



IES INDOOR REPORT

PHOTOMETRIC FILENAME : AT3-22-L40-840-D-(L32)-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN FROM BALLABS TEST NO. 19435.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUEDATE] 07-17-2020

[MANUFAC] WILLIAMS INDOOR

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

[LUMINAIRE] 2x2' RECESSED LED LUMINAIRE

[MORE] WITH FROSTED ACRYLIC LENS

[LUMCAT] AT3-22-L40-840-D-(L32)-DIM-UNV

[LAMPCAT] HLM 80 CRI 4000K CCT

[_SEARCH_SOURCETYPE] LED

[_SEARCH_APPLICATION] Indoor, Architectural, Classroom, Commercial, Office, Direct

[_SEARCH_MOUNTING] Ceiling, Recessed

CHARACTERISTICS

| | |
|---------------------------------|-----------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 3349 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 101 |
| Total Luminaire Watts | 33 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 1.16 |
| Spacing Criterion (90-270) | 1.28 |
| Spacing Criterion (Diagonal) | 1.30 |
| Basic Luminous Shape | Rectangular |
| Luminous Length (0-180) | 1.76 ft |
| Luminous Width (90-270) | 1.77 ft |
| Luminous Height | 0.00 ft |

LUMINANCE DATA (cd/sq.m)

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45 | 3458 | 3764 | 4066 |
| 55 | 3041 | 3435 | 3692 |
| 65 | 2688 | 3143 | 3453 |
| 75 | 2231 | 2828 | 3269 |
| 85 | 1200 | 1063 | 1009 |

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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 | 1318.033 | 1318.033 | 1318.033 | 1318.033 | 1318.033 |
| 5 | 1315.286 | 1311.165 | 1310.478 | 1309.791 | 1308.418 |
| 10 | 1285.752 | 1285.065 | 1282.318 | 1290.560 | 1292.620 |
| 15 | 1241.795 | 1240.421 | 1245.229 | 1262.400 | 1267.894 |
| 20 | 1175.172 | 1178.606 | 1197.837 | 1222.563 | 1234.240 |
| 25 | 1093.439 | 1105.115 | 1136.022 | 1170.364 | 1188.222 |
| 30 | 1008.958 | 1024.069 | 1063.905 | 1109.236 | 1126.407 |
| 35 | 916.923 | 933.407 | 978.738 | 1028.876 | 1045.360 |
| 40 | 813.898 | 829.008 | 877.773 | 925.165 | 945.770 |
| 45 | 706.752 | 724.609 | 769.253 | 813.898 | 831.068 |
| 50 | 604.413 | 621.584 | 666.228 | 709.499 | 721.175 |
| 55 | 504.136 | 519.933 | 569.385 | 605.787 | 611.969 |
| 60 | 411.413 | 427.210 | 473.915 | 508.257 | 511.004 |
| 65 | 328.306 | 341.356 | 383.940 | 414.161 | 421.716 |
| 70 | 245.200 | 257.563 | 298.086 | 324.872 | 335.175 |
| 75 | 166.901 | 179.950 | 211.545 | 231.463 | 244.513 |
| 80 | 92.723 | 109.207 | 111.267 | 110.580 | 109.207 |
| 85 | 30.221 | 35.715 | 26.787 | 26.100 | 25.413 |
| 90 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 476.93 | N.A. | 14.20 |
| 0-30 | 1001.2 | N.A. | 29.90 |
| 0-40 | 1612.68 | N.A. | 48.20 |
| 0-60 | 2712.83 | N.A. | 81.00 |
| 0-80 | 3303.51 | N.A. | 98.60 |
| 0-90 | 3348.74 | N.A. | 100.00 |
| 10-90 | 3224.39 | N.A. | 96.30 |
| 20-40 | 1135.75 | N.A. | 33.90 |
| 20-50 | 1730.53 | N.A. | 51.70 |
| 40-70 | 1475.86 | N.A. | 44.10 |
| 60-80 | 590.69 | N.A. | 17.60 |
| 70-80 | 214.98 | N.A. | 6.40 |
| 80-90 | 45.23 | 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 | 3348.74 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 124.35 |
| 10-20 | 352.57 |
| 20-30 | 524.28 |
| 30-40 | 611.47 |
| 40-50 | 594.78 |
| 50-60 | 505.37 |
| 60-70 | 375.70 |
| 70-80 | 214.98 |
| 80-90 | 45.23 |
| 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 | 100 | 97 | 106 | 102 | 99 | 95 | 98 | 95 | 92 | 94 | 92 | 89 | 91 | 89 | 87 | 85 |
| 2 | 100 | 92 | 85 | 79 | 97 | 90 | 84 | 78 | 86 | 81 | 77 | 83 | 79 | 75 | 80 | 76 | 73 | 71 |
| 3 | 91 | 81 | 73 | 66 | 89 | 79 | 72 | 66 | 76 | 70 | 65 | 73 | 68 | 64 | 71 | 66 | 63 | 60 |
| 4 | 84 | 72 | 63 | 57 | 81 | 70 | 62 | 56 | 68 | 61 | 56 | 66 | 60 | 55 | 64 | 58 | 54 | 52 |
| 5 | 77 | 64 | 56 | 49 | 75 | 63 | 55 | 49 | 61 | 54 | 48 | 59 | 53 | 48 | 57 | 52 | 47 | 45 |
| 6 | 71 | 58 | 49 | 43 | 69 | 57 | 49 | 43 | 55 | 48 | 42 | 54 | 47 | 42 | 52 | 46 | 42 | 40 |
| 7 | 66 | 53 | 44 | 38 | 64 | 52 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 37 | 48 | 42 | 37 | 35 |
| 8 | 62 | 48 | 40 | 34 | 60 | 48 | 40 | 34 | 46 | 39 | 34 | 45 | 38 | 34 | 44 | 38 | 33 | 32 |
| 9 | 58 | 44 | 36 | 31 | 56 | 44 | 36 | 31 | 43 | 36 | 31 | 42 | 35 | 30 | 41 | 35 | 30 | 28 |
| 10 | 54 | 41 | 33 | 28 | 53 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 32 | 28 | 38 | 32 | 28 | 26 |

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UGR TABLE - CORRECTED

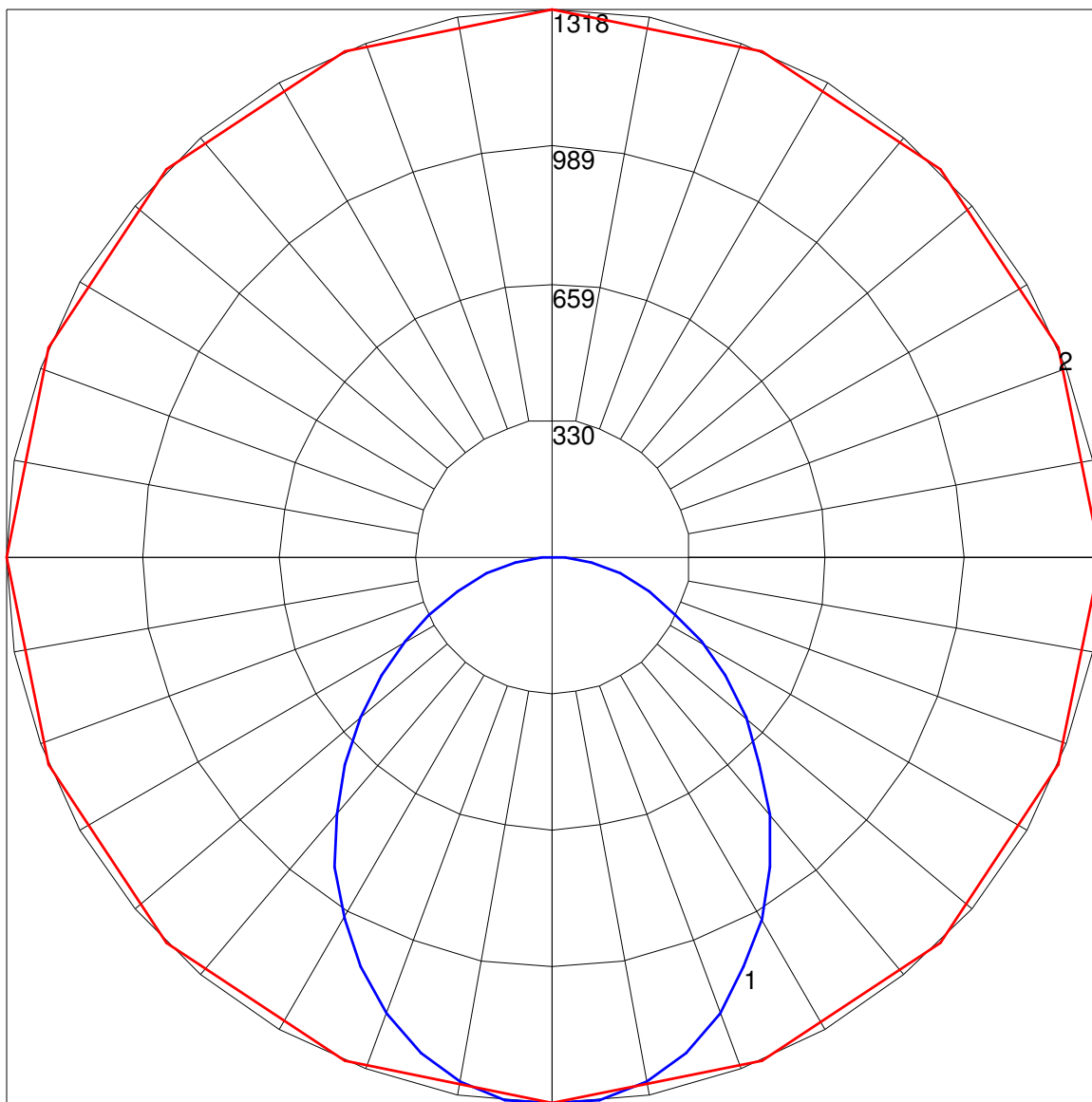
Reflectances

| | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|
| 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 | | | | | UGR Viewed Endwise | | | | |
|-----------|------|----------------------|------|------|------|------|--------------------|------|------|------|------|
| X=2H | Y=2H | 15.5 | 17.1 | 15.9 | 17.4 | 17.7 | 16.7 | 18.3 | 17.1 | 18.6 | 18.9 |
| | 3H | 17.2 | 18.6 | 17.5 | 18.9 | 19.3 | 18.6 | 20.0 | 19.0 | 20.4 | 20.7 |
| | 4H | 17.8 | 19.1 | 18.2 | 19.5 | 19.8 | 19.3 | 20.7 | 19.7 | 21.0 | 21.4 |
| | 6H | 18.2 | 19.4 | 18.6 | 19.8 | 20.2 | 19.7 | 21.0 | 20.2 | 21.4 | 21.8 |
| | 8H | 18.3 | 19.5 | 18.7 | 19.9 | 20.3 | 19.8 | 21.0 | 20.3 | 21.4 | 21.8 |
| | 12H | 18.3 | 19.5 | 18.7 | 19.8 | 20.3 | 19.8 | 21.0 | 20.3 | 21.4 | 21.8 |
| 4H | 2H | 16.3 | 17.6 | 16.7 | 18.0 | 18.4 | 17.2 | 18.6 | 17.6 | 18.9 | 19.3 |
| | 3H | 18.2 | 19.3 | 18.6 | 19.7 | 20.1 | 19.4 | 20.5 | 19.8 | 20.9 | 21.3 |
| | 4H | 18.9 | 19.9 | 19.3 | 20.3 | 20.7 | 20.2 | 21.3 | 20.7 | 21.7 | 22.1 |
| | 6H | 19.4 | 20.3 | 19.8 | 20.7 | 21.2 | 20.8 | 21.6 | 21.2 | 22.1 | 22.5 |
| | 8H | 19.5 | 20.4 | 20.0 | 20.8 | 21.3 | 20.9 | 21.7 | 21.3 | 22.1 | 22.6 |
| | 12H | 19.6 | 20.4 | 20.1 | 20.8 | 21.3 | 20.9 | 21.6 | 21.4 | 22.1 | 22.6 |
| 8H | 4H | 19.3 | 20.1 | 19.7 | 20.5 | 21.0 | 20.5 | 21.3 | 20.9 | 21.8 | 22.2 |
| | 6H | 19.9 | 20.6 | 20.4 | 21.1 | 21.6 | 21.1 | 21.8 | 21.6 | 22.3 | 22.7 |
| | 8H | 20.1 | 20.7 | 20.6 | 21.2 | 21.7 | 21.2 | 21.8 | 21.7 | 22.3 | 22.8 |
| | 12H | 20.2 | 20.8 | 20.8 | 21.3 | 21.8 | 21.3 | 21.8 | 21.8 | 22.3 | 22.9 |
| 12H | 4H | 19.3 | 20.1 | 19.8 | 20.5 | 21.0 | 20.5 | 21.2 | 21.0 | 21.7 | 22.2 |
| | 6H | 20.0 | 20.6 | 20.5 | 21.1 | 21.6 | 21.1 | 21.7 | 21.6 | 22.2 | 22.7 |
| | 8H | 20.2 | 20.8 | 20.7 | 21.3 | 21.8 | 21.3 | 21.8 | 21.8 | 22.3 | 22.9 |

Maximum UGR = 22.9

POLAR GRAPH



Maximum Candela = 1318.033 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)