



IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] 13257153.25
[TESTLAB] UL Verification Services Inc.
[ISSUEDATE] 01/25/2021
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.
[LUMCAT] 4CS-L12-835-xxx-DIM-UNV-LS-OF-WH-xx
[LUMINAIRE] Aluminum housing, optics, and trim enclosure
[LAMP] One white LED
[SEARCH_SOURCETYPE] LED
[SEARCH_APPLICATION] Indoor, Downlight
[SEARCH_MOUNTING] Pendant, Surface, Suspended, Wall

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1440
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	71
Total Luminaire Watts	20.3978
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.24
Spacing Criterion (90-270)	0.24
Spacing Criterion (Diagonal)	0.26
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.21 ft
Luminous Width (90-270)	0.21 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	26716	31285	27067
55	19501	21668	19934
65	16468	16468	16468
75	11524	12485	12485
85	8556	8556	8556

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0.0	14140	14140	14140	14140	14140
0.5	13950	13960	14080	14200	14250
1.0	13780	13790	13920	14040	14090
1.5	13490	13520	13650	13780	13820
2.0	13100	13150	13290	13420	13460
2.5	12630	12690	12840	12980	13020
3.0	12080	12160	12320	12450	12490
3.5	11470	11570	11730	11860	11890
4.0	10810	10930	11080	11210	11260
4.5	10110	10240	10400	10520	10570
5.0	9394	9529	9686	9798	9865
5.5	8663	8805	8957	9061	9136
6.0	7931	8093	8231	8325	8396
6.5	7216	7390	7513	7598	7676
7.0	6529	6703	6819	6891	6968
7.5	5877	6045	6150	6218	6290
8.0	5257	5423	5520	5582	5650
8.5	4679	4843	4924	4987	5048
9.0	4147	4306	4376	4433	4490
9.5	3661	3816	3877	3929	3970
10.0	3225	3370	3426	3469	3501
10.5	2838	2969	3018	3056	3078
11.0	2491	2612	2654	2690	2696
11.5	2190	2298	2331	2367	2362
12.0	1924	2024	2047	2083	2074
12.5	1694	1783	1805	1832	1822
13.0	1496	1575	1596	1618	1605
13.5	1329	1400	1418	1435	1421
14.0	1185	1248	1266	1276	1264
14.5	1064	1119	1136	1142	1130
15.0	964	1010	1026	1028	1013
15.5	877	916	932	930	913
16.0	803	837	853	847	828
16.5	739	771	788	777	755
17.0	684	714	733	717	697
17.5	636	665	684	666	644
18.0	593	622	642	623	599
18.5	554	584	605	586	560
19.0	521	551	574	553	528
19.5	494	522	547	525	498
20.0	470	495	523	500	469
20.5	448	472	501	476	443
21.0	429	451	481	454	418
21.5	409	432	462	434	397
22.0	390	414	445	415	378
22.5	373	397	429	397	362
23.0	355	381	414	379	345
23.5	337	365	399	362	330
24.0	322	351	385	347	316
24.5	308	337	372	334	304
25.0	294	322	360	321	292
25.5	281	309	348	309	279
26.0	268	296	337	297	266
26.5	255	284	326	285	254

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

CANDELA TABULATION - (Cont.)

27.0	244	273	315	273	242
27.5	234	262	304	262	231
28.0	224	250	293	251	220
28.5	216	240	283	239	211
29.0	208	231	273	229	202
29.5	199	221	264	219	195
30.0	192	213	254	210	188
30.5	184	204	245	202	182
31.0	178	196	236	194	176
31.5	171	188	227	187	171
32.0	166	181	218	181	166
32.5	160	175	210	175	161
33.0	156	169	201	169	156
33.5	151	163	193	164	151
34.0	147	158	185	159	147
34.5	143	154	178	154	143
35.0	139	149	171	149	139
35.5	135	145	165	145	135
36.0	132	140	158	141	131
36.5	128	137	152	137	128
37.0	125	133	147	133	125
37.5	122	129	142	129	121
38.0	118	126	137	126	118
38.5	115	122	132	122	115
39.0	112	119	128	119	112
39.5	108	116	124	116	108
40.0	105	113	120	113	105
40.5	101	110	116	109	102
41.0	98	106	113	107	98
41.5	95	104	109	103	96
42.0	92	101	106	101	93
42.5	89	98	103	98	90
43.0	86	95	100	95	87
43.5	84	92	97	92	85
44.0	81	89	94	90	82
44.5	78	86	91	87	80
45.0	76	84	89	85	77
45.5	74	81	86	82	75
46.0	71	79	84	79	73
46.5	69	77	81	77	71
47.0	68	74	79	75	69
47.5	65	72	76	72	67
48.0	63	70	75	71	65
48.5	62	68	72	69	63
49.0	60	66	70	67	62
49.5	58	64	68	65	60
50.0	57	63	66	63	58
50.5	55	61	64	62	57
51.0	54	59	62	60	56
51.5	53	58	60	59	54
52.0	51	56	59	57	53
52.5	50	55	57	56	52
53.0	49	53	56	54	51
53.5	48	52	54	53	50
54.0	47	51	52	52	49
54.5	46	50	51	50	47

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

CANDELA TABULATION - (Cont.)

55.0	45	48	50	49	46
55.5	44	47	48	48	46
56.0	43	46	47	47	44
56.5	42	45	46	46	44
57.0	41	44	44	45	43
57.5	40	43	43	43	41
58.0	40	42	42	42	41
58.5	39	41	41	41	40
59.0	38	40	40	40	39
59.5	37	39	39	40	38
60.0	37	38	38	39	37
60.5	36	37	37	37	36
61.0	35	36	36	37	35
61.5	34	35	35	36	35
62.0	33	34	34	35	34
62.5	32	34	33	33	32
63.0	31	32	32	32	32
63.5	31	31	31	32	31
64.0	29	30	30	31	30
64.5	28	29	29	30	29
65.0	28	29	28	29	28
65.5	27	28	27	28	27
66.0	26	27	26	27	26
66.5	25	26	25	26	26
67.0	24	25	25	25	25
67.5	23	25	24	25	24
68.0	23	24	23	24	24
68.5	22	23	22	23	22
69.0	21	22	22	22	22
69.5	21	21	21	21	21
70.0	19	21	20	21	20
70.5	19	20	19	20	20
71.0	18	19	18	19	19
71.5	17	18	18	19	18
72.0	17	17	17	17	18
72.5	16	16	16	17	17
73.0	15	16	15	16	16
73.5	15	15	15	15	16
74.0	14	15	15	15	15
74.5	13	14	14	14	14
75.0	12	13	13	13	13
75.5	12	13	12	13	13
76.0	11	12	12	12	12
76.5	11	11	11	11	12
77.0	10	11	11	11	11
77.5	9	10	10	10	10
78.0	9	9	9	10	10
78.5	8	9	9	9	9
79.0	8	8	8	9	9
79.5	8	8	8	8	8
80.0	7	7	7	8	8
80.5	7	7	7	7	7
81.0	6	6	6	6	7
81.5	5	6	6	6	6
82.0	5	5	5	6	6
82.5	4	5	5	5	5

IES INDOOR REPORT
 PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

CANDELA TABULATION - (Cont.)

83.0	4	5	4	5	5
83.5	3	4	4	4	5
84.0	3	4	3	4	4
84.5	3	3	3	3	4
85.0	3	3	3	3	3
85.5	2	2	3	3	2
86.0	2	2	2	2	3
86.5	1	2	2	2	2
87.0	1	2	2	2	1
87.5	1	1	1	2	1
88.0	0	1	1	1	1
88.5	0	1	1	1	1
89.0	0	1	1	1	1
89.5	0	1	1	1	1
90.0	0	0	0	0	0
90.5	0	0	0	0	0
91.0	0	0	0	0	0
91.5	0	0	0	0	0
92.0	0	0	0	0	0
92.5	0	0	0	0	0
93.0	0	0	0	0	0
93.5	0	0	0	0	0
94.0	0	0	0	0	0
94.5	0	0	0	0	0
95.0	0	0	0	0	0
95.5	0	0	0	0	0
96.0	0	0	0	0	0
96.5	0	0	0	0	0
97.0	0	0	0	0	0
97.5	0	0	0	0	0
98.0	0	0	0	0	0
98.5	0	0	0	0	0
99.0	0	0	0	0	0
99.5	0	0	0	0	0
100.0	0	0	0	0	0
100.5	0	0	0	0	0
101.0	0	0	0	0	0
101.5	0	0	0	0	0
102.0	0	0	0	0	0
102.5	0	0	0	0	0
103.0	0	0	0	0	0
103.5	0	0	0	0	0
104.0	0	0	0	0	0
104.5	0	0	0	0	0
105.0	0	0	0	0	0
105.5	0	0	0	0	0
106.0	0	0	0	0	0
106.5	0	0	0	0	0
107.0	0	0	0	0	0
107.5	0	0	0	0	0
108.0	0	0	0	0	0
108.5	0	0	0	0	0
109.0	0	0	0	0	0
109.5	0	0	0	0	0
110.0	0	0	0	0	0
110.5	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

CANDELA TABULATION - (Cont.)

111.0	0	0	0	0	0
111.5	0	0	0	0	0
112.0	0	0	0	0	0
112.5	0	0	0	0	0
113.0	0	0	0	0	0
113.5	0	0	0	0	0
114.0	0	0	0	0	0
114.5	0	0	0	0	0
115.0	0	0	0	0	0
115.5	0	0	0	0	0
116.0	0	0	0	0	0
116.5	0	0	0	0	0
117.0	0	0	0	0	0
117.5	0	0	0	0	0
118.0	0	0	0	0	0
118.5	0	0	0	0	0
119.0	0	0	0	0	0
119.5	0	0	0	0	0
120.0	0	0	0	0	0
120.5	0	0	0	0	0
121.0	0	0	0	0	0
121.5	0	0	0	0	0
122.0	0	0	0	0	0
122.5	0	0	0	0	0
123.0	0	0	0	0	0
123.5	0	0	0	0	0
124.0	0	0	0	0	0
124.5	0	0	0	0	0
125.0	0	0	0	0	0
125.5	0	0	0	0	0
126.0	0	0	0	0	0
126.5	0	0	0	0	0
127.0	0	0	0	0	0
127.5	0	0	0	0	0
128.0	0	0	0	0	0
128.5	0	0	0	0	0
129.0	0	0	0	0	0
129.5	0	0	0	0	0
130.0	0	0	0	0	0
130.5	0	0	0	0	0
131.0	0	0	0	0	0
131.5	0	0	0	0	0
132.0	0	0	0	0	0
132.5	0	0	0	0	0
133.0	0	0	0	0	0
133.5	0	0	0	0	0
134.0	0	0	0	0	0
134.5	0	0	0	0	0
135.0	0	0	0	0	0
135.5	0	0	0	0	0
136.0	0	0	0	0	0
136.5	0	0	0	0	0
137.0	0	0	0	0	0
137.5	0	0	0	0	0
138.0	0	0	0	0	0
138.5	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

CANDELA TABULATION - (Cont.)

139.0	0	0	0	0	0
139.5	0	0	0	0	0
140.0	0	0	0	0	0
140.5	0	0	0	0	0
141.0	0	0	0	0	0
141.5	0	0	0	0	0
142.0	0	0	0	0	0
142.5	0	0	0	0	0
143.0	0	0	0	0	0
143.5	0	0	0	0	0
144.0	0	0	0	0	0
144.5	0	0	0	0	0
145.0	0	0	0	0	0
145.5	0	0	0	0	0
146.0	0	0	0	0	0
146.5	0	0	0	0	0
147.0	0	0	0	0	0
147.5	0	0	0	0	0
148.0	0	0	0	0	0
148.5	0	0	0	0	0
149.0	0	0	0	0	0
149.5	0	0	0	0	0
150.0	0	0	0	0	0
150.5	0	0	0	0	0
151.0	0	0	0	0	0
151.5	0	0	0	0	0
152.0	0	0	0	0	0
152.5	0	0	0	0	0
153.0	0	0	0	0	0
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154.0	0	0	0	0	0
154.5	0	0	0	0	0
155.0	0	0	0	0	0
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156.5	0	0	0	0	0
157.0	0	0	0	0	0
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158.0	0	0	0	0	0
158.5	0	0	0	0	0
159.0	0	0	0	0	0
159.5	0	0	0	0	0
160.0	0	0	0	0	0
160.5	0	0	0	0	0
161.0	0	0	0	0	0
161.5	0	0	0	0	0
162.0	0	0	0	0	0
162.5	0	0	0	0	0
163.0	0	0	0	0	0
163.5	0	0	0	0	0
164.0	0	0	0	0	0
164.5	0	0	0	0	0
165.0	0	0	0	0	0
165.5	0	0	0	0	0
166.0	0	0	0	0	0
166.5	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

CANDELA TABULATION - (Cont.)

167.0	0	0	0	0	0
167.5	0	0	0	0	0
168.0	0	0	0	0	0
168.5	0	0	0	0	0
169.0	0	0	0	0	0
169.5	0	0	0	0	0
170.0	0	0	0	0	0
170.5	0	0	0	0	0
171.0	0	0	0	0	0
171.5	0	0	0	0	0
172.0	0	0	0	0	0
172.5	0	0	0	0	0
173.0	0	0	0	0	0
173.5	0	0	0	0	0
174.0	0	0	0	0	0
174.5	0	0	0	0	0
175.0	0	0	0	0	0
175.5	0	0	0	0	0
176.0	0	0	0	0	0
176.5	0	0	0	0	0
177.0	0	0	0	0	0
177.5	0	0	0	0	0
178.0	0	0	0	0	0
178.5	0	0	0	0	0
179.0	0	0	0	0	0
179.5	0	0	0	0	0
180.0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	1037.72	N.A.	72.10
0-30	1188.45	N.A.	82.50
0-40	1285.29	N.A.	89.30
0-60	1393.96	N.A.	96.80
0-80	1436.36	N.A.	99.80
0-90	1439.85	N.A.	100.00
10-90	735.35	N.A.	51.10
20-40	247.57	N.A.	17.20
20-50	312.66	N.A.	21.70
40-70	136.99	N.A.	9.50
60-80	42.39	N.A.	2.90
70-80	14.08	N.A.	1.00
80-90	3.50	N.A.	0.20
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	1439.85	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	704.51
10-20	333.22
20-30	150.73
30-40	96.84
40-50	65.09
50-60	43.59
60-70	28.32
70-80	14.08
80-90	3.50
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95
2	110	106	103	100	108	104	101	99	101	99	97	98	96	95	96	94	93	91
3	106	101	97	94	104	100	96	93	97	94	92	95	92	90	93	91	89	87
4	103	97	92	89	101	96	92	88	94	90	87	92	89	87	90	88	86	84
5	99	93	88	85	98	92	88	85	90	87	84	89	86	83	87	85	83	82
6	96	90	85	82	95	89	85	82	88	84	81	86	83	81	85	82	80	79
7	94	87	83	79	93	86	82	79	85	82	79	84	81	78	83	80	78	77
8	91	84	80	77	90	84	80	77	83	79	77	82	79	76	81	78	76	75
9	89	82	78	75	88	82	78	75	81	77	75	80	77	75	80	77	74	73
10	87	80	76	73	86	80	76	73	79	76	73	79	75	73	78	75	73	72

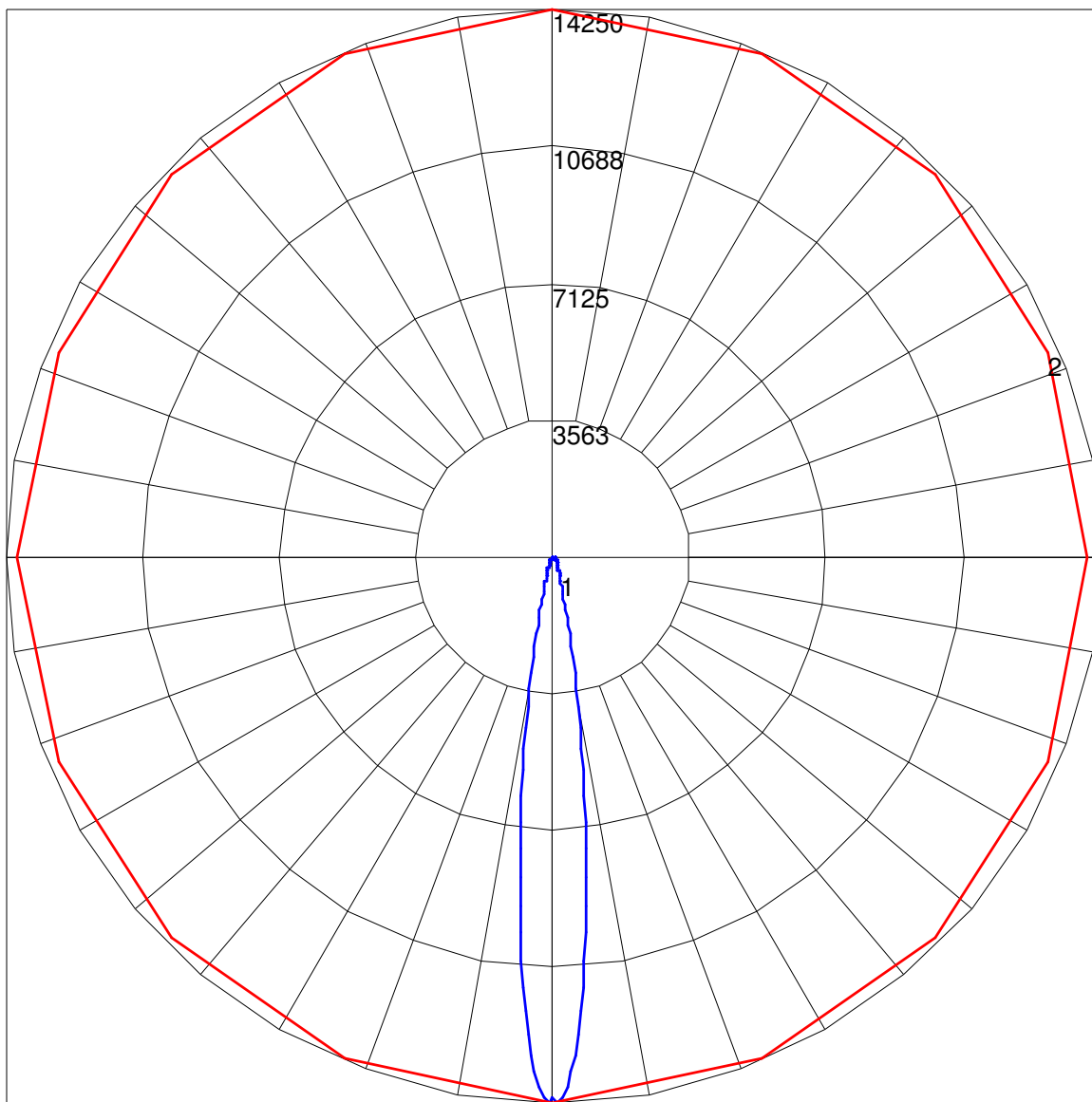
IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-LS-OF-WH-XX.IES

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	17.3	18.3	17.6	18.6	18.9	17.3	18.3	17.7	18.6	19.0
	3H	18.6	19.5	19.0	19.8	20.2	18.6	19.5	19.0	19.9	20.2
	4H	19.0	19.9	19.4	20.2	20.6	19.1	19.9	19.5	20.3	20.7
	6H	19.2	20.0	19.6	20.4	20.8	19.3	20.1	19.7	20.5	20.9
	8H	19.3	20.0	19.7	20.4	20.8	19.4	20.1	19.8	20.5	20.9
	12H	19.3	20.0	19.7	20.4	20.8	19.5	20.2	19.9	20.5	21.0
4H	2H	17.7	18.5	18.1	18.9	19.2	17.7	18.5	18.1	18.9	19.3
	3H	19.2	19.9	19.6	20.3	20.7	19.2	19.9	19.6	20.3	20.7
	4H	19.7	20.3	20.1	20.7	21.2	19.7	20.4	20.2	20.8	21.2
	6H	20.0	20.5	20.5	21.0	21.5	20.1	20.7	20.6	21.1	21.6
	8H	20.1	20.6	20.6	21.0	21.5	20.2	20.7	20.7	21.2	21.7
	12H	20.1	20.5	20.6	21.0	21.5	20.3	20.7	20.8	21.2	21.7
8H	4H	19.8	20.3	20.3	20.8	21.3	19.9	20.4	20.4	20.8	21.3
	6H	20.3	20.6	20.8	21.1	21.6	20.4	20.8	20.9	21.3	21.8
	8H	20.4	20.7	20.9	21.3	21.7	20.5	20.9	21.1	21.4	21.9
	12H	20.5	20.8	21.0	21.3	21.8	20.7	21.0	21.2	21.5	22.0
12H	4H	19.8	20.2	20.3	20.7	21.2	19.9	20.3	20.3	20.8	21.2
	6H	20.3	20.6	20.8	21.1	21.6	20.4	20.7	20.9	21.2	21.7
	8H	20.4	20.7	20.9	21.2	21.8	20.6	20.9	21.1	21.4	21.9

Maximum UGR = 22.0

POLAR GRAPH



Maximum Candela = 14250 Located At Horizontal Angle = 90, Vertical Angle = .5
1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (.5) (Through Max. Cd.)