

Photometric Report - (ecs-nci4-mn-232-unv-12n-0ww) - Page 1 of 4

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IESNA:LM-63-1995

Photopia 2.0.0.17 PHOTOMETRIC REPORT

PROJECT: ecs-nci4-mn-232-unv-12n-0ww

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 |
|--------------|------------|
| 2242(38.7%) | 0 |
| 2233(38.5%) | 1 |
| 325(5.6%) | 2 |
| 361(6.2%) | 3 |
| 77(1.3%) | 4 |
| 75(1.3%) | 5 |
| 5315(91.7%) | Total |

LUMEN INTERACTION WITH SYSTEM:

| Absorbed(%) | Incident(%) | Layer Name |
|-------------|--------------|--------------|
| 98(1.7%) | 1504(25.9%) | LAMP-F032311 |
| 5(0.1%) | 84(1.5%) | LAMP-F032312 |
| 243(4.2%) | 4361(75.2%) | Refl-Poly1 |
| 347(6.0%) | 5950(102.6%) | Total |

| Absorbed(%) | Incident(%) | Material Name |
|-------------|--------------|---------------|
| 103(1.8%) | 1589(27.4%) | PHOSGLAS |
| 243(4.2%) | 4361(75.2%) | ALMIRO04 |
| 347(6.0%) | 5950(102.6%) | Total |

UNACCOUNTED LUMENS:

reached interreflection limit: 137.26 (2.4%)
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%)

Photometric Report - (ecs-nci4-mn-232-unv-12n-0ww) - Page 2 of 4

Number of Lamps: 2 Lumens per Lamp: 2900
Ballast Factor: 1.00 Ballast-Lamp Photometric Factor: 1.00
Luminaire Width: 0.5492 Length: 4.0000 Height: 0.1721
Photometry Type: C Units: feet

Candela Distribution:

| | 0.00 | 22.50 | 45.00 | 67.50 | 90.00 |
|-------|------|-------|-------|-------|-------|
| 0.00 | 1766 | 1766 | 1766 | 1766 | 1766 |
| 5.00 | 1868 | 1687 | 1730 | 1655 | 1628 |
| 10.00 | 1659 | 1649 | 1677 | 1692 | 1630 |
| 15.00 | 1689 | 1616 | 1685 | 1786 | 1773 |
| 20.00 | 1593 | 1612 | 1714 | 1818 | 1861 |
| 25.00 | 1574 | 1596 | 1755 | 1631 | 1636 |
| 30.00 | 1437 | 1495 | 1612 | 1518 | 1524 |
| 35.00 | 1370 | 1498 | 1445 | 1453 | 1397 |
| 40.00 | 1269 | 1384 | 1350 | 1296 | 1260 |
| 45.00 | 1133 | 1262 | 1194 | 1137 | 1124 |
| 50.00 | 1024 | 1131 | 1039 | 1034 | 1032 |
| 55.00 | 904 | 980 | 897 | 900 | 938 |
| 60.00 | 770 | 803 | 770 | 850 | 859 |
| 65.00 | 651 | 635 | 684 | 738 | 749 |
| 70.00 | 489 | 496 | 558 | 633 | 655 |
| 75.00 | 363 | 360 | 460 | 501 | 482 |
| 80.00 | 229 | 247 | 291 | 284 | 290 |
| 85.00 | 100 | 117 | 121 | 124 | 121 |
| 90.00 | 19.1 | 18.4 | 19.7 | 20.3 | 21.2 |

Zonal Lumens

| Cone | Between | Lumens |
|------|------------|--------|
| 0.0 | 0.0- 2.5 | 10.56 |
| 5.0 | 2.5- 7.5 | 81.45 |
| 10.0 | 7.5- 12.5 | 158.53 |
| 15.0 | 12.5- 17.5 | 241.82 |
| 20.0 | 17.5- 22.5 | 322.02 |
| 25.0 | 22.5- 27.5 | 381.49 |
| 30.0 | 27.5- 32.5 | 418.40 |
| 35.0 | 32.5- 37.5 | 454.29 |
| 40.0 | 37.5- 42.5 | 466.33 |
| 45.0 | 42.5- 47.5 | 457.47 |
| 50.0 | 47.5- 52.5 | 444.25 |
| 55.0 | 52.5- 57.5 | 415.16 |
| 60.0 | 57.5- 62.5 | 384.15 |
| 65.0 | 62.5- 67.5 | 342.52 |
| 70.0 | 67.5- 72.5 | 290.91 |
| 75.0 | 72.5- 77.5 | 230.79 |
| 80.0 | 77.5- 82.5 | 145.82 |
| 85.0 | 82.5- 87.5 | 64.44 |
| 90.0 | 87.5- 92.5 | 10.77 |

Zonal Lumen Summary

| Zone | Lumens | %Lamp | %Fixt |
|--------|--------|-------|-------|
| 0- 30 | 1397 | 24.1 | 26.3 |
| 0- 40 | 2296 | 39.6 | 43.1 |
| 0- 60 | 4041 | 69.7 | 75.9 |
| 0- 90 | 5316 | 91.7 | 99.9 |
| 90-120 | 5 | 0.1 | 0.1 |
| 90-130 | 5 | 0.1 | 0.1 |
| 90-150 | 5 | 0.1 | 0.1 |
| 90-180 | 5 | 0.1 | 0.1 |
| 0-180 | 5321 | 91.7 | 100.0 |

Total Luminaire Optical Efficiency = 91.7%

Luminaire Spacing Criterion:

| | |
|-------|--------|
| 0 deg | 90 deg |
| 1.22 | 1.26 |

Average Luminaire Luminance (cd/m²):

| | | | |
|----|---------|---------|---------|
| | 0 | 45 | 90 |
| 0 | 8652.28 | 8652.28 | 8652.28 |
| 45 | 7530.04 | 6606.98 | 5930.31 |
| 50 | 7423.14 | 6089.94 | 5728.25 |
| 55 | 7272.82 | 5635.49 | 5532.96 |
| 60 | 7025.80 | 5253.23 | 5456.27 |
| 65 | 6912.55 | 5151.99 | 5195.28 |
| 70 | 6266.17 | 4726.18 | 5043.13 |
| 75 | 5928.31 | 4487.30 | 4207.49 |
| 80 | 5190.54 | 3376.21 | 2941.70 |
| 85 | 3774.41 | 1747.36 | 1486.77 |

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 | 109 | 109 | 109 | 109 | 106 | 106 | 106 | 106 | 102 | 102 | 102 |
| 1 | 99 | 94 | 90 | 86 | 96 | 92 | 88 | 85 | 88 | 85 | 82 |
| 2 | 90 | 82 | 75 | 70 | 87 | 80 | 74 | 69 | 77 | 72 | 67 |
| 3 | 81 | 71 | 64 | 57 | 79 | 70 | 63 | 57 | 67 | 61 | 56 |
| 4 | 74 | 63 | 55 | 48 | 72 | 62 | 54 | 48 | 59 | 53 | 47 |
| 5 | 68 | 56 | 48 | 41 | 66 | 55 | 47 | 41 | 53 | 46 | 41 |
| 6 | 63 | 51 | 42 | 36 | 61 | 50 | 42 | 36 | 48 | 41 | 36 |
| 7 | 58 | 46 | 38 | 32 | 57 | 45 | 37 | 32 | 44 | 36 | 31 |
| 8 | 54 | 42 | 34 | 28 | 53 | 41 | 33 | 28 | 40 | 33 | 28 |
| 9 | 51 | 38 | 30 | 25 | 49 | 38 | 30 | 25 | 37 | 30 | 25 |
| 10 | 47 | 35 | 28 | 23 | 46 | 35 | 28 | 23 | 34 | 27 | 23 |

| | | | | | | | |
|-----|----|----|----|----|----|----|----|
| pcc | .3 | | | .1 | | | 0 |
| pw | .5 | .3 | .1 | .5 | .3 | .1 | 0 |
| RCR | | | | | | | |
| 0 | 97 | 97 | 97 | 93 | 93 | 93 | 91 |
| 1 | 85 | 82 | 80 | 81 | 79 | 77 | 75 |
| 2 | 74 | 69 | 66 | 71 | 67 | 64 | 62 |
| 3 | 65 | 59 | 55 | 62 | 58 | 54 | 52 |
| 4 | 57 | 51 | 47 | 55 | 50 | 46 | 44 |
| 5 | 51 | 45 | 40 | 50 | 44 | 40 | 38 |
| 6 | 46 | 40 | 35 | 45 | 39 | 35 | 33 |
| 7 | 42 | 36 | 31 | 41 | 35 | 31 | 29 |
| 8 | 39 | 32 | 28 | 38 | 32 | 28 | 26 |
| 9 | 36 | 29 | 25 | 35 | 29 | 25 | 23 |
| 10 | 33 | 27 | 23 | 32 | 26 | 22 | 21 |