



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4WUD-4-00-L8-8TWU-L8-8TWD-AF-DIM-UNV 4000K_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN FROM BALLABS TEST NO. 20659.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUEDATE] 15-MAR-2020

[MANUFAC] WILLIAMS INDOOR

[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO

[LUMINAIRE] 1-72 LED-UP 2-72 LED-DOWN 23.75" ARRAYS 4'LUMINAIRE

[MORE] WHITE ALUM BODY w/REFL & FLAT FROST LENSES-UP/DOWN

[LUMCAT] MX4WUD-4-00-L8-8TWU-L8-8TWD-AF-DIM-UNV 4000k

CHARACTERISTICS

| | |
|---------------------------------|-----------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 6668 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 124 |
| Total Luminaire Watts | 53.6 |
| 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 | 8621 | 8432 | 8219 |
| 55 | 7854 | 7592 | 7329 |
| 65 | 6658 | 6459 | 6182 |
| 75 | 5047 | 4918 | 4918 |
| 85 | 2690 | 2882 | 2498 |

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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 | 1230.192 | 1230.192 | 1230.192 | 1230.192 | 1230.192 |
| 5 | 1244.059 | 1226.230 | 1220.287 | 1216.325 | 1214.344 |
| 10 | 1218.306 | 1198.497 | 1194.535 | 1186.611 | 1186.611 |
| 15 | 1180.668 | 1160.858 | 1152.934 | 1146.991 | 1143.029 |
| 20 | 1125.200 | 1107.371 | 1099.447 | 1093.504 | 1087.561 |
| 25 | 1059.828 | 1041.999 | 1036.056 | 1026.151 | 1022.189 |
| 30 | 980.588 | 968.702 | 962.759 | 948.892 | 937.006 |
| 35 | 895.406 | 893.425 | 883.520 | 867.672 | 857.767 |
| 40 | 812.204 | 798.337 | 796.356 | 780.508 | 772.585 |
| 45 | 721.079 | 711.174 | 705.231 | 685.421 | 687.402 |
| 50 | 625.992 | 620.049 | 614.106 | 598.258 | 592.315 |
| 55 | 532.885 | 526.942 | 515.056 | 503.170 | 497.227 |
| 60 | 429.874 | 427.893 | 414.026 | 408.083 | 402.140 |
| 65 | 332.806 | 330.825 | 322.901 | 316.958 | 309.034 |
| 70 | 245.642 | 239.699 | 229.794 | 233.756 | 229.794 |
| 75 | 154.517 | 150.555 | 150.555 | 154.517 | 150.555 |
| 80 | 77.258 | 85.182 | 85.182 | 85.182 | 79.239 |
| 85 | 27.734 | 29.715 | 29.715 | 29.715 | 25.753 |
| 90 | 1.981 | 1.981 | 1.981 | 1.981 | 1.981 |
| 95 | 45.563 | 47.544 | 45.563 | 39.620 | 39.620 |
| 100 | 106.973 | 104.992 | 104.992 | 97.068 | 89.144 |
| 105 | 184.232 | 184.232 | 174.327 | 164.422 | 150.555 |
| 110 | 289.224 | 283.281 | 265.452 | 257.528 | 243.661 |
| 115 | 392.235 | 382.330 | 370.444 | 350.635 | 334.787 |
| 120 | 519.018 | 519.018 | 487.323 | 465.532 | 453.646 |
| 125 | 645.801 | 655.706 | 612.125 | 598.258 | 578.448 |
| 130 | 782.489 | 790.413 | 752.775 | 730.984 | 715.136 |
| 135 | 907.292 | 895.406 | 883.520 | 873.615 | 869.653 |
| 140 | 1024.170 | 1022.189 | 1016.246 | 1002.379 | 1006.341 |
| 145 | 1125.200 | 1127.181 | 1121.238 | 1111.333 | 1127.181 |
| 150 | 1218.306 | 1222.268 | 1220.287 | 1206.420 | 1226.230 |
| 155 | 1289.622 | 1295.565 | 1295.565 | 1285.660 | 1305.470 |
| 160 | 1345.089 | 1356.975 | 1351.032 | 1345.089 | 1356.975 |
| 165 | 1390.652 | 1402.538 | 1390.652 | 1390.652 | 1396.595 |
| 170 | 1416.405 | 1430.272 | 1418.386 | 1416.405 | 1412.443 |
| 175 | 1436.215 | 1448.101 | 1436.215 | 1434.234 | 1424.329 |
| 180 | 1440.177 | 1440.177 | 1440.177 | 1440.177 | 1440.177 |

IES INDOOR REPORT**PHOTOMETRIC FILENAME : MX4WUD-4-00-L8-8TWU-L8-8TWD-AF-DIM-UNV 4000K_.IES****ZONAL LUMEN SUMMARY**

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 441.35 | N.A. | 6.60 |
| 0-30 | 918.19 | N.A. | 13.80 |
| 0-40 | 1468.15 | N.A. | 22.00 |
| 0-60 | 2469.8 | N.A. | 37.00 |
| 0-80 | 2955.11 | N.A. | 44.30 |
| 0-90 | 2994.14 | N.A. | 44.90 |
| 10-90 | 2878.29 | N.A. | 43.20 |
| 20-40 | 1026.8 | N.A. | 15.40 |
| 20-50 | 1568.41 | N.A. | 23.50 |
| 40-70 | 1322.72 | N.A. | 19.80 |
| 60-80 | 485.32 | N.A. | 7.30 |
| 70-80 | 164.24 | N.A. | 2.50 |
| 80-90 | 39.02 | N.A. | 0.60 |
| 90-110 | 240.46 | N.A. | 3.60 |
| 90-120 | 609.39 | N.A. | 9.10 |
| 90-130 | 1164.79 | N.A. | 17.50 |
| 90-150 | 2548.81 | N.A. | 38.20 |
| 90-180 | 3673.81 | N.A. | 55.10 |
| 110-180 | 3433.35 | N.A. | 51.50 |
| 0-180 | 6667.95 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 115.85 |
| 10-20 | 325.51 |
| 20-30 | 476.84 |
| 30-40 | 549.96 |
| 40-50 | 541.61 |
| 50-60 | 460.04 |
| 60-70 | 321.08 |
| 70-80 | 164.24 |
| 80-90 | 39.02 |
| 90-100 | 51.97 |
| 100-110 | 188.49 |
| 110-120 | 368.93 |
| 120-130 | 555.40 |
| 130-140 | 683.25 |
| 140-150 | 700.77 |
| 150-160 | 595.19 |
| 160-170 | 393.20 |
| 170-180 | 136.60 |

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

| RC RW | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|----------|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 0 | 105 | 105 | 105 | 105 | 96 | 96 | 96 | 96 | 80 | 80 | 80 | 65 | 65 | 65 | 51 | 51 | 51 | 44 |
| 1 | 96 | 92 | 88 | 85 | 88 | 84 | 81 | 78 | 70 | 68 | 66 | 57 | 56 | 54 | 45 | 44 | 43 | 38 |
| 2 | 87 | 80 | 74 | 69 | 80 | 74 | 69 | 64 | 62 | 58 | 55 | 50 | 48 | 46 | 40 | 38 | 37 | 32 |
| 3 | 80 | 71 | 64 | 58 | 73 | 65 | 59 | 54 | 54 | 50 | 46 | 45 | 41 | 39 | 36 | 33 | 31 | 27 |
| 4 | 73 | 63 | 55 | 49 | 67 | 58 | 51 | 46 | 48 | 43 | 39 | 40 | 36 | 33 | 32 | 29 | 27 | 23 |
| 5 | 67 | 56 | 48 | 42 | 61 | 52 | 45 | 39 | 43 | 38 | 34 | 36 | 32 | 29 | 29 | 26 | 24 | 20 |
| 6 | 62 | 50 | 42 | 36 | 56 | 46 | 39 | 34 | 39 | 34 | 30 | 32 | 28 | 25 | 26 | 23 | 21 | 18 |
| 7 | 57 | 45 | 37 | 32 | 52 | 42 | 35 | 30 | 35 | 30 | 26 | 29 | 25 | 22 | 24 | 21 | 19 | 16 |
| 8 | 53 | 41 | 33 | 28 | 49 | 38 | 31 | 27 | 32 | 27 | 23 | 27 | 23 | 20 | 22 | 19 | 17 | 14 |
| 9 | 49 | 37 | 30 | 25 | 45 | 35 | 28 | 24 | 30 | 24 | 21 | 25 | 21 | 18 | 20 | 17 | 15 | 13 |
| 10 | 46 | 34 | 27 | 23 | 42 | 32 | 26 | 21 | 27 | 22 | 19 | 23 | 19 | 16 | 19 | 16 | 14 | 12 |

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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 | 14.8 | 15.6 | 15.8 | 16.6 | 18.0 | 14.4 | 15.3 | 15.4 | 16.3 | 17.6 |
| | 3H | 16.3 | 17.0 | 17.3 | 18.0 | 19.4 | 15.9 | 16.7 | 16.9 | 17.7 | 19.0 |
| | 4H | 16.7 | 17.4 | 17.8 | 18.4 | 19.8 | 16.4 | 17.1 | 17.4 | 18.1 | 19.5 |
| | 6H | 17.0 | 17.6 | 18.0 | 18.7 | 20.0 | 16.7 | 17.3 | 17.7 | 18.4 | 19.8 |
| | 8H | 17.0 | 17.6 | 18.1 | 18.7 | 20.1 | 16.8 | 17.4 | 17.8 | 18.4 | 19.8 |
| | 12H | 17.1 | 17.6 | 18.1 | 18.7 | 20.1 | 16.8 | 17.4 | 17.8 | 18.4 | 19.8 |

UGR Viewed Endwise

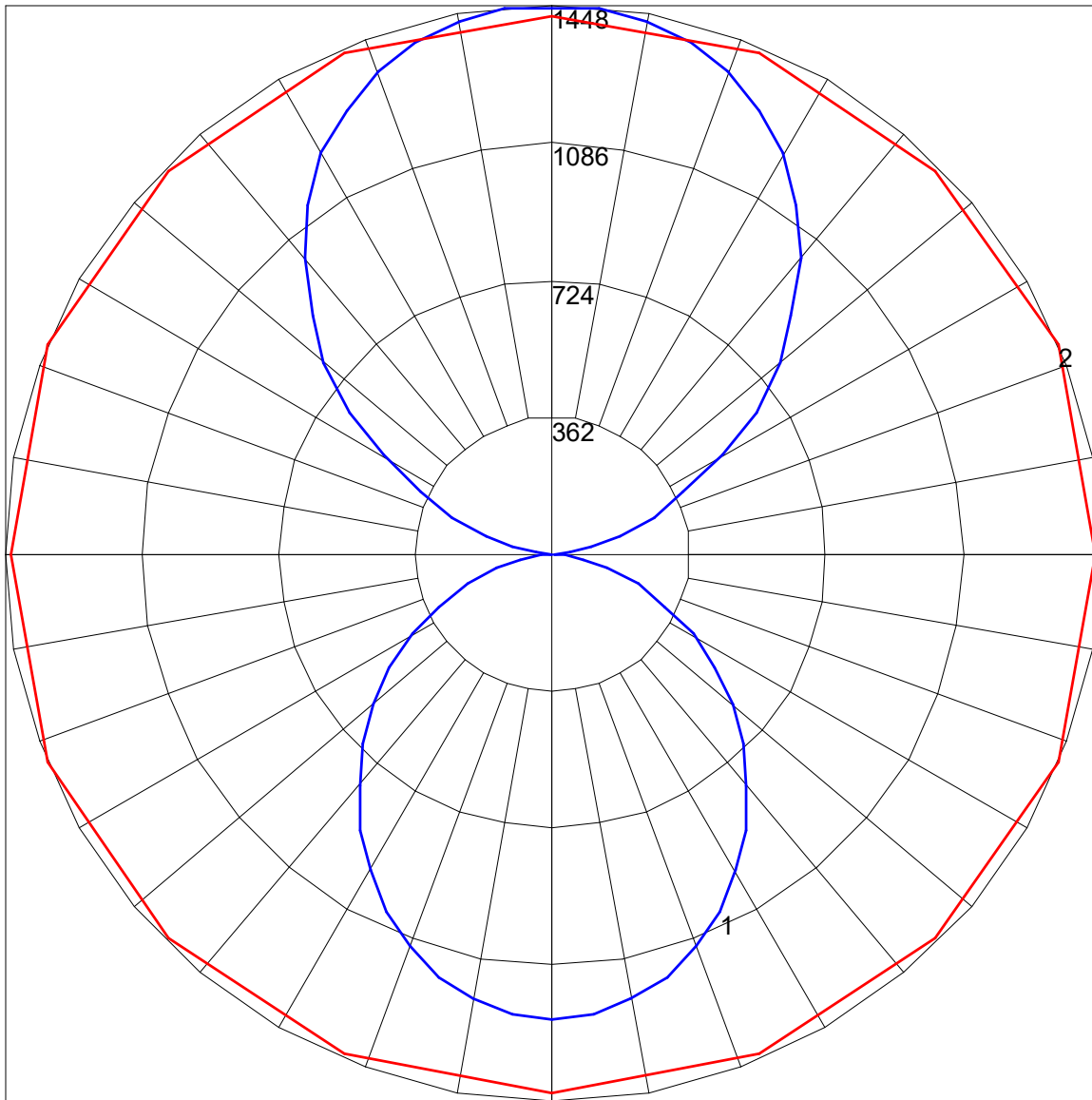
| | | | | | | | | | | | |
|-----|-----|------|------|------|------|------|------|------|------|------|------|
| 4H | 2H | 15.2 | 15.9 | 16.3 | 16.9 | 18.3 | 14.9 | 15.6 | 16.0 | 16.6 | 18.0 |
| | 3H | 16.9 | 17.5 | 17.9 | 18.5 | 19.9 | 16.6 | 17.2 | 17.6 | 18.2 | 19.6 |
| | 4H | 17.5 | 18.0 | 18.5 | 19.0 | 20.4 | 17.2 | 17.7 | 18.3 | 18.8 | 20.2 |
| | 6H | 17.8 | 18.3 | 18.9 | 19.3 | 20.7 | 17.6 | 18.1 | 18.7 | 19.1 | 20.5 |
| | 8H | 17.9 | 18.3 | 19.0 | 19.4 | 20.8 | 17.7 | 18.1 | 18.8 | 19.2 | 20.6 |
| | 12H | 17.9 | 18.3 | 19.0 | 19.4 | 20.8 | 17.7 | 18.1 | 18.8 | 19.2 | 20.6 |
| 8H | 4H | 17.6 | 18.0 | 18.7 | 19.1 | 20.5 | 17.4 | 17.8 | 18.4 | 18.9 | 20.3 |
| | 6H | 18.1 | 18.4 | 19.1 | 19.5 | 20.9 | 17.9 | 18.3 | 19.0 | 19.4 | 20.8 |
| | 8H | 18.2 | 18.5 | 19.3 | 19.6 | 21.0 | 18.1 | 18.4 | 19.1 | 19.5 | 20.9 |
| | 12H | 18.3 | 18.6 | 19.4 | 19.7 | 21.1 | 18.2 | 18.4 | 19.2 | 19.5 | 21.0 |
| 12H | 4H | 17.6 | 18.0 | 18.6 | 19.0 | 20.5 | 17.4 | 17.8 | 18.4 | 18.8 | 20.2 |
| | 6H | 18.1 | 18.4 | 19.2 | 19.5 | 20.9 | 17.9 | 18.2 | 19.0 | 19.3 | 20.8 |
| | 8H | 18.3 | 18.5 | 19.4 | 19.6 | 21.1 | 18.1 | 18.4 | 19.2 | 19.5 | 20.9 |

Maximum UGR = 21.1

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POLAR GRAPH



Maximum Candela = 1448.101 Located At Horizontal Angle = 22.5, Vertical Angle = 175

1 - Vertical Plane Through Horizontal Angles (22.5 - 202.5) (Through Max. Cd.)

2 - Horizontal Cone Through Vertical Angle (175) (Through Max. Cd.)