



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4RG-2-00-L8-935-F-DIM-UNV\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST]GEN FROM BALLABS TEST NO. 20647.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUE DATE] 05-26-2020

[MANUFAC] WILLIAMS INDOOR

[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO 64836

[LUMINAIRE] 2-72 LED 23.75"ARRAYS 2'RECESSED GRID LUMINAIRE

[MORE] WHITE ALUM BODY w/WHITE REFL & FLAT FROST LENS

[LUMCAT] MX4RG-2-00-L8-935-F-DIM-UNV

[LAMPCAT] MX2472\_2835 REV A 10560314

### CHARACTERISTICS

|                                 |                 |
|---------------------------------|-----------------|
| Lumens Per Lamp                 | N.A. (absolute) |
| Total Lamp Lumens               | N.A. (absolute) |
| Luminaire Lumens                | 1383            |
| Total Luminaire Efficiency      | N.A.            |
| Luminaire Efficacy Rating (LER) | 88              |
| Total Luminaire Watts           | 15.8            |
| Ballast Factor                  | 1.00            |
| CIE Type                        | Direct          |
| Spacing Criterion (0-180)       | 1.20            |
| Spacing Criterion (90-270)      | 1.16            |
| Spacing Criterion (Diagonal)    | 1.30            |
| Basic Luminous Shape            | Rectangular     |
| Luminous Length (0-180)         | 2.00 ft         |
| Luminous Width (90-270)         | 0.32 ft         |
| Luminous Height                 | 0.00 ft         |

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

| Angle In<br>Degrees | Average<br>0-Deg | Average<br>45-Deg | Average<br>90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45                  | 7988             | 7818              | 7496              |
| 55                  | 7398             | 6954              | 6838              |
| 65                  | 6240             | 6018              | 5828              |
| 75                  | 4655             | 4603              | 4655              |
| 85                  | 2150             | 2150              | 2150              |

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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> |
|-----------|------------|-------------|-------------|-------------|-------------|
| <b>0</b>  | 566.025    | 566.025     | 566.025     | 566.025     | 566.025     |
| <b>5</b>  | 569.191    | 562.858     | 558.900     | 558.108     | 558.108     |
| <b>10</b> | 558.900    | 552.567     | 547.817     | 547.025     | 546.234     |
| <b>15</b> | 543.067    | 535.151     | 529.609     | 528.817     | 526.442     |
| <b>20</b> | 515.359    | 509.818     | 508.235     | 505.068     | 501.110     |
| <b>25</b> | 485.277    | 480.527     | 477.361     | 472.611     | 470.236     |
| <b>30</b> | 452.028    | 446.487     | 440.945     | 437.778     | 434.612     |
| <b>35</b> | 416.404    | 413.238     | 403.738     | 405.321     | 396.613     |
| <b>40</b> | 376.822    | 374.447     | 371.280     | 361.781     | 357.031     |
| <b>45</b> | 334.073    | 330.907     | 326.948     | 317.449     | 313.491     |
| <b>50</b> | 290.533    | 288.950     | 281.033     | 276.283     | 273.117     |
| <b>55</b> | 250.951    | 245.409     | 235.910     | 235.910     | 231.951     |
| <b>60</b> | 197.911    | 199.494     | 192.369     | 189.994     | 185.244     |
| <b>65</b> | 155.954    | 154.370     | 150.412     | 147.246     | 145.662     |
| <b>70</b> | 115.580    | 112.413     | 108.455     | 106.872     | 106.080     |
| <b>75</b> | 71.248     | 69.665      | 70.456      | 68.873      | 71.248      |
| <b>80</b> | 36.416     | 34.832      | 36.416      | 39.582      | 36.416      |
| <b>85</b> | 11.083     | 11.083      | 11.083      | 13.458      | 11.083      |
| <b>90</b> | 0.792      | 0.000       | 0.000       | 0.000       | 0.000       |

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**ZONAL LUMEN SUMMARY**

| Zone    | Lumens  | %Lamp | %Fixt  |
|---------|---------|-------|--------|
| 0-20    | 203.10  | N.A.  | 14.70  |
| 0-30    | 422.73  | N.A.  | 30.60  |
| 0-40    | 677.24  | N.A.  | 49.00  |
| 0-60    | 1141.76 | N.A.  | 82.50  |
| 0-80    | 1366.89 | N.A.  | 98.80  |
| 0-90    | 1383.29 | N.A.  | 100.00 |
| 10-90   | 1330.08 | N.A.  | 96.20  |
| 20-40   | 474.13  | N.A.  | 34.30  |
| 20-50   | 725.13  | N.A.  | 52.40  |
| 40-70   | 614.09  | N.A.  | 44.40  |
| 60-80   | 225.13  | N.A.  | 16.30  |
| 70-80   | 75.57   | N.A.  | 5.50   |
| 80-90   | 16.40   | N.A.  | 1.20   |
| 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   | 1383.29 | N.A.  | 100.00 |

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

| Zone    | Lumens |
|---------|--------|
| 0-10    | 53.21  |
| 10-20   | 149.89 |
| 20-30   | 219.62 |
| 30-40   | 254.51 |
| 40-50   | 251.00 |
| 50-60   | 213.53 |
| 60-70   | 149.57 |
| 70-80   | 75.57  |
| 80-90   | 16.40  |
| 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  | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1  | 109 | 105 | 101 | 97  | 107 | 103 | 99  | 96  | 99  | 96  | 93  | 95  | 92  | 90  | 91  | 89  | 87  | 85  |
| 2  | 100 | 92  | 86  | 80  | 97  | 90  | 84  | 79  | 87  | 82  | 77  | 84  | 79  | 76  | 81  | 77  | 74  | 72  |
| 3  | 92  | 81  | 74  | 67  | 89  | 80  | 73  | 67  | 77  | 71  | 66  | 74  | 69  | 64  | 72  | 67  | 63  | 61  |
| 4  | 84  | 73  | 64  | 58  | 82  | 71  | 63  | 57  | 69  | 62  | 56  | 66  | 60  | 56  | 64  | 59  | 55  | 53  |
| 5  | 77  | 65  | 56  | 50  | 75  | 64  | 56  | 50  | 62  | 55  | 49  | 60  | 54  | 49  | 58  | 52  | 48  | 46  |
| 6  | 72  | 59  | 50  | 44  | 70  | 58  | 50  | 44  | 56  | 49  | 43  | 54  | 48  | 43  | 53  | 47  | 42  | 40  |
| 7  | 67  | 53  | 45  | 39  | 65  | 53  | 44  | 39  | 51  | 44  | 38  | 50  | 43  | 38  | 48  | 42  | 38  | 36  |
| 8  | 62  | 49  | 41  | 35  | 61  | 48  | 40  | 35  | 47  | 40  | 34  | 46  | 39  | 34  | 44  | 39  | 34  | 32  |
| 9  | 58  | 45  | 37  | 31  | 57  | 44  | 37  | 31  | 43  | 36  | 31  | 42  | 36  | 31  | 41  | 35  | 31  | 29  |
| 10 | 54  | 42  | 34  | 29  | 53  | 41  | 34  | 29  | 40  | 33  | 28  | 39  | 33  | 28  | 38  | 32  | 28  | 26  |

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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 | 18.9 | 20.5 | 19.2 | 20.8 | 21.1 | 18.5 | 20.1 | 18.9 | 20.4 | 20.8 |
|      | 3H   | 20.4 | 21.9 | 20.8 | 22.2 | 22.6 | 20.1 | 21.5 | 20.4 | 21.8 | 22.2 |
|      | 4H   | 20.9 | 22.3 | 21.3 | 22.6 | 23.0 | 20.6 | 21.9 | 21.0 | 22.3 | 22.6 |
|      | 6H   | 21.2 | 22.4 | 21.6 | 22.8 | 23.2 | 20.9 | 22.1 | 21.3 | 22.5 | 22.9 |
|      | 8H   | 21.3 | 22.4 | 21.7 | 22.8 | 23.2 | 21.0 | 22.2 | 21.4 | 22.6 | 23.0 |
|      | 12H  | 21.3 | 22.4 | 21.7 | 22.8 | 23.2 | 21.0 | 22.1 | 21.4 | 22.5 | 23.0 |

UGR Viewed Endwise

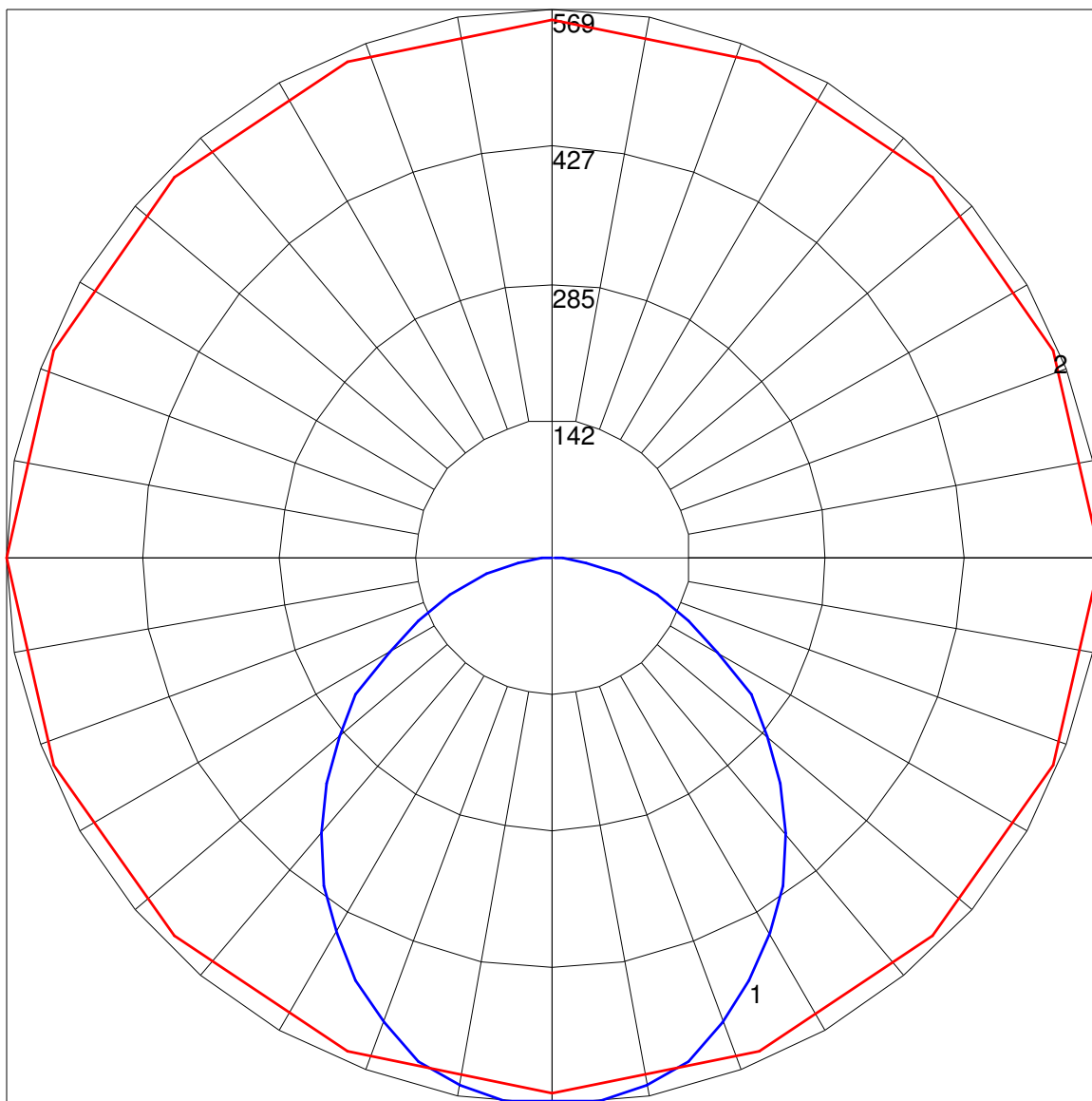
|    |     |      |      |      |      |      |      |      |      |      |      |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 4H | 2H  | 19.4 | 20.7 | 19.8 | 21.1 | 21.5 | 19.1 | 20.5 | 19.5 | 20.8 | 21.2 |
|    | 3H  | 21.2 | 22.3 | 21.6 | 22.7 | 23.1 | 20.8 | 21.9 | 21.2 | 22.3 | 22.7 |
|    | 4H  | 21.7 | 22.7 | 22.2 | 23.1 | 23.6 | 21.5 | 22.5 | 21.9 | 22.9 | 23.3 |
|    | 6H  | 22.1 | 23.0 | 22.6 | 23.4 | 23.9 | 21.9 | 22.8 | 22.4 | 23.2 | 23.7 |
|    | 8H  | 22.2 | 23.0 | 22.7 | 23.5 | 23.9 | 22.0 | 22.8 | 22.5 | 23.3 | 23.7 |
|    | 12H | 22.2 | 23.0 | 22.7 | 23.4 | 23.9 | 22.1 | 22.8 | 22.5 | 23.3 | 23.7 |

|    |     |      |      |      |      |      |      |      |      |      |      |
|----|-----|------|------|------|------|------|------|------|------|------|------|
| 8H | 4H  | 21.9 | 22.8 | 22.4 | 23.2 | 23.7 | 21.7 | 22.5 | 22.2 | 22.9 | 23.4 |
|    | 6H  | 22.4 | 23.1 | 22.9 | 23.5 | 24.0 | 22.2 | 22.9 | 22.7 | 23.4 | 23.9 |
|    | 8H  | 22.5 | 23.1 | 23.0 | 23.6 | 24.1 | 22.4 | 23.0 | 22.9 | 23.5 | 24.0 |
|    | 12H | 22.6 | 23.1 | 23.1 | 23.6 | 24.2 | 22.5 | 23.0 | 23.0 | 23.5 | 24.1 |

|     |    |      |      |      |      |      |      |      |      |      |      |
|-----|----|------|------|------|------|------|------|------|------|------|------|
| 12H | 4H | 21.9 | 22.7 | 22.4 | 23.2 | 23.6 | 21.7 | 22.4 | 22.2 | 22.9 | 23.4 |
|     | 6H | 22.4 | 23.0 | 22.9 | 23.5 | 24.0 | 22.3 | 22.9 | 22.8 | 23.3 | 23.9 |
|     | 8H | 22.6 | 23.1 | 23.1 | 23.6 | 24.2 | 22.4 | 23.0 | 22.9 | 23.5 | 24.0 |

Maximum UGR = 24.2

POLAR GRAPH



Maximum Candela = 569.191 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.)