



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-P7-835U-P7-835D-F-A-POE_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN FROM BALLABS TEST NO. 20194.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUEDATE] 13-MAR-2020

[MANUFAC] WILLIAMS INDOOR

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

[LUMINAIRE] 2-72 LED TOP & 4-72 LED BTM 4' DIRECT/INDIRECT LUMINAIRE

[MORE] WHITE REFLS w/FROSTED ACRYLIC LENS TOP/BTM

[LUMCAT] MX4UD-4-P7-835U-P7-835D-F-A-PoE

CHARACTERISTICS

| | |
|---------------------------------|-----------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 5740 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 120 |
| Total Luminaire Watts | 48 |
| 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 | 8586 | 8183 | 8039 |
| 55 | 7770 | 7442 | 7326 |
| 65 | 6605 | 6580 | 6315 |
| 75 | 5097 | 5254 | 5176 |
| 85 | 2162 | 3156 | 2922 |

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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 | 1206.134 | 1206.134 | 1206.134 | 1206.134 | 1206.134 |
| 5 | 1222.045 | 1194.507 | 1192.671 | 1187.776 | 1180.433 |
| 10 | 1195.119 | 1170.030 | 1173.089 | 1163.298 | 1154.119 |
| 15 | 1157.791 | 1136.985 | 1138.209 | 1125.358 | 1116.179 |
| 20 | 1112.507 | 1095.985 | 1085.582 | 1070.895 | 1065.388 |
| 25 | 1045.806 | 1035.403 | 1021.940 | 1004.806 | 998.686 |
| 30 | 976.045 | 966.866 | 953.403 | 929.537 | 923.418 |
| 35 | 902.612 | 890.985 | 868.955 | 847.537 | 842.642 |
| 40 | 826.119 | 808.373 | 782.672 | 766.761 | 766.149 |
| 45 | 729.433 | 714.134 | 695.164 | 681.701 | 682.925 |
| 50 | 631.522 | 619.283 | 607.045 | 590.522 | 596.642 |
| 55 | 535.448 | 526.269 | 512.806 | 507.298 | 504.851 |
| 60 | 435.701 | 429.582 | 421.015 | 419.791 | 416.119 |
| 65 | 335.343 | 334.731 | 334.119 | 329.836 | 320.657 |
| 70 | 242.940 | 244.164 | 247.836 | 245.388 | 237.433 |
| 75 | 158.493 | 159.104 | 163.388 | 165.224 | 160.940 |
| 80 | 78.940 | 86.896 | 85.672 | 90.567 | 88.731 |
| 85 | 22.642 | 32.433 | 33.045 | 31.821 | 30.597 |
| 90 | 4.284 | 8.567 | 10.403 | 8.567 | 8.567 |
| 95 | 11.015 | 18.358 | 20.194 | 19.582 | 20.194 |
| 100 | 45.284 | 62.418 | 63.030 | 55.687 | 58.746 |
| 105 | 107.090 | 116.269 | 119.328 | 103.418 | 102.806 |
| 110 | 189.090 | 186.642 | 193.373 | 168.895 | 168.284 |
| 115 | 281.492 | 273.537 | 277.821 | 237.433 | 238.657 |
| 120 | 376.955 | 375.119 | 365.328 | 327.388 | 328.000 |
| 125 | 481.597 | 473.642 | 454.672 | 427.134 | 412.448 |
| 130 | 590.522 | 570.940 | 568.492 | 540.343 | 512.194 |
| 135 | 692.716 | 670.686 | 670.075 | 645.597 | 624.791 |
| 140 | 789.403 | 767.985 | 768.597 | 746.567 | 730.657 |
| 145 | 887.925 | 857.328 | 862.224 | 834.074 | 826.731 |
| 150 | 969.925 | 941.776 | 948.507 | 919.746 | 911.179 |
| 155 | 1035.403 | 1008.477 | 1018.880 | 993.179 | 985.836 |
| 160 | 1091.701 | 1063.552 | 1067.836 | 1050.701 | 1043.358 |
| 165 | 1138.209 | 1110.060 | 1105.776 | 1095.985 | 1087.418 |
| 170 | 1163.910 | 1136.373 | 1133.925 | 1127.194 | 1119.239 |
| 175 | 1182.880 | 1156.567 | 1155.343 | 1150.448 | 1145.552 |
| 180 | 1166.970 | 1166.970 | 1166.970 | 1166.970 | 1166.970 |

IES INDOOR REPORT**PHOTOMETRIC FILENAME : MX4UD-4-00-P7-835U-P7-835D-F-A-POE_.IES****ZONAL LUMEN SUMMARY**

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 432.92 | N.A. | 7.50 |
| 0-30 | 903.28 | N.A. | 15.70 |
| 0-40 | 1447.98 | N.A. | 25.20 |
| 0-60 | 2449.48 | N.A. | 42.70 |
| 0-80 | 2951.77 | N.A. | 51.40 |
| 0-90 | 2994.56 | N.A. | 52.20 |
| 10-90 | 2881.29 | N.A. | 50.20 |
| 20-40 | 1015.06 | N.A. | 17.70 |
| 20-50 | 1554.64 | N.A. | 27.10 |
| 40-70 | 1331.08 | N.A. | 23.20 |
| 60-80 | 502.29 | N.A. | 8.80 |
| 70-80 | 172.71 | N.A. | 3.00 |
| 80-90 | 42.80 | N.A. | 0.70 |
| 90-110 | 150.07 | N.A. | 2.60 |
| 90-120 | 412.59 | N.A. | 7.20 |
| 90-130 | 818.08 | N.A. | 14.30 |
| 90-150 | 1860.57 | N.A. | 32.40 |
| 90-180 | 2745.29 | N.A. | 47.80 |
| 110-180 | 2595.22 | N.A. | 45.20 |
| 0-180 | 5739.86 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 113.27 |
| 10-20 | 319.65 |
| 20-30 | 470.36 |
| 30-40 | 544.70 |
| 40-50 | 539.58 |
| 50-60 | 461.92 |
| 60-70 | 329.59 |
| 70-80 | 172.71 |
| 80-90 | 42.80 |
| 90-100 | 28.22 |
| 100-110 | 121.85 |
| 110-120 | 262.52 |
| 120-130 | 405.49 |
| 130-140 | 509.64 |
| 140-150 | 532.85 |
| 150-160 | 463.32 |
| 160-170 | 311.65 |
| 170-180 | 109.75 |

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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 | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 85 | 85 | 85 | 71 | 71 | 71 | 58 | 58 | 58 | 52 |
| 1 | 98 | 94 | 90 | 87 | 91 | 87 | 84 | 81 | 74 | 72 | 70 | 63 | 61 | 59 | 52 | 50 | 49 | 44 |
| 2 | 90 | 82 | 76 | 71 | 83 | 76 | 71 | 67 | 65 | 61 | 58 | 55 | 52 | 50 | 46 | 44 | 42 | 37 |
| 3 | 82 | 72 | 65 | 59 | 76 | 67 | 61 | 56 | 58 | 53 | 49 | 49 | 45 | 42 | 40 | 38 | 36 | 32 |
| 4 | 75 | 64 | 56 | 50 | 69 | 60 | 53 | 47 | 51 | 46 | 42 | 44 | 39 | 36 | 36 | 33 | 31 | 27 |
| 5 | 69 | 57 | 49 | 43 | 63 | 53 | 46 | 41 | 46 | 40 | 36 | 39 | 35 | 31 | 33 | 29 | 27 | 24 |
| 6 | 63 | 51 | 43 | 38 | 59 | 48 | 41 | 36 | 41 | 36 | 32 | 35 | 31 | 28 | 30 | 26 | 24 | 21 |
| 7 | 59 | 46 | 38 | 33 | 54 | 43 | 36 | 31 | 38 | 32 | 28 | 32 | 28 | 24 | 27 | 24 | 21 | 19 |
| 8 | 55 | 42 | 34 | 29 | 50 | 39 | 33 | 28 | 34 | 29 | 25 | 29 | 25 | 22 | 25 | 22 | 19 | 17 |
| 9 | 51 | 39 | 31 | 26 | 47 | 36 | 29 | 25 | 31 | 26 | 22 | 27 | 23 | 20 | 23 | 20 | 17 | 15 |
| 10 | 47 | 35 | 28 | 23 | 44 | 33 | 27 | 22 | 29 | 24 | 20 | 25 | 21 | 18 | 21 | 18 | 16 | 14 |

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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 | 15.5 | 16.3 | 16.4 | 17.3 | 18.5 | 15.2 | 16.1 | 16.2 | 17.1 | 18.3 |
| | 3H | 17.0 | 17.7 | 17.9 | 18.7 | 20.0 | 16.8 | 17.5 | 17.7 | 18.5 | 19.8 |
| | 4H | 17.4 | 18.2 | 18.4 | 19.1 | 20.4 | 17.3 | 18.0 | 18.3 | 19.0 | 20.3 |
| | 6H | 17.7 | 18.4 | 18.7 | 19.4 | 20.7 | 17.6 | 18.3 | 18.6 | 19.3 | 20.6 |
| | 8H | 17.8 | 18.4 | 18.7 | 19.4 | 20.7 | 17.7 | 18.4 | 18.7 | 19.4 | 20.6 |
| | 12H | 17.8 | 18.4 | 18.8 | 19.4 | 20.7 | 17.7 | 18.4 | 18.7 | 19.3 | 20.7 |

UGR Viewed Endwise

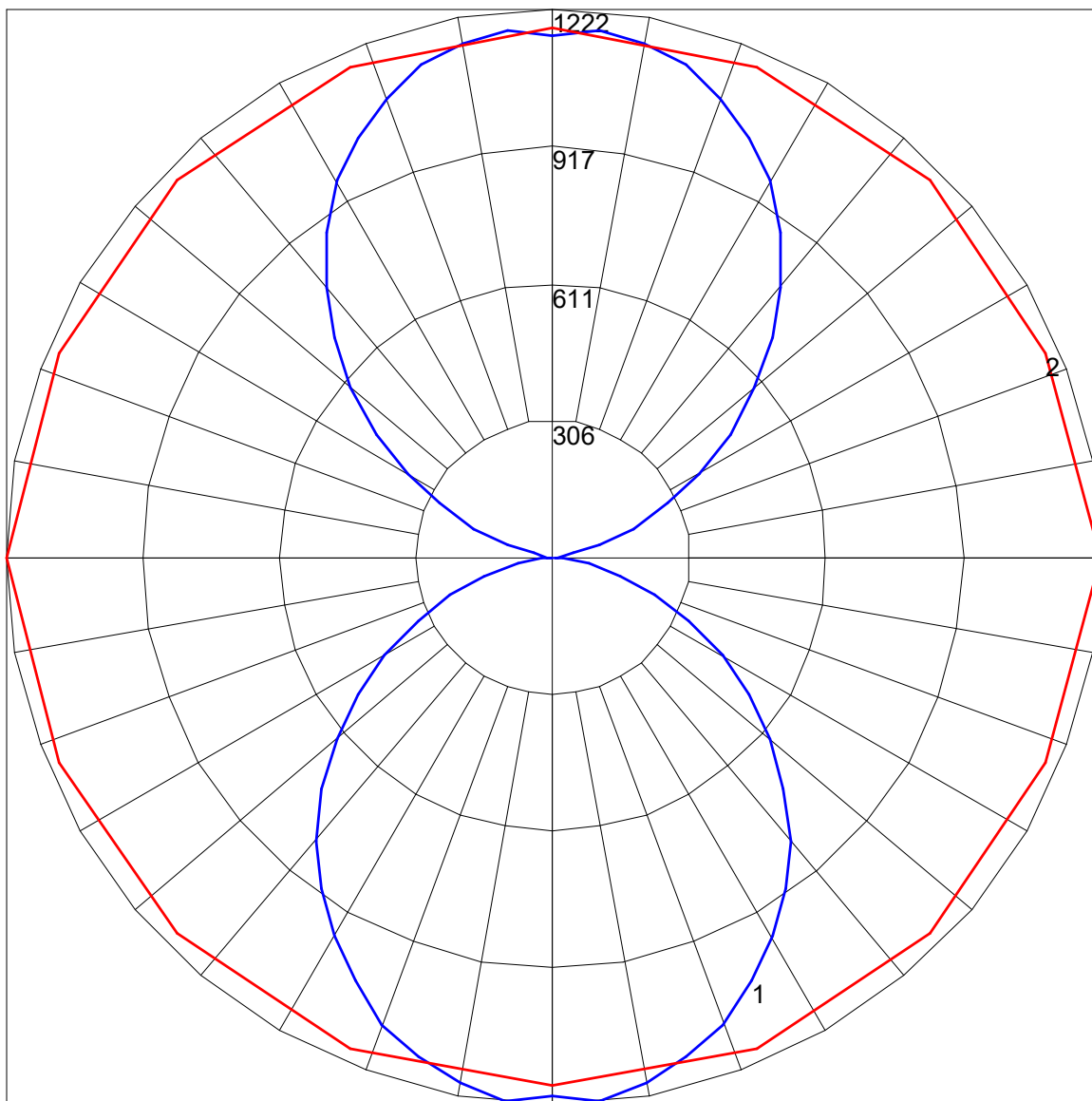
| | | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 4H | 2H | 15.9 | 16.7 | 16.9 | 17.6 | 18.9 | 15.7 | 16.5 | 16.7 | 17.4 | 18.7 |
| | 3H | 17.6 | 18.2 | 18.6 | 19.2 | 20.5 | 17.5 | 18.1 | 18.5 | 19.1 | 20.4 |
| | 4H | 18.2 | 18.8 | 19.2 | 19.8 | 21.1 | 18.1 | 18.7 | 19.1 | 19.7 | 21.0 |
| | 6H | 18.6 | 19.1 | 19.6 | 20.1 | 21.4 | 18.6 | 19.1 | 19.6 | 20.1 | 21.4 |
| | 8H | 18.7 | 19.1 | 19.7 | 20.2 | 21.5 | 18.7 | 19.2 | 19.7 | 20.2 | 21.5 |
| | 12H | 18.7 | 19.1 | 19.7 | 20.1 | 21.5 | 18.8 | 19.2 | 19.8 | 20.2 | 21.5 |

| | | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 8H | 4H | 18.4 | 18.9 | 19.4 | 19.9 | 21.2 | 18.3 | 18.8 | 19.4 | 19.8 | 21.1 |
| | 6H | 18.9 | 19.3 | 19.9 | 20.3 | 21.6 | 18.9 | 19.3 | 19.9 | 20.3 | 21.6 |
| | 8H | 19.0 | 19.4 | 20.1 | 20.4 | 21.8 | 19.1 | 19.4 | 20.1 | 20.4 | 21.8 |
| | 12H | 19.1 | 19.4 | 20.2 | 20.4 | 21.8 | 19.2 | 19.5 | 20.2 | 20.5 | 21.9 |

| | | | | | | | | | | | |
|-----|----|------|------|------|------|------|------|------|------|------|------|
| 12H | 4H | 18.4 | 18.8 | 19.4 | 19.8 | 21.2 | 18.3 | 18.7 | 19.3 | 19.8 | 21.1 |
| | 6H | 18.9 | 19.2 | 19.9 | 20.3 | 21.6 | 18.9 | 19.2 | 19.9 | 20.3 | 21.6 |
| | 8H | 19.1 | 19.4 | 20.1 | 20.4 | 21.8 | 19.1 | 19.4 | 20.2 | 20.4 | 21.8 |

Maximum UGR = 21.9

POLAR GRAPH



Maximum Candela = 1222.045 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.)