

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P1055770

Luminaire Tested: S123R3DR-H560D840-X4F0-XX-UDD-FLL-B

Issue Date: 7/25/2025

Test Information

Test Method: LM-79-2019
Report Number: P1055770
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-H560D840-X4F0-XX-UDD-FLL-B
Description: DEFINE 3, BLACK 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS
HIGH PERFORMANCE LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

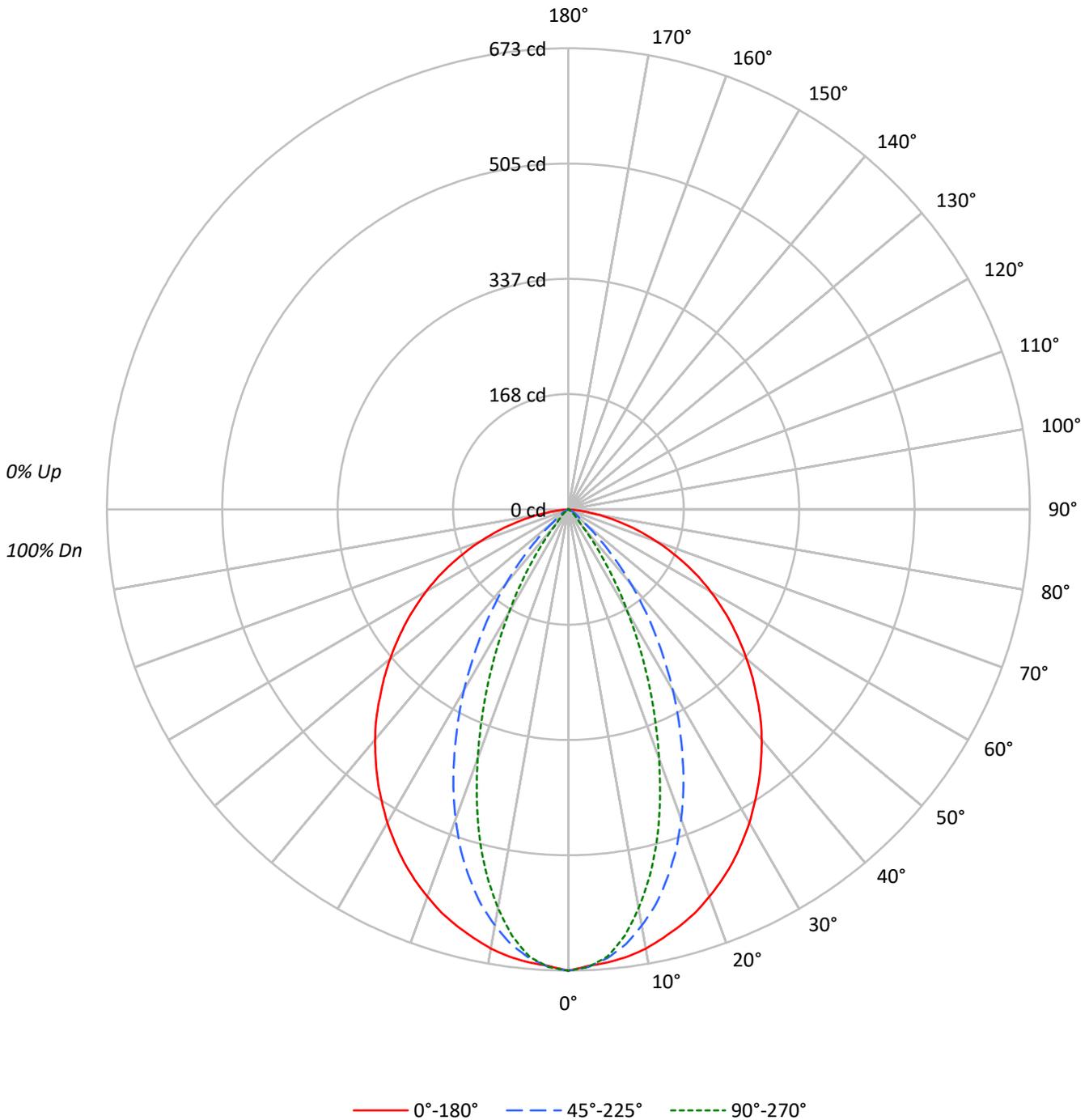
Lumens per Lamp: N/A
Luminaire Lumens: 787.8 lumens
Efficiency: N/A
Efficacy: 45.5 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 0.7 / 0.86
Luminous Opening: Rectangular (W 0.23' x L: 3.9' x H: 0')
CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 8115 | 8115 | 8115 |
| 5° | 8029 | 7953 | 7927 |
| 10° | 7967 | 7549 | 7232 |
| 15° | 7852 | 6955 | 6232 |
| 20° | 7713 | 6173 | 4963 |
| 25° | 7552 | 5229 | 3660 |
| 30° | 7349 | 4238 | 2401 |
| 35° | 7132 | 3228 | 1316 |
| 40° | 6901 | 2230 | 450 |
| 45° | 6631 | 1298 | 263 |
| 50° | 6366 | 510 | 158 |
| 55° | 6092 | 324 | 74 |
| 60° | 5775 | 203 | 34 |
| 65° | 5378 | 100 | 20 |
| 70° | 4826 | 49 | 25 |
| 75° | 4099 | 33 | 33 |
| 80° | 3055 | 49 | 0 |
| 85° | 1162 | 0 | 0 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 6631 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 61.7 | 7.8 |
| 10°-20° | 156.6 | 19.9 |
| 20°-30° | 186.8 | 23.7 |
| 30°-40° | 158.5 | 20.1 |
| 40°-50° | 107.7 | 13.7 |
| 50°-60° | 66.8 | 8.5 |
| 60°-70° | 33.8 | 4.3 |
| 70°-80° | 13.8 | 1.8 |
| 80°-90° | 2.1 | 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° | 405.2 | 51.4 |
| 0°-40° | 563.6 | 71.5 |
| 0°-60° | 738.1 | 93.7 |
| 0°-90° | 787.8 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 787.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 673 | 673 | 673 | 673 | 673 | |
| 5° | 663 | 670 | 657 | 652 | 655 | 63 |
| 15° | 629 | 613 | 557 | 513 | 499 | 177 |
| 25° | 568 | 515 | 393 | 304 | 275 | 261 |
| 35° | 485 | 389 | 219 | 118 | 89 | 303 |
| 45° | 389 | 255 | 76 | 19 | 15 | 300 |
| 55° | 290 | 128 | 15 | 6 | 4 | 259 |
| 65° | 188 | 31 | 4 | 1 | 1 | 186 |
| 75° | 88 | 6 | 1 | 1 | 1 | 94 |
| 85° | 8 | 0 | 0 | 1 | 0 | 15 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P1055770

CATALOG NUMBER: S123R3DR-H560D840-X4F0-XX-UDD-FLL-B

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 673.1 | 673.1 | 673.1 | 673.1 | 673.1 |
| 2.5° | 666.8 | 675.9 | 668.2 | 667.5 | 668.2 |
| 5° | 663.4 | 669.6 | 657.1 | 652.2 | 655.0 |
| 7.5° | 658.5 | 661.3 | 640.3 | 627.7 | 627.7 |
| 10° | 650.8 | 648.7 | 616.6 | 595.6 | 590.7 |
| 12.5° | 640.3 | 631.9 | 590.0 | 557.2 | 548.1 |
| 15° | 629.1 | 613.1 | 557.2 | 513.2 | 499.3 |
| 17.5° | 616.6 | 592.1 | 521.6 | 464.3 | 444.1 |
| 20° | 601.2 | 568.4 | 481.1 | 411.3 | 386.8 |
| 22.5° | 585.2 | 542.6 | 438.5 | 356.8 | 329.6 |
| 25° | 567.7 | 514.6 | 393.1 | 303.7 | 275.1 |
| 27.5° | 548.1 | 485.3 | 348.4 | 252.8 | 221.4 |
| 30° | 527.9 | 454.6 | 304.4 | 203.9 | 172.5 |
| 32.5° | 506.2 | 422.5 | 260.5 | 159.2 | 129.9 |
| 35° | 484.6 | 388.9 | 219.3 | 118.0 | 89.4 |
| 37.5° | 461.6 | 355.4 | 179.5 | 81.7 | 56.6 |
| 40° | 438.5 | 322.6 | 141.7 | 51.7 | 28.6 |
| 42.5° | 414.8 | 288.4 | 107.5 | 25.8 | 19.6 |
| 45° | 388.9 | 254.9 | 76.1 | 18.9 | 15.4 |
| 47.5° | 364.5 | 222.7 | 50.3 | 15.4 | 11.9 |
| 50° | 339.4 | 190.6 | 27.2 | 11.2 | 8.4 |
| 52.5° | 314.2 | 159.9 | 19.6 | 8.4 | 5.6 |
| 55° | 289.8 | 128.5 | 15.4 | 5.6 | 3.5 |
| 57.5° | 264.6 | 101.2 | 11.9 | 3.5 | 2.1 |
| 60° | 239.5 | 74.7 | 8.4 | 2.1 | 1.4 |
| 62.5° | 214.4 | 51.7 | 5.6 | 1.4 | 0.7 |
| 65° | 188.5 | 31.4 | 3.5 | 0.7 | 0.7 |
| 67.5° | 162.0 | 21.6 | 2.1 | 0.7 | 0.7 |
| 70° | 136.9 | 15.4 | 1.4 | 0.7 | 0.7 |
| 72.5° | 111.7 | 9.8 | 0.7 | 0.7 | 0.0 |
| 75° | 88.0 | 5.6 | 0.7 | 0.7 | 0.7 |
| 77.5° | 64.9 | 2.1 | 0.7 | 0.7 | 0.0 |
| 80° | 44.0 | 0.7 | 0.7 | 0.7 | 0.0 |
| 82.5° | 24.4 | 0.0 | 0.7 | 0.7 | 0.0 |
| 85° | 8.4 | 0.0 | 0.0 | 0.7 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.7 | 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 | 16.32 | 17.60 | 16.68 | 17.91 | 18.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 3H | 18.27 | 19.40 | 18.65 | 19.73 | 20.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 4H | 19.09 | 20.15 | 19.50 | 20.50 | 20.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6H | 19.65 | 20.62 | 20.06 | 20.99 | 21.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 8H | 19.77 | 20.69 | 20.20 | 21.08 | 21.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 12H | 19.80 | 20.67 | 20.23 | 21.06 | 21.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4H | 2H | 16.08 | 17.14 | 16.49 | 17.49 | 17.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 3H | 18.04 | 18.90 | 18.45 | 19.30 | 19.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 4H | 18.85 | 19.62 | 19.29 | 20.04 | 20.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6H | 19.45 | 20.12 | 19.92 | 20.56 | 21.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 8H | 19.60 | 20.22 | 20.07 | 20.67 | 21.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 12H | 19.65 | 20.20 | 20.14 | 20.68 | 21.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8H | 4H | 18.71 | 19.33 | 19.18 | 19.77 | 20.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6H | 19.29 | 19.79 | 19.79 | 20.29 | 20.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 8H | 19.44 | 19.89 | 19.96 | 20.41 | 20.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 12H | 19.50 | 19.89 | 20.01 | 20.39 | 20.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12H | 4H | 18.66 | 19.21 | 19.15 | 19.69 | 20.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 6H | 19.23 | 19.68 | 19.75 | 20.19 | 20.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 8H | 19.40 | 19.79 | 19.91 | 20.29 | 20.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |