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IES INDOOR REPORT
PHOTOMETRIC FILENAME : FAL-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] FAL-8631

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	434
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	19
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	970	908	614
55	1086	1021	778
65	1200	1138	1014
75	1319	1270	1397
85	1460	1428	2199

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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	4.502	4.502	4.502	4.502	4.502	4.502	4.502	4.502	4.502	4.502
2.5	3.982	4.570	4.519	4.402	4.813	4.780	7.056	5.636	5.712	6.166
5.0	7.224	8.047	7.560	6.611	6.510	7.064	8.333	8.585	8.652	8.240
7.5	12.020	12.172	10.802	9.089	7.921	8.182	7.862	8.282	8.509	8.064
10.0	15.817	16.792	14.431	10.886	8.156	7.694	7.963	8.030	7.820	7.804
12.5	23.957	24.528	20.294	14.213	9.349	7.854	8.190	7.787	7.316	7.468
15.0	29.560	29.744	25.326	17.648	10.660	8.299	8.526	7.602	7.132	7.241
17.5	34.222	34.062	28.871	20.362	11.802	8.719	8.602	7.552	7.375	7.174
20.0	38.724	38.480	32.424	22.646	12.793	9.131	8.627	7.686	7.678	7.300
22.5	43.201	42.227	35.473	24.629	13.583	9.685	8.585	7.829	8.140	7.686
25.0	46.998	45.830	38.287	26.477	14.364	9.988	8.585	8.156	8.845	8.081
27.5	50.509	49.056	41.185	28.350	15.036	10.097	8.450	8.518	9.635	8.392
30.0	53.710	52.214	43.890	30.274	15.607	10.172	8.291	8.946	10.307	8.770
32.5	56.650	54.617	46.057	31.945	16.103	10.357	8.022	9.374	10.844	8.946
35.0	59.800	57.389	48.023	33.272	16.481	10.584	7.745	9.660	11.374	9.097
37.5	62.824	60.203	50.425	34.751	16.951	10.660	7.610	9.878	11.962	9.324
40.0	65.369	62.639	52.744	36.204	17.447	10.844	7.459	10.055	12.499	9.500
42.5	67.788	64.932	54.802	37.750	17.934	11.071	7.375	10.340	13.020	9.652
45.0	70.333	67.259	56.683	39.161	18.388	11.222	7.308	10.550	13.432	9.878
47.5	73.046	69.804	58.674	40.429	18.917	11.332	7.258	10.702	13.885	10.021
50.0	76.054	72.509	60.791	41.815	19.513	11.483	7.207	10.853	14.339	10.114
52.5	79.237	75.398	63.050	43.176	20.034	11.600	7.073	11.004	14.717	10.256
55.0	82.102	78.053	65.302	44.596	20.488	11.777	7.073	11.147	14.944	10.441
57.5	84.773	80.447	67.292	45.906	20.866	11.894	6.955	11.172	15.280	10.458
60.0	87.150	82.622	68.981	47.065	21.319	12.046	6.905	11.214	15.582	10.559
62.5	89.435	84.722	70.669	48.157	21.731	12.155	6.770	11.332	15.876	10.634
65.0	91.661	86.730	72.274	49.090	22.176	12.382	6.812	11.508	16.178	10.861
67.5	93.433	88.267	73.525	49.888	22.445	12.382	6.821	11.617	16.556	10.962
70.0	95.038	89.888	74.819	50.753	22.781	12.541	6.871	11.701	16.817	11.021
72.5	96.986	91.720	76.406	51.702	23.117	12.835	6.972	11.836	17.195	11.197
75.0	98.759	93.223	77.650	52.609	23.419	13.079	7.006	11.978	17.531	11.374
77.5	100.187	94.021	78.809	53.332	23.797	13.297	7.157	12.088	17.716	11.474
80.0	101.531	95.407	79.766	53.962	24.066	13.541	7.232	12.180	18.094	11.550
82.5	102.808	96.575	80.699	54.533	24.326	13.667	7.274	12.222	18.278	11.634
85.0	103.748	97.482	81.245	54.953	24.511	13.810	7.325	12.222	18.430	11.584
87.5	104.278	98.095	81.572	55.121	24.629	13.877	7.342	12.188	18.539	11.584
90.0	104.580	98.263	81.640	55.070	24.671	13.835	7.325	12.088	18.539	11.533
92.5	104.387	98.087	81.379	55.096	24.662	13.793	7.283	11.978	18.539	11.332
95.0	103.900	97.700	81.060	54.894	24.671	13.650	7.325	11.861	18.388	11.222
97.5	103.261	97.163	80.598	54.600	24.595	13.558	7.283	11.810	18.346	11.071
100.0	102.505	96.440	79.934	54.180	24.478	13.373	7.300	11.777	18.346	11.088
102.5	101.371	95.390	78.985	53.592	24.217	13.238	7.090	11.449	17.926	10.651
105.0	100.094	94.156	78.078	53.046	24.066	12.827	6.871	11.147	17.749	10.483
107.5	98.750	92.946	77.095	52.366	23.999	12.592	6.804	11.012	17.472	10.340
110.0	97.272	91.610	75.835	51.685	23.848	12.247	6.644	10.828	17.102	10.214
112.5	95.424	89.930	74.332	50.728	23.545	11.936	6.476	10.668	16.766	9.946
115.0	93.324	88.007	72.769	49.753	23.285	11.920	6.308	10.475	16.464	9.794
117.5	91.375	86.134	71.224	48.821	22.940	11.861	6.342	10.265	16.128	9.576
120.0	89.225	84.202	69.451	47.729	22.529	11.794	6.510	10.063	15.674	9.425
122.5	86.948	82.068	67.654	46.586	22.193	11.600	6.712	10.055	15.305	9.391
125.0	84.832	79.993	65.747	45.385	21.848	11.449	6.838	10.013	14.918	9.341
127.5	82.135	77.524	63.571	44.108	21.328	11.315	6.888	10.021	14.305	9.148
130.0	79.481	75.020	62.471	44.747	20.992	11.164	7.006	9.979	13.751	8.828
132.5	77.490	73.340	62.110	43.092	20.572	11.029	6.947	9.744	13.154	8.879

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CANDELA TABULATION - (Cont.)

135.0	75.541	71.375	58.271	40.715	20.042	10.777	6.972	9.635	12.676	8.442
137.5	73.399	69.384	56.263	39.211	19.555	10.718	6.905	9.593	11.886	7.879
140.0	70.602	66.914	53.911	37.842	18.824	10.248	6.720	8.644	10.534	6.972
142.5	67.217	63.857	52.298	35.204	17.900	9.996	6.384	7.409	9.643	6.275
145.0	59.279	58.867	48.535	34.608	17.581	9.677	5.846	6.644	8.719	5.544
147.5	60.119	57.834	47.830	32.290	16.573	8.904	5.309	6.006	7.358	4.679
150.0	56.036	53.768	44.192	29.652	15.523	8.131	4.519	4.872	5.737	3.276
152.5	52.374	49.921	40.782	27.502	14.574	7.283	3.326	3.545	3.973	2.293
155.0	49.417	46.889	38.178	25.939	13.196	5.922	2.713	2.495	2.512	1.621
157.5	46.166	44.159	35.809	23.696	11.348	3.965	2.251	1.915	1.596	1.260
160.0	41.395	40.219	32.525	20.538	9.047	2.848	1.890	1.579	1.210	0.932
162.5	37.010	35.776	28.619	16.237	6.166	2.201	1.277	1.050	0.890	0.748
165.0	30.794	30.349	21.899	10.223	4.603	1.537	0.924	0.714	0.529	0.613
167.5	20.261	19.454	14.146	7.602	3.058	1.075	0.655	0.521	0.428	0.538
170.0	13.104	13.070	9.845	4.494	1.697	0.706	0.521	0.445	0.420	0.487
172.5	7.686	7.862	5.242	2.142	1.142	0.588	0.395	0.412	0.336	0.504
175.0	2.814	3.251	2.377	0.790	0.412	0.370	0.319	0.302	0.378	0.504
177.5	0.378	0.798	0.454	0.336	0.445	0.395	0.378	0.445	0.420	0.546
180.0	0.470	0.470	0.470	0.470	0.470	0.470	0.470	0.470	0.470	0.470

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	4.502	4.502	4.502	4.502	4.502	4.502	4.502
2.5	5.561	5.275	5.048	4.032	3.612	3.914	3.595
5.0	7.913	7.409	6.829	6.266	6.544	7.442	7.753
7.5	7.862	7.812	8.064	8.828	10.021	11.911	12.524
10.0	7.862	7.854	8.786	10.727	13.146	16.128	16.758
12.5	8.039	8.232	10.030	13.843	18.362	23.251	24.872
15.0	8.392	8.602	10.878	16.649	22.730	28.140	30.232
17.5	8.476	8.812	11.634	18.934	26.032	32.155	34.616
20.0	8.408	9.164	12.222	20.832	29.408	36.422	39.287
22.5	8.450	9.509	12.802	22.445	32.298	40.211	43.596
25.0	8.417	9.878	13.348	23.990	34.969	43.646	47.368
27.5	8.417	10.139	13.768	25.662	37.766	46.670	50.770
30.0	8.350	10.441	14.062	27.250	40.194	49.610	54.029
32.5	8.333	10.702	14.372	28.753	42.412	52.441	56.885
35.0	8.156	11.004	14.792	30.139	44.730	55.356	60.052
37.5	8.148	11.189	15.179	31.517	47.141	58.120	63.000
40.0	8.072	11.567	15.540	32.869	49.207	60.564	65.562
42.5	8.039	11.903	15.918	34.222	51.232	62.857	68.065
45.0	8.005	12.054	16.296	35.524	53.298	65.503	70.678
47.5	7.997	12.390	16.724	36.775	55.541	68.183	73.500
50.0	7.963	12.743	17.094	38.161	57.750	71.039	76.558
52.5	7.930	13.028	17.497	39.572	60.110	73.970	79.708
55.0	7.921	13.364	17.900	40.849	62.328	76.734	82.597
57.5	7.854	13.667	18.144	42.101	64.327	79.078	85.210
60.0	7.778	13.927	18.430	43.168	66.049	81.245	87.528
62.5	7.703	14.146	18.774	44.251	67.813	83.429	89.813
65.0	7.703	14.398	19.076	45.133	69.426	85.436	92.064
67.5	7.694	14.440	19.286	45.856	70.745	87.074	93.752
70.0	7.736	14.633	19.463	46.536	71.946	88.528	95.315
72.5	7.770	14.868	19.715	47.426	73.332	90.275	97.205
75.0	7.770	15.162	19.874	48.090	74.642	91.871	98.927
77.5	7.812	15.347	20.143	48.770	75.692	93.139	100.363
80.0	7.888	15.683	20.378	49.333	76.667	94.374	101.699

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CANDELA TABULATION - (Cont.)

82.5	7.888	15.826	20.479	49.879	77.675	95.533	102.900
85.0	7.963	16.052	20.563	50.232	78.238	96.247	103.740
87.5	7.963	16.128	20.614	50.484	78.683	96.734	104.261
90.0	7.921	16.220	20.664	50.576	78.935	96.886	104.404
92.5	7.812	16.153	20.630	50.610	78.859	96.667	104.152
95.0	7.703	16.094	20.580	50.366	78.431	96.096	103.656
97.5	7.552	16.027	20.479	50.081	77.986	95.466	102.942
100.0	7.476	15.893	20.362	49.753	77.414	94.668	102.119
102.5	7.174	15.691	20.177	49.174	76.574	93.559	100.943
105.0	6.989	15.406	19.967	48.569	75.566	92.266	99.632
107.5	6.762	15.221	19.799	47.964	74.474	91.022	98.280
110.0	6.653	14.944	19.883	47.233	73.298	89.519	96.760
112.5	6.460	14.666	19.732	46.452	71.904	87.696	94.853
115.0	6.350	14.734	19.547	45.587	70.434	85.806	92.854
117.5	6.317	14.742	19.312	44.797	68.939	83.992	90.812
120.0	6.468	14.675	19.135	43.873	67.351	81.917	88.637
122.5	6.695	14.549	18.850	42.974	65.738	79.918	86.470
125.0	6.838	14.356	18.665	41.891	63.966	77.784	84.277
127.5	6.846	14.045	18.396	40.841	62.042	75.230	81.564
130.0	6.896	13.793	18.127	40.933	60.539	73.013	79.010
132.5	6.896	13.322	17.766	39.530	59.707	71.308	77.196
135.0	7.148	13.037	17.354	37.640	57.574	69.157	75.172
137.5	6.955	12.533	16.951	36.355	54.869	67.066	73.055
140.0	6.090	12.491	16.338	34.944	52.576	64.302	70.216
142.5	5.578	11.584	16.153	33.382	49.610	59.993	66.805
145.0	5.082	10.693	15.313	31.542	47.586	56.910	60.757
147.5	4.486	9.576	14.272	29.946	44.209	54.256	59.716
150.0	3.595	8.266	13.171	28.316	41.278	50.543	55.474
152.5	2.982	6.712	11.668	26.653	38.749	47.485	51.836
155.0	2.428	4.830	9.752	24.906	36.406	44.906	48.846
157.5	2.134	3.251	8.081	22.470	33.138	41.446	45.461
160.0	1.638	2.671	6.468	19.740	29.291	36.943	39.270
162.5	1.159	2.100	4.838	15.128	25.099	32.290	32.466
165.0	0.916	1.621	3.847	10.525	18.572	25.763	26.939
167.5	0.773	1.218	2.528	8.534	12.491	16.094	18.287
170.0	0.630	0.949	1.546	5.426	8.140	10.567	11.768
172.5	0.605	0.865	1.159	2.990	4.192	5.519	6.577
175.0	0.655	0.664	0.756	1.747	1.957	2.495	2.671
177.5	0.630	0.714	0.781	0.748	0.605	0.437	0.462
180.0	0.470	0.470	0.470	0.470	0.470	0.470	0.470

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	5.22	N.A.	1.20
0-30	15.40	N.A.	3.50
0-40	32.25	N.A.	7.40
0-60	87.93	N.A.	20.30
0-80	170.22	N.A.	39.20
0-90	217.48	N.A.	50.10
10-90	216.68	N.A.	49.90
20-40	27.02	N.A.	6.20
20-50	51.05	N.A.	11.80
40-70	94.13	N.A.	21.70
60-80	82.29	N.A.	19.00
70-80	43.85	N.A.	10.10
80-90	47.26	N.A.	10.90
90-110	91.38	N.A.	21.10
90-120	130.13	N.A.	30.00
90-130	162.28	N.A.	37.40
90-150	204.08	N.A.	47.00
90-180	216.38	N.A.	49.90
110-180	125.00	N.A.	28.80
0-180	433.86	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	0.80
10-20	4.42
20-30	10.17
30-40	16.85
40-50	24.03
50-60	31.65
60-70	38.45
70-80	43.85
80-90	47.26
90-100	47.26
100-110	44.11
110-120	38.75
120-130	32.15
130-140	25.00
140-150	16.80
150-160	9.09
160-170	2.99
170-180	0.22

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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	36	31
2	82	72	63	56	74	66	58	52	54	48	43	43	39	35	33	30	27	22
3	73	61	52	44	67	56	48	41	46	39	34	36	31	27	28	24	20	16
4	66	53	44	36	60	48	40	33	40	33	27	31	26	22	24	20	16	12
5	60	47	37	30	55	43	34	27	35	28	23	28	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	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

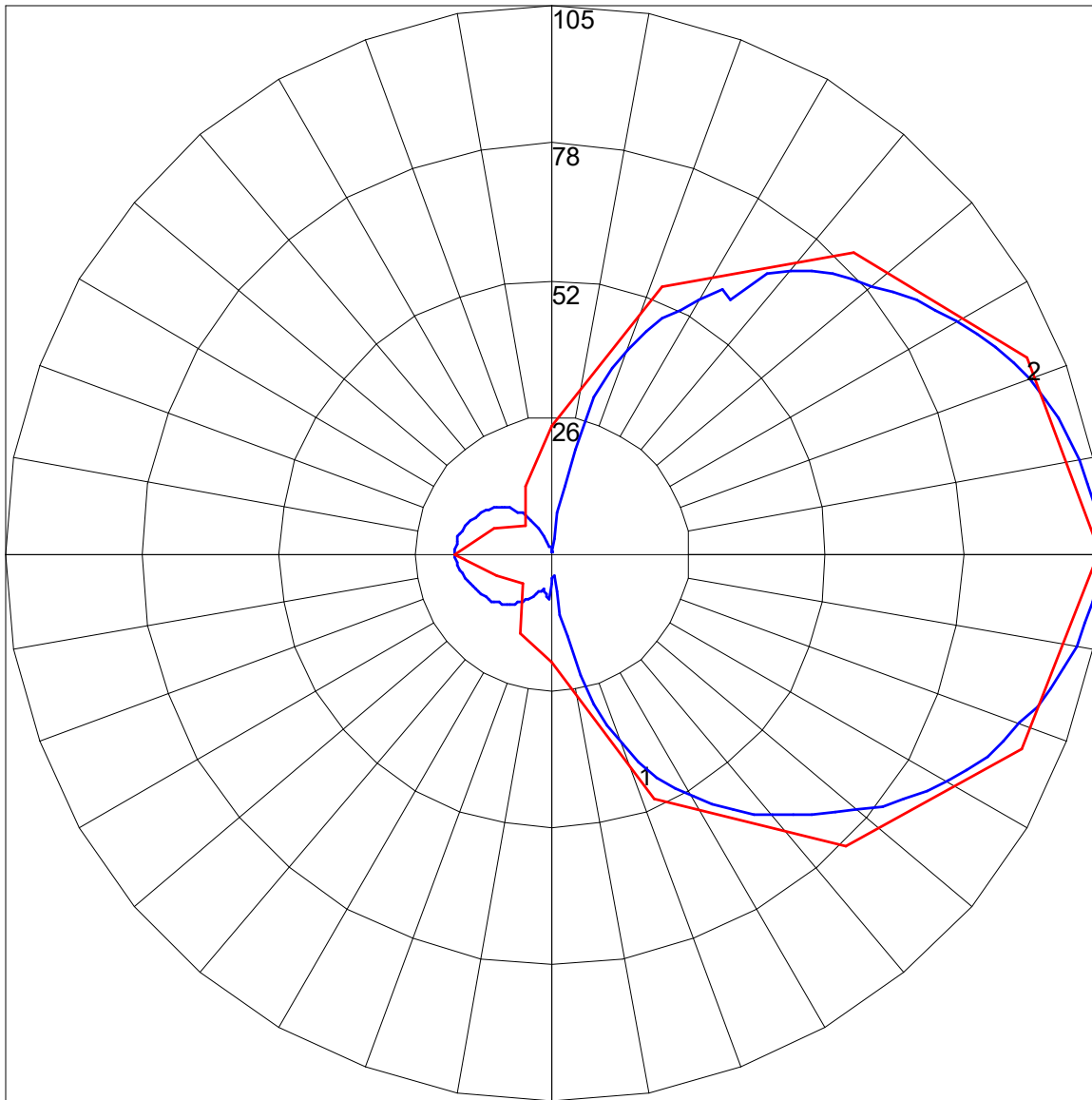
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30
Walls	50	30	50	30	30	50	30	50	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20

Room Size UGR Viewed Crosswise

X=2H	Y=2H	13.2	14.3	14.2	15.2	16.5	UGR Viewed Endwise				
		4.6	5.6	5.5	6.6	7.8					
	3H	17.1	18.1	18.0	19.0	20.3	7.0	8.0	7.9	8.9	10.2
	4H	19.1	20.0	20.0	21.0	22.3	8.2	9.1	9.1	10.1	11.3
	6H	21.2	22.0	22.1	23.0	24.3	9.3	10.2	10.3	11.1	12.4
	8H	22.2	23.0	23.2	24.0	25.3	9.8	10.7	10.8	11.7	13.0
	12H	23.3	24.1	24.2	25.1	26.4	10.4	11.2	11.3	12.2	13.5
4H	2H	13.6	14.5	14.5	15.5	16.7	7.1	8.0	8.0	9.0	10.3
	3H	17.6	18.4	18.6	19.4	20.7	9.6	10.4	10.6	11.4	12.7
	4H	19.8	20.5	20.7	21.5	22.8	10.8	11.6	11.8	12.6	13.9
	6H	22.0	22.7	23.0	23.7	25.0	12.0	12.6	12.9	13.7	15.0
	8H	23.2	23.8	24.1	24.8	26.2	12.5	13.1	13.5	14.1	15.5
	12H	24.4	25.0	25.4	26.0	27.3	13.0	13.6	14.0	14.6	15.9
8H	4H	20.0	20.6	20.9	21.6	23.0	12.5	13.2	13.5	14.2	15.5
	6H	22.4	22.9	23.4	24.0	25.3	13.9	14.5	14.9	15.5	16.8
	8H	23.7	24.2	24.7	25.2	26.6	14.6	15.1	15.6	16.1	17.4
	12H	25.1	25.5	26.1	26.5	27.9	15.2	15.6	16.2	16.6	18.0
12H	4H	20.0	20.6	21.0	21.6	22.9	13.1	13.7	14.1	14.7	16.0
	6H	22.4	22.9	23.5	24.0	25.3	14.6	15.1	15.6	16.1	17.5
	8H	23.8	24.2	24.8	25.3	26.6	15.4	15.8	16.4	16.9	18.2

Maximum UGR = 27.9

POLAR GRAPH



Maximum Candela = 104.58 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.)