H.E. WILLIAMS, INC.

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : PT-24-L110-830-RA-DIM-UNV_.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002
[TEST] GEN FROM BALLABS TEST NO. 19235.0
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
[ISSUEDATE] 2023-06-27
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO
[LUMINAIRE] 2x4' RECESSED LED LUMINAIRE
[MORE] WHITE REFLECTOR w/RIBBED FROSTED ACRYLIC CENTER DIFFUSER
[MORE] 0-10V DRIVER
[LUMCAT] PT-24-L110-830-RA-DIM-UNV
[LAMPCAT] 22 INCH HLM LED ARRAYS
[_SEARCH_SOURCETYPE] LED
[_SEARCH_APPLICATION] Indoor, Architectural, Office, Direct
[_SEARCH_MOUNTING] Recessed

**CHARACTERISTICS**

| | |
|---|---|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 10975 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 131 |
| Total Luminaire Watts | 83.7 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 1.14 |
| Spacing Criterion (90-270) | 1.18 |
| Spacing Criterion (Diagonal) | 1.28 |
| Basic Luminous Shape | Rectangular |
| Luminous Length (0-180) | 3.92 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 | 4707 | 4966 | 5220 |
| 55 | 4219 | 4618 | 4988 |
| 65 | 3708 | 4394 | 4992 |
| 75 | 2870 | 4407 | 5456 |
| 85 | 1732 | 5783 | 6626 |

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**CANDELA TABULATION**

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|---|---|---|---|---|---|
| **0** | 4198.850 | 4198.850 | 4198.850 | 4198.850 | 4198.850 |
| **5** | 4134.735 | 4129.036 | 4129.036 | 4114.788 | 4107.664 |
| **10** | 4121.912 | 4121.912 | 4129.036 | 4134.735 | 4134.735 |
| **15** | 4013.628 | 4019.327 | 4026.451 | 4036.424 | 4043.548 |
| **20** | 3748.617 | 3762.865 | 3779.963 | 3802.759 | 3809.883 |
| **25** | 3536.324 | 3549.147 | 3583.342 | 3613.262 | 3627.510 |
| **30** | 3098.914 | 3003.453 | 3393.845 | 3281.287 | 3264.189 |
| **35** | 2858.125 | 2885.196 | 2949.311 | 3003.453 | 3024.825 |
| **40** | 2543.247 | 2577.441 | 2648.681 | 2719.920 | 2746.991 |
| **45** | 2323.829 | 2353.750 | 2452.060 | 2543.247 | 2577.441 |
| **50** | 2018.925 | 2065.943 | 2174.226 | 2269.687 | 2302.457 |
| **55** | 1689.799 | 1741.091 | 1849.375 | 1957.659 | 1997.553 |
| **60** | 1377.770 | 1431.912 | 1554.444 | 1665.577 | 1706.896 |
| **65** | 1094.237 | 1165.477 | 1296.557 | 1426.213 | 1473.231 |
| **70** | 806.430 | 890.492 | 1045.794 | 1182.574 | 1229.592 |
| **75** | 518.623 | 622.632 | 796.456 | 934.661 | 985.953 |
| **80** | 284.958 | 420.312 | 619.783 | 755.138 | 796.456 |
| **85** | 105.434 | 240.789 | 351.923 | 396.091 | 403.215 |
| **90** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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## ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-20 | 1522.08 | N.A. | 13.90 |
| 0-30 | 3154.49 | N.A. | 28.70 |
| 0-40 | 4994.67 | N.A. | 45.50 |
| 0-60 | 8529.82 | N.A. | 77.70 |
| 0-80 | 10647.2 | N.A. | 97.00 |
| 0-90 | 10975.42 | N.A. | 100.00 |
| 10-90 | 10580.73 | N.A. | 96.40 |
| 20-40 | 3472.59 | N.A. | 31.60 |
| 20-50 | 5349.52 | N.A. | 48.70 |
| 40-70 | 4815.2 | N.A. | 43.90 |
| 60-80 | 2117.38 | N.A. | 19.30 |
| 70-80 | 837.33 | N.A. | 7.60 |
| 80-90 | 328.22 | N.A. | 3.00 |
| 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 | 10975.42 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A.%

## ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---|---|
| 0-10 | 394.69 |
| 10-20 | 1127.38 |
| 20-30 | 1632.42 |
| 30-40 | 1840.18 |
| 40-50 | 1876.93 |
| 50-60 | 1658.22 |
| 60-70 | 1280.05 |
| 70-80 | 837.33 |
| 80-90 | 328.22 |
| 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 | 93 | 97 | 93 | 90 | 93 | 90 | 88 | 89 | 87 | 85 | 83 |
| 2 | 98 | 90 | 83 | 77 | 96 | 88 | 82 | 76 | 85 | 79 | 74 | 81 | 77 | 73 | 78 | 74 | 71 | 69 |
| 3 | 90 | 79 | 71 | 64 | 87 | 78 | 70 | 64 | 75 | 68 | 63 | 72 | 66 | 61 | 69 | 64 | 60 | 58 |
| 4 | 82 | 70 | 61 | 55 | 80 | 69 | 61 | 54 | 66 | 59 | 53 | 64 | 58 | 53 | 62 | 56 | 52 | 50 |
| 5 | 76 | 63 | 54 | 47 | 74 | 62 | 53 | 47 | 60 | 52 | 46 | 58 | 51 | 46 | 56 | 50 | 45 | 43 |
| 6 | 70 | 57 | 48 | 41 | 68 | 56 | 47 | 41 | 54 | 46 | 41 | 52 | 46 | 40 | 51 | 45 | 40 | 38 |
| 7 | 65 | 52 | 43 | 37 | 63 | 51 | 42 | 37 | 49 | 42 | 36 | 48 | 41 | 36 | 46 | 40 | 36 | 34 |
| 8 | 61 | 47 | 39 | 33 | 59 | 46 | 38 | 33 | 45 | 38 | 32 | 44 | 37 | 32 | 43 | 37 | 32 | 30 |
| 9 | 57 | 43 | 35 | 30 | 55 | 43 | 35 | 30 | 42 | 34 | 29 | 41 | 34 | 29 | 40 | 33 | 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 | 16.7 | 18.3 | 17.0 | 18.6 | 18.9 | 17.7 | 19.3 | 18.0 | 19.6 | 19.9 |
| | 3H | 18.3 | 19.8 | 18.7 | 20.1 | 20.5 | 19.8 | 21.3 | 20.2 | 21.7 | 22.0 |
| | 4H | 18.9 | 20.3 | 19.3 | 20.6 | 21.0 | 20.8 | 22.2 | 21.2 | 22.6 | 23.0 |
| | 6H | 19.2 | 20.6 | 19.7 | 20.9 | 21.3 | 21.9 | 23.2 | 22.3 | 23.5 | 23.9 |
| | 8H | 19.4 | 20.6 | 19.8 | 21.0 | 21.4 | 22.3 | 23.5 | 22.7 | 23.9 | 24.3 |
| | 12H | 19.4 | 20.6 | 19.9 | 21.0 | 21.4 | 22.6 | 23.8 | 23.1 | 24.2 | 24.6 |
| 4H | 2H | 17.4 | 18.8 | 17.8 | 19.2 | 19.6 | 18.2 | 19.6 | 18.6 | 20.0 | 20.3 |
| | 3H | 19.3 | 20.5 | 19.8 | 20.9 | 21.3 | 20.7 | 21.9 | 21.1 | 22.3 | 22.7 |
| | 4H | 20.0 | 21.1 | 20.5 | 21.5 | 22.0 | 21.8 | 22.9 | 22.3 | 23.3 | 23.8 |
| | 6H | 20.6 | 21.5 | 21.0 | 22.0 | 22.4 | 23.1 | 24.0 | 23.5 | 24.5 | 24.9 |
| | 8H | 20.7 | 21.6 | 21.2 | 22.1 | 22.5 | 23.6 | 24.5 | 24.1 | 24.9 | 25.4 |
| | 12H | 20.9 | 21.7 | 21.4 | 22.1 | 22.6 | 24.0 | 24.8 | 24.5 | 25.3 | 25.8 |
| 8H | 4H | 20.6 | 21.5 | 21.1 | 22.0 | 22.4 | 22.2 | 23.1 | 22.6 | 23.5 | 24.0 |
| | 6H | 21.4 | 22.1 | 21.9 | 22.6 | 23.1 | 23.6 | 24.4 | 24.1 | 24.9 | 25.3 |
| | 8H | 21.7 | 22.3 | 22.2 | 22.8 | 23.3 | 24.3 | 25.0 | 24.8 | 25.5 | 25.9 |
| | 12H | 21.9 | 22.5 | 22.4 | 23.0 | 23.5 | 24.9 | 25.4 | 25.4 | 25.9 | 26.5 |
| 12H | 4H | 20.8 | 21.6 | 21.3 | 22.1 | 22.5 | 22.2 | 23.0 | 22.7 | 23.5 | 24.0 |
| | 6H | 21.6 | 22.3 | 22.2 | 22.8 | 23.3 | 23.7 | 24.4 | 24.3 | 24.9 | 25.4 |
| | 8H | 22.0 | 22.6 | 22.5 | 23.1 | 23.7 | 24.5 | 25.0 | 25.0 | 25.5 | 26.1 |

Maximum UGR = 26.5

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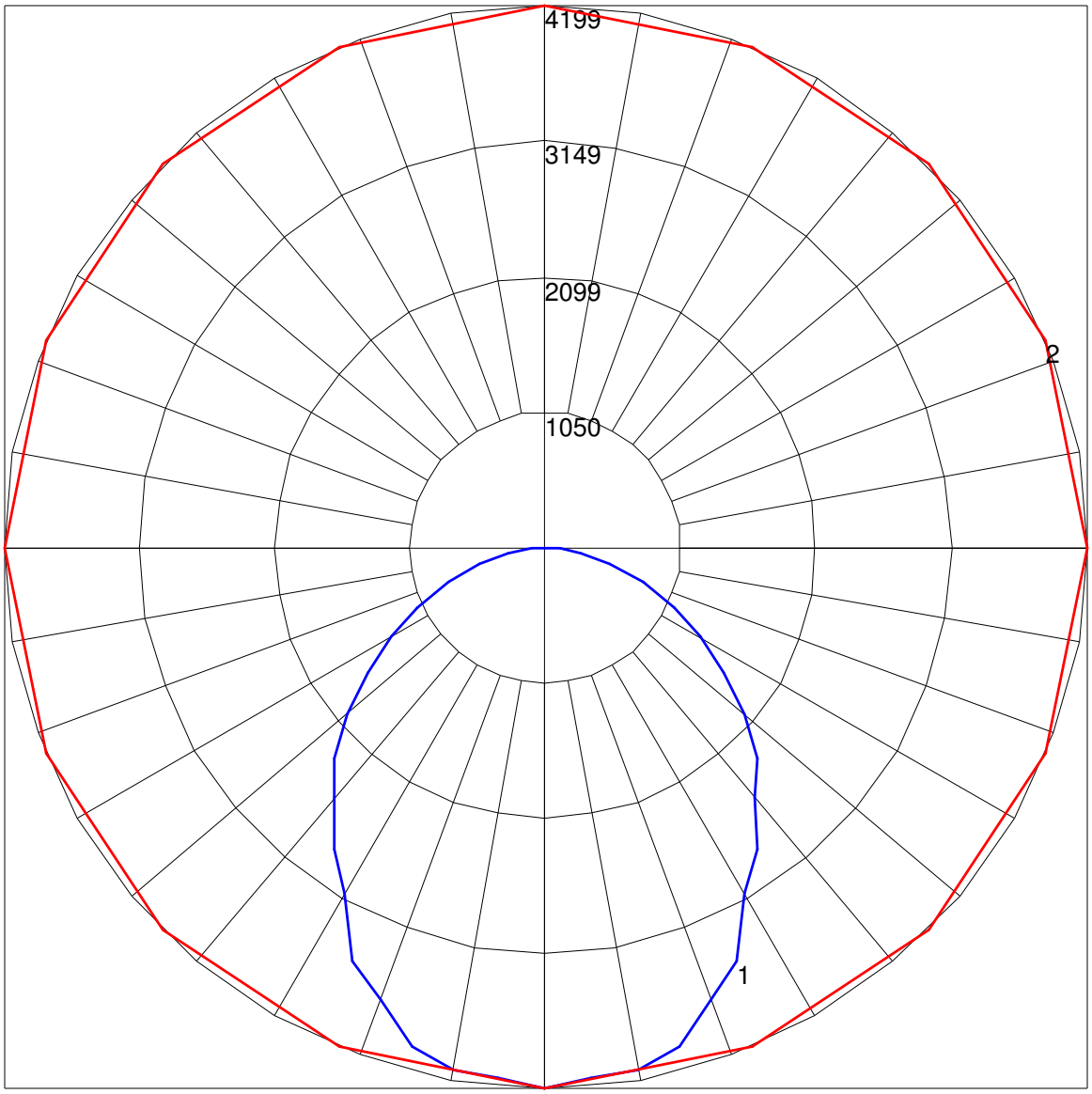
**POLAR GRAPH**




Maximum Candela = 4198.85  Located At Horizontal Angle = 0, Vertical Angle = 0
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

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