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IES INDOOR REPORT
PHOTOMETRIC FILENAME : CLD-8631.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] LM-79-08
[TESTLAB] Orb Optronix, Inc.
[ISSUE DATE] 07-22-2019
[MANUFACTURER] Justice Design
[LUMINAIRE] CLD-8631

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	483
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	21
Total Luminaire Watts	22.92
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)	0.21 ft
Luminous Width (90-270)	1.75 ft
Luminous Height	0.42 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	1081	1012	684
55	1210	1138	867
65	1337	1268	1130
75	1470	1415	1556
85	1627	1591	2450

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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	5.017	5.017	5.017	5.017	5.017	5.017	5.017	5.017	5.017	5.017
2.5	4.437	5.092	5.036	4.905	5.363	5.326	7.862	6.281	6.365	6.870
5.0	8.050	8.967	8.424	7.366	7.254	7.872	9.285	9.566	9.641	9.182
7.5	13.394	13.563	12.037	10.128	8.826	9.117	8.761	9.229	9.482	8.986
10.0	17.625	18.711	16.080	12.131	9.089	8.574	8.873	8.948	8.714	8.695
12.5	26.695	27.331	22.614	15.837	10.418	8.752	9.126	8.677	8.153	8.321
15.0	32.938	33.144	28.220	19.665	11.878	9.248	9.500	8.471	7.947	8.068
17.5	38.133	37.955	32.170	22.689	13.151	9.716	9.585	8.415	8.218	7.993
20.0	43.150	42.878	36.130	25.235	14.255	10.174	9.613	8.564	8.555	8.134
22.5	48.138	47.053	39.527	27.444	15.135	10.792	9.566	8.724	9.070	8.564
25.0	52.369	51.068	42.663	29.503	16.006	11.129	9.566	9.089	9.856	9.004
27.5	56.282	54.662	45.892	31.590	16.754	11.251	9.416	9.491	10.736	9.351
30.0	59.848	58.182	48.906	33.733	17.391	11.335	9.238	9.968	11.485	9.772
32.5	63.124	60.859	51.321	35.596	17.943	11.541	8.939	10.446	12.084	9.968
35.0	66.634	63.948	53.511	37.075	18.364	11.794	8.630	10.764	12.673	10.137
37.5	70.003	67.083	56.188	38.722	18.888	11.878	8.480	11.007	13.329	10.390
40.0	72.840	69.798	58.771	40.342	19.441	12.084	8.312	11.204	13.928	10.586
42.5	75.535	72.353	61.065	42.064	19.984	12.336	8.218	11.522	14.508	10.755
45.0	78.371	74.946	63.161	43.636	20.489	12.505	8.143	11.756	14.967	11.007
47.5	81.395	77.782	65.380	45.050	21.079	12.627	8.087	11.925	15.472	11.166
50.0	84.745	80.796	67.738	46.594	21.743	12.795	8.031	12.093	15.978	11.269
52.5	88.293	84.015	70.256	48.110	22.324	12.926	7.881	12.262	16.399	11.429
55.0	91.485	86.973	72.765	49.692	22.829	13.123	7.881	12.421	16.651	11.634
57.5	94.461	89.641	74.983	51.152	23.250	13.254	7.750	12.449	17.026	11.653
60.0	97.110	92.065	76.864	52.444	23.756	13.422	7.694	12.496	17.363	11.766
62.5	99.656	94.405	78.746	53.661	24.214	13.544	7.544	12.627	17.690	11.850
65.0	102.136	96.642	80.533	54.700	24.710	13.797	7.591	12.823	18.027	12.102
67.5	104.111	98.355	81.928	55.589	25.010	13.797	7.600	12.945	18.449	12.215
70.0	105.899	100.161	83.370	56.553	25.384	13.974	7.656	13.038	18.739	12.280
72.5	108.071	102.202	85.139	57.611	25.759	14.302	7.769	13.188	19.160	12.477
75.0	110.046	103.877	86.524	58.622	26.096	14.574	7.806	13.347	19.534	12.673
77.5	111.637	104.766	87.816	59.427	26.517	14.817	7.975	13.469	19.740	12.786
80.0	113.134	106.311	88.883	60.129	26.816	15.088	8.059	13.572	20.161	12.870
82.5	114.557	107.612	89.922	60.765	27.107	15.229	8.106	13.619	20.367	12.964
85.0	115.605	108.623	90.530	61.233	27.312	15.388	8.162	13.619	20.536	12.907
87.5	116.195	109.306	90.895	61.420	27.444	15.463	8.181	13.581	20.658	12.907
90.0	116.532	109.493	90.970	61.364	27.490	15.416	8.162	13.469	20.658	12.851
92.5	116.317	109.297	90.680	61.392	27.481	15.369	8.115	13.347	20.658	12.627
95.0	115.774	108.866	90.324	61.168	27.490	15.210	8.162	13.216	20.489	12.505
97.5	115.062	108.267	89.809	60.840	27.406	15.107	8.115	13.160	20.442	12.336
100.0	114.220	107.462	89.070	60.372	27.275	14.901	8.134	13.123	20.442	12.355
102.5	112.956	106.292	88.012	59.717	26.985	14.751	7.900	12.758	19.974	11.868
105.0	111.534	104.916	87.001	59.108	26.816	14.293	7.656	12.421	19.778	11.681
107.5	110.036	103.568	85.906	58.350	26.742	14.031	7.582	12.271	19.469	11.522
110.0	108.389	102.080	84.502	57.592	26.573	13.647	7.404	12.065	19.057	11.382
112.5	106.330	100.208	82.827	56.525	26.236	13.301	7.217	11.887	18.683	11.082
115.0	103.990	98.065	81.086	55.439	25.946	13.282	7.029	11.672	18.346	10.914
117.5	101.818	95.977	79.363	54.400	25.562	13.216	7.067	11.438	17.971	10.670
120.0	99.422	93.825	77.388	53.184	25.104	13.141	7.254	11.213	17.466	10.502
122.5	96.885	91.447	75.385	51.911	24.729	12.926	7.479	11.204	17.054	10.464
125.0	94.527	89.135	73.261	50.572	24.345	12.758	7.619	11.157	16.623	10.408
127.5	91.522	86.383	70.836	49.149	23.765	12.608	7.675	11.166	15.940	10.193
130.0	88.564	83.594	69.610	49.861	23.391	12.439	7.806	11.120	15.322	9.837
132.5	86.346	81.722	69.208	48.017	22.923	12.290	7.741	10.858	14.658	9.894

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CANDELA TABULATION - (Cont.)

135.0	84.174	79.532	64.930	45.368	22.333	12.009	7.769	10.736	14.124	9.407
137.5	81.788	77.314	62.693	43.692	21.790	11.943	7.694	10.689	13.244	8.780
140.0	78.671	74.562	60.072	42.167	20.976	11.419	7.488	9.631	11.737	7.769
142.5	74.899	71.155	58.275	39.228	19.946	11.138	7.114	8.256	10.745	6.992
145.0	66.054	65.595	54.082	38.563	19.590	10.783	6.515	7.404	9.716	6.178
147.5	66.990	64.444	53.296	35.980	18.467	9.922	5.916	6.692	8.199	5.214
150.0	62.441	59.913	49.243	33.041	17.297	9.060	5.036	5.429	6.393	3.650
152.5	58.360	55.626	45.443	30.645	16.240	8.115	3.707	3.950	4.427	2.555
155.0	55.065	52.248	42.541	28.904	14.705	6.599	3.023	2.780	2.799	1.806
157.5	51.443	49.206	39.902	26.405	12.645	4.418	2.508	2.134	1.778	1.404
160.0	46.126	44.816	36.242	22.885	10.081	3.173	2.106	1.760	1.348	1.039
162.5	41.240	39.864	31.890	18.093	6.870	2.452	1.423	1.170	0.992	0.833
165.0	34.314	33.818	24.402	11.391	5.129	1.713	1.030	0.796	0.590	0.683
167.5	22.576	21.678	15.762	8.471	3.407	1.198	0.730	0.580	0.477	0.599
170.0	14.602	14.564	10.970	5.008	1.891	0.786	0.580	0.496	0.468	0.543
172.5	8.564	8.761	5.841	2.387	1.273	0.655	0.440	0.459	0.374	0.562
175.0	3.136	3.622	2.649	0.880	0.459	0.412	0.356	0.337	0.421	0.562
177.5	0.421	0.889	0.505	0.374	0.496	0.440	0.421	0.496	0.468	0.608
180.0	0.524	0.524	0.524	0.524	0.524	0.524	0.524	0.524	0.524	0.524

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	5.017	5.017	5.017	5.017	5.017	5.017	5.017
2.5	6.196	5.878	5.625	4.493	4.025	4.362	4.006
5.0	8.817	8.256	7.610	6.983	7.291	8.293	8.639
7.5	8.761	8.705	8.986	9.837	11.166	13.272	13.956
10.0	8.761	8.752	9.791	11.953	14.648	17.971	18.673
12.5	8.958	9.173	11.176	15.425	20.461	25.908	27.715
15.0	9.351	9.585	12.121	18.552	25.328	31.356	33.687
17.5	9.444	9.819	12.964	21.097	29.007	35.830	38.573
20.0	9.369	10.212	13.619	23.213	32.769	40.585	43.777
22.5	9.416	10.596	14.265	25.010	35.989	44.806	48.578
25.0	9.379	11.007	14.873	26.732	38.966	48.635	52.781
27.5	9.379	11.298	15.341	28.595	42.083	52.004	56.572
30.0	9.304	11.634	15.669	30.364	44.788	55.280	60.204
32.5	9.285	11.925	16.015	32.039	47.259	58.434	63.386
35.0	9.089	12.262	16.483	33.584	49.842	61.682	66.915
37.5	9.079	12.468	16.914	35.119	52.528	64.762	70.200
40.0	8.995	12.889	17.316	36.626	54.831	67.486	73.055
42.5	8.958	13.263	17.737	38.133	57.087	70.041	75.844
45.0	8.920	13.432	18.158	39.583	59.389	72.989	78.755
47.5	8.911	13.806	18.636	40.978	61.888	75.975	81.900
50.0	8.873	14.199	19.048	42.522	64.350	79.158	85.307
52.5	8.836	14.517	19.497	44.095	66.980	82.424	88.817
55.0	8.826	14.892	19.946	45.518	69.451	85.504	92.037
57.5	8.752	15.229	20.218	46.912	71.679	88.115	94.948
60.0	8.667	15.519	20.536	48.101	73.598	90.530	97.531
62.5	8.583	15.762	20.920	49.308	75.563	92.964	100.077
65.0	8.583	16.043	21.257	50.291	77.360	95.201	102.586
67.5	8.574	16.090	21.491	51.096	78.830	97.026	104.467
70.0	8.621	16.305	21.687	51.854	80.168	98.645	106.208
72.5	8.658	16.567	21.968	52.847	81.713	100.592	108.314
75.0	8.658	16.895	22.146	53.586	83.173	102.370	110.233
77.5	8.705	17.101	22.445	54.344	84.343	103.784	111.833
80.0	8.789	17.475	22.707	54.971	85.429	105.160	113.322

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CANDELA TABULATION - (Cont.)

82.5	8.789	17.634	22.820	55.580	86.552	106.451	114.660
85.0	8.873	17.887	22.913	55.973	87.179	107.247	115.596
87.5	8.873	17.971	22.969	56.254	87.675	107.790	116.176
90.0	8.826	18.074	23.026	56.357	87.956	107.958	116.335
92.5	8.705	17.999	22.988	56.394	87.872	107.715	116.055
95.0	8.583	17.934	22.932	56.123	87.394	107.078	115.502
97.5	8.415	17.859	22.820	55.804	86.898	106.376	114.707
100.0	8.330	17.709	22.689	55.439	86.262	105.487	113.790
102.5	7.993	17.484	22.483	54.793	85.326	104.252	112.479
105.0	7.788	17.166	22.249	54.120	84.203	102.810	111.019
107.5	7.535	16.960	22.062	53.446	82.986	101.425	109.512
110.0	7.413	16.651	22.155	52.631	81.675	99.750	107.818
112.5	7.198	16.343	21.987	51.761	80.122	97.718	105.693
115.0	7.076	16.417	21.781	50.797	78.484	95.612	103.465
117.5	7.039	16.427	21.519	49.917	76.818	93.591	101.191
120.0	7.207	16.352	21.322	48.887	75.048	91.279	98.767
122.5	7.460	16.212	21.004	47.886	73.251	89.051	96.352
125.0	7.619	15.996	20.798	46.678	71.276	86.674	93.909
127.5	7.628	15.650	20.498	45.508	69.133	83.828	90.886
130.0	7.685	15.369	20.199	45.611	67.458	81.357	88.040
132.5	7.685	14.845	19.796	44.048	66.531	79.457	86.018
135.0	7.965	14.527	19.338	41.942	64.153	77.061	83.763
137.5	7.750	13.965	18.888	40.510	61.140	74.730	81.404
140.0	6.786	13.918	18.205	38.938	58.584	71.651	78.240
142.5	6.215	12.907	17.999	37.197	55.280	66.849	74.440
145.0	5.663	11.915	17.063	35.147	53.024	63.414	67.701
147.5	4.998	10.670	15.903	33.368	49.262	60.456	66.540
150.0	4.006	9.210	14.676	31.553	45.995	56.319	61.813
152.5	3.323	7.479	13.001	29.699	43.178	52.912	57.761
155.0	2.705	5.382	10.867	27.752	40.566	50.039	54.428
157.5	2.377	3.622	9.004	25.038	36.925	46.182	50.656
160.0	1.825	2.976	7.207	21.996	32.638	41.165	43.758
162.5	1.292	2.340	5.391	16.857	27.968	35.980	36.176
165.0	1.020	1.806	4.287	11.728	20.695	28.707	30.018
167.5	0.861	1.357	2.817	9.510	13.918	17.934	20.377
170.0	0.702	1.058	1.722	6.047	9.070	11.775	13.113
172.5	0.674	0.964	1.292	3.332	4.671	6.150	7.329
175.0	0.730	0.739	0.842	1.947	2.181	2.780	2.976
177.5	0.702	0.796	0.870	0.833	0.674	0.487	0.515
180.0	0.524	0.524	0.524	0.524	0.524	0.524	0.524

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	5.82	N.A.	1.20
0-30	17.16	N.A.	3.50
0-40	35.93	N.A.	7.40
0-60	97.98	N.A.	20.30
0-80	189.68	N.A.	39.20
0-90	242.33	N.A.	50.10
10-90	241.44	N.A.	49.90
20-40	30.11	N.A.	6.20
20-50	56.89	N.A.	11.80
40-70	104.89	N.A.	21.70
60-80	91.70	N.A.	19.00
70-80	48.86	N.A.	10.10
80-90	52.66	N.A.	10.90
90-110	101.82	N.A.	21.10
90-120	145.00	N.A.	30.00
90-130	180.82	N.A.	37.40
90-150	227.40	N.A.	47.00
90-180	241.11	N.A.	49.90
110-180	139.29	N.A.	28.80
0-180	483.44	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	0.89
10-20	4.93
20-30	11.33
30-40	18.78
40-50	26.78
50-60	35.27
60-70	42.84
70-80	48.86
80-90	52.66
90-100	52.67
100-110	49.15
110-120	43.18
120-130	35.82
130-140	27.86
140-150	18.72
150-160	10.13
160-170	3.33
170-180	0.25

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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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	92	86	80	74	84	78	73	68	65	61	57	52	49	46	41	39	37	31
2	82	72	63	56	74	66	58	52	54	48	43	43	39	35	33	30	27	22
3	74	61	52	45	67	56	48	41	46	39	34	36	31	27	28	24	21	16
4	67	53	44	36	60	49	40	33	40	33	27	31	26	22	24	20	16	12
5	61	47	37	30	55	43	34	28	35	28	23	28	22	18	21	17	13	10
6	55	41	32	25	50	38	29	23	31	24	19	25	19	15	18	14	11	8
7	51	37	28	22	46	34	26	20	28	21	16	22	17	13	17	13	9	7
8	47	33	25	19	43	30	23	17	25	19	14	20	15	11	15	11	8	5
9	44	30	22	16	40	28	20	15	23	17	12	18	13	10	14	10	7	5
10	41	27	20	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

X=2H	Y=2H	13.6	14.7	14.6	15.6	16.9	5.0	6.0	5.9	7.0	8.3
	3H	17.5	18.5	18.4	19.4	20.7	7.4	8.4	8.3	9.3	10.6
	4H	19.5	20.4	20.4	21.4	22.7	8.6	9.5	9.5	10.5	11.7
	6H	21.6	22.4	22.5	23.4	24.7	9.7	10.6	10.7	11.6	12.9
	8H	22.6	23.4	23.6	24.4	25.7	10.3	11.1	11.2	12.1	13.4
	12H	23.7	24.5	24.7	25.5	26.8	10.8	11.6	11.7	12.6	13.9

UGR Viewed Endwise

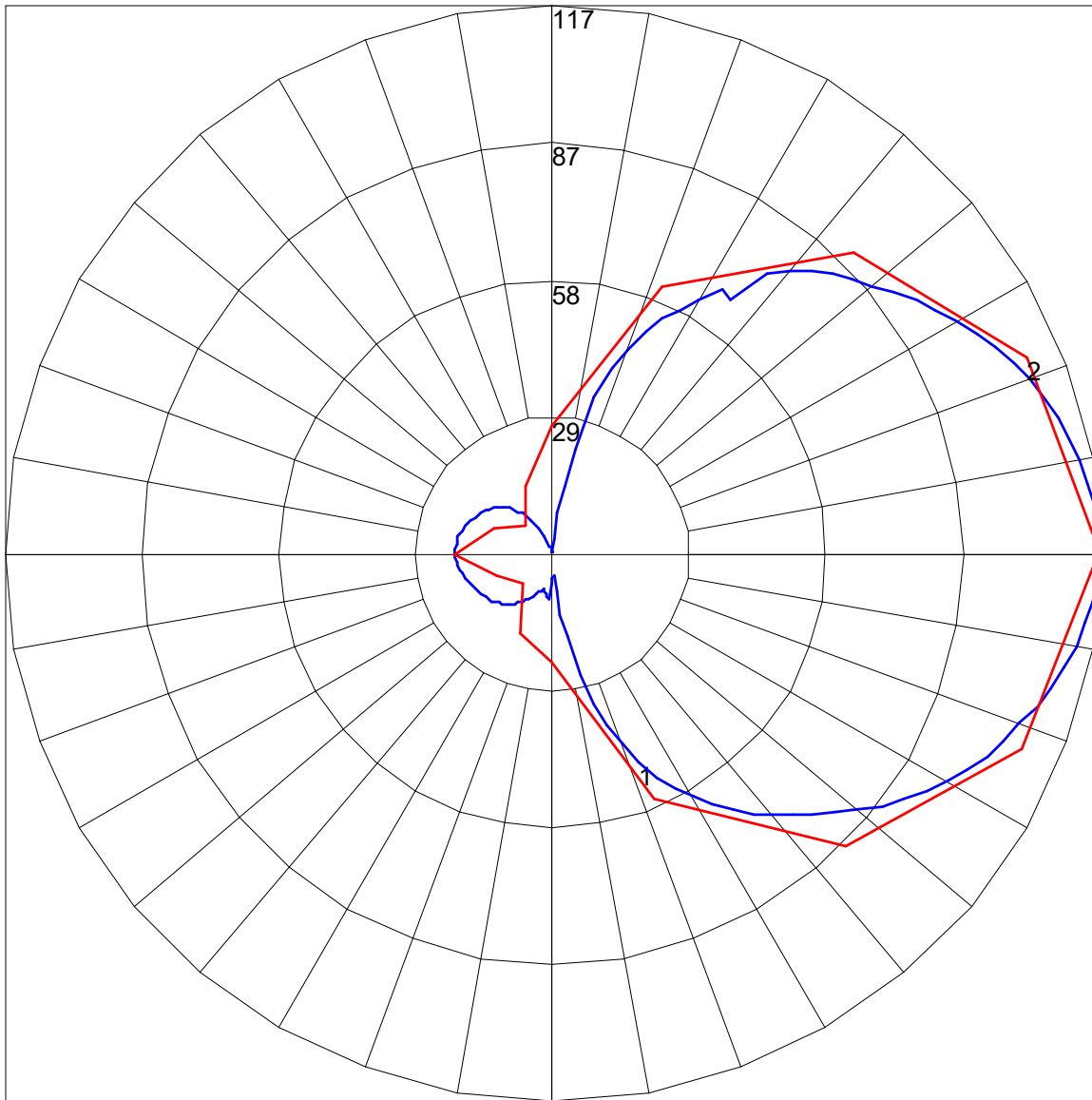
4H	2H	14.0	14.9	14.9	15.9	17.1	7.5	8.4	8.5	9.4	10.7
	3H	18.0	18.8	19.0	19.8	21.1	10.0	10.8	11.0	11.8	13.1
	4H	20.2	20.9	21.1	21.9	23.3	11.2	12.0	12.2	13.0	14.3
	6H	22.4	23.1	23.4	24.1	25.4	12.4	13.0	13.3	14.1	15.4
	8H	23.6	24.2	24.6	25.2	26.6	12.9	13.5	13.9	14.5	15.9
	12H	24.8	25.4	25.8	26.4	27.7	13.4	14.0	14.4	15.0	16.4

8H	4H	20.4	21.0	21.4	22.0	23.4	12.9	13.6	13.9	14.6	15.9
	6H	22.8	23.3	23.8	24.4	25.7	14.3	14.9	15.3	15.9	17.2
	8H	24.1	24.6	25.1	25.6	27.0	15.0	15.5	16.0	16.5	17.8
	12H	25.5	25.9	26.5	27.0	28.3	15.6	16.0	16.6	17.1	18.4

12H	4H	20.4	21.0	21.4	22.0	23.3	13.5	14.1	14.5	15.1	16.4
	6H	22.9	23.3	23.9	24.4	25.7	15.0	15.5	16.0	16.5	17.9
	8H	24.2	24.6	25.2	25.7	27.1	15.8	16.2	16.8	17.3	18.6

Maximum UGR = 28.3

POLAR GRAPH



Maximum Candela = 116.532 Located At Horizontal Angle = 0, Vertical Angle = 90
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (90) (Through Max. Cd.)