



IES INDOOR REPORT

PHOTOMETRIC FILENAME : AT1-14-L20-8TW-D-DALI-UNV 4000K_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from BALLABS TEST NO. 19432.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUEDATE] 20-DEC-2019

[MANUFAC] WILLIAMS INDOOR

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

[LUMINAIRE] 2-32 LED 22" ARRAYS 1x4' RECESSED LUMINAIRE

[MORE] WHITE REFLECTOR w/2 PIECE FROSTED ACRLIC LENS IN DOOR

[LUMCAT] AT1-14-L20-8TW-D-DALI-UNV 4000k

CHARACTERISTICS

| | |
|---------------------------------|-----------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 2039 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 97 |
| Total Luminaire Watts | 21.1 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 1.14 |
| Spacing Criterion (90-270) | 1.10 |
| Spacing Criterion (Diagonal) | 1.22 |
| Basic Luminous Shape | Rectangular |
| Luminous Length (0-180) | 3.76 ft |
| Luminous Width (90-270) | 0.77 ft |
| Luminous Height | 0.00 ft |

LUMINANCE DATA (cd/sq.m)

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45 | 2523 | 2476 | 2442 |
| 55 | 2117 | 2112 | 2059 |
| 65 | 1866 | 1866 | 1497 |
| 75 | 1471 | 1228 | 1100 |
| 85 | 1170 | 722 | 516 |

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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 | 925.349 | 925.349 | 925.349 | 925.349 | 925.349 |
| 5 | 932.622 | 931.814 | 931.814 | 931.814 | 931.006 |
| 10 | 905.953 | 904.336 | 902.720 | 901.104 | 901.104 |
| 15 | 870.393 | 870.393 | 865.544 | 862.312 | 862.312 |
| 20 | 834.834 | 832.410 | 826.753 | 820.287 | 818.671 |
| 25 | 757.250 | 754.826 | 746.744 | 743.512 | 739.471 |
| 30 | 688.556 | 685.324 | 677.242 | 670.777 | 669.160 |
| 35 | 628.752 | 625.520 | 618.246 | 612.589 | 609.356 |
| 40 | 547.936 | 543.895 | 538.238 | 532.581 | 530.156 |
| 45 | 480.858 | 475.201 | 471.968 | 467.927 | 465.503 |
| 50 | 408.123 | 404.891 | 401.658 | 400.042 | 399.233 |
| 55 | 327.307 | 327.307 | 326.499 | 323.266 | 318.417 |
| 60 | 266.694 | 267.503 | 267.503 | 256.188 | 248.107 |
| 65 | 212.547 | 214.164 | 212.547 | 185.878 | 170.523 |
| 70 | 155.168 | 157.592 | 145.470 | 119.608 | 117.184 |
| 75 | 102.637 | 106.678 | 85.665 | 78.392 | 76.776 |
| 80 | 60.612 | 57.380 | 48.490 | 40.408 | 37.176 |
| 85 | 27.478 | 22.629 | 16.971 | 12.931 | 12.122 |
| 90 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 332.28 | N.A. | 16.30 |
| 0-30 | 677.97 | N.A. | 33.20 |
| 0-40 | 1062.03 | N.A. | 52.10 |
| 0-60 | 1719.78 | N.A. | 84.30 |
| 0-80 | 2015.9 | N.A. | 98.90 |
| 0-90 | 2039.02 | N.A. | 100.00 |
| 10-90 | 1951.18 | N.A. | 95.70 |
| 20-40 | 729.76 | N.A. | 35.80 |
| 20-50 | 1093.59 | N.A. | 53.60 |
| 40-70 | 856.62 | N.A. | 42.00 |
| 60-80 | 296.12 | N.A. | 14.50 |
| 70-80 | 97.24 | N.A. | 4.80 |
| 80-90 | 23.12 | N.A. | 1.10 |
| 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 | 2039.02 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 87.84 |
| 10-20 | 244.44 |
| 20-30 | 345.69 |
| 30-40 | 384.06 |
| 40-50 | 363.84 |
| 50-60 | 293.91 |
| 60-70 | 198.88 |
| 70-80 | 97.24 |
| 80-90 | 23.12 |
| 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 | 80 | 80 | 80 | 80 | 78 | 78 | 78 | 78 | 75 | 75 | 75 | 72 | 72 | 72 | 69 | 69 | 69 | 67 |
| 1 | 74 | 71 | 68 | 66 | 72 | 70 | 67 | 65 | 67 | 65 | 63 | 64 | 62 | 61 | 62 | 60 | 59 | 58 |
| 2 | 68 | 63 | 58 | 55 | 66 | 61 | 58 | 54 | 59 | 56 | 53 | 57 | 54 | 52 | 55 | 53 | 51 | 49 |
| 3 | 62 | 56 | 51 | 46 | 61 | 55 | 50 | 46 | 53 | 49 | 45 | 51 | 47 | 44 | 49 | 46 | 44 | 42 |
| 4 | 57 | 50 | 44 | 40 | 56 | 49 | 44 | 40 | 47 | 43 | 39 | 46 | 42 | 39 | 44 | 41 | 38 | 37 |
| 5 | 53 | 45 | 39 | 35 | 52 | 44 | 39 | 35 | 43 | 38 | 34 | 41 | 37 | 34 | 40 | 37 | 34 | 32 |
| 6 | 49 | 41 | 35 | 31 | 48 | 40 | 35 | 31 | 39 | 34 | 30 | 38 | 33 | 30 | 37 | 33 | 30 | 29 |
| 7 | 46 | 37 | 31 | 27 | 45 | 36 | 31 | 27 | 35 | 31 | 27 | 35 | 30 | 27 | 34 | 30 | 27 | 25 |
| 8 | 43 | 34 | 28 | 25 | 42 | 33 | 28 | 25 | 33 | 28 | 24 | 32 | 27 | 24 | 31 | 27 | 24 | 23 |
| 9 | 40 | 31 | 26 | 22 | 39 | 31 | 26 | 22 | 30 | 25 | 22 | 29 | 25 | 22 | 29 | 25 | 22 | 21 |
| 10 | 38 | 29 | 24 | 20 | 37 | 29 | 24 | 20 | 28 | 23 | 20 | 27 | 23 | 20 | 27 | 23 | 20 | 19 |

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UGR TABLE - CORRECTED

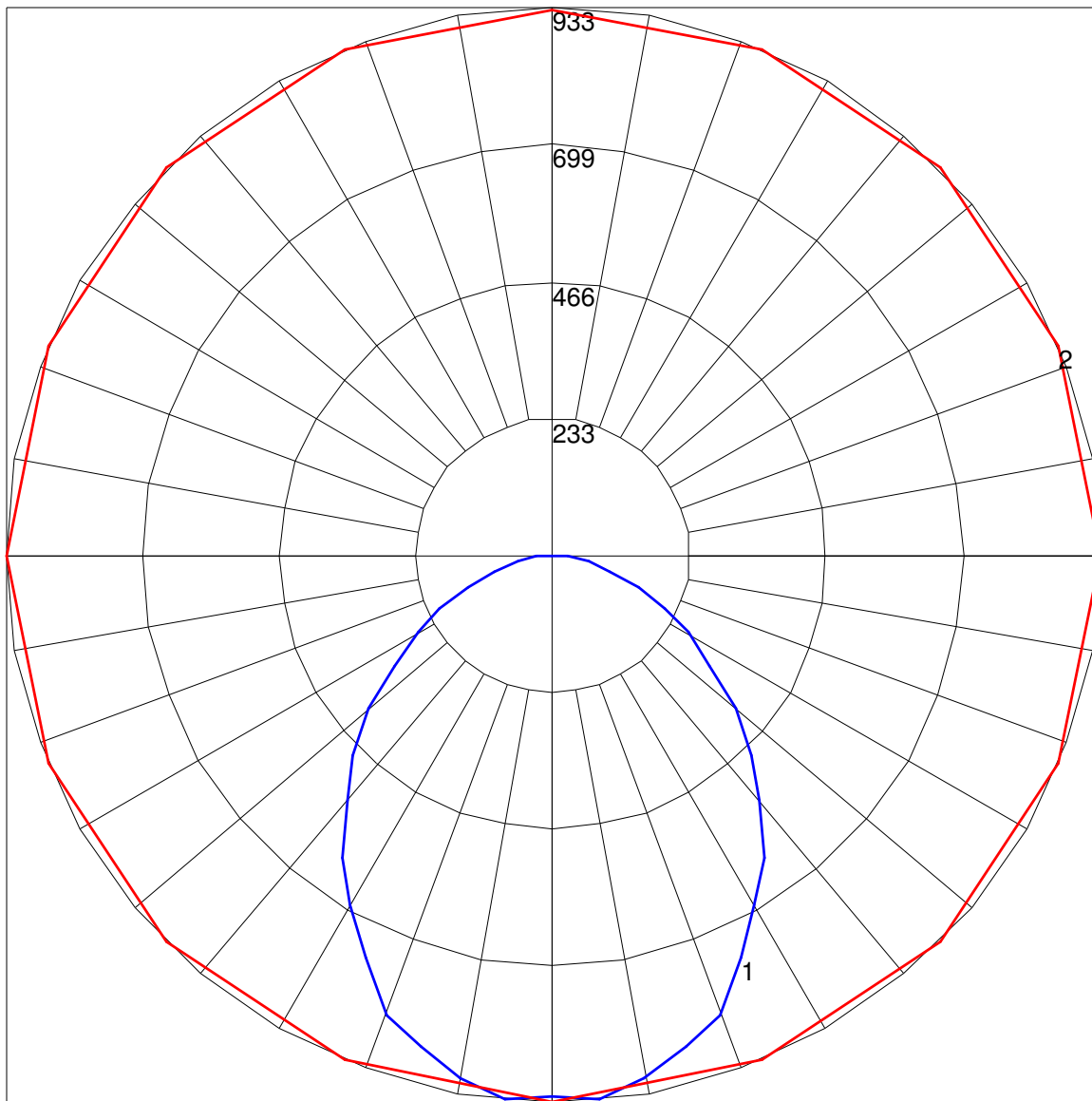
Reflectances

| | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|
| 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 | 15.7 | 17.2 | 16.0 | 17.5 | 17.8 | 15.5 | 17.0 | 15.8 | 17.3 | 17.6 |
| | 3H | 17.3 | 18.7 | 17.7 | 19.0 | 19.4 | 16.6 | 18.0 | 17.0 | 18.3 | 18.6 |
| | 4H | 17.9 | 19.2 | 18.3 | 19.5 | 19.9 | 16.9 | 18.2 | 17.3 | 18.6 | 19.0 |
| | 6H | 18.2 | 19.4 | 18.7 | 19.8 | 20.2 | 17.2 | 18.4 | 17.6 | 18.7 | 19.1 |
| | 8H | 18.4 | 19.5 | 18.8 | 19.9 | 20.3 | 17.2 | 18.3 | 17.6 | 18.7 | 19.1 |
| | 12H | 18.5 | 19.5 | 18.9 | 19.9 | 20.4 | 17.2 | 18.3 | 17.6 | 18.7 | 19.1 |
| 4H | 2H | 16.3 | 17.6 | 16.7 | 17.9 | 18.3 | 16.1 | 17.4 | 16.5 | 17.7 | 18.1 |
| | 3H | 18.1 | 19.1 | 18.5 | 19.5 | 19.9 | 17.4 | 18.5 | 17.8 | 18.9 | 19.3 |
| | 4H | 18.7 | 19.7 | 19.2 | 20.1 | 20.6 | 17.8 | 18.8 | 18.3 | 19.2 | 19.6 |
| | 6H | 19.2 | 20.1 | 19.7 | 20.5 | 21.0 | 18.1 | 19.0 | 18.6 | 19.4 | 19.9 |
| | 8H | 19.4 | 20.2 | 19.9 | 20.6 | 21.1 | 18.2 | 19.0 | 18.6 | 19.4 | 19.9 |
| | 12H | 19.5 | 20.2 | 20.0 | 20.7 | 21.2 | 18.2 | 18.9 | 18.7 | 19.4 | 19.9 |
| 8H | 4H | 18.9 | 19.7 | 19.4 | 20.1 | 20.6 | 18.1 | 18.9 | 18.5 | 19.3 | 19.8 |
| | 6H | 19.5 | 20.1 | 20.0 | 20.6 | 21.1 | 18.4 | 19.1 | 18.9 | 19.6 | 20.1 |
| | 8H | 19.7 | 20.3 | 20.2 | 20.8 | 21.3 | 18.5 | 19.1 | 19.1 | 19.6 | 20.1 |
| | 12H | 19.9 | 20.4 | 20.4 | 20.9 | 21.5 | 18.6 | 19.1 | 19.1 | 19.6 | 20.2 |
| 12H | 4H | 18.9 | 19.6 | 19.4 | 20.1 | 20.5 | 18.1 | 18.8 | 18.6 | 19.3 | 19.7 |
| | 6H | 19.5 | 20.1 | 20.0 | 20.5 | 21.1 | 18.5 | 19.1 | 19.0 | 19.5 | 20.1 |
| | 8H | 19.8 | 20.3 | 20.3 | 20.8 | 21.3 | 18.6 | 19.1 | 19.1 | 19.6 | 20.2 |

Maximum UGR = 21.5

POLAR GRAPH



Maximum Candela = 932.622 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.)