Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR3Mx 25L 35HK WD xx xx RH3F 25L 35HK WD MW NL

Nom. 3" Round Pinhole A-Spec, Wide Beam

Test Number

SP-01404_2

Test Date

9/14/2022

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

Summary of Results

Power

Input Watts	26.3 W

Lumen Output

Output Lumens	1536
Efficacy	58.4 lm/W

Luminous Dimensions

0° - 180° Size	-0.15
90° - 270° Size	-0.15
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.68
Two luminaires, plane 90°	0.68
Four luminaires	0.67

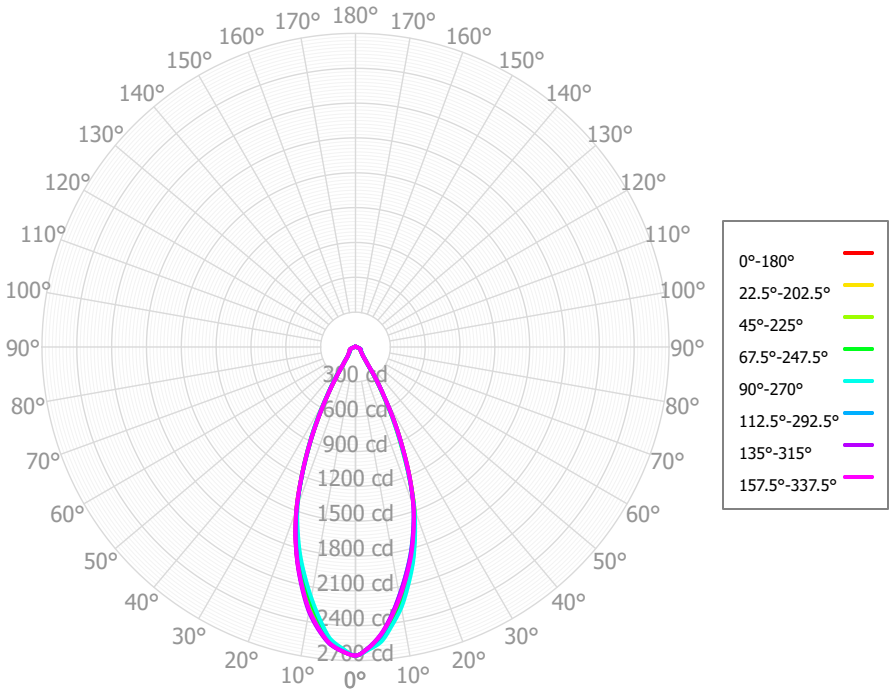
Full Beam Angle

0° - 180°	43°
90° - 270°	43°

IES File Header Contents

Keyword	Value
TEST	SP-01404_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	9/14/2022
ISSUEDATE	10/25/2022
LUMCAT	SR3Mx 25L 35HK WD xx xx RH3F 25L 35HK WD MW NL
LUMINAIRE	Nom. 3" Round Pinhole A-Spec, Wide Beam
OTHER	Matte White Trim, No lens
OTHER	43 Degree Beam Angle
LAMP	N/A, 19mm LES
LAMPCAT	N/A, Min. 90 CRI
OTHER	Reference project SL167
OTHER	minus 2W, no thermal protection required for 7L, 10L, and 15L (non-IC)
OTHER	minus 2W, no thermal protection required for all (including 20L and 25L) IC luminaires
OTHER	Total Luminaire Watts is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	90

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	234.50	15.27%	90.00° - 100.00°	1.89	0.12%
10.00° - 20.00°	517.82	33.71%	100.00° - 110.00°	1.78	0.12%
20.00° - 30.00°	431.20	28.07%	100.00° - 120.00°	3.51	0.23%
30.00° - 40.00°	142.86	9.30%	120.00° - 130.00°	1.62	0.11%
40.00° - 50.00°	63.15	4.11%	130.00° - 140.00°	1.45	0.09%
50.00° - 60.00°	51.61	3.36%	140.00° - 150.00°	1.25	0.08%
60.00° - 70.00°	48.89	3.18%	150.00° - 160.00°	0.97	0.06%
70.00° - 80.00°	26.12	1.70%	160.00° - 170.00°	0.58	0.04%
80.00° - 90.00°	8.34	0.54%	170.00° - 180.00°	0.19	0.01%
0.00° - 90.00°	1524.49	99.25%	0.00° - 180.00°	1535.96	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°	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39	2657.39
2.50°	2596.76	2600.65	2597.67	2602.60	2609.29	2618.81	2623.55	2621.94	2621.68	2617.36	2609.55	2604.59	2598.43	2592.38	2590.39	2594.44	2596.76
5.00°	2500.70	2518.17	2521.64	2527.68	2547.84	2562.63	2566.13	2559.68	2560.27	2555.75	2538.69	2534.48	2520.16	2501.66	2485.45	2490.50	2500.70
7.50°	2355.66	2367.65	2375.09	2394.55	2416.23	2438.13	2453.92	2442.64	2432.53	2418.36	2396.13	2381.17	2362.45	2345.37	2340.33	2351.64	2355.66
10.00°	2194.82	2208.68	2225.09	2250.12	2277.11	2300.10	2313.56	2299.29	2291.14	2275.25	2243.61	2223.62	2192.87	2174.20	2173.71	2192.00	2194.82
12.50°	2028.92	2039.30	2056.16	2079.81	2099.37	2113.44	2127.51	2117.41	2112.68	2095.69	2066.60	2048.62	2019.60	2005.17	2007.30	2025.09	2028.92
15.00°	1861.51	1868.80	1883.14	1904.98	1915.96	1920.77	1930.92	1925.24	1925.65	1911.97	1886.62	1869.39	1845.85	1836.57	1841.00	1854.08	1861.51
17.50°	1668.91	1673.59	1689.93	1692.24	1704.63	1708.07	1717.65	1718.37	1716.83	1704.52	1684.30	1673.38	1655.57	1651.07	1654.53	1663.20	1668.91
20.00°	1469.33	1476.12	1483.69	1473.16	1481.46	1481.23	1482.52	1485.90	1489.33	1487.07	1479.44	1465.78	1463.23	1462.22	1458.16	1461.79	1469.33
22.50°	1223.02	1223.01	1215.71	1202.58	1205.10	1208.85	1214.69	1218.82	1217.35	1218.07	1214.38	1215.77	1215.64	1216.12	1217.65	1221.80	1223.02
25.00°	964.22	965.22	952.85	924.32	936.66	944.79	955.44	957.94	952.83	953.73	943.42	968.66	962.10	959.73	956.75	961.90	964.22
27.50°	726.79	724.80	712.19	692.00	700.84	705.63	708.34	705.24	705.57	712.41	712.86	731.31	730.10	727.03	719.94	724.11	726.79
30.00°	494.61	485.59	486.69	465.74	480.25	486.11	491.73	486.65	482.62	485.04	485.63	509.24	500.07	498.39	493.58	497.06	494.61
32.50°	334.63	330.28	324.44	316.72	320.09	323.55	317.22	310.69	312.46	320.47	329.71	337.19	337.76	334.48	328.16	331.82	334.63
35.00°	190.95	179.47	185.98	177.30	185.15	192.47	195.41	190.95	183.38	179.92	179.17	195.27	181.18	180.49	188.45	195.80	190.95
37.50°	137.36	137.53	138.76	134.01	142.41	146.60	142.49	137.78	138.27	138.39	138.29	145.00	134.91	131.97	128.14	133.42	137.36
40.00°	103.30	100.73	99.70	101.06	106.57	109.81	107.56	104.29	104.95	103.09	103.99	104.11	96.26	97.77	99.21	103.76	103.30
42.50°	88.68	89.81	89.53	90.25	94.07	95.99	94.88	93.56	95.10	92.51	91.34	90.84	85.92	85.44	84.38	87.76	88.68
45.00°	77.89	79.74	79.72	81.47	82.63	83.52	84.84	84.50	86.04	82.70	79.84	79.37	77.11	75.90	74.76	77.46	77.89
47.50°	70.23	71.35	71.10	73.24	74.62	74.37	77.98	77.27	78.47	75.68	73.47	72.84	70.85	69.56	68.04	69.53	70.23
50.00°	63.15	63.01	63.38	65.07	67.07	66.42	71.02	70.87	71.42	68.98	67.29	66.85	64.70	63.56	62.36	62.56	63.15
52.50°	58.21	59.02	58.49	58.99	60.92	61.24	63.95	65.31	65.34	63.42	61.96	62.22	60.73	59.12	58.38	57.64	58.21
55.00°	53.62	55.09	54.17	53.05	55.79	57.11	58.78	60.35	60.34	58.59	56.66	58.41	56.84	54.82	54.97	53.50	53.62
57.50°	51.04	52.07	51.49	51.93	53.69	55.26	55.73	56.01	57.22	56.19	56.05	56.61	54.85	53.71	52.68	51.24	51.04
60.00°	48.77	49.07	49.61	51.09	52.67	54.36	54.70	54.65	55.46	54.48	55.54	55.38	52.91	52.87	50.76	49.65	48.77
62.50°	49.12	49.13	50.01	51.04	54.65	55.44	55.81	56.14	55.89	54.86	53.81	55.46	53.12	52.11	50.07	48.82	49.12
65.00°	49.86	49.07	48.89	51.02	54.34	54.37	53.71	54.56	54.56	53.56	52.04	53.42	53.36	51.37	49.74	48.24	49.86
67.50°	44.15	43.16	43.72	44.66	48.13	49.05	48.38	50.17	50.43	47.27	46.44	46.70	46.07	45.30	44.21	43.77	44.15
70.00°	37.63	37.15	37.71	38.09	41.21	42.24	41.79	43.36	44.06	40.77	40.80	39.99	38.78	38.89	37.24	38.05	37.63
72.50°	29.99	28.40	29.53	30.39	32.55	32.56	33.97	34.39	34.33	33.69	31.97	33.27	31.53	31.70	29.90	30.48	29.99
75.00°	22.24	19.83	21.99	22.66	24.26	23.99	26.02	25.84	25.55	26.39	23.26	26.16	24.31	24.46	22.46	22.34	22.24
77.50°	17.20	15.28	16.05	17.07	16.84	17.43	17.96	17.64	18.12	18.50	18.67	18.23	18.72	18.30	16.73	17.00	17.20
80.00°	12.45	10.85	11.34	11.51	11.39	12.39	13.22	13.17	13.35	12.61	14.19	12.90	13.24	12.17	11.42	12.45	12.45
82.50°	9.51	8.39	9.46	9.67	10.27	9.96	11.39	11.76	12.28	11.68	12.30	12.65	11.06	10.50	8.81	9.58	9.51
85.00°	6.73	5.95	7.15	7.81	8.28	7.25	8.32	8.63	9.58	9.71	10.29	10.58	8.82	8.97	6.81	7.14	6.73
87.50°	4.32	3.72	3.93	4.80	4.43	4.07	4.16	4.17	4.75	5.30	5.85	5.16	5.21	5.36	4.49	4.84	4.32
90.00°	1.95	1.66	1.74	1.85	1.80	1.95	2.06	2.02	1.99	2.26	1.68	1.69	1.79	1.73	2.10	2.57	1.95
92.50°	2.01	1.66	1.72	1.69	1.65	1.50	1.66	1.57	1.80	2.23	1.65	1.63	1.52	1.78	1.72	1.82	2.01
95.00°	2.24	1.66	1.73	1.54	1.57	1.33	1.44	1.39	1.81	2.13	1.64	1.67	1.29	1.84	1.74	1.42	2.24
97.50°	2.08	1.67	1.83	1.67	1.62	1.59	1.38	1.42	2.06	1.89	1.78	1.91	1.66	1.60	1.75	1.50	2.08
100.00°	1.90	1.68	1.85	1.80	1.69	1.75	1.35	1.38	2.17	1.70	1.90	1.93	2.00	1.37	1.75	1.68	1.90

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	1826	1826	1826	1826	1782	1782	1782	1782	1700	1700	1700	1625	1625	1625	1557	1557	1557	1524
	1	1733	1688	1647	1610	1694	1653	1617	1583	1589	1559	1532	1529	1506	1485	1475	1457	1440	1426
	2	1645	1567	1502	1447	1609	1539	1480	1430	1487	1439	1397	1439	1400	1365	1395	1363	1335	1335
	3	1563	1462	1384	1321	1531	1440	1368	1310	1398	1337	1287	1359	1308	1266	1322	1281	1245	1255
	4	1488	1371	1286	1220	1459	1353	1274	1212	1318	1250	1197	1286	1228	1182	1256	1207	1167	1184
RCR	5	1419	1291	1202	1137	1393	1276	1193	1131	1247	1175	1120	1221	1158	1109	1196	1142	1098	1121
	6	1355	1220	1130	1066	1331	1208	1123	1062	1184	1109	1054	1161	1096	1046	1140	1083	1038	1063
	7	1295	1157	1067	1004	1274	1146	1062	1001	1126	1050	995	1107	1040	989	1089	1029	983	1012
	8	1240	1100	1011	950	1222	1091	1007	948	1073	997	943	1057	989	939	1042	980	934	964
	9	1189	1048	961	902	1172	1040	957	900	1025	950	897	1011	942	893	998	935	890	921
	10	1142	1000	915	859	1126	993	912	858	980	906	855	968	900	852	957	894	849	881

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	87.8 fc	4.3 ft
6.5 ft	62.9 fc	5.1 ft
7.5 ft	47.2 fc	5.9 ft
8.0 ft	41.5 fc	6.3 ft
10.0 ft	26.6 fc	7.9 ft
12.0 ft	18.5 fc	9.4 ft
14.0 ft	13.6 fc	11.0 ft
16.0 ft	10.4 fc	12.6 ft
20.0 ft	6.6 fc	15.7 ft
24.0 ft	4.6 fc	18.9 ft
28.0 ft	3.4 fc	22.0 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	1618649	1618649	1618649
45.00°	67095	68671	71178
55.00°	56946	57524	59252
65.00°	71858	70469	78322
75.00°	52333	51756	57083
85.00°	47016	50001	57884

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	20.6	21.7	21.0	22.0	22.4	21.2	22.2	21.5	22.6	22.9
	3H	23.2	24.2	23.6	24.5	24.9	23.8	24.7	24.2	25.1	25.4
	4H	23.8	24.7	24.2	25.1	25.5	24.4	25.3	24.8	25.7	26.1
	6H	24.2	25.0	24.6	25.4	25.8	24.7	25.5	25.2	25.9	26.3
	8H	24.3	25.1	24.7	25.5	25.9	24.8	25.6	25.3	26.0	26.4
	12H	24.4	25.1	24.8	25.5	26.0	25.0	25.7	25.4	26.1	26.6
4H	2H	21.6	22.5	22.0	22.8	23.2	22.1	23.0	22.5	23.4	23.8
	3H	24.1	24.9	24.6	25.3	25.7	24.7	25.4	25.1	25.9	26.3
	4H	24.8	25.4	25.2	25.9	26.3	25.4	26.1	25.9	26.5	27.0
	6H	25.2	25.8	25.7	26.2	26.7	25.8	26.4	26.3	26.8	27.3
	8H	25.4	25.9	25.8	26.3	26.8	26.0	26.5	26.5	27.0	27.4
	12H	25.5	25.9	26.0	26.4	26.9	26.2	26.6	26.7	27.1	27.6
8H	4H	25.0	25.5	25.5	26.0	26.5	25.6	26.1	26.1	26.6	27.1
	6H	25.5	25.9	26.0	26.4	26.9	26.1	26.5	26.6	27.1	27.6
	8H	25.7	26.1	26.3	26.6	27.1	26.4	26.7	26.9	27.3	27.8
	12H	26.0	26.3	26.5	26.8	27.4	26.7	27.0	27.2	27.5	28.1
12H	4H	25.0	25.4	25.5	25.9	26.4	25.6	26.1	26.1	26.6	27.1
	6H	25.5	25.9	26.1	26.4	26.9	26.2	26.5	26.7	27.0	27.6
	8H	25.8	26.1	26.3	26.6	27.2	26.5	26.8	27.0	27.3	27.9

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0