



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : LT-24-L82-930-AF-DIM-UNV\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
 [TEST] GEN FROM BALLABS TEST NO. 20802.0  
 [TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC  
 [ISSUEDATE] 2023-07-24  
 [MANUFAC] WILLIAMS INDOOR  
 [OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO  
 [LUMINAIRE] 2x4' RECESSED LED LUMINAIRE  
 [LUMINAIRE] WHITE REFLECTOR w/FROSTED CENTER LENS  
 [LUMINAIRE] 0-10V DIMMING DRIVER  
 [LUMCAT] LT-24-L82-930-AF-DIM-UNV  
 [LAMPCAT] 22 INCH LED ARRAYS  
 [\_SEARCH\_SOURCETYPE] LED  
 [\_SEARCH\_APPLICATION] Indoor, Classroom, Office, Direct  
 [\_SEARCH\_MOUNTING] Recessed

### CHARACTERISTICS

|                                 |                 |
|---------------------------------|-----------------|
| Lumens Per Lamp                 | N.A. (absolute) |
| Total Lamp Lumens               | N.A. (absolute) |
| Luminaire Lumens                | 6735            |
| Total Luminaire Efficiency      | N.A.            |
| Luminaire Efficacy Rating (LER) | 105             |
| Total Luminaire Watts           | 64.3            |
| Ballast Factor                  | 1.00            |
| CIE Type                        | Direct          |
| Spacing Criterion (0-180)       | 1.22            |
| Spacing Criterion (90-270)      | 1.28            |
| Spacing Criterion (Diagonal)    | 1.36            |
| Basic Luminous Shape            | Rectangular     |
| Luminous Length (0-180)         | 3.93 ft         |
| Luminous Width (90-270)         | 1.91 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                  | 2783             | 3093              | 3327              |
| 55                  | 2531             | 3001              | 3355              |
| 65                  | 2162             | 2982              | 3512              |
| 75                  | 1594             | 3132              | 3929              |
| 85                  | 610              | 2515              | 2311              |

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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>  | 2339.751   | 2339.751    | 2339.751    | 2339.751    | 2339.751    |
| <b>5</b>  | 2362.184   | 2334.143    | 2319.562    | 2313.954    | 2313.954    |
| <b>10</b> | 2318.440   | 2289.277    | 2281.426    | 2282.548    | 2279.183    |
| <b>15</b> | 2248.898   | 2228.709    | 2225.344    | 2233.195    | 2237.682    |
| <b>20</b> | 2158.045   | 2140.099    | 2147.950    | 2169.261    | 2173.748    |
| <b>25</b> | 2039.151   | 2023.448    | 2051.489    | 2081.773    | 2088.503    |
| <b>30</b> | 1902.310   | 1898.945    | 1937.081    | 1977.460    | 1993.163    |
| <b>35</b> | 1741.915   | 1755.374    | 1811.457    | 1863.052    | 1882.120    |
| <b>40</b> | 1572.546   | 1597.222    | 1683.589    | 1743.036    | 1765.469    |
| <b>45</b> | 1369.529   | 1412.151    | 1522.072    | 1620.777    | 1637.602    |
| <b>50</b> | 1200.160   | 1252.877    | 1360.555    | 1457.017    | 1485.058    |
| <b>55</b> | 1010.602   | 1063.319    | 1197.917    | 1301.108    | 1339.244    |
| <b>60</b> | 824.409    | 882.735     | 1026.305    | 1150.808    | 1186.700    |
| <b>65</b> | 635.973    | 716.731     | 877.126     | 998.264     | 1033.035    |
| <b>70</b> | 459.874    | 550.728     | 716.731     | 845.720     | 873.761     |
| <b>75</b> | 287.141    | 398.184     | 564.187     | 679.717     | 707.758     |
| <b>80</b> | 137.962    | 257.978     | 409.400     | 463.239     | 447.536     |
| <b>85</b> | 37.014     | 127.868     | 152.544     | 135.719     | 140.206     |
| <b>90</b> | 0.000      | 0.000       | 0.000       | 0.000       | 0.000       |

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**ZONAL LUMEN SUMMARY**

| Zone    | Lumens  | %Lamp | %Fixt  |
|---------|---------|-------|--------|
| 0-20    | 850.69  | N.A.  | 12.60  |
| 0-30    | 1797.96 | N.A.  | 26.70  |
| 0-40    | 2931.52 | N.A.  | 43.50  |
| 0-60    | 5161.71 | N.A.  | 76.60  |
| 0-80    | 6569.74 | N.A.  | 97.50  |
| 0-90    | 6735.27 | N.A.  | 100.00 |
| 10-90   | 6514.41 | N.A.  | 96.70  |
| 20-40   | 2080.83 | N.A.  | 30.90  |
| 20-50   | 3250.59 | N.A.  | 48.30  |
| 40-70   | 3078.41 | N.A.  | 45.70  |
| 60-80   | 1408.03 | N.A.  | 20.90  |
| 70-80   | 559.81  | N.A.  | 8.30   |
| 80-90   | 165.53  | N.A.  | 2.50   |
| 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   | 6735.27 | N.A.  | 100.00 |

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

| Zone    | Lumens  |
|---------|---------|
| 0-10    | 220.86  |
| 10-20   | 629.83  |
| 20-30   | 947.28  |
| 30-40   | 1133.56 |
| 40-50   | 1169.76 |
| 50-60   | 1060.43 |
| 60-70   | 848.22  |
| 70-80   | 559.81  |
| 80-90   | 165.53  |
| 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  | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 93  | 97  | 93  | 90  | 93  | 90  | 87  | 89  | 87  | 85  | 83  |
| 2  | 98  | 90  | 82  | 77  | 95  | 88  | 81  | 76  | 84  | 79  | 74  | 81  | 76  | 72  | 78  | 74  | 70  | 68  |
| 3  | 89  | 78  | 70  | 63  | 87  | 77  | 69  | 63  | 74  | 67  | 62  | 71  | 65  | 61  | 68  | 64  | 59  | 57  |
| 4  | 82  | 69  | 60  | 53  | 79  | 68  | 60  | 53  | 65  | 58  | 52  | 63  | 57  | 52  | 61  | 55  | 51  | 49  |
| 5  | 75  | 62  | 53  | 46  | 73  | 61  | 52  | 46  | 59  | 51  | 45  | 57  | 50  | 45  | 55  | 49  | 44  | 42  |
| 6  | 69  | 56  | 47  | 40  | 67  | 55  | 46  | 40  | 53  | 45  | 40  | 51  | 44  | 39  | 50  | 44  | 39  | 37  |
| 7  | 64  | 51  | 42  | 35  | 62  | 50  | 41  | 35  | 48  | 41  | 35  | 47  | 40  | 35  | 45  | 39  | 34  | 32  |
| 8  | 60  | 46  | 37  | 32  | 58  | 45  | 37  | 31  | 44  | 37  | 31  | 43  | 36  | 31  | 42  | 35  | 31  | 29  |
| 9  | 56  | 42  | 34  | 28  | 54  | 42  | 34  | 28  | 41  | 33  | 28  | 39  | 33  | 28  | 38  | 32  | 28  | 26  |
| 10 | 52  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 30  | 26  | 37  | 30  | 25  | 36  | 30  | 25  | 24  |

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**UGR TABLE - CORRECTED**

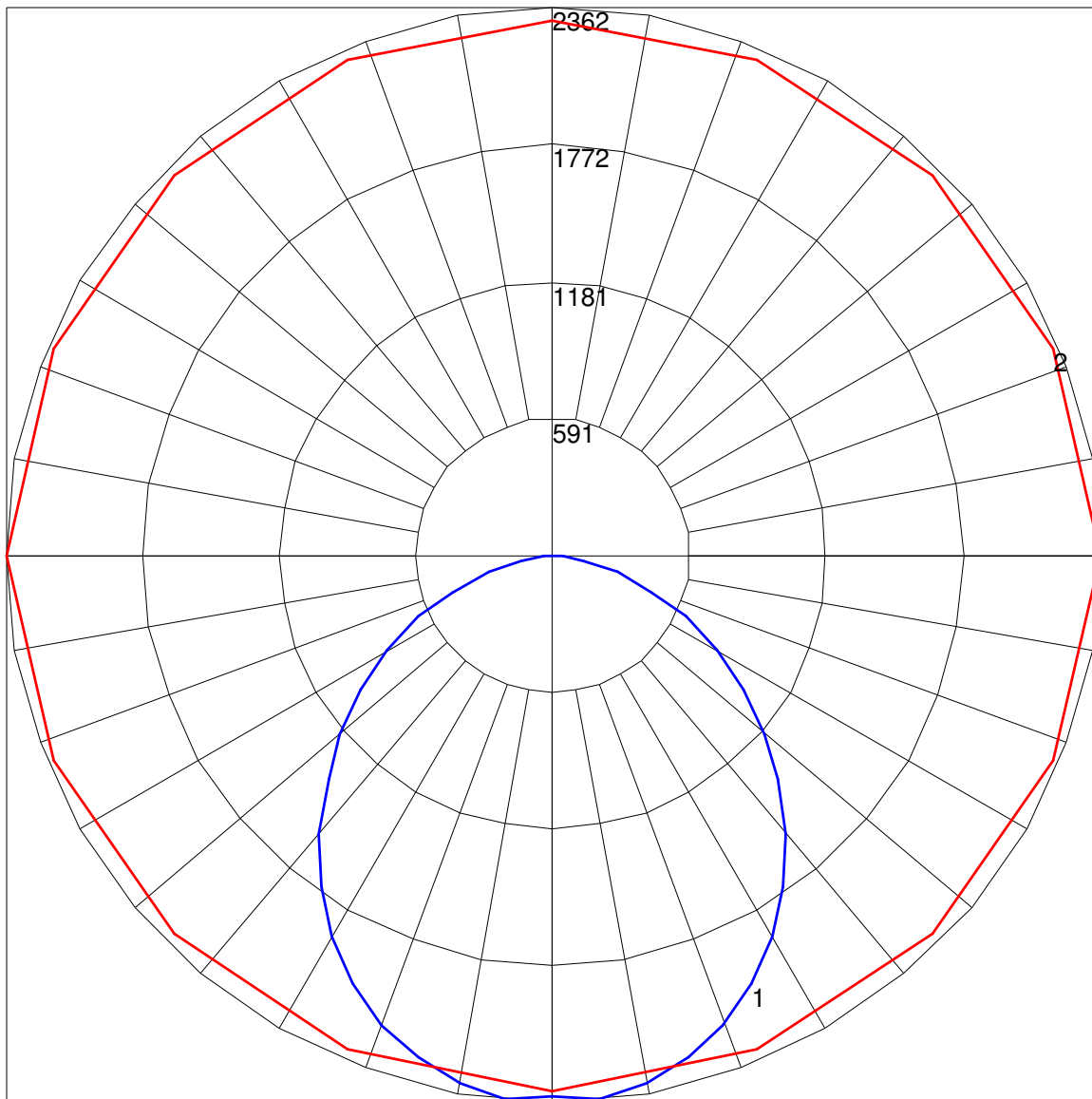
Reflectances

|                |    |    |    |    |    |    |    |    |    |    |
|----------------|----|----|----|----|----|----|----|----|----|----|
| 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 |      |      |      |      | UGR Viewed Endwise |      |      |      |      |
|-----------|------|----------------------|------|------|------|------|--------------------|------|------|------|------|
| X=2H      | Y=2H | 14.9                 | 16.6 | 15.3 | 16.9 | 17.2 | 16.6               | 18.3 | 17.0 | 18.6 | 18.9 |
|           | 3H   | 16.5                 | 18.0 | 16.9 | 18.3 | 18.7 | 19.0               | 20.5 | 19.4 | 20.8 | 21.2 |
|           | 4H   | 17.0                 | 18.4 | 17.4 | 18.8 | 19.2 | 20.0               | 21.5 | 20.4 | 21.8 | 22.2 |
|           | 6H   | 17.3                 | 18.7 | 17.7 | 19.0 | 19.4 | 20.9               | 22.2 | 21.3 | 22.6 | 23.0 |
|           | 8H   | 17.4                 | 18.7 | 17.8 | 19.1 | 19.5 | 21.1               | 22.4 | 21.5 | 22.8 | 23.2 |
|           | 12H  | 17.4                 | 18.7 | 17.9 | 19.0 | 19.5 | 21.2               | 22.5 | 21.7 | 22.8 | 23.3 |
| 4H        | 2H   | 15.9                 | 17.3 | 16.3 | 17.6 | 18.0 | 17.2               | 18.6 | 17.6 | 19.0 | 19.3 |
|           | 3H   | 17.7                 | 18.9 | 18.1 | 19.3 | 19.7 | 19.8               | 21.0 | 20.2 | 21.4 | 21.8 |
|           | 4H   | 18.4                 | 19.5 | 18.8 | 19.9 | 20.4 | 21.1               | 22.2 | 21.5 | 22.6 | 23.0 |
|           | 6H   | 18.9                 | 19.8 | 19.3 | 20.3 | 20.7 | 22.1               | 23.1 | 22.6 | 23.5 | 23.9 |
|           | 8H   | 19.0                 | 19.9 | 19.5 | 20.3 | 20.8 | 22.4               | 23.3 | 22.9 | 23.7 | 24.2 |
|           | 12H  | 19.1                 | 19.9 | 19.5 | 20.3 | 20.8 | 22.6               | 23.4 | 23.0 | 23.8 | 24.3 |
| 8H        | 4H   | 19.2                 | 20.1 | 19.6 | 20.5 | 21.0 | 21.4               | 22.3 | 21.9 | 22.7 | 23.2 |
|           | 6H   | 19.8                 | 20.6 | 20.3 | 21.1 | 21.5 | 22.6               | 23.3 | 23.1 | 23.8 | 24.3 |
|           | 8H   | 20.1                 | 20.7 | 20.6 | 21.2 | 21.7 | 23.0               | 23.7 | 23.5 | 24.2 | 24.7 |
|           | 12H  | 20.2                 | 20.8 | 20.7 | 21.3 | 21.8 | 23.2               | 23.8 | 23.7 | 24.3 | 24.9 |
| 12H       | 4H   | 19.3                 | 20.1 | 19.8 | 20.6 | 21.1 | 21.4               | 22.2 | 21.9 | 22.7 | 23.2 |
|           | 6H   | 20.1                 | 20.8 | 20.6 | 21.2 | 21.8 | 22.7               | 23.3 | 23.2 | 23.8 | 24.3 |
|           | 8H   | 20.4                 | 21.0 | 20.9 | 21.5 | 22.0 | 23.1               | 23.7 | 23.6 | 24.2 | 24.8 |

Maximum UGR = 24.9

POLAR GRAPH



Maximum Candela = 2362.184 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.)