



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4D-4-00-L8-835-F-(L3.6)-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] GEN FROM BALLABS TEST NO. 20195.0
 [TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
 [ISSUEDATE] 22-APR-2021
 [MANUFAC] WILLIAMS INDOOR
 [OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO 64836
 [LUMINAIRE] 4' DIRECT SUSPENDED LUMINAIRE
 [MORE] WITH FROSTED ACRYLIC LENS
 [LUMCAT] MX4D-4-L8-835-S-F-(L3.6)-DIM-UNV
 [LAMPCAT] HLM 80 CRI, 3500K CCT
 [SEARCH_SOURCETYPE] LED
 [SEARCH_APPLICATION] Indoor, Architectural, Classroom, Direct
 [SEARCH_MOUNTING] Suspended

CHARACTERISTICS

| | |
|---------------------------------|-----------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 1485 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 125 |
| Total Luminaire Watts | 11.9 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 1.24 |
| Spacing Criterion (90-270) | 1.18 |
| Spacing Criterion (Diagonal) | 1.30 |
| 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 | 4284 | 4090 | 3937 |
| 55 | 3947 | 3763 | 3529 |
| 65 | 3492 | 3285 | 3145 |
| 75 | 2687 | 2577 | 2557 |
| 85 | 1241 | 1537 | 1418 |

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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 | 586.697 | 586.697 | 586.697 | 586.697 | 586.697 |
| 5 | 598.765 | 585.769 | 582.055 | 578.961 | 575.867 |
| 10 | 590.720 | 576.795 | 572.463 | 567.821 | 564.417 |
| 15 | 578.652 | 563.180 | 555.134 | 547.708 | 545.542 |
| 20 | 553.278 | 537.806 | 533.474 | 520.786 | 518.620 |
| 25 | 517.692 | 505.624 | 501.292 | 491.699 | 489.533 |
| 30 | 482.107 | 471.276 | 465.706 | 458.899 | 455.495 |
| 35 | 448.687 | 436.000 | 427.026 | 423.004 | 419.290 |
| 40 | 411.554 | 401.652 | 388.656 | 382.467 | 377.516 |
| 45 | 363.901 | 357.093 | 347.500 | 341.621 | 334.504 |
| 50 | 319.960 | 308.511 | 306.654 | 295.824 | 289.945 |
| 55 | 271.997 | 265.190 | 259.310 | 250.027 | 243.219 |
| 60 | 227.747 | 217.845 | 214.441 | 206.087 | 200.207 |
| 65 | 177.309 | 172.048 | 166.788 | 161.527 | 159.671 |
| 70 | 130.274 | 125.632 | 122.229 | 117.278 | 119.444 |
| 75 | 83.549 | 83.858 | 80.145 | 80.145 | 79.526 |
| 80 | 41.155 | 43.631 | 42.393 | 44.869 | 41.774 |
| 85 | 12.996 | 15.472 | 16.091 | 18.876 | 14.853 |
| 90 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 212.21 | N.A. | 14.30 |
| 0-30 | 442.85 | N.A. | 29.80 |
| 0-40 | 711.93 | N.A. | 47.90 |
| 0-60 | 1212.09 | N.A. | 81.60 |
| 0-80 | 1464.52 | N.A. | 98.60 |
| 0-90 | 1485.00 | N.A. | 100.00 |
| 10-90 | 1429.62 | N.A. | 96.30 |
| 20-40 | 499.72 | N.A. | 33.70 |
| 20-50 | 768.78 | N.A. | 51.80 |
| 40-70 | 665.97 | N.A. | 44.80 |
| 60-80 | 252.43 | N.A. | 17.00 |
| 70-80 | 86.62 | N.A. | 5.80 |
| 80-90 | 20.49 | N.A. | 1.40 |
| 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 | 1485.00 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 55.39 |
| 10-20 | 156.82 |
| 20-30 | 230.64 |
| 30-40 | 269.08 |
| 40-50 | 269.06 |
| 50-60 | 231.10 |
| 60-70 | 165.81 |
| 70-80 | 86.62 |
| 80-90 | 20.49 |
| 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 | 46 | 46 | 46 | 46 | 44 | 44 | 44 | 44 | 43 | 43 | 43 | 41 | 41 | 41 | 39 | 39 | 39 | 38 |
| 1 | 42 | 40 | 38 | 37 | 41 | 39 | 38 | 36 | 38 | 36 | 35 | 36 | 35 | 34 | 35 | 34 | 33 | 32 |
| 2 | 38 | 35 | 33 | 30 | 37 | 34 | 32 | 30 | 33 | 31 | 29 | 32 | 30 | 29 | 31 | 29 | 28 | 27 |
| 3 | 35 | 31 | 28 | 26 | 34 | 30 | 28 | 25 | 29 | 27 | 25 | 28 | 26 | 24 | 27 | 25 | 24 | 23 |
| 4 | 32 | 28 | 24 | 22 | 31 | 27 | 24 | 22 | 26 | 23 | 21 | 25 | 23 | 21 | 24 | 22 | 21 | 20 |
| 5 | 29 | 25 | 21 | 19 | 29 | 24 | 21 | 19 | 23 | 21 | 19 | 23 | 20 | 18 | 22 | 20 | 18 | 17 |
| 6 | 27 | 22 | 19 | 17 | 27 | 22 | 19 | 16 | 21 | 18 | 16 | 21 | 18 | 16 | 20 | 18 | 16 | 15 |
| 7 | 25 | 20 | 17 | 15 | 25 | 20 | 17 | 15 | 19 | 17 | 14 | 19 | 16 | 14 | 18 | 16 | 14 | 14 |
| 8 | 24 | 18 | 15 | 13 | 23 | 18 | 15 | 13 | 18 | 15 | 13 | 17 | 15 | 13 | 17 | 15 | 13 | 12 |
| 9 | 22 | 17 | 14 | 12 | 22 | 17 | 14 | 12 | 16 | 14 | 12 | 16 | 13 | 12 | 16 | 13 | 12 | 11 |
| 10 | 21 | 16 | 13 | 11 | 20 | 16 | 13 | 11 | 15 | 12 | 11 | 15 | 12 | 11 | 14 | 12 | 11 | 10 |

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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 | 20.1 | 21.7 | 20.5 | 22.0 | 22.3 | 19.6 | 21.2 | 20.0 | 21.5 | 21.9 |
| | 3H | 21.8 | 23.2 | 22.1 | 23.5 | 23.9 | 21.2 | 22.7 | 21.6 | 23.0 | 23.4 |
| | 4H | 22.3 | 23.6 | 22.7 | 24.0 | 24.4 | 21.8 | 23.2 | 22.2 | 23.5 | 23.9 |
| | 6H | 22.6 | 23.9 | 23.0 | 24.2 | 24.6 | 22.2 | 23.4 | 22.6 | 23.8 | 24.2 |
| | 8H | 22.7 | 23.9 | 23.1 | 24.3 | 24.7 | 22.3 | 23.5 | 22.7 | 23.8 | 24.2 |
| | 12H | 22.7 | 23.9 | 23.1 | 24.2 | 24.7 | 22.3 | 23.5 | 22.7 | 23.8 | 24.3 |

UGR Viewed Endwise

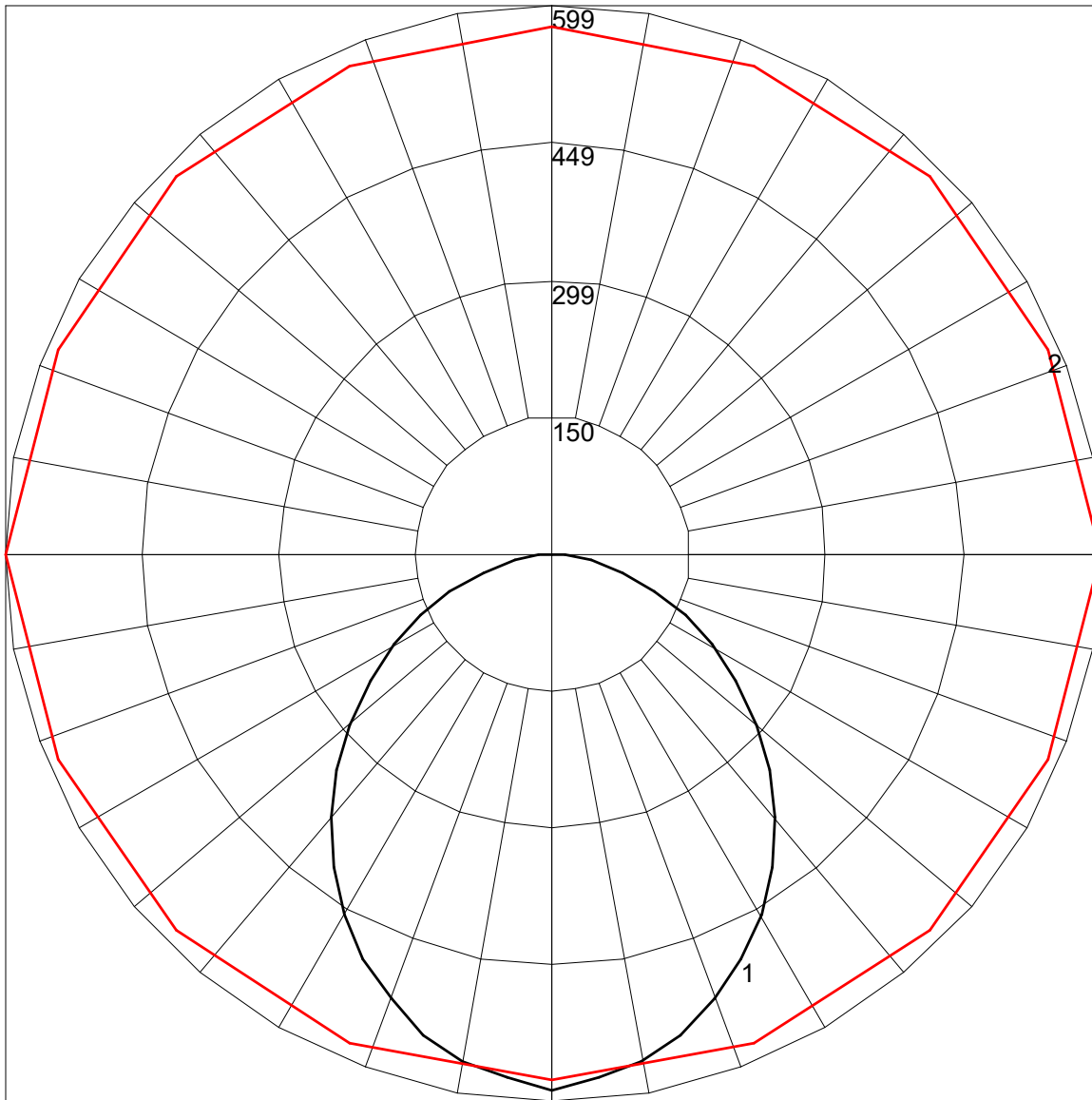
| | | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 4H | 2H | 20.6 | 22.0 | 21.0 | 22.3 | 22.7 | 20.3 | 21.6 | 20.7 | 22.0 | 22.3 |
| | 3H | 22.5 | 23.6 | 22.9 | 24.0 | 24.4 | 22.1 | 23.2 | 22.5 | 23.6 | 24.0 |
| | 4H | 23.1 | 24.2 | 23.6 | 24.6 | 25.0 | 22.7 | 23.8 | 23.2 | 24.2 | 24.6 |
| | 6H | 23.6 | 24.5 | 24.0 | 24.9 | 25.4 | 23.2 | 24.1 | 23.7 | 24.5 | 25.0 |
| | 8H | 23.7 | 24.5 | 24.1 | 24.9 | 25.4 | 23.3 | 24.2 | 23.8 | 24.6 | 25.1 |
| | 12H | 23.7 | 24.5 | 24.2 | 24.9 | 25.4 | 23.4 | 24.2 | 23.9 | 24.6 | 25.1 |

| | | | | | | | | | | | |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 8H | 4H | 23.4 | 24.2 | 23.8 | 24.6 | 25.1 | 23.0 | 23.8 | 23.5 | 24.3 | 24.7 |
| | 6H | 23.9 | 24.6 | 24.4 | 25.1 | 25.5 | 23.6 | 24.3 | 24.1 | 24.7 | 25.2 |
| | 8H | 24.0 | 24.7 | 24.5 | 25.2 | 25.6 | 23.8 | 24.4 | 24.3 | 24.9 | 25.4 |
| | 12H | 24.1 | 24.7 | 24.7 | 25.2 | 25.7 | 23.9 | 24.5 | 24.4 | 25.0 | 25.5 |

| | | | | | | | | | | | |
|-----|----|------|------|------|------|------|------|------|------|------|------|
| 12H | 4H | 23.4 | 24.1 | 23.9 | 24.6 | 25.1 | 23.0 | 23.8 | 23.5 | 24.2 | 24.7 |
| | 6H | 23.9 | 24.5 | 24.4 | 25.0 | 25.5 | 23.6 | 24.2 | 24.1 | 24.7 | 25.2 |
| | 8H | 24.1 | 24.6 | 24.6 | 25.1 | 25.7 | 23.9 | 24.4 | 24.4 | 24.9 | 25.4 |

Maximum UGR = 25.7

POLAR GRAPH



Maximum Candela = 598.765 Located At Horizontal Angle = 0, Vertical Angle = 5
1 - Vertical Plane Through Horizontal Angles (90 - 270)
2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)