

## Indoor Distribution Test Report

# Spectrum Lighting Inc.

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## Spectrum Lighting Photometric Lab

### Luminaire

GPRF2400GV 27L 35K EX MW  
Nom 24" Globe (Sphere) luminaire

### Test Number

SP-00647\_6\_M-27L

### Test Date

1/27/2020

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

### Summary of Results

#### Power

Input Watts	18 W
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#### Lumen Output

Output Lumens	2195
Efficacy	121.95 lm/W

#### Luminous Dimensions

0° - 180° Size	-2
90° - 270° Size	-2
Height	2

#### Spacing Criterion

Two luminaires, plane 0°	1.43
Two luminaires, plane 90°	1.44
Four luminaires	1.61

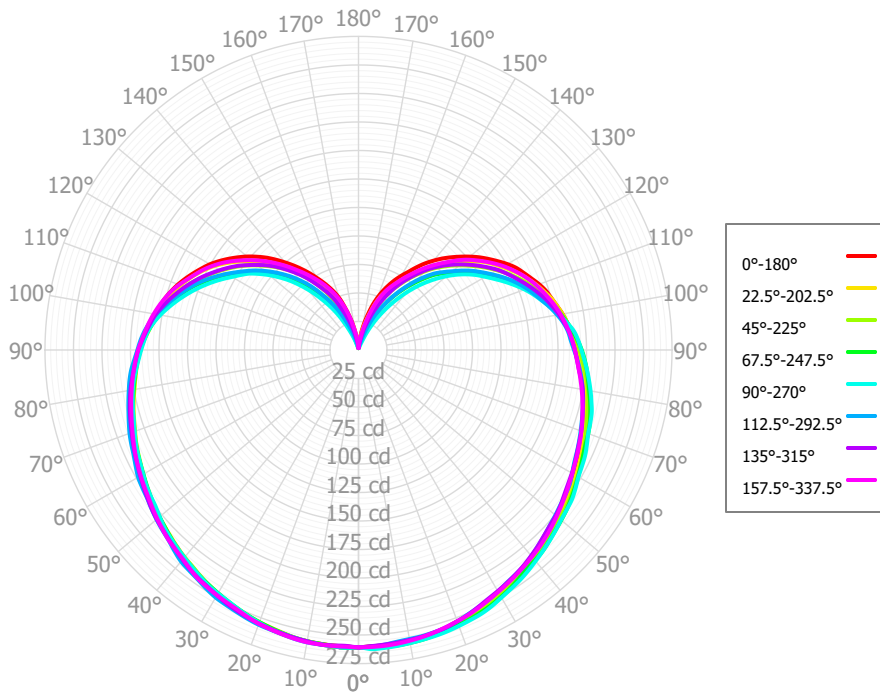
#### Full Beam Angle

0° - 180°	257°
90° - 270°	238°

### IES File Header Contents

Keyword	Value
TEST	SP-00647_6_M-27L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/27/2020
ISSUEDATE	1/29/2020
LUMCAT	GPRF2400GV 27L 35K EX MW
LUMINAIRE	Nom 24" Globe (Sphere) luminaire
LAMPCAT	N/A
LAMP	N/A
OTHER	CCT Output Multipliers: 27K x 0.97, 30K x 0.99, 40K x 1.03
OTHER	Total luminaire wattage is approximate
OTHER	This report prepared by Spectrum Lighting, scaled from 55L

### Candela Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 10.00°	25.22	1.15%	90.00° - 100.00°	203.45	9.27%
10.00° - 20.00°	72.89	3.32%	100.00° - 110.00°	181.11	8.25%
20.00° - 30.00°	116.16	5.29%	100.00° - 120.00°	331.21	15.09%
30.00° - 40.00°	152.54	6.95%	120.00° - 130.00°	114.68	5.22%
40.00° - 50.00°	180.84	8.24%	130.00° - 140.00°	78.59	3.58%
50.00° - 60.00°	201.02	9.16%	140.00° - 150.00°	45.65	2.08%
60.00° - 70.00°	213.20	9.71%	150.00° - 160.00°	20.63	0.94%
70.00° - 80.00°	217.98	9.93%	160.00° - 170.00°	5.62	0.26%
80.00° - 90.00°	214.90	9.79%	170.00° - 180.00°	0.55	0.03%
0.00° - 90.00°	1,394.75	63.54%	0.00° - 180.00°	2,195.14	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°	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80	260.80
2.50°	260.09	260.73	260.72	261.17	262.63	260.87	259.77	260.53	260.30	260.45	261.03	261.50	261.39	260.40	260.01	260.75	260.09
5.00°	260.09	260.47	260.97	261.22	262.31	260.64	260.10	260.58	260.20	260.25	260.94	260.58	260.86	259.49	259.44	260.50	260.09
7.50°	259.72	260.18	260.83	261.40	261.81	260.49	260.32	260.50	259.88	259.98	260.36	259.84	260.43	258.14	258.86	259.85	259.72
10.00°	259.07	259.59	260.47	260.91	261.02	260.39	259.45	260.33	259.46	259.29	259.50	259.47	259.55	257.41	258.26	258.98	259.07
12.50°	258.10	258.98	259.46	260.27	260.31	259.54	258.57	259.47	258.96	258.42	258.37	258.65	258.54	257.09	257.59	257.93	258.10
15.00°	256.94	257.89	258.17	259.04	259.69	258.20	257.57	258.21	258.00	256.85	257.20	257.13	257.51	256.32	256.49	256.51	256.94
17.50°	255.27	256.72	256.85	257.71	258.81	257.21	256.53	256.92	256.78	255.35	255.99	255.60	256.47	255.31	255.25	254.84	255.27
20.00°	253.34	254.95	255.52	256.63	257.61	256.41	255.33	255.61	254.99	254.08	254.39	254.04	254.58	253.36	253.36	253.20	253.34
22.50°	252.00	253.15	254.38	255.59	256.42	255.05	254.02	253.60	252.93	252.61	252.52	252.28	252.56	250.99	251.31	251.57	252.00
25.00°	250.89	251.20	253.29	253.95	255.24	253.44	252.37	251.33	250.84	250.66	250.79	250.29	250.37	249.04	248.65	249.46	250.89
27.50°	248.74	249.21	251.27	252.28	253.30	252.03	250.57	249.77	248.73	248.69	249.14	248.29	248.17	247.25	246.17	247.17	248.74
30.00°	246.29	247.04	249.09	250.08	250.80	250.68	248.39	248.41	246.78	246.69	246.95	246.27	246.53	244.80	244.22	245.08	246.29
32.50°	244.38	244.99	246.82	247.85	248.62	248.35	246.36	246.82	244.87	244.53	244.53	244.28	244.89	242.18	242.26	243.05	244.38
35.00°	242.60	243.23	244.55	245.00	246.65	245.78	244.64	245.18	242.93	242.10	241.93	242.32	242.40	240.33	240.28	240.99	242.60
37.50°	240.43	241.11	241.80	242.30	244.27	243.91	242.59	242.42	240.97	239.71	239.26	240.16	239.92	238.64	238.11	238.93	240.43
40.00°	238.19	238.15	239.03	240.81	241.70	242.18	240.03	239.52	238.11	237.36	237.40	237.88	237.60	235.98	235.59	236.81	238.19
42.50°	235.48	235.47	237.30	239.16	239.28	239.05	237.56	237.55	235.11	234.93	235.74	235.39	235.30	233.19	232.96	234.68	235.48
45.00°	232.72	233.30	235.56	236.62	236.91	235.75	235.19	235.65	233.41	232.40	233.03	232.81	233.13	230.43	230.17	232.22	232.72
47.50°	230.46	231.15	232.95	234.19	234.45	233.50	233.00	233.03	231.82	230.10	230.14	230.31	230.80	227.67	227.79	229.73	230.46
50.00°	228.20	229.03	230.40	232.19	231.97	231.29	231.00	230.40	229.11	228.01	227.99	227.85	227.57	225.43	225.92	227.00	228.20
52.50°	225.50	226.92	228.53	230.07	230.19	228.84	228.68	227.69	226.38	225.76	225.93	225.35	224.62	223.22	223.50	224.26	225.50
55.00°	222.84	224.82	226.59	227.59	228.56	226.42	226.08	225.03	223.76	223.40	223.39	222.83	222.73	221.48	220.54	221.62	222.84
57.50°	220.82	222.58	224.20	225.06	225.74	224.86	223.51	222.81	221.17	220.89	220.81	220.36	220.68	219.61	218.12	219.00	220.82
60.00°	218.76	220.19	221.87	222.40	222.74	223.19	220.96	220.57	219.02	218.31	218.15	217.89	218.13	216.44	216.15	216.62	218.76
62.50°	216.31	217.91	219.82	219.86	220.96	220.38	218.57	218.28	216.83	216.06	215.51	215.83	215.76	213.41	213.98	214.27	216.31
65.00°	213.84	215.72	217.62	217.52	219.28	217.68	216.28	215.94	214.33	213.98	213.35	213.82	213.78	211.41	211.67	212.28	213.84
67.50°	211.31	213.36	214.92	215.64	216.86	215.75	214.01	213.39	211.85	211.35	211.18	211.91	211.57	209.40	209.75	210.24	211.31
70.00°	208.85	210.90	212.35	214.43	214.44	213.72	211.76	210.90	209.48	208.51	208.96	210.01	208.93	207.38	208.04	207.98	208.85
72.50°	206.66	208.54	210.10	212.76	213.16	211.27	209.66	208.59	207.19	206.29	206.75	207.50	206.62	205.44	205.89	205.71	206.66
75.00°	204.49	206.23	210.10	210.52	211.79	208.89	207.61	206.33	205.15	204.26	204.63	204.98	204.76	203.73	203.56	203.45	204.49
77.50°	202.36	204.01	206.39	208.09	209.26	206.74	205.37	204.21	203.16	201.97	202.45	202.68	202.90	201.90	201.57	201.16	202.36
80.00°	200.22	201.82	204.42	205.46	206.70	204.61	203.08	202.09	201.33	199.64	200.02	200.38	201.03	199.77	199.71	198.76	200.22
82.50°	198.08	199.69	201.94	203.14	203.96	202.58	200.46	199.96	199.18	197.60	197.75	198.20	198.65	197.49	196.96	196.35	198.08
85.00°	195.69	197.57	199.33	201.08	201.20	200.13	197.78	197.83	196.34	195.61	195.98	196.02	195.76	194.88	193.99	193.93	195.69
87.50°	192.87	194.99	196.52	198.60	198.30	196.86	195.47	195.69	193.66	193.71	193.97	193.84	193.12	192.11	191.85	191.69	192.87
90.00°	190.43	192.28	193.91	195.84	195.48	193.92	193.21	193.29	191.23	191.83	191.33	191.54	190.66	189.06	189.87	189.78	190.43
92.50°	188.55	189.92	191.52	192.44	192.94	191.48	190.12	190.55	189.03	189.46	188.46	188.67	188.14	186.49	187.62	187.68	188.55
95.00°	186.58	187.62	188.42	188.70	189.68	188.47	186.97	187.87	187.18	187.07	185.15	185.58	185.57	184.53	185.33	185.29	186.58
97.50°	184.51	184.69	184.70	184.52	184.38	184.71	183.82	185.26	184.74	184.19	181.96	181.71	181.47	181.41	182.01	182.75	184.51
100.00°	181.77	181.68	180.93	180.15	178.81	180.14	180.64	182.37	181.61	181.26	178.98	177.53	176.54	177.01	178.62	180.03	181.77
102.50°	178.39	178.40	177.11	175.24	172.67	174.72	176.13	179.20	178.57	177.65	175.39	172.49	171.06	172.20	174.57	176.90	178.39
105.00°	175.30	175.10	172.62	170.16	166.74	169.38	171.60	175.70	175.59	174.02	171.01	167.56	165.34	167.02	170.49	173.35	175.30
107.50°	172.44	170.79	167.72	164.20	161.17	164.10	166.76	171.93	172.14	170.26	166.54	162.90	159.44	162.07	165.72	169.72	172.44
110.00°	168.61	166.46	162.59	158.02	155.13	158.56	161.87	167.35	168.32	166.37	161.97	157.70	153.48	157.29	160.91	166.02	168.61
112.50°	164.13	161.71	157.35	151.80	148.43	152.83	156.70	162.25	164.09	161.84	156.71	151.57	147.29	151.89	155.83	161.78	164.13

### 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%	10%
	pw	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%
	0	2,423	2,423	2,423	2,423	2,273	2,273	2,273	2,273	1,994	1,994	1,994	1,739	1,739	1,739	1,505	1,505	1,505
	1	2,110	1,969	1,842	1,728	1,964	1,839	1,726	1,624	1,596	1,508	1,426	1,374	1,305	1,241	1,168	1,115	1,066
	2	1,883	1,666	1,487	1,336	1,746	1,554	1,394	1,258	1,345	1,217	1,107	1,151	1,051	963	972	895	826
	3	1,697	1,435	1,233	1,071	1,570	1,339	1,157	1,010	1,157	1,011	890	989	872	775	833	742	663
	4	1,540	1,253	1,043	882	1,425	1,169	979	833	1,012	857	735	865	741	640	729	630	548
	5	1,407	1,106	896	741	1,302	1,033	843	700	896	739	619	767	640	541	648	546	463
	6	1,292	986	780	633	1,196	922	734	598	801	646	530	688	561	464	583	479	398
	7	1,192	885	686	547	1,104	829	647	518	722	571	460	623	497	403	529	426	347
	8	1,104	801	610	478	1,024	751	575	453	656	509	404	568	445	355	484	382	307
	9	1,027	729	546	422	954	685	516	401	600	458	358	521	401	315	446	346	273
	10	959	667	492	376	892	628	466	357	552	414	320	480	364	282	413	316	246

### Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	8.6 fc	-13.9 ft
6.5 ft	6.2 fc	-16.4 ft
7.5 ft	4.6 fc	-18.9 ft
8.0 ft	4.1 fc	-20.2 ft
10.0 ft	2.6 fc	-25.2 ft
12.0 ft	1.8 fc	-30.3 ft
14.0 ft	1.3 fc	-35.3 ft
16.0 ft	1.0 fc	-40.4 ft
20.0 ft	0.7 fc	-50.5 ft
24.0 ft	0.5 fc	-60.5 ft
28.0 ft	0.3 fc	-70.6 ft

### Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
<b>0.00°</b>	894	894	894
<b>45.00°</b>	496	502	505
<b>55.00°</b>	472	480	484
<b>65.00°</b>	465	473	477
<b>75.00°</b>	471	479	487
<b>85.00°</b>	495	504	509

### 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