

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

#### Luminaire

STR2 835 13 xx xx RD2SP RB2BS xx RA2HL

2" Adjustable Track Luminaire with spot optic, hex louver and standard bezel

#### Test Number

SP-01574\_2

#### Test Date

9/26/2023

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

## Summary of Results

### Power

Input Watts	14.4 W
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### Lumen Output

Output Lumens	942
Efficacy	65.39 lm/W

### Luminous Dimensions

0° - 180° Size	-0.21
90° - 270° Size	-0.21
Height	0

### Spacing Criterion

Two luminaires, plane 0°	0.34
Two luminaires, plane 90°	0.34
Four luminaires	0.33

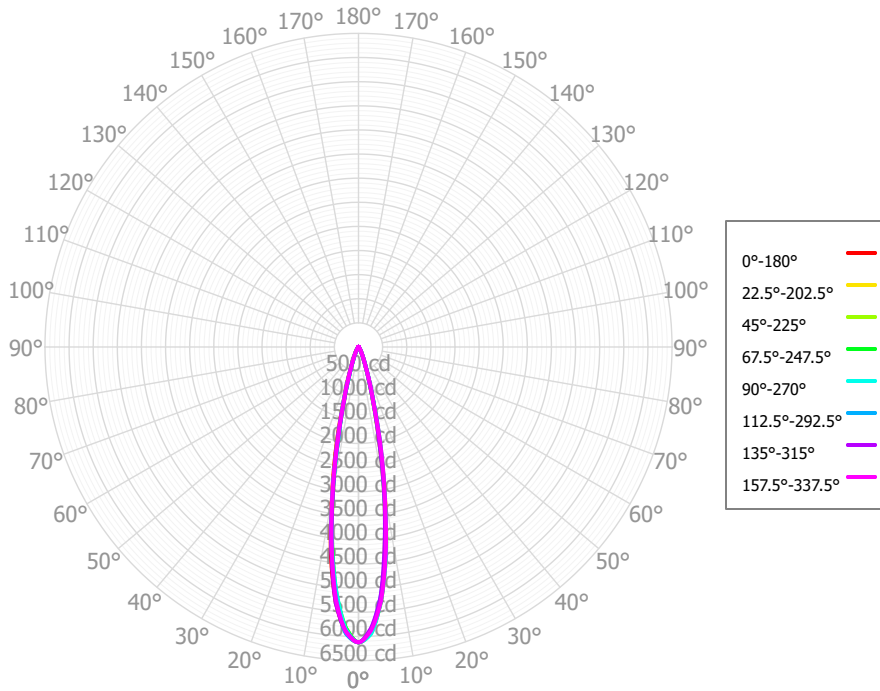
### Full Beam Angle

0° - 180°	20°
90° - 270°	20°

## IES File Header Contents

Keyword	Value
TEST	SP-01574_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	9/26/2023
ISSUEDATE	9/29/2023
LUMCAT	STR2 835 13 xx xx RD2SP RB2BS xx RA2HL
LUMINAIRE	2" Adjustable Track Luminaire with spot optic, hex louver and standard bezel
OTHER	Beam Angle: 20 deg
OTHER	80 CRI, 3500K tested
OTHER	CCT Output Multipliers: 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
OTHER	CCT Output Multipliers: 927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87
OTHER	Total luminaire wattages are approximate
OTHER	This report prepared by Spectrum Lighting
_CRI	80+
_CCTMULT	822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0
_CCTMULTA	927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87
_LAMPMULT	07L x .55, 10L x .75

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	431.95	45.88%	90.00° - 100.00°	1.63	0.17%
10.00° - 20.00°	357.94	38.02%	100.00° - 110.00°	1.55	0.16%
20.00° - 30.00°	96.01	10.20%	100.00° - 120.00°	2.97	0.32%
30.00° - 40.00°	31.68	3.36%	120.00° - 130.00°	1.39	0.15%
40.00° - 50.00°	7.73	0.82%	130.00° - 140.00°	1.24	0.13%
50.00° - 60.00°	1.86	0.20%	140.00° - 150.00°	1.05	0.11%
60.00° - 70.00°	1.58	0.17%	150.00° - 160.00°	0.83	0.09%
70.00° - 80.00°	1.53	0.16%	160.00° - 170.00°	0.48	0.05%
80.00° - 90.00°	1.55	0.16%	170.00° - 180.00°	0.15	0.02%
0.00° - 90.00°	931.82	98.97%	0.00° - 180.00°	941.56	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°	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87	6120.87
2.50°	5897.09	5940.43	5873.64	5920.81	5953.56	5949.13	5906.77	5917.36	5926.74	5932.33	5844.22	5843.65	5874.12	5873.84	5844.33	5889.35	5897.09
5.00°	5258.15	5278.38	5296.98	5314.46	5291.57	5273.36	5348.74	5292.39	5337.47	5216.38	5288.85	5174.27	5157.50	5220.73	5213.73	5305.33	5258.15
7.50°	4269.86	4364.49	4167.90	4321.96	4364.53	4254.85	4294.16	4242.48	4373.11	4257.59	4226.54	4164.09	4218.82	4289.73	4143.04	4325.92	4269.86
10.00°	3157.50	3122.63	3047.95	3067.33	3095.04	3111.49	3043.54	3131.20	3158.15	3121.35	3042.41	3071.94	3095.34	3110.99	3053.81	3131.69	3157.50
12.50°	1963.41	2082.36	1941.73	2053.68	2046.73	1908.60	2059.54	1971.29	2147.81	1931.49	2069.53	1927.42	1916.53	2115.93	1945.20	2124.34	1963.41
15.00°	1218.93	1240.33	1144.28	1163.14	1217.36	1206.42	1149.35	1220.62	1238.60	1259.33	1127.53	1203.61	1242.44	1245.90	1186.85	1191.77	1218.93
17.50°	693.27	720.37	700.86	711.28	707.54	677.06	743.83	716.38	772.19	687.43	748.48	681.00	667.50	755.70	709.13	739.98	693.27
20.00°	434.19	442.94	417.25	420.29	436.50	438.94	425.28	451.67	464.99	467.39	408.15	429.88	446.35	457.06	433.29	420.63	434.19
22.50°	269.31	283.60	272.18	279.28	277.53	267.72	299.86	294.38	317.31	284.73	298.09	271.06	263.61	298.30	278.58	285.90	269.31
25.00°	189.11	190.62	180.81	176.25	181.02	189.53	191.41	206.75	209.08	212.19	193.04	191.83	191.43	191.01	189.33	182.78	189.11
27.50°	128.94	135.62	124.96	125.41	123.91	124.09	144.15	141.08	153.65	144.49	146.72	130.96	123.87	135.44	129.32	134.78	128.94
30.00°	95.81	96.39	88.74	82.53	83.03	92.34	98.78	101.00	106.01	111.44	103.11	98.20	92.31	92.74	93.90	91.57	95.81
32.50°	66.55	71.42	62.10	61.64	59.28	62.62	73.95	66.17	79.25	79.85	75.48	69.20	62.18	66.05	66.35	67.65	66.55
35.00°	48.44	50.55	43.89	42.33	40.52	46.98	50.52	48.78	53.88	60.09	50.41	50.63	43.92	41.83	50.48	44.61	48.44
37.50°	31.08	36.54	28.67	30.37	28.98	31.82	36.86	33.41	40.52	41.81	34.91	32.78	27.33	30.14	37.03	31.98	31.08
40.00°	22.28	23.81	20.01	18.85	18.77	21.67	24.43	24.96	27.52	30.40	21.70	23.32	18.66	19.32	24.87	20.21	22.28
42.50°	13.79	16.11	12.91	13.13	12.66	12.37	17.22	16.86	19.02	19.80	14.39	14.20	11.08	12.89	12.85	14.36	13.79
45.00°	8.79	8.90	8.48	7.87	6.92	7.76	10.70	11.14	11.19	11.72	8.37	8.74	6.89	6.76	7.81	9.08	8.79
47.50°	4.33	5.72	4.43	5.36	4.71	3.93	6.14	5.83	7.26	5.59	4.75	4.00	3.76	4.32	3.15	6.21	4.33
50.00°	2.96	2.76	3.31	3.20	2.65	2.79	2.83	4.10	3.88	3.79	2.60	3.22	2.95	2.20	2.59	3.81	2.96
52.50°	1.85	2.31	2.37	2.35	2.33	1.93	2.10	2.53	2.48	2.52	2.53	2.52	2.31	2.03	2.06	2.75	1.85
55.00°	1.65	1.90	2.01	1.70	2.04	1.73	1.72	1.83	1.41	2.15	2.41	2.08	1.93	1.84	1.90	2.02	1.65
57.50°	1.49	1.83	1.69	1.57	1.96	1.66	1.85	1.31	1.14	1.91	2.23	1.80	1.80	1.64	1.75	1.97	1.49
60.00°	1.44	1.79	1.77	1.56	1.87	1.83	1.79	1.39	1.06	1.85	2.01	1.91	1.97	1.45	1.68	1.98	1.44
62.50°	1.42	1.81	1.78	1.79	1.74	1.86	1.51	1.47	1.33	1.86	1.74	1.94	1.93	1.28	1.59	2.09	1.42
65.00°	1.46	1.79	1.39	1.80	1.58	1.71	1.41	1.54	1.48	1.92	1.46	1.82	1.67	1.26	1.43	2.04	1.46
67.50°	1.49	1.60	1.13	1.49	1.37	1.54	1.47	1.59	1.46	1.70	1.17	1.66	1.55	1.52	1.33	1.81	1.49
70.00°	1.51	1.46	1.35	1.48	1.26	1.34	1.37	1.59	1.62	1.28	1.34	1.44	1.53	1.67	1.37	1.68	1.51
72.50°	1.49	1.40	1.40	1.81	1.35	1.22	1.15	1.55	1.97	1.28	1.70	1.38	1.52	1.65	1.34	1.64	1.49
75.00°	1.41	1.39	1.03	1.78	1.40	1.17	1.16	1.45	2.13	1.50	1.66	1.50	1.51	1.45	1.18	1.70	1.41
77.50°	1.42	1.42	0.89	1.43	1.36	1.18	1.29	1.40	2.12	1.44	1.48	1.49	1.51	1.04	1.16	1.81	1.42
80.00°	1.49	1.49	1.15	1.32	1.26	1.22	1.28	1.40	2.03	1.26	1.48	1.37	1.52	1.02	1.29	1.70	1.49
82.50°	1.57	1.59	1.37	1.37	1.08	1.14	1.22	1.28	1.89	1.52	1.51	1.31	1.49	1.31	1.30	1.48	1.57
85.00°	1.64	1.53	1.55	1.34	1.21	1.01	1.37	1.06	1.63	1.89	1.49	1.30	1.46	1.49	1.19	1.29	1.64
87.50°	1.82	1.33	1.72	1.28	1.61	1.11	1.57	1.06	1.32	1.80	1.47	1.40	1.46	1.60	1.16	1.11	1.82
90.00°	2.04	1.40	1.87	1.16	1.63	1.28	1.76	1.17	1.37	1.62	1.45	1.55	1.46	1.57	1.17	1.19	2.04
92.50°	1.69	1.66	1.91	1.01	1.38	1.40	1.94	1.31	1.54	1.58	1.44	1.48	1.49	1.49	1.24	1.33	1.69
95.00°	1.17	1.82	1.85	1.17	1.46	1.50	1.74	1.46	1.46	1.55	1.65	1.35	1.51	1.40	1.34	1.50	1.17
97.50°	1.21	1.92	1.69	1.39	1.70	1.39	1.52	1.48	1.34	1.72	1.81	1.32	1.51	1.30	1.28	1.68	1.21
100.00°	1.37	1.67	1.47	1.46	1.71	1.26	1.32	1.46	1.40	1.87	1.60	1.31	1.51	1.36	1.15	1.63	1.37
102.50°	1.35	1.28	1.48	1.51	1.64	1.43	1.15	1.51	1.50	1.64	1.41	1.42	1.47	1.44	1.07	1.57	1.35
105.00°	1.31	1.49	1.59	1.40	1.65	1.61	1.37	1.58	1.39	1.42	1.29	1.53	1.43	1.60	0.99	1.55	1.31

### 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%	0%
	<b>pw</b>	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	<b>0</b>	1119	1119	1119	1119	1091	1091	1091	1091	1041	1041	1041	994	994	994	952	952	932
	<b>1</b>	1082	1063	1045	1030	1059	1042	1026	1013	1003	991	980	967	958	949	934	927	908
	<b>2</b>	1049	1016	990	967	1029	1000	976	956	969	950	934	941	926	913	915	903	885
	<b>3</b>	1018	977	945	919	1001	964	935	911	940	916	896	917	898	881	896	881	864
	<b>4</b>	990	943	908	881	975	932	900	876	913	886	865	894	872	854	877	859	843
	<b>5</b>	964	912	876	849	951	904	870	845	888	859	838	873	849	830	859	839	824
	<b>6</b>	940	885	849	823	928	878	844	820	865	836	814	853	828	808	842	820	806
	<b>7</b>	917	861	825	799	907	855	821	797	844	814	793	834	808	788	824	802	789
	<b>8</b>	896	839	803	778	886	834	800	777	825	795	773	816	789	770	808	784	772
	<b>9</b>	876	818	783	759	867	814	781	758	806	777	756	799	772	753	792	768	757
	<b>10</b>	857	799	765	742	850	796	763	741	789	760	739	783	756	737	777	753	742

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	202.3 fc	2.0 ft
6.5 ft	144.9 fc	2.3 ft
7.5 ft	108.8 fc	2.7 ft
8.0 ft	95.6 fc	2.9 ft
10.0 ft	61.2 fc	3.6 ft
12.0 ft	42.5 fc	4.3 ft
14.0 ft	31.2 fc	5.0 ft
16.0 ft	23.9 fc	5.8 ft
20.0 ft	15.3 fc	7.2 ft
24.0 ft	10.6 fc	8.7 ft
28.0 ft	7.8 fc	10.1 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	1902193	1902193	1902193
<b>45.00°</b>	3863	3725	3043
<b>55.00°</b>	892	1090	1108
<b>65.00°</b>	1071	1021	1164
<b>75.00°</b>	1693	1240	1675
<b>85.00°</b>	5854	5523	4322

### 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	-3.0	-2.1	-2.6	-1.8	-1.4	-3.2	-2.3	-2.8	-2.0	-1.7
	3H	-0.1	0.6	0.3	1.0	1.4	-0.5	0.3	-0.1	0.6	1.0
	4H	1.4	2.1	1.8	2.5	2.9	1.0	1.8	1.5	2.1	2.6
	6H	3.3	3.9	3.7	4.3	4.8	2.9	3.5	3.3	3.9	4.4
	8H	4.4	5.0	4.9	5.5	5.9	3.8	4.4	4.3	4.9	5.3
	12H	5.8	6.4	6.3	6.8	7.3	5.0	5.6	5.4	6.0	6.4
4H	2H	-2.4	-1.7	-2.0	-1.3	-0.9	-2.6	-1.9	-2.2	-1.5	-1.1
	3H	0.8	1.4	1.2	1.8	2.2	0.4	1.0	0.9	1.4	1.9
	4H	2.6	3.2	3.1	3.6	4.1	2.2	2.7	2.6	3.1	3.6
	6H	4.8	5.3	5.3	5.7	6.2	4.2	4.7	4.7	5.1	5.6
	8H	6.0	6.5	6.5	6.9	7.4	5.3	5.7	5.8	6.1	6.6
	12H	7.5	7.9	8.0	8.4	8.9	6.5	6.9	7.0	7.4	7.9
8H	4H	3.1	3.5	3.6	4.0	4.5	2.9	3.3	3.4	3.8	4.3
	6H	5.6	6.0	6.2	6.5	7.0	5.1	5.5	5.7	6.0	6.5
	8H	7.1	7.4	7.7	7.9	8.5	6.3	6.6	6.9	7.2	7.7
	12H	8.8	9.0	9.3	9.6	10.2	7.8	8.1	8.3	8.6	9.2
12H	4H	3.2	3.6	3.7	4.1	4.6	3.1	3.4	3.6	3.9	4.4
	6H	5.9	6.2	6.4	6.7	7.2	5.5	5.7	6.0	6.2	6.8
	8H	7.5	7.7	8.0	8.2	8.8	6.8	7.0	7.3	7.6	8.2

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0