

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

TS - RA31 - 21L - 35HK - MD - xx - xx -MW

Track light for accent, display and general illumination.

Test Number

TSRA31-1

Test Date

2/18/25

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

Summary of Results

Power

Input Watts	20.23 W
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Lumen Output

Output Lumens	2015
Efficacy	99.62 lm/W

Luminous Dimensions

0° - 180° Size	0
90° - 270° Size	0.2
Height	0.59

Spacing Criterion

Two luminaires, plane 0°	0.63
Two luminaires, plane 90°	0.64
Four luminaires	0.6

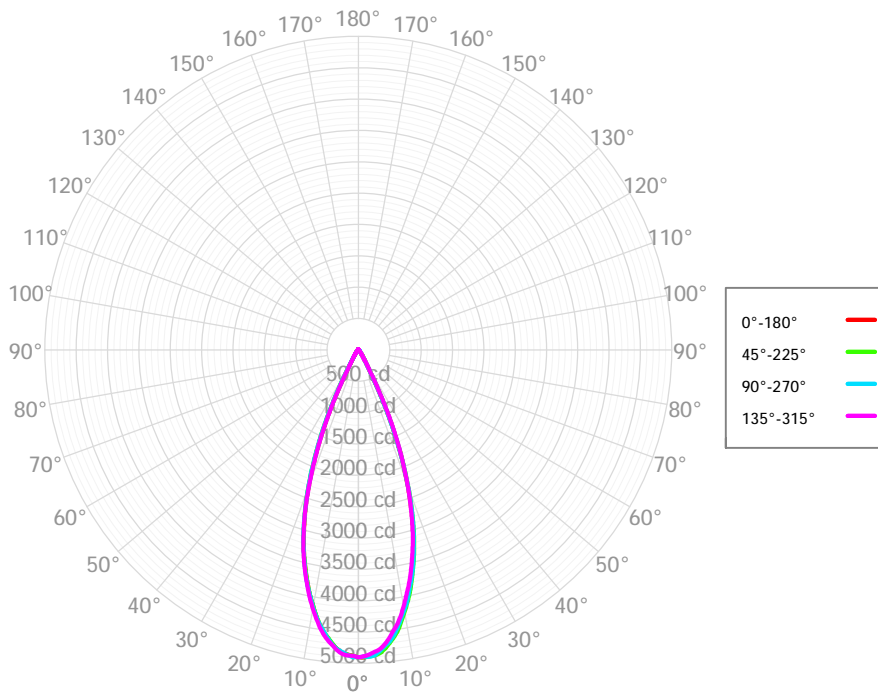
Full Beam Angle

0° - 180°	39°
90° - 270°	39°

IES File Header Contents

Keyword	Value
TEST	TSRA31-1
TESTLAB	Spectrum Lighting Photometric Lab.
MANUFAC	Spectrum Lighting
TESTDATE	2/18/25
ISSUEDATE	2/18/25
LUMCAT	TS - RA31 - 21L - 35HK - MD - xx - xx -MW
LUMINAIRE	Track light for accent, display and general illumination.

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	435.40	21.61%	90.00° - 100.00°	4.88	0.24%
10.00° - 20.00°	914.70	45.39%	100.00° - 110.00°	4.84	0.24%
20.00° - 30.00°	499.71	24.80%	100.00° - 120.00°	9.59	0.48%
30.00° - 40.00°	73.84	3.66%	120.00° - 130.00°	4.57	0.23%
40.00° - 50.00°	29.26	1.45%	130.00° - 140.00°	4.11	0.20%
50.00° - 60.00°	14.19	0.70%	140.00° - 150.00°	3.49	0.17%
60.00° - 70.00°	6.13	0.30%	150.00° - 160.00°	2.87	0.14%
70.00° - 80.00°	4.71	0.23%	160.00° - 170.00°	2.07	0.10%
80.00° - 90.00°	4.93	0.24%	170.00° - 180.00°	0.77	0.04%
0.00° - 90.00°	1982.88	98.39%	0.00° - 180.00°	2015.24	100.00%

Candela Distribution

	0.00°	45.00°	90.00°	135.00°	180.00°	225.00°	270.00°	315.00°	360.00°
0.00°	4901.41	4901.41	4901.41	4901.41	4901.41	4901.41	4901.41	4901.41	4901.41
1.00°	4903.34	4901.51	4892.80	4881.36	4881.73	4882.90	4901.02	4888.56	4903.34
2.00°	4878.65	4893.24	4896.52	4875.53	4862.50	4865.47	4869.08	4863.06	4878.65
3.00°	4856.59	4878.31	4878.66	4855.64	4840.32	4837.13	4827.83	4826.65	4856.59
4.00°	4818.66	4851.58	4822.32	4804.61	4789.13	4789.31	4787.91	4792.14	4818.66
5.00°	4763.21	4790.83	4749.74	4728.38	4713.34	4705.33	4723.07	4724.12	4763.21
6.00°	4674.25	4710.36	4686.44	4656.79	4627.26	4616.62	4631.61	4636.01	4674.25
7.00°	4583.82	4621.83	4597.31	4565.86	4541.98	4530.60	4523.99	4526.62	4583.82
8.00°	4482.07	4522.56	4480.48	4454.64	4428.48	4422.58	4424.18	4428.75	4482.07
9.00°	4354.54	4384.95	4344.79	4320.43	4295.09	4288.75	4301.87	4302.47	4354.54
10.00°	4202.96	4245.24	4219.07	4184.37	4151.41	4146.22	4160.14	4155.67	4202.96
11.00°	4058.41	4101.68	4079.73	4040.86	4012.58	4005.96	4010.64	3998.00	4058.41
12.00°	3905.34	3954.90	3914.97	3882.39	3854.34	3857.29	3868.05	3850.16	3905.34
13.00°	3741.12	3782.03	3757.52	3716.74	3691.43	3689.63	3710.55	3689.59	3741.12
14.00°	3560.17	3602.46	3590.77	3550.64	3526.19	3522.10	3537.84	3512.52	3560.17
15.00°	3376.38	3424.19	3407.03	3371.66	3351.08	3355.76	3356.85	3335.89	3376.38
16.00°	3181.30	3229.01	3207.71	3179.46	3163.49	3176.22	3177.21	3152.44	3181.30
17.00°	2974.49	3024.10	3012.41	2971.24	2958.70	2974.20	2984.86	2954.94	2974.49
18.00°	2763.29	2800.70	2797.60	2761.50	2753.76	2767.78	2769.20	2740.73	2763.29
19.00°	2535.15	2571.06	2566.69	2538.30	2533.67	2559.97	2553.21	2527.34	2535.15
20.00°	2306.47	2334.12	2317.52	2292.15	2300.57	2333.04	2328.28	2303.26	2306.47
21.00°	2057.34	2078.00	2072.08	2047.97	2056.50	2097.67	2098.82	2075.33	2057.34
22.00°	1821.98	1823.33	1816.55	1800.40	1817.82	1857.34	1857.48	1842.89	1821.98
23.00°	1568.35	1569.00	1559.11	1555.85	1571.16	1619.63	1614.11	1601.98	1568.35
24.00°	1318.25	1316.64	1296.67	1307.96	1319.19	1379.92	1372.64	1360.37	1318.25
25.00°	1066.32	1064.77	1049.16	1059.67	1066.75	1133.90	1134.05	1117.76	1066.32
26.00°	817.82	823.65	809.89	821.00	830.87	900.85	892.70	876.34	817.82
27.00°	606.48	613.92	602.12	612.61	622.67	677.77	684.61	655.89	606.48
28.00°	450.49	458.08	438.64	442.41	450.11	498.58	506.14	489.64	450.49
29.00°	339.73	344.98	332.55	327.74	328.62	361.36	373.26	366.12	339.73
30.00°	266.18	266.87	256.35	250.91	246.89	272.57	281.34	279.40	266.18
31.00°	213.39	214.12	205.65	201.38	192.80	213.86	222.23	216.55	213.39
32.00°	168.42	177.43	171.31	165.32	156.92	167.38	178.60	174.13	168.42
33.00°	141.38	151.76	142.56	135.64	131.16	138.83	145.85	145.80	141.38
34.00°	124.91	128.22	124.42	119.49	113.59	118.54	120.05	122.07	124.91
35.00°	106.45	109.50	104.08	99.18	97.43	96.93	106.67	104.43	106.45
36.00°	93.21	93.35	91.80	90.30	82.12	88.74	90.09	91.29	93.21
37.00°	82.53	84.85	79.96	77.91	77.41	80.35	79.74	78.29	82.53
38.00°	72.79	75.53	72.34	69.34	70.38	70.31	75.14	72.00	72.79
39.00°	67.11	67.60	63.22	61.07	59.52	64.19	64.45	62.48	67.11
40.00°	59.90	61.78	61.18	58.66	55.52	57.57	59.31	57.62	59.90
41.00°	56.03	54.94	54.02	53.45	50.71	54.90	49.81	54.62	56.03
42.00°	46.49	49.57	48.76	45.53	42.16	48.53	50.17	46.50	46.49
43.00°	44.37	45.20	49.76	43.94	39.20	47.41	45.50	44.69	44.37

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

RCR	pfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	2391	2391	2391	2391	2332	2332	2332	2332	2221	2221	2221	2120	2120	2120	2027	2027	1983
	1	2297	2248	2205	2166	2245	2202	2163	2128	2115	2085	2057	2036	2012	1991	1962	1944	1903
	2	2208	2125	2057	1999	2162	2088	2027	1974	2019	1970	1927	1956	1916	1881	1897	1866	1828
	3	2123	2017	1934	1868	2083	1987	1912	1851	1932	1869	1818	1880	1829	1786	1833	1791	1756
	4	2044	1920	1829	1760	2008	1896	1813	1748	1851	1781	1725	1809	1750	1702	1770	1721	1688
	5	1969	1833	1738	1668	1938	1814	1726	1660	1776	1701	1643	1742	1677	1626	1709	1654	1624
	6	1899	1755	1658	1589	1871	1738	1648	1582	1707	1628	1569	1678	1610	1557	1651	1591	1564
	7	1832	1683	1586	1518	1807	1669	1578	1513	1643	1562	1503	1618	1547	1494	1595	1532	1507
	8	1770	1617	1520	1454	1747	1605	1514	1450	1582	1501	1443	1561	1489	1436	1542	1477	1453
	9	1710	1555	1460	1396	1690	1545	1455	1393	1526	1445	1388	1508	1435	1382	1491	1425	1403
	10	1654	1499	1405	1343	1636	1490	1401	1341	1473	1392	1336	1458	1384	1332	1443	1376	1355

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	162.0 fc	3.9 ft
6.5 ft	116.0 fc	4.6 ft
7.5 ft	87.1 fc	5.3 ft
8.0 ft	76.6 fc	5.6 ft
10.0 ft	49.0 fc	7.0 ft
12.0 ft	34.0 fc	8.4 ft
14.0 ft	25.0 fc	9.8 ft
16.0 ft	19.1 fc	11.2 ft
20.0 ft	12.3 fc	14.1 ft
24.0 ft	8.5 fc	16.9 ft
28.0 ft	6.3 fc	19.7 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	0	0	0
45.00°	4937	7007	91039965956677304320
55.00°	2318	2799	29982411564767580160
65.00°	629	1056	12980967959149529088
75.00°	359	519	7877119652154196992
85.00°	443	651	5755532862598286336

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		Viewing C0-180					Viewing C90-270				
2H	2H	2.6	3.5	3.0	3.8	4.2	6.0	6.9	6.4	7.2	7.6
	3H	3.0	3.8	3.4	4.1	4.5	6.7	7.4	7.1	7.8	8.2
	4H	3.1	3.9	3.6	4.3	4.7	7.3	8.1	7.8	8.5	8.9
	6H	3.4	4.1	3.8	4.5	4.9	8.6	9.3	9.1	9.7	10.2
	8H	3.7	4.4	4.2	4.8	5.2	9.4	10.1	9.9	10.5	10.9
	12H	4.0	4.6	4.5	5.0	5.5	10.3	10.9	10.8	11.3	11.8
4H	2H	2.8	3.5	3.2	3.9	4.3	5.8	6.5	6.2	6.9	7.3
	3H	3.4	4.0	3.8	4.4	4.9	6.6	7.2	7.0	7.6	8.1
	4H	3.6	4.2	4.1	4.6	5.1	7.3	7.9	7.8	8.3	8.8
	6H	4.0	4.5	4.5	5.0	5.5	8.8	9.3	9.3	9.8	10.3
	8H	4.5	4.9	5.0	5.4	5.9	9.7	10.1	10.2	10.6	11.1
	12H	4.8	5.2	5.4	5.7	6.3	10.7	11.0	11.2	11.5	12.1
8H	4H	3.8	4.3	4.3	4.8	5.3	7.3	7.7	7.8	8.2	8.7
	6H	4.4	4.8	5.0	5.3	5.8	8.9	9.2	9.4	9.8	10.3
	8H	5.0	5.3	5.6	5.9	6.4	9.8	10.1	10.4	10.7	11.2
	12H	5.6	5.8	6.1	6.4	7.0	10.9	11.1	11.4	11.7	12.3
12H	4H	3.9	4.3	4.4	4.8	5.3	7.3	7.6	7.8	8.1	8.7
	6H	4.6	4.9	5.2	5.4	6.0	8.9	9.2	9.4	9.7	10.3
	8H	5.3	5.5	5.8	6.1	6.7	9.9	10.1	10.4	10.7	11.3

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0