

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGx9LEDFX-20L35KDX-AR9223FX-MW-SO

Nom 9" diam recessed downlight

Test Number

SP-00747_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	1713
Efficacy	100.75 lm/W

Luminous Dimensions

0° - 180° Size	-0.71
90° - 270° Size	-0.71
Height	0

Spacing Criterion

Two luminaires, plane 0°	1.18
Two luminaires, plane 90°	1.18
Four luminaires	1.19

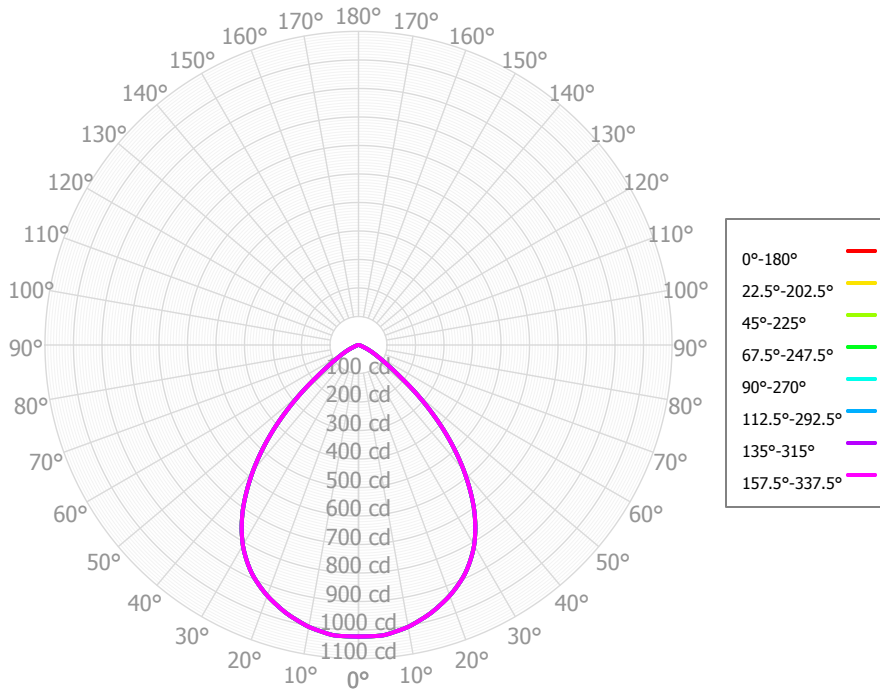
Full Beam Angle

0° - 180°	84°
90° - 270°	84°

IES File Header Contents

Keyword	Value
TEST	SP-00747_M-20L
TESTLAB	Spectrum Lighting Photometric Lab
MANUFAC	Spectrum Lighting
ISSUEDATE	1/10/2019
UPDATE	3/4/2019
LUMCAT	SGx9LEDFX-20L35KDX-AR9223FX-MW-SO
LUMINAIRE	Nom 9" diam recessed downlight
OTHER	Trim: AR9223FX, Matte White
OTHER	Regressed Integral Solite lens
OTHER	Data for New Construction: SGE9LEDFX-series w/AR9223FX-MW-SO
OTHER	Data for Retrofit: SGRTE9LEDFX-series w/AR9223FX-MW-SO
OTHER	Beam Angle: 84 deg
LAMPCAT	N/A
LAMP	N/A, Philips LED; Min 80 CRI; 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

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	98.34	5.74%	90.00° - 100.00°	0.08	0.00%
10.00° - 20.00°	274.47	16.03%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	405.32	23.67%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	437.33	25.53%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	322.90	18.85%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	129.35	7.55%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	36.23	2.12%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	6.93	0.40%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	1.82	0.11%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1,712.69	100.00%	0.00° - 180.00°	1,712.69	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°	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85
2.50°	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85	1,022.85
5.00°	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87	1,021.87
7.50°	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46	1,013.46
10.00°	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11	1,004.11
12.50°	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92	989.92
15.00°	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76	974.76
17.50°	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98	955.98
20.00°	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84	935.84
22.50°	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82	911.82
25.00°	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73	884.73
27.50°	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68	850.68
30.00°	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45	811.45
32.50°	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86	762.86
35.00°	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87	707.87
37.50°	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54	643.54
40.00°	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95	574.95
42.50°	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20	501.20
45.00°	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04	424.04
47.50°	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46	343.46
50.00°	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86	264.86
52.50°	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87
55.00°	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13	134.13
57.50°	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07	96.07
60.00°	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32	70.32
62.50°	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33	51.33
65.00°	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05	35.05
67.50°	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93
70.00°	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76	12.76
72.50°	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73	7.73
75.00°	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10
77.50°	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57
80.00°	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21
82.50°	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17
85.00°	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
87.50°	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
90.00°	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61

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%	10%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	30%
	0	2,039	2,039	2,039	2,039	1,992	1,992	1,992	1,992	1,903	1,903	1,903	1,822	1,822	1,822	1,748	1,748	1,748
	1	1,921	1,864	1,813	1,767	1,878	1,827	1,781	1,739	1,756	1,719	1,685	1,692	1,662	1,634	1,632	1,609	1,587
	2	1,798	1,695	1,611	1,540	1,757	1,665	1,588	1,522	1,608	1,543	1,488	1,555	1,502	1,455	1,506	1,463	1,424
	3	1,678	1,543	1,438	1,354	1,641	1,518	1,421	1,343	1,470	1,388	1,320	1,427	1,357	1,299	1,386	1,328	1,278
	4	1,566	1,407	1,290	1,201	1,532	1,386	1,278	1,194	1,347	1,253	1,179	1,310	1,229	1,164	1,276	1,207	1,150
	5	1,463	1,287	1,164	1,074	1,431	1,269	1,154	1,068	1,236	1,135	1,058	1,206	1,117	1,048	1,177	1,100	1,038
	6	1,368	1,181	1,056	966	1,339	1,166	1,048	962	1,138	1,033	955	1,112	1,019	948	1,087	1,005	941
	7	1,281	1,088	962	875	1,255	1,075	956	872	1,051	944	867	1,028	933	861	1,007	922	856
	8	1,202	1,005	881	796	1,178	994	876	794	973	867	790	954	857	786	936	848	782
	9	1,130	932	811	729	1,108	922	806	727	905	798	724	888	791	721	872	783	718
	10	1,064	867	749	670	1,045	859	745	669	843	739	666	828	732	664	815	726	662

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	33.8 fc	10.0 ft
6.5 ft	24.2 fc	11.8 ft
7.5 ft	18.2 fc	13.6 ft
8.0 ft	16.0 fc	14.5 ft
10.0 ft	10.2 fc	18.1 ft
12.0 ft	7.1 fc	21.7 ft
14.0 ft	5.2 fc	25.3 ft
16.0 ft	4.0 fc	29.0 ft
20.0 ft	2.6 fc	36.2 ft
24.0 ft	1.8 fc	43.5 ft
28.0 ft	1.3 fc	50.7 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	27,808	27,808	27,808
45.00°	16,304	16,304	16,304
55.00°	6,358	6,358	6,358
65.00°	2,255	2,255	2,255
75.00°	640	640	640
85.00°	498	498	498

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	13.4	14.7	13.8	15.0	15.3	13.4	14.7	13.8	15.0	15.3
	3H	13.5	14.6	13.9	14.9	15.3	13.5	14.6	13.9	14.9	15.3
	4H	13.5	14.5	13.9	14.8	15.2	13.5	14.5	13.9	14.8	15.2
	6H	13.4	14.3	13.8	14.7	15.1	13.4	14.3	13.8	14.7	15.1
	8H	13.4	14.3	13.8	14.7	15.1	13.4	14.3	13.8	14.7	15.1
	12H	13.3	14.2	13.8	14.6	15.0	13.3	14.2	13.8	14.6	15.0
4H	2H	13.5	14.5	13.9	14.8	15.2	13.5	14.5	13.9	14.8	15.2
	3H	13.5	14.4	14.0	14.8	15.2	13.5	14.4	14.0	14.8	15.2
	4H	13.5	14.2	13.9	14.7	15.1	13.5	14.2	13.9	14.7	15.1
	6H	13.5	14.1	13.9	14.5	15.0	13.5	14.1	13.9	14.5	15.0
	8H	13.4	14.0	13.9	14.5	14.9	13.4	14.0	13.9	14.5	14.9
	12H	13.4	13.9	13.9	14.4	14.9	13.4	13.9	13.9	14.4	14.9
8H	4H	13.4	14.0	13.9	14.4	14.9	13.4	14.0	13.9	14.4	14.9
	6H	13.3	13.8	13.8	14.3	14.8	13.3	13.8	13.8	14.3	14.8
	8H	13.3	13.7	13.8	14.2	14.7	13.3	13.7	13.8	14.2	14.7
	12H	13.3	13.6	13.8	14.1	14.7	13.3	13.6	13.8	14.1	14.7
12H	4H	13.3	13.9	13.8	14.3	14.8	13.3	13.9	13.8	14.3	14.8
	6H	13.3	13.7	13.8	14.2	14.7	13.3	13.7	13.8	14.2	14.7
	8H	13.2	13.6	13.8	14.1	14.7	13.2	13.6	13.8	14.1	14.7

Corrected UGR values based on total output lumens

SHR = 1.0