



IES INDOOR REPORT
PHOTOMETRIC FILENAME : NW-4-L34-840-RA-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] GEN FROM BALLABS TEST NO. 20990.0
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
[ISSUEDATE] 2023-08-09
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO
[LUMINAIRE] 48 INCH LINEAR LED SURFACE LUMINAIRE
[MORE] WHITE REFLECTOR w/RADIAL RIBBED FROST ACRYLIC LENS
[MORE] 0-10V DIMMING DRIVER
[LUMCAT] NW-4-L34-840-RA-DIM-UNV
[LAMPCAT] 22 INCH HLM LED ARRAYS

CHARACTERISTICS

| | |
|---------------------------------|---------------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 3528 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 150 |
| Total Luminaire Watts | 23.5 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 1.20 |
| Spacing Criterion (90-270) | 1.28 |
| Spacing Criterion (Diagonal) | 1.36 |
| Basic Luminous Shape | Rectangular w/Sides |
| Luminous Length (0-180) | 3.98 ft |
| Luminous Width (90-270) | 0.38 ft |
| Luminous Height | 0.15 ft |

LUMINANCE DATA (cd/sq.m)

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45 | 6172 | 5657 | 5805 |
| 55 | 5263 | 4902 | 5162 |
| 65 | 4234 | 4061 | 4469 |
| 75 | 3284 | 3443 | 3862 |
| 85 | 1541 | 3104 | 3595 |

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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 | 1139.181 | 1139.181 | 1139.181 | 1139.181 | 1139.181 |
| 5 | 1148.732 | 1133.670 | 1130.732 | 1130.732 | 1127.425 |
| 10 | 1127.793 | 1114.935 | 1115.670 | 1118.609 | 1114.935 |
| 15 | 1089.955 | 1080.036 | 1088.118 | 1096.935 | 1095.832 |
| 20 | 1041.096 | 1037.055 | 1050.280 | 1066.444 | 1067.178 |
| 25 | 973.502 | 977.910 | 1001.789 | 1023.095 | 1028.606 |
| 30 | 902.234 | 909.949 | 944.113 | 971.665 | 982.318 |
| 35 | 813.333 | 831.334 | 876.519 | 912.520 | 925.010 |
| 40 | 728.473 | 747.943 | 802.312 | 852.641 | 864.396 |
| 45 | 627.817 | 656.104 | 722.228 | 776.597 | 791.292 |
| 50 | 533.773 | 568.672 | 641.042 | 700.921 | 717.085 |
| 55 | 440.831 | 474.995 | 558.019 | 620.102 | 639.205 |
| 60 | 352.665 | 391.238 | 476.465 | 533.773 | 555.447 |
| 65 | 267.805 | 308.582 | 391.972 | 465.077 | 480.873 |
| 70 | 197.639 | 233.640 | 321.072 | 391.972 | 410.708 |
| 75 | 134.086 | 174.128 | 262.662 | 326.215 | 340.175 |
| 80 | 74.574 | 123.433 | 210.129 | 267.805 | 287.642 |
| 85 | 26.450 | 83.391 | 166.781 | 220.416 | 236.947 |
| 90 | 0.000 | 55.104 | 130.045 | 182.578 | 193.231 |
| 95 | 0.000 | 35.266 | 102.493 | 149.515 | 165.679 |
| 100 | 0.000 | 23.511 | 78.615 | 123.800 | 136.658 |
| 105 | 0.000 | 15.796 | 62.084 | 99.922 | 114.249 |
| 110 | 0.000 | 7.347 | 49.226 | 81.921 | 95.513 |
| 115 | 0.000 | 4.776 | 39.307 | 69.064 | 78.615 |
| 120 | 0.000 | 0.000 | 31.226 | 56.573 | 66.492 |
| 125 | 0.000 | 0.000 | 24.246 | 45.185 | 52.900 |
| 130 | 0.000 | 0.000 | 19.103 | 35.634 | 42.246 |
| 135 | 0.000 | 0.000 | 15.429 | 27.552 | 33.797 |
| 140 | 0.000 | 0.000 | 8.082 | 20.939 | 25.715 |
| 145 | 0.000 | 0.000 | 2.939 | 16.164 | 18.735 |
| 150 | 0.000 | 0.000 | 0.000 | 13.960 | 15.796 |
| 155 | 0.000 | 0.000 | 0.000 | 13.225 | 13.960 |
| 160 | 0.000 | 0.000 | 0.000 | 7.715 | 12.858 |
| 165 | 0.000 | 0.000 | 0.000 | 2.572 | 4.408 |
| 170 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 175 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 180 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 415.10 | N.A. | 11.80 |
| 0-30 | 876.30 | N.A. | 24.80 |
| 0-40 | 1422.48 | N.A. | 40.30 |
| 0-60 | 2467.02 | N.A. | 69.90 |
| 0-80 | 3116.38 | N.A. | 88.30 |
| 0-90 | 3283.46 | N.A. | 93.10 |
| 10-90 | 3175.77 | N.A. | 90.00 |
| 20-40 | 1007.38 | N.A. | 28.60 |
| 20-50 | 1560.88 | N.A. | 44.20 |
| 40-70 | 1427.56 | N.A. | 40.50 |
| 60-80 | 649.36 | N.A. | 18.40 |
| 70-80 | 266.34 | N.A. | 7.60 |
| 80-90 | 167.08 | N.A. | 4.70 |
| 90-110 | 165.17 | N.A. | 4.70 |
| 90-120 | 203.23 | N.A. | 5.80 |
| 90-130 | 225.11 | N.A. | 6.40 |
| 90-150 | 241.46 | N.A. | 6.80 |
| 90-180 | 244.15 | N.A. | 6.90 |
| 110-180 | 78.98 | N.A. | 2.20 |
| 0-180 | 3527.62 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 107.69 |
| 10-20 | 307.41 |
| 20-30 | 461.20 |
| 30-40 | 546.18 |
| 40-50 | 553.51 |
| 50-60 | 491.03 |
| 60-70 | 383.03 |
| 70-80 | 266.34 |
| 80-90 | 167.08 |
| 90-100 | 102.25 |
| 100-110 | 62.92 |
| 110-120 | 38.06 |
| 120-130 | 21.87 |
| 130-140 | 11.57 |
| 140-150 | 4.79 |
| 150-160 | 2.23 |
| 160-170 | 0.46 |
| 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 | 117 | 117 | 117 | 117 | 114 | 114 | 114 | 114 | 107 | 107 | 107 | 101 | 101 | 101 | 96 | 96 | 96 | 93 |
| 1 | 106 | 101 | 96 | 92 | 102 | 98 | 93 | 90 | 92 | 89 | 85 | 87 | 84 | 82 | 82 | 80 | 78 | 75 |
| 2 | 96 | 87 | 80 | 74 | 93 | 85 | 78 | 73 | 80 | 75 | 70 | 76 | 71 | 67 | 72 | 68 | 65 | 62 |
| 3 | 87 | 77 | 68 | 61 | 84 | 74 | 67 | 60 | 70 | 64 | 58 | 67 | 61 | 57 | 63 | 59 | 55 | 52 |
| 4 | 80 | 68 | 59 | 52 | 77 | 66 | 58 | 51 | 63 | 55 | 50 | 59 | 53 | 48 | 57 | 51 | 47 | 45 |
| 5 | 74 | 61 | 51 | 45 | 71 | 59 | 51 | 44 | 56 | 49 | 43 | 53 | 47 | 42 | 51 | 45 | 41 | 39 |
| 6 | 68 | 55 | 46 | 39 | 66 | 53 | 45 | 39 | 51 | 43 | 38 | 48 | 42 | 37 | 46 | 40 | 36 | 34 |
| 7 | 63 | 49 | 41 | 34 | 61 | 48 | 40 | 34 | 46 | 39 | 33 | 44 | 38 | 33 | 42 | 36 | 32 | 30 |
| 8 | 59 | 45 | 37 | 31 | 57 | 44 | 36 | 30 | 42 | 35 | 30 | 40 | 34 | 29 | 39 | 33 | 29 | 27 |
| 9 | 55 | 41 | 33 | 28 | 53 | 41 | 33 | 27 | 39 | 32 | 27 | 37 | 31 | 26 | 36 | 30 | 26 | 24 |
| 10 | 51 | 38 | 30 | 25 | 50 | 37 | 30 | 25 | 36 | 29 | 24 | 35 | 28 | 24 | 33 | 28 | 24 | 22 |

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UGR TABLE - CORRECTED

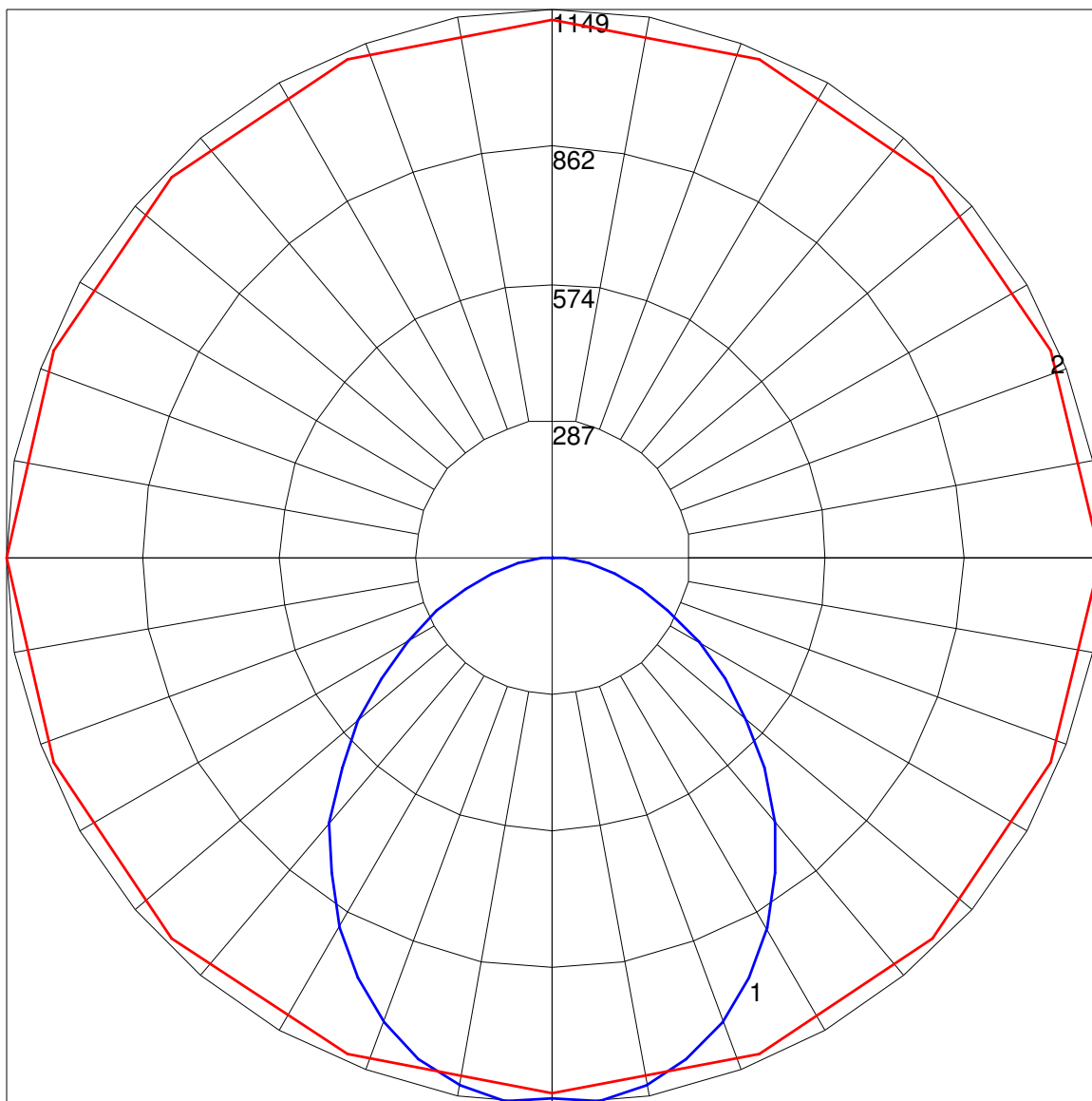
Reflectances

| | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|
| 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 | 15.3 | 16.8 | 15.7 | 17.2 | 17.7 | 18.3 | 19.8 | 18.8 | 20.2 | 20.7 |
| | 3H | 16.5 | 17.8 | 17.0 | 18.3 | 18.8 | 20.5 | 21.9 | 21.0 | 22.4 | 22.9 |
| | 4H | 16.9 | 18.2 | 17.4 | 18.6 | 19.2 | 21.6 | 22.9 | 22.1 | 23.4 | 23.9 |
| | 6H | 17.1 | 18.3 | 17.6 | 18.8 | 19.3 | 22.7 | 23.9 | 23.2 | 24.4 | 24.9 |
| | 8H | 17.1 | 18.3 | 17.7 | 18.8 | 19.4 | 23.2 | 24.4 | 23.8 | 24.9 | 25.5 |
| | 12H | 17.1 | 18.2 | 17.7 | 18.8 | 19.4 | 23.9 | 25.0 | 24.4 | 25.5 | 26.1 |
| 4H | 2H | 16.2 | 17.5 | 16.7 | 18.0 | 18.5 | 18.6 | 19.9 | 19.1 | 20.4 | 20.9 |
| | 3H | 17.7 | 18.8 | 18.2 | 19.3 | 19.9 | 21.1 | 22.2 | 21.6 | 22.7 | 23.3 |
| | 4H | 18.2 | 19.2 | 18.7 | 19.7 | 20.3 | 22.3 | 23.3 | 22.8 | 23.9 | 24.5 |
| | 6H | 18.5 | 19.4 | 19.0 | 19.9 | 20.6 | 23.6 | 24.5 | 24.2 | 25.1 | 25.7 |
| | 8H | 18.6 | 19.4 | 19.1 | 20.0 | 20.6 | 24.3 | 25.1 | 24.8 | 25.7 | 26.3 |
| | 12H | 18.6 | 19.4 | 19.2 | 20.0 | 20.6 | 25.0 | 25.8 | 25.6 | 26.4 | 27.0 |
| 8H | 4H | 18.9 | 19.7 | 19.5 | 20.3 | 20.9 | 22.5 | 23.3 | 23.0 | 23.9 | 24.5 |
| | 6H | 19.4 | 20.1 | 20.0 | 20.7 | 21.4 | 23.9 | 24.6 | 24.5 | 25.2 | 25.9 |
| | 8H | 19.6 | 20.2 | 20.2 | 20.8 | 21.5 | 24.7 | 25.4 | 25.3 | 26.0 | 26.6 |
| | 12H | 19.7 | 20.3 | 20.3 | 20.9 | 21.6 | 25.7 | 26.2 | 26.3 | 26.8 | 27.5 |
| 12H | 4H | 19.1 | 19.9 | 19.7 | 20.5 | 21.1 | 22.5 | 23.2 | 23.1 | 23.8 | 24.5 |
| | 6H | 19.7 | 20.4 | 20.4 | 21.0 | 21.6 | 24.0 | 24.6 | 24.6 | 25.2 | 25.9 |
| | 8H | 20.0 | 20.6 | 20.6 | 21.2 | 21.9 | 24.8 | 25.4 | 25.4 | 26.0 | 26.7 |

Maximum UGR = 27.5

POLAR GRAPH



Maximum Candela = 1148.732 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.)