

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

994 Jefferson Street  
Fall River, MA 02721  
+1.508.678.2303

### Spectrum Lighting Photometric Lab

**Luminaire**

SN24 10L 30HK xx xx xx MWI  
24" x 23.5" Spin Pendant 10L 30HK MWI

**Test Number**

SP-01611

**Test Date**

11/6/2023

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

### Summary of Results

#### Power

Input Watts	9.6 W
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#### Lumen Output

Output Lumens	1090
Efficacy	113.57 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	1.04
Two luminaires, plane 90°	1.09
Four luminaires	1.16

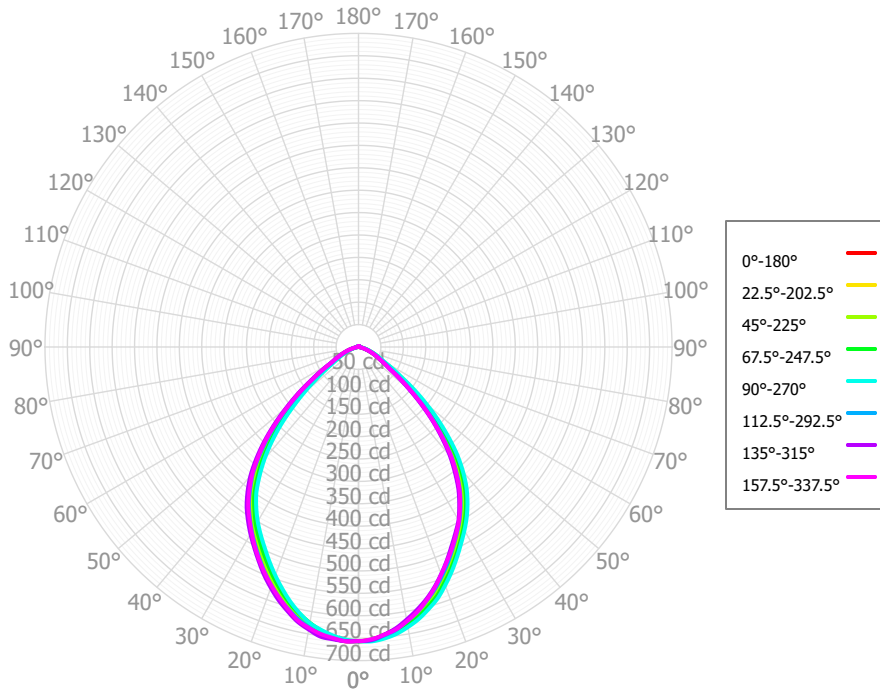
#### Full Beam Angle

0° - 180°	82°
90° - 270°	82°

### IES File Header Contents

Keyword	Value
TEST	SP-01611
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	11/6/2023
ISSUEDATE	11/07/2023
LUMCAT	SN24 10L 30HK xx xx xx MWI
LUMINAIRE	24" x 23.5" Spin Pendant 10L 30HK MWI
OTHER	Beam Angle: 82 deg
OTHER	90 CRI, 3000K tested
OTHER	CCT Output Multipliers: 27HK x 0.99, 35HK x 1.01
OTHER	Total luminaire wattages are approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	90+

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	62.29	5.71%	90.00° - 100.00°	1.45	0.13%
10.00° - 20.00°	167.36	15.35%	100.00° - 110.00°	1.42	0.13%
20.00° - 30.00°	234.11	21.47%	100.00° - 120.00°	2.76	0.25%
30.00° - 40.00°	254.95	23.38%	120.00° - 130.00°	1.25	0.11%
40.00° - 50.00°	202.15	18.54%	130.00° - 140.00°	1.12	0.10%
50.00° - 60.00°	98.97	9.08%	140.00° - 150.00°	0.93	0.09%
60.00° - 70.00°	41.93	3.85%	150.00° - 160.00°	0.70	0.06%
70.00° - 80.00°	16.15	1.48%	160.00° - 170.00°	0.43	0.04%
80.00° - 90.00°	3.58	0.33%	170.00° - 180.00°	0.15	0.01%
0.00° - 90.00°	1081.49	99.19%	0.00° - 180.00°	1090.29	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°	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77
2.50°	654.03	654.73	655.47	656.14	657.93	657.01	657.55	657.68	657.74	655.52	655.78	656.25	653.99	656.00	654.85	653.23	654.03
5.00°	645.44	647.63	648.60	650.26	653.64	653.56	655.03	652.30	653.49	650.24	650.47	649.03	646.89	647.06	645.35	645.47	645.44
7.50°	635.08	638.58	640.70	642.83	646.28	647.87	652.14	646.33	648.20	644.32	644.03	638.87	637.26	637.34	633.88	636.60	635.08
10.00°	621.82	625.45	627.23	630.63	634.97	635.89	640.54	636.96	636.46	631.81	631.35	625.43	625.98	621.84	618.15	621.90	621.82
12.50°	605.51	609.95	612.37	617.47	621.98	622.30	628.32	625.26	624.05	618.74	617.36	609.75	608.46	605.82	601.46	605.85	605.51
15.00°	585.89	591.27	593.42	600.36	605.57	605.90	610.95	606.75	606.58	600.59	599.60	592.44	588.43	586.83	583.42	585.92	585.89
17.50°	564.89	570.96	573.85	582.78	588.30	587.77	592.95	587.67	588.57	581.83	580.34	571.96	565.95	566.97	562.72	564.46	564.89
20.00°	542.91	549.17	553.17	560.48	566.00	567.65	572.29	567.57	567.17	560.52	558.37	549.98	542.91	544.52	539.55	540.34	542.91
22.50°	518.95	526.19	530.79	538.03	543.17	545.75	550.81	546.49	545.53	538.49	535.77	526.97	519.07	521.34	515.55	517.11	518.95
25.00°	494.06	502.52	506.38	514.65	519.23	522.50	527.36	524.28	523.14	514.73	512.45	503.69	495.19	496.86	491.05	494.87	494.06
27.50°	471.69	479.91	483.26	491.37	495.44	499.37	504.44	501.21	500.45	491.41	489.44	480.85	472.75	473.09	468.49	471.93	471.69
30.00°	450.00	457.70	461.14	468.40	472.92	476.30	482.30	477.49	477.16	468.78	466.68	458.07	449.99	450.17	446.66	448.46	450.00
32.50°	423.88	431.70	435.90	444.44	449.75	451.76	459.28	453.44	453.43	444.63	441.54	432.23	424.93	424.03	418.61	421.94	423.88
35.00°	397.23	404.94	409.13	418.63	424.20	426.79	435.40	429.21	429.14	418.97	415.20	405.62	397.71	395.34	389.28	393.95	397.23
37.50°	369.97	370.50	375.68	389.07	396.23	396.86	406.81	399.55	400.62	388.78	384.20	371.64	363.04	361.66	353.97	359.94	360.97
40.00°	324.14	335.33	340.20	354.85	362.93	366.25	375.20	368.23	368.57	355.62	351.80	336.30	326.60	325.47	318.01	324.15	324.14
42.50°	282.73	294.19	300.09	316.50	325.93	326.44	337.15	330.34	330.69	317.24	312.51	295.14	286.47	285.14	276.69	282.00	282.73
45.00°	241.00	252.74	259.29	274.78	283.77	286.15	296.43	291.44	289.67	276.65	272.18	253.57	244.30	243.51	235.02	238.96	241.00
47.50°	197.93	209.38	215.66	231.06	241.11	242.86	253.15	247.25	247.08	234.83	229.03	211.03	199.41	199.79	191.12	196.80	197.93
50.00°	156.81	167.23	172.41	186.29	198.00	200.14	209.28	203.20	203.96	192.72	186.15	169.81	158.71	155.75	149.22	155.04	156.81
52.50°	120.22	128.86	134.55	147.04	157.11	160.03	168.65	162.63	163.50	152.39	147.27	130.54	121.66	121.07	113.74	117.78	120.22
55.00°	89.87	96.38	99.46	109.57	117.59	122.61	128.48	123.93	123.49	112.42	110.59	98.59	92.95	87.96	84.76	84.53	89.87
57.50°	68.63	74.98	76.90	84.87	90.22	91.87	98.84	94.13	94.54	86.52	84.07	74.00	69.11	70.84	68.21	68.98	68.63
60.00°	53.70	58.58	58.18	62.24	67.41	68.21	71.29	69.16	67.18	62.52	62.37	57.71	55.64	55.19	55.17	55.25	53.70
62.50°	44.96	48.23	49.33	52.82	55.07	55.53	58.95	56.65	56.86	52.87	52.91	46.88	45.88	46.39	46.57	46.12	44.96
65.00°	36.65	39.35	40.89	43.87	44.95	44.76	47.34	45.81	46.84	43.55	43.72	38.76	37.42	37.96	37.92	37.75	36.65
67.50°	28.61	31.65	33.10	35.12	36.62	35.95	38.32	37.73	38.36	35.42	34.98	31.78	29.22	30.52	29.23	30.55	28.61
70.00°	22.38	25.04	25.77	26.77	28.52	28.72	30.15	30.15	30.35	28.17	27.20	25.06	22.93	23.64	22.11	23.65	22.38
72.50°	16.88	18.98	18.94	20.35	23.18	22.55	23.79	23.10	23.65	22.80	20.41	18.39	16.83	17.67	15.83	17.06	16.88
75.00°	12.22	13.63	13.46	14.60	17.86	16.98	18.01	17.27	17.36	17.60	14.81	13.65	12.14	12.67	11.30	12.26	12.22
77.50°	7.76	8.50	8.95	10.67	12.70	11.66	12.98	12.29	11.77	12.61	10.01	9.12	7.78	8.73	7.37	8.71	7.76
80.00°	5.15	6.07	6.14	7.16	8.07	8.02	9.03	8.20	7.83	8.36	7.05	6.53	5.27	5.61	5.34	5.93	5.15
82.50°	2.74	4.08	4.08	4.33	5.13	4.81	6.04	4.52	5.78	4.77	4.91	4.08	3.23	3.09	3.64	3.49	2.74
85.00°	2.03	2.60	2.72	2.45	2.99	3.40	3.95	2.97	4.05	2.93	3.17	2.79	2.61	2.08	2.64	2.34	2.03
87.50°	1.37	1.22	1.55	1.61	2.39	2.18	2.37	1.99	2.54	2.12	1.54	1.72	2.06	1.75	1.71	1.53	1.37
90.00°	1.15	1.11	1.50	1.28	1.84	1.82	1.68	1.54	1.71	1.60	1.23	1.43	1.65	1.47	1.39	1.35	1.15
92.50°	1.05	1.08	1.57	1.34	1.36	1.45	1.33	1.16	1.21	1.19	1.06	1.26	1.46	1.20	1.15	1.23	1.05
95.00°	1.36	1.42	1.39	1.41	1.14	1.11	1.56	1.12	1.14	1.16	1.18	1.36	1.56	1.33	1.35	1.28	1.36
97.50°	1.50	1.67	1.23	1.50	1.13	0.87	1.92	1.09	1.20	1.20	1.27	1.41	1.46	1.50	1.49	1.34	1.50
100.00°	1.31	1.68	1.15	1.42	1.29	1.01	1.68	1.03	1.27	1.09	1.14	1.40	1.22	1.47	1.46	1.53	1.31
102.50°	1.23	1.62	1.13	1.30	1.55	1.08	1.42	1.02	1.35	0.98	1.07	1.38	1.20	1.45	1.48	1.63	1.23
105.00°	1.30	1.45	1.37	1.55	1.57	0.99	1.43	1.23	1.28	1.25	1.25	1.34	1.30	1.45	1.59	1.43	1.30

### 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>	1296	1296	1296	1296	1265	1265	1265	1265	1207	1207	1207	1153	1153	1153	1104	1104	1081
	<b>1</b>	1215	1176	1141	1110	1186	1151	1120	1091	1105	1079	1056	1062	1041	1022	1022	1006	985
	<b>2</b>	1132	1062	1005	957	1105	1042	990	946	1004	960	923	969	933	901	936	907	888
	<b>3</b>	1053	962	891	835	1028	945	880	828	913	858	813	884	837	798	857	818	800
	<b>4</b>	980	874	796	737	957	860	787	731	833	771	721	808	755	711	785	739	724
	<b>5</b>	913	797	715	655	892	785	709	652	762	696	645	742	683	638	722	671	658
	<b>6</b>	852	730	647	588	833	719	642	585	700	631	580	683	622	575	666	612	600
	<b>7</b>	797	671	589	531	780	662	584	529	646	576	525	631	568	521	616	560	550
	<b>8</b>	748	619	538	483	732	612	535	481	598	528	478	585	522	475	572	515	506
	<b>9</b>	703	574	495	441	688	567	492	440	555	486	438	544	481	436	533	476	467
	<b>10</b>	662	534	457	406	649	528	454	405	517	450	403	507	445	401	498	441	433

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	21.7 fc	9.6 ft
6.5 ft	15.5 fc	11.4 ft
7.5 ft	11.7 fc	13.1 ft
8.0 ft	10.3 fc	14.0 ft
10.0 ft	6.6 fc	17.5 ft
12.0 ft	4.6 fc	21.0 ft
14.0 ft	3.4 fc	24.5 ft
16.0 ft	2.6 fc	28.0 ft
20.0 ft	1.6 fc	35.0 ft
24.0 ft	1.1 fc	42.0 ft
28.0 ft	0.8 fc	49.0 ft

### Average Luminaire Luminance [cd/m<sup>2</sup>]

	0.00°	45.00°	90.00°
<b>0.00°</b>	2250	2250	2250
<b>45.00°</b>	1168	1256	1375
<b>55.00°</b>	537	594	702
<b>65.00°</b>	297	332	364
<b>75.00°</b>	162	178	236
<b>85.00°</b>	80	107	118

### 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	5.7	7.0	6.0	7.3	7.7	6.7	8.0	7.1	8.3	8.7
	3H	6.4	7.6	6.8	7.9	8.3	7.4	8.5	7.8	8.9	9.3
	4H	6.5	7.6	7.0	8.0	8.4	7.5	8.6	8.0	9.0	9.4
	6H	6.6	7.6	7.0	8.0	8.4	7.6	8.6	8.0	9.0	9.4
	8H	6.6	7.5	7.0	7.9	8.3	7.6	8.5	8.0	9.0	9.4
	12H	6.5	7.4	7.0	7.8	8.3	7.6	8.5	8.0	8.9	9.3
4H	2H	5.9	7.0	6.4	7.4	7.8	7.0	8.0	7.4	8.4	8.8
	3H	6.8	7.7	7.2	8.1	8.6	7.8	8.7	8.2	9.1	9.5
	4H	7.0	7.8	7.5	8.3	8.7	8.0	8.8	8.5	9.3	9.7
	6H	7.1	7.8	7.6	8.3	8.7	8.2	8.8	8.6	9.3	9.8
	8H	7.1	7.7	7.6	8.2	8.7	8.2	8.8	8.6	9.3	9.7
	12H	7.1	7.6	7.6	8.1	8.6	8.1	8.7	8.6	9.2	9.7
8H	4H	7.1	7.7	7.5	8.1	8.6	8.1	8.7	8.6	9.2	9.7
	6H	7.2	7.7	7.7	8.2	8.7	8.2	8.8	8.8	9.3	9.8
	8H	7.2	7.6	7.7	8.2	8.7	8.3	8.7	8.8	9.3	9.8
	12H	7.2	7.6	7.7	8.1	8.7	8.3	8.7	8.8	9.2	9.8
12H	4H	7.0	7.6	7.5	8.1	8.6	8.1	8.6	8.6	9.1	9.6
	6H	7.1	7.6	7.7	8.1	8.6	8.2	8.7	8.8	9.2	9.7
	8H	7.2	7.6	7.7	8.1	8.7	8.3	8.7	8.8	9.2	9.8

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0