

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

**Luminaire**

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

**Test Number**

SP-01612

**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	1037
Efficacy	108.05 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	1.14
Two luminaires, plane 90°	1.13
Four luminaires	1.2

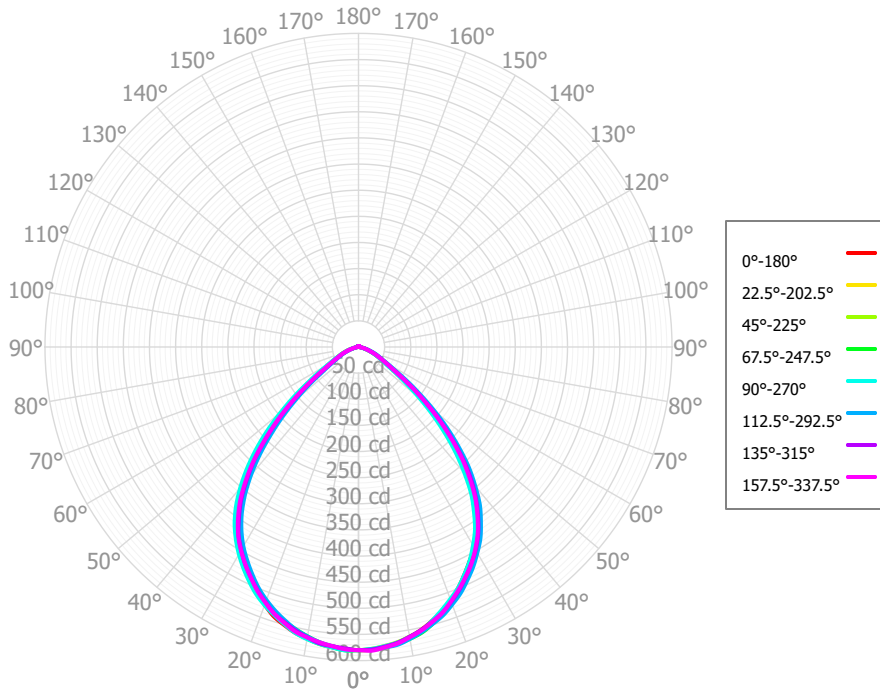
#### Full Beam Angle

0° - 180°	86°
90° - 270°	86°

### IES File Header Contents

Keyword	Value
TEST	SP-01612
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 TW FCI
LUMINAIRE	24" x 23.5" Spin Pendant 10L 30HK TW FCI
OTHER	Beam Angle: 86 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°	55.47	5.35%	90.00° - 100.00°	1.52	0.15%
10.00° - 20.00°	153.62	14.81%	100.00° - 110.00°	1.43	0.14%
20.00° - 30.00°	223.67	21.56%	100.00° - 120.00°	2.75	0.26%
30.00° - 40.00°	247.50	23.86%	120.00° - 130.00°	1.24	0.12%
40.00° - 50.00°	195.94	18.89%	130.00° - 140.00°	1.02	0.10%
50.00° - 60.00°	94.41	9.10%	140.00° - 150.00°	0.92	0.09%
60.00° - 70.00°	39.45	3.80%	150.00° - 160.00°	0.67	0.06%
70.00° - 80.00°	15.27	1.47%	160.00° - 170.00°	0.41	0.04%
80.00° - 90.00°	3.29	0.32%	170.00° - 180.00°	0.14	0.01%
0.00° - 90.00°	1028.63	99.16%	0.00° - 180.00°	1037.31	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°	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13	580.13
2.50°	580.03	580.10	578.21	579.97	578.40	578.85	577.46	579.17	579.86	580.52	578.08	581.18	581.10	579.14	579.63	581.77	580.03
5.00°	576.22	576.29	574.46	576.91	574.76	574.85	574.88	574.58	576.66	577.16	576.37	576.21	577.43	577.12	575.67	577.26	576.22
7.50°	571.11	571.77	569.85	573.27	570.80	569.95	572.13	569.89	572.57	572.98	573.25	570.08	573.29	574.73	570.87	572.55	571.11
10.00°	563.59	564.38	562.92	567.10	563.83	562.52	564.20	564.51	566.65	566.54	566.37	562.28	567.62	567.13	563.09	564.20	563.59
12.50°	554.46	556.51	555.56	559.92	556.48	553.76	555.72	558.22	560.20	558.73	558.17	553.61	560.43	558.63	554.68	555.73	554.46
15.00°	542.86	545.17	544.55	548.44	542.60	542.01	545.60	547.13	550.59	547.77	547.12	543.89	549.19	548.64	544.52	544.89	542.86
17.50°	530.04	533.46	533.09	535.54	528.25	529.39	535.38	535.33	540.24	535.84	535.27	531.96	537.72	538.48	533.12	533.59	530.04
20.00°	515.62	519.21	517.91	520.78	513.45	515.18	520.03	520.74	524.86	522.08	522.01	517.77	525.75	524.48	518.88	517.75	515.62
22.50°	499.02	504.81	502.46	505.53	498.59	499.19	504.54	505.33	508.62	507.02	507.25	501.58	511.99	510.24	503.39	501.82	499.02
25.00°	480.06	485.11	483.53	488.36	479.83	480.44	487.04	487.29	492.03	489.94	490.25	483.67	495.02	492.64	485.56	485.20	480.06
27.50°	461.14	465.32	464.45	470.80	460.85	461.00	469.34	468.94	475.41	471.92	472.50	464.79	477.12	474.92	467.30	467.82	461.14
30.00°	442.26	444.91	442.73	449.81	438.24	440.67	448.80	449.81	455.11	452.67	453.84	445.21	457.84	454.77	448.38	446.88	442.26
32.50°	418.62	423.92	420.65	428.33	414.97	416.94	427.38	428.36	434.56	429.75	431.84	422.91	436.73	434.28	426.06	424.57	418.62
35.00°	391.25	394.84	391.89	400.12	385.32	389.55	398.87	402.17	408.03	402.73	406.34	398.93	413.32	408.43	399.23	397.14	391.25
37.50°	359.69	364.97	362.34	371.32	354.44	357.18	369.29	372.58	381.19	373.36	377.27	368.47	385.27	381.73	369.88	367.83	359.69
40.00°	325.38	328.67	325.35	334.45	315.92	320.17	333.80	337.03	346.23	341.79	344.98	334.72	352.23	347.70	337.73	333.07	325.38
42.50°	286.70	291.58	287.66	297.22	276.79	280.07	297.10	298.81	310.91	305.40	308.18	295.79	316.07	312.69	300.60	296.55	286.70
45.00°	245.57	249.96	245.66	255.19	234.92	237.56	255.23	256.74	269.98	265.13	267.97	254.63	277.10	272.03	258.70	255.91	245.57
47.50°	203.95	208.32	203.78	213.20	193.34	196.24	213.45	214.97	228.89	223.51	226.37	213.09	236.15	231.04	216.43	215.15	203.95
50.00°	162.11	166.59	162.46	172.09	152.75	155.72	171.97	173.58	186.49	180.99	183.86	171.42	193.66	188.51	173.85	174.15	162.11
52.50°	125.83	127.34	123.68	131.85	115.51	119.94	132.80	135.58	145.26	142.26	144.83	134.09	154.01	147.75	135.38	135.60	125.83
55.00°	91.70	96.45	93.91	101.13	87.57	86.81	99.82	101.10	111.17	105.72	107.69	97.94	116.19	112.97	99.73	101.02	91.70
57.50°	71.43	70.63	68.62	72.54	64.62	66.40	72.70	75.72	80.25	80.83	81.20	75.75	88.85	82.74	76.28	74.58	71.43
60.00°	55.37	58.37	56.23	58.67	53.20	51.79	58.28	58.28	63.30	61.43	59.41	56.52	67.13	65.12	59.81	59.48	55.37
62.50°	45.65	47.49	45.19	45.81	43.03	42.43	46.21	46.54	48.55	49.51	48.18	46.97	53.27	50.70	48.65	47.48	45.65
65.00°	37.41	39.61	37.26	38.09	35.20	35.07	38.32	39.08	41.17	40.44	40.84	38.88	42.98	43.40	39.98	39.10	37.41
67.50°	30.15	32.01	29.88	30.79	27.97	28.18	30.77	31.89	34.06	33.03	33.64	31.76	34.74	36.13	31.78	31.36	30.15
70.00°	23.05	24.96	23.55	25.10	21.69	21.44	23.72	24.87	27.72	26.16	26.48	24.73	27.25	28.90	23.76	24.26	23.05
72.50°	17.97	18.71	17.72	19.53	15.89	15.97	17.90	18.99	21.44	20.27	20.27	18.65	21.81	22.32	18.28	18.70	17.97
75.00°	13.12	13.70	12.67	14.30	10.72	10.81	13.63	13.72	15.29	14.63	14.29	12.61	16.97	16.75	13.61	14.44	13.12
77.50°	9.55	9.48	8.69	9.64	6.73	7.62	9.76	9.94	10.12	10.28	10.15	9.20	12.04	11.67	9.74	10.47	9.55
80.00°	6.06	6.28	6.12	6.40	4.04	4.79	6.33	6.81	6.82	6.16	6.32	5.86	7.09	7.23	6.06	6.72	6.06
82.50°	3.93	3.81	3.90	3.83	2.47	3.38	3.96	4.54	4.33	4.26	4.59	4.15	4.81	4.22	3.92	4.29	3.93
85.00°	1.87	2.13	2.09	2.59	1.98	2.14	2.57	2.59	3.10	2.64	3.09	2.52	2.96	2.77	2.06	2.64	1.87
87.50°	1.72	1.33	1.29	1.71	1.64	1.67	1.99	1.78	2.14	1.88	1.92	1.87	2.39	1.84	1.60	1.92	1.72
90.00°	1.58	1.30	1.48	1.42	1.43	1.26	2.02	1.29	1.52	1.18	0.78	1.28	1.97	1.39	1.30	1.65	1.58
92.50°	1.51	1.37	1.45	1.24	1.44	1.33	1.93	1.07	1.29	1.44	1.04	1.17	1.85	1.29	1.26	1.51	1.51
95.00°	1.44	1.52	1.24	1.20	1.59	1.41	1.75	0.90	1.49	1.72	1.31	1.09	1.75	1.45	1.23	1.42	1.44
97.50°	1.28	1.53	1.17	1.18	1.70	1.30	1.60	1.07	1.56	1.45	1.39	1.14	1.55	1.50	1.39	1.28	1.28
100.00°	1.17	1.45	1.18	1.18	1.78	1.20	1.48	1.30	1.51	1.20	1.46	1.21	1.36	1.49	1.55	1.12	1.17
102.50°	1.39	1.51	1.27	1.40	1.65	1.13	1.46	1.36	1.56	1.16	1.48	1.38	1.41	1.36	1.37	1.11	1.39
105.00°	1.54	1.63	1.39	1.82	1.41	1.08	1.49	1.39	1.68	1.15	1.47	1.44	1.44	1.17	1.20	1.15	1.54

### 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>	1233	1233	1233	1233	1203	1203	1203	1203	1148	1148	1148	1097	1097	1097	1051	1051	1029
	<b>1</b>	1156	1119	1085	1055	1128	1095	1065	1038	1050	1026	1004	1010	990	972	972	957	936
	<b>2</b>	1076	1010	955	909	1050	990	941	898	954	912	877	920	886	856	889	861	843
	<b>3</b>	1000	913	846	793	976	897	835	785	867	814	771	839	795	757	813	776	759
	<b>4</b>	930	829	755	698	908	816	746	693	790	730	683	767	715	674	745	701	686
	<b>5</b>	866	755	678	620	846	744	671	617	723	659	610	703	647	603	684	636	623
	<b>6</b>	808	691	612	555	790	681	607	553	663	597	548	646	588	543	630	579	567
	<b>7</b>	756	635	556	501	739	626	552	499	611	544	495	596	536	492	583	529	519
	<b>8</b>	708	585	508	455	693	578	505	453	565	498	450	552	492	448	540	486	477
	<b>9</b>	665	542	466	415	651	536	463	414	524	458	412	513	453	410	503	448	440
	<b>10</b>	626	503	430	381	613	498	427	380	488	423	378	478	419	376	469	414	407

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	19.2 fc	10.3 ft
6.5 ft	13.7 fc	12.1 ft
7.5 ft	10.3 fc	14.0 ft
8.0 ft	9.1 fc	14.9 ft
10.0 ft	5.8 fc	18.6 ft
12.0 ft	4.0 fc	22.4 ft
14.0 ft	3.0 fc	26.1 ft
16.0 ft	2.3 fc	29.8 ft
20.0 ft	1.5 fc	37.3 ft
24.0 ft	1.0 fc	44.7 ft
28.0 ft	0.7 fc	52.2 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	1988	1988	1988
<b>45.00°</b>	1190	1190	1138
<b>55.00°</b>	548	561	523
<b>65.00°</b>	303	302	285
<b>75.00°</b>	174	168	142
<b>85.00°</b>	74	82	78

### 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	5.9	7.3	6.3	7.6	7.9	5.9	7.2	6.3	7.6	7.9
	3H	6.7	7.9	7.1	8.2	8.6	6.7	7.8	7.1	8.2	8.6
	4H	6.9	8.0	7.3	8.3	8.7	6.8	7.9	7.3	8.3	8.7
	6H	6.9	7.9	7.4	8.3	8.7	6.9	7.9	7.3	8.3	8.7
	8H	6.9	7.9	7.4	8.3	8.7	6.9	7.8	7.3	8.2	8.7
	12H	6.9	7.8	7.4	8.2	8.7	6.9	7.8	7.3	8.2	8.6
4H	2H	6.2	7.3	6.6	7.6	8.0	6.2	7.3	6.6	7.6	8.0
	3H	7.1	8.0	7.5	8.4	8.8	7.1	8.0	7.5	8.4	8.8
	4H	7.3	8.1	7.8	8.6	9.0	7.3	8.1	7.7	8.5	9.0
	6H	7.5	8.1	7.9	8.6	9.1	7.4	8.1	7.9	8.5	9.0
	8H	7.5	8.1	8.0	8.6	9.1	7.4	8.0	7.9	8.5	9.0
	12H	7.5	8.0	8.0	8.5	9.0	7.4	7.9	7.9	8.4	8.9
8H	4H	7.4	8.0	7.9	8.5	9.0	7.3	8.0	7.8	8.4	8.9
	6H	7.5	8.1	8.0	8.6	9.1	7.4	8.0	8.0	8.5	9.0
	8H	7.6	8.0	8.1	8.6	9.1	7.5	7.9	8.0	8.5	9.0
	12H	7.6	8.0	8.1	8.5	9.1	7.5	7.9	8.0	8.4	9.0
12H	4H	7.3	7.9	7.8	8.4	8.9	7.3	7.9	7.8	8.4	8.9
	6H	7.5	8.0	8.0	8.5	9.0	7.4	7.9	8.0	8.4	8.9
	8H	7.5	8.0	8.1	8.5	9.1	7.5	7.9	8.0	8.4	9.0

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0