Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CK0407SQPC 10L 35K ND xx NL xx MW

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

Test Number

SP-01449

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	546
Efficacy	81.47 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.4
Two luminaires, plane 90°	0.39
Four luminaires	0.44

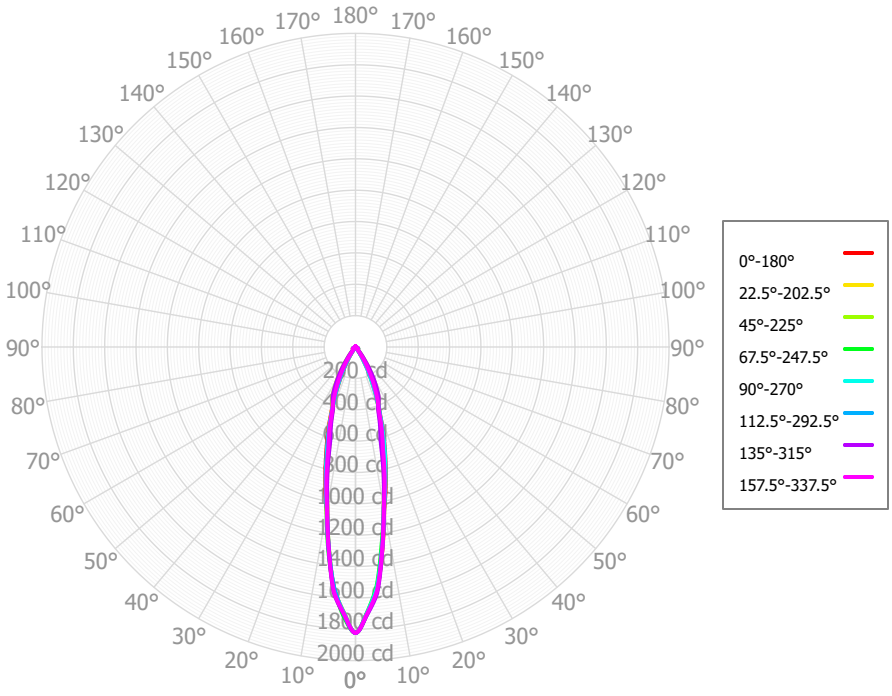
Full Beam Angle

0° - 180°	24°
90° - 270°	24°

IES File Header Contents

Keyword	Value
TEST	SP-01449
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/29/2022
ISSUEDATE	12/1/2022
LUMCAT	CK0407SQPC 10L 35K ND xx NL xx MW
LUMINAIRE	Nom. 4.5" Diam x 7"H Square Cylinder, Narrow Beam
OTHER	No lens, Matte White finish
OTHER	25 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°	131.79	24.14%	90.00° - 100.00°	2.15	0.39%
10.00° - 20.00°	190.17	34.84%	100.00° - 110.00°	2.12	0.39%
20.00° - 30.00°	131.81	24.15%	100.00° - 120.00°	4.07	0.74%
30.00° - 40.00°	40.83	7.48%	120.00° - 130.00°	1.80	0.33%
40.00° - 50.00°	7.05	1.29%	130.00° - 140.00°	1.59	0.29%
50.00° - 60.00°	13.92	2.55%	140.00° - 150.00°	1.32	0.24%
60.00° - 70.00°	10.63	1.95%	150.00° - 160.00°	0.96	0.18%
70.00° - 80.00°	4.17	0.76%	160.00° - 170.00°	0.61	0.11%
80.00° - 90.00°	2.75	0.50%	170.00° - 180.00°	0.21	0.04%
0.00° - 90.00°	533.13	97.67%	0.00° - 180.00°	545.85	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°	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66	1823.66
2.50°	1703.17	1703.39	1701.45	1694.64	1697.97	1706.39	1706.69	1703.45	1697.25	1697.78	1706.26	1721.42	1697.11	1704.98	1708.40	1702.43	1703.17
5.00°	1551.35	1567.06	1562.28	1535.28	1546.75	1545.66	1575.76	1568.34	1554.73	1552.04	1568.79	1551.83	1557.10	1563.56	1578.50	1564.22	1551.35
7.50°	1309.33	1304.65	1295.73	1274.47	1297.45	1306.31	1304.07	1306.22	1300.35	1298.80	1301.86	1320.78	1298.21	1300.18	1306.84	1304.08	1309.33
10.00°	1056.48	1047.04	1033.05	1039.27	1040.34	1047.61	1034.60	1048.27	1058.27	1042.67	1031.91	1059.78	1048.95	1051.53	1036.22	1041.09	1056.48
12.50°	891.60	861.04	831.66	848.74	881.95	861.18	827.19	856.20	889.33	863.67	833.40	850.99	877.37	851.05	825.93	859.95	891.60
15.00°	735.71	679.88	637.33	681.94	729.76	691.74	624.07	669.10	725.28	686.15	636.03	666.80	709.69	671.33	618.29	679.47	735.71
17.50°	595.66	556.49	531.30	554.02	591.89	560.98	519.20	551.31	588.67	566.49	529.70	537.17	571.29	554.30	518.60	559.90	595.66
20.00°	457.09	437.46	431.01	443.63	454.81	438.47	418.16	436.99	456.85	447.19	423.89	431.56	438.72	447.06	421.40	441.00	457.09
22.50°	356.37	361.34	389.61	361.09	350.80	352.44	381.07	361.74	349.14	362.31	385.87	356.32	344.40	367.71	385.99	366.30	356.37
25.00°	258.52	285.97	346.14	283.13	248.07	273.42	342.13	287.28	247.46	277.69	347.32	293.53	253.32	291.04	349.20	291.78	258.52
27.50°	184.30	217.29	283.16	212.01	176.43	202.97	279.11	220.16	173.14	207.35	285.05	229.08	181.11	221.59	287.84	223.40	184.30
30.00°	111.48	150.09	220.29	146.31	105.50	134.08	216.15	154.01	104.48	137.57	222.77	163.97	112.71	154.48	226.33	155.48	111.48
32.50°	69.46	94.38	158.34	88.25	65.16	84.00	153.91	96.18	60.32	84.48	160.18	107.08	65.16	93.23	162.60	99.81	69.46
35.00°	29.00	43.67	98.97	45.90	25.29	36.96	93.94	43.16	23.87	33.06	98.62	53.21	24.22	44.30	100.76	46.12	29.00
37.50°	19.50	27.95	58.80	24.98	18.01	22.35	56.09	26.09	17.77	22.13	60.13	28.35	15.73	25.13	62.06	29.54	19.50
40.00°	11.09	13.83	22.93	11.81	10.77	12.66	21.60	11.11	12.29	11.68	23.45	13.78	8.40	11.27	25.86	13.83	11.09
42.50°	9.08	9.94	15.15	8.60	8.73	9.72	14.80	9.72	9.05	9.72	16.34	8.96	6.28	9.34	17.25	10.77	9.08
45.00°	7.19	6.65	8.44	6.88	6.72	7.67	8.79	8.45	6.37	7.89	9.64	7.35	4.65	7.81	9.42	7.93	7.19
47.50°	6.75	6.72	7.92	6.95	6.14	7.47	8.79	7.90	5.63	7.95	8.17	6.93	5.04	7.08	8.68	8.03	6.75
50.00°	6.35	7.50	8.35	8.98	5.76	7.48	9.35	8.13	6.44	8.37	7.32	6.85	6.16	7.94	8.64	8.56	6.35
52.50°	11.45	12.03	14.00	13.30	10.65	11.85	13.59	12.61	12.18	13.26	13.63	10.87	10.07	12.00	14.08	13.62	11.45
55.00°	16.51	16.21	18.67	17.00	15.44	16.67	17.40	16.76	17.33	17.72	19.27	16.07	13.91	15.95	18.87	18.20	16.51
57.50°	18.64	18.80	18.53	20.01	17.68	17.95	18.58	19.13	20.68	17.89	18.46	18.31	17.49	19.71	18.87	18.16	18.64
60.00°	20.59	19.86	17.55	19.52	19.53	18.91	18.96	20.06	21.67	17.60	17.32	19.77	19.50	20.14	18.21	17.73	20.59
62.50°	15.53	14.28	12.86	15.37	15.02	14.56	14.79	14.30	15.95	13.44	13.41	15.74	16.16	14.63	13.18	14.11	15.53
65.00°	10.56	9.21	8.59	11.08	10.59	9.83	10.76	9.13	10.86	9.45	9.58	10.37	12.58	9.88	8.55	10.52	10.56
67.50°	7.76	6.25	6.14	6.63	7.18	6.91	7.42	6.47	7.40	6.70	6.40	7.18	8.26	6.44	6.23	7.14	7.76
70.00°	5.08	3.81	4.01	4.17	4.05	4.10	4.51	4.28	4.77	4.32	3.58	4.50	4.94	4.22	4.19	4.20	5.08
72.50°	4.67	3.27	3.15	3.63	4.06	4.09	3.60	4.02	4.29	4.41	3.13	3.68	4.67	3.99	3.72	4.12	4.67
75.00°	4.32	2.99	2.68	3.42	4.08	4.19	2.86	3.76	4.27	4.52	2.80	3.24	4.51	3.99	3.38	4.08	4.32
77.50°	4.79	3.56	3.62	3.51	4.18	4.39	2.84	3.51	5.34	4.80	3.26	3.28	4.68	4.33	3.73	4.26	4.79
80.00°	5.11	3.75	4.05	3.14	4.16	4.59	2.81	3.17	5.46	4.87	3.56	3.41	4.41	4.06	3.86	4.20	5.11
82.50°	3.63	2.67	2.76	2.39	3.17	3.31	2.71	2.55	3.52	3.71	3.03	2.64	2.97	2.88	3.00	2.92	3.63
85.00°	2.25	1.86	1.74	1.95	2.27	2.00	2.58	2.07	2.15	2.66	2.54	1.70	1.97	2.16	2.29	1.86	2.25
87.50°	2.09	1.87	1.56	1.77	2.05	2.04	2.30	2.06	1.97	2.19	2.26	1.66	2.03	2.08	2.27	1.91	2.09
90.00°	1.95	1.91	1.50	1.75	1.86	2.09	2.03	2.02	1.85	1.87	2.01	1.78	1.98	1.95	2.26	1.96	1.95
92.50°	2.02	2.03	1.77	1.85	1.90	2.37	1.81	1.88	1.84	2.28	1.89	1.78	1.66	1.73	2.37	1.97	2.02
95.00°	2.09	2.04	2.00	1.95	1.93	2.65	1.76	1.79	1.89	2.56	1.78	1.77	1.49	1.62	2.42	1.97	2.09
97.50°	2.28	1.77	2.10	2.04	1.95	2.29	2.26	1.81	2.04	2.27	1.68	1.95	1.64	1.66	2.29	1.88	2.28
100.00°	2.40	1.58	2.18	2.09	2.01	1.94	2.59	1.84	2.13	2.07	1.64	2.15	1.72	1.76	2.27	1.83	2.40

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	647	647	647	647	630	630	630	630	599	599	599	571	571	571	545	545	545	533
	1	618	603	590	579	603	590	579	568	566	557	549	544	537	530	523	518	513	506
	2	591	566	546	528	578	556	537	522	536	521	508	518	506	496	502	492	484	481
	3	566	534	509	489	554	525	503	485	509	491	475	495	479	467	481	469	458	459
	4	542	505	479	458	532	499	474	455	486	465	448	474	456	442	462	448	435	439
RCR	5	521	481	453	432	511	475	449	429	464	442	425	454	435	420	445	428	415	420
	6	501	458	430	410	492	454	427	408	444	421	404	436	416	400	428	411	397	403
	7	482	438	410	390	475	434	408	389	427	403	386	419	399	383	413	394	380	388
	8	465	420	392	373	458	417	390	372	410	387	370	404	383	368	398	380	365	373
	9	448	404	376	358	442	401	375	357	395	372	355	390	369	353	385	366	352	360
	10	433	389	362	344	428	386	360	343	381	358	342	376	355	340	372	353	339	348

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	60.3 fc	2.4 ft
6.5 ft	43.2 fc	2.8 ft
7.5 ft	32.4 fc	3.2 ft
8.0 ft	28.5 fc	3.5 ft
10.0 ft	18.2 fc	4.3 ft
12.0 ft	12.7 fc	5.2 ft
14.0 ft	9.3 fc	6.0 ft
16.0 ft	7.1 fc	6.9 ft
20.0 ft	4.6 fc	8.6 ft
24.0 ft	3.2 fc	10.4 ft
28.0 ft	2.3 fc	12.1 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	490742	490742	490742
45.00°	2736	3213	2557
55.00°	7747	8759	7242
65.00°	6723	5471	6742
75.00°	4491	2788	4240
85.00°	6959	5373	7004

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	15.2	16.1	15.6	16.5	16.9	15.0	16.0	15.4	16.3	16.7
	3H	15.6	16.5	16.0	16.8	17.3	15.5	16.3	15.9	16.7	17.1
	4H	15.8	16.6	16.3	17.0	17.5	15.7	16.5	16.1	16.9	17.3
	6H	16.4	17.1	16.9	17.5	18.0	16.2	16.9	16.6	17.3	17.8
	8H	16.7	17.4	17.2	17.8	18.3	16.4	17.1	16.9	17.5	18.0
	12H	16.9	17.5	17.4	18.0	18.5	16.6	17.2	17.1	17.7	18.2
4H	2H	15.2	16.0	15.7	16.4	16.9	15.2	16.0	15.7	16.4	16.9
	3H	15.7	16.4	16.2	16.8	17.3	15.7	16.4	16.2	16.8	17.3
	4H	16.0	16.6	16.5	17.1	17.6	16.0	16.6	16.5	17.1	17.6
	6H	16.9	17.4	17.4	17.8	18.4	16.7	17.2	17.3	17.7	18.3
	8H	17.3	17.7	17.8	18.2	18.8	17.1	17.5	17.6	18.0	18.6
	12H	17.5	18.0	18.1	18.5	19.0	17.3	17.7	17.9	18.3	18.8
8H	4H	16.1	16.5	16.6	17.0	17.6	16.0	16.5	16.6	17.0	17.5
	6H	17.1	17.5	17.7	18.0	18.6	17.0	17.3	17.5	17.9	18.4
	8H	17.6	18.0	18.2	18.5	19.1	17.5	17.8	18.0	18.3	18.9
	12H	18.0	18.3	18.6	18.9	19.5	17.8	18.1	18.4	18.7	19.3
12H	4H	16.1	16.5	16.6	17.0	17.5	16.1	16.5	16.6	17.0	17.5
	6H	17.2	17.5	17.8	18.0	18.6	17.0	17.4	17.6	17.9	18.5
	8H	17.8	18.0	18.3	18.6	19.2	17.6	17.9	18.2	18.4	19.0

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0