



IES INDOOR REPORT
PHOTOMETRIC FILENAME : HETG-AR22-L69-840-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-L69-840-A-DIM-UNV
 [LUMINAIRE] 2x2 RECESSED GRID LUMINAIRE
 [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	6824
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	128
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	6909	6629	6290
55	6379	5953	5319
65	4973	5290	4386
75	3156	4053	3521
85	1071	2022	2595

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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	2817.526	2817.526	2817.526	2817.526	2817.526	2817.526	2817.526	2817.526	2817.526	2817.526
2.5	2814.273	2824.030	2819.066	2809.652	2801.435	2809.823	2819.237	2823.859	2813.075	2823.859
5.0	2804.003	2812.219	2807.084	2799.039	2790.822	2798.868	2808.453	2812.733	2801.435	2812.733
7.5	2786.201	2793.561	2787.913	2779.525	2770.624	2779.183	2789.624	2793.048	2781.408	2793.048
10.0	2758.642	2766.516	2760.696	2751.110	2741.182	2750.425	2763.092	2766.516	2755.732	2766.516
12.5	2723.722	2730.740	2723.551	2713.281	2703.524	2712.596	2728.002	2732.623	2720.812	2732.623
15.0	2681.785	2687.947	2679.217	2668.604	2656.964	2666.208	2684.523	2690.686	2678.532	2690.686
17.5	2633.000	2637.279	2627.694	2614.000	2601.675	2611.261	2632.829	2640.360	2629.576	2640.360
20.0	2577.026	2579.251	2567.440	2552.548	2538.341	2548.269	2571.891	2582.161	2573.945	2582.161
22.5	2514.205	2514.205	2498.457	2482.196	2467.646	2477.574	2504.619	2517.457	2510.268	2517.457
25.0	2442.997	2440.258	2421.771	2403.284	2388.392	2399.176	2429.132	2445.222	2439.402	2445.222
27.5	2363.743	2360.320	2338.923	2318.382	2301.949	2313.247	2346.968	2366.311	2361.689	2366.311
30.0	2277.643	2273.706	2247.516	2225.606	2207.804	2220.642	2257.615	2279.525	2277.985	2279.525
32.5	2185.893	2180.758	2150.289	2126.153	2106.811	2120.847	2161.073	2186.578	2187.263	2186.578
35.0	2089.522	2082.333	2048.269	2020.881	1998.629	2015.746	2059.053	2087.468	2088.324	2087.468
37.5	1989.385	1979.286	1942.141	1910.474	1885.483	1904.825	1952.754	1983.908	1985.962	1983.908
40.0	1886.681	1873.329	1832.248	1795.445	1766.859	1789.968	1843.203	1876.410	1881.375	1876.410
42.5	1781.238	1766.003	1720.813	1678.020	1646.352	1672.371	1730.057	1767.030	1775.760	1767.030
45.0	1674.596	1657.821	1606.811	1558.883	1524.648	1552.207	1615.199	1656.623	1668.092	1656.623
47.5	1569.495	1549.126	1496.062	1443.169	1402.772	1428.105	1497.945	1545.360	1562.135	1545.360
50.0	1467.304	1445.394	1385.654	1324.545	1281.238	1309.482	1381.888	1432.556	1452.412	1432.556
52.5	1363.231	1339.780	1276.445	1207.976	1161.759	1192.228	1269.769	1324.716	1345.600	1324.716
55.0	1254.193	1234.679	1170.488	1095.001	1045.874	1077.883	1159.876	1217.390	1233.138	1217.390
57.5	1125.641	1124.785	1067.099	985.620	935.124	967.647	1053.748	1105.956	1102.361	1105.956
60.0	987.675	998.459	967.134	880.691	830.194	862.717	951.728	979.458	972.098	979.458
62.5	858.096	869.051	868.366	781.239	730.058	763.779	852.618	857.069	838.411	857.069
65.0	720.472	746.661	766.346	687.264	635.398	670.489	751.112	731.256	699.417	731.256
67.5	586.442	619.308	658.164	599.452	546.559	582.505	647.038	604.587	568.469	604.587
70.0	467.819	500.342	556.316	517.117	463.539	500.171	545.189	486.648	451.044	486.648
72.5	364.943	393.700	455.323	439.062	385.142	422.800	443.170	379.664	348.853	379.664
75.0	280.041	301.095	359.637	363.574	312.393	348.510	348.510	288.086	266.005	288.086
77.5	217.562	223.211	271.140	288.086	246.491	274.734	261.040	213.625	206.094	213.625
80.0	175.796	178.535	190.688	214.823	184.183	204.040	183.327	175.967	172.372	175.967
82.5	89.353	104.416	132.660	145.327	127.011	141.390	136.597	112.633	98.767	112.633
85.0	32.010	39.028	60.424	81.650	77.542	81.479	64.704	41.424	33.037	41.424
87.5	10.442	13.180	17.289	30.298	34.235	30.469	18.144	13.352	10.270	13.352
90.0	1.712	2.225	1.712	0.685	0.514	1.198	2.568	2.910	2.054	2.910
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	2817.526	2817.526	2817.526	2817.526	2817.526	2817.526	2817.526
2.5	2819.237	2809.823	2801.435	2809.652	2819.066	2824.030	2814.273
5.0	2808.453	2798.868	2790.822	2799.039	2807.084	2812.219	2804.003
7.5	2789.624	2779.183	2770.624	2779.525	2787.913	2793.561	2786.201
10.0	2763.092	2750.425	2741.182	2751.110	2760.696	2766.516	2758.642
12.5	2728.002	2712.596	2703.524	2713.281	2723.551	2730.740	2723.722
15.0	2684.523	2666.208	2656.964	2668.604	2679.217	2687.947	2681.785
17.5	2632.829	2611.261	2601.675	2614.000	2627.694	2637.279	2633.000
20.0	2571.891	2548.269	2538.341	2552.548	2567.440	2579.251	2577.026
22.5	2504.619	2477.574	2467.646	2482.196	2498.457	2514.205	2514.205
25.0	2429.132	2399.176	2388.392	2403.284	2421.771	2440.258	2442.997
27.5	2346.968	2313.247	2301.949	2318.382	2338.923	2360.320	2363.743
30.0	2257.615	2220.642	2207.804	2225.606	2247.516	2273.706	2277.643
32.5	2161.073	2120.847	2106.811	2126.153	2150.289	2180.758	2185.893
35.0	2059.053	2015.746	1998.629	2020.881	2048.269	2082.333	2089.522
37.5	1952.754	1904.825	1885.483	1910.474	1942.141	1979.286	1989.385
40.0	1843.203	1789.968	1766.859	1795.445	1832.248	1873.329	1886.681
42.5	1730.057	1672.371	1646.352	1678.020	1720.813	1766.003	1781.238
45.0	1615.199	1552.207	1524.648	1558.883	1606.811	1657.821	1674.596
47.5	1497.945	1428.105	1402.772	1443.169	1496.062	1549.126	1569.495
50.0	1381.888	1309.482	1281.238	1324.545	1385.654	1445.394	1467.304
52.5	1269.769	1192.228	1161.759	1207.976	1276.445	1339.780	1363.231
55.0	1159.876	1077.883	1045.874	1095.001	1170.488	1234.679	1254.193
57.5	1053.748	967.647	935.124	985.620	1067.099	1124.785	1125.641
60.0	951.728	862.717	830.194	880.691	967.134	998.459	987.675
62.5	852.618	763.779	730.058	781.239	868.366	869.051	858.096
65.0	751.112	670.489	635.398	687.264	766.346	746.661	720.472
67.5	647.038	582.505	546.559	599.452	658.164	619.308	586.442
70.0	545.189	500.171	463.539	517.117	556.316	500.342	467.819
72.5	443.170	422.800	385.142	439.062	455.323	393.700	364.943
75.0	348.510	348.510	312.393	363.574	359.637	301.095	280.041
77.5	261.040	274.734	246.491	288.086	271.140	223.211	217.562
80.0	183.327	204.040	184.183	214.823	190.688	178.535	175.796

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CANDELA TABULATION - (Cont.)

82.5	136.597	141.390	127.011	145.327	132.660	104.416	89.353
85.0	64.704	81.479	77.542	81.650	60.424	39.028	32.010
87.5	18.144	30.469	34.235	30.298	17.289	13.180	10.442
90.0	2.568	1.198	0.514	0.685	1.712	2.225	1.712
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	1020.44	N.A.	15.00
0-30	2134.34	N.A.	31.30
0-40	3414.94	N.A.	50.00
0-60	5685.84	N.A.	83.30
0-80	6741.84	N.A.	98.80
0-90	6823.4	N.A.	100.00
10-90	6557.24	N.A.	96.10
20-40	2394.5	N.A.	35.10
20-50	3632.96	N.A.	53.20
40-70	2976.77	N.A.	43.60
60-80	1055.99	N.A.	15.50
70-80	350.12	N.A.	5.10
80-90	81.56	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	6823.63	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	266.16
10-20	754.28
20-30	1113.9
30-40	1280.6
40-50	1238.46
50-60	1032.44
60-70	705.87
70-80	350.12
80-90	81.56
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

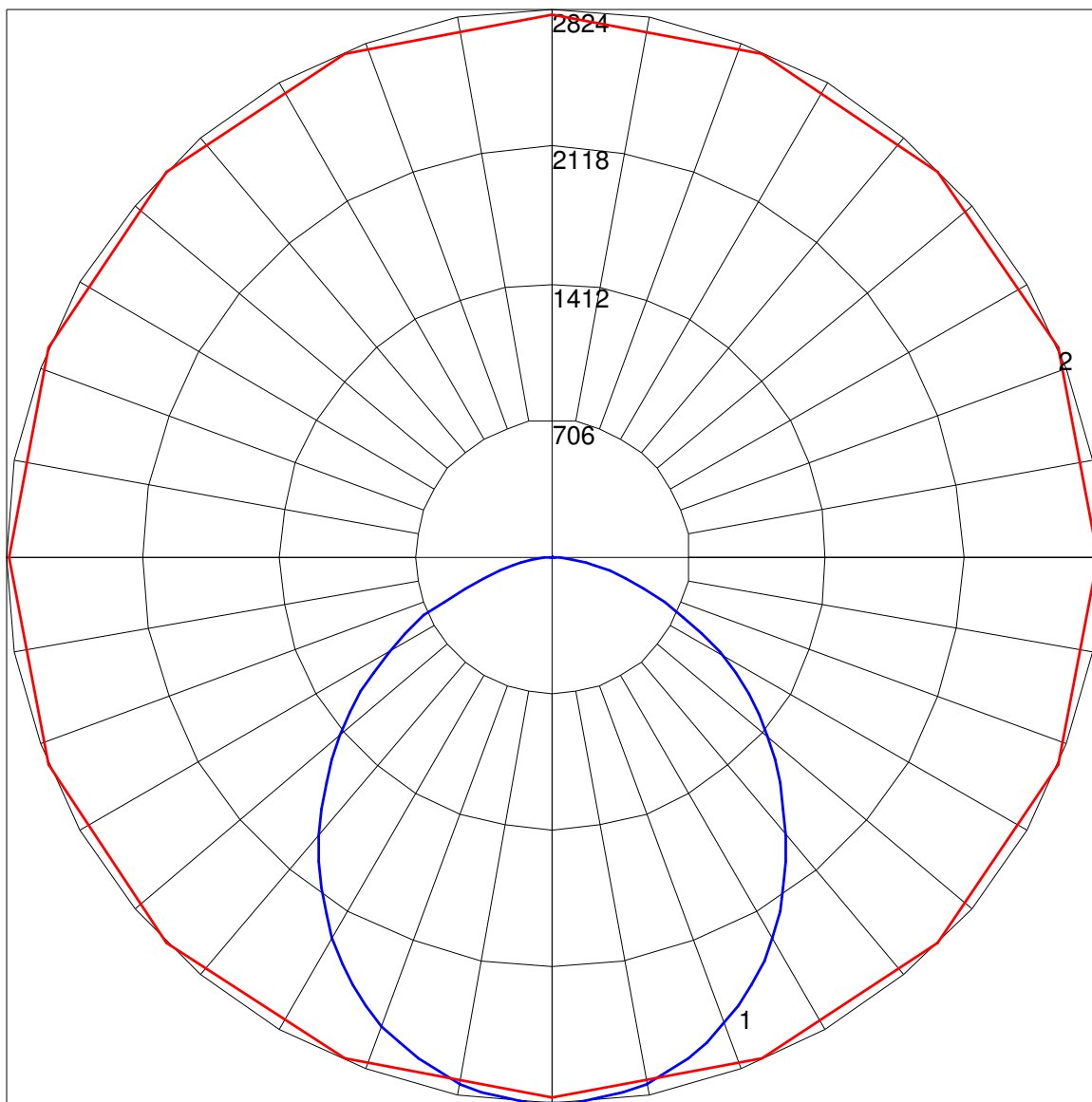
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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 = 2824.03 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.)