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IES INDOOR REPORT
PHOTOMETRIC FILENAME : PNA-7564W.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] PNA-7564W
[TOTAL LUMINAIRE LUMENS] 416.4
[ABSOLUTE LUMENS] 416.402358891872

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	378
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	19
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	863	711	534
55	915	745	562
65	947	768	580
75	981	791	598
85	1035	828	628

IES INDOOR REPORT
PHOTOMETRIC FILENAME : PNA-7564W.IES

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	5.403	5.403	5.403	5.403	5.403	5.403	5.403	5.403	5.403	5.403
2.5	7.264	7.600	7.210	6.365	5.739	5.266	5.384	4.894	4.958	4.821
5.0	9.652	10.033	9.361	7.836	6.501	5.739	5.757	5.058	4.912	4.858
7.5	12.358	12.821	11.768	9.461	7.246	6.347	5.993	5.139	4.858	4.921
10.0	15.409	15.727	14.210	11.205	8.199	7.028	6.356	5.212	4.812	5.067
12.5	18.314	18.623	16.816	13.030	9.144	7.745	6.728	5.257	4.740	5.085
15.0	21.220	21.574	19.313	14.855	10.106	8.481	7.128	5.294	4.631	5.194
17.5	24.362	24.616	21.910	16.680	11.087	9.262	7.409	5.294	4.540	5.212
20.0	27.458	27.748	24.652	18.587	12.113	10.006	7.818	5.303	4.340	5.203
22.5	30.500	30.872	27.322	20.494	13.093	10.787	8.263	5.375	4.249	5.185
25.0	33.478	33.850	29.973	22.437	14.038	11.559	8.508	5.457	4.059	5.230
27.5	36.384	36.729	32.506	24.144	15.009	12.285	8.835	5.530	3.950	5.285
30.0	39.171	39.525	34.776	25.914	15.899	12.993	9.207	5.575	3.677	5.330
32.5	41.732	42.231	37.174	27.531	16.698	13.620	9.361	5.584	3.496	5.257
35.0	44.301	44.864	39.325	29.110	17.506	14.237	9.607	5.611	3.314	5.294
37.5	46.962	47.634	41.586	30.663	18.351	14.882	9.852	5.611	3.142	5.285
40.0	49.631	50.412	43.865	32.397	19.113	15.481	10.061	5.621	2.842	5.339
42.5	52.274	53.263	46.172	33.941	19.949	16.144	10.161	5.657	2.688	5.294
45.0	54.843	56.005	48.451	35.548	20.757	16.780	10.460	5.666	2.479	5.285
47.5	57.286	58.602	50.485	36.965	21.474	17.361	10.705	5.739	2.370	5.303
50.0	59.547	61.018	52.428	38.336	22.164	17.833	10.950	5.739	2.161	5.294
52.5	61.898	63.614	54.335	39.589	22.818	18.387	11.187	5.857	1.998	5.330
55.0	64.068	66.093	56.205	40.824	23.336	18.914	11.395	5.866	1.861	5.303
57.5	65.975	68.300	57.885	41.922	23.899	19.304	11.631	5.884	1.671	5.330
60.0	67.691	70.243	59.347	42.830	24.280	19.649	11.795	5.857	1.525	5.339
62.5	69.117	71.877	60.527	43.648	24.580	19.885	11.877	5.902	1.453	5.330
65.0	70.461	73.303	61.671	44.229	24.816	20.040	12.004	5.911	1.416	5.403
67.5	71.641	74.665	62.525	44.746	24.952	20.176	12.085	6.002	1.380	5.366
70.0	72.813	76.063	63.496	45.364	25.097	20.267	12.204	6.065	1.289	5.457
72.5	73.911	76.953	64.504	45.899	25.415	20.466	12.403	6.156	1.262	5.493
75.0	75.046	76.681	65.558	46.453	25.615	20.693	12.648	6.265	1.271	5.530
77.5	76.218	77.371	66.411	47.025	25.796	20.984	12.848	6.338	1.208	5.611
80.0	77.362	78.215	67.346	47.452	26.005	21.111	12.930	6.292	1.126	5.657
82.5	78.333	78.978	67.991	47.724	26.105	21.256	12.966	6.265	0.981	5.575
85.0	78.987	79.486	68.563	48.024	26.105	21.374	12.966	6.174	0.790	5.539
87.5	79.386	79.804	68.963	48.060	26.069	21.293	12.930	6.202	0.772	5.493
90.0	79.468	79.623	68.926	47.915	25.923	21.220	12.848	6.183	0.772	5.539
92.5	79.350	79.405	68.717	47.752	25.914	21.184	12.721	6.102	0.790	5.539
95.0	79.023	78.814	68.436	47.543	25.833	21.084	12.766	6.193	0.890	5.648
97.5	78.415	78.342	67.946	47.171	25.696	20.902	12.594	6.102	0.863	5.502
100.0	77.679	77.598	67.501	46.844	25.515	20.693	12.476	5.975	0.808	5.384
102.5	76.908	76.953	66.929	46.508	25.279	20.475	12.231	5.857	0.690	5.303
105.0	76.099	76.000	66.193	46.135	25.061	20.257	12.058	5.693	0.681	5.176
107.5	75.073	75.164	65.340	45.573	24.807	20.012	11.831	5.693	0.699	5.094
110.0	73.811	74.138	64.277	45.046	24.561	19.731	11.613	5.748	0.735	4.976
112.5	72.349	72.958	63.279	44.483	24.171	19.449	11.332	5.657	0.717	4.849
115.0	70.688	71.668	62.761	43.811	23.799	19.132	11.059	5.448	0.672	4.776
117.5	69.053	70.279	62.316	43.103	23.426	18.759	10.760	5.339	0.654	4.649
120.0	67.374	69.072	61.690	42.449	23.063	18.360	10.605	5.194	0.699	4.531
122.5	66.248	68.381	60.809	41.668	22.646	17.997	10.197	5.058	0.717	4.449
125.0	65.258	67.582	59.074	40.669	22.328	17.515	9.906	4.894	0.799	4.322
127.5	63.778	66.329	56.823	39.380	21.883	17.025	9.588	4.731	0.754	4.240
130.0	61.826	64.495	54.389	37.782	21.293	16.498	9.243	4.486	0.808	4.122
132.5	59.474	62.189	52.074	36.011	20.530	15.890	8.935	4.340	0.808	3.995

IES INDOOR REPORT
PHOTOMETRIC FILENAME : PNA-7564W.IES

CANDELA TABULATION - (Cont.)

135.0	56.659	59.311	49.849	34.313	19.740	15.209	8.562	4.249	0.835	3.877
137.5	53.844	56.550	47.389	32.643	18.886	14.555	8.154	4.086	0.953	3.759
140.0	50.902	53.881	46.063	30.881	17.997	13.911	7.809	3.895	1.035	3.677
142.5	48.060	51.093	43.402	29.092	17.070	13.220	7.437	3.795	1.044	3.514
145.0	45.037	47.942	41.033	27.067	16.126	12.530	7.082	3.614	1.081	3.396
147.5	41.732	44.510	38.472	25.006	15.136	11.686	6.565	3.269	1.171	3.305
150.0	38.345	41.178	35.739	22.918	14.056	10.796	5.938	3.015	0.944	3.024
152.5	34.885	37.773	32.815	20.784	12.603	9.743	5.621	2.706	0.944	2.697
155.0	30.591	31.962	29.673	18.314	11.650	9.007	4.940	2.306	0.817	2.379
157.5	28.193	30.581	25.705	16.480	10.578	7.990	4.431	2.061	0.590	2.052
160.0	24.661	26.768	23.790	14.128	9.134	6.855	3.786	1.625	0.445	1.807
162.5	21.084	22.945	20.421	11.659	7.600	5.848	3.251	1.289	0.363	1.471
165.0	17.624	19.304	16.961	9.089	6.302	4.867	2.470	0.953	0.354	0.953
167.5	14.038	15.445	13.693	6.801	5.039	3.659	1.671	0.590	0.400	0.717
170.0	11.041	12.122	10.397	4.631	3.568	2.561	0.872	0.436	0.336	0.590
172.5	6.901	7.836	5.257	2.751	2.034	1.308	0.454	0.363	0.300	0.445
175.0	2.969	3.523	2.633	1.326	0.854	0.554	0.272	0.418	0.400	0.490
177.5	0.545	1.008	0.908	0.472	0.291	0.318	0.390	0.409	0.400	0.409
180.0	0.449	0.449	0.449	0.449	0.449	0.449	0.449	0.449	0.449	0.449

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	5.403	5.403	5.403	5.403	5.403	5.403	5.403
2.5	5.058	5.294	5.829	6.193	6.910	6.474	6.810
5.0	5.194	5.938	6.574	7.536	9.026	8.617	9.116
7.5	5.484	6.574	7.328	9.044	11.350	11.205	11.831
10.0	5.802	7.028	8.272	10.769	13.820	14.065	14.655
12.5	6.093	7.582	9.225	12.385	16.453	17.079	17.624
15.0	6.456	8.236	10.215	14.128	18.886	20.085	20.566
17.5	6.737	9.007	11.159	15.890	21.411	23.163	23.526
20.0	7.064	9.697	12.204	17.561	24.116	26.323	26.541
22.5	7.464	10.415	13.148	19.286	26.514	29.446	29.610
25.0	7.791	11.096	14.101	21.029	29.029	32.479	32.552
27.5	8.081	11.795	15.036	22.691	31.489	35.485	35.421
30.0	8.399	12.494	15.981	24.353	33.832	38.363	38.200
32.5	8.726	13.193	16.898	25.978	36.147	41.014	40.724
35.0	9.053	13.856	17.751	27.549	38.363	43.675	43.457
37.5	9.253	14.346	18.668	29.138	40.515	46.344	45.981
40.0	9.661	15.073	19.540	30.718	42.721	49.023	48.651
42.5	9.861	15.727	20.403	32.425	45.100	51.756	51.329
45.0	10.142	16.371	21.293	34.077	47.280	54.435	53.990
47.5	10.506	17.061	22.019	35.675	49.413	56.932	56.423
50.0	10.714	17.624	22.754	37.246	51.393	59.347	58.739
52.5	10.996	18.187	23.463	38.681	53.300	61.653	61.018
55.0	11.241	18.732	24.071	40.097	55.161	63.941	63.224
57.5	11.395	19.241	24.643	41.450	56.841	66.084	65.303
60.0	11.559	19.704	25.061	42.640	58.303	67.918	67.128
62.5	11.677	20.067	25.433	43.611	59.547	69.444	68.699
65.0	11.804	20.357	25.733	44.556	60.682	70.878	70.061
67.5	11.840	20.621	25.932	45.291	61.726	72.086	71.278
70.0	11.958	20.884	26.214	45.945	62.697	73.339	72.413
72.5	12.131	21.120	26.495	46.671	63.678	74.465	73.739
75.0	12.294	21.365	26.822	47.280	64.604	75.618	74.919
77.5	12.449	21.647	27.376	48.006	65.576	76.808	76.136
80.0	12.658	22.001	27.848	48.542	66.638	78.070	77.244

IES INDOOR REPORT
PHOTOMETRIC FILENAME : PNA-7564W.IES

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82.5	12.739	22.273	28.202	48.996	67.410	79.105	78.188
85.0	12.812	22.455	28.384	49.286	67.964	79.913	79.014
87.5	12.730	22.546	28.429	49.332	68.291	80.440	79.514
90.0	12.848	22.500	28.448	49.214	68.490	80.658	79.741
92.5	12.766	22.400	28.339	48.932	68.282	80.585	79.604
95.0	12.685	22.282	28.339	48.524	67.973	80.276	79.105
97.5	12.594	22.128	28.139	48.006	67.501	79.768	78.515
100.0	12.467	21.865	27.830	47.398	66.965	79.178	77.834
102.5	12.249	21.547	27.494	46.708	66.157	78.469	77.153
105.0	11.940	21.184	27.204	45.936	65.412	77.552	76.308
107.5	11.750	20.766	26.741	45.164	64.586	76.563	75.173
110.0	11.532	20.512	26.368	44.356	63.506	75.310	73.866
112.5	11.323	20.103	25.805	43.384	62.234	73.820	72.422
115.0	11.005	19.667	25.324	42.576	61.390	72.286	70.842
117.5	10.760	19.122	24.752	41.595	60.800	70.715	69.144
120.0	10.478	18.687	24.189	40.751	60.037	69.208	67.428
122.5	10.242	18.242	23.581	39.861	59.120	68.164	66.102
125.0	9.988	17.760	23.127	38.881	57.386	66.901	65.022
127.5	9.743	17.216	22.600	37.528	55.215	65.294	63.533
130.0	9.443	16.553	21.883	35.993	52.846	63.260	61.808
132.5	9.134	15.990	21.138	34.440	50.621	60.600	59.601
135.0	8.735	15.409	20.321	32.906	48.424	57.649	56.804
137.5	8.444	14.755	19.386	31.362	46.126	54.743	53.890
140.0	8.145	14.128	18.550	29.782	43.384	51.947	51.093
142.5	7.800	13.411	17.606	29.274	40.742	49.114	48.260
145.0	7.427	12.676	16.725	27.821	38.200	45.963	45.464
147.5	6.828	12.040	15.790	25.787	35.394	42.622	42.104
150.0	6.492	10.996	14.846	23.717	32.543	39.344	38.817
152.5	5.947	10.360	13.466	21.846	29.910	35.693	35.585
155.0	5.321	9.389	12.594	19.340	26.060	32.025	31.190
157.5	4.740	8.363	11.404	17.806	23.944	29.047	28.802
160.0	4.150	7.273	10.015	15.590	20.848	25.651	25.233
162.5	3.641	6.256	8.644	13.220	17.751	22.173	21.792
165.0	2.878	5.330	7.228	10.769	14.728	18.423	18.342
167.5	2.216	4.358	5.675	8.408	11.777	15.073	14.701
170.0	1.380	3.232	4.549	6.338	8.090	11.977	11.740
172.5	0.763	1.934	3.096	4.495	4.449	7.582	7.618
175.0	0.645	0.890	1.571	2.833	2.152	3.686	3.677
177.5	0.617	0.627	0.699	1.426	0.972	1.226	0.763
180.0	0.449	0.449	0.449	0.449	0.449	0.449	0.449

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	4.29	N.A.	1.10
0-30	12.56	N.A.	3.30
0-40	26.87	N.A.	7.10
0-60	76.53	N.A.	20.20
0-80	149.43	N.A.	39.50
0-90	190.85	N.A.	50.50
10-90	190.10	N.A.	50.30
20-40	22.57	N.A.	6.00
20-50	43.86	N.A.	11.60
40-70	83.94	N.A.	22.20
60-80	72.90	N.A.	19.30
70-80	38.63	N.A.	10.20
80-90	41.42	N.A.	11.00
90-110	79.77	N.A.	21.10
90-120	113.66	N.A.	30.10
90-130	141.95	N.A.	37.60
90-150	177.01	N.A.	46.80
90-180	187.16	N.A.	49.50
110-180	107.40	N.A.	28.40
0-180	378.01	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	0.75
10-20	3.55
20-30	8.26
30-40	14.31
40-50	21.28
50-60	28.38
60-70	34.27
70-80	38.63
80-90	41.42
90-100	41.26
100-110	38.50
110-120	33.90
120-130	28.29
130-140	21.15
140-150	13.90
150-160	7.32
160-170	2.57
170-180	0.27

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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	70	70	70	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	67	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	47	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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PHOTOMETRIC FILENAME : PNA-7564W.IES

UGR TABLE - CORRECTED

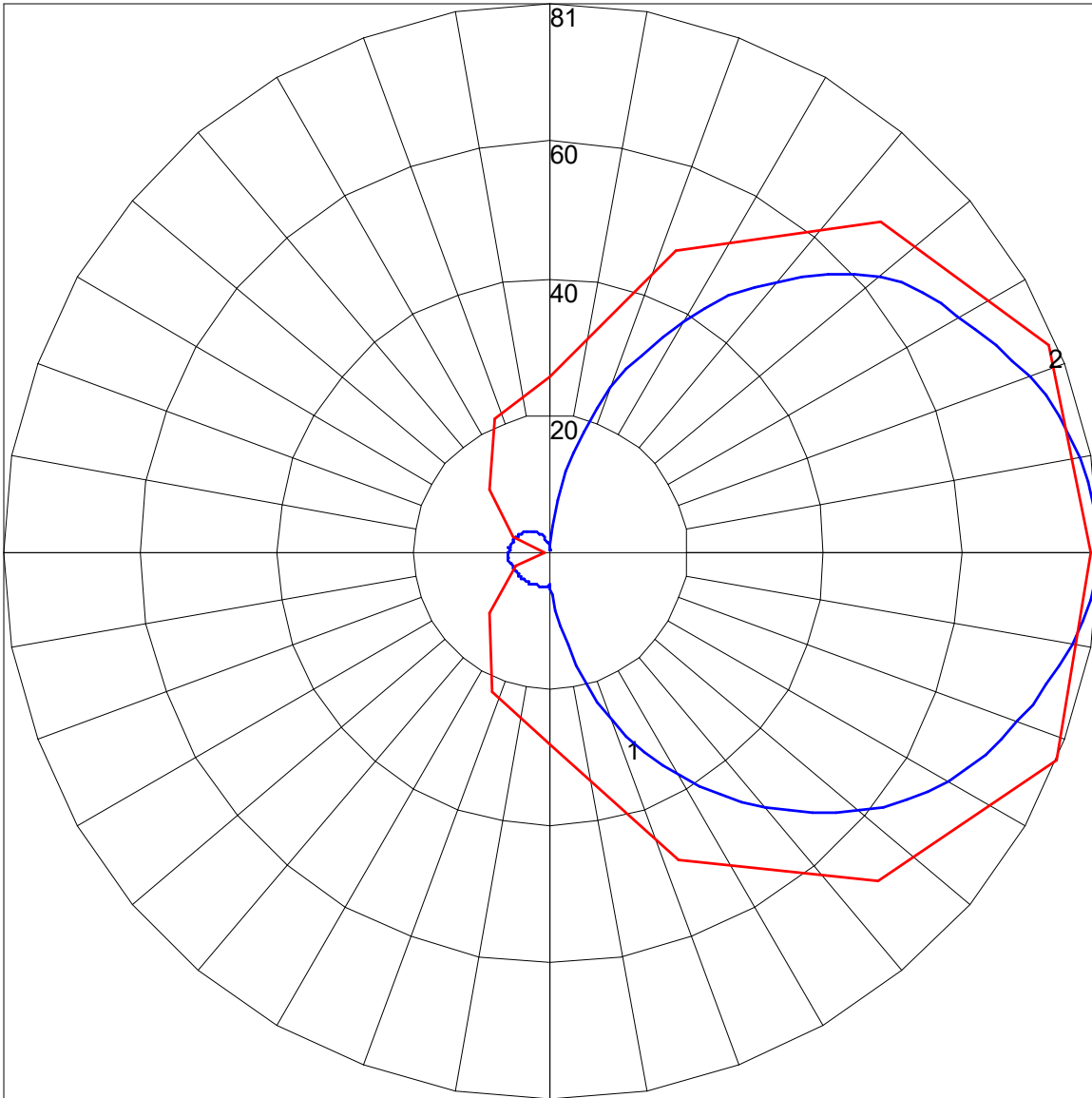
Reflectances

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	11.2	12.3	12.2	13.2	14.5	4.9	6.0	5.8	6.9	8.2
	3H	14.5	15.4	15.4	16.4	17.7	7.4	8.4	8.3	9.3	10.6
	4H	16.0	17.0	17.0	17.9	19.2	8.6	9.5	9.5	10.5	11.8
	6H	17.6	18.5	18.6	19.5	20.7	9.8	10.6	10.7	11.6	12.9
	8H	18.4	19.2	19.3	20.2	21.5	10.3	11.2	11.3	12.2	13.4
	12H	19.1	19.9	20.1	20.9	22.2	10.9	11.7	11.8	12.7	14.0
4H	2H	11.7	12.6	12.6	13.6	14.9	6.6	7.5	7.5	8.5	9.8
	3H	15.2	16.0	16.1	17.0	18.3	9.2	10.1	10.2	11.1	12.3
	4H	16.9	17.7	17.9	18.7	20.0	10.5	11.3	11.5	12.3	13.6
	6H	18.7	19.4	19.7	20.4	21.7	11.8	12.5	12.8	13.5	14.8
	8H	19.6	20.3	20.6	21.3	22.6	12.4	13.0	13.4	14.0	15.4
	12H	20.5	21.1	21.5	22.1	23.4	13.0	13.6	14.0	14.6	15.9
8H	4H	17.3	17.9	18.2	18.9	20.2	11.7	12.4	12.7	13.4	14.7
	6H	19.3	19.8	20.3	20.9	22.2	13.2	13.8	14.2	14.8	16.1
	8H	20.3	20.8	21.3	21.9	23.2	13.9	14.4	14.9	15.5	16.8
	12H	21.4	21.9	22.4	22.9	24.3	14.6	15.1	15.6	16.1	17.5
12H	4H	17.3	17.9	18.3	18.9	20.2	12.0	12.6	13.0	13.7	15.0
	6H	19.4	19.9	20.4	20.9	22.3	13.7	14.2	14.7	15.2	16.6
	8H	20.5	20.9	21.5	22.0	23.3	14.5	15.0	15.5	16.0	17.4

Maximum UGR = 24.3

POLAR GRAPH



Maximum Candela = 80.658 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.)