

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P1055961

Luminaire Tested: S124R3DR-S1020D840-X4F0-XX-UDD-F-W

Issue Date: 7/25/2025

Test Information

Test Method: LM-79-2024
Report Number: P1055961
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-7)
Test Lab: INNOVATION CENTER
Issue Date: 7/25/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S124R3DR-S1020D840-X4F0-XX-UDD-F-W
Description: DEFINE 4, WHITE 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS
CORE LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

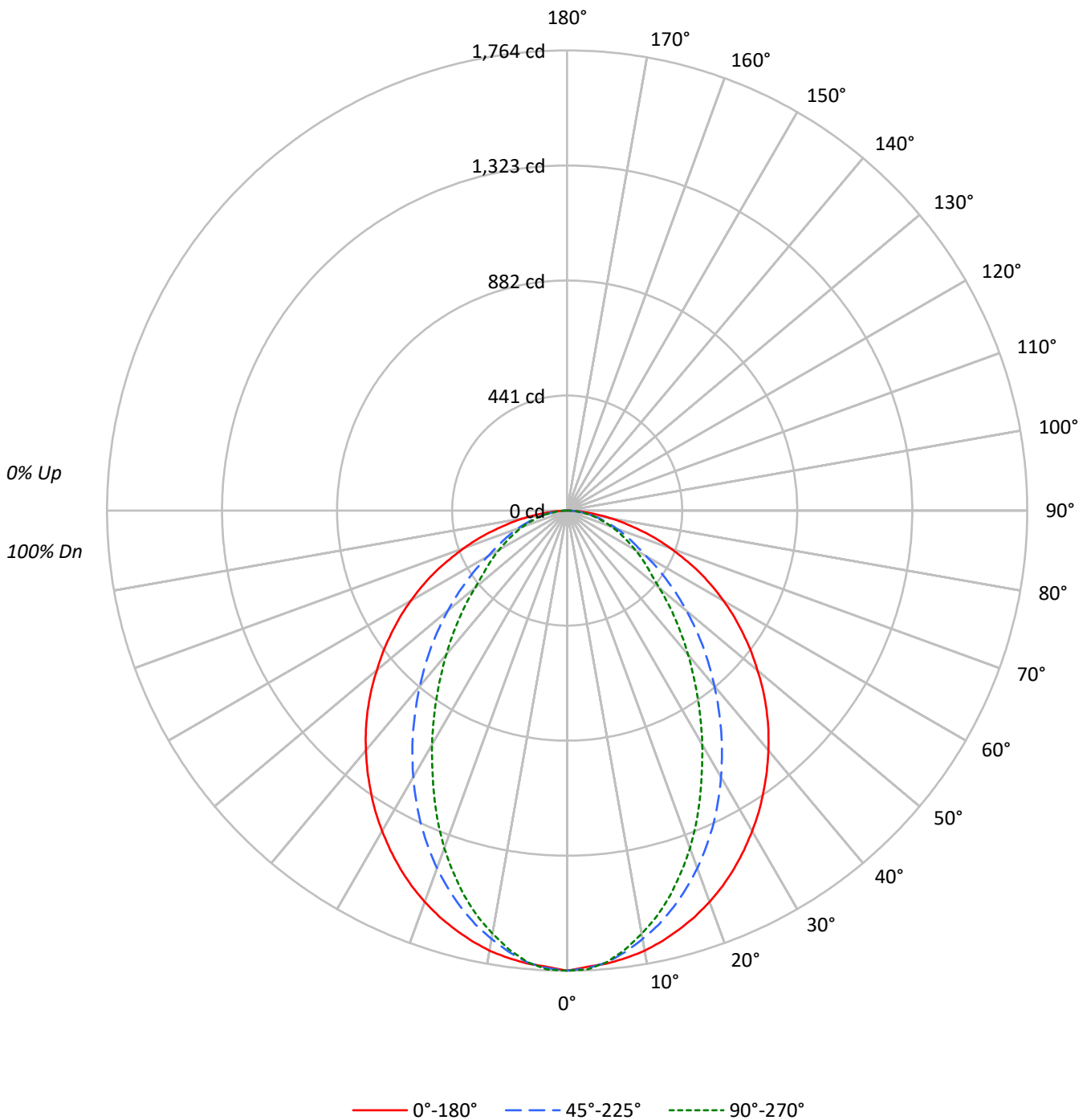
Lumens per Lamp: N/A
Luminaire Lumens: 3512.7 lumens
Efficiency: N/A
Efficacy: 101.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.95 / 1.12
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')
CIE Type: Direct

Input Watts (W): 34.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 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 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 110 | 105 | 102 | 98 | 107 | 103 | 100 | 97 | 99 | 96 | 93 | 95 | 93 | 91 | 92 | 90 | 88 | 86 |
| 2 | 101 | 93 | 87 | 82 | 98 | 91 | 86 | 81 | 88 | 83 | 79 | 85 | 81 | 77 | 82 | 78 | 76 | 73 |
| 3 | 93 | 83 | 75 | 69 | 90 | 81 | 74 | 69 | 79 | 73 | 68 | 76 | 71 | 67 | 73 | 69 | 65 | 63 |
| 4 | 85 | 74 | 66 | 60 | 83 | 73 | 65 | 60 | 71 | 64 | 59 | 68 | 63 | 58 | 66 | 61 | 57 | 55 |
| 5 | 79 | 67 | 59 | 53 | 77 | 66 | 58 | 52 | 64 | 57 | 52 | 62 | 56 | 51 | 60 | 55 | 51 | 49 |
| 6 | 73 | 61 | 53 | 47 | 72 | 60 | 52 | 46 | 58 | 51 | 46 | 57 | 50 | 46 | 55 | 50 | 45 | 43 |
| 7 | 68 | 56 | 47 | 42 | 67 | 55 | 47 | 42 | 53 | 46 | 41 | 52 | 46 | 41 | 51 | 45 | 41 | 39 |
| 8 | 64 | 51 | 43 | 38 | 62 | 51 | 43 | 38 | 49 | 42 | 37 | 48 | 42 | 37 | 47 | 41 | 37 | 35 |
| 9 | 60 | 47 | 39 | 34 | 59 | 47 | 39 | 34 | 46 | 39 | 34 | 45 | 38 | 34 | 44 | 38 | 34 | 32 |
| 10 | 56 | 44 | 36 | 31 | 55 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 41 | 35 | 31 | 29 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 15593 | 15593 | 15593 |
| 5° | 15468 | 15434 | 15422 |
| 10° | 15379 | 14971 | 14785 |
| 15° | 15216 | 14409 | 13969 |
| 20° | 15018 | 13725 | 12955 |
| 25° | 14775 | 12939 | 11774 |
| 30° | 14481 | 12044 | 10573 |
| 35° | 14175 | 11107 | 9413 |
| 40° | 13855 | 10140 | 8327 |
| 45° | 13516 | 9200 | 7318 |
| 50° | 13101 | 8212 | 6319 |
| 55° | 12703 | 7222 | 5742 |
| 60° | 12254 | 6196 | 5324 |
| 65° | 11701 | 5619 | 4969 |
| 70° | 10870 | 5201 | 4697 |
| 75° | 9842 | 4789 | 4434 |
| 80° | 8589 | 4425 | 4165 |
| 85° | 6584 | 4078 | 3814 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 13516 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 164.2 | 4.7 |
| 10°-20° | 445.4 | 12.7 |
| 20°-30° | 616.7 | 17.6 |
| 30°-40° | 661.9 | 18.8 |
| 40°-50° | 602.0 | 17.1 |
| 50°-60° | 474.0 | 13.5 |
| 60°-70° | 324.4 | 9.2 |
| 70°-80° | 174.7 | 5.0 |
| 80°-90° | 49.5 | 1.4 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 1226.3 | 34.9 |
| 0°-40° | 1888.2 | 53.8 |
| 0°-60° | 2964.2 | 84.4 |
| 0°-90° | 3512.7 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3512.7 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1764 | 1764 | 1764 | 1764 | 1764 | |
| 5° | 1743 | 1762 | 1739 | 1730 | 1738 | 165 |
| 15° | 1662 | 1644 | 1574 | 1531 | 1526 | 469 |
| 25° | 1514 | 1452 | 1326 | 1230 | 1207 | 697 |
| 35° | 1313 | 1211 | 1029 | 904 | 872 | 822 |
| 45° | 1081 | 944 | 736 | 609 | 585 | 833 |
| 55° | 824 | 667 | 468 | 378 | 372 | 737 |
| 65° | 559 | 400 | 269 | 239 | 238 | 552 |
| 75° | 288 | 175 | 140 | 128 | 130 | 308 |
| 85° | 65 | 44 | 40 | 38 | 38 | 78 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1763.6 | 1763.6 | 1763.6 | 1763.6 | 1763.6 |
| 2.5° | 1750.7 | 1771.4 | 1755.8 | 1758.4 | 1761.0 |
| 5° | 1742.9 | 1762.3 | 1739.0 | 1729.9 | 1737.7 |
| 7.5° | 1729.9 | 1742.9 | 1706.5 | 1689.7 | 1697.5 |
| 10° | 1713.0 | 1715.6 | 1667.6 | 1642.9 | 1646.8 |
| 12.5° | 1689.7 | 1683.2 | 1624.8 | 1589.7 | 1592.3 |
| 15° | 1662.4 | 1644.2 | 1574.2 | 1531.3 | 1526.1 |
| 17.5° | 1631.3 | 1601.4 | 1518.4 | 1463.9 | 1453.5 |
| 20° | 1596.2 | 1556.0 | 1458.7 | 1388.6 | 1376.9 |
| 22.5° | 1557.3 | 1505.4 | 1393.8 | 1310.7 | 1293.9 |
| 25° | 1514.5 | 1452.2 | 1326.3 | 1230.3 | 1206.9 |
| 27.5° | 1467.7 | 1395.1 | 1253.6 | 1148.5 | 1118.7 |
| 30° | 1418.4 | 1335.4 | 1179.7 | 1066.7 | 1035.6 |
| 32.5° | 1367.8 | 1274.4 | 1104.4 | 985.0 | 952.5 |
| 35° | 1313.3 | 1210.8 | 1029.1 | 904.5 | 872.1 |
| 37.5° | 1257.5 | 1144.6 | 952.5 | 826.7 | 792.9 |
| 40° | 1200.4 | 1078.4 | 878.6 | 748.8 | 721.5 |
| 42.5° | 1142.0 | 1010.9 | 805.9 | 676.1 | 651.5 |
| 45° | 1081.0 | 943.5 | 735.8 | 608.6 | 585.3 |
| 47.5° | 1018.7 | 874.7 | 664.4 | 545.1 | 523.0 |
| 50° | 952.5 | 805.9 | 597.0 | 482.8 | 459.4 |
| 52.5° | 889.0 | 735.8 | 532.1 | 421.8 | 410.1 |
| 55° | 824.1 | 667.0 | 468.5 | 377.6 | 372.5 |
| 57.5° | 759.2 | 598.3 | 410.1 | 342.6 | 337.4 |
| 60° | 693.0 | 530.8 | 350.4 | 306.3 | 301.1 |
| 62.5° | 626.8 | 464.6 | 306.3 | 271.2 | 268.6 |
| 65° | 559.3 | 399.7 | 268.6 | 238.8 | 237.5 |
| 67.5° | 488.0 | 337.4 | 234.9 | 210.2 | 208.9 |
| 70° | 420.5 | 275.1 | 201.2 | 181.7 | 181.7 |
| 72.5° | 356.9 | 218.0 | 170.0 | 154.4 | 154.4 |
| 75° | 288.1 | 175.2 | 140.2 | 128.5 | 129.8 |
| 77.5° | 227.1 | 137.6 | 112.9 | 105.1 | 105.1 |
| 80° | 168.7 | 102.5 | 86.9 | 80.5 | 81.8 |
| 82.5° | 114.2 | 71.4 | 62.3 | 58.4 | 58.4 |
| 85° | 64.9 | 44.1 | 40.2 | 37.6 | 37.6 |
| 87.5° | 23.4 | 20.8 | 19.5 | 16.9 | 18.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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CIE UGR TABLE:

| Reflectances: | | | | | | | | | | | |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling | | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| Wall | | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| Reference plane | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H | Y=2H | 20.69 | 22.21 | 21.05 | 22.52 | 22.84 | 16.46 | 17.99 | 16.83 | 18.30 | 18.62 |
| | 3H | 22.46 | 23.83 | 22.84 | 24.16 | 24.52 | 18.07 | 19.44 | 18.45 | 19.77 | 20.13 |
| | 4H | 23.13 | 24.42 | 23.53 | 24.77 | 25.14 | 18.71 | 19.99 | 19.10 | 20.34 | 20.72 |
| | 6H | 23.64 | 24.83 | 24.05 | 25.20 | 25.59 | 19.20 | 20.39 | 19.62 | 20.76 | 21.15 |
| | 8H | 23.80 | 24.94 | 24.23 | 25.33 | 25.73 | 19.38 | 20.51 | 19.80 | 20.90 | 21.30 |
| | 12H | 23.90 | 24.99 | 24.33 | 25.37 | 25.80 | 19.50 | 20.58 | 19.93 | 20.96 | 21.39 |
| 4H | 2H | 20.78 | 22.07 | 21.18 | 22.42 | 22.79 | 17.18 | 18.47 | 17.58 | 18.82 | 19.19 |
| | 3H | 22.73 | 23.80 | 23.14 | 24.19 | 24.60 | 18.99 | 20.06 | 19.40 | 20.46 | 20.86 |
| | 4H | 23.48 | 24.44 | 23.91 | 24.86 | 25.30 | 19.73 | 20.69 | 20.16 | 21.10 | 21.54 |
| | 6H | 24.12 | 24.96 | 24.57 | 25.40 | 25.86 | 20.34 | 21.18 | 20.80 | 21.62 | 22.08 |
| | 8H | 24.34 | 25.12 | 24.80 | 25.56 | 26.03 | 20.56 | 21.34 | 21.02 | 21.79 | 22.25 |
| | 12H | 24.49 | 25.19 | 24.97 | 25.67 | 26.14 | 20.72 | 21.43 | 21.21 | 21.90 | 22.38 |
| 8H | 4H | 23.54 | 24.32 | 24.00 | 24.77 | 25.23 | 20.11 | 20.90 | 20.58 | 21.34 | 21.81 |
| | 6H | 24.24 | 24.89 | 24.73 | 25.38 | 25.85 | 20.85 | 21.50 | 21.34 | 21.99 | 22.46 |
| | 8H | 24.51 | 25.09 | 25.02 | 25.60 | 26.09 | 21.13 | 21.72 | 21.65 | 22.23 | 22.71 |
| | 12H | 24.72 | 25.24 | 25.23 | 25.73 | 26.29 | 21.38 | 21.89 | 21.89 | 22.39 | 22.95 |
| 12H | 4H | 23.53 | 24.23 | 24.01 | 24.71 | 25.18 | 20.17 | 20.87 | 20.65 | 21.35 | 21.82 |
| | 6H | 24.23 | 24.81 | 24.74 | 25.32 | 25.81 | 20.93 | 21.51 | 21.44 | 22.02 | 22.51 |
| | 8H | 24.54 | 25.05 | 25.05 | 25.55 | 26.11 | 21.28 | 21.79 | 21.79 | 22.28 | 22.85 |