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IES INDOOR REPORT
PHOTOMETRIC FILENAME : FSN-7564W-OPAL.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] LM-79-08
[TESTLAB] Orb Optronix, Inc.
[ISSUE DATE] 07-19-2019
[MANUFAC] Justice Design
[LUMINAIRE] FSN-7564W-OPAL
[TOTAL LUMINAIRE LUMENS] 416.4
[ABSOLUTE LUMENS] 416.402358891872

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	445
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	23
Total Luminaire Watts	19.58
Ballast Factor	1.00
CIE Type	General Diffuse
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.29 ft
Luminous Width (90-270)	0.54 ft
Luminous Height	1.50 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	1015	836	628
55	1076	877	662
65	1114	903	682
75	1153	931	703
85	1218	974	739

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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	6.355	6.355	6.355	6.355	6.355	6.355	6.355	6.355	6.355	6.355
2.5	8.544	8.939	8.480	7.487	6.750	6.194	6.333	5.757	5.831	5.671
5.0	11.353	11.801	11.011	9.217	7.647	6.750	6.771	5.949	5.778	5.714
7.5	14.535	15.080	13.841	11.129	8.523	7.465	7.049	6.045	5.714	5.789
10.0	18.124	18.498	16.714	13.179	9.644	8.266	7.476	6.130	5.660	5.959
12.5	21.542	21.905	19.779	15.326	10.755	9.110	7.914	6.184	5.575	5.981
15.0	24.959	25.376	22.716	17.472	11.887	9.975	8.384	6.226	5.447	6.109
17.5	28.654	28.953	25.771	19.619	13.040	10.894	8.715	6.226	5.340	6.130
20.0	32.296	32.638	28.996	21.862	14.247	11.769	9.195	6.237	5.105	6.120
22.5	35.874	36.312	32.136	24.105	15.401	12.688	9.719	6.323	4.998	6.098
25.0	39.377	39.815	35.255	26.390	16.511	13.596	10.007	6.419	4.774	6.152
27.5	42.795	43.201	38.234	28.398	17.654	14.450	10.392	6.504	4.646	6.216
30.0	46.074	46.490	40.904	30.481	18.701	15.283	10.830	6.558	4.325	6.269
32.5	49.085	49.673	43.724	32.382	19.641	16.020	11.011	6.568	4.112	6.184
35.0	52.108	52.770	46.255	34.240	20.591	16.746	11.299	6.600	3.898	6.226
37.5	55.237	56.027	48.914	36.066	21.584	17.505	11.588	6.600	3.695	6.216
40.0	58.377	59.295	51.595	38.106	22.481	18.209	11.833	6.611	3.343	6.280
42.5	61.485	62.649	54.308	39.922	23.464	18.989	11.951	6.654	3.161	6.226
45.0	64.507	65.874	56.988	41.812	24.414	19.737	12.303	6.664	2.916	6.216
47.5	67.380	68.929	59.381	43.478	25.258	20.420	12.592	6.750	2.787	6.237
50.0	70.039	71.770	61.666	45.091	26.070	20.976	12.880	6.750	2.542	6.226
52.5	72.806	74.824	63.909	46.565	26.839	21.627	13.158	6.889	2.350	6.269
55.0	75.358	77.740	66.109	48.017	27.448	22.246	13.403	6.899	2.189	6.237
57.5	77.601	80.335	68.085	49.310	28.110	22.706	13.681	6.921	1.965	6.269
60.0	79.619	82.620	69.804	50.378	28.558	23.112	13.873	6.889	1.794	6.280
62.5	81.296	84.543	71.193	51.339	28.911	23.389	13.969	6.942	1.709	6.269
65.0	82.877	86.220	72.539	52.022	29.188	23.571	14.119	6.953	1.666	6.355
67.5	84.265	87.822	73.542	52.631	29.349	23.731	14.215	7.059	1.623	6.312
70.0	85.643	89.466	74.685	53.357	29.520	23.838	14.354	7.134	1.517	6.419
72.5	86.935	90.513	75.871	53.987	29.893	24.073	14.589	7.241	1.485	6.461
75.0	88.270	90.193	77.110	54.639	30.128	24.340	14.877	7.369	1.495	6.504
77.5	89.648	91.004	78.114	55.312	30.342	24.681	15.112	7.455	1.420	6.600
80.0	90.994	91.998	79.214	55.814	30.588	24.831	15.208	7.401	1.324	6.654
82.5	92.136	92.895	79.972	56.134	30.705	25.002	15.251	7.369	1.153	6.558
85.0	92.905	93.493	80.645	56.487	30.705	25.141	15.251	7.262	0.929	6.515
87.5	93.375	93.867	81.115	56.529	30.662	25.045	15.208	7.294	0.908	6.461
90.0	93.471	93.653	81.072	56.358	30.491	24.959	15.112	7.273	0.908	6.515
92.5	93.333	93.397	80.826	56.166	30.481	24.916	14.963	7.177	0.929	6.515
95.0	92.948	92.702	80.495	55.920	30.385	24.799	15.016	7.284	1.047	6.643
97.5	92.232	92.147	79.918	55.483	30.224	24.585	14.813	7.177	1.015	6.472
100.0	91.367	91.271	79.395	55.098	30.011	24.340	14.674	7.027	0.951	6.333
102.5	90.460	90.513	78.722	54.703	29.733	24.083	14.386	6.889	0.812	6.237
105.0	89.509	89.392	77.857	54.265	29.477	23.827	14.183	6.696	0.801	6.088
107.5	88.302	88.409	76.853	53.603	29.178	23.539	13.916	6.696	0.822	5.991
110.0	86.818	87.202	75.604	52.983	28.889	23.208	13.660	6.760	0.865	5.853
112.5	85.098	85.814	74.429	52.321	28.430	22.877	13.329	6.654	0.844	5.703
115.0	83.144	84.297	73.820	51.531	27.992	22.503	13.008	6.408	0.790	5.618
117.5	81.221	82.663	73.297	50.698	27.554	22.065	12.656	6.280	0.769	5.468
120.0	79.246	81.243	72.560	49.929	27.127	21.595	12.474	6.109	0.822	5.329
122.5	77.921	80.431	71.524	49.011	26.636	21.168	11.994	5.949	0.844	5.233
125.0	76.757	79.491	69.484	47.836	26.262	20.602	11.652	5.757	0.940	5.084
127.5	75.016	78.017	66.835	46.319	25.739	20.025	11.278	5.564	0.886	4.988
130.0	72.720	75.860	63.973	44.439	25.045	19.406	10.872	5.276	0.951	4.849
132.5	69.954	73.147	61.250	42.357	24.147	18.690	10.509	5.105	0.951	4.699

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CANDELA TABULATION - (Cont.)

135.0	66.643	69.762	58.633	40.360	23.218	17.889	10.071	4.998	0.983	4.560
137.5	63.332	66.515	55.739	38.395	22.214	17.120	9.591	4.806	1.121	4.422
140.0	59.872	63.375	54.180	36.323	21.168	16.362	9.185	4.582	1.218	4.325
142.5	56.529	60.096	51.050	34.219	20.078	15.550	8.747	4.464	1.228	4.133
145.0	52.973	56.390	48.263	31.837	18.968	14.738	8.330	4.251	1.271	3.994
147.5	49.085	52.353	45.251	29.413	17.804	13.745	7.722	3.845	1.378	3.888
150.0	45.102	48.434	42.036	26.956	16.533	12.699	6.985	3.546	1.111	3.556
152.5	41.033	44.429	38.598	24.447	14.824	11.460	6.611	3.183	1.111	3.172
155.0	35.981	37.594	34.902	21.542	13.702	10.595	5.810	2.713	0.961	2.798
157.5	33.161	35.970	30.235	19.384	12.442	9.398	5.212	2.424	0.694	2.414
160.0	29.007	31.485	27.982	16.618	10.744	8.063	4.454	1.912	0.523	2.125
162.5	24.799	26.988	24.019	13.713	8.939	6.878	3.823	1.517	0.427	1.730
165.0	20.730	22.706	19.950	10.691	7.412	5.724	2.905	1.121	0.417	1.121
167.5	16.511	18.167	16.105	7.999	5.927	4.304	1.965	0.694	0.470	0.844
170.0	12.987	14.258	12.229	5.447	4.197	3.012	1.025	0.513	0.395	0.694
172.5	8.117	9.217	6.184	3.236	2.392	1.538	0.534	0.427	0.352	0.523
175.0	3.492	4.144	3.097	1.559	1.004	0.651	0.320	0.491	0.470	0.577
177.5	0.641	1.185	1.068	0.555	0.342	0.374	0.459	0.481	0.470	0.481
180.0	0.529	0.529	0.529	0.529	0.529	0.529	0.529	0.529	0.529	0.529

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	6.355	6.355	6.355	6.355	6.355	6.355	6.355
2.5	5.949	6.226	6.857	7.284	8.127	7.615	8.010
5.0	6.109	6.985	7.732	8.864	10.616	10.135	10.723
7.5	6.451	7.732	8.619	10.637	13.350	13.179	13.916
10.0	6.825	8.266	9.729	12.666	16.255	16.543	17.238
12.5	7.166	8.918	10.851	14.568	19.352	20.089	20.730
15.0	7.593	9.687	12.015	16.618	22.214	23.624	24.190
17.5	7.925	10.595	13.126	18.690	25.183	27.245	27.672
20.0	8.309	11.406	14.354	20.655	28.366	30.961	31.218
22.5	8.779	12.250	15.465	22.684	31.186	34.635	34.827
25.0	9.163	13.051	16.586	24.735	34.144	38.202	38.288
27.5	9.505	13.873	17.686	26.689	37.038	41.737	41.663
30.0	9.879	14.696	18.797	28.644	39.794	45.123	44.931
32.5	10.263	15.518	19.875	30.555	42.517	48.242	47.900
35.0	10.648	16.298	20.879	32.403	45.123	51.371	51.114
37.5	10.883	16.874	21.958	34.272	47.654	54.511	54.084
40.0	11.364	17.729	22.983	36.130	50.249	57.661	57.223
42.5	11.598	18.498	23.998	38.138	53.048	60.876	60.374
45.0	11.930	19.256	25.045	40.082	55.611	64.027	63.503
47.5	12.357	20.068	25.899	41.962	58.121	66.964	66.366
50.0	12.602	20.730	26.764	43.809	60.449	69.804	69.089
52.5	12.933	21.392	27.597	45.497	62.692	72.517	71.770
55.0	13.222	22.033	28.313	47.163	64.881	75.209	74.365
57.5	13.403	22.631	28.986	48.754	66.857	77.729	76.811
60.0	13.596	23.176	29.477	50.153	68.576	79.886	78.957
62.5	13.734	23.603	29.915	51.296	70.039	81.681	80.805
65.0	13.884	23.945	30.267	52.407	71.374	83.368	82.407
67.5	13.927	24.254	30.502	53.272	72.603	84.789	83.838
70.0	14.066	24.564	30.833	54.041	73.745	86.262	85.173
72.5	14.268	24.842	31.164	54.895	74.899	87.587	86.732
75.0	14.461	25.130	31.549	55.611	75.988	88.943	88.121
77.5	14.642	25.461	32.200	56.465	77.131	90.342	89.552
80.0	14.888	25.878	32.756	57.095	78.381	91.827	90.855

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82.5	14.984	26.198	33.172	57.629	79.288	93.044	91.965
85.0	15.069	26.412	33.386	57.971	79.940	93.995	92.937
87.5	14.973	26.518	33.439	58.024	80.324	94.614	93.525
90.0	15.112	26.465	33.460	57.886	80.559	94.870	93.792
92.5	15.016	26.348	33.332	57.555	80.314	94.785	93.632
95.0	14.920	26.209	33.332	57.074	79.950	94.422	93.044
97.5	14.813	26.027	33.097	56.465	79.395	93.824	92.350
100.0	14.664	25.717	32.734	55.750	78.765	93.130	91.549
102.5	14.407	25.344	32.339	54.938	77.814	92.297	90.748
105.0	14.044	24.916	31.997	54.030	76.939	91.218	89.755
107.5	13.820	24.425	31.453	53.122	75.967	90.054	88.420
110.0	13.564	24.126	31.015	52.172	74.696	88.580	86.882
112.5	13.318	23.646	30.353	51.029	73.201	86.828	85.184
115.0	12.944	23.133	29.787	50.079	72.207	85.023	83.325
117.5	12.656	22.492	29.114	48.925	71.513	83.176	81.328
120.0	12.325	21.979	28.452	47.932	70.616	81.403	79.310
122.5	12.047	21.456	27.736	46.885	69.537	80.175	77.750
125.0	11.748	20.890	27.202	45.732	67.498	78.690	76.479
127.5	11.460	20.249	26.583	44.140	64.945	76.800	74.728
130.0	11.107	19.470	25.739	42.336	62.158	74.408	72.699
132.5	10.744	18.807	24.863	40.509	59.541	71.278	70.104
135.0	10.274	18.124	23.902	38.704	56.956	67.807	66.814
137.5	9.932	17.355	22.802	36.889	54.254	64.390	63.386
140.0	9.580	16.618	21.819	35.030	51.029	61.100	60.096
142.5	9.174	15.774	20.709	34.432	47.921	57.768	56.764
145.0	8.736	14.909	19.673	32.724	44.931	54.062	53.475
147.5	8.031	14.162	18.573	30.331	41.631	50.132	49.523
150.0	7.636	12.933	17.462	27.896	38.277	46.276	45.657
152.5	6.995	12.186	15.838	25.696	35.180	41.983	41.855
155.0	6.258	11.043	14.813	22.748	30.652	37.668	36.686
157.5	5.575	9.836	13.414	20.943	28.163	34.165	33.877
160.0	4.881	8.555	11.780	18.338	24.521	30.171	29.680
162.5	4.283	7.359	10.167	15.550	20.879	26.081	25.632
165.0	3.386	6.269	8.501	12.666	17.323	21.670	21.574
167.5	2.606	5.126	6.675	9.890	13.852	17.729	17.291
170.0	1.623	3.802	5.351	7.455	9.516	14.087	13.809
172.5	0.897	2.275	3.642	5.287	5.233	8.918	8.961
175.0	0.758	1.047	1.848	3.332	2.531	4.336	4.325
177.5	0.726	0.737	0.822	1.677	1.143	1.442	0.897
180.0	0.529	0.529	0.529	0.529	0.529	0.529	0.529

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	5.05	N.A.	1.10
0-30	14.77	N.A.	3.30
0-40	31.60	N.A.	7.10
0-60	90.02	N.A.	20.20
0-80	175.77	N.A.	39.50
0-90	224.48	N.A.	50.50
10-90	223.60	N.A.	50.30
20-40	26.55	N.A.	6.00
20-50	51.58	N.A.	11.60
40-70	98.73	N.A.	22.20
60-80	85.74	N.A.	19.30
70-80	45.43	N.A.	10.20
80-90	48.72	N.A.	11.00
90-110	93.82	N.A.	21.10
90-120	133.69	N.A.	30.10
90-130	166.97	N.A.	37.60
90-150	208.20	N.A.	46.80
90-180	220.14	N.A.	49.50
110-180	126.32	N.A.	28.40
0-180	444.62	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	0.88
10-20	4.17
20-30	9.72
30-40	16.83
40-50	25.03
50-60	33.38
60-70	40.31
70-80	45.43
80-90	48.72
90-100	48.54
100-110	45.28
110-120	39.87
120-130	33.28
130-140	24.88
140-150	16.35
150-160	8.61
160-170	3.02
170-180	0.31

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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	
0	107	107	107	107	99	99	99	99	84	84	84	69	69	69	57	57	57	50
1	92	86	80	74	84	78	73	68	65	61	57	53	49	47	41	39	37	31
2	82	72	63	56	74	65	58	52	54	48	43	43	39	35	33	30	27	22
3	73	61	52	44	66	56	47	41	46	39	34	36	31	27	28	24	20	16
4	66	53	43	36	60	48	40	33	40	33	27	31	26	22	24	20	16	12
5	60	46	37	30	55	42	34	27	35	28	22	27	22	18	21	17	13	10
6	55	41	32	25	50	38	29	23	31	24	19	24	19	15	18	14	11	8
7	51	37	28	21	46	34	25	20	28	21	16	22	17	13	17	12	9	6
8	47	33	24	18	43	30	22	17	25	18	14	20	15	11	15	11	8	5
9	44	30	22	16	40	27	20	15	23	16	12	18	13	9	14	10	7	5
10	41	27	19	14	37	25	18	13	21	15	11	17	12	8	13	9	6	4

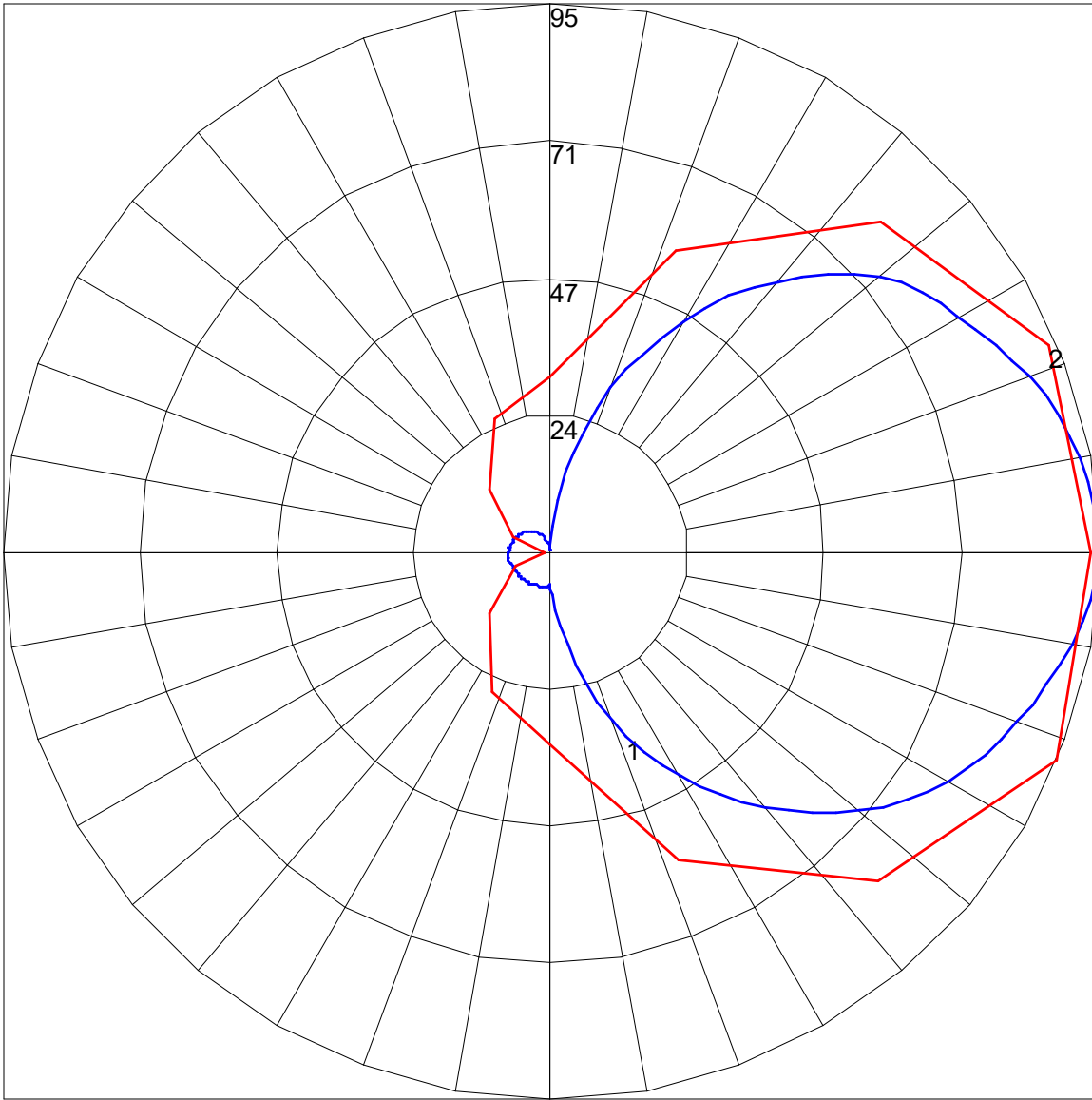
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UGR TABLE - CORRECTED

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	
Walls	50	30	50	30	30	50	30	50	30	30	
Floor Cavity	20	20	20	20	20	20	20	20	20	20	
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	11.8	12.9	12.8	13.8	15.1	5.5	6.6	6.4	7.5	8.8
	3H	15.1	16.0	16.0	17.0	18.3	8.0	9.0	8.9	9.9	11.2
	4H	16.7	17.6	17.6	18.5	19.8	9.2	10.1	10.1	11.1	12.4
	6H	18.2	19.1	19.2	20.1	21.4	10.4	11.2	11.3	12.2	13.5
	8H	19.0	19.8	19.9	20.8	22.1	10.9	11.8	11.9	12.8	14.0
	12H	19.7	20.5	20.7	21.5	22.8	11.5	12.3	12.4	13.3	14.6
4H	2H	12.3	13.2	13.2	14.2	15.5	7.2	8.1	8.1	9.1	10.4
	3H	15.8	16.6	16.7	17.6	18.9	9.8	10.7	10.8	11.7	12.9
	4H	17.6	18.3	18.5	19.3	20.6	11.1	11.9	12.1	12.9	14.2
	6H	19.3	20.0	20.3	21.0	22.3	12.4	13.1	13.4	14.1	15.4
	8H	20.2	20.9	21.2	21.9	23.2	13.0	13.6	14.0	14.7	16.0
	12H	21.1	21.7	22.1	22.7	24.0	13.6	14.2	14.6	15.2	16.5
8H	4H	17.9	18.5	18.8	19.5	20.8	12.3	13.0	13.3	14.0	15.3
	6H	19.9	20.4	20.9	21.5	22.8	13.8	14.4	14.8	15.4	16.7
	8H	20.9	21.4	21.9	22.5	23.8	14.5	15.1	15.5	16.1	17.4
	12H	22.0	22.5	23.0	23.5	24.9	15.2	15.7	16.3	16.7	18.1
12H	4H	17.9	18.5	18.9	19.5	20.8	12.7	13.2	13.6	14.3	15.6
	6H	20.0	20.5	21.0	21.5	22.9	14.3	14.8	15.3	15.8	17.2
	8H	21.1	21.6	22.1	22.6	24.0	15.1	15.6	16.1	16.6	18.0

Maximum UGR = 24.9

POLAR GRAPH



Maximum Candela = 94.87 Located At Horizontal Angle = 337.5, Vertical Angle = 90
1 - Vertical Plane Through Horizontal Angles (337.5 - 157.5) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (90) (Through Max. Cd.)