

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: P1439954

Luminaire Tested: S124DR-S290D930-X4F0-XX-UDD-FLB-W

Issue Date: 4/2/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1439954  
TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G2-2509-563-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 4/2/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124DR-S290D930-X4F0-XX-UDD-FLB-W  
Description: DEFINE 4, DIRECT RECESSED WITH BATWING FLUSH OPTIC  
CORE LIGHT ENGINE  
Light Source: 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

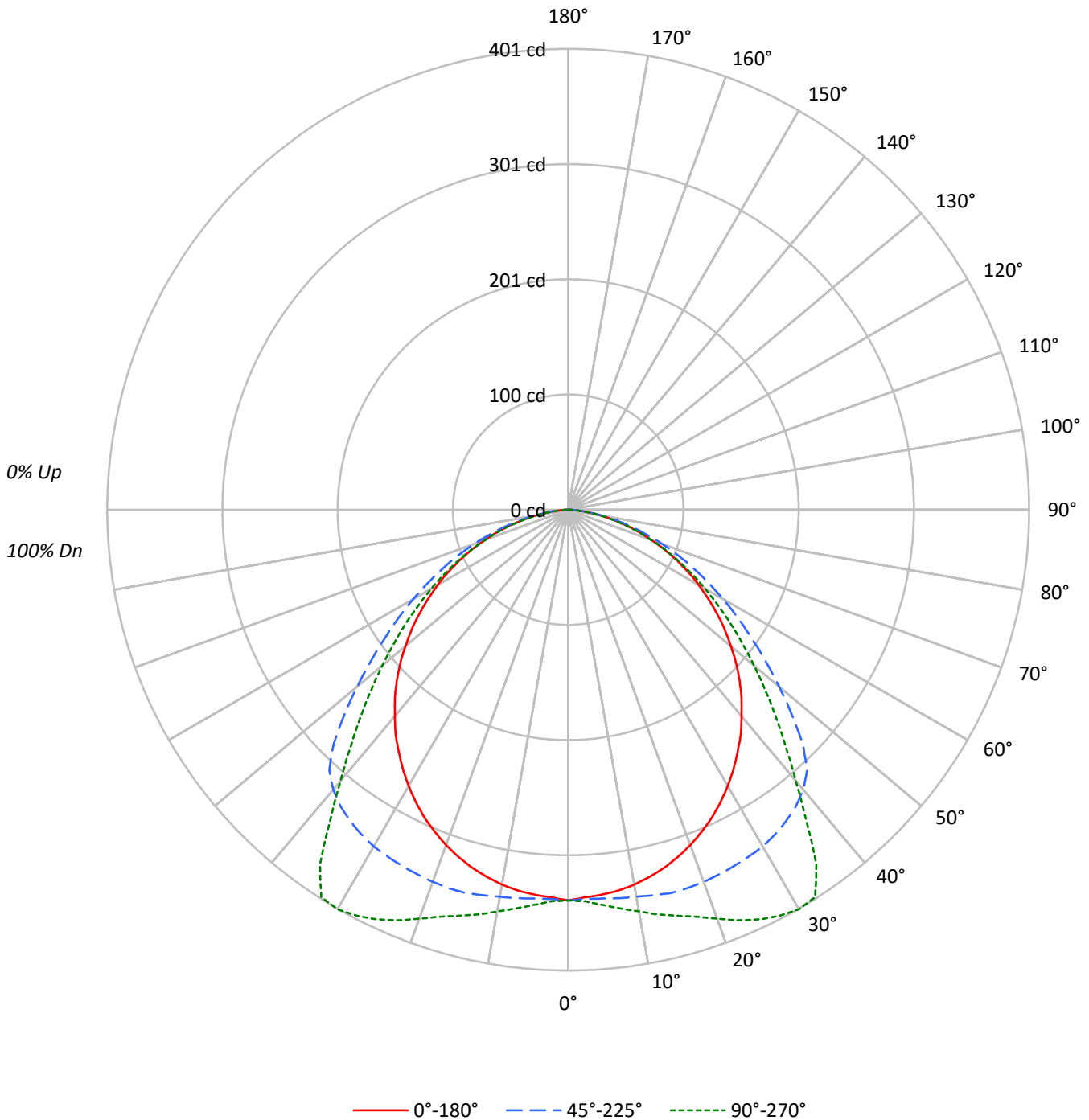
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1033.2 lumens  
Efficiency: N/A  
Efficacy: 82.0 lumens/watt  
Spacing Criteria (0/90/45): 1.22 / 1.53 / 1.51  
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 12.6  
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  | 0   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1   | 109 | 105 | 101 | 97  | 107 | 103 | 99  | 95  | 98  | 95  | 92  | 94  | 92  | 90  | 91  | 89  | 87  | 85  |
| 2   | 100 | 92  | 85  | 80  | 97  | 90  | 84  | 79  | 86  | 81  | 77  | 83  | 79  | 75  | 80  | 77  | 73  | 71  |
| 3   | 91  | 81  | 73  | 67  | 89  | 79  | 72  | 66  | 76  | 70  | 65  | 74  | 68  | 64  | 71  | 66  | 63  | 60  |
| 4   | 83  | 72  | 63  | 57  | 81  | 70  | 62  | 56  | 68  | 61  | 55  | 66  | 60  | 55  | 63  | 58  | 54  | 52  |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 49  | 61  | 54  | 48  | 59  | 53  | 47  | 57  | 52  | 47  | 45  |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 48  | 42  | 55  | 48  | 42  | 53  | 47  | 42  | 52  | 46  | 41  | 39  |
| 7   | 66  | 52  | 44  | 38  | 64  | 52  | 43  | 37  | 50  | 43  | 37  | 49  | 42  | 37  | 47  | 41  | 37  | 35  |
| 8   | 61  | 48  | 39  | 34  | 60  | 47  | 39  | 33  | 46  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 31  |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 35  | 30  | 42  | 35  | 30  | 41  | 34  | 30  | 40  | 34  | 30  | 28  |
| 10  | 53  | 40  | 32  | 27  | 52  | 40  | 32  | 27  | 39  | 32  | 27  | 38  | 31  | 27  | 37  | 31  | 27  | 25  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3006 | 3006 | 3006 |
| 5°  | 2985 | 3014 | 3065 |
| 10° | 2974 | 3070 | 3187 |
| 15° | 2953 | 3161 | 3347 |
| 20° | 2922 | 3242 | 3563 |
| 25° | 2884 | 3336 | 3837 |
| 30° | 2834 | 3454 | 4098 |
| 35° | 2773 | 3568 | 4062 |
| 40° | 2707 | 3669 | 3554 |
| 45° | 2637 | 3609 | 3196 |
| 50° | 2542 | 3294 | 2905 |
| 55° | 2437 | 2998 | 2654 |
| 60° | 2318 | 2750 | 2431 |
| 65° | 2178 | 2506 | 2220 |
| 70° | 1993 | 2241 | 1983 |
| 75° | 1756 | 1927 | 1722 |
| 80° | 1446 | 1548 | 1395 |
| 85° | 1014 | 1045 | 943  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 3609 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 32.6   | 3.2       |
| 10°-20°   | 97.8   | 9.5       |
| 20°-30°   | 159.1  | 15.4      |
| 30°-40°   | 202.1  | 19.6      |
| 40°-50°   | 196.9  | 19.1      |
| 50°-60°   | 161.4  | 15.6      |
| 60°-70°   | 112.6  | 10.9      |
| 70°-80°   | 57.8   | 5.6       |
| 80°-90°   | 12.8   | 1.2       |
| 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°    | 289.5  | 28.0      |
| 0°-40°    | 491.6  | 47.6      |
| 0°-60°    | 849.9  | 82.3      |
| 0°-90°    | 1033.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1033.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 340 | 340   | 340 | 340   | 340 |      |
| 5°  | 336 | 341   | 340 | 342   | 345 | 32   |
| 15° | 323 | 333   | 345 | 359   | 366 | 91   |
| 25° | 296 | 315   | 342 | 377   | 393 | 136  |
| 35° | 257 | 282   | 331 | 379   | 376 | 161  |
| 45° | 211 | 237   | 289 | 265   | 256 | 162  |
| 55° | 158 | 182   | 194 | 178   | 172 | 141  |
| 65° | 104 | 119   | 120 | 110   | 106 | 103  |
| 75° | 51  | 57    | 56  | 52    | 50  | 55   |
| 85° | 10  | 10    | 10  | 10    | 9   | 13   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 340.0 | 340.0 | 340.0 | 340.0 | 340.0 |
| 2.5°  | 337.6 | 342.0 | 339.0 | 340.3 | 341.0 |
| 5°    | 336.3 | 341.3 | 339.6 | 342.0 | 345.3 |
| 7.5°  | 334.3 | 340.0 | 341.0 | 345.6 | 350.0 |
| 10°   | 331.3 | 338.0 | 342.0 | 350.0 | 355.0 |
| 12.5° | 327.3 | 335.6 | 343.6 | 354.6 | 360.7 |
| 15°   | 322.6 | 332.6 | 345.3 | 359.0 | 365.7 |
| 17.5° | 316.9 | 329.0 | 345.3 | 362.3 | 371.3 |
| 20°   | 310.6 | 324.6 | 344.6 | 366.7 | 378.7 |
| 22.5° | 303.3 | 320.0 | 343.3 | 371.7 | 386.7 |
| 25°   | 295.6 | 314.6 | 342.0 | 377.3 | 393.3 |
| 27.5° | 286.9 | 308.3 | 340.3 | 381.7 | 398.4 |
| 30°   | 277.6 | 300.6 | 338.3 | 383.7 | 401.4 |
| 32.5° | 267.6 | 291.6 | 335.0 | 383.7 | 399.7 |
| 35°   | 256.9 | 281.9 | 330.6 | 378.7 | 376.3 |
| 37.5° | 246.6 | 271.6 | 325.3 | 354.3 | 339.6 |
| 40°   | 234.5 | 260.6 | 317.9 | 320.0 | 307.9 |
| 42.5° | 223.2 | 248.9 | 307.6 | 290.9 | 280.2 |
| 45°   | 210.9 | 236.9 | 288.6 | 264.6 | 255.6 |
| 47.5° | 198.2 | 223.9 | 263.9 | 240.9 | 232.5 |
| 50°   | 184.8 | 210.9 | 239.5 | 218.5 | 211.2 |
| 52.5° | 171.8 | 196.8 | 216.2 | 197.8 | 190.8 |
| 55°   | 158.1 | 182.5 | 194.5 | 178.2 | 172.2 |
| 57.5° | 144.5 | 167.8 | 174.8 | 159.8 | 154.1 |
| 60°   | 131.1 | 152.1 | 155.5 | 142.5 | 137.5 |
| 62.5° | 117.8 | 135.8 | 137.1 | 125.8 | 121.4 |
| 65°   | 104.1 | 119.1 | 119.8 | 110.1 | 106.1 |
| 67.5° | 90.7  | 103.1 | 103.1 | 94.8  | 91.4  |
| 70°   | 77.1  | 87.4  | 86.7  | 80.1  | 76.7  |
| 72.5° | 64.1  | 71.4  | 70.7  | 65.7  | 63.4  |
| 75°   | 51.4  | 57.1  | 56.4  | 52.4  | 50.4  |
| 77.5° | 39.4  | 43.4  | 42.7  | 40.0  | 38.4  |
| 80°   | 28.4  | 30.7  | 30.4  | 28.4  | 27.4  |
| 82.5° | 18.7  | 20.0  | 19.4  | 18.0  | 17.3  |
| 85°   | 10.0  | 10.3  | 10.3  | 9.7   | 9.3   |
| 87.5° | 3.7   | 3.7   | 3.7   | 3.7   | 3.3   |
| 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 | 15.51            | 17.11 | 15.87 | 17.42 | 17.73 | 15.29          | 16.89 | 15.66 | 17.21 | 17.52 |
|                 | 3H   | 17.01            | 18.45 | 17.39 | 18.78 | 19.14 | 16.76          | 18.20 | 17.14 | 18.53 | 18.89 |
|                 | 4H   | 17.51            | 18.87 | 17.91 | 19.22 | 19.59 | 17.26          | 18.61 | 17.66 | 18.96 | 19.34 |
|                 | 6H   | 17.84            | 19.09 | 18.25 | 19.45 | 19.84 | 17.58          | 18.83 | 17.99 | 19.19 | 19.58 |
|                 | 8H   | 17.92            | 19.11 | 18.34 | 19.50 | 19.90 | 17.65          | 18.85 | 18.08 | 19.24 | 19.64 |
|                 | 12H  | 17.96            | 19.10 | 18.39 | 19.48 | 19.91 | 17.69          | 18.83 | 18.12 | 19.21 | 19.64 |
| 4H              | 2H   | 16.13            | 17.48 | 16.53 | 17.83 | 18.21 | 15.96          | 17.31 | 16.36 | 17.66 | 18.04 |
|                 | 3H   | 17.86            | 18.99 | 18.27 | 19.38 | 19.79 | 17.63          | 18.75 | 18.04 | 19.15 | 19.55 |
|                 | 4H   | 18.49            | 19.50 | 18.92 | 19.92 | 20.36 | 18.23          | 19.24 | 18.66 | 19.66 | 20.09 |
|                 | 6H   | 18.92            | 19.80 | 19.37 | 20.24 | 20.70 | 18.64          | 19.52 | 19.09 | 19.97 | 20.42 |
|                 | 8H   | 19.03            | 19.86 | 19.49 | 20.30 | 20.77 | 18.74          | 19.57 | 19.20 | 20.01 | 20.48 |
|                 | 12H  | 19.09            | 19.84 | 19.57 | 20.31 | 20.78 | 18.80          | 19.54 | 19.28 | 20.02 | 20.49 |
| 8H              | 4H   | 18.73            | 19.56 | 19.19 | 20.00 | 20.47 | 18.50          | 19.33 | 18.96 | 19.77 | 20.23 |
|                 | 6H   | 19.25            | 19.94 | 19.75 | 20.43 | 20.90 | 19.00          | 19.68 | 19.49 | 20.17 | 20.65 |
|                 | 8H   | 19.42            | 20.03 | 19.93 | 20.54 | 21.03 | 19.15          | 19.76 | 19.66 | 20.27 | 20.76 |
|                 | 12H  | 19.53            | 20.07 | 20.04 | 20.56 | 21.12 | 19.25          | 19.79 | 19.75 | 20.28 | 20.84 |
| 12H             | 4H   | 18.74            | 19.48 | 19.22 | 19.96 | 20.43 | 18.52          | 19.26 | 19.00 | 19.73 | 20.20 |
|                 | 6H   | 19.28            | 19.89 | 19.79 | 20.40 | 20.89 | 19.03          | 19.65 | 19.54 | 20.15 | 20.64 |
|                 | 8H   | 19.49            | 20.03 | 19.99 | 20.52 | 21.08 | 19.22          | 19.77 | 19.73 | 20.26 | 20.82 |