



The Perfect Lighting Choice.™

visit us at www.JDG.com

IES INDOOR REPORT

PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] 18097-C

[TESTLAB] LightLab International (www.LightLabInternational.com)

[MANUFAC] Justice Design Group, Los Angeles, CA 90071

[LUMCAT] Artisan Glass (FSN) - Opal Glass (OPAL) 4-Light Bath Bar

[LUMINAIRE] Justice Design Group - Wall mount bathroom luminaire. Product ID: FSN OPAL 4-Light

[MORE] Steel formed housing and four frosted clear glass lenses with white interior.

[MORE] 40 LEDs mounted in four circular arrays with white plastic dome lenses.

[MORE] No driver.

[MORE] Operating at 120 VAC and 60 Hz.

[MORE] Simulated data from test of one and six lamp fixtures.

[ISSUE DATE] April 18, 2018

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2202
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	73
Total Luminaire Watts	29.99
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.56
Spacing Criterion (90-270)	1.74
Spacing Criterion (Diagonal)	1.54
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.08 m
Luminous Width (90-270)	0.66 m
Luminous Height	0.14 m

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2946	3354	7397
55	2484	2653	5346
65	2222	2306	4559
75	2062	2093	4768
85	1986	1991	5748

IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>
0.0	345.045	345.045	345.045	345.045	345.045	345.045	345.045	345.045	345.045
0.5	341.704	342.698	344.010	344.170	345.283	346.675	347.749	347.828	347.868
1.0	342.579	343.732	344.289	344.528	345.721	347.948	349.658	350.334	350.851
1.5	345.323	345.999	345.999	345.402	346.874	349.777	352.283	353.873	354.510
2.0	348.385	348.664	348.465	346.755	348.226	351.766	355.345	357.811	358.606
2.5	352.124	352.362	351.328	348.783	349.936	354.152	358.805	362.146	363.060
3.0	356.578	355.822	354.510	351.169	351.686	356.618	362.702	366.441	367.674
3.5	361.072	359.998	358.049	353.595	353.714	359.163	366.321	370.935	372.884
4.0	365.725	364.611	361.350	356.299	355.743	362.146	370.338	375.508	377.417
4.5	370.418	368.787	365.168	358.845	357.930	365.128	374.236	380.281	382.508
5.0	374.832	373.560	368.867	361.589	359.998	368.071	377.895	384.655	387.320
5.5	379.286	377.735	372.565	364.651	362.265	371.014	381.911	389.507	392.092
6.0	384.417	382.349	376.344	367.594	364.532	374.196	386.127	394.320	397.660
6.5	389.030	386.803	380.400	370.458	366.640	377.218	390.064	398.973	402.075
7.0	393.643	391.098	384.218	373.520	369.066	380.281	394.280	403.825	407.165
7.5	398.217	395.910	388.115	376.542	371.452	383.462	398.495	408.557	412.097
8.0	402.552	400.325	392.132	379.446	373.838	386.604	402.472	413.171	416.829
8.5	407.006	404.898	395.990	382.508	376.025	389.786	406.648	417.784	421.562
9.0	412.017	409.154	399.927	385.570	378.571	392.928	410.943	422.238	426.295
9.5	416.710	413.568	403.944	388.553	381.156	396.149	414.642	426.573	431.027
10.0	421.204	418.182	407.762	391.655	383.383	399.132	418.619	431.385	435.680
10.5	425.658	423.033	411.779	394.876	385.769	402.353	422.755	435.800	440.373
11.0	430.749	427.209	415.636	397.939	388.155	405.535	426.573	440.214	445.026
11.5	435.521	431.664	419.414	401.279	390.581	408.716	430.590	444.470	449.361
12.0	439.936	436.237	423.431	404.342	393.007	411.898	434.487	449.043	453.855
12.5	443.555	440.333	427.607	407.324	395.354	415.199	438.305	453.020	458.270
13.0	446.100	444.350	431.306	410.426	397.620	418.261	442.163	457.395	462.207
13.5	447.691	447.532	435.402	413.449	400.086	421.482	445.901	461.412	465.508
14.0	448.208	449.560	439.061	416.233	402.472	424.465	449.560	465.070	467.695
14.5	449.441	451.230	442.918	419.375	404.580	427.527	453.179	468.053	468.888
15.0	450.355	452.304	446.538	422.397	407.205	430.550	456.997	470.201	469.405
15.5	451.270	453.139	449.998	425.459	409.591	433.413	460.457	471.036	469.246
16.0	451.588	454.213	452.941	428.482	411.619	436.476	463.917	471.553	469.008
16.5	451.986	454.332	455.605	431.306	413.807	439.419	467.457	471.473	468.451
17.0	452.026	454.611	457.912	434.169	416.392	442.163	470.598	471.076	467.616
17.5	452.543	455.207	459.741	437.152	418.460	444.907	473.303	470.638	467.297
18.0	452.264	455.128	460.895	439.896	420.647	447.850	475.729	469.883	466.224
18.5	452.543	455.088	461.889	442.680	422.954	450.515	477.240	469.167	465.150
19.0	452.463	455.287	462.326	445.464	425.181	453.338	478.075	468.371	464.116
19.5	451.867	454.690	462.644	448.287	427.408	455.923	478.393	467.496	462.923
20.0	451.111	454.531	462.764	450.793	429.516	458.747	478.234	466.303	461.968
20.5	450.475	454.173	462.724	453.577	431.862	461.292	477.797	465.269	460.576
21.0	449.003	453.179	462.565	456.082	434.010	463.957	477.160	464.076	459.264
21.5	448.208	452.185	462.247	458.707	436.237	466.582	476.325	462.605	457.952
22.0	447.412	451.429	461.730	461.093	438.464	468.968	475.450	461.252	456.241
22.5	446.100	450.117	461.213	463.360	440.731	471.513	474.575	459.582	454.213
23.0	444.827	448.566	460.656	465.349	442.839	473.740	473.343	457.832	452.543
23.5	442.998	446.736	459.542	466.741	444.708	476.087	471.951	456.162	450.276
24.0	441.248	444.827	458.548	467.934	446.935	478.274	470.598	453.895	447.969
24.5	439.737	443.276	457.395	468.968	448.884	480.422	469.087	451.389	445.901
25.0	437.907	441.169	455.804	469.803	450.872	482.291	467.377	449.282	443.555
25.5	435.879	439.180	454.293	470.439	452.861	483.723	465.746	446.736	440.890
26.0	433.652	436.913	452.424	470.598	454.571	484.995	463.599	443.992	438.345
26.5	431.544	434.567	450.475	471.076	456.401	485.791	461.650	441.367	435.322

IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

CANDELA TABULATION - (Cont.)

27.0	428.641	431.982	448.287	470.917	458.071	486.148	459.463	438.305	432.459
27.5	426.653	429.794	446.021	470.598	459.701	486.228	456.878	435.481	429.516
28.0	423.710	427.130	443.356	469.843	461.213	485.910	454.293	432.340	426.334
28.5	420.886	424.028	440.652	469.008	462.923	484.955	451.469	429.118	422.914
29.0	418.182	421.085	437.987	467.496	464.593	483.723	448.407	425.658	419.494
29.5	415.199	418.301	434.964	465.945	466.104	482.052	445.305	422.198	415.994
30.0	412.216	415.239	431.743	464.036	467.337	479.944	441.964	418.659	412.137
30.5	408.478	412.057	428.442	461.690	468.928	477.677	438.226	414.841	408.120
31.0	405.535	409.114	424.982	459.622	470.161	475.132	434.607	410.943	404.342
31.5	402.353	405.734	421.642	457.156	471.553	472.348	430.789	407.125	400.086
32.0	398.575	402.194	418.301	454.293	472.905	469.127	426.891	403.109	396.109
32.5	395.155	398.853	414.364	451.509	473.700	465.587	422.795	398.814	391.416
33.0	391.456	395.115	410.705	448.208	474.695	461.730	418.818	394.439	387.081
33.5	387.201	391.695	407.006	444.708	475.450	457.952	414.682	389.945	381.911
34.0	383.741	387.757	402.910	441.407	475.212	453.418	410.228	385.610	377.537
34.5	380.042	383.940	399.092	437.311	474.615	449.083	405.893	380.997	372.724
35.0	375.667	379.923	394.956	433.215	472.627	444.549	401.160	376.304	367.594
35.5	371.770	376.224	390.979	428.999	469.922	439.856	396.706	371.571	362.543
36.0	367.634	371.889	386.684	424.585	466.423	434.885	392.053	366.441	357.731
36.5	363.259	367.833	382.667	419.812	462.286	430.152	387.320	361.748	352.442
37.0	359.401	363.776	378.372	414.920	457.077	424.823	382.468	356.816	347.391
37.5	355.265	359.521	373.838	409.949	450.554	419.613	377.537	351.567	342.022
38.0	350.891	355.146	369.702	404.978	443.356	414.364	372.685	346.397	336.733
38.5	346.675	350.811	365.168	399.649	435.879	408.836	367.395	340.948	331.602
39.0	342.420	346.675	360.833	394.359	428.164	403.546	362.384	335.778	326.392
39.5	338.363	342.221	356.339	388.871	420.448	397.978	357.174	330.330	320.904
40.0	334.863	337.965	351.726	383.423	412.693	392.490	352.044	325.000	315.774
40.5	330.807	333.631	347.113	378.054	405.336	386.843	346.596	319.631	310.445
41.0	326.711	329.455	342.619	372.406	397.978	381.315	341.306	314.263	305.314
41.5	323.648	325.358	337.806	367.157	390.860	375.667	335.818	308.814	300.383
42.0	320.308	321.262	333.114	361.629	384.258	370.020	330.409	303.485	295.412
42.5	317.524	317.206	328.301	356.061	377.457	364.253	324.762	298.235	290.639
43.0	315.137	313.427	323.608	350.573	371.054	358.606	319.114	293.105	285.668
43.5	313.069	310.166	318.757	344.806	365.049	352.680	313.586	288.173	281.532
44.0	311.359	306.865	314.064	339.159	359.044	346.715	307.700	282.964	277.515
44.5	308.814	304.320	309.331	333.829	353.237	340.869	302.013	278.390	273.737
45.0	306.706	301.854	304.479	327.824	347.431	334.665	296.247	273.976	270.675
45.5	304.718	299.508	300.025	322.296	342.022	328.779	290.798	269.959	267.652
46.0	302.530	297.559	295.372	316.649	336.295	322.495	285.151	266.220	264.789
46.5	300.224	295.332	290.838	311.001	330.926	316.211	279.543	262.959	261.766
47.0	297.877	292.986	286.622	305.036	325.160	309.967	273.737	259.937	258.704
47.5	295.809	290.918	282.248	299.309	319.313	303.525	268.447	256.914	255.642
48.0	293.701	288.810	278.509	293.582	313.467	297.122	263.158	254.051	252.460
48.5	291.395	286.384	274.850	287.537	307.422	290.520	257.869	251.028	249.795
49.0	289.526	284.236	271.709	281.890	301.258	284.236	253.017	248.125	246.932
49.5	287.378	282.009	268.487	275.924	294.934	277.674	248.324	245.142	243.949
50.0	285.270	279.901	265.664	270.158	288.492	271.430	244.188	242.398	241.285
50.5	283.162	277.634	262.760	264.630	281.731	264.948	240.290	239.415	238.501
51.0	281.253	275.606	260.295	259.221	274.970	258.425	236.751	236.711	235.558
51.5	279.504	273.299	258.068	253.176	268.169	252.102	233.609	233.808	233.052
52.0	277.197	271.430	256.079	247.886	260.971	245.818	230.626	231.302	230.467
52.5	275.606	269.362	253.852	242.557	253.613	239.614	228.081	228.558	227.842
53.0	273.618	267.215	251.744	237.069	246.654	233.490	225.218	225.735	225.257
53.5	271.947	265.266	249.557	232.336	239.455	227.683	222.553	223.666	222.632
54.0	270.237	263.516	247.528	227.445	232.416	221.917	220.008	220.803	220.286
54.5	267.970	261.448	245.381	222.990	225.735	216.627	217.423	218.377	218.138

IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

CANDELA TABULATION - (Cont.)

55.0	266.181	259.857	243.313	218.974	218.934	211.258	214.877	215.832	215.593
55.5	264.988	258.068	241.205	215.633	212.531	206.247	212.332	213.525	213.485
56.0	263.357	256.238	239.256	212.213	206.088	202.032	209.787	211.179	211.099
56.5	261.726	254.409	237.069	209.469	200.083	198.015	207.321	208.912	208.792
57.0	260.334	252.937	235.120	206.526	194.475	194.953	205.014	206.565	206.645
57.5	258.664	250.949	233.172	203.742	188.907	192.527	202.628	204.298	204.497
58.0	257.352	249.358	231.103	201.713	183.737	190.538	200.083	202.151	202.310
58.5	255.522	247.886	229.354	200.162	179.204	188.430	197.816	199.924	200.003
59.0	254.289	246.216	227.524	198.293	175.346	186.482	195.589	197.657	197.975
59.5	252.738	244.625	225.615	196.663	172.164	184.573	193.203	195.708	196.146
60.0	251.068	243.154	223.865	194.953	169.778	182.584	191.135	193.561	193.839
60.5	249.597	241.643	222.155	193.203	167.790	180.476	188.907	191.333	192.049
61.0	248.284	240.091	220.366	191.373	166.159	178.408	186.641	189.385	189.743
61.5	247.210	238.739	218.337	189.743	164.688	176.459	184.652	187.317	188.033
62.0	245.620	237.149	216.826	187.714	163.296	174.551	182.465	185.328	185.845
62.5	244.148	235.637	215.116	186.084	161.665	172.482	180.516	183.379	183.777
63.0	242.875	234.166	213.326	184.294	160.114	170.494	178.528	181.152	182.067
63.5	241.205	232.694	211.735	182.544	158.523	168.505	176.499	179.442	179.959
64.0	239.893	231.422	210.264	180.874	156.893	166.716	174.391	177.533	178.170
64.5	238.938	229.990	208.514	179.005	155.222	164.688	172.562	175.704	176.221
65.0	237.586	228.558	207.202	177.334	153.632	162.858	170.613	173.715	174.391
65.5	236.075	227.166	205.412	175.744	151.961	160.750	168.466	172.085	172.522
66.0	234.762	225.933	203.980	173.994	150.331	158.961	166.676	170.176	170.733
66.5	233.609	224.422	202.390	172.164	148.740	157.131	164.688	168.307	169.062
67.0	232.376	223.269	200.838	170.812	146.831	155.143	162.659	166.437	167.193
67.5	230.905	221.877	199.248	169.142	145.359	153.194	161.029	164.688	165.364
68.0	229.632	220.445	197.856	167.233	143.808	151.643	159.239	162.858	163.733
68.5	228.518	219.133	196.424	165.761	142.058	149.575	157.370	161.267	162.182
69.0	227.365	217.979	194.873	164.131	140.348	147.984	155.739	159.478	160.114
69.5	226.092	216.627	193.481	162.381	138.758	146.274	153.910	157.768	158.523
70.0	224.979	215.474	191.930	160.949	137.047	144.325	152.279	156.097	157.012
70.5	223.507	214.122	190.379	159.398	135.377	142.615	150.529	154.506	154.944
71.0	222.235	212.849	189.265	157.609	133.747	140.905	148.780	152.677	153.552
71.5	221.241	211.855	187.873	156.217	132.156	139.195	147.069	151.126	151.921
72.0	220.087	210.542	186.402	154.586	130.605	137.366	145.479	149.416	150.331
72.5	219.013	209.310	185.169	152.916	128.974	135.775	143.808	147.905	148.660
73.0	217.701	208.116	183.817	151.603	127.383	134.065	142.257	146.195	147.109
73.5	216.468	207.003	182.425	149.973	125.793	132.355	140.547	144.723	145.479
74.0	215.633	205.690	181.152	148.382	124.281	130.724	139.036	143.132	144.007
74.5	214.718	204.458	179.721	147.069	122.571	129.054	137.445	141.581	142.377
75.0	213.406	203.463	178.488	145.678	121.179	127.582	135.974	140.149	140.746
75.5	212.093	202.230	177.374	144.087	119.668	126.071	134.383	138.439	139.275
76.0	211.020	201.117	176.141	142.735	118.037	124.361	132.792	136.968	137.684
76.5	209.747	200.003	174.749	141.382	116.486	122.969	131.281	135.457	136.292
77.0	208.474	198.810	173.755	139.951	115.134	121.458	129.690	134.065	134.860
77.5	207.838	197.856	172.443	138.479	113.543	119.787	128.258	132.474	133.548
78.0	206.645	196.663	171.051	137.206	112.231	118.435	126.827	131.002	131.957
78.5	205.293	195.470	170.057	135.616	110.680	116.964	125.395	129.571	130.565
79.0	204.577	194.356	168.863	134.462	109.248	115.373	123.884	128.179	128.855
79.5	203.185	193.282	167.511	133.269	107.816	113.901	122.452	126.667	127.542
80.0	202.549	192.169	166.517	131.718	106.464	112.470	121.020	125.275	126.150
80.5	201.395	191.214	165.244	130.525	105.192	111.078	119.509	124.003	124.918
81.0	200.242	190.180	164.091	129.252	103.800	109.646	118.316	122.531	123.287
81.5	199.486	188.947	163.057	127.980	102.646	108.453	116.964	121.219	121.975
82.0	198.174	187.913	161.824	126.866	101.334	107.021	115.452	120.026	120.742
82.5	197.299	187.078	160.591	125.713	99.982	105.550	114.180	118.674	119.429

IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

CANDELA TABULATION - (Cont.)

83.0	195.987	185.845	159.637	124.401	98.669	104.356	112.907	117.321	118.037
83.5	195.032	184.970	158.563	123.207	97.476	103.124	111.555	115.930	116.645
84.0	194.197	184.016	157.370	122.213	96.243	101.771	110.362	114.776	115.333
84.5	193.163	182.862	156.495	120.941	95.090	100.499	109.010	113.344	113.981
85.0	192.328	181.828	155.461	119.907	94.016	99.226	107.856	112.191	113.026
85.5	191.413	180.874	154.308	118.833	92.744	97.874	106.743	110.919	111.634
86.0	190.459	179.880	153.313	117.679	91.710	96.800	105.311	109.407	110.640
86.5	189.464	179.084	152.518	116.685	90.556	95.567	104.118	108.294	109.010
87.0	188.390	178.090	151.365	115.930	89.522	94.414	103.044	107.260	107.896
87.5	187.516	177.056	150.529	114.736	88.727	93.340	101.851	105.947	106.862
88.0	186.680	176.459	149.694	113.981	87.534	92.266	100.817	104.873	105.550
88.5	185.766	175.545	148.780	113.146	86.818	91.193	99.703	103.800	104.396
89.0	185.607	175.028	148.103	112.231	85.983	90.437	98.630	102.567	103.084
89.5	185.686	174.988	148.103	112.151	85.386	89.642	97.635	101.573	102.090
90.0	185.328	175.227	148.382	112.310	85.704	89.443	97.238	100.976	101.413
90.5	185.925	175.465	148.422	112.430	85.704	89.522	96.999	100.658	101.215
91.0	186.442	175.624	148.660	112.668	85.625	89.522	96.800	100.499	101.016
91.5	186.601	176.102	148.859	112.907	85.903	89.562	96.760	100.419	100.658
92.0	186.919	176.062	149.257	112.827	85.943	89.562	96.562	100.101	100.539
92.5	187.158	176.380	149.416	113.146	86.182	89.443	96.402	99.783	100.260
93.0	187.476	176.658	149.416	113.424	86.102	89.204	96.402	99.664	100.101
93.5	187.953	176.857	149.973	113.543	86.500	89.244	96.402	99.505	99.823
94.0	188.152	177.255	150.132	113.862	86.420	89.164	96.045	99.345	99.505
94.5	188.430	177.374	150.370	113.941	86.619	88.965	96.164	99.067	99.027
95.0	189.027	177.653	150.529	114.140	86.619	88.965	95.885	98.510	98.749
95.5	188.947	178.090	150.728	114.379	86.738	88.926	95.687	98.351	98.630
96.0	189.425	178.289	151.007	114.538	86.818	88.846	95.488	98.152	98.113
96.5	189.663	178.488	151.484	114.657	87.057	88.727	95.249	97.715	97.874
97.0	189.942	178.766	151.404	114.935	87.017	88.647	95.130	97.436	97.357
97.5	190.140	179.005	151.643	115.253	87.057	88.448	95.011	97.357	97.158
98.0	190.578	179.045	151.921	115.214	87.375	88.528	94.653	96.959	96.840
98.5	190.618	179.402	152.120	115.572	87.414	88.289	94.533	96.681	96.442
99.0	190.856	179.641	152.120	115.890	87.534	88.051	94.454	96.363	96.124
99.5	191.135	179.721	152.399	115.770	87.613	88.051	94.016	96.045	95.567
100.0	191.214	179.919	152.518	116.009	87.812	87.892	93.937	95.766	95.329
100.5	191.532	179.959	152.558	116.208	87.852	87.772	93.817	95.368	94.931
101.0	191.493	180.079	152.717	116.447	88.051	87.613	93.579	94.931	94.533
101.5	191.930	180.158	152.876	116.526	88.130	87.335	93.300	94.692	93.977
102.0	191.771	180.277	152.836	116.725	88.448	87.255	93.022	94.255	93.817
102.5	191.890	180.277	152.876	116.765	88.448	87.136	92.664	93.857	93.420
103.0	191.930	180.397	152.955	116.924	88.687	86.818	92.346	93.539	93.062
103.5	191.930	180.436	152.876	117.162	88.608	86.699	92.107	93.300	92.346
104.0	192.248	180.476	152.717	116.924	88.687	86.500	91.749	92.903	92.187
104.5	192.328	180.635	152.757	117.162	88.767	86.261	91.272	92.425	91.551
105.0	191.970	180.675	152.677	117.282	89.005	86.023	90.835	92.147	91.113
105.5	192.169	180.436	152.637	117.043	89.085	85.824	90.397	91.630	90.596
106.0	192.328	180.476	152.757	117.123	88.965	85.665	89.960	91.073	90.278
106.5	192.248	180.556	152.677	117.123	89.085	85.466	89.562	90.676	89.761
107.0	192.367	180.556	152.558	117.083	88.965	85.307	89.085	90.079	89.363
107.5	192.248	180.436	152.518	117.043	88.965	85.068	88.687	89.602	88.687
108.0	192.248	180.397	152.438	117.242	89.085	84.591	88.250	88.806	88.011
108.5	192.328	180.357	152.518	117.043	88.926	84.511	87.852	88.329	87.295
109.0	191.970	180.317	152.319	117.043	89.005	84.074	87.414	87.653	86.858
109.5	192.089	180.039	152.120	116.884	88.806	83.954	86.977	87.136	85.863
110.0	191.890	180.079	152.001	116.884	88.926	83.756	86.540	86.341	85.545
110.5	191.930	179.760	152.001	116.844	88.767	83.517	85.983	85.943	84.551

IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

CANDELA TABULATION - (Cont.)

111.0	191.691	179.800	151.842	116.964	88.806	83.278	85.625	85.267	83.835
111.5	191.572	179.681	151.842	116.804	88.608	83.080	84.988	84.710	83.477
112.0	191.095	179.601	151.683	116.765	88.568	82.682	84.591	83.994	82.602
112.5	191.214	179.442	151.365	116.645	88.647	82.563	84.233	83.437	81.807
113.0	191.135	179.204	151.365	116.526	88.608	82.205	83.795	82.841	81.091
113.5	190.896	179.005	151.166	116.367	88.488	82.046	83.159	82.006	80.534
114.0	190.578	178.885	150.887	116.367	88.448	81.847	82.761	81.568	79.898
114.5	190.657	178.647	150.768	116.168	88.409	81.449	82.364	80.654	79.103
115.0	190.180	178.368	150.410	116.009	88.210	81.210	81.528	79.779	78.188
115.5	190.021	178.408	150.251	115.890	88.250	80.892	81.330	78.983	77.472
116.0	189.623	177.851	149.933	115.611	87.931	80.852	80.654	77.909	76.637
116.5	189.663	177.692	149.734	115.572	88.051	80.375	79.977	77.074	75.802
117.0	189.146	177.414	149.416	115.373	87.852	80.216	79.699	76.319	74.370
117.5	188.709	177.016	149.297	115.174	87.653	79.938	79.262	75.245	73.614
118.0	188.470	176.738	148.819	114.856	87.494	79.580	78.625	74.449	72.342
118.5	188.112	176.579	148.581	114.697	87.255	79.301	78.069	73.574	71.427
119.0	187.635	176.062	148.302	114.617	87.136	79.063	77.750	72.660	70.313
119.5	187.237	175.823	148.024	114.418	87.136	78.824	77.034	71.626	69.120
120.0	186.879	175.585	147.785	114.100	86.858	78.546	76.716	70.552	68.046
120.5	186.601	174.948	147.467	113.702	86.659	78.148	76.120	69.597	67.012
121.0	186.203	174.670	146.990	113.702	86.341	77.870	75.483	68.723	65.939
121.5	185.487	174.391	146.592	113.504	86.341	77.472	75.205	67.848	64.825
122.0	185.169	173.795	146.314	113.026	86.221	77.154	74.648	66.853	63.672
122.5	184.612	173.397	146.035	112.748	85.903	77.034	74.131	66.018	62.717
123.0	184.175	173.039	145.518	112.629	85.704	76.557	73.694	65.103	61.643
123.5	183.578	172.284	145.081	112.112	85.545	76.319	73.256	64.308	60.331
124.0	183.499	171.727	144.803	111.953	85.466	76.080	72.540	63.354	59.456
124.5	182.505	171.329	144.365	111.674	85.148	75.682	72.183	62.558	58.502
125.0	181.828	170.693	143.967	111.356	84.869	75.603	71.825	61.683	57.507
125.5	181.152	170.176	143.371	110.919	84.670	75.245	71.387	60.928	56.752
126.0	180.357	169.460	142.933	110.680	84.591	75.086	71.109	60.252	55.917
126.5	180.039	168.784	142.416	110.282	84.392	74.887	70.592	59.456	55.081
127.0	178.846	168.267	141.979	110.083	84.273	74.688	69.995	58.820	54.246
127.5	178.050	167.471	141.382	109.725	84.114	74.370	69.677	58.263	53.610
128.0	177.494	166.756	140.865	109.288	83.835	74.290	69.319	57.388	52.894
128.5	176.619	165.960	140.309	109.049	83.835	74.211	68.802	56.672	52.218
129.0	175.744	165.523	139.831	108.612	83.477	73.853	68.404	55.877	51.542
129.5	175.147	164.648	139.155	108.333	83.318	73.614	68.126	55.201	51.104
130.0	173.994	164.091	138.598	107.777	83.159	73.177	67.410	54.564	50.468
130.5	173.318	163.296	137.962	107.498	83.159	73.057	67.132	53.968	49.633
131.0	172.522	162.500	137.366	107.260	82.761	72.819	66.734	53.411	49.275
131.5	171.846	161.824	136.849	106.743	82.602	72.660	66.257	52.655	48.917
132.0	170.693	161.029	136.093	106.623	82.483	72.501	65.859	52.099	48.241
132.5	169.659	159.995	135.536	106.027	82.244	72.262	65.581	51.502	47.644
133.0	168.943	159.239	134.900	105.550	81.886	72.023	65.103	50.985	47.525
133.5	167.869	158.444	134.224	105.231	81.847	71.825	64.746	50.587	46.929
134.0	166.994	157.489	133.587	104.754	81.489	71.745	64.308	50.031	46.730
134.5	166.159	156.614	132.911	104.237	81.449	71.506	64.030	49.434	46.213
135.0	165.165	155.779	132.076	103.760	81.131	71.188	63.632	49.076	45.815
135.5	164.210	154.705	131.559	103.362	80.892	71.228	63.234	48.639	45.417
136.0	163.137	154.149	130.764	102.885	80.614	70.791	62.757	47.923	44.900
136.5	162.142	153.234	130.088	102.567	80.415	70.592	62.320	47.605	44.383
137.0	161.029	152.160	129.372	101.970	80.216	70.353	62.161	47.127	43.827
137.5	159.915	151.245	128.656	101.533	79.818	70.154	61.564	46.571	43.628
138.0	158.722	150.291	127.900	101.135	79.739	69.796	61.365	46.332	43.508
138.5	157.807	149.257	127.264	100.618	79.500	69.796	61.206	45.934	42.991

IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

CANDELA TABULATION - (Cont.)

139.0	156.614	148.422	126.429	100.022	79.063	69.677	60.649	45.378	42.673
139.5	155.580	147.348	125.633	99.544	78.864	69.399	60.371	45.059	42.276
140.0	154.785	146.393	124.560	99.147	78.745	69.319	60.092	44.622	41.878
140.5	153.671	145.240	124.003	98.391	78.267	68.961	59.575	44.304	41.520
141.0	152.558	144.484	123.128	98.113	78.108	68.683	59.416	43.747	41.043
141.5	151.603	143.212	122.412	97.476	77.790	68.643	59.019	43.349	40.645
142.0	150.450	142.257	121.497	96.840	77.392	68.404	58.701	42.872	40.168
142.5	149.058	141.263	120.742	96.363	77.154	68.126	58.502	42.673	39.690
143.0	147.944	140.110	119.867	95.726	76.875	68.046	58.223	42.037	39.571
143.5	146.751	138.956	118.912	95.090	76.557	67.689	57.746	41.679	39.213
144.0	145.638	137.883	118.077	94.613	76.120	67.410	57.666	41.361	38.975
144.5	144.445	136.769	117.242	94.096	75.841	67.490	57.587	41.122	38.696
145.0	143.172	135.815	116.486	93.300	75.483	67.172	57.149	40.605	38.497
145.5	142.019	134.701	115.611	92.863	75.245	66.893	56.871	40.406	38.458
146.0	140.706	133.508	114.657	92.266	74.847	66.575	56.752	40.128	38.696
146.5	139.553	132.275	113.663	91.630	74.410	66.456	56.394	39.531	38.656
147.0	138.400	131.201	112.907	90.994	74.012	66.217	56.434	39.253	38.537
147.5	137.206	129.849	111.992	90.357	73.893	66.018	56.076	39.014	38.656
148.0	135.775	128.735	110.998	89.761	73.376	65.740	55.837	38.696	38.736
148.5	134.423	127.662	110.163	89.085	73.177	65.501	55.638	38.338	38.816
149.0	132.991	126.588	109.169	88.528	72.700	65.342	55.559	37.980	39.014
149.5	131.997	125.355	108.214	87.733	72.262	65.223	55.320	37.821	39.213
150.0	130.644	124.003	107.260	87.176	71.785	64.825	55.121	37.543	39.173
150.5	129.332	122.969	106.265	86.540	71.546	64.746	55.002	37.384	39.412
151.0	128.059	121.537	105.390	85.744	71.109	64.427	54.763	37.344	39.690
151.5	126.906	120.384	104.476	85.187	70.711	64.268	54.564	37.026	39.531
152.0	125.236	119.310	103.402	84.631	70.353	63.950	54.405	36.668	39.452
152.5	123.884	117.918	102.527	83.795	69.876	63.791	54.087	36.628	39.611
153.0	122.850	116.606	101.334	82.960	69.558	63.592	54.127	36.469	39.571
153.5	121.259	115.452	100.499	82.324	69.080	63.274	54.047	36.429	39.730
154.0	119.907	114.180	99.425	81.688	68.683	62.996	53.729	36.350	39.611
154.5	118.435	112.827	98.311	80.892	68.325	62.717	53.729	36.350	39.531
155.0	116.964	111.436	97.357	80.137	67.967	62.399	53.491	36.310	39.531
155.5	115.651	110.083	96.363	79.341	67.490	62.161	53.172	36.390	39.770
156.0	114.379	108.890	95.289	78.784	67.012	62.001	53.172	36.429	39.770
156.5	112.629	107.578	94.136	77.909	66.734	61.643	53.172	36.270	40.009
157.0	111.555	106.345	93.221	77.074	66.098	61.405	52.934	35.952	39.929
157.5	110.004	104.993	92.068	76.319	65.581	61.007	52.854	35.793	39.730
158.0	108.612	103.521	91.153	75.682	65.223	60.808	52.815	35.515	39.730
158.5	107.379	102.368	90.198	74.807	64.626	60.490	52.616	34.998	39.690
159.0	105.828	101.095	88.965	74.012	64.149	60.053	52.536	34.799	39.730
159.5	104.396	99.664	87.931	73.336	63.672	59.933	52.457	34.322	39.770
160.0	102.925	98.232	86.818	72.342	63.155	59.496	52.178	34.282	39.730
160.5	101.612	96.919	85.784	71.586	62.717	59.337	51.940	34.083	39.690
161.0	100.061	95.488	84.591	70.870	62.280	58.939	51.701	34.003	40.009
161.5	98.391	94.136	83.597	69.836	61.683	58.621	51.343	33.526	40.168
162.0	96.840	92.783	82.244	68.961	61.206	58.223	50.985	33.208	40.367
162.5	95.368	91.391	81.210	68.285	60.928	57.945	50.428	32.850	40.367
163.0	93.897	89.920	80.097	67.370	60.172	57.547	49.195	32.611	40.446
163.5	92.306	88.608	78.864	66.575	59.854	57.149	47.883	32.015	40.685
164.0	90.994	87.136	77.790	65.819	59.377	57.030	46.253	31.021	40.565
164.5	89.363	85.625	76.637	64.746	58.780	56.553	44.224	30.146	39.810
165.0	87.812	84.114	75.483	63.910	58.223	55.797	42.355	29.708	38.617
165.5	86.142	82.761	74.290	62.956	57.706	54.922	40.367	29.509	37.026
166.0	84.710	81.290	73.057	62.200	57.030	53.530	37.980	29.350	35.196
166.5	83.000	79.739	71.666	61.365	56.275	51.621	35.992	28.953	32.611

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES**

CANDELA TABULATION - (Cont.)

167.0	81.250	78.267	70.552	60.570	55.081	49.593	34.401	28.754	29.549
167.5	79.699	76.796	69.399	59.575	53.371	47.167	32.810	27.919	26.885
168.0	77.909	75.046	67.808	58.820	50.985	44.542	31.816	27.362	23.703
168.5	76.279	73.495	66.615	57.865	48.877	42.077	31.180	26.686	20.760
169.0	74.609	72.063	65.501	56.434	46.014	39.452	30.464	25.373	17.260
169.5	72.859	70.552	64.030	54.684	43.469	36.907	30.185	23.942	13.522
170.0	71.029	68.921	62.558	52.337	40.605	34.958	29.629	21.873	10.062
170.5	69.279	66.853	61.007	49.911	38.179	33.685	28.833	19.328	7.278
171.0	67.490	64.944	58.740	47.366	36.151	32.413	28.197	17.101	4.454
171.5	65.859	63.314	56.792	44.701	34.759	31.697	27.083	15.192	2.943
172.0	63.950	61.484	54.883	42.156	33.526	31.180	25.174	12.925	2.625
172.5	62.320	58.979	52.218	40.287	32.452	30.265	22.947	10.698	2.585
173.0	59.456	56.712	49.673	38.537	31.538	29.231	20.680	8.551	2.466
173.5	56.036	54.127	46.809	36.469	30.384	27.123	17.698	7.238	2.108
174.0	54.207	50.786	43.508	34.799	29.430	24.061	14.635	6.681	1.829
174.5	51.224	47.565	40.526	32.890	27.640	20.999	11.692	6.005	1.551
175.0	47.644	44.105	37.662	30.504	25.055	17.499	9.346	5.488	1.193
175.5	42.991	40.088	34.282	28.078	21.873	13.681	7.994	4.534	0.875
176.0	38.338	35.634	30.941	25.174	18.493	10.380	7.079	3.778	1.153
176.5	33.327	30.623	27.004	21.078	14.556	7.994	6.045	2.665	0.915
177.0	27.481	25.532	22.589	16.902	11.016	6.721	5.091	1.750	0.756
177.5	21.436	19.805	18.414	13.164	8.113	5.926	4.295	1.153	0.756
178.0	14.993	13.880	14.039	8.948	5.965	4.931	3.380	0.954	1.273
178.5	9.545	8.869	9.266	5.687	4.812	4.057	2.545	1.034	0.875
179.0	5.608	5.329	4.971	3.540	3.738	3.221	1.988	0.954	0.994
179.5	1.988	3.023	1.909	1.909	2.585	2.585	1.233	0.994	1.392
180.0	1.432	1.432	1.432	1.432	1.432	1.432	1.432	1.432	1.432

IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	162.11	N.A.	7.40
0-30	372.28	N.A.	16.90
0-40	626.42	N.A.	28.50
0-60	1071.89	N.A.	48.70
0-80	1418.13	N.A.	64.40
0-90	1558.03	N.A.	70.80
10-90	1521.3	N.A.	69.10
20-40	464.31	N.A.	21.10
20-50	703.86	N.A.	32.00
40-70	629.04	N.A.	28.60
60-80	346.23	N.A.	15.70
70-80	162.66	N.A.	7.40
80-90	139.91	N.A.	6.40
90-110	255.78	N.A.	11.60
90-120	368.55	N.A.	16.70
90-130	462.80	N.A.	21.00
90-150	589.97	N.A.	26.80
90-180	643.78	N.A.	29.20
110-180	388.00	N.A.	17.60
0-180	2201.81	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	36.73
10-20	125.38
20-30	210.16
30-40	254.15
40-50	239.55
50-60	205.92
60-70	183.57
70-80	162.66
80-90	139.91
90-100	130.36
100-110	125.42
110-120	112.76
120-130	94.25
130-140	73.86
140-150	53.30
150-160	34.13
160-170	16.77
170-180	2.92

IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0	
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	112	112	112	112	106	106	106	106	95	95	95	85	85	85	75	75	75	71	71
1	100	94	89	85	94	89	85	81	80	76	73	71	68	66	63	61	59	54	54
2	90	81	74	68	85	77	70	65	69	63	59	61	57	53	54	51	48	44	44
3	82	71	63	56	77	67	60	54	60	54	49	54	49	44	47	43	40	37	37
4	75	63	54	47	70	59	51	45	53	47	41	48	42	38	42	38	34	31	31
5	69	56	47	40	65	53	45	39	48	41	36	43	37	33	38	33	30	27	27
6	63	50	41	35	60	48	40	34	43	36	31	38	33	28	34	30	26	23	23
7	59	45	37	31	55	43	35	29	39	32	27	35	29	25	31	27	23	21	21
8	54	41	33	27	51	39	31	26	36	29	24	32	26	22	29	24	21	18	18
9	51	38	30	24	48	36	28	23	33	26	22	29	24	20	27	22	19	16	16
10	47	35	27	22	45	33	26	21	30	24	20	27	22	18	25	20	17	15	15

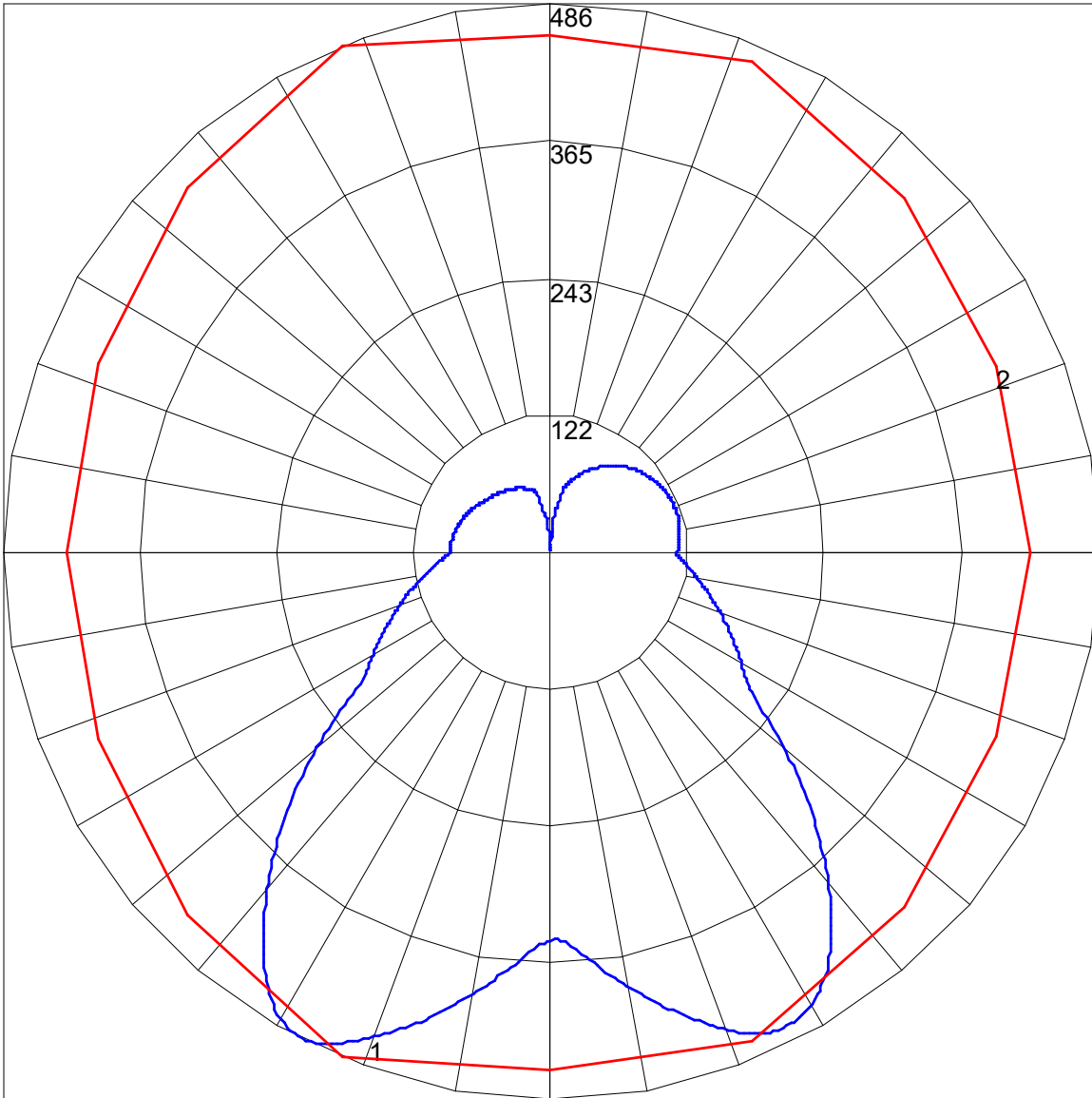
IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN OPAL 4 LIGHT.IES

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	12.9	14.1	13.7	14.9	15.8	11.2	12.3	11.9	13.1	14.0
	3H	15.2	16.3	16.0	17.1	18.0	13.0	14.0	13.7	14.8	15.8
	4H	16.3	17.3	17.1	18.1	19.1	13.8	14.8	14.6	15.6	16.5
	6H	17.4	18.3	18.2	19.1	20.1	14.5	15.4	15.3	16.2	17.2
	8H	17.9	18.8	18.7	19.6	20.6	14.8	15.7	15.6	16.5	17.5
	12H	18.4	19.3	19.2	20.1	21.1	15.1	16.0	15.9	16.8	17.8
4H	2H	13.6	14.6	14.4	15.4	16.4	12.1	13.1	12.9	13.9	14.9
	3H	16.1	17.0	16.9	17.8	18.8	14.2	15.0	15.0	15.9	16.9
	4H	17.4	18.2	18.2	19.0	20.0	15.1	15.9	15.9	16.7	17.7
	6H	18.7	19.4	19.5	20.2	21.2	16.0	16.7	16.8	17.5	18.6
	8H	19.3	19.9	20.1	20.8	21.8	16.4	17.0	17.2	17.9	18.9
	12H	19.9	20.5	20.7	21.3	22.4	16.7	17.4	17.6	18.2	19.3
8H	4H	17.8	18.5	18.7	19.3	20.4	15.8	16.5	16.7	17.3	18.4
	6H	19.3	19.9	20.2	20.8	21.8	16.9	17.5	17.8	18.4	19.4
	8H	20.1	20.6	20.9	21.5	22.5	17.4	17.9	18.3	18.8	19.9
	12H	20.9	21.3	21.7	22.2	23.3	17.9	18.4	18.8	19.3	20.4
12H	4H	17.9	18.5	18.8	19.4	20.4	16.0	16.6	16.9	17.5	18.5
	6H	19.5	20.0	20.3	20.8	21.9	17.2	17.7	18.1	18.6	19.7
	8H	20.3	20.8	21.2	21.6	22.7	17.8	18.3	18.7	19.1	20.2

Maximum UGR = 23.3

POLAR GRAPH



Maximum Candela = 486.228 Located At Horizontal Angle = 112.5, Vertical Angle = 27.5
1 - Vertical Plane Through Horizontal Angles (112.5 - 292.5) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (27.5) (Through Max. Cd.)