Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CK0407SQPC 10L 35K MD xx SO xx MW

Nom. 4.5" Diam x 7"H Square Cylinder, Medium Beam

Test Number

SP-01448

Test Date

11/30/2022

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

Summary of Results

Power

Input Watts	6.7 W

Lumen Output

Output Lumens	483
Efficacy	72.03 lm/W

Luminous Dimensions

0° - 180° Size	0.2
90° - 270° Size	0.2
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.55
Two luminaires, plane 90°	0.55
Four luminaires	0.6

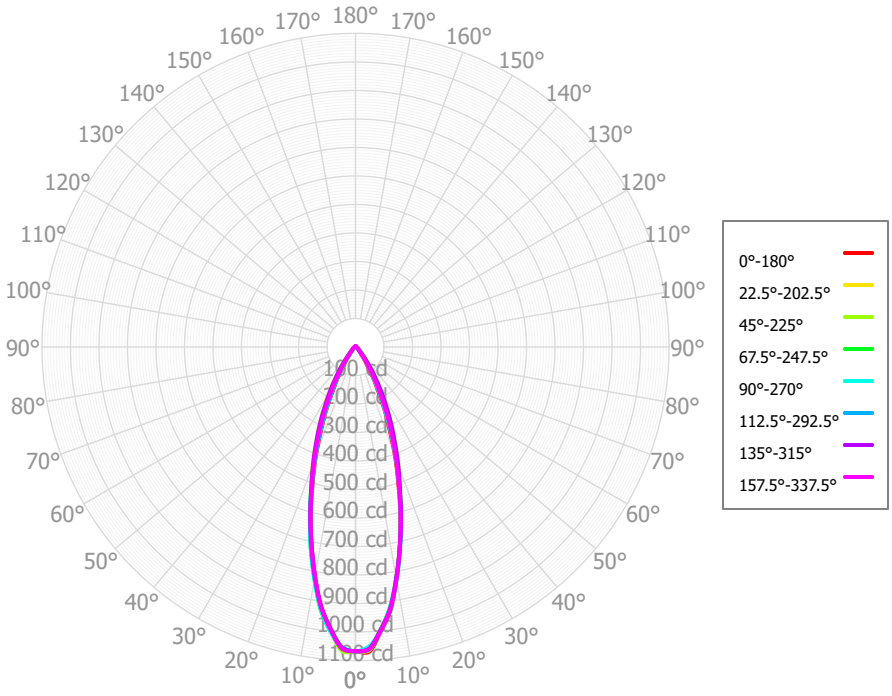
Full Beam Angle

0° - 180°	33°
90° - 270°	34°

IES File Header Contents

Keyword	Value
TEST	SP-01448
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/30/2022
ISSUEDATE	12/1/2022
LUMCAT	CK0407SQPC 10L 35K MD xx SO xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Square Cylinder, Medium Beam
OTHER	Solite lens, Matte White finish
OTHER	33 Degree Beam Angle
OTHER	Reference Project SL378
LAMP	N/A
LAMPCAT	N/A, Min. 80 CRI
OTHER	Total Luminaire Watts is approximate
OTHER	CCT Output 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°	90.94	18.84%	90.00° - 100.00°	1.82	0.38%
10.00° - 20.00°	167.50	34.71%	100.00° - 110.00°	1.76	0.36%
20.00° - 30.00°	122.01	25.28%	100.00° - 120.00°	3.36	0.70%
30.00° - 40.00°	50.18	10.40%	120.00° - 130.00°	1.48	0.31%
40.00° - 50.00°	17.30	3.59%	130.00° - 140.00°	1.29	0.27%
50.00° - 60.00°	10.24	2.12%	140.00° - 150.00°	1.07	0.22%
60.00° - 70.00°	7.35	1.52%	150.00° - 160.00°	0.82	0.17%
70.00° - 80.00°	4.35	0.90%	160.00° - 170.00°	0.51	0.11%
80.00° - 90.00°	2.16	0.45%	170.00° - 180.00°	0.18	0.04%
0.00° - 90.00°	472.04	97.82%	0.00° - 180.00°	482.57	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°	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50	1067.50
2.50°	1071.00	1065.59	1064.71	1057.09	1053.02	1055.73	1056.51	1060.69	1064.15	1063.06	1068.36	1060.36	1055.56	1062.73	1061.24	1061.47	1071.00
5.00°	1002.87	997.59	997.80	998.19	1003.72	995.01	994.78	995.39	994.26	995.98	999.39	1001.06	1003.99	1001.13	999.22	1002.81	1002.87
7.50°	934.57	926.96	929.64	923.36	923.03	922.51	918.74	922.22	923.94	928.26	926.81	931.71	928.69	932.04	928.52	929.81	934.57
10.00°	826.58	823.04	823.79	825.15	829.47	823.60	818.73	817.72	818.49	822.38	821.85	828.30	828.71	826.68	822.84	828.02	826.58
12.50°	718.15	717.52	718.05	718.86	722.04	718.20	711.77	713.31	712.38	716.52	714.91	724.06	724.61	721.06	717.74	717.81	718.15
15.00°	608.54	612.25	617.24	614.35	615.68	612.94	611.68	609.32	606.22	611.83	615.58	616.83	616.09	614.15	615.18	610.76	608.54
17.50°	498.90	507.00	516.75	510.47	510.51	507.71	513.72	508.79	500.06	507.14	516.79	513.72	512.66	510.11	516.56	504.69	498.90
20.00°	404.20	419.67	437.94	420.66	412.49	416.97	432.87	423.99	407.15	420.71	437.48	426.05	414.97	421.86	436.06	415.81	404.20
22.50°	309.93	333.54	359.22	336.16	322.74	330.20	357.57	341.70	314.72	334.29	359.76	342.19	327.29	336.41	358.21	332.47	309.93
25.00°	237.90	263.84	295.59	266.06	244.83	258.42	290.94	271.57	242.28	263.00	296.42	273.42	251.28	267.89	293.31	261.86	237.90
27.50°	166.73	195.41	231.96	201.63	181.11	190.95	227.27	204.46	170.75	191.89	234.40	208.72	186.81	202.17	230.71	195.54	166.73
30.00°	121.13	146.31	182.44	152.70	129.55	142.01	176.20	152.86	123.62	141.78	183.01	161.02	136.28	154.67	180.07	143.93	121.13
32.50°	76.76	98.90	133.01	110.23	93.07	98.66	129.61	104.56	77.85	92.12	132.75	116.40	95.15	109.53	132.05	97.50	76.76
35.00°	55.06	71.38	100.74	81.51	64.78	71.69	94.43	74.36	56.30	66.94	99.12	85.41	65.80	80.91	98.59	68.24	55.06
37.50°	34.65	45.80	68.72	58.77	47.00	49.98	63.48	46.87	36.43	42.51	67.44	57.16	43.93	54.03	67.28	45.33	34.65
40.00°	26.99	33.77	50.92	44.02	33.01	36.71	44.73	35.22	27.97	32.50	49.46	41.74	31.77	40.38	48.81	32.30	26.99
42.50°	20.19	23.20	33.44	32.89	24.04	26.29	30.70	24.55	20.41	23.07	33.23	28.00	22.74	27.61	31.82	23.15	20.19
45.00°	17.63	18.60	26.55	25.09	17.89	20.65	23.59	20.26	17.24	19.07	25.90	22.62	17.93	22.12	24.28	18.68	17.63
47.50°	15.40	14.71	20.01	18.87	15.62	16.71	19.27	16.25	14.46	15.33	19.80	17.67	14.53	16.88	17.39	16.11	15.40
50.00°	14.02	13.19	17.12	16.09	13.81	14.13	15.48	14.26	13.37	13.59	16.09	15.02	13.11	14.08	15.03	14.15	14.02
52.50°	12.73	11.98	14.38	15.01	12.64	12.07	11.93	12.35	12.46	11.96	12.74	12.43	11.60	11.50	12.75	12.44	12.73
55.00°	11.65	11.72	12.47	13.34	11.57	10.92	10.58	11.10	11.64	10.58	11.17	10.17	9.95	11.32	10.97	11.38	11.65
57.50°	10.59	11.59	10.61	11.38	10.62	10.13	10.19	9.91	10.83	9.22	9.90	8.21	8.78	11.00	9.30	10.60	10.59
60.00°	9.93	10.07	9.79	9.87	9.52	9.26	9.43	9.20	9.48	8.37	8.88	8.06	8.31	9.02	8.55	9.84	9.93
62.50°	9.32	8.32	9.04	8.60	8.18	8.34	8.48	8.45	8.05	7.56	7.90	7.84	7.58	7.14	7.84	9.09	9.32
65.00°	8.19	7.49	7.81	7.57	7.12	7.43	7.51	7.36	7.48	7.45	7.06	7.15	6.42	6.82	7.56	7.98	8.19
67.50°	7.01	6.81	6.54	6.69	6.51	6.50	6.53	6.32	7.01	7.39	6.25	6.40	5.55	6.46	7.20	6.70	7.01
70.00°	6.08	6.07	5.80	5.95	5.77	5.74	5.71	5.74	6.14	6.18	5.48	5.23	5.14	5.57	5.98	5.77	6.08
72.50°	5.20	5.33	5.11	5.29	4.81	5.05	4.97	5.12	5.22	4.86	4.72	4.14	4.55	4.67	4.81	5.02	5.20
75.00°	4.30	4.57	4.07	4.54	3.95	4.26	4.18	3.92	4.40	4.17	3.85	3.66	3.63	3.72	4.14	4.14	4.30
77.50°	3.40	3.80	3.00	3.74	3.28	3.42	3.36	2.80	3.59	3.55	2.96	3.15	2.90	2.79	3.47	3.20	3.40
80.00°	2.74	2.90	2.61	3.01	2.65	2.65	2.84	2.56	2.80	2.91	2.34	2.44	2.51	2.41	2.77	2.66	2.74
82.50°	2.12	1.98	2.29	2.33	2.10	1.92	2.49	2.34	2.01	2.27	1.77	1.77	2.12	2.03	2.09	2.33	2.12
85.00°	2.06	1.72	2.15	2.06	1.74	1.59	2.16	2.30	1.70	2.01	1.55	1.59	1.74	1.79	1.82	2.09	2.06
87.50°	2.10	1.60	2.04	2.07	1.71	1.48	1.83	2.25	1.48	1.80	1.42	1.43	1.51	1.56	1.56	1.90	2.10
90.00°	1.86	1.55	2.08	1.95	1.70	1.57	1.61	1.87	1.62	1.58	1.51	1.42	1.57	1.61	1.55	1.96	1.86
92.50°	1.56	1.51	2.15	1.74	1.70	1.77	1.45	1.50	1.84	1.35	1.66	1.40	1.65	1.65	1.53	2.15	1.56
95.00°	1.56	1.63	2.00	1.60	1.68	1.89	1.48	1.46	1.92	1.63	1.52	1.40	1.80	1.50	1.47	2.06	1.56
97.50°	1.63	1.79	1.82	1.51	1.62	1.96	1.62	1.43	1.98	1.99	1.30	1.41	1.91	1.34	1.40	1.78	1.63
100.00°	1.70	1.75	1.66	1.49	1.58	1.82	1.63	1.59	1.98	2.04	1.45	1.67	1.95	1.48	1.53	1.62	1.70

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	ρfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	ρcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	ρw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	572	572	572	572	557	557	557	557	530	530	530	506	506	506	483	483	483	472
	1	545	532	520	510	532	521	510	500	499	491	483	480	473	467	461	456	452	446
	2	520	497	478	463	508	488	471	457	471	457	445	455	444	434	440	431	424	422
	3	496	467	444	426	486	459	439	422	445	428	414	432	418	406	420	409	399	400
	4	474	440	415	396	465	434	411	393	422	403	387	412	395	382	402	388	376	380
RCR	5	454	416	390	371	445	411	387	369	402	381	365	393	375	360	384	369	356	362
	6	434	395	368	349	427	391	366	348	383	361	345	375	356	342	368	352	339	345
	7	417	376	349	331	410	372	347	329	365	343	327	359	339	325	353	336	322	330
	8	400	358	332	314	394	355	330	313	349	327	311	344	324	309	339	321	308	315
	9	384	342	317	299	379	340	315	299	335	313	297	330	310	296	325	307	294	302
	10	370	328	303	286	365	326	302	285	321	299	284	317	297	283	313	295	282	290

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	35.3 fc	3.3 ft
6.5 ft	25.3 fc	3.9 ft
7.5 ft	19.0 fc	4.5 ft
8.0 ft	16.7 fc	4.8 ft
10.0 ft	10.7 fc	6.0 ft
12.0 ft	7.4 fc	7.2 ft
14.0 ft	5.4 fc	8.4 ft
16.0 ft	4.2 fc	9.6 ft
20.0 ft	2.7 fc	12.0 ft
24.0 ft	1.9 fc	14.4 ft
28.0 ft	1.4 fc	16.8 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	287262	287262	287262
45.00°	6709	10105	6806
55.00°	5464	5851	5427
65.00°	5218	4972	4535
75.00°	4470	4231	4110
85.00°	6361	6643	5360

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	11.9	12.9	12.3	13.2	13.6	10.8	11.7	11.2	12.1	12.5
	3H	13.5	14.4	13.9	14.8	15.2	12.6	13.4	13.0	13.8	14.2
	4H	14.1	14.9	14.6	15.3	15.8	13.2	14.0	13.7	14.4	14.9
	6H	14.6	15.3	15.1	15.8	16.2	13.8	14.5	14.2	14.9	15.4
	8H	14.8	15.5	15.3	15.9	16.4	14.0	14.7	14.5	15.1	15.6
	12H	15.0	15.7	15.5	16.1	16.6	14.2	14.9	14.7	15.3	15.8
4H	2H	12.3	13.1	12.8	13.5	14.0	11.4	12.2	11.8	12.6	13.0
	3H	14.2	14.8	14.6	15.3	15.7	13.3	14.0	13.8	14.5	14.9
	4H	14.9	15.5	15.4	16.0	16.5	14.1	14.7	14.6	15.2	15.7
	6H	15.5	16.1	16.1	16.5	17.1	14.8	15.3	15.3	15.8	16.3
	8H	15.8	16.3	16.3	16.8	17.3	15.1	15.5	15.6	16.0	16.6
	12H	16.1	16.5	16.6	17.0	17.6	15.4	15.8	15.9	16.3	16.9
8H	4H	15.1	15.6	15.6	16.1	16.6	14.4	14.9	14.9	15.4	15.9
	6H	15.9	16.3	16.4	16.8	17.4	15.2	15.6	15.8	16.1	16.7
	8H	16.3	16.6	16.8	17.1	17.7	15.6	15.9	16.2	16.5	17.0
	12H	16.7	17.0	17.3	17.6	18.2	16.0	16.3	16.6	16.9	17.5
12H	4H	15.1	15.5	15.7	16.1	16.6	14.4	14.8	15.0	15.4	15.9
	6H	16.0	16.3	16.5	16.8	17.4	15.3	15.6	15.9	16.1	16.7
	8H	16.4	16.7	16.9	17.2	17.8	15.7	16.0	16.3	16.6	17.2

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0