H.E. WILLIAMS, INC.

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : PT-14-L45-835-SA-DIM-UNV_.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002
[TEST] GEN FROM BALLABS TEST NO. 20790.0
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
[ISSUEDATE] 2023-06-23
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO
[LUMINAIRE] 1 X 4 RECESSED LED LUMINAIRE
[MORE] W/ FROSTED SQUARE RIBBED LENS
[MORE] 0-10V LED DRIVER
[LUMCAT] PT-14-L45-835-SA-DIM-UNV
[LAMPCAT] HLM 22" LED ARRAYS

**CHARACTERISTICS**

| | |
|---|---|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 4446 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 146 |
| Total Luminaire Watts | 30.4 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 1.20 |
| Spacing Criterion (90-270) | 1.16 |
| Spacing Criterion (Diagonal) | 1.28 |
| Basic Luminous Shape | Rectangular |
| Luminous Length (0-180) | 3.92 ft |
| Luminous Width (90-270) | 0.98 ft |
| Luminous Height | 0.00 ft |

**LUMINANCE DATA (cd/sq.m)**

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---|---|---|---|
| 45 | 3972 | 3849 | 3821 |
| 55 | 3575 | 3596 | 3675 |
| 65 | 3123 | 3456 | 3786 |
| 75 | 2521 | 3490 | 4354 |
| 85 | 1169 | 3767 | 4551 |

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**CANDELA TABULATION**

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|---|---|---|---|---|---|
| **0** | 1731.267 | 1731.267 | 1731.267 | 1731.267 | 1731.267 |
| **5** | 1739.868 | 1720.754 | 1711.197 | 1687.304 | 1709.286 |
| **10** | 1706.418 | 1685.871 | 1673.446 | 1671.057 | 1674.402 |
| **15** | 1650.032 | 1629.962 | 1618.971 | 1615.148 | 1612.281 |
| **20** | 1575.008 | 1555.416 | 1537.258 | 1528.179 | 1529.612 |
| **25** | 1481.349 | 1465.102 | 1457.456 | 1433.563 | 1424.484 |
| **30** | 1371.920 | 1355.195 | 1337.993 | 1325.091 | 1317.923 |
| **35** | 1258.191 | 1242.900 | 1222.352 | 1204.671 | 1194.636 |
| **40** | 1127.737 | 1115.312 | 1093.809 | 1079.951 | 1071.828 |
| **45** | 1001.583 | 987.247 | 970.522 | 962.877 | 963.355 |
| **50** | 868.262 | 863.961 | 845.802 | 849.147 | 853.448 |
| **55** | 731.117 | 731.117 | 735.418 | 746.887 | 751.665 |
| **60** | 603.530 | 606.397 | 625.989 | 645.581 | 657.528 |
| **65** | 470.687 | 487.889 | 520.861 | 554.789 | 570.558 |
| **70** | 343.100 | 371.771 | 419.078 | 464.475 | 483.111 |
| **75** | 232.715 | 262.342 | 322.074 | 380.850 | 401.876 |
| **80** | 121.853 | 172.505 | 234.627 | 296.748 | 316.340 |
| **85** | 36.317 | 81.713 | 117.074 | 132.844 | 141.445 |
| **90** | 0.000 | 1.434 | 1.911 | 3.345 | 1.911 |

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## ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-20 | 619.47 | N.A. | 13.90 |
| 0-30 | 1287.11 | N.A. | 29.00 |
| 0-40 | 2052.1 | N.A. | 46.20 |
| 0-60 | 3468.07 | N.A. | 78.00 |
| 0-80 | 4325.11 | N.A. | 97.30 |
| 0-90 | 4445.68 | N.A. | 100.00 |
| 10-90 | 4283.22 | N.A. | 96.30 |
| 20-40 | 1432.63 | N.A. | 32.20 |
| 20-50 | 2186.39 | N.A. | 49.20 |
| 40-70 | 1932.64 | N.A. | 43.50 |
| 60-80 | 857.04 | N.A. | 19.30 |
| 70-80 | 340.37 | N.A. | 7.70 |
| 80-90 | 120.57 | N.A. | 2.70 |
| 90-110 | 0.00 | N.A. | 0.00 |
| 90-120 | 0.00 | N.A. | 0.00 |
| 90-130 | 0.00 | N.A. | 0.00 |
| 90-150 | 0.00 | N.A. | 0.00 |
| 90-180 | 0.00 | N.A. | 0.00 |
| 110-180 | 0.00 | N.A. | 0.00 |
| 0-180 | 4445.68 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A.%

## ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---|---|
| 0-10 | 162.46 |
| 10-20 | 457.00 |
| 20-30 | 667.64 |
| 30-40 | 764.99 |
| 40-50 | 753.76 |
| 50-60 | 662.22 |
| 60-70 | 516.67 |
| 70-80 | 340.37 |
| 80-90 | 120.57 |
| 90-100 | 0.00 |
| 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 | 108 | 103 | 99 | 95 | 106 | 101 | 97 | 94 | 97 | 94 | 91 | 93 | 90 | 88 | 89 | 87 | 85 | 83 |
| 2 | 99 | 90 | 83 | 77 | 96 | 88 | 82 | 77 | 85 | 79 | 75 | 81 | 77 | 73 | 78 | 75 | 71 | 69 |
| 3 | 90 | 79 | 71 | 65 | 87 | 78 | 70 | 64 | 75 | 68 | 63 | 72 | 66 | 62 | 69 | 65 | 61 | 58 |
| 4 | 82 | 70 | 62 | 55 | 80 | 69 | 61 | 55 | 67 | 59 | 54 | 64 | 58 | 53 | 62 | 57 | 52 | 50 |
| 5 | 76 | 63 | 54 | 47 | 74 | 62 | 54 | 47 | 60 | 52 | 47 | 58 | 51 | 46 | 56 | 50 | 46 | 44 |
| 6 | 70 | 57 | 48 | 42 | 68 | 56 | 48 | 41 | 54 | 47 | 41 | 53 | 46 | 41 | 51 | 45 | 40 | 38 |
| 7 | 65 | 52 | 43 | 37 | 64 | 51 | 43 | 37 | 49 | 42 | 36 | 48 | 41 | 36 | 47 | 41 | 36 | 34 |
| 8 | 61 | 47 | 39 | 33 | 59 | 47 | 39 | 33 | 45 | 38 | 33 | 44 | 37 | 33 | 43 | 37 | 32 | 30 |
| 9 | 57 | 44 | 35 | 30 | 55 | 43 | 35 | 30 | 42 | 35 | 30 | 41 | 34 | 29 | 40 | 34 | 29 | 27 |
| 10 | 53 | 40 | 32 | 27 | 52 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 31 | 27 | 37 | 31 | 27 | 25 |

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**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 | 16.2 | 17.8 | 16.6 | 18.2 | 18.5 | 16.5 | 18.1 | 16.9 | 18.5 | 18.8 |
| | 3H | 17.9 | 19.3 | 18.2 | 19.7 | 20.0 | 18.8 | 20.3 | 19.2 | 20.6 | 20.9 |
| | 4H | 18.5 | 19.8 | 18.9 | 20.2 | 20.6 | 19.9 | 21.3 | 20.3 | 21.6 | 22.0 |
| | 6H | 18.8 | 20.1 | 19.3 | 20.5 | 20.9 | 20.9 | 22.2 | 21.3 | 22.6 | 23.0 |
| | 8H | 18.9 | 20.2 | 19.4 | 20.6 | 21.0 | 21.3 | 22.6 | 21.7 | 23.0 | 23.4 |
| | 12H | 19.0 | 20.2 | 19.4 | 20.6 | 21.0 | 21.6 | 22.8 | 22.0 | 23.2 | 23.6 |
| 4H | 2H | 16.9 | 18.3 | 17.3 | 18.7 | 19.0 | 17.2 | 18.5 | 17.6 | 18.9 | 19.3 |
| | 3H | 18.8 | 20.0 | 19.2 | 20.4 | 20.8 | 19.7 | 20.8 | 20.1 | 21.2 | 21.6 |
| | 4H | 19.6 | 20.6 | 20.0 | 21.0 | 21.5 | 20.9 | 22.0 | 21.4 | 22.4 | 22.8 |
| | 6H | 20.1 | 21.0 | 20.6 | 21.5 | 21.9 | 22.2 | 23.1 | 22.6 | 23.6 | 24.0 |
| | 8H | 20.3 | 21.1 | 20.7 | 21.6 | 22.0 | 22.7 | 23.5 | 23.1 | 24.0 | 24.5 |
| | 12H | 20.3 | 21.1 | 20.8 | 21.6 | 22.1 | 23.0 | 23.8 | 23.5 | 24.3 | 24.7 |
| 8H | 4H | 20.1 | 21.0 | 20.5 | 21.4 | 21.9 | 21.3 | 22.1 | 21.7 | 22.6 | 23.0 |
| | 6H | 20.8 | 21.5 | 21.3 | 22.0 | 22.5 | 22.7 | 23.5 | 23.2 | 23.9 | 24.4 |
| | 8H | 21.1 | 21.7 | 21.6 | 22.2 | 22.7 | 23.3 | 24.0 | 23.8 | 24.5 | 25.0 |
| | 12H | 21.2 | 21.8 | 21.7 | 22.3 | 22.9 | 23.8 | 24.4 | 24.3 | 24.9 | 25.4 |
| 12H | 4H | 20.2 | 21.0 | 20.7 | 21.5 | 21.9 | 21.3 | 22.1 | 21.8 | 22.6 | 23.0 |
| | 6H | 21.0 | 21.7 | 21.5 | 22.1 | 22.7 | 22.8 | 23.5 | 23.3 | 23.9 | 24.5 |
| | 8H | 21.3 | 21.9 | 21.9 | 22.4 | 23.0 | 23.5 | 24.0 | 24.0 | 24.5 | 25.1 |

Maximum UGR = 25.4

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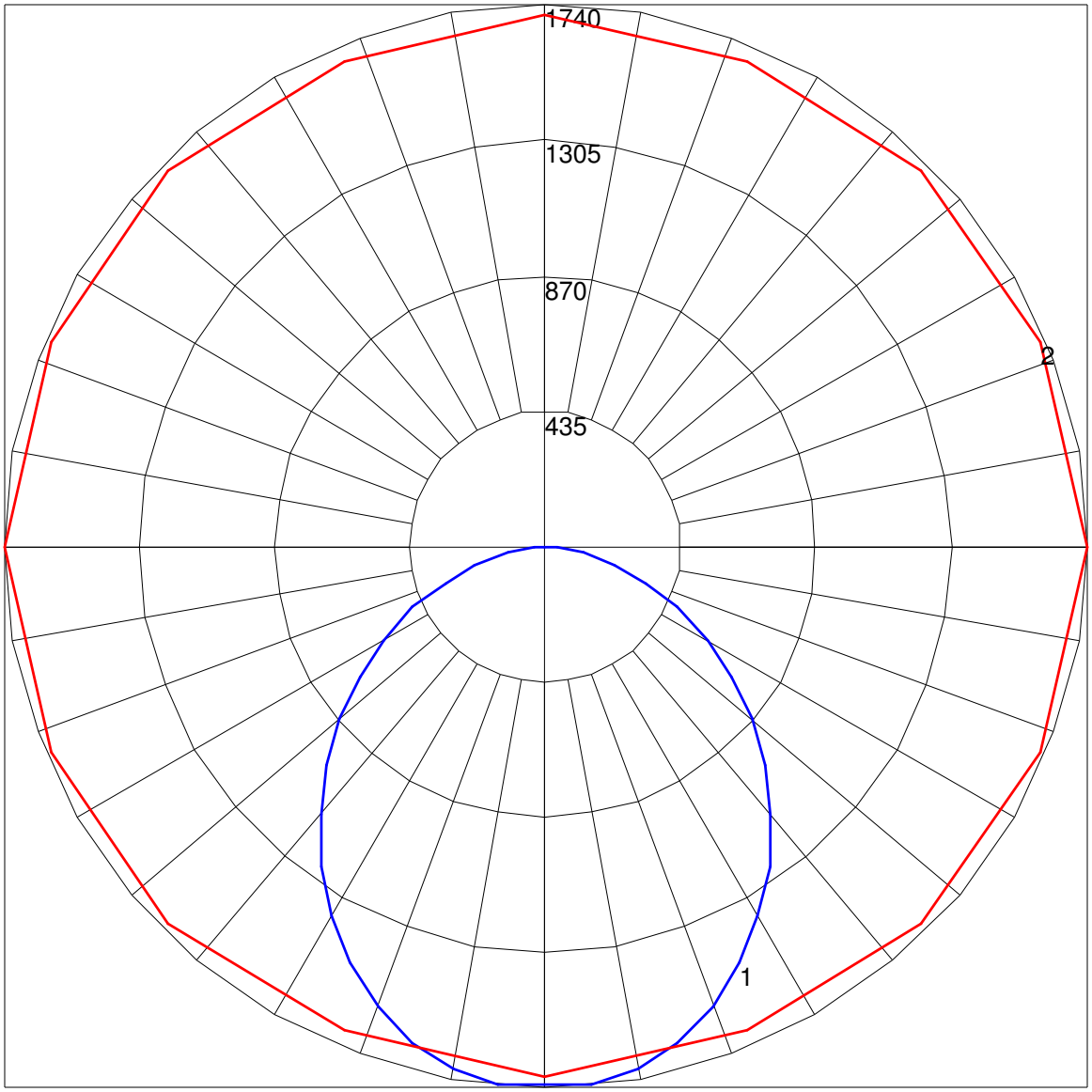
**POLAR GRAPH**




Maximum Candela = 1739.868  Located At Horizontal Angle = 0, Vertical Angle = 5
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
# 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)

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