Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SR14SQLEDOA 33L 35K xx RT1414 MW xx FO

14" square recessed LED downlight, regressed extruded aluminum door

Test Number

SP-01645_2

Test Date

2/14/2024

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

Summary of Results

Power

Input Watts	26 W

Lumen Output

Output Lumens	2635
Efficacy	101.34 lm/W

Luminous Dimensions

0° - 180° Size	1.04
90° - 270° Size	1.04
Height	0

Spacing Criterion

Two luminaires, plane 0°	1.2
Two luminaires, plane 90°	1.17
Four luminaires	1.31

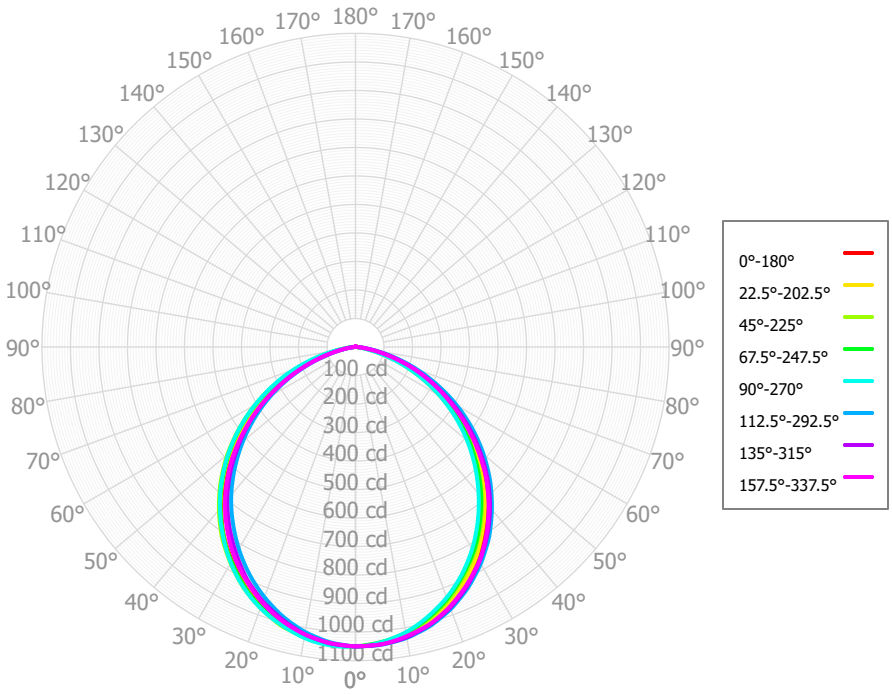
Full Beam Angle

0° - 180°	103°
90° - 270°	102°

IES File Header Contents

Keyword	Value
TEST	SP-01645_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	2/14/2024
ISSUEDATE	2/28/2024
LUMCAT	SR14SQLEDOA 33L 35K xx RT1414 MW xx FO
LUMINAIRE	14" square recessed LED downlight, regressed extruded aluminum door
OTHER	Beam Angle: 103 deg
OTHER	80 CRI, 3500K tested
OTHER	CCT Output Multipliers: 30K x .97, 40K x 1.02, 50K x 1.01
OTHER	Total luminaire wattages are approximate
OTHER	This report prepared by Spectrum Lighting

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	100.64	3.82%	90.00° - 100.00°	2.35	0.09%
10.00° - 20.00°	281.31	10.68%	100.00° - 110.00°	2.03	0.08%
20.00° - 30.00°	419.14	15.91%	100.00° - 120.00°	3.94	0.15%
30.00° - 40.00°	492.28	18.68%	120.00° - 130.00°	1.71	0.06%
40.00° - 50.00°	489.85	18.59%	130.00° - 140.00°	1.54	0.06%
50.00° - 60.00°	413.74	15.70%	140.00° - 150.00°	1.29	0.05%
60.00° - 70.00°	280.32	10.64%	150.00° - 160.00°	0.97	0.04%
70.00° - 80.00°	122.99	4.67%	160.00° - 170.00°	0.62	0.02%
80.00° - 90.00°	21.82	0.83%	170.00° - 180.00°	0.21	0.01%
0.00° - 90.00°	2622.08	99.52%	0.00° - 180.00°	2634.71	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°	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48	1050.48
2.50°	1049.20	1047.89	1047.64	1045.57	1047.89	1045.73	1047.84	1046.82	1048.86	1048.53	1050.54	1050.20	1052.54	1050.01	1049.51	1048.87	1049.20
5.00°	1045.14	1044.03	1042.74	1039.10	1040.07	1039.63	1043.59	1042.23	1045.95	1045.80	1048.69	1047.14	1050.32	1048.66	1047.15	1047.12	1045.14
7.50°	1038.00	1035.34	1032.77	1029.82	1029.19	1028.35	1034.34	1034.01	1039.39	1040.68	1041.61	1040.53	1045.33	1043.02	1041.73	1040.09	1038.00
10.00°	1028.17	1025.14	1021.84	1018.07	1016.28	1015.48	1023.95	1023.71	1029.78	1033.04	1034.15	1031.79	1036.41	1036.38	1034.38	1030.54	1028.17
12.50°	1016.10	1012.07	1005.74	1002.66	999.24	998.50	1007.66	1010.44	1017.70	1020.29	1022.90	1021.36	1023.41	1025.21	1021.99	1019.02	1016.10
15.00°	1000.72	998.24	988.79	984.39	979.79	979.86	990.30	994.86	1003.80	1006.28	1011.52	1006.83	1009.10	1013.16	1008.26	1006.70	1000.72
17.50°	982.91	978.38	968.14	963.45	958.19	957.61	970.37	976.39	987.05	990.04	993.14	989.49	993.57	996.06	991.48	988.83	982.91
20.00°	961.89	957.20	946.27	940.65	935.50	934.03	950.07	954.99	968.46	971.32	974.64	970.28	975.08	978.17	972.80	968.96	961.89
22.50°	938.80	932.52	920.02	914.56	909.25	907.93	925.26	930.34	946.35	948.74	952.83	949.93	954.16	955.78	950.32	945.84	938.80
25.00°	912.79	907.24	893.04	886.47	881.42	880.31	899.98	904.69	922.22	924.69	930.73	925.21	930.12	932.88	926.05	921.73	912.79
27.50°	885.12	878.17	863.87	857.67	850.66	850.14	868.93	878.09	895.23	898.65	903.68	898.13	903.82	905.87	898.67	895.33	885.12
30.00°	854.21	848.60	833.46	828.49	818.78	818.58	837.49	849.10	866.79	870.59	876.38	869.78	874.77	878.55	869.85	868.35	854.21
32.50°	821.67	813.92	799.82	794.76	783.83	785.00	804.48	818.04	837.00	840.09	846.54	840.85	843.96	847.52	838.81	835.47	821.67
35.00°	786.10	778.74	765.08	758.89	747.87	750.67	771.43	784.47	806.63	808.01	816.10	808.09	810.78	816.33	806.00	801.36	786.10
37.50°	749.22	742.67	727.90	722.38	710.19	715.38	736.29	748.97	770.84	774.24	780.96	773.78	776.27	780.38	770.81	764.34	749.22
40.00°	709.33	706.54	689.85	685.62	672.03	678.22	701.00	711.40	732.99	737.54	745.42	737.63	740.18	744.35	734.16	726.83	709.33
42.50°	668.34	664.53	650.11	646.33	632.87	638.90	661.02	672.43	692.88	698.04	707.51	700.82	703.31	706.54	695.79	687.39	668.34
45.00°	625.64	622.36	609.09	606.17	593.47	598.64	620.88	631.40	652.03	657.60	669.06	661.05	664.12	668.59	655.48	647.72	625.64
47.50°	582.39	578.33	565.86	565.56	552.62	557.45	578.12	589.15	608.70	616.36	628.09	620.42	623.94	627.81	613.13	603.75	582.39
50.00°	538.86	534.31	522.30	524.82	511.50	515.63	535.39	544.25	564.70	572.87	586.41	578.87	582.37	586.86	569.90	559.39	538.86
52.50°	495.25	490.33	478.23	482.13	469.47	473.24	492.84	497.95	519.03	527.67	541.96	537.10	540.28	544.02	525.85	514.80	495.25
55.00°	451.32	446.30	433.37	438.97	427.30	430.44	449.78	451.52	472.98	480.62	497.20	493.86	496.67	500.98	480.66	470.20	451.32
57.50°	407.33	401.35	387.46	394.83	384.25	387.31	402.83	405.02	425.66	432.33	451.44	450.32	452.58	456.35	434.55	425.37	407.33
60.00°	365.64	356.71	342.25	350.49	341.10	343.53	355.95	357.79	378.09	384.66	404.80	404.82	407.76	411.47	388.27	380.56	365.64
62.50°	324.38	315.20	297.86	305.36	296.87	299.28	309.45	310.25	332.49	337.35	355.80	359.02	362.74	364.98	341.86	337.96	324.38
65.00°	282.87	273.75	254.77	260.11	252.57	255.02	263.17	264.67	287.17	291.29	306.94	312.58	318.25	318.75	296.79	295.42	282.87
67.50°	241.33	232.73	213.04	216.69	209.79	210.75	217.87	219.74	241.37	245.88	258.46	266.06	273.88	273.74	252.59	254.20	241.33
70.00°	196.91	191.48	173.67	173.49	167.07	168.51	173.74	176.27	195.53	200.15	212.11	219.92	229.26	229.00	210.07	212.79	196.91
72.50°	152.21	148.94	136.46	135.07	127.66	127.41	134.03	133.21	151.73	154.28	170.15	173.81	184.59	185.27	168.50	168.85	152.21
75.00°	111.08	107.93	101.31	97.05	88.53	90.94	96.72	97.44	108.08	114.29	129.68	133.14	143.04	142.63	130.21	125.69	111.08
77.50°	70.19	73.71	67.86	67.32	59.40	56.69	67.04	63.41	75.18	76.55	91.88	92.71	101.90	103.68	93.53	89.67	70.19
80.00°	47.27	43.61	43.10	38.00	31.22	35.90	40.88	41.64	42.63	51.21	60.01	63.25	69.61	68.53	63.67	55.84	47.27
82.50°	24.92	28.65	24.64	24.34	19.87	20.69	24.36	22.27	27.75	29.94	37.55	34.15	38.16	44.20	36.74	36.68	24.92
85.00°	16.10	15.64	13.38	11.09	9.15	11.40	11.16	12.36	13.15	16.82	20.23	20.58	23.77	23.82	21.24	19.30	16.10
87.50°	7.46	8.65	6.70	6.58	5.23	4.23	5.75	3.89	7.51	5.95	10.07	7.47	10.39	13.08	9.98	11.19	7.46
90.00°	4.61	3.37	3.52	2.25	1.78	2.26	2.14	2.46	2.20	3.08	3.89	4.65	5.95	5.13	5.21	4.37	4.61
92.50°	1.92	2.58	2.31	1.89	1.84	1.85	2.21	1.82	2.11	2.02	2.59	2.02	1.77	3.11	2.51	3.10	1.92
95.00°	1.78	2.02	1.94	1.57	1.88	1.81	2.17	1.80	2.03	1.91	1.86	1.83	1.66	1.80	1.78	2.11	1.78
97.50°	1.66	1.96	1.97	1.70	1.81	1.87	1.94	1.84	1.97	1.97	1.74	1.65	1.55	1.82	1.58	2.09	1.66
100.00°	1.80	2.09	2.01	1.83	1.76	1.97	1.81	1.86	1.93	1.86	1.75	1.53	1.71	1.78	1.74	2.11	1.80
102.50°	1.89	2.60	2.05	1.86	1.76	2.08	1.82	1.89	2.05	1.73	1.89	1.44	1.87	1.66	1.98	2.20	1.89
105.00°	1.74	2.78	2.09	1.88	1.78	1.91	1.89	1.76	2.12	1.87	1.94	1.55	1.87	1.64	1.99	2.28	1.74

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	3134	3134	3134	3134	3059	3059	3059	3059	2920	2920	2920	2793	2793	2793	2677	2677	2677	2622
	1	2888	2773	2670	2577	2817	2713	2619	2534	2599	2523	2452	2495	2433	2375	2399	2350	2303	2299
	2	2642	2439	2271	2130	2573	2389	2235	2104	2294	2165	2054	2207	2100	2005	2127	2038	1959	1993
	3	2418	2156	1952	1790	2353	2114	1925	1774	2034	1873	1741	1961	1824	1709	1893	1778	1679	1738
	4	2221	1919	1698	1529	2161	1883	1677	1518	1817	1638	1496	1755	1600	1474	1697	1564	1454	1530
RCR	5	2047	1721	1493	1325	1991	1691	1477	1317	1634	1446	1302	1582	1416	1287	1532	1388	1272	1358
	6	1893	1554	1326	1162	1843	1528	1313	1156	1480	1288	1145	1435	1265	1134	1393	1242	1124	1216
	7	1758	1412	1187	1030	1712	1390	1177	1026	1349	1157	1018	1310	1138	1010	1274	1120	1002	1097
	8	1638	1291	1072	922	1597	1272	1064	919	1237	1048	913	1203	1032	906	1172	1017	900	997
	9	1532	1186	975	832	1494	1170	968	829	1140	955	825	1111	941	820	1084	929	815	912
	10	1437	1096	892	756	1403	1082	886	754	1055	875	750	1030	864	747	1007	853	743	838

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	34.7 fc	13.8 ft
6.5 ft	24.9 fc	16.3 ft
7.5 ft	18.7 fc	18.8 ft
8.0 ft	16.4 fc	20.1 ft
10.0 ft	10.5 fc	25.1 ft
12.0 ft	7.3 fc	30.1 ft
14.0 ft	5.4 fc	35.1 ft
16.0 ft	4.1 fc	40.1 ft
20.0 ft	2.6 fc	50.1 ft
24.0 ft	1.8 fc	60.2 ft
28.0 ft	1.3 fc	70.2 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	10454	10454	10454
45.00°	8805	8572	8353
55.00°	7831	7519	7414
65.00°	6661	5999	5948
75.00°	4271	3896	3404
85.00°	1839	1528	1045

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	19.1	20.7	19.5	21.0	21.3	19.2	20.8	19.6	21.1	21.4
	3H	20.6	22.0	20.9	22.3	22.7	20.6	22.0	21.0	22.4	22.7
	4H	20.9	22.2	21.3	22.6	23.0	21.0	22.3	21.4	22.7	23.1
	6H	21.1	22.3	21.5	22.7	23.1	21.2	22.4	21.6	22.8	23.2
	8H	21.1	22.2	21.5	22.6	23.1	21.2	22.4	21.6	22.8	23.2
	12H	21.1	22.2	21.5	22.6	23.0	21.2	22.3	21.7	22.7	23.2
4H	2H	19.6	20.9	20.0	21.3	21.7	19.7	21.1	20.2	21.4	21.8
	3H	21.2	22.3	21.7	22.7	23.2	21.3	22.4	21.7	22.8	23.2
	4H	21.7	22.7	22.2	23.1	23.6	21.8	22.8	22.2	23.2	23.6
	6H	21.9	22.8	22.4	23.2	23.7	22.0	22.9	22.5	23.3	23.8
	8H	22.0	22.8	22.4	23.2	23.7	22.1	22.9	22.5	23.3	23.8
	12H	22.0	22.7	22.5	23.2	23.6	22.1	22.8	22.6	23.3	23.8
8H	4H	21.9	22.7	22.4	23.1	23.6	21.9	22.7	22.4	23.2	23.6
	6H	22.1	22.8	22.6	23.3	23.8	22.2	22.9	22.7	23.4	23.9
	8H	22.2	22.8	22.7	23.3	23.8	22.3	22.9	22.8	23.4	23.9
	12H	22.2	22.8	22.8	23.3	23.8	22.3	22.8	22.8	23.3	23.9
12H	4H	21.9	22.6	22.4	23.1	23.6	21.9	22.6	22.4	23.1	23.6
	6H	22.2	22.7	22.7	23.2	23.8	22.2	22.8	22.7	23.3	23.8
	8H	22.2	22.7	22.7	23.2	23.8	22.3	22.8	22.8	23.3	23.9

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0