

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CW04XXPC 20L 35K ND XX CL XX

Nom 4" diam Gamma Cylinder (wet location), ND optic, clear glass lens

Test Number

SP-01050

Test Date

1/30/2020

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

Summary of Results

Power

Input Watts	12.9 W
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Lumen Output

Output Lumens	1128
Efficacy	87.42 lm/W

Luminous Dimensions

0° - 180° Size	-0.33
90° - 270° Size	-0.33
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.35
Two luminaires, plane 90°	0.35
Four luminaires	0.37

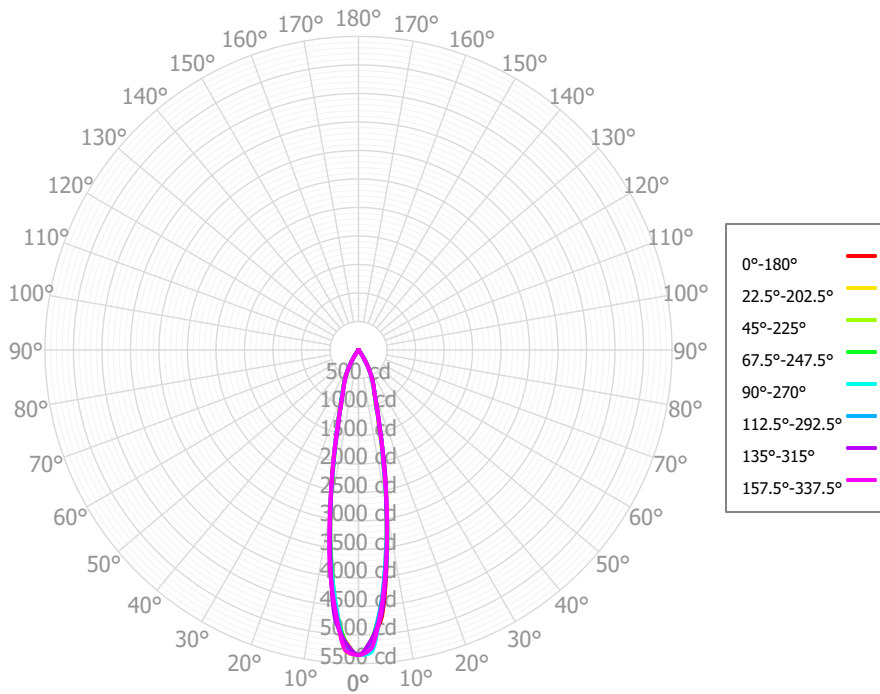
Full Beam Angle

0° - 180°	21°
90° - 270°	21°

IES File Header Contents

Keyword	Value
TEST	SP-01050
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/30/2020
ISSUEDATE	12/8/2020
LUMCAT	CW04XXPC 20L 35K ND XX CL XX
LUMINAIRE	Nom 4" diam Gamma Cylinder (wet location), ND optic, clear glass lens
OTHER	Beam Angle: 21.2 deg
OTHER	Narrow optic
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: 27K x 0.97, 30K x 0.98, 40K x 1.04, 27HK x 0.89, 30HK x 0.83
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80
_CCTMULT	27K x 0.97, 30K x 0.98, 40K x 1.04
_CCTMULTA	27HK x 0.89, 30HK x 0.83
_LAMPMULT	10L x 0.50, 15L x 0.74

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	381.29	33.81%	90.00° - 100.00°	0.09	0.01%
10.00° - 20.00°	416.56	36.94%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	251.12	22.27%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	64.21	5.69%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	4.40	0.39%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	4.39	0.39%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	2.45	0.22%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.70	0.15%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.49	0.13%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1127.60	99.99%	0.00° - 180.00°	1127.69	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°	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56	5348.56
2.50°	5116.85	5257.31	5089.20	5142.40	5300.72	5185.65	5140.13	5275.32	5121.42	5284.02	5127.22	5146.96	5252.12	5122.08	5092.65	5237.04	5116.85
5.00°	4697.97	4522.81	4545.45	4524.43	4537.61	4578.35	4731.36	4606.75	4699.96	4549.54	4589.84	4534.73	4498.37	4497.74	4648.91	4559.99	4697.97
7.50°	3779.62	3742.11	3651.55	3774.15	3766.67	3824.50	3758.45	3854.68	3746.57	3789.83	3792.72	3671.80	3735.42	3649.62	3754.76	3727.45	3779.62
10.00°	2828.85	2853.22	2805.85	2840.01	2857.52	2850.03	2820.64	2891.62	2825.91	2860.58	2824.82	2824.80	2851.72	2825.96	2823.31	2873.18	2828.85
12.50°	2106.04	1963.80	2008.74	2064.61	1975.33	2043.45	2045.22	2050.21	2078.76	1998.61	2071.74	1985.20	2005.56	2012.67	2117.60	2014.07	2106.04
15.00°	1391.60	1470.06	1429.71	1483.32	1478.67	1455.76	1367.30	1469.12	1413.16	1478.36	1440.40	1450.51	1489.26	1481.98	1422.55	1497.48	1391.60
17.50°	1101.04	988.99	1044.62	1073.98	1012.99	1044.18	1050.33	1022.13	1087.30	1024.36	1078.11	1035.76	1019.54	1053.97	1110.53	1040.11	1101.04
20.00°	817.48	828.99	806.10	847.40	836.61	834.87	784.76	824.36	808.07	842.32	846.44	828.02	842.93	840.71	806.56	847.40	817.48
22.50°	700.50	672.39	680.80	679.61	667.85	674.06	675.39	661.87	686.27	674.83	696.33	688.32	676.72	692.18	692.33	689.42	700.50
25.00°	582.12	558.97	554.82	566.94	549.31	561.66	559.43	555.79	560.39	555.89	580.43	559.45	561.82	560.97	576.76	561.92	582.12
27.50°	446.66	443.04	428.39	437.82	427.59	434.71	426.47	436.03	422.95	431.87	444.89	433.57	441.90	434.10	438.61	437.12	446.66
30.00°	312.27	306.36	298.34	295.30	289.93	295.11	296.10	297.38	290.02	293.59	302.44	299.55	302.34	298.24	301.93	300.18	312.27
32.50°	186.91	177.12	166.16	177.52	163.58	177.14	171.40	178.60	167.92	170.32	183.67	163.75	175.59	160.59	180.54	162.61	186.91
35.00°	74.16	93.85	85.06	77.46	83.02	75.72	75.91	83.99	73.44	82.52	71.94	88.65	89.75	86.55	69.85	89.36	74.16
37.50°	37.91	23.35	29.65	28.29	19.19	25.86	34.98	27.83	35.11	20.39	32.78	23.95	24.15	22.05	35.84	18.17	37.91
40.00°	7.77	13.40	9.59	10.65	10.46	10.16	8.51	12.33	9.57	10.74	11.09	12.11	13.28	10.85	7.04	11.57	7.77
42.50°	6.16	5.37	4.90	4.56	4.05	4.37	5.62	4.92	6.64	4.59	6.52	7.12	5.88	5.52	6.20	5.30	6.16
45.00°	5.05	4.74	4.00	4.64	4.03	4.25	3.90	5.06	4.84	4.54	5.27	6.19	6.35	4.96	5.49	5.07	5.05
47.50°	5.87	4.27	4.49	4.71	4.01	3.99	3.85	4.86	4.75	4.90	5.05	5.60	6.45	4.73	5.32	4.89	5.87
50.00°	6.26	4.29	4.60	4.78	4.00	3.66	4.10	4.40	4.97	5.86	4.99	5.40	5.80	5.51	5.17	5.15	6.26
52.50°	5.34	4.54	4.58	4.84	4.07	3.82	4.73	4.39	5.60	6.38	5.00	5.23	5.50	6.31	5.11	5.43	5.34
55.00°	4.51	5.39	4.42	4.88	4.30	4.20	5.10	4.70	5.13	6.31	5.02	6.32	5.78	6.14	5.03	5.87	4.51
57.50°	3.91	5.39	4.22	3.96	4.22	3.67	5.20	4.64	3.39	5.57	5.18	7.36	5.50	5.93	4.88	5.95	3.91
60.00°	3.31	3.47	3.25	2.72	3.60	2.82	4.51	4.35	2.64	4.05	5.34	4.91	4.39	4.48	4.59	4.00	3.31
62.50°	2.70	2.14	2.13	2.12	2.90	2.40	3.08	3.69	2.88	2.93	3.90	2.56	3.45	3.09	3.93	2.44	2.70
65.00°	2.33	1.97	1.49	1.68	2.11	2.11	2.23	2.82	2.55	2.20	2.46	2.04	2.72	2.44	3.34	2.55	2.33
67.50°	2.38	1.70	0.93	1.52	1.76	1.75	1.83	2.20	1.76	1.65	2.01	1.62	2.13	1.86	2.90	2.61	2.38
70.00°	2.16	1.28	1.28	1.40	1.89	1.39	1.69	1.67	1.45	1.24	1.68	1.86	1.66	1.76	2.63	2.50	2.16
72.50°	1.57	1.33	1.60	1.52	1.69	1.22	1.65	1.53	1.33	1.32	1.78	1.94	1.29	1.73	2.60	2.43	1.57
75.00°	1.26	1.73	1.62	1.55	1.37	1.15	1.75	1.45	1.37	1.53	1.75	1.73	1.01	1.84	2.09	2.40	1.26
77.50°	1.14	1.45	1.59	1.46	1.12	1.22	1.61	1.49	1.62	1.82	1.68	1.68	1.37	1.80	1.42	1.95	1.14
80.00°	1.44	1.37	1.50	1.14	1.43	1.51	1.48	2.04	1.66	1.43	1.91	1.69	1.57	1.66	1.63	1.58	1.44
82.50°	1.66	1.50	1.32	1.50	1.68	1.35	1.63	1.26	1.51	1.02	1.55	1.69	1.92	1.40	1.39	1.58	1.66
85.00°	1.40	1.56	1.48	1.35	1.51	1.78	1.42	1.19	1.36	1.10	1.26	1.71	2.07	1.17	1.15	1.31	1.40
87.50°	1.04	1.54	1.31	1.07	1.25	1.50	1.47	1.98	1.62	1.40	1.53	1.89	1.41	1.16	1.20	1.38	1.04
90.00°	1.30	1.32	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	1.31	1.23	1.48	1.14	1.30
92.50°	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
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
97.50°	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
102.50°	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
107.50°	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
112.50°	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.

RCR	pfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	1342	1342	1342	1342	1311	1311	1311	1311	1253	1253	1253	1200	1200	1200	1151	1151	1128
	1	1294	1269	1247	1226	1267	1245	1225	1207	1200	1184	1170	1159	1147	1135	1121	1111	1103
	2	1249	1206	1171	1141	1226	1187	1156	1129	1152	1126	1104	1120	1099	1081	1089	1073	1059
	3	1206	1151	1109	1075	1186	1136	1097	1066	1108	1076	1049	1082	1056	1033	1058	1037	1018
	4	1166	1102	1056	1020	1148	1091	1047	1014	1068	1032	1003	1047	1016	991	1028	1002	984
	5	1129	1059	1010	974	1113	1049	1004	970	1031	992	962	1014	980	954	998	969	946
	6	1093	1019	970	934	1079	1011	965	931	996	956	925	982	947	919	969	938	914
	7	1060	983	934	899	1048	977	930	897	964	923	892	952	916	888	941	909	884
	8	1029	950	901	867	1018	945	898	866	934	892	862	924	887	859	915	881	856
	9	999	920	872	839	989	915	869	838	906	864	835	898	860	833	890	855	830
	10	971	892	844	813	962	888	842	812	880	838	810	873	835	808	866	831	806

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	176.8 fc	2.0 ft
6.5 ft	126.6 fc	2.4 ft
7.5 ft	95.1 fc	2.8 ft
8.0 ft	83.6 fc	3.0 ft
10.0 ft	53.5 fc	3.7 ft
12.0 ft	37.1 fc	4.5 ft
14.0 ft	27.3 fc	5.2 ft
16.0 ft	20.9 fc	5.9 ft
20.0 ft	13.4 fc	7.4 ft
24.0 ft	9.3 fc	8.9 ft
28.0 ft	6.8 fc	10.4 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	673115	673115	673115
45.00°	899	712	717
55.00°	989	970	944
65.00°	694	443	627
75.00°	614	787	664
85.00°	2028	2140	2182

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	0.6	1.5	1.0	1.8	2.1	1.0	1.9	1.3	2.2	2.5
	3H	1.4	2.2	1.8	2.5	2.9	1.4	2.2	1.8	2.5	2.9
	4H	1.8	2.5	2.2	2.9	3.3	1.6	2.4	2.1	2.7	3.1
	6H	2.3	3.0	2.7	3.3	3.7	2.2	2.9	2.6	3.3	3.7
	8H	2.9	3.5	3.3	3.9	4.3	2.9	3.5	3.3	3.9	4.3
	12H	3.6	4.2	4.0	4.5	5.0	3.9	4.4	4.3	4.8	5.3
4H	2H	0.7	1.4	1.1	1.7	2.1	1.0	1.7	1.4	2.0	2.4
	3H	1.7	2.3	2.2	2.7	3.1	1.6	2.2	2.0	2.6	3.0
	4H	2.5	3.0	2.9	3.4	3.9	2.0	2.6	2.5	3.0	3.4
	6H	3.3	3.7	3.7	4.2	4.7	2.9	3.4	3.4	3.9	4.3
	8H	4.0	4.4	4.5	4.9	5.3	3.8	4.2	4.3	4.7	5.2
	12H	4.8	5.2	5.3	5.7	6.2	5.0	5.4	5.5	5.9	6.4
8H	4H	2.7	3.2	3.2	3.6	4.1	2.3	2.7	2.8	3.2	3.6
	6H	3.8	4.2	4.3	4.7	5.1	3.6	3.9	4.1	4.4	4.9
	8H	4.7	5.0	5.3	5.6	6.1	4.7	4.9	5.2	5.5	6.0
	12H	5.9	6.1	6.4	6.6	7.2	6.2	6.4	6.7	6.9	7.5
12H	4H	2.8	3.1	3.3	3.6	4.1	2.4	2.7	2.9	3.2	3.7
	6H	4.0	4.3	4.5	4.7	5.3	3.8	4.1	4.3	4.6	5.1
	8H	5.0	5.3	5.5	5.8	6.3	5.0	5.2	5.5	5.7	6.3

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0