Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

4" Nom. Sq. x 12" H LED Cylinder XT Series, Xtra Wide Beam
C0412SQXT-13L-xxK-XW-EX-SO-xx-MW

Test Number

SP-00628_2_M-13L

Test Date

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

Summary of Results

Power

Input Watts	11.9 W

Lumen Output

Output Lumens	876
Efficacy	73.65 lm/W

Luminous Dimensions

0° - 180° Size	0.18
90° - 270° Size	0.18
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.87
Two luminaires, plane 90°	0.91
Four luminaires	0.9

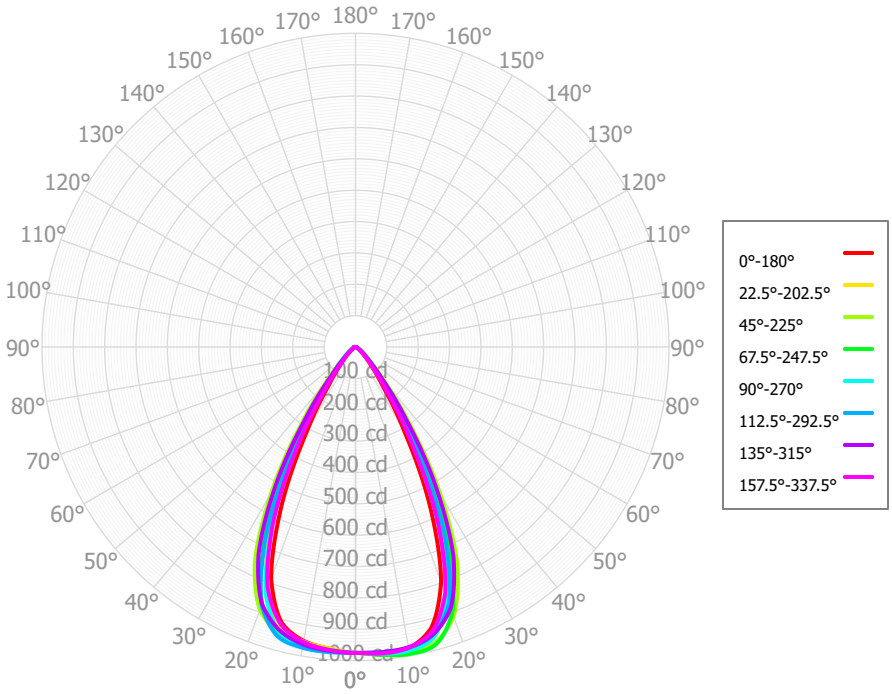
Full Beam Angle

0° - 180°	53°
90° - 270°	55°

IES File Header Contents

Keyword	Value
TEST	SP-00628_2_M-13L
TESTLAB	VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	11/13/2017
UPDATE	11/1/2021
LUMINAIRE	4" Nom. Sq. x 12" H LED Cylinder XT Series, Xtra Wide Beam
LUMCAT	C0412SQXT-13L-xxK-XW-EX-SO-xx-MW
OTHER	Matte White finish, Solite lens
OTHER	2.16" Square Aperture
OTHER	57.1 Degree Beam Angle
LAMP	N/A
LAMPCAT	N/A, Min. 83 CRI
OTHER	Total Luminaire Watts is approximate
OTHER	LEDXT lumen output is the same for all available CCT's
OTHER	This report prepared by Spectrum Lighting, scaled from 20L

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	98.73	11.26%	90.00° - 100.00°	0.70	0.08%
10.00° - 20.00°	260.58	29.73%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	292.68	33.39%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	145.84	16.64%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	47.49	5.42%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	17.20	1.96%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	6.64	0.76%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	3.68	0.42%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	2.93	0.33%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	875.79	99.92%	0.00° - 180.00°	876.49	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°	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85	975.85
5.00°	982.47	984.70	986.13	986.23	982.45	977.04	972.36	969.71	965.74	964.87	969.59	970.03	973.76	977.12	977.02	981.31	982.47
10.00°	975.42	985.62	993.43	994.19	983.63	974.02	963.07	955.38	951.69	954.12	962.18	967.12	968.76	974.76	972.21	974.19	975.42
15.00°	929.39	955.54	977.16	983.67	960.93	956.35	935.57	916.63	910.07	920.97	944.47	947.43	940.34	951.58	950.19	940.66	929.39
20.00°	798.38	855.90	914.46	902.59	849.90	875.69	871.73	818.55	786.51	828.86	891.51	872.70	837.55	871.27	886.98	836.63	798.38
25.00°	564.90	649.96	769.22	700.66	626.50	683.30	732.29	624.74	557.84	644.86	759.89	690.73	628.37	679.16	739.64	625.78	564.90
30.00°	314.10	395.08	539.26	436.24	374.71	427.64	508.22	377.54	308.17	406.76	537.10	439.92	382.68	427.05	509.12	368.15	314.10
35.00°	151.16	197.70	304.01	224.65	200.96	215.89	274.15	179.31	147.77	211.11	303.45	228.56	202.29	216.05	278.62	177.39	151.16
40.00°	77.61	94.68	146.26	116.94	111.65	108.78	120.57	79.87	76.86	102.46	144.86	113.96	108.95	105.43	129.26	86.23	77.61
45.00°	42.76	49.76	69.46	65.85	63.48	59.03	53.22	42.13	43.06	54.57	68.81	62.38	62.73	57.38	60.70	46.76	42.76
50.00°	25.61	28.33	35.35	37.00	36.12	33.96	28.03	24.44	25.52	31.05	35.60	35.43	36.85	34.03	32.49	27.12	25.61
55.00°	15.25	16.41	19.15	19.16	20.64	19.88	14.89	14.87	13.99	18.55	20.61	21.05	21.50	18.82	17.44	16.10	15.25
60.00°	8.97	9.82	10.93	10.44	10.94	11.79	9.16	9.08	8.80	11.11	11.44	12.53	12.94	9.89	9.17	8.82	8.97
65.00°	4.32	5.11	6.44	6.84	6.23	7.83	6.40	5.44	6.21	6.90	6.72	7.45	8.14	4.77	4.89	4.50	4.32
70.00°	2.63	3.25	3.56	4.09	4.04	5.32	5.19	4.61	5.52	5.53	6.25	5.44	6.41	2.91	3.08	2.76	2.63
75.00°	2.18	2.28	1.90	2.46	2.09	4.80	4.52	4.21	4.03	5.01	4.57	4.86	4.49	2.12	1.95	1.92	2.18
80.00°	1.48	1.62	1.77	1.55	1.29	4.26	3.69	3.70	4.34	4.75	4.82	3.92	4.31	1.51	1.49	1.52	1.48
85.00°	0.96	0.76	1.08	1.12	0.90	4.57	3.99	3.84	3.93	4.54	4.62	4.42	4.33	1.25	1.22	1.07	0.96
90.00°	0.00	0.00	0.00	0.00	0.00	4.67	4.78	5.07	5.29	5.14	4.38	5.54	6.01	0.00	0.00	0.00	0.00
95.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	1043	1043	1043	1043	1019	1019	1019	1019	973	973	973	932	932	932	894	894	894	876
	1	994	969	947	927	972	950	930	912	914	898	884	881	869	857	851	841	832	825
	2	944	901	866	836	925	886	854	826	858	831	808	832	810	791	807	790	774	774
	3	897	841	797	763	880	829	789	756	806	772	744	784	756	732	765	741	721	727
	4	853	787	739	702	837	777	732	697	758	719	689	740	708	681	724	696	673	683
RCR	5	811	738	687	650	796	730	682	647	714	673	641	699	663	635	686	655	630	643
	6	771	694	642	605	758	687	638	603	674	631	598	661	623	594	650	616	590	606
	7	734	654	602	565	723	648	599	564	637	593	561	626	587	558	617	581	555	572
	8	700	617	566	530	689	612	563	529	603	558	527	594	554	524	585	549	522	540
	9	668	584	533	499	658	580	531	498	572	527	496	564	523	494	557	520	493	512
	10	638	554	504	470	629	550	502	470	543	499	468	536	496	467	530	493	466	485

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	32.3 fc	5.6 ft
6.5 ft	23.1 fc	6.6 ft
7.5 ft	17.3 fc	7.6 ft
8.0 ft	15.2 fc	8.1 ft
10.0 ft	9.8 fc	10.2 ft
12.0 ft	6.8 fc	12.2 ft
14.0 ft	5.0 fc	14.2 ft
16.0 ft	3.8 fc	16.3 ft
20.0 ft	2.4 fc	20.3 ft
24.0 ft	1.7 fc	24.4 ft
28.0 ft	1.2 fc	28.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	324197	324197	324197
45.00°	20092	32636	29823
55.00°	8831	11091	11957
65.00°	3398	5062	4898
75.00°	2795	2441	2689
85.00°	3672	4109	3429

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	11.6	12.6	11.9	12.9	13.2	13.3	14.3	13.7	14.7	15.0
	3H	11.8	12.7	12.2	13.0	13.4	13.9	14.8	14.3	15.2	15.5
	4H	11.9	12.7	12.3	13.1	13.5	14.2	15.1	14.6	15.4	15.8
	6H	12.0	12.8	12.5	13.2	13.6	14.6	15.4	15.0	15.7	16.1
	8H	12.1	12.8	12.5	13.2	13.6	14.9	15.6	15.3	16.0	16.4
	12H	12.2	12.8	12.6	13.2	13.7	15.3	16.0	15.8	16.4	16.8
4H	2H	11.6	12.4	12.0	12.8	13.2	13.3	14.1	13.7	14.5	14.9
	3H	12.0	12.6	12.4	13.1	13.5	14.2	14.8	14.6	15.3	15.7
	4H	12.2	12.8	12.6	13.2	13.6	14.7	15.3	15.1	15.7	16.2
	6H	12.4	12.9	12.9	13.4	13.8	15.3	15.9	15.8	16.3	16.8
	8H	12.5	13.0	13.0	13.4	13.9	15.8	16.3	16.3	16.7	17.2
	12H	12.6	13.0	13.1	13.5	14.0	16.4	16.8	16.9	17.3	17.8
8H	4H	12.2	12.6	12.6	13.1	13.6	14.9	15.4	15.4	15.9	16.3
	6H	12.5	12.9	13.0	13.4	13.9	15.9	16.3	16.4	16.8	17.3
	8H	12.7	13.0	13.2	13.6	14.1	16.6	16.9	17.1	17.5	18.0
	12H	12.9	13.2	13.4	13.7	14.3	17.6	17.9	18.1	18.4	19.0
12H	4H	12.1	12.5	12.6	13.0	13.5	15.0	15.4	15.5	15.9	16.4
	6H	12.5	12.9	13.1	13.3	13.9	16.1	16.4	16.6	16.9	17.4
	8H	12.8	13.1	13.3	13.6	14.1	17.0	17.2	17.5	17.7	18.3

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0