

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

AS01RDF IC 935 004 DL SP MW xx
Nom 1" round recessed downlight

Test Number

SP-00827_M-4L

Test Date

10/29/2019

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

Summary of Results

Power

Input Watts	4.3 W
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Lumen Output

Output Lumens	328
Efficacy	76.23 lm/W

Luminous Dimensions

0° - 180° Size	-0.08
90° - 270° Size	-0.08
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.33
Two luminaires, plane 90°	0.33
Four luminaires	0.35

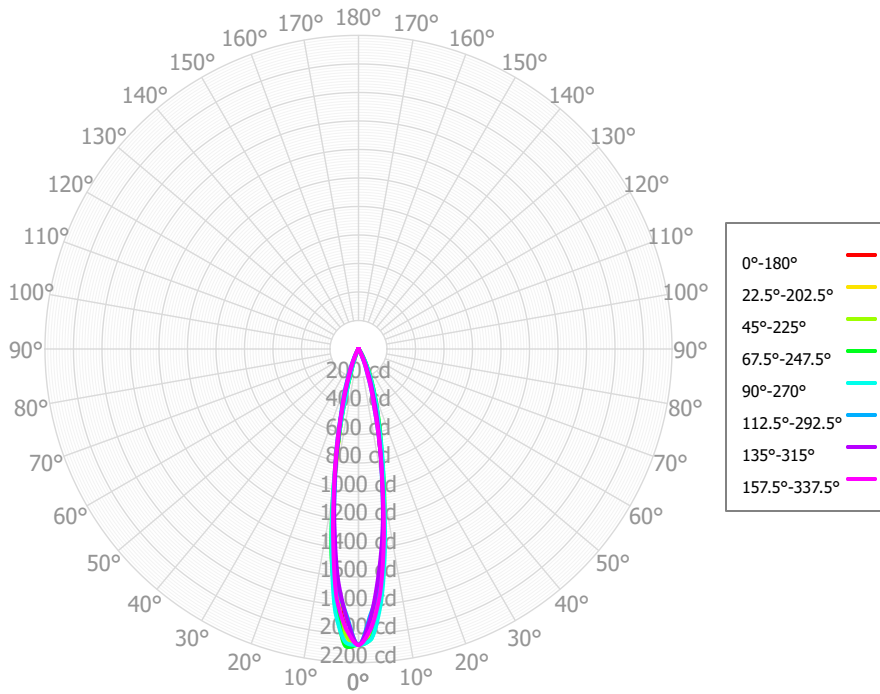
Full Beam Angle

0° - 180°	19°
90° - 270°	20°

IES File Header Contents

Keyword	Value
TEST	SP-00827_M-4L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	10/29/2019
ISSUEDATE	12/29/2021
LUMCAT	AS01RDF IC 935 004 DL SP MW xx
LUMINAIRE	Nom 1" round recessed downlight
OTHER	Beam angle: 19.3 degrees
LAMP	N/A
LAMPCAT	N/A, CRI: 90 min
OTHER	CCT Multipliers: 927 x 0.96, 930 x 0.99, 940 x 1.02
OTHER	Total luminaire wattages is approximate
OTHER	This report prepared by Spectrum Lighting, scaled from 7L
_CRI	90+
_CCTMULT	927 x 0.96, 930 x 0.99, 940 x 1.02
_LAMPMULT	N/A

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	139.71	42.62%	90.00° - 100.00°	0.04	0.01%
10.00° - 20.00°	132.02	40.27%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	42.20	12.87%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	7.86	2.40%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	2.30	0.70%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	1.24	0.38%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	0.92	0.28%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	0.80	0.25%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	0.72	0.22%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	327.76	99.99%	0.00° - 180.00°	327.81	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°	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50	2076.50
2.50°	1973.53	2001.31	1971.66	2034.99	2038.56	1874.79	1891.62	1968.62	1975.41	2034.70	2010.92	2087.23	2061.28	1873.57	1894.78	1967.92	1973.53
5.00°	1665.96	1656.44	1708.36	1732.58	1794.80	1670.76	1634.29	1757.02	1705.12	1702.20	1740.23	1791.80	1857.52	1671.29	1599.35	1728.34	1665.96
7.50°	1340.29	1313.04	1328.77	1351.69	1418.57	1308.10	1285.54	1359.70	1333.15	1364.31	1403.49	1454.46	1435.55	1308.01	1292.32	1360.28	1340.29
10.00°	983.63	996.07	1014.57	1040.16	1019.36	946.73	966.61	989.68	987.22	992.36	987.81	1017.76	1024.25	950.88	964.42	962.13	983.63
12.50°	689.44	690.41	743.38	750.29	774.43	708.25	660.38	703.89	652.99	624.87	643.65	635.83	653.91	684.54	687.86	685.79	689.44
15.00°	493.26	527.19	553.52	570.99	551.97	473.53	453.05	456.86	435.72	419.98	378.14	373.65	337.49	429.48	495.77	434.21	493.26
17.50°	335.74	370.51	413.43	422.38	422.67	347.52	284.44	317.04	266.86	220.71	202.10	176.71	204.40	297.12	340.35	297.14	335.74
20.00°	234.70	279.42	307.25	319.08	304.87	224.53	182.32	197.62	169.52	143.77	117.91	109.47	95.52	172.21	240.22	180.00	234.70
22.50°	153.17	192.03	220.04	227.10	225.46	154.39	103.64	129.95	98.89	70.16	63.88	58.50	61.46	113.38	157.09	118.38	153.17
25.00°	97.83	134.22	154.82	160.27	149.81	87.03	63.26	74.81	60.20	44.75	38.35	37.49	33.36	59.09	97.84	65.14	97.83
27.50°	56.85	80.00	100.83	98.94	104.36	56.03	34.96	48.45	32.23	21.02	21.87	21.52	21.78	37.46	53.61	40.90	56.85
30.00°	33.84	50.11	64.02	64.99	61.14	27.00	21.29	27.12	20.11	15.16	13.35	14.01	12.44	17.97	28.76	20.24	33.84
32.50°	17.72	23.31	35.34	36.20	40.47	17.48	11.82	16.31	12.83	9.68	8.21	8.44	8.78	11.37	12.97	12.57	17.72
35.00°	9.55	14.18	19.96	23.45	21.02	8.76	7.80	8.61	8.94	7.44	5.80	5.87	5.91	5.62	8.10	6.17	9.55
37.50°	4.90	6.31	10.28	13.34	13.73	6.34	5.15	6.94	5.97	5.32	4.32	4.05	4.83	4.38	4.92	4.62	4.90
40.00°	4.00	4.84	6.05	8.80	6.82	4.14	4.08	5.35	4.72	4.05	3.52	3.31	3.73	3.27	3.60	3.44	4.00
42.50°	3.02	3.57	3.92	5.03	5.94	3.39	3.38	3.90	3.88	2.91	2.89	2.68	2.59	2.74	2.75	2.84	3.02
45.00°	1.99	3.21	3.43	4.15	5.13	2.73	2.81	2.99	3.24	2.59	2.38	2.19	1.72	2.22	2.38	2.27	1.99
47.50°	1.41	2.74	3.53	3.60	4.07	2.63	2.27	2.96	2.65	2.28	2.03	1.83	1.36	1.78	2.05	1.81	1.41
50.00°	1.24	1.85	2.72	2.65	3.01	2.47	1.84	2.58	2.03	2.01	1.80	1.62	1.18	1.42	1.78	1.35	1.24
52.50°	1.13	1.19	1.62	1.66	2.12	2.07	1.43	1.67	1.40	1.75	1.55	1.35	1.29	1.36	1.60	1.22	1.13
55.00°	1.06	1.36	1.36	1.42	1.26	1.70	1.23	1.14	1.35	1.55	1.29	1.02	1.25	1.27	1.51	1.10	1.06
57.50°	0.98	1.43	1.34	1.23	1.31	1.45	1.07	1.14	1.39	1.33	1.14	0.88	0.94	1.10	1.34	1.23	0.98
60.00°	0.89	1.18	1.13	1.01	1.33	1.23	0.95	1.10	1.18	1.02	1.04	0.93	0.73	1.01	1.08	1.35	0.89
62.50°	0.89	0.98	0.87	0.78	1.08	1.11	0.83	1.00	0.95	0.80	1.00	0.92	0.68	1.17	0.87	1.04	0.89
65.00°	0.96	0.89	0.87	1.00	0.85	1.03	1.00	0.94	0.79	0.88	0.99	0.86	0.72	1.18	0.69	0.77	0.96
67.50°	0.98	0.81	0.91	1.22	0.70	1.09	1.20	0.94	0.64	0.90	0.92	0.73	0.86	0.87	0.76	0.90	0.98
70.00°	0.97	0.74	0.73	1.10	0.59	1.04	0.92	0.86	0.74	0.79	0.83	0.58	0.94	0.79	0.96	0.95	0.97
72.50°	0.87	0.78	0.55	0.99	0.63	0.78	0.71	0.71	0.79	0.74	0.86	0.64	0.96	0.90	0.82	0.85	0.87
75.00°	0.79	0.90	0.67	0.96	0.70	0.68	0.80	0.75	0.66	0.76	0.82	0.69	0.75	0.64	0.67	0.68	0.79
77.50°	0.78	0.65	0.67	0.90	0.82	0.71	0.83	0.84	0.73	0.74	0.66	0.61	0.63	0.61	0.63	0.62	0.78
80.00°	0.75	0.52	0.57	0.81	0.69	0.74	0.80	0.85	0.92	0.67	0.95	0.75	0.74	0.73	0.69	0.77	0.75
82.50°	0.62	0.61	0.61	0.58	0.73	0.73	0.69	0.89	1.05	0.60	0.90	0.91	0.95	0.58	0.69	0.79	0.62
85.00°	0.65	0.66	0.82	0.70	0.83	0.87	0.79	0.68	0.80	0.65	0.59	0.64	0.74	0.58	0.71	0.72	0.65
87.50°	0.59	0.50	0.66	0.67	0.64	0.88	0.52	0.72	0.62	0.77	0.58	0.58	0.62	0.48	0.69	0.74	0.59
90.00°	0.00	0.00	0.70	0.88	0.63	0.62	0.64	0.50	0.59	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.50°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	390	390	390	390	381	381	381	381	364	364	364	349	349	349	334	334	328
	1	377	370	364	359	369	363	358	353	350	346	342	338	335	332	327	325	319
	2	365	354	344	336	359	348	340	333	338	331	325	329	323	319	320	316	310
	3	355	340	328	319	349	336	325	317	327	319	312	320	313	307	313	308	302
	4	344	328	315	306	339	324	313	304	318	308	301	312	304	297	306	300	294
	5	335	317	304	294	331	314	302	293	309	299	291	304	295	288	299	292	287
	6	326	307	294	285	322	305	293	284	300	290	282	296	287	280	293	285	280
	7	318	298	285	276	315	296	284	275	293	282	274	289	280	273	286	278	274
	8	310	290	277	269	307	289	276	268	286	275	267	283	273	266	280	272	268
	9	303	283	270	262	300	281	269	261	279	268	261	277	267	260	274	266	262
	10	296	276	264	255	294	275	263	255	273	262	255	271	261	254	269	260	256

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	68.6 fc	1.9 ft
6.5 ft	49.1 fc	2.2 ft
7.5 ft	36.9 fc	2.5 ft
8.0 ft	32.4 fc	2.7 ft
10.0 ft	20.8 fc	3.4 ft
12.0 ft	14.4 fc	4.1 ft
14.0 ft	10.6 fc	4.7 ft
16.0 ft	8.1 fc	5.4 ft
20.0 ft	5.2 fc	6.8 ft
24.0 ft	3.6 fc	8.1 ft
28.0 ft	2.6 fc	9.5 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	4446649	4446649	4446649
45.00°	6014	10391	15540
55.00°	3958	5068	4707
65.00°	4862	4388	4288
75.00°	6496	5559	5783
85.00°	15851	20193	20514

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	4.9	5.8	5.2	6.1	6.4	4.4	5.3	4.8	5.6	5.9
	3H	7.1	7.9	7.4	8.2	8.6	6.5	7.2	6.8	7.6	8.0
	4H	8.3	9.0	8.7	9.4	9.7	7.6	8.4	8.0	8.7	9.1
	6H	9.6	10.3	10.0	10.7	11.1	9.1	9.8	9.6	10.2	10.6
	8H	10.3	10.9	10.8	11.3	11.7	10.3	10.9	10.7	11.3	11.7
	12H	11.2	11.8	11.6	12.2	12.6	11.6	12.2	12.0	12.6	13.0
4H	2H	5.1	5.9	5.5	6.2	6.6	5.1	5.8	5.5	6.1	6.5
	3H	7.7	8.3	8.2	8.7	9.2	7.4	8.0	7.8	8.4	8.8
	4H	9.2	9.7	9.6	10.2	10.6	8.7	9.2	9.1	9.7	10.1
	6H	10.7	11.2	11.2	11.6	12.1	10.5	10.9	10.9	11.4	11.8
	8H	11.6	12.0	12.1	12.5	12.9	11.8	12.2	12.3	12.7	13.1
	12H	12.7	13.0	13.1	13.5	14.0	13.2	13.6	13.7	14.1	14.6
8H	4H	9.6	10.0	10.1	10.5	11.0	9.3	9.8	9.8	10.2	10.7
	6H	11.4	11.7	11.9	12.2	12.7	11.5	11.8	12.0	12.3	12.8
	8H	12.5	12.8	13.1	13.4	13.9	13.0	13.3	13.5	13.8	14.3
	12H	13.9	14.2	14.4	14.7	15.2	14.6	14.9	15.2	15.4	16.0
12H	4H	9.7	10.1	10.2	10.6	11.1	9.6	9.9	10.0	10.4	10.9
	6H	11.6	11.9	12.2	12.4	13.0	11.8	12.1	12.4	12.6	13.2
	8H	12.9	13.2	13.4	13.7	14.3	13.5	13.7	14.0	14.2	14.8

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0