

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: P1055721

Luminaire Tested: S123R3DR-H1165D850-X4F0-XX-UDD-F-W

Issue Date: 7/25/2025

**Test Information**

Test Method: LM-79-2024  
Report Number: P1055721  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-4)  
Test Lab: INNOVATION CENTER  
Issue Date: 7/25/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123R3DR-H1165D850-X4F0-XX-UDD-F-W  
Description: DEFINE 3, WHITE 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: 5000K CCT, 80 CRI LEDS  
Ballast/Driver: -

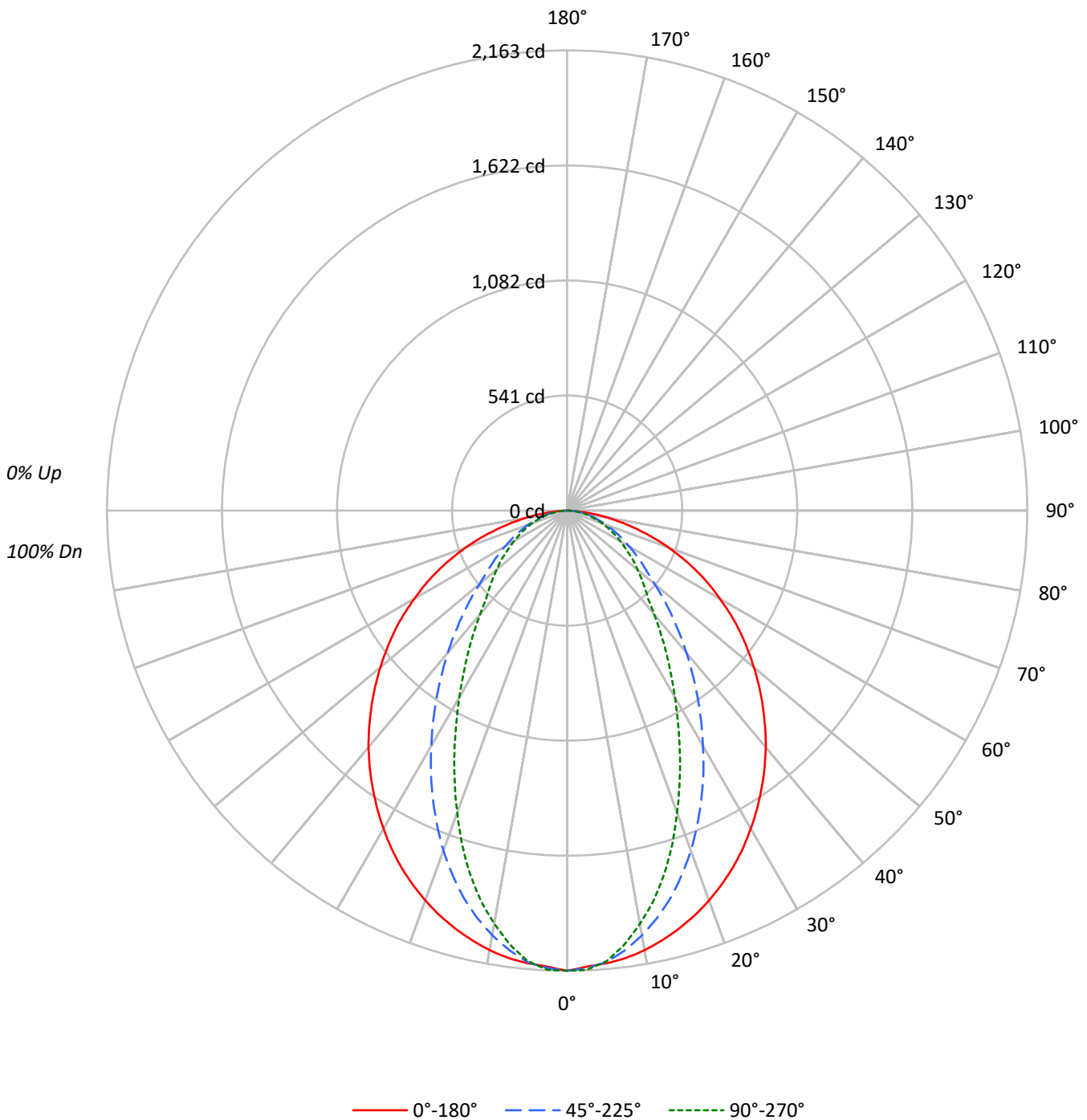
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3793.8 lumens  
Efficiency: N/A  
Efficacy: 103.7 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 0.83 / 1.02  
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<sub>in</sub>): 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   | 110 | 106 | 102 | 99  | 107 | 104 | 100 | 97  | 99  | 97  | 94  | 96  | 93  | 91  | 92  | 90  | 88  | 86  |    |    |    |    | 86  |   |  |   |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 85  | 82  | 78  | 83  | 79  | 76  | 74  |    |    |    |    | 74  |   |  |   |
| 3   | 93  | 84  | 77  | 71  | 91  | 82  | 76  | 70  | 80  | 74  | 69  | 77  | 72  | 68  | 74  | 70  | 67  | 65  |    |    |    |    | 65  |   |  |   |
| 4   | 86  | 75  | 68  | 61  | 84  | 74  | 67  | 61  | 72  | 65  | 60  | 70  | 64  | 59  | 67  | 63  | 59  | 57  |    |    |    |    | 57  |   |  |   |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 60  | 54  | 65  | 58  | 53  | 63  | 57  | 53  | 62  | 56  | 52  | 50  |    |    |    |    | 50  |   |  |   |
| 6   | 75  | 62  | 54  | 48  | 73  | 61  | 54  | 48  | 60  | 53  | 48  | 58  | 52  | 47  | 57  | 51  | 47  | 45  |    |    |    |    | 45  |   |  |   |
| 7   | 70  | 57  | 49  | 43  | 68  | 56  | 49  | 43  | 55  | 48  | 43  | 53  | 47  | 43  | 52  | 47  | 42  | 40  |    |    |    |    | 40  |   |  |   |
| 8   | 65  | 53  | 45  | 39  | 64  | 52  | 44  | 39  | 51  | 44  | 39  | 49  | 43  | 39  | 48  | 43  | 39  | 37  |    |    |    |    | 37  |   |  |   |
| 9   | 61  | 49  | 41  | 36  | 60  | 48  | 41  | 36  | 47  | 40  | 36  | 46  | 40  | 35  | 45  | 39  | 35  | 34  |    |    |    |    | 34  |   |  |   |
| 10  | 58  | 45  | 38  | 33  | 56  | 45  | 38  | 33  | 44  | 37  | 33  | 43  | 37  | 33  | 42  | 37  | 33  | 31  |    |    |    |    | 31  |   |  |   |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 26079 | 26079 | 26079 |
| 5°  | 25846 | 25788 | 25729 |
| 10° | 25689 | 24818 | 24144 |
| 15° | 25384 | 23506 | 22051 |
| 20° | 25014 | 21816 | 19388 |
| 25° | 24578 | 19865 | 16680 |
| 30° | 24033 | 17771 | 14100 |
| 35° | 23455 | 15716 | 11906 |
| 40° | 22866 | 13724 | 10007 |
| 45° | 22179 | 11835 | 8827  |
| 50° | 21485 | 10074 | 8103  |
| 55° | 20847 | 8978  | 7481  |
| 60° | 19975 | 8114  | 6983  |
| 65° | 19154 | 7432  | 6553  |
| 70° | 17851 | 6842  | 6158  |
| 75° | 15978 | 6331  | 5804  |
| 80° | 13705 | 5839  | 5395  |
| 85° | 9628  | 5367  | 5146  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 22179 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 200.5  | 5.3       |
| 10°-20°   | 530.5  | 14.0      |
| 20°-30°   | 698.9  | 18.4      |
| 30°-40°   | 709.3  | 18.7      |
| 40°-50°   | 616.5  | 16.3      |
| 50°-60°   | 483.1  | 12.7      |
| 60°-70°   | 328.2  | 8.7       |
| 70°-80°   | 177.9  | 4.7       |
| 80°-90°   | 49.0   | 1.3       |
| 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°    | 1429.9 | 37.7      |
| 0°-40°    | 2139.2 | 56.4      |
| 0°-60°    | 3238.7 | 85.4      |
| 0°-90°    | 3793.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3793.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2163 | 2163  | 2163 | 2163  | 2163 |      |
| 5°  | 2136 | 2162  | 2131 | 2111  | 2126 | 203  |
| 15° | 2034 | 2005  | 1883 | 1791  | 1767 | 573  |
| 25° | 1848 | 1736  | 1493 | 1307  | 1254 | 850  |
| 35° | 1594 | 1404  | 1068 | 864   | 809  | 997  |
| 45° | 1301 | 1044  | 694  | 536   | 518  | 1004 |
| 55° | 992  | 689   | 427  | 364   | 356  | 885  |
| 65° | 671  | 372   | 260  | 233   | 230  | 663  |
| 75° | 343  | 172   | 136  | 126   | 125  | 366  |
| 85° | 70   | 42    | 39   | 36    | 37   | 88   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2163.1 | 2163.1 | 2163.1 | 2163.1 | 2163.1 |
| 2.5°  | 2145.3 | 2172.8 | 2151.8 | 2153.4 | 2159.9 |
| 5°    | 2135.6 | 2161.5 | 2130.8 | 2111.4 | 2125.9 |
| 7.5°  | 2121.1 | 2140.5 | 2083.9 | 2053.1 | 2058.0 |
| 10°   | 2098.4 | 2104.9 | 2027.2 | 1978.7 | 1972.2 |
| 12.5° | 2067.7 | 2056.4 | 1959.3 | 1888.1 | 1876.8 |
| 15°   | 2033.7 | 2004.6 | 1883.2 | 1791.0 | 1766.7 |
| 17.5° | 1994.9 | 1946.3 | 1794.3 | 1681.0 | 1643.8 |
| 20°   | 1949.6 | 1881.6 | 1700.4 | 1556.4 | 1511.1 |
| 22.5° | 1901.0 | 1813.7 | 1598.5 | 1428.6 | 1381.7 |
| 25°   | 1847.6 | 1736.0 | 1493.3 | 1307.3 | 1253.9 |
| 27.5° | 1789.4 | 1658.3 | 1386.5 | 1187.5 | 1127.7 |
| 30°   | 1726.3 | 1577.5 | 1276.5 | 1071.0 | 1012.8 |
| 32.5° | 1661.6 | 1491.7 | 1171.4 | 962.7  | 906.0  |
| 35°   | 1593.6 | 1404.3 | 1067.8 | 864.0  | 808.9  |
| 37.5° | 1524.1 | 1315.4 | 967.5  | 770.1  | 718.3  |
| 40°   | 1452.9 | 1224.7 | 872.0  | 682.8  | 635.8  |
| 42.5° | 1376.8 | 1134.1 | 779.8  | 600.2  | 564.6  |
| 45°   | 1300.8 | 1043.5 | 694.1  | 535.5  | 517.7  |
| 47.5° | 1224.7 | 951.3  | 613.2  | 490.2  | 474.0  |
| 50°   | 1145.5 | 862.3  | 537.1  | 448.2  | 432.0  |
| 52.5° | 1067.8 | 775.0  | 474.0  | 407.7  | 396.4  |
| 55°   | 991.8  | 689.2  | 427.1  | 364.0  | 355.9  |
| 57.5° | 912.5  | 605.1  | 380.2  | 330.1  | 320.3  |
| 60°   | 828.4  | 524.2  | 336.5  | 294.5  | 289.6  |
| 62.5° | 752.3  | 448.2  | 297.7  | 263.7  | 258.9  |
| 65°   | 671.4  | 372.1  | 260.5  | 233.0  | 229.7  |
| 67.5° | 588.9  | 309.0  | 226.5  | 203.9  | 202.2  |
| 70°   | 506.4  | 260.5  | 194.1  | 176.4  | 174.7  |
| 72.5° | 425.5  | 215.2  | 163.4  | 152.1  | 148.8  |
| 75°   | 343.0  | 171.5  | 135.9  | 126.2  | 124.6  |
| 77.5° | 268.6  | 132.7  | 108.4  | 101.9  | 100.3  |
| 80°   | 197.4  | 98.7   | 84.1   | 79.3   | 77.7   |
| 82.5° | 129.4  | 68.0   | 59.9   | 56.6   | 56.6   |
| 85°   | 69.6   | 42.1   | 38.8   | 35.6   | 37.2   |
| 87.5° | 24.3   | 17.8   | 17.8   | 16.2   | 17.8   |
| 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 | 21.89            | 23.38 | 22.25 | 23.69 | 24.01 | 17.04          | 18.53 | 17.40 | 18.84 | 19.16 |
|                 | 3H   | 23.78            | 25.11 | 24.15 | 25.44 | 25.80 | 18.67          | 20.00 | 19.04 | 20.33 | 20.69 |
|                 | 4H   | 24.53            | 25.79 | 24.93 | 26.14 | 26.52 | 19.30          | 20.56 | 19.70 | 20.91 | 21.29 |
|                 | 6H   | 25.10            | 26.26 | 25.51 | 26.62 | 27.02 | 19.79          | 20.95 | 20.20 | 21.32 | 21.71 |
|                 | 8H   | 25.27            | 26.37 | 25.70 | 26.76 | 27.16 | 19.96          | 21.07 | 20.39 | 21.46 | 21.86 |
|                 | 12H  | 25.37            | 26.42 | 25.80 | 26.81 | 27.23 | 20.09          | 21.14 | 20.52 | 21.53 | 21.96 |
| 4H              | 2H   | 21.93            | 23.19 | 22.33 | 23.54 | 23.92 | 17.77          | 19.02 | 18.17 | 19.37 | 19.75 |
|                 | 3H   | 23.95            | 25.00 | 24.36 | 25.40 | 25.80 | 19.59          | 20.63 | 20.00 | 21.03 | 21.43 |
|                 | 4H   | 24.77            | 25.71 | 25.20 | 26.12 | 26.56 | 20.33          | 21.27 | 20.77 | 21.69 | 22.13 |
|                 | 6H   | 25.45            | 26.27 | 25.91 | 26.71 | 27.17 | 20.94          | 21.76 | 21.40 | 22.20 | 22.66 |
|                 | 8H   | 25.68            | 26.45 | 26.15 | 26.89 | 27.36 | 21.16          | 21.92 | 21.62 | 22.37 | 22.83 |
|                 | 12H  | 25.83            | 26.52 | 26.32 | 27.00 | 27.47 | 21.33          | 22.01 | 21.81 | 22.49 | 22.96 |
| 8H              | 4H   | 24.79            | 25.56 | 25.26 | 26.00 | 26.47 | 20.72          | 21.48 | 21.18 | 21.92 | 22.39 |
|                 | 6H   | 25.52            | 26.15 | 26.02 | 26.65 | 27.12 | 21.45          | 22.08 | 21.94 | 22.57 | 23.05 |
|                 | 8H   | 25.79            | 26.36 | 26.31 | 26.87 | 27.36 | 21.73          | 22.30 | 22.25 | 22.81 | 23.30 |
|                 | 12H  | 26.00            | 26.50 | 26.51 | 26.99 | 27.56 | 21.98          | 22.48 | 22.49 | 22.97 | 23.53 |
| 12H             | 4H   | 24.78            | 25.46 | 25.26 | 25.94 | 26.41 | 20.77          | 21.45 | 21.25 | 21.93 | 22.40 |
|                 | 6H   | 25.51            | 26.07 | 26.02 | 26.58 | 27.07 | 21.53          | 22.09 | 22.04 | 22.60 | 23.09 |
|                 | 8H   | 25.81            | 26.31 | 26.32 | 26.80 | 27.37 | 21.87          | 22.37 | 22.38 | 22.87 | 23.43 |