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IES INDOOR REPORT
PHOTOMETRIC FILENAME : ALR-8601.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] LM-79-08
[TESTLAB] Orb Optronix, Inc.
[ISSUE DATE] 07-18-2019
[MANUFAC] Justice Design
[LUMINAIRE] ALR-8601

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	442
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	23
Total Luminaire Watts	19.3
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)	1.45 ft
Luminous Height	0.38 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	1243	1149	746
55	1439	1368	1006
65	1596	1568	1337
75	1752	1762	1893
85	1939	1996	2911

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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	0.697	0.697	0.697	0.697	0.697	0.697	0.697	0.697	0.697	0.697
2.5	3.993	3.583	1.435	2.107	1.312	0.787	0.722	0.426	0.418	0.508
5.0	7.552	7.167	4.330	3.665	2.337	1.632	1.378	0.648	0.369	0.582
7.5	11.201	10.955	7.544	5.576	3.403	2.485	1.927	0.869	0.394	0.713
10.0	15.145	14.924	10.832	7.954	4.469	3.419	2.624	1.140	0.361	0.869
12.5	19.008	18.835	14.170	10.340	5.510	4.280	3.247	1.386	0.435	1.017
15.0	22.878	22.788	17.392	12.677	6.585	5.174	3.870	1.681	0.336	1.082
17.5	26.847	26.814	20.680	14.990	7.708	6.109	4.453	1.902	0.320	1.320
20.0	30.922	30.947	24.092	17.450	8.799	7.003	5.109	2.189	0.410	1.460
22.5	34.973	35.039	27.454	19.819	9.930	7.946	5.699	2.444	0.402	1.566
25.0	39.016	39.130	30.898	22.124	10.963	8.971	6.355	2.739	0.394	1.738
27.5	43.001	43.075	34.227	24.411	11.997	9.848	6.904	2.960	0.369	1.878
30.0	46.797	46.830	37.490	26.494	12.981	10.742	7.487	3.173	0.361	2.025
32.5	50.586	50.561	40.639	28.569	13.956	11.546	8.003	3.469	0.369	2.148
35.0	54.350	54.243	43.747	30.504	14.826	12.357	8.553	3.657	0.402	2.304
37.5	58.277	57.958	46.896	32.521	15.793	13.268	9.102	3.870	0.435	2.386
40.0	62.197	61.787	50.118	34.571	16.843	14.170	9.651	4.174	0.402	2.583
42.5	66.149	65.641	53.489	36.588	17.876	15.088	10.234	4.379	0.402	2.657
45.0	69.946	69.331	56.711	38.696	18.844	15.908	10.824	4.633	0.369	2.813
47.5	73.677	72.783	59.860	40.565	19.754	16.744	11.406	4.904	0.435	2.977
50.0	77.203	76.071	62.861	42.451	20.648	17.638	11.915	5.109	0.369	3.075
52.5	80.573	79.310	65.895	44.190	21.541	18.360	12.472	5.355	0.508	3.214
55.0	83.788	82.394	68.716	46.002	22.452	19.204	12.981	5.560	0.508	3.387
57.5	86.699	85.206	71.455	47.626	23.181	19.910	13.456	5.806	0.476	3.485
60.0	89.273	87.510	73.866	49.044	23.870	20.361	13.924	5.970	0.549	3.616
62.5	91.348	89.495	75.940	50.291	24.395	20.951	14.293	6.158	0.549	3.723
65.0	93.185	91.241	77.695	51.373	24.985	21.386	14.653	6.248	0.582	3.821
67.5	94.825	92.947	79.220	52.390	25.469	21.796	14.981	6.462	0.615	3.879
70.0	96.407	94.472	80.688	53.382	26.010	22.230	15.359	6.560	0.615	3.895
72.5	98.080	96.022	82.148	54.366	26.896	22.525	15.719	6.781	0.689	3.993
75.0	99.556	97.539	83.509	55.424	27.437	22.894	16.129	6.863	0.697	4.084
77.5	100.983	99.048	84.665	56.391	27.814	23.296	16.441	7.036	0.689	4.166
80.0	102.164	100.450	85.797	57.302	28.208	23.632	16.695	7.150	0.877	4.256
82.5	103.189	101.418	86.699	58.212	28.561	23.928	16.990	7.216	0.804	4.354
85.0	103.746	102.090	87.404	58.909	28.700	24.108	17.154	7.364	0.951	4.412
87.5	103.951	102.410	87.789	59.352	28.807	24.149	17.228	7.355	0.951	4.453
90.0	103.738	102.410	87.666	59.540	28.733	24.190	17.245	7.380	0.984	4.485
92.5	103.107	101.951	87.207	59.557	28.561	24.010	17.212	7.298	0.984	4.551
95.0	102.197	101.229	86.526	59.294	28.298	23.936	17.089	7.282	0.951	4.526
97.5	101.237	100.368	85.682	59.040	28.036	23.682	16.982	7.167	0.877	4.469
100.0	100.163	99.425	84.895	58.704	27.716	23.534	16.712	7.052	0.836	4.379
102.5	99.072	98.556	83.870	58.212	27.322	23.206	16.351	6.798	0.730	4.362
105.0	97.769	97.457	82.795	57.630	26.904	22.878	16.228	6.634	0.615	4.125
107.5	96.276	96.227	81.549	56.892	26.486	22.550	15.908	6.527	0.582	4.026
110.0	94.513	94.603	80.171	56.055	26.027	22.222	15.596	6.421	0.623	3.993
112.5	92.504	92.717	78.572	55.047	25.486	21.779	15.186	6.216	0.541	3.879
115.0	90.438	90.708	76.826	53.792	24.846	21.345	14.744	6.084	0.476	3.772
117.5	88.175	88.601	74.915	52.537	24.206	20.828	14.325	5.961	0.476	3.674
120.0	85.838	86.403	72.923	51.127	23.559	20.279	13.940	5.765	0.508	3.624
122.5	83.460	83.853	70.815	49.602	22.821	19.729	13.440	5.535	0.435	3.542
125.0	80.827	81.188	68.601	48.019	22.099	19.106	12.931	5.396	0.402	3.403
127.5	77.793	78.097	66.305	46.182	21.336	18.450	12.456	5.166	0.443	3.305
130.0	74.472	74.735	63.689	44.247	20.434	17.679	11.865	4.936	0.394	3.198
132.5	71.037	71.332	60.893	42.074	19.516	16.941	11.316	4.731	0.402	3.083

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135.0	67.584	67.814	58.015	39.934	18.573	16.146	10.742	4.551	0.369	2.927
137.5	63.985	64.198	55.202	37.769	17.581	15.531	10.275	4.338	0.426	2.821
140.0	60.311	60.467	52.226	35.596	16.679	14.416	9.619	4.059	0.369	2.673
142.5	56.359	56.514	49.307	33.267	15.678	13.645	8.954	3.788	0.361	2.493
145.0	51.955	51.988	45.986	30.873	14.621	12.726	8.298	3.510	0.369	2.378
147.5	47.593	47.626	42.312	28.241	13.432	11.693	7.618	3.247	0.394	2.173
150.0	43.435	43.452	38.786	25.691	12.284	10.709	7.019	3.034	0.369	2.091
152.5	39.229	39.278	35.432	23.345	11.119	9.758	6.388	2.755	0.320	1.845
155.0	35.129	35.030	31.914	20.885	10.053	8.881	5.748	2.444	0.410	1.788
157.5	30.816	30.783	28.462	18.475	8.922	7.897	5.117	2.206	0.361	1.615
160.0	26.617	26.502	24.871	15.982	7.782	6.978	4.420	1.779	0.394	1.361
162.5	22.370	22.402	21.295	13.481	6.691	5.986	3.747	1.419	0.336	1.148
165.0	19.032	18.926	17.901	11.013	5.568	5.125	2.895	1.017	0.385	0.927
167.5	15.613	14.588	14.424	8.602	4.641	4.346	2.009	0.656	0.328	0.705
170.0	12.275	9.676	10.160	5.855	3.469	3.182	1.115	0.377	0.402	0.549
172.5	7.101	4.559	5.715	3.247	2.165	1.878	0.410	0.336	0.361	0.508
175.0	2.157	0.607	1.878	1.279	0.828	0.804	0.312	0.279	0.377	0.476
177.5	0.353	0.402	0.336	0.312	0.254	0.246	0.279	0.344	0.336	0.435
180.0	0.402	0.361	0.344	0.262	0.254	0.287	0.353	0.402	0.361	0.435

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	0.697	0.697	0.697	0.697	0.697	0.697	0.697
2.5	0.681	0.902	1.033	1.214	3.214	3.657	3.993
5.0	1.099	1.591	1.853	3.026	6.281	7.216	7.552
7.5	1.566	2.362	2.772	5.092	9.479	11.021	11.201
10.0	2.116	3.132	3.731	7.355	12.808	14.875	15.145
12.5	2.624	4.010	4.715	9.594	16.170	18.712	19.008
15.0	3.173	4.813	5.666	11.865	19.475	22.484	22.878
17.5	3.723	5.617	6.642	14.096	22.837	26.363	26.847
20.0	4.248	6.462	7.642	16.425	26.281	30.242	30.922
22.5	4.789	7.298	8.643	18.753	29.651	34.128	34.973
25.0	5.297	8.184	9.651	21.008	32.989	37.892	39.016
27.5	5.855	8.946	10.668	23.222	36.351	41.623	43.001
30.0	6.396	9.824	11.611	25.395	39.483	45.248	46.797
32.5	6.880	10.668	12.554	27.511	42.599	48.757	50.586
35.0	7.396	11.472	13.587	29.602	45.764	52.234	54.350
37.5	7.823	12.243	14.604	31.603	46.568	55.793	58.277
40.0	8.339	13.046	15.621	33.563	48.749	59.532	62.197
42.5	8.823	13.858	16.597	35.604	51.865	63.230	66.149
45.0	9.299	14.662	17.581	37.679	55.014	66.846	69.946
47.5	9.742	15.391	18.532	39.532	58.023	70.364	73.677
50.0	10.184	16.121	19.500	41.303	60.967	73.833	77.203
52.5	10.586	16.777	20.410	43.009	63.821	77.293	80.573
55.0	11.021	17.507	21.263	44.575	66.682	80.565	83.788
57.5	11.398	18.089	22.033	46.100	69.356	83.591	86.699
60.0	11.685	18.598	22.821	47.511	71.717	86.371	89.273
62.5	11.947	19.032	23.386	48.675	73.882	88.773	91.348
65.0	12.251	19.434	24.018	49.618	75.834	91.069	93.185
67.5	12.464	19.836	24.518	50.537	77.629	93.144	94.825
70.0	12.726	20.164	24.953	51.439	79.245	95.186	96.407
72.5	12.907	20.492	25.477	52.193	80.852	97.195	98.080
75.0	13.161	20.853	25.904	53.062	82.361	99.179	99.556
77.5	13.341	21.156	26.322	53.833	83.861	100.999	100.983
80.0	13.596	21.443	26.675	54.669	85.362	102.738	102.164

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82.5	13.825	21.804	26.978	55.440	86.608	104.156	103.189
85.0	13.932	21.943	27.191	55.965	87.560	105.124	103.746
87.5	14.079	22.050	27.216	56.367	87.929	105.632	103.951
90.0	14.153	22.115	27.249	56.449	88.002	105.698	103.738
92.5	14.153	22.009	27.093	56.400	87.748	105.296	103.107
95.0	14.055	21.943	26.855	56.170	87.232	104.517	102.197
97.5	13.940	21.689	26.543	55.817	86.387	103.459	101.237
100.0	13.833	21.500	26.174	55.366	85.428	102.369	100.163
102.5	13.579	21.107	25.871	54.866	84.189	100.753	99.072
105.0	13.391	20.951	25.486	54.300	82.935	97.974	97.769
107.5	13.169	20.631	25.059	53.636	81.475	96.957	96.276
110.0	12.989	20.238	24.625	52.849	80.032	95.497	94.513
112.5	12.767	19.893	24.075	51.939	78.121	93.833	92.504
115.0	12.513	19.500	23.460	50.930	76.145	91.865	90.438
117.5	12.259	19.024	22.862	49.700	73.980	89.847	88.175
120.0	11.931	18.589	22.263	48.462	71.783	87.535	85.838
122.5	11.636	18.097	21.607	47.150	69.618	85.190	83.460
125.0	11.308	17.515	21.000	45.772	67.297	82.705	80.827
127.5	10.939	16.949	20.197	44.255	64.731	79.802	77.793
130.0	10.463	16.285	19.352	42.427	61.935	76.629	74.472
132.5	10.061	15.596	18.557	40.533	58.999	73.111	71.037
135.0	9.692	14.883	17.663	38.491	56.072	69.585	67.584
137.5	9.069	14.161	16.851	36.580	53.210	65.912	63.985
140.0	8.594	13.366	15.924	34.465	50.225	62.230	60.311
142.5	8.044	12.472	15.055	32.316	46.920	58.368	56.359
145.0	7.528	11.595	13.948	29.971	43.599	54.005	51.955
147.5	7.019	10.742	12.874	27.568	40.328	49.749	47.593
150.0	6.470	9.815	11.849	25.174	36.908	45.420	43.435
152.5	5.994	9.012	10.857	22.837	33.710	41.230	39.229
155.0	5.510	8.143	9.791	20.533	30.414	37.121	35.129
157.5	5.010	7.290	8.766	18.122	27.027	32.882	30.816
160.0	4.444	6.412	7.741	15.695	23.600	28.700	26.617
162.5	3.870	5.469	6.650	13.284	20.344	24.493	22.370
165.0	3.305	4.789	5.822	10.906	17.056	20.697	19.032
167.5	2.526	3.756	4.781	8.520	13.481	17.040	15.613
170.0	1.689	2.493	3.674	6.002	9.364	12.120	12.275
172.5	1.041	1.296	2.148	3.575	4.969	6.814	7.101
175.0	0.640	0.656	0.886	1.591	1.656	2.091	2.157
177.5	0.623	0.672	0.681	0.697	0.599	0.500	0.353
180.0	0.623	0.722	0.631	0.656	0.623	0.533	0.402

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	3.39	N.A.	0.80
0-30	11.49	N.A.	2.60
0-40	26.65	N.A.	6.00
0-60	83.22	N.A.	18.80
0-80	170.80	N.A.	38.60
0-90	221.55	N.A.	50.10
10-90	221.14	N.A.	50.00
20-40	23.27	N.A.	5.30
20-50	46.98	N.A.	10.60
40-70	97.32	N.A.	22.00
60-80	87.58	N.A.	19.80
70-80	46.83	N.A.	10.60
80-90	50.75	N.A.	11.50
90-110	97.35	N.A.	22.00
90-120	138.12	N.A.	31.20
90-130	171.02	N.A.	38.70
90-150	210.06	N.A.	47.50
90-180	220.69	N.A.	49.90
110-180	123.34	N.A.	27.90
0-180	442.24	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	0.41
10-20	2.98
20-30	8.10
30-40	15.16
40-50	23.71
50-60	32.86
60-70	40.75
70-80	46.83
80-90	50.75
90-100	50.53
100-110	46.82
110-120	40.77
120-130	32.90
130-140	23.92
140-150	15.12
150-160	7.72
160-170	2.66
170-180	0.24

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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	83	83	83	69	69	69	56	56	56	50
1	92	85	79	73	84	78	72	68	64	60	56	52	49	46	40	38	36	30
2	81	71	63	55	74	65	57	51	53	47	42	42	38	34	32	29	26	21
3	73	61	51	43	66	55	47	40	45	38	33	36	30	26	27	23	19	15
4	66	52	43	35	60	48	39	32	39	32	26	31	25	21	23	19	15	11
5	60	46	36	29	54	42	33	27	34	27	22	27	21	17	20	16	12	9
6	55	41	31	24	50	37	28	22	30	23	18	24	18	14	18	13	10	7
7	50	36	27	21	46	33	25	19	27	20	15	21	16	12	16	12	9	6
8	47	33	24	18	42	30	22	16	24	18	13	19	14	10	14	10	7	5
9	43	29	21	15	39	27	19	14	22	16	11	17	12	9	13	9	6	4
10	40	27	19	14	36	25	17	12	20	14	10	16	11	8	12	8	5	3

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UGR TABLE - CORRECTED

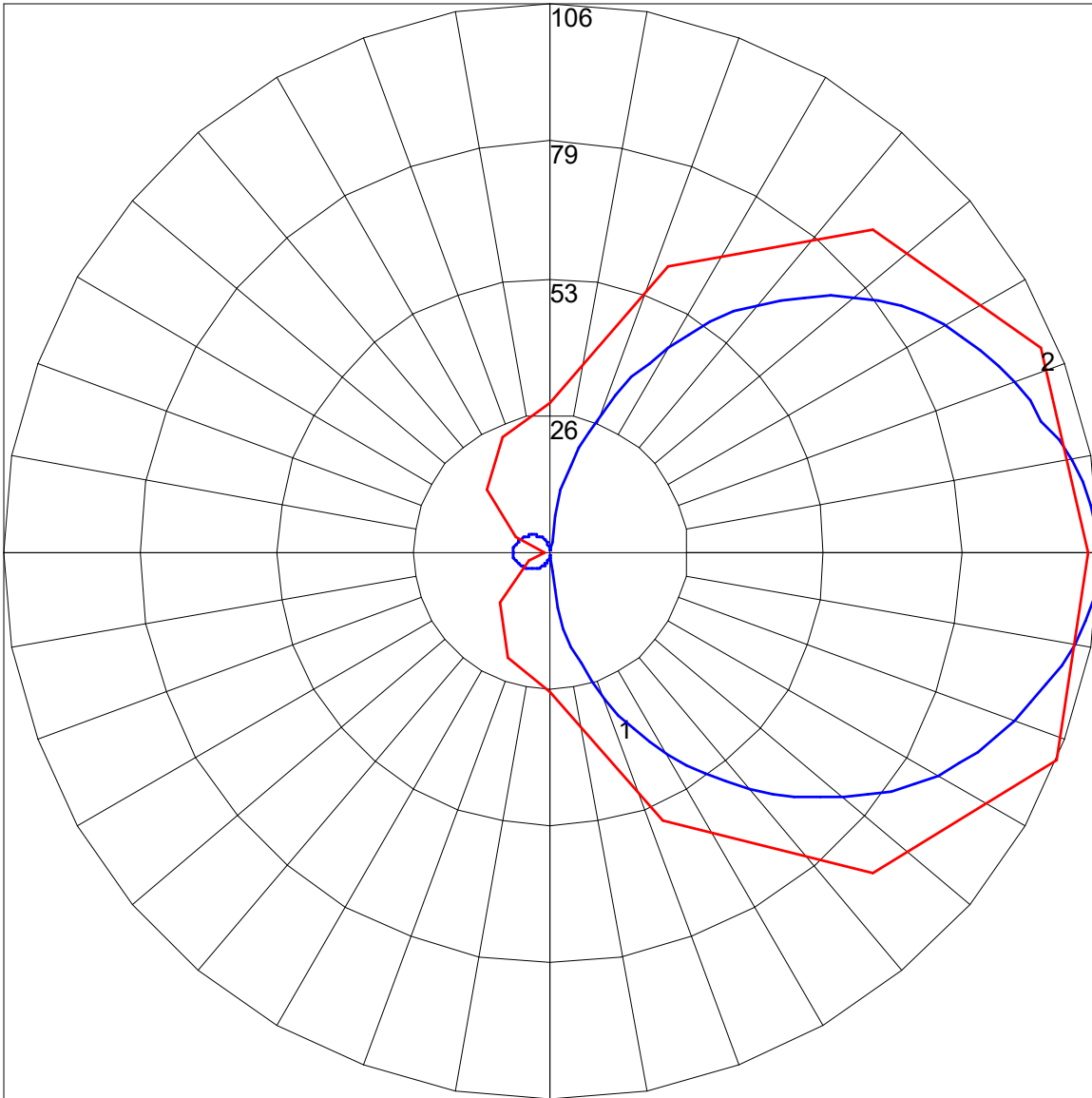
Reflectances

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	14.3	15.3	15.2	16.3	17.5	6.1	7.1	7.0	8.1	9.4
	3H	18.1	19.0	19.0	20.0	21.3	8.7	9.6	9.6	10.6	11.9
	4H	20.0	20.9	20.9	21.9	23.2	9.9	10.8	10.8	11.8	13.1
	6H	22.0	22.9	22.9	23.8	25.1	11.1	12.0	12.1	13.0	14.3
	8H	23.0	23.8	23.9	24.8	26.1	11.7	12.5	12.7	13.5	14.8
	12H	24.0	24.8	25.0	25.8	27.1	12.3	13.1	13.2	14.1	15.4
4H	2H	14.7	15.6	15.6	16.6	17.9	8.6	9.5	9.5	10.5	11.7
	3H	18.7	19.5	19.6	20.5	21.8	11.2	12.0	12.1	13.0	14.3
	4H	20.8	21.5	21.7	22.5	23.8	12.4	13.2	13.4	14.2	15.5
	6H	23.0	23.6	23.9	24.6	26.0	13.7	14.3	14.6	15.3	16.7
	8H	24.1	24.7	25.0	25.7	27.0	14.2	14.9	15.2	15.9	17.2
	12H	25.2	25.8	26.2	26.8	28.2	14.8	15.4	15.8	16.4	17.7
8H	4H	21.0	21.6	22.0	22.7	24.0	14.0	14.7	15.0	15.7	17.0
	6H	23.4	23.9	24.4	25.0	26.3	15.5	16.0	16.5	17.1	18.4
	8H	24.6	25.1	25.6	26.2	27.5	16.2	16.7	17.2	17.7	19.1
	12H	26.0	26.4	27.0	27.5	28.8	16.8	17.3	17.9	18.3	19.7
12H	4H	21.0	21.6	22.0	22.6	24.0	14.5	15.1	15.5	16.2	17.5
	6H	23.4	23.9	24.5	25.0	26.3	16.1	16.6	17.2	17.7	19.0
	8H	24.8	25.2	25.8	26.2	27.6	17.0	17.4	18.0	18.4	19.8

Maximum UGR = 28.8

POLAR GRAPH



Maximum Candela = 105.698 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.)