

Photometric Report - (ecs-ill4-mn-232-unv-12n) - Page 1 of 4

Fri Jul 17 12:23:58 2009

IESNA:LM-63-1995

Photopia 2.0.0.17 PHOTOMETRIC REPORT

PROJECT: ecs-ill4-mn-232-unv-12n

OPTIONS:

Spawning 1 rays for each reaction.
Random number generator seed: 8.
Tracing 5 reflections.
Stop tracing ray at 1.0% of initial magnitude.
Tracing 500092 initial lamp rays.
Photometric test distance of 20.00 feet.

LUMENS EXITING SYSTEM:

| Lumens(%) | Reflection |
|--------------|------------|
| 2645(45.6%) | 0 |
| 2299(39.6%) | 1 |
| 496(8.6%) | 2 |
| 90(1.6%) | 3 |
| 24(0.4%) | 4 |
| 7(0.1%) | 5 |
| 5561(95.9%) | Total |

LUMEN INTERACTION WITH SYSTEM:

| Absorbed(%) | Incident(%) | Layer Name |
|-------------|--------------|--------------|
| 7(0.1%) | 106(1.8%) | LAMP-F032311 |
| 0(0.0%) | 5(0.1%) | LAMP-F032312 |
| 221(3.8%) | 3929(67.7%) | Refl-Poly1 |
| 228(3.9%) | 4041(69.7%) | Total |

| Absorbed(%) | Incident(%) | Material Name |
|-------------|--------------|---------------|
| 7(0.1%) | 112(1.9%) | PHOSGLAS |
| 221(3.8%) | 3929(67.7%) | ALMIRO04 |
| 228(3.9%) | 4041(69.7%) | Total |

UNACCOUNTED LUMENS:

| | |
|--|--------------|
| reached interreflection limit: | 9.60 (0.2%) |
| fell below continuation minimum: | 0.00 (0.0%) |
| could not find in/out refractor facet: | 0.00 (0.0%) |
| reached try limit for scatter bounce: | 0.00 (0.0%) |
| lost elsewhere(i.e. outside distrib): | 0.00 (0.0%) |

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Number of Lamps: 2 Lumens per Lamp: 2900
 Ballast Factor: 1.00 Ballast-Lamp Photometric Factor: 1.00
 Luminaire Width: 1.2075 Length: 4.0000 Height: 0.2090
 Photometry Type: C Units: feet

Candela Distribution:

| | 0.00 | 22.50 | 45.00 | 67.50 | 90.00 |
|--------|-------|-------|-------|-------|-------|
| 0.00 | 2160 | 2160 | 2160 | 2160 | 2160 |
| 5.00 | 2118 | 2117 | 2119 | 2133 | 2158 |
| 10.00 | 2049 | 2094 | 2114 | 2028 | 2132 |
| 15.00 | 2001 | 1986 | 1962 | 2025 | 2011 |
| 20.00 | 1991 | 1985 | 1949 | 1846 | 1834 |
| 25.00 | 1830 | 1880 | 1784 | 1669 | 1654 |
| 30.00 | 1789 | 1762 | 1605 | 1556 | 1542 |
| 35.00 | 1644 | 1619 | 1454 | 1423 | 1400 |
| 40.00 | 1526 | 1430 | 1322 | 1250 | 1197 |
| 45.00 | 1371 | 1294 | 1153 | 1015 | 992 |
| 50.00 | 1202 | 1101 | 969 | 930 | 959 |
| 55.00 | 1015 | 928 | 802 | 886 | 904 |
| 60.00 | 850 | 744 | 715 | 801 | 827 |
| 65.00 | 656 | 565 | 639 | 714 | 762 |
| 70.00 | 477 | 440 | 547 | 621 | 621 |
| 75.00 | 319 | 319 | 436 | 470 | 495 |
| 80.00 | 181 | 224 | 309 | 372 | 391 |
| 85.00 | 77.8 | 137 | 204 | 243 | 263 |
| 90.00 | 25.4 | 52.5 | 91.5 | 117 | 135 |
| 95.00 | 13.6 | 17.0 | 17.4 | 28.1 | 34.5 |
| 100.00 | 6.45 | 11.4 | 6.95 | 0.410 | 0.000 |
| 105.00 | 6.95 | 8.19 | 4.25 | 0.340 | 0.000 |
| 110.00 | 4.68 | 5.91 | 3.08 | 0.350 | 0.000 |
| 115.00 | 3.55 | 4.43 | 2.18 | 0.180 | 0.000 |
| 120.00 | 2.93 | 2.51 | 1.60 | 0.000 | 0.000 |
| 125.00 | 4.13 | 1.65 | 0.710 | 0.000 | 0.000 |
| 130.00 | 1.55 | 0.990 | 0.100 | 0.000 | 0.000 |
| 135.00 | 0.720 | 0.840 | 0.000 | 0.000 | 0.000 |
| 140.00 | 0.000 | 0.130 | 0.000 | 0.000 | 0.000 |
| 145.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 150.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 155.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 160.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 165.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 170.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 175.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 180.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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| Zonal Lumens | | |
|--------------|-------------|--------|
| Cone | Between | Lumens |
| 0.0 | 0.0- 2.5 | 12.92 |
| 5.0 | 2.5- 7.5 | 101.59 |
| 10.0 | 7.5- 12.5 | 198.13 |
| 15.0 | 12.5- 17.5 | 282.99 |
| 20.0 | 17.5- 22.5 | 360.53 |
| 25.0 | 22.5- 27.5 | 409.75 |
| 30.0 | 27.5- 32.5 | 451.47 |
| 35.0 | 32.5- 37.5 | 473.03 |
| 40.0 | 37.5- 42.5 | 472.44 |
| 45.0 | 42.5- 47.5 | 449.85 |
| 50.0 | 47.5- 52.5 | 428.35 |
| 55.0 | 52.5- 57.5 | 401.49 |
| 60.0 | 57.5- 62.5 | 367.80 |
| 65.0 | 62.5- 67.5 | 326.31 |
| 70.0 | 67.5- 72.5 | 277.80 |
| 75.0 | 72.5- 77.5 | 216.11 |
| 80.0 | 77.5- 82.5 | 160.69 |
| 85.0 | 82.5- 87.5 | 102.96 |
| 90.0 | 87.5- 92.5 | 46.75 |
| 95.0 | 92.5- 97.5 | 11.81 |
| 100.0 | 97.5-102.5 | 2.97 |
| 105.0 | 102.5-107.5 | 2.15 |
| 110.0 | 107.5-112.5 | 1.50 |
| 115.0 | 112.5-117.5 | 1.06 |
| 120.0 | 117.5-122.5 | 0.66 |
| 125.0 | 122.5-127.5 | 0.50 |
| 130.0 | 127.5-132.5 | 0.20 |
| 135.0 | 132.5-137.5 | 0.12 |
| 140.0 | 137.5-142.5 | 0.01 |
| 145.0 | 142.5-147.5 | 0.00 |
| 150.0 | 147.5-152.5 | 0.00 |
| 155.0 | 152.5-157.5 | 0.00 |
| 160.0 | 157.5-162.5 | 0.00 |
| 165.0 | 162.5-167.5 | 0.00 |
| 170.0 | 167.5-172.5 | 0.00 |
| 175.0 | 172.5-177.5 | 0.00 |
| 180.0 | 177.5-180.0 | 0.00 |

Zonal Lumen Summary

| Zone | Lumens | %Lamp | %Fixt |
|--------|--------|-------|-------|
| 0- 30 | 1583 | 27.3 | 28.5 |
| 0- 40 | 2520 | 43.5 | 45.3 |
| 0- 60 | 4224 | 72.8 | 75.9 |
| 0- 90 | 5518 | 95.1 | 99.2 |
| 90-120 | 43 | 0.7 | 0.8 |
| 90-130 | 44 | 0.8 | 0.8 |
| 90-150 | 44 | 0.8 | 0.8 |
| 90-180 | 44 | 0.8 | 0.8 |
| 0-180 | 5562 | 95.9 | 100.0 |

Total Luminaire Optical Efficiency = 95.9%

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Luminaire Spacing Criterion:

| | |
|-------|--------|
| 0 deg | 90 deg |
| 1.23 | 1.07 |

Average Luminaire Luminance (cd/m²):

| | | | |
|----|---------|---------|---------|
| | 0 | 45 | 90 |
| 0 | 4813.72 | 4813.72 | 4813.72 |
| 45 | 4106.39 | 3133.58 | 2665.60 |
| 50 | 3921.74 | 2824.17 | 2756.66 |
| 55 | 3670.41 | 2539.75 | 2816.80 |
| 60 | 3475.62 | 2497.58 | 2834.74 |
| 65 | 3111.08 | 2512.94 | 2931.70 |
| 70 | 2720.22 | 2480.91 | 2740.67 |
| 75 | 2300.63 | 2355.02 | 2588.61 |
| 80 | 1793.95 | 2080.75 | 2532.34 |
| 85 | 1245.64 | 1846.42 | 2262.04 |

Coefficients of Utilization - Zonal Cavity Method:

pfc = 0.20

| | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| pcc | .8 | | | | .7 | | | | .5 | | |
| pw | .7 | .5 | .3 | .1 | .7 | .5 | .3 | .1 | .5 | .3 | .1 |
| RCR | | | | | | | | | | | |
| 0 | 113 | 113 | 113 | 113 | 111 | 111 | 111 | 111 | 106 | 106 | 106 |
| 1 | 103 | 98 | 94 | 90 | 100 | 96 | 92 | 88 | 91 | 88 | 85 |
| 2 | 93 | 85 | 78 | 73 | 91 | 83 | 77 | 72 | 80 | 75 | 70 |
| 3 | 85 | 75 | 67 | 61 | 83 | 73 | 66 | 60 | 70 | 64 | 59 |
| 4 | 78 | 66 | 58 | 51 | 76 | 65 | 57 | 51 | 63 | 56 | 50 |
| 5 | 72 | 59 | 51 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 44 |
| 6 | 66 | 54 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 38 |
| 7 | 62 | 49 | 40 | 34 | 60 | 48 | 40 | 34 | 46 | 39 | 34 |
| 8 | 57 | 45 | 36 | 31 | 56 | 44 | 36 | 31 | 43 | 35 | 30 |
| 9 | 54 | 41 | 33 | 28 | 52 | 40 | 33 | 28 | 39 | 32 | 28 |
| 10 | 50 | 38 | 30 | 25 | 49 | 37 | 30 | 25 | 36 | 30 | 25 |

| | | | | | | | |
|-----|-----|-----|-----|----|----|----|----|
| pcc | .3 | | | .1 | | | 0 |
| pw | .5 | .3 | .1 | .5 | .3 | .1 | 0 |
| RCR | | | | | | | |
| 0 | 101 | 101 | 101 | 97 | 97 | 97 | 95 |
| 1 | 88 | 85 | 82 | 84 | 82 | 80 | 78 |
| 2 | 77 | 72 | 68 | 74 | 70 | 67 | 65 |
| 3 | 68 | 62 | 58 | 65 | 61 | 57 | 54 |
| 4 | 60 | 54 | 49 | 58 | 53 | 49 | 47 |
| 5 | 54 | 48 | 43 | 52 | 47 | 43 | 40 |
| 6 | 49 | 43 | 38 | 48 | 42 | 37 | 36 |
| 7 | 45 | 39 | 34 | 44 | 38 | 33 | 31 |
| 8 | 41 | 35 | 30 | 40 | 34 | 30 | 28 |
| 9 | 38 | 32 | 27 | 37 | 31 | 27 | 25 |
| 10 | 35 | 29 | 25 | 34 | 29 | 25 | 23 |