

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

#### Luminaire

GL04IND8GL 11L 35K xx DW xx FS xx

4" Wide x 96" linear pendant or surface mount for semi-direct illumination

#### Test Number

SP-01619\_1

#### Test Date

11/15/2023

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

### Summary of Results

#### Power

Input Watts	67.2 W
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#### Lumen Output

Output Lumens	6787
Efficacy	101 lm/W

#### Luminous Dimensions

0° - 180° Size	0.33
90° - 270° Size	8
Height	0.19

#### Spacing Criterion

Two luminaires, plane 0°	1.41
Two luminaires, plane 90°	1.18
Four luminaires	1.45

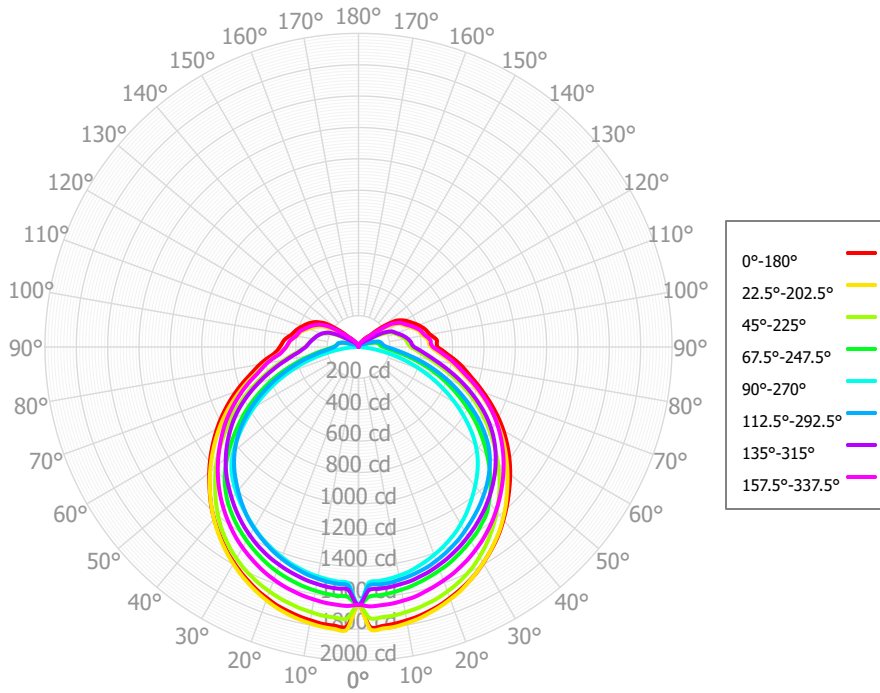
#### Full Beam Angle

0° - 180°	134°
90° - 270°	108°

### IES File Header Contents

Keyword	Value
TEST	SP-01619_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/15/2023
ISSUEDATE	11/16/2023
LUMCAT	GL04IND8GL 11L 35K xx DW xx FS xx
LUMINAIRE	4" Wide x 96" linear pendant or surface mount for semi-direct illumination
OTHER	Diffuse White Acrylic Lens and Wire Guard
OTHER	Matte White interior finish
OTHER	Beam Angle 134 deg x 108 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, Scaled from the GL04IND4GL 20L 35K

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	158.63	2.34%	90.00° - 100.00°	314.20	4.63%
10.00° - 20.00°	452.38	6.67%	100.00° - 110.00°	261.42	3.85%
20.00° - 30.00°	700.65	10.32%	100.00° - 120.00°	451.96	6.66%
30.00° - 40.00°	874.34	12.88%	120.00° - 130.00°	107.49	1.58%
40.00° - 50.00°	953.87	14.05%	130.00° - 140.00°	39.80	0.59%
50.00° - 60.00°	924.95	13.63%	140.00° - 150.00°	16.29	0.24%
60.00° - 70.00°	792.08	11.67%	150.00° - 160.00°	6.19	0.09%
70.00° - 80.00°	590.71	8.70%	160.00° - 170.00°	1.56	0.02%
80.00° - 90.00°	401.71	5.92%	170.00° - 180.00°	0.27	0.00%
0.00° - 90.00°	5849.32	86.18%	0.00° - 180.00°	6787.09	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°	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22	1645.22
2.50°	1790.54	1805.35	1732.89	1593.62	1504.98	1522.71	1549.37	1653.57	1787.58	1808.86	1735.00	1595.00	1508.28	1522.83	1551.78	1656.33	1790.54
5.00°	1785.78	1802.60	1730.63	1588.77	1498.59	1516.80	1546.62	1649.75	1784.42	1805.30	1732.03	1591.97	1502.12	1520.28	1548.11	1653.73	1785.78
7.50°	1780.28	1799.78	1727.58	1582.59	1491.93	1510.30	1543.01	1645.00	1781.14	1800.13	1728.87	1587.10	1495.77	1517.58	1544.11	1650.72	1780.28
10.00°	1770.76	1787.98	1718.63	1572.74	1481.34	1500.34	1534.26	1635.89	1770.26	1789.49	1718.71	1579.06	1486.24	1507.53	1536.88	1642.79	1770.76
12.50°	1760.05	1775.06	1708.89	1561.72	1469.97	1489.24	1524.52	1625.82	1759.08	1777.44	1708.36	1568.97	1476.17	1497.26	1529.48	1634.59	1760.05
15.00°	1744.26	1755.74	1695.05	1547.25	1451.45	1473.29	1510.48	1612.38	1743.87	1761.57	1693.88	1555.84	1461.42	1484.02	1515.87	1618.79	1744.26
17.50°	1726.86	1735.97	1679.88	1531.93	1432.49	1456.36	1495.74	1597.53	1728.27	1743.06	1679.00	1540.89	1445.98	1470.40	1501.98	1602.81	1726.86
20.00°	1704.20	1712.50	1659.32	1515.20	1410.96	1436.10	1478.61	1578.62	1705.15	1718.77	1659.82	1523.68	1426.30	1450.48	1483.86	1585.24	1704.20
22.50°	1680.63	1688.84	1637.27	1498.20	1388.65	1414.34	1460.12	1557.82	1681.47	1692.66	1639.90	1503.16	1405.97	1430.26	1465.37	1567.34	1680.63
25.00°	1654.68	1657.44	1610.50	1475.98	1362.92	1388.56	1437.90	1532.65	1652.37	1663.18	1614.96	1479.09	1382.77	1407.23	1443.64	1544.60	1654.68
27.50°	1626.03	1625.82	1581.05	1453.06	1335.90	1362.05	1414.10	1506.48	1622.66	1631.74	1588.87	1453.45	1358.33	1383.57	1421.42	1521.37	1626.03
30.00°	1591.49	1590.50	1544.67	1428.60	1304.38	1333.95	1386.80	1478.44	1588.80	1597.31	1556.98	1426.40	1329.51	1355.88	1396.28	1494.12	1591.49
32.50°	1556.45	1554.88	1506.28	1404.02	1271.27	1303.60	1358.09	1448.08	1553.96	1560.47	1523.57	1397.13	1300.89	1328.09	1370.63	1466.14	1556.45
35.00°	1520.50	1516.34	1463.69	1372.93	1233.75	1269.07	1326.71	1413.93	1514.46	1520.52	1484.36	1366.19	1272.87	1299.83	1342.78	1434.00	1520.50
37.50°	1481.80	1476.99	1419.16	1341.51	1195.95	1233.28	1293.75	1378.29	1474.37	1478.38	1443.05	1332.05	1243.65	1270.91	1314.20	1401.06	1481.80
40.00°	1438.89	1432.47	1371.29	1293.96	1157.52	1195.57	1258.33	1340.62	1432.17	1433.79	1395.20	1295.82	1211.73	1239.53	1283.05	1364.64	1438.89
42.50°	1395.58	1387.10	1322.58	1246.03	1117.86	1157.54	1222.76	1301.22	1388.28	1386.94	1345.79	1253.22	1178.52	1207.21	1251.05	1327.61	1395.58
45.00°	1351.74	1337.80	1272.61	1189.34	1075.88	1119.07	1186.98	1259.78	1339.35	1337.99	1292.50	1207.18	1142.84	1172.23	1216.69	1288.53	1351.74
47.50°	1307.60	1288.68	1219.52	1132.28	1029.55	1076.80	1148.02	1216.43	1290.73	1287.36	1239.27	1151.80	1098.73	1135.21	1181.00	1248.94	1307.60
50.00°	1263.14	1240.21	1162.54	1071.14	976.38	1030.31	1105.50	1171.19	1242.87	1235.40	1186.15	1092.14	1041.27	1093.51	1142.31	1207.90	1263.14
52.50°	1216.74	1191.39	1105.36	1009.81	917.50	979.29	1060.82	1124.79	1194.06	1182.63	1130.19	1028.82	979.11	1046.70	1102.02	1165.92	1216.74
55.00°	1168.53	1141.56	1047.98	947.24	850.91	924.02	1014.11	1077.42	1143.36	1129.31	1069.35	964.14	910.73	989.90	1058.67	1121.85	1168.53
57.50°	1118.96	1090.66	991.12	884.01	782.44	863.72	965.65	1030.14	1092.55	1075.69	1009.10	900.07	840.60	929.88	1012.22	1076.92	1118.96
60.00°	1068.34	1037.19	934.73	817.43	711.84	799.36	915.75	982.92	1041.53	1021.91	949.71	836.16	768.47	864.68	960.83	1030.40	1068.34
62.50°	1014.72	982.54	877.06	750.75	640.01	732.72	861.28	932.37	989.68	965.91	889.74	769.08	695.71	798.23	905.87	981.96	1014.72
65.00°	959.13	925.60	818.43	683.70	567.00	664.54	803.67	879.85	936.69	908.86	829.08	701.25	622.34	730.05	846.06	930.52	959.13
67.50°	903.50	868.41	757.68	617.30	493.91	596.80	743.95	827.98	883.68	852.56	767.56	633.05	548.56	662.43	785.84	877.80	903.50
70.00°	847.84	810.79	695.55	552.86	420.76	529.29	683.00	776.44	830.66	796.54	705.15	564.79	474.43	595.46	725.17	823.43	847.84
72.50°	795.78	754.68	634.56	488.11	348.78	463.61	624.75	724.16	778.03	741.34	645.30	496.20	400.70	529.48	665.08	769.45	795.78
75.00°	745.39	700.66	574.19	422.62	277.62	398.78	567.80	671.56	725.80	686.41	587.66	427.57	327.27	464.47	605.56	715.90	745.39
77.50°	702.37	652.87	520.47	359.63	209.60	339.44	515.31	629.91	679.64	640.61	533.42	367.01	257.38	401.16	550.53	669.16	702.37
80.00°	662.21	612.34	469.71	301.67	143.42	282.23	464.58	591.89	638.59	597.08	481.72	307.03	189.53	339.29	499.22	628.88	662.21
82.50°	618.67	569.95	428.66	250.16	89.76	237.50	422.70	548.15	594.07	552.49	436.16	260.27	129.96	287.76	455.64	587.51	618.67
85.00°	574.09	525.76	391.22	209.73	42.16	196.77	383.72	502.84	547.00	507.71	394.43	214.05	74.46	243.53	417.43	545.28	574.09
87.50°	538.06	490.78	361.25	177.71	18.93	173.43	358.34	480.07	518.76	481.46	364.82	185.21	38.53	209.26	384.70	508.56	538.06
90.00°	504.05	463.60	333.49	157.74	5.32	154.41	336.44	461.91	501.95	457.71	341.58	157.53	10.43	180.95	355.19	475.62	504.05
92.50°	499.98	450.94	322.23	144.13	1.87	145.11	324.26	450.41	488.85	447.31	326.93	149.55	3.09	166.03	341.99	462.84	499.98
95.00°	501.41	448.55	314.88	138.13	1.74	137.69	313.97	439.88	477.66	437.99	316.05	141.91	2.66	157.82	336.82	461.57	501.41
97.50°	483.08	436.65	307.76	133.69	1.79	134.24	303.22	422.21	459.26	419.06	305.71	137.33	2.54	152.66	327.47	448.84	483.08
100.00°	462.27	418.96	300.67	130.86	1.87	131.31	292.41	403.83	437.80	399.77	295.56	131.82	2.50	148.75	316.42	430.73	462.27
102.50°	450.27	406.82	288.42	120.84	2.24	121.01	282.56	395.14	423.76	389.09	284.69	120.34	2.51	141.93	302.96	418.46	450.27
105.00°	439.00	397.46	275.57	104.55	2.65	110.11	272.79	386.93	412.26	378.00	273.61	106.13	2.53	134.13	288.68	408.49	439.00

### 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>	7857	7857	7857	7857	7565	7565	7565	7565	7020	7020	7020	6522	6522	6522	6064	6064	5849
	<b>1</b>	7015	6631	6286	5976	6727	6382	6071	5789	5917	5665	5434	5489	5287	5100	5095	4935	4746
	<b>2</b>	6319	5696	5181	4748	6045	5484	5015	4618	5086	4700	4366	4719	4404	4126	4380	4125	3961
	<b>3</b>	5726	4953	4355	3879	5471	4772	4224	3783	4431	3973	3595	4116	3735	3414	3824	3509	3367
	<b>4</b>	5219	4356	3725	3242	4984	4201	3618	3168	3909	3414	3022	3637	3219	2881	3384	3033	2911
	<b>5</b>	4783	3869	3231	2760	4569	3736	3144	2701	3483	2974	2584	3248	2813	2471	3029	2658	2552
	<b>6</b>	4405	3466	2837	2385	4210	3351	2764	2337	3132	2622	2242	2927	2486	2149	2736	2355	2264
	<b>7</b>	4074	3129	2516	2087	3897	3029	2455	2047	2838	2334	1968	2659	2219	1890	2491	2107	2028
	<b>8</b>	3785	2844	2252	1846	3624	2756	2200	1812	2589	2097	1746	2431	1997	1680	2283	1901	1832
	<b>9</b>	3529	2601	2032	1648	3383	2524	1987	1620	2376	1898	1563	2237	1812	1506	2106	1728	1667
	<b>10</b>	3303	2392	1847	1484	3170	2324	1807	1459	2193	1730	1410	2069	1654	1361	1952	1581	1527

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	54.4 fc	25.9 ft
6.5 ft	38.9 fc	30.6 ft
7.5 ft	29.2 fc	35.3 ft
8.0 ft	25.7 fc	37.7 ft
10.0 ft	16.5 fc	47.1 ft
12.0 ft	11.4 fc	56.5 ft
14.0 ft	8.4 fc	66.0 ft
16.0 ft	6.4 fc	75.4 ft
20.0 ft	4.1 fc	94.2 ft
24.0 ft	2.9 fc	113.1 ft
28.0 ft	2.1 fc	131.9 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	6708	6708	6708
<b>45.00°</b>	4946	5153	6060
<b>55.00°</b>	4558	4640	5850
<b>65.00°</b>	4141	4136	5205
<b>75.00°</b>	3729	3503	4017
<b>85.00°</b>	3543	3131	1551

### UGR CIE 190:2010

<b>Ceiling reflectance</b>		<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>
<b>Wall reflectance</b>		<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>
<b>Plane reflectance</b>		<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>Room dimensions</b>		<b>Viewed crosswise</b>					<b>Viewed endwise</b>				
<b>2H</b>	<b>2H</b>	17.9	19.3	18.5	19.9	20.5	15.1	16.5	15.7	17.1	17.7
	<b>3H</b>	20.5	21.8	21.1	22.4	23.0	16.5	17.8	17.1	18.4	19.1
	<b>4H</b>	21.7	23.0	22.3	23.6	24.3	17.0	18.2	17.5	18.8	19.5
	<b>6H</b>	23.1	24.3	23.7	24.9	25.6	17.2	18.3	17.8	19.0	19.7
	<b>8H</b>	23.8	24.9	24.5	25.6	26.3	17.2	18.3	17.9	19.0	19.7
	<b>12H</b>	24.6	25.7	25.3	26.3	27.1	17.2	18.3	17.9	18.9	19.7
<b>4H</b>	<b>2H</b>	18.3	19.5	18.9	20.1	20.8	16.1	17.3	16.7	17.9	18.6
	<b>3H</b>	21.1	22.1	21.7	22.8	23.5	17.7	18.8	18.4	19.4	20.1
	<b>4H</b>	22.5	23.5	23.1	24.1	24.8	18.3	19.3	18.9	19.9	20.7
	<b>6H</b>	24.0	24.9	24.7	25.6	26.3	18.7	19.5	19.3	20.2	20.9
	<b>8H</b>	24.9	25.7	25.5	26.3	27.1	18.7	19.6	19.4	20.2	21.0
	<b>12H</b>	25.8	26.5	26.5	27.2	28.0	18.8	19.5	19.5	20.2	21.0
<b>8H</b>	<b>4H</b>	22.7	23.5	23.3	24.2	24.9	19.1	19.9	19.7	20.5	21.3
	<b>6H</b>	24.4	25.1	25.1	25.8	26.5	19.6	20.3	20.3	21.0	21.8
	<b>8H</b>	25.3	26.0	26.0	26.7	27.5	19.8	20.4	20.5	21.1	21.9
	<b>12H</b>	26.4	27.0	27.1	27.7	28.5	19.9	20.4	20.6	21.1	22.0
<b>12H</b>	<b>4H</b>	22.7	23.4	23.4	24.1	24.9	19.3	20.0	19.9	20.7	21.5
	<b>6H</b>	24.4	25.0	25.1	25.7	26.5	19.9	20.6	20.6	21.2	22.1
	<b>8H</b>	25.4	26.0	26.1	26.7	27.5	20.2	20.8	20.9	21.5	22.3

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0