Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR3Mx 25L 35K ND xx xx RDD3F 25L 35K ND MW GL

Nom. 3" Round Deep Downlight A-Spec, Narrow Beam

Test Number

SP-01409_1

Test Date

9/19/2022

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	2360
Efficacy	89.74 lm/W

Luminous Dimensions

0° - 180° Size	-0.25
90° - 270° Size	-0.25
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.39
Two luminaires, plane 90°	0.39
Four luminaires	0.43

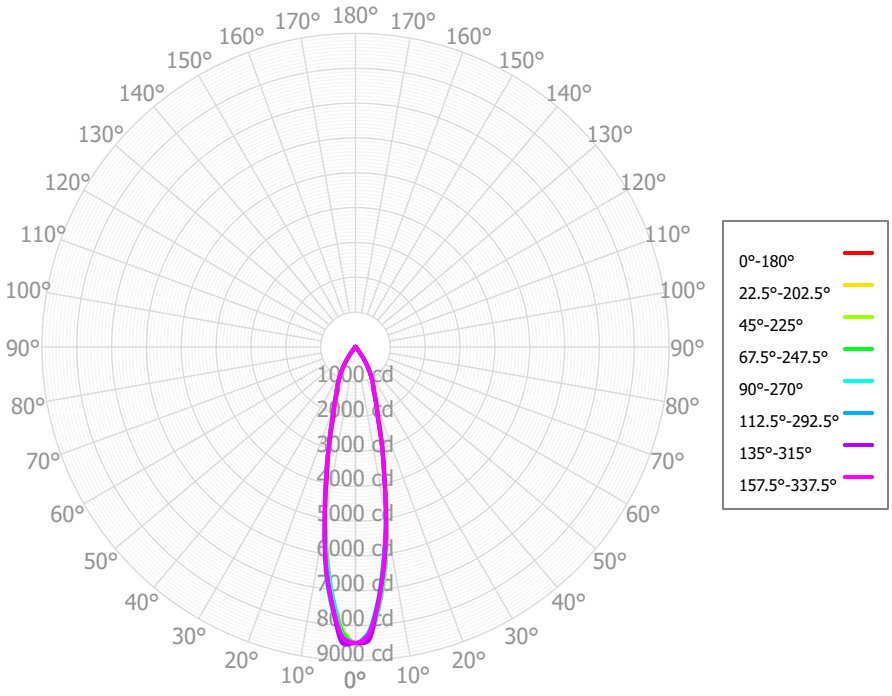
Full Beam Angle

0° - 180°	23°
90° - 270°	23°

IES File Header Contents

Keyword	Value
TEST	SP-01409_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	9/19/2022
ISSUEDATE	10/25/2022
LUMCAT	SR3Mx 25L 35K ND xx xx RDD3F 25L 35K ND MW GL
LUMINAIRE	Nom. 3" Round Deep Downlight A-Spec, Narrow Beam
OTHER	Matte White Trim, Clear Glass lens
OTHER	23 Degree Beam Angle
LAMP	N/A, 19mm LES
LAMPCAT	N/A, Min. 80 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	80

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	637.09	26.99%	90.00° - 100.00°	1.96	0.08%
10.00° - 20.00°	822.17	34.83%	100.00° - 110.00°	1.90	0.08%
20.00° - 30.00°	551.93	23.38%	100.00° - 120.00°	3.68	0.16%
30.00° - 40.00°	247.46	10.48%	120.00° - 130.00°	1.80	0.08%
40.00° - 50.00°	40.26	1.71%	130.00° - 140.00°	1.62	0.07%
50.00° - 60.00°	28.40	1.20%	140.00° - 150.00°	1.41	0.06%
60.00° - 70.00°	13.74	0.58%	150.00° - 160.00°	1.14	0.05%
70.00° - 80.00°	4.36	0.18%	160.00° - 170.00°	0.67	0.03%
80.00° - 90.00°	2.39	0.10%	170.00° - 180.00°	0.21	0.01%
0.00° - 90.00°	2347.80	99.47%	0.00° - 180.00°	2360.28	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°	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68	8496.68
2.50°	8427.64	8363.32	8359.92	8378.83	8441.68	8393.88	8517.62	8340.77	8314.25	8259.49	8141.56	8227.62	8301.36	8233.11	8450.20	8295.45	8427.64
5.00°	7492.62	7511.48	7582.52	7522.00	7507.73	7578.88	7490.63	7484.17	7350.02	7367.09	7301.57	7294.68	7306.58	7342.39	7381.76	7435.48	7492.62
7.50°	6465.49	6308.11	6505.85	6350.16	6389.22	6519.17	6442.08	6425.24	6254.95	6320.88	6142.34	6253.78	6255.05	6145.85	6303.73	6247.56	6465.49
10.00°	5104.92	5063.72	5100.43	5090.20	5098.01	5113.86	5097.45	5086.13	5031.62	5050.80	4989.96	5032.23	5035.29	4978.21	5044.93	5032.49	5104.92
12.50°	3865.31	3802.37	3923.01	3799.96	3780.08	3920.45	3806.70	3924.54	3794.34	3920.14	3841.40	3934.72	3911.48	3822.73	3819.78	3805.73	3865.31
15.00°	2981.95	2921.06	2958.45	2899.79	2924.22	2980.67	2958.47	2974.43	2930.85	2961.35	2964.85	3014.91	3023.38	2944.15	2945.95	2926.28	2981.95
17.50°	2228.83	2167.72	2247.39	2106.52	2115.92	2267.57	2175.64	2251.27	2091.70	2230.89	2217.00	2296.46	2273.50	2162.47	2131.67	2169.10	2228.83
20.00°	1788.27	1740.79	1740.22	1691.97	1720.72	1788.33	1776.62	1757.79	1711.43	1742.96	1769.67	1825.99	1808.96	1730.07	1736.38	1737.71	1788.27
22.50°	1426.83	1401.30	1412.32	1357.44	1350.16	1446.40	1415.21	1420.11	1344.86	1407.02	1441.63	1474.22	1439.22	1397.43	1375.74	1400.02	1426.83
25.00°	1222.59	1186.87	1206.51	1162.14	1170.75	1224.85	1218.09	1218.36	1178.11	1208.27	1210.08	1246.61	1233.01	1189.38	1190.33	1187.40	1222.59
27.50°	1016.01	998.83	1004.76	989.02	993.72	1010.87	1017.57	1017.10	1008.90	1008.75	1009.59	1028.61	1025.24	1008.97	1001.47	1003.43	1016.01
30.00°	805.46	790.49	805.37	787.20	786.97	802.59	805.21	816.21	799.06	808.62	799.93	819.17	815.22	801.79	799.27	794.27	805.46
32.50°	594.77	579.03	599.01	582.18	580.11	592.05	591.86	606.20	589.02	602.28	587.93	610.00	607.15	590.22	595.93	580.82	594.77
35.00°	383.85	379.74	389.26	381.29	371.55	380.07	375.73	390.49	376.98	391.85	385.30	401.05	401.53	390.63	389.00	379.42	383.85
37.50°	220.06	181.71	236.28	180.67	177.46	223.78	198.86	231.33	183.85	234.42	184.54	241.57	239.63	192.43	214.44	179.43	220.06
40.00°	114.02	114.18	106.13	115.71	109.94	97.34	111.65	102.30	111.97	106.76	111.60	114.10	124.12	120.30	121.73	112.16	114.02
42.50°	55.73	54.37	60.70	54.36	51.00	50.94	51.10	54.42	51.59	58.32	56.96	60.08	62.05	56.69	56.12	54.58	55.73
45.00°	47.15	44.36	43.48	45.95	44.88	40.81	41.95	43.11	45.21	46.99	45.80	46.64	48.86	46.82	47.05	44.84	47.15
47.50°	39.95	35.47	36.38	37.76	39.03	34.88	34.73	37.02	39.23	40.75	38.83	40.18	41.09	38.49	39.84	36.53	39.95
50.00°	33.99	33.54	31.96	32.98	34.38	30.54	30.67	32.86	34.77	36.46	36.29	36.94	37.53	36.37	35.93	34.93	33.99
52.50°	31.79	31.78	30.78	28.65	30.57	29.83	28.61	30.58	31.36	35.76	33.97	37.74	37.48	34.46	34.11	33.51	31.79
55.00°	32.44	32.46	30.26	28.65	29.74	30.24	29.34	28.88	31.05	36.19	35.09	40.10	39.76	36.40	35.46	35.31	32.44
57.50°	30.50	32.23	27.79	27.78	27.18	26.27	27.56	26.04	29.23	32.30	35.90	34.54	37.18	37.46	33.73	36.24	30.50
60.00°	26.88	23.76	25.03	21.36	19.64	21.25	22.84	22.94	23.72	27.29	25.18	26.51	31.88	29.87	28.05	28.08	26.88
62.50°	19.93	15.97	18.54	15.39	13.73	15.24	17.37	17.80	18.19	20.49	15.02	19.85	23.67	22.33	21.40	20.22	19.93
65.00°	11.14	12.36	11.66	11.54	11.69	9.06	11.15	12.30	12.57	13.34	12.11	13.52	14.10	15.20	13.68	14.35	11.14
67.50°	8.43	9.16	8.77	8.23	9.31	7.47	7.25	8.89	8.44	10.14	9.27	10.05	10.05	9.04	8.94	9.06	8.43
70.00°	8.56	7.85	6.10	6.94	6.23	6.48	5.34	5.73	6.84	7.49	6.95	7.11	8.17	7.60	6.99	6.60	8.56
72.50°	6.37	6.36	4.68	5.68	4.03	5.16	4.13	4.46	5.16	5.32	4.87	5.60	6.35	6.13	5.20	4.45	6.37
75.00°	3.30	4.24	3.29	4.54	3.27	3.81	3.41	3.35	3.33	3.19	4.27	4.30	4.55	4.55	3.54	3.52	3.30
77.50°	2.47	2.73	2.70	3.64	2.70	3.13	2.71	2.94	2.29	2.40	3.64	3.16	3.31	3.20	2.57	2.72	2.47
80.00°	2.33	3.01	2.15	3.36	2.40	2.48	2.01	2.57	2.22	1.68	2.92	2.05	2.20	2.54	2.09	2.28	2.33
82.50°	2.09	2.98	2.23	3.07	2.31	2.30	1.78	2.64	2.13	2.03	2.30	2.57	1.99	2.06	1.95	2.03	2.09
85.00°	1.83	2.23	2.29	2.80	2.48	2.13	1.79	2.68	2.01	2.38	2.03	3.16	1.95	2.06	2.02	2.28	1.83
87.50°	1.80	1.73	2.11	2.54	2.28	1.80	1.74	2.06	2.14	2.09	1.81	2.83	2.06	1.94	1.86	2.38	1.80
90.00°	1.81	1.74	1.94	2.32	1.72	1.51	1.67	1.53	2.50	1.81	1.72	2.49	2.20	1.58	1.59	2.15	1.81
92.50°	1.67	1.66	1.85	2.02	1.51	1.69	1.82	1.82	2.39	1.66	1.79	2.02	1.89	1.39	1.65	2.09	1.67
95.00°	1.52	1.44	1.74	1.59	1.61	1.85	2.06	2.08	1.92	1.52	2.21	1.58	1.55	1.48	1.85	2.32	1.52
97.50°	1.45	1.55	1.57	1.39	1.67	1.82	1.75	2.06	1.78	1.50	2.44	1.53	1.91	1.58	1.83	2.36	1.45
100.00°	1.39	2.13	1.45	1.47	1.71	1.82	1.29	2.07	1.86	1.47	2.32	1.51	2.29	1.71	1.74	2.09	1.39

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	2807	2807	2807	2807	2740	2740	2740	2740	2616	2616	2616	2502	2502	2502	2397	2397	2397	2348
	1	2696	2639	2587	2541	2637	2587	2541	2500	2490	2454	2421	2401	2373	2347	2319	2298	2278	2251
	2	2588	2490	2409	2340	2537	2449	2376	2313	2372	2313	2261	2302	2254	2212	2236	2198	2164	2155
	3	2486	2358	2260	2181	2441	2326	2236	2163	2264	2189	2128	2207	2145	2093	2155	2104	2060	2064
	4	2390	2242	2133	2050	2350	2215	2115	2038	2165	2080	2013	2119	2047	1989	2076	2015	1965	1978
RCR	5	2300	2137	2024	1940	2264	2116	2010	1931	2075	1983	1913	2036	1958	1896	2001	1933	1879	1899
	6	2215	2043	1927	1844	2184	2025	1917	1838	1991	1896	1825	1959	1876	1812	1929	1857	1800	1825
	7	2136	1957	1842	1760	2108	1942	1833	1755	1914	1817	1746	1887	1801	1736	1862	1785	1727	1756
	8	2062	1879	1765	1686	2037	1867	1758	1682	1842	1745	1675	1820	1732	1668	1798	1719	1660	1693
	9	1993	1808	1695	1618	1970	1797	1689	1616	1776	1679	1610	1757	1668	1605	1738	1658	1599	1633
	10	1928	1742	1631	1558	1907	1733	1627	1555	1715	1618	1551	1698	1609	1547	1682	1601	1542	1578

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	280.9 fc	2.3 ft
6.5 ft	201.1 fc	2.7 ft
7.5 ft	151.1 fc	3.1 ft
8.0 ft	132.8 fc	3.3 ft
10.0 ft	85.0 fc	4.1 ft
12.0 ft	59.0 fc	4.9 ft
14.0 ft	43.4 fc	5.8 ft
16.0 ft	33.2 fc	6.6 ft
20.0 ft	21.2 fc	8.2 ft
24.0 ft	14.8 fc	9.9 ft
28.0 ft	10.8 fc	11.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	1863157	1863157	1863157
45.00°	14621	13483	13919
55.00°	12402	11570	11369
65.00°	5780	6049	6066
75.00°	2793	2788	2774
85.00°	4617	5754	6230

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	12.7	13.6	13.1	13.9	14.3	12.1	13.1	12.5	13.4	13.7
	3H	12.9	13.7	13.3	14.1	14.4	12.4	13.2	12.8	13.6	13.9
	4H	12.9	13.7	13.3	14.0	14.4	12.4	13.2	12.9	13.6	14.0
	6H	12.9	13.6	13.3	13.9	14.4	12.4	13.1	12.9	13.5	13.9
	8H	12.9	13.5	13.3	13.9	14.3	12.4	13.1	12.9	13.5	13.9
	12H	12.9	13.5	13.3	13.9	14.3	12.5	13.1	12.9	13.5	13.9
4H	2H	12.6	13.4	13.1	13.8	14.2	12.1	12.8	12.5	13.2	13.6
	3H	12.9	13.5	13.3	14.0	14.4	12.4	13.0	12.8	13.4	13.9
	4H	13.0	13.5	13.4	13.9	14.4	12.5	13.0	12.9	13.5	13.9
	6H	13.0	13.4	13.4	13.9	14.4	12.5	13.0	13.0	13.5	13.9
	8H	13.0	13.4	13.5	13.9	14.4	12.6	13.0	13.0	13.5	13.9
	12H	13.0	13.4	13.5	13.9	14.4	12.7	13.0	13.2	13.5	14.0
8H	4H	12.8	13.3	13.3	13.7	14.2	12.4	12.8	12.9	13.3	13.8
	6H	12.9	13.2	13.4	13.8	14.3	12.5	12.8	13.0	13.3	13.8
	8H	13.0	13.3	13.5	13.8	14.3	12.6	12.9	13.1	13.4	13.9
	12H	13.1	13.4	13.7	13.9	14.5	12.8	13.1	13.4	13.6	14.2
12H	4H	12.8	13.2	13.3	13.7	14.2	12.3	12.7	12.8	13.2	13.7
	6H	12.9	13.2	13.4	13.7	14.2	12.5	12.8	13.0	13.2	13.8
	8H	13.0	13.3	13.5	13.8	14.4	12.6	12.9	13.1	13.4	14.0

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0