

## 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 Narrow Beam  
C0412SQXT-13L-xxK-XN-EX-GL-xx-MW

### Test Number

SP-00628\_3

### Test Date

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

### Summary of Results

#### Power

Input Watts	19.5 W
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#### Lumen Output

Output Lumens	1171
Efficacy	60.07 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.22
Two luminaires, plane 90°	0.22
Four luminaires	0.22

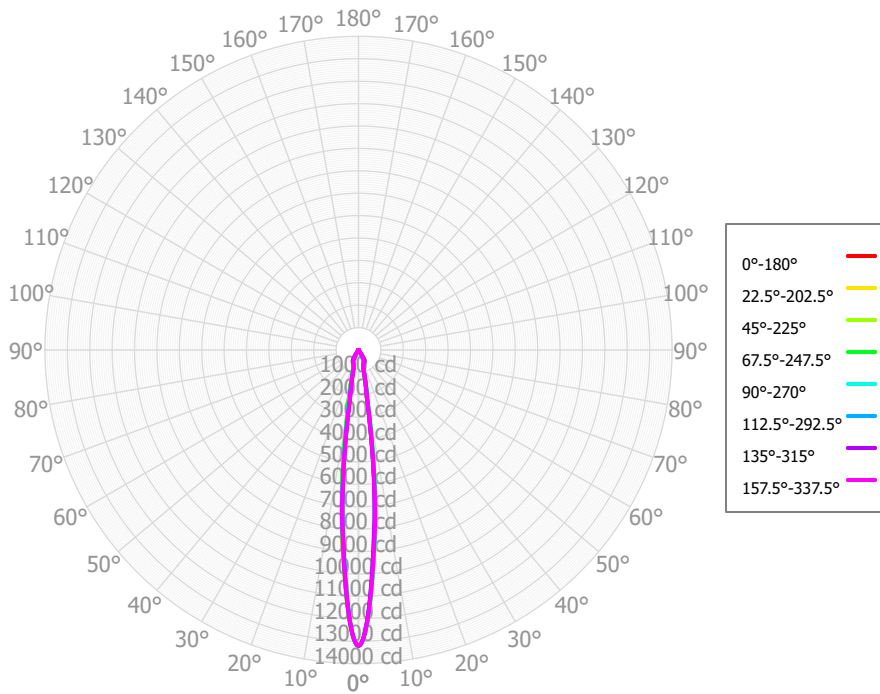
#### Full Beam Angle

0° - 180°	13°
90° - 270°	13°

### IES File Header Contents

Keyword	Value
TEST	SP-00628_3
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 Narrow Beam
LUMCAT	C0412SQXT-13L-xxK-XN-EX-GL-xx-MW
OTHER	Matte White finish, Clear Glass lens
OTHER	2.16" Square Aperture
OTHER	12.2 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°	581.18	49.61%	90.00° - 100.00°	0.15	0.01%
10.00° - 20.00°	291.20	24.86%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	222.73	19.01%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	59.82	5.11%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	4.28	0.37%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	5.12	0.44%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	2.92	0.25%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.90	0.16%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	2.13	0.18%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1171.27	99.99%	0.00° - 180.00°	1171.42	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°
0.00°	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20	13204.20
5.00°	8257.23	8450.72	8309.48	8319.05	8416.85	7971.99	8149.02	8142.31	8298.19	8175.04	8314.41	8212.11	8189.92	8128.86	8014.41	8287.34
10.00°	2136.54	2213.34	2038.96	2490.72	2270.83	2233.91	2123.80	2195.03	2404.63	2574.23	2229.92	2891.64	2485.19	2171.96	2155.47	2086.22
15.00°	805.30	825.46	798.98	872.42	832.69	835.27	837.05	833.91	869.94	908.25	839.80	978.63	884.61	840.50	830.44	819.63
20.00°	652.55	656.22	654.22	652.71	642.14	663.71	654.51	656.35	635.52	658.63	653.09	665.60	658.80	653.11	657.84	653.52
25.00°	532.63	562.99	598.67	530.90	470.24	549.63	608.37	543.82	396.70	496.96	602.62	531.61	464.17	543.52	615.27	576.74
30.00°	156.66	289.34	539.59	262.06	120.94	171.55	503.15	174.22	60.25	116.34	494.65	207.50	78.70	223.28	560.59	305.88
35.00°	14.04	33.68	286.72	41.20	10.05	9.07	194.00	11.86	7.84	8.46	157.40	32.17	9.89	15.69	249.06	33.35
40.00°	6.63	6.84	26.98	6.82	4.98	5.12	11.28	6.16	4.43	5.25	8.90	5.55	4.04	4.83	13.88	5.02
45.00°	5.09	3.44	5.45	5.39	4.37	5.72	4.98	4.70	3.68	4.56	5.40	5.34	3.80	5.17	7.57	4.43
50.00°	4.68	5.49	6.73	5.76	4.97	3.50	6.50	3.23	2.97	2.92	5.84	2.86	3.32	4.00	6.51	4.52
55.00°	4.59	6.21	5.51	7.55	6.94	4.55	8.38	4.05	4.43	4.05	6.24	5.64	4.59	5.53	6.87	7.33
60.00°	5.97	6.13	6.02	5.73	6.42	4.49	7.65	6.34	7.17	6.05	5.11	7.54	6.11	6.05	10.78	7.07
65.00°	2.71	1.46	1.41	1.92	2.47	2.16	1.90	2.46	2.24	1.63	1.82	1.90	1.92	1.32	1.56	1.83
70.00°	1.27	0.77	1.99	0.79	1.21	1.67	1.25	1.67	2.19	2.43	2.47	1.95	1.79	1.15	1.34	1.46
75.00°	1.17	1.57	2.18	1.48	1.08	2.53	1.91	1.76	2.10	2.03	2.17	2.55	1.78	1.85	1.04	1.80
80.00°	1.36	0.89	1.26	1.30	1.04	1.77	3.60	2.31	3.07	2.07	2.61	3.13	2.43	1.70	1.33	1.48
85.00°	1.66	1.06	0.92	0.75	1.81	3.87	5.17	4.33	3.20	4.75	4.16	3.32	4.75	0.72	1.33	0.99
90.00°	1.92	1.09	0.96	0.84	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.67	0.64
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>pfc</b>	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	1395	1395	1395	1395	1362	1362	1362	1362	1301	1301	1301	1246	1246	1246	1195	1195	1171
	<b>1</b>	1348	1324	1302	1282	1321	1299	1280	1262	1253	1237	1224	1210	1198	1187	1170	1162	1139
	<b>2</b>	1306	1265	1231	1202	1282	1245	1215	1189	1209	1185	1163	1176	1156	1139	1145	1129	1108
	<b>3</b>	1267	1214	1173	1141	1246	1199	1162	1132	1170	1140	1114	1143	1119	1098	1119	1099	1078
	<b>4</b>	1230	1170	1125	1092	1212	1158	1117	1085	1135	1100	1073	1113	1085	1061	1094	1070	1051
	<b>5</b>	1197	1131	1085	1051	1181	1121	1078	1046	1102	1066	1038	1085	1054	1029	1069	1042	1025
	<b>6</b>	1165	1096	1049	1016	1152	1088	1044	1013	1073	1035	1007	1059	1026	1000	1045	1017	994
	<b>7</b>	1136	1065	1018	986	1124	1058	1014	983	1045	1007	979	1034	1000	974	1023	993	970
	<b>8</b>	1109	1036	990	959	1098	1031	987	957	1020	981	954	1010	976	950	1001	970	947
	<b>9</b>	1083	1010	965	935	1074	1005	963	934	997	958	931	988	953	928	980	949	926
	<b>10</b>	1059	986	942	913	1051	982	940	912	975	937	910	968	933	908	961	929	906

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	436.5 fc	1.2 ft
6.5 ft	312.5 fc	1.5 ft
7.5 ft	234.7 fc	1.7 ft
8.0 ft	206.3 fc	1.8 ft
10.0 ft	132.0 fc	2.2 ft
12.0 ft	91.7 fc	2.7 ft
14.0 ft	67.4 fc	3.1 ft
16.0 ft	51.6 fc	3.6 ft
20.0 ft	33.0 fc	4.5 ft
24.0 ft	22.9 fc	5.4 ft
28.0 ft	16.8 fc	6.3 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	4386692	4386692	4386692
<b>45.00°</b>	2391	2561	2054
<b>55.00°</b>	2659	3193	4018
<b>65.00°</b>	2131	1108	1941
<b>75.00°</b>	1501	2800	1392
<b>85.00°</b>	6312	3506	6900

### UGR CIE 190:2010

<b>Ceiling reflectance</b>		<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>
<b>Wall reflectance</b>		<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>
<b>Plane reflectance</b>		<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>Room dimensions</b>		<b>Viewed crosswise</b>					<b>Viewed endwise</b>				
<b>2H</b>	<b>2H</b>	6.1	7.0	6.5	7.3	7.7	5.3	6.2	5.7	6.5	6.8
	<b>3H</b>	6.3	7.0	6.6	7.4	7.7	5.7	6.5	6.1	6.8	7.2
	<b>4H</b>	6.4	7.2	6.8	7.5	7.9	6.2	6.9	6.6	7.3	7.7
	<b>6H</b>	6.8	7.5	7.2	7.9	8.3	7.2	7.8	7.6	8.2	8.6
	<b>8H</b>	7.2	7.8	7.7	8.2	8.6	8.3	8.9	8.7	9.3	9.7
	<b>12H</b>	7.9	8.5	8.3	8.9	9.3	10.3	10.9	10.7	11.3	11.7
<b>4H</b>	<b>2H</b>	5.9	6.7	6.3	7.0	7.4	5.2	5.9	5.6	6.3	6.7
	<b>3H</b>	6.2	6.8	6.6	7.2	7.6	5.9	6.5	6.3	6.9	7.3
	<b>4H</b>	6.6	7.2	7.1	7.6	8.0	6.9	7.5	7.4	7.9	8.3
	<b>6H</b>	7.3	7.7	7.7	8.2	8.6	8.4	8.9	8.9	9.3	9.8
	<b>8H</b>	7.8	8.2	8.3	8.7	9.1	9.8	10.2	10.3	10.7	11.2
	<b>12H</b>	8.7	9.1	9.2	9.5	10.0	12.0	12.3	12.5	12.8	13.3
<b>8H</b>	<b>4H</b>	6.8	7.2	7.3	7.7	8.1	7.5	7.9	8.0	8.3	8.8
	<b>6H</b>	7.6	8.0	8.1	8.5	9.0	9.6	9.9	10.1	10.4	10.9
	<b>8H</b>	8.3	8.6	8.8	9.1	9.6	11.3	11.6	11.9	12.1	12.6
	<b>12H</b>	9.4	9.7	9.9	10.2	10.7	13.7	13.9	14.2	14.4	15.0
<b>12H</b>	<b>4H</b>	6.8	7.2	7.3	7.7	8.1	7.7	8.1	8.2	8.6	9.0
	<b>6H</b>	7.7	8.0	8.3	8.5	9.1	10.2	10.5	10.8	11.0	11.5
	<b>8H</b>	8.5	8.8	9.0	9.3	9.9	12.2	12.4	12.7	12.9	13.5

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0