



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L072111005.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L072111005  
 [TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
 [ISSUE DATE] 9/17/2021  
 [MANUFAC] LUX DYNAMICS  
 [LUMCAT] WAVEP-2-840-U10-WSA2  
 [LUMINAIRE] WAVE+, 2' Length, Standard Aiming, 4000K, Standard Acrylic Lenses, no Deflector  
 [BALLASTCAT] OSRAM OPTOTRONIC OT185/120-277/2A3 DIM L HB (5 DRIVER)  
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
 [INPUT] 120VAC  
 [TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	67694
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	156
Total Luminaire Watts	434.38
Ballast Factor	1.00
CIE Type	Semi-Indirect
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)	1.25 ft
Luminous Width (90-270)	1.92 ft
Luminous Height	1.19 ft

**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	7538	5462	6561
55	13925	6301	5437
65	26879	11134	4165
75	43470	19885	2707
85	59847	29364	1170

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**CANDELA TABULATION**

	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
<b>0</b>	2692	2692	2692	2692	2692	2692	2692	2692	2692	2692
<b>5</b>	2606	2604	2610	2613	2618	2623	2626	2627	2627	2625
<b>10</b>	2551	2551	2558	2561	2567	2572	2576	2579	2580	2580
<b>15</b>	2597	2605	2617	2644	2662	2673	2643	2580	2524	2509
<b>20</b>	2406	2410	2422	2434	2443	2450	2454	2456	2498	2566
<b>25</b>	2169	2172	2179	2190	2201	2217	2246	2286	2323	2336
<b>30</b>	2160	2157	2158	2153	2119	2085	2080	2078	2087	2115
<b>35</b>	2031	2033	2038	2033	2026	2022	2050	2067	2004	1949
<b>40</b>	2068	2068	2063	2043	2019	1997	1979	1958	1918	1919
<b>45</b>	2322	2318	2297	2247	2184	2128	2071	1962	1881	1820
<b>50</b>	2945	2936	2897	2827	2696	2529	2389	2188	2019	1856
<b>55</b>	4206	4187	4083	3905	3625	3335	3018	2700	2385	2087
<b>60</b>	5794	5748	5612	5395	5117	4737	4254	3729	3132	2574
<b>65</b>	7711	7653	7481	7160	6742	6211	5608	4945	4224	3553
<b>70</b>	9626	9604	9415	9115	8602	8061	7415	6642	5753	4744
<b>75</b>	11432	11376	11194	10836	10352	9702	8946	8082	7074	5913
<b>80</b>	12618	12577	12395	12039	11533	10901	10121	9164	8196	7072
<b>85</b>	13831	13781	13563	13171	12624	11955	11082	10144	9058	7827
<b>90</b>	15075	15017	14813	14425	13856	13184	12269	11204	9923	8598
<b>95</b>	16106	16063	15885	15496	14884	14067	13048	11906	10657	9286
<b>100</b>	17177	17122	16914	16486	15801	15003	13895	12753	11449	10040
<b>105</b>	17940	17880	17641	17179	16489	15575	14541	13272	11996	10642
<b>110</b>	18532	18457	18218	17801	17122	16133	15113	13947	12686	11395
<b>115</b>	18978	18914	18690	18302	17667	16719	15732	14676	13528	12356
<b>120</b>	19444	19362	19066	18624	17978	17279	16474	15533	14410	13217
<b>125</b>	19466	19432	19302	19020	18452	17773	16925	16104	15141	14093
<b>130</b>	19447	19414	19290	19050	18639	18232	17539	16751	15725	14797
<b>135</b>	19794	19770	19619	19279	18828	18300	17768	17137	16432	15748
<b>140</b>	19713	19712	19659	19518	19120	18675	18280	17424	16411	15448
<b>145</b>	19680	19643	19492	19151	18592	17985	17264	16283	15393	14337
<b>150</b>	17795	17757	17592	17271	16757	16009	15304	14903	15046	15296
<b>155</b>	15581	15567	15565	15575	15614	15724	15915	15931	15645	15341
<b>160</b>	15331	15367	15498	15574	15515	15288	15030	14704	14279	13751
<b>165</b>	13761	13618	13210	13038	13095	13099	12891	12603	12109	11747
<b>170</b>	11292	11350	11483	11574	11623	11611	11761	11995	12216	12399
<b>175</b>	12876	12899	12798	12623	12526	12452	12320	12269	12191	12090
<b>180</b>	12049	12049	12049	12049	12049	12049	12049	12049	12049	12049

**Vert. Angles**      **Horizontal Angles**

	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>	<u>95</u>
<b>0</b>	2692	2692	2692	2692	2692	2692	2692	2692	2692	2692
<b>5</b>	2624	2622	2618	2615	2619	2621	2623	2648	2688	2722
<b>10</b>	2580	2581	2580	2576	2575	2576	2574	2574	2627	2671
<b>15</b>	2506	2504	2502	2501	2501	2502	2497	2492	2546	2578
<b>20</b>	2529	2425	2400	2396	2396	2400	2396	2385	2434	2452
<b>25</b>	2342	2406	2380	2282	2276	2280	2280	2271	2303	2314
<b>30</b>	2166	2183	2211	2250	2151	2150	2151	2138	2173	2160
<b>35</b>	1941	1970	2019	2040	2063	1999	2003	1992	2014	1990
<b>40</b>	1861	1797	1800	1851	1894	1882	1846	1839	1853	1829
<b>45</b>	1770	1745	1648	1638	1680	1728	1670	1672	1677	1651
<b>50</b>	1722	1631	1578	1486	1475	1518	1517	1499	1499	1480
<b>55</b>	1814	1550	1439	1387	1294	1297	1321	1319	1312	1308
<b>60</b>	2102	1680	1376	1218	1151	1081	1113	1123	1114	1115

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**CANDELA TABULATION - (Cont.)**

65	2795	2055	1454	1104	954	902	886	921	915	911
70	3337	2653	1833	1158	841	704	698	709	719	707
75	4785	3264	2440	1466	862	614	486	496	518	503
80	5794	4133	3080	2037	1127	613	382	312	340	335
85	6472	5067	3395	2526	1520	835	488	180	184	219
90	7166	5602	3656	3027	2002	1213	644	469	120	138
95	7817	6241	4858	3333	2577	1740	1083	657	505	216
100	8380	6940	5592	4386	3130	2434	1712	1123	753	570
105	9232	7839	6432	5228	4072	2998	2399	1824	1398	985
110	9977	8591	7371	6116	4958	4064	3105	2722	2290	1737
115	10993	9618	8354	7002	5939	5025	4237	3724	3094	2754
120	11956	10659	9458	8343	7269	6217	5752	5280	5102	4403
125	13006	11848	10908	9805	8335	8053	7458	7006	6981	6256
130	13926	13007	11796	10080	9815	9804	8561	8752	8737	7722
135	14585	13165	11602	11361	11833	11043	9653	10529	10501	9108
140	13979	12813	12848	13331	12861	11641	10770	12105	11796	10146
145	13907	14338	14587	14091	13232	11928	12573	13212	12799	11430
150	15440	15146	14599	13846	12825	12537	13639	13764	13479	12496
155	14922	14319	13502	12674	12398	13012	13560	13318	13135	12423
160	13134	12361	11815	11781	12248	12610	12358	11947	11777	11235
165	11640	11736	12107	12354	12313	12038	11680	11421	11386	11069
170	12509	12494	12387	12219	11994	11872	11826	11768	11762	11575
175	12066	12075	12101	12119	12102	12117	12183	12187	12196	12112
180	12049	12049	12049	12049	12049	12049	12049	12049	12049	12049

**Vert. Horizontal Angles**

	<b>100</b>	<b>105</b>	<b>110</b>	<b>115</b>	<b>120</b>	<b>125</b>	<b>130</b>	<b>135</b>	<b>140</b>	<b>145</b>
<b>0</b>	2692	2692	2692	2692	2692	2692	2692	2692	2692	2692
<b>5</b>	2728	2716	2697	2668	2649	2643	2649	2652	2651	2648
<b>10</b>	2649	2598	2584	2591	2597	2601	2619	2660	2690	2698
<b>15</b>	2522	2502	2507	2520	2589	2619	2619	2616	2611	2605
<b>20</b>	2394	2398	2428	2499	2504	2506	2509	2521	2514	2503
<b>25</b>	2272	2301	2367	2371	2374	2390	2386	2379	2373	2343
<b>30</b>	2138	2204	2228	2237	2241	2233	2224	2179	2123	2072
<b>35</b>	2006	2072	2075	2082	2074	2040	1975	1917	1888	1874
<b>40</b>	1870	1909	1917	1908	1858	1788	1749	1750	1787	1808
<b>45</b>	1718	1733	1730	1682	1618	1591	1634	1643	1613	1623
<b>50</b>	1535	1546	1518	1444	1430	1478	1451	1458	1488	1535
<b>55</b>	1344	1337	1270	1259	1295	1285	1323	1388	1496	1687
<b>60</b>	1134	1100	1068	1097	1106	1177	1332	1547	1727	1879
<b>65</b>	904	868	892	930	1039	1234	1471	1676	1836	1962
<b>70</b>	682	682	732	858	1059	1294	1499	1657	1754	1797
<b>75</b>	502	548	655	805	1018	1195	1323	1393	1475	1514
<b>80</b>	371	444	577	719	860	989	1092	1155	1191	1205
<b>85</b>	268	352	459	568	681	805	937	1024	1079	1110
<b>90</b>	188	259	347	464	576	705	803	884	939	976
<b>95</b>	186	205	268	359	479	621	750	845	921	978
<b>100</b>	370	341	337	333	373	449	534	614	677	720
<b>105</b>	755	648	597	566	556	535	504	502	525	564
<b>110</b>	1416	1158	1045	949	923	861	791	726	674	608
<b>115</b>	2431	2016	1775	1646	1486	1371	1283	1140	966	891
<b>120</b>	4064	3571	3054	2700	2439	2258	2004	1806	1552	1361
<b>125</b>	5821	5394	4902	4357	3900	3456	3103	2723	2287	2018
<b>130</b>	7288	6804	6502	5945	5341	4798	4316	3795	3295	2890
<b>135</b>	9159	7799	8033	7576	6938	6285	5691	5120	4515	4043

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**CANDELA TABULATION - (Cont.)**

<b>140</b>	10545	9209	8626	9134	8529	7907	7243	6597	6033	5481
<b>145</b>	11215	11009	9123	9407	9970	9569	9018	8391	7728	7172
<b>150</b>	11536	12335	10969	9611	9921	10565	10573	10132	9594	9043
<b>155</b>	11270	11547	11912	10706	9846	9583	10107	10666	10851	10643
<b>160</b>	10320	9758	10262	10536	10146	9295	9003	8734	9030	9434
<b>165</b>	10440	9789	9327	9548	9839	10133	10045	9775	9443	9148
<b>170</b>	11189	10760	10359	9827	9541	9453	9657	9861	10067	10187
<b>175</b>	11992	11820	11647	11404	11182	10952	10771	10608	10456	10313
<b>180</b>	12049	12049	12049	12049	12049	12049	12049	12049	12049	12049

**Vert. Horizontal Angles**  
**Angles**

	<b>150</b>	<b>155</b>	<b>160</b>	<b>165</b>	<b>170</b>	<b>175</b>	<b>180</b>
<b>0</b>	2692	2692	2692	2692	2692	2692	2692
<b>5</b>	2645	2644	2642	2638	2632	2630	2627
<b>10</b>	2692	2686	2682	2675	2670	2666	2667
<b>15</b>	2602	2608	2604	2599	2591	2586	2591
<b>20</b>	2492	2486	2475	2475	2469	2463	2465
<b>25</b>	2305	2267	2232	2205	2184	2173	2172
<b>30</b>	2036	2014	1999	1988	1980	1979	1982
<b>35</b>	1897	1911	1909	1915	1916	1916	1917
<b>40</b>	1779	1755	1760	1757	1761	1762	1763
<b>45</b>	1639	1649	1672	1691	1707	1716	1722
<b>50</b>	1600	1666	1746	1849	1926	1979	1996
<b>55</b>	1851	1957	2042	2113	2164	2206	2211
<b>60</b>	2017	2121	2192	2250	2293	2312	2315
<b>65</b>	2038	2083	2108	2124	2136	2138	2132
<b>70</b>	1806	1803	1794	1785	1784	1785	1783
<b>75</b>	1518	1515	1506	1498	1492	1493	1490
<b>80</b>	1208	1208	1204	1199	1196	1194	1191
<b>85</b>	1126	1134	1130	1124	1121	1119	1116
<b>90</b>	1000	1016	1012	1001	996	993	990
<b>95</b>	1009	1032	1033	1027	1025	1024	1021
<b>100</b>	764	814	839	853	867	876	876
<b>105</b>	604	641	661	672	682	688	689
<b>110</b>	566	545	541	539	536	534	532
<b>115</b>	805	729	685	645	621	605	599
<b>120</b>	1194	1041	922	865	833	808	799
<b>125</b>	1799	1589	1395	1274	1196	1147	1121
<b>130</b>	2580	2249	1979	1801	1673	1602	1574
<b>135</b>	3584	3244	2972	2752	2578	2462	2437
<b>140</b>	4978	4494	4149	3879	3675	3561	3533
<b>145</b>	6709	6199	5780	5470	5222	5074	5018
<b>150</b>	8529	8075	7699	7407	7153	7009	6971
<b>155</b>	10346	10038	9744	9492	9277	9145	9112
<b>160</b>	9709	10150	10543	10711	10814	10823	10795
<b>165</b>	8982	8878	8876	8949	8980	9026	9097
<b>170</b>	10285	10224	9960	9627	9381	9498	9600
<b>175</b>	10168	9998	10004	10211	10377	10481	10465
<b>180</b>	12049	12049	12049	12049	12049	12049	12049

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	973.11	N.A.	1.40
0-30	2029.94	N.A.	3.00
0-40	3280.92	N.A.	4.80
0-60	6530.15	N.A.	9.60
0-80	12856.6	N.A.	19.00
0-90	17279.00	N.A.	25.50
10-90	17027.3	N.A.	25.20
20-40	2307.81	N.A.	3.40
20-50	3716.8	N.A.	5.50
40-70	5931.98	N.A.	8.80
60-80	6326.45	N.A.	9.30
70-80	3643.7	N.A.	5.40
80-90	4422.4	N.A.	6.50
90-110	10970.58	N.A.	16.20
90-120	17533.25	N.A.	25.90
90-130	25040.78	N.A.	37.00
90-150	40408.88	N.A.	59.70
90-180	50414.62	N.A.	74.50
110-180	39444.04	N.A.	58.30
0-180	67693.62	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	251.70
10-20	721.41
20-30	1056.83
30-40	1250.98
40-50	1408.99
50-60	1840.24
60-70	2682.75
70-80	3643.7
80-90	4422.4
90-100	5167.24
100-110	5803.34
110-120	6562.67
120-130	7507.53
130-140	7930.14
140-150	7437.95
150-160	5720.92
160-170	3193.05
170-180	1091.77

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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	101	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34	26
1	89	84	79	74	74	79	74	70	66	56	53	51	40	38	36	25	23	22	15
2	80	72	65	59	59	71	63	57	52	48	44	40	34	31	28	20	18	17	11
3	73	62	54	48	48	64	55	48	43	41	37	32	29	26	23	17	15	13	8
4	66	54	46	40	40	58	48	41	35	36	31	27	25	22	19	15	13	11	6
5	60	48	40	33	33	53	43	35	30	32	27	23	23	19	16	14	11	9	5
6	55	43	35	29	29	49	38	31	26	29	24	20	20	17	14	12	10	8	4
7	51	38	30	25	25	45	34	27	22	26	21	17	18	15	12	11	9	7	4
8	47	35	27	22	22	42	31	24	19	24	18	15	17	13	10	10	8	6	3
9	44	32	24	19	19	39	28	21	17	21	17	13	15	12	9	9	7	5	3
10	41	29	22	17	17	36	26	19	15	20	15	12	14	11	8	9	6	5	3

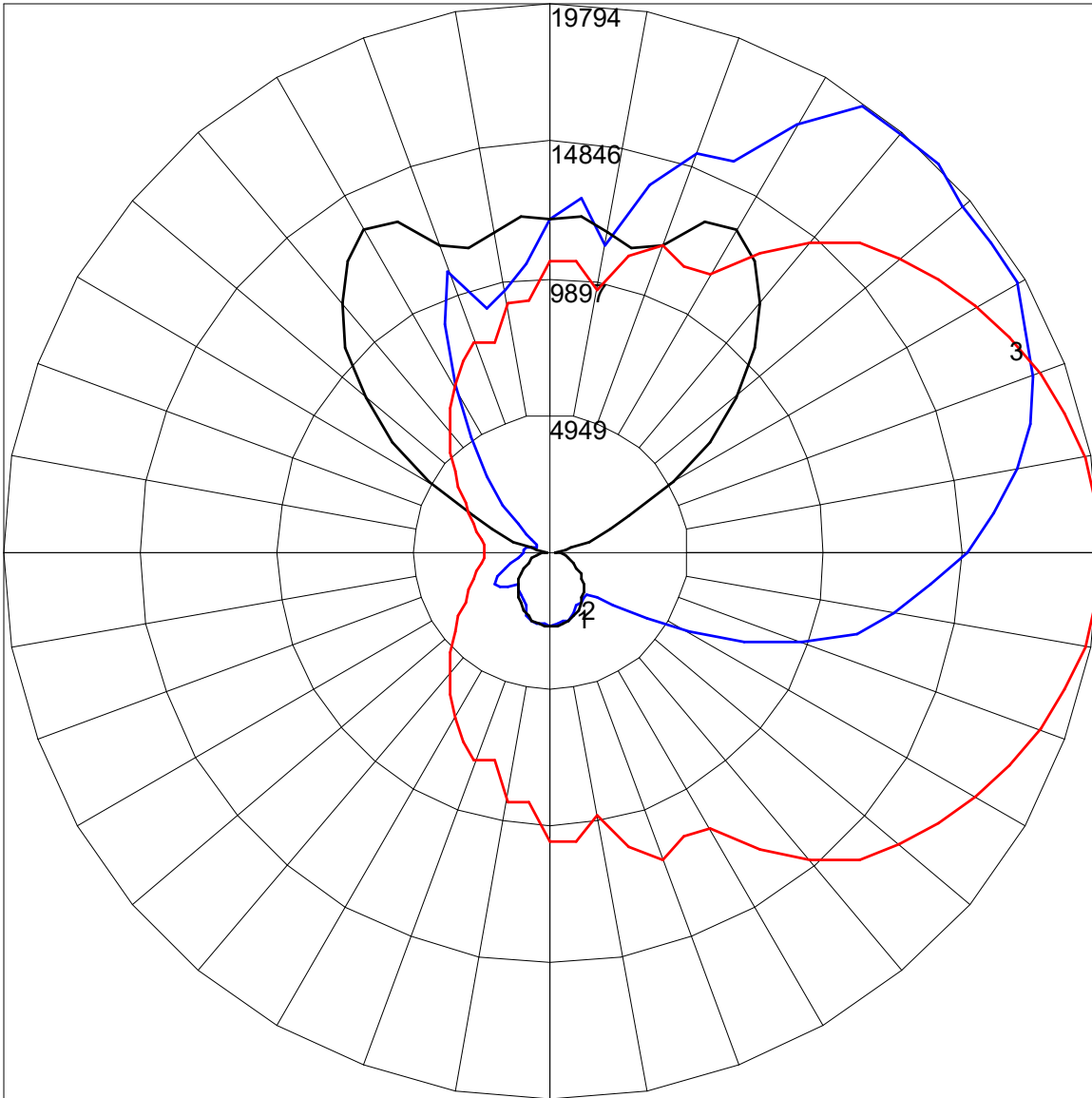
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**UGR TABLE - CORRECTED**

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	16.6	17.3	17.7	18.4	20.0	14.6	14.6	14.6	14.6	14.6
	3H	23.0	23.7	24.2	24.8	26.4	14.6	14.6	14.6	14.6	14.6
	4H	25.8	26.5	26.9	27.6	29.2	14.6	14.6	14.6	14.6	14.6
	6H	28.3	28.9	29.5	30.1	31.7	14.6	14.6	14.6	14.6	14.6
	8H	29.5	30.1	30.6	31.2	32.8	14.6	14.6	14.6	14.6	14.6
	12H	30.6	31.2	31.8	32.3	33.9	14.6	14.6	14.6	14.6	14.6
4H	2H	16.9	17.6	18.1	18.7	20.3	14.6	14.6	14.6	14.6	14.6
	3H	23.7	24.3	24.8	25.4	27.0	14.6	14.6	14.6	14.6	15.3
	4H	26.7	27.2	27.9	28.4	30.0	14.6	14.6	14.6	14.6	15.8
	6H	29.5	29.9	30.6	31.1	32.7	14.6	14.6	14.6	14.6	16.0
	8H	30.8	31.2	31.9	32.4	34.0	14.6	14.6	14.6	14.6	16.1
	12H	32.0	32.4	33.2	33.6	35.2	14.6	14.6	14.6	14.6	16.1
8H	4H	26.9	27.3	28.1	28.5	30.1	17.3	17.8	18.5	18.9	20.6
	6H	29.9	30.3	31.1	31.5	33.1	18.1	18.5	19.3	19.7	21.3
	8H	31.4	31.8	32.6	33.0	34.6	18.3	18.6	19.5	19.8	21.5
	12H	33.0	33.3	34.1	34.4	36.1	18.4	18.7	19.6	19.9	21.5
12H	4H	26.9	27.3	28.0	28.4	30.1	18.8	19.2	20.0	20.4	22.0
	6H	30.0	30.3	31.2	31.5	33.2	20.0	20.3	21.2	21.5	23.2
	8H	31.6	31.9	32.7	33.0	34.7	20.5	20.7	21.6	21.9	23.6

Maximum UGR = 36.1

POLAR GRAPH



Maximum Candela = 19794 Located At Horizontal Angle = 0, Vertical Angle = 135  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270)  
# 3 - Horizontal Cone Through Vertical Angle (135) (Through Max. Cd.)