

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CK0407PC 20L 35K XW xx SO xx MW
Nom. 4.5" Diam x 7"H Round Cylinder, Xtra Wide Beam

Test Number

SP-01446_M-20L

Test Date

11/21/2022

The results contained in this report pertain only to this IES file.

Summary of Results

Power

Input Watts	13.2 W
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Lumen Output

Output Lumens	1191
Efficacy	90.26 lm/W

Luminous Dimensions

0° - 180° Size	-0.38
90° - 270° Size	-0.38
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.91
Two luminaires, plane 90°	0.93
Four luminaires	0.89

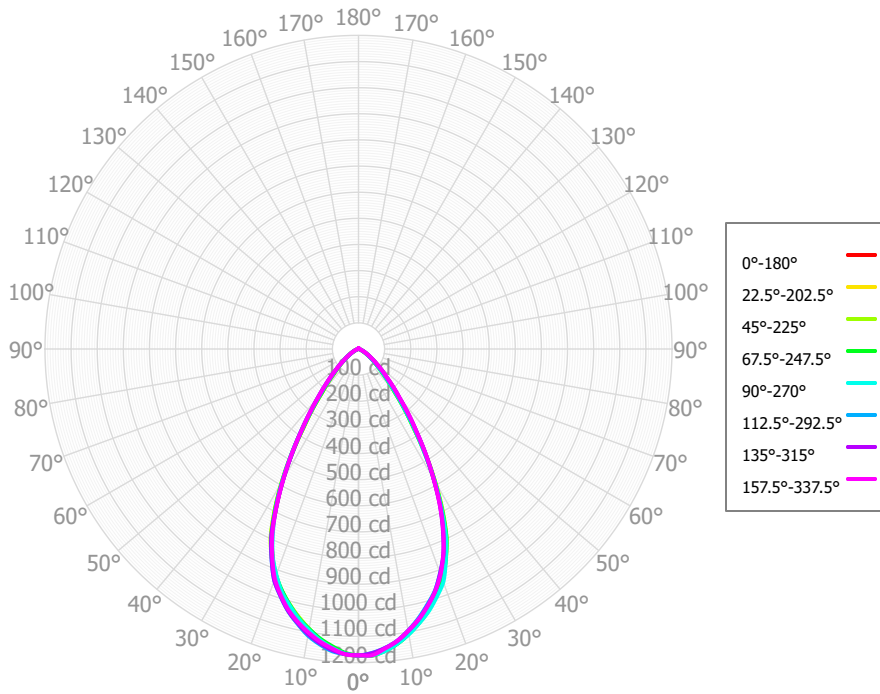
Full Beam Angle

0° - 180°	60°
90° - 270°	60°

IES File Header Contents

Keyword	Value
TEST	SP-01446_M-20L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/21/2022
ISSUEDATE	11/22/2022
LUMCAT	CK0407PC 20L 35K XW xx SO xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Round Cylinder, Xtra Wide Beam
OTHER	Solite lens, Matte White finish
OTHER	60 Degree Beam Angle
OTHER	Reference Project SL378
LAMP	N/A
LAMPCAT	N/A, Min. 80 CRI
OTHER	Total Luminaire Watts is approximate
OTHER	CCT Multipliers: 27K x 0.95, 30K x 0.97, 40K x 1.03
OTHER	This report prepared by Spectrum Lighting

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	109.90	9.22%	90.00° - 100.00°	1.90	0.16%
10.00° - 20.00°	286.65	24.06%	100.00° - 110.00°	1.86	0.16%
20.00° - 30.00°	351.34	29.49%	100.00° - 120.00°	3.61	0.30%
30.00° - 40.00°	239.02	20.06%	120.00° - 130.00°	1.60	0.13%
40.00° - 50.00°	113.46	9.52%	130.00° - 140.00°	1.47	0.12%
50.00° - 60.00°	50.65	4.25%	140.00° - 150.00°	1.22	0.10%
60.00° - 70.00°	19.95	1.67%	150.00° - 160.00°	0.90	0.08%
70.00° - 80.00°	6.54	0.55%	160.00° - 170.00°	0.56	0.05%
80.00° - 90.00°	2.46	0.21%	170.00° - 180.00°	0.19	0.02%
0.00° - 90.00°	1179.97	99.04%	0.00° - 180.00°	1191.40	100.00%

Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°	112.50°	135.00°	157.50°	180.00°	202.50°	225.00°	247.50°	270.00°	292.50°	315.00°	337.50°	360.00°
0.00°	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67	1172.67
2.50°	1172.12	1171.91	1172.83	1175.27	1173.50	1168.98	1168.93	1169.62	1168.83	1165.93	1168.47	1164.41	1167.30	1164.76	1165.72	1173.80	1172.12
5.00°	1155.34	1156.04	1156.21	1159.75	1160.72	1160.96	1156.95	1150.75	1150.68	1147.24	1147.23	1142.60	1148.58	1149.48	1149.59	1151.47	1155.34
7.50°	1133.58	1136.78	1137.56	1138.06	1137.93	1139.97	1135.83	1129.34	1126.24	1125.61	1122.29	1118.64	1124.10	1127.17	1128.18	1127.52	1133.58
10.00°	1098.80	1105.63	1106.14	1107.80	1109.25	1113.75	1109.03	1101.81	1096.29	1091.74	1087.77	1088.10	1091.82	1094.28	1096.19	1094.97	1098.80
12.50°	1062.16	1070.18	1072.26	1073.47	1074.94	1077.34	1074.90	1070.51	1062.28	1056.20	1051.76	1056.13	1057.40	1056.92	1061.53	1060.46	1062.16
15.00°	1023.56	1027.15	1031.98	1035.92	1038.93	1039.17	1038.41	1034.25	1026.29	1017.22	1013.61	1014.91	1017.12	1014.58	1018.54	1020.24	1023.56
17.50°	981.80	980.92	987.72	990.73	995.25	992.54	991.56	988.66	981.14	974.99	972.44	971.46	975.43	971.27	973.74	973.99	981.80
20.00°	922.64	931.42	937.78	942.17	949.35	942.49	942.65	935.94	933.83	929.08	928.83	922.00	919.63	913.12	913.74	918.55	922.64
22.50°	856.34	865.79	873.39	871.49	873.41	869.78	868.84	862.51	860.29	866.27	866.51	861.14	858.49	851.83	848.71	849.43	856.34
25.00°	772.70	790.94	797.26	796.38	792.11	788.49	789.43	780.55	782.90	792.31	795.67	783.58	775.17	768.24	764.56	768.23	772.70
27.50°	680.70	690.91	697.42	689.77	686.23	683.03	681.61	679.43	680.58	692.33	694.38	689.63	684.65	679.96	675.10	674.79	680.70
30.00°	577.70	583.39	586.74	581.85	579.39	577.45	575.24	574.73	577.36	583.35	586.73	582.03	579.78	577.77	575.67	575.34	577.70
32.50°	479.31	477.43	475.93	471.77	470.52	471.71	472.19	475.36	470.97	474.56	475.49	476.19	478.20	478.71	480.03	481.43	479.31
35.00°	384.47	372.99	365.09	368.64	373.68	378.89	380.42	378.96	374.48	366.33	367.31	371.18	380.25	384.64	388.47	388.81	384.47
37.50°	308.26	297.27	287.70	286.56	291.35	296.97	302.70	304.35	295.43	288.31	287.37	292.02	300.44	305.25	311.98	316.00	308.26
40.00°	239.79	227.07	214.78	217.21	225.99	234.66	240.37	236.72	230.10	215.62	215.90	218.53	232.26	239.05	244.61	246.34	239.79
42.50°	191.68	181.05	171.40	168.40	172.24	181.74	189.20	189.25	178.70	171.42	170.94	175.31	184.26	188.96	194.93	198.16	191.68
45.00°	147.42	140.86	132.38	130.00	135.63	144.81	149.76	148.37	140.82	132.59	132.92	135.06	143.01	147.01	150.73	153.99	147.42
47.50°	120.08	112.90	107.05	101.09	105.32	111.47	114.89	117.61	110.67	106.79	106.39	110.26	114.86	117.37	121.61	124.08	120.08
50.00°	93.90	89.13	84.69	80.60	84.37	88.95	91.46	92.21	88.38	84.51	84.76	87.19	88.68	90.78	94.55	97.43	93.90
52.50°	74.06	70.27	67.24	64.50	64.90	67.72	69.98	71.54	68.42	66.86	67.72	69.75	72.28	72.84	75.83	76.58	74.06
55.00°	56.36	54.58	52.34	50.83	51.90	53.72	55.44	56.26	54.01	53.09	53.91	54.62	56.60	55.97	58.23	59.64	56.36
57.50°	44.93	41.00	39.81	37.78	39.48	40.89	41.83	43.61	40.45	42.28	41.83	43.43	44.71	45.51	46.01	46.70	44.93
60.00°	34.43	32.37	30.49	29.27	30.53	32.03	34.24	34.42	32.63	33.22	33.25	33.38	34.05	35.75	35.13	36.66	34.43
62.50°	25.35	25.53	22.89	21.30	22.46	24.57	27.05	26.05	25.24	24.89	25.59	24.43	26.27	28.51	27.17	28.30	25.35
65.00°	18.68	19.15	17.58	15.98	16.59	19.52	20.96	20.46	19.71	19.50	20.15	18.44	20.03	21.88	20.40	21.27	18.68
67.50°	14.15	12.87	12.88	11.27	12.15	14.84	15.76	15.16	14.80	14.64	14.97	14.09	15.78	16.37	15.12	14.63	14.15
70.00°	10.55	9.50	9.61	8.81	9.69	10.53	11.85	11.26	11.16	11.02	11.24	10.71	11.89	11.98	11.37	11.37	10.55
72.50°	7.40	6.40	6.56	6.64	7.57	7.81	8.83	7.83	8.32	7.67	7.90	7.60	8.27	8.74	8.70	8.49	7.40
75.00°	5.18	4.81	4.93	4.98	5.71	5.98	6.55	6.07	6.42	6.09	6.09	5.55	6.09	6.31	6.43	6.25	5.18
77.50°	3.17	3.51	3.54	3.79	4.30	4.56	4.80	4.64	4.68	4.72	4.57	3.67	4.48	4.36	4.32	4.22	3.17
80.00°	2.61	2.94	3.11	3.09	3.09	3.25	3.29	3.85	3.07	3.96	3.62	2.98	3.43	3.26	3.34	3.10	2.61
82.50°	2.15	2.48	2.62	2.51	2.45	2.65	2.51	2.92	2.24	3.19	2.73	2.42	2.47	2.43	2.54	2.32	2.15
85.00°	1.96	2.17	2.00	1.99	1.92	2.13	1.91	1.86	1.68	2.41	1.91	2.31	2.11	2.19	2.34	2.28	1.96
87.50°	1.78	1.98	1.69	1.84	2.05	1.95	1.83	1.62	1.64	1.95	1.69	2.12	1.78	2.01	2.13	2.11	1.78
90.00°	1.62	1.85	1.72	1.79	2.16	1.78	1.76	1.84	1.67	1.78	1.84	1.78	1.56	1.88	1.88	1.79	1.62
92.50°	1.55	1.75	1.80	1.75	2.00	1.68	1.55	1.78	1.79	1.64	1.75	1.65	1.49	1.77	1.70	1.72	1.55
95.00°	1.62	1.66	1.92	1.72	1.84	1.72	1.49	1.63	1.88	1.54	1.59	1.78	1.83	1.75	1.72	1.82	1.62
97.50°	1.68	1.61	1.83	1.78	1.68	2.00	1.92	1.59	1.80	1.55	1.58	1.77	1.96	1.81	1.69	1.84	1.68
100.00°	1.75	1.58	1.67	1.82	1.65	2.09	2.16	1.57	1.71	1.59	1.61	1.66	1.80	2.05	1.56	1.84	1.75

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

RCR	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	1416	1416	1416	1416	1381	1381	1381	1381	1317	1317	1317	1259	1259	1259	1205	1205	1180
	1	1342	1306	1273	1244	1311	1279	1249	1223	1228	1205	1183	1181	1163	1146	1139	1124	1101
	2	1267	1203	1151	1106	1239	1181	1133	1093	1141	1101	1067	1103	1071	1042	1068	1042	1020
	3	1196	1112	1047	995	1170	1094	1034	986	1060	1010	969	1029	987	952	1000	965	946
	4	1128	1030	958	903	1105	1015	948	897	987	930	885	962	913	873	938	896	878
	5	1065	957	881	826	1044	945	874	821	922	860	813	900	846	804	880	833	817
	6	1007	892	815	760	988	882	809	756	862	798	750	844	787	744	827	777	762
	7	953	834	757	702	936	825	752	700	808	743	695	793	734	691	778	726	713
	8	903	782	705	653	888	774	701	651	760	694	647	746	687	644	734	680	669
	9	858	735	659	609	843	728	656	607	716	650	604	704	644	602	693	639	628
	10	815	692	619	570	802	687	616	569	676	611	566	665	606	564	656	601	592

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	38.8 fc	6.3 ft
6.5 ft	27.8 fc	7.4 ft
7.5 ft	20.8 fc	8.6 ft
8.0 ft	18.3 fc	9.1 ft
10.0 ft	11.7 fc	11.4 ft
12.0 ft	8.1 fc	13.7 ft
14.0 ft	6.0 fc	16.0 ft
16.0 ft	4.6 fc	18.3 ft
20.0 ft	2.9 fc	22.9 ft
24.0 ft	2.0 fc	27.4 ft
28.0 ft	1.5 fc	32.0 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	111298	111298	111298
45.00°	19787	17768	18205
55.00°	9326	8660	8588
65.00°	4196	3948	3726
75.00°	1898	1806	2095
85.00°	2134	2181	2089

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	13.8	14.9	14.2	15.2	15.6	13.5	14.6	13.9	14.9	15.3
	3H	14.2	15.1	14.6	15.5	15.9	13.9	14.9	14.3	15.2	15.6
	4H	14.2	15.1	14.6	15.5	15.9	14.0	14.9	14.4	15.2	15.6
	6H	14.2	15.0	14.6	15.4	15.8	14.0	14.8	14.4	15.2	15.6
	8H	14.1	14.9	14.6	15.3	15.7	14.0	14.7	14.4	15.2	15.6
	12H	14.1	14.9	14.6	15.3	15.7	14.0	14.7	14.4	15.1	15.6
4H	2H	13.9	14.8	14.3	15.1	15.5	13.6	14.5	14.1	14.9	15.3
	3H	14.3	15.0	14.7	15.4	15.9	14.1	14.9	14.6	15.3	15.7
	4H	14.4	15.0	14.8	15.4	15.9	14.2	14.9	14.7	15.3	15.8
	6H	14.4	14.9	14.9	15.4	15.9	14.3	14.8	14.8	15.3	15.8
	8H	14.4	14.9	14.8	15.3	15.8	14.3	14.8	14.8	15.3	15.8
	12H	14.4	14.8	14.9	15.3	15.8	14.3	14.8	14.8	15.3	15.8
8H	4H	14.3	14.8	14.8	15.3	15.8	14.2	14.7	14.7	15.2	15.7
	6H	14.3	14.7	14.9	15.3	15.8	14.3	14.7	14.8	15.2	15.7
	8H	14.4	14.7	14.9	15.3	15.8	14.3	14.7	14.9	15.2	15.7
	12H	14.4	14.7	15.0	15.3	15.9	14.4	14.7	14.9	15.2	15.8
12H	4H	14.2	14.7	14.8	15.2	15.7	14.1	14.6	14.7	15.1	15.6
	6H	14.3	14.7	14.8	15.2	15.7	14.2	14.6	14.8	15.1	15.7
	8H	14.3	14.7	14.9	15.2	15.8	14.3	14.6	14.9	15.2	15.8

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0