,5	10,0	10,4	10,8	11,9	9,5	10,0	10,4	10,8	11,9
	12H	9,9	10,3	10,8	11,2	12,3	9,9	10,3	10,8	11,2	12,3
12H	4H	8,3	8,8	9,1	9,7	10,8	8,3	8,8	9,1	9,7	10,8
	6H	9,2	9,6	10,1	10,5	11,6	9,2	9,6	10,1	10,5	11,6
	8H	9,6	10,0	10,5	10,9	12,0	9,6	10,0	10,5	10,9	12,0

Corrected UGR values based on total output energy
SHR = 1.0

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	435	435	435
45.00°	302	275	299
55.00°	267	233	266
65.00°	228	192	228
75.00°	188	147	184
85.00°	141	100	143