



IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN FROM 12316380.09

[TESTLAB] UL Verification Services Inc.

[ISSUEDATE] 30-APR-2020

[MANUFAC] WILLIAMS INDOOR

[OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.

[LUMCAT] 4DR-TL-L20-935-DIM-UNV-LM-OF-CS

[LUMINAIRE] Black formed aluminum housing, white reflector, clear plas

[MORE] tic optic, clear glass patterned enclosure

[LAMP] One white LED

[_SEARCH_SOURCETYPE] LED

[_SEARCH_APPLICATION] Indoor, Classroom, Commercial, Corridor, Hotel, Industrial, Office, Downlight

[_SEARCH_MOUNTING] Recessed

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1471
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	74
Total Luminaire Watts	19.8
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.56
Spacing Criterion (90-270)	0.56
Spacing Criterion (Diagonal)	0.54
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.35 ft (Diameter)
Luminous Width (90-270)	0.35 ft (Diameter)
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	11162	11162	11162
55	8700	8700	8700
65	7271	7271	7271
75	5850	5850	5850
85	3495	3495	3495

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

CANDELA TABULATION

	<u>0</u>
0.0	3806.233
0.5	3804.593
1.0	3798.853
1.5	3789.834
2.0	3778.355
2.5	3762.775
3.0	3744.736
3.5	3723.418
4.0	3698.819
4.5	3672.580
5.0	3643.062
5.5	3610.264
6.0	3574.186
6.5	3534.008
7.0	3490.550
7.5	3442.993
8.0	3391.336
8.5	3335.579
9.0	3276.542
9.5	3212.585
10.0	3143.709
10.5	3069.913
11.0	2992.837
11.5	2911.662
12.0	2825.566
12.5	2736.191
13.0	2642.716
13.5	2545.962
14.0	2445.107
14.5	2340.973
15.0	2236.018
15.5	2129.424
16.0	2022.830
16.5	1915.416
17.0	1808.822
17.5	1705.507
18.0	1603.013
18.5	1504.618
19.0	1410.323
19.5	1319.308
20.0	1233.213
20.5	1150.397
21.0	1073.322
21.5	1000.346
22.0	931.469
22.5	867.513
23.0	807.164
23.5	750.915
24.0	698.684
24.5	649.897
25.0	604.635
25.5	562.571
26.0	523.132
26.5	486.726

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

CANDELA TABULATION - (Cont.)

27.0	452.779
27.5	421.703
28.0	392.759
28.5	366.028
29.0	341.511
29.5	318.635
30.0	297.398
30.5	277.801
31.0	259.680
31.5	243.035
32.0	227.620
32.5	213.434
33.0	200.397
33.5	188.344
34.0	177.356
34.5	167.189
35.0	158.005
35.5	149.478
36.0	141.688
36.5	134.555
37.0	127.995
37.5	122.009
38.0	116.598
38.5	111.596
39.0	107.004
39.5	102.822
40.0	98.969
40.5	95.361
41.0	91.999
41.5	88.965
42.0	86.095
42.5	83.389
43.0	80.930
43.5	78.552
44.0	76.338
44.5	74.288
45.0	72.238
45.5	70.352
46.0	68.630
46.5	66.908
47.0	65.268
47.5	63.793
48.0	62.235
48.5	60.841
49.0	59.447
49.5	58.053
50.0	56.823
50.5	55.593
51.0	54.445
51.5	53.215
52.0	52.067
52.5	51.001
53.0	49.853
53.5	48.787
54.0	47.721
54.5	46.655

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

CANDELA TABULATION - (Cont.)

55.0	45.672
55.5	44.688
56.0	43.704
56.5	42.720
57.0	41.654
57.5	40.752
58.0	39.850
58.5	39.030
59.0	38.128
59.5	37.226
60.0	36.324
60.5	35.422
61.0	34.684
61.5	33.782
62.0	32.962
62.5	32.142
63.0	31.322
63.5	30.584
64.0	29.764
64.5	28.944
65.0	28.124
65.5	27.387
66.0	26.649
66.5	25.911
67.0	25.091
67.5	24.353
68.0	23.615
68.5	22.877
69.0	22.139
69.5	21.401
70.0	20.663
70.5	20.007
71.0	19.351
71.5	18.531
72.0	17.875
72.5	17.219
73.0	16.563
73.5	15.825
74.0	15.169
74.5	14.513
75.0	13.857
75.5	13.201
76.0	12.545
76.5	11.889
77.0	11.233
77.5	10.741
78.0	10.085
78.5	9.511
79.0	8.938
79.5	8.364
80.0	7.790
80.5	7.216
81.0	6.642
81.5	6.232
82.0	5.576
82.5	5.166

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

CANDELA TABULATION - (Cont.)

83.0	4.592
83.5	4.182
84.0	3.690
84.5	3.198
85.0	2.788
85.5	2.296
86.0	1.968
86.5	1.558
87.0	1.312
87.5	1.066
88.0	0.820
88.5	0.656
89.0	0.492
89.5	0.328
90.0	0.246
90.5	0.000
91.0	0.000
91.5	0.000
92.0	0.000
92.5	0.000
93.0	0.000
93.5	0.000
94.0	0.000
94.5	0.000
95.0	0.000
95.5	0.000
96.0	0.000
96.5	0.000
97.0	0.000
97.5	0.000
98.0	0.000
98.5	0.000
99.0	0.000
99.5	0.000
100.0	0.000
100.5	0.000
101.0	0.000
101.5	0.000
102.0	0.000
102.5	0.000
103.0	0.000
103.5	0.000
104.0	0.000
104.5	0.000
105.0	0.000
105.5	0.000
106.0	0.000
106.5	0.000
107.0	0.000
107.5	0.000
108.0	0.000
108.5	0.000
109.0	0.000
109.5	0.000
110.0	0.000
110.5	0.000

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

CANDELA TABULATION - (Cont.)

111.0	0.000
111.5	0.000
112.0	0.000
112.5	0.000
113.0	0.000
113.5	0.000
114.0	0.000
114.5	0.000
115.0	0.000
115.5	0.000
116.0	0.000
116.5	0.000
117.0	0.000
117.5	0.000
118.0	0.000
118.5	0.000
119.0	0.000
119.5	0.000
120.0	0.000
120.5	0.000
121.0	0.000
121.5	0.000
122.0	0.000
122.5	0.000
123.0	0.000
123.5	0.000
124.0	0.000
124.5	0.000
125.0	0.000
125.5	0.000
126.0	0.000
126.5	0.000
127.0	0.000
127.5	0.000
128.0	0.000
128.5	0.000
129.0	0.000
129.5	0.000
130.0	0.000
130.5	0.000
131.0	0.000
131.5	0.000
132.0	0.000
132.5	0.000
133.0	0.000
133.5	0.000
134.0	0.000
134.5	0.000
135.0	0.000
135.5	0.000
136.0	0.000
136.5	0.000
137.0	0.000
137.5	0.000
138.0	0.000
138.5	0.000

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

CANDELA TABULATION - (Cont.)

139.0	0.000
139.5	0.000
140.0	0.000
140.5	0.000
141.0	0.000
141.5	0.000
142.0	0.000
142.5	0.000
143.0	0.000
143.5	0.000
144.0	0.000
144.5	0.000
145.0	0.000
145.5	0.000
146.0	0.000
146.5	0.000
147.0	0.000
147.5	0.000
148.0	0.000
148.5	0.000
149.0	0.000
149.5	0.000
150.0	0.000
150.5	0.000
151.0	0.000
151.5	0.000
152.0	0.000
152.5	0.000
153.0	0.000
153.5	0.000
154.0	0.000
154.5	0.000
155.0	0.000
155.5	0.000
156.0	0.000
156.5	0.000
157.0	0.000
157.5	0.000
158.0	0.000
158.5	0.000
159.0	0.000
159.5	0.000
160.0	0.000
160.5	0.000
161.0	0.000
161.5	0.000
162.0	0.000
162.5	0.000
163.0	0.000
163.5	0.000
164.0	0.000
164.5	0.000
165.0	0.000
165.5	0.000
166.0	0.000
166.5	0.000

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

CANDELA TABULATION - (Cont.)

167.0	0.000
167.5	0.000
168.0	0.000
168.5	0.000
169.0	0.000
169.5	0.000
170.0	0.000
170.5	0.000
171.0	0.000
171.5	0.000
172.0	0.000
172.5	0.000
173.0	0.000
173.5	0.000
174.0	0.000
174.5	0.000
175.0	0.000
175.5	0.000
176.0	0.000
176.5	0.000
177.0	0.000
177.5	0.000
178.0	0.000
178.5	0.000
179.0	0.000
179.5	0.000
180.0	0.000

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	930.31	N.A.	63.20
0-30	1221.84	N.A.	83.10
0-40	1326.92	N.A.	90.20
0-60	1424.89	N.A.	96.90
0-80	1467.6	N.A.	99.80
0-90	1471.06	N.A.	100.00
10-90	1138.88	N.A.	77.40
20-40	396.61	N.A.	27.00
20-50	453.52	N.A.	30.80
40-70	125.93	N.A.	8.60
60-80	42.71	N.A.	2.90
70-80	14.74	N.A.	1.00
80-90	3.47	N.A.	0.20
90-110	0.01	N.A.	0.00
90-120	0.01	N.A.	0.00
90-130	0.01	N.A.	0.00
90-150	0.01	N.A.	0.00
90-180	0.01	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	1471.07	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	332.19
10-20	598.13
20-30	291.52
30-40	105.09
40-50	56.91
50-60	41.05
60-70	27.97
70-80	14.74
80-90	3.47
90-100	0.01
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 : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.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	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94
2	109	104	101	97	107	103	99	96	99	97	94	96	94	92	94	92	90	89
3	104	98	94	90	102	97	93	89	94	91	88	92	89	87	90	87	85	84
4	100	93	88	84	98	92	87	84	90	86	83	88	85	82	86	83	81	80
5	96	88	83	80	94	88	83	79	86	82	79	84	81	78	83	80	77	76
6	92	84	79	75	91	84	79	75	82	78	75	81	77	74	80	76	74	72
7	89	81	76	72	88	80	75	72	79	74	71	78	74	71	77	73	71	69
8	86	77	72	69	84	77	72	69	76	71	68	75	71	68	74	70	68	67
9	83	74	69	66	82	74	69	66	73	69	66	72	68	65	71	68	65	64
10	80	72	67	63	79	71	66	63	70	66	63	70	66	63	69	65	63	62

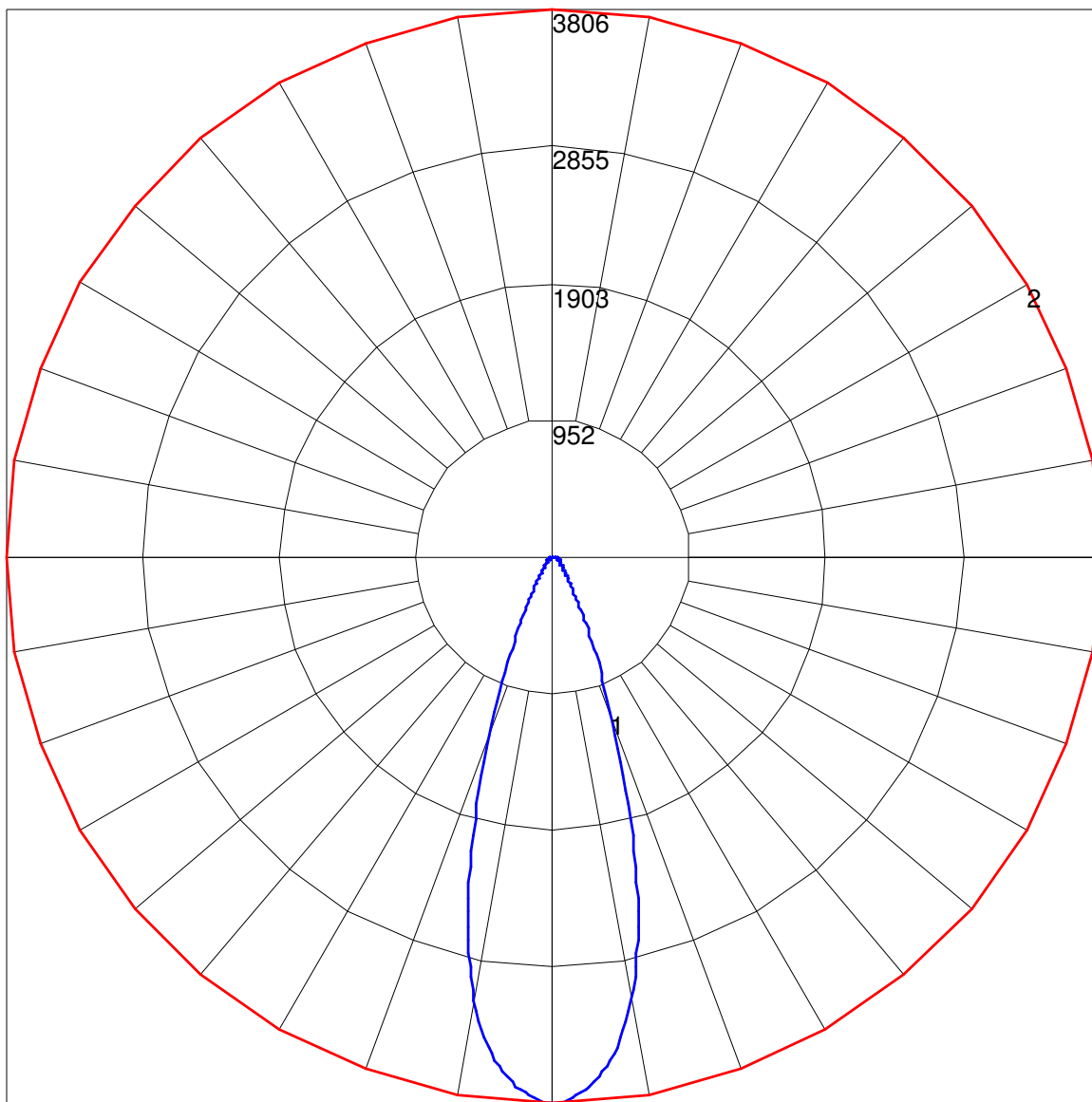
IES INDOOR REPORT
PHOTOMETRIC FILENAME : 4DR-TL-L20-935-DIM-UNV-LM-OF-CS_.IES

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	13.2	14.3	13.6	14.6	14.9	13.2	14.3	13.6	14.6	14.9
	3H	14.7	15.6	15.1	15.9	16.3	14.7	15.6	15.1	15.9	16.3
	4H	15.2	16.0	15.6	16.4	16.8	15.2	16.0	15.6	16.4	16.8
	6H	15.5	16.3	15.9	16.7	17.1	15.5	16.3	15.9	16.7	17.1
	8H	15.6	16.3	16.1	16.7	17.1	15.6	16.3	16.1	16.7	17.1
	12H	15.6	16.3	16.1	16.7	17.1	15.6	16.3	16.1	16.7	17.1
4H	2H	13.7	14.5	14.1	14.9	15.3	13.7	14.5	14.1	14.9	15.3
	3H	15.3	16.0	15.7	16.4	16.8	15.3	16.0	15.7	16.4	16.8
	4H	16.0	16.6	16.4	17.0	17.4	16.0	16.6	16.4	17.0	17.4
	6H	16.4	16.9	16.9	17.4	17.8	16.4	16.9	16.9	17.4	17.8
	8H	16.5	17.0	17.0	17.4	17.9	16.5	17.0	17.0	17.4	17.9
	12H	16.5	17.0	17.0	17.4	17.9	16.5	17.0	17.0	17.4	17.9
8H	4H	16.1	16.6	16.6	17.1	17.5	16.1	16.6	16.6	17.1	17.5
	6H	16.6	17.0	17.2	17.5	18.0	16.6	17.0	17.2	17.5	18.0
	8H	16.8	17.2	17.3	17.7	18.2	16.8	17.2	17.3	17.7	18.2
	12H	16.9	17.2	17.4	17.7	18.3	16.9	17.2	17.4	17.7	18.3
12H	4H	16.1	16.5	16.6	17.0	17.5	16.1	16.5	16.6	17.0	17.5
	6H	16.7	17.0	17.2	17.5	18.0	16.7	17.0	17.2	17.5	18.0
	8H	16.8	17.2	17.4	17.6	18.2	16.8	17.2	17.4	17.6	18.2

Maximum UGR = 18.3

POLAR GRAPH



Maximum Candela = 3806.233 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)