

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

PAC0820GV 27L 35K xx FG8

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

Test Number

SP-00969

Test Date

12/19/2019

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

Summary of Results

Power

Input Watts	19 W
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Lumen Output

Output Lumens	1233
Efficacy	64.91 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

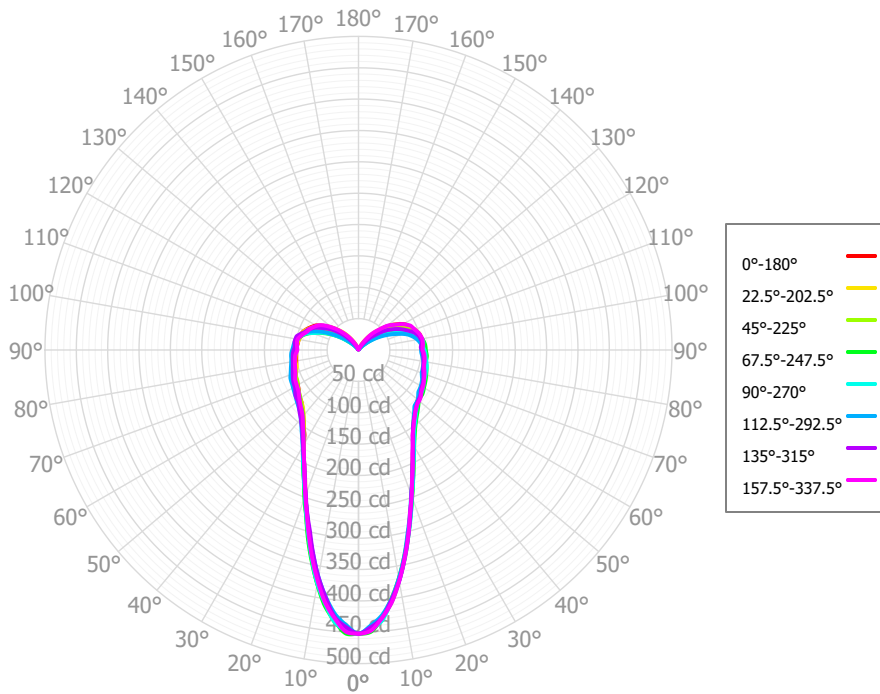
Full Beam Angle

0° - 180°	44°
90° - 270°	45°

IES File Header Contents

Keyword	Value
TEST	SP-00969
TESTLAB	Spectrum Lighting Photometric Lab VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	12/19/2019
ISSUEDATE	1/7/2020
LUMCAT	PAC0820GV 27L 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

Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	39.63	3.21%	90.00° - 100.00°	110.74	8.98%
10.00° - 20.00°	85.00	6.89%	100.00° - 110.00°	100.15	8.12%
20.00° - 30.00°	95.07	7.71%	100.00° - 120.00°	176.23	14.29%
30.00° - 40.00°	96.99	7.86%	120.00° - 130.00°	47.76	3.87%
40.00° - 50.00°	100.97	8.19%	130.00° - 140.00°	23.07	1.87%
50.00° - 60.00°	107.49	8.72%	140.00° - 150.00°	7.84	0.64%
60.00° - 70.00°	112.57	9.13%	150.00° - 160.00°	1.63	0.13%
70.00° - 80.00°	114.09	9.25%	160.00° - 170.00°	0.41	0.03%
80.00° - 90.00°	113.62	9.21%	170.00° - 180.00°	0.14	0.01%
0.00° - 90.00°	865.42	70.17%	0.00° - 180.00°	1,233.24	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°	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39	452.39
2.50°	446.48	446.38	442.70	449.84	445.93	439.75	442.79	449.97	448.13	448.80	445.93	452.70	447.77	440.27	442.91	448.27	446.48
5.00°	427.21	427.21	429.67	429.11	432.77	423.57	428.58	430.30	430.19	429.58	435.36	433.93	435.86	425.19	429.23	429.15	427.21
7.50°	403.07	403.41	400.42	405.34	403.33	397.98	398.93	406.65	406.29	406.01	407.63	411.45	407.65	400.94	402.20	406.11	403.07
10.00°	371.26	371.50	370.53	373.28	373.64	367.72	368.05	374.10	374.35	373.94	378.45	378.86	378.38	369.99	373.59	374.14	371.26
12.50°	338.73	337.69	337.47	340.64	340.09	333.95	333.62	340.68	339.87	340.94	342.82	344.89	342.50	336.99	339.44	340.48	338.73
15.00°	305.29	305.72	304.68	306.79	306.96	302.64	299.29	305.67	306.41	306.52	308.29	311.17	307.58	302.74	306.11	306.70	305.29
17.50°	274.59	274.05	275.89	275.87	277.20	272.81	272.39	274.00	273.18	275.37	277.39	277.47	276.87	273.02	274.93	272.92	274.59
20.00°	246.81	248.89	247.99	250.05	248.74	247.21	245.88	247.22	247.32	248.46	248.92	252.02	248.42	245.47	246.54	247.66	246.81
22.50°	223.39	224.41	226.79	226.95	227.20	223.64	224.18	223.97	222.60	224.91	226.77	226.97	227.23	223.72	224.06	222.91	223.39
25.00°	203.74	206.94	206.45	207.66	206.90	205.69	203.50	204.90	205.40	204.87	206.48	208.96	207.64	204.15	203.85	204.43	203.74
27.50°	187.77	189.81	190.38	191.03	191.33	189.84	189.80	188.42	188.95	188.24	189.96	191.25	191.99	188.64	187.45	186.24	187.77
30.00°	174.39	175.87	175.54	177.40	176.76	177.72	176.64	174.50	174.62	174.51	175.28	176.74	177.48	174.31	173.03	173.18	174.39
32.50°	163.16	162.18	165.21	166.04	165.01	166.71	166.05	163.10	160.45	162.84	163.56	162.98	165.18	162.52	161.30	160.60	163.16
35.00°	153.16	152.80	155.43	156.82	154.74	157.96	156.26	153.74	152.08	152.63	153.12	154.19	154.69	151.26	151.72	152.71	153.16
37.50°	145.44	143.91	147.14	149.38	147.80	149.69	149.21	145.70	143.83	143.94	144.38	145.74	147.08	143.91	144.57	145.14	145.44
40.00°	138.76	139.11	140.08	143.30	141.38	143.23	142.84	138.50	137.41	136.11	137.44	138.95	140.38	137.11	138.65	139.42	138.76
42.50°	133.44	134.38	135.68	138.21	135.87	137.03	138.24	133.56	131.25	130.62	132.43	132.93	134.85	131.73	133.86	134.08	133.44
45.00°	128.61	130.04	131.59	133.73	131.09	133.71	133.71	129.82	127.12	126.19	128.06	129.54	130.23	126.48	129.96	130.40	128.61
47.50°	125.84	126.14	128.03	129.47	127.35	130.64	129.33	126.23	123.31	123.44	124.24	126.08	126.56	124.95	126.73	127.35	125.84
50.00°	123.64	123.98	124.69	125.33	124.56	128.10	126.15	122.71	121.12	121.28	121.07	122.46	123.83	123.48	124.71	126.28	123.64
52.50°	121.94	121.90	121.66	124.02	122.90	125.60	125.00	119.57	118.81	119.54	118.36	119.46	121.92	120.03	123.43	124.71	121.94
55.00°	120.33	120.90	119.66	123.83	121.53	123.74	122.90	116.55	116.05	117.92	116.08	117.73	120.17	116.76	121.10	121.93	120.33
57.50°	118.40	118.40	118.64	122.36	120.44	121.92	119.49	114.86	113.56	115.74	114.06	116.55	118.53	115.80	118.27	119.69	118.40
60.00°	116.43	117.10	117.56	120.51	118.81	120.45	117.26	113.49	111.86	113.45	111.91	116.24	117.28	114.81	116.75	118.51	116.43
62.50°	114.88	115.90	115.84	119.04	116.76	119.06	116.33	112.41	110.41	111.97	109.71	115.07	116.24	113.50	115.75	117.07	114.88
65.00°	113.37	114.88	114.06	117.66	115.41	118.33	114.95	111.39	109.51	110.59	108.66	112.76	113.90	111.99	114.07	115.22	113.37
67.50°	112.83	113.40	112.23	116.26	114.52	117.35	113.15	109.29	108.57	108.32	108.05	111.12	110.96	109.49	112.20	113.49	112.83
70.00°	112.24	111.26	111.28	114.86	113.72	115.23	111.45	107.07	107.55	105.98	106.82	110.21	110.01	107.40	110.13	111.92	112.24
72.50°	109.88	109.53	110.88	113.57	112.96	113.22	109.84	105.87	105.90	104.01	105.43	108.77	109.77	106.79	108.02	110.19	109.88
75.00°	107.74	108.28	109.18	112.29	112.17	111.60	108.43	104.71	103.36	102.12	105.15	106.86	108.63	106.23	107.00	108.30	107.74
77.50°	108.08	107.45	106.85	110.65	111.36	110.10	107.16	103.83	101.63	102.13	105.11	106.08	107.23	105.77	106.14	107.28	108.08
80.00°	108.14	107.03	106.26	109.03	109.92	108.92	106.35	102.97	100.85	102.08	103.76	106.11	106.80	104.97	105.34	107.02	108.14
82.50°	106.43	106.15	106.39	109.21	108.28	108.05	105.78	102.24	100.18	101.46	102.22	104.87	106.55	103.45	104.55	106.40	106.43
85.00°	105.12	104.90	105.49	109.31	107.40	107.84	105.17	101.37	99.62	100.83	100.95	102.86	104.58	101.92	103.64	105.54	105.12
87.50°	105.56	104.10	104.29	108.28	106.72	107.15	104.54	99.32	99.41	100.09	99.70	102.23	102.38	100.40	102.71	104.18	105.56
90.00°	105.64	103.59	104.45	107.33	105.15	105.64	103.27	97.65	99.47	99.40	99.49	102.25	101.61	99.92	101.01	102.54	105.64
92.50°	104.52	103.35	104.93	106.90	103.44	104.42	101.80	98.07	98.86	98.86	99.30	101.92	100.94	100.90	99.53	102.52	104.52
95.00°	103.41	103.24	104.61	106.31	103.62	103.61	102.05	98.50	97.81	98.28	99.38	101.46	100.36	100.40	100.82	103.24	103.41
97.50°	102.30	102.99	104.15	104.92	103.98	102.61	102.67	98.93	97.22	97.50	99.31	100.60	99.75	98.25	101.83	103.32	102.30
100.00°	101.53	102.68	102.25	103.04	101.46	101.39	101.91	98.57	96.88	96.43	97.49	99.61	98.24	95.34	100.69	103.18	101.53
102.50°	101.42	101.53	100.22	99.40	98.79	98.93	100.94	95.89	96.30	94.62	95.67	95.97	96.50	91.74	99.25	101.91	101.42
105.00°	100.37	100.10	98.56	95.08	93.96	95.33	96.48	93.02	95.61	93.22	93.90	91.78	92.25	87.31	96.34	100.34	100.37
107.50°	97.75	97.99	96.89	88.94	88.93	90.45	91.74	89.69	93.60	92.60	91.63	86.05	87.48	82.26	92.93	98.05	97.75
110.00°	94.81	95.72	91.55	82.26	80.69	84.62	88.95	86.92	91.18	90.82	87.10	80.12	79.20	75.26	87.76	95.62	94.81
112.50°	91.47	91.75	86.20	74.43	72.48	77.74	86.19	85.20	88.14	87.14	82.45	72.49	71.35	67.07	82.64	93.54	91.47

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%	20%	0%
	pcc	80%	80%	80%	80%	70%	70%	70%	70%	50%	50%	50%	30%	30%	30%	10%	10%	10%	0%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	30%
	0	1,381	1,381	1,381	1,381	1,306	1,306	1,306	1,306	1,166	1,166	1,166	1,038	1,038	1,038	921	921	921	865
	1	1,214	1,138	1,071	1,010	1,141	1,074	1,013	959	953	905	861	842	804	769	739	710	683	663
	2	1,092	976	880	799	1,024	921	834	761	816	747	688	720	665	617	631	589	550	548
	3	992	851	743	656	929	804	705	626	714	634	568	631	567	513	553	503	459	467
	4	907	753	639	553	849	711	609	529	633	549	482	561	493	437	494	439	393	408
	5	834	672	559	475	782	637	533	456	569	483	417	506	435	380	447	389	343	363
	6	771	606	495	415	724	575	473	399	515	430	367	460	389	335	408	350	304	327
	7	716	550	443	367	673	523	424	353	471	387	326	422	352	299	376	318	273	297
	8	668	503	399	328	628	479	383	316	433	351	293	389	320	270	349	291	247	273
	9	625	463	363	296	589	441	349	286	400	321	266	361	294	246	325	268	226	252
	10	587	428	333	269	553	409	320	260	372	296	243	337	272	226	304	249	208	234

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	15.0 fc	4.5 ft
6.5 ft	10.7 fc	5.3 ft
7.5 ft	8.0 fc	6.1 ft
8.0 ft	7.1 fc	6.5 ft
10.0 ft	4.5 fc	8.1 ft
12.0 ft	3.1 fc	9.8 ft
14.0 ft	2.3 fc	11.4 ft
16.0 ft	1.8 fc	13.0 ft
20.0 ft	1.1 fc	16.3 ft
24.0 ft	0.8 fc	19.5 ft
28.0 ft	0.6 fc	22.8 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	14,233	14,233	14,233
45.00°	1,470	1,504	1,498
55.00°	1,286	1,279	1,299
65.00°	1,171	1,178	1,192
75.00°	1,110	1,125	1,156
85.00°	1,114	1,118	1,138

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