

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : SP4ES-20L35KDX-AR4ES-SGXF.IES****DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002

[TESTLAB] Photopia 2017.2.1 see: [www.ltioptics.com/ies](http://www.ltioptics.com/ies)

[ISSUEDATE]

[TESTDATE] Thu 9/21/2017

[UPDATE] Mon 9/26/2017

[TEST] SP-00598\_1

[MANUFAC] Spectrum Lighting

[LUMCAT] SP4ES-20L-35K-DX / AR4ES-SG-xF

[LUMINAIRE] Nom. 4.5" Aperture, LED Downlight

[OTHER] Semi-Diffuse clear anodized, open aperture

[OTHER] Any flange finish

[OTHER] 64.4 Deg. Beam Angle

[LAMP] N/A

[LAMPCAT] N/A, 3500K CCT

[OTHER] Fully regressed lensed, light emitting surface

[OTHER] Total Luminaire Watts is approximate

[OTHER] CCT Output Multipliers: 4000K X 1.03, 3000K X 0.985

[OTHER] This report prepared by Spectrum Lighting, Preliminary

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1661
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	85
Total Luminaire Watts	19.5
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.06
Spacing Criterion (90-270)	1.06
Spacing Criterion (Diagonal)	0.94
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.38 ft (Diameter)
Luminous Width (90-270)	0.38 ft (Diameter)
Luminous Height	0.00 ft

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**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	7177	7051	7101
55	1580	1728	1672
65	788	767	825
75	459	425	433
85	179	246	223

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CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>	<u>202.5</u>
0	1660.66	1660.66	1660.66	1660.66	1660.66	1660.66	1660.66	1660.66	1660.66	1660.66
5	1636.57	1631.24	1641.77	1640.87	1614.67	1640.87	1641.77	1631.24	1636.57	1631.24
10	1609.55	1624.67	1598.88	1611.09	1621.37	1611.09	1598.88	1624.67	1609.55	1624.67
15	1584.79	1577.40	1582.08	1568.79	1573.32	1568.79	1582.08	1577.40	1584.79	1577.40
20	1517.16	1522.36	1521.29	1523.32	1508.98	1523.32	1521.29	1522.36	1517.16	1522.36
25	1374.70	1371.51	1375.18	1377.51	1375.17	1377.51	1375.18	1371.51	1374.70	1371.51
30	1031.81	1043.38	1040.80	1037.42	1040.52	1037.42	1040.80	1043.38	1031.81	1043.38
35	584.58	583.40	581.01	579.72	583.04	579.72	581.01	583.40	584.58	583.40
40	221.84	219.31	218.62	219.23	218.11	219.23	218.62	219.31	221.84	219.31
45	52.12	51.63	51.21	51.72	51.57	51.72	51.21	51.63	52.12	51.63
50	19.30	18.76	19.98	19.69	19.22	19.69	19.98	18.76	19.30	18.76
55	9.31	9.73	10.18	10.03	9.85	10.03	10.18	9.73	9.31	9.73
60	5.60	5.55	5.69	5.55	5.60	5.55	5.69	5.55	5.60	5.55
65	3.42	3.20	3.33	3.36	3.58	3.36	3.33	3.20	3.42	3.20
70	1.92	2.28	1.98	1.97	1.92	1.97	1.98	2.28	1.92	2.28
75	1.22	1.25	1.13	1.19	1.15	1.19	1.13	1.25	1.22	1.25
80	0.62	0.65	0.60	0.66	0.57	0.66	0.60	0.65	0.62	0.65
85	0.16	0.17	0.22	0.16	0.20	0.16	0.22	0.17	0.16	0.17
90	0.00	0.02	0.00	0.01	0.02	0.01	0.00	0.02	0.00	0.02

Vert. Horizontal Angles

	<u>225.0</u>	<u>247.5</u>	<u>270.0</u>	<u>292.5</u>	<u>315.0</u>	<u>337.5</u>	<u>360.0</u>
0	1660.66	1660.66	1660.66	1660.66	1660.66	1660.66	1660.66
5	1641.77	1640.87	1614.67	1640.87	1641.77	1631.24	1636.57
10	1598.88	1611.09	1621.37	1611.09	1598.88	1624.67	1609.55
15	1582.08	1568.79	1573.32	1568.79	1582.08	1577.40	1584.79
20	1521.29	1523.32	1508.98	1523.32	1521.29	1522.36	1517.16
25	1375.18	1377.51	1375.17	1377.51	1375.18	1371.51	1374.70
30	1040.80	1037.42	1040.52	1037.42	1040.80	1043.38	1031.81
35	581.01	579.72	583.04	579.72	581.01	583.40	584.58
40	218.62	219.23	218.11	219.23	218.62	219.31	221.84
45	51.21	51.72	51.57	51.72	51.21	51.63	52.12
50	19.98	19.69	19.22	19.69	19.98	18.76	19.30
55	10.18	10.03	9.85	10.03	10.18	9.73	9.31
60	5.69	5.55	5.60	5.55	5.69	5.55	5.60
65	3.33	3.36	3.58	3.36	3.33	3.20	3.42
70	1.98	1.97	1.92	1.97	1.98	2.28	1.92
75	1.13	1.19	1.15	1.19	1.13	1.25	1.22
80	0.60	0.66	0.57	0.66	0.60	0.65	0.62
85	0.22	0.16	0.20	0.16	0.22	0.17	0.16
90	0.00	0.01	0.02	0.01	0.00	0.02	0.00

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	599.98	N.A.	36.10
0-30	1209.11	N.A.	72.80
0-40	1581.57	N.A.	95.20
0-60	1656.02	N.A.	99.70
0-80	1660.89	N.A.	100.00
0-90	1661.16	N.A.	100.00
10-90	1505.59	N.A.	90.60
20-40	981.58	N.A.	59.10
20-50	1046.09	N.A.	63.00
40-70	77.99	N.A.	4.70
60-80	4.87	N.A.	0.30
70-80	1.33	N.A.	0.10
80-90	0.27	N.A.	0.00
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	1661.16	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	155.57
10-20	444.41
20-30	609.13
30-40	372.45
40-50	64.51
50-60	9.95
60-70	3.54
70-80	1.33
80-90	0.27
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

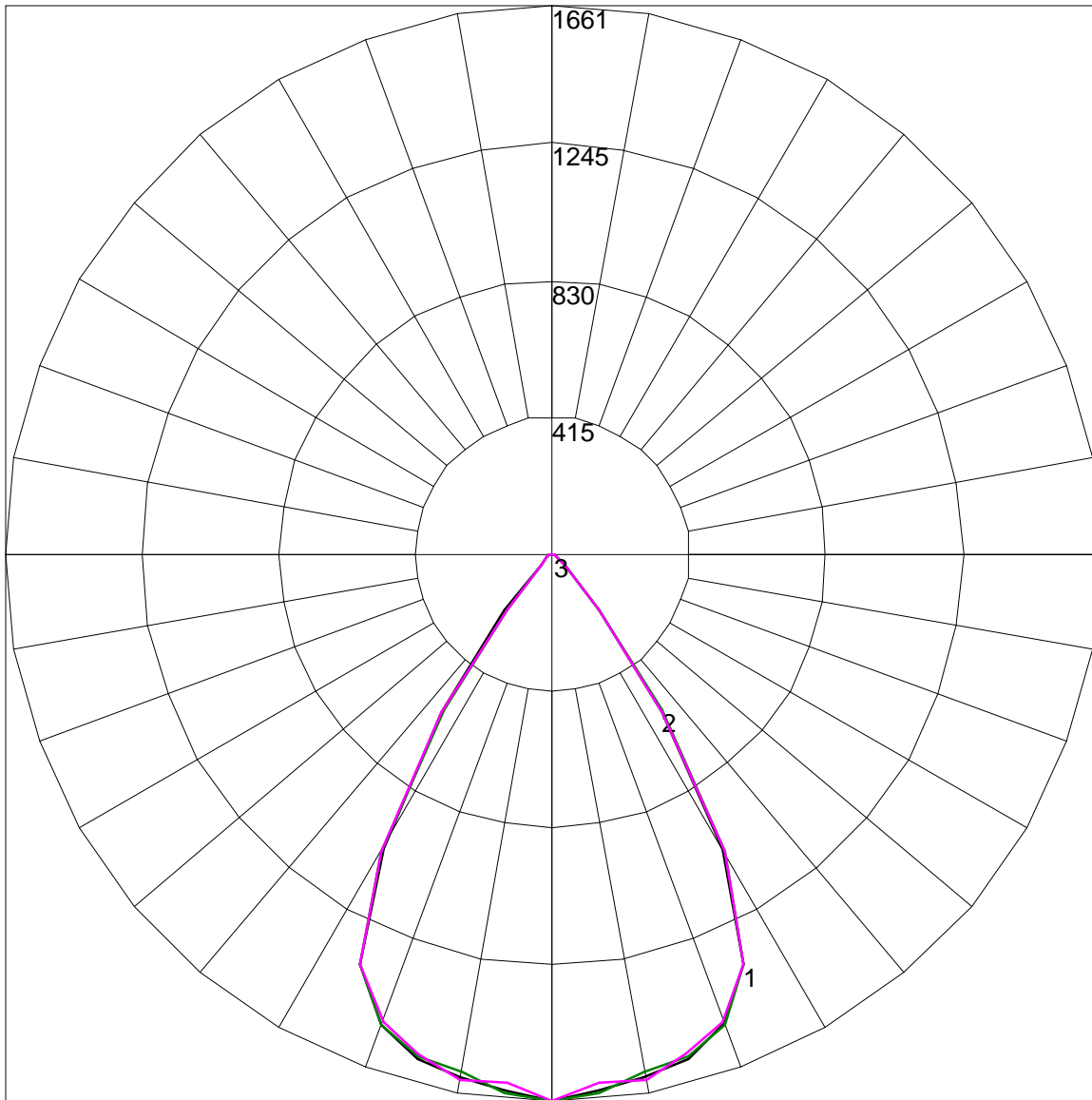
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	111	108	106	111	109	106	104	105	103	101	101	100	98	97	96	95	94
2	108	103	99	96	106	101	98	95	98	95	93	95	93	91	93	91	89	87
3	103	96	91	87	101	95	90	87	92	88	85	90	87	84	88	85	83	81
4	97	90	84	80	96	89	84	80	87	82	79	85	81	78	83	80	77	76
5	93	84	78	74	91	83	78	74	81	77	73	80	76	73	78	75	72	70
6	88	79	73	69	86	78	73	69	77	72	68	75	71	68	74	70	67	66
7	83	74	68	64	82	74	68	64	72	67	64	71	67	63	70	66	63	61
8	79	70	64	60	78	69	64	60	68	63	59	67	63	59	66	62	59	58
9	76	66	60	56	74	65	60	56	64	59	56	64	59	55	63	58	55	54
10	72	62	56	53	71	62	56	52	61	56	52	60	55	52	59	55	52	51

POLAR GRAPH



Maximum Candela = 1660.66 Located At Horizontal Angle = 0, Vertical Angle = 0

# 1 - Vertical Plane Through Horizontal Angles (0 - 180)

# 2 - Vertical Plane Through Horizontal Angles (45 - 225)

# 3 - Vertical Plane Through Horizontal Angles (90 - 270)