



IES INDOOR REPORT

PHOTOMETRIC FILENAME : OSA8S-L22-835-AC-XX-XXX-XX-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TESTLAB0] GEN from Intertek report
 [ISSUEDATE] 18 OCT 2021
 [MANUFAC] WILLIAMS OUTDOOR
 [LUMCAT] OSA8S-L22-835-AC-xx-xxx-xx-DIM-UNV
 [LUMINAIRE] 8 INCH SQUARE BOLLARD
 [LAMPCAT] LED 835cct

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2231
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	82
Total Luminaire Watts	27.1
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	0.02
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	0.02
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.67 ft
Luminous Width (90-270)	0.67 ft
Luminous Height	0.00 ft



LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	11539	10786	10213
55	20932	22128	19244
65	37207	37777	30214
75	25825	36116	29447
85	16866	24271	27151

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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>	<u>202.5</u>
0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7.5	30.147	20.739	2.779	0.000	11.973	3.421	0.000	10.904	31.216	10.904
10.0	62.645	56.017	20.098	14.966	72.053	52.383	5.773	51.314	107.545	51.314
12.5	95.571	75.474	26.512	39.127	164.203	81.674	10.263	70.342	165.058	70.342
15.0	130.422	87.661	25.871	57.942	218.082	96.427	13.684	75.474	201.192	75.474
17.5	157.789	103.268	26.512	75.687	209.103	112.676	17.532	91.509	220.220	91.509
20.0	180.880	126.146	30.574	106.903	199.909	133.843	22.236	119.304	219.365	119.304
22.5	198.198	153.941	37.630	143.892	196.274	155.437	27.795	154.582	209.744	154.582
25.0	217.869	193.067	46.824	190.074	204.399	190.288	33.781	184.942	201.406	184.942
27.5	253.360	234.546	59.011	231.766	214.875	234.118	42.334	214.234	210.813	214.234
30.0	282.652	264.478	77.184	260.630	227.704	268.541	55.803	244.594	245.663	244.594
32.5	276.024	266.403	99.206	272.603	236.256	279.872	75.474	259.775	275.596	259.775
35.0	250.581	253.574	121.442	269.396	234.332	273.244	102.841	258.064	270.251	258.064
37.5	236.684	249.726	149.664	267.685	233.263	264.051	137.050	253.574	250.581	253.574
40.0	243.098	266.189	188.791	279.445	244.167	268.968	180.025	256.140	239.463	256.140
42.5	279.659	311.302	244.167	311.943	269.610	295.908	234.332	273.672	240.104	273.672
45.0	340.593	371.382	318.358	356.415	301.467	338.028	290.777	313.868	269.396	313.868
47.5	390.838	420.985	390.196	401.528	333.324	382.072	336.531	353.636	316.647	353.636
50.0	423.764	454.980	441.938	445.145	375.871	417.350	364.540	380.789	356.843	380.789
52.5	453.056	490.258	485.982	488.547	423.764	445.572	391.266	401.314	382.286	401.314
55.0	501.162	533.447	529.812	525.750	460.753	469.946	424.619	432.103	408.156	432.103
57.5	545.847	579.629	574.925	563.380	497.741	502.231	463.960	472.726	439.800	472.726
60.0	593.954	621.535	606.996	602.934	536.226	539.861	498.382	509.287	471.015	509.287
62.5	647.619	660.448	635.432	627.094	556.110	571.504	523.825	543.709	503.941	543.709
65.0	656.385	669.214	666.434	614.693	533.019	567.870	535.371	570.008	540.075	570.008
67.5	600.796	611.058	679.476	576.208	492.396	528.315	539.219	571.290	555.255	571.290
70.0	497.741	520.618	631.798	513.990	444.503	474.436	529.384	530.240	530.240	530.240
72.5	387.631	404.949	519.763	432.744	388.272	412.005	487.478	461.608	447.710	461.608
75.0	279.017	305.315	390.196	341.876	318.144	336.317	403.025	372.878	363.685	372.878
77.5	190.929	217.655	267.685	264.478	249.298	265.975	321.137	287.356	272.603	287.356
80.0	124.863	150.092	188.577	196.488	190.929	198.840	240.318	207.392	191.998	207.392
82.5	78.681	106.689	126.787	146.030	140.043	146.030	166.983	140.898	124.649	140.898
85.0	61.362	76.756	88.302	103.696	98.779	101.344	111.821	93.006	76.756	93.006
87.5	47.893	57.514	62.645	68.204	62.431	64.356	68.418	62.004	51.955	62.004
90.0	32.712	39.768	43.403	43.616	35.919	39.554	42.547	39.982	32.712	39.982
92.5	22.236	29.505	32.285	30.788	22.877	28.436	30.147	28.009	21.167	28.009
95.0	23.519	30.788	33.354	30.574	23.732	30.360	32.071	29.291	22.663	29.291
97.5	29.291	36.133	38.699	35.492	30.360	36.133	37.630	34.423	28.650	34.423
100.0	37.202	41.906	44.686	41.478	39.554	41.478	43.616	40.196	37.630	40.196
102.5	47.251	47.465	49.389	47.465	48.962	46.824	47.893	45.755	48.106	45.755
105.0	56.231	51.100	51.955	51.314	54.093	50.458	50.458	49.389	53.879	49.389
107.5	57.514	53.452	53.665	53.238	54.948	52.596	52.383	51.527	56.017	51.527
110.0	52.810	54.093	55.590	53.665	51.100	53.024	54.307	51.955	54.093	51.955
112.5	48.534	53.879	57.086	53.238	47.893	52.810	55.803	52.383	50.244	52.383
115.0	48.748	54.521	57.728	53.665	48.748	53.452	56.445	52.810	48.962	52.810
117.5	49.389	53.879	57.942	53.024	48.962	52.810	57.086	52.596	49.389	52.596
120.0	48.106	53.024	57.728	52.169	49.603	52.383	56.872	52.169	48.320	52.169
122.5	47.037	52.383	57.300	51.314	48.962	51.955	56.445	51.741	47.679	51.741
125.0	46.396	51.527	56.231	50.458	47.037	51.100	55.803	50.886	46.824	50.886
127.5	45.113	50.886	54.948	49.603	45.113	50.244	54.307	49.817	45.113	49.817
130.0	43.616	50.031	53.238	48.534	43.403	48.962	52.169	48.534	43.403	48.534
132.5	42.334	48.748	50.886	47.037	41.478	47.679	49.817	47.037	41.478	47.037

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CANDELA TABULATION - (Cont.)

135.0	40.837	46.610	48.748	45.113	39.340	45.755	47.465	45.113	39.127	45.113
137.5	38.485	43.830	46.182	42.761	36.988	43.189	44.899	42.547	36.347	42.547
140.0	35.706	40.837	43.403	39.768	34.423	39.768	42.334	39.340	33.781	39.340
142.5	32.712	37.630	40.196	36.561	31.430	36.347	39.340	35.919	30.788	35.919
145.0	29.505	34.209	36.775	33.354	28.650	32.926	36.133	32.285	27.581	32.285
147.5	26.726	30.788	33.140	29.933	25.657	29.505	32.285	28.650	25.015	28.650
150.0	23.732	26.940	29.505	26.298	22.450	25.871	28.436	25.015	22.022	25.015
152.5	21.167	23.305	25.657	22.663	19.670	22.236	24.588	21.594	18.815	21.594
155.0	18.174	19.670	21.594	19.029	16.891	18.601	20.525	18.174	16.035	18.174
157.5	14.753	16.035	17.532	15.608	14.111	15.180	16.677	14.966	13.256	14.966
160.0	11.332	12.401	13.470	11.973	10.904	11.759	12.615	11.332	10.690	11.332
162.5	8.338	8.552	9.407	8.338	7.697	8.338	8.766	8.125	7.911	8.125
165.0	5.345	5.131	5.345	4.918	4.490	4.918	5.131	4.704	4.704	4.704
167.5	2.138	1.924	1.710	1.710	1.710	1.710	1.710	1.710	1.710	1.710
170.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
172.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
177.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Vert. Angles **Horizontal Angles**

	<u>225.0</u>	<u>247.5</u>	<u>270.0</u>	<u>292.5</u>	<u>315.0</u>	<u>337.5</u>	<u>360.0</u>
0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7.5	0.000	3.421	11.973	0.000	2.779	20.739	30.147
10.0	5.773	52.383	72.053	14.966	20.098	56.017	62.645
12.5	10.263	81.674	164.203	39.127	26.512	75.474	95.571
15.0	13.684	96.427	218.082	57.942	25.871	87.661	130.422
17.5	17.532	112.676	209.103	75.687	26.512	103.268	157.789
20.0	22.236	133.843	199.909	106.903	30.574	126.146	180.880
22.5	27.795	155.437	196.274	143.892	37.630	153.941	198.198
25.0	33.781	190.288	204.399	190.074	46.824	193.067	217.869
27.5	42.334	234.118	214.875	231.766	59.011	234.546	253.360
30.0	55.803	268.541	227.704	260.630	77.184	264.478	282.652
32.5	75.474	279.872	236.256	272.603	99.206	266.403	276.024
35.0	102.841	273.244	234.332	269.396	121.442	253.574	250.581
37.5	137.050	264.051	233.263	267.685	149.664	249.726	236.684
40.0	180.025	268.968	244.167	279.445	188.791	266.189	243.098
42.5	234.332	295.908	269.610	311.943	244.167	311.302	279.659
45.0	290.777	338.028	301.467	356.415	318.358	371.382	340.593
47.5	336.531	382.072	333.324	401.528	390.196	420.985	390.838
50.0	364.540	417.350	375.871	445.145	441.938	454.980	423.764
52.5	391.266	445.572	423.764	488.547	485.982	490.258	453.056
55.0	424.619	469.946	460.753	525.750	529.812	533.447	501.162
57.5	463.960	502.231	497.741	563.380	574.925	579.629	545.847
60.0	498.382	539.861	536.226	602.934	606.996	621.535	593.954
62.5	523.825	571.504	556.110	627.094	635.432	660.448	647.619
65.0	535.371	567.870	533.019	614.693	666.434	669.214	656.385
67.5	539.219	528.315	492.396	576.208	679.476	611.058	600.796
70.0	529.384	474.436	444.503	513.990	631.798	520.618	497.741
72.5	487.478	412.005	388.272	432.744	519.763	404.949	387.631
75.0	403.025	336.317	318.144	341.876	390.196	305.315	279.017
77.5	321.137	265.975	249.298	264.478	267.685	217.655	190.929
80.0	240.318	198.840	190.929	196.488	188.577	150.092	124.863

IES INDOOR REPORT**PHOTOMETRIC FILENAME : OSA8S-L22-835-AC-XX-XXX-XX-DIM-UNV_.IES****CANDELA TABULATION - (Cont.)**

82.5	166.983	146.030	140.043	146.030	126.787	106.689	78.681
85.0	111.821	101.344	98.779	103.696	88.302	76.756	61.362
87.5	68.418	64.356	62.431	68.204	62.645	57.514	47.893
90.0	42.547	39.554	35.919	43.616	43.403	39.768	32.712
92.5	30.147	28.436	22.877	30.788	32.285	29.505	22.236
95.0	32.071	30.360	23.732	30.574	33.354	30.788	23.519
97.5	37.630	36.133	30.360	35.492	38.699	36.133	29.291
100.0	43.616	41.478	39.554	41.478	44.686	41.906	37.202
102.5	47.893	46.824	48.962	47.465	49.389	47.465	47.251
105.0	50.458	50.458	54.093	51.314	51.955	51.100	56.231
107.5	52.383	52.596	54.948	53.238	53.665	53.452	57.514
110.0	54.307	53.024	51.100	53.665	55.590	54.093	52.810
112.5	55.803	52.810	47.893	53.238	57.086	53.879	48.534
115.0	56.445	53.452	48.748	53.665	57.728	54.521	48.748
117.5	57.086	52.810	48.962	53.024	57.942	53.879	49.389
120.0	56.872	52.383	49.603	52.169	57.728	53.024	48.106
122.5	56.445	51.955	48.962	51.314	57.300	52.383	47.037
125.0	55.803	51.100	47.037	50.458	56.231	51.527	46.396
127.5	54.307	50.244	45.113	49.603	54.948	50.886	45.113
130.0	52.169	48.962	43.403	48.534	53.238	50.031	43.616
132.5	49.817	47.679	41.478	47.037	50.886	48.748	42.334
135.0	47.465	45.755	39.340	45.113	48.748	46.610	40.837
137.5	44.899	43.189	36.988	42.761	46.182	43.830	38.485
140.0	42.334	39.768	34.423	39.768	43.403	40.837	35.706
142.5	39.340	36.347	31.430	36.561	40.196	37.630	32.712
145.0	36.133	32.926	28.650	33.354	36.775	34.209	29.505
147.5	32.285	29.505	25.657	29.933	33.140	30.788	26.726
150.0	28.436	25.871	22.450	26.298	29.505	26.940	23.732
152.5	24.588	22.236	19.670	22.663	25.657	23.305	21.167
155.0	20.525	18.601	16.891	19.029	21.594	19.670	18.174
157.5	16.677	15.180	14.111	15.608	17.532	16.035	14.753
160.0	12.615	11.759	10.904	11.973	13.470	12.401	11.332
162.5	8.766	8.338	7.697	8.338	9.407	8.552	8.338
165.0	5.131	4.918	4.490	4.918	5.345	5.131	5.345
167.5	1.710	1.710	1.710	1.710	1.710	1.924	2.138
170.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
172.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
177.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	27.16	N.A.	1.20
0-30	102.06	N.A.	4.60
0-40	242.34	N.A.	10.90
0-60	927.63	N.A.	41.60
0-80	1867.02	N.A.	83.70
0-90	1977.21	N.A.	88.60
10-90	1975.92	N.A.	88.60
20-40	215.17	N.A.	9.60
20-50	467.93	N.A.	21.00
40-70	1253.61	N.A.	56.20
60-80	939.40	N.A.	42.10
70-80	371.07	N.A.	16.60
80-90	110.19	N.A.	4.90
90-110	89.02	N.A.	4.00
90-120	141.73	N.A.	6.40
90-130	187.53	N.A.	8.40
90-150	242.80	N.A.	10.90
90-180	253.44	N.A.	11.40
110-180	164.42	N.A.	7.40
0-180	2230.65	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	1.29
10-20	25.87
20-30	74.89
30-40	140.28
40-50	252.76
50-60	432.53
60-70	568.33
70-80	371.07
80-90	110.19
90-100	36.09
100-110	52.94
110-120	52.70
120-130	45.80
130-140	34.51
140-150	20.75
150-160	8.97
160-170	1.68
170-180	0.00

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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	116	116	116	116	112	112	112	112	105	105	105	98	98	98	92	92	92	89
1	101	94	88	83	97	91	85	80	84	80	76	78	75	71	73	70	67	64
2	88	77	67	60	84	74	65	58	68	61	55	63	57	52	58	53	49	46
3	77	64	53	44	74	61	51	43	56	48	41	52	44	38	47	41	36	33
4	69	54	42	34	65	51	41	33	47	38	31	43	36	29	40	33	28	25
5	62	46	35	26	59	44	34	26	40	31	24	37	29	23	34	27	22	19
6	56	40	29	21	53	38	28	21	35	26	19	32	24	18	29	23	17	15
7	51	35	25	17	49	34	24	17	31	22	16	28	21	15	26	19	14	12
8	47	31	21	15	45	30	21	14	28	19	13	25	18	12	23	17	12	9
9	44	28	19	12	41	27	18	12	25	17	11	23	16	11	21	15	10	8
10	41	26	17	11	39	25	16	10	23	15	10	21	14	9	19	13	8	6

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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

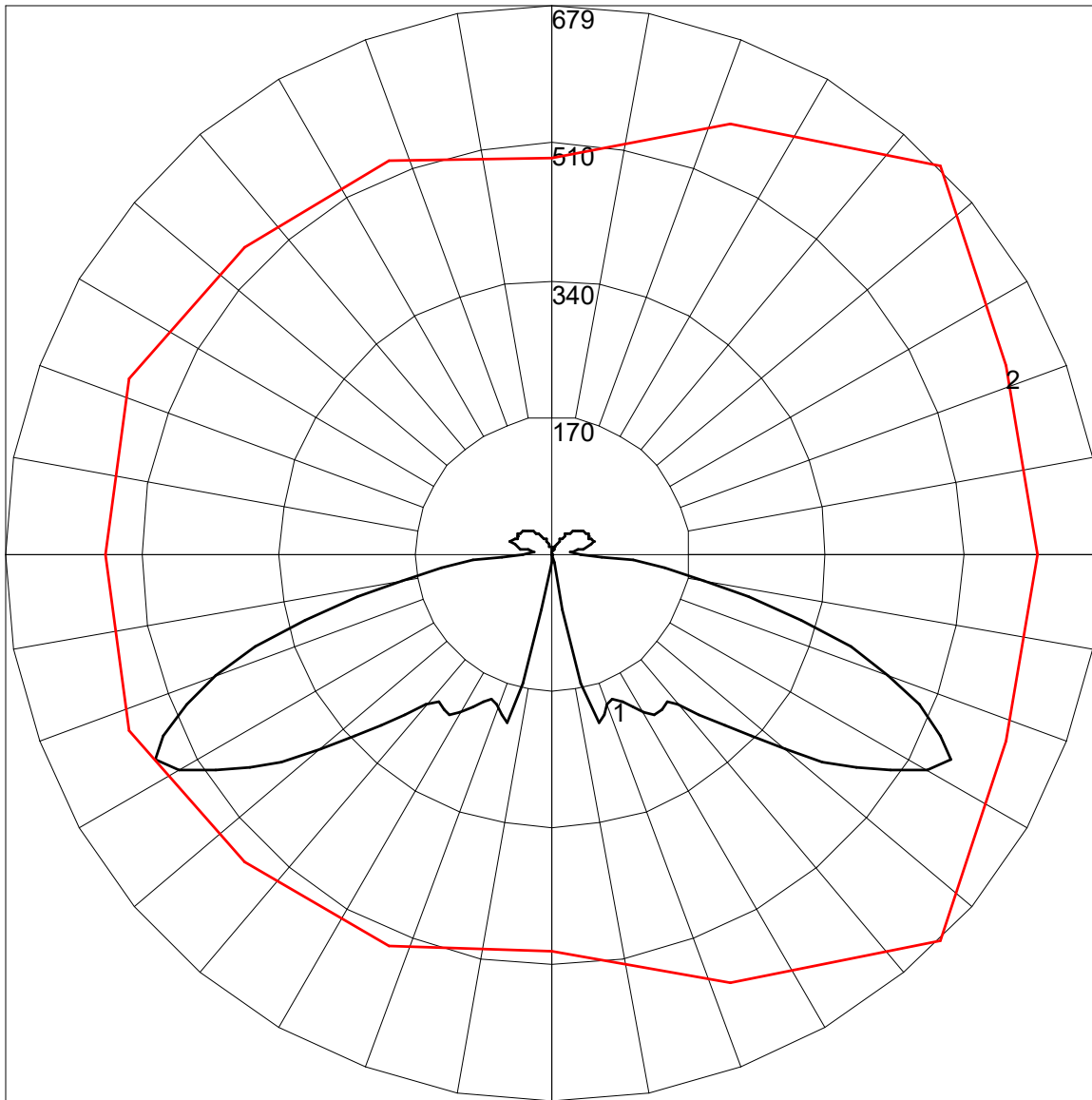
X=2H	Y=2H	24.3	26.0	24.8	26.6	27.1	23.7	25.4	24.2	26.0	26.5
	3H	27.8	29.4	28.3	29.9	30.5	27.0	28.6	27.6	29.2	29.8
	4H	28.5	30.0	29.0	30.6	31.2	28.0	29.6	28.6	30.1	30.7
	6H	28.8	30.2	29.4	30.8	31.4	28.7	30.1	29.3	30.7	31.3
	8H	28.9	30.3	29.4	30.8	31.5	28.9	30.3	29.5	30.9	31.5
	12H	28.9	30.3	29.5	30.8	31.5	29.1	30.4	29.7	31.0	31.7

UGR Viewed Endwise

4H	2H	25.8	27.3	26.3	27.9	28.5	25.1	26.7	25.7	27.2	27.8
	3H	29.1	30.4	29.7	31.0	31.7	28.5	29.8	29.0	30.4	31.0
	4H	29.9	31.1	30.4	31.7	32.3	29.5	30.8	30.1	31.4	32.0
	6H	30.3	31.3	30.8	32.0	32.6	30.3	31.4	30.9	32.0	32.7
	8H	30.4	31.4	31.0	32.0	32.7	30.5	31.6	31.1	32.2	32.9
	12H	30.5	31.4	31.1	32.0	32.7	30.8	31.7	31.4	32.4	33.1
8H	4H	30.3	31.4	30.9	32.0	32.7	30.1	31.1	30.7	31.7	32.4
	6H	30.8	31.7	31.5	32.3	33.0	31.0	31.8	31.6	32.5	33.2
	8H	31.0	31.8	31.6	32.4	33.1	31.3	32.1	32.0	32.8	33.5
	12H	31.2	31.8	31.8	32.5	33.3	31.7	32.3	32.3	33.0	33.8
12H	4H	30.4	31.3	31.0	32.0	32.7	30.2	31.1	30.8	31.7	32.4
	6H	30.9	31.7	31.6	32.3	33.1	31.1	31.9	31.7	32.5	33.2
	8H	31.1	31.8	31.8	32.5	33.3	31.5	32.2	32.1	32.8	33.6

Maximum UGR = 33.8

POLAR GRAPH



Maximum Candela = 679.476 Located At Horizontal Angle = 45, Vertical Angle = 67.5
1 - Vertical Plane Through Horizontal Angles (90 - 270)
2 - Horizontal Cone Through Vertical Angle (67.5) (Through Max. Cd.)