

Indoor Photometric Report

IES Header Data

ISSUEDATE	Tuesday, March 21, 2023
MANUFAC	Cerno, LLC
TEST	1
TESTLAB	Photopia for SOLIDWORKS 2022.0.8.11443 see: www.ltiophics.com/ies
TESTDATE	Tuesday, March 21, 2023 7:29:18 PM
LUMINAIRE	Veram 18, 08-130-18WB-27P1
LAMP	LED 6,58W/LED, Circular Array of 3 LEDs, 2700K
LAMPCAT	COB

Input

Number of Lamps	3
Luminous flux per Lamp	640 lm
Total Input Luminous flux	1920 lm
Input Watts	22,69 W

Output

Total Output Luminous flux	1138,04 lm
Efficiency	59,27 %
Efficacy	50,16 lm/W

Luminous Dimensions

0° - 180° Size	0,44 m
90° - 270° Size	0,44 m
Height	0.15 m

Photometry Information

Distribution	Semi-Direct
Photometry Type	C

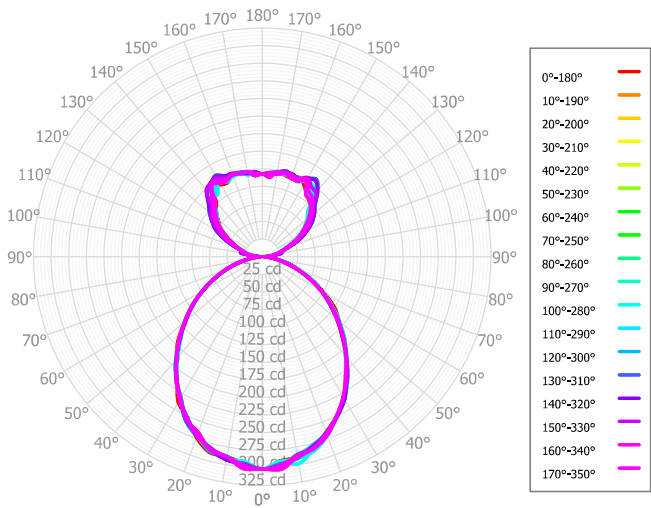
Spacing Criterion

Two luminaires, plane 0°	1,14
Two luminaires, plane 90°	1.15
Four luminaires	1.25

Full Beam Angle

0° - 180°	95.91°
90° - 270°	95.71°

Candela Polar Plot



Candela Distribution

	0.00°	10.00°	20.00°	30.00°	40.00°	50.00°	60.00°	70.00°	80.00°	90.00°	100.00°	110.00°	120.00°	130.00°	140.00°	150.00°	160.00°	170.00°	180.00°
0.00°	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83	301.83
5.00°	291.36	303.71	297.35	300.95	301.29	295.49	299.83	301.00	292.39	292.22	296.03	296.28	299.02	295.08	296.98	302.08	297.42	302.65	294.49
10.00°	289.52	289.04	287.17	286.13	287.30	291.05	285.28	287.27	298.77	291.19	289.14	292.06	288.00	293.30	293.33	289.49	288.90	288.97	288.74
15.00°	282.67	282.69	281.23	282.00	279.58	277.64	282.06	277.30	282.64	285.87	282.28	282.51	286.72	281.37	284.70	282.14	284.85	283.26	288.29
20.00°	265.12	270.55	266.71	269.40	265.87	267.95	266.12	266.63	268.88	270.79	268.82	270.45	269.74	271.78	269.33	270.67	265.49	270.41	273.67
25.00°	249.73	249.65	249.63	250.94	251.39	250.84	250.59	251.77	251.13	251.44	253.64	254.51	255.51	257.65	255.53	252.18	255.49	253.93	252.13
30.00°	230.32	230.36	230.35	229.69	234.20	232.66	232.63	231.75	231.79	234.41	231.97	231.39	230.98	234.05	233.08	234.49	233.39	232.18	238.97
35.00°	208.71	205.85	207.53	211.41	209.72	209.40	208.17	209.08	211.69	211.46	212.69	212.24	213.61	213.35	211.12	211.59	214.23	212.37	211.34
40.00°	183.91	185.01	185.94	186.61	185.71	185.66	187.34	185.38	183.63	186.97	187.10	186.68	191.84	189.56	189.28	190.50	188.45	188.65	190.38
45.00°	160.67	162.47	164.12	163.21	160.70	161.06	163.10	165.77	164.72	162.86	165.07	164.90	164.28	164.83	165.92	167.26	167.05	166.79	169.82
50.00°	142.66	138.74	139.52	141.72	137.79	138.92	139.85	142.65	141.29	143.58	143.62	144.35	143.97	141.47	141.68	142.80	144.33	144.09	143.89
55.00°	125.29	118.60	117.87	117.43	116.53	116.25	120.10	119.34	119.72	120.50	122.48	121.50	120.45	119.64	122.12	121.25	122.63	122.54	123.11
60.00°	100.02	95.45	95.95	97.80	96.73	95.96	96.20	97.50	98.05	98.19	99.54	98.19	98.18	98.50	96.81	98.29	99.29	99.10	100.14
65.00°	79.04	74.65	73.90	75.18	74.14	74.01	74.42	75.48	75.32	76.76	77.80	76.06	75.70	77.50	75.41	76.22	77.65	77.53	77.92
70.00°	57.06	55.17	53.70	52.83	52.80	53.13	53.69	55.91	56.65	58.20	58.19	55.67	55.73	54.88	54.67	55.78	56.76	57.76	58.79
75.00°	40.54	36.97	35.94	34.65	33.34	34.18	35.22	36.48	38.48	39.04	39.45	37.52	35.83	35.94	35.39	36.29	38.15	39.50	41.13
80.00°	24.01	21.60	20.70	19.11	19.25	19.08	19.19	21.02	22.42	24.10	22.94	21.01	20.18	19.56	19.14	20.43	22.25	22.81	25.17
85.00°	7.94	6.55	6.11	6.25	6.63	6.59	6.26	6.57	6.91	7.34	7.44	6.26	6.35	6.60	6.50	6.56	6.44	6.80	8.17
90.00°	4.20	2.67	2.47	2.36	2.42	2.45	2.32	2.61	2.88	3.08	3.32	2.43	2.54	2.37	2.38	2.38	2.71	2.69	3.68
95.00°	8.84	8.34	10.20	12.75	10.57	10.87	11.59	10.39	8.55	7.89	8.55	8.56	9.27	9.74	10.75	8.91	8.54	8.26	7.78
100.00°	16.51	17.56	20.59	23.50	26.51	28.54	25.38	22.66	18.69	17.02	19.72	22.73	26.15	30.56	31.67	28.91	24.91	20.40	17.95
105.00°	25.93	27.29	28.82	28.46	27.34	27.62	26.83	27.98	26.00	25.03	26.90	28.55	28.48	27.45	28.18	28.23	28.19	26.60	25.06
110.00°	34.84	35.44	38.45	39.44	40.63	40.50	39.78	37.71	35.56	34.02	35.77	38.86	39.79	41.44	41.90	39.51	38.02	35.62	34.66
115.00°	46.86	49.16	52.79	55.64	57.94	59.46	56.28	52.01	48.21	46.88	48.15	53.53	56.73	59.55	58.11	55.86	51.88	47.06	46.05
120.00°	60.40	63.25	66.10	70.69	72.78	73.29	69.85	66.45	62.29	60.70	62.93	66.98	71.99	76.62	75.88	71.60	65.63	60.43	59.35
125.00°	73.36	74.39	79.43	83.71	86.24	87.22	82.81	78.61	74.32	73.33	74.76	79.00	84.54	87.51	86.66	84.40	77.43	73.85	72.80
130.00°	83.42	86.13	89.49	94.12	97.36	96.57	93.20	88.78	84.96	82.85	85.75	90.25	96.44	98.53	96.83	95.10	89.74	84.80	81.67
135.00°	95.90	96.68	100.61	103.96	104.81	107.09	106.26	98.89	95.07	91.38	95.44	99.76	106.48	108.24	108.36	102.76	97.88	94.11	92.82

140.00°	103,49	104,95	110,38	118,94	122,74	122,83	117,73	113,80	109,63	108,65	107,53	109,24	111,94	120,42	123,48	124,17	111,66	104,25	101,11
145.00°	108,62	107,64	114,39	121,21	131,87	134,23	132,19	124,04	116,64	109,65	113,59	116,34	123,97	126,17	128,25	127,13	126,47	124,97	124,84
150.00°	118,37	123,88	127,31	129,92	129,45	128,49	126,73	123,27	123,23	124,23	125,60	130,58	130,14	133,52	131,70	130,78	125,11	120,48	118,09
155.00°	124,52	118,45	122,13	122,20	122,68	123,27	121,29	121,58	120,85	117,44	120,12	123,03	125,41	126,87	126,49	123,28	121,12	118,97	116,27
160.00°	119,42	118,93	122,80	123,46	125,03	123,56	123,29	123,07	123,66	122,26	121,60	123,03	123,28	124,09	126,21	125,52	123,66	124,28	123,20
165.00°	120,44	123,80	122,00	124,36	125,14	126,74	125,07	122,20	120,85	124,20	121,86	124,85	122,62	123,79	122,57	123,23	123,80	121,81	121,92
170.00°	122,63	121,79	118,89	121,77	122,54	121,07	122,88	121,19	119,68	120,97	118,42	118,34	120,44	122,90	119,69	122,51	122,19	122,15	118,85
175.00°	117,48	113,37	119,63	120,42	114,45	116,55	119,08	116,24	116,10	117,04	118,95	119,24	117,29	119,14	121,28	117,86	119,37	115,69	120,32
180.00°	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99	117,99

Zonal Lumen Summary.

Zone	Lumens	% Fixture
0° - 10°	29.83	2.62%
10° - 20°	79.06	6.95%
20° - 30°	115.57	10.15%
30° - 40°	131.14	11.52%
40° - 50°	126.51	11.12%
50° - 60°	106.95	9.40%
60° - 70°	75.21	6.61%
70° - 80°	39.50	3.47%
80° - 90°	10.07	0.88%
90° - 100°	12.29	1.08%
100° - 110°	30.68	2.70%
110° - 120°	52.26	4.59%
120° - 130°	71.06	6.24%
130° - 140°	78.08	6.86%
140° - 150°	75.74	6.66%
150° - 160°	57.19	5.03%
160° - 170°	34.81	3.06%
170° - 180°	12.09	1.06%
0° - 90°	713.83	62.72%
90° - 180°	424.21	37.28%
0° - 180°	1138.04	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%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	1254	1254	1254	1254	1175	1175	1175	1175	1029	1029	1029	895	895	895	772	772	772	714
	1	1149	1100	1056	1016	1075	1033	995	960	908	879	853	793	772	753	687	673	659	622
	2	1049	964	895	836	980	907	846	794	799	752	712	700	665	634	609	583	559	539
	3	959	850	767	700	896	801	727	667	708	650	602	622	577	540	542	508	479	471
	4	879	755	665	596	821	712	631	569	631	567	516	556	506	465	486	448	416	415
RCR	5	809	675	582	513	756	638	554	491	567	500	448	501	448	406	440	398	364	369
	6	746	608	515	448	698	575	491	429	513	444	393	455	399	357	400	357	322	332
	7	691	550	459	394	647	521	438	379	466	398	348	415	359	318	366	322	288	300
	8	643	501	412	351	602	475	394	337	426	359	311	381	325	285	337	293	259	273
	9	600	459	372	314	562	436	357	303	392	326	280	351	296	257	312	268	235	250
	10	561	422	339	283	527	402	325	273	362	298	253	325	272	234	290	246	214	231

Cone of Light

Mtg Height	Light Level	Beam Diameter
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2,0 m	75,5 lx	4,4 m
2,5 m	48,3 lx	5,5 m
3,0 m	33,5 lx	6,7 m
3,5 m	24,6 lx	7,8 m
4,0 m	18,9 lx	8,9 m
4,5 m	14,9 lx	10,0 m
5,0 m	12,1 lx	11,1 m
5,5 m	10,0 lx	12,2 m
6,0 m	8,4 lx	13,3 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	7,4	8,3	8,2	9,2	10,3	7,6	8,5	8,4	9,4	10,5
	3H	8,7	9,5	9,5	10,4	11,5	8,9	9,8	9,8	10,6	11,7
	4H	9,1	9,9	9,9	10,8	11,9	9,3	10,1	10,2	11,0	12,1
	6H	9,3	10,1	10,2	10,9	12,1	9,5	10,3	10,4	11,2	12,3
	8H	9,3	10,1	10,2	11,0	12,1	9,6	10,3	10,5	11,2	12,3
	12H	9,3	10,0	10,2	10,9	12,1	9,6	10,3	10,5	11,2	12,3
4H	2H	7,7	8,6	8,6	9,4	10,5	7,9	8,8	8,8	9,6	10,7
	3H	9,2	9,8	10,0	10,7	11,9	9,4	10,1	10,3	11,0	12,1
	4H	9,6	10,3	10,5	11,2	12,3	9,9	10,5	10,8	11,4	12,6
	6H	10,0	10,5	10,9	11,4	12,6	10,2	10,7	11,1	11,7	12,8
	8H	10,0	10,5	10,9	11,4	12,6	10,3	10,8	11,2	11,7	12,9
	12H	10,0	10,5	10,9	11,4	12,6	10,3	10,7	11,2	11,7	12,8
8H	4H	9,7	10,2	10,6	11,1	12,3	10,0	10,5	10,9	11,4	12,6
	6H	10,1	10,5	11,0	11,5	12,6	10,3	10,8	11,3	11,7	12,9
	8H	10,2	10,5	11,1	11,5	12,7	10,4	10,8	11,4	11,8	12,9
	12H	10,2	10,5	11,2	11,5	12,7	10,5	10,8	11,4	11,7	13,0
12H	4H	9,7	10,1	10,6	11,1	12,3	9,9	10,4	10,9	11,3	12,5
	6H	10,1	10,4	11,0	11,4	12,6	10,3	10,7	11,3	11,6	12,9
	8H	10,2	10,5	11,1	11,4	12,7	10,4	10,7	11,4	11,7	12,9

Corrected UGR values based on total output energy
SHR = 1,0

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	1533	1533	1533
45.00°	859	778	871
55.00°	744	608	716
65.00°	547	436	531
75.00°	349	236	336
85.00°	94	59	87