

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: P1055973

Luminaire Tested: S124R3DR-S1020D935-X4F0-XX-UDD-F-W

Issue Date: 7/25/2025

Test Information

Test Method: LM-79-2024
Report Number: P1055973
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-S1020D935-X4F0-XX-UDD-F-W
Description: DEFINE 4, WHITE 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS
CORE LIGHT ENGINE
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

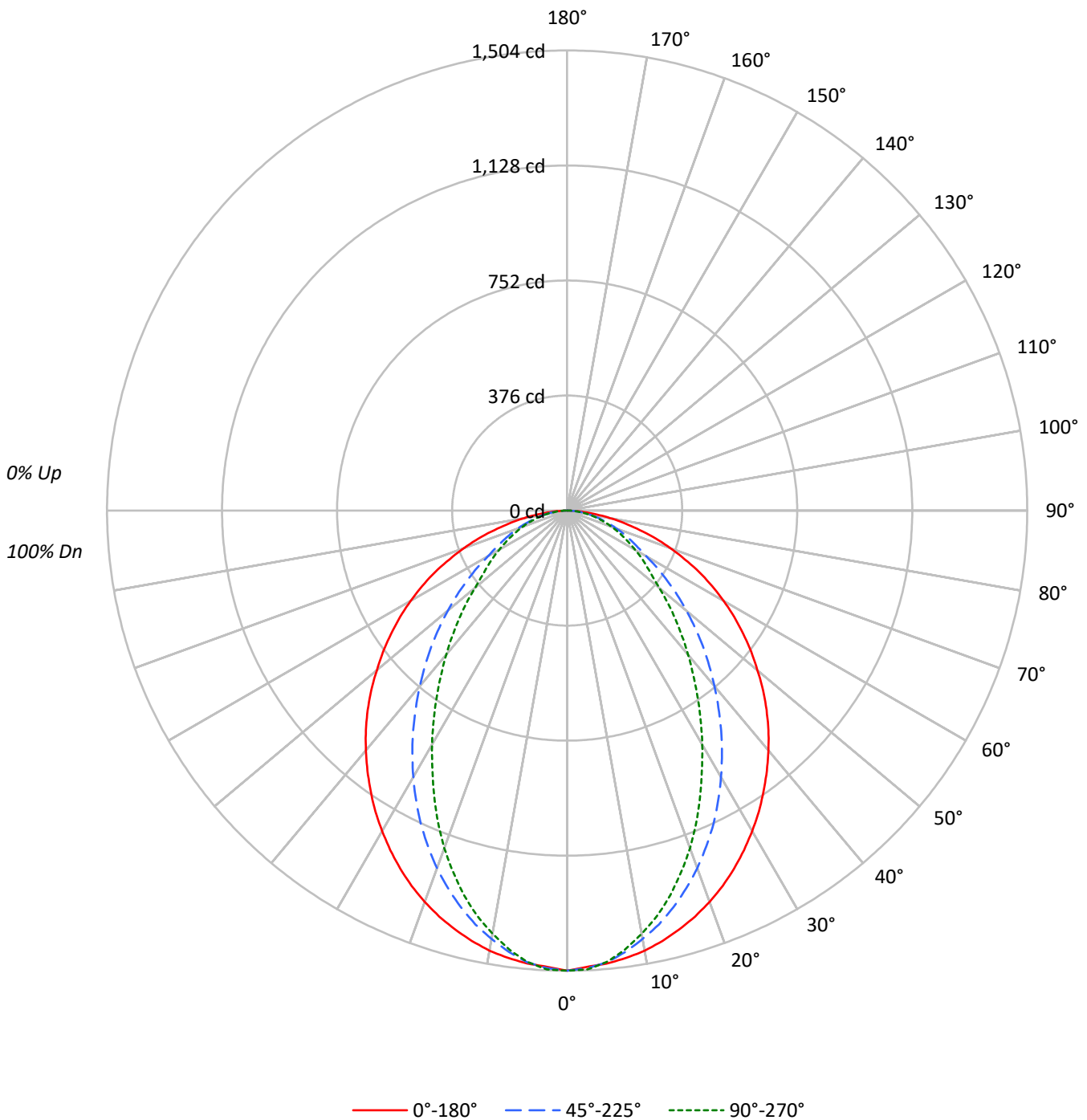
Lumens per Lamp: N/A
Luminaire Lumens: 2994.9 lumens
Efficiency: N/A
Efficacy: 86.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.95 / 1.12
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')
CIE Type: Direct

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° | 13295 | 13295 | 13295 |
| 5° | 13188 | 13158 | 13149 |
| 10° | 13112 | 12765 | 12606 |
| 15° | 12973 | 12285 | 11910 |
| 20° | 12804 | 11701 | 11045 |
| 25° | 12596 | 11031 | 10038 |
| 30° | 12346 | 10268 | 9014 |
| 35° | 12085 | 9470 | 8025 |
| 40° | 11813 | 8646 | 7100 |
| 45° | 11525 | 7845 | 6239 |
| 50° | 11170 | 7001 | 5388 |
| 55° | 10830 | 6157 | 4894 |
| 60° | 10447 | 5282 | 4539 |
| 65° | 9977 | 4791 | 4236 |
| 70° | 9267 | 4433 | 4004 |
| 75° | 8390 | 4082 | 3778 |
| 80° | 7322 | 3773 | 3549 |
| 85° | 5610 | 3480 | 3256 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 11525 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 140.0 | 4.7 |
| 10°-20° | 379.7 | 12.7 |
| 20°-30° | 525.8 | 17.6 |
| 30°-40° | 564.3 | 18.8 |
| 40°-50° | 513.2 | 17.1 |
| 50°-60° | 404.1 | 13.5 |
| 60°-70° | 276.6 | 9.2 |
| 70°-80° | 148.9 | 5.0 |
| 80°-90° | 42.2 | 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° | 1045.5 | 34.9 |
| 0°-40° | 1609.8 | 53.8 |
| 0°-60° | 2527.2 | 84.4 |
| 0°-90° | 2994.9 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2994.9 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1504 | 1504 | 1504 | 1504 | 1504 | |
| 5° | 1486 | 1502 | 1483 | 1475 | 1482 | 141 |
| 15° | 1417 | 1402 | 1342 | 1306 | 1301 | 400 |
| 25° | 1291 | 1238 | 1131 | 1049 | 1029 | 595 |
| 35° | 1120 | 1032 | 877 | 771 | 744 | 700 |
| 45° | 922 | 804 | 627 | 519 | 499 | 711 |
| 55° | 703 | 569 | 399 | 322 | 318 | 628 |
| 65° | 477 | 341 | 229 | 204 | 202 | 470 |
| 75° | 246 | 149 | 120 | 110 | 111 | 262 |
| 85° | 55 | 38 | 34 | 32 | 32 | 66 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1503.7 | 1503.7 | 1503.7 | 1503.7 | 1503.7 |
| 2.5° | 1492.6 | 1510.3 | 1497.0 | 1499.2 | 1501.4 |
| 5° | 1485.9 | 1502.5 | 1482.6 | 1474.9 | 1481.5 |
| 7.5° | 1474.9 | 1485.9 | 1455.0 | 1440.6 | 1447.2 |
| 10° | 1460.5 | 1462.7 | 1421.8 | 1400.8 | 1404.1 |
| 12.5° | 1440.6 | 1435.1 | 1385.3 | 1355.4 | 1357.6 |
| 15° | 1417.3 | 1401.9 | 1342.1 | 1305.6 | 1301.2 |
| 17.5° | 1390.8 | 1365.3 | 1294.5 | 1248.1 | 1239.2 |
| 20° | 1360.9 | 1326.6 | 1243.6 | 1183.9 | 1173.9 |
| 22.5° | 1327.7 | 1283.5 | 1188.3 | 1117.5 | 1103.1 |
| 25° | 1291.2 | 1238.1 | 1130.8 | 1048.9 | 1029.0 |
| 27.5° | 1251.4 | 1189.4 | 1068.8 | 979.2 | 953.8 |
| 30° | 1209.3 | 1138.5 | 1005.8 | 909.5 | 882.9 |
| 32.5° | 1166.2 | 1086.5 | 941.6 | 839.8 | 812.1 |
| 35° | 1119.7 | 1032.3 | 877.4 | 771.2 | 743.5 |
| 37.5° | 1072.1 | 975.9 | 812.1 | 704.8 | 676.0 |
| 40° | 1023.5 | 919.5 | 749.1 | 638.4 | 615.2 |
| 42.5° | 973.7 | 861.9 | 687.1 | 576.5 | 555.4 |
| 45° | 921.7 | 804.4 | 627.4 | 518.9 | 499.0 |
| 47.5° | 868.6 | 745.7 | 566.5 | 464.7 | 445.9 |
| 50° | 812.1 | 687.1 | 509.0 | 411.6 | 391.7 |
| 52.5° | 757.9 | 627.4 | 453.6 | 359.6 | 349.6 |
| 55° | 702.6 | 568.7 | 399.4 | 322.0 | 317.5 |
| 57.5° | 647.3 | 510.1 | 349.6 | 292.1 | 287.7 |
| 60° | 590.8 | 452.5 | 298.7 | 261.1 | 256.7 |
| 62.5° | 534.4 | 396.1 | 261.1 | 231.2 | 229.0 |
| 65° | 476.9 | 340.8 | 229.0 | 203.6 | 202.5 |
| 67.5° | 416.0 | 287.7 | 200.3 | 179.2 | 178.1 |
| 70° | 358.5 | 234.6 | 171.5 | 154.9 | 154.9 |
| 72.5° | 304.3 | 185.9 | 144.9 | 131.7 | 131.7 |
| 75° | 245.6 | 149.4 | 119.5 | 109.5 | 110.6 |
| 77.5° | 193.6 | 117.3 | 96.3 | 89.6 | 89.6 |
| 80° | 143.8 | 87.4 | 74.1 | 68.6 | 69.7 |
| 82.5° | 97.4 | 60.9 | 53.1 | 49.8 | 49.8 |
| 85° | 55.3 | 37.6 | 34.3 | 32.1 | 32.1 |
| 87.5° | 19.9 | 17.7 | 16.6 | 14.4 | 15.5 |
| 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 | 20.13 | 21.66 | 20.50 | 21.97 | 22.28 | 15.91 | 17.43 | 16.27 | 17.75 | 18.06 |
| | 3H | 21.91 | 23.28 | 22.28 | 23.60 | 23.97 | 17.52 | 18.89 | 17.90 | 19.22 | 19.58 |
| | 4H | 22.58 | 23.86 | 22.98 | 24.21 | 24.59 | 18.15 | 19.44 | 18.55 | 19.79 | 20.16 |
| | 6H | 23.09 | 24.28 | 23.50 | 24.64 | 25.03 | 18.65 | 19.84 | 19.06 | 20.20 | 20.60 |
| | 8H | 23.25 | 24.38 | 23.68 | 24.77 | 25.17 | 18.82 | 19.95 | 19.25 | 20.34 | 20.74 |
| | 12H | 23.35 | 24.43 | 23.78 | 24.82 | 25.24 | 18.94 | 20.03 | 19.37 | 20.41 | 20.84 |
| 4H | 2H | 20.23 | 21.51 | 20.63 | 21.86 | 22.24 | 16.63 | 17.91 | 17.03 | 18.26 | 18.64 |
| | 3H | 22.17 | 23.24 | 22.58 | 23.64 | 24.04 | 18.43 | 19.50 | 18.84 | 19.90 | 20.30 |
| | 4H | 22.93 | 23.89 | 23.36 | 24.31 | 24.74 | 19.17 | 20.13 | 19.60 | 20.55 | 20.99 |
| | 6H | 23.56 | 24.40 | 24.02 | 24.84 | 25.30 | 19.79 | 20.63 | 20.24 | 21.07 | 21.53 |
| | 8H | 23.78 | 24.57 | 24.24 | 25.01 | 25.48 | 20.00 | 20.79 | 20.47 | 21.23 | 21.70 |
| | 12H | 23.94 | 24.64 | 24.42 | 25.12 | 25.59 | 20.17 | 20.87 | 20.65 | 21.35 | 21.82 |
| 8H | 4H | 22.98 | 23.77 | 23.45 | 24.21 | 24.68 | 19.56 | 20.34 | 20.02 | 20.79 | 21.26 |
| | 6H | 23.68 | 24.33 | 24.18 | 24.82 | 25.30 | 20.29 | 20.94 | 20.79 | 21.43 | 21.91 |
| | 8H | 23.95 | 24.53 | 24.46 | 25.04 | 25.53 | 20.58 | 21.16 | 21.09 | 21.67 | 22.16 |
| | 12H | 24.17 | 24.68 | 24.68 | 25.18 | 25.74 | 20.83 | 21.34 | 21.33 | 21.83 | 22.40 |
| 12H | 4H | 22.98 | 23.68 | 23.46 | 24.16 | 24.63 | 19.62 | 20.32 | 20.10 | 20.79 | 21.27 |
| | 6H | 23.68 | 24.26 | 24.19 | 24.77 | 25.26 | 20.37 | 20.96 | 20.89 | 21.47 | 21.95 |
| | 8H | 23.98 | 24.50 | 24.49 | 24.99 | 25.56 | 20.72 | 21.24 | 21.23 | 21.73 | 22.29 |