



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : 4CS-L12-835-XXX-DIM-UNV-RS-WH.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] GEN FROM 13257153.26  
 [TESTLAB] UL Verification Services Inc.  
 [ISSUEDATE] 02/08/2021  
 [MANUFAC] WILLIAMS INDOOR  
 [OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.  
 [LUMCAT] 4CS-L12-835-xxx-DIM-UNV-RS-WH  
 [LUMINAIRE] Square Aluminum housing, optics, and trim enclosure  
 [LAMP] One white LED  
 [ \_SEARCH\_SOURCETYPE] LED  
 [ \_SEARCH\_APPLICATION] Indoor, Downlight  
 [ \_SEARCH\_MOUNTING] Surface, Suspended, Wall

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1445
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	71
Total Luminaire Watts	20.3861
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.24
Spacing Criterion (90-270)	0.24
Spacing Criterion (Diagonal)	0.24
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	28122	34098	27770
55	17334	19501	16901
65	12351	12351	12939
75	6723	7683	7683
85	2852	5704	5704

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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>
0.0	14350	14350	14350	14350	14350
0.5	14220	14240	14290	14350	14380
1.0	14060	14090	14130	14180	14210
1.5	13820	13830	13860	13900	13910
2.0	13470	13480	13490	13520	13520
2.5	13020	13030	13030	13040	13020
3.0	12500	12520	12490	12480	12450
3.5	11920	11940	11880	11850	11820
4.0	11300	11300	11220	11160	11120
4.5	10620	10620	10520	10430	10370
5.0	9911	9920	9793	9664	9611
5.5	9185	9204	9044	8885	8825
6.0	8467	8475	8295	8108	8034
6.5	7755	7765	7559	7350	7275
7.0	7055	7068	6846	6626	6548
7.5	6389	6394	6164	5929	5852
8.0	5750	5754	5517	5275	5199
8.5	5160	5155	4912	4671	4592
9.0	4599	4598	4356	4113	4039
9.5	4087	4087	3847	3612	3538
10.0	3626	3621	3384	3167	3094
10.5	3171	3193	2971	2771	2696
11.0	2796	2813	2603	2421	2347
11.5	2460	2473	2282	2114	2048
12.0	2165	2177	2002	1853	1792
12.5	1910	1917	1762	1630	1572
13.0	1688	1695	1556	1439	1383
13.5	1497	1501	1384	1279	1229
14.0	1329	1334	1237	1144	1099
14.5	1186	1191	1110	1028	987
15.0	1064	1070	1003	929	894
15.5	960	967	911	848	816
16.0	872	881	834	780	753
16.5	797	808	772	723	698
17.0	736	746	717	674	650
17.5	682	693	671	633	609
18.0	636	647	632	597	573
18.5	595	608	599	566	542
19.0	558	574	569	538	515
19.5	528	544	544	514	490
20.0	500	518	522	492	468
20.5	475	494	501	472	447
21.0	454	473	482	453	427
21.5	435	453	464	435	410
22.0	416	435	448	418	394
22.5	398	417	433	403	380
23.0	381	402	419	389	367
23.5	365	388	405	376	354
24.0	350	374	392	363	341
24.5	337	361	379	350	328
25.0	324	348	368	338	316
25.5	312	335	357	327	304
26.0	301	324	345	316	293
26.5	291	312	336	305	283

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**CANDELA TABULATION - (Cont.)**

27.0	281	301	325	294	274
27.5	271	291	316	284	263
28.0	261	281	307	274	252
28.5	250	272	298	264	241
29.0	240	263	289	254	232
29.5	230	253	281	245	222
30.0	221	244	273	236	213
30.5	212	235	264	227	205
31.0	204	226	256	218	197
31.5	197	217	248	210	189
32.0	190	209	241	202	182
32.5	183	201	234	194	176
33.0	176	194	226	187	168
33.5	170	187	219	180	162
34.0	164	180	210	174	157
34.5	158	174	203	167	152
35.0	153	168	197	161	147
35.5	149	162	190	155	143
36.0	144	157	183	150	140
36.5	139	151	177	145	137
37.0	135	146	171	141	133
37.5	131	142	164	137	130
38.0	128	137	158	133	126
38.5	124	133	153	129	123
39.0	120	129	147	126	119
39.5	116	125	142	122	116
40.0	113	121	137	119	112
40.5	110	117	133	116	108
41.0	106	114	128	112	105
41.5	102	110	123	109	102
42.0	99	107	119	106	98
42.5	95	104	115	102	94
43.0	92	100	112	99	91
43.5	89	97	108	96	88
44.0	86	94	104	93	85
44.5	83	91	100	90	81
45.0	80	88	97	87	79
45.5	77	85	93	84	76
46.0	74	82	90	81	73
46.5	71	79	87	78	70
47.0	69	76	84	75	68
47.5	66	73	80	72	65
48.0	64	71	78	69	63
48.5	61	69	75	67	61
49.0	59	66	72	65	58
49.5	57	64	69	62	56
50.0	55	61	67	60	54
50.5	53	59	64	58	52
51.0	51	57	62	56	50
51.5	50	55	59	54	49
52.0	48	53	57	52	47
52.5	46	51	55	50	45
53.0	45	50	52	49	44
53.5	43	48	50	46	42
54.0	42	46	48	45	41
54.5	41	44	47	43	40

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**CANDELA TABULATION - (Cont.)**

55.0	40	43	45	42	39
55.5	38	42	43	41	38
56.0	37	40	41	39	37
56.5	36	39	40	38	36
57.0	35	38	38	37	35
57.5	34	36	36	35	34
58.0	33	35	35	34	33
58.5	32	34	34	33	32
59.0	31	33	33	33	31
59.5	30	32	31	31	30
60.0	30	31	30	30	30
60.5	28	30	29	29	29
61.0	28	29	28	29	28
61.5	27	28	27	28	28
62.0	26	27	26	27	26
62.5	25	26	25	26	26
63.0	24	25	24	25	25
63.5	24	24	23	25	24
64.0	23	23	22	23	24
64.5	22	23	21	23	23
65.0	21	22	21	22	22
65.5	21	21	20	21	21
66.0	19	20	19	20	20
66.5	20	19	18	20	20
67.0	18	19	17	19	19
67.5	17	18	17	18	18
68.0	17	17	16	18	18
68.5	16	16	15	17	17
69.0	15	16	15	16	16
69.5	15	15	14	15	15
70.0	14	14	13	15	15
70.5	13	14	13	14	15
71.0	13	13	12	13	13
71.5	12	12	12	12	13
72.0	12	12	11	12	12
72.5	11	11	10	11	11
73.0	10	10	10	11	10
73.5	9	10	9	10	10
74.0	9	9	9	9	10
74.5	8	9	8	8	9
75.0	7	8	8	8	8
75.5	6	7	7	7	7
76.0	6	7	7	7	7
76.5	5	6	6	6	6
77.0	4	5	5	6	4
77.5	4	4	5	5	4
78.0	3	4	5	4	4
78.5	3	4	4	4	4
79.0	3	4	4	4	3
79.5	3	3	4	4	3
80.0	3	3	3	3	3
80.5	2	3	3	3	3
81.0	2	3	3	3	3
81.5	2	3	2	3	3
82.0	2	2	2	3	3
82.5	2	2	2	2	3

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CANDELA TABULATION - (Cont.)

83.0	2	2	2	2	3
83.5	2	2	2	2	3
84.0	1	2	2	2	2
84.5	1	2	2	2	2
85.0	1	1	2	2	2
85.5	1	1	1	1	2
86.0	1	1	1	1	1
86.5	1	1	1	1	1
87.0	1	1	1	1	1
87.5	1	1	1	1	1
88.0	0	1	1	1	1
88.5	0	1	1	1	1
89.0	0	0	1	1	1
89.5	0	0	1	0	0
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

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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

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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
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148.5	0	0	0	0	0
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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

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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



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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	1039.82	N.A.	71.90
0-30	1199.5	N.A.	83.00
0-40	1307.03	N.A.	90.40
0-60	1413.76	N.A.	97.80
0-80	1443.58	N.A.	99.90
0-90	1445.31	N.A.	100.00
10-90	734.81	N.A.	50.80
20-40	267.21	N.A.	18.50
20-50	335.38	N.A.	23.20
40-70	128.17	N.A.	8.90
60-80	29.83	N.A.	2.10
70-80	8.38	N.A.	0.60
80-90	1.73	N.A.	0.10
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	1445.31	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	710.50
10-20	329.32
20-30	159.68
30-40	107.53
40-50	68.17
50-60	38.56
60-70	21.45
70-80	8.38
80-90	1.73
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

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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	115	112	110	108	112	110	108	107	106	105	103	103	101	100	99	98	98	96
2	110	106	103	101	108	105	102	99	102	99	97	99	97	95	96	95	93	92
3	107	101	98	94	105	100	97	94	98	95	92	95	93	91	93	91	90	88
4	103	97	93	90	101	96	92	89	94	91	88	92	89	87	91	88	86	85
5	100	94	89	86	98	93	89	86	91	87	85	89	86	84	88	85	83	82
6	97	90	86	83	96	90	85	82	88	85	82	87	84	81	86	83	81	80
7	94	87	83	80	93	87	83	80	86	82	79	85	81	79	84	81	79	78
8	92	85	81	78	91	84	80	78	83	80	77	83	79	77	82	79	77	76
9	90	83	78	76	89	82	78	76	81	78	75	81	77	75	80	77	75	74
10	87	81	77	74	87	80	76	74	80	76	74	79	76	73	78	75	73	72

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**UGR TABLE - CORRECTED**

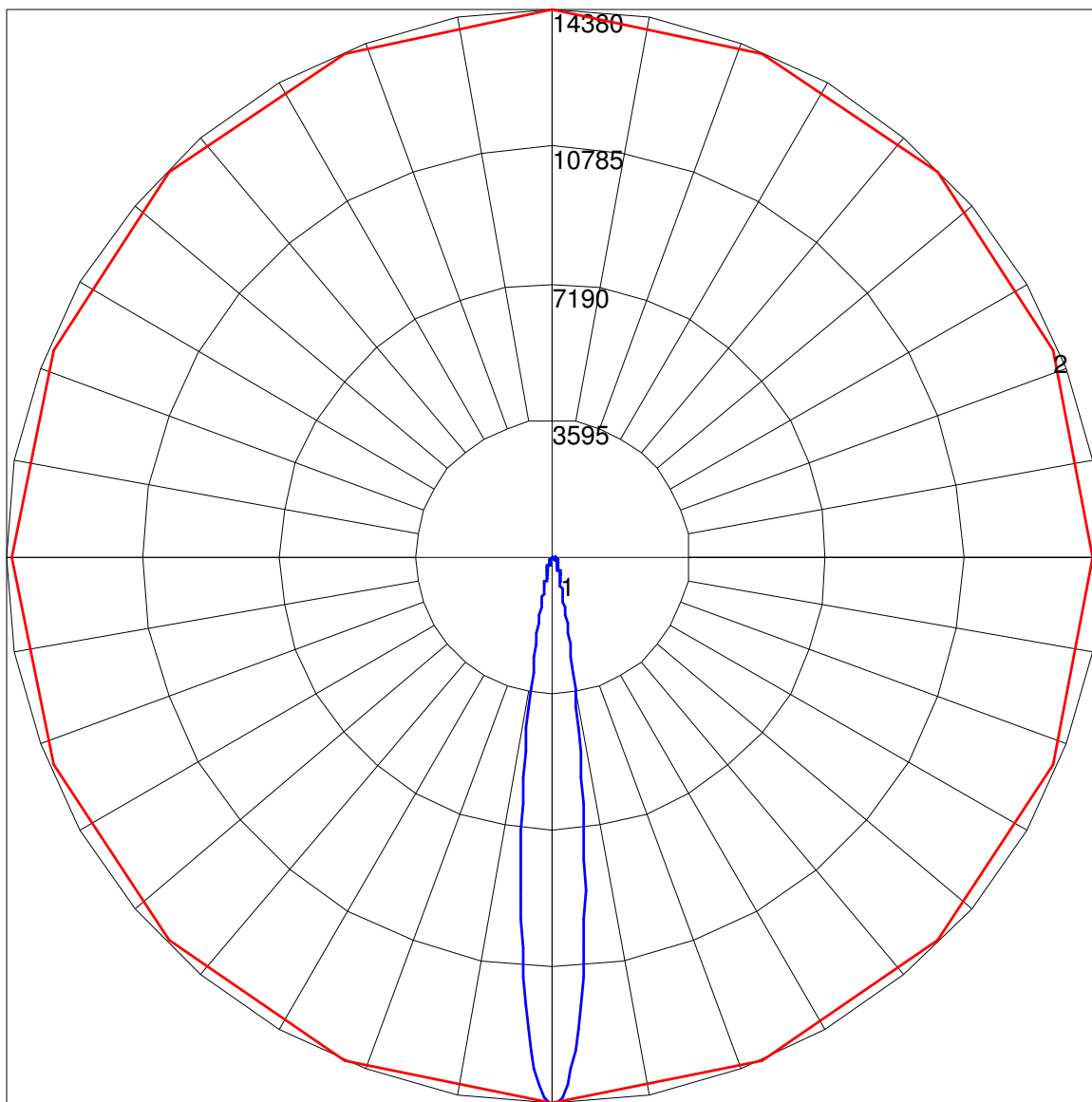
Reflectances

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	16.0	17.0	16.4	17.4	17.7	15.9	16.9	16.2	17.2	17.5
	3H	17.0	17.9	17.4	18.2	18.6	17.0	17.9	17.4	18.2	18.6
	4H	17.2	18.0	17.6	18.4	18.8	17.3	18.1	17.7	18.4	18.8
	6H	17.2	18.0	17.6	18.3	18.7	17.3	18.0	17.7	18.4	18.8
	8H	17.2	17.9	17.6	18.3	18.7	17.3	18.0	17.7	18.4	18.8
	12H	17.2	17.8	17.6	18.2	18.6	17.3	17.9	17.7	18.3	18.8
4H	2H	16.3	17.1	16.7	17.4	17.8	16.1	17.0	16.5	17.3	17.7
	3H	17.4	18.1	17.8	18.5	18.9	17.4	18.1	17.8	18.5	18.9
	4H	17.7	18.3	18.1	18.7	19.2	17.7	18.3	18.2	18.7	19.2
	6H	17.7	18.2	18.2	18.7	19.2	17.8	18.3	18.2	18.7	19.2
	8H	17.7	18.2	18.2	18.6	19.1	17.8	18.3	18.2	18.7	19.2
	12H	17.7	18.1	18.1	18.6	19.0	17.8	18.2	18.3	18.7	19.2
8H	4H	17.7	18.2	18.1	18.6	19.1	17.7	18.2	18.2	18.6	19.1
	6H	17.7	18.1	18.2	18.6	19.1	17.8	18.2	18.3	18.7	19.2
	8H	17.7	18.1	18.3	18.6	19.1	17.8	18.2	18.4	18.7	19.2
	12H	17.8	18.1	18.3	18.6	19.1	17.9	18.2	18.4	18.7	19.3
12H	4H	17.6	18.0	18.1	18.5	19.0	17.7	18.1	18.1	18.6	19.0
	6H	17.7	18.0	18.2	18.5	19.1	17.7	18.1	18.3	18.6	19.1
	8H	17.8	18.0	18.3	18.5	19.1	17.8	18.1	18.4	18.6	19.2

Maximum UGR = 19.3

POLAR GRAPH



Maximum Candela = 14380 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.)