H.E. WILLIAMS, INC.

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : PT-24-L49-840-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-L49-840-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 | 5230 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 143 |
| Total Luminaire Watts | 36.7 |
| 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 | 2243 | 2367 | 2488 |
| 55 | 2011 | 2201 | 2377 |
| 65 | 1767 | 2094 | 2379 |
| 75 | 1368 | 2100 | 2600 |
| 85 | 826 | 2756 | 3158 |

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**CANDELA TABULATION**

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|---|---|---|---|---|---|
| **0** | 2001.014 | 2001.014 | 2001.014 | 2001.014 | 2001.014 |
| **5** | 1970.459 | 1967.743 | 1967.743 | 1960.953 | 1957.558 |
| **10** | 1964.348 | 1964.348 | 1967.743 | 1970.459 | 1970.459 |
| **15** | 1912.744 | 1915.460 | 1918.855 | 1923.608 | 1927.003 |
| **20** | 1786.450 | 1793.240 | 1801.388 | 1812.252 | 1815.647 |
| **25** | 1685.279 | 1691.390 | 1707.686 | 1721.945 | 1728.735 |
| **30** | 1476.826 | 1431.333 | 1617.379 | 1563.738 | 1555.590 |
| **35** | 1362.075 | 1374.976 | 1405.531 | 1431.333 | 1441.518 |
| **40** | 1212.016 | 1228.312 | 1262.262 | 1296.212 | 1309.113 |
| **45** | 1107.450 | 1121.709 | 1168.560 | 1212.016 | 1228.312 |
| **50** | 962.144 | 984.551 | 1036.155 | 1081.648 | 1097.265 |
| **55** | 805.294 | 829.738 | 881.342 | 932.947 | 951.959 |
| **60** | 656.593 | 682.395 | 740.789 | 793.751 | 813.442 |
| **65** | 521.472 | 555.422 | 617.890 | 679.679 | 702.086 |
| **70** | 384.314 | 424.375 | 498.386 | 563.570 | 585.977 |
| **75** | 247.156 | 296.723 | 379.561 | 445.424 | 469.868 |
| **80** | 135.800 | 200.305 | 295.365 | 359.870 | 379.561 |
| **85** | 50.246 | 114.751 | 167.713 | 188.762 | 192.157 |
| **90** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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## ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-20 | 725.36 | N.A. | 13.90 |
| 0-30 | 1503.31 | N.A. | 28.70 |
| 0-40 | 2380.27 | N.A. | 45.50 |
| 0-60 | 4064.99 | N.A. | 77.70 |
| 0-80 | 5074.05 | N.A. | 97.00 |
| 0-90 | 5230.47 | N.A. | 100.00 |
| 10-90 | 5042.38 | N.A. | 96.40 |
| 20-40 | 1654.91 | N.A. | 31.60 |
| 20-50 | 2549.38 | N.A. | 48.70 |
| 40-70 | 2294.74 | N.A. | 43.90 |
| 60-80 | 1009.06 | N.A. | 19.30 |
| 70-80 | 399.04 | N.A. | 7.60 |
| 80-90 | 156.42 | 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 | 5230.47 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A.%

## ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---|---|
| 0-10 | 188.10 |
| 10-20 | 537.27 |
| 20-30 | 777.95 |
| 30-40 | 876.96 |
| 40-50 | 894.47 |
| 50-60 | 790.24 |
| 60-70 | 610.03 |
| 70-80 | 399.04 |
| 80-90 | 156.42 |
| 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 | 33 | 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 | 14.0 | 15.7 | 14.4 | 16.0 | 16.3 | 15.1 | 16.7 | 15.4 | 17.0 | 17.3 |
| | 3H | 15.7 | 17.2 | 16.1 | 17.5 | 17.9 | 17.2 | 18.7 | 17.6 | 19.1 | 19.4 |
| | 4H | 16.3 | 17.7 | 16.7 | 18.0 | 18.4 | 18.2 | 19.6 | 18.6 | 20.0 | 20.4 |
| | 6H | 16.6 | 18.0 | 17.1 | 18.3 | 18.7 | 19.3 | 20.6 | 19.7 | 20.9 | 21.3 |
| | 8H | 16.8 | 18.0 | 17.2 | 18.4 | 18.8 | 19.7 | 20.9 | 20.1 | 21.3 | 21.7 |
| | 12H | 16.8 | 18.0 | 17.3 | 18.4 | 18.8 | 20.0 | 21.2 | 20.5 | 21.6 | 22.0 |
| 4H | 2H | 14.8 | 16.2 | 15.2 | 16.6 | 17.0 | 15.6 | 17.0 | 16.0 | 17.4 | 17.7 |
| | 3H | 16.7 | 17.9 | 17.2 | 18.3 | 18.7 | 18.1 | 19.3 | 18.5 | 19.7 | 20.1 |
| | 4H | 17.4 | 18.5 | 17.9 | 18.9 | 19.4 | 19.2 | 20.3 | 19.7 | 20.7 | 21.2 |
| | 6H | 18.0 | 18.9 | 18.4 | 19.4 | 19.8 | 20.5 | 21.4 | 20.9 | 21.9 | 22.3 |
| | 8H | 18.1 | 19.0 | 18.6 | 19.5 | 19.9 | 21.0 | 21.9 | 21.5 | 22.3 | 22.8 |
| | 12H | 18.3 | 19.1 | 18.8 | 19.5 | 20.0 | 21.4 | 22.2 | 21.9 | 22.7 | 23.2 |
| 8H | 4H | 18.0 | 18.9 | 18.5 | 19.4 | 19.8 | 19.6 | 20.5 | 20.0 | 20.9 | 21.4 |
| | 6H | 18.8 | 19.5 | 19.3 | 20.0 | 20.5 | 21.0 | 21.8 | 21.5 | 22.3 | 22.7 |
| | 8H | 19.1 | 19.7 | 19.6 | 20.2 | 20.7 | 21.7 | 22.4 | 22.2 | 22.9 | 23.3 |
| | 12H | 19.3 | 19.9 | 19.8 | 20.4 | 20.9 | 22.3 | 22.8 | 22.8 | 23.3 | 23.9 |
| 12H | 4H | 18.2 | 19.0 | 18.7 | 19.5 | 19.9 | 19.6 | 20.4 | 20.1 | 20.9 | 21.4 |
| | 6H | 19.0 | 19.7 | 19.6 | 20.2 | 20.7 | 21.1 | 21.8 | 21.7 | 22.3 | 22.8 |
| | 8H | 19.4 | 20.0 | 19.9 | 20.5 | 21.1 | 21.9 | 22.4 | 22.4 | 22.9 | 23.5 |

Maximum UGR = 23.9

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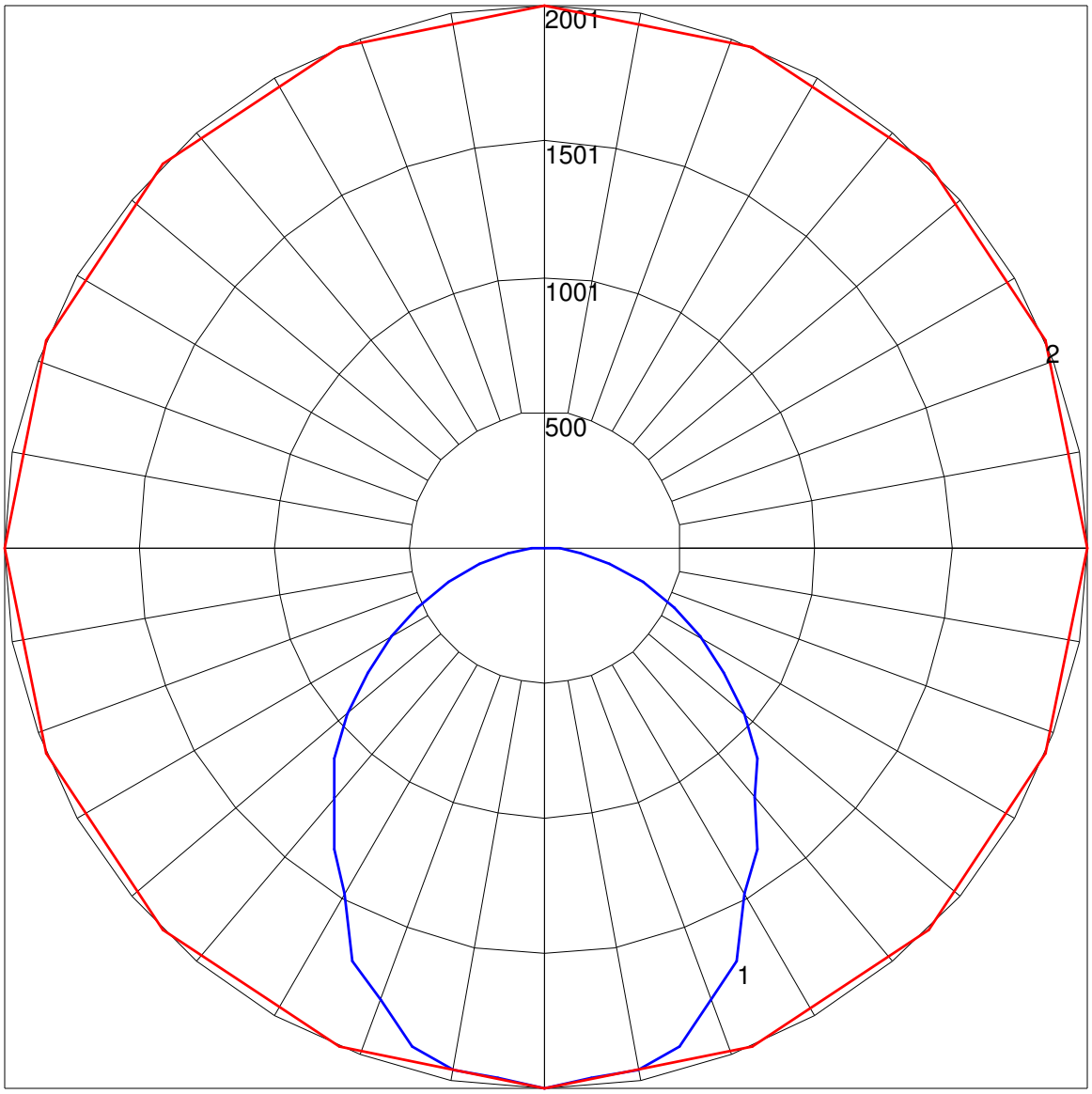
**POLAR GRAPH**




Maximum Candela = 2001.014  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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