



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MD2G-4-L30-840-A-CHA118-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] GEN from BALLABS TEST NO. 16991.0
 [TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
 [ISSUEDATE] 3-MAR-2020
 [MANUFAC] WILLIAMS INDOOR
 [OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.
 [LUMINAIRE] 4' LINEAR RECESSED ASYMMETRIC LUMINAIRE
 [MORE] WHITE REFL w/FROSTED ACRYLIC RIBBED ASYMMETRIC DIFFUSER &
 [MORE] CLEAR ACRYLIC LENS
 [LUMCAT] MD2-4-L30-840-A/CHA118-DIM-UNV
 [_SEARCH_SOURCETYPE] LED
 [_SEARCH_APPLICATION] INDOOR, HEALTHCARE, LINEAR, DIRECT
 [_SEARCH_MOUNTING] RECESSED

CHARACTERISTICS

| | |
|---------------------------------|-----------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 2829 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 100 |
| Total Luminaire Watts | 28.3 |
| Ballast Factor | 1.00 |
| CIE Type | Direct |
| Spacing Criterion (0-180) | 1.44 |
| Spacing Criterion (90-270) | 1.18 |
| Spacing Criterion (Diagonal) | 1.26 |
| Basic Luminous Shape | Rectangular |
| Luminous Length (0-180) | 0.35 ft |
| Luminous Width (90-270) | 3.84 ft |
| Luminous Height | 0.00 ft |

LUMINANCE DATA (cd/sq.m)

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45 | 10254 | 11268 | 8260 |
| 55 | 6435 | 8477 | 6636 |
| 65 | 3701 | 5543 | 5196 |
| 75 | 1995 | 2858 | 3305 |
| 85 | 973 | 1238 | 1326 |

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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> | <u>112.5</u> | <u>135.0</u> | <u>157.5</u> | <u>180.0</u> |
|-----------|------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
| 0 | 1350.576 | 1350.576 | 1350.576 | 1350.576 | 1350.576 | 1350.576 | 1350.576 | 1350.576 | 1350.576 |
| 5 | 1417.864 | 1402.484 | 1384.220 | 1353.460 | 1324.622 | 1302.513 | 1268.868 | 1246.759 | 1240.031 |
| 10 | 1477.463 | 1457.276 | 1421.709 | 1367.879 | 1303.474 | 1241.953 | 1182.355 | 1142.943 | 1123.718 |
| 15 | 1454.392 | 1438.051 | 1392.872 | 1321.738 | 1232.340 | 1145.827 | 1060.274 | 1003.560 | 979.528 |
| 20 | 1557.248 | 1528.410 | 1468.811 | 1368.840 | 1239.069 | 1106.415 | 985.296 | 900.704 | 875.712 |
| 25 | 1459.199 | 1439.012 | 1377.491 | 1273.675 | 1131.408 | 985.296 | 859.370 | 773.818 | 748.825 |
| 30 | 1409.213 | 1388.065 | 1331.351 | 1211.193 | 1046.817 | 875.712 | 742.096 | 657.505 | 628.667 |
| 35 | 1288.094 | 1291.939 | 1249.643 | 1129.485 | 956.458 | 785.353 | 649.814 | 570.030 | 543.114 |
| 40 | 1092.957 | 1115.066 | 1117.950 | 1003.560 | 831.493 | 660.388 | 535.424 | 461.407 | 442.181 |
| 45 | 904.549 | 949.729 | 993.947 | 904.549 | 728.638 | 561.378 | 449.872 | 385.467 | 370.087 |
| 50 | 664.233 | 719.025 | 793.043 | 750.747 | 596.945 | 452.755 | 365.280 | 314.333 | 298.953 |
| 55 | 460.445 | 502.741 | 606.558 | 606.558 | 474.864 | 359.513 | 286.457 | 245.122 | 229.742 |
| 60 | 304.721 | 338.365 | 436.414 | 467.174 | 368.164 | 277.805 | 220.129 | 184.563 | 175.911 |
| 65 | 195.137 | 224.936 | 292.224 | 335.481 | 273.960 | 200.904 | 154.764 | 131.693 | 128.809 |
| 70 | 118.235 | 131.693 | 174.950 | 215.323 | 181.679 | 131.693 | 100.933 | 90.359 | 88.436 |
| 75 | 64.405 | 71.134 | 92.281 | 118.235 | 106.700 | 71.134 | 56.715 | 52.870 | 49.986 |
| 80 | 31.722 | 32.683 | 40.373 | 50.947 | 49.024 | 31.722 | 27.877 | 24.993 | 24.993 |
| 85 | 10.574 | 10.574 | 13.458 | 14.419 | 14.419 | 9.613 | 9.613 | 9.613 | 9.613 |
| 90 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 478.22 | N.A. | 16.90 |
| 0-30 | 996.48 | N.A. | 35.20 |
| 0-40 | 1580.51 | N.A. | 55.90 |
| 0-60 | 2502.3 | N.A. | 88.40 |
| 0-80 | 2813.11 | N.A. | 99.40 |
| 0-90 | 2829.08 | N.A. | 100.00 |
| 10-90 | 2703.04 | N.A. | 95.50 |
| 20-40 | 1102.29 | N.A. | 39.00 |
| 20-50 | 1637.15 | N.A. | 57.90 |
| 40-70 | 1144.7 | N.A. | 40.50 |
| 60-80 | 310.80 | N.A. | 11.00 |
| 70-80 | 87.89 | N.A. | 3.10 |
| 80-90 | 15.97 | N.A. | 0.60 |
| 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 | 2829.08 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 126.04 |
| 10-20 | 352.18 |
| 20-30 | 518.26 |
| 30-40 | 584.03 |
| 40-50 | 534.86 |
| 50-60 | 386.93 |
| 60-70 | 222.91 |
| 70-80 | 87.89 |
| 80-90 | 15.97 |
| 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 | 114 | 114 | 114 | 114 | 112 | 112 | 112 | 112 | 107 | 107 | 107 | 102 | 102 | 102 | 98 | 98 | 98 | 96 |
| 1 | 106 | 102 | 99 | 96 | 104 | 100 | 97 | 94 | 96 | 94 | 91 | 93 | 90 | 89 | 89 | 87 | 86 | 84 |
| 2 | 98 | 91 | 85 | 81 | 96 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 76 | 80 | 77 | 74 | 73 |
| 3 | 90 | 81 | 74 | 69 | 88 | 80 | 73 | 68 | 77 | 72 | 67 | 74 | 70 | 66 | 72 | 68 | 65 | 63 |
| 4 | 83 | 73 | 65 | 60 | 81 | 72 | 65 | 59 | 69 | 63 | 58 | 67 | 62 | 58 | 65 | 61 | 57 | 55 |
| 5 | 77 | 66 | 58 | 52 | 75 | 65 | 57 | 52 | 63 | 56 | 51 | 61 | 55 | 51 | 59 | 54 | 50 | 48 |
| 6 | 72 | 60 | 52 | 46 | 70 | 59 | 51 | 46 | 57 | 51 | 46 | 56 | 50 | 45 | 54 | 49 | 45 | 43 |
| 7 | 67 | 55 | 47 | 41 | 65 | 54 | 46 | 41 | 52 | 46 | 41 | 51 | 45 | 41 | 50 | 44 | 40 | 38 |
| 8 | 62 | 50 | 42 | 37 | 61 | 49 | 42 | 37 | 48 | 42 | 37 | 47 | 41 | 37 | 46 | 40 | 36 | 35 |
| 9 | 58 | 46 | 39 | 34 | 57 | 46 | 38 | 34 | 45 | 38 | 33 | 44 | 38 | 33 | 43 | 37 | 33 | 31 |
| 10 | 55 | 43 | 36 | 31 | 54 | 42 | 35 | 31 | 41 | 35 | 31 | 40 | 35 | 30 | 40 | 34 | 30 | 29 |

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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

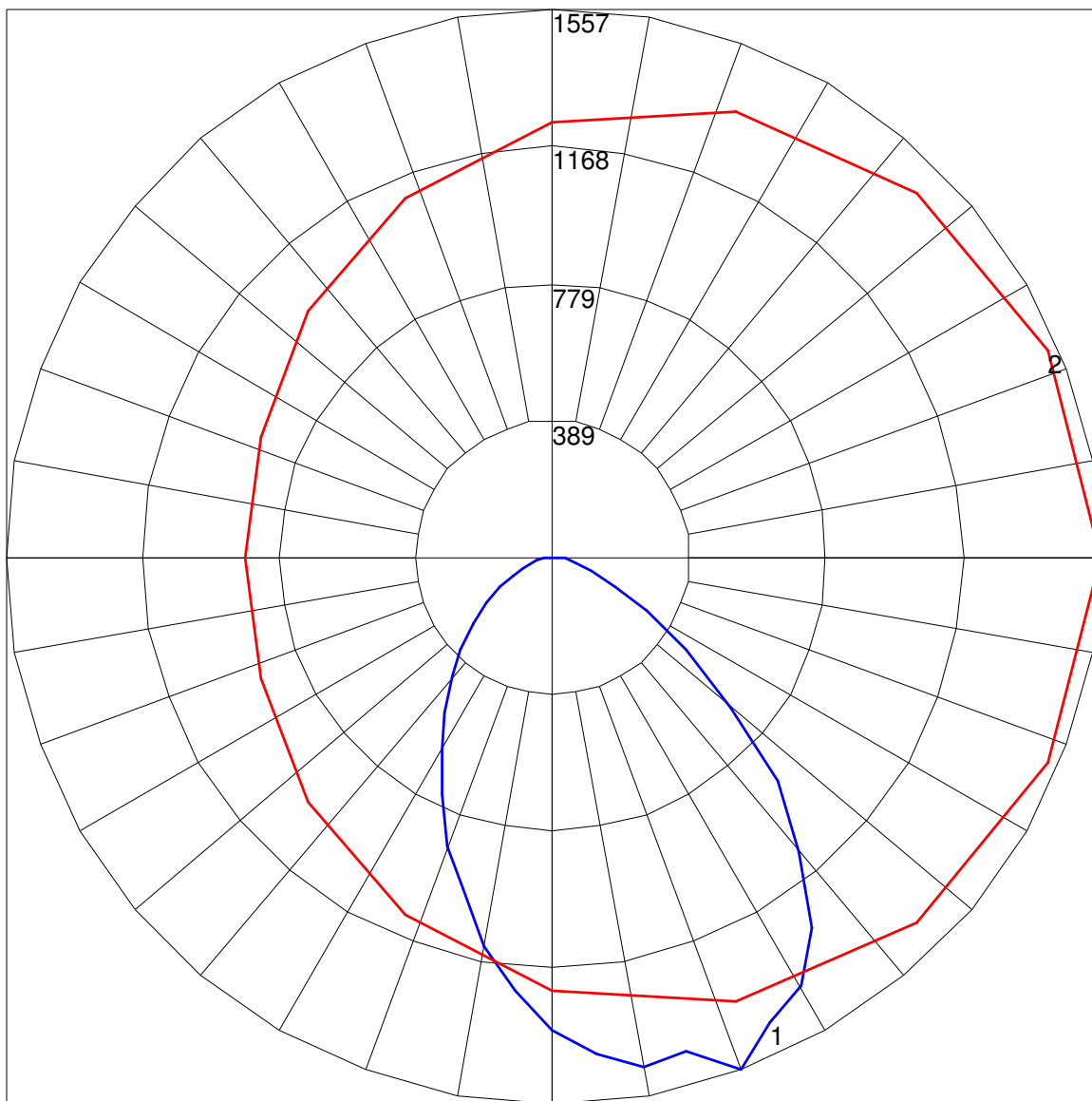
| X=2H | Y=2H | 18.4 | 19.9 | 18.8 | 20.2 | 20.5 | 18.8 | 20.3 | 19.2 | 20.6 | 20.9 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| | 3H | 19.1 | 20.4 | 19.4 | 20.7 | 21.1 | 19.9 | 21.2 | 20.3 | 21.6 | 21.9 |
| | 4H | 19.2 | 20.4 | 19.6 | 20.8 | 21.2 | 20.2 | 21.5 | 20.6 | 21.8 | 22.2 |
| | 6H | 19.3 | 20.4 | 19.7 | 20.8 | 21.2 | 20.4 | 21.5 | 20.8 | 21.9 | 22.3 |
| | 8H | 19.2 | 20.3 | 19.7 | 20.7 | 21.1 | 20.4 | 21.5 | 20.8 | 21.9 | 22.3 |
| | 12H | 19.2 | 20.3 | 19.7 | 20.7 | 21.1 | 20.4 | 21.4 | 20.8 | 21.8 | 22.2 |

UGR Viewed Endwise

| | | | | | | | | | | | |
|-----|-----|------|------|------|------|------|------|------|------|------|------|
| 4H | 2H | 19.0 | 20.2 | 19.4 | 20.6 | 21.0 | 19.1 | 20.3 | 19.5 | 20.7 | 21.0 |
| | 3H | 19.8 | 20.8 | 20.2 | 21.2 | 21.6 | 20.4 | 21.4 | 20.8 | 21.8 | 22.2 |
| | 4H | 20.0 | 20.9 | 20.4 | 21.3 | 21.7 | 20.7 | 21.6 | 21.2 | 22.1 | 22.5 |
| | 6H | 20.1 | 20.9 | 20.5 | 21.3 | 21.8 | 20.9 | 21.7 | 21.4 | 22.2 | 22.6 |
| | 8H | 20.1 | 20.8 | 20.5 | 21.2 | 21.7 | 21.0 | 21.7 | 21.4 | 22.2 | 22.6 |
| | 12H | 20.1 | 20.7 | 20.5 | 21.2 | 21.7 | 21.0 | 21.6 | 21.5 | 22.1 | 22.6 |
| 8H | 4H | 20.1 | 20.8 | 20.6 | 21.3 | 21.8 | 20.7 | 21.5 | 21.2 | 21.9 | 22.4 |
| | 6H | 20.2 | 20.8 | 20.7 | 21.3 | 21.8 | 21.0 | 21.6 | 21.5 | 22.1 | 22.6 |
| | 8H | 20.2 | 20.8 | 20.8 | 21.3 | 21.8 | 21.0 | 21.6 | 21.5 | 22.1 | 22.6 |
| | 12H | 20.2 | 20.7 | 20.8 | 21.2 | 21.8 | 21.1 | 21.5 | 21.6 | 22.0 | 22.6 |
| 12H | 4H | 20.1 | 20.8 | 20.6 | 21.2 | 21.7 | 20.7 | 21.4 | 21.2 | 21.9 | 22.3 |
| | 6H | 20.2 | 20.8 | 20.7 | 21.2 | 21.8 | 21.0 | 21.5 | 21.5 | 22.0 | 22.5 |
| | 8H | 20.3 | 20.8 | 20.8 | 21.2 | 21.8 | 21.0 | 21.5 | 21.5 | 22.0 | 22.6 |

Maximum UGR = 22.6

POLAR GRAPH



Maximum Candela = 1557.248 Located At Horizontal Angle = 0, Vertical Angle = 20
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (20) (Through Max. Cd.)