



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4WUD-4-00-L8-940-AF-(L4U-L4D)-DIM1-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] GEN FROM BALLABS TEST NO. 20657.0
 [TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
 [ISSUEDATE] 05-15-2023
 [MANUFAC] WILLIAMS INDOOR
 [OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO
 [LUMINAIRE] 4-72 LED 23.75" ARRAYS 8' UPLIGHT LUMINAIRE
 [MORE] WHITE ALUM BODY w/WHITE REFL & FLAT FROST LENS
 [LUMCAT] MX4WUD-4'-00-L8-940-AF-(L4U/L4D)-DIM1-UNV

CHARACTERISTICS

| | |
|---------------------------------|-----------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 2721 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 102 |
| Total Luminaire Watts | 26.6 |
| Ballast Factor | 1.00 |
| CIE Type | General Diffuse |
| Spacing Criterion (0-180) | N.A. |
| Spacing Criterion (90-270) | N.A. |
| Spacing Criterion (Diagonal) | N.A. |
| Basic Luminous Shape | Rectangular |
| Luminous Length (0-180) | 4.00 ft |
| Luminous Width (90-270) | 0.32 ft |
| Luminous Height | 0.00 ft |

LUMINANCE DATA (cd/sq.m)

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45 | 3868 | 3750 | 3692 |
| 55 | 3552 | 3407 | 3311 |
| 65 | 3023 | 2974 | 2876 |
| 75 | 2295 | 2401 | 2268 |
| 85 | 1109 | 1426 | 1347 |

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CANDELA TABULATION

| | <u>0.0</u> | <u>22.5</u> | <u>45.0</u> | <u>67.5</u> | <u>90.0</u> |
|-----|------------|-------------|-------------|-------------|-------------|
| 0 | 548.112 | 548.112 | 548.112 | 548.112 | 548.112 |
| 5 | 550.563 | 544.845 | 542.394 | 540.760 | 540.760 |
| 10 | 540.760 | 535.042 | 532.592 | 530.958 | 529.324 |
| 15 | 521.973 | 517.888 | 513.804 | 512.170 | 509.720 |
| 20 | 499.918 | 494.200 | 490.932 | 486.031 | 484.397 |
| 25 | 471.327 | 464.793 | 461.525 | 455.807 | 454.990 |
| 30 | 442.737 | 435.386 | 428.851 | 427.217 | 423.133 |
| 35 | 402.711 | 397.810 | 392.092 | 386.374 | 386.374 |
| 40 | 365.136 | 360.235 | 352.883 | 351.249 | 345.531 |
| 45 | 323.476 | 318.575 | 313.674 | 308.773 | 308.773 |
| 50 | 284.267 | 277.732 | 273.648 | 270.380 | 266.296 |
| 55 | 240.973 | 235.255 | 231.171 | 227.087 | 224.636 |
| 60 | 196.046 | 192.779 | 190.328 | 187.061 | 184.610 |
| 65 | 151.119 | 150.302 | 148.668 | 144.584 | 143.767 |
| 70 | 111.910 | 111.093 | 108.642 | 107.008 | 105.375 |
| 75 | 70.250 | 72.700 | 73.517 | 71.067 | 69.433 |
| 80 | 35.942 | 37.575 | 37.575 | 38.392 | 39.209 |
| 85 | 11.436 | 12.253 | 14.703 | 13.070 | 13.887 |
| 90 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 95 | 24.677 | 24.183 | 25.170 | 24.677 | 26.157 |
| 100 | 52.315 | 52.808 | 49.847 | 52.315 | 51.821 |
| 105 | 88.343 | 87.849 | 87.849 | 86.369 | 84.888 |
| 110 | 126.345 | 124.371 | 122.890 | 121.903 | 119.435 |
| 115 | 167.308 | 164.841 | 161.879 | 156.944 | 156.944 |
| 120 | 207.778 | 203.336 | 198.894 | 196.427 | 193.959 |
| 125 | 244.793 | 243.806 | 238.871 | 233.935 | 231.468 |
| 130 | 283.289 | 282.795 | 277.860 | 273.418 | 271.938 |
| 135 | 319.810 | 320.797 | 315.369 | 309.446 | 307.472 |
| 140 | 358.800 | 356.825 | 353.371 | 344.981 | 344.981 |
| 145 | 393.841 | 391.373 | 385.944 | 383.970 | 379.528 |
| 150 | 422.959 | 425.920 | 420.491 | 416.050 | 414.075 |
| 155 | 451.584 | 454.052 | 450.103 | 444.675 | 444.181 |
| 160 | 476.754 | 478.728 | 474.780 | 472.313 | 469.845 |
| 165 | 495.509 | 497.976 | 494.522 | 492.054 | 490.573 |
| 170 | 508.834 | 511.302 | 508.341 | 506.860 | 506.860 |
| 175 | 515.744 | 518.705 | 516.237 | 514.756 | 512.782 |
| 180 | 517.718 | 517.718 | 517.718 | 517.718 | 517.718 |

IES INDOOR REPORT**PHOTOMETRIC FILENAME : MX4WUD-4-00-L8-940-AF-(L4U-L4D)-DIM1-UNV_.IES****ZONAL LUMEN SUMMARY**

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 196.65 | N.A. | 7.20 |
| 0-30 | 409.44 | N.A. | 15.00 |
| 0-40 | 655.49 | N.A. | 24.10 |
| 0-60 | 1105.79 | N.A. | 40.60 |
| 0-80 | 1329.43 | N.A. | 48.90 |
| 0-90 | 1346.88 | N.A. | 49.50 |
| 10-90 | 1295.31 | N.A. | 47.60 |
| 20-40 | 458.85 | N.A. | 16.90 |
| 20-50 | 701.68 | N.A. | 25.80 |
| 40-70 | 597.41 | N.A. | 22.00 |
| 60-80 | 223.64 | N.A. | 8.20 |
| 70-80 | 76.53 | N.A. | 2.80 |
| 80-90 | 17.45 | N.A. | 0.60 |
| 90-110 | 119.74 | N.A. | 4.40 |
| 90-120 | 279.61 | N.A. | 10.30 |
| 90-130 | 493.31 | N.A. | 18.10 |
| 90-150 | 978.63 | N.A. | 36.00 |
| 90-180 | 1373.94 | N.A. | 50.50 |
| 110-180 | 1254.2 | N.A. | 46.10 |
| 0-180 | 2720.82 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 51.57 |
| 10-20 | 145.08 |
| 20-30 | 212.80 |
| 30-40 | 246.05 |
| 40-50 | 242.83 |
| 50-60 | 207.46 |
| 60-70 | 147.11 |
| 70-80 | 76.53 |
| 80-90 | 17.45 |
| 90-100 | 27.63 |
| 100-110 | 92.11 |
| 110-120 | 159.87 |
| 120-130 | 213.70 |
| 130-140 | 243.19 |
| 140-150 | 242.13 |
| 150-160 | 206.93 |
| 160-170 | 139.37 |
| 170-180 | 49.01 |

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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 | 107 | 107 | 107 | 107 | 99 | 99 | 99 | 99 | 83 | 83 | 83 | 69 | 69 | 69 | 56 | 56 | 56 | 49 |
| 1 | 98 | 94 | 90 | 86 | 90 | 86 | 83 | 80 | 73 | 71 | 69 | 61 | 59 | 58 | 49 | 48 | 47 | 42 |
| 2 | 89 | 82 | 76 | 71 | 82 | 76 | 71 | 66 | 64 | 60 | 57 | 54 | 51 | 48 | 44 | 42 | 40 | 35 |
| 3 | 81 | 72 | 65 | 59 | 75 | 67 | 60 | 55 | 57 | 52 | 48 | 47 | 44 | 41 | 39 | 36 | 34 | 30 |
| 4 | 75 | 64 | 56 | 50 | 68 | 59 | 52 | 47 | 50 | 45 | 41 | 42 | 38 | 35 | 35 | 32 | 30 | 26 |
| 5 | 68 | 57 | 49 | 43 | 63 | 53 | 46 | 40 | 45 | 40 | 35 | 38 | 34 | 31 | 31 | 28 | 26 | 23 |
| 6 | 63 | 51 | 43 | 37 | 58 | 48 | 40 | 35 | 41 | 35 | 31 | 34 | 30 | 27 | 28 | 25 | 23 | 20 |
| 7 | 58 | 46 | 38 | 33 | 54 | 43 | 36 | 31 | 37 | 31 | 27 | 31 | 27 | 24 | 26 | 23 | 20 | 18 |
| 8 | 54 | 42 | 34 | 29 | 50 | 39 | 32 | 27 | 34 | 28 | 24 | 29 | 24 | 21 | 24 | 21 | 18 | 16 |
| 9 | 50 | 38 | 31 | 26 | 47 | 36 | 29 | 24 | 31 | 26 | 22 | 26 | 22 | 19 | 22 | 19 | 16 | 14 |
| 10 | 47 | 35 | 28 | 23 | 44 | 33 | 26 | 22 | 29 | 23 | 20 | 24 | 20 | 17 | 21 | 17 | 15 | 13 |

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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

| X=2H | Y=2H | 12.5 | 13.3 | 13.4 | 14.3 | 15.6 | UGR Viewed Endwise | | | |
|------|------|------|------|------|------|------|--------------------|------|------|------|
| | 3H | 14.0 | 14.7 | 15.0 | 15.7 | 17.0 | 12.2 | 13.0 | 13.2 | 14.0 |
| | 4H | 14.5 | 15.2 | 15.5 | 16.2 | 17.5 | 13.7 | 14.5 | 14.7 | 15.4 |
| | 6H | 14.7 | 15.4 | 15.8 | 16.4 | 17.7 | 14.2 | 14.9 | 15.2 | 15.9 |
| | 8H | 14.8 | 15.4 | 15.8 | 16.4 | 17.8 | 14.5 | 15.2 | 15.5 | 16.2 |
| | 12H | 14.8 | 15.4 | 15.8 | 16.4 | 17.8 | 14.6 | 15.2 | 15.6 | 16.2 |

| | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|
| 4H | 2H | 12.9 | 13.6 | 13.9 | 14.6 | 15.9 | 12.7 | 13.4 | 13.7 | 14.4 |
| | 3H | 14.7 | 15.2 | 15.7 | 16.3 | 17.6 | 14.4 | 15.0 | 15.4 | 16.0 |
| | 4H | 15.3 | 15.8 | 16.3 | 16.8 | 18.2 | 15.0 | 15.6 | 16.0 | 16.6 |
| | 6H | 15.6 | 16.1 | 16.7 | 17.1 | 18.5 | 15.5 | 15.9 | 16.5 | 17.0 |
| | 8H | 15.7 | 16.1 | 16.7 | 17.2 | 18.5 | 15.6 | 16.0 | 16.6 | 17.0 |
| | 12H | 15.7 | 16.1 | 16.8 | 17.2 | 18.5 | 15.6 | 16.0 | 16.7 | 17.0 |

| | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|
| 8H | 4H | 15.4 | 15.9 | 16.5 | 16.9 | 18.3 | 15.2 | 15.7 | 16.3 | 16.7 |
| | 6H | 15.9 | 16.3 | 16.9 | 17.3 | 18.7 | 15.8 | 16.1 | 16.8 | 17.2 |
| | 8H | 16.0 | 16.4 | 17.1 | 17.4 | 18.8 | 15.9 | 16.2 | 17.0 | 17.3 |
| | 12H | 16.1 | 16.4 | 17.2 | 17.4 | 18.9 | 16.0 | 16.3 | 17.1 | 17.3 |

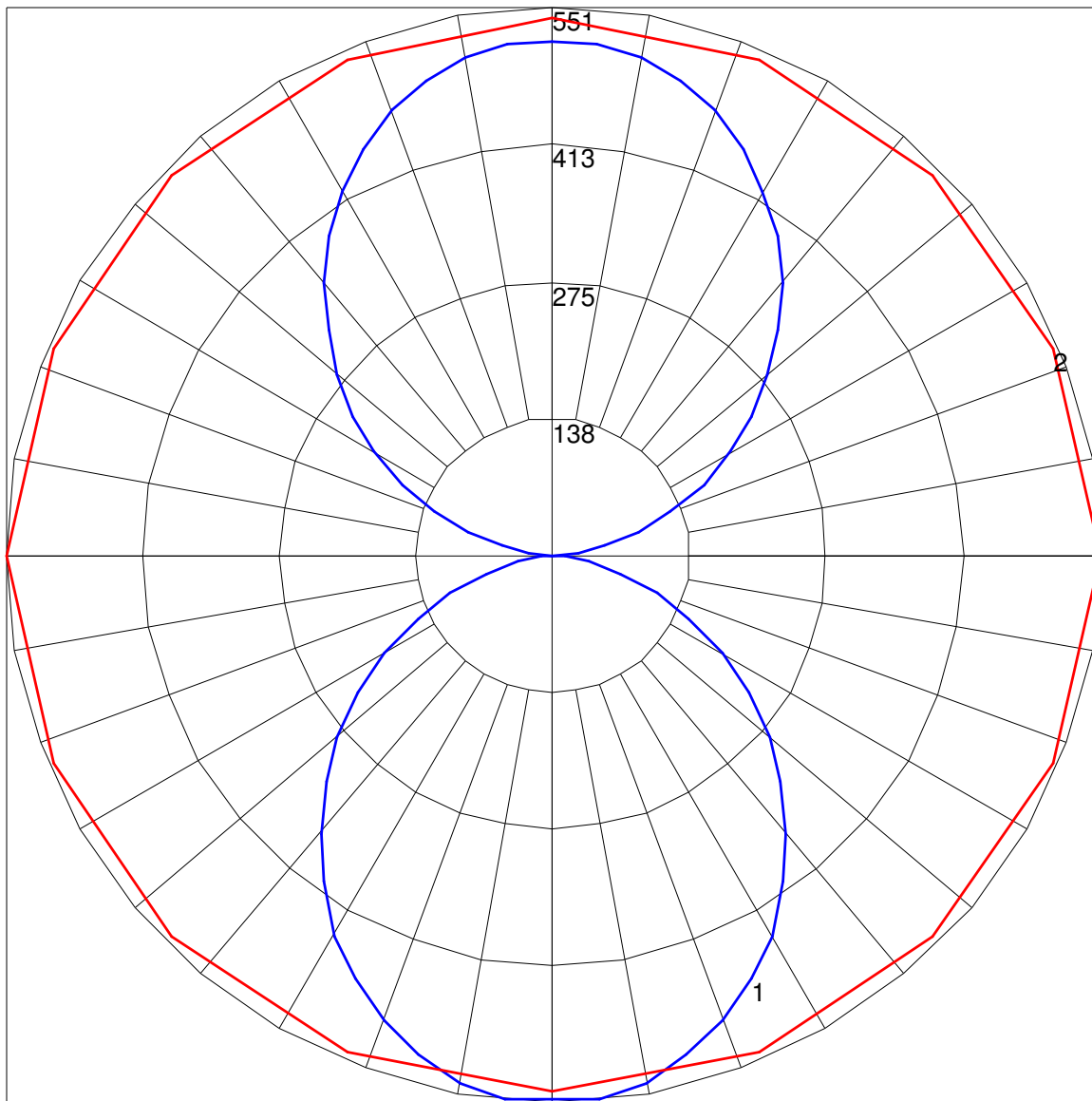
| | | | | | | | | | | |
|-----|----|------|------|------|------|------|------|------|------|------|
| 12H | 4H | 15.4 | 15.8 | 16.5 | 16.8 | 18.2 | 15.2 | 15.6 | 16.3 | 16.6 |
| | 6H | 15.9 | 16.2 | 17.0 | 17.3 | 18.7 | 15.8 | 16.1 | 16.8 | 17.1 |
| | 8H | 16.1 | 16.4 | 17.2 | 17.4 | 18.8 | 16.0 | 16.2 | 17.0 | 17.3 |

Maximum UGR = 18.9

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POLAR GRAPH



Maximum Candela = 550.563 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.)