

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

GPRF1600GV 27L 35K EX MW
Nom 16" Globe (Sphere) luminaire

Test Number

SP-00647_4_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	2155
Efficacy	119.75 lm/W

Luminous Dimensions

0° - 180° Size	-1.33
90° - 270° Size	-1.33
Height	1.33

Spacing Criterion

Two luminaires, plane 0°	1.61
Two luminaires, plane 90°	1.56
Four luminaires	1.81

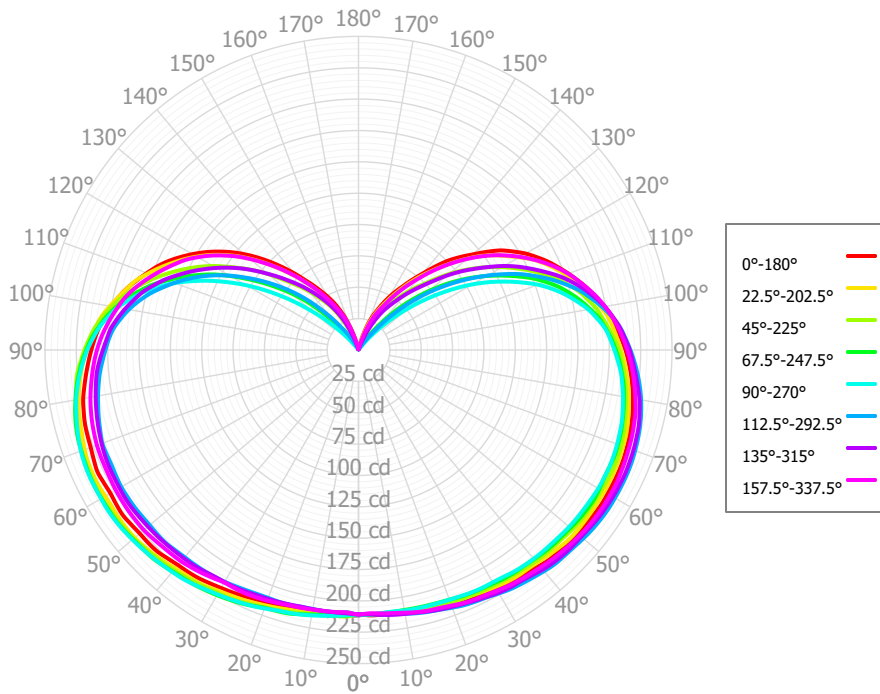
Full Beam Angle

0° - 180°	260°
90° - 270°	234°

IES File Header Contents

Keyword	Value
TEST	SP-00647_4_M-27L
TESTLAB	Spectrum Lighting Photometric Lab, VLS-245-981
MANUFAC	Spectrum Lighting
TESTDATE	1/27/2020
ISSUEDATE	1/29/2020
LUMCAT	GPRF1600GV 27L 35K EX MW
LUMINAIRE	Nom 16" 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°	20.50	0.95%	90.00° - 100.00°	222.53	10.32%
10.00° - 20.00°	60.60	2.81%	100.00° - 110.00°	192.95	8.95%
20.00° - 30.00°	100.64	4.67%	100.00° - 120.00°	342.58	15.89%
30.00° - 40.00°	139.27	6.46%	120.00° - 130.00°	100.53	4.66%
40.00° - 50.00°	174.79	8.11%	130.00° - 140.00°	55.13	2.56%
50.00° - 60.00°	204.71	9.50%	140.00° - 150.00°	24.19	1.12%
60.00° - 70.00°	226.42	10.50%	150.00° - 160.00°	8.31	0.39%
70.00° - 80.00°	237.59	11.02%	160.00° - 170.00°	1.05	0.05%
80.00° - 90.00°	236.51	10.97%	170.00° - 180.00°	0.07	0.00%
0.00° - 90.00°	1,401.04	65.00%	0.00° - 180.00°	2,155.42	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°	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86	210.86
2.50°	211.82	211.08	211.03	211.07	211.09	209.42	210.26	209.44	210.37	211.26	212.75	211.90	211.76	210.97	210.93	210.18	211.82
5.00°	211.83	211.12	211.20	210.69	210.61	209.89	210.08	209.73	210.85	211.46	212.61	212.26	212.72	211.68	212.01	210.86	211.83
7.50°	211.45	211.54	211.55	210.58	210.39	210.06	209.92	210.00	211.25	212.13	212.74	213.22	213.80	212.28	212.98	211.60	211.45
10.00°	212.05	212.02	211.68	210.55	210.92	209.76	209.85	210.27	211.53	212.82	213.70	214.23	213.80	213.54	213.66	212.69	212.05
12.50°	212.95	212.83	211.79	210.75	211.31	209.82	209.79	210.59	212.08	213.54	214.77	215.82	215.98	214.98	214.51	214.14	212.95
15.00°	214.01	213.55	212.68	210.99	211.41	210.38	210.25	210.94	212.97	214.31	216.07	217.42	216.84	216.09	215.75	215.11	214.01
17.50°	215.12	213.95	213.60	211.35	211.61	210.58	210.73	211.74	213.68	215.51	217.32	218.10	217.68	217.13	216.92	215.69	215.12
20.00°	215.98	214.39	214.28	211.90	211.96	210.39	211.20	212.67	214.18	216.74	218.45	218.86	219.31	218.65	217.91	216.87	215.98
22.50°	216.79	214.97	214.94	212.84	212.49	210.69	211.69	213.38	215.16	218.12	219.86	220.81	220.93	220.24	219.04	218.43	216.79
25.00°	218.19	215.73	215.45	213.62	213.26	211.43	212.53	214.03	216.56	219.46	221.69	222.71	222.28	221.28	220.38	219.48	218.19
27.50°	219.64	216.89	215.96	214.17	213.75	212.37	213.31	214.14	217.88	220.65	223.07	224.24	223.64	222.27	221.85	220.26	219.64
30.00°	220.70	218.12	216.56	214.93	213.94	213.48	213.62	214.16	219.14	222.00	223.87	225.73	225.06	224.14	223.49	221.49	220.70
32.50°	221.74	219.47	217.20	215.94	214.65	214.27	214.06	215.65	220.60	223.82	225.02	227.11	226.54	226.01	224.62	222.91	221.74
35.00°	222.26	220.37	218.00	216.62	215.84	214.87	215.18	217.31	222.17	225.35	226.50	228.41	228.35	227.32	225.24	223.98	222.26
37.50°	222.87	220.64	218.84	216.95	216.71	215.30	216.19	218.67	223.17	226.15	227.87	229.41	230.02	228.66	226.62	224.94	222.87
40.00°	224.62	221.45	219.76	217.68	217.33	215.66	216.75	220.02	223.92	227.25	229.13	230.58	231.06	230.22	228.60	226.10	224.62
42.50°	226.18	222.86	220.55	218.75	217.76	216.46	217.33	220.73	225.38	228.91	230.32	232.19	232.12	231.64	229.95	227.31	226.18
45.00°	226.39	224.24	220.99	219.44	218.08	217.43	217.99	221.46	227.09	230.47	231.47	233.48	233.21	232.17	230.86	228.32	226.39
47.50°	226.68	225.60	221.59	219.87	218.64	217.50	218.61	222.47	227.56	231.86	232.69	234.05	234.29	232.81	231.40	229.28	226.68
50.00°	227.38	226.18	222.54	220.60	219.32	217.31	219.13	223.40	227.70	232.84	233.94	234.80	235.32	233.94	231.74	230.12	227.38
52.50°	228.11	226.15	223.24	221.49	219.73	217.67	219.67	223.63	228.52	233.30	234.70	235.85	236.23	234.96	232.48	230.94	228.11
55.00°	228.96	226.14	223.51	222.01	220.03	218.14	220.23	223.80	229.47	233.35	235.23	236.50	236.92	235.63	233.40	231.28	228.96
57.50°	229.53	226.15	223.64	222.37	220.40	218.30	220.42	223.66	229.05	232.99	235.73	236.60	237.27	236.12	233.89	231.60	229.53
60.00°	229.37	226.11	223.57	221.75	220.78	218.41	220.08	223.45	228.46	233.15	236.21	236.75	237.08	236.12	234.25	231.60	229.37
62.50°	229.21	226.06	223.65	220.80	220.83	217.85	219.79	223.01	229.05	233.72	236.07	236.96	236.98	236.08	234.34	231.56	229.21
65.00°	229.03	225.68	223.89	220.74	220.81	217.24	219.58	222.63	229.71	233.77	235.77	236.69	237.00	235.95	234.36	230.92	229.03
67.50°	228.59	225.16	223.61	220.90	220.20	217.32	218.97	222.41	228.48	233.46	235.40	235.94	236.52	235.55	233.90	230.26	228.59
70.00°	227.69	224.50	222.81	220.19	219.49	217.36	217.99	221.97	227.26	232.36	235.01	235.24	235.54	234.74	233.35	229.47	227.69
72.50°	226.65	223.80	221.52	219.32	218.52	215.83	216.87	221.07	226.61	230.83	233.86	234.56	234.11	233.74	232.42	228.64	226.65
75.00°	225.39	222.36	219.84	217.97	217.52	214.29	215.63	220.00	225.89	229.52	232.62	233.20	232.31	232.50	231.44	227.56	225.39
77.50°	223.92	220.75	218.24	216.57	215.83	212.63	214.26	218.63	224.47	228.29	230.63	231.42	230.44	230.87	229.55	226.28	223.92
80.00°	222.22	218.85	216.68	214.91	214.12	210.93	212.80	217.04	222.91	226.53	228.60	229.22	228.52	228.82	227.60	224.20	222.22
82.50°	220.26	216.90	214.76	213.22	212.15	209.02	211.20	215.10	220.46	224.58	226.99	226.80	225.99	226.34	224.72	222.06	220.26
85.00°	218.07	214.48	212.65	210.78	210.11	206.99	209.52	213.08	218.01	222.27	225.28	223.89	223.13	223.48	221.85	219.77	218.07
87.50°	215.62	212.01	210.25	208.30	207.12	204.40	206.87	210.97	215.56	219.87	221.92	220.79	219.81	220.28	219.08	217.27	215.62
90.00°	212.97	209.28	207.73	205.12	204.10	201.81	203.83	208.52	213.07	216.91	218.51	217.05	216.30	216.83	216.24	214.29	212.97
92.50°	209.76	206.54	204.10	201.87	200.93	199.28	200.96	205.75	210.46	213.85	214.69	213.12	212.01	213.12	212.73	211.13	209.76
95.00°	206.21	203.74	200.14	197.86	197.38	196.09	198.14	202.51	207.55	210.24	210.64	208.08	207.47	209.26	209.04	207.64	206.21
97.50°	202.54	200.83	196.21	193.56	191.95	191.24	193.72	198.89	203.88	206.56	205.31	202.80	201.48	203.71	204.43	203.85	202.54
100.00°	198.82	196.34	192.29	187.62	186.08	185.92	188.95	195.05	200.01	201.28	199.77	196.35	195.11	197.39	199.48	199.60	198.82
102.50°	194.18	191.80	187.04	181.51	178.62	179.64	183.67	191.08	195.74	195.92	193.40	189.72	186.64	190.24	193.20	194.78	194.18
105.00°	189.19	186.88	181.59	174.68	170.79	172.67	178.31	185.98	190.89	190.77	186.60	181.25	177.78	182.80	186.63	189.28	189.19
107.50°	183.72	181.77	174.47	167.41	161.98	164.57	171.35	180.29	185.14	185.53	178.59	172.61	167.13	173.64	179.22	183.65	183.72
110.00°	178.11	175.81	167.20	158.80	152.30	156.29	164.24	174.25	179.47	178.51	170.35	162.41	156.28	164.01	171.25	177.92	178.11
112.50°	172.41	169.76	158.76	149.61	140.77	147.79	156.05	168.06	173.90	171.45	161.61	152.14	143.48	153.58	162.02	171.38	172.41

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	2,386	2,386	2,386	2,386	2,243	2,243	2,243	2,243	1,976	1,976	1,976	1,731	1,731	1,731	1,507	1,507	1,401
	1	2,063	1,918	1,788	1,670	1,922	1,793	1,677	1,571	1,560	1,468	1,383	1,346	1,274	1,207	1,148	1,093	1,002
	2	1,834	1,613	1,430	1,276	1,702	1,505	1,341	1,202	1,304	1,173	1,059	1,118	1,014	923	946	865	787
	3	1,648	1,383	1,178	1,014	1,526	1,290	1,105	956	1,116	966	843	954	834	733	804	709	643
	4	1,493	1,203	991	829	1,382	1,123	931	782	971	814	690	831	703	600	700	598	541
	5	1,362	1,060	848	692	1,260	990	797	653	857	699	577	734	604	502	619	514	465
	6	1,249	942	736	588	1,157	881	692	555	765	608	491	657	527	428	555	449	407
	7	1,152	845	645	506	1,067	791	608	478	689	535	424	593	465	370	503	398	360
	8	1,066	763	572	441	989	715	539	417	625	476	370	540	415	324	460	356	323
	9	992	694	511	388	921	651	483	367	570	427	327	494	373	286	423	321	292
	10	926	634	460	344	861	597	435	326	524	386	291	456	338	256	391	292	267

Cone of Light

Mtg Height	Light Level	Beam Diameter
5.5 ft	7.0 fc	-13.1 ft
6.5 ft	5.0 fc	-15.5 ft
7.5 ft	3.7 fc	-17.9 ft
8.0 ft	3.3 fc	-19.1 ft
10.0 ft	2.1 fc	-23.8 ft
12.0 ft	1.5 fc	-28.6 ft
14.0 ft	1.1 fc	-33.4 ft
16.0 ft	0.8 fc	-38.1 ft
20.0 ft	0.5 fc	-47.7 ft
24.0 ft	0.4 fc	-57.2 ft
28.0 ft	0.3 fc	-66.7 ft

Average Luminaire Luminance [cd/m²]

	0.00°	45.00°	90.00°
0.00°	1,634	1,634	1,634
45.00°	1,091	1,065	1,051
55.00°	1,097	1,071	1,055
65.00°	1,126	1,100	1,085
75.00°	1,173	1,144	1,132
85.00°	1,246	1,215	1,201

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