Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CK0407SQPC 10L 35K MD xx NL xx MW

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

Test Number

SP-01447

Test Date

11/29/2022

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	523
Efficacy	78.12 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.52
Two luminaires, plane 90°	0.52
Four luminaires	0.58

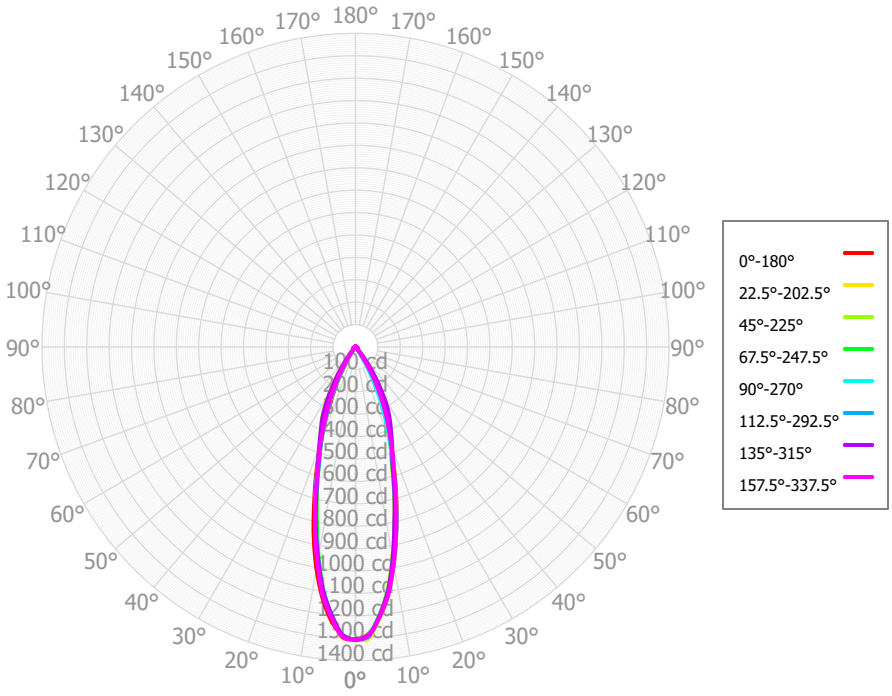
Full Beam Angle

0° - 180°	32°
90° - 270°	32°

IES File Header Contents

Keyword	Value
TEST	SP-01447
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/29/2022
ISSUEDATE	12/1/2022
LUMCAT	CK0407SQPC 10L 35K MD xx NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Square Cylinder, Medium Beam
OTHER	No lens, Matte White finish
OTHER	32 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°	109.13	20.85%	90.00° - 100.00°	2.10	0.40%
10.00° - 20.00°	187.73	35.87%	100.00° - 110.00°	1.98	0.38%
20.00° - 30.00°	136.65	26.11%	100.00° - 120.00°	3.88	0.74%
30.00° - 40.00°	43.84	8.38%	120.00° - 130.00°	1.70	0.32%
40.00° - 50.00°	9.33	1.78%	130.00° - 140.00°	1.48	0.28%
50.00° - 60.00°	8.16	1.56%	140.00° - 150.00°	1.23	0.24%
60.00° - 70.00°	9.66	1.85%	150.00° - 160.00°	0.92	0.18%
70.00° - 80.00°	4.36	0.83%	160.00° - 170.00°	0.55	0.11%
80.00° - 90.00°	2.48	0.47%	170.00° - 180.00°	0.19	0.04%
0.00° - 90.00°	511.34	97.70%	0.00° - 180.00°	523.40	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°	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11	1306.11
2.50°	1285.40	1305.50	1291.50	1292.01	1289.92	1294.80	1288.35	1297.96	1291.26	1301.71	1288.95	1293.43	1293.58	1296.37	1290.62	1292.26	1285.40
5.00°	1217.44	1216.40	1209.60	1205.98	1208.91	1205.66	1205.87	1216.31	1228.79	1210.53	1209.97	1206.08	1206.31	1212.39	1209.67	1213.16	1217.44
7.50°	1113.10	1120.05	1095.07	1101.23	1112.66	1106.91	1100.99	1120.51	1130.17	1115.52	1100.25	1096.88	1101.96	1114.14	1103.79	1118.38	1113.10
10.00°	984.77	977.23	951.92	959.78	980.17	966.84	961.38	979.92	1004.43	973.19	952.35	950.77	963.17	964.23	958.34	980.77	984.77
12.50°	840.26	833.65	797.80	815.65	842.61	824.70	819.56	834.41	862.41	830.67	806.78	797.16	819.35	817.74	801.52	840.21	840.26
15.00°	704.42	686.78	663.11	667.45	695.54	681.30	674.97	692.11	710.84	686.27	663.48	666.18	690.24	680.22	672.49	693.35	704.42
17.50°	573.12	554.94	534.09	543.34	563.07	540.93	559.74	550.48	576.39	548.50	552.59	537.99	562.22	558.51	548.95	565.75	573.12
20.00°	464.57	469.44	463.38	448.92	451.92	446.25	473.58	455.88	449.93	450.19	467.55	452.89	459.51	468.34	479.28	469.82	464.57
22.50°	365.43	387.97	404.36	364.81	350.12	353.47	404.63	362.56	345.67	356.03	404.12	370.47	357.73	384.41	416.00	383.30	365.43
25.00°	278.26	315.78	351.47	290.73	259.41	275.58	349.54	286.18	249.19	278.15	354.22	300.17	271.68	310.45	363.52	308.91	278.26
27.50°	194.74	243.70	299.32	220.37	180.03	200.17	283.69	211.32	173.14	203.25	291.85	230.14	187.71	239.33	311.60	237.02	194.74
30.00°	128.02	171.80	232.86	152.96	111.25	136.66	211.03	146.65	102.24	136.73	223.43	164.96	122.45	171.79	243.37	167.76	128.02
32.50°	65.05	109.52	165.56	97.50	64.40	80.18	148.67	87.12	61.76	80.15	162.06	102.40	63.49	111.39	175.93	108.39	65.05
35.00°	40.65	60.85	111.95	49.46	33.73	47.07	91.37	51.03	26.64	45.37	103.37	60.91	37.82	58.06	120.16	57.19	40.65
37.50°	21.70	30.21	60.14	26.73	19.33	21.61	55.06	21.97	19.52	21.25	63.45	25.26	16.91	28.03	67.60	29.97	21.70
40.00°	16.74	19.70	36.14	16.18	14.63	15.51	26.81	15.34	15.20	15.15	28.71	18.32	13.85	16.73	39.89	18.38	16.74
42.50°	12.76	13.45	14.59	12.34	12.76	11.24	16.64	10.47	12.85	11.44	17.90	12.45	11.20	11.72	16.34	12.95	12.76
45.00°	10.99	11.06	12.41	11.03	12.20	10.52	11.52	9.76	10.61	11.00	11.56	10.39	9.68	10.68	12.64	10.73	10.99
47.50°	9.28	9.53	10.42	10.58	11.04	10.05	10.20	9.06	10.10	10.74	10.36	8.85	8.33	9.46	9.75	9.46	9.28
50.00°	8.11	8.62	9.38	10.37	9.68	9.94	9.61	8.37	9.54	10.67	9.76	8.67	7.34	8.14	9.63	8.56	8.11
52.50°	7.10	8.86	8.76	10.05	8.78	9.68	9.12	7.91	8.56	10.37	9.08	8.45	6.89	7.90	9.42	8.37	7.10
55.00°	7.41	9.76	9.62	9.71	8.01	9.22	8.66	7.78	7.74	9.90	8.42	8.16	7.31	8.08	8.96	8.40	7.41
57.50°	7.99	10.43	10.47	10.33	9.17	9.89	9.74	8.40	8.05	10.35	10.20	8.19	8.18	8.82	9.11	8.99	7.99
60.00°	10.03	11.01	11.29	11.07	10.65	11.66	10.90	9.88	8.61	11.45	11.84	8.71	9.63	9.73	10.42	9.69	10.03
62.50°	11.47	11.36	11.22	10.72	11.24	11.90	9.91	10.80	10.27	11.54	11.38	8.92	10.65	10.35	10.95	10.28	11.47
65.00°	10.66	11.63	9.42	10.29	11.74	10.97	8.92	11.18	11.09	11.10	10.68	8.73	11.22	10.91	10.27	10.85	10.66
67.50°	9.58	9.23	7.68	8.06	9.86	9.35	7.97	9.69	9.36	9.44	8.21	7.81	10.31	9.09	8.85	8.98	9.58
70.00°	7.76	6.17	6.03	5.87	7.89	7.31	6.85	6.82	7.55	7.28	5.93	6.17	8.18	6.98	6.53	6.94	7.76
72.50°	6.05	4.82	4.64	4.36	5.63	5.38	4.46	4.53	5.59	5.39	4.54	4.69	6.03	4.97	4.81	4.90	6.05
75.00°	4.56	3.76	3.59	3.03	3.55	3.50	2.49	2.56	4.26	3.59	3.27	3.32	3.89	2.97	3.65	2.99	4.56
77.50°	3.81	3.33	2.77	3.00	3.63	2.74	2.54	2.30	4.09	3.40	2.38	2.79	3.39	3.25	2.99	3.30	3.81
80.00°	4.25	2.97	2.18	2.91	3.58	2.38	2.47	2.82	3.60	3.58	1.80	2.77	3.75	3.47	2.70	3.50	4.25
82.50°	3.86	2.46	1.97	2.48	2.72	2.31	2.04	2.58	2.67	2.84	1.96	2.47	3.07	2.75	2.41	2.76	3.86
85.00°	2.37	1.97	2.06	2.09	2.05	2.31	1.69	2.09	2.09	1.97	1.96	2.04	1.98	2.13	2.10	2.13	2.37
87.50°	1.68	2.10	1.98	1.84	2.17	2.13	1.54	1.96	1.91	1.98	1.65	1.88	1.95	2.26	2.15	2.11	1.68
90.00°	1.81	2.22	1.81	1.68	2.20	1.92	1.45	1.92	1.87	2.07	1.54	1.81	2.22	2.33	2.36	2.07	1.81
92.50°	1.89	2.20	1.87	1.73	1.91	2.04	1.46	1.97	1.95	2.20	1.73	1.80	2.28	2.14	2.13	2.02	1.89
95.00°	1.93	2.18	2.03	1.78	1.66	2.19	1.52	2.02	2.02	2.33	1.81	1.82	2.28	1.97	1.74	1.92	1.93
97.50°	2.08	2.20	2.04	1.82	1.50	2.02	1.65	1.79	2.10	2.30	1.75	1.89	2.10	1.84	1.67	1.67	2.08
100.00°	2.29	2.21	2.00	1.83	1.51	1.84	1.67	1.52	2.22	2.25	1.70	1.97	1.89	1.75	1.68	1.53	2.29

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	620	620	620	620	604	604	604	604	575	575	575	548	548	548	523	523	523	511
	1	592	578	566	554	578	566	555	544	542	534	525	521	514	508	501	496	491	485
	2	566	542	522	505	553	532	514	499	513	499	486	496	484	474	480	471	462	461
	3	541	510	486	467	530	502	480	463	487	469	454	473	458	445	460	448	437	438
	4	518	483	456	436	508	476	452	433	463	443	427	452	435	421	441	427	415	418
RCR	5	497	458	431	411	488	453	427	408	442	420	404	433	414	399	423	407	395	400
	6	477	436	408	388	469	431	405	387	423	400	383	415	395	380	407	390	376	383
	7	459	416	388	369	452	412	386	368	405	382	365	398	378	362	391	373	360	367
	8	441	398	371	352	435	395	369	351	388	365	349	382	362	347	377	358	345	352
	9	425	381	355	336	419	379	353	336	373	350	334	368	347	332	363	344	331	339
	10	410	366	340	322	405	364	339	322	359	336	320	354	334	319	350	331	318	326

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	43.2 fc	3.2 ft
6.5 ft	30.9 fc	3.7 ft
7.5 ft	23.2 fc	4.3 ft
8.0 ft	20.4 fc	4.6 ft
10.0 ft	13.1 fc	5.7 ft
12.0 ft	9.1 fc	6.9 ft
14.0 ft	6.7 fc	8.0 ft
16.0 ft	5.1 fc	9.2 ft
20.0 ft	3.3 fc	11.5 ft
24.0 ft	2.3 fc	13.8 ft
28.0 ft	1.7 fc	16.1 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	351472	351472	351472
45.00°	4183	4722	4643
55.00°	3476	4513	3756
65.00°	6787	5996	7474
75.00°	4738	3729	3691
85.00°	7318	6346	6315

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	10.7	11.6	11.1	12.0	12.4	10.4	11.3	10.8	11.7	12.1
	3H	13.6	14.5	14.1	14.9	15.3	13.6	14.4	14.0	14.8	15.2
	4H	14.2	15.0	14.7	15.4	15.8	14.1	14.8	14.5	15.2	15.7
	6H	14.9	15.6	15.3	16.0	16.5	14.6	15.3	15.0	15.7	16.2
	8H	15.3	16.0	15.8	16.4	16.9	14.9	15.6	15.4	16.0	16.5
	12H	15.7	16.3	16.2	16.8	17.3	15.2	15.8	15.6	16.2	16.7
4H	2H	11.8	12.6	12.3	13.0	13.4	11.6	12.4	12.1	12.8	13.2
	3H	14.4	15.1	14.9	15.5	16.0	14.4	15.1	14.9	15.5	16.0
	4H	15.0	15.6	15.5	16.0	16.5	14.9	15.5	15.4	15.9	16.4
	6H	15.8	16.3	16.3	16.8	17.3	15.5	16.0	16.0	16.5	17.0
	8H	16.3	16.8	16.8	17.3	17.8	15.9	16.3	16.4	16.8	17.3
	12H	16.8	17.2	17.3	17.7	18.2	16.2	16.6	16.8	17.2	17.7
8H	4H	15.1	15.6	15.6	16.1	16.6	15.0	15.4	15.5	15.9	16.4
	6H	16.1	16.4	16.6	17.0	17.5	15.7	16.0	16.2	16.6	17.1
	8H	16.7	17.0	17.3	17.6	18.2	16.2	16.5	16.8	17.1	17.6
	12H	17.3	17.6	17.9	18.2	18.8	16.8	17.0	17.3	17.6	18.2
12H	4H	15.1	15.5	15.6	16.0	16.6	15.0	15.4	15.5	15.9	16.4
	6H	16.1	16.4	16.7	16.9	17.5	15.7	16.0	16.3	16.6	17.2
	8H	16.8	17.1	17.4	17.6	18.3	16.3	16.6	16.9	17.1	17.7

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0