



IES INDOOR REPORT
PHOTOMETRIC FILENAME : HETG-AR22-L69-850-A-DIM-UNV.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] GEN FROM ORIG TEST
 [TESTLAB] Intertek
 [ISSUE DATE] 03/18/2019
 [MANUFAC] WILLIAMS INDOOR
 [OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.
 [LUMCAT] HETG-AR22-L69-850-A-DIM-UNV
 [LUMINAIRE] 2x2 RECESSED GRID LUMINAIRE
 [LAMP] LED
 [LAMPCAT] HLM 80 CRI 5000K 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	7023
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	132
Total Luminaire Watts	53.4
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.18
Spacing Criterion (Diagonal)	1.30
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.92 ft
Luminous Width (90-270)	1.92 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	7110	6822	6473
55	6565	6127	5474
65	5118	5444	4514
75	3248	4172	3624
85	1103	2081	2671

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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	2899.702	2899.702	2899.702	2899.702	2899.702	2899.702	2899.702	2899.702	2899.702	2899.702
2.5	2896.355	2906.397	2901.288	2891.599	2883.143	2891.775	2901.464	2906.220	2895.122	2906.220
5.0	2885.785	2894.241	2888.956	2880.676	2872.220	2880.500	2890.366	2894.770	2883.143	2894.770
7.5	2867.464	2875.039	2869.226	2860.593	2851.433	2860.241	2870.987	2874.511	2862.531	2874.511
10.0	2839.101	2847.205	2841.215	2831.350	2821.132	2830.645	2843.681	2847.205	2836.106	2847.205
12.5	2803.163	2810.386	2802.987	2792.417	2782.375	2791.712	2807.567	2812.324	2800.168	2812.324
15.0	2760.002	2766.344	2757.360	2746.437	2734.458	2743.971	2762.821	2769.163	2756.655	2769.163
17.5	2709.795	2714.199	2704.334	2690.240	2677.556	2687.422	2709.619	2717.370	2706.271	2717.370
20.0	2652.188	2654.478	2642.323	2626.996	2612.375	2622.592	2646.903	2657.473	2649.017	2657.473
22.5	2587.535	2587.535	2571.328	2554.592	2539.618	2549.835	2577.670	2590.882	2583.483	2590.882
25.0	2514.250	2511.431	2492.405	2473.379	2458.053	2469.151	2499.980	2516.540	2510.550	2516.540
27.5	2432.685	2429.161	2407.141	2386.001	2369.089	2380.716	2415.420	2435.327	2430.571	2435.327
30.0	2344.073	2340.021	2313.068	2290.518	2272.197	2285.409	2323.461	2346.011	2344.425	2346.011
32.5	2249.648	2244.363	2213.005	2188.165	2168.259	2182.704	2224.103	2250.352	2251.057	2250.352
35.0	2150.466	2143.067	2108.010	2079.823	2056.921	2074.538	2119.108	2148.352	2149.233	2148.352
37.5	2047.408	2037.014	1998.786	1966.195	1940.475	1960.382	2009.709	2041.771	2043.885	2041.771
40.0	1941.708	1927.967	1885.687	1847.812	1818.392	1842.174	1896.962	1931.138	1936.247	1931.138
42.5	1833.190	1817.511	1771.003	1726.961	1694.370	1721.148	1780.516	1818.568	1827.552	1818.568
45.0	1723.438	1706.174	1653.676	1604.349	1569.116	1597.479	1662.308	1704.940	1716.744	1704.940
47.5	1615.272	1594.308	1539.696	1485.261	1443.685	1469.758	1541.634	1590.432	1607.696	1590.432
50.0	1510.100	1487.551	1426.069	1363.177	1318.607	1347.675	1422.193	1474.338	1494.774	1474.338
52.5	1402.991	1378.856	1313.674	1243.208	1195.643	1227.000	1306.804	1363.353	1384.846	1363.353
55.0	1290.773	1270.690	1204.627	1126.938	1076.378	1109.321	1193.705	1252.897	1269.104	1252.897
57.5	1158.472	1157.591	1098.223	1014.367	962.398	995.870	1084.482	1138.212	1134.513	1138.212
60.0	1016.481	1027.580	995.341	906.377	854.408	887.880	979.486	1008.025	1000.450	1008.025
62.5	883.123	894.398	893.693	804.024	751.351	786.055	877.486	882.066	862.864	882.066
65.0	741.485	768.439	788.698	707.309	653.930	690.045	773.019	752.584	719.817	752.584
67.5	603.547	637.371	677.361	616.935	562.500	599.495	665.910	622.220	585.049	622.220
70.0	481.463	514.935	572.541	532.199	477.059	514.759	561.091	500.842	464.199	500.842
72.5	375.587	405.183	468.603	451.867	396.375	435.132	456.095	390.738	359.028	390.738
75.0	288.209	309.877	370.126	374.178	321.504	358.675	358.675	296.488	273.763	296.488
77.5	223.908	229.721	279.048	296.488	253.680	282.747	268.654	219.856	212.105	219.856
80.0	180.923	183.742	196.250	221.089	189.555	209.991	188.674	181.099	177.400	181.099
82.5	91.959	107.462	136.529	149.565	130.716	145.514	140.581	115.918	101.648	115.918
85.0	32.943	40.166	62.187	84.031	79.803	83.855	66.591	42.632	34.000	42.632
87.5	10.746	13.565	17.793	31.181	35.233	31.358	18.674	13.741	10.570	13.741
90.0	1.762	2.290	1.762	0.705	0.528	1.233	2.642	2.995	2.114	2.995
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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CANDELA TABULATION - (Cont.)

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	2899.702	2899.702	2899.702	2899.702	2899.702	2899.702	2899.702
2.5	2901.464	2891.775	2883.143	2891.599	2901.288	2906.397	2896.355
5.0	2890.366	2880.500	2872.220	2880.676	2888.956	2894.241	2885.785
7.5	2870.987	2860.241	2851.433	2860.593	2869.226	2875.039	2867.464
10.0	2843.681	2830.645	2821.132	2831.350	2841.215	2847.205	2839.101
12.5	2807.567	2791.712	2782.375	2792.417	2802.987	2810.386	2803.163
15.0	2762.821	2743.971	2734.458	2746.437	2757.360	2766.344	2760.002
17.5	2709.619	2687.422	2677.556	2690.240	2704.334	2714.199	2709.795
20.0	2646.903	2622.592	2612.375	2626.996	2642.323	2654.478	2652.188
22.5	2577.670	2549.835	2539.618	2554.592	2571.328	2587.535	2587.535
25.0	2499.980	2469.151	2458.053	2473.379	2492.405	2511.431	2514.250
27.5	2415.420	2380.716	2369.089	2386.001	2407.141	2429.161	2432.685
30.0	2323.461	2285.409	2272.197	2290.518	2313.068	2340.021	2344.073
32.5	2224.103	2182.704	2168.259	2188.165	2213.005	2244.363	2249.648
35.0	2119.108	2074.538	2056.921	2079.823	2108.010	2143.067	2150.466
37.5	2009.709	1960.382	1940.475	1966.195	1998.786	2037.014	2047.408
40.0	1896.962	1842.174	1818.392	1847.812	1885.687	1927.967	1941.708
42.5	1780.516	1721.148	1694.370	1726.961	1771.003	1817.511	1833.190
45.0	1662.308	1597.479	1569.116	1604.349	1653.676	1706.174	1723.438
47.5	1541.634	1469.758	1443.685	1485.261	1539.696	1594.308	1615.272
50.0	1422.193	1347.675	1318.607	1363.177	1426.069	1487.551	1510.100
52.5	1306.804	1227.000	1195.643	1243.208	1313.674	1378.856	1402.991
55.0	1193.705	1109.321	1076.378	1126.938	1204.627	1270.690	1290.773
57.5	1084.482	995.870	962.398	1014.367	1098.223	1157.591	1158.472
60.0	979.486	887.880	854.408	906.377	995.341	1027.580	1016.481
62.5	877.486	786.055	751.351	804.024	893.693	894.398	883.123
65.0	773.019	690.045	653.930	707.309	788.698	768.439	741.485
67.5	665.910	599.495	562.500	616.935	677.361	637.371	603.547
70.0	561.091	514.759	477.059	532.199	572.541	514.935	481.463
72.5	456.095	435.132	396.375	451.867	468.603	405.183	375.587
75.0	358.675	358.675	321.504	374.178	370.126	309.877	288.209
77.5	268.654	282.747	253.680	296.488	279.048	229.721	223.908
80.0	188.674	209.991	189.555	221.089	196.250	183.742	180.923

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CANDELA TABULATION - (Cont.)

82.5	140.581	145.514	130.716	149.565	136.529	107.462	91.959
85.0	66.591	83.855	79.803	84.031	62.187	40.166	32.943
87.5	18.674	31.358	35.233	31.181	17.793	13.565	10.746
90.0	2.642	1.233	0.528	0.705	1.762	2.290	1.762
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	1050.21	N.A.	15.00
0-30	2196.59	N.A.	31.30
0-40	3514.54	N.A.	50.00
0-60	5851.68	N.A.	83.30
0-80	6938.47	N.A.	98.80
0-90	7022.41	N.A.	100.00
10-90	6748.49	N.A.	96.10
20-40	2464.34	N.A.	35.10
20-50	3738.91	N.A.	53.20
40-70	3063.6	N.A.	43.60
60-80	1086.79	N.A.	15.50
70-80	360.33	N.A.	5.10
80-90	83.94	N.A.	1.20
90-110	0.24	N.A.	0.00
90-120	0.24	N.A.	0.00
90-130	0.24	N.A.	0.00
90-150	0.24	N.A.	0.00
90-180	0.24	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	7022.66	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	273.92
10-20	776.28
20-30	1146.38
30-40	1317.95
40-50	1274.58
50-60	1062.56
60-70	726.46
70-80	360.33
80-90	83.94
90-100	0.24
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

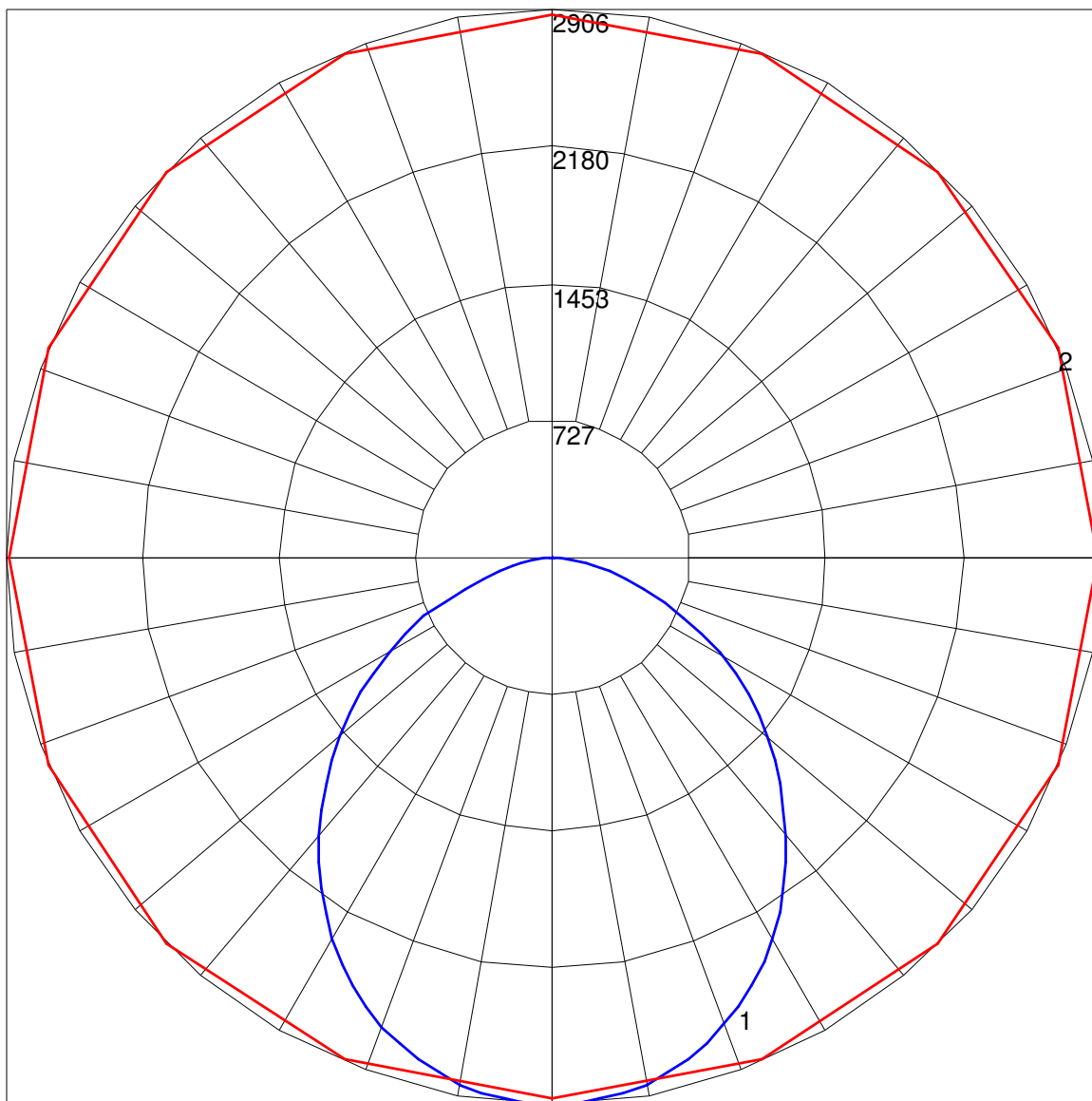
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	88	85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	59	53	49	47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	37
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30
10	55	42	34	29	54	41	34	29	40	34	29	40	33	29	39	33	29	27

POLAR GRAPH



Maximum Candela = 2906.397 Located At Horizontal Angle = 22.5, Vertical Angle = 2.5
1 - Vertical Plane Through Horizontal Angles (22.5 - 202.5) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)