Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
+1.508.678.2303

Spectrum Lighting Photometric Lab

Luminaire

4" Nom. Sq. x 12" H LED Cylinder XT Series, Wide Beam
C0412SQXT-20L-xxK-WD-EX-SO-xx-MW

Test Number

SP-00628_14_M-20L

Test Date

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

Summary of Results

Power

Input Watts	19 W

Lumen Output

Output Lumens	1279
Efficacy	67.31 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.73
Two luminaires, plane 90°	0.73
Four luminaires	0.78

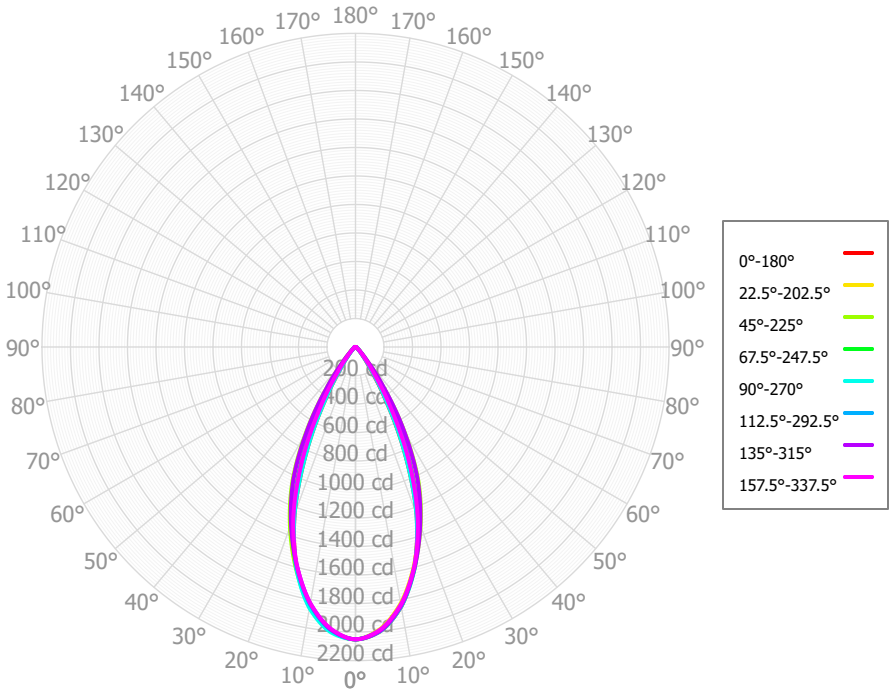
Full Beam Angle

0° - 180°	45°
90° - 270°	45°

IES File Header Contents

Keyword	Value
TEST	SP-00628_14_M-20L
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, Wide Beam
LUMCAT	C0412SQXT-20L-xxK-WD-EX-SO-xx-MW
OTHER	Matte White finish, Solite lens
OTHER	2.16" Square Aperture
OTHER	47.3 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

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	195.19	15.26%	90.00° - 100.00°	0.94	0.07%
10.00° - 20.00°	435.01	34.01%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	405.58	31.71%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	168.17	13.15%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	42.60	3.33%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	15.62	1.22%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	7.15	0.56%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	4.63	0.36%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	4.06	0.32%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1277.99	99.93%	0.00° - 180.00°	1278.94	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°	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11	2051.11
5.00°	2001.95	1986.76	1997.71	1994.69	2002.22	1992.51	1989.83	1984.88	1997.61	1990.90	1998.18	1997.35	2008.17	1995.31	1999.32	1991.52	2001.95
10.00°	1849.10	1827.34	1836.91	1842.86	1849.11	1834.82	1826.75	1826.98	1845.10	1840.10	1843.68	1842.44	1860.86	1841.62	1843.31	1834.69	1849.10
15.00°	1597.07	1586.58	1598.42	1605.18	1602.94	1595.05	1589.55	1587.80	1599.44	1603.89	1611.91	1600.21	1606.26	1597.18	1601.95	1593.75	1597.07
20.00°	1255.03	1283.64	1335.13	1284.74	1250.16	1281.95	1323.02	1275.83	1251.49	1293.48	1343.40	1282.78	1250.56	1276.12	1327.30	1276.45	1255.03
25.00°	814.91	919.56	1047.11	895.43	813.34	901.92	1033.78	893.18	818.41	916.81	1050.28	900.53	813.26	900.14	1032.97	891.58	814.91
30.00°	406.13	532.58	686.86	510.31	412.84	512.27	681.38	504.21	415.62	529.20	695.27	509.51	414.34	524.26	680.92	499.78	406.13
35.00°	163.76	241.20	336.54	229.50	171.91	231.60	355.06	225.69	173.48	241.40	360.00	226.88	171.43	241.11	342.32	220.56	163.76
40.00°	76.80	99.63	123.91	92.97	76.98	94.04	146.06	95.47	82.57	102.73	147.11	95.59	74.97	97.93	132.83	91.96	76.80
45.00°	42.30	48.38	51.23	44.98	43.47	46.68	59.14	48.12	46.69	53.04	59.98	47.67	42.69	45.91	53.93	45.91	42.30
50.00°	25.84	25.95	27.99	25.27	24.96	26.02	30.77	28.20	28.20	31.01	30.87	27.60	25.96	24.91	27.90	26.00	25.84
55.00°	14.72	15.91	16.50	15.65	16.06	15.74	18.16	17.79	17.89	18.53	19.99	17.79	14.70	14.26	15.53	14.76	14.72
60.00°	9.31	9.59	9.49	10.55	8.73	12.25	11.48	11.12	11.23	12.34	12.07	10.59	9.48	9.26	10.31	8.64	9.31
65.00°	5.90	4.85	6.02	6.11	5.40	8.81	8.17	7.58	7.89	8.45	8.14	8.37	6.71	5.71	5.36	5.02	5.90
70.00°	3.66	4.18	3.88	3.74	3.78	7.77	6.40	5.90	6.39	6.76	6.47	5.88	4.95	3.87	4.66	3.10	3.66
75.00°	2.64	2.94	2.75	3.12	2.93	6.32	5.90	4.93	6.03	7.11	5.72	5.71	5.20	2.90	3.49	2.56	2.64
80.00°	1.77	1.88	1.89	1.80	2.13	6.23	5.64	5.31	5.70	4.21	5.79	5.41	5.16	1.70	2.39	2.21	1.77
85.00°	1.71	1.40	1.55	1.29	1.92	7.07	6.34	5.93	5.81	6.00	6.50	5.49	5.71	1.88	1.85	1.45	1.71
90.00°	0.00	0.00	0.00	0.00	0.00	7.73	6.63	7.12	6.68	6.63	6.52	6.64	7.15	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%
RCR	0	1522	1522	1522	1522	1487	1487	1487	1487	1421	1421	1421	1360	1360	1360	1304	1304	1304	1278
	1	1455	1420	1390	1362	1423	1393	1365	1341	1341	1319	1299	1293	1276	1260	1250	1236	1224	1212
	2	1389	1330	1281	1240	1361	1308	1264	1226	1267	1230	1199	1229	1199	1174	1194	1170	1149	1147
	3	1326	1249	1189	1142	1301	1231	1177	1133	1198	1152	1115	1167	1129	1097	1139	1107	1080	1086
	4	1266	1176	1111	1061	1244	1162	1101	1054	1135	1083	1042	1110	1066	1030	1086	1049	1018	1030
	5	1210	1111	1042	991	1190	1099	1035	987	1077	1021	978	1056	1007	969	1036	995	961	977
	6	1157	1052	981	931	1139	1042	976	927	1023	965	921	1006	954	915	989	944	909	928
	7	1107	998	927	877	1090	989	922	875	974	914	870	959	906	866	945	898	861	883
	8	1060	948	878	830	1045	941	874	828	928	867	824	915	861	821	903	854	818	841
	9	1016	903	834	787	1003	897	831	785	885	825	783	874	820	780	864	814	778	802
	10	975	861	793	748	963	856	791	747	846	786	745	837	782	743	828	777	741	766

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	67.8 fc	4.6 ft
6.5 ft	48.5 fc	5.4 ft
7.5 ft	36.5 fc	6.2 ft
8.0 ft	32.0 fc	6.7 ft
10.0 ft	20.5 fc	8.3 ft
12.0 ft	14.2 fc	10.0 ft
14.0 ft	10.5 fc	11.6 ft
16.0 ft	8.0 fc	13.3 ft
20.0 ft	5.1 fc	16.6 ft
24.0 ft	3.6 fc	20.0 ft
28.0 ft	2.6 fc	23.3 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	681419	681419	681419
45.00°	19874	24071	20421
55.00°	8525	9555	9305
65.00°	4639	4734	4248
75.00°	3387	3526	3758
85.00°	6521	5904	7306

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	10.0	11.0	10.4	11.3	11.6	10.9	11.9	11.3	12.2	12.5
	3H	10.6	11.4	10.9	11.7	12.1	11.8	12.7	12.2	13.0	13.4
	4H	10.8	11.6	11.2	11.9	12.3	12.4	13.2	12.8	13.5	13.9
	6H	11.0	11.7	11.4	12.1	12.5	13.2	13.9	13.6	14.3	14.7
	8H	11.2	11.8	11.6	12.2	12.6	13.7	14.4	14.1	14.8	15.2
	12H	11.4	12.0	11.8	12.4	12.8	14.5	15.1	14.9	15.5	15.9
4H	2H	10.1	10.9	10.5	11.2	11.6	11.2	11.9	11.6	12.3	12.7
	3H	10.8	11.5	11.2	11.9	12.3	12.5	13.1	12.9	13.5	14.0
	4H	11.2	11.7	11.6	12.2	12.6	13.4	14.0	13.8	14.4	14.8
	6H	11.5	12.0	12.0	12.5	13.0	14.5	15.0	15.0	15.4	15.9
	8H	11.8	12.2	12.2	12.7	13.1	15.2	15.7	15.7	16.1	16.6
	12H	12.1	12.5	12.6	13.0	13.5	16.2	16.5	16.7	17.0	17.5
8H	4H	11.3	11.7	11.8	12.2	12.7	13.8	14.3	14.3	14.7	15.2
	6H	11.8	12.2	12.3	12.7	13.2	15.4	15.8	15.9	16.3	16.8
	8H	12.2	12.5	12.7	13.0	13.5	16.5	16.8	17.0	17.3	17.8
	12H	12.7	12.9	13.2	13.4	14.0	17.8	18.1	18.3	18.6	19.1
12H	4H	11.3	11.7	11.8	12.2	12.6	13.9	14.3	14.4	14.8	15.3
	6H	11.9	12.2	12.4	12.7	13.2	15.7	16.0	16.2	16.5	17.1
	8H	12.3	12.6	12.8	13.1	13.7	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