

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: P1439977

Luminaire Tested: S124DR-S865D835-X4F0-XX-UDD-FLB-W

Issue Date: 4/2/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1439977  
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-S865D835-X4F0-XX-UDD-FLB-W  
Description: DEFINE 4, DIRECT RECESSED WITH BATWING FLUSH OPTIC  
CORE LIGHT ENGINE  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

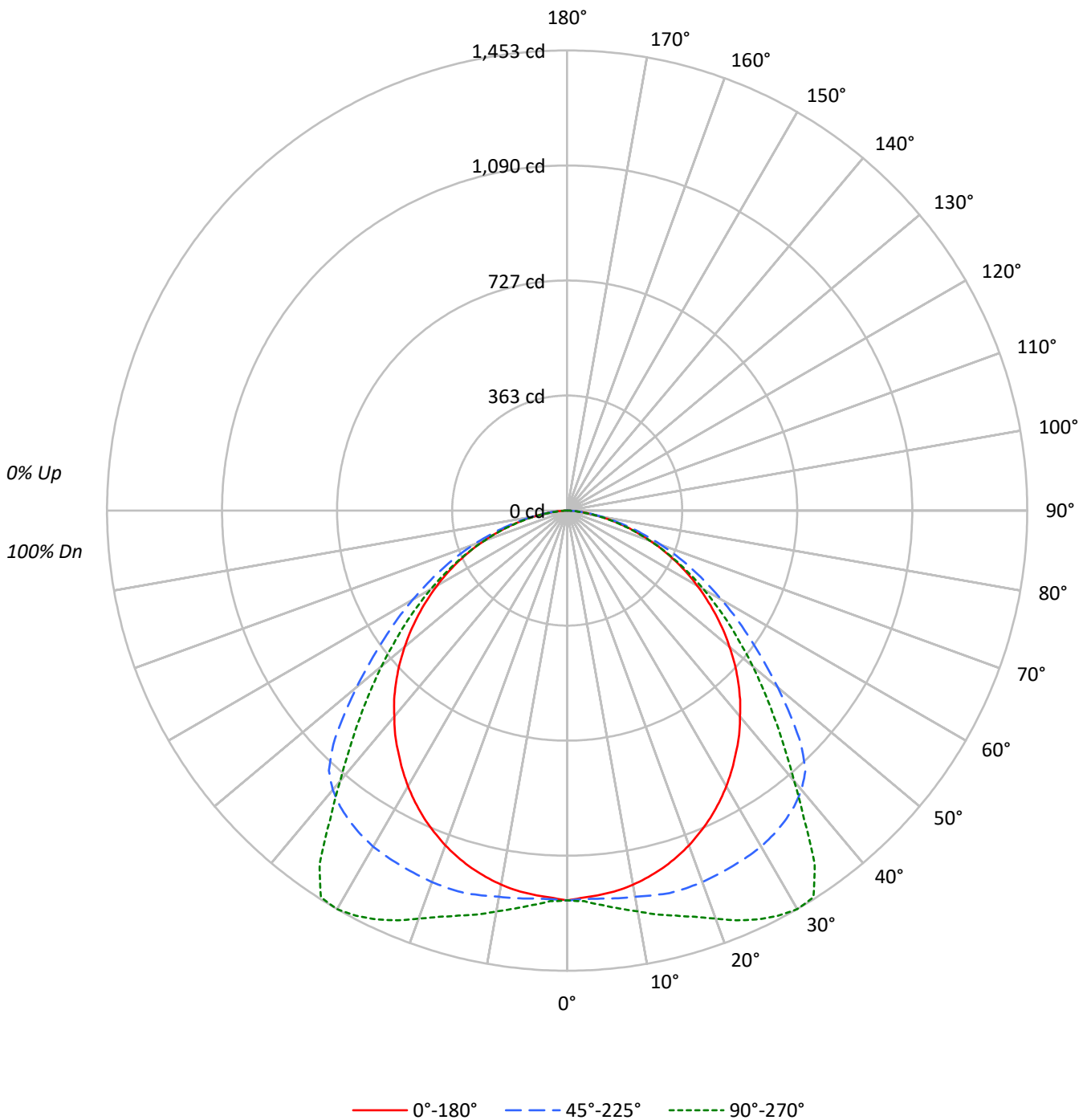
Lumens per Lamp: N/A  
Luminaire Lumens: 3741.5 lumens  
Efficiency: N/A  
Efficacy: 107.8 lumens/watt  
Spacing Criteria (0/90/45): 1.22 / 1.53 / 1.51  
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')  
CIE Type: Direct

Input Watts (W): 34.7  
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   | 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°  | 10885 | 10885 | 10885 |
| 5°  | 10808 | 10916 | 11097 |
| 10° | 10771 | 11118 | 11541 |
| 15° | 10694 | 11445 | 12120 |
| 20° | 10583 | 11742 | 12902 |
| 25° | 10442 | 12081 | 13896 |
| 30° | 10262 | 12507 | 14838 |
| 35° | 10041 | 12923 | 14709 |
| 40° | 9802  | 13289 | 12870 |
| 45° | 9548  | 13068 | 11572 |
| 50° | 9206  | 11932 | 10520 |
| 55° | 8828  | 10858 | 9609  |
| 60° | 8396  | 9955  | 8802  |
| 65° | 7885  | 9073  | 8038  |
| 70° | 7215  | 8120  | 7184  |
| 75° | 6357  | 6976  | 6231  |
| 80° | 5229  | 5596  | 5046  |
| 85° | 3672  | 3804  | 3429  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 13068 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 118.1  | 3.2       |
| 10°-20°   | 354.0  | 9.5       |
| 20°-30°   | 576.2  | 15.4      |
| 30°-40°   | 731.8  | 19.6      |
| 40°-50°   | 713.1  | 19.1      |
| 50°-60°   | 584.6  | 15.6      |
| 60°-70°   | 407.9  | 10.9      |
| 70°-80°   | 209.3  | 5.6       |
| 80°-90°   | 46.4   | 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°    | 1048.4 | 28.0      |
| 0°-40°    | 1780.1 | 47.6      |
| 0°-60°    | 3077.8 | 82.3      |
| 0°-90°    | 3741.5 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3741.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1231 | 1231  | 1231 | 1231  | 1231 |      |
| 5°  | 1218 | 1236  | 1230 | 1238  | 1250 | 116  |
| 15° | 1168 | 1204  | 1250 | 1300  | 1324 | 329  |
| 25° | 1070 | 1139  | 1238 | 1366  | 1424 | 493  |
| 35° | 930  | 1021  | 1197 | 1371  | 1363 | 582  |
| 45° | 764  | 858   | 1045 | 958   | 926  | 588  |
| 55° | 573  | 661   | 704  | 645   | 623  | 512  |
| 65° | 377  | 431   | 434  | 399   | 384  | 373  |
| 75° | 186  | 207   | 204  | 190   | 182  | 198  |
| 85° | 36   | 38    | 38   | 35    | 34   | 46   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1231.1 | 1231.1 | 1231.1 | 1231.1 | 1231.1 |
| 2.5°  | 1222.7 | 1238.4 | 1227.5 | 1232.3 | 1234.7 |
| 5°    | 1217.8 | 1235.9 | 1229.9 | 1238.4 | 1250.4 |
| 7.5°  | 1210.6 | 1231.1 | 1234.7 | 1251.7 | 1267.4 |
| 10°   | 1199.7 | 1223.9 | 1238.4 | 1267.4 | 1285.5 |
| 12.5° | 1185.2 | 1215.4 | 1244.4 | 1284.3 | 1306.0 |
| 15°   | 1168.3 | 1204.5 | 1250.4 | 1300.0 | 1324.1 |
| 17.5° | 1147.8 | 1191.2 | 1250.4 | 1312.1 | 1344.7 |
| 20°   | 1124.8 | 1175.5 | 1248.0 | 1327.8 | 1371.3 |
| 22.5° | 1098.2 | 1158.6 | 1243.2 | 1345.9 | 1400.3 |
| 25°   | 1070.4 | 1139.3 | 1238.4 | 1366.4 | 1424.4 |
| 27.5° | 1039.0 | 1116.3 | 1232.3 | 1382.1 | 1442.5 |
| 30°   | 1005.2 | 1088.6 | 1225.1 | 1389.4 | 1453.4 |
| 32.5° | 968.9  | 1055.9 | 1213.0 | 1389.4 | 1447.4 |
| 35°   | 930.3  | 1020.9 | 1197.3 | 1371.3 | 1362.8 |
| 37.5° | 892.8  | 983.4  | 1178.0 | 1283.1 | 1229.9 |
| 40°   | 849.3  | 943.6  | 1151.4 | 1158.6 | 1115.1 |
| 42.5° | 808.3  | 901.3  | 1113.9 | 1053.5 | 1014.9 |
| 45°   | 763.6  | 857.8  | 1045.1 | 958.1  | 925.5  |
| 47.5° | 717.6  | 810.7  | 955.7  | 872.3  | 842.1  |
| 50°   | 669.3  | 763.6  | 867.5  | 791.3  | 764.8  |
| 52.5° | 622.2  | 712.8  | 782.9  | 716.4  | 691.1  |
| 55°   | 572.7  | 660.9  | 704.4  | 645.2  | 623.4  |
| 57.5° | 523.1  | 607.7  | 633.1  | 578.7  | 558.2  |
| 60°   | 474.8  | 550.9  | 563.0  | 515.9  | 497.8  |
| 62.5° | 426.5  | 491.7  | 496.6  | 455.5  | 439.8  |
| 65°   | 376.9  | 431.3  | 433.7  | 398.7  | 384.2  |
| 67.5° | 328.6  | 373.3  | 373.3  | 343.1  | 331.0  |
| 70°   | 279.1  | 316.5  | 314.1  | 290.0  | 277.9  |
| 72.5° | 232.0  | 258.5  | 256.1  | 238.0  | 229.6  |
| 75°   | 186.1  | 206.6  | 204.2  | 189.7  | 182.4  |
| 77.5° | 142.6  | 157.1  | 154.6  | 145.0  | 138.9  |
| 80°   | 102.7  | 111.2  | 109.9  | 102.7  | 99.1   |
| 82.5° | 67.7   | 72.5   | 70.1   | 65.2   | 62.8   |
| 85°   | 36.2   | 37.5   | 37.5   | 35.0   | 33.8   |
| 87.5° | 13.3   | 13.3   | 13.3   | 13.3   | 12.1   |
| 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 | 19.98            | 21.58 | 20.34 | 21.89 | 22.21 | 19.76          | 21.36 | 20.13 | 21.68 | 21.99 |
|                 | 3H   | 21.48            | 22.92 | 21.86 | 23.25 | 23.61 | 21.23          | 22.67 | 21.61 | 23.00 | 23.36 |
|                 | 4H   | 21.98            | 23.34 | 22.38 | 23.69 | 24.06 | 21.73          | 23.08 | 22.13 | 23.43 | 23.81 |
|                 | 6H   | 22.31            | 23.56 | 22.72 | 23.92 | 24.31 | 22.05          | 23.30 | 22.46 | 23.66 | 24.05 |
|                 | 8H   | 22.39            | 23.58 | 22.81 | 23.97 | 24.37 | 22.12          | 23.32 | 22.55 | 23.71 | 24.11 |
|                 | 12H  | 22.43            | 23.57 | 22.86 | 23.95 | 24.38 | 22.16          | 23.30 | 22.59 | 23.68 | 24.11 |
| 4H              | 2H   | 20.60            | 21.95 | 21.00 | 22.30 | 22.68 | 20.43          | 21.78 | 20.83 | 22.13 | 22.51 |
|                 | 3H   | 22.33            | 23.46 | 22.74 | 23.86 | 24.26 | 22.10          | 23.23 | 22.51 | 23.62 | 24.02 |
|                 | 4H   | 22.96            | 23.97 | 23.39 | 24.39 | 24.83 | 22.70          | 23.71 | 23.13 | 24.13 | 24.56 |
|                 | 6H   | 23.39            | 24.27 | 23.84 | 24.71 | 25.17 | 23.11          | 23.99 | 23.56 | 24.44 | 24.89 |
|                 | 8H   | 23.50            | 24.33 | 23.96 | 24.77 | 25.24 | 23.21          | 24.04 | 23.67 | 24.48 | 24.95 |
|                 | 12H  | 23.56            | 24.31 | 24.04 | 24.78 | 25.25 | 23.27          | 24.01 | 23.75 | 24.49 | 24.96 |
| 8H              | 4H   | 23.20            | 24.03 | 23.66 | 24.47 | 24.94 | 22.97          | 23.80 | 23.43 | 24.24 | 24.70 |
|                 | 6H   | 23.72            | 24.41 | 24.22 | 24.90 | 25.37 | 23.47          | 24.15 | 23.96 | 24.64 | 25.12 |
|                 | 8H   | 23.89            | 24.50 | 24.40 | 25.01 | 25.50 | 23.62          | 24.23 | 24.13 | 24.74 | 25.23 |
|                 | 12H  | 24.00            | 24.54 | 24.51 | 25.03 | 25.60 | 23.72          | 24.26 | 24.22 | 24.75 | 25.31 |
| 12H             | 4H   | 23.21            | 23.95 | 23.69 | 24.43 | 24.90 | 22.99          | 23.73 | 23.47 | 24.20 | 24.67 |
|                 | 6H   | 23.75            | 24.36 | 24.26 | 24.87 | 25.36 | 23.50          | 24.11 | 24.01 | 24.62 | 25.11 |
|                 | 8H   | 23.96            | 24.50 | 24.46 | 24.99 | 25.55 | 23.69          | 24.24 | 24.20 | 24.73 | 25.29 |