Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SN24 MED xx TW FCI A19 Opal

24" x 23.5" Spin Pendant Medium Base E26 MWI

Test Number

SP-01613_1

Test Date

12/18/2023

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

Summary of Results

Power

Input Watts	10.8 W

Lumen Output

Output Lumens	944
Efficacy	87.39 lm/W

Luminous Dimensions

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

Spacing Criterion

Two luminaires, plane 0°	1.19
Two luminaires, plane 90°	1.21
Four luminaires	1.37

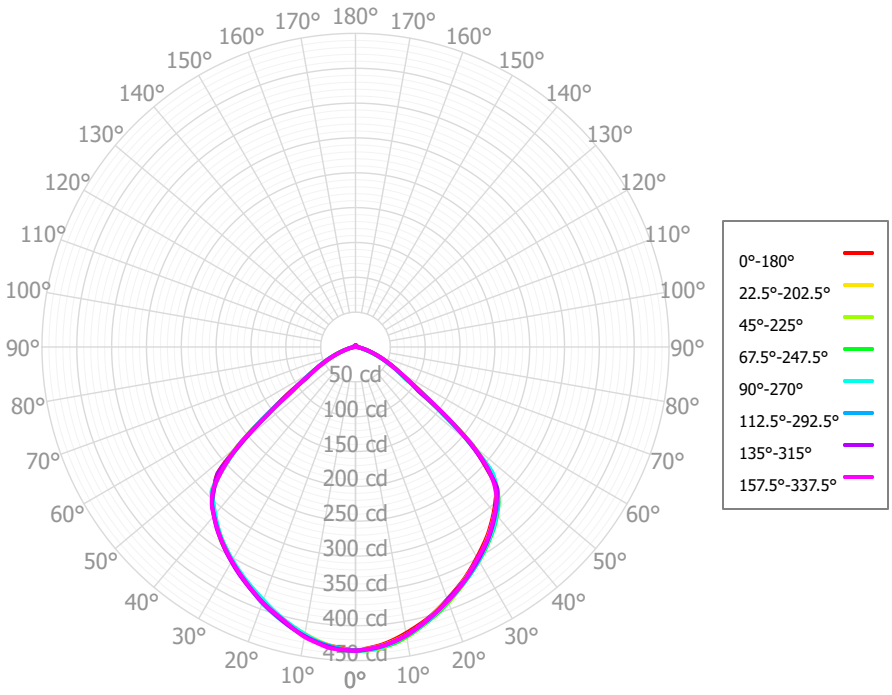
Full Beam Angle

0° - 180°	100°
90° - 270°	100°

IES File Header Contents

Keyword	Value
TEST	SP-01613_1
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	12/18/2023
ISSUEDATE	12/20/2023
LUMCAT	SN24 MED xx TW FCI A19 Opal
LUMINAIRE	24" x 23.5" Spin Pendant Medium Base E26 MWI
OTHER	Beam Angle: 100 deg
OTHER	Tested Bulb: SATCO LED 11W A19 3000K Part Number S29811
OTHER	Total luminaire wattages are approximate
OTHER	This report prepared by Spectrum Lighting

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	41.42	4.39%	90.00° - 100.00°	2.10	0.22%
10.00° - 20.00°	114.16	12.10%	100.00° - 110.00°	2.05	0.22%
20.00° - 30.00°	171.15	18.13%	100.00° - 120.00°	4.00	0.42%
30.00° - 40.00°	209.39	22.19%	120.00° - 130.00°	1.77	0.19%
40.00° - 50.00°	214.64	22.74%	130.00° - 140.00°	1.54	0.16%
50.00° - 60.00°	113.01	11.97%	140.00° - 150.00°	1.27	0.13%
60.00° - 70.00°	47.26	5.01%	150.00° - 160.00°	0.94	0.10%
70.00° - 80.00°	16.40	1.74%	160.00° - 170.00°	0.57	0.06%
80.00° - 90.00°	3.95	0.42%	170.00° - 180.00°	0.20	0.02%
0.00° - 90.00°	931.38	98.69%	0.00° - 180.00°	943.78	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°	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82	435.82
2.50°	432.63	433.35	435.89	434.97	435.46	433.74	435.47	434.89	432.75	433.43	434.86	435.56	434.28	434.29	434.16	433.57	432.63
5.00°	429.03	430.34	433.74	432.18	432.41	430.71	432.21	433.57	430.09	429.88	431.73	431.47	430.73	431.73	430.92	430.91	429.03
7.50°	423.60	425.41	428.43	428.97	427.09	426.30	427.47	428.15	425.94	424.50	426.57	426.85	425.40	426.20	426.36	425.94	423.60
10.00°	417.00	419.44	422.93	422.00	420.59	421.57	421.18	422.52	420.25	418.21	421.15	420.66	418.53	420.55	419.61	420.44	417.00
12.50°	410.05	412.20	414.65	414.42	413.24	414.21	414.32	413.64	413.05	411.56	413.06	413.86	411.19	412.69	412.32	412.31	410.05
15.00°	402.89	404.06	406.41	406.64	405.30	406.84	406.45	404.76	405.13	404.75	404.98	405.60	403.49	404.77	404.26	404.18	402.89
17.50°	394.43	394.96	398.52	398.84	397.01	399.33	398.29	397.24	396.60	396.86	396.94	397.30	395.15	396.14	395.60	396.03	394.43
20.00°	385.36	386.21	390.42	389.56	388.34	391.46	390.08	389.65	388.68	388.59	388.83	388.95	386.41	387.57	386.21	387.79	385.36
22.50°	376.65	377.77	381.02	380.17	379.46	381.86	381.86	380.98	381.19	380.22	380.40	380.72	378.12	379.42	377.55	379.29	376.65
25.00°	368.07	369.07	371.73	371.60	371.01	372.51	373.45	372.30	372.80	371.82	371.81	372.69	370.08	371.15	369.62	370.28	368.07
27.50°	358.57	360.17	362.89	363.06	362.76	363.98	365.02	363.53	363.85	362.86	362.57	363.90	361.66	362.33	361.13	359.93	358.57
30.00°	348.78	351.10	353.94	354.39	353.65	355.27	355.96	354.73	355.16	353.78	353.77	354.00	353.06	353.29	352.16	350.17	348.78
32.50°	339.42	341.92	344.63	345.68	344.23	346.00	346.82	345.82	346.59	344.71	346.30	344.41	344.31	343.44	342.93	341.68	339.42
35.00°	330.15	331.93	335.02	336.30	334.89	336.42	337.17	336.70	336.69	335.65	337.72	335.22	335.49	333.48	333.52	332.36	330.15
37.50°	319.66	321.48	324.54	326.76	325.58	326.10	327.48	326.62	326.21	325.01	326.36	325.10	324.64	323.16	322.98	321.54	319.66
40.00°	308.95	310.81	313.78	315.78	314.45	315.53	316.27	316.34	315.36	314.20	315.20	314.01	313.18	312.93	311.70	310.65	308.95
42.50°	297.51	300.02	302.35	304.08	302.90	304.44	304.97	305.37	304.38	303.17	304.49	302.28	302.34	302.91	299.83	299.65	297.51
45.00°	285.97	283.12	285.80	287.56	285.37	286.93	287.05	289.12	287.45	292.12	287.88	289.99	291.66	286.65	287.64	282.62	285.97
47.50°	252.71	263.83	259.02	264.99	266.77	258.62	267.49	257.75	268.78	255.15	260.76	258.83	255.89	257.11	255.12	257.70	252.71
50.00°	217.51	217.26	220.53	212.28	214.54	217.50	211.88	218.11	217.62	217.26	220.57	213.06	215.54	217.53	213.34	218.11	217.51
52.50°	164.41	161.92	162.16	161.87	157.95	157.98	157.72	158.98	158.98	161.38	160.68	164.97	163.71	160.04	165.17	162.12	164.41
55.00°	110.48	124.32	117.39	120.40	120.97	114.22	119.49	111.96	121.16	107.37	115.88	115.34	110.40	115.77	114.60	120.68	110.48
57.50°	91.22	91.30	92.27	85.62	85.63	89.75	84.21	88.94	86.97	87.83	90.55	87.20	89.48	91.56	89.92	93.22	91.22
60.00°	72.36	74.37	72.67	71.71	71.56	70.66	70.34	69.69	70.81	68.93	71.26	71.11	71.29	72.29	73.25	73.80	72.36
62.50°	59.98	60.65	59.85	58.50	58.33	57.22	56.92	56.73	56.89	56.40	58.63	58.31	58.82	59.43	60.00	61.00	59.98
65.00°	47.82	49.15	47.92	47.10	46.66	45.40	45.91	45.06	45.98	44.30	47.39	47.05	46.58	47.75	47.59	49.39	47.82
67.50°	38.35	37.97	36.93	36.50	35.13	35.05	35.39	35.22	35.30	35.08	37.47	36.83	36.69	37.38	37.89	38.62	38.35
70.00°	29.16	29.33	27.99	27.59	26.97	26.41	26.88	26.65	26.90	26.28	28.48	27.03	26.92	28.48	28.71	29.85	29.16
72.50°	22.16	20.93	20.91	19.88	19.07	19.09	19.20	19.62	18.60	19.61	20.27	20.05	20.39	20.99	21.84	22.27	22.16
75.00°	15.57	15.65	15.02	14.31	14.26	13.62	14.21	14.01	14.11	13.53	14.22	13.97	14.07	15.20	15.30	16.39	15.57
77.50°	11.30	10.55	10.06	9.70	9.65	9.36	9.70	9.90	9.70	9.75	9.68	10.14	10.15	10.81	10.92	11.37	11.30
80.00°	7.41	7.55	6.74	6.57	6.62	6.43	6.48	6.83	7.04	6.40	6.66	6.89	6.46	7.48	6.74	8.06	7.41
82.50°	5.14	4.63	4.50	4.24	3.90	4.25	3.94	4.69	4.50	4.37	4.54	4.79	4.57	4.89	5.12	5.47	5.14
85.00°	3.25	3.41	3.16	2.94	2.88	2.99	2.88	3.27	3.25	2.80	3.21	2.91	2.88	3.36	3.62	3.84	3.25
87.50°	2.68	2.25	2.32	2.16	2.03	2.17	2.14	2.41	2.14	2.36	2.27	2.22	2.23	2.46	2.79	2.53	2.68
90.00°	2.23	2.06	2.03	1.94	1.94	1.96	1.96	2.10	1.98	2.01	1.98	1.70	1.72	2.10	1.99	2.18	2.23
92.50°	2.15	1.90	2.00	1.88	1.85	1.98	1.84	2.14	1.85	1.83	1.96	1.71	1.79	2.01	1.96	2.10	2.15
95.00°	2.09	1.98	1.98	1.96	1.80	1.97	1.80	2.13	1.87	1.75	1.89	1.76	1.82	2.00	1.93	1.97	2.09
97.50°	2.05	2.05	1.98	1.98	1.77	1.96	1.81	2.09	1.89	1.85	1.81	1.77	1.72	2.02	1.92	1.84	2.05
100.00°	2.04	2.00	1.90	1.96	1.83	1.89	1.89	2.10	1.97	1.89	1.81	1.78	1.67	2.07	1.92	1.80	2.04
102.50°	2.09	1.97	1.81	1.98	1.84	1.79	1.95	2.14	2.03	1.83	1.82	1.78	1.75	2.14	2.04	1.78	2.09
105.00°	2.15	1.96	1.84	2.04	1.74	1.79	1.99	2.17	2.06	1.84	1.92	1.78	1.80	2.00	2.12	1.95	2.15

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	ρfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	ρcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	ρw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	1121	1121	1121	1121	1093	1093	1093	1093	1042	1042	1042	995	995	995	952	952	952	931
	1	1045	1009	977	948	1020	987	958	932	946	922	901	908	889	871	873	858	844	839
	2	967	903	850	806	943	885	837	796	851	811	776	819	786	757	790	763	739	746
	3	894	810	745	693	871	795	734	686	766	715	673	739	696	660	715	679	648	664
	4	826	728	657	602	805	716	649	597	692	634	588	669	619	579	648	606	571	593
RCR	5	765	658	583	528	746	647	577	525	627	565	518	608	554	512	590	543	506	532
	6	710	597	522	467	693	588	517	465	571	507	460	555	498	455	539	490	451	480
	7	661	545	470	417	645	537	466	415	522	458	411	508	451	408	495	444	405	435
	8	617	499	425	375	602	493	422	373	480	416	370	468	410	368	456	404	365	396
	9	577	460	388	339	564	454	385	338	443	380	336	432	375	333	422	370	331	363
	10	542	425	355	308	530	420	353	308	410	348	306	401	344	304	392	340	302	334

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	14.4 fc	13.1 ft
6.5 ft	10.3 fc	15.5 ft
7.5 ft	7.7 fc	17.9 ft
8.0 ft	6.8 fc	19.1 ft
10.0 ft	4.4 fc	23.8 ft
12.0 ft	3.0 fc	28.6 ft
14.0 ft	2.2 fc	33.3 ft
16.0 ft	1.7 fc	38.1 ft
20.0 ft	1.1 fc	47.6 ft
24.0 ft	0.8 fc	57.2 ft
28.0 ft	0.6 fc	66.7 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	1493	1493	1493
45.00°	1386	1385	1383
55.00°	660	701	723
65.00°	388	389	378
75.00°	206	199	189
85.00°	128	124	113

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	7.8	9.2	8.2	9.5	9.9	7.5	8.9	7.9	9.3	9.6
	3H	8.5	9.8	8.9	10.1	10.5	8.2	9.4	8.6	9.8	10.2
	4H	8.7	9.8	9.1	10.2	10.6	8.3	9.5	8.7	9.8	10.3
	6H	8.7	9.8	9.2	10.2	10.6	8.3	9.4	8.8	9.8	10.2
	8H	8.7	9.7	9.2	10.2	10.6	8.3	9.4	8.8	9.8	10.2
	12H	8.7	9.7	9.2	10.1	10.6	8.3	9.3	8.8	9.7	10.2
4H	2H	8.0	9.2	8.5	9.6	10.0	7.8	8.9	8.2	9.3	9.7
	3H	8.9	9.8	9.3	10.3	10.7	8.6	9.5	9.0	9.9	10.4
	4H	9.1	10.0	9.6	10.4	10.9	8.7	9.6	9.2	10.0	10.5
	6H	9.2	10.0	9.7	10.4	10.9	8.8	9.6	9.3	10.0	10.5
	8H	9.2	9.9	9.7	10.4	10.9	8.8	9.5	9.3	10.0	10.5
	12H	9.2	9.8	9.7	10.3	10.9	8.8	9.4	9.3	9.9	10.4
8H	4H	9.1	9.8	9.6	10.3	10.8	8.7	9.4	9.2	9.9	10.4
	6H	9.3	9.8	9.8	10.3	10.9	8.8	9.4	9.4	9.9	10.4
	8H	9.3	9.8	9.8	10.3	10.9	8.9	9.4	9.4	9.9	10.4
	12H	9.3	9.8	9.9	10.3	10.9	8.9	9.3	9.4	9.9	10.5
12H	4H	9.1	9.7	9.6	10.2	10.7	8.7	9.3	9.2	9.8	10.3
	6H	9.2	9.7	9.8	10.2	10.8	8.8	9.3	9.4	9.8	10.4
	8H	9.3	9.7	9.8	10.2	10.8	8.9	9.3	9.4	9.8	10.4

Corrected UGR values based on total output energy
SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0