

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGx5LEDFX-20L35KDX-AR5223FX-SG-SO

Nom 5" diam recessed downlight

Test Number

SP-00748_1_M-20L

Test Date

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

Summary of Results

Power

Input Watts	17 W
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Lumen Output

Output Lumens	1502
Efficacy	88.33 lm/W

Luminous Dimensions

0° - 180° Size	-0.42
90° - 270° Size	-0.42
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.88
Two luminaires, plane 90°	0.88
Four luminaires	0.9

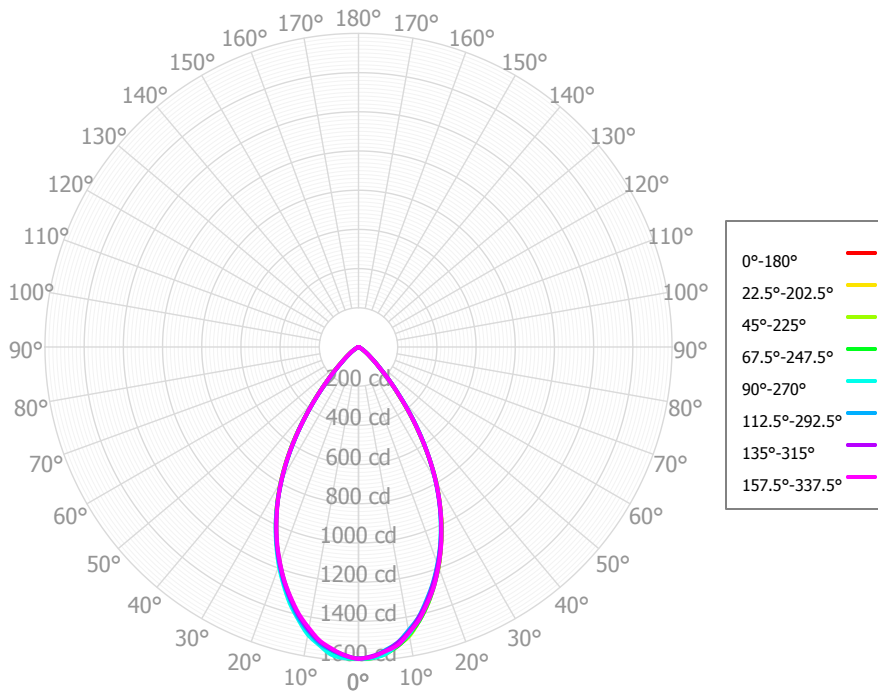
Full Beam Angle

0° - 180°	60°
90° - 270°	60°

IES File Header Contents

Keyword	Value
TEST	SP-00748_1_M-20L
TESTLAB	Spectrum Lighting Photometric Lab
MANUFAC	Spectrum Lighting
ISSUEDATE	1/2/2019
UPDATE	3/4/2019
LUMCAT	SGx5LEDFX-20L35KDX-AR5223FX-SG-SO
LUMINAIRE	Nom 5" diam recessed downlight
OTHER	Trim: AR5223FX, Matte White
OTHER	Regressed Integral Solite lens
OTHER	Data for New Construction: SGE5LEDFX-series w/AR5223FX-SG-SO
OTHER	Data for Retrofit: SGRTE5LEDFX-series w/AR5223FX-SG-SO
OTHER	Beam Angle: 59 deg
LAMPCAT	N/A
LAMP	N/A, Philips LED, 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

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	148.43	9.88%	90.00° - 100.00°	0.05	0.00%
10.00° - 20.00°	374.44	24.94%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	452.94	30.16%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	342.03	22.78%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	137.93	9.19%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	39.05	2.60%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	5.30	0.35%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	0.77	0.05%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	0.71	0.05%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1,501.61	100.00%	0.00° - 180.00°	1,501.61	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°	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44	1,590.44
2.50°	1,584.01	1,586.76	1,587.14	1,589.93	1,588.72	1,579.40	1,574.12	1,576.43	1,581.56	1,585.61	1,582.59	1,587.43	1,589.88	1,583.31	1,578.82	1,582.93	1,584.01
5.00°	1,569.89	1,565.09	1,573.07	1,569.58	1,574.06	1,554.98	1,550.91	1,545.90	1,563.09	1,559.38	1,561.60	1,558.85	1,576.98	1,553.68	1,558.20	1,559.63	1,569.89
7.50°	1,531.54	1,531.73	1,537.29	1,539.59	1,532.31	1,525.71	1,516.20	1,511.67	1,521.74	1,521.51	1,518.51	1,523.10	1,534.62	1,521.86	1,523.00	1,534.94	1,531.54
10.00°	1,490.19	1,485.33	1,497.05	1,490.37	1,487.30	1,473.21	1,466.01	1,456.33	1,473.88	1,467.08	1,468.43	1,466.67	1,490.40	1,468.03	1,476.99	1,481.58	1,490.19
12.50°	1,424.31	1,425.86	1,431.39	1,432.37	1,418.47	1,415.86	1,404.48	1,397.97	1,407.62	1,404.80	1,403.32	1,405.49	1,423.58	1,413.08	1,415.80	1,427.20	1,424.31
15.00°	1,356.92	1,354.43	1,362.23	1,360.24	1,347.34	1,341.13	1,334.59	1,327.38	1,337.89	1,333.11	1,334.07	1,331.52	1,354.77	1,338.05	1,345.56	1,355.11	1,356.92
17.50°	1,276.01	1,275.24	1,279.43	1,281.02	1,265.16	1,263.60	1,259.72	1,253.70	1,260.32	1,257.95	1,257.80	1,255.57	1,272.52	1,262.24	1,266.89	1,281.32	1,276.01
20.00°	1,194.45	1,190.24	1,195.64	1,192.64	1,180.78	1,178.49	1,176.57	1,170.66	1,179.09	1,174.57	1,176.33	1,172.78	1,188.48	1,177.99	1,184.10	1,192.29	1,194.45
22.50°	1,099.36	1,097.41	1,099.50	1,099.50	1,088.73	1,090.02	1,089.44	1,084.44	1,091.36	1,088.83	1,087.80	1,089.38	1,096.36	1,091.93	1,092.38	1,101.48	1,099.36
25.00°	1,003.35	999.87	1,002.83	1,001.31	994.33	994.38	993.62	990.81	998.49	993.88	994.33	993.04	1,001.26	993.68	997.26	1,000.82	1,003.35
27.50°	898.46	895.82	896.27	896.66	893.65	893.46	894.56	892.76	898.20	897.04	895.29	896.01	896.07	893.32	892.78	897.89	898.46
30.00°	791.23	788.61	788.47	786.38	787.65	783.53	785.18	786.44	791.61	788.34	789.18	786.46	787.72	783.54	785.62	786.19	791.23
32.50°	670.39	670.53	666.86	669.41	670.55	669.90	672.83	674.72	677.58	678.06	676.59	676.33	671.24	672.04	668.49	672.00	670.39
35.00°	550.16	548.27	546.00	547.73	553.57	551.24	555.45	554.80	561.54	558.57	560.75	558.48	555.12	554.95	549.22	550.41	550.16
37.50°	432.56	433.33	430.12	432.86	436.81	436.91	437.00	440.56	443.58	438.38	442.51	442.17	439.71	440.43	435.29	433.31	432.56
40.00°	322.67	320.51	319.65	321.88	329.65	327.45	334.23	333.23	339.32	337.69	338.58	337.57	332.51	332.52	322.10	326.49	322.67
42.50°	236.67	237.56	233.73	235.28	235.63	237.19	233.61	244.13	245.84	238.70	243.44	239.62	238.78	237.58	239.10	233.80	236.67
45.00°	162.66	160.99	157.81	159.89	163.68	164.60	172.29	173.28	176.84	177.95	175.62	174.58	164.68	168.61	158.42	166.57	162.66
47.50°	117.05	117.37	114.69	113.74	116.13	114.89	114.01	121.97	123.57	119.56	121.12	117.05	116.47	114.20	117.25	113.32	117.05
50.00°	79.57	78.54	77.65	77.97	81.18	82.20	85.39	86.72	88.36	88.93	86.77	86.05	79.96	82.99	77.68	80.82	79.57
52.50°	57.74	57.83	55.99	56.22	57.69	59.13	57.85	62.33	62.40	60.16	60.07	59.10	55.91	58.37	58.32	55.84	57.74
55.00°	39.60	38.58	37.48	38.26	40.22	41.90	42.49	45.11	45.13	43.67	42.87	43.26	38.32	42.45	39.54	39.85	39.60
57.50°	27.10	26.35	25.31	26.26	27.22	28.19	27.52	31.06	31.39	28.34	28.49	28.80	26.45	28.54	27.45	26.54	27.10
60.00°	16.52	14.47	14.97	15.42	16.81	16.20	17.27	18.72	19.84	18.08	18.15	17.29	16.65	16.80	15.95	15.81	16.52
62.50°	8.34	8.05	7.57	8.23	7.95	8.63	7.90	10.17	8.98	9.10	8.67	8.31	8.33	8.64	8.56	8.24	8.34
65.00°	3.33	2.11	2.81	1.49	3.44	2.74	4.01	3.24	4.46	4.36	4.44	3.63	3.83	3.63	2.34	3.21	3.33
67.50°	1.59	1.43	1.52	0.85	1.06	1.30	1.16	1.40	1.29	1.20	0.98	1.00	1.42	1.31	1.52	1.06	1.59
70.00°	0.86	0.93	0.83	0.57	0.49	0.83	0.92	0.84	0.91	0.99	0.87	0.68	0.82	0.81	0.91	0.69	0.86
72.50°	0.79	1.05	0.62	0.49	0.43	0.88	0.73	0.72	0.73	0.80	0.76	0.66	0.70	0.83	0.82	0.59	0.79
75.00°	0.81	0.97	0.68	0.56	0.57	0.82	0.60	0.72	0.85	0.64	0.68	0.74	0.76	0.98	0.75	0.58	0.81
77.50°	0.79	0.72	0.69	0.82	0.66	0.72	0.83	0.85	0.76	0.61	0.76	0.75	0.65	0.74	0.69	0.69	0.79
80.00°	0.62	0.69	0.44	0.64	0.70	0.91	0.77	0.90	0.70	0.58	0.80	0.45	0.51	0.70	0.62	0.76	0.62
82.50°	0.69	0.64	0.66	0.53	0.83	0.68	0.75	0.67	0.78	0.74	0.82	0.52	0.50	0.75	0.66	0.83	0.69
85.00°	0.70	0.66	0.59	0.56	0.57	0.71	0.59	0.74	0.83	0.93	0.87	0.61	0.60	0.74	0.71	0.83	0.70
87.50°	0.62	0.67	0.65	0.80	0.63	0.74	0.75	0.83	0.83	0.73	0.80	0.56	0.33	0.77	0.76	0.70	0.62
90.00°	0.64	0.63	0.75	0.81	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.87	0.63	0.64

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	1,788	1,788	1,788	1,788	1,746	1,746	1,746	1,746	1,668	1,668	1,668	1,597	1,597	1,597	1,532	1,532	1,502
	1	1,701	1,658	1,619	1,584	1,664	1,625	1,591	1,559	1,564	1,537	1,511	1,508	1,486	1,466	1,457	1,440	1,411
	2	1,612	1,536	1,473	1,420	1,578	1,510	1,453	1,404	1,461	1,414	1,373	1,416	1,377	1,344	1,374	1,343	1,315
	3	1,526	1,425	1,347	1,285	1,495	1,404	1,332	1,275	1,364	1,304	1,254	1,327	1,277	1,234	1,293	1,251	1,215
	4	1,443	1,325	1,238	1,172	1,416	1,308	1,227	1,165	1,275	1,206	1,151	1,244	1,185	1,137	1,216	1,166	1,124
	5	1,366	1,235	1,143	1,076	1,341	1,220	1,135	1,071	1,193	1,118	1,061	1,168	1,102	1,051	1,144	1,087	1,042
	6	1,293	1,153	1,060	992	1,270	1,141	1,053	989	1,118	1,040	982	1,097	1,028	975	1,077	1,016	968
	7	1,225	1,080	986	919	1,205	1,070	980	917	1,050	970	912	1,032	960	907	1,015	951	902
	8	1,162	1,013	920	855	1,144	1,005	916	853	988	907	850	972	899	846	957	892	842
	9	1,104	953	861	799	1,087	946	858	797	931	851	794	918	844	792	905	838	789
	10	1,050	899	808	748	1,035	892	806	747	880	800	745	868	795	743	857	789	740

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	52.6 fc	6.3 ft
6.5 ft	37.6 fc	7.5 ft
7.5 ft	28.3 fc	8.6 ft
8.0 ft	24.9 fc	9.2 ft
10.0 ft	15.9 fc	11.5 ft
12.0 ft	11.0 fc	13.8 ft
14.0 ft	8.1 fc	16.1 ft
16.0 ft	6.2 fc	18.4 ft
20.0 ft	4.0 fc	23.0 ft
24.0 ft	2.8 fc	27.6 ft
28.0 ft	2.0 fc	32.2 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	123,566	123,566	123,566
45.00°	17,873	17,340	17,984
55.00°	5,363	5,077	5,447
65.00°	613	517	632
75.00°	244	203	172
85.00°	620	522	506

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	8.8	9.9	9.2	10.2	10.5	9.2	10.3	9.6	10.6	10.9
	3H	8.6	9.6	9.0	9.9	10.3	9.1	10.0	9.4	10.3	10.7
	4H	8.6	9.4	9.0	9.8	10.1	9.0	9.8	9.4	10.2	10.6
	6H	8.5	9.2	8.9	9.6	10.0	8.9	9.6	9.3	10.0	10.4
	8H	8.4	9.1	8.8	9.5	9.9	8.8	9.5	9.3	9.9	10.4
	12H	8.4	9.1	8.8	9.5	9.9	8.8	9.5	9.2	9.9	10.3
4H	2H	8.6	9.4	9.0	9.8	10.1	9.0	9.8	9.4	10.2	10.6
	3H	8.4	9.1	8.8	9.5	9.9	8.8	9.5	9.2	9.9	10.3
	4H	8.3	8.9	8.7	9.3	9.8	8.7	9.3	9.1	9.7	10.2
	6H	8.2	8.7	8.7	9.2	9.6	8.6	9.1	9.1	9.6	10.1
	8H	8.1	8.6	8.6	9.1	9.5	8.6	9.0	9.0	9.5	10.0
	12H	8.1	8.5	8.6	9.0	9.5	8.5	8.9	9.0	9.4	9.9
8H	4H	8.1	8.6	8.6	9.0	9.5	8.5	9.0	9.0	9.5	9.9
	6H	8.0	8.4	8.5	8.9	9.4	8.4	8.8	8.9	9.3	9.8
	8H	8.0	8.3	8.5	8.8	9.3	8.4	8.7	8.9	9.3	9.8
	12H	8.0	8.3	8.5	8.8	9.3	8.4	8.7	8.9	9.2	9.8
12H	4H	8.0	8.5	8.5	8.9	9.4	8.5	8.9	9.0	9.4	9.9
	6H	7.9	8.3	8.5	8.8	9.3	8.4	8.7	8.9	9.2	9.7
	8H	7.9	8.2	8.4	8.7	9.3	8.3	8.6	8.9	9.1	9.7

Corrected UGR values based on total output lumens

SHR = 1.0