H.E. WILLIAMS, INC.

**IES INDOOR REPORT**
**PHOTOMETRIC FILENAME : 76R-4-L52-840-EM10WLP-DRV-UNV_(EMER MODE).IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002
[TEST] GEN from BALLABS TEST NO. 20990.0
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
[ISSUEDATE] 12-29-2020
[MANUFAC] H.E. WILLIAMS, INC - CARTHAGE, MO
[LUMINAIRE] 72 LED 23.75", 68 LED 22.375"ARRAYS 4' 76R SURFACE LUMINAIRE
[MORE] WHITE REFLECTOR w/RADIAL RIBBED FROST ACRYLIC LENS
[LUMCAT] 76R-4-L52-840-EM10W-DRV-UNV (EMER MODE)

**CHARACTERISTICS**

| | |
|---|---|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 1458 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 146 |
| Total Luminaire Watts | 10 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 1.20 |
| Spacing Criterion (90-270) | 1.28 |
| Spacing Criterion (Diagonal) | 1.36 |
| Basic Luminous Shape | Rectangular w/Sides |
| Luminous Length (0-180) | 3.98 ft |
| Luminous Width (90-270) | 0.38 ft |
| Luminous Height | 0.15 ft |

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

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---|---|---|---|
| 45 | 2551 | 2338 | 2399 |
| 55 | 2175 | 2026 | 2133 |
| 65 | 1750 | 1678 | 1847 |
| 75 | 1357 | 1423 | 1596 |
| 85 | 637 | 1283 | 1486 |

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**CANDELA TABULATION**

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|---|---|---|---|---|---|
| **0** | 470.817 | 470.817 | 470.817 | 470.817 | 470.817 |
| **5** | 474.765 | 468.540 | 467.325 | 467.325 | 465.959 |
| **10** | 466.111 | 460.797 | 461.100 | 462.315 | 460.797 |
| **15** | 450.472 | 446.373 | 449.713 | 453.357 | 452.902 |
| **20** | 430.279 | 428.609 | 434.075 | 440.756 | 441.059 |
| **25** | 402.343 | 404.165 | 414.034 | 422.840 | 425.117 |
| **30** | 372.889 | 376.077 | 390.197 | 401.584 | 405.987 |
| **35** | 336.146 | 343.586 | 362.261 | 377.140 | 382.302 |
| **40** | 301.074 | 309.121 | 331.591 | 352.392 | 357.250 |
| **45** | 259.473 | 271.164 | 298.493 | 320.964 | 327.037 |
| **50** | 220.606 | 235.029 | 264.939 | 289.687 | 296.367 |
| **55** | 182.193 | 196.313 | 230.626 | 256.285 | 264.180 |
| **60** | 145.754 | 161.696 | 196.920 | 220.606 | 229.563 |
| **65** | 110.682 | 127.535 | 162.000 | 192.214 | 198.742 |
| **70** | 81.683 | 96.562 | 132.697 | 162.000 | 169.743 |
| **75** | 55.417 | 71.966 | 108.557 | 134.823 | 140.592 |
| **80** | 30.821 | 51.014 | 86.845 | 110.682 | 118.881 |
| **85** | 10.932 | 34.465 | 68.930 | 91.097 | 97.929 |
| **90** | 0.000 | 22.774 | 53.747 | 75.458 | 79.861 |
| **95** | 0.000 | 14.575 | 42.360 | 61.794 | 68.474 |
| **100** | 0.000 | 9.717 | 32.491 | 51.166 | 56.480 |
| **105** | 0.000 | 6.529 | 25.659 | 41.297 | 47.218 |
| **110** | 0.000 | 3.037 | 20.345 | 33.858 | 39.475 |
| **115** | 0.000 | 1.974 | 16.246 | 28.544 | 32.491 |
| **120** | 0.000 | 0.000 | 12.905 | 23.381 | 27.481 |
| **125** | 0.000 | 0.000 | 10.021 | 18.675 | 21.863 |
| **130** | 0.000 | 0.000 | 7.895 | 14.727 | 17.460 |
| **135** | 0.000 | 0.000 | 6.377 | 11.387 | 13.968 |
| **140** | 0.000 | 0.000 | 3.340 | 8.654 | 10.628 |
| **145** | 0.000 | 0.000 | 1.215 | 6.680 | 7.743 |
| **150** | 0.000 | 0.000 | 0.000 | 5.769 | 6.529 |
| **155** | 0.000 | 0.000 | 0.000 | 5.466 | 5.769 |
| **160** | 0.000 | 0.000 | 0.000 | 3.188 | 5.314 |
| **165** | 0.000 | 0.000 | 0.000 | 1.063 | 1.822 |
| **170** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **175** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **180** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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**ZONAL LUMEN SUMMARY**

| Zone | Lumens | %Lamp | %Fixt |
|---|---|---|---|
| 0-20 | 171.56 | N.A. | 11.80 |
| 0-30 | 362.17 | N.A. | 24.80 |
| 0-40 | 587.90 | N.A. | 40.30 |
| 0-60 | 1019.61 | N.A. | 69.90 |
| 0-80 | 1287.98 | N.A. | 88.30 |
| 0-90 | 1357.04 | N.A. | 93.10 |
| 10-90 | 1312.53 | N.A. | 90.00 |
| 20-40 | 416.34 | N.A. | 28.60 |
| 20-50 | 645.10 | N.A. | 44.20 |
| 40-70 | 590.00 | N.A. | 40.50 |
| 60-80 | 268.38 | N.A. | 18.40 |
| 70-80 | 110.08 | N.A. | 7.60 |
| 80-90 | 69.05 | N.A. | 4.70 |
| 90-110 | 68.26 | N.A. | 4.70 |
| 90-120 | 84.00 | N.A. | 5.80 |
| 90-130 | 93.04 | N.A. | 6.40 |
| 90-150 | 99.79 | N.A. | 6.80 |
| 90-180 | 100.91 | N.A. | 6.90 |
| 110-180 | 32.64 | N.A. | 2.20 |
| 0-180 | 1457.94 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

| Zone | Lumens |
|---|---|
| 0-10 | 44.51 |
| 10-20 | 127.05 |
| 20-30 | 190.61 |
| 30-40 | 225.73 |
| 40-50 | 228.76 |
| 50-60 | 202.94 |
| 60-70 | 158.30 |
| 70-80 | 110.08 |
| 80-90 | 69.05 |
| 90-100 | 42.26 |
| 100-110 | 26.00 |
| 110-120 | 15.73 |
| 120-130 | 9.04 |
| 130-140 | 4.78 |
| 140-150 | 1.98 |
| 150-160 | 0.92 |
| 160-170 | 0.19 |
| 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 | 117 | 117 | 117 | 117 | 114 | 114 | 114 | 114 | 107 | 107 | 107 | 101 | 101 | 101 | 96 | 96 | 96 | 93 |
| 1 | 106 | 101 | 96 | 92 | 102 | 98 | 93 | 90 | 92 | 89 | 85 | 87 | 84 | 82 | 82 | 80 | 78 | 75 |
| 2 | 96 | 87 | 80 | 74 | 93 | 85 | 78 | 73 | 80 | 75 | 70 | 76 | 71 | 67 | 72 | 68 | 65 | 62 |
| 3 | 88 | 77 | 68 | 61 | 84 | 74 | 67 | 60 | 70 | 64 | 58 | 67 | 61 | 57 | 63 | 59 | 55 | 52 |
| 4 | 80 | 68 | 59 | 52 | 77 | 66 | 58 | 51 | 63 | 55 | 50 | 59 | 53 | 48 | 57 | 51 | 47 | 45 |
| 5 | 74 | 61 | 51 | 45 | 71 | 59 | 51 | 44 | 56 | 49 | 43 | 53 | 47 | 42 | 51 | 45 | 41 | 39 |
| 6 | 68 | 55 | 46 | 39 | 66 | 53 | 45 | 39 | 51 | 43 | 38 | 48 | 42 | 37 | 46 | 40 | 36 | 34 |
| 7 | 63 | 49 | 41 | 34 | 61 | 48 | 40 | 34 | 46 | 39 | 33 | 44 | 38 | 33 | 42 | 36 | 32 | 30 |
| 8 | 59 | 45 | 37 | 31 | 57 | 44 | 36 | 30 | 42 | 35 | 30 | 40 | 34 | 29 | 39 | 33 | 29 | 27 |
| 9 | 55 | 41 | 33 | 28 | 53 | 41 | 33 | 27 | 39 | 32 | 27 | 37 | 31 | 26 | 36 | 30 | 26 | 24 |
| 10 | 51 | 38 | 30 | 25 | 50 | 37 | 30 | 25 | 36 | 29 | 24 | 35 | 28 | 24 | 33 | 28 | 24 | 22 |

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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 | 12.2 | 13.7 | 12.6 | 14.1 | 14.6 | 15.2 | 16.7 | 15.7 | 17.1 | 17.6 |
| | 3H | 13.4 | 14.7 | 13.9 | 15.2 | 15.7 | 17.4 | 18.8 | 17.9 | 19.3 | 19.8 |
| | 4H | 13.8 | 15.1 | 14.3 | 15.5 | 16.1 | 18.5 | 19.8 | 19.0 | 20.3 | 20.8 |
| | 6H | 14.0 | 15.2 | 14.5 | 15.7 | 16.2 | 19.6 | 20.8 | 20.1 | 21.3 | 21.8 |
| | 8H | 14.0 | 15.2 | 14.6 | 15.7 | 16.3 | 20.2 | 21.3 | 20.7 | 21.8 | 22.4 |
| | 12H | 14.0 | 15.1 | 14.6 | 15.7 | 16.3 | 20.8 | 21.9 | 21.3 | 22.4 | 23.0 |
| 4H | 2H | 13.1 | 14.4 | 13.6 | 14.9 | 15.4 | 15.5 | 16.8 | 16.0 | 17.3 | 17.8 |
| | 3H | 14.6 | 15.7 | 15.1 | 16.2 | 16.8 | 18.0 | 19.1 | 18.5 | 19.6 | 20.2 |
| | 4H | 15.1 | 16.1 | 15.6 | 16.6 | 17.2 | 19.2 | 20.2 | 19.7 | 20.8 | 21.4 |
| | 6H | 15.4 | 16.3 | 15.9 | 16.8 | 17.5 | 20.5 | 21.4 | 21.1 | 22.0 | 22.6 |
| | 8H | 15.5 | 16.3 | 16.0 | 16.9 | 17.5 | 21.2 | 22.0 | 21.7 | 22.6 | 23.2 |
| | 12H | 15.5 | 16.3 | 16.1 | 16.9 | 17.5 | 21.9 | 22.7 | 22.5 | 23.3 | 23.9 |
| 8H | 4H | 15.8 | 16.6 | 16.4 | 17.2 | 17.8 | 19.4 | 20.2 | 19.9 | 20.8 | 21.4 |
| | 6H | 16.3 | 17.0 | 16.9 | 17.6 | 18.3 | 20.8 | 21.5 | 21.4 | 22.1 | 22.8 |
| | 8H | 16.5 | 17.1 | 17.1 | 17.7 | 18.4 | 21.6 | 22.3 | 22.2 | 22.9 | 23.5 |
| | 12H | 16.6 | 17.2 | 17.2 | 17.8 | 18.5 | 22.6 | 23.1 | 23.2 | 23.7 | 24.4 |
| 12H | 4H | 16.0 | 16.8 | 16.6 | 17.4 | 18.0 | 19.4 | 20.1 | 20.0 | 20.7 | 21.4 |
| | 6H | 16.6 | 17.3 | 17.3 | 17.9 | 18.5 | 20.9 | 21.5 | 21.5 | 22.1 | 22.8 |
| | 8H | 16.9 | 17.5 | 17.5 | 18.1 | 18.8 | 21.7 | 22.3 | 22.3 | 22.9 | 23.6 |

Maximum UGR = 24.4

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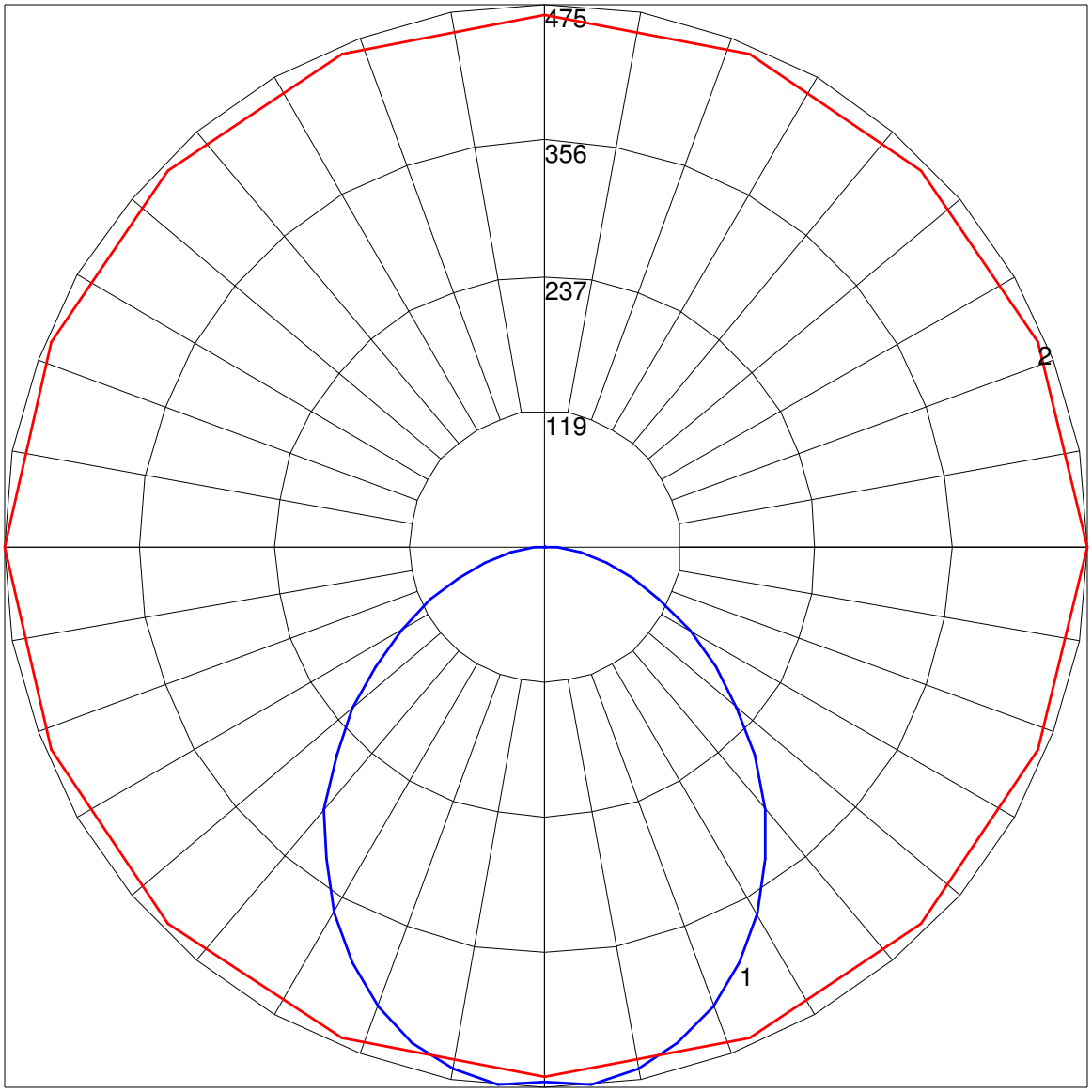
**POLAR GRAPH**




Maximum Candela = 474.765  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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