

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

IESNA:LM-63-2002
[TESTLAB] Photopia 2017.3.0 see: www.ltioptics.com/ies
[ISSUE DATE]
[TEST DATE] Tue 3/20/2018
[UPDATE] Mon 3/26/2018
[TEST] SP-00598_2
[MANUFAC] Spectrum Lighting
[LUMCAT] SP4ES-20L-35K-DX / AR4ES-MW-xF
[LUMINAIRE] Nom. 4.5" Aperture, LED Downlight
[OTHER] Matte White trim, open aperture
[OTHER] Any flange finish
[OTHER] 61 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	1526
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	78
Total Luminaire Watts	19.5
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.92
Spacing Criterion (90-270)	0.94
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	29605	29880	30024
55	23521	23684	23603
65	20184	19774	19708
75	17173	17083	17241
85	13227	13216	12389

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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	1232.18	1232.18	1232.18	1232.18	1232.18	1232.18	1232.18	1232.18	1232.18	1232.18
5	1202.29	1208.81	1203.20	1204.00	1193.63	1204.00	1203.20	1208.81	1202.29	1208.81
10	1144.68	1159.48	1152.21	1159.73	1149.38	1159.73	1152.21	1159.48	1144.68	1159.48
15	1080.99	1082.39	1093.96	1095.83	1088.98	1095.83	1093.96	1082.39	1080.99	1082.39
20	977.27	980.43	974.84	974.80	978.47	974.80	974.84	980.43	977.27	980.43
25	802.84	816.25	810.14	815.52	816.53	815.52	810.14	816.25	802.84	816.25
30	627.53	631.28	632.87	629.19	635.82	629.19	632.87	631.28	627.53	631.28
35	450.75	454.61	455.64	454.28	453.91	454.28	455.64	454.61	450.75	454.61
40	305.17	304.80	306.16	307.04	303.58	307.04	306.16	304.80	305.17	304.80
45	215.00	219.19	217.00	217.98	218.04	217.98	217.00	219.19	215.00	219.19
50	173.30	175.49	174.29	176.47	175.57	176.47	174.29	175.49	173.30	175.49
55	138.56	141.56	139.52	140.19	139.04	140.19	139.52	141.56	138.56	141.56
60	112.07	111.27	112.90	110.70	112.38	110.70	112.90	111.27	112.07	111.27
65	87.61	86.80	85.83	87.72	85.54	87.72	85.83	86.80	87.61	86.80
70	65.12	64.41	65.22	63.88	64.93	63.88	65.22	64.41	65.12	64.41
75	45.65	45.01	45.41	45.05	45.83	45.05	45.41	45.01	45.65	45.01
80	26.98	27.13	26.94	27.89	27.04	27.89	26.94	27.13	26.98	27.13
85	11.84	11.64	11.83	11.35	11.09	11.35	11.83	11.64	11.84	11.64
90	1.26	1.43	1.45	1.31	1.26	1.31	1.45	1.43	1.26	1.43

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	1232.18	1232.18	1232.18	1232.18	1232.18	1232.18	1232.18
5	1203.20	1204.00	1193.63	1204.00	1203.20	1208.81	1202.29
10	1152.21	1159.73	1149.38	1159.73	1152.21	1159.48	1144.68
15	1093.96	1095.83	1088.98	1095.83	1093.96	1082.39	1080.99
20	974.84	974.80	978.47	974.80	974.84	980.43	977.27
25	810.14	815.52	816.53	815.52	810.14	816.25	802.84
30	632.87	629.19	635.82	629.19	632.87	631.28	627.53
35	455.64	454.28	453.91	454.28	455.64	454.61	450.75
40	306.16	307.04	303.58	307.04	306.16	304.80	305.17
45	217.00	217.98	218.04	217.98	217.00	219.19	215.00
50	174.29	176.47	175.57	176.47	174.29	175.49	173.30
55	139.52	140.19	139.04	140.19	139.52	141.56	138.56
60	112.90	110.70	112.38	110.70	112.90	111.27	112.07
65	85.83	87.72	85.54	87.72	85.83	86.80	87.61
70	65.22	63.88	64.93	63.88	65.22	64.41	65.12
75	45.41	45.05	45.83	45.05	45.41	45.01	45.65
80	26.94	27.89	27.04	27.89	26.94	27.13	26.98
85	11.83	11.35	11.09	11.35	11.83	11.64	11.84
90	1.45	1.31	1.26	1.31	1.45	1.43	1.26

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	416.87	N.A.	27.30
0-30	787.36	N.A.	51.60
0-40	1073.97	N.A.	70.40
0-60	1376.97	N.A.	90.20
0-80	1511.7	N.A.	99.10
0-90	1525.79	N.A.	100.00
10-90	1412.31	N.A.	92.60
20-40	657.10	N.A.	43.10
20-50	833.36	N.A.	54.60
40-70	389.58	N.A.	25.50
60-80	134.73	N.A.	8.80
70-80	48.15	N.A.	3.20
80-90	14.09	N.A.	0.90
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	1525.79	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	113.47
10-20	303.40
20-30	370.48
30-40	286.61
40-50	176.27
50-60	126.73
60-70	86.58
70-80	48.15
80-90	14.09
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

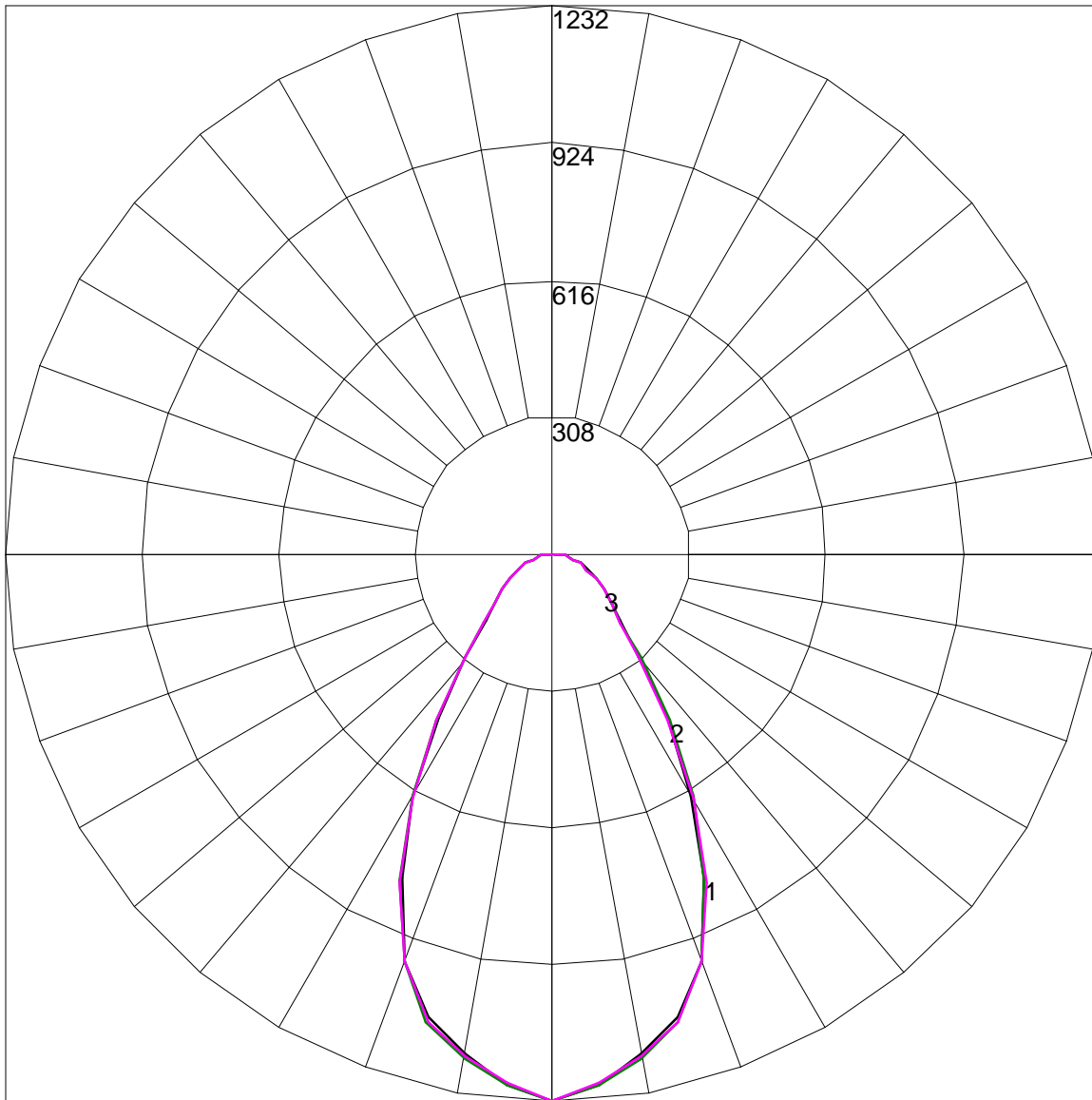
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	111	108	104	101	109	105	102	100	101	99	97	97	96	94	94	92	91	89
2	104	97	92	88	101	96	91	87	92	88	85	89	86	83	86	83	81	79
3	97	89	82	77	95	87	81	76	84	79	75	82	77	74	79	76	73	71
4	91	81	74	69	89	80	73	68	77	72	67	75	70	66	73	69	66	64
5	85	74	67	62	83	73	67	61	71	65	61	70	64	60	68	63	60	58
6	80	69	61	56	78	68	61	56	66	60	56	65	59	55	63	58	55	53
7	75	64	57	51	73	63	56	51	62	55	51	60	55	51	59	54	50	49
8	71	59	52	47	69	59	52	47	58	51	47	56	51	47	55	50	47	45
9	67	56	49	44	66	55	48	44	54	48	44	53	47	43	52	47	43	42
10	63	52	45	41	62	52	45	41	51	45	41	50	44	41	49	44	40	39

POLAR GRAPH



Maximum Candela = 1232.18 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)