

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGx4LEDFX-20L35KDX-AR4223FX-SG-SO

Nom 4" diam recessed downlight

Test Number

SP-00744_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	1260
Efficacy	74.1 lm/W

Luminous Dimensions

0° - 180° Size	-0.33
90° - 270° Size	-0.33
Height	0

Spacing Criterion

Two luminaires, plane 0°	0.72
Two luminaires, plane 90°	0.75
Four luminaires	0.78

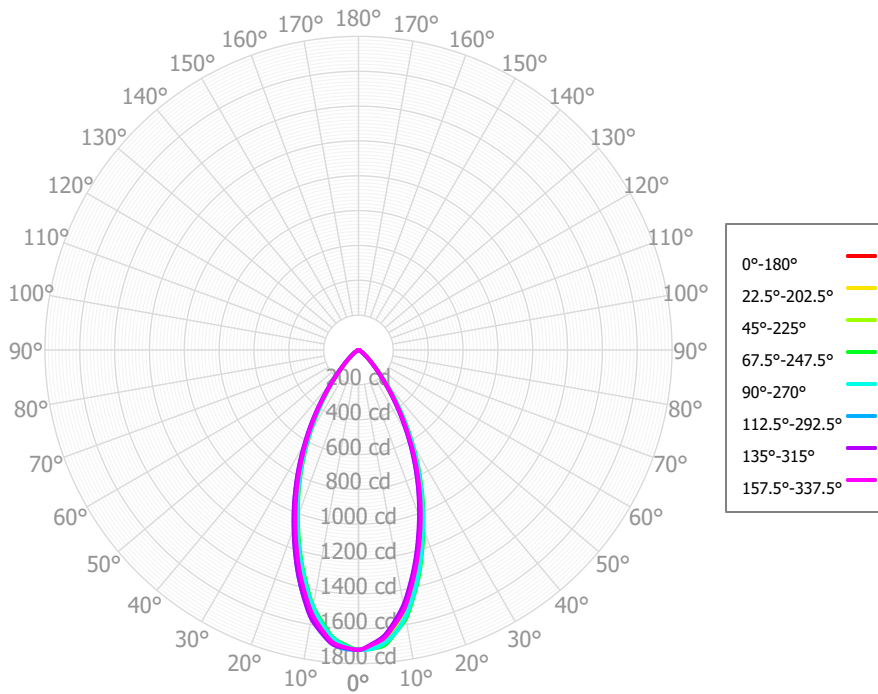
Full Beam Angle

0° - 180°	48°
90° - 270°	48°

IES File Header Contents

Keyword	Value
TEST	SP-00744_1_M-20L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
ISSUEDATE	1/7/2019
UPDATE	3/4/2019
LUMCAT	SGx4LEDFX-20L35KDX-AR4223FX-SG-SO
LUMINAIRE	Nom 4" diam recessed downlight
OTHER	Trim: AR4223FX, Soft Glow
OTHER	Regressed Integral Solite lens
OTHER	Data for New Construction: SGE4LEDFX-series w/AR4223FX-SG-SO
OTHER	Data for Retrofit: SGRTE4LEDFX-series w/AR4223FX-SG-SO
OTHER	Beam Angle: 48 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	Total Luminaire Watts is approximate
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°	156.80	12.45%	90.00° - 100.00°	0.00	0.00%
10.00° - 20.00°	358.50	28.46%	100.00° - 110.00°	0.00	0.00%
20.00° - 30.00°	371.29	29.47%	100.00° - 120.00°	0.00	0.00%
30.00° - 40.00°	240.25	19.07%	120.00° - 130.00°	0.00	0.00%
40.00° - 50.00°	95.34	7.57%	130.00° - 140.00°	0.00	0.00%
50.00° - 60.00°	30.50	2.42%	140.00° - 150.00°	0.00	0.00%
60.00° - 70.00°	5.54	0.44%	150.00° - 160.00°	0.00	0.00%
70.00° - 80.00°	0.82	0.06%	160.00° - 170.00°	0.00	0.00%
80.00° - 90.00°	0.73	0.06%	170.00° - 180.00°	0.00	0.00%
0.00° - 90.00°	1259.77	100.00%	0.00° - 180.00°	1259.77	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°	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40	1721.40
2.50°	1702.33	1708.35	1708.95	1716.44	1718.07	1718.59	1712.84	1709.64	1706.64	1702.66	1700.79	1695.56	1701.76	1695.02	1690.82	1695.53	1702.33
5.00°	1662.36	1682.13	1682.87	1702.02	1691.01	1694.25	1697.21	1685.50	1676.11	1665.85	1669.94	1658.22	1662.00	1653.70	1649.96	1663.62	1662.36
7.50°	1597.96	1617.25	1618.27	1635.42	1635.84	1637.88	1636.09	1617.96	1614.07	1597.23	1595.52	1579.60	1589.49	1580.38	1573.84	1591.37	1597.96
10.00°	1506.99	1537.22	1539.54	1566.46	1555.06	1559.16	1566.27	1537.01	1529.53	1510.65	1514.06	1495.37	1500.76	1492.93	1485.98	1511.81	1506.99
12.50°	1395.76	1426.30	1426.27	1454.28	1446.77	1453.90	1454.74	1425.41	1425.37	1400.49	1401.15	1378.91	1389.63	1381.40	1372.21	1397.87	1395.76
15.00°	1277.94	1306.21	1309.49	1340.66	1329.38	1337.36	1338.17	1308.68	1310.00	1284.41	1285.13	1261.25	1269.85	1261.55	1255.73	1280.08	1277.94
17.50°	1156.03	1185.75	1185.97	1214.25	1204.07	1209.82	1213.95	1182.40	1191.49	1162.06	1164.52	1138.81	1149.71	1141.88	1134.42	1161.71	1156.03
20.00°	1036.63	1065.20	1064.29	1088.91	1080.99	1085.80	1089.28	1059.05	1071.56	1040.90	1043.75	1017.71	1029.46	1022.27	1015.82	1043.32	1036.63
22.50°	918.48	947.65	945.50	969.45	959.51	964.55	969.03	940.02	949.50	920.79	924.99	900.59	911.88	905.84	901.11	927.05	918.48
25.00°	802.76	830.54	827.41	850.56	840.42	845.16	848.97	821.87	826.67	802.91	806.54	784.19	794.89	790.01	786.60	810.94	802.76
27.50°	687.98	716.41	710.19	733.98	722.72	726.96	732.15	704.75	711.61	686.61	692.91	669.47	682.22	677.49	672.33	697.72	687.98
30.00°	578.52	602.54	597.81	619.49	610.08	613.70	616.31	593.14	598.64	577.39	580.40	558.90	570.18	565.36	562.64	585.41	578.52
32.50°	470.69	496.04	490.37	511.19	499.79	503.01	509.87	487.00	493.29	472.27	477.04	455.96	467.96	463.96	457.37	481.29	470.69
35.00°	373.72	390.17	390.41	407.62	400.22	403.12	405.71	387.49	389.42	375.26	376.60	361.00	366.62	363.16	362.84	379.99	373.72
37.50°	279.18	302.13	296.83	314.84	304.59	307.64	315.39	293.31	301.91	282.03	291.21	277.95	287.89	284.36	276.73	294.87	279.18
40.00°	213.26	216.79	222.04	233.06	230.04	233.16	231.18	218.79	216.52	212.73	212.85	208.12	210.52	207.09	208.96	216.28	213.26
42.50°	151.64	165.42	160.19	171.68	161.28	165.48	172.34	157.19	164.45	152.07	160.63	154.41	161.73	158.42	152.90	163.66	151.64
45.00°	115.03	116.85	117.45	122.06	120.22	122.52	120.42	115.05	114.57	113.53	114.45	112.65	114.42	111.91	113.16	117.04	115.03
47.50°	80.74	88.96	85.24	89.85	84.70	85.42	89.63	83.27	87.43	81.10	85.39	82.70	87.16	85.43	81.85	88.40	80.74
50.00°	60.94	63.06	62.73	64.45	63.20	63.96	63.09	61.81	61.09	60.44	60.73	60.19	61.36	60.60	60.14	63.12	60.94
52.50°	41.81	46.81	44.58	47.20	43.56	45.02	46.83	44.68	46.15	42.15	45.74	43.80	46.14	45.66	42.32	45.70	41.81
55.00°	31.79	32.13	32.21	33.40	32.54	33.56	33.08	32.80	31.82	31.29	32.65	31.07	32.01	31.78	31.23	31.58	31.79
57.50°	21.98	23.04	21.83	23.03	22.11	22.88	24.09	22.64	23.80	21.38	22.89	20.77	23.12	22.21	22.25	23.54	21.98
60.00°	15.24	14.74	14.11	14.91	14.73	15.63	16.27	15.82	16.00	14.75	14.77	13.55	14.93	13.68	15.03	15.93	15.24
62.50°	8.81	8.57	7.08	8.62	7.53	8.57	10.23	9.82	9.68	8.34	9.00	7.96	9.23	8.25	8.22	8.98	8.81
65.00°	4.73	3.81	3.87	4.56	4.29	4.81	5.41	5.47	4.25	4.49	4.78	4.22	4.47	3.85	4.30	4.12	4.73
67.50°	1.46	1.88	1.37	1.90	1.47	1.45	2.06	1.39	2.39	1.03	2.32	1.25	2.09	1.78	0.85	1.72	1.46
70.00°	0.96	0.88	0.99	0.97	1.17	1.07	0.68	1.01	1.11	1.04	1.12	0.79	0.78	0.67	0.88	0.79	0.96
72.50°	0.72	0.87	0.77	0.65	0.92	0.73	0.62	0.82	0.84	0.95	0.72	0.82	0.84	0.70	0.92	0.83	0.72
75.00°	0.77	0.81	0.75	0.71	0.76	0.47	0.66	0.88	0.72	0.68	0.85	0.86	0.87	0.60	0.77	0.83	0.77
77.50°	0.68	0.78	0.61	0.74	0.67	0.65	0.71	0.89	0.67	0.72	0.84	0.88	0.85	0.51	0.73	0.78	0.68
80.00°	0.65	0.82	0.54	0.76	0.73	0.77	0.76	0.79	0.64	0.80	0.62	0.82	0.73	0.55	0.76	0.69	0.65
82.50°	0.66	0.79	0.70	0.92	0.83	0.72	0.83	0.63	0.71	0.81	0.63	0.64	0.64	0.69	0.76	0.73	0.66
85.00°	0.58	0.51	0.77	0.68	0.64	0.70	0.71	0.78	0.91	0.72	0.77	0.61	0.55	0.81	0.58	0.77	0.58
87.50°	0.68	0.64	0.77	0.70	0.61	0.54	0.64	0.63	0.59	0.68	0.72	0.68	0.67	0.78	0.62	0.74	0.68
90.00°	0.63	0.35	0.71	0.28	0.80	0.78	0.27	0.57	0.26	0.63	0.24	0.71	0.53	0.23	0.61	0.23	0.63

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	1500	1500	1500	1500	1465	1465	1465	1465	1400	1400	1400	1340	1340	1340	1285	1285	1260
	1	1430	1395	1363	1335	1399	1368	1339	1314	1317	1294	1274	1270	1252	1236	1227	1213	1200
	2	1359	1297	1246	1204	1331	1276	1229	1190	1235	1197	1164	1197	1166	1139	1163	1138	1115
	3	1290	1209	1146	1096	1265	1192	1134	1088	1159	1110	1070	1128	1087	1053	1100	1066	1045
	4	1225	1130	1060	1007	1202	1115	1051	1001	1088	1033	989	1063	1016	977	1040	999	981
	5	1163	1058	985	930	1143	1046	978	926	1024	964	918	1003	951	910	983	938	921
	6	1106	994	918	864	1087	984	913	861	965	902	855	947	892	850	930	882	866
	7	1052	935	860	807	1035	927	855	804	911	847	800	896	839	796	882	831	817
	8	1002	882	807	756	986	875	804	754	861	797	751	849	790	748	836	784	771
	9	955	834	760	710	941	828	757	709	816	752	707	805	746	704	795	741	730
	10	912	791	718	670	899	785	716	669	775	711	667	765	707	665	756	702	692

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	56.9 fc	4.9 ft
6.5 ft	40.7 fc	5.8 ft
7.5 ft	30.6 fc	6.7 ft
8.0 ft	26.9 fc	7.2 ft
10.0 ft	17.2 fc	9.0 ft
12.0 ft	12.0 fc	10.8 ft
14.0 ft	8.8 fc	12.6 ft
16.0 ft	6.7 fc	14.4 ft
20.0 ft	4.3 fc	17.9 ft
24.0 ft	3.0 fc	21.5 ft
28.0 ft	2.2 fc	25.1 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	216637	216637	216637
45.00°	20472	20904	21397
55.00°	6975	7067	7139
65.00°	1409	1152	1278
75.00°	374	365	370
85.00°	842	1110	923

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	10.2	11.2	10.6	11.5	11.8	9.9	10.9	10.2	11.2	11.5
	3H	10.0	10.9	10.4	11.3	11.6	9.7	10.6	10.1	10.9	11.3
	4H	9.9	10.8	10.3	11.1	11.5	9.6	10.4	10.0	10.8	11.2
	6H	9.8	10.6	10.3	11.0	11.4	9.5	10.3	9.9	10.6	11.0
	8H	9.8	10.5	10.2	10.9	11.3	9.5	10.2	9.9	10.6	11.0
	12H	9.8	10.4	10.2	10.8	11.2	9.4	10.1	9.9	10.5	10.9
4H	2H	10.0	10.8	10.4	11.1	11.5	9.7	10.5	10.1	10.9	11.2
	3H	9.8	10.5	10.2	10.9	11.3	9.5	10.2	9.9	10.6	11.0
	4H	9.7	10.3	10.1	10.7	11.2	9.4	10.0	9.8	10.4	10.9
	6H	9.6	10.1	10.1	10.6	11.0	9.3	9.8	9.8	10.3	10.8
	8H	9.6	10.0	10.0	10.5	11.0	9.3	9.8	9.8	10.2	10.7
	12H	9.5	9.9	10.0	10.4	10.9	9.3	9.7	9.8	10.2	10.6
8H	4H	9.5	10.0	10.0	10.4	10.9	9.2	9.7	9.7	10.2	10.6
	6H	9.4	9.8	9.9	10.3	10.8	9.2	9.5	9.7	10.0	10.5
	8H	9.4	9.7	9.9	10.3	10.8	9.1	9.5	9.7	10.0	10.5
	12H	9.4	9.7	9.9	10.2	10.8	9.1	9.4	9.7	9.9	10.5
12H	4H	9.5	9.9	9.9	10.4	10.8	9.2	9.6	9.7	10.1	10.5
	6H	9.4	9.7	9.9	10.2	10.7	9.1	9.4	9.6	9.9	10.5
	8H	9.4	9.7	9.9	10.2	10.7	9.1	9.4	9.6	9.9	10.5

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0