

## Indoor Distribution Test Report

### Spectrum Lighting Inc.

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### Spectrum Lighting Photometric Lab

#### Luminaire

STR2 835 13 xx xx RD2XS RB2BS xx RA2LL

2" Adjustable Track Luminaire with extra narrow spot optic, linear spread lens  
and standard bezel

#### Test Number

SP-01590\_2

#### Test Date

9/27/2023

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	1019
Efficacy	70.76 lm/W

#### Luminous Dimensions

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

#### Spacing Criterion

Two luminaires, plane 0°	0.26
Two luminaires, plane 90°	0.67
Four luminaires	0.37

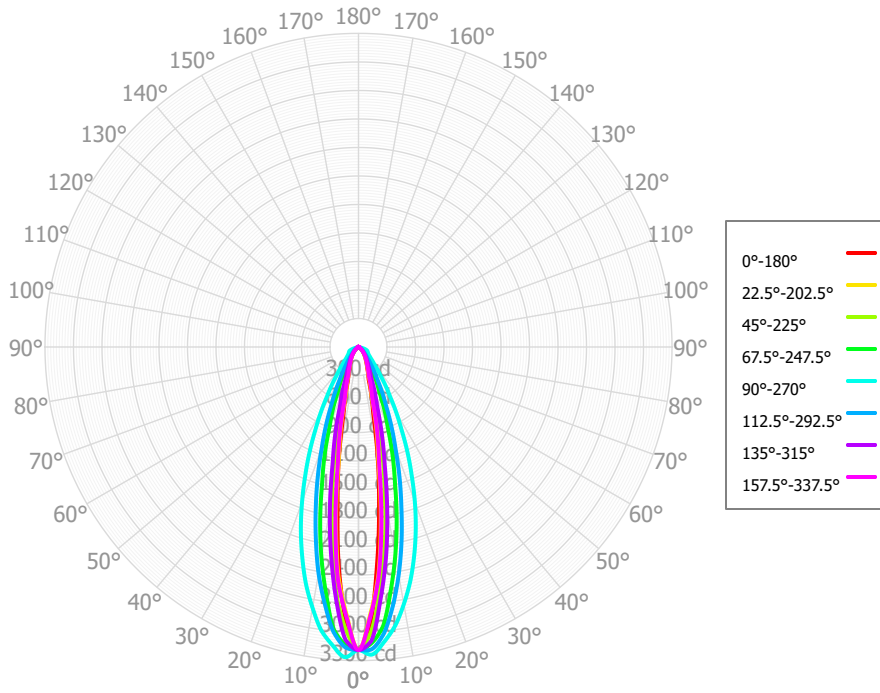
#### Full Beam Angle

0° - 180°	15°
90° - 270°	42°

### IES File Header Contents

Keyword	Value
TEST	SP-01590_2
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	9/27/2023
ISSUDATE	10/03/2023
LUMCAT	STR2 835 13 xx xx RD2XS RB2BS xx RA2LL
LUMINAIRE	2" Adjustable Track Luminaire with extra narrow spot optic, linear spread lens and standard bezel
OTHER	Beam Angle: 15 x 42 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°	228.62	22.44%	90.00° - 100.00°	1.42	0.14%
10.00° - 20.00°	311.21	30.54%	100.00° - 110.00°	1.40	0.14%
20.00° - 30.00°	210.20	20.63%	100.00° - 120.00°	2.75	0.27%
30.00° - 40.00°	122.42	12.02%	120.00° - 130.00°	1.24	0.12%
40.00° - 50.00°	68.19	6.69%	130.00° - 140.00°	1.08	0.11%
50.00° - 60.00°	38.01	3.73%	140.00° - 150.00°	0.93	0.09%
60.00° - 70.00°	21.94	2.15%	150.00° - 160.00°	0.70	0.07%
70.00° - 80.00°	8.10	0.79%	160.00° - 170.00°	0.43	0.04%
80.00° - 90.00°	1.53	0.15%	170.00° - 180.00°	0.14	0.01%
0.00° - 90.00°	1010.21	99.15%	0.00° - 180.00°	1018.90	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°	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65	3189.65
2.50°	2901.37	2820.42	3004.60	3121.44	3240.60	3164.47	3088.87	2850.58	2906.94	2830.20	2987.42	3137.72	3268.08	3184.12	3096.74	2842.61	2901.37
5.00°	2266.66	2405.85	2584.34	2953.34	3113.93	3011.69	2678.16	2469.28	2356.84	2423.28	2637.86	2985.45	3150.21	3033.54	2663.73	2428.17	2266.66
7.50°	1659.22	1799.31	2116.42	2591.50	2959.24	2724.34	2208.50	1853.18	1686.88	1803.33	2096.20	2617.30	3007.98	2756.52	2223.04	1843.95	1659.22
10.00°	1154.60	1196.10	1600.90	2229.40	2748.50	2420.39	1734.15	1251.42	1190.29	1184.88	1601.59	2247.61	2787.13	2435.28	1737.55	1252.10	1154.60
12.50°	716.36	857.99	1172.38	1855.98	2521.56	2072.55	1259.08	893.50	735.55	848.48	1151.29	1862.59	2555.08	2092.74	1276.16	900.04	716.36
15.00°	520.75	523.81	828.99	1484.76	2266.70	1734.37	939.38	549.91	525.24	514.47	811.31	1477.57	2287.93	1742.94	949.64	557.42	520.75
17.50°	354.52	411.11	581.24	1191.61	2004.01	1421.10	642.10	428.42	373.04	407.87	573.14	1182.56	2017.49	1434.37	649.62	432.69	354.52
20.00°	294.15	299.96	425.21	901.65	1734.22	1129.90	485.66	311.85	302.05	302.28	412.95	888.11	1737.02	1139.47	492.23	315.34	294.15
22.50°	239.75	256.17	318.61	706.85	1462.51	894.22	348.60	265.51	249.74	261.44	323.28	696.86	1464.54	906.19	349.99	265.96	239.75
25.00°	206.29	212.80	258.45	515.16	1217.96	682.33	282.39	220.46	215.30	220.85	258.99	506.50	1215.82	693.08	286.25	218.52	206.29
27.50°	175.28	184.49	212.72	402.94	980.58	528.81	225.46	192.32	184.83	192.00	217.44	399.25	981.83	538.64	227.40	189.22	175.28
30.00°	152.66	156.46	180.27	292.96	793.09	394.41	190.91	164.73	162.99	163.38	183.96	292.78	790.43	402.86	193.48	160.34	152.66
32.50°	131.37	136.41	152.80	233.28	618.58	305.76	159.14	144.28	143.00	143.51	157.57	235.02	616.74	311.86	161.26	141.20	131.37
35.00°	114.43	116.55	129.83	174.97	494.30	229.37	135.64	124.12	125.12	123.73	134.00	177.82	492.94	234.70	137.44	122.24	114.43
37.50°	98.55	101.84	109.50	143.75	382.68	181.63	113.14	107.42	107.68	106.69	112.86	146.94	382.95	185.02	114.53	105.26	98.55
40.00°	86.05	87.21	91.53	113.15	310.02	140.48	94.64	91.00	92.94	89.78	94.17	116.31	310.84	143.60	96.00	88.30	86.05
42.50°	73.83	74.46	75.90	93.50	246.88	114.53	76.61	77.49	78.75	76.27	77.54	96.36	247.79	115.98	78.24	74.64	73.83
45.00°	62.53	61.78	62.32	74.33	208.34	91.89	62.93	64.08	66.50	62.81	63.21	76.67	208.95	92.44	64.00	61.01	62.53
47.50°	51.85	50.91	49.94	63.48	175.61	76.71	49.74	51.62	54.62	50.76	50.76	65.45	175.73	77.28	50.54	50.52	51.85
50.00°	43.03	40.20	38.58	52.79	154.89	63.86	39.73	39.51	44.38	38.90	40.31	54.29	157.14	64.54	40.53	40.03	43.03
52.50°	34.38	32.57	29.78	44.67	136.90	56.10	30.05	30.78	34.45	31.44	31.49	44.87	140.96	54.76	31.16	31.61	34.38
55.00°	26.21	24.97	23.14	36.72	127.09	48.39	23.83	22.33	25.52	24.04	23.77	35.64	130.94	45.81	24.56	23.20	26.21
57.50°	18.74	17.91	17.46	31.13	119.08	40.74	17.95	16.44	16.76	17.57	16.94	30.92	122.35	39.20	18.45	17.43	18.74
60.00°	13.30	11.11	12.58	25.58	113.88	33.70	13.96	10.89	12.16	11.29	12.38	26.15	117.35	33.22	14.40	11.69	13.30
62.50°	8.69	8.53	8.93	20.64	109.28	27.94	10.15	8.19	8.26	8.18	9.61	20.37	112.36	28.30	10.62	8.55	8.69
65.00°	6.37	6.01	6.28	15.81	103.36	22.85	7.88	5.64	6.14	5.16	7.02	14.74	107.43	23.66	7.94	5.44	6.37
67.50°	4.44	4.34	4.59	12.27	97.16	19.15	5.75	4.34	4.31	3.68	4.59	11.78	98.99	18.12	5.38	4.12	4.44
70.00°	3.58	2.76	3.67	8.78	84.04	14.86	4.30	3.11	3.00	2.27	3.20	8.84	82.15	12.36	3.26	2.82	3.58
72.50°	2.79	2.34	2.78	5.84	69.55	9.35	2.89	2.55	1.77	2.15	2.60	6.31	61.87	8.54	1.59	2.43	2.79
75.00°	2.20	1.94	1.90	3.06	44.48	4.97	2.09	2.00	1.63	2.01	2.09	3.85	33.55	5.20	1.61	2.04	2.20
77.50°	1.70	1.76	1.52	2.12	17.38	2.85	1.33	1.60	1.64	1.62	1.63	2.59	11.86	3.35	1.58	1.54	1.70
80.00°	1.41	1.59	1.52	1.27	8.12	1.40	1.24	1.23	1.50	1.26	1.48	1.42	5.48	1.85	1.37	1.05	1.41
82.50°	1.21	1.50	1.54	1.34	2.14	1.27	1.19	1.12	1.33	1.31	1.55	1.55	1.06	1.40	1.21	1.19	1.21
85.00°	1.20	1.41	1.58	1.41	1.17	1.15	1.22	1.02	1.31	1.35	1.45	1.66	1.03	1.19	1.26	1.33	1.20
87.50°	1.18	1.37	1.50	1.40	1.12	1.05	1.26	1.00	1.30	1.30	1.23	1.47	1.05	1.28	1.35	1.34	1.18
90.00°	1.17	1.33	1.33	1.39	1.17	1.14	1.22	1.01	1.43	1.25	1.10	1.31	1.16	1.44	1.59	1.35	1.17
92.50°	1.16	1.32	1.35	1.44	1.24	1.58	1.17	1.14	1.57	1.20	1.03	1.42	1.25	1.30	1.71	1.26	1.16
95.00°	1.16	1.32	1.52	1.47	1.26	1.72	1.23	1.25	1.42	1.15	1.02	1.51	1.31	1.10	1.41	1.18	1.16
97.50°	1.23	1.42	1.58	1.31	1.27	1.34	1.29	1.19	1.23	1.25	1.04	1.40	1.33	1.06	1.20	1.25	1.23
100.00°	1.46	1.53	1.57	1.18	1.28	1.08	1.32	1.14	1.36	1.34	1.15	1.30	1.30	1.05	1.29	1.32	1.46
102.50°	1.59	1.73	1.50	1.24	1.29	1.03	1.36	1.12	1.54	1.40	1.31	1.21	1.25	1.16	1.36	1.36	1.59
105.00°	1.52	1.87	1.39	1.28	1.14	1.01	1.31	1.14	1.53	1.44	1.37	1.14	1.14	1.29	1.35	1.39	1.52

### 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>	1211	1211	1211	1211	1182	1182	1182	1182	1127	1127	1127	1077	1077	1077	1032	1032	1010
	<b>1</b>	1155	1127	1101	1079	1129	1104	1081	1061	1061	1043	1026	1022	1007	994	985	974	954
	<b>2</b>	1099	1050	1010	976	1076	1032	995	964	998	968	942	966	942	920	937	917	899
	<b>3</b>	1047	983	934	895	1026	968	923	887	941	903	872	915	883	857	891	865	848
	<b>4</b>	998	925	870	829	980	912	862	824	890	847	813	869	832	803	849	818	802
	<b>5</b>	954	873	816	775	937	863	810	771	844	798	763	827	787	756	810	776	762
	<b>6</b>	913	827	770	729	898	819	765	726	803	756	720	788	747	715	775	738	725
	<b>7</b>	875	787	729	689	861	779	726	687	766	718	683	754	711	679	742	704	692
	<b>8</b>	840	750	694	655	827	744	691	653	733	684	650	722	679	647	712	673	662
	<b>9</b>	807	717	662	624	796	712	659	623	702	654	621	693	650	618	684	645	635
	<b>10</b>	777	687	633	597	767	683	631	596	674	627	595	666	623	593	659	619	610

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	105.4 fc	1.5 ft
6.5 ft	75.5 fc	1.8 ft
7.5 ft	56.7 fc	2.0 ft
8.0 ft	49.8 fc	2.2 ft
10.0 ft	31.9 fc	2.7 ft
12.0 ft	22.2 fc	3.2 ft
14.0 ft	16.3 fc	3.8 ft
16.0 ft	12.5 fc	4.3 ft
20.0 ft	8.0 fc	5.4 ft
24.0 ft	5.5 fc	6.5 ft
28.0 ft	4.1 fc	7.6 ft

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

	0.00°	45.00°	90.00°
<b>0.00°</b>	991253	991253	991253
<b>45.00°</b>	27483	27390	91564
<b>55.00°</b>	14199	12537	68859
<b>65.00°</b>	4685	4616	76005
<b>75.00°</b>	2641	2287	53406
<b>85.00°</b>	4267	5636	4184

### 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	12.2	13.2	12.6	13.6	13.9	19.6	20.7	20.0	21.0	21.4
	3H	12.3	13.2	12.7	13.6	14.0	23.3	24.3	23.7	24.6	25.0
	4H	12.3	13.2	12.8	13.6	14.0	24.1	25.0	24.6	25.4	25.8
	6H	12.3	13.1	12.8	13.5	13.9	24.2	25.0	24.6	25.4	25.8
	8H	12.3	13.1	12.8	13.5	13.9	24.1	24.9	24.6	25.3	25.7
	12H	12.4	13.1	12.8	13.5	14.0	24.1	24.8	24.5	25.2	25.6
4H	2H	12.2	13.1	12.6	13.4	13.8	19.4	20.3	19.8	20.6	21.0
	3H	12.4	13.1	12.8	13.5	13.9	23.1	23.8	23.5	24.2	24.6
	4H	12.4	13.0	12.9	13.5	14.0	23.9	24.5	24.3	24.9	25.4
	6H	12.5	13.0	13.0	13.5	14.0	23.9	24.5	24.4	24.9	25.4
	8H	12.5	13.0	13.0	13.5	14.0	23.9	24.4	24.4	24.8	25.3
	12H	12.6	13.1	13.1	13.6	14.1	23.8	24.3	24.3	24.8	25.3
8H	4H	12.4	12.9	12.9	13.4	13.9	23.7	24.2	24.2	24.7	25.2
	6H	12.5	12.9	13.0	13.4	14.0	23.7	24.1	24.3	24.7	25.2
	8H	12.6	13.0	13.2	13.5	14.0	23.7	24.0	24.2	24.6	25.1
	12H	12.9	13.2	13.4	13.7	14.3	23.6	24.0	24.2	24.5	25.1
12H	4H	12.4	12.8	12.9	13.3	13.8	23.6	24.1	24.2	24.6	25.1
	6H	12.5	12.9	13.1	13.4	13.9	23.7	24.0	24.2	24.5	25.1
	8H	12.7	13.0	13.2	13.5	14.1	23.6	23.9	24.2	24.5	25.1

Corrected UGR values based on total output energy  
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0