Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGE8LEDFX-40L35KDX-AR8223FX-SG-SO

Nom 8" diam recessed downlight

Test Number

SP-00746_1_M-40L

Test Date

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

Summary of Results

Power

Input Watts	34.6 W

Lumen Output

Output Lumens	3265
Efficacy	94.35 lm/W

Luminous Dimensions

0° - 180° Size	-0.63
90° - 270° Size	-0.63
Height	0

Spacing Criterion

Two luminaires, plane 0°	1.02
Two luminaires, plane 90°	1.01
Four luminaires	1.06

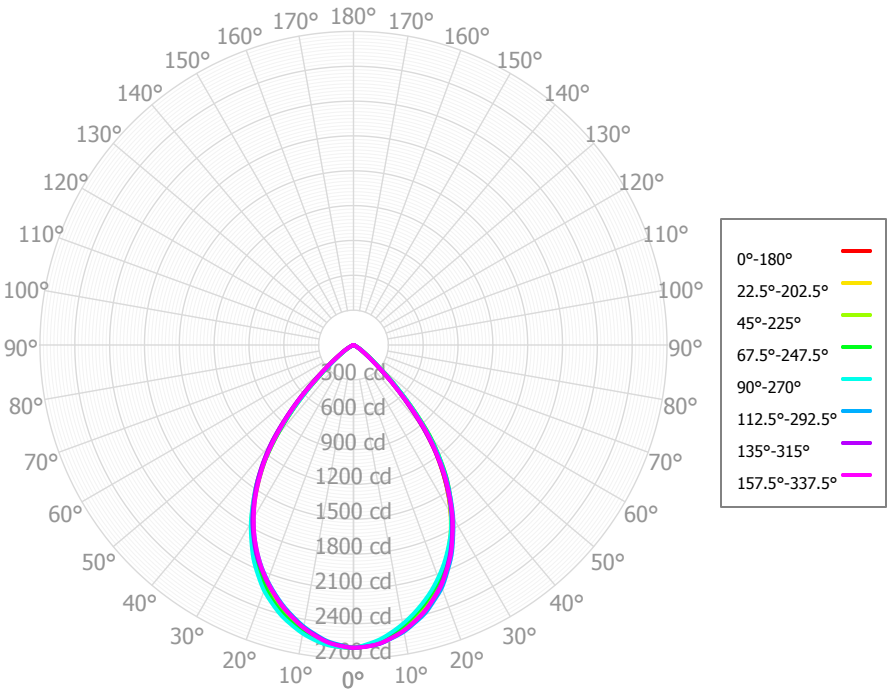
Full Beam Angle

0° - 180°	73°
90° - 270°	73°

IES File Header Contents

Keyword	Value
TEST	SP-00746_1_M-40L
TESTLAB	Spectrum Lighting Photometric Lab
MANUFAC	Spectrum Lighting
ISSUEDATE	12/28/2018
UPDATE	3/1/2019
LUMCAT	SGE8LEDFX-40L35KDX-AR8223FX-SG-SO
LUMINAIRE	Nom 8" diam recessed downlight
OTHER	Trim: AR8223FX, Soft glow
OTHER	Regressed Integral Solite lens
OTHER	Data for New Construction: SGE8LEDFX-series w/AR8223FX-SG-SO
OTHER	Data for Retrofit: SGRTE8LEDFX-series w/AR8223FX-SG-SO
OTHER	Beam Angle: 72 deg
LAMPCAT	N/A
LAMP	N/A, Philips LED, Min CRI: 80+, Gen: 80G1
OTHER	CCT Tested: 3500K
OTHER	CCT Multipliers: 27K x 0.95, 30K x 1.0, 40K x 1.08
OTHER	This report prepared by Spectrum Lighting, scaled from 30L
_CRI	80+
_CCTMULT	27K x 0.95, 30K x 1.0, 40K x 1.08
_LAMPMULT	10L x 0.33, 15L x 0.51, 20L x 0.68, 30L x 1.0, 40L x 1.35

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	246.13	7.54%	90.00° - 100.00°	0.13	0.00%
10.00° - 20.00°	659.98	20.22%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	902.53	27.65%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	862.68	26.43%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	459.90	14.09%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	114.88	3.52%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	15.56	0.48%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	1.50	0.05%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.39	0.04%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	3,264.57	100.00%	0.00° - 180.00°	3,264.57	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°	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14	2,607.14
2.50°	2,596.01	2,592.73	2,589.17	2,589.61	2,581.08	2,586.16	2,591.86	2,594.50	2,599.43	2,597.49	2,600.81	2,602.26	2,603.90	2,597.33	2,599.19	2,599.94	2,596.01
5.00°	2,573.73	2,572.03	2,560.06	2,559.19	2,547.13	2,560.44	2,567.78	2,569.30	2,580.85	2,579.82	2,582.67	2,584.82	2,592.93	2,583.03	2,582.22	2,580.17	2,573.73
7.50°	2,531.21	2,527.17	2,516.83	2,510.74	2,497.20	2,514.11	2,520.68	2,527.01	2,538.05	2,539.66	2,547.91	2,548.28	2,562.69	2,546.86	2,542.16	2,542.82	2,531.21
10.00°	2,482.44	2,477.57	2,461.67	2,455.47	2,439.58	2,462.09	2,472.25	2,473.96	2,490.37	2,491.56	2,502.14	2,504.45	2,522.44	2,506.72	2,497.83	2,497.58	2,482.44
12.50°	2,420.32	2,415.77	2,396.75	2,389.35	2,373.93	2,397.08	2,406.30	2,408.33	2,425.51	2,425.91	2,445.51	2,450.75	2,468.58	2,449.37	2,436.97	2,438.24	2,420.32
15.00°	2,352.31	2,352.40	2,322.98	2,320.15	2,301.11	2,326.76	2,339.60	2,335.05	2,358.27	2,354.86	2,383.05	2,386.59	2,409.09	2,390.09	2,370.82	2,373.94	2,352.31
17.50°	2,274.34	2,269.23	2,243.28	2,238.84	2,222.23	2,246.72	2,257.15	2,254.55	2,275.63	2,274.38	2,304.25	2,310.68	2,332.78	2,308.23	2,289.49	2,292.56	2,274.34
20.00°	2,184.27	2,184.74	2,150.24	2,155.08	2,132.99	2,161.47	2,173.60	2,166.25	2,191.85	2,187.63	2,218.56	2,222.73	2,251.15	2,225.15	2,199.68	2,206.60	2,184.27
22.50°	2,077.79	2,075.26	2,050.08	2,053.92	2,036.67	2,068.49	2,079.81	2,071.82	2,093.39	2,092.11	2,118.92	2,123.83	2,146.91	2,112.24	2,090.42	2,098.10	2,077.79
25.00°	1,958.05	1,964.58	1,934.86	1,950.31	1,929.07	1,965.18	1,982.40	1,964.39	1,993.90	1,983.22	2,014.69	2,008.71	2,037.34	1,997.95	1,972.19	1,985.34	1,958.05
27.50°	1,823.36	1,830.76	1,813.21	1,826.20	1,815.11	1,849.52	1,864.39	1,848.74	1,868.06	1,858.80	1,889.52	1,881.48	1,904.41	1,858.72	1,837.74	1,848.07	1,823.36
30.00°	1,675.54	1,694.53	1,671.63	1,700.54	1,680.67	1,723.05	1,741.47	1,717.50	1,740.42	1,723.91	1,759.17	1,740.92	1,767.62	1,717.17	1,691.01	1,707.78	1,675.54
32.50°	1,515.72	1,533.68	1,523.40	1,549.42	1,537.15	1,585.99	1,598.36	1,578.39	1,592.50	1,579.18	1,606.89	1,592.26	1,610.54	1,553.71	1,526.51	1,538.81	1,515.72
35.00°	1,341.16	1,369.26	1,356.04	1,396.92	1,374.14	1,431.81	1,449.15	1,420.17	1,441.27	1,420.04	1,450.86	1,424.72	1,451.47	1,385.48	1,349.56	1,367.98	1,341.16
37.50°	1,155.54	1,182.52	1,183.97	1,211.93	1,204.48	1,263.84	1,281.46	1,254.16	1,268.64	1,249.95	1,271.63	1,248.08	1,265.07	1,189.84	1,157.66	1,172.53	1,155.54
40.00°	941.39	986.82	966.84	1,023.20	993.37	1,070.25	1,100.10	1,061.12	1,088.64	1,054.53	1,089.82	1,038.93	1,077.08	985.76	942.63	975.34	941.39
42.50°	709.82	752.14	741.64	791.56	771.32	860.04	886.40	859.68	874.97	843.16	861.00	817.38	840.42	748.19	705.11	738.73	709.82
45.00°	511.33	534.03	538.42	568.00	565.87	650.10	677.12	650.08	666.31	635.30	630.08	604.50	607.28	527.61	502.60	509.52	511.33
47.50°	328.88	368.52	337.63	397.13	363.49	440.31	476.18	438.63	474.20	429.19	451.18	394.18	427.37	358.93	328.01	354.93	328.88
50.00°	219.67	229.96	237.43	243.85	254.55	301.91	315.43	309.14	309.07	295.22	277.26	271.45	258.76	220.03	213.72	213.52	219.67
52.50°	138.56	158.95	142.11	171.43	156.37	193.41	215.22	192.85	212.78	189.43	196.78	167.22	180.70	150.84	138.76	151.12	138.56
55.00°	94.70	101.15	104.03	108.80	113.53	134.43	141.72	139.91	135.81	131.51	121.21	118.54	110.44	95.73	93.03	95.01	94.70
57.50°	61.85	69.23	66.62	78.75	74.07	91.31	101.11	92.95	97.94	88.32	88.18	77.81	81.06	66.56	62.48	65.97	61.85
60.00°	36.49	41.52	40.75	50.01	47.07	59.69	66.19	63.24	64.22	57.41	56.47	50.32	52.76	40.30	36.97	39.03	36.49
62.50°	12.73	20.39	16.70	24.63	20.93	30.90	37.03	34.29	37.19	29.25	31.88	23.92	28.44	18.47	13.54	18.68	12.73
65.00°	5.98	6.96	8.22	6.72	10.58	15.62	17.62	17.08	17.03	14.50	11.24	12.15	9.36	5.35	5.22	4.02	5.98
67.50°	1.66	3.21	1.45	3.37	1.75	2.60	6.01	1.95	5.63	1.73	5.07	1.65	4.50	2.57	1.70	2.34	1.66
70.00°	1.53	1.60	1.39	1.61	1.62	1.75	1.96	1.68	1.07	1.57	1.24	1.54	1.64	1.49	1.45	1.39	1.53
72.50°	1.39	1.47	1.23	1.49	1.45	1.30	1.30	1.50	1.39	1.60	1.24	1.49	1.44	1.54	1.60	1.30	1.39
75.00°	1.12	1.38	0.96	1.46	1.21	1.16	1.23	1.48	1.56	1.55	1.46	1.55	1.12	1.58	1.63	1.30	1.12
77.50°	1.16	1.34	1.55	1.43	1.15	1.24	1.18	1.72	1.60	1.80	1.56	1.51	0.93	1.75	1.65	1.34	1.16
80.00°	1.26	1.32	1.66	1.35	1.15	1.37	1.19	1.78	1.50	1.79	1.07	1.40	1.16	2.03	1.44	1.39	1.26
82.50°	1.20	0.77	1.24	1.44	1.22	1.39	1.47	1.51	1.51	1.22	1.45	1.24	0.99	1.38	0.86	0.81	1.20
85.00°	0.98	1.18	1.04	1.59	1.33	1.32	1.68	1.29	1.30	1.16	1.73	1.15	1.30	1.25	1.47	1.53	0.98
87.50°	1.01	1.16	1.66	1.57	1.35	1.41	1.52	1.62	1.30	1.49	1.14	1.55	1.12	1.62	1.49	1.10	1.01
90.00°	0.84	0.39	0.67	0.74	0.83	1.49	0.61	0.94	0.72	1.67	0.56	1.63	1.38	0.56	0.95	0.62	0.84

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	ρfc	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	ρcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	ρw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
RCR	0	3,887	3,887	3,887	3,887	3,796	3,796	3,796	3,796	3,627	3,627	3,627	3,473	3,473	3,473	3,331	3,331	3,331	3,265
	1	3,685	3,586	3,497	3,418	3,604	3,515	3,435	3,363	3,382	3,318	3,259	3,260	3,209	3,162	3,147	3,107	3,070	3,045
	2	3,476	3,299	3,154	3,031	3,401	3,242	3,109	2,997	3,135	3,025	2,930	3,036	2,946	2,867	2,945	2,872	2,806	2,814
	3	3,272	3,038	2,857	2,713	3,204	2,991	2,825	2,690	2,904	2,762	2,646	2,822	2,704	2,604	2,747	2,648	2,563	2,596
	4	3,078	2,802	2,600	2,446	3,016	2,763	2,576	2,431	2,691	2,529	2,401	2,623	2,484	2,372	2,560	2,442	2,344	2,395
	5	2,895	2,590	2,377	2,219	2,839	2,558	2,358	2,209	2,497	2,322	2,188	2,440	2,288	2,168	2,387	2,255	2,148	2,212
	6	2,725	2,400	2,181	2,024	2,674	2,373	2,167	2,017	2,321	2,139	2,002	2,273	2,111	1,988	2,228	2,085	1,974	2,048
	7	2,568	2,229	2,010	1,856	2,521	2,206	1,998	1,850	2,162	1,976	1,840	2,121	1,954	1,829	2,083	1,933	1,819	1,900
	8	2,423	2,076	1,858	1,709	2,380	2,057	1,849	1,705	2,019	1,831	1,697	1,983	1,813	1,689	1,950	1,796	1,681	1,766
	9	2,289	1,939	1,725	1,580	2,250	1,922	1,717	1,577	1,889	1,702	1,571	1,859	1,688	1,565	1,830	1,674	1,559	1,647
	10	2,167	1,816	1,606	1,466	2,131	1,801	1,599	1,463	1,772	1,587	1,459	1,746	1,575	1,454	1,720	1,563	1,450	1,539

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	86.2 fc	7.9 ft
6.5 ft	61.7 fc	9.4 ft
7.5 ft	46.3 fc	10.8 ft
8.0 ft	40.7 fc	11.5 ft
10.0 ft	26.1 fc	14.4 ft
12.0 ft	18.1 fc	17.3 ft
14.0 ft	13.3 fc	20.2 ft
16.0 ft	10.2 fc	23.1 ft
20.0 ft	6.5 fc	28.8 ft
24.0 ft	4.5 fc	34.6 ft
28.0 ft	3.3 fc	40.3 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	90,025	90,025	90,025
45.00°	24,970	26,293	27,633
55.00°	5,701	6,263	6,834
65.00°	488	672	864
75.00°	150	128	161
85.00°	389	414	527

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	9.6	10.7	10.0	11.0	11.3	11.2	12.3	11.6	12.6	12.9
	3H	9.4	10.4	9.8	10.7	11.1	11.0	12.0	11.4	12.3	12.7
	4H	9.3	10.3	9.7	10.6	11.0	10.9	11.8	11.3	12.2	12.6
	6H	9.3	10.1	9.7	10.5	10.9	10.8	11.7	11.3	12.0	12.4
	8H	9.2	10.0	9.6	10.4	10.8	10.8	11.6	11.2	12.0	12.4
	12H	9.2	9.9	9.6	10.3	10.7	10.7	11.5	11.2	11.9	12.3
4H	2H	9.4	10.3	9.8	10.6	11.0	11.0	11.9	11.4	12.3	12.6
	3H	9.2	9.9	9.6	10.3	10.7	10.8	11.6	11.2	12.0	12.4
	4H	9.1	9.7	9.5	10.2	10.6	10.7	11.4	11.2	11.8	12.2
	6H	9.0	9.5	9.5	10.0	10.5	10.6	11.2	11.1	11.6	12.1
	8H	8.9	9.4	9.4	9.9	10.4	10.6	11.1	11.0	11.5	12.0
	12H	8.9	9.3	9.4	9.8	10.3	10.5	11.0	11.0	11.5	11.9
8H	4H	8.9	9.4	9.4	9.9	10.4	10.6	11.1	11.0	11.5	12.0
	6H	8.8	9.2	9.3	9.7	10.2	10.4	10.9	11.0	11.4	11.8
	8H	8.8	9.1	9.3	9.6	10.1	10.4	10.8	10.9	11.3	11.8
	12H	8.7	9.1	9.2	9.5	10.1	10.3	10.7	10.9	11.2	11.8
12H	4H	8.9	9.3	9.3	9.8	10.3	10.5	10.9	11.0	11.4	11.9
	6H	8.7	9.1	9.3	9.6	10.1	10.4	10.8	10.9	11.2	11.8
	8H	8.7	9.0	9.2	9.5	10.1	10.3	10.7	10.9	11.2	11.7

Corrected UGR values based on total output lumens

SHR = 1.0