

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: P1055969

Luminaire Tested: S124R3DR-S1020D930-X4F0-XX-UDD-F-S

Issue Date: 7/25/2025

Test Information

Test Method: LM-79-2024
Report Number: P1055969
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-9)
Test Lab: INNOVATION CENTER
Issue Date: 7/25/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S124R3DR-S1020D930-X4F0-XX-UDD-F-S
Description: DEFINE 4, SILVER 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS
CORE LIGHT ENGINE
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

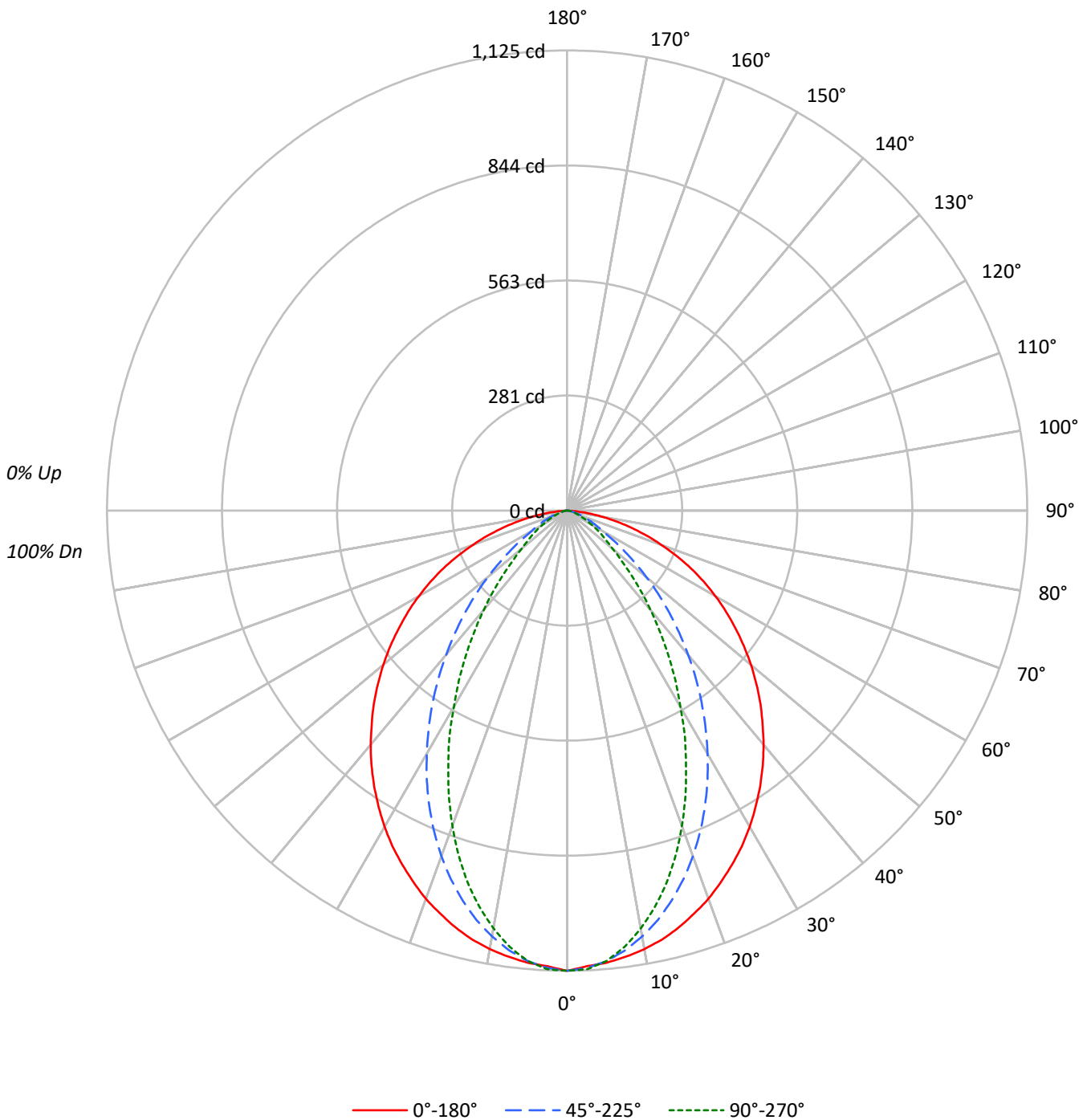
Lumens per Lamp: N/A
Luminaire Lumens: 1819.5 lumens
Efficiency: N/A
Efficacy: 52.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 0.87 / 1.03
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')
CIE Type: Direct

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 | 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 | | | | | 100 | | | |
| 1 | 111 | 107 | 104 | 101 | 108 | 105 | 102 | 99 | 101 | 98 | 96 | 97 | 95 | 93 | 94 | 92 | 90 | 89 | | | | | 89 | | | |
| 2 | 103 | 96 | 91 | 86 | 101 | 94 | 89 | 85 | 91 | 87 | 83 | 88 | 84 | 81 | 85 | 82 | 79 | 78 | | | | | 78 | | | |
| 3 | 95 | 87 | 80 | 74 | 93 | 85 | 79 | 74 | 82 | 77 | 73 | 80 | 75 | 71 | 77 | 73 | 70 | 68 | | | | | 68 | | | |
| 4 | 89 | 78 | 71 | 65 | 86 | 77 | 70 | 65 | 75 | 69 | 64 | 73 | 67 | 63 | 71 | 66 | 62 | 60 | | | | | 60 | | | |
| 5 | 82 | 71 | 64 | 58 | 80 | 70 | 63 | 58 | 68 | 62 | 57 | 66 | 61 | 56 | 65 | 60 | 56 | 54 | | | | | 54 | | | |
| 6 | 77 | 65 | 57 | 52 | 75 | 64 | 57 | 52 | 63 | 56 | 51 | 61 | 55 | 51 | 60 | 54 | 50 | 48 | | | | | 48 | | | |
| 7 | 72 | 60 | 52 | 47 | 70 | 59 | 52 | 47 | 58 | 51 | 46 | 56 | 50 | 46 | 55 | 50 | 46 | 44 | | | | | 44 | | | |
| 8 | 67 | 55 | 48 | 42 | 66 | 55 | 47 | 42 | 53 | 47 | 42 | 52 | 46 | 42 | 51 | 46 | 42 | 40 | | | | | 40 | | | |
| 9 | 63 | 51 | 44 | 39 | 62 | 51 | 44 | 39 | 50 | 43 | 39 | 49 | 43 | 38 | 48 | 42 | 38 | 37 | | | | | 37 | | | |
| 10 | 60 | 48 | 41 | 36 | 59 | 47 | 40 | 36 | 46 | 40 | 36 | 45 | 40 | 35 | 45 | 39 | 35 | 34 | | | | | 34 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 9948 | 9948 | 9948 |
| 5° | 9847 | 9810 | 9810 |
| 10° | 9773 | 9490 | 9312 |
| 15° | 9657 | 9033 | 8611 |
| 20° | 9503 | 8458 | 7719 |
| 25° | 9312 | 7778 | 6705 |
| 30° | 9113 | 7007 | 5648 |
| 35° | 8878 | 6186 | 4648 |
| 40° | 8622 | 5308 | 3664 |
| 45° | 8357 | 4415 | 2738 |
| 50° | 8070 | 3473 | 2003 |
| 55° | 7752 | 2568 | 1598 |
| 60° | 7411 | 1779 | 1222 |
| 65° | 6971 | 1381 | 900 |
| 70° | 6310 | 975 | 703 |
| 75° | 5510 | 680 | 536 |
| 80° | 4430 | 535 | 479 |
| 85° | 2445 | 426 | 426 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 8357 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 104.4 | 5.7 |
| 10°-20° | 278.9 | 15.3 |
| 20°-30° | 372.0 | 20.4 |
| 30°-40° | 374.5 | 20.6 |
| 40°-50° | 307.1 | 16.9 |
| 50°-60° | 210.0 | 11.5 |
| 60°-70° | 117.3 | 6.4 |
| 70°-80° | 46.5 | 2.6 |
| 80°-90° | 8.8 | 0.5 |
| 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° | 755.2 | 41.5 |
| 0°-40° | 1129.7 | 62.1 |
| 0°-60° | 1646.8 | 90.5 |
| 0°-90° | 1819.5 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1819.5 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1125 | 1125 | 1125 | 1125 | 1125 | |
| 5° | 1110 | 1122 | 1105 | 1100 | 1105 | 105 |
| 15° | 1055 | 1044 | 987 | 952 | 941 | 297 |
| 25° | 954 | 907 | 797 | 717 | 687 | 440 |
| 35° | 822 | 736 | 573 | 464 | 431 | 514 |
| 45° | 668 | 546 | 353 | 248 | 219 | 515 |
| 55° | 503 | 353 | 167 | 111 | 104 | 450 |
| 65° | 333 | 168 | 66 | 47 | 43 | 329 |
| 75° | 161 | 44 | 20 | 17 | 16 | 173 |
| 85° | 24 | 4 | 4 | 4 | 4 | 34 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1125.2 | 1125.2 | 1125.2 | 1125.2 | 1125.2 |
| 2.5° | 1114.8 | 1128.4 | 1119.0 | 1120.0 | 1122.1 |
| 5° | 1109.5 | 1122.1 | 1105.3 | 1100.1 | 1105.3 |
| 7.5° | 1100.1 | 1109.5 | 1084.4 | 1073.9 | 1076.0 |
| 10° | 1088.6 | 1091.7 | 1057.1 | 1039.3 | 1037.2 |
| 12.5° | 1073.9 | 1069.7 | 1024.7 | 998.5 | 992.2 |
| 15° | 1055.0 | 1043.5 | 986.9 | 952.4 | 940.8 |
| 17.5° | 1033.0 | 1013.1 | 945.0 | 900.0 | 883.2 |
| 20° | 1010.0 | 980.7 | 898.9 | 841.3 | 820.4 |
| 22.5° | 982.8 | 946.1 | 849.7 | 779.5 | 755.4 |
| 25° | 954.5 | 907.3 | 797.3 | 716.6 | 687.3 |
| 27.5° | 925.1 | 867.5 | 742.8 | 652.7 | 623.4 |
| 30° | 892.6 | 824.5 | 686.3 | 588.8 | 553.2 |
| 32.5° | 858.1 | 780.5 | 629.7 | 526.0 | 492.4 |
| 35° | 822.5 | 735.5 | 573.1 | 464.1 | 430.6 |
| 37.5° | 785.8 | 689.4 | 516.5 | 405.5 | 371.9 |
| 40° | 747.0 | 642.2 | 459.9 | 349.9 | 317.5 |
| 42.5° | 707.2 | 594.1 | 405.5 | 297.5 | 267.2 |
| 45° | 668.4 | 545.9 | 353.1 | 248.3 | 219.0 |
| 47.5° | 627.6 | 497.7 | 301.7 | 202.2 | 177.1 |
| 50° | 586.7 | 449.5 | 252.5 | 162.4 | 145.6 |
| 52.5° | 544.8 | 401.3 | 207.4 | 133.1 | 121.5 |
| 55° | 502.9 | 353.1 | 166.6 | 111.1 | 103.7 |
| 57.5° | 461.0 | 304.9 | 128.9 | 94.3 | 85.9 |
| 60° | 419.1 | 257.7 | 100.6 | 76.5 | 69.1 |
| 62.5° | 376.1 | 210.6 | 82.8 | 60.8 | 54.5 |
| 65° | 333.2 | 167.6 | 66.0 | 47.1 | 43.0 |
| 67.5° | 290.2 | 127.8 | 50.3 | 36.7 | 33.5 |
| 70° | 244.1 | 91.2 | 37.7 | 28.3 | 27.2 |
| 72.5° | 204.3 | 61.8 | 27.2 | 22.0 | 21.0 |
| 75° | 161.3 | 44.0 | 19.9 | 16.8 | 15.7 |
| 77.5° | 124.7 | 28.3 | 14.7 | 13.6 | 12.6 |
| 80° | 87.0 | 15.7 | 10.5 | 9.4 | 9.4 |
| 82.5° | 53.4 | 8.4 | 7.3 | 6.3 | 6.3 |
| 85° | 24.1 | 4.2 | 4.2 | 4.2 | 4.2 |
| 87.5° | 4.2 | 2.1 | 2.1 | 2.1 | 2.1 |
| 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 | 18.71 | 20.11 | 19.07 | 20.43 | 20.74 | 9.80 | 11.20 | 10.16 | 11.52 | 11.83 |
| | 3H | 20.29 | 21.54 | 20.67 | 21.87 | 22.24 | 10.39 | 11.64 | 10.77 | 11.97 | 12.33 |
| | 4H | 20.89 | 22.06 | 21.29 | 22.41 | 22.79 | 10.55 | 11.71 | 10.95 | 12.06 | 12.45 |
| | 6H | 21.32 | 22.39 | 21.73 | 22.76 | 23.16 | 10.65 | 11.73 | 11.07 | 12.10 | 12.49 |
| | 8H | 21.43 | 22.45 | 21.86 | 22.84 | 23.25 | 10.67 | 11.69 | 11.10 | 12.08 | 12.49 |
| | 12H | 21.47 | 22.45 | 21.91 | 22.83 | 23.26 | 10.68 | 11.66 | 11.11 | 12.04 | 12.47 |
| 4H | 2H | 18.56 | 19.73 | 18.96 | 20.08 | 20.46 | 10.38 | 11.55 | 10.78 | 11.90 | 12.28 |
| | 3H | 20.21 | 21.17 | 20.62 | 21.57 | 21.97 | 11.09 | 12.05 | 11.50 | 12.45 | 12.86 |
| | 4H | 20.81 | 21.67 | 21.25 | 22.09 | 22.53 | 11.30 | 12.15 | 11.73 | 12.57 | 13.01 |
| | 6H | 21.31 | 22.05 | 21.77 | 22.49 | 22.96 | 11.46 | 12.20 | 11.92 | 12.65 | 13.11 |
| | 8H | 21.45 | 22.14 | 21.92 | 22.59 | 23.06 | 11.49 | 12.19 | 11.96 | 12.63 | 13.10 |
| | 12H | 21.52 | 22.14 | 22.01 | 22.62 | 23.09 | 11.52 | 12.13 | 12.01 | 12.62 | 13.09 |
| 8H | 4H | 20.71 | 21.40 | 21.17 | 21.84 | 22.31 | 11.57 | 12.26 | 12.03 | 12.71 | 13.17 |
| | 6H | 21.19 | 21.75 | 21.69 | 22.25 | 22.73 | 11.77 | 12.34 | 12.27 | 12.83 | 13.31 |
| | 8H | 21.33 | 21.84 | 21.85 | 22.35 | 22.84 | 11.83 | 12.34 | 12.35 | 12.85 | 13.34 |
| | 12H | 21.42 | 21.87 | 21.94 | 22.37 | 22.93 | 11.89 | 12.34 | 12.40 | 12.83 | 13.40 |
| 12H | 4H | 20.67 | 21.28 | 21.15 | 21.76 | 22.24 | 11.59 | 12.21 | 12.08 | 12.69 | 13.16 |
| | 6H | 21.13 | 21.64 | 21.65 | 22.16 | 22.65 | 11.80 | 12.31 | 12.32 | 12.82 | 13.31 |
| | 8H | 21.30 | 21.75 | 21.81 | 22.24 | 22.81 | 11.89 | 12.34 | 12.41 | 12.83 | 13.40 |