

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: P1055717

Luminaire Tested: S123R3DR-H1165D840-X4F0-XX-UDD-FLL-S

Issue Date: 7/25/2025

Test Information

Test Method: LM-79-2019
Report Number: P1055717
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-6)
Test Lab: INNOVATION CENTER
Issue Date: 7/25/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123R3DR-H1165D840-X4F0-XX-UDD-FLL-S
Description: DEFINE 3, SILVER 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS
HIGH PERFORMANCE LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

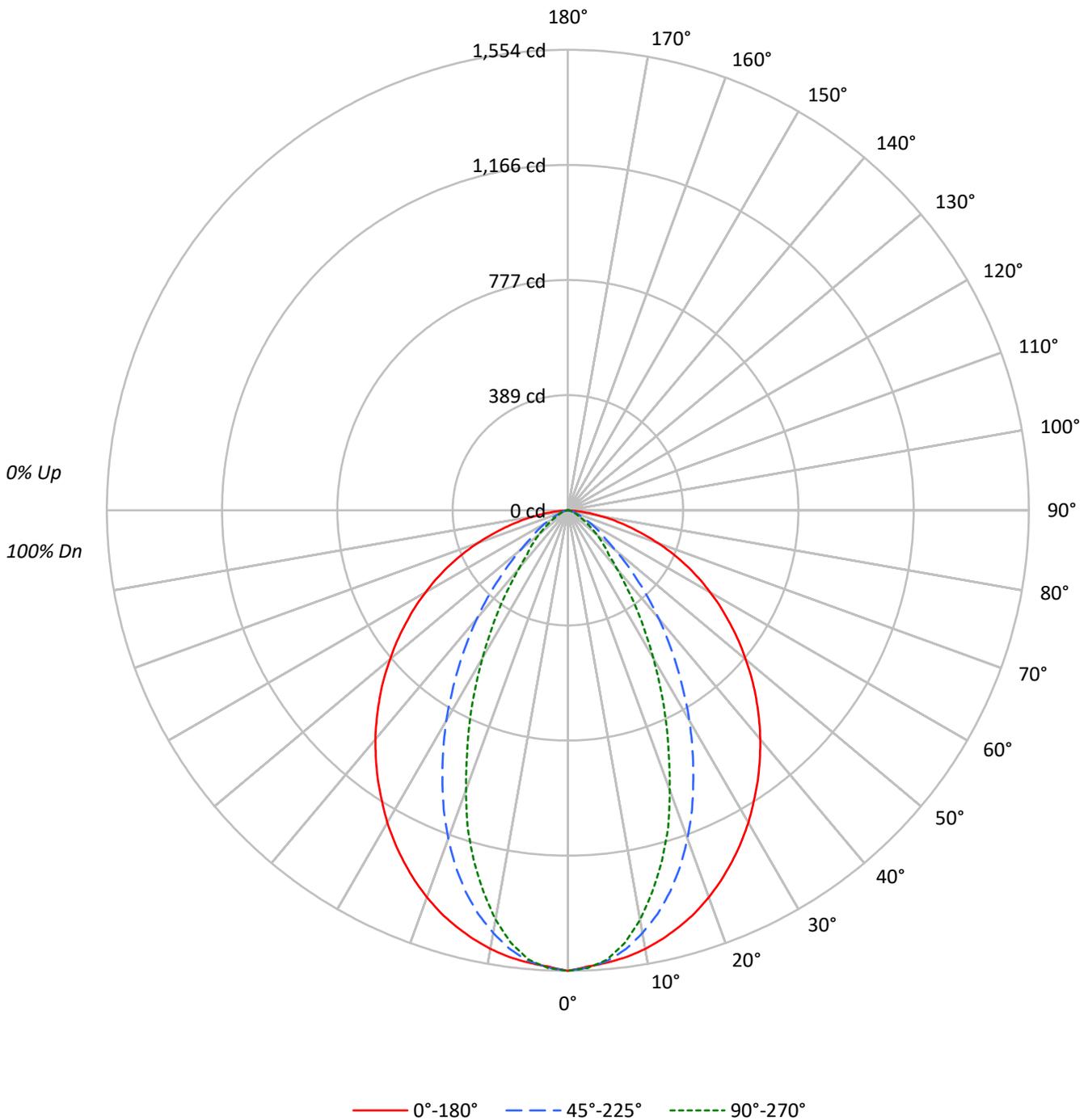
Lumens per Lamp: N/A
Luminaire Lumens: 2161.6 lumens
Efficiency: N/A
Efficacy: 59.1 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 0.77 / 0.94
Luminous Opening: Rectangular (W 0.23' x L: 3.9' x H: 0')
CIE Type: Direct

Input Watts (W): 36.6
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 | 111 | 108 | 104 | 102 | 109 | 106 | 103 | 100 | 101 | 99 | 97 | 98 | 96 | 94 | 94 | 93 | 91 | 89 |
| 2 | 104 | 97 | 92 | 87 | 101 | 95 | 90 | 86 | 92 | 88 | 84 | 89 | 85 | 82 | 86 | 83 | 81 | 79 |
| 3 | 96 | 88 | 81 | 76 | 94 | 86 | 80 | 76 | 84 | 78 | 74 | 81 | 77 | 73 | 79 | 75 | 72 | 70 |
| 4 | 90 | 80 | 73 | 67 | 88 | 79 | 72 | 67 | 76 | 71 | 66 | 74 | 69 | 65 | 72 | 68 | 64 | 62 |
| 5 | 84 | 73 | 66 | 60 | 82 | 72 | 65 | 60 | 70 | 64 | 59 | 68 | 63 | 59 | 67 | 62 | 58 | 56 |
| 6 | 78 | 67 | 60 | 54 | 77 | 66 | 59 | 54 | 65 | 58 | 53 | 63 | 57 | 53 | 62 | 57 | 53 | 51 |
| 7 | 73 | 62 | 54 | 49 | 72 | 61 | 54 | 49 | 60 | 53 | 49 | 58 | 53 | 48 | 57 | 52 | 48 | 46 |
| 8 | 69 | 57 | 50 | 45 | 68 | 57 | 50 | 45 | 56 | 49 | 45 | 54 | 49 | 44 | 53 | 48 | 44 | 42 |
| 9 | 65 | 53 | 46 | 41 | 64 | 53 | 46 | 41 | 52 | 45 | 41 | 51 | 45 | 41 | 50 | 45 | 41 | 39 |
| 10 | 62 | 50 | 43 | 38 | 60 | 49 | 43 | 38 | 48 | 42 | 38 | 48 | 42 | 38 | 47 | 42 | 38 | 36 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 18739 | 18739 | 18739 |
| 5° | 18543 | 18472 | 18419 |
| 10° | 18397 | 17729 | 17171 |
| 15° | 18150 | 16623 | 15281 |
| 20° | 17825 | 15122 | 12872 |
| 25° | 17404 | 13308 | 10387 |
| 30° | 16941 | 11403 | 7999 |
| 35° | 16415 | 9411 | 5920 |
| 40° | 15883 | 7490 | 4034 |
| 45° | 15298 | 5601 | 3040 |
| 50° | 14673 | 3896 | 2376 |
| 55° | 14029 | 2848 | 1734 |
| 60° | 13358 | 2132 | 1244 |
| 65° | 12567 | 1429 | 967 |
| 70° | 11372 | 1040 | 779 |
| 75° | 9815 | 755 | 620 |
| 80° | 7873 | 611 | 514 |
| 85° | 4081 | 609 | 401 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 15298 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 143.7 | 6.6 |
| 10°-20° | 374.0 | 17.3 |
| 20°-30° | 469.9 | 21.7 |
| 30°-40° | 437.7 | 20.2 |
| 40°-50° | 335.0 | 15.5 |
| 50°-60° | 222.7 | 10.3 |
| 60°-70° | 120.0 | 5.6 |
| 70°-80° | 49.2 | 2.3 |
| 80°-90° | 9.4 | 0.4 |
| 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° | 987.6 | 45.7 |
| 0°-40° | 1425.2 | 65.9 |
| 0°-60° | 1982.9 | 91.7 |
| 0°-90° | 2161.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2161.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1554 | 1554 | 1554 | 1554 | 1554 | |
| 5° | 1532 | 1548 | 1526 | 1520 | 1522 | 145 |
| 15° | 1454 | 1430 | 1332 | 1254 | 1224 | 410 |
| 25° | 1308 | 1220 | 1000 | 834 | 781 | 602 |
| 35° | 1115 | 950 | 639 | 452 | 402 | 697 |
| 45° | 897 | 663 | 328 | 193 | 178 | 692 |
| 55° | 667 | 386 | 136 | 94 | 82 | 598 |
| 65° | 440 | 149 | 50 | 37 | 34 | 435 |
| 75° | 211 | 35 | 16 | 15 | 13 | 226 |
| 85° | 30 | 4 | 4 | 4 | 3 | 43 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1554.3 | 1554.3 | 1554.3 | 1554.3 | 1554.3 |
| 2.5° | 1541.0 | 1560.2 | 1544.0 | 1545.5 | 1545.5 |
| 5° | 1532.2 | 1548.4 | 1526.3 | 1520.4 | 1521.9 |
| 7.5° | 1520.4 | 1530.7 | 1493.9 | 1474.7 | 1471.8 |
| 10° | 1502.7 | 1505.7 | 1448.2 | 1414.3 | 1402.6 |
| 12.5° | 1480.6 | 1470.3 | 1395.2 | 1339.2 | 1317.1 |
| 15° | 1454.1 | 1430.5 | 1331.8 | 1253.8 | 1224.3 |
| 17.5° | 1424.7 | 1384.9 | 1259.6 | 1158.0 | 1122.6 |
| 20° | 1389.3 | 1333.3 | 1178.6 | 1051.9 | 1003.3 |
| 22.5° | 1351.0 | 1278.8 | 1093.2 | 942.9 | 888.4 |
| 25° | 1308.3 | 1219.9 | 1000.4 | 833.9 | 780.8 |
| 27.5° | 1264.1 | 1156.5 | 909.0 | 730.7 | 676.2 |
| 30° | 1216.9 | 1091.7 | 819.1 | 630.6 | 574.6 |
| 32.5° | 1165.4 | 1021.0 | 726.3 | 537.7 | 481.8 |
| 35° | 1115.3 | 950.3 | 639.4 | 452.3 | 402.2 |
| 37.5° | 1062.2 | 879.5 | 555.4 | 377.2 | 321.2 |
| 40° | 1009.2 | 807.4 | 475.9 | 303.5 | 256.3 |
| 42.5° | 953.2 | 735.2 | 400.7 | 241.6 | 204.8 |
| 45° | 897.2 | 663.0 | 328.5 | 193.0 | 178.3 |
| 47.5° | 841.2 | 590.8 | 265.2 | 166.5 | 151.7 |
| 50° | 782.3 | 521.5 | 207.7 | 141.4 | 126.7 |
| 52.5° | 726.3 | 452.3 | 162.1 | 116.4 | 103.1 |
| 55° | 667.4 | 386.0 | 135.5 | 94.3 | 82.5 |
| 57.5° | 612.9 | 318.2 | 112.0 | 73.7 | 64.8 |
| 60° | 554.0 | 257.8 | 88.4 | 57.5 | 51.6 |
| 62.5° | 498.0 | 201.8 | 67.8 | 45.7 | 41.3 |
| 65° | 440.5 | 148.8 | 50.1 | 36.8 | 33.9 |
| 67.5° | 383.1 | 107.5 | 38.3 | 29.5 | 28.0 |
| 70° | 322.6 | 81.0 | 29.5 | 23.6 | 22.1 |
| 72.5° | 265.2 | 57.5 | 22.1 | 19.2 | 17.7 |
| 75° | 210.7 | 35.4 | 16.2 | 14.7 | 13.3 |
| 77.5° | 162.1 | 20.6 | 11.8 | 11.8 | 10.3 |
| 80° | 113.4 | 11.8 | 8.8 | 8.8 | 7.4 |
| 82.5° | 69.2 | 7.4 | 5.9 | 5.9 | 5.9 |
| 85° | 29.5 | 4.4 | 4.4 | 4.4 | 2.9 |
| 87.5° | 4.4 | 1.5 | 1.5 | 1.5 | 1.5 |
| 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 | 19.99 | 21.35 | 20.36 | 21.66 | 21.98 | 8.57 | 9.93 | 8.94 | 10.24 | 10.56 |
| | 3H | 21.75 | 22.95 | 22.13 | 23.28 | 23.65 | 9.23 | 10.44 | 9.61 | 10.77 | 11.13 |
| | 4H | 22.45 | 23.57 | 22.85 | 23.92 | 24.30 | 9.43 | 10.56 | 9.83 | 10.91 | 11.29 |
| | 6H | 22.96 | 23.99 | 23.38 | 24.36 | 24.76 | 9.55 | 10.59 | 9.97 | 10.96 | 11.35 |
| | 8H | 23.10 | 24.08 | 23.53 | 24.47 | 24.88 | 9.59 | 10.57 | 10.02 | 10.96 | 11.36 |
| | 12H | 23.15 | 24.09 | 23.58 | 24.47 | 24.90 | 9.60 | 10.53 | 10.03 | 10.92 | 11.35 |
| 4H | 2H | 19.80 | 20.93 | 20.20 | 21.28 | 21.66 | 9.13 | 10.25 | 9.53 | 10.60 | 10.98 |
| | 3H | 21.60 | 22.52 | 22.01 | 22.92 | 23.32 | 9.93 | 10.85 | 10.34 | 11.25 | 11.65 |
| | 4H | 22.29 | 23.11 | 22.72 | 23.53 | 23.97 | 10.18 | 11.01 | 10.62 | 11.43 | 11.87 |
| | 6H | 22.86 | 23.57 | 23.32 | 24.02 | 24.48 | 10.38 | 11.09 | 10.84 | 11.54 | 12.00 |
| | 8H | 23.04 | 23.70 | 23.50 | 24.14 | 24.62 | 10.44 | 11.10 | 10.90 | 11.55 | 12.02 |
| | 12H | 23.12 | 23.71 | 23.61 | 24.19 | 24.66 | 10.47 | 11.05 | 10.95 | 11.54 | 12.01 |
| 8H | 4H | 22.17 | 22.83 | 22.64 | 23.28 | 23.75 | 10.50 | 11.16 | 10.97 | 11.61 | 12.08 |
| | 6H | 22.72 | 23.26 | 23.22 | 23.76 | 24.24 | 10.75 | 11.29 | 11.25 | 11.78 | 12.26 |
| | 8H | 22.90 | 23.38 | 23.42 | 23.90 | 24.39 | 10.83 | 11.32 | 11.35 | 11.83 | 12.32 |
| | 12H | 23.00 | 23.43 | 23.52 | 23.92 | 24.49 | 10.91 | 11.34 | 11.43 | 11.83 | 12.41 |
| 12H | 4H | 22.12 | 22.71 | 22.61 | 23.19 | 23.67 | 10.54 | 11.13 | 11.03 | 11.61 | 12.09 |
| | 6H | 22.66 | 23.15 | 23.18 | 23.66 | 24.15 | 10.79 | 11.28 | 11.31 | 11.79 | 12.28 |
| | 8H | 22.86 | 23.29 | 23.37 | 23.78 | 24.35 | 10.92 | 11.35 | 11.43 | 11.84 | 12.41 |