



IES INDOOR REPORT
PHOTOMETRIC FILENAME : HETG-AR22-L69-830-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-L69-830-A-DIM-UNV
[LUMINAIRE] 2x2 RECESSED GRID LUMINAIRE
[LAMP] LED
[LAMPCAT] HLM 80 CRI 3000K 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	6559
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	123
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	6640	6371	6046
55	6131	5722	5113
65	4780	5084	4216
75	3034	3896	3384
85	1030	1944	2495

IES INDOOR REPORT
PHOTOMETRIC FILENAME : HETG-AR22-L69-830-A-DIM-UNV.IES

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	2708.095	2708.095	2708.095	2708.095	2708.095	2708.095	2708.095	2708.095	2708.095	2708.095
2.5	2704.969	2714.347	2709.575	2700.526	2692.629	2700.691	2709.740	2714.182	2703.817	2714.182
5.0	2695.097	2702.994	2698.059	2690.326	2682.429	2690.161	2699.375	2703.488	2692.629	2703.488
7.5	2677.986	2685.061	2679.632	2671.570	2663.015	2671.241	2681.277	2684.567	2673.380	2684.567
10.0	2651.498	2659.066	2653.472	2644.259	2634.716	2643.600	2655.775	2659.066	2648.701	2659.066
12.5	2617.934	2624.680	2617.770	2607.898	2598.520	2607.240	2622.048	2626.490	2615.138	2626.490
15.0	2577.626	2583.549	2575.158	2564.957	2553.769	2562.654	2580.258	2586.181	2574.500	2586.181
17.5	2530.736	2534.849	2525.635	2512.473	2500.628	2509.841	2530.571	2537.810	2527.445	2537.810
20.0	2476.936	2479.075	2467.722	2453.409	2439.753	2449.296	2472.000	2481.872	2473.974	2481.872
22.5	2416.555	2416.555	2401.419	2385.789	2371.804	2381.346	2407.341	2419.681	2412.771	2419.681
25.0	2348.112	2345.480	2327.711	2309.942	2295.628	2305.994	2334.786	2350.251	2344.657	2350.251
27.5	2271.937	2268.646	2248.080	2228.337	2212.543	2223.402	2255.813	2274.405	2269.962	2274.405
30.0	2189.180	2185.396	2160.224	2139.164	2122.054	2134.393	2169.931	2190.990	2189.509	2190.990
32.5	2100.994	2096.059	2066.773	2043.575	2024.983	2038.475	2077.138	2101.653	2102.311	2101.653
35.0	2008.366	2001.456	1968.716	1942.392	1921.003	1937.456	1979.081	2006.392	2007.215	2006.392
37.5	1912.119	1902.412	1866.710	1836.272	1812.252	1830.843	1876.910	1906.854	1908.828	1906.854
40.0	1813.403	1800.570	1761.084	1725.711	1698.235	1720.446	1771.614	1803.532	1808.303	1803.532
42.5	1712.055	1697.413	1653.978	1612.846	1582.409	1607.417	1662.862	1698.400	1706.791	1698.400
45.0	1609.556	1593.432	1544.404	1498.336	1465.431	1491.920	1552.465	1592.281	1603.304	1592.281
47.5	1508.537	1488.958	1437.955	1387.117	1348.289	1372.639	1439.765	1485.339	1501.462	1485.339
50.0	1410.315	1389.256	1331.836	1273.101	1231.476	1258.622	1328.217	1376.916	1396.001	1376.916
52.5	1310.283	1287.743	1226.869	1161.059	1116.637	1145.922	1220.452	1273.265	1293.337	1273.265
55.0	1205.480	1186.725	1125.027	1052.472	1005.253	1036.019	1114.827	1170.107	1185.244	1170.107
57.5	1081.922	1081.099	1025.654	947.340	898.804	930.064	1012.821	1063.001	1059.546	1063.001
60.0	949.314	959.679	929.571	846.485	797.950	829.210	914.763	941.417	934.342	941.417
62.5	824.768	835.297	834.639	750.896	701.703	734.114	819.503	823.781	805.847	823.781
65.0	692.489	717.662	736.582	660.571	610.720	644.448	721.939	702.854	672.252	702.854
67.5	563.665	595.254	632.602	576.169	525.331	559.881	621.908	581.105	546.390	581.105
70.0	449.649	480.909	534.709	497.032	445.536	480.744	524.015	467.747	433.525	467.747
72.5	350.769	378.409	437.639	422.009	370.183	406.379	425.957	364.918	335.304	364.918
75.0	269.164	289.401	345.669	349.453	300.260	334.975	334.975	276.897	255.673	276.897
77.5	209.112	214.542	260.609	276.897	236.917	264.064	250.902	205.328	198.089	205.328
80.0	168.968	171.600	183.282	206.480	177.030	196.115	176.207	169.133	165.677	169.133
82.5	85.882	100.361	127.507	139.682	122.078	135.898	131.292	108.258	94.931	108.258
85.0	30.766	37.512	58.078	78.479	74.530	78.314	62.191	39.815	31.753	39.815
87.5	10.036	12.668	16.617	29.121	32.905	29.286	17.440	12.833	9.872	12.833
90.0	1.645	2.139	1.645	0.658	0.494	1.152	2.468	2.797	1.974	2.797
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

IES INDOOR REPORT
PHOTOMETRIC FILENAME : HETG-AR22-L69-830-A-DIM-UNV.IES

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	2708.095	2708.095	2708.095	2708.095	2708.095	2708.095	2708.095
2.5	2709.740	2700.691	2692.629	2700.526	2709.575	2714.347	2704.969
5.0	2699.375	2690.161	2682.429	2690.326	2698.059	2702.994	2695.097
7.5	2681.277	2671.241	2663.015	2671.570	2679.632	2685.061	2677.986
10.0	2655.775	2643.600	2634.716	2644.259	2653.472	2659.066	2651.498
12.5	2622.048	2607.240	2598.520	2607.898	2617.770	2624.680	2617.934
15.0	2580.258	2562.654	2553.769	2564.957	2575.158	2583.549	2577.626
17.5	2530.571	2509.841	2500.628	2512.473	2525.635	2534.849	2530.736
20.0	2472.000	2449.296	2439.753	2453.409	2467.722	2479.075	2476.936
22.5	2407.341	2381.346	2371.804	2385.789	2401.419	2416.555	2416.555
25.0	2334.786	2305.994	2295.628	2309.942	2327.711	2345.480	2348.112
27.5	2255.813	2223.402	2212.543	2228.337	2248.080	2268.646	2271.937
30.0	2169.931	2134.393	2122.054	2139.164	2160.224	2185.396	2189.180
32.5	2077.138	2038.475	2024.983	2043.575	2066.773	2096.059	2100.994
35.0	1979.081	1937.456	1921.003	1942.392	1968.716	2001.456	2008.366
37.5	1876.910	1830.843	1812.252	1836.272	1866.710	1902.412	1912.119
40.0	1771.614	1720.446	1698.235	1725.711	1761.084	1800.570	1813.403
42.5	1662.862	1607.417	1582.409	1612.846	1653.978	1697.413	1712.055
45.0	1552.465	1491.920	1465.431	1498.336	1544.404	1593.432	1609.556
47.5	1439.765	1372.639	1348.289	1387.117	1437.955	1488.958	1508.537
50.0	1328.217	1258.622	1231.476	1273.101	1331.836	1389.256	1410.315
52.5	1220.452	1145.922	1116.637	1161.059	1226.869	1287.743	1310.283
55.0	1114.827	1036.019	1005.253	1052.472	1125.027	1186.725	1205.480
57.5	1012.821	930.064	898.804	947.340	1025.654	1081.099	1081.922
60.0	914.763	829.210	797.950	846.485	929.571	959.679	949.314
62.5	819.503	734.114	701.703	750.896	834.639	835.297	824.768
65.0	721.939	644.448	610.720	660.571	736.582	717.662	692.489
67.5	621.908	559.881	525.331	576.169	632.602	595.254	563.665
70.0	524.015	480.744	445.536	497.032	534.709	480.909	449.649
72.5	425.957	406.379	370.183	422.009	437.639	378.409	350.769
75.0	334.975	334.975	300.260	349.453	345.669	289.401	269.164
77.5	250.902	264.064	236.917	276.897	260.609	214.542	209.112
80.0	176.207	196.115	177.030	206.480	183.282	171.600	168.968

IES INDOOR REPORT
PHOTOMETRIC FILENAME : HETG-AR22-L69-830-A-DIM-UNV.IES

CANDELA TABULATION - (Cont.)

82.5	131.292	135.898	122.078	139.682	127.507	100.361	85.882
85.0	62.191	78.314	74.530	78.479	58.078	37.512	30.766
87.5	17.440	29.286	32.905	29.121	16.617	12.668	10.036
90.0	2.468	1.152	0.494	0.658	1.645	2.139	1.645
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

IES INDOOR REPORT
PHOTOMETRIC FILENAME : HETG-AR22-L69-830-A-DIM-UNV.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	980.81	N.A.	15.00
0-30	2051.44	N.A.	31.30
0-40	3282.31	N.A.	50.00
0-60	5465.01	N.A.	83.30
0-80	6479.99	N.A.	98.80
0-90	6558.38	N.A.	100.00
10-90	6302.56	N.A.	96.10
20-40	2301.5	N.A.	35.10
20-50	3491.85	N.A.	53.20
40-70	2861.16	N.A.	43.60
60-80	1014.98	N.A.	15.50
70-80	336.52	N.A.	5.10
80-90	78.39	N.A.	1.20
90-110	0.23	N.A.	0.00
90-120	0.23	N.A.	0.00
90-130	0.23	N.A.	0.00
90-150	0.23	N.A.	0.00
90-180	0.23	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	6558.61	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	255.82
10-20	724.99
20-30	1070.63
30-40	1230.86
40-50	1190.36
50-60	992.35
60-70	678.46
70-80	336.52
80-90	78.39
90-100	0.23
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

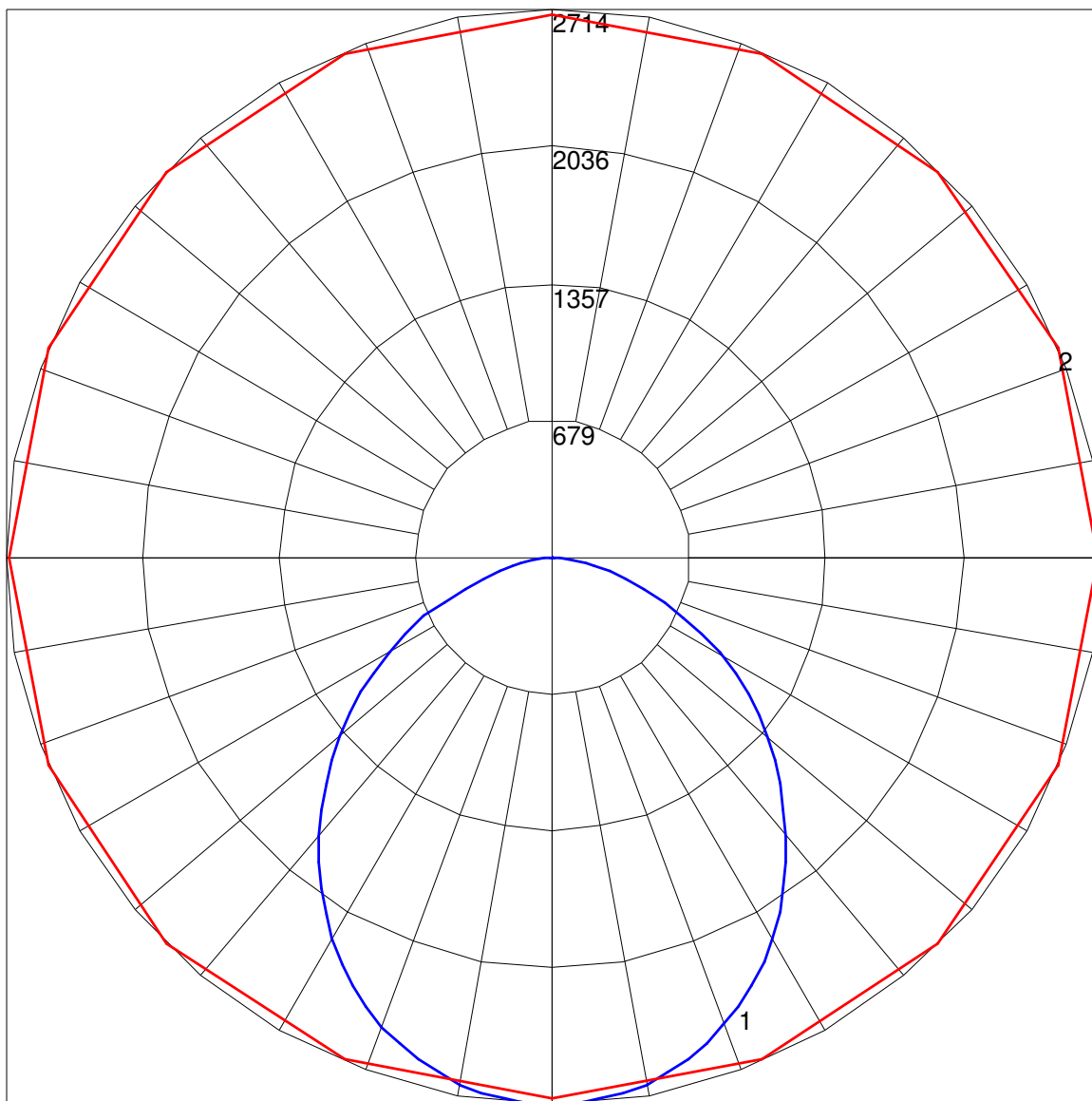
IES INDOOR REPORT
PHOTOMETRIC FILENAME : HETG-AR22-L69-830-A-DIM-UNV.IES

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	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 = 2714.347 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.)