

Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
+1.508.678.2303

Spectrum Lighting Photometric Lab

Luminaire

PAC0820GV 15L 35K XX FG8

Nom. 8" diam x 20" H tubular luminaire with wrap around slotted cover

Test Number

SP-00969_M-15L

Test Date

12/19/2019

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

Summary of Results

Power

Input Watts	10 W
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Lumen Output

Output Lumens	703
Efficacy	70.29 lm/W

Luminous Dimensions

0° - 180° Size	-0.66
90° - 270° Size	-0.66
Height	1.5

Spacing Criterion

Two luminaires, plane 0°	0.66
Two luminaires, plane 90°	0.67
Four luminaires	0.82

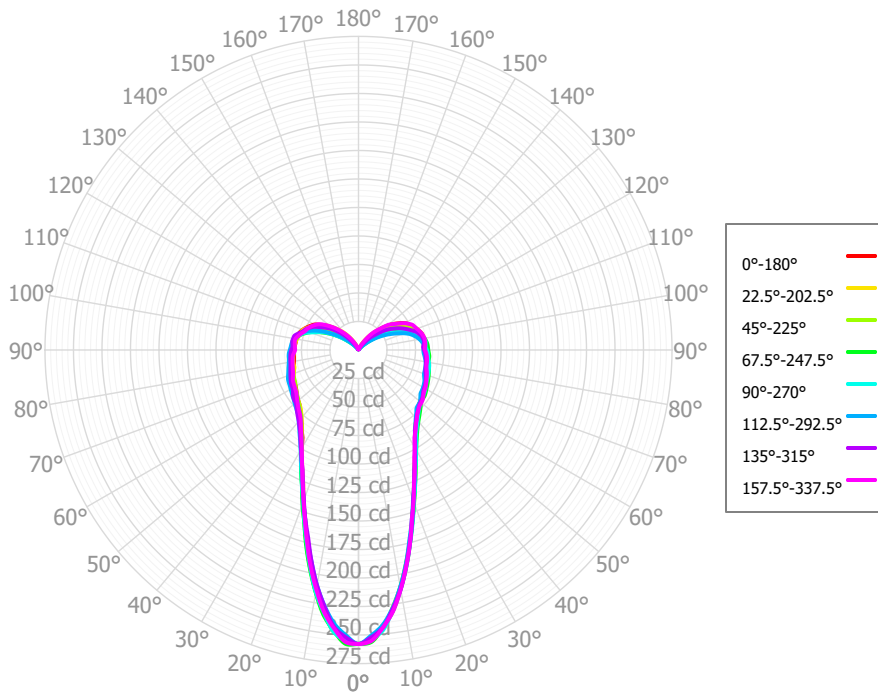
Full Beam Angle

0° - 180°	44°
90° - 270°	45°

IES File Header Contents

Keyword	Value
TEST	SP-00969_M-15L
TESTLAB	Spectrum Lighting Photometric Lab VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	12/19/2019
ISSUEDATE	1/7/2020
LUMCAT	PAC0820GV 15L 35K XX FG8
LUMINAIRE	Nom. 8" diam x 20" H tubular luminaire with wrap around slotted cover
OTHER	Beam Angle (downlight): 44 degrees
OTHER	Uplight: 29.8%
OTHER	Downlight: 70.2%
LAMP	N/A
LAMPCAT	N/A
OTHER	CCT Multipliers: 27K x 0.97, 30K x 0.99, 40K x 1.03
OTHER	Total luminaire watts is approximate
OTHER	This report generated by Spectrum Lighting, scaled from 27L

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	22.59	3.21%	90.00° - 100.00°	63.12	8.98%
10.00° - 20.00°	48.45	6.89%	100.00° - 110.00°	57.08	8.12%
20.00° - 30.00°	54.19	7.71%	100.00° - 120.00°	100.45	14.29%
30.00° - 40.00°	55.29	7.86%	120.00° - 130.00°	27.22	3.87%
40.00° - 50.00°	57.55	8.19%	130.00° - 140.00°	13.15	1.87%
50.00° - 60.00°	61.27	8.72%	140.00° - 150.00°	4.47	0.64%
60.00° - 70.00°	64.16	9.13%	150.00° - 160.00°	0.93	0.13%
70.00° - 80.00°	65.03	9.25%	160.00° - 170.00°	0.24	0.03%
80.00° - 90.00°	64.76	9.21%	170.00° - 180.00°	0.08	0.01%
0.00° - 90.00°	493.29	70.17%	0.00° - 180.00°	702.95	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°	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86	257.86
2.50°	254.50	254.44	252.34	256.41	254.18	250.65	252.39	256.48	255.43	255.82	254.18	258.04	255.23	250.95	252.46	255.51	254.50
5.00°	243.51	243.51	244.91	244.59	246.68	241.44	244.29	245.27	245.21	244.86	248.15	247.34	248.44	242.36	244.66	244.61	243.51
7.50°	229.75	229.94	228.24	231.04	229.90	226.85	227.39	231.79	231.59	231.43	232.35	234.53	232.36	228.54	229.25	231.48	229.75
10.00°	211.62	211.75	211.20	212.77	212.98	209.60	209.79	213.24	213.38	213.14	215.72	215.95	215.68	210.90	212.94	213.26	211.62
12.50°	193.08	192.48	192.36	194.17	193.85	190.35	190.16	194.19	193.73	194.34	195.41	196.59	195.23	192.08	193.48	194.07	193.08
15.00°	174.01	174.26	173.66	174.87	174.97	172.50	170.60	174.23	174.65	174.72	175.73	177.37	175.32	172.56	174.48	174.82	174.01
17.50°	156.51	156.21	157.26	157.25	158.01	155.50	155.26	156.18	155.72	156.96	158.11	158.16	157.82	155.62	156.71	155.56	156.51
20.00°	140.68	141.87	141.35	142.53	141.78	140.91	140.15	140.91	140.97	141.62	141.89	143.65	141.60	139.92	140.53	141.17	140.68
22.50°	127.33	127.91	129.27	129.36	129.50	127.48	127.78	127.66	126.88	128.20	129.26	129.37	129.52	127.52	127.71	127.06	127.33
25.00°	116.13	117.96	117.68	118.37	117.94	117.24	116.00	116.79	117.08	116.78	117.69	119.11	118.36	116.37	116.19	116.53	116.13
27.50°	107.03	108.19	108.52	108.89	109.06	108.21	108.19	107.40	107.70	107.29	108.28	109.01	109.44	107.52	106.85	106.16	107.03
30.00°	99.40	100.24	100.06	101.12	100.75	101.30	100.68	99.46	99.53	99.47	99.91	100.74	101.17	99.36	98.63	98.71	99.40
32.50°	93.00	92.44	94.17	94.64	94.06	95.02	94.65	92.97	91.46	92.82	93.23	92.90	94.15	92.64	91.94	91.54	93.00
35.00°	87.30	87.09	88.59	89.39	88.20	90.04	89.07	87.63	86.69	87.00	87.28	87.89	88.17	86.22	86.48	87.05	87.30
37.50°	82.90	82.03	83.87	85.14	84.25	85.32	85.05	83.05	81.98	82.05	82.30	83.07	83.83	82.03	82.41	82.73	82.90
40.00°	79.09	79.29	79.85	81.68	80.59	81.64	81.42	78.95	78.32	77.59	78.34	79.20	80.02	78.15	79.03	79.47	79.09
42.50°	76.06	76.60	77.34	78.78	77.45	78.11	78.80	76.13	74.81	74.46	75.49	75.77	76.86	75.09	76.30	76.42	76.06
45.00°	73.31	74.12	75.00	76.23	74.72	76.21	76.22	74.00	72.46	71.93	72.99	73.84	74.23	72.09	74.08	74.33	73.31
47.50°	71.73	71.90	72.98	73.80	72.59	74.47	73.72	71.95	70.29	70.36	70.82	71.87	72.14	71.22	72.23	72.59	71.73
50.00°	70.48	70.67	71.07	71.44	71.00	73.02	71.90	69.95	69.04	69.13	69.01	69.80	70.58	70.38	71.09	71.98	70.48
52.50°	69.51	69.48	69.35	70.69	70.06	71.59	71.25	68.16	67.72	68.14	67.46	68.09	69.49	68.42	70.35	71.09	69.51
55.00°	68.59	68.44	68.21	70.59	69.27	70.53	70.05	66.44	66.15	67.21	66.17	67.11	68.50	66.55	69.03	69.50	68.59
57.50°	67.49	67.49	67.74	69.75	68.65	69.49	68.11	65.47	64.73	65.97	65.02	66.43	67.56	66.01	67.41	68.22	67.49
60.00°	66.37	66.75	67.01	68.69	67.72	68.65	66.84	64.69	63.76	64.67	63.79	66.26	66.85	65.44	66.55	67.55	66.37
62.50°	65.48	66.06	66.03	67.85	66.55	67.87	66.31	64.08	62.94	63.82	62.53	65.59	66.25	64.70	65.98	66.73	65.48
65.00°	64.62	65.48	65.01	67.06	65.78	67.45	65.52	63.50	62.42	63.04	61.94	64.27	64.92	63.83	65.02	65.67	64.62
67.50°	64.31	64.64	63.97	66.27	65.28	66.89	64.50	62.29	61.88	61.74	61.59	63.34	63.24	62.41	63.95	64.69	64.31
70.00°	63.97	63.42	63.43	65.47	64.82	65.68	63.53	61.03	61.30	60.41	60.89	62.82	62.70	61.22	62.78	63.79	63.97
72.50°	62.63	62.43	63.20	64.73	64.39	64.54	62.61	60.34	60.36	59.29	60.09	62.00	62.57	60.87	61.57	62.81	62.63
75.00°	61.41	61.72	62.24	64.00	63.94	63.61	61.81	59.68	58.92	58.21	59.94	60.91	61.92	60.55	60.99	61.73	61.41
77.50°	61.61	61.25	60.90	63.07	63.48	62.76	61.08	59.19	57.93	58.21	59.91	60.47	61.12	60.29	60.50	61.15	61.61
80.00°	61.64	61.01	60.57	62.15	62.66	62.09	60.62	58.69	57.48	58.19	59.14	60.48	60.87	59.83	60.05	61.00	61.64
82.50°	60.67	60.50	60.64	62.25	61.72	61.59	60.29	58.28	57.10	57.83	58.27	59.77	60.73	58.96	59.59	60.65	60.67
85.00°	59.92	59.79	60.13	62.31	61.22	61.47	59.95	57.78	56.78	57.47	57.54	58.63	59.61	58.10	59.07	60.16	59.92
87.50°	60.17	59.34	59.44	61.72	60.83	61.07	59.59	56.61	56.66	57.05	56.83	58.27	58.35	57.23	58.54	59.38	60.17
90.00°	60.21	59.05	59.54	61.18	59.94	60.21	58.86	55.66	56.70	56.66	56.71	58.28	57.92	56.96	57.58	58.45	60.21
92.50°	59.58	58.91	59.81	60.93	58.96	59.52	58.03	55.90	56.35	56.35	56.60	58.09	57.53	57.51	56.73	58.44	59.58
95.00°	58.94	58.85	59.62	60.60	59.06	59.06	58.17	56.15	55.75	56.02	56.65	57.83	57.21	57.23	57.47	58.84	58.94
97.50°	58.31	58.71	59.37	59.80	59.27	58.49	58.52	56.39	55.42	55.58	56.61	57.34	56.86	56.00	58.05	58.89	58.31
100.00°	57.87	58.53	58.28	58.73	57.83	57.79	58.09	56.18	55.22	54.97	55.57	56.78	56.00	54.34	57.39	58.81	57.87
102.50°	57.81	57.87	57.13	56.66	56.31	56.39	57.54	54.66	54.89	53.94	54.53	54.71	55.00	52.29	56.57	58.09	57.81
105.00°	57.21	57.05	56.18	54.20	53.56	54.34	55.00	53.02	54.50	53.13	53.52	52.31	52.58	49.77	54.91	57.19	57.21
107.50°	55.72	55.85	55.22	50.69	50.69	51.56	52.29	51.12	53.35	52.78	52.23	49.05	49.86	46.89	52.97	55.89	55.72
110.00°	54.04	54.56	52.18	46.89	45.99	48.23	50.70	49.54	51.97	51.77	49.64	45.67	45.14	42.90	50.03	54.50	54.04
112.50°	52.14	52.30	49.13	42.42	41.31	44.31	49.13	48.56	50.24	49.67	46.99	41.32	40.67	38.23	47.11	53.32	52.14

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	787	787	787	787	744	744	744	744	665	665	665	592	592	592	525	525	493
	1	692	649	610	576	650	612	578	546	543	516	491	480	458	439	421	405	378
	2	623	556	502	456	584	525	476	434	465	426	392	411	379	352	360	335	312
	3	565	485	423	374	529	458	402	357	407	361	324	359	323	292	315	286	266
	4	517	429	364	315	484	405	347	302	361	313	275	320	281	249	282	250	233
	5	476	383	319	271	446	363	304	260	324	275	238	288	248	216	255	222	207
	6	440	345	282	237	412	328	270	227	294	245	209	262	222	191	233	199	186
	7	408	314	252	209	383	298	242	201	268	221	186	240	200	171	214	181	169
	8	381	287	228	187	358	273	218	180	247	200	167	222	183	154	199	166	156
	9	356	264	207	169	335	251	199	163	228	183	151	206	168	140	185	153	144
	10	334	244	190	154	315	233	182	148	212	168	138	192	155	129	173	142	134

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	8.5 fc	4.5 ft
6.5 ft	6.1 fc	5.3 ft
7.5 ft	4.6 fc	6.1 ft
8.0 ft	4.0 fc	6.5 ft
10.0 ft	2.6 fc	8.1 ft
12.0 ft	1.8 fc	9.8 ft
14.0 ft	1.3 fc	11.4 ft
16.0 ft	1.0 fc	13.0 ft
20.0 ft	0.6 fc	16.3 ft
24.0 ft	0.4 fc	19.5 ft
28.0 ft	0.3 fc	22.8 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	8,113	8,113	8,113
45.00°	838	857	854
55.00°	733	729	740
65.00°	668	672	680
75.00°	633	641	659
85.00°	635	637	649

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	-	-	-	-	-	-	-	-	-	-
	3H	-	-	-	-	-	-	-	-	-	-
	4H	-	-	-	-	-	-	-	-	-	-
	6H	-	-	-	-	-	-	-	-	-	-
	8H	-	-	-	-	-	-	-	-	-	-
	12H	-	-	-	-	-	-	-	-	-	-
4H	2H	-	-	-	-	-	-	-	-	-	-
	3H	-	-	-	-	-	-	-	-	-	-
	4H	-	-	-	-	-	-	-	-	-	-
	6H	-	-	-	-	-	-	-	-	-	-
	8H	-	-	-	-	-	-	-	-	-	-
	12H	-	-	-	-	-	-	-	-	-	-
8H	4H	-	-	-	-	-	-	-	-	-	-
	6H	-	-	-	-	-	-	-	-	-	-
	8H	-	-	-	-	-	-	-	-	-	-
	12H	-	-	-	-	-	-	-	-	-	-
12H	4H	-	-	-	-	-	-	-	-	-	-
	6H	-	-	-	-	-	-	-	-	-	-
	8H	-	-	-	-	-	-	-	-	-	-

Corrected UGR values based on total output lumens

SHR = 1.0