



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : LT-24-L110-950-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-L110-950-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                | 9848            |
| Total Luminaire Efficiency      | N.A.            |
| Luminaire Efficacy Rating (LER) | 120             |
| Total Luminaire Watts           | 81.8            |
| 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                  | 4069             | 4522              | 4865              |
| 55                  | 3701             | 4387              | 4905              |
| 65                  | 3161             | 4360              | 5135              |
| 75                  | 2331             | 4579              | 5744              |
| 85                  | 892              | 3677              | 3379              |

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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>  | 3420.919   | 3420.919    | 3420.919    | 3420.919    | 3420.919    |
| <b>5</b>  | 3453.718   | 3412.719    | 3391.400    | 3383.200    | 3383.200    |
| <b>10</b> | 3389.760   | 3347.122    | 3335.642    | 3337.282    | 3332.362    |
| <b>15</b> | 3288.084   | 3258.565    | 3253.645    | 3265.125    | 3271.684    |
| <b>20</b> | 3155.249   | 3129.009    | 3140.489    | 3171.648    | 3178.208    |
| <b>25</b> | 2981.415   | 2958.455    | 2999.454    | 3043.732    | 3053.572    |
| <b>30</b> | 2781.342   | 2776.422    | 2832.180    | 2891.218    | 2914.177    |
| <b>35</b> | 2546.830   | 2566.509    | 2648.506    | 2723.944    | 2751.823    |
| <b>40</b> | 2299.199   | 2335.277    | 2461.553    | 2548.470    | 2581.269    |
| <b>45</b> | 2002.369   | 2064.687    | 2225.401    | 2369.716    | 2394.315    |
| <b>50</b> | 1754.738   | 1831.815    | 1989.250    | 2130.285    | 2171.283    |
| <b>55</b> | 1477.588   | 1554.665    | 1751.458    | 1902.333    | 1958.091    |
| <b>60</b> | 1205.357   | 1290.634    | 1500.547    | 1682.581    | 1735.059    |
| <b>65</b> | 929.847    | 1047.923    | 1282.435    | 1459.548    | 1510.387    |
| <b>70</b> | 672.376    | 805.212     | 1047.923    | 1236.516    | 1277.515    |
| <b>75</b> | 419.825    | 582.179     | 824.891     | 993.805     | 1034.803    |
| <b>80</b> | 201.713    | 377.187     | 598.579     | 677.296     | 654.337     |
| <b>85</b> | 54.118     | 186.953     | 223.032     | 198.433     | 204.993     |
| <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    | 1243.78 | N.A.  | 12.60  |
| 0-30    | 2628.78 | N.A.  | 26.70  |
| 0-40    | 4286.13 | N.A.  | 43.50  |
| 0-60    | 7546.87 | N.A.  | 76.60  |
| 0-80    | 9605.52 | N.A.  | 97.50  |
| 0-90    | 9847.54 | N.A.  | 100.00 |
| 10-90   | 9524.63 | N.A.  | 96.70  |
| 20-40   | 3042.36 | N.A.  | 30.90  |
| 20-50   | 4752.65 | N.A.  | 48.30  |
| 40-70   | 4500.91 | N.A.  | 45.70  |
| 60-80   | 2058.66 | N.A.  | 20.90  |
| 70-80   | 818.48  | N.A.  | 8.30   |
| 80-90   | 242.02  | 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   | 9847.54 | N.A.  | 100.00 |

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

| Zone    | Lumens  |
|---------|---------|
| 0-10    | 322.91  |
| 10-20   | 920.87  |
| 20-30   | 1385.00 |
| 30-40   | 1657.36 |
| 40-50   | 1710.29 |
| 50-60   | 1550.44 |
| 60-70   | 1240.17 |
| 70-80   | 818.48  |
| 80-90   | 242.02  |
| 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**

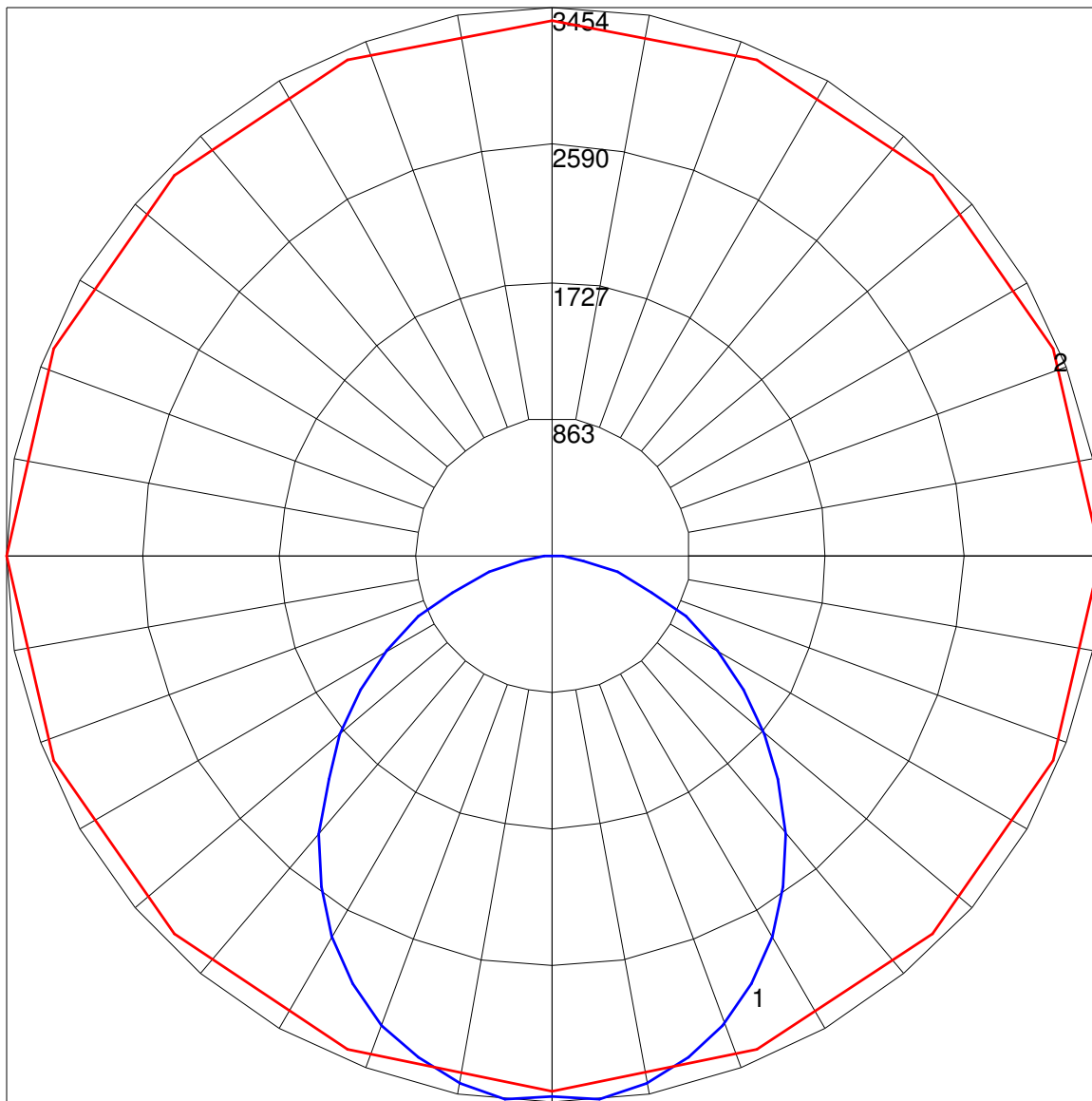
Reflectances

|                |    |    |    |    |    |    |    |    |    |    |
|----------------|----|----|----|----|----|----|----|----|----|----|
| 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 | 16.2                 | 17.9 | 16.6 | 18.2 | 18.5 | 17.9               | 19.6 | 18.3 | 19.9 | 20.2 |
|           | 3H   | 17.8                 | 19.3 | 18.2 | 19.6 | 20.0 | 20.3               | 21.8 | 20.7 | 22.1 | 22.5 |
|           | 4H   | 18.3                 | 19.7 | 18.7 | 20.1 | 20.5 | 21.3               | 22.8 | 21.7 | 23.1 | 23.5 |
|           | 6H   | 18.6                 | 20.0 | 19.0 | 20.3 | 20.7 | 22.2               | 23.5 | 22.6 | 23.9 | 24.3 |
|           | 8H   | 18.7                 | 20.0 | 19.1 | 20.4 | 20.8 | 22.4               | 23.7 | 22.8 | 24.1 | 24.5 |
|           | 12H  | 18.7                 | 20.0 | 19.2 | 20.3 | 20.8 | 22.5               | 23.8 | 23.0 | 24.1 | 24.6 |
| 4H        | 2H   | 17.2                 | 18.6 | 17.6 | 18.9 | 19.3 | 18.5               | 19.9 | 18.9 | 20.3 | 20.6 |
|           | 3H   | 19.0                 | 20.2 | 19.4 | 20.6 | 21.0 | 21.1               | 22.3 | 21.5 | 22.7 | 23.1 |
|           | 4H   | 19.7                 | 20.8 | 20.1 | 21.2 | 21.7 | 22.4               | 23.5 | 22.8 | 23.9 | 24.3 |
|           | 6H   | 20.2                 | 21.1 | 20.6 | 21.6 | 22.0 | 23.4               | 24.4 | 23.9 | 24.8 | 25.2 |
|           | 8H   | 20.3                 | 21.2 | 20.8 | 21.6 | 22.1 | 23.7               | 24.6 | 24.2 | 25.0 | 25.5 |
|           | 12H  | 20.4                 | 21.2 | 20.8 | 21.6 | 22.1 | 23.9               | 24.7 | 24.3 | 25.1 | 25.6 |
| 8H        | 4H   | 20.5                 | 21.4 | 20.9 | 21.8 | 22.3 | 22.7               | 23.6 | 23.2 | 24.0 | 24.5 |
|           | 6H   | 21.1                 | 21.9 | 21.6 | 22.4 | 22.8 | 23.9               | 24.6 | 24.4 | 25.1 | 25.6 |
|           | 8H   | 21.4                 | 22.0 | 21.9 | 22.5 | 23.0 | 24.3               | 25.0 | 24.8 | 25.5 | 26.0 |
|           | 12H  | 21.5                 | 22.1 | 22.0 | 22.6 | 23.1 | 24.5               | 25.1 | 25.0 | 25.6 | 26.2 |
| 12H       | 4H   | 20.6                 | 21.4 | 21.1 | 21.9 | 22.4 | 22.7               | 23.5 | 23.2 | 24.0 | 24.5 |
|           | 6H   | 21.4                 | 22.1 | 21.9 | 22.5 | 23.1 | 24.0               | 24.6 | 24.5 | 25.1 | 25.6 |
|           | 8H   | 21.7                 | 22.3 | 22.2 | 22.8 | 23.3 | 24.4               | 25.0 | 24.9 | 25.5 | 26.1 |

Maximum UGR = 26.2

POLAR GRAPH



Maximum Candela = 3453.718 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.)