

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

**Luminaire**

LD2208LED 240L 35K xx TJL xx xx  
24" x 5" High Lumen or Surface Mount Luminaire with Deep Conical Lens

**Test Number**

SP-01623\_1

**Test Date**

11/20/2023

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

### Summary of Results

#### Power

Input Watts	121.7 W
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#### Lumen Output

Output Lumens	16249
Efficacy	133.52 lm/W

#### Luminous Dimensions

0° - 180° Size	-2
90° - 270° Size	-2
Height	0

#### Spacing Criterion

Two luminaires, plane 0°	1.34
Two luminaires, plane 90°	1.35
Four luminaires	1.44

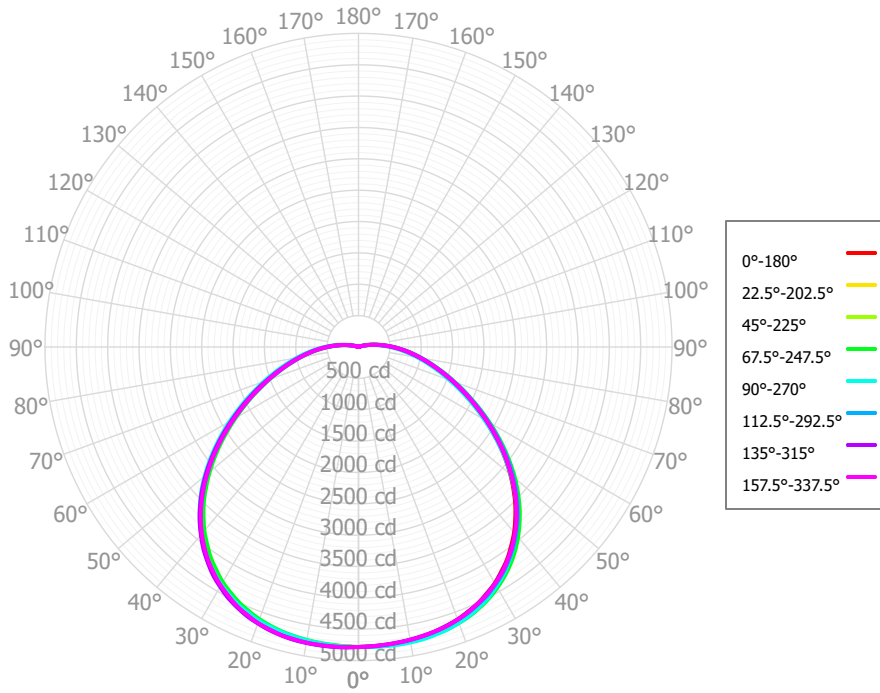
#### Full Beam Angle

0° - 180°	118°
90° - 270°	119°

### IES File Header Contents

Keyword	Value
TEST	SP-01623_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/20/2023
ISSUEDATE	11/21/2023
LUMCAT	LD2208LED 240L 35K xx TJL xx xx
LUMINAIRE	24" x 5" High Lumen or Surface Mount Luminaire with Deep Conical Lens
OTHER	Beam Angle: 119 deg
OTHER	80 CRI, 3500K tested
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80+
_LAMPMULT	150L x 0.78
_CCTMULT	30K x 0.99, 40K x 1.03

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	462.80	2.85%	90.00° - 100.00°	374.16	2.30%
10.00° - 20.00°	1335.64	8.22%	100.00° - 110.00°	94.78	0.58%
20.00° - 30.00°	2093.28	12.88%	100.00° - 120.00°	102.03	0.63%
30.00° - 40.00°	2601.06	16.01%	120.00° - 130.00°	3.20	0.02%
40.00° - 50.00°	2738.40	16.85%	130.00° - 140.00°	3.01	0.02%
50.00° - 60.00°	2467.41	15.18%	140.00° - 150.00°	2.65	0.02%
60.00° - 70.00°	1922.41	11.83%	150.00° - 160.00°	2.09	0.01%
70.00° - 80.00°	1330.03	8.19%	160.00° - 170.00°	1.36	0.01%
80.00° - 90.00°	809.49	4.98%	170.00° - 180.00°	0.48	0.00%
0.00° - 90.00°	15760.51	96.99%	0.00° - 180.00°	16249.48	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°	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15	4785.15
2.50°	4780.61	4782.81	4781.30	4782.10	4789.92	4792.39	4795.30	4790.19	4789.60	4785.94	4779.68	4777.52	4782.54	4782.51	4777.34	4777.02	4780.61
5.00°	4773.51	4775.58	4779.35	4781.75	4790.87	4795.25	4798.97	4793.16	4789.69	4783.69	4776.09	4768.86	4775.37	4772.42	4767.74	4768.22	4773.51
7.50°	4762.80	4766.46	4773.29	4781.03	4790.53	4794.00	4797.81	4790.92	4788.26	4777.94	4771.10	4758.06	4764.24	4759.76	4754.75	4758.78	4762.80
10.00°	4748.29	4753.90	4765.03	4772.79	4783.74	4789.52	4791.86	4786.67	4777.45	4768.41	4758.29	4744.04	4751.57	4744.10	4740.22	4743.80	4748.29
12.50°	4727.29	4740.56	4748.32	4763.73	4772.22	4776.25	4782.83	4772.66	4764.45	4752.27	4741.28	4724.18	4731.39	4727.38	4719.37	4724.69	4727.29
15.00°	4701.69	4714.95	4728.76	4743.45	4749.56	4758.43	4760.68	4756.56	4741.29	4731.31	4716.91	4698.45	4709.56	4700.93	4696.82	4698.71	4701.69
17.50°	4665.42	4687.93	4695.51	4721.45	4721.60	4726.12	4733.17	4722.00	4716.90	4697.40	4690.07	4662.39	4677.91	4672.61	4661.86	4669.41	4665.42
20.00°	4624.28	4644.12	4659.80	4683.57	4680.20	4689.22	4691.17	4685.37	4672.14	4657.39	4645.04	4619.33	4645.03	4630.12	4625.31	4626.04	4624.28
22.50°	4569.22	4597.49	4607.36	4641.43	4634.91	4635.84	4645.79	4627.38	4625.04	4601.99	4596.77	4562.01	4591.68	4586.09	4569.41	4578.50	4569.22
25.00°	4510.32	4529.61	4552.86	4582.04	4568.52	4579.73	4578.57	4566.18	4559.16	4542.27	4528.38	4498.49	4535.49	4525.17	4511.50	4513.49	4510.32
27.50°	4430.79	4457.54	4474.69	4515.00	4499.15	4495.26	4508.91	4481.99	4488.20	4459.59	4457.73	4416.49	4457.70	4460.69	4435.42	4445.93	4430.79
30.00°	4348.58	4370.15	4392.47	4430.01	4403.10	4408.18	4413.92	4392.71	4397.90	4373.72	4364.42	4329.69	4375.25	4373.33	4354.75	4357.57	4348.58
32.50°	4241.98	4274.29	4286.09	4335.14	4304.52	4297.63	4315.85	4285.42	4298.07	4264.77	4267.02	4218.54	4275.93	4280.12	4253.92	4266.51	4241.98
35.00°	4132.73	4159.78	4173.94	4225.22	4182.39	4182.29	4191.80	4169.34	4176.94	4153.10	4145.51	4104.53	4166.79	4167.89	4145.10	4148.56	4132.73
37.50°	3999.11	4033.68	4043.93	4099.87	4054.66	4041.21	4062.01	4034.37	4045.10	4015.52	4017.10	3965.78	4036.55	4046.65	4016.06	4026.41	3999.11
40.00°	3860.64	3891.13	3903.76	3958.71	3900.02	3892.74	3910.22	3886.65	3897.63	3872.58	3867.50	3824.41	3896.95	3907.38	3877.46	3884.12	3860.64
42.50°	3700.71	3734.58	3744.33	3802.00	3738.62	3722.61	3750.45	3721.21	3736.06	3704.79	3709.19	3658.63	3744.19	3755.61	3723.51	3734.22	3700.71
45.00°	3534.07	3564.82	3574.94	3634.71	3559.23	3544.62	3572.43	3542.75	3560.80	3530.44	3534.19	3487.73	3577.51	3587.32	3556.02	3563.71	3534.07
47.50°	3350.30	3382.88	3393.01	3450.57	3371.78	3352.34	3384.37	3352.24	3372.51	3338.75	3350.46	3295.08	3397.62	3408.97	3373.90	3385.47	3350.30
50.00°	3160.02	3193.20	3199.27	3259.08	3170.85	3151.37	3181.61	3150.29	3175.71	3141.21	3155.78	3098.51	3203.28	3221.76	3181.78	3193.92	3160.02
52.50°	2959.08	2990.77	2995.61	3052.97	2963.52	2940.02	2973.04	2941.23	2968.53	2933.80	2951.64	2892.43	2999.84	3023.18	2982.48	2995.53	2959.08
55.00°	2752.44	2783.13	2784.41	2843.05	2749.03	2726.29	2758.73	2725.80	2757.02	2722.92	2739.49	2683.42	2791.08	2817.99	2775.64	2789.38	2752.44
57.50°	2539.64	2573.29	2568.99	2628.99	2533.47	2510.64	2544.31	2507.86	2542.01	2508.18	2525.73	2469.88	2580.21	2608.44	2565.24	2580.94	2539.64
60.00°	2332.14	2362.95	2360.83	2414.45	2317.08	2297.77	2329.82	2296.91	2326.13	2298.20	2311.06	2262.72	2371.66	2397.28	2359.09	2370.78	2332.14
62.50°	2128.47	2162.41	2155.19	2207.22	2111.65	2086.38	2124.55	2087.53	2122.77	2091.75	2109.60	2062.19	2163.66	2194.82	2154.14	2168.65	2128.47
65.00°	1936.54	1962.96	1959.92	2001.85	1911.62	1890.72	1923.21	1893.11	1920.76	1896.13	1912.69	1869.60	1969.41	1994.14	1962.34	1970.53	1936.54
67.50°	1750.16	1779.95	1766.62	1814.12	1725.83	1700.24	1735.96	1700.39	1734.78	1705.79	1730.20	1682.59	1776.68	1809.43	1772.38	1786.69	1750.16
70.00°	1579.50	1599.29	1594.64	1630.33	1544.26	1526.92	1552.19	1530.51	1551.36	1533.96	1550.43	1511.88	1604.14	1626.49	1600.31	1607.25	1579.50
72.50°	1413.36	1437.66	1424.81	1463.30	1383.18	1356.56	1389.50	1363.13	1390.38	1367.58	1388.71	1348.56	1433.86	1461.15	1430.11	1444.18	1413.36
75.00°	1265.27	1280.07	1273.56	1302.76	1225.19	1208.65	1229.09	1214.93	1233.91	1218.05	1229.11	1203.00	1281.62	1298.73	1277.91	1283.67	1265.27
77.50°	1119.71	1137.87	1125.07	1158.00	1087.23	1062.95	1091.62	1071.35	1095.14	1071.04	1092.32	1062.18	1133.96	1156.47	1129.44	1146.02	1119.71
80.00°	991.42	1002.59	993.75	1020.98	951.09	937.89	956.03	944.89	962.13	945.16	958.03	936.59	1003.66	1018.51	998.24	1010.09	991.42
82.50°	864.61	882.79	866.90	895.96	831.61	814.81	837.58	822.62	842.51	820.87	839.07	812.94	877.40	895.16	871.78	887.68	864.61
85.00°	751.33	766.82	754.54	776.74	714.03	703.01	721.37	709.54	727.17	709.73	722.44	700.08	760.12	775.42	757.58	767.41	751.33
87.50°	639.40	656.45	643.61	663.57	605.84	593.61	614.12	600.97	618.29	600.27	613.24	588.41	647.40	663.06	645.93	658.08	639.40
90.00°	533.82	550.33	535.49	557.65	501.19	491.42	510.32	498.89	513.83	499.08	508.61	488.09	541.22	554.35	538.52	551.13	533.82
92.50°	432.97	448.34	436.08	456.82	406.33	394.58	414.54	402.95	413.80	401.81	412.88	390.67	442.52	450.57	438.29	450.90	432.97
95.00°	344.63	357.41	347.84	365.71	318.32	307.82	326.00	312.87	326.16	315.15	323.97	305.91	351.05	358.66	346.06	357.36	344.63
97.50°	263.72	273.63	268.61	279.00	242.14	230.48	248.43	236.46	246.75	235.91	243.87	226.91	270.98	277.54	265.28	275.57	263.72
100.00°	195.20	204.33	197.20	208.91	174.58	164.71	179.38	168.71	181.13	169.42	175.92	162.44	198.33	207.00	192.99	202.67	195.20
102.50°	135.47	141.10	137.69	143.25	116.99	109.98	119.03	115.48	121.48	113.34	118.45	106.83	139.28	142.82	135.37	140.18	135.47
105.00°	85.55	94.25	84.96	97.28	71.82	64.43	74.06	68.19	77.23	69.22	74.32	65.37	85.88	94.85	84.80	91.01	85.55

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

<b>RCR</b>	<b>pfc</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%	10%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%
	<b>0</b>	19228	19228	19228	19228	18724	18724	18724	18724	17783	17783	17783	16923	16923	16923	16132	16132	15761
	<b>1</b>	17313	16434	15646	14935	16807	16011	15294	14643	15219	14628	14087	14492	14010	13564	13822	13435	13073
	<b>2</b>	15662	14212	13013	12006	15174	13856	12756	11822	13189	12265	11467	12574	11804	11128	12005	11370	10804
	<b>3</b>	14236	12420	11016	9897	13778	12121	10821	9773	11557	10447	9533	11035	10093	9301	10551	9757	9503
	<b>4</b>	13008	10967	9474	8333	12585	10714	9322	8246	10236	9030	8075	9793	8752	7909	9380	8487	7748
	<b>5</b>	11944	9773	8257	7138	11557	9559	8137	7074	9152	7904	6948	8773	7682	6825	8420	7469	6705
	<b>6</b>	11016	8780	7280	6202	10666	8597	7182	6154	8250	6994	6058	7925	6813	5964	7621	6639	5871
	<b>7</b>	10205	7946	6481	5455	9887	7789	6402	5417	7490	6247	5342	7210	6098	5268	6948	5954	5195
	<b>8</b>	9490	7238	5821	4847	9203	7102	5755	4817	6844	5626	4756	6602	5501	4697	6374	5381	4638
	<b>9</b>	8859	6632	5268	4346	8599	6515	5212	4321	6290	5104	4272	6079	4998	4223	5880	4897	4175
	<b>10</b>	8299	6110	4800	3927	8064	6007	4752	3907	5811	4660	3866	5626	4570	3825	5451	4483	3785

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	158.2 fc	18.4 ft
6.5 ft	113.3 fc	21.8 ft
7.5 ft	85.1 fc	25.1 ft
8.0 ft	74.8 fc	26.8 ft
10.0 ft	47.9 fc	33.5 ft
12.0 ft	33.2 fc	40.2 ft
14.0 ft	24.4 fc	46.9 ft
16.0 ft	18.7 fc	53.6 ft
20.0 ft	12.0 fc	67.0 ft
24.0 ft	8.3 fc	80.4 ft
28.0 ft	6.1 fc	93.8 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	16395	16395	16395
<b>45.00°</b>	17124	17322	17246
<b>55.00°</b>	16442	16633	16421
<b>65.00°</b>	15700	15889	15498
<b>75.00°</b>	16750	16859	16219
<b>85.00°</b>	29536	29662	28070

### 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	20.7	22.3	21.1	22.7	23.1	20.5	22.2	20.9	22.5	22.9
	3H	22.7	24.2	23.1	24.6	25.0	22.5	24.0	22.9	24.4	24.8
	4H	23.6	25.0	24.1	25.4	25.9	23.4	24.8	23.9	25.2	25.7
	6H	24.5	25.8	25.0	26.3	26.7	24.4	25.7	24.8	26.1	26.5
	8H	25.0	26.3	25.5	26.7	27.2	24.8	26.1	25.3	26.5	27.0
	12H	25.5	26.7	26.0	27.2	27.7	25.3	26.5	25.8	27.0	27.5
4H	2H	21.4	22.8	21.8	23.2	23.6	21.2	22.6	21.6	23.0	23.5
	3H	23.6	24.8	24.1	25.3	25.8	23.4	24.6	23.9	25.1	25.5
	4H	24.7	25.8	25.2	26.3	26.8	24.5	25.6	25.0	26.1	26.6
	6H	25.8	26.8	26.3	27.3	27.8	25.6	26.6	26.1	27.1	27.6
	8H	26.4	27.3	26.9	27.8	28.3	26.2	27.1	26.7	27.6	28.1
	12H	27.0	27.9	27.6	28.4	28.9	26.8	27.6	27.3	28.1	28.7
8H	4H	25.2	26.1	25.7	26.6	27.1	25.0	25.9	25.5	26.3	26.9
	6H	26.5	27.3	27.1	27.8	28.4	26.3	27.0	26.8	27.6	28.1
	8H	27.3	27.9	27.8	28.5	29.1	27.0	27.7	27.5	28.2	28.8
	12H	28.1	28.7	28.6	29.3	29.9	27.8	28.4	28.4	29.0	29.6
12H	4H	25.3	26.1	25.8	26.6	27.2	25.0	25.9	25.6	26.4	26.9
	6H	26.7	27.4	27.3	27.9	28.5	26.4	27.1	27.0	27.6	28.2
	8H	27.5	28.2	28.1	28.7	29.3	27.2	27.9	27.8	28.4	29.0

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0