

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

**Luminaire**

EV04IND4GL 15L 35K xx DW xx FS xx

4" Wide x 48" linear pendant or surface mount for semi-direct illumination

**Test Number**

SP-01621\_2

**Test Date**

11/15/2023

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

### Summary of Results

#### Power

Input Watts	45.7 W
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#### Lumen Output

Output Lumens	5172
Efficacy	113.17 lm/W

#### Luminous Dimensions

0° - 180° Size	0.33
90° - 270° Size	4
Height	0.19

#### Spacing Criterion

Two luminaires, plane 0°	1.39
Two luminaires, plane 90°	1.23
Four luminaires	1.46

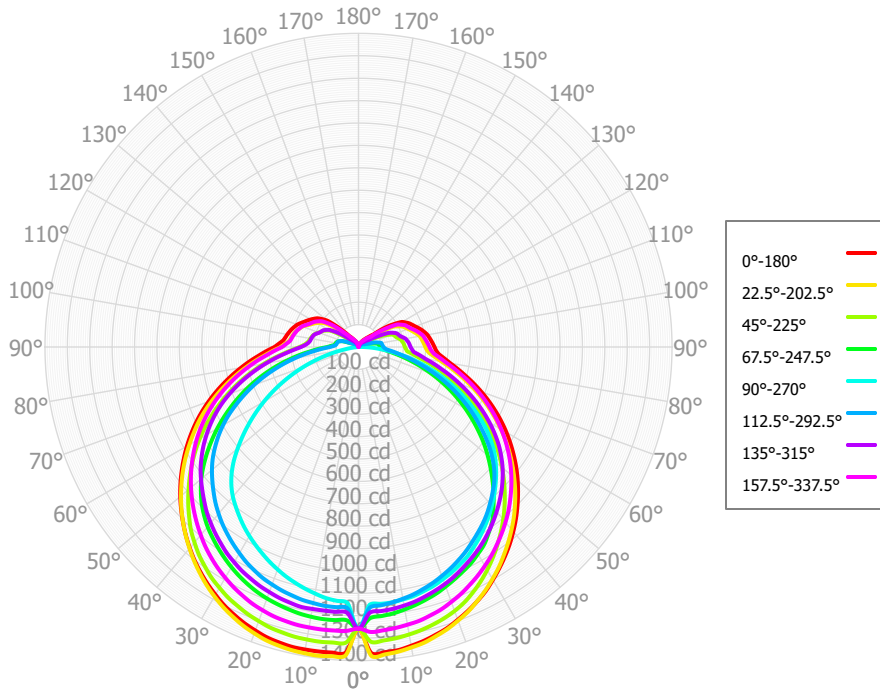
#### Full Beam Angle

0° - 180°	135°
90° - 270°	107°

### IES File Header Contents

Keyword	Value
TEST	SP-01621_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/15/2023
ISSUEDATE	11/16/2023
LUMCAT	EV04IND4GL 15L 35K xx DW xx FS xx
LUMINAIRE	4" Wide x 48" linear pendant or surface mount for semi-direct illumination
OTHER	Diffuse White Acrylic Lens
OTHER	Matte White interior finish
OTHER	Beam Angle 135 deg x 107 deg
OTHER	2000 Source Lms/Ft
OTHER	80+ CRI
OTHER	CCT Output Multipliers: 30K x 0.98, 40K x 1.0
OTHER	Total Luminaire Watts is approximate
OTHER	This report prepared by Spectrum Lighting

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	121.51	2.35%	90.00° - 100.00°	218.25	4.22%
10.00° - 20.00°	348.28	6.73%	100.00° - 110.00°	184.68	3.57%
20.00° - 30.00°	541.53	10.47%	100.00° - 120.00°	321.61	6.22%
30.00° - 40.00°	677.50	13.10%	120.00° - 130.00°	79.53	1.54%
40.00° - 50.00°	740.00	14.31%	130.00° - 140.00°	32.47	0.63%
50.00° - 60.00°	717.73	13.88%	140.00° - 150.00°	13.38	0.26%
60.00° - 70.00°	612.97	11.85%	150.00° - 160.00°	5.19	0.10%
70.00° - 80.00°	449.55	8.69%	160.00° - 170.00°	1.37	0.03%
80.00° - 90.00°	290.96	5.63%	170.00° - 180.00°	0.23	0.00%
0.00° - 90.00°	4500.03	87.01%	0.00° - 180.00°	5172.07	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°	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55	1257.55
2.50°	1370.10	1383.06	1318.48	1211.63	1151.87	1166.43	1186.98	1269.23	1368.35	1380.99	1322.32	1221.29	1143.54	1164.46	1186.77	1273.89	1370.10
5.00°	1367.74	1377.65	1315.14	1205.67	1151.27	1166.08	1187.04	1270.79	1369.91	1386.11	1324.75	1224.14	1137.42	1157.69	1183.42	1269.87	1367.74
7.50°	1365.11	1371.80	1310.69	1199.48	1150.22	1165.67	1187.16	1272.12	1371.39	1390.26	1327.36	1225.38	1130.24	1150.63	1179.26	1265.61	1365.11
10.00°	1354.86	1362.30	1303.39	1189.89	1144.71	1161.37	1187.83	1271.71	1371.89	1388.56	1326.41	1223.07	1117.91	1141.52	1172.56	1259.22	1354.86
12.50°	1344.33	1352.61	1294.79	1179.52	1138.97	1156.90	1188.57	1270.70	1371.63	1386.12	1324.78	1219.09	1105.08	1131.72	1164.48	1252.54	1344.33
15.00°	1330.61	1336.76	1283.49	1167.27	1128.40	1148.52	1182.07	1266.28	1366.19	1380.38	1319.37	1212.08	1090.46	1118.42	1152.87	1240.76	1330.61
17.50°	1316.14	1320.60	1270.48	1154.68	1117.68	1139.91	1174.98	1260.84	1359.55	1373.14	1313.45	1204.23	1074.96	1104.48	1140.55	1228.49	1316.14
20.00°	1296.28	1300.09	1254.50	1138.60	1103.24	1128.62	1164.66	1251.20	1347.24	1360.70	1302.55	1195.10	1056.86	1088.11	1126.75	1211.50	1296.28
22.50°	1275.97	1278.97	1234.62	1122.11	1088.60	1116.74	1154.20	1240.21	1334.05	1346.75	1291.26	1183.71	1038.00	1071.11	1111.33	1194.00	1275.97
25.00°	1253.29	1252.75	1209.03	1105.21	1071.58	1100.59	1140.76	1224.91	1317.60	1328.72	1276.33	1169.39	1017.34	1052.29	1093.04	1173.23	1253.29
27.50°	1229.33	1226.04	1180.88	1088.27	1053.83	1083.77	1127.14	1208.66	1299.68	1309.16	1261.22	1153.24	996.28	1032.44	1074.28	1151.97	1229.33
30.00°	1200.34	1196.40	1149.62	1066.81	1030.48	1063.38	1110.10	1189.94	1277.45	1286.12	1241.50	1135.09	974.44	1010.08	1054.80	1128.51	1200.34
32.50°	1171.00	1166.02	1116.18	1045.01	1006.76	1042.61	1092.68	1169.98	1254.25	1261.54	1221.53	1115.35	951.26	987.70	1033.66	1104.29	1171.00
35.00°	1140.57	1132.47	1080.51	1013.22	981.05	1020.40	1071.29	1147.41	1228.80	1234.05	1196.03	1094.10	925.88	965.27	1010.50	1077.38	1140.57
37.50°	1109.17	1098.57	1043.55	980.74	954.71	997.35	1049.65	1123.18	1201.88	1205.14	1170.08	1071.55	899.77	940.92	985.85	1050.00	1109.17
40.00°	1075.35	1063.50	1005.46	937.25	925.89	971.77	1026.36	1095.95	1172.04	1174.02	1139.36	1047.98	872.67	913.43	959.65	1021.31	1075.35
42.50°	1040.54	1027.43	965.28	893.44	896.55	945.00	1002.25	1067.86	1141.01	1141.68	1107.68	1020.39	840.18	885.36	932.22	991.40	1040.54
45.00°	1003.72	988.66	923.55	846.78	865.57	915.27	974.20	1038.48	1108.04	1107.74	1069.74	990.11	801.34	856.50	903.71	958.64	1003.72
47.50°	966.32	949.07	880.47	800.06	833.63	885.16	946.14	1008.06	1074.13	1072.09	1031.33	954.69	755.90	822.56	872.75	925.23	966.32
50.00°	927.91	907.67	836.54	752.98	799.29	854.27	918.10	976.34	1038.90	1034.56	990.58	916.39	703.96	782.66	839.99	890.58	927.91
52.50°	888.32	865.92	791.07	705.17	762.33	820.69	888.68	943.14	1002.15	995.93	949.44	872.41	650.89	737.88	803.53	854.63	888.32
55.00°	847.06	823.53	744.79	654.09	719.87	782.46	855.29	908.35	963.63	956.26	906.84	825.82	596.86	688.18	764.75	816.61	847.06
57.50°	805.21	779.82	697.59	602.96	673.70	742.05	820.75	872.59	924.38	914.83	863.56	777.42	542.34	637.51	721.43	777.37	805.21
60.00°	762.62	734.10	649.99	551.65	621.13	698.52	783.45	835.96	884.41	872.01	818.26	728.34	487.47	586.03	675.76	736.46	762.62
62.50°	718.92	688.23	601.74	500.14	568.23	651.40	744.86	797.26	843.24	829.34	771.98	677.28	431.61	534.07	628.11	694.38	718.92
65.00°	674.07	642.19	553.25	448.09	514.85	599.99	703.73	756.98	801.05	786.77	723.34	625.63	375.16	481.76	579.59	650.96	674.07
67.50°	628.82	595.87	503.16	396.07	459.94	548.35	660.25	715.12	757.31	741.23	674.39	573.74	319.22	428.69	530.37	607.01	628.82
70.00°	583.24	549.24	452.63	344.13	403.14	496.47	612.92	672.24	712.48	693.98	624.82	521.81	263.55	375.16	480.91	562.53	583.24
72.50°	538.51	503.68	405.06	293.41	347.61	443.88	564.84	628.35	667.13	646.50	575.22	468.47	209.64	323.45	432.94	518.53	538.51
75.00°	494.42	459.09	358.14	244.91	293.40	390.65	515.73	583.91	621.47	598.90	525.58	414.87	156.45	272.65	385.38	474.92	494.42
77.50°	453.98	417.07	315.87	199.80	239.57	338.77	466.80	539.49	576.69	552.33	476.39	362.32	108.81	228.04	343.58	434.42	453.98
80.00°	415.81	377.06	274.34	159.93	186.08	287.90	418.08	495.07	532.35	506.18	427.83	309.89	63.05	186.04	303.04	396.05	415.81
82.50°	385.61	345.25	245.83	128.46	136.58	240.52	371.66	452.30	489.82	462.03	380.78	261.27	33.79	154.50	274.28	364.92	385.61
85.00°	359.65	318.84	218.65	107.86	90.03	195.32	327.54	410.13	448.03	418.51	335.51	212.93	8.87	126.47	247.38	338.00	359.65
87.50°	346.67	305.28	212.39	96.21	52.77	158.94	289.45	374.65	410.97	382.02	296.29	175.49	3.63	116.68	239.02	324.34	346.67
90.00°	339.32	298.71	207.36	94.41	21.24	127.08	256.40	341.17	375.50	347.21	263.10	138.56	2.26	111.67	232.69	317.04	339.32
92.50°	332.47	293.27	204.27	93.38	7.17	111.26	235.84	322.60	354.65	327.84	241.52	121.72	1.76	108.88	228.63	310.58	332.47
95.00°	325.78	288.34	201.15	93.06	2.30	102.38	223.98	307.43	337.62	311.34	229.60	105.73	1.39	106.54	224.69	304.45	325.78
97.50°	319.14	283.05	196.21	89.96	0.89	99.08	217.64	300.93	329.26	304.52	222.15	104.37	1.45	104.78	218.94	298.31	319.14
100.00°	312.51	277.64	190.98	84.68	0.98	97.73	214.61	295.86	322.67	298.94	217.91	102.84	1.55	103.11	213.03	292.17	312.51
102.50°	302.86	267.82	181.76	71.94	1.03	95.61	210.75	289.92	315.59	291.67	213.10	99.85	1.61	91.42	202.02	281.91	302.86
105.00°	292.56	256.64	173.09	54.19	1.06	93.27	206.50	283.89	308.43	284.29	207.97	95.99	1.67	78.74	191.40	270.62	292.56

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>ptc</b>	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	<b>pcc</b>	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	5997	5997	5997	5997	5780	5780	5780	5780	5373	5373	5373	5002	5002	5002	4660	4660	4500
	<b>1</b>	5361	5071	4810	4575	5146	4885	4650	4437	4539	4348	4173	4220	4067	3925	3926	3805	3664
	<b>2</b>	4830	4357	3966	3637	4625	4199	3843	3541	3903	3609	3355	3630	3389	3178	3377	3182	3060
	<b>3</b>	4376	3789	3334	2971	4186	3654	3237	2901	3400	3051	2763	3166	2874	2630	2948	2707	2602
	<b>4</b>	3989	3332	2851	2483	3813	3217	2772	2429	2999	2621	2322	2797	2477	2219	2609	2340	2249
	<b>5</b>	3655	2959	2473	2113	3495	2860	2408	2070	2672	2283	1985	2497	2164	1903	2334	2050	1971
	<b>6</b>	3366	2651	2171	1826	3220	2565	2117	1791	2402	2013	1722	2250	1912	1654	2108	1816	1748
	<b>7</b>	3113	2393	1925	1598	2981	2318	1880	1569	2176	1792	1511	2044	1706	1455	1919	1624	1565
	<b>8</b>	2892	2175	1723	1413	2772	2109	1684	1389	1985	1609	1340	1869	1536	1293	1759	1465	1414
	<b>9</b>	2697	1989	1555	1262	2587	1931	1521	1241	1822	1456	1200	1719	1393	1159	1621	1332	1286
	<b>10</b>	2524	1829	1413	1136	2424	1778	1384	1118	1681	1327	1082	1589	1272	1047	1503	1218	1178

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	41.6 fc	27.1 ft
6.5 ft	29.8 fc	32.1 ft
7.5 ft	22.4 fc	37.0 ft
8.0 ft	19.6 fc	39.5 ft
10.0 ft	12.6 fc	49.3 ft
12.0 ft	8.7 fc	59.2 ft
14.0 ft	6.4 fc	69.0 ft
16.0 ft	4.9 fc	78.9 ft
20.0 ft	3.1 fc	98.6 ft
24.0 ft	2.2 fc	118.4 ft
28.0 ft	1.6 fc	138.1 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	10255	10255	10255
45.00°	7346	7393	9529
55.00°	6609	6499	9584
65.00°	5820	5488	9016
75.00°	4947	4266	7852
85.00°	4439	3388	5459

### 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	18.9	20.3	19.4	20.9	21.5	17.3	18.7	17.8	19.3	19.9
	3H	21.3	22.6	21.8	23.2	23.8	18.7	20.0	19.3	20.6	21.2
	4H	22.4	23.7	23.0	24.2	24.9	19.1	20.4	19.7	21.0	21.6
	6H	23.6	24.7	24.2	25.3	26.0	19.4	20.5	20.0	21.1	21.8
	8H	24.2	25.3	24.8	25.9	26.6	19.4	20.5	20.0	21.2	21.8
	12H	24.8	25.9	25.4	26.5	27.2	19.4	20.5	20.1	21.1	21.8
4H	2H	19.2	20.5	19.8	21.1	21.7	18.3	19.6	18.9	20.2	20.8
	3H	21.8	22.9	22.4	23.5	24.2	20.1	21.1	20.7	21.7	22.4
	4H	23.1	24.1	23.7	24.7	25.4	20.7	21.7	21.3	22.3	23.0
	6H	24.4	25.3	25.1	26.0	26.7	21.1	22.0	21.7	22.6	23.3
	8H	25.1	25.9	25.8	26.6	27.3	21.2	22.0	21.8	22.6	23.4
	12H	25.9	26.7	26.6	27.3	28.1	21.2	22.0	21.9	22.6	23.4
8H	4H	23.3	24.1	23.9	24.7	25.5	21.5	22.3	22.1	22.9	23.7
	6H	24.7	25.4	25.4	26.1	26.9	22.1	22.8	22.8	23.5	24.2
	8H	25.6	26.2	26.2	26.9	27.6	22.3	22.9	23.0	23.6	24.4
	12H	26.5	27.1	27.2	27.8	28.6	22.4	23.0	23.1	23.7	24.5
12H	4H	23.2	24.0	23.9	24.7	25.4	21.7	22.4	22.3	23.1	23.8
	6H	24.8	25.4	25.4	26.0	26.8	22.4	23.0	23.1	23.7	24.5
	8H	25.6	26.2	26.3	26.9	27.7	22.7	23.3	23.4	24.0	24.8

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0