

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

TSRA25 13L 35K MD E1 BET xx
Nominal 2.4" Diameter Track Spot Luminaire with Recessed Arm

Test Number

SP-15008_2

Test Date

2/2/2023

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

Summary of Results

Power

Input Watts	15 W
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Lumen Output

Output Lumens	1252
Efficacy	83.46 lm/W

Luminous Dimensions

0° - 180° Size	0.04
90° - 270° Size	0.04
Height	0.18

Spacing Criterion

Two luminaires, plane 0°	0.51
Two luminaires, plane 90°	0.51
Four luminaires	0.49

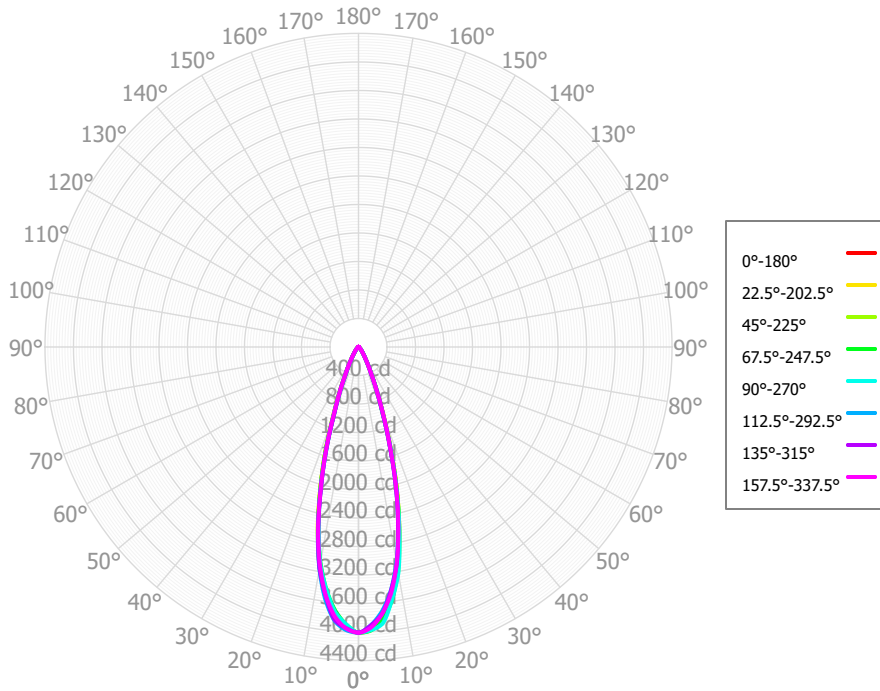
Full Beam Angle

0° - 180°	31°
90° - 270°	30°

IES File Header Contents

Keyword	Value
TEST	SP-15008_2
TESTLAB	Spectrum Lighting Potometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	2/2/2023
ISSUEDATE	7/20/2023
LUMCAT	TSRA25 13L 35K MD E1 BET xx
LUMINAIRE	Nominal 2.4" Diameter Track Spot Luminaire with Recessed Arm
OTHER	Medium Beam
OTHER	36 Degree Beam Angle
OTHER	This report prepared by Spectrum Lighting
_CRI	80+
_CCTMULT	30K x .93

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	343.95	27.47%	90.00° - 100.00°	1.30	0.10%
10.00° - 20.00°	546.71	43.67%	100.00° - 110.00°	1.24	0.10%
20.00° - 30.00°	224.81	17.96%	100.00° - 120.00°	2.48	0.20%
30.00° - 40.00°	74.45	5.95%	120.00° - 130.00°	1.18	0.09%
40.00° - 50.00°	32.47	2.59%	130.00° - 140.00°	1.10	0.09%
50.00° - 60.00°	14.16	1.13%	140.00° - 150.00°	0.93	0.07%
60.00° - 70.00°	4.25	0.34%	150.00° - 160.00°	0.75	0.06%
70.00° - 80.00°	1.46	0.12%	160.00° - 170.00°	0.42	0.03%
80.00° - 90.00°	1.37	0.11%	170.00° - 180.00°	0.14	0.01%
0.00° - 90.00°	1243.61	99.34%	0.00° - 180.00°	1251.92	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°	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30	4008.30
2.50°	3937.11	3976.75	3963.92	3982.00	3977.32	3976.50	3950.63	3955.45	3925.53	3942.81	3909.04	3902.67	3898.81	3911.18	3913.57	3943.16	3937.11
5.00°	3830.31	3799.29	3862.30	3841.83	3895.50	3856.72	3845.19	3797.33	3812.99	3754.38	3764.04	3718.31	3738.79	3731.65	3763.50	3766.76	3830.31
7.50°	3500.85	3550.17	3556.33	3589.16	3583.41	3572.86	3528.09	3517.42	3483.31	3494.67	3457.41	3442.08	3440.78	3456.54	3462.21	3492.92	3500.85
10.00°	3156.83	3131.58	3201.65	3175.41	3223.00	3161.07	3150.02	3115.18	3147.42	3106.76	3128.63	3075.49	3090.05	3066.91	3094.04	3086.94	3156.83
12.50°	2611.93	2646.19	2645.92	2638.51	2655.80	2635.51	2609.11	2618.75	2606.41	2649.24	2614.11	2610.14	2576.26	2566.79	2565.70	2582.10	2611.93
15.00°	2066.48	2080.95	2084.85	2062.85	2052.84	2030.21	2028.10	2037.09	2065.48	2078.02	2079.38	2057.31	2050.51	2029.65	2027.60	2036.75	2066.48
17.50°	1515.66	1487.60	1504.58	1460.55	1511.11	1496.15	1501.49	1510.09	1525.95	1544.79	1546.79	1535.46	1492.50	1459.84	1468.82	1464.18	1515.66
20.00°	994.49	1049.49	991.85	1014.32	978.13	1007.54	986.43	1028.30	1004.92	1068.02	1014.37	1038.68	1004.92	1012.13	993.34	1024.15	994.49
22.50°	699.09	658.88	688.95	665.72	693.67	684.24	696.41	692.34	714.72	699.14	718.44	692.07	687.42	661.35	677.44	665.19	699.09
25.00°	429.03	453.97	434.37	447.93	437.60	456.84	445.82	464.85	441.53	474.35	434.85	456.40	430.78	434.30	430.75	444.17	429.03
27.50°	311.89	298.97	313.21	303.33	317.48	314.71	320.63	315.86	320.99	311.39	317.90	305.40	304.13	295.57	304.23	299.78	311.89
30.00°	205.86	216.35	211.42	214.23	208.62	216.71	213.64	220.10	208.97	223.82	204.97	210.56	202.69	205.17	206.16	211.15	205.86
32.50°	156.20	150.24	156.63	153.24	157.39	156.05	158.98	157.31	158.00	158.11	156.01	149.68	149.95	146.21	152.27	150.13	156.20
35.00°	111.19	113.98	111.38	114.54	109.46	112.55	110.41	114.86	111.00	116.38	107.66	109.31	107.04	107.31	109.54	111.41	111.19
37.50°	86.39	83.55	86.93	86.02	86.30	85.77	86.59	86.51	86.66	85.77	84.31	82.64	81.31	80.27	82.59	82.64	86.39
40.00°	64.23	65.80	66.43	67.03	63.85	65.89	64.87	65.95	64.42	66.31	61.51	63.36	61.26	61.71	62.20	64.33	64.23
42.50°	51.77	50.12	53.70	51.89	53.04	52.75	52.97	52.11	52.34	51.61	49.68	49.85	50.09	47.63	50.15	50.13	51.77
45.00°	40.54	40.83	42.46	42.28	42.34	42.10	41.61	41.64	41.16	41.21	38.31	39.16	40.05	37.99	40.40	39.72	40.54
47.50°	33.32	32.37	33.86	34.64	34.42	34.03	34.18	33.48	33.66	32.93	32.98	31.64	31.62	30.47	33.31	30.65	33.32
50.00°	26.40	26.33	26.41	28.14	26.53	26.77	26.87	26.35	26.49	26.41	27.57	25.52	24.60	24.45	26.65	23.37	26.40
52.50°	20.33	20.54	20.80	22.00	19.46	20.25	20.76	20.69	20.54	20.93	21.43	19.21	19.37	19.06	20.45	16.64	20.33
55.00°	15.17	16.59	15.96	16.88	12.70	13.94	14.70	15.62	15.00	16.24	15.61	12.83	14.75	15.27	15.48	13.65	15.17
57.50°	12.32	12.78	12.20	12.04	10.07	10.58	11.30	11.39	10.68	12.12	12.14	9.76	10.86	12.08	11.69	11.67	12.32
60.00°	9.35	9.18	8.73	8.75	7.50	7.93	7.97	7.46	6.97	8.40	8.79	7.80	8.01	9.59	8.55	9.25	9.35
62.50°	6.11	5.58	5.61	5.83	5.46	5.70	6.03	5.26	4.94	5.65	6.18	5.56	6.26	7.34	5.96	6.74	6.11
65.00°	3.51	4.08	3.49	4.00	3.55	3.55	4.15	3.61	3.28	3.50	3.78	3.24	4.58	4.91	4.02	4.56	3.51
67.50°	2.16	2.63	2.54	2.40	2.61	2.69	2.88	2.52	2.50	2.36	2.43	2.10	2.97	2.42	2.59	2.45	2.16
70.00°	1.30	1.87	1.86	1.90	1.80	2.05	1.72	1.58	1.84	1.78	1.39	1.27	2.00	1.70	1.83	1.55	1.30
72.50°	1.28	1.12	1.46	1.58	1.88	1.63	1.60	1.23	1.42	1.57	1.60	1.28	1.57	1.42	1.53	0.86	1.28
75.00°	1.26	1.13	1.13	1.40	1.92	1.24	1.47	1.02	1.12	1.54	1.74	1.48	1.36	1.52	1.39	0.88	1.26
77.50°	1.22	1.14	0.88	1.23	1.77	1.22	1.32	0.90	1.04	1.43	1.60	1.23	1.30	1.71	1.35	1.00	1.22
80.00°	1.04	1.32	0.93	1.17	1.63	1.24	1.21	0.80	0.98	1.28	1.46	0.89	1.29	1.77	1.24	0.98	1.04
82.50°	0.64	1.46	1.26	1.12	1.55	1.61	1.41	0.93	0.95	1.23	1.36	1.01	1.30	1.81	1.11	0.94	0.64
85.00°	0.50	1.25	1.32	1.24	1.44	2.01	1.59	1.10	1.06	1.22	1.32	1.20	1.34	1.51	1.18	1.26	0.50
87.50°	0.70	1.08	1.16	1.37	1.19	1.62	1.65	1.18	1.37	1.16	1.49	0.96	1.39	1.16	1.37	1.61	0.70
90.00°	0.84	1.33	1.16	1.29	1.01	1.19	1.63	1.25	1.45	1.09	1.58	0.66	1.36	1.21	1.33	1.28	0.84
92.50°	0.92	1.54	1.27	1.21	1.07	1.24	1.31	1.12	1.19	1.13	1.49	0.81	1.29	1.30	1.20	0.92	0.92
95.00°	1.09	1.43	1.25	1.24	1.13	1.31	1.07	0.96	1.04	1.21	1.37	1.00	1.28	1.47	1.12	0.88	1.09
97.50°	1.36	1.31	1.16	1.28	1.17	1.37	1.12	0.93	1.02	1.15	1.19	1.08	1.31	1.65	1.06	0.85	1.36
100.00°	1.46	1.15	1.35	1.37	1.17	1.42	1.11	0.91	1.17	1.05	1.02	1.15	1.36	1.64	1.09	1.23	1.46
102.50°	1.37	1.01	1.71	1.45	1.05	1.14	0.91	1.01	1.50	0.95	0.87	1.00	1.42	1.62	1.15	1.59	1.37
105.00°	1.16	0.97	1.84	1.24	1.02	0.89	0.82	1.11	1.51	0.84	0.75	0.84	1.28	1.47	1.12	1.39	1.16

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

RCR	ptc	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%	10%
	0	1488	1488	1488	1488	1453	1453	1453	1453	1386	1386	1386	1326	1326	1326	1270	1270	1244
	1	1432	1403	1377	1353	1401	1375	1352	1331	1324	1305	1289	1276	1262	1249	1233	1222	1197
	2	1378	1328	1287	1252	1351	1306	1269	1238	1266	1236	1210	1228	1204	1183	1193	1174	1151
	3	1327	1262	1212	1173	1303	1245	1200	1163	1213	1175	1144	1182	1151	1125	1154	1129	1107
	4	1279	1204	1149	1108	1258	1190	1140	1101	1164	1121	1087	1139	1103	1074	1117	1086	1066
	5	1234	1152	1095	1053	1216	1141	1088	1048	1119	1073	1038	1099	1060	1029	1080	1047	1028
	6	1192	1105	1047	1005	1176	1096	1041	1002	1078	1030	995	1061	1019	988	1046	1009	992
	7	1153	1063	1004	963	1138	1055	1000	961	1040	991	956	1026	983	950	1013	974	959
	8	1116	1024	966	926	1103	1017	962	924	1004	955	920	992	948	916	981	942	927
	9	1081	988	931	893	1069	982	928	891	972	922	888	961	917	885	952	911	898
	10	1049	955	899	862	1038	950	897	861	941	892	858	932	887	856	924	883	870

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	132.5 fc	3.0 ft
6.5 ft	94.9 fc	3.6 ft
7.5 ft	71.3 fc	4.1 ft
8.0 ft	62.6 fc	4.4 ft
10.0 ft	40.1 fc	5.5 ft
12.0 ft	27.8 fc	6.6 ft
14.0 ft	20.5 fc	7.7 ft
16.0 ft	15.7 fc	8.7 ft
20.0 ft	10.0 fc	10.9 ft
24.0 ft	7.0 fc	13.1 ft
28.0 ft	5.1 fc	15.3 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	26965599	26965599	26965599
45.00°	70135	54864	73247
55.00°	23951	18555	20054
65.00°	5245	3798	5303
75.00°	1842	1191	2804
85.00°	742	1378	2123

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	12.6	13.5	13.0	13.9	14.2	11.3	12.3	11.7	12.6	12.9
	3H	12.5	13.3	12.9	13.7	14.1	11.4	12.2	11.8	12.5	12.9
	4H	12.4	13.2	12.9	13.6	14.0	11.3	12.1	11.8	12.5	12.9
	6H	12.4	13.1	12.8	13.5	13.9	11.3	12.0	11.8	12.4	12.8
	8H	12.3	13.0	12.8	13.4	13.8	11.4	12.0	11.8	12.4	12.8
	12H	12.3	12.9	12.7	13.3	13.8	11.4	12.0	11.8	12.4	12.8
4H	2H	12.4	13.2	12.8	13.5	13.9	11.2	12.0	11.6	12.3	12.8
	3H	12.3	12.9	12.8	13.4	13.8	11.3	11.9	11.7	12.3	12.7
	4H	12.3	12.8	12.7	13.2	13.7	11.3	11.8	11.7	12.2	12.7
	6H	12.2	12.7	12.7	13.2	13.7	11.3	11.8	11.8	12.2	12.7
	8H	12.2	12.6	12.7	13.1	13.6	11.3	11.8	11.8	12.2	12.7
	12H	12.1	12.5	12.7	13.0	13.5	11.4	11.8	11.9	12.3	12.8
8H	4H	12.1	12.5	12.6	13.0	13.5	11.1	11.6	11.6	12.0	12.5
	6H	12.1	12.4	12.6	13.0	13.5	11.2	11.6	11.7	12.1	12.6
	8H	12.1	12.4	12.6	12.9	13.4	11.3	11.6	11.8	12.1	12.6
	12H	12.1	12.4	12.6	12.9	13.5	11.5	11.7	12.0	12.2	12.8
12H	4H	12.0	12.4	12.6	12.9	13.4	11.1	11.5	11.6	12.0	12.4
	6H	12.0	12.3	12.6	12.8	13.4	11.2	11.5	11.7	12.0	12.5
	8H	12.1	12.3	12.6	12.8	13.4	11.3	11.6	11.8	12.1	12.7

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0