



IES INDOOR REPORT
PHOTOMETRIC FILENAME : HETG-AR14-L38-840-A-DIM-UNV.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST]GEN FROM ORIGINAL TEST
[TESTLAB]Intertek
[ISSUE DATE] 03/18/2019
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.
[LUMCAT]HETG-AR14-L38-840-A-DIM-UNV
[LUMINAIRE]1X4 RECESSED GRID LUMINAIRE
[MORE] WITH FROSTED ACRYLIC LENS
[LAMP]LED
[LAMPCAT] HLM 80 CRI 4000K CCT
[_SEARCH_APPLICATION] INDOOR
[_SEARCH_SOURCETYPE] LED
[_SEARCH_MOUNTING] RECESSED

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4004
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	135
Total Luminaire Watts	29.7
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.22
Spacing Criterion (Diagonal)	1.32
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	3.92 ft
Luminous Width (90-270)	0.92 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	4137	4183	4113
55	3505	3688	3378
65	2775	3071	2097
75	2128	2108	1100
85	1491	730	344

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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>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>	<u>202.5</u>
0.0	1676.880	1676.880	1676.880	1676.880	1676.880	1676.880	1676.880	1676.880	1676.880	1676.880
2.5	1649.497	1656.881	1673.188	1693.906	1710.623	1693.495	1671.034	1654.932	1647.650	1654.932
5.0	1644.471	1652.676	1671.445	1692.265	1708.059	1689.188	1667.753	1649.804	1640.881	1649.804
7.5	1635.548	1645.394	1664.573	1683.239	1696.470	1677.804	1659.342	1641.394	1631.138	1641.394
10.0	1624.061	1634.625	1651.548	1665.804	1675.957	1658.009	1643.856	1628.984	1616.882	1628.984
12.5	1608.882	1619.343	1630.215	1641.497	1651.035	1632.471	1621.497	1611.036	1598.524	1611.036
15.0	1588.165	1599.652	1605.498	1616.472	1623.343	1605.087	1593.498	1588.472	1575.550	1588.472
17.5	1562.730	1574.319	1577.498	1585.396	1588.985	1570.934	1564.165	1561.499	1549.499	1561.499
20.0	1533.294	1544.166	1545.807	1547.448	1549.397	1531.038	1530.730	1529.910	1519.141	1529.910
22.5	1500.885	1509.192	1507.654	1506.218	1509.090	1488.475	1490.629	1492.783	1483.450	1492.783
25.0	1463.347	1469.809	1463.860	1466.014	1470.629	1448.168	1445.604	1451.040	1444.271	1451.040
27.5	1419.759	1426.118	1416.785	1423.861	1423.964	1404.067	1397.606	1405.298	1400.272	1405.298
30.0	1370.324	1378.324	1368.581	1373.504	1371.863	1352.376	1348.786	1355.453	1350.530	1355.453
32.5	1315.454	1323.966	1318.531	1318.325	1312.582	1296.480	1297.300	1300.172	1294.634	1300.172
35.0	1255.866	1264.378	1261.814	1257.609	1249.507	1234.943	1238.943	1239.251	1233.917	1239.251
37.5	1192.790	1200.585	1199.662	1193.200	1185.303	1170.534	1175.560	1174.124	1170.227	1174.124
40.0	1125.305	1132.484	1133.407	1127.151	1118.536	1104.895	1108.690	1105.100	1101.716	1105.100
42.5	1054.230	1062.127	1063.665	1059.768	1048.589	1037.204	1038.948	1034.435	1032.076	1034.435
45.0	981.103	989.718	991.975	988.898	975.360	967.360	967.155	962.745	958.335	962.745
47.5	905.823	916.900	919.874	917.515	900.080	894.234	893.926	887.567	880.183	887.567
50.0	831.056	843.568	849.414	845.825	825.825	821.518	821.825	811.159	802.646	811.159
52.5	752.391	767.980	779.365	771.878	741.212	747.776	752.699	735.674	725.417	735.674
55.0	674.239	693.931	709.418	691.264	649.727	665.419	684.085	661.932	648.189	661.932
57.5	598.651	622.241	641.522	605.728	560.601	580.703	617.113	591.370	572.806	591.370
60.0	526.448	553.627	574.960	522.756	465.937	495.680	550.242	524.089	500.603	524.089
62.5	457.835	488.295	504.192	434.451	377.119	409.528	479.475	461.424	433.015	461.424
65.0	393.323	427.476	435.271	351.068	297.223	329.017	413.015	402.964	370.247	402.964
67.5	333.222	371.067	367.683	276.198	228.712	257.224	345.530	348.914	313.018	348.914
70.0	278.762	318.453	301.633	212.097	172.201	195.175	280.506	298.146	260.404	298.146
72.5	229.533	269.224	239.994	158.047	127.997	143.996	220.405	250.455	212.815	250.455
75.0	184.713	220.302	182.970	114.561	95.485	104.202	165.534	202.867	169.637	202.867
77.5	143.791	173.739	131.074	81.434	73.229	77.434	116.510	158.560	131.176	158.560
80.0	106.561	129.638	84.818	58.152	51.486	55.076	76.613	116.305	96.613	116.305
82.5	71.383	87.485	48.717	34.461	27.179	30.871	43.589	78.152	67.280	78.152
85.0	43.589	46.665	21.333	12.615	10.051	10.769	17.743	40.307	40.409	40.307
87.5	20.820	13.743	5.641	4.615	3.692	3.897	4.820	9.948	18.871	9.948
90.0	2.769	0.308	0.000	0.000	0.000	0.000	0.000	0.000	1.538	0.000
92.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
95.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
97.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
102.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
107.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
112.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
115.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
117.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
120.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
122.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
125.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
127.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
132.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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135.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
137.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
140.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
142.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
145.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
147.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
152.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
155.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
157.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
160.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
162.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
165.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
167.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
170.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
172.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
177.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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	1676.880	1676.880	1676.880	1676.880	1676.880	1676.880	1676.880
2.5	1671.034	1693.495	1710.623	1693.906	1673.188	1656.881	1649.497
5.0	1667.753	1689.188	1708.059	1692.265	1671.445	1652.676	1644.471
7.5	1659.342	1677.804	1696.470	1683.239	1664.573	1645.394	1635.548
10.0	1643.856	1658.009	1675.957	1665.804	1651.548	1634.625	1624.061
12.5	1621.497	1632.471	1651.035	1641.497	1630.215	1619.343	1608.882
15.0	1593.498	1605.087	1623.343	1616.472	1605.498	1599.652	1588.165
17.5	1564.165	1570.934	1588.985	1585.396	1577.498	1574.319	1562.730
20.0	1530.730	1531.038	1549.397	1547.448	1545.807	1544.166	1533.294
22.5	1490.629	1488.475	1509.090	1506.218	1507.654	1509.192	1500.885
25.0	1445.604	1448.168	1470.629	1466.014	1463.860	1469.809	1463.347
27.5	1397.606	1404.067	1423.964	1423.861	1416.785	1426.118	1419.759
30.0	1348.786	1352.376	1371.863	1373.504	1368.581	1378.324	1370.324
32.5	1297.300	1296.480	1312.582	1318.325	1318.531	1323.966	1315.454
35.0	1238.943	1234.943	1249.507	1257.609	1261.814	1264.378	1255.866
37.5	1175.560	1170.534	1185.303	1193.200	1199.662	1200.585	1192.790
40.0	1108.690	1104.895	1118.536	1127.151	1133.407	1132.484	1125.305
42.5	1038.948	1037.204	1048.589	1059.768	1063.665	1062.127	1054.230
45.0	967.155	967.360	975.360	988.898	991.975	989.718	981.103
47.5	893.926	894.234	900.080	917.515	919.874	916.900	905.823
50.0	821.825	821.518	825.825	845.825	849.414	843.568	831.056
52.5	752.699	747.776	741.212	771.878	779.365	767.980	752.391
55.0	684.085	665.419	649.727	691.264	709.418	693.931	674.239
57.5	617.113	580.703	560.601	605.728	641.522	622.241	598.651
60.0	550.242	495.680	465.937	522.756	574.960	553.627	526.448
62.5	479.475	409.528	377.119	434.451	504.192	488.295	457.835
65.0	413.015	329.017	297.223	351.068	435.271	427.476	393.323
67.5	345.530	257.224	228.712	276.198	367.683	371.067	333.222
70.0	280.506	195.175	172.201	212.097	301.633	318.453	278.762
72.5	220.405	143.996	127.997	158.047	239.994	269.224	229.533
75.0	165.534	104.202	95.485	114.561	182.970	220.302	184.713
77.5	116.510	77.434	73.229	81.434	131.074	173.739	143.791
80.0	76.613	55.076	51.486	58.152	84.818	129.638	106.561

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82.5	43.589	30.871	27.179	34.461	48.717	87.485	71.383
85.0	17.743	10.769	10.051	12.615	21.333	46.665	43.589
87.5	4.820	3.897	3.692	4.615	5.641	13.743	20.820
90.0	0.000	0.000	0.000	0.000	0.000	0.308	2.769
92.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
95.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
97.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
102.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
107.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
112.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
115.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
117.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
120.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
122.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
125.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
127.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
132.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
135.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
137.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
140.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
142.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
145.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
147.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
152.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
155.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
157.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
160.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
162.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
165.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
167.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
170.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
172.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
177.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
180.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	610.30	N.A.	15.20
0-30	1281.71	N.A.	32.00
0-40	2061.4	N.A.	51.50
0-60	3418.85	N.A.	85.40
0-80	3969.47	N.A.	99.10
0-90	4004.33	N.A.	100.00
10-90	3845.52	N.A.	96.00
20-40	1451.1	N.A.	36.20
20-50	2203.46	N.A.	55.00
40-70	1736.68	N.A.	43.40
60-80	550.62	N.A.	13.80
70-80	171.40	N.A.	4.30
80-90	34.85	N.A.	0.90
90-110	0.04	N.A.	0.00
90-120	0.04	N.A.	0.00
90-130	0.04	N.A.	0.00
90-150	0.04	N.A.	0.00
90-180	0.04	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	4004.37	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	158.80
10-20	451.50
20-30	671.41
30-40	779.69
40-50	752.36
50-60	605.09
60-70	379.23
70-80	171.40
80-90	34.85
90-100	0.04
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

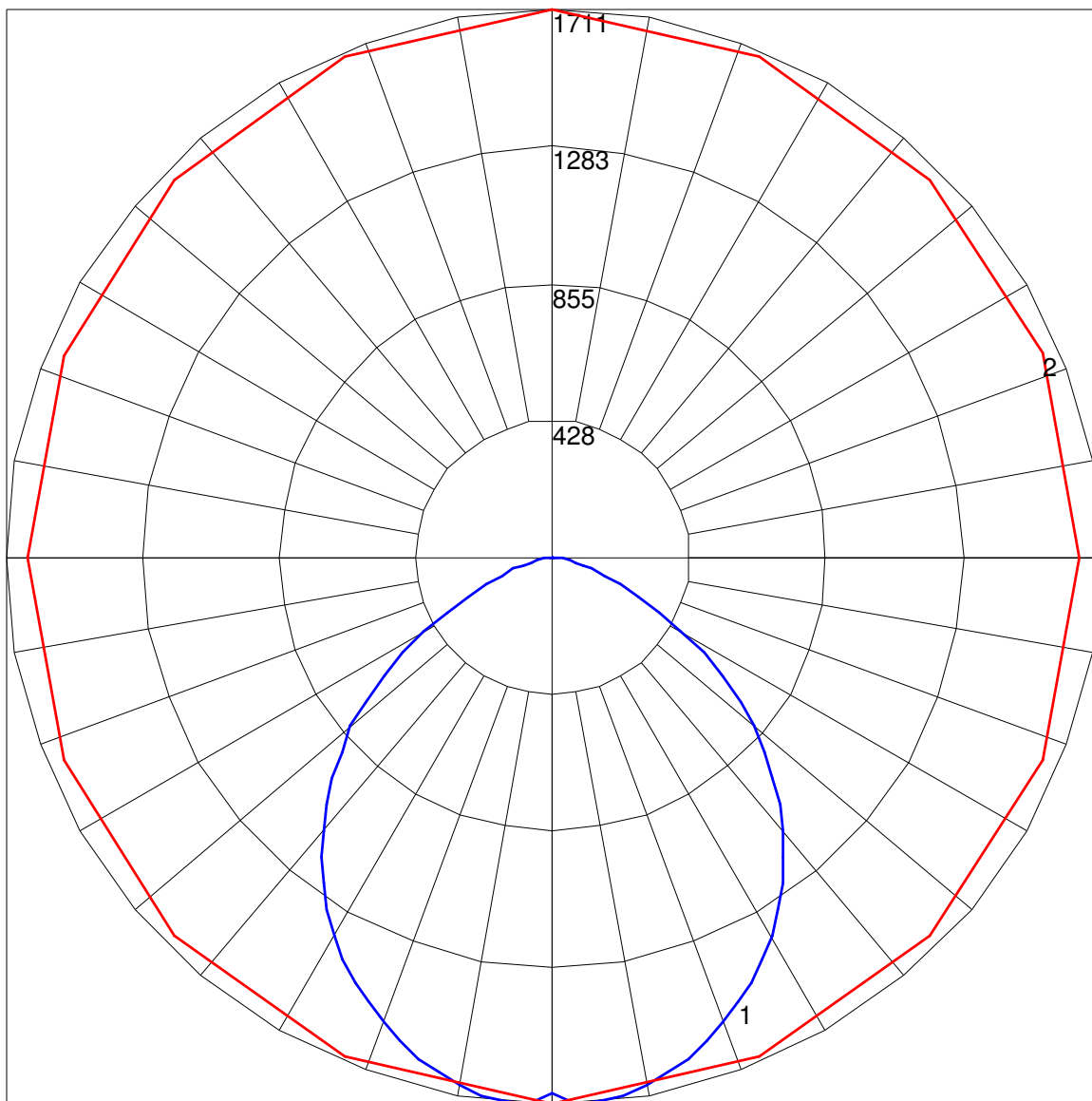
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	76	73
3	93	83	75	69	90	81	74	69	78	72	67	76	70	66	73	69	65	63
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57	55
5	79	66	58	52	76	65	57	51	63	56	51	61	55	50	59	54	50	48
6	73	60	52	45	71	59	51	45	57	50	45	56	49	44	54	48	44	42
7	68	55	46	40	66	54	46	40	52	45	40	51	44	40	50	44	39	37
8	63	50	42	36	61	49	42	36	48	41	36	47	40	36	46	40	35	34
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32	30
10	55	43	35	30	54	42	35	30	41	34	30	40	34	29	39	33	29	28

POLAR GRAPH



Maximum Candela = 1710.623 Located At Horizontal Angle = 90, Vertical Angle = 2.5
1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)