



IES INDOOR REPORT

PHOTOMETRIC FILENAME : OSA8R-L22-835-AC-XX-XXX-XX-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TESTLAB] GEN from Intertek report
 [ISSUE DATE] 18 Oct2021
 [MANUFAC] WILLIAMS OUTDOOR
 [OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.
 [LUMCAT] OSA8R-L22-835-AC-xx-xxx-xx-DIM-UNV
 [LUMINAIRE] 8 INCH ALUMINUM BOLLARD WITH FLAT TOP
 [LAMP] LED 835cct

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2203
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	81
Total Luminaire Watts	27.1
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.02
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	0.02
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.00 ft
Luminous Width (90-270)	0.67 ft (Diameter)
Luminous Height	0.00 ft



LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	17157	16331	13722
55	28706	27401	23716
65	44474	45639	42843
75	26355	29931	40103
85	28774	29226	29829

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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	6.457	4.950	2.152	0.000	14.205	16.573	6.242	0.000	6.242
7.5	94.488	93.196	88.677	84.372	92.981	106.326	109.124	121.177	121.392	121.177
10.0	120.746	128.064	125.051	137.750	147.005	153.677	193.926	226.211	235.036	226.211
12.5	140.763	144.853	144.422	148.727	148.512	160.995	188.545	236.112	248.165	236.112
15.0	147.005	152.171	151.525	156.045	153.677	151.095	179.290	187.900	191.128	187.900
17.5	161.641	163.363	156.906	157.121	157.121	162.287	171.327	171.327	165.730	171.327
20.0	177.353	181.443	167.883	167.452	164.009	166.591	177.999	175.631	170.250	175.631
22.5	204.903	205.549	188.545	181.012	171.327	164.654	174.770	174.555	167.883	174.555
25.0	240.417	238.480	218.678	209.638	191.128	175.847	175.631	171.327	164.870	171.327
27.5	268.397	267.321	250.102	241.708	223.198	206.625	196.939	186.823	179.721	186.823
30.0	273.778	277.652	268.613	263.447	250.963	239.771	233.314	223.844	214.589	223.844
32.5	256.990	260.434	257.636	257.636	257.205	252.470	253.977	250.102	242.354	250.102
35.0	241.063	243.645	242.354	240.847	242.569	241.708	248.596	248.596	239.986	248.596
37.5	247.520	246.443	241.063	235.466	232.023	228.579	231.807	233.099	225.350	233.099
40.0	285.186	279.159	265.384	249.887	236.543	224.489	219.970	218.032	211.145	218.032
42.5	348.249	340.716	320.269	293.364	264.738	239.125	224.059	214.373	206.840	214.373
45.0	397.753	393.233	378.597	355.998	318.116	279.805	248.596	231.377	220.400	231.377
47.5	421.859	427.025	409.591	399.690	364.822	329.093	293.364	274.209	258.927	274.209
50.0	447.472	451.131	430.469	422.720	387.637	361.809	327.802	319.193	304.126	319.193
52.5	496.761	493.532	470.933	452.638	410.022	383.548	345.882	351.047	338.564	351.047
55.0	539.808	539.808	515.271	489.013	445.966	414.757	365.468	378.813	369.773	378.813
57.5	583.285	583.716	557.242	524.526	483.201	453.714	401.412	421.429	411.098	421.429
60.0	637.524	640.107	603.302	568.004	525.387	494.824	444.244	465.552	455.651	465.552
62.5	663.352	672.607	639.892	611.050	570.802	533.781	489.658	503.648	491.595	503.648
65.0	616.216	634.726	632.359	629.991	593.616	561.331	532.059	528.831	517.639	528.831
67.5	517.854	539.593	557.027	587.805	577.904	569.510	574.461	547.556	538.086	547.556
70.0	417.770	434.128	456.297	498.913	524.526	532.059	603.732	555.090	544.758	555.090
72.5	307.570	323.282	346.527	396.031	431.760	458.665	561.116	521.728	518.069	521.728
75.0	223.629	236.973	253.977	294.656	340.286	372.571	475.668	441.231	439.078	441.231
77.5	159.273	166.807	183.810	214.158	251.609	278.944	388.498	358.365	357.289	358.365
80.0	120.101	122.899	131.078	148.942	172.188	198.231	283.679	265.814	264.738	265.814
82.5	99.869	100.945	103.313	108.048	120.316	130.002	189.837	178.429	181.443	178.429
85.0	82.220	82.650	83.511	84.372	85.233	86.309	122.684	110.200	112.783	110.200
87.5	58.974	60.050	60.911	61.557	60.050	57.683	64.355	64.355	64.570	64.355
90.0	37.451	38.312	39.173	39.388	37.881	35.944	37.881	38.527	38.312	38.527
92.5	25.828	26.259	26.689	27.335	28.411	29.057	29.918	30.133	30.133	30.133
95.0	28.626	29.057	29.918	30.994	32.285	32.716	33.577	33.792	34.007	33.792
97.5	33.792	34.222	35.083	35.944	36.805	37.451	38.312	38.527	38.742	38.527
100.0	39.173	39.388	40.249	40.895	41.540	42.401	43.262	43.908	44.123	43.908
102.5	44.123	44.554	45.414	45.630	46.275	46.706	47.782	48.858	49.073	48.858
105.0	47.352	47.567	47.567	47.352	47.352	47.136	47.352	47.997	47.997	47.997
107.5	50.150	50.150	49.504	48.428	48.428	47.782	47.136	46.921	46.921	46.921
110.0	52.087	51.871	50.795	49.934	49.073	48.643	47.997	47.136	47.136	47.136
112.5	49.289	48.428	47.782	47.782	47.136	46.921	46.921	46.275	46.060	46.275
115.0	45.414	45.630	45.845	45.845	45.414	44.984	44.769	44.554	44.338	44.554
117.5	44.984	44.984	45.199	45.414	45.199	44.554	44.123	43.908	43.908	43.908
120.0	44.123	44.338	44.338	44.123	43.693	43.262	42.832	42.186	41.755	42.186
122.5	43.047	43.047	43.047	42.832	42.616	42.186	41.755	41.110	40.679	41.110
125.0	41.755	41.755	41.755	41.540	41.110	40.895	40.249	39.603	39.388	39.603
127.5	40.034	40.249	40.249	39.818	39.388	38.957	38.096	37.666	37.451	37.666
130.0	38.312	38.312	38.312	37.881	37.451	36.805	36.159	35.298	35.083	35.298
132.5	36.159	36.159	36.159	35.514	35.083	34.653	33.792	33.146	32.931	33.146

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CANDELA TABULATION - (Cont.)

135.0	34.007	34.007	34.007	33.361	32.500	32.285	31.639	30.994	30.779	30.994
137.5	31.855	31.855	31.639	30.994	29.918	29.487	29.057	28.411	28.196	28.411
140.0	29.272	29.057	29.057	28.411	27.550	26.904	26.474	26.043	25.828	26.043
142.5	26.474	26.474	26.259	25.828	24.752	24.321	24.106	23.461	23.461	23.461
145.0	23.461	23.461	23.461	22.815	22.169	21.739	21.523	20.878	20.878	20.878
147.5	20.663	20.447	20.447	20.017	19.371	19.371	19.156	18.725	18.510	18.725
150.0	17.649	17.649	17.649	17.219	16.788	16.788	16.788	16.358	16.143	16.358
152.5	15.066	15.066	15.066	14.636	14.205	14.205	14.205	13.775	13.775	13.775
155.0	12.268	12.484	12.484	12.268	11.623	11.623	11.838	11.407	11.407	11.407
157.5	9.686	9.686	9.686	9.686	9.255	9.255	9.470	9.255	9.040	9.255
160.0	6.888	6.888	7.103	7.103	6.888	7.103	7.103	6.888	6.672	6.888
162.5	4.520	4.520	4.520	4.520	4.520	4.735	4.950	4.735	4.520	4.735
165.0	2.152	2.152	2.368	2.368	2.152	2.368	2.583	2.368	2.368	2.368
167.5	0.000	0.000	0.000	0.000	0.000	0.215	0.215	0.215	0.000	0.215
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	16.573	14.205	0.000	2.152	4.950	6.457	0.000
7.5	109.124	106.326	92.981	84.372	88.677	93.196	94.488
10.0	193.926	153.677	147.005	137.750	125.051	128.064	120.746
12.5	188.545	160.995	148.512	148.727	144.422	144.853	140.763
15.0	179.290	151.095	153.677	156.045	151.525	152.171	147.005
17.5	171.327	162.287	157.121	157.121	156.906	163.363	161.641
20.0	177.999	166.591	164.009	167.452	167.883	181.443	177.353
22.5	174.770	164.654	171.327	181.012	188.545	205.549	204.903
25.0	175.631	175.847	191.128	209.638	218.678	238.480	240.417
27.5	196.939	206.625	223.198	241.708	250.102	267.321	268.397
30.0	233.314	239.771	250.963	263.447	268.613	277.652	273.778
32.5	253.977	252.470	257.205	257.636	257.636	260.434	256.990
35.0	248.596	241.708	242.569	240.847	242.354	243.645	241.063
37.5	231.807	228.579	232.023	235.466	241.063	246.443	247.520
40.0	219.970	224.489	236.543	249.887	265.384	279.159	285.186
42.5	224.059	239.125	264.738	293.364	320.269	340.716	348.249
45.0	248.596	279.805	318.116	355.998	378.597	393.233	397.753
47.5	293.364	329.093	364.822	399.690	409.591	427.025	421.859
50.0	327.802	361.809	387.637	422.720	430.469	451.131	447.472
52.5	345.882	383.548	410.022	452.638	470.933	493.532	496.761
55.0	365.468	414.757	445.966	489.013	515.271	539.808	539.808
57.5	401.412	453.714	483.201	524.526	557.242	583.716	583.285
60.0	444.244	494.824	525.387	568.004	603.302	640.107	637.524
62.5	489.658	533.781	570.802	611.050	639.892	672.607	663.352
65.0	532.059	561.331	593.616	629.991	632.359	634.726	616.216
67.5	574.461	569.510	577.904	587.805	557.027	539.593	517.854
70.0	603.732	532.059	524.526	498.913	456.297	434.128	417.770
72.5	561.116	458.665	431.760	396.031	346.527	323.282	307.570
75.0	475.668	372.571	340.286	294.656	253.977	236.973	223.629
77.5	388.498	278.944	251.609	214.158	183.810	166.807	159.273
80.0	283.679	198.231	172.188	148.942	131.078	122.899	120.101

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CANDELA TABULATION - (Cont.)

82.5	189.837	130.002	120.316	108.048	103.313	100.945	99.869
85.0	122.684	86.309	85.233	84.372	83.511	82.650	82.220
87.5	64.355	57.683	60.050	61.557	60.911	60.050	58.974
90.0	37.881	35.944	37.881	39.388	39.173	38.312	37.451
92.5	29.918	29.057	28.411	27.335	26.689	26.259	25.828
95.0	33.577	32.716	32.285	30.994	29.918	29.057	28.626
97.5	38.312	37.451	36.805	35.944	35.083	34.222	33.792
100.0	43.262	42.401	41.540	40.895	40.249	39.388	39.173
102.5	47.782	46.706	46.275	45.630	45.414	44.554	44.123
105.0	47.352	47.136	47.352	47.352	47.567	47.567	47.352
107.5	47.136	47.782	48.428	48.428	49.504	50.150	50.150
110.0	47.997	48.643	49.073	49.934	50.795	51.871	52.087
112.5	46.921	46.921	47.136	47.782	47.782	48.428	49.289
115.0	44.769	44.984	45.414	45.845	45.845	45.630	45.414
117.5	44.123	44.554	45.199	45.414	45.199	44.984	44.984
120.0	42.832	43.262	43.693	44.123	44.338	44.338	44.123
122.5	41.755	42.186	42.616	42.832	43.047	43.047	43.047
125.0	40.249	40.895	41.110	41.540	41.755	41.755	41.755
127.5	38.096	38.957	39.388	39.818	40.249	40.249	40.034
130.0	36.159	36.805	37.451	37.881	38.312	38.312	38.312
132.5	33.792	34.653	35.083	35.514	36.159	36.159	36.159
135.0	31.639	32.285	32.500	33.361	34.007	34.007	34.007
137.5	29.057	29.487	29.918	30.994	31.639	31.855	31.855
140.0	26.474	26.904	27.550	28.411	29.057	29.057	29.272
142.5	24.106	24.321	24.752	25.828	26.259	26.474	26.474
145.0	21.523	21.739	22.169	22.815	23.461	23.461	23.461
147.5	19.156	19.371	19.371	20.017	20.447	20.447	20.663
150.0	16.788	16.788	16.788	17.219	17.649	17.649	17.649
152.5	14.205	14.205	14.205	14.636	15.066	15.066	15.066
155.0	11.838	11.623	11.623	12.268	12.484	12.484	12.268
157.5	9.470	9.255	9.255	9.686	9.686	9.686	9.686
160.0	7.103	7.103	6.888	7.103	7.103	6.888	6.888
162.5	4.950	4.735	4.520	4.520	4.520	4.520	4.520
165.0	2.583	2.368	2.152	2.368	2.368	2.152	2.152
167.5	0.215	0.215	0.000	0.000	0.000	0.000	0.000
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	54.08	N.A.	2.50
0-30	149.43	N.A.	6.80
0-40	303.18	N.A.	13.80
0-60	956.44	N.A.	43.40
0-80	1878.69	N.A.	85.30
0-90	1988.45	N.A.	90.20
10-90	1981.34	N.A.	89.90
20-40	249.10	N.A.	11.30
20-50	493.60	N.A.	22.40
40-70	1209.82	N.A.	54.90
60-80	922.25	N.A.	41.90
70-80	365.68	N.A.	16.60
80-90	109.75	N.A.	5.00
90-110	86.85	N.A.	3.90
90-120	132.49	N.A.	6.00
90-130	169.03	N.A.	7.70
90-150	208.46	N.A.	9.50
90-180	214.99	N.A.	9.80
110-180	128.14	N.A.	5.80
0-180	2203.44	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	7.11
10-20	46.97
20-30	95.35
30-40	153.75
40-50	244.49
50-60	408.76
60-70	556.57
70-80	365.68
80-90	109.75
90-100	37.19
100-110	49.66
110-120	45.64
120-130	36.54
130-140	25.28
140-150	14.15
150-160	5.67
160-170	0.86
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	445	445	445	445	430	430	430	430	403	403	403	378	378	378	355	355	355	344
1	388	362	339	318	373	349	328	309	325	308	292	304	289	276	283	272	261	250
2	338	296	260	231	323	285	252	225	264	237	213	245	222	203	227	209	192	180
3	298	246	205	172	284	236	199	168	218	186	160	202	175	152	187	164	145	133
4	266	208	166	133	253	200	160	130	185	151	124	170	141	118	157	132	112	100
5	239	179	137	106	228	172	133	103	159	125	98	147	117	93	135	109	89	78
6	218	156	115	86	207	150	112	84	139	105	80	128	99	76	119	92	72	62
7	199	138	99	71	189	133	96	70	123	90	66	114	85	63	105	80	60	50
8	184	124	86	60	175	119	84	59	111	79	56	103	74	53	95	70	51	42
9	170	112	76	52	162	108	74	51	100	70	48	93	66	46	86	62	43	35
10	159	102	68	45	151	98	66	44	92	62	42	85	59	40	79	55	38	30

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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	19.8	21.6	20.3	22.1	22.6	18.6	20.4	19.1	20.9	21.4
	3H	22.6	24.2	23.1	24.7	25.3	22.8	24.4	23.3	24.9	25.5
	4H	23.1	24.7	23.7	25.2	25.8	23.8	25.3	24.3	25.8	26.4
	6H	23.4	24.9	24.0	25.4	26.0	24.3	25.8	24.9	26.3	26.9
	8H	23.5	24.9	24.1	25.5	26.1	24.5	25.9	25.0	26.4	27.1
	12H	23.7	25.0	24.2	25.6	26.2	24.6	25.9	25.2	26.5	27.2

UGR Viewed Endwise

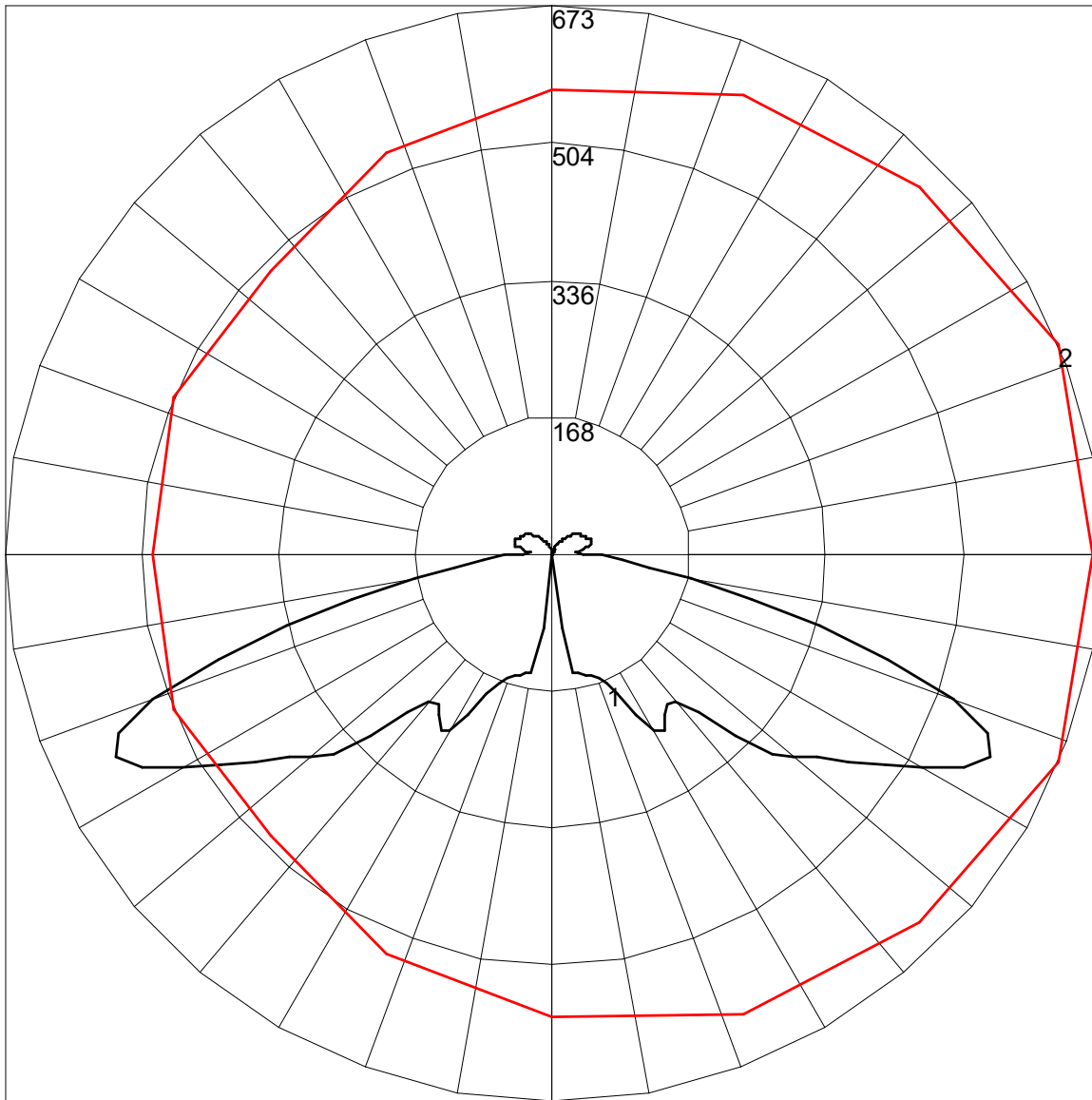
4H	2H	21.2	22.7	21.7	23.2	23.8	20.2	21.7	20.7	22.2	22.8
	3H	23.8	25.1	24.3	25.7	26.3	24.0	25.4	24.6	25.9	26.6
	4H	24.3	25.6	24.9	26.1	26.8	25.1	26.3	25.7	26.9	27.6
	6H	24.7	25.8	25.3	26.4	27.0	25.7	26.8	26.3	27.4	28.1
	8H	24.9	25.9	25.4	26.5	27.2	25.9	27.0	26.5	27.6	28.2
	12H	25.1	26.0	25.7	26.6	27.3	26.1	27.0	26.7	27.7	28.4

8H	4H	24.7	25.7	25.2	26.3	27.0	25.6	26.6	26.2	27.2	27.9
	6H	25.1	26.0	25.7	26.6	27.3	26.4	27.2	27.0	27.9	28.6
	8H	25.3	26.1	26.0	26.8	27.5	26.6	27.4	27.3	28.1	28.7
	12H	25.6	26.3	26.3	27.0	27.7	26.9	27.6	27.5	28.2	29.0

12H	4H	24.7	25.6	25.3	26.3	26.9	25.7	26.6	26.3	27.2	27.9
	6H	25.2	26.0	25.8	26.6	27.3	26.5	27.3	27.1	27.9	28.6
	8H	25.5	26.1	26.1	26.8	27.5	26.8	27.5	27.4	28.1	28.9

Maximum UGR = 29.0

POLAR GRAPH



Maximum Candela = 672.607 Located At Horizontal Angle = 22.5, Vertical Angle = 62.5
1 - Vertical Plane Through Horizontal Angles (90 - 270)
2 - Horizontal Cone Through Vertical Angle (62.5) (Through Max. Cd.)