Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

CW04XXUDPC 20LMDCL 20LMDCL 35KXX XXMW (IND/DIR Wet location)
Nom. 4" Diam. Gamma Indirect/Direct Cylinder

Test Number

SP-01086

Test Date

1/20/2020

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

Summary of Results

Power

Input Watts	25.8 W

Lumen Output

Output Lumens	2199
Efficacy	85.22 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	0.45
Two luminaires, plane 90°	0.44
Four luminaires	0.47

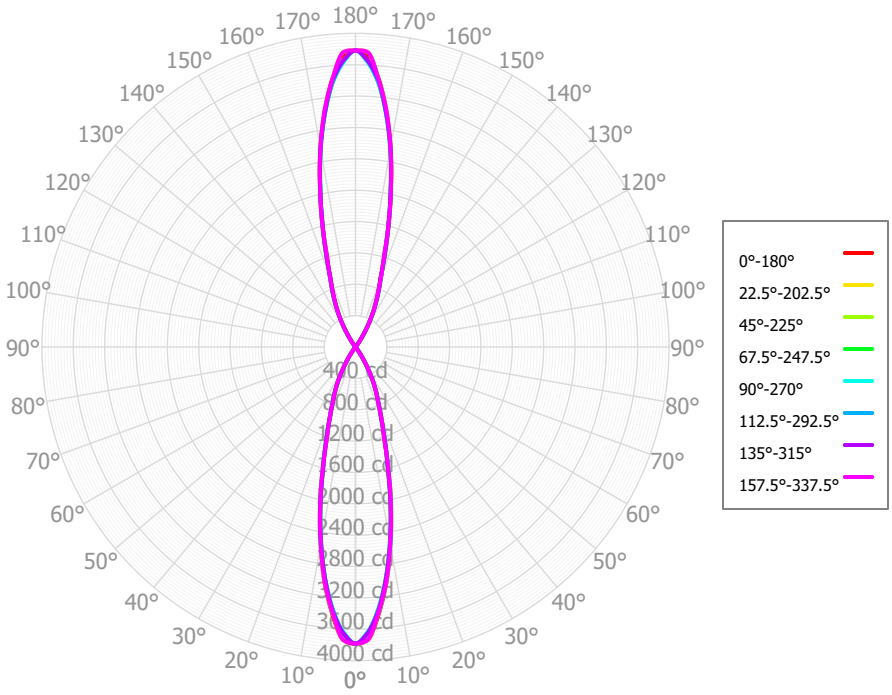
Full Beam Angle

0° - 180°	333°
90° - 270°	333°

IES File Header Contents

Keyword	Value
TEST	SP-01086
TESTLAB	VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/20/2020
ISSUEDATE	12/16/2020
LUMCAT	CW04XXUDPC 20LMDCL 20LMDCL 35KXX XXMW (IND/DIR Wet location)
LUMINAIRE	Nom. 4" Diam. Gamma Indirect/Direct Cylinder
OTHER	Uplight: Medium Optic, Flush Clear Glass lens
OTHER	Uplight: 27.2 Degree Beam Angle
OTHER	Downlight: Medium Optic, Regressed Glass lens
OTHER	Downlight: 27.2 Degree Beam Angle
OTHER	Trim: Matte White
LAMP	N/A
LAMPCAT	N/A, 19mm LES Uplight
OTHER	N/A, 19mm LES Downlight
OTHER	Total Luminaire Watts is approximate
OTHER	CCT Output Multipliers: 27K x 0.97, 30K x 0.98, 40K x 1.04, 27HK x 0.78, 30HK x 0.82
OTHER	See Catalog cut sheet for different source lumen multipliers
OTHER	This report prepared by Spectrum Lighting
_CRI	80
CCTMULT	27K x 0.97. 30K x 0.98. 40K x 1.04

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	310.78	14.13%	90.00° - 100.00°	1.33	0.06%
10.00° - 20.00°	444.02	20.20%	100.00° - 110.00°	1.50	0.07%
20.00° - 30.00°	273.86	12.46%	100.00° - 120.00°	3.65	0.17%
30.00° - 40.00°	68.09	3.10%	120.00° - 130.00°	3.02	0.14%
40.00° - 50.00°	5.04	0.23%	130.00° - 140.00°	5.18	0.24%
50.00° - 60.00°	2.76	0.13%	140.00° - 150.00°	69.57	3.16%
60.00° - 70.00°	1.79	0.08%	150.00° - 160.00°	272.79	12.41%
70.00° - 80.00°	1.54	0.07%	160.00° - 170.00°	446.34	20.30%
80.00° - 90.00°	1.26	0.06%	170.00° - 180.00°	312.53	14.21%
0.00° - 90.00°	1109.13	50.45%	0.00° - 180.00°	2223.53	101.13%

Candela Distribution

	0.00°	22.50°	45.00°	67.50°	90.00°
0.00°	3784.75	3784.75	3784.75	3784.75	3784.75
2.50°	3735.56	3735.92	3650.41	3649.93	3633.78
5.00°	3415.55	3388.24	3379.85	3356.15	3391.54
7.50°	3026.71	3018.49	2983.32	2974.74	2997.44
10.00°	2564.96	2548.94	2545.48	2527.28	2565.22
12.50°	2094.41	2081.36	2073.19	2067.10	2078.45
15.00°	1614.06	1623.53	1588.84	1596.85	1632.15
17.50°	1231.80	1200.66	1240.33	1233.54	1246.87
20.00°	964.39	966.88	942.59	959.43	943.39
22.50°	753.25	746.10	755.00	753.95	769.90
25.00°	611.41	602.91	611.22	608.66	604.31
27.50°	465.58	459.56	461.93	459.67	451.97
30.00°	314.57	315.13	310.31	307.27	308.37
32.50°	186.74	178.07	189.16	182.49	180.24
35.00°	90.51	95.94	81.68	84.51	81.81
37.50°	28.24	21.70	33.84	28.04	38.82
40.00°	14.72	14.06	14.32	13.90	9.50
42.50°	6.45	7.03	7.00	6.24	7.16
45.00°	6.14	6.05	5.80	5.54	5.34
47.50°	5.56	5.10	4.82	5.07	4.58
50.00°	4.57	4.51	3.96	4.84	3.81
52.50°	3.68	3.90	3.41	4.16	2.98
55.00°	2.96	2.85	3.03	2.95	2.49
57.50°	2.52	1.86	2.81	2.30	2.81
60.00°	2.56	1.89	2.68	2.33	2.87
62.50°	2.46	1.90	2.21	2.17	2.25
65.00°	2.14	1.56	1.51	1.74	1.76
67.50°	1.86	1.23	1.34	1.53	1.60
70.00°	1.67	1.32	1.53	1.61	1.48
72.50°	1.54	1.41	1.40	1.66	1.47
75.00°	1.53	1.46	1.05	1.66	1.51
77.50°	1.49	1.52	0.99	1.61	1.73
80.00°	1.38	1.54	1.12	1.51	1.73
82.50°	1.24	1.46	1.29	1.25	1.47
85.00°	1.09	1.15	1.32	1.01	1.07
87.50°	0.94	1.11	1.10	0.98	0.85
90.00°	1.02	0.91	1.39	0.44	0.00
92.50°	1.17	1.18	1.32	1.14	0.85
95.00°	1.15	1.09	1.48	1.49	1.07
97.50°	1.23	1.23	1.19	1.51	1.47
100.00°	1.20	1.29	1.49	1.37	1.73
102.50°	1.18	1.25	1.60	1.24	1.73
105.00°	1.21	1.31	1.54	1.16	1.51
107.50°	1.36	1.50	1.69	1.11	1.47
110.00°	1.56	2.00	1.88	1.07	1.48
112.50°	1.93	2.33	2.30	1.31	1.60

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	2382	2382	2382	2382	2197	2197	2197	2197	1851	1851	1851	1536	1536	1536	1245	1245	1245	1109
	1	2237	2167	2104	2048	2068	2010	1958	1911	1717	1682	1650	1448	1426	1406	1199	1187	1176	1069
	2	2103	1985	1887	1805	1950	1851	1769	1699	1600	1544	1495	1368	1332	1301	1154	1133	1115	1030
	3	1981	1829	1712	1619	1841	1714	1615	1534	1497	1428	1370	1297	1251	1212	1110	1083	1059	992
	4	1869	1695	1567	1470	1742	1595	1486	1401	1407	1329	1267	1232	1179	1136	1069	1036	1010	957
	5	1767	1578	1446	1348	1651	1491	1377	1292	1326	1243	1180	1173	1116	1071	1029	993	964	923
	6	1674	1476	1343	1247	1569	1400	1284	1200	1254	1169	1106	1119	1059	1014	992	953	923	891
	7	1590	1386	1254	1162	1494	1319	1203	1121	1190	1104	1042	1070	1009	963	957	917	886	861
	8	1514	1307	1178	1089	1425	1247	1133	1054	1133	1047	985	1025	963	918	924	882	851	833
	9	1444	1237	1111	1026	1362	1184	1072	996	1081	996	936	984	922	877	893	851	819	806
	10	1380	1175	1052	970	1305	1127	1018	944	1034	950	892	947	885	841	864	821	790	781

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	125.1 fc	0.0 ft
6.5 ft	89.6 fc	0.0 ft
7.5 ft	67.3 fc	0.0 ft
8.0 ft	59.1 fc	0.0 ft
10.0 ft	37.8 fc	0.0 ft
12.0 ft	26.3 fc	0.0 ft
14.0 ft	19.3 fc	0.0 ft
16.0 ft	14.8 fc	0.0 ft
20.0 ft	9.5 fc	0.0 ft
24.0 ft	6.6 fc	0.0 ft
28.0 ft	4.8 fc	0.0 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	476310	476310	476310
45.00°	1093	1032	950
55.00°	650	665	547
65.00°	636	449	524
75.00°	743	510	736
85.00°	1580	1907	1542

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	-10.5	-9.9	-9.5	-8.9	-7.6	-9.2	-8.6	-8.2	-7.6	-6.3
	3H	-8.1	-7.5	-7.1	-6.5	-5.2	-7.3	-6.8	-6.3	-5.8	-4.5
	4H	-6.5	-6.0	-5.5	-5.0	-3.7	-6.0	-5.4	-4.9	-4.4	-3.1
	6H	-4.8	-4.3	-3.7	-3.3	-2.0	-4.0	-3.5	-3.0	-2.5	-1.2
	8H	-3.9	-3.5	-2.9	-2.5	-1.1	-3.1	-2.7	-2.1	-1.7	-0.3
	12H	-3.1	-2.7	-2.1	-1.6	-0.3	-2.4	-2.0	-1.4	-1.0	0.4
4H	2H	-9.9	-9.4	-8.9	-8.4	-7.1	-8.9	-8.3	-7.8	-7.3	-6.0
	3H	-7.2	-6.8	-6.2	-5.7	-4.4	-6.5	-6.1	-5.5	-5.0	-3.7
	4H	-5.4	-5.0	-4.4	-4.0	-2.6	-4.8	-4.4	-3.8	-3.4	-2.0
	6H	-3.3	-3.0	-2.3	-2.0	-0.6	-2.7	-2.3	-1.6	-1.3	0.1
	8H	-2.3	-2.0	-1.3	-1.0	0.4	-1.7	-1.4	-0.7	-0.4	1.0
	12H	-1.4	-1.1	-0.3	-0.1	1.3	-0.9	-0.6	0.1	0.4	1.8
8H	4H	-5.0	-4.7	-3.9	-3.6	-2.3	-4.5	-4.1	-3.4	-3.1	-1.8
	6H	-2.5	-2.3	-1.5	-1.2	0.2	-2.0	-1.8	-1.0	-0.7	0.7
	8H	-1.3	-1.0	-0.2	0.0	1.4	-0.9	-0.7	0.2	0.4	1.8
	12H	-0.1	0.1	1.0	1.2	2.6	0.1	0.3	1.2	1.3	2.8
12H	4H	-4.8	-4.5	-3.7	-3.5	-2.1	-4.3	-4.0	-3.3	-3.0	-1.6
	6H	-2.3	-2.1	-1.2	-1.0	0.4	-1.8	-1.6	-0.8	-0.6	0.8
	8H	-0.9	-0.7	0.2	0.4	1.8	-0.6	-0.4	0.5	0.6	2.1

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0