

## IES INDOOR REPORT

PHOTOMETRIC FILENAME : FSN-8768-OPAL.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST]BALLABS TEST NO. 15311.0  
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC  
[ISSUE DATE] APR-2010  
[MANUFAC] JUSTICE DESIGN GROUP  
[MORE] PENDANT MOUNT TIER FIXTURE  
[LUMINAIRE] TIER RING  
[MORE] 28"DIA 23" OAH GLASS  
[LAMPCAT] 12- A-19 60W RATED 900 LUMENS,  
[MORE] 720W AT 120.0 VOLTS

### CHARACTERISTICS

Lumens Per Lamp	450 (12 lamps)
Total Lamp Lumens	5400
Luminaire Lumens	3193
Total Luminaire Efficiency	59 %
Luminaire Efficacy Rating (LER)	4
Total Luminaire Watts	720
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.32
Spacing Criterion (90-270)	1.34
Spacing Criterion (Diagonal)	1.48
Basic Luminous Shape	Sphere
Luminous Length (0-180)	0.00 ft
Luminous Width (90-270)	1.13 ft (Diameter)
Luminous Height	0.42 ft (Diameter)

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	5570	5672	5808
55	4823	4993	5163
65	4008	4246	4449
75	3261	3498	3702
85	2513	2751	2955

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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>
0.0	690.699	690.699	690.699	690.699	690.699
2.5	690.699	687.559	690.699	687.559	690.699
5.0	687.559	684.420	687.559	687.559	690.699
7.5	684.420	681.280	684.420	684.420	684.420
10.0	681.280	678.141	681.280	681.280	684.420
12.5	675.001	675.001	675.001	678.141	678.141
15.0	668.722	668.722	668.722	671.862	671.862
17.5	659.303	662.443	662.443	665.582	662.443
20.0	649.885	653.024	653.024	656.164	653.024
22.5	640.466	643.606	640.466	646.745	643.606
25.0	631.048	634.187	631.048	637.327	634.187
27.5	618.489	621.629	621.629	627.908	624.768
30.0	605.931	609.071	609.071	618.489	612.210
32.5	593.373	596.513	596.513	605.931	602.792
35.0	580.815	583.954	583.954	593.373	590.234
37.5	565.117	571.396	571.396	580.815	577.675
40.0	549.419	555.699	555.699	568.257	565.117
42.5	533.722	540.001	540.001	552.559	549.419
45.0	514.885	524.303	524.303	540.001	536.861
47.5	499.187	508.605	508.605	524.303	521.164
50.0	483.489	492.908	496.047	511.745	508.605
52.5	464.652	474.071	477.210	496.047	492.908
55.0	445.815	458.373	461.512	477.210	477.210
57.5	426.977	439.536	442.675	461.512	458.373
60.0	408.140	423.838	426.977	445.815	442.675
62.5	389.303	401.861	408.140	426.977	426.977
65.0	370.466	386.163	392.442	411.280	411.280
67.5	351.628	367.326	373.605	392.442	392.442
70.0	335.931	351.628	357.908	376.745	376.745
72.5	317.094	332.791	339.070	361.047	357.908
75.0	301.396	317.094	323.373	345.349	342.210
77.5	282.559	298.256	304.535	326.512	323.373
80.0	263.721	282.559	288.838	310.814	307.675
82.5	248.024	263.721	270.000	291.977	288.838
85.0	232.326	248.024	254.303	276.280	273.140
87.5	213.489	232.326	235.465	257.442	254.303
90.0	200.931	210.349	219.768	235.465	241.745
92.5	188.372	185.233	204.070	213.489	226.047
95.0	172.675	169.535	191.512	194.651	210.349
97.5	156.977	153.837	172.675	175.814	188.372
100.0	141.279	138.140	156.977	160.117	172.675
102.5	125.582	122.442	141.279	144.419	156.977
105.0	113.023	109.884	125.582	128.721	141.279
107.5	97.326	97.326	109.884	113.023	125.582
110.0	87.907	84.768	97.326	100.465	109.884
112.5	72.209	72.209	84.768	84.768	94.186
115.0	62.791	59.651	72.209	72.209	81.628
117.5	53.372	50.233	59.651	59.651	69.070
120.0	43.954	40.814	50.233	50.233	56.512
122.5	34.535	34.535	40.814	40.814	47.093
125.0	28.256	25.116	31.395	31.395	37.674
127.5	21.977	18.837	25.116	21.977	28.256
130.0	15.698	12.558	18.837	15.698	18.837
132.5	9.419	9.419	12.558	9.419	12.558

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**CANDELA TABULATION - (Cont.)**

<b>135.0</b>	6.279	6.279	9.419	6.279	6.279
<b>137.5</b>	3.140	3.140	3.140	3.140	3.140
<b>140.0</b>	0.000	0.000	0.000	0.000	0.000
<b>142.5</b>	0.000	0.000	0.000	0.000	0.000
<b>145.0</b>	0.000	0.000	0.000	0.000	0.000
<b>147.5</b>	0.000	0.000	0.000	0.000	0.000
<b>150.0</b>	0.000	0.000	0.000	0.000	0.000
<b>152.5</b>	0.000	0.000	0.000	0.000	0.000
<b>155.0</b>	0.000	0.000	0.000	0.000	0.000
<b>157.5</b>	0.000	0.000	0.000	0.000	0.000
<b>160.0</b>	0.000	0.000	0.000	0.000	0.000
<b>162.5</b>	0.000	0.000	0.000	0.000	0.000
<b>165.0</b>	0.000	0.000	0.000	0.000	0.000
<b>167.5</b>	0.000	0.000	0.000	0.000	0.000
<b>170.0</b>	0.000	0.000	0.000	0.000	0.000
<b>172.5</b>	0.000	0.000	0.000	0.000	0.000
<b>175.0</b>	0.000	0.000	0.000	0.000	0.000
<b>177.5</b>	0.000	0.000	0.000	0.000	0.000
<b>180.0</b>	0.000	0.000	0.000	0.000	0.000

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	254.62	4.70	8.00
0-30	547.13	10.10	17.10
0-40	914.79	16.90	28.60
0-60	1739.55	32.20	54.50
0-80	2475.38	45.80	77.50
0-90	2755.7	51.00	86.30
10-90	2690.32	49.80	84.30
20-40	660.16	12.20	20.70
20-50	1068.87	19.80	33.50
40-70	1216.01	22.50	38.10
60-80	735.83	13.60	23.00
70-80	344.58	6.40	10.80
80-90	280.31	5.20	8.80
90-110	333.85	6.20	10.50
90-120	403.54	7.50	12.60
90-130	431.67	8.00	13.50
90-150	437.42	8.10	13.70
90-180	437.42	8.10	13.70
110-180	103.57	1.90	3.20
0-180	3193.12	59.10	100.00

Total Luminaire Efficiency = 59.10%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	65.37
10-20	189.25
20-30	292.51
30-40	367.66
40-50	408.71
50-60	416.05
60-70	391.25
70-80	344.58
80-90	280.31
90-100	203.42
100-110	130.43
110-120	69.69
120-130	28.13
130-140	5.75
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 RW	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	68	68	68	68	66	66	66	66	61	61	61	57	57	57	53	53	53	51
1	60	56	53	50	58	54	51	49	50	48	46	46	44	43	43	41	40	38
2	54	48	43	39	52	46	42	38	43	39	36	39	36	34	37	34	32	30
3	49	42	36	32	46	40	35	31	37	33	29	34	31	28	32	29	26	24
4	44	36	31	26	42	35	30	26	33	28	24	30	26	23	28	25	22	20
5	41	32	27	22	39	31	26	22	29	24	21	27	23	20	25	22	19	17
6	37	29	23	19	36	28	23	19	26	21	18	24	20	17	22	19	16	15
7	35	26	21	17	33	25	20	16	23	19	16	22	18	15	20	17	14	13
8	32	24	18	15	31	23	18	14	21	17	14	20	16	13	19	15	13	11
9	30	22	17	13	29	21	16	13	20	15	12	18	15	12	17	14	11	10
10	28	20	15	12	27	19	15	12	18	14	11	17	13	11	16	13	10	9

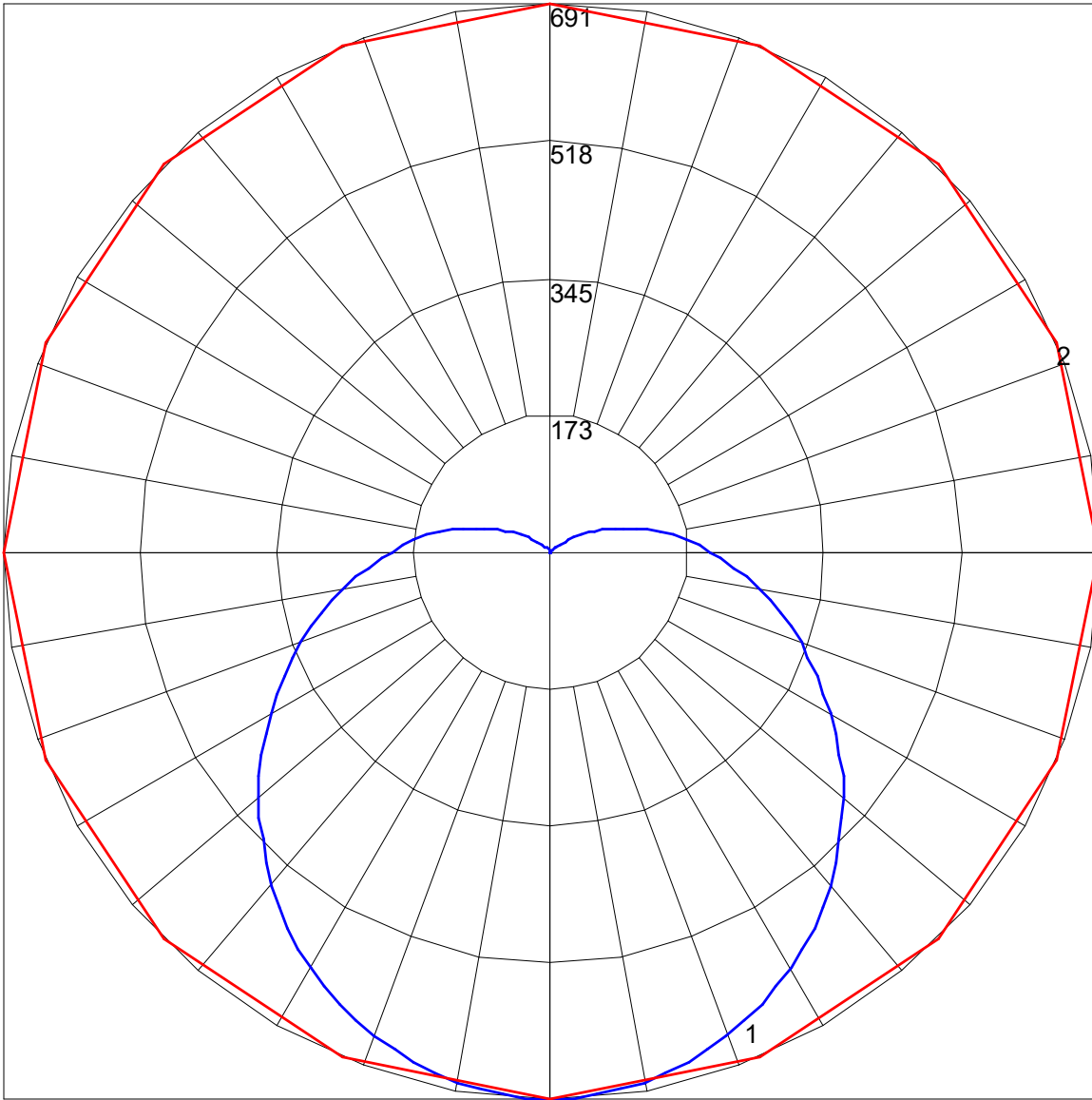
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**UGR TABLE - CORRECTED**

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	
Walls	50	30	50	30	30	50	30	50	30	30	
Floor Cavity	20	20	20	20	20	20	20	20	20	20	
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	13.9	15.4	14.4	15.9	16.6	14.3	15.7	14.8	16.3	16.9
	3H	16.0	17.4	16.6	18.0	18.6	16.5	17.9	17.1	18.5	19.1
	4H	17.0	18.3	17.6	18.9	19.6	17.6	18.9	18.2	19.5	20.1
	6H	17.9	19.2	18.5	19.8	20.4	18.6	19.8	19.2	20.4	21.1
	8H	18.3	19.5	18.9	20.1	20.8	19.0	20.2	19.6	20.8	21.5
	12H	18.7	19.9	19.4	20.5	21.2	19.5	20.6	20.1	21.2	22.0
4H	2H	14.5	15.8	15.1	16.4	17.1	14.8	16.1	15.4	16.7	17.4
	3H	16.9	18.0	17.5	18.7	19.4	17.3	18.5	17.9	19.1	19.8
	4H	18.0	19.1	18.7	19.7	20.5	18.5	19.6	19.2	20.2	21.0
	6H	19.2	20.1	19.8	20.7	21.5	19.8	20.7	20.4	21.3	22.1
	8H	19.6	20.5	20.3	21.2	21.9	20.3	21.2	20.9	21.8	22.6
	12H	20.1	20.9	20.8	21.6	22.4	20.8	21.6	21.5	22.3	23.1
8H	4H	18.5	19.4	19.1	20.0	20.8	18.9	19.8	19.6	20.5	21.2
	6H	19.8	20.5	20.5	21.2	22.0	20.3	21.1	21.0	21.8	22.5
	8H	20.4	21.1	21.1	21.8	22.6	21.0	21.7	21.7	22.4	23.1
	12H	21.1	21.7	21.7	22.4	23.2	21.7	22.3	22.4	23.0	23.8
12H	4H	18.6	19.4	19.2	20.1	20.8	19.0	19.8	19.6	20.5	21.2
	6H	19.9	20.6	20.6	21.3	22.1	20.4	21.1	21.1	21.8	22.6
	8H	20.6	21.3	21.3	22.0	22.8	21.2	21.8	21.9	22.5	23.3

Maximum UGR = 23.8

POLAR GRAPH



Maximum Candela = 690.699 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)