



# The Perfect Lighting Choice.™

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## IES INDOOR REPORT PHOTOMETRIC FILENAME : FSN OPAL 3 LIGHT.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
 [TEST] 18097-B  
 [TESTLAB] LightLab International ([www.LightLabInternational.com](http://www.LightLabInternational.com))  
 [MANUFAC] Justice Design Group, Los Angeles, CA 90071  
 [LUMCAT] Artisan Glass (FSN) - Opal Glass (OPAL) 3-Light Bath Bar  
 [LUMINAIRE] Justice Design Group - Wall mount bathroom luminaire. Product ID: FSN OPAL 3-Light  
 [MORE] Steel formed housing and three frosted clear glass lenses with white interior.  
 [MORE] 30 LEDs mounted in three 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 20, 2018

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1653
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	73
Total Luminaire Watts	22.49
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)	0.50 m
Luminous Height	0.14 m

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2948	3286	6994
55	2486	2592	4965
65	2223	2246	4132
75	2064	2032	4159
85	1987	1925	4654

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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>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>
<b>0.0</b>	258.979	258.979	258.979	258.979	258.979	258.979	258.979	258.979	258.979
<b>0.5</b>	256.471	257.217	258.202	258.322	259.158	260.202	261.008	261.068	261.098
<b>1.0</b>	257.128	257.994	258.411	258.591	259.486	261.158	262.441	262.949	263.337
<b>1.5</b>	259.188	259.695	259.695	259.247	260.352	262.531	264.411	265.605	266.083
<b>2.0</b>	261.486	261.695	261.546	260.262	261.367	264.023	266.710	268.560	269.157
<b>2.5</b>	264.292	264.471	263.695	261.784	262.650	265.814	269.307	271.814	272.501
<b>3.0</b>	267.635	267.068	266.083	263.575	263.964	267.665	272.232	275.038	275.963
<b>3.5</b>	271.008	270.202	268.740	265.396	265.486	269.575	274.948	278.411	279.874
<b>4.0</b>	274.501	273.665	271.217	267.426	267.008	271.814	277.963	281.844	283.276
<b>4.5</b>	278.023	276.799	274.083	269.337	268.650	274.053	280.888	285.426	287.097
<b>5.0</b>	281.336	280.381	276.859	271.396	270.202	276.262	283.635	288.709	290.709
<b>5.5</b>	284.679	283.515	279.635	273.695	271.904	278.471	286.650	292.351	294.291
<b>6.0</b>	288.530	286.978	282.471	275.904	273.605	280.859	289.814	295.963	298.470
<b>6.5</b>	291.993	290.321	285.515	278.053	275.187	283.127	292.769	299.455	301.783
<b>7.0</b>	295.455	293.545	288.381	280.351	277.008	285.426	295.933	303.097	305.604
<b>7.5</b>	298.888	297.157	291.306	282.620	278.799	287.814	299.097	306.649	309.306
<b>8.0</b>	302.142	300.470	294.321	284.799	280.590	290.172	302.082	310.112	312.858
<b>8.5</b>	305.485	303.903	297.216	287.097	282.232	292.560	305.216	313.574	316.410
<b>9.0</b>	309.246	307.097	300.172	289.396	284.142	294.918	308.440	316.917	319.962
<b>9.5</b>	312.768	310.410	303.186	291.634	286.082	297.336	311.216	320.171	323.514
<b>10.0</b>	316.141	313.873	306.052	293.963	287.754	299.575	314.201	323.783	327.007
<b>10.5</b>	319.485	317.514	309.067	296.381	289.545	301.992	317.305	327.096	330.529
<b>11.0</b>	323.305	320.649	311.962	298.679	291.336	304.380	320.171	330.410	334.021
<b>11.5</b>	326.887	323.992	314.798	301.186	293.157	306.768	323.186	333.604	337.275
<b>12.0</b>	330.201	327.425	317.813	303.485	294.978	309.156	326.111	337.036	340.648
<b>12.5</b>	332.917	330.499	320.947	305.724	296.739	311.634	328.977	340.021	343.962
<b>13.0</b>	334.827	333.514	323.723	308.052	298.440	313.932	331.872	343.305	346.917
<b>13.5</b>	336.021	335.902	326.798	310.321	300.291	316.350	334.678	346.320	349.394
<b>14.0</b>	336.409	337.424	329.544	312.410	302.082	318.589	337.424	349.066	351.036
<b>14.5</b>	337.335	338.678	332.439	314.768	303.664	320.887	340.141	351.305	351.931
<b>15.0</b>	338.021	339.484	335.156	317.037	305.634	323.156	343.006	352.917	352.320
<b>15.5</b>	338.708	340.111	337.753	319.335	307.425	325.305	345.603	353.543	352.200
<b>16.0</b>	338.947	340.917	339.962	321.604	308.947	327.604	348.200	353.931	352.021
<b>16.5</b>	339.245	341.006	341.962	323.723	310.589	329.813	350.857	353.872	351.603
<b>17.0</b>	339.275	341.215	343.693	325.872	312.529	331.872	353.215	353.573	350.976
<b>17.5</b>	339.663	341.663	345.066	328.111	314.082	333.932	355.245	353.245	350.737
<b>18.0</b>	339.454	341.603	345.932	330.171	315.723	336.141	357.066	352.678	349.932
<b>18.5</b>	339.663	341.574	346.678	332.260	317.455	338.141	358.200	352.140	349.126
<b>19.0</b>	339.603	341.723	347.006	334.350	319.126	340.260	358.827	351.543	348.349
<b>19.5</b>	339.156	341.275	347.245	336.469	320.798	342.200	359.066	350.887	347.454
<b>20.0</b>	338.589	341.156	347.335	338.350	322.380	344.320	358.946	349.991	346.738
<b>20.5</b>	338.111	340.887	347.305	340.439	324.141	346.230	358.618	349.215	345.693
<b>21.0</b>	337.006	340.141	347.185	342.320	325.753	348.230	358.140	348.320	344.708
<b>21.5</b>	336.409	339.394	346.947	344.290	327.425	350.200	357.513	347.215	343.723
<b>22.0</b>	335.812	338.827	346.558	346.081	329.096	351.991	356.857	346.200	342.439
<b>22.5</b>	334.827	337.842	346.170	347.782	330.798	353.902	356.200	344.947	340.917
<b>23.0</b>	333.872	336.678	345.753	349.275	332.380	355.573	355.275	343.633	339.663
<b>23.5</b>	332.499	335.305	344.917	350.320	333.783	357.334	354.230	342.379	337.962
<b>24.0</b>	331.186	333.872	344.170	351.215	335.454	358.976	353.215	340.678	336.230
<b>24.5</b>	330.051	332.708	343.305	351.991	336.917	360.588	352.081	338.797	334.678
<b>25.0</b>	328.678	331.126	342.111	352.618	338.409	361.991	350.797	337.215	332.917
<b>25.5</b>	327.156	329.634	340.977	353.096	339.902	363.066	349.573	335.305	330.917
<b>26.0</b>	325.484	327.932	339.574	353.215	341.185	364.021	347.961	333.245	329.007
<b>26.5</b>	323.902	326.171	338.111	353.573	342.559	364.618	346.499	331.275	326.738

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**CANDELA TABULATION - (Cont.)**

27.0	321.723	324.231	336.469	353.454	343.812	364.886	344.857	328.977	324.589
27.5	320.231	322.589	334.768	353.215	345.036	364.946	342.917	326.857	322.380
28.0	318.022	320.589	332.768	352.648	346.170	364.707	340.977	324.499	319.992
28.5	315.903	318.261	330.738	352.021	347.454	363.991	338.857	322.081	317.425
29.0	313.873	316.052	328.738	350.887	348.708	363.066	336.559	319.485	314.858
29.5	311.634	313.962	326.469	349.723	349.842	361.812	334.230	316.888	312.231
30.0	309.395	311.664	324.052	348.290	350.767	360.230	331.723	314.231	309.336
30.5	306.589	309.276	321.574	346.529	351.961	358.528	328.917	311.365	306.321
31.0	304.380	307.067	318.977	344.976	352.887	356.618	326.201	308.440	303.485
31.5	301.992	304.530	316.470	343.126	353.931	354.528	323.335	305.574	300.291
32.0	299.157	301.873	313.962	340.977	354.946	352.111	320.410	302.560	297.306
32.5	296.590	299.366	311.007	338.887	355.543	349.454	317.335	299.336	293.784
33.0	293.814	296.560	308.261	336.409	356.290	346.558	314.350	296.052	290.530
33.5	290.620	293.993	305.485	333.783	356.857	343.723	311.246	292.679	286.650
34.0	288.023	291.037	302.410	331.305	356.678	340.320	307.903	289.426	283.366
34.5	285.247	288.172	299.545	328.231	356.230	337.066	304.649	285.963	279.754
35.0	281.963	285.157	296.440	325.156	354.737	333.663	301.097	282.441	275.904
35.5	279.038	282.381	293.455	321.992	352.708	330.141	297.754	278.889	272.113
36.0	275.933	279.127	290.232	318.679	350.081	326.410	294.261	275.038	268.501
36.5	272.650	276.083	287.217	315.097	346.976	322.858	290.709	271.516	264.531
37.0	269.754	273.038	283.993	311.425	343.066	318.858	287.067	267.814	260.740
37.5	266.650	269.844	280.590	307.694	338.171	314.947	283.366	263.874	256.710
38.0	263.367	266.560	277.486	303.963	332.768	311.007	279.724	259.993	252.740
38.5	260.202	263.307	274.083	299.963	327.156	306.858	275.754	255.904	248.889
39.0	257.008	260.202	270.829	295.993	321.365	302.888	271.993	252.024	244.979
39.5	253.964	256.859	267.456	291.873	315.574	298.709	268.083	247.934	240.860
40.0	251.337	253.665	263.993	287.784	309.753	294.590	264.232	243.934	237.009
40.5	248.292	250.412	260.531	283.754	304.231	290.351	260.143	239.904	233.009
41.0	245.218	247.277	257.158	279.515	298.709	286.202	256.173	235.875	229.158
41.5	242.919	244.203	253.546	275.575	293.366	281.963	252.053	231.785	225.457
42.0	240.412	241.128	250.024	271.426	288.411	277.724	247.994	227.785	221.726
42.5	238.322	238.084	246.412	267.247	283.306	273.396	243.755	223.845	218.144
43.0	236.531	235.248	242.889	263.128	278.500	269.157	239.516	219.994	214.413
43.5	234.979	232.800	239.248	258.799	273.993	264.710	235.367	216.293	211.308
44.0	233.696	230.323	235.725	254.561	269.486	260.232	230.949	212.383	208.293
44.5	231.785	228.412	232.173	250.561	265.128	255.844	226.681	208.950	205.458
45.0	230.203	226.561	228.532	246.054	260.770	251.188	222.353	205.637	203.159
45.5	228.711	224.800	225.188	241.904	256.710	246.770	218.263	202.622	200.890
46.0	227.069	223.338	221.696	237.666	252.412	242.054	214.024	199.816	198.741
46.5	225.338	221.666	218.293	233.427	248.382	237.337	209.816	197.368	196.473
47.0	223.576	219.905	215.129	228.949	244.054	232.651	205.458	195.100	194.174
47.5	222.024	218.353	211.845	224.651	239.666	227.815	201.487	192.831	191.876
48.0	220.442	216.771	209.040	220.353	235.278	223.009	197.517	190.682	189.488
48.5	218.711	214.950	206.293	215.815	230.740	218.054	193.547	188.413	187.488
49.0	217.308	213.338	203.935	211.577	226.114	213.338	189.906	186.234	185.339
49.5	215.696	211.666	201.517	207.099	221.368	208.413	186.383	183.995	183.100
50.0	214.114	210.084	199.398	202.771	216.532	203.726	183.279	181.936	181.100
50.5	212.532	208.383	197.219	198.622	211.457	198.861	180.354	179.697	179.010
51.0	211.099	206.860	195.368	194.562	206.383	193.965	177.697	177.667	176.802
51.5	209.786	205.129	193.697	190.025	201.279	189.219	175.339	175.488	174.921
52.0	208.054	203.726	192.204	186.055	195.876	184.503	173.100	173.608	172.981
52.5	206.860	202.174	190.533	182.055	190.353	179.846	171.190	171.548	171.011
53.0	205.368	200.562	188.950	177.936	185.130	175.249	169.041	169.429	169.070
53.5	204.114	199.099	187.309	174.384	179.727	170.891	167.041	167.876	167.100
54.0	202.831	197.786	185.786	170.712	174.443	166.563	165.130	165.727	165.339
54.5	201.129	196.234	184.174	167.369	169.429	162.593	163.190	163.906	163.727

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**CANDELA TABULATION - (Cont.)**

55.0	199.786	195.040	182.622	164.354	164.324	158.563	161.280	161.996	161.817
55.5	198.891	193.697	181.040	161.847	159.518	154.802	159.369	160.265	160.235
56.0	197.667	192.324	179.578	159.280	154.683	151.638	157.459	158.503	158.444
56.5	196.443	190.950	177.936	157.220	150.175	148.623	155.608	156.802	156.712
57.0	195.398	189.846	176.473	155.011	145.966	146.325	153.877	155.041	155.101
57.5	194.144	188.353	175.011	152.922	141.787	144.504	152.086	153.339	153.489
58.0	193.159	187.159	173.458	151.399	137.907	143.011	150.175	151.728	151.847
58.5	191.786	186.055	172.145	150.235	134.504	141.429	148.474	150.056	150.116
59.0	190.861	184.801	170.772	148.832	131.609	139.967	146.802	148.354	148.593
59.5	189.697	183.607	169.339	147.608	129.221	138.534	145.011	146.892	147.220
60.0	188.443	182.503	168.026	146.325	127.430	137.041	143.459	145.280	145.489
60.5	187.339	181.369	166.742	145.011	125.937	135.459	141.787	143.608	144.146
61.0	186.354	180.204	165.399	143.638	124.713	133.907	140.086	142.146	142.414
61.5	185.548	179.190	163.876	142.414	123.609	132.444	138.594	140.593	141.131
62.0	184.354	177.996	162.742	140.892	122.564	131.012	136.952	139.101	139.489
62.5	183.249	176.861	161.459	139.668	121.340	129.459	135.489	137.638	137.937
63.0	182.294	175.757	160.115	138.325	120.176	127.967	133.997	135.967	136.653
63.5	181.040	174.652	158.921	137.011	118.982	126.474	132.474	134.683	135.071
64.0	180.055	173.697	157.817	135.758	117.758	125.131	130.892	133.250	133.728
64.5	179.339	172.623	156.504	134.355	116.505	123.609	129.519	131.877	132.265
65.0	178.324	171.548	155.518	133.101	115.311	122.236	128.056	130.385	130.892
65.5	177.190	170.503	154.175	131.907	114.057	120.654	126.445	129.161	129.489
66.0	176.205	169.578	153.101	130.594	112.833	119.310	125.101	127.728	128.146
66.5	175.339	168.444	151.907	129.221	111.639	117.937	123.609	126.325	126.892
67.0	174.414	167.578	150.742	128.206	110.206	116.445	122.086	124.922	125.489
67.5	173.309	166.533	149.548	126.952	109.102	114.982	120.863	123.609	124.116
68.0	172.354	165.459	148.504	125.519	107.938	113.818	119.519	122.236	122.892
68.5	171.518	164.473	147.429	124.415	106.624	112.266	118.116	121.042	121.728
69.0	170.652	163.608	146.265	123.191	105.341	111.072	116.893	119.698	120.176
69.5	169.697	162.593	145.220	121.878	104.147	109.788	115.519	118.415	118.982
70.0	168.861	161.727	144.056	120.803	102.863	108.326	114.296	117.161	117.848
70.5	167.757	160.712	142.892	119.639	101.609	107.042	112.982	115.967	116.296
71.0	166.802	159.757	142.056	118.296	100.386	105.759	111.669	114.594	115.251
71.5	166.056	159.011	141.011	117.251	99.192	104.475	110.385	113.430	114.027
72.0	165.190	158.026	139.907	116.027	98.027	103.102	109.191	112.146	112.833
72.5	164.384	157.101	138.982	114.773	96.804	101.908	107.938	111.012	111.579
73.0	163.399	156.205	137.967	113.788	95.610	100.624	106.773	109.729	110.415
73.5	162.474	155.369	136.922	112.564	94.416	99.341	105.490	108.624	109.191
74.0	161.847	154.384	135.967	111.370	93.281	98.117	104.356	107.430	108.087
74.5	161.160	153.459	134.892	110.385	91.998	96.863	103.162	106.266	106.863
75.0	160.175	152.713	133.967	109.341	90.953	95.759	102.057	105.191	105.639
75.5	159.190	151.787	133.131	108.147	89.819	94.624	100.863	103.908	104.535
76.0	158.384	150.951	132.206	107.132	88.595	93.341	99.669	102.803	103.341
76.5	157.429	150.116	131.161	106.117	87.431	92.296	98.535	101.669	102.296
77.0	156.474	149.220	130.415	105.042	86.416	91.162	97.341	100.624	101.221
77.5	155.996	148.504	129.430	103.938	85.222	89.908	96.266	99.430	100.236
78.0	155.101	147.608	128.385	102.982	84.237	88.893	95.192	98.326	99.042
78.5	154.086	146.713	127.639	101.788	83.073	87.789	94.117	97.251	97.998
79.0	153.548	145.877	126.743	100.923	81.998	86.595	92.983	96.207	96.714
79.5	152.504	145.071	125.728	100.027	80.923	85.490	91.908	95.072	95.729
80.0	152.026	144.235	124.982	98.863	79.908	84.416	90.834	94.027	94.684
80.5	151.160	143.519	124.027	97.968	78.953	83.371	89.699	93.072	93.759
81.0	150.295	142.743	123.161	97.012	77.908	82.296	88.804	91.968	92.535
81.5	149.728	141.817	122.385	96.057	77.043	81.401	87.789	90.983	91.550
82.0	148.743	141.041	121.460	95.221	76.058	80.326	86.655	90.087	90.625
82.5	148.086	140.414	120.534	94.356	75.043	79.222	85.699	89.072	89.640

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**PHOTOMETRIC FILENAME : FSN OPAL 3 LIGHT.IES**

**CANDELA TABULATION - (Cont.)**

<b>83.0</b>	147.101	139.489	119.818	93.371	74.058	78.326	84.744	88.057	88.595
<b>83.5</b>	146.384	138.832	119.012	92.475	73.162	77.401	83.729	87.013	87.550
<b>84.0</b>	145.758	138.116	118.116	91.729	72.237	76.386	82.834	86.147	86.565
<b>84.5</b>	144.981	137.250	117.460	90.774	71.371	75.431	81.819	85.072	85.550
<b>85.0</b>	144.355	136.474	116.684	89.998	70.565	74.476	80.953	84.207	84.834
<b>85.5</b>	143.668	135.758	115.818	89.192	69.610	73.461	80.117	83.252	83.789
<b>86.0</b>	142.952	135.012	115.072	88.326	68.834	72.655	79.043	82.117	83.043
<b>86.5</b>	142.205	134.415	114.475	87.580	67.968	71.730	78.147	81.282	81.819
<b>87.0</b>	141.399	133.668	113.609	87.013	67.192	70.864	77.341	80.505	80.983
<b>87.5</b>	140.743	132.892	112.982	86.117	66.595	70.058	76.446	79.520	80.207
<b>88.0</b>	140.116	132.444	112.355	85.550	65.700	69.252	75.670	78.714	79.222
<b>88.5</b>	139.429	131.758	111.669	84.923	65.163	68.446	74.834	77.908	78.356
<b>89.0</b>	139.310	131.370	111.161	84.237	64.536	67.879	74.028	76.983	77.371
<b>89.5</b>	139.370	131.340	111.161	84.177	64.088	67.282	73.282	76.237	76.625
<b>90.0</b>	139.101	131.519	111.370	84.296	64.327	67.133	72.983	75.789	76.117
<b>90.5</b>	139.549	131.698	111.400	84.386	64.327	67.192	72.804	75.550	75.968
<b>91.0</b>	139.937	131.818	111.579	84.565	64.267	67.192	72.655	75.431	75.819
<b>91.5</b>	140.056	132.176	111.729	84.744	64.476	67.222	72.625	75.371	75.550
<b>92.0</b>	140.295	132.146	112.027	84.684	64.506	67.222	72.476	75.132	75.461
<b>92.5</b>	140.474	132.385	112.146	84.923	64.685	67.133	72.356	74.894	75.252
<b>93.0</b>	140.713	132.594	112.146	85.132	64.625	66.954	72.356	74.804	75.132
<b>93.5</b>	141.071	132.743	112.564	85.222	64.924	66.983	72.356	74.685	74.923
<b>94.0</b>	141.220	133.041	112.684	85.461	64.864	66.924	72.088	74.565	74.685
<b>94.5</b>	141.429	133.131	112.863	85.520	65.013	66.774	72.177	74.356	74.326
<b>95.0</b>	141.877	133.340	112.982	85.669	65.013	66.774	71.968	73.938	74.118
<b>95.5</b>	141.817	133.668	113.131	85.849	65.103	66.745	71.819	73.819	74.028
<b>96.0</b>	142.176	133.818	113.340	85.968	65.163	66.685	71.670	73.670	73.640
<b>96.5</b>	142.355	133.967	113.699	86.058	65.342	66.595	71.491	73.341	73.461
<b>97.0</b>	142.564	134.176	113.639	86.266	65.312	66.536	71.401	73.132	73.073
<b>97.5</b>	142.713	134.355	113.818	86.505	65.342	66.386	71.312	73.073	72.924
<b>98.0</b>	143.041	134.385	114.027	86.475	65.580	66.446	71.043	72.774	72.685
<b>98.5</b>	143.071	134.653	114.176	86.744	65.610	66.267	70.953	72.565	72.386
<b>99.0</b>	143.250	134.832	114.176	86.983	65.700	66.088	70.894	72.327	72.147
<b>99.5</b>	143.459	134.892	114.385	86.893	65.760	66.088	70.565	72.088	71.730
<b>100.0</b>	143.519	135.041	114.475	87.072	65.909	65.968	70.506	71.879	71.550
<b>100.5</b>	143.758	135.071	114.505	87.222	65.939	65.879	70.416	71.580	71.252
<b>101.0</b>	143.728	135.161	114.624	87.401	66.088	65.760	70.237	71.252	70.953
<b>101.5</b>	144.056	135.220	114.743	87.460	66.148	65.551	70.028	71.073	70.536
<b>102.0</b>	143.937	135.310	114.714	87.610	66.386	65.491	69.819	70.744	70.416
<b>102.5</b>	144.026	135.310	114.743	87.640	66.386	65.401	69.550	70.446	70.118
<b>103.0</b>	144.056	135.400	114.803	87.759	66.565	65.163	69.312	70.207	69.849
<b>103.5</b>	144.056	135.429	114.743	87.938	66.506	65.073	69.133	70.028	69.312
<b>104.0</b>	144.295	135.459	114.624	87.759	66.565	64.924	68.864	69.730	69.192
<b>104.5</b>	144.355	135.579	114.654	87.938	66.625	64.745	68.506	69.371	68.715
<b>105.0</b>	144.086	135.609	114.594	88.028	66.804	64.566	68.177	69.162	68.386
<b>105.5</b>	144.235	135.429	114.564	87.849	66.864	64.416	67.849	68.774	67.998
<b>106.0</b>	144.355	135.459	114.654	87.908	66.774	64.297	67.521	68.356	67.759
<b>106.5</b>	144.295	135.519	114.594	87.908	66.864	64.148	67.222	68.058	67.371
<b>107.0</b>	144.384	135.519	114.505	87.878	66.774	64.028	66.864	67.610	67.073
<b>107.5</b>	144.295	135.429	114.475	87.849	66.774	63.849	66.565	67.252	66.565
<b>108.0</b>	144.295	135.400	114.415	87.998	66.864	63.491	66.237	66.655	66.058
<b>108.5</b>	144.355	135.370	114.475	87.849	66.745	63.431	65.939	66.297	65.521
<b>109.0</b>	144.086	135.340	114.325	87.849	66.804	63.103	65.610	65.789	65.192
<b>109.5</b>	144.175	135.131	114.176	87.729	66.655	63.013	65.282	65.401	64.446
<b>110.0</b>	144.026	135.161	114.087	87.729	66.745	62.864	64.954	64.804	64.207
<b>110.5</b>	144.056	134.922	114.087	87.699	66.625	62.685	64.536	64.506	63.461

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**CANDELA TABULATION - (Cont.)**

111.0	143.877	134.952	113.967	87.789	66.655	62.506	64.267	63.998	62.924
111.5	143.787	134.862	113.967	87.669	66.506	62.357	63.789	63.580	62.655
112.0	143.429	134.803	113.848	87.640	66.476	62.058	63.491	63.043	61.998
112.5	143.519	134.683	113.609	87.550	66.536	61.969	63.222	62.625	61.401
113.0	143.459	134.504	113.609	87.460	66.506	61.700	62.894	62.178	60.864
113.5	143.280	134.355	113.460	87.341	66.416	61.581	62.416	61.551	60.446
114.0	143.041	134.265	113.251	87.341	66.386	61.431	62.118	61.222	59.969
114.5	143.101	134.086	113.161	87.192	66.357	61.133	61.819	60.536	59.372
115.0	142.743	133.877	112.893	87.072	66.207	60.954	61.192	59.879	58.685
115.5	142.623	133.907	112.773	86.983	66.237	60.715	61.043	59.282	58.148
116.0	142.325	133.489	112.534	86.774	65.998	60.685	60.536	58.476	57.521
116.5	142.355	133.370	112.385	86.744	66.088	60.327	60.028	57.849	56.894
117.0	141.967	133.161	112.146	86.595	65.939	60.207	59.819	57.282	55.819
117.5	141.638	132.862	112.057	86.446	65.789	59.998	59.491	56.476	55.252
118.0	141.459	132.653	111.699	86.207	65.670	59.730	59.013	55.879	54.297
118.5	141.190	132.534	111.520	86.087	65.491	59.521	58.596	55.222	53.611
119.0	140.832	132.146	111.311	86.028	65.401	59.342	58.357	54.536	52.775
119.5	140.534	131.967	111.102	85.878	65.401	59.163	57.819	53.760	51.879
120.0	140.265	131.788	110.923	85.640	65.192	58.954	57.581	52.954	51.073
120.5	140.056	131.310	110.684	85.341	65.043	58.655	57.133	52.237	50.297
121.0	139.758	131.101	110.326	85.341	64.804	58.446	56.655	51.581	49.491
121.5	139.220	130.892	110.027	85.192	64.804	58.148	56.446	50.924	48.655
122.0	138.982	130.444	109.818	84.834	64.715	57.909	56.028	50.178	47.790
122.5	138.564	130.146	109.609	84.625	64.476	57.819	55.640	49.551	47.073
123.0	138.235	129.877	109.221	84.535	64.327	57.461	55.312	48.864	46.267
123.5	137.788	129.310	108.893	84.147	64.207	57.282	54.984	48.267	45.282
124.0	137.728	128.892	108.684	84.028	64.148	57.103	54.446	47.551	44.626
124.5	136.982	128.594	108.355	83.819	63.909	56.805	54.178	46.954	43.909
125.0	136.474	128.116	108.057	83.580	63.700	56.745	53.909	46.297	43.163
125.5	135.967	127.728	107.609	83.252	63.551	56.476	53.581	45.730	42.596
126.0	135.370	127.191	107.281	83.073	63.491	56.357	53.372	45.223	41.969
126.5	135.131	126.683	106.893	82.774	63.342	56.208	52.984	44.626	41.342
127.0	134.235	126.295	106.564	82.625	63.252	56.058	52.536	44.148	40.715
127.5	133.638	125.698	106.117	82.356	63.133	55.819	52.297	43.730	40.238
128.0	133.221	125.161	105.729	82.028	62.924	55.760	52.029	43.074	39.700
128.5	132.564	124.564	105.311	81.849	62.924	55.700	51.640	42.536	39.193
129.0	131.907	124.236	104.953	81.520	62.655	55.431	51.342	41.939	38.686
129.5	131.459	123.579	104.445	81.311	62.536	55.252	51.133	41.432	38.357
130.0	130.594	123.161	104.027	80.893	62.416	54.924	50.596	40.954	37.880
130.5	130.086	122.564	103.550	80.685	62.416	54.834	50.387	40.506	37.253
131.0	129.489	121.967	103.102	80.505	62.118	54.655	50.088	40.089	36.984
131.5	128.982	121.460	102.714	80.117	61.998	54.536	49.730	39.521	36.715
132.0	128.116	120.863	102.147	80.028	61.909	54.417	49.432	39.103	36.208
132.5	127.340	120.087	101.729	79.580	61.730	54.237	49.223	38.656	35.760
133.0	126.803	119.519	101.251	79.222	61.461	54.058	48.864	38.268	35.671
133.5	125.997	118.922	100.744	78.983	61.431	53.909	48.596	37.969	35.223
134.0	125.340	118.206	100.266	78.625	61.163	53.849	48.267	37.551	35.074
134.5	124.713	117.549	99.759	78.237	61.133	53.670	48.058	37.104	34.686
135.0	123.967	116.922	99.132	77.879	60.894	53.431	47.760	36.835	34.387
135.5	123.251	116.116	98.744	77.580	60.715	53.461	47.461	36.507	34.089
136.0	122.445	115.699	98.147	77.222	60.506	53.133	47.103	35.969	33.701
136.5	121.698	115.012	97.639	76.983	60.357	52.984	46.775	35.730	33.313
137.0	120.863	114.206	97.102	76.535	60.207	52.805	46.656	35.372	32.895
137.5	120.027	113.520	96.565	76.207	59.909	52.655	46.208	34.954	32.745
138.0	119.131	112.803	95.998	75.909	59.849	52.387	46.059	34.775	32.656
138.5	118.445	112.027	95.520	75.520	59.670	52.387	45.939	34.477	32.268

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**CANDELA TABULATION - (Cont.)**

139.0	117.549	111.400	94.893	75.073	59.342	52.297	45.521	34.059	32.029
139.5	116.773	110.594	94.296	74.715	59.193	52.088	45.312	33.820	31.731
140.0	116.176	109.878	93.490	74.416	59.103	52.029	45.103	33.492	31.432
140.5	115.340	109.012	93.072	73.849	58.745	51.760	44.715	33.253	31.163
141.0	114.505	108.445	92.416	73.640	58.625	51.551	44.596	32.835	30.805
141.5	113.788	107.490	91.878	73.162	58.387	51.521	44.297	32.536	30.507
142.0	112.923	106.773	91.192	72.685	58.088	51.342	44.059	32.178	30.148
142.5	111.878	106.027	90.625	72.327	57.909	51.133	43.909	32.029	29.790
143.0	111.042	105.162	89.968	71.849	57.700	51.073	43.700	31.551	29.701
143.5	110.146	104.296	89.251	71.371	57.461	50.805	43.342	31.283	29.432
144.0	109.311	103.490	88.625	71.013	57.133	50.596	43.282	31.044	29.253
144.5	108.415	102.654	87.998	70.625	56.924	50.655	43.223	30.865	29.044
145.0	107.460	101.938	87.431	70.028	56.655	50.417	42.894	30.477	28.895
145.5	106.594	101.102	86.774	69.700	56.476	50.208	42.685	30.328	28.865
146.0	105.609	100.206	86.058	69.252	56.178	49.969	42.596	30.119	29.044
146.5	104.744	99.281	85.311	68.774	55.849	49.879	42.327	29.671	29.014
147.0	103.878	98.475	84.744	68.297	55.551	49.700	42.357	29.462	28.925
147.5	102.982	97.460	84.058	67.819	55.461	49.551	42.088	29.283	29.014
148.0	101.908	96.624	83.311	67.371	55.073	49.342	41.909	29.044	29.074
148.5	100.893	95.818	82.684	66.864	54.924	49.163	41.760	28.775	29.134
149.0	99.818	95.013	81.938	66.446	54.566	49.044	41.700	28.507	29.283
149.5	99.072	94.087	81.222	65.849	54.237	48.954	41.521	28.387	29.432
150.0	98.057	93.072	80.505	65.431	53.879	48.655	41.372	28.178	29.402
150.5	97.072	92.296	79.759	64.954	53.700	48.596	41.283	28.059	29.581
151.0	96.117	91.222	79.102	64.357	53.372	48.357	41.103	28.029	29.790
151.5	95.251	90.356	78.416	63.939	53.073	48.238	40.954	27.790	29.671
152.0	93.998	89.550	77.610	63.521	52.805	47.999	40.835	27.522	29.611
152.5	92.983	88.505	76.953	62.894	52.446	47.879	40.596	27.492	29.731
153.0	92.207	87.520	76.058	62.267	52.208	47.730	40.626	27.372	29.701
153.5	91.013	86.655	75.431	61.789	51.849	47.491	40.566	27.343	29.820
154.0	89.998	85.699	74.625	61.312	51.551	47.282	40.327	27.283	29.731
154.5	88.893	84.684	73.789	60.715	51.282	47.073	40.327	27.283	29.671
155.0	87.789	83.640	73.073	60.148	51.014	46.835	40.148	27.253	29.671
155.5	86.804	82.625	72.327	59.551	50.655	46.656	39.909	27.313	29.850
156.0	85.849	81.729	71.521	59.133	50.297	46.536	39.909	27.343	29.850
156.5	84.535	80.744	70.655	58.476	50.088	46.267	39.909	27.223	30.029
157.0	83.729	79.819	69.968	57.849	49.611	46.088	39.730	26.984	29.969
157.5	82.565	78.804	69.103	57.282	49.223	45.790	39.671	26.865	29.820
158.0	81.520	77.700	68.416	56.805	48.954	45.641	39.641	26.656	29.820
158.5	80.595	76.834	67.700	56.148	48.506	45.402	39.492	26.268	29.790
159.0	79.431	75.879	66.774	55.551	48.148	45.073	39.432	26.119	29.820
159.5	78.356	74.804	65.998	55.043	47.790	44.984	39.372	25.761	29.850
160.0	77.252	73.729	65.163	54.297	47.402	44.656	39.163	25.731	29.820
160.5	76.267	72.744	64.386	53.730	47.073	44.536	38.984	25.581	29.790
161.0	75.103	71.670	63.491	53.193	46.745	44.238	38.805	25.522	30.029
161.5	73.849	70.655	62.745	52.417	46.297	43.999	38.536	25.164	30.148
162.0	72.685	69.640	61.730	51.760	45.939	43.700	38.268	24.925	30.298
162.5	71.580	68.595	60.954	51.252	45.730	43.491	37.850	24.656	30.298
163.0	70.476	67.491	60.118	50.566	45.163	43.193	36.924	24.477	30.357
163.5	69.282	66.506	59.193	49.969	44.924	42.894	35.939	24.029	30.537
164.0	68.297	65.401	58.387	49.402	44.566	42.805	34.716	23.283	30.447
164.5	67.073	64.267	57.521	48.596	44.118	42.447	33.193	22.626	29.880
165.0	65.909	63.133	56.655	47.969	43.700	41.880	31.790	22.298	28.984
165.5	64.655	62.118	55.760	47.253	43.312	41.223	30.298	22.149	27.790
166.0	63.580	61.013	54.834	46.685	42.805	40.178	28.507	22.029	26.417
166.5	62.297	59.849	53.790	46.059	42.238	38.745	27.014	21.731	24.477

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**CANDELA TABULATION - (Cont.)**

<b>167.0</b>	60.984	58.745	52.954	45.462	41.342	37.223	25.820	21.582	22.179
<b>167.5</b>	59.819	57.640	52.088	44.715	40.059	35.402	24.626	20.955	20.179
<b>168.0</b>	58.476	56.327	50.894	44.148	38.268	33.432	23.880	20.537	17.791
<b>168.5</b>	57.252	55.163	49.999	43.432	36.686	31.581	23.402	20.029	15.582
<b>169.0</b>	55.999	54.088	49.163	42.357	34.536	29.611	22.865	19.044	12.955
<b>169.5</b>	54.685	52.954	48.058	41.044	32.626	27.701	22.656	17.970	10.149
<b>170.0</b>	53.312	51.730	46.954	39.283	30.477	26.238	22.238	16.417	7.552
<b>170.5</b>	51.999	50.178	45.790	37.462	28.656	25.283	21.641	14.507	5.463
<b>171.0</b>	50.655	48.745	44.088	35.551	27.134	24.328	21.164	12.835	3.343
<b>171.5</b>	49.432	47.521	42.626	33.551	26.089	23.790	20.328	11.403	2.209
<b>172.0</b>	47.999	46.148	41.193	31.641	25.164	23.402	18.895	9.701	1.970
<b>172.5</b>	46.775	44.268	39.193	30.238	24.358	22.716	17.223	8.030	1.940
<b>173.0</b>	44.626	42.566	37.283	28.925	23.671	21.940	15.522	6.418	1.851
<b>173.5</b>	42.059	40.626	35.133	27.372	22.805	20.358	13.283	5.433	1.582
<b>174.0</b>	40.686	38.118	32.656	26.119	22.089	18.059	10.985	5.015	1.373
<b>174.5</b>	38.447	35.701	30.417	24.686	20.746	15.761	8.776	4.507	1.164
<b>175.0</b>	35.760	33.104	28.268	22.895	18.805	13.134	7.015	4.119	0.895
<b>175.5</b>	32.268	30.089	25.731	21.074	16.417	10.268	6.000	3.403	0.657
<b>176.0</b>	28.775	26.746	23.223	18.895	13.880	7.791	5.313	2.836	0.866
<b>176.5</b>	25.014	22.984	20.268	15.820	10.925	6.000	4.537	2.000	0.687
<b>177.0</b>	20.626	19.164	16.955	12.686	8.268	5.045	3.821	1.313	0.567
<b>177.5</b>	16.089	14.865	13.821	9.880	6.089	4.448	3.224	0.866	0.567
<b>178.0</b>	11.253	10.418	10.537	6.716	4.477	3.701	2.537	0.716	0.955
<b>178.5</b>	7.164	6.657	6.955	4.269	3.612	3.045	1.910	0.776	0.657
<b>179.0</b>	4.209	4.000	3.731	2.657	2.806	2.418	1.492	0.716	0.746
<b>179.5</b>	1.492	2.269	1.433	1.433	1.940	1.940	0.925	0.746	1.045
<b>180.0</b>	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : FSN OPAL 3 LIGHT.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	121.68	N.A.	7.40
0-30	279.42	N.A.	16.90
0-40	470.17	N.A.	28.50
0-60	804.53	N.A.	48.70
0-80	1064.4	N.A.	64.40
0-90	1169.41	N.A.	70.80
10-90	1141.84	N.A.	69.10
20-40	348.50	N.A.	21.10
20-50	528.29	N.A.	32.00
40-70	472.14	N.A.	28.60
60-80	259.87	N.A.	15.70
70-80	122.09	N.A.	7.40
80-90	105.01	N.A.	6.40
90-110	191.98	N.A.	11.60
90-120	276.62	N.A.	16.70
90-130	347.36	N.A.	21.00
90-150	442.81	N.A.	26.80
90-180	483.20	N.A.	29.20
110-180	291.22	N.A.	17.60
0-180	1652.61	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	27.57
10-20	94.11
20-30	157.74
30-40	190.75
40-50	179.80
50-60	154.56
60-70	137.78
70-80	122.09
80-90	105.01
90-100	97.84
100-110	94.14
110-120	84.63
120-130	70.74
130-140	55.44
140-150	40.01
150-160	25.62
160-170	12.59
170-180	2.19

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

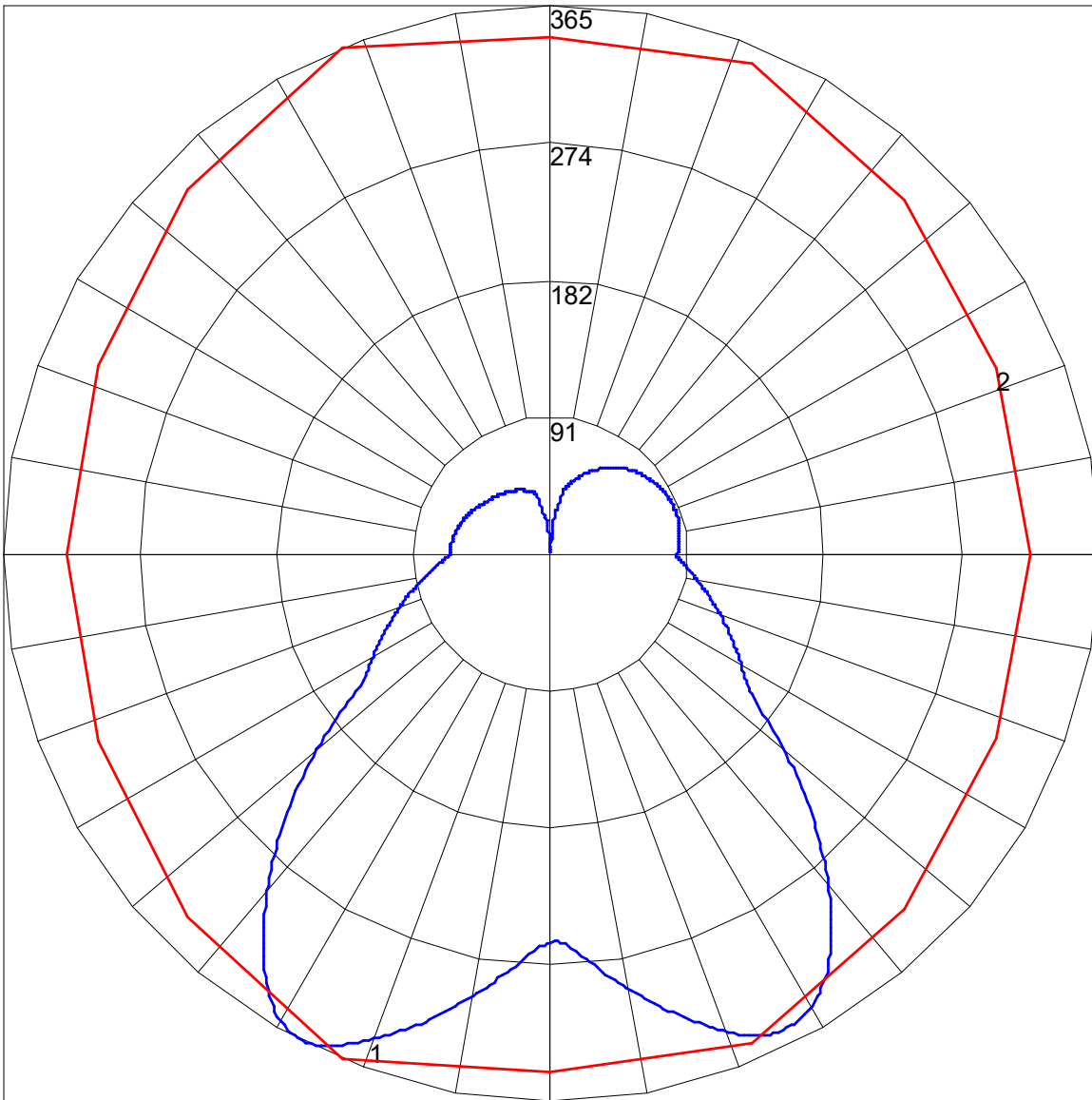
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : FSN OPAL 3 LIGHT.IES**

**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	13.6	14.8	15.8	11.1	12.3	11.9	13.1	14.0
	3H	15.2	16.3	15.9	17.0	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	14.5	15.5	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	19.2	19.2	20.1	21.1	15.1	16.0	15.9	16.8	17.8
4H	2H	13.5	14.5	14.3	15.3	16.3	12.1	13.1	12.9	13.9	14.9
	3H	16.1	16.9	16.9	17.8	18.8	14.1	15.0	14.9	15.8	16.8
	4H	17.4	18.2	18.2	19.0	20.0	15.1	15.9	15.9	16.7	17.7
	6H	18.6	19.3	19.4	20.2	21.2	15.9	16.6	16.8	17.5	18.5
	8H	19.2	19.9	20.0	20.7	21.8	16.3	17.0	17.2	17.8	18.9
	12H	19.8	20.4	20.7	21.3	22.3	16.7	17.3	17.6	18.2	19.2
8H	4H	17.8	18.4	18.6	19.3	20.3	15.8	16.4	16.6	17.3	18.3
	6H	19.3	19.8	20.1	20.7	21.7	16.9	17.4	17.7	18.3	19.3
	8H	20.0	20.5	20.9	21.4	22.5	17.4	17.9	18.2	18.8	19.8
	12H	20.8	21.3	21.7	22.1	23.2	17.9	18.3	18.7	19.2	20.3
12H	4H	17.9	18.5	18.7	19.3	20.4	16.0	16.6	16.8	17.4	18.5
	6H	19.4	19.9	20.3	20.8	21.9	17.2	17.7	18.0	18.5	19.6
	8H	20.3	20.7	21.1	21.6	22.7	17.8	18.2	18.6	19.1	20.2

Maximum UGR = 23.2

POLAR GRAPH



Maximum Candela = 364.946 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.)