H.E. WILLIAMS, INC.

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : PT-24-L38-950-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-L38-950-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 | 3404 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 119 |
| Total Luminaire Watts | 28.5 |
| 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 | 1460 | 1540 | 1619 |
| 55 | 1309 | 1432 | 1547 |
| 65 | 1150 | 1363 | 1548 |
| 75 | 890 | 1367 | 1692 |
| 85 | 537 | 1793 | 2055 |

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**CANDELA TABULATION**

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|---|---|---|---|---|---|
| **0** | 1302.220 | 1302.220 | 1302.220 | 1302.220 | 1302.220 |
| **5** | 1282.335 | 1280.568 | 1280.568 | 1276.149 | 1273.939 |
| **10** | 1278.358 | 1278.358 | 1280.568 | 1282.335 | 1282.335 |
| **15** | 1244.775 | 1246.543 | 1248.752 | 1251.845 | 1254.055 |
| **20** | 1162.586 | 1167.005 | 1172.307 | 1179.377 | 1181.587 |
| **25** | 1096.746 | 1100.723 | 1111.328 | 1120.607 | 1125.026 |
| **30** | 961.089 | 931.483 | 1052.558 | 1017.649 | 1012.347 |
| **35** | 886.411 | 894.807 | 914.691 | 931.483 | 938.111 |
| **40** | 788.755 | 799.361 | 821.455 | 843.549 | 851.944 |
| **45** | 720.706 | 729.985 | 760.475 | 788.755 | 799.361 |
| **50** | 626.144 | 640.726 | 674.309 | 703.915 | 714.078 |
| **55** | 524.069 | 539.977 | 573.560 | 607.143 | 619.515 |
| **60** | 427.298 | 444.089 | 482.091 | 516.557 | 529.372 |
| **65** | 339.364 | 361.458 | 402.111 | 442.322 | 456.904 |
| **70** | 250.104 | 276.175 | 324.340 | 366.760 | 381.342 |
| **75** | 160.844 | 193.101 | 247.011 | 289.873 | 305.781 |
| **80** | 88.376 | 130.355 | 192.218 | 234.196 | 247.011 |
| **85** | 32.699 | 74.678 | 109.144 | 122.843 | 125.052 |
| **90** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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## ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-20 | 472.05 | N.A. | 13.90 |
| 0-30 | 978.33 | N.A. | 28.70 |
| 0-40 | 1549.03 | N.A. | 45.50 |
| 0-60 | 2645.41 | N.A. | 77.70 |
| 0-80 | 3302.09 | N.A. | 97.00 |
| 0-90 | 3403.89 | N.A. | 100.00 |
| 10-90 | 3281.48 | N.A. | 96.40 |
| 20-40 | 1076.98 | N.A. | 31.60 |
| 20-50 | 1659.09 | N.A. | 48.70 |
| 40-70 | 1493.37 | N.A. | 43.90 |
| 60-80 | 656.68 | N.A. | 19.30 |
| 70-80 | 259.69 | N.A. | 7.60 |
| 80-90 | 101.79 | 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 | 3403.89 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A.%

## ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---|---|
| 0-10 | 122.41 |
| 10-20 | 349.64 |
| 20-30 | 506.27 |
| 30-40 | 570.71 |
| 40-50 | 582.11 |
| 50-60 | 514.28 |
| 60-70 | 396.99 |
| 70-80 | 259.69 |
| 80-90 | 101.79 |
| 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 | 12.7 | 14.3 | 13.0 | 14.6 | 14.9 | 13.7 | 15.3 | 14.0 | 15.6 | 15.9 |
| | 3H | 14.3 | 15.8 | 14.7 | 16.1 | 16.5 | 15.8 | 17.3 | 16.2 | 17.7 | 18.0 |
| | 4H | 14.9 | 16.3 | 15.3 | 16.6 | 17.0 | 16.8 | 18.2 | 17.2 | 18.6 | 19.0 |
| | 6H | 15.2 | 16.6 | 15.7 | 16.9 | 17.3 | 17.9 | 19.2 | 18.3 | 19.5 | 19.9 |
| | 8H | 15.4 | 16.6 | 15.8 | 17.0 | 17.4 | 18.3 | 19.5 | 18.7 | 19.9 | 20.3 |
| | 12H | 15.4 | 16.6 | 15.9 | 17.0 | 17.4 | 18.6 | 19.8 | 19.1 | 20.2 | 20.6 |
| 4H | 2H | 13.4 | 14.8 | 13.8 | 15.2 | 15.6 | 14.2 | 15.6 | 14.6 | 16.0 | 16.3 |
| | 3H | 15.3 | 16.5 | 15.8 | 16.9 | 17.3 | 16.7 | 17.9 | 17.1 | 18.3 | 18.7 |
| | 4H | 16.0 | 17.1 | 16.5 | 17.5 | 18.0 | 17.8 | 18.9 | 18.3 | 19.3 | 19.8 |
| | 6H | 16.6 | 17.5 | 17.0 | 18.0 | 18.4 | 19.1 | 20.0 | 19.5 | 20.5 | 20.9 |
| | 8H | 16.7 | 17.6 | 17.2 | 18.1 | 18.5 | 19.6 | 20.5 | 20.1 | 20.9 | 21.4 |
| | 12H | 16.9 | 17.7 | 17.4 | 18.1 | 18.6 | 20.0 | 20.8 | 20.5 | 21.3 | 21.8 |
| 8H | 4H | 16.6 | 17.5 | 17.1 | 18.0 | 18.4 | 18.2 | 19.1 | 18.6 | 19.5 | 20.0 |
| | 6H | 17.4 | 18.1 | 17.9 | 18.6 | 19.1 | 19.6 | 20.4 | 20.1 | 20.9 | 21.3 |
| | 8H | 17.7 | 18.3 | 18.2 | 18.8 | 19.3 | 20.3 | 21.0 | 20.8 | 21.5 | 21.9 |
| | 12H | 17.9 | 18.5 | 18.4 | 19.0 | 19.5 | 20.9 | 21.4 | 21.4 | 21.9 | 22.5 |
| 12H | 4H | 16.8 | 17.6 | 17.3 | 18.1 | 18.5 | 18.2 | 19.0 | 18.7 | 19.5 | 20.0 |
| | 6H | 17.6 | 18.3 | 18.2 | 18.8 | 19.3 | 19.7 | 20.4 | 20.3 | 20.9 | 21.4 |
| | 8H | 18.0 | 18.6 | 18.5 | 19.1 | 19.7 | 20.5 | 21.0 | 21.0 | 21.5 | 22.1 |

Maximum UGR = 22.5

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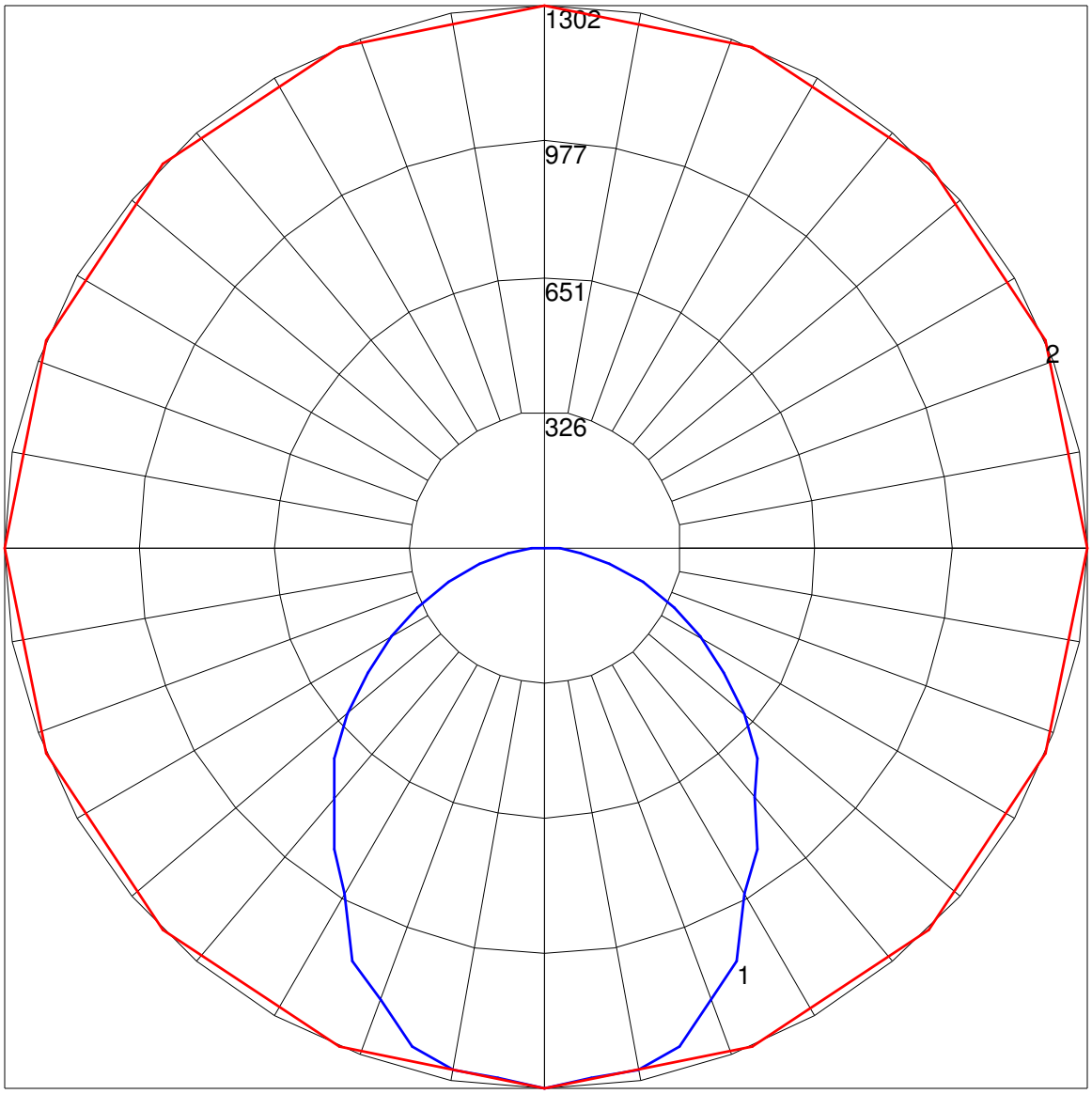
**POLAR GRAPH**




Maximum Candela = 1302.22  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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