

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: P1055779

Luminaire Tested: S123R3DR-H560D930-X4F0-XX-UDD-F-B

Issue Date: 7/25/2025

Test Information

Test Method: LM-79-2024
Report Number: P1055779
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-5)
Test Lab: INNOVATION CENTER
Issue Date: 7/25/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123R3DR-H560D930-X4F0-XX-UDD-F-B
Description: DEFINE 3, BLACK 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS
HIGH PERFORMANCE LIGHT ENGINE
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

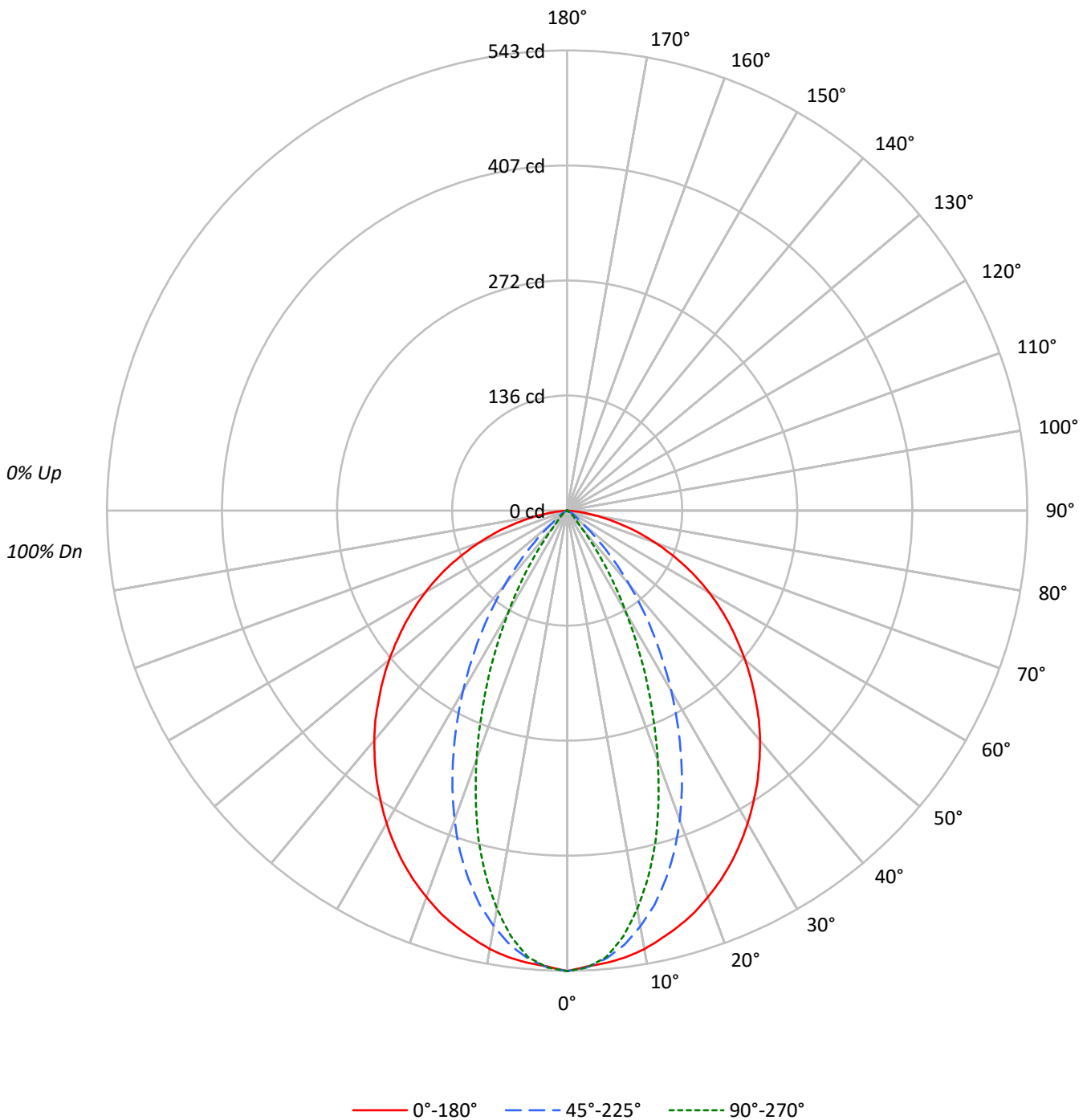
Lumens per Lamp: N/A
Luminaire Lumens: 636.1 lumens
Efficiency: N/A
Efficacy: 36.8 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 0.7 / 0.86
Luminous Opening: Rectangular (W 0.23' x L: 3.9' x H: 0')
CIE Type: Direct

Input Watts (W): 17.3
Input Voltage (V): 120
Input Current (Ain): 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 | 112 | 108 | 105 | 103 | 109 | 106 | 104 | 101 | 102 | 100 | 98 | 98 | 97 | 95 | 95 | 93 | 92 | 90 |
| 2 | 105 | 99 | 94 | 89 | 102 | 97 | 92 | 88 | 93 | 90 | 86 | 90 | 87 | 84 | 87 | 85 | 83 | 81 |
| 3 | 98 | 90 | 84 | 79 | 96 | 88 | 83 | 78 | 86 | 81 | 77 | 83 | 79 | 76 | 81 | 77 | 74 | 73 |
| 4 | 92 | 82 | 75 | 70 | 90 | 81 | 75 | 70 | 79 | 73 | 69 | 77 | 72 | 68 | 75 | 71 | 67 | 65 |
| 5 | 86 | 76 | 69 | 63 | 84 | 75 | 68 | 63 | 73 | 67 | 62 | 71 | 66 | 62 | 69 | 65 | 61 | 59 |
| 6 | 81 | 70 | 63 | 57 | 79 | 69 | 62 | 57 | 67 | 61 | 57 | 66 | 60 | 56 | 64 | 60 | 56 | 54 |
| 7 | 76 | 65 | 58 | 53 | 74 | 64 | 57 | 52 | 63 | 57 | 52 | 61 | 56 | 52 | 60 | 55 | 52 | 50 |
| 8 | 71 | 60 | 53 | 48 | 70 | 60 | 53 | 48 | 58 | 52 | 48 | 57 | 52 | 48 | 56 | 51 | 48 | 46 |
| 9 | 68 | 56 | 49 | 45 | 66 | 56 | 49 | 45 | 55 | 49 | 45 | 54 | 48 | 44 | 53 | 48 | 44 | 43 |
| 10 | 64 | 53 | 46 | 42 | 63 | 52 | 46 | 42 | 51 | 46 | 41 | 51 | 45 | 41 | 50 | 45 | 41 | 40 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 6551 | 6551 | 6551 |
| 5° | 6482 | 6420 | 6400 |
| 10° | 6432 | 6094 | 5838 |
| 15° | 6339 | 5616 | 5031 |
| 20° | 6228 | 4983 | 4007 |
| 25° | 6097 | 4222 | 2955 |
| 30° | 5933 | 3422 | 1938 |
| 35° | 5758 | 2605 | 1063 |
| 40° | 5571 | 1800 | 364 |
| 45° | 5354 | 1047 | 211 |
| 50° | 5139 | 413 | 128 |
| 55° | 4919 | 261 | 59 |
| 60° | 4663 | 164 | 27 |
| 65° | 4342 | 80 | 17 |
| 70° | 3895 | 39 | 21 |
| 75° | 3307 | 28 | 28 |
| 80° | 2465 | 42 | 0 |
| 85° | 941 | 0 | 0 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5354 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 49.8 | 7.8 |
| 10°-20° | 126.4 | 19.9 |
| 20°-30° | 150.8 | 23.7 |
| 30°-40° | 127.9 | 20.1 |
| 40°-50° | 87.0 | 13.7 |
| 50°-60° | 53.9 | 8.5 |
| 60°-70° | 27.3 | 4.3 |
| 70°-80° | 11.2 | 1.8 |
| 80°-90° | 1.7 | 0.3 |
| 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° | 327.1 | 51.4 |
| 0°-40° | 455.0 | 71.5 |
| 0°-60° | 595.9 | 93.7 |
| 0°-90° | 636.1 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 636.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 543 | 543 | 543 | 543 | 543 | |
| 5° | 536 | 541 | 530 | 526 | 529 | 51 |
| 15° | 508 | 495 | 450 | 414 | 403 | 143 |
| 25° | 458 | 416 | 317 | 245 | 222 | 211 |
| 35° | 391 | 314 | 177 | 95 | 72 | 245 |
| 45° | 314 | 206 | 61 | 15 | 12 | 243 |
| 55° | 234 | 104 | 12 | 4 | 3 | 209 |
| 65° | 152 | 25 | 3 | 1 | 1 | 150 |
| 75° | 71 | 4 | 1 | 1 | 1 | 76 |
| 85° | 7 | 0 | 0 | 1 | 0 | 12 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CATALOG NUMBER: S123R3DR-H560D930-X4F0-XX-UDD-F-B

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 543.4 | 543.4 | 543.4 | 543.4 | 543.4 |
| 2.5° | 538.4 | 545.7 | 539.5 | 538.9 | 539.5 |
| 5° | 535.6 | 540.6 | 530.5 | 526.5 | 528.8 |
| 7.5° | 531.6 | 533.9 | 516.9 | 506.8 | 506.8 |
| 10° | 525.4 | 523.7 | 497.8 | 480.9 | 476.9 |
| 12.5° | 516.9 | 510.2 | 476.4 | 449.9 | 442.5 |
| 15° | 507.9 | 495.0 | 449.9 | 414.3 | 403.1 |
| 17.5° | 497.8 | 478.0 | 421.1 | 374.9 | 358.5 |
| 20° | 485.4 | 458.9 | 388.4 | 332.0 | 312.3 |
| 22.5° | 472.4 | 438.0 | 354.0 | 288.1 | 266.1 |
| 25° | 458.3 | 415.5 | 317.4 | 245.2 | 222.1 |
| 27.5° | 442.5 | 391.8 | 281.3 | 204.1 | 178.7 |
| 30° | 426.2 | 367.0 | 245.8 | 164.6 | 139.2 |
| 32.5° | 408.7 | 341.1 | 210.3 | 128.5 | 104.9 |
| 35° | 391.2 | 314.0 | 177.0 | 95.3 | 72.2 |
| 37.5° | 372.6 | 286.9 | 144.9 | 66.0 | 45.7 |
| 40° | 354.0 | 260.4 | 114.4 | 41.7 | 23.1 |
| 42.5° | 334.9 | 232.8 | 86.8 | 20.9 | 15.8 |
| 45° | 314.0 | 205.8 | 61.4 | 15.2 | 12.4 |
| 47.5° | 294.3 | 179.8 | 40.6 | 12.4 | 9.6 |
| 50° | 274.0 | 153.9 | 22.0 | 9.0 | 6.8 |
| 52.5° | 253.7 | 129.1 | 15.8 | 6.8 | 4.5 |
| 55° | 234.0 | 103.7 | 12.4 | 4.5 | 2.8 |
| 57.5° | 213.7 | 81.7 | 9.6 | 2.8 | 1.7 |
| 60° | 193.4 | 60.3 | 6.8 | 1.7 | 1.1 |
| 62.5° | 173.1 | 41.7 | 4.5 | 1.1 | 0.6 |
| 65° | 152.2 | 25.4 | 2.8 | 0.6 | 0.6 |
| 67.5° | 130.8 | 17.5 | 1.7 | 0.6 | 0.6 |
| 70° | 110.5 | 12.4 | 1.1 | 0.6 | 0.6 |
| 72.5° | 90.2 | 7.9 | 0.6 | 0.6 | 0.0 |
| 75° | 71.0 | 4.5 | 0.6 | 0.6 | 0.6 |
| 77.5° | 52.4 | 1.7 | 0.6 | 0.6 | 0.0 |
| 80° | 35.5 | 0.6 | 0.6 | 0.6 | 0.0 |
| 82.5° | 19.7 | 0.0 | 0.6 | 0.6 | 0.0 |
| 85° | 6.8 | 0.0 | 0.0 | 0.6 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 |
| 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 | 15.58 | 16.86 | 15.94 | 17.17 | 17.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 3H | 17.52 | 18.66 | 17.90 | 18.99 | 19.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 4H | 18.35 | 19.41 | 18.75 | 19.76 | 20.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6H | 18.90 | 19.87 | 19.32 | 20.24 | 20.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 8H | 19.03 | 19.95 | 19.46 | 20.34 | 20.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 12H | 19.05 | 19.93 | 19.49 | 20.31 | 20.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4H | 2H | 15.34 | 16.40 | 15.74 | 16.75 | 17.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 3H | 17.29 | 18.16 | 17.71 | 18.56 | 18.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 4H | 18.11 | 18.88 | 18.54 | 19.30 | 19.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6H | 18.71 | 19.37 | 19.17 | 19.82 | 20.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 8H | 18.86 | 19.48 | 19.33 | 19.93 | 20.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 12H | 18.91 | 19.45 | 19.39 | 19.94 | 20.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8H | 4H | 17.97 | 18.58 | 18.44 | 19.03 | 19.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6H | 18.55 | 19.05 | 19.05 | 19.55 | 20.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 8H | 18.70 | 19.15 | 19.22 | 19.66 | 20.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 12H | 18.75 | 19.15 | 19.27 | 19.64 | 20.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12H | 4H | 17.92 | 18.46 | 18.40 | 18.95 | 19.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6H | 18.48 | 18.93 | 19.01 | 19.45 | 19.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 8H | 18.65 | 19.05 | 19.17 | 19.54 | 20.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |