

IES INDOOR REPORT
PHOTOMETRIC FILENAME : CNDL-8763-12-13W-CFL.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST]BALLABS TEST NO. 15311.0
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
[ISSUE DATE] APR-2010
[MANUFAC] JUSTICE DESIGN GROUP
[MORE] PENDANT MOUNT TIER FIXTURE
[LUMINAIRE] TIER RING
[MORE] OAH GLASS
[LAMP CAT] 12- 13W CFL RATED 800 LUMENS,
[MORE] 156W AT 120.0 VOLTS

CHARACTERISTICS

| | |
|---------------------------------|--------------------|
| Lumens Per Lamp | 520 (12 lamps) |
| Total Lamp Lumens | 6240 |
| Luminaire Lumens | 3690 |
| Total Luminaire Efficiency | 59 % |
| Luminaire Efficacy Rating (LER) | 24 |
| Total Luminaire Watts | 156 |
| Ballast Factor | 1.00 |
| CIE Type | Semi-Direct |
| Spacing Criterion (0-180) | 1.32 |
| Spacing Criterion (90-270) | 1.34 |
| Spacing Criterion (Diagonal) | 1.48 |
| Basic Luminous Shape | Sphere |
| Luminous Length (0-180) | 0.00 ft |
| Luminous Width (90-270) | 1.13 ft (Diameter) |
| Luminous Height | 0.42 ft (Diameter) |

LUMINANCE DATA (cd/sq.m)

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45 | 6437 | 6555 | 6712 |
| 55 | 5573 | 5770 | 5966 |
| 65 | 4631 | 4906 | 5142 |
| 75 | 3768 | 4043 | 4278 |
| 85 | 2904 | 3179 | 3415 |

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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> |
|--------------|------------|-------------|-------------|-------------|-------------|
| 0.0 | 798.140 | 798.140 | 798.140 | 798.140 | 798.140 |
| 2.5 | 798.140 | 794.512 | 798.140 | 794.512 | 798.140 |
| 5.0 | 794.512 | 790.884 | 794.512 | 794.512 | 798.140 |
| 7.5 | 790.884 | 787.256 | 790.884 | 790.884 | 790.884 |
| 10.0 | 787.256 | 783.629 | 787.256 | 787.256 | 790.884 |
| 12.5 | 780.001 | 780.001 | 780.001 | 783.629 | 783.629 |
| 15.0 | 772.745 | 772.745 | 772.745 | 776.373 | 776.373 |
| 17.5 | 761.861 | 765.489 | 765.489 | 769.117 | 765.489 |
| 20.0 | 750.977 | 754.605 | 754.605 | 758.233 | 754.605 |
| 22.5 | 740.094 | 743.722 | 740.094 | 747.349 | 743.722 |
| 25.0 | 729.210 | 732.838 | 729.210 | 736.466 | 732.838 |
| 27.5 | 714.698 | 718.326 | 718.326 | 725.582 | 721.954 |
| 30.0 | 700.187 | 703.815 | 703.815 | 714.698 | 707.442 |
| 32.5 | 685.675 | 689.303 | 689.303 | 700.187 | 696.559 |
| 35.0 | 671.163 | 674.791 | 674.791 | 685.675 | 682.047 |
| 37.5 | 653.024 | 660.280 | 660.280 | 671.163 | 667.535 |
| 40.0 | 634.884 | 642.140 | 642.140 | 656.652 | 653.024 |
| 42.5 | 616.745 | 624.001 | 624.001 | 638.512 | 634.884 |
| 45.0 | 594.977 | 605.861 | 605.861 | 624.001 | 620.373 |
| 47.5 | 576.838 | 587.721 | 587.721 | 605.861 | 602.233 |
| 50.0 | 558.698 | 569.582 | 573.210 | 591.349 | 587.721 |
| 52.5 | 536.931 | 547.814 | 551.442 | 573.210 | 569.582 |
| 55.0 | 515.163 | 529.675 | 533.303 | 551.442 | 551.442 |
| 57.5 | 493.396 | 507.907 | 511.535 | 533.303 | 529.675 |
| 60.0 | 471.628 | 489.768 | 493.396 | 515.163 | 511.535 |
| 62.5 | 449.861 | 464.372 | 471.628 | 493.396 | 493.396 |
| 65.0 | 428.093 | 446.233 | 453.489 | 475.256 | 475.256 |
| 67.5 | 406.326 | 424.465 | 431.721 | 453.489 | 453.489 |
| 70.0 | 388.186 | 406.326 | 413.582 | 435.349 | 435.349 |
| 72.5 | 366.419 | 384.558 | 391.814 | 417.210 | 413.582 |
| 75.0 | 348.279 | 366.419 | 373.675 | 399.070 | 395.442 |
| 77.5 | 326.512 | 344.651 | 351.907 | 377.303 | 373.675 |
| 80.0 | 304.744 | 326.512 | 333.768 | 359.163 | 355.535 |
| 82.5 | 286.605 | 304.744 | 312.000 | 337.396 | 333.768 |
| 85.0 | 268.465 | 286.605 | 293.861 | 319.256 | 315.628 |
| 87.5 | 246.698 | 268.465 | 272.093 | 297.489 | 293.861 |
| 90.0 | 232.186 | 243.070 | 253.954 | 272.093 | 279.349 |
| 92.5 | 217.675 | 214.047 | 235.814 | 246.698 | 261.210 |
| 95.0 | 199.535 | 195.907 | 221.303 | 224.930 | 243.070 |
| 97.5 | 181.395 | 177.768 | 199.535 | 203.163 | 217.675 |
| 100.0 | 163.256 | 159.628 | 181.395 | 185.023 | 199.535 |
| 102.5 | 145.116 | 141.488 | 163.256 | 166.884 | 181.395 |
| 105.0 | 130.605 | 126.977 | 145.116 | 148.744 | 163.256 |
| 107.5 | 112.465 | 112.465 | 126.977 | 130.605 | 145.116 |
| 110.0 | 101.581 | 97.954 | 112.465 | 116.093 | 126.977 |
| 112.5 | 83.442 | 83.442 | 97.954 | 97.954 | 108.837 |
| 115.0 | 72.558 | 68.930 | 83.442 | 83.442 | 94.326 |
| 117.5 | 61.674 | 58.047 | 68.930 | 68.930 | 79.814 |
| 120.0 | 50.791 | 47.163 | 58.047 | 58.047 | 65.302 |
| 122.5 | 39.907 | 39.907 | 47.163 | 47.163 | 54.419 |
| 125.0 | 32.651 | 29.023 | 36.279 | 36.279 | 43.535 |
| 127.5 | 25.395 | 21.767 | 29.023 | 25.395 | 32.651 |
| 130.0 | 18.140 | 14.512 | 21.767 | 18.140 | 21.767 |
| 132.5 | 10.884 | 10.884 | 14.512 | 10.884 | 14.512 |

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CANDELA TABULATION - (Cont.)

| | | | | | |
|--------------|-------|-------|--------|-------|-------|
| 135.0 | 7.256 | 7.256 | 10.884 | 7.256 | 7.256 |
| 137.5 | 3.628 | 3.628 | 3.628 | 3.628 | 3.628 |
| 140.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 142.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 145.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 147.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 150.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 152.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 155.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 157.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 160.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 162.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 165.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 167.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 170.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 172.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 175.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 177.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 180.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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ZONAL LUMEN SUMMARY

| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 294.23 | 4.70 | 8.00 |
| 0-30 | 632.24 | 10.10 | 17.10 |
| 0-40 | 1057.09 | 16.90 | 28.60 |
| 0-60 | 2010.15 | 32.20 | 54.50 |
| 0-80 | 2860.44 | 45.80 | 77.50 |
| 0-90 | 3184.36 | 51.00 | 86.30 |
| 10-90 | 3108.82 | 49.80 | 84.30 |
| 20-40 | 762.85 | 12.20 | 20.70 |
| 20-50 | 1235.14 | 19.80 | 33.50 |
| 40-70 | 1405.17 | 22.50 | 38.10 |
| 60-80 | 850.29 | 13.60 | 23.00 |
| 70-80 | 398.19 | 6.40 | 10.80 |
| 80-90 | 323.92 | 5.20 | 8.80 |
| 90-110 | 385.78 | 6.20 | 10.50 |
| 90-120 | 466.31 | 7.50 | 12.60 |
| 90-130 | 498.82 | 8.00 | 13.50 |
| 90-150 | 505.47 | 8.10 | 13.70 |
| 90-180 | 505.47 | 8.10 | 13.70 |
| 110-180 | 119.68 | 1.90 | 3.20 |
| 0-180 | 3689.82 | 59.10 | 100.00 |

Total Luminaire Efficiency = 59.10%

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 75.54 |
| 10-20 | 218.69 |
| 20-30 | 338.01 |
| 30-40 | 424.85 |
| 40-50 | 472.29 |
| 50-60 | 480.77 |
| 60-70 | 452.11 |
| 70-80 | 398.19 |
| 80-90 | 323.92 |
| 90-100 | 235.06 |
| 100-110 | 150.72 |
| 110-120 | 80.53 |
| 120-130 | 32.51 |
| 130-140 | 6.64 |
| 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 | |
| 0 | 68 | 68 | 68 | 68 | 66 | 66 | 66 | 66 | 61 | 61 | 61 | 57 | 57 | 57 | 53 | 53 | 53 | 51 |
| 1 | 60 | 56 | 53 | 50 | 58 | 54 | 51 | 49 | 50 | 48 | 46 | 46 | 44 | 43 | 43 | 41 | 40 | 38 |
| 2 | 54 | 48 | 43 | 39 | 52 | 46 | 42 | 38 | 43 | 39 | 36 | 39 | 36 | 34 | 37 | 34 | 32 | 30 |
| 3 | 49 | 42 | 36 | 32 | 46 | 40 | 35 | 31 | 37 | 33 | 29 | 34 | 31 | 28 | 32 | 29 | 26 | 24 |
| 4 | 44 | 36 | 31 | 26 | 42 | 35 | 30 | 26 | 33 | 28 | 24 | 30 | 26 | 23 | 28 | 25 | 22 | 20 |
| 5 | 41 | 32 | 27 | 22 | 39 | 31 | 26 | 22 | 29 | 24 | 21 | 27 | 23 | 20 | 25 | 22 | 19 | 17 |
| 6 | 37 | 29 | 23 | 19 | 36 | 28 | 23 | 19 | 26 | 21 | 18 | 24 | 20 | 17 | 22 | 19 | 16 | 15 |
| 7 | 35 | 26 | 21 | 17 | 33 | 25 | 20 | 16 | 23 | 19 | 16 | 22 | 18 | 15 | 20 | 17 | 14 | 13 |
| 8 | 32 | 24 | 18 | 15 | 31 | 23 | 18 | 14 | 21 | 17 | 14 | 20 | 16 | 13 | 19 | 15 | 13 | 11 |
| 9 | 30 | 22 | 17 | 13 | 29 | 21 | 16 | 13 | 20 | 15 | 12 | 18 | 15 | 12 | 17 | 14 | 11 | 10 |
| 10 | 28 | 20 | 15 | 12 | 27 | 19 | 15 | 12 | 18 | 14 | 11 | 17 | 13 | 11 | 16 | 13 | 10 | 9 |

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UGR TABLE - CORRECTED

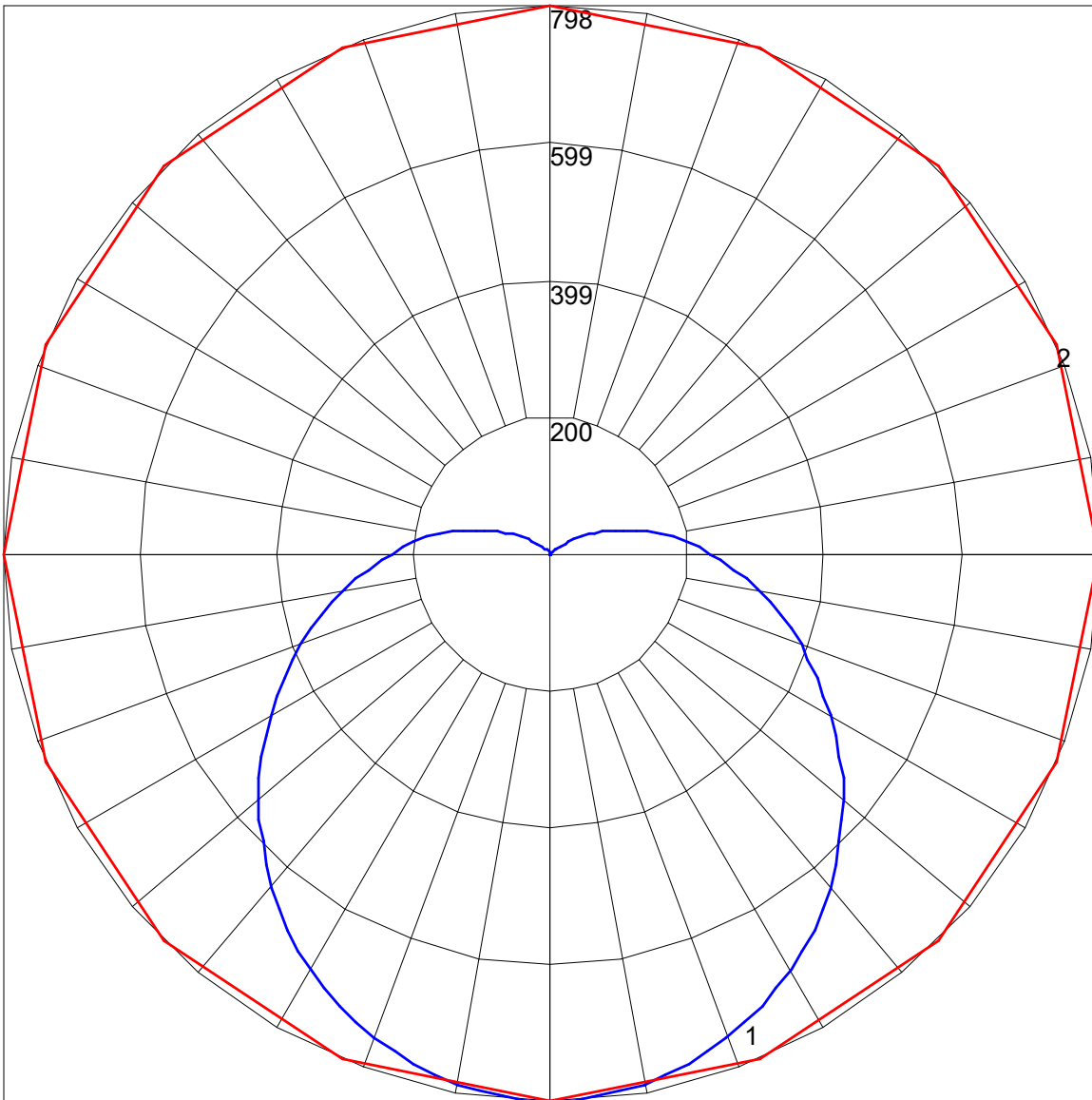
Reflectances

| | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|
| 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 | 14.4 | 15.9 | 14.9 | 16.4 | 17.1 | 14.8 | 16.2 | 15.3 | 16.8 | 17.4 |
| | 3H | 16.5 | 17.9 | 17.1 | 18.5 | 19.1 | 17.0 | 18.4 | 17.6 | 19.0 | 19.6 |
| | 4H | 17.5 | 18.8 | 18.1 | 19.4 | 20.1 | 18.1 | 19.4 | 18.7 | 20.0 | 20.6 |
| | 6H | 18.4 | 19.7 | 19.0 | 20.3 | 20.9 | 19.1 | 20.3 | 19.7 | 20.9 | 21.6 |
| | 8H | 18.8 | 20.0 | 19.4 | 20.6 | 21.3 | 19.5 | 20.7 | 20.1 | 21.3 | 22.0 |
| | 12H | 19.2 | 20.4 | 19.9 | 21.0 | 21.7 | 20.0 | 21.1 | 20.6 | 21.7 | 22.5 |
| 4H | 2H | 15.0 | 16.3 | 15.6 | 16.9 | 17.6 | 15.3 | 16.6 | 15.9 | 17.2 | 17.9 |
| | 3H | 17.4 | 18.5 | 18.0 | 19.2 | 19.9 | 17.8 | 19.0 | 18.4 | 19.6 | 20.3 |
| | 4H | 18.5 | 19.6 | 19.2 | 20.2 | 21.0 | 19.0 | 20.1 | 19.7 | 20.7 | 21.5 |
| | 6H | 19.7 | 20.6 | 20.3 | 21.2 | 22.0 | 20.3 | 21.2 | 20.9 | 21.8 | 22.6 |
| | 8H | 20.1 | 21.0 | 20.8 | 21.7 | 22.4 | 20.8 | 21.7 | 21.4 | 22.3 | 23.1 |
| | 12H | 20.6 | 21.4 | 21.3 | 22.1 | 22.9 | 21.3 | 22.1 | 22.0 | 22.8 | 23.6 |
| 8H | 4H | 19.0 | 19.9 | 19.6 | 20.5 | 21.3 | 19.4 | 20.3 | 20.1 | 21.0 | 21.7 |
| | 6H | 20.3 | 21.0 | 21.0 | 21.7 | 22.5 | 20.8 | 21.6 | 21.5 | 22.3 | 23.0 |
| | 8H | 20.9 | 21.6 | 21.6 | 22.3 | 23.1 | 21.5 | 22.2 | 22.2 | 22.9 | 23.6 |
| | 12H | 21.6 | 22.2 | 22.2 | 22.9 | 23.7 | 22.2 | 22.8 | 22.9 | 23.5 | 24.3 |
| 12H | 4H | 19.1 | 19.9 | 19.7 | 20.6 | 21.3 | 19.5 | 20.3 | 20.1 | 21.0 | 21.7 |
| | 6H | 20.4 | 21.1 | 21.1 | 21.8 | 22.6 | 20.9 | 21.6 | 21.6 | 22.3 | 23.1 |
| | 8H | 21.1 | 21.8 | 21.8 | 22.5 | 23.3 | 21.7 | 22.3 | 22.4 | 23.0 | 23.8 |

Maximum UGR = 24.3

POLAR GRAPH



Maximum Candela = 798.14 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.)